Species Management Report, ADF&G/DWC/SMR-2013-5

Furbearer management report of survey-inventory activities, 1 July 2009–30 June 2012

Patricia Harper and Laura A. McCarthy, editors

2013 Set

Alaska Department of Fish and Game Division of Wildlife Conservation

Species Management Report, ADF&G/DWC/SMR-2013-5

Furbearer management report of survey-inventory activities, 1 July 2009–30 June 2012

Alaska Department of Fish and Game
Division of Wildlife Conservation
P.O. Box 115526
Juneau, Alaska 99811-5526

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Cover Photo: A marten in the Chatanika River area. ©2010 ADF&G. Photo by Matt Evenson.

FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

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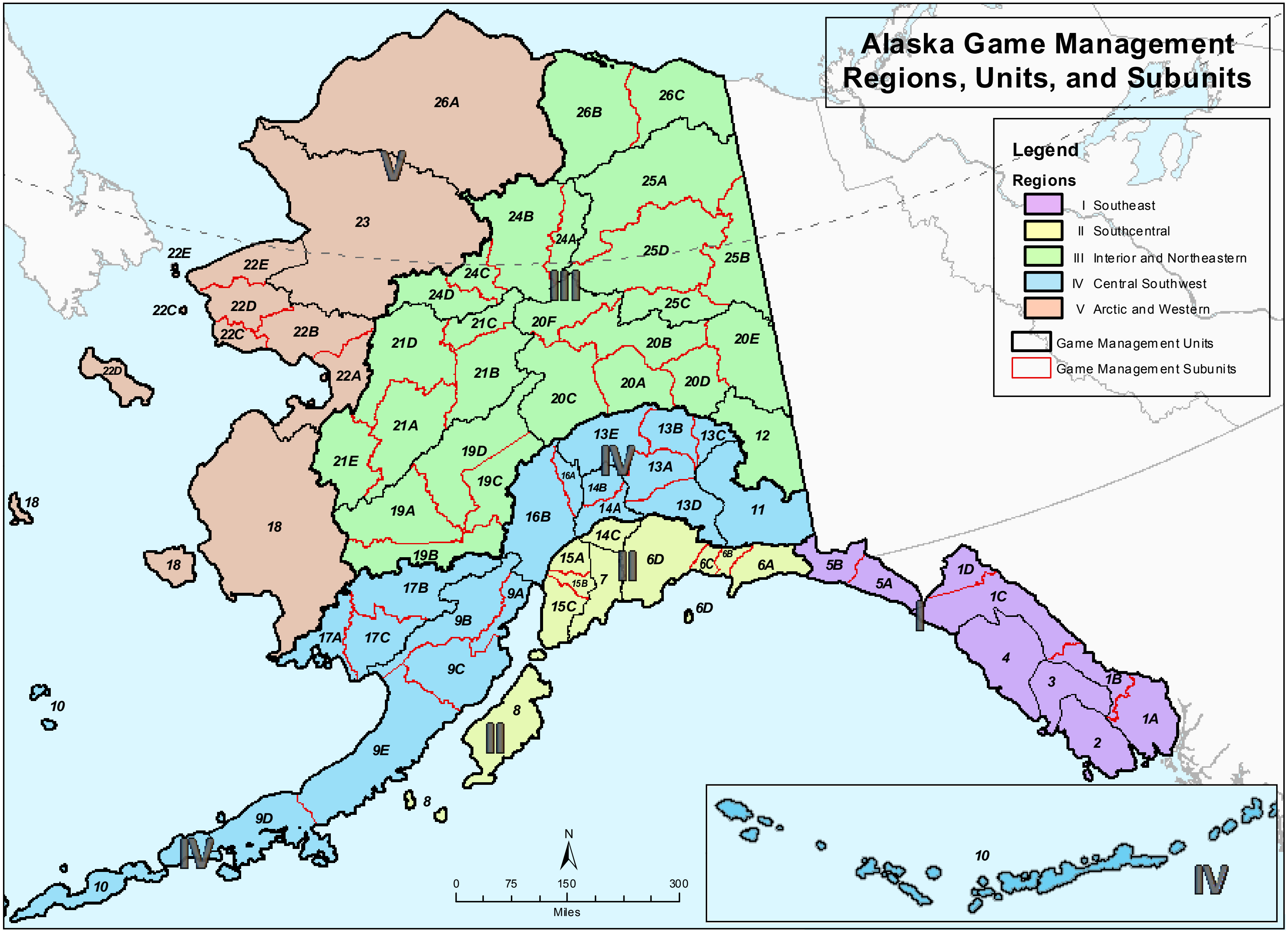

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Division of Wildlife Conservation
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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 1A (5,000 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 trapping pressure and harvest fluctuates annually, primarily as a function of weather conditions and changes in market fur prices. Southeast Alaska trappers are more interested in marten 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 prices peaked at a high of $105.83 in RY07—RY08. Prices then dipped sharply the following year (RY08–RY09) to $39.63, and now remain below the past 7-year average (RY02–RY08) of $57.76 (Table 1). Discussions with trappers suggest that marten 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 corridors and shelter. Flynn and Schumacher 1997 also found marten preferred larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for marten (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984, Schumacher 1999). Logging in Unit 1A continues to remove uneven-aged old-growth habitat required by marten. As a result, we believe the area's capacity to support current marten populations will decline over time.

Southeast Alaska provides excellent habitat for river otters (*Lutra canadensis*), and fur buyers consider Southeast pelts to be high quality. Some local trappers report selling Southeast otter pelts to taxidermists for life-size mounts because of the demand for the exceptionally large body sizes and the high-quality fur. Because otters are difficult to trap and pelt preparation is time consuming, prices must be high to substantially influence harvest levels. Average annual market prices of otter pelts during this report period have gone down ($48) and are currently below the previous 7-year average (RY02–RY08) of $72 (Table 1).

Beaver (*Castor Canadensis*) prices for this reporting period have remained low and are likely contributing to decreased harvest. The average price paid for raw beaver pelts in RY09 was the lowest in 10 years at $12.83, well below the 10-year average (RY02–RY11) of $20.22 (range

$12.83–$28.25) (Table 1). Prices were slightly higher during RY10 and RY11 but still below average.

Mink (*Mustela vison*) pelt prices have remained low and stable over the past decade. The average price of $13.99 (range $12.57–$16.78) during this reporting period is also lower than the average price of $15.38 (range $10.50–$24.08) over the past 10 years (RY02–RY11) (Table 1). This has 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 (Schumacher 2012).

Wolverines (*Gulo gulo*), inhabit only the mainland portion of Unit 1A, and few are typically taken annually. Because of the low density of wolverines in the unit trappers do not generally target them and harvests are mostly incidental to wolf or marten trapping.

We believe that weasel (*M. erminea*) populations fluctuate from year to year, independent of trapping. Harvest continues to be limited to incidental take while targeting other furbearers, primarily martens.

Foxes are extremely rare and coyotes are absent in Unit 1A. Lynx are rare and only occasionally taken from the 1A mainland. Few muskrats inhabit Unit 1A, and harvests are typically very low and incidental to beaver trapping. Mountain lions are occasionally observed along the mainland and on the Cleveland Peninsula, but we currently have no open trapping or hunting season for lions.

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

We obtain harvest data for marten, beaver, river otter and wolverines during mandatory sealing of the pelts of these species. We also acquire information on these and other furbearers from the annual statewide trapper questionnaire. This questionnaire provides us with insights from trappers who are in the field, many of whom trap the same places over many years or even decades.

We do not conduct furbearer population surveys under inventory and management in Southeast Alaska to estimate population sizes. Rather we rely on research projects for certain species in the region to provide better understanding of their populations and current status. Some ecological information is available for mink and river otters from short-term research studies completed in

Southeast (Harbo 1958, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology (Flynn and Schumacher 1997) and genetic-based investigations of marten population structure have been completed on Northeast Chichagof Island (Mitton and Raphael 1990; McGowan et al. 1999; Kyle et al. 2000). The genetics based work was designed to evaluate marten dispersal patterns, gene flow and genetic diversity. In 2007, ADFG initiated the first Southeast Alaska studies of wolverine ecology and developed methods to measure survival of reproductive females, movement patterns, and habitat selection. This work estimated wolverine population density in a temperate rain forest habitat located near Petersburg, Alaska, using camera traps and hair snagging to acquire a sample of individual animals for DNA analysis and deployed GPS collars to determine home range and habitat use. This research added significantly to our knowledge of wolverine life history and ecology in Southeast Alaska (Magoun et al. 2008).

RESULTS AND DISCUSSION

POPULATION STATUS AND TRENDS

Marten populations fluctuate annually throughout Southeast Alaska. The sometimes dramatic shifts are directly correlated to cyclic or irregular prey fluctuations (Novak et al. 1987). Small mammals are the principal prey for martens so we expect marten numbers to fluctuate with cycles of small mammal populations. In the long term we anticipate that continued reductions in old-growth forest habitat important to marten denning will reduce marten numbers.

Otter populations were believed to be low in the late 1970s when prices were high (Wood 1990), but after that time prices and trapper interest dropped substantially. Trapper effort recovered with higher prices in the early 2000s, although the recent downturn in price has caused interest to wane again. Most otter trapping occurs along shorelines using boats.

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. Continued low pelt prices have kept beaver trapping effort down except in easily accessible areas.

Given the limited interest in mink pelts, we do not expect populations to be influenced by trapping unless pelt prices increase substantially.

Little is known about southern Southeast wolverine populations and abundance although recent research in Unit 1B and 1C has added to our knowledge.

MORTALITY

Harvest

<u>Seasons and Bag Limits</u>

Unit 1A
<u>Hunting</u>

Wolverine	1 September–15 February	One wolverine

Trapping

Beaver		
RY09–RY10	1 December–15 May	No Limit
RY11	10 November–30 April	No Limit
Lynx, mink, marten, otter, weasel, muskrat	1 December–15 February	No limit
Wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders. During its 2010 meeting, the BOG changed the opening dates for beaver trapping in Units 1–5 from 1 December to 1 November and changed the closing date from 15 May to 30 April. As a result, the beaver trapping season is now consistent throughout the region. The change took effect in RY11.

The Federal Subsistence Board adopted regulations in 2012 for federal lands to mirror the state trapping regulations on federal lands. Currently anyone trapping on either private, state, or federal lands and trapping under state or federal regulations is required to mark all traps and snares with a permanent tag with the trapper's name and address or permanent ID, or be set within 50 yards of a sign with the same information.

We issued no emergency orders during this report period.

Trapper Harvest. The recent 3-year average harvest of 264 marten from Unit 1A is similar to the previous 7-year (RY02–RY08) annual mean ($\bar{x}$=236) (Table 2). An average of 17 trappers caught totals of 107, 244 and 440 marten during RY09, RY10 and RY11 respectively. Marten auction prices were low during this report and down from the recent 10-year average (Table 1). During the past 10-year period (RY02–RY11) 65% of the marten harvest was male.

During the past 3 years (RY09–RY11) trappers sealed 18, 40, and 75 otters, respectively. Only the RY11 otter harvest (75) was above the previous 7-year average (RY02–RY08) ($\bar{x}$=53). Forty-two percent of the harvest during this report period was male, slightly below the previous 7-year average of 58% male. Typically, less than a quarter of river otters harvested are shot whereas 75% or more are trapped (Table 2).

Trappers caught 49, 8, and 5 beaver during RY09–RY11 respectively. Annual beaver harvest varies greatly with harvest during the past 10 years ranging from 2 to 49. The harvest of only 5 beavers during the RY11 season like other low harvest years probably reflects low market prices, lack of trapper interest, and poor weather conditions rather than any measure of beaver abundance (Table 2).

The Unit 1A wolverine harvest has remained low during the past 10 years. During this report period (RY09–RY11) trappers sealed 1, 0, and 4 wolverines, 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 marten and otter traplines. Historically, most wolverines trapped in Unit 1A are harvested along the Cleveland Peninsula and along the North Behm Canal. Around half of the wolverines caught each year in Unit 1A have been male (Table 2).

Males tend to be more vulnerable because they travel greater distances, and they remain as transients (prior to establishing home ranges) for longer periods than females (Novak et al. 1987).

Harvest Chronology. During this 3-year report period the majority of martens were taken during December (59%), followed by January (34%) and February (7%). Otter trappers were more successful during January (45%) and February (36%) and less successful during December (20%). The beaver harvest has been well distributed during this report period: December (18%), January (12%), February (15%), March (25%) and April (18%) (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. During this report period, 52% of beaver taken were by trappers using boats, and 26% by trappers using aircraft to access trapping areas. Trappers using highway vehicles took only 10% of beavers harvested. Still, the majority of these trappers report reaching the isolated road systems with boats, then deploying ATVs to move around the remote logging roads, which are not connected to the main Ketchikan road system. An average of 78% of successful marten trappers reported using boats and just 8% reported using highway vehicles during the past 3 years. Most river otters are harvested along saltwater shoreline areas and consequently 80% of otter trappers reported using boats and 18% reported using highway vehicles during this report period. All trappers that sealed wolverine hides in Unit 1A used boats during the past 3 years (Table 2).

Other Mortality

Beavers have historically been removed from specified areas in Unit 1A because of flooding and erosion, or from drinking water sources under department nuisance permit. However, we did not issue special department beaver permits to communities, corporations, or other agencies during this report period.

CONCLUSIONS AND RECOMMENDATIONS

The 2011 harvest in Unit 1A of 440 martens and 75 river otters is one of the best seasons during the past 10 years and is a sign that furbearer populations are healthy and stable. It is also a good sign that the high cost of fuel and operating traplines is not discouraging trappers from going afield.

Because furbearer populations in Unit 1A appear to be healthy and thriving, we do not anticipate any regulatory changes at this time. Current low fur prices and cost of fuel are 2 main reasons Southeast Alaska trappers say they have reduced trapping efforts. With high gas and operational costs we expect trapping effort and catches to be reflective of fur prices, which appear to be in a stable trend at this time. Regardless of current low fur prices, mink followed by marten were once again ranked as the most important target species for Southeast trappers.

Not surprising considering the extensive shoreline available in Unit 1A, boats continue to be the main mode of transportation used by Southeast Alaska trappers. Most use boats to access remote trapping areas and then begin hiking from shore to make trap sets.

We are paying attention to the high female wolverine harvest ratio over the past few years although it may simply be a function of small sample size with only 5 wolverines caught in the past 3 years.

For more information on trapping in Alaska please reference the Statewide Annual Trapper Questionnaire. Reports dating back several years are available on ADF&G's website at http://www.adfg.alaska.gov/index.cfm?adfg=trapping.reports.

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Table 1. Statewide Average Prices Paid for Raw Furs 2002–2011[a].

	Species			
Regulatory year	Beaver	Marten	Mink	Otter
2002–2003	$28.25	$39.07	$14.46	$75.00
2003–2004	$24.00	$37.50	$14.33	$99.00
2004–2005	$19.22	$48.02	$14.52	$100.49
2005–2006	$26.81	$77.33	$24.08	$103.00
2006–2007	$20.71	$56.93	$17.84	$58.69
2007–2008	$23.81	$105.83	$16.07	$39.81
2008–2009	$14.04	$39.63	$10.50	$30.57
2009–2010	$12.83	$32.92	$12.62	$43.65
2010–2011	$17.82	$51.07	$16.78	$58.84
2011–2012	$14.70	$52.09	$12.57	$42.65
$\bar{x}$	$20.22	$54.04	$15.38	$65.17

[a] Prices from the two major fur auction houses (North American Fur Auction and Fur Harvesters Auction Inc.) were averaged to produce the 2009–11 prices in this table. In previous years, prices were obtained from several Alaska fur dealers, except values for mink were from fur auctions. Figures compiled from ADF&G Trapper Questionnaires.

Table 2. Unit 1A furbearer reported harvests, 2002–2011.

Species/regulatory Year	Total take	Percent male	Method of take (percent) Shot	Trapped or snared	Unk	Transportation used (percent) Boat	Road	Air	Unknown	Other[b]
Beaver										
2002–2003	19	--	--	95	5	84	16	0	0	0
2003–2004	2	--	--	100	0	100	0	0	0	0
2004–2005	6	--	--	100	0	0	100	0	0	0
2005–2006	16	--	--	100	0	56	44	0	0	0
2006–2007	26	--	--	100	0	65	35	0	0	0
2007–2008	6	--	--	83	17	50	33	0	17	0
2008–2009	12	--	--	100	0	50	0	50	0	0
2009–2010	49	--	--	100	0	49	4	33	0	14
2010–2011	8	--	--	100	0	100	0	0	0	0
2011–2012	5	--	--	100	0	10	90	0	0	0
$\bar{x}$	15	--	--	99	1	57	23	15	1	5
Marten										
2002–2003	120	78	0	100	0	93	7	0	0	13
2003–2004	223	71	0	100	0	94	6	0	0	0
2004–2005	193	68	0	100	0	71	16	0	0	0
2005–2006	130	59	0	100	0	74	26	0	0	0
2006–2007	548	64	0	100	0	81	16	3	0	0
2007–2008	140	60	0	100	0	89	9	0	2	
2008–2009	300	63	0	100	0	89	11	0	0	
2009–2010	107	58	0	100	0	82	0	5	12	0
2010–2011	244	66	0	100	0	71	4	0	20	5
2011–2012	440	66	0	100	0	81	13	0	0	6
$\bar{x}$	245	65	0	100	0	86	12	1	3	2

Table 2. continued.

Species/regulatory Year	Total take	Percent male	Method of take (percent): Shot	Method of take (percent): Trapped or snared	Method of take (percent): Unk	Transportation used (percent): Boat	Transportation used (percent): Road	Transportation used (percent): Air	Transportation used (percent): Unknown	Transportation used (percent): Other
Otter										
2002–2003	64	70	14	86	0	100	0	0	0	0
2003–2004	99	54	12	88	0	94	4	1	0	1
2004–2005	45	58	0	100	0	98	2	0	0	0
2005–2006	64	63	14	86	0	91	2	0	0	7
2006–2007	61	57	23	77	0	89	0	3	0	8
2007–2008	18	35	11	89	0	94	0	0	0	6
2008–2009	22	48	41	59	0	96	4	0		0
2009–2010	18	44	0	83	17	83	0	0	17	0
2010–2011	40	53	25	75	0	95	5	0	0	0
2011–2012	75	41	11	89	0	71	29	0	0	0
$\bar{x}$	51	54	14	85	1	90	6	1	1	2
Wolverine										
2002–2003	6	50	0	100	0	100	0	0	0	0
2003–2004	3	33	33	67	0	100	0	0	0	0
2004–2005	1	0	0	100	0	0	0	0	0	100
2005–2006	1	0	0	100	0	100	0	0	0	0
2006–2007	6	100	0	100	0	100	0	0	0	0
2007–2008	5	40	0	100	0	100	0	0	0	0
2008–2009	5	40	0	100	0	60	0	40	0	0
2009–2010	1	0	0	100	0	100	1	0	0	0
2010–2011	0	0	0	0	0	0	0	0	0	0
2011–2012	4	50	25	75	0	100	0	0	0	0
$\bar{x}$	3	33	3	47	0	88	0	0	0	4

Table 3. Unit 1A furbearer harvest chronology by month, 2002–2011.

Species/regulatory year	Harvest periods							Successful trappers/hunters
	Dec	Jan	Feb	Mar	Apr	May	Unk	
Beaver								
2002–2003	2	2	1	10	4	0	0	7
2003–2004	0	0	0	0	1	0	0	2
2004–2005	0	0	5	0	1	0	0	2
2005–2006	5	4	3	4	0	0	0	5
2006–2007	2	10	13	0	1	0	0	5
2007–2008	2	0	0	3	1	0	0	3
2008–2009	5	1	1	5	0	0	0	3
2009–2010	6	5	8	11	11	2	6	7
2010–2011	1	0	1	6	0	0	0	2
2011–2012	5	3	1	0	1	0	0	6
$\bar{x}$	3	3	3	4	2	<1	<1	4
Marten								
2002–2003	115	3	2	0	0	0	0	13
2003–2004	153	2	19	0	0	0	6	16
2004–2005	61	59	73	0	0	0	0	11
2005–2006	59	58	13	0	0	0	0	13
2006–2007	266	244	38	0	0	0	0	22
2007–2008	115	8	17	0	0	0	0	10
2008–2009	203	89	1	0	0	0	7	18
2009–2010	63	44	0	0	0	0	0	9
2010–2011	134	79	31	0	0	0	0	12
2011–2012	272	142	26	0	0	0	0	18
$\bar{x}$	144	73	22	0	0	0	0	14
Otter								
2002–2003	31	24	9	0	0	0	0	10
2003–2004	46	41	11	0	0	0	1	14
2004–2005	9	13	23	0	0	0	0	9
2005–2006	23	26	15	0	0	0	0	15
2006–2007	25	27	9	0	0	0	0	15
2007–2008	8	9	1	0	0	0	0	8
2008–2009	10	4	5	0	0	0	3	10
2009–2010	3	12	3	0	0	0	0	6
2010–2011	11	14	15	0	0	0	0	8
2011–2012	10	29	26	0	10	0	0	6
$\bar{x}$	18	20	12	0	<1	0	0	10

Species/regulatory year	Harvest periods							Successful trappers/hunters
	Dec	Jan	Feb	Mar	Apr	May	Unk	
Wolverine								
2002–2003	0	2	2	0	2	0	0	3
2003–2004	1	0	1	0	0	0	1	3
2004–2005	0	1	0	0	0	0	0	1
2005–2006	0	1	0	0	0	0	0	1
2006–2007	0	5	1	0	0	0	0	3
2007–2008	0	1	1	2	1	0	0	2
2008–2009	2	0	0	2	1	0	0	2
2009–2010	0	1	0	0	0	0	0	1
2010–2011	0	0	0	0	0	0	0	0
2011–2012	0	1	3	0	0	0	0	2
$\bar{x}$	<1	1	<1	<1	<1	0	<1	2

Alaska Department of Fish and Game
Division of Wildlife Conservation
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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 1B (3,000 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.

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 RY05, pelt prices for martens have remained consistent at moderate levels through the past decade.

Although wolverines (*Gulo gulo*) are occasionally harvested on Mitkof and Wrangell islands 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 (RY99–RY08) except for RY99 when 18 animals were harvested. This was more than twice the previous 10-year average (RY89–RY98) and triple the current 10-year (RY02–RY11) average.

With the exception of RY96 and RY97, the beaver (*Castor canadensis*) harvest has remained very low for the past 2 decades. Prices remain low and access is limited in Unit 1B, therefore, typically only 1–2 trappers per year target beavers.

River 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 RY03 and RY04; probably in response to increased prices for Southeast Alaska otter pelts. However the harvest decreased in RY05 likely due to lower fur prices.

Although lynx (*Lynx canadensis*) have been documented in Unit 1B they are considered extremely rare. One 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.

Most furbearer trapping is used as a winter income supplement and as recreation. With the exception of wolverines, 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. For the purposes of this report, a regulatory year runs from 1 July through 30 June; e.g. RY09 = 1 July 2009–30 June 2010.

Methods for estimating furbearer population abundance, trends, and distribution include field surveys, the Alaska trapper questionnaires (Blejwas 2010, ADF&G 2010a and 2010b) 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.

In 2007 the department initiated a multiyear study to determine the movement patterns and habitat associations of wolverines in GMU 1B. The final phase of the study was completed in 2009, and involved continued experimentation with infrared cameras with the goal of refining the remote camera trap technique and develop guidelines for using cameras for documenting distribution and abundance of wolverines in SE Alaska.

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

With the exception of wolverines in northern Unit 1B, no formal field surveys were conducted in this unit. Information obtained from the trapper questionnaire and biologists' field observations provides our best indication of status and trends (Table 1).

Beavers were reported to be common in RY09 and abundant during RY10 and RY11 (Table 1).

Lynx occur infrequently in Unit 1B and are more likely to move into the area when snowshoe hares become scarce in the interior of British Columbia. Although lynx may occur in some larger drainages of Unit 1B, no harvest has been reported in recent years, and trappers stated they were "scarce" to "not present" during the report period.

Trappers reported martens as "common" in RY09, "abundant" in RY10, with a decrease to "common" again in RY11.

Mink were reported to be "common" during RY09 and abundant during RY10, with estimates increasing to "abundant" during RY11.

River otters were reported to be "common" and stable throughout the report period.

Wolverines were seen to fluctuate slightly from "scarce" in RY09 to "common" in RY10 and back to "scarce" during the last year of the report period. This is understandable as wolverines, although widely distributed, are generally at low densities relative to other furbearers. However, recent research indicates that wolverine densities in Unit 1B may be among the highest documented for the species.

Trappers also reported on the abundance of certain prey species (grouse, ptarmigan, and rodents) targeted by furbearers. They reported rodents as "abundant" in RY09, and "scarce" in RY10 and RY11. Ptarmigan were reported as "scarce" in RY09, and "abundant" in RY10 and RY11.

MORTALITY

Harvest

Seasons and Bag Limits

Hunting		
Wolverine	1 September–15 February	1 Wolverine
Trapping		
Beaver		
RY09–RY10	1 December–15 May	No Limit
RY11	10 November–30 April	No Limit

Lynx, marten, mink, otter	1 December–15 February	No Limit
Wolverine	10 November–15 February	No Limit

Board of Game Actions and Emergency Orders. In fall 2010 the board changed the opening dates for beaver trapping in Units 1–5 from 1 December to 1 November and changed the closing date from 15 May to 30 April. As a result, the beaver trapping season is now consistent throughout the region.

We issued no emergency orders during this report period.

Trapper Harvest. Trapping effort for beaver tends to be sporadic in Unit 1B and the harvest can vary widely from year to year. During the current report period, 1 trapper reported taking 6 beaver in RY09. No beaver harvest was reported during RY10 or RY11 (Table 2). The marten harvest increased over the previous report period yet was considerably lower than that registered during RY97–RY99 when the harvest exceeded 300 animals in each of those years. Totals of 114, 278, and 201 martens were taken in RY09, RY10, and RY11, respectively. The 114 martens taken during the RY09 season was well below the preceding 10-year average (RY99–RY08) of 193, but the harvests in RY10 and RY11 were each above this long term average (Table 3). Unit 1B otter harvest averaged 6 animals per year during the report period, well below the previous 10-year average of 16 (Table 4). The numbers of wolverines harvested were 4, 13, and 2 in RY09, RY10, and RY11, respectively. The mean annual harvest during the preceding 10 years had been 6 animals/year (Table 5).

Mink and beaver pelt values remained low during the report period and marten and otter pelt values steadily increased. Southeast Alaska martens vary widely in quality and color and typically bring lower prices than Interior Alaska martens. However, the market favors Southeast Alaska otters because they are large, and have good color and silky fur.

Harvest Chronology. During this report period, the only beavers harvested in Unit 1B were trapped during April of 2009. Most marten harvest took place in December, followed by January, and February, respectively. The months with the most otter harvest were December, January, February, and April, respectively. Most wolverine harvest occurred in December and February, each with an equal amount of harvest, followed by February, and September, respectively (Tables 6–9). The wolverine harvested in September 2010 was incidental take by a hunter during a mountain goat hunt.

Transport Methods. Most beaver trapping areas in Unit 1B are typically accessed by boat, however, a single trapper using a 4-wheeler to access his trapping areas on the road system at Thomas Bay took all 6 beavers taken during the report period. Boats, snow machines, ATVs, and skis/snowshoes, respectively, were the methods most used to access marten trapping areas (Tables 10–11).

RESEARCH

Update for winter RY09 and conclusion. In 2007 the department initiated a multiyear study to determine the movement patterns and habitat associations of wolverines, particularly reproductive females, in GMU 1B. The ultimate goal of this wolverine research was to provide wildlife managers with the information necessary to ensure that functional reproductive habitat is maintained in the face of increasing human development and access to remote areas in the region. The study area encompassed the Southeast Alaska mainland from Port Houghton south to Le Conte Bay; and included portions of GMU 1B and 1C as well as portions of the Juneau, Petersburg and Wrangell Ranger Districts of the U.S. Forest Service.

The specific objectives of this research project were to investigate methods that can be used to gather information on wolverine movements, home range, and denning habitat in GMU 1B. Methods being tested included live-capture, ARGOS and VHF radio collars, DNA hair snaring, infrared cameras, snow track surveys from aircraft and collecting wolverine carcasses from trappers (Magoun et al. 2008).

In 2009, the department completed the final phase of the study, which experimented with infrared cameras to refine remote camera trap techniques and develop guidelines for using cameras to document wolverines' distribution and abundance in Southeast Alaska. The specific objectives for this final phase included: 1) finding the best types, amounts, and positioning of baits for identifying individual wolverines from photographs, 2) finding the best position for non-bait lures at the camera sites so that differences in male and female anatomy can be photographed, 3) adding hair snags to the camera sites to test our ability to identify the sex of the animals photographed and compare the number of animals detected with cameras to the number detected with hair snares, and 4) developing protocols for using cameras to estimate population size, to document the proportion of reproductive females, and to estimate turnover rate in harvested and unharvested areas (Magoun et. al 2011a, Magoun et. al 2011b; Royle et al. 2011)

CONCLUSIONS AND RECOMMENDATIONS

Most furbearer populations appear to be abundant or common and remain stable in suitable habitat. Because there are no large communities, fuel prices are high, and most trappers must access the unit with boats subjecting them to the vagaries of fall and winter weather, trapping effort is usually not high. Harvest is below sustained yield potentials in most parts of the unit. The majority of the Unit 1B trapping effort is typically concentrated in the drainages of Thomas Bay, the Stikine River, and Bradfield Canal. Large areas of noncoastal habitat in unroaded portions of the mainland are rarely utilized by trappers, and continue to provide furbearers refuge from trapping.

I recommend no changes to trapping regulations at this time. We should review and comment on all land development plans regarding their 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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Table 1. Results from trapper's questionnaire, Unit 1B & 3 combined, regulatory years 2009 through 2011.

	RY09 Petersburg, Wrangell, Kupreanof & vicinity		RY10 Petersburg, Wrangell, Kupreanof & vicinity		RY11 Petersburg, Wrangell, Kupreanof & vicinity	
Furbearer species	Relative abundance	Trend	Relative abundance	Trend	Relative abundance	Trend
Beaver	common	no change	abundant	increase	abundant	no change
Ermine	common	no change	common	no change	scarce	decrease
Lynx	scarce	no change	scarce	no change	not present	decrease
Marten	common	no change	abundant	increase	common	decrease
Mink	common	no change	common	no change	abundant	increase
Muskrat	scarce	no change	scarce	no change	scarce	no change
Red Squirrel	abundant	no change	abundant	no change	abundant	no change
River Otter	common	no change	common	no change	common	no change
Wolf	abundant	no change	common	decrease	common	no change
Wolverine	scarce	no change	common	increase	scarce	decrease
Prey species						
Grouse	common	no change	common	no change	common	no change
Ptarmigan	scarce	decrease	abundant	increase	abundant	no change
Mice/Rodents	abundant	no change	scarce	decrease	scarce	no change

Table 2. Unit 1B beaver harvest, regulatory years 1999–2011.

Regulatory year	Reported harvest	Method of Take		Successful trappers
		Trap/snare	Unknown	
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
2006–07	0	0	0	0
2007–08	22	22	0	1
2008–09	10	10	0	2
2009–10	6	6	0	1
2010–11	0	0	0	0
2011–12	0	0	0	0

Table 3. Unit 1B marten harvest, regulatory years 1999–2011.

Regulatory	Reported harvest						Successful
year	M	(%)	F	(%)	Unk.	Total	trappers
1999–00	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
2006–07	121	(65)	62	(33)	22	209	11
2007–08	90	(61)	57	(39)	0	147	8
2008–09	122	(64)	70	(36)	0	192	7
2009–10	69	(69)	31	(31)	14	114	8
2010–11	157	(65)	84	(35)	37	278	7
2011–12	68	(54)	58	(46)	75	201	7

Table 4. Unit 1B river otter harvest, regulatory years 1999–2011.

Regulatory year	Reported harvest						Method of take					Successful trappers
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	Unk.	
1999–00	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
2006–07	11	(55)	9	(45)	0	20	17	(85)	3	(15)	0	6
2007–08	4	(57)	3	(43)	0	7	4	(57)	3	(43)	0	4
2008–09	4	(67)	2	(33)	0	6	4	(67)	2	(33)	0	4
2009–10	4	(67)	2	(33)	0	6	6	(100)	0	(0)	0	2
2010–11	2	(40)	3	(60)	0	5	0	(0)	5	(100)	0	1
2011–12	4	(57)	3	(43)	0	7	7	(100)	0	(0)	0	2

Table 5. Unit 1B wolverine harvest, regulatory years 1999–2011.

Regulatory	Reported harvest						Method of take				Successful
Year	M	%	F	%	Unk.	Total	Trap/Snare	%	Shot	%	Trappers/Hunters
1999–00	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
2006–07	2	(100)	0	(0)	0	2	1	(50)	1	(50)	2
2007–08	4	(50)	4	(50)	0	8	8	(100)	0	(0)	4
2008–09	8	(100)	0	(0)	0	8	8	(100)	0	(0)	5
2009–10	1	(25)	3	(75)	0	4	4	(100)	0	(0)	2
2010–11	7	(58)	5	(42)	1	13	12	(92)	1	(8)	5
2011–12	2	(100)	0	(0)	0	2	2	(100)	0	(0)	1

Table 6. Unit 1B beaver harvest, chronology by month, regulatory years 1999–2011.

Regulatory	Month								
year	October	November	December	January	February	March	April	May	*n*
1999–00	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
2006–07	0	0	0	0	0	0	0	0	0
2007–08	0	0	0	0	2	6	14	0	22
2008–09	0	0	0	0	6	0	4	0	10
2009–10	0	0	0	0	0	0	6	0	6
2010–11	0	0	0	0	0	0	0	0	0
2011–12	0	0	0	0	0	0	0	0	0

Table 7. Unit 1B marten harvest, chronology by month, regulatory years 1999–2011.

Regulatory year	Month				
	December	January	February	Unk	*n*
1999–00	51	295	7	0	3
2000–01	192	46	1	0	9
2001–02	9	98	8	0	5
2002–03	53	116	26	0	5
2003–04	49	63	16	0	8
2004–05	82	69	0	0	1
2005–06	71	94	35	0	0
2006–07	93	93	23	0	9
2007–08	87	50	10	0	7
2008–09	56	103	33	0	2
2009–10	47	41	26	0	4
2010–11	205	25	36	12	8
2011–12	169	26	6	0	1

Table 8. Unit 1B otter harvest, chronology by month, regulatory years 1999–2011.

Regulatory	Month					Nr	
year	December	January	February	March	April	Unk.	n
1999–00	7	6	0	0	0	0	13
2000–01	0	10	0	0	0	0	10
2001–02	4	8	5	0	0	0	17
2002–03	8	4	9	0	0	0	21
2003–04	15	7	3	0	0	0	25
2004–05	5	17	0	0	0	0	22
2005–06	5	8	1	0	0	0	14
2006–07	12	5	3	0	0	0	20
2007–08	1	6	0	0	0	0	7
2008–09	2	3	0	0	1	0	6
2009–10	0	0	4	0	2	0	6
2010–11	3	2	0	0	0	0	5
2011–12	4	3	0	0	0	0	7

Table 9. Unit 1B wolverine harvest, chronology by month, regulatory years 1999–2011.

Regulatory	Month								
year	September	October	November	December	January	February	March	April	n
1999–00	0	0	0	0	14	2	1	1	18
2000–01	0	0	0	3	1	0	0	0	4
2001–02	0	0	0	0	1	1	0	0	2
2002–03	0	0	0	0	2	0	0	0	2
2003–04	0	0	0	0	3	0	0	0	3
2004–05	0	0	0	1	3	2	0	1	7
2005–06	0	0	0	1	1	2	1	3	8
2006–07	0	0	0	0	2	0	0	0	2
2007–08	0	0	0	1	1	6	0	0	8
2008–09	0	0	0	1	1	6	0	0	8
2009–10	0	0	0	1	0	3	0	0	4
2010–11	1	0	0	5	7	0	0	0	13
2011–12	0	0	0	1	0	1	0	0	2

Table 10. Unit 1B beaver harvest, method of transportation, regulatory years 1999–2011.

Regulatory year	Boat	3-wheeler	Highway	Skis/snowshoes	Snowmachine	Unknown	Total
1999–00	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
2006–07	0	0	0	0	0	0	0
2007–08	0	0	0	0	22	0	22
2008–09	6	0	0	0	4	0	10
2009–10	0	6	0	0	0	0	6
2010–11	0	0	0	0	0	0	0
2011–12	0	0	0	0	0	0	0

Table 11. Unit 1B marten harvest, method of transportation, regulatory years 1999–2011.

Regulatory year	Boat	3-wheeler	Snowmachine	Highway	Off Road Vehicle	Unk	Skis/ snowshoes	Total
1999–00	262	0	0	0	0	0	91	353
2000–01	217	0	22	0	0	0	0	239
2001–02	115	0	0	0	0	0	0	115
2002–03	139	16	0	0	0	0	40	195
2003–04	88	40	0	0	0	0	0	128
2004–05	130	4	11	0	2	0	4	151
2005–06	135	15	26	24	0	0	0	200
2006–07	155	0	20	0	34	0	0	209
2007–08	115	0	5	27	0	0	0	147
2008–09	98	0	94	0	0	0	0	192
2009–10	84	0	16	0	0	14	0	114
2010–11	266	0	0	3	0	0	9	278
2011–12	141	0	54	0	6	0	0	201

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 1C (7,600 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

Marten (*Martes americana*), mink (*Mustela vison*), river otter (*Lutra canadensis*), and beaver (*Castor canadensis*) make up the majority of the Unit 1C furbearer harvest. Smaller numbers of wolverine (*Gulo gulo*), weasel (*Mustela erminea*), and an occasional fisher (*Martes pennant)* 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. Natural or human-caused disturbance affecting beaver habitat is limited in this subunit. Berners Bay, Taku River, Herbert/Eagle River system, Cowee Creek, St. James Bay, Shelter Island, and Lincoln Island account for the majority of the harvest. Few beavers have been documented on Douglas Island. Although the beaver harvest varies annually, anecdotal observations suggest this variation is related more to trapper effort than to the beaver abundance.

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

Martens are common throughout Unit 1C mainland drainages, but are not found on most islands. The exception is Douglas Island where marten sign has been seen on occasion.

Wolverines occur in small numbers, but appear to be widely distributed. Sealing information provides some insight into population status or distribution. Although 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, however, wolverines can be found in drainages crossed by the Juneau road system.

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

Game (ADF&G) continued to receive reports of fisher sightings by cabin owners in the upper Taku River, as well as by ADF&G Commercial Fisheries personnel stationed at Canyon Island on the Taku River. Coyotes (*Canis latrans*), although 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 to catch them in areas where there were few to none just a decade ago. Along the Juneau road system, sightings have increased, most notably near the Mendenhall Glacier Visitor Center, in the Lena Point area and on Thane Road during this report period.

Little information exists about mink (*Mustela vison*) because trappers are not required to seal them. However, often when sealing other furs, trappers also report success trapping mink which suggests that mink are fairly abundant in most areas. Most trappers tell us they 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 marten, 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. We recorded sex and pelt size for each otter, pelt size for each beaver, and sex for wolverine and marten. In support of wolverine research being conducted in both Berners Bay and Unit 1B, we purchased wolverine carcasses from trappers willing to sell them. We collected multiple tissue samples, morphological measurements, and teeth for ageing from the carcasses. Trapper questionnaires provided additional insight into perceived population status, trapping effort, and harvest methods (ADF&G 2012).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

With the exception of the Berners Bay wolverine project, we did 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 population 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. Otters, mink, and martens are common or abundant. Weasels are fairly common and most trappers catch 1 or 2 inadvertently each year in their marten traps. Wolverines are present in low densities and found throughout the remote portions of the unit.

Lewis et al. (2012) initiated a wolverine research project in the Berners Bay portion of Unit 1C during spring of 2008. This study was initiated to investigate wolverine habitat selection, diets, movements, and numbers in the area of a proposed road (Juneau Access Road) from Juneau to the Katzehin River flats in unit 1D. During the report period, 4 wolverines, all female, were captured and radiocollared with GPS equipped collars. The data collected is the first unit specific wolverine information available to managers. The project data suggest we should employ a conservative management strategy for wolverines in Southeast Alaska. In 2008, the Alaska Board of Game adopted a proposal to shorten the wolverine trapping season in Southeast to protect adult females, and kits. Although it was not possible to get a wolverine population estimate in Berners Bay, home range data suggests a low density population. Through protection of adult female and young-of-the year wolverines, trappers may benefit from additional animals being available for harvest. Lewis et al. suggest the large home ranges found for Berners Bay wolverines likely means low population numbers; this is consistent with anecdotal population information.

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. Wildlife staff observed a coyote in the vicinity of a deer carcass in winter 2011, and staff has received numerous calls concerning coyotes in the unit during the report period. Sightings and anecdotal information suggest an increasing number of coyotes in the area.

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. One fisher was taken during the report period. As of June 30, 2011, a total of 6 fishers have been documented as taken in the Juneau area. In winter 2010, managers established a remote camera trap line in an attempt to identify fishers in the Juneau area. Images from this line and cameras associated with Berners Bay wolverine research failed to capture a confirmed image of a fisher.

MORTALITY

Harvest

Seasons and Bag Limits

Hunting	Season	Bag Limit
Coyote	1 September–30 April	Two coyotes
Marten, otter, mink, beaver, lynx	No Open Season	
Wolverine	1 September–15 February	One Wolverine
Trapping		
Coyote, Marten, otter, mink, lynx	1 December–15 February	No limit

Beaver	10 November–30 April	No limit
Wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders. The Board of Game met in Ketchikan in 2010 during the report period. The board adopted 2 proposals that effect furbearer trapping in Unit 1C. The first proposal aligned beaver trapping seasons in all Southeast Alaska Units (1–5) to 10 November–30 April. This action reduced the beaver trapping season in Unit 1C by 15 days. The second proposal added the Treadwell Ditch trail to those trails where trapping is restricted within 50 yards of the trail. A third proposal to allow the use of snares to take wolves in the Gustavus area will be described in the next wolf management report.

Trapper Harvest. We sealed 110 beavers during the report period; 38 were taken in RY09, 36 in RY10 and 36 in RY11 (Table 1). Slightly more beavers were harvested during the report period than in previous report periods. Sealing records include beavers taken under Nuisance Beaver Removal permits and 1 beaver killed by a car. The mean harvest of 37 beaver per year during this report period is substantially higher than the previous 10-year (RY99–RY08) mean annual harvest of 21 beavers. Given the low value of their fur, and the amount of effort required to trap and handle beavers and their pelts, trappers often do not bother to trap them. Beavers are at times considered a nuisance because of their propensity for causing flooding in residential areas, and for causing road problems by plugging culverts. During each of the past 3 years we issued 1–2 permits per year under 5 AAC 92.041 (permit to take beaver to control damage to property); 3 beavers were taken under authority of these permits 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 beavers causing property damage need to be removed outside the trapping season.

The unit’s peak river otter harvest occurred during RY03–RY05 report period when 140 otters were taken (Table 1). During the current period 71 otters were harvested. The most significant factor likely responsible for the lower harvest is reduced trapper effort because of a decrease in the price of otter pelts. Otter fur prices appear to be slowly increasing (ADF&G 2012) and, if that trend continues, harvests may increase in upcoming years.

Twelve wolverines were harvested during this report period, which compares closely with the 15, 14, 11, and 14 wolverines harvested during the previous 4 reporting periods (RY97–RY08). Trappers report that wolverines are present throughout the unit even in the upper reaches of drainages crossed by the Juneau road system. During the report period, 3 of 12 wolverines harvested came off the Juneau road system, and the remaining 9 were taken from various remote locations in the unit. Of interest, a female wolverine previously collared as part of the Berners Bay research project was taken by a trapper along the Juneau road system.

The marten harvest during this report period was 663, which is nearly identical to the 655 from the previous report period (Table 1). As often happens with trapping harvest, a small number of trappers (10–12) accounted for the majority of marten taken. The marten harvests for RY09–RY11 were 94, 199, and 370 marten respectively (Table 1). Marten are consistently listed as an important furbearer species in Southeast Alaska (ADF&G 2012) and trapping effort is anticipated to remain high for this species due to increasing fur prices

Harvest Chronology. Most furbearers, with the exception of beavers, were caught during December and January. The harvest is high during these months because the current trapping season for most furbearer species in the unit is from 1 December–15 February. At the beginning of the report period (see Board of Game Action above) the season for beaver was 15 days longer than at the end. The majority of beavers were caught in March and April when the days are longer and the weather is better. Table 2 shows the historical chronology of the marten harvest. During this report period, 62% of the marten harvest occurred in December, 32% in January, and 6% in February. This catch distribution is common for marten. 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, allowing trappers access to areas with highway vehicles. However, a municipal 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; current trapping regulations allow the use of small traps, which are elevated above the ground, to be used within 50 yards of most of the areas' trails. In some cases, such as in Gustavus, trappers begin hiking from their homes. Also, during most winters, a limited number of trappers use boats to access Berners Bay, Pt. Couverdon, or St. James Bay. Trappers able to access more remote locations tend to have a better success rate and higher catch than trappers limited to the road system.

CONCLUSIONS AND RECOMMENDATIONS

Multiple factors drive fur harvests in northern Southeast, Alaska including weather, fur value, fuel prices, and the number of trappers in the field. Unit 1C has a small number of trappers who consistently trap year to year. Although most of the unit's trappers sell some of their fur, these trappers enjoy trapping and are not focused entirely on fur value. During this report period fur prices generally increased in RY09 and RY10 (RY11 data is not yet available). An increase in fur prices does not necessarily equate to more trappers and higher catch rates, but if fur harvests continue to increase, managers need to be aware of these factors.

Marten continue to be ranked as one of the most important furbearer species by trappers in Southeast, Alaska (ADF&G 2012) and will continue to be targeted as long as marten prices remain at their current levels or increase. We need to develop tools to assess harvests while seasons are still open. Historically, managers have relied on the harvest sex ratio of marten to assess impacts on the population, but this approach may be problematic because of wrong sex determinations during sealing, and false assumptions that an increase in adult female harvest leads to negative effects on marten populations (Flynn and Schumacher 2008). Because marten are one of the most sought after furbearer species in the unit, an in-season assessment tool may be useful to help temper swings between high and low harvest cycles.

Overall the Unit 1C furbearer populations appear to be healthy and capable of withstanding the present level of trapping pressure. Therefore we do not recommend any regulatory changes to the present seasons and bag limits.

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Lewis, S. B., R. W. Flynn, L. R. Beier, D. P. Gregovich, and N. L. Barten. 2012. Spatial use, habitat selection, and diets of wolverines along the proposed Juneau Access Improvements road corridor, Southeast Alaska. Alaska Department of Fish and Game, Final Wildlife Research Report ADF&G/DWC/WRR-2012-05, Juneau.

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Table 1. Unit 1C furbearer harvest, regulatory years 1997–2011.

Regulatory year	Beaver	Lynx	Marten	Otter	Wolverine
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
2006–2007	5	0	419	34	5
2007–2008	33	0	115	9	6
2008–2009	24	1	121	14	3
2009–2010	38	1	94	11	2
2010–2011	36	1	199	28	5
2011–2012	36	0	370	32	5

Table 2. Unit 1C marten harvest chronology by sex, regulatory years 2000–2011.

	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

	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

Table 2. continued.

	2006–2007			2007–2008			2008–2009		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	0	0	0	0	0	0	0	0	0
December	155	72	0	41	27	5	42	21	0
January	82	50	0	16	5	0	29	13	0
February	36	24	0	12	3	6	12	4	0
Unknown	0	0	0	0	0	0	0	0	0
Total	273	146	0	69	35	11	83	38	0

	2009–2010			2010–2011			2011–2012		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	0	0	0	0	0	0	0	0	0
December	11	19	0	60	40	4	167	83	24
January	31	21	0	55	29	2	45	22	10
February	10	2	0	5	4	0	14	5	0
Unknown	0	0	0	0	0	0	0	0	0
Total	52	42	0	120	73	6	226	110	34

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 1D (2,854 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 furbearer harvest in Unit 1D comes from areas in the vicinity of Haines, Alaska with limited harvest in other unit locations such as Skagway. Trapping in Unit 1D can be limited by the difficult access to many areas prior to river freeze-up. The Chilkat River provides a transportation corridor, but solid ice and enough snow for traveling by snow machine, are often not present until December. Old-growth spruce and hemlock dominated forests provide suitable habitat for marten (*Martes americana*) and this species attracts the majority of trapping effort in Southeast Alaska (ADF&G 2010a). With limited marine shoreline in Unit 1D, river otter *(Lutra canadensis)* and mink *(Mustela vison)* habitat is not as prevalent or as productive as in other Southeast Alaska units. In spite of this, the Chilkat River and its tributaries support a fair number of those species. Beavers *(Castor canadensis)*, though once scarce, are now quite common throughout the unit, prompting the opening of a beaver trapping season in 2001, and further liberalizations in recent years. The beaver season had been closed since 1976 due to low numbers. Depending on the number of snowshoe hares, lynx *(Lynx canadensis)* abundance in the unit can range from moderate to scarce. Extensive mountainous terrain in the unit provides habitat for wolverines (*Gulo gulo*), which have ample opportunities to scavenge the carrion of other unit inhabitants such as moose (*Alces alces*) and mountain goat (*Oreamnos americanus*). A number of late season salmon runs in the unit provide food for many furbearers beginning in early summer and lasting throughout the winter.

Wolves are discussed in a separate management report.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

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

2. Seal harvested beaver, marten, river 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 3 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, beaver, lynx, and wolverine has provided the best source of data on furbearer harvests. For each species, we recorded the method and month of take and type of transportation. We noted sex composition of the marten harvest. Sex and pelt size (used to differentiate adults and young) were recorded for otters, lynx, and beavers. Trapper questionnaires provided additional insight into perceived population status, trapping effort, and harvest methods (Blejwas 2010, ADF&G 2010a and 2010b). All furbearer harvest in this report is listed by regulatory year (RY). For the purposes of this report, a regulatory year runs from 1 July through 30 June; e.g. RY09 = 1 July 2009–30 June 2010.

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 furbearer populations are widely distributed and present in relatively stable numbers in Unit 1D.

Marten continue to attract the most attention of trappers, and if the harvest is a reflection of abundance, the population appears to be healthy. The high proportion of males (63%) in the recent harvest is consistent with the prior reporting period. Flynn and Schumacher (2008) reported that marten harvest sex ratios were poor predictors of abundance and mean age, although mean age was a reliable indicator of abundance. They found mean age decreased as the marten population size increased due to the recruitment of young animals into the population.

The population of river otters appears to be healthy and widespread based on the abundance of otter tracks seen while flying winter moose surveys.

Beavers appear to be widely distributed and fairly abundant in the unit. The recent liberalizations to the beaver season (no bag limit and extension of the fall season) are indicators of this.

Lynx numbers in the unit depend on immigration of animals from Canada and lynx harvest fluctuates with these movements.

Wolverines will probably always be found at low densities in the unit, but because of extensive suitable habitat, much of which is difficult to access, the wolverine population is likely to remain stable. Other than harvest data, little is known about wolverines in Unit 1D. A wolverine research project was conducted in the Berners Bay portion of Unit 1C during 2007–2011 (Lewis et al. 2012). Because of its proximity to Unit 1D, some results of the 1C study should be applicable to Unit 1D wolverines as well. Data and information from this research will be included in future Unit 1C reports.

MORTALITY

Harvest

Seasons and Bag Limits

Hunting

Marten, otter, mink, lynx, beaver	No open season	
Wolverine	1 September–15 February	One wolverine

Trapping

Beaver	10 November–30 April	No limit
Marten, mink, otter, lynx	1 December–15 February	No limit
Wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders. The Board of Game (BOG) met in Ketchikan during 2010 and adopted a regulation to change the opening date for beaver trapping from 1 December to 1 November in Units 1–5.

We issued no emergency orders for fur animal hunting or furbearer trapping seasons.

Trapper Harvest. Table 1 lists Unit 1D trapper harvest since RY00. The mean annual harvest of 97 marten during this report period was lower than the previous period (130 marten/year during RY06–RY08), but similar to the mean of the previous 9 years (RY00–RY08) of 99 marten per year. Of those marten taken whose sex is known, the percentage of males (63%) in the harvest remained relatively high, an advantage for trappers because male marten pelts are generally larger and bring higher prices than female pelts. However, 26% of marten taken during the reporting period were of unknown sex. Still, the consistent harvest over time suggests that recruitment of young marten is sufficient to maintain a relatively high and male skewed harvest.

The river otter harvest during the reporting period was 6 with a mean harvest of 2 otter per year. This harvest was lower than the mean annual harvest of the previous 9 years (RY00–RY08) of 4 otters. An anticipated increase in otter harvest due to higher pelt prices did not materialize. The RY04 harvest of 9 otters remains the highest number of animals taken since the 1980s.

The mean annual beaver harvest since 2001 is 8 beavers. During the reporting period trappers harvested an annual mean of 12 beavers. We are not sure if this increase is due to a more abundant beaver population or just an increase in trapping effort. During the previous reporting period Division of Wildlife Conservation staff received fewer complaints of beavers blocking culverts and flooding roads. That is also true for this reporting period. The lower number of nuisance complaints coincides with the adoption of a beaver trapping season that allows trappers to harvest beavers before they become a nuisance.

Four lynx (3M:1F) were trapped during the reporting period doubling the average annual harvest of 2 lynx from the previous 9 years' (RY00–RY08; Table 1). The annual lynx harvest reflects a cyclical oscillation in lynx abundance that commonly lags behind changes in snowshoe hare abundance. Although lynx are typically rare in this unit, there are times when their abundance results in a much higher harvest such as during the RY00–RY02 when 18 were taken. Anecdotal information from trappers and hunters in the Chilkat River valley during the previous report period indicated that hare numbers had increased in recent years. We believe the higher harvest of lynx during this reporting period follows this increase in their snowshoe hare prey base.

The wolverine harvest increased from a mean annual harvest of 3 during the previous report period to 5 wolverines per year during RY09–RY11. This is equal to the previous 9-years' (RY00–RY08) mean annual harvest.

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

Transport Method. Trapper access in Unit 1D relies much less on boats than in other parts of the region. Access by vehicles along the highway and logging road system is most common and is used to support other types of transport types, such as snowmobiles and snowshoes. Transport methods are dictated by weather and snow conditions. 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 by timber management practices. 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 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 martens are limited because martens need old growth climax forests.

CONCLUSIONS AND RECOMMENDATIONS

Marten harvest during this reporting period decreased from the previous report period but is on par with that of the previous 10 years. It is not clear how much of this decrease was due to a change in marten abundance or in trapper effort. Males continue to dominate the harvest, which is considered a good sign for trappers and the marten population. Although we will continue to monitor the sex of marten during sealing, consideration for age determination would provide us with more useful data to assess abundance (Flynn and Schumacher 2008).

Otter pelt prices increased slightly during this report period but are well below the high prices paid during the RY05 season. The continued lower pelt price likely led to less trapping effort for otters and resulted in fewer otters being taken.

The beaver trapping season established in Unit 1D appears to have alleviated some of the problems associated with beaver-caused flooding, and decreased the number of permits issued by the department for beaver removal. The Board of Game decision to eliminate the 5 beaver bag limit to "no limit" and change the opening season date (which lengthened the season by 1 month) are due to the beaver population doing well in this unit. We have no plans to recommend additional changes in furbearer seasons or bag limits in Unit 1D at this time.

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Table 1. Unit 1D furbearer harvest, regulatory years 2000–2011.

Regulatory Year	Beaver	Lynx	Marten	Otter	Wolverine
2000	11	12	31	3	3
2001	2	4	57	7	9
2002	22	2	95	3	8
2003	5	0	172	2	9
2004	1	0	75	9	2
2005	7	0	73	5	2
2006	6	1	206	5	4
2007	0	0	108	1	3
2008	8	1	76	1	3
2009	18	2	91	1	5
2010	5	2	81	4	6
2011	13	0	118	1	3

Table 2. Unit 1D marten harvest chronology by sex, regulatory years 2000–2011.

	RY00[a]				RY01[b]				RY02[c]			
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	0	0	0	0	0	0	0
Total	22	73	8	27	36	69	16	31	39	60	26	40

[a] Does not include 1 marten of unknown sex, trapped in January.
[b] Does not include 6 martens of unknown sex, trapped in December and January.
[c] Does not include 30 martens of unknown sex, trapped in January and February.

	RY03				RY04[a]				RY05[b]			
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	15	63	9	37
January	56	62	34	38	20	65	11	35	25	64	14	36
February	9	56	7	44	1	17	5	83	6	67	3	33
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Total	111	65	61	35	41	55	33	45	46	64	26	36

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

Table 2. (continued). Unit 1D marten harvest chronology by sex, regulatory years 2000–2011.

Month	RY06 Males	%	Females	%	RY07[a] Males	%	Females	%	RY08 Males	%	Females	%
November	0	0	0	0	0	0	0	0	0	0	0	0
December	71	67	35	33	34	69	15	31	30	60	20	40
January	58	72	23	28	11	41	16	59	15	58	11	42
February	12	63	7	37	12	50	12	50	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Total	141	68	65	32	57	57	43	43	45	59	31	41

[a] Does not include 8 marten of unknown sex, trapped in December.

Month	RY09[a] Males	%	Females	%	RY10[b] Males	%	Females	%	RY11[c] Males	%	Females	%
November	0	0	0	0	0	0	0	0	0	0	0	0
December	12	60	8	40	36	78	10	22	34	57	26	43
January	29	60	19	40	3	38	5	62	4	40	6	60
February	19	90	2	10	0	0	3	100	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Total	60	67	29	32	39	68	18	32	38	54	32	46

[a] Does not include 2 marten of unknown sex, trapped in December and January.
[b] Does not include 24 marten of unknown sex, trapped in December and January.
[c] Does not include 48 marten of unknown sex, trapped in December - February.

SPECIES

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 2010
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: Unit 2 (3,600 mi^2)

GEOGRAPHIC DESCRIPTION: Prince of Wales (POW) Island and adjacent islands south of Sumner Strait and west of Kashevarof Passage and Clarence Strait

BACKGROUND

Unit 2 includes Prince of Wales Island (POW) and a complex of smaller islands with their associated bays and estuaries. The combined archipelago contains an abundance of sheltered waters that provide relatively safe boat access along many miles of shoreline. POW and associated islands have approximately 2,000 miles of logging roads accessible by motor vehicle. Thus, access to furbearer habitat is exceptional and trappers can operate long traplines with relative ease. However, in 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.

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 cleared of snow during the winter, consequently heavy snow renders a majority of roads impassable. Boat access is also weather dependent and trappers often find themselves waiting long periods for safe boating conditions to reach traplines.

Southeast Alaska provides excellent habitat for river otters (*Lutra canadensis*) and fur buyers consider Southeast pelts to be high quality. Local trappers report selling southeast otter pelts to taxidermists because of the demand for the exceptional large body sizes and the high quality fur. Because otters are difficult to trap and pelt preparation is time consuming, prices must be high to substantially influence harvest levels. During this report period, average prices of otter increased every year from $43.65 in RY09 (which begins 1 July and ends 30 June, e.g., RY09 = 1 July 2009–30 June 2010) to $58.84 in RY10 (prices for RY11 were unavailable at time of printing). These prices are still below the 10-year average (RY01–RY10) price of approximately $67.14 and the high of $103.00 during RY05 (Table 1). Because most otter trappers use boats for transportation in Unit 2, weather as well as prices can determine the amount of effort.

Beaver (*Castor canadensis*) prices for this reporting period have remained low. The average price of $12.83 and $17.82 paid for raw beaver pelts in RY09 and RY10 were the lowest in the past 10 years (range $12.83–$45.00). The average price for this reporting period ($15.33) was well below the 10-year (RY01–RY10) average of $23.86 (Table 1).

Southeast Alaska trappers are more interested in marten than any other furbearer species. Marten 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 prices have fluctuated dramatically from an average of $24.00 in RY98 (Peltier and Scott 2003) to a high of $105.83 in RY07. Prices then dipped sharply in RY09 to $32.92. Although fur prices were not officially available for RY11 or RY12, reports from trappers indicate marten prices have dramatically increased to between $100 and $200. Discussions with trappers suggest that marten 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 marten preferred larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for marten (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984). Extensive logging in much of Unit 2 continues to remove uneven aged old growth habitat required by marten. As a result, we believe the capacity to support marten populations will decline over time.

Mink (*Mustela vison*) pelt prices have remained low and stable over the past decade. The average price of $14.70 during this reporting period is just under the 10-year (RY01–RY10) average price of $15.67 (range $10.18–$24.08) (Table 1). This has 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 financial value.

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 marten.

Furbearers by order of importance to Unit 2 trappers include marten, river otter, beavers, mink, and flying squirrel (*Glaucomys sabrinus*). Wolverine (*Gulo gulo*), fox (*Vulpes spp.*), coyote (*Canis latrans*), lynx (*Lynx Canadensis*) muskrat (*Odatra zibethicus*) and red squirrel (*Tamiasciurus hudsonicus*) are absent in Unit 2.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

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

2. Seal harvested beaver, marten and otter 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. Otters have been sealed since 1978. Beaver and Marten sealing was initiated in 1984. Mink populations are assessed through staff observations and information obtained through annual trapper surveys.

We do not perform furbearer population surveys in Southeast Alaska. Some ecological information is available for mink and land otter from short term research studies completed in Southeast (Harbo 1958, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology was completed on Northeast Chichagof Island (Flynn and Schumacher 1997). ADFG biologists are currently conducting marten research on Kuiu Island in Unit 3.

Since furbearer population surveys are not conducted in Southeast Alaska we get population information from anecdotal reports provided by trappers, from field observations and largely from an annual statewide trapper questionnaire. From the trapper questionnaire we derive an abundance index for each species based on questionnaire responses from trappers.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

The beaver population in Unit 2 is thought to be high at this time. Managers are getting increasing reports of and requests to harvest nuisance beavers because they can cause localized flooding by blocking culverts. Current low levels of predators as well as low interest in trapping due to poor beaver pelt prices may be influencing high beaver numbers. Also logging practices in Unit 2, increasing amounts of second growth timber, and the resulting red alder growth associated with these managed stands seem to favor beaver populations.

Marten populations fluctuate annually throughout Southeast Alaska. These dramatic shifts are directly correlated to cyclic or irregular prey fluctuations (Novak et al. 1987). The extreme marten cycles in other Southeast locations seem to be more dramatic than in Unit 2, suggesting alternative food sources may buffer martens in this area when small mammal numbers decline. One untested hypothesis is that martens may also benefit from deer carcass remains left year-round by wolves or during fall by hunters. This reliable year-round food source is less available in areas such as Unit 4, where wolves are absent. We anticipate reductions in old growth habitat, increasing road construction, increased traffic along fragmented habitat, and refugia loss will eventually result in fewer marten in this unit.

Given the current limited interest in mink pelts, we do not expect trapping to influence population levels unless pelt prices increase substantially.

Otter populations were believed to be low in the late 1970's when prices were high (Wood 1990) and after that time prices and trapper interest dropped substantially. Effort seems to have moderately increased along with a moderate increase in prices from the previous reporting period to this one.

A much higher percentage of otters are taken by ground shooting in Southeast Alaska than across the rest of the state. For example in RY10, 33% of the otter taken in Southeast were by shooting compared to less than 3% for the remainder of the state (ADFG 2012). During this reporting period between 15% and 55% of otters in Unit 2 were shot by trappers. The 10-year average for Unit 2 is approximately 23% (Range 6%–55%) (Table 2).

MORTALITY

Harvest

Seasons and Bag Limits.

Hunting		
Wolverine	1 September–15 February	1 wolverine
Trapping		
Beaver	10 November–30 April	No limit
Lynx, mink, marten, Otter, weasel, muskrat	1 December–15 February	No limit
Wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders. During the 2010 BOG meeting the beaver season start date in Southeast Alaska was aligned with other species to 10 November. The season ending date was moved back to 30 April, but the net effect was a 5-day longer beaver season. Also, at the 2010 BOG meeting the sealing requirement for wolves in Unit 2 was changed from within 30 days of take to 14 days of take.

During the 2006 State BOG meeting regulations were passed requiring all traps and snares to be marked with a permanent tag with trapper's name and address or permanent ID, or be set within 50 yards of a sign with the same information. The Federal Subsistence Board followed suit during this reporting period and now requires the same trap marking for all traps in Unit 2. The lack of consistency in the 2 regulations in the past has been a significant law enforcement issue because the majority of Unit 2 is Federal land. We expect better compliance with mandatory trap marking and better accountability now with consistent Federal and State regulations.

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 current reporting period (RY09–RY11) was 839 (range 575–1,084). This figure is near the 10-year (RY02–RY11) average of 874. Annual marten harvest during RY09–RY11 was 575, 859 and 1,084, respectively (Table 2).

The annual river otter harvest during RY09–RY11 was 85, 176 and 253 respectively with an annual mean of 171. This is up significantly from the previous report period average of 81, but still below the 10-year (RY02–RY11) average of 233. Trapping, rather than shooting, remained the predominant method of take except for RY10 when 55% of the harvest was taken by shooting. During this report period an average of 28% of the otters sealed were shot, rather than trapped, slightly above the 10-year (RY02–RY11) average of 21%. Most successful otter trappers relied on boats for transportation (Table 2). Old growth forest is preferred otter habitat and little use is made of cut over areas. Otters range over great distance from saltwater to high elevation lakes and streams.

The Unit 2 beaver harvest has fluctuated widely during the past 10 years from a low of 53 in RY06 to a high of 345 during RY03. The average harvest during this 3-year report period was 208 (range 177–249). Beaver harvests can fluctuate dramatically from year to year because of the efforts of just a few trappers.

Harvest Chronology. During the past 10 years beaver harvest has been spread consistently from December through April with between 17% and 22% of the harvest occurring in each of those months. During this report period an average of 20 trappers participated in the harvest, which is right at the 10-year (RY02–RY11) average of 19 (Table 3).

December is the preferred month for marten trappers. Over the past 10 years approximately 69% of all marten taken were caught in December, followed by January (24%) and February (7%). The average number of active marten trappers ($\bar{x}$ =25) during this 3 year report period was slightly lower than the 10-year (RY02–RY11) average ($\bar{x}$ =31).

During the past 10 years the land otter harvest has typically been split between December (37%), January (40%) and February (22%). The number of successful otter trappers during this 3-year report period ($\bar{x}$ =23) was near the 10-year (RY02–RY11) average ($\bar{x}$ =24).

Transport Methods. The Unit 2 road system consists of approximately 2,000 miles of drivable surface and provides trappers and hunters with more road access than 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.

Unit 2 has had alternating years of winter severity recently with RY09 and RY11 being more severe which made the road system unusable for large periods of time, hampering trapper access. RY10 and RY12 were mild, with a high proportion of roads available throughout the winter. Beaver and marten trappers continue to use road (highway and ATV's) vehicles (83% and 57% respectively) and otter trappers prefer boats (84%) as the main 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 two beaver depredation permits to the city of Hydaburg during this report period. We also issued one otter depredation permit to the Klawock Hatchery during this report period.

CONCLUSIONS AND RECOMMENDATIONS

Unit 2 furbearer populations appear stable at this time. Winter severity and habitat alterations have more impact than trapper effort on furbearer populations at this time. Furbearer harvest is spread across the unit and appears sustainable at this time. Closure of logging roads by the US Forest Service under the recently developed Access and Travel Management Plan (ATM) (USDA 2009) will reduce passenger vehicle access to parts of the unit. This could reduce harvests but concentrate trapper efforts. ADFG will be monitoring the effects of the ATM on long term furbearer harvest patterns.

For more information on trapping in Alaska please reference the Statewide Annual Trapper Questionnaire. Reports dating back several years are available on ADF&G's website at www.adfg.alaska.gov.

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Table 1. Statewide average prices paid for raw furs, regulatory years 2001–2010[a]

Regulatory Year	Species			
	Beaver	Marten	Mink	Otter
2001	$45.00	$45.5	$15.84	$59.83
2002	$28.25	$39.07	$14.46	$75.00
2003	$24.00	$37.50	$14.33	$99.00
2004	$19.22	$48.02	$14.52	$100.49
2005	$26.81	$77.33	$24.08	$103.00
2006	$20.71	$56.93	$17.84	$58.69
2007	$23.81	$105.83	$16.07	$39.81
2008	$20.11	$41.68	$10.18	$33.11
2009	$12.83	$32.92	$12.62	$43.65
2010	$17.82	$51.07	$16.78	$58.84
Average	$23.86	$53.59	$15.67	$67.14

[a] Prices from the two major fur auction houses (North American Fur Auction and Fur Harvesters Auction Inc.) were averaged to produce 2006–09 prices in this table. In previous years, prices were obtained from several Alaska fur dealers, except values for mink were from fur auctions. Figures compiled from ADFG Trapper Questionnaires (ADF&G 2012 and Blejwas 2007).

Table 2 Unit 2 furbearer reported harvests, regulatory years 2002–2011.

Species/Regulatory Year	Total take	Percent male	Method of Take (percent)			Transportation Used (percent)				
			Shot	Trapped or Snared	Unk	Boat	Road	Air	Unknown	ATV/Foot
Beaver										
2002	144	--	0	100	0	17	76	0	0	6
2003	345	--	0	100	0	8	73	17	0	2
2004	214	--	0	100	0	15	79	0	0	6
2005	182	--	0	100	0	15	59	23	0	3
2006	53	--	0	100	0	0	91	0	0	9
2007	309	--	0	100	0	24	75	0	0	1
2008	113	--	0	100	0	3	88	0	0	9
2009	249	--	0	100	0	2	89	0	0	9
2010	177	--	0	100	0	0	85	11	0	4
2011	203	--	0	100	0	3	79	0	4	14
$\bar{x}$	198	--	0	100	0	10	78	6	1	5
Marten										
2002	805	61	0	100	0	36	49	0	0	15
2003	637	62	0	100	0	56	42	0	0	2
2004	1018	60	0	100	0	28	58	0	0	14
2005	844	60	0	100	0	34	45	0	0	21
2006	1226	62	0	100	0	51	28	0	0	21
2007	1019	58	0	100	0	44	46	0	0	10
2008	672	62	0	100	0	25	66	0	0	9
2009	575	55	0	100	0	17	40	0	8	35
2010	859	43	0	100	0	51	43	0	0	6
2011	1,084	46	0	100	0	63	18	0	5	14
$\bar{x}$	874	57	0	100	0	42	42	0	1	15

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	ATV/Foot
Otter										
2002	486	62	6	92	2	93	5	0	0	2
2003	337	56	13	87	0	85	13	1	0	1
2004	413	57	21	79	0	87	12	0	0	0
2005	341	59	35	65	0	83	12	0	2	3
2006	98	53	54	46	0	74	12	1	5	8
2007	71	57	13	87	0	52	45	0	0	3
2008	74	59	8	92	0	73	27	0	0	0
2009	85	63	12	83	5	74	13	4	1	8
2010	176	49	55	45	0	80	20	0	0	0
2011	253	65	15	85	0	85	13	0	0	2
$\bar{x}$	233	58	21	78	1	84	13	0	1	2

Table 3. Unit 2 furbearer harvest chronology by month, regulatory years 2002–2011.

Species/regulatory Year	Harvest periods Nov	Dec	Jan	Feb	Mar	April	May	Successful trappers/hunters
Beaver								
2002	0	47	24	44	27	2	0	20
2003	0	35	86	57	104	58	5	24
2004	5	45	21	24	69	45	5	24
2005	0	56	47	7	6	66	0	16
2006	0	7	7	32	2	4	1	12
2007	0	31	66	87	86	30	9	21
2008	0	32	4	5	20	25	27	11
2009	0	71	50	31	44	51	2	17
2010	0	46	32	25	33	31	4	24
2011	11	61	36	16	47	26	0	19
$\bar{x}$	2	43	37	33	44	34	5	19
Marten								
2002	0	798	0	5	2	0	0	33
2003	0	381	212	44	0	0	0	28
2004	0	605	270	143	0	0	0	40
2005	4	581	170	89	0	0	0	31
2006	0	735	426	65	0	0	0	35
2007	0	759	253	7	0	0	0	38
2008	0	466	131	75	0	0	0	28
2009	0	417	99	49	0	0	0	21
2010	0	601	258	0	0	0	0	23
2011	8	627	287	115	0	0	0	31
$\bar{x}$	1	597	211	59	0	0	0	31
Otter								
2002	0	167	240	78	1	0	0	27
2003	0	116	120	98	2	1	0	30
2004	0	161	159	93	0	0	0	33
2005	0	144	111	86	0	0	0	26
2006	0	28	41	29	0	0	0	19
2007	0	40	11	20	0	0	0	20
2008	0	32	32	7	3	0	0	15
2009	0	30	38	16	0	1	0	17
2010	0	44	78	54	0	0	0	22
2011	0	106	104	35	1	0	0	29
$\bar{x}$	0	87	93	52	1	0	0	24

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 3 (3,000 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 Southeast 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*) (Paul 2009).

At one time there were approximately 200 fur farms in operation in Southeast Alaska, 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 foxes, 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. No closures in Unit 3 in response to furbearer population declines have occurred in the 9 decades since.

Today most furbearer trapping is used as a winter income supplement and as recreation. With the exception of those for wolverines and beavers, 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 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, river 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 field surveys, mail-out 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 USFS personnel.

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

For the purposes of this report, a regulatory year runs from 1 July through 30 June; e.g. RY10 = 1 July 2010–30 June 2011.

RESULTS AND DISCUSSION

POPULATION STATUS AND TRENDS

Except for Kuiu Island marten, no formal field surveys were conducted in this unit to determine furbearer population status or trends. Information obtained from the trapper questionnaire (Blejwas 2010, ADF&G 2010a and 2010b) and biologists' field observations provides our best indication of status and trends. Most species of furbearers were rated by trappers as being "common" or "abundant" and "stable" throughout the report period (Table 1).

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

Although there have been a few unverified reports of wolverine on Kupreanof and Kuiu Islands, harvest of this species has been restricted to Mitkof and Wrangell islands, adjacent to the Unit 1B mainland. Two wolverines were harvested in Unit 3 during this report period.

Trappers reported on the questionnaire that rodent populations were scarce during in RY10 and RY11 respectively.

MORTALITY

Season and Bag Limit

Hunting		
Wolverine	1 September–15 February	1 Wolverine
Trapping		
Beaver (except Mitkof Island)		
RY 2009-10, RY 2010-11	1 December–15 May	No Limit
RY 2011-12	10 November–30 April	No Limit
Beaver (Mitkof Island)		
RY 2009-10, RY 2010-11	1 December–15 April	No limit
RY 2011	10 November–30 April	No Limit
Lynx, marten, mink, otter	1 December–15 February	No limit
Wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders: In fall 2010 the board changed the opening dates for beaver trapping in Units 1–5 from 1 December to 1 November and changed the closing date from 15 May to 30 April. As a result, the beaver trapping season on Mitkof Island was extended by 36 days making the beaver trapping season dates consistent throughout the region (10 November–30 April).

We issued no emergency orders during this report period.

Under the federal subsistence management system, the department submitted a special action request to the Federal Subsistence Board to close the marten trapping season on Kuiu Island for RY12 due to conservation concerns. The Federal Subsistence Board adopted this proposal. The state season is already closed because we are concerned about conserving martens.

Trapper Harvest: During the report period, the number of trappers targeting beaver increased along with the harvest over the previous report period, however, both trapper and harvest numbers remained well below the preceding 10-year average (RY99–RY08) of 10 trappers per year and 58 beavers per year (Table 2). For all 3 years of the report period the beaver harvest was well below the 10-year average of 58 beaver annually. Six to 9 successful trappers harvested 41, 17, and 11 beavers in RY09, RY10, and RY11, respectively.

The average annual harvest of 203 marten during the report period was much higher than the preceding 10-year average (RY99–RY08) of 154 annually. Trappers harvested 172 martens in RY09, 159 in RY10, and 279 in RY11. The harvest of 279 martens in RY11 represents the second highest harvest in the unit since marten sealing became a requirement in 1992. 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 15 in RY09, 14 in RY10, and 22 in RY11 (Table 3).

Unit 3 had otter harvests of 38, 32, and 53 during the RY09, RY10, and RY11 seasons, respectively; the annual average harvest of 41 remained well below the preceding 10-year average (RY99–RY08) of 53 (Table 4).

Two wolverines were harvested during the report period, including 1 on Mitkof Island and 1 on Wrangell Island (Table 5).

Harvest level for all furs is directly related to fur prices and winter weather conditions during the trapping season. Mink and beaver pelt values remained low during the report period, whereas marten and otter pelt values steadily increased during the report period. Southeast Alaska martens vary widely in quality and color and typically bring lower prices than Interior Alaska martens. However, the market favors Southeast Alaska land otters because they are large, and have good color and silky fur.

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 months of highest Unit 3 beaver harvest were December and January, respectively. For marten the months of highest harvest were December, January and February, respectively; and the months of highest otter harvest during the report period were January, December, and February, respectively (Tables 6–9).

Transport Methods: During the report period, the favored means of access to beaver trapping areas in Unit 3 were highway vehicles, boats and snowmachines, respectively. Most marten trappers favored boats, 3 or 4 wheelers, and highway vehicles in that order to get to their traplines (Tables 10 & 11).

RESEARCH

In 2002, a genetic survey in Southeast Alaska by personnel from the University of Alaska Fairbanks found that 2 marten species, *Martes americana* and *Martes caurina,* inhabited the region, and that *M. caurina* was found on and endemic to only 2 islands within the archipelago, Kuiu and Admiralty.

Additional research initiated in 2005 using extensive live capture and hair-snaring efforts by department personnel and university researchers indicates that Kuiu Island marten numbers are extremely low. A current Alaska Department of Fish and Game radiotelemetry study indicates a high degree of natural overwinter mortality as well which causes concern about marten recruitment and their ultimate survival on the island (Flynn et al. 2012).

Man-made factors contribute to the risks faced by Kuiu martens. Past and planned timber harvest reduces the amount of important old growth habitat available to martens. High logging road densities on the northern half of Kuiu Island stoke concerns that increased trapping access may lead to overharvest. Telemetry relocation data indicates that Kuiu Island marten tend to concentrate near the beaches during winter where they are similarly vulnerable to shoreline trapping.

CONCLUSIONS AND RECOMMENDATIONS

Most Unit 3 furbearer populations appear to be abundant or common and remain stable in suitable habitat. Mink and beaver pelt values remained low during the report period, and marten and otter pelt values steadily increased. Although trapping effort tends to be high near those communities with established road systems, on a unitwide basis trapping effort is moderate. 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 refugia for furbearer populations. However, increasing road densities associated with timber harvest activities have improved trappers' access to furbearers' habitats, reducing their refugia and making the animals increasingly vulnerable to overharvest.

In fall of 2008, due to our growing concerns about the risks to the endemic Kuiu marten population because of its low numbers, we issued an emergency order closing the resident and nonresident marten trapping season on Kuiu Island. After that emergency closure, the Board of Game closed the marten trapping season on Kuiu by regulation later in fall 2008, effective RY2009, and it remained closed during the report period. The department recommends that the resident and nonresident marten trapping season on Kuiu Island remain closed until the population increases or we can design a harvest strategy that will promote a sustainable harvest.

Variation in fall and winter weather conditions can have a profound influence on trapper effort and success in Southeast Alaska. Persistent snow cover and icing conditions likely limited access for some trappers and made it difficult to keep traps working properly. In addition, fuel prices remained at high levels during the report period which probably reduced trapper effort.

Although we recommend no additional changes to trapping regulations at this time, increasing road densities and improved human access make us concerned about the potential for excessive marten and wolf mortality on several Unit 3 islands. All land development plans should be reviewed for their 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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Table 1. Results from trapper questionnaire, Unit 1B & 3 combined for regulatory ears 2009–2011.

	2009–2010 Petersburg, Wrangell, Kupreanof and vicinity		2010–2011 Petersburg, Wrangell, Kupreanof and vicinity		2011–2012 Petersburg, Wrangell, Kupreanof and vicinity	
Furbearer species	Relative abundance	Trend	Relative abundance	Trend	Relative abundance	Trend
Beaver	common	same	abundant	increasing	abundant	same
Ermine	common	more	common	decreasing	scarce	same
Lynx	x	X	x	x	x	
Marten	common	same	abundant	same	common	same
Mink	abundant	same	common	same	abundant	same
Muskrat	x	x	scarce	same	abundant	same
Red Squirrel	abundant	same	abundant	same	abundant	same
Land Otter	common	same	common	same	common	same
Wolf	common	more	common	same	common	same
Wolverine	scarce	same	common	same	scarce	same
Prey species						
Grouse	common	more	common	same	common	same
Ptarmigan	scarce	same	abundant	same	common	same
Mice/rodents	common	same	scarce	more	scarce	same

Table 2. Unit 3 beaver harvest, regulatory years 1999–2011.

Regulatory year	Reported harvest	Method of Take: Trap/snare	Method of Take: Shot	Method of Take: Unknown	Successful trappers
1999–00	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
2006–07	16	14	3	0	8
2007–08	11	11	0	0	3
2008–09	27	27	0	0	5
2009–10	41	41	0	0	9
2010–11	17	17	0	0	6
2011–12	11	12	0	0	7

Table 3. Unit 3 marten harvest, regulatory years 1999–2011.

Regulatory	Reported harvest						Successful
year	M	(%)	F	(%)	Unk.	Total	trappers
1999–00	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
2006–07	35	(78)	10	(22)	11	56	9
2007–08	41	(58)	30	(42)	0	71	10
2008–09	102	(70)	44	(30)	7	153	15
2009–10	83	(53)	75	(47)	14	172	15
2010–11	100	(63)	59	(37)	0	159	14
2011–12	169	(66)	89	(34)	21	279	22

Table 4. Unit 3 river otter harvest, regulatory years 1999–2011.

Regulatory year	Reported harvest						Method of take					Successful trappers
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	Unk.	
1999–00	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	(61)	15	(39)	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
2006–07	23	(66)	12	(34)	1	36	35	(97)	1	(3)	0	10
2007–08	9	(64)	5	(36)	0	14	14	(100)	0	(0)	0	6
2008–09	20	(83)	4	(17)	0	24	22	(92)	2	(8)	0	7
2009–10	20	(53)	18	(47)	0	38	34	(94)	2	(6)	2	12
2010–11	4	(31)	9	(69)	19	32	29	(91)	3	(9)	0	9
2011–12	17	(52)	16	(48)	20	53	51	(96)	2	(4)	0	14

Table 5. Unit 3 wolverine harvest, regulatory years 1999–2011.

Regulatory year	Reported harvest						Method of take				Successful trappers
	M	%	F	%	Unk.	Total	Trap/snare	%	Shot	%	
1999–00	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
2006–07	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2007–08	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2008–09	0	(0)	0	(0)	0	0	0	(0)	0	(0)	0
2009–10	0	(0)	0	(0)	0	0	0	(0)	0	0	0
2010–11	0	(0)	1	(100)	0	1	1	(100)	0	0	1
2011–12	1	(100)	0	(0)	0	1	1	(100)	0	0	1

Table 6. Unit 3 beaver harvest chronology by month, regulatory years 1999–2011.

Regulatory year	Month										
	November	December	January	February	March	April	May	June[a]	July	August	*n*
1999–00	0	12	1	7	11	12	0	0	0	0	43
2000–01	0	62	40	31	1	5	0	0	0	0	139
2001–02	2	28	28	18	12	14	8	0	0	0	110
2002–03	0	29	26	16	7	8	0	0	0	0	86
2003–04	0	6	13	2	17	1	4	0	0	0	43
2004–05	0	38	3	3	14	3	0	0	0	0	61
2005–06	3	26	11	0	3	0	0	0	0	0	43
2006–07	0	4	8	1	1	2	0	0	0	0	16
2007–08	0	9	2	0	0	0	0	0	0	0	11
2008–09	0	25	2	0	0	0	0	0	0	0	27
2009–10	0	12	18	5	5	1	0	0	0	0	41
2010–11	0	6	6	0	3	2	0	0	0	0	17
2011–12	0	5	3	0	0	1	0	0	0	2[b]	11

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

Table 7. Unit 3 marten harvest chronology by month, regulatory years 1999–2011.

Regulatory	Month					
year	December	January	February	March	Unknown	*n*
1999–00	94	56	10	0	0	160
2000–01	184	73	9	0	24	290
2001–02	107	40	23	9	0	179
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
2006–07	39	17	0	0	0	56
2007–08	23	33	15	0	0	71
2008–09	92	56	5	0	0	153
2009–10	105	45	22	0	0	172
2010–11	89	56	11	0	3	159
2011–12	157	75	47	0	0	279

Table 8. Unit 3 river otter harvest chronology by month, regulatory years 1999–2011.

Regulatory year	June[a]	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	*n*
	Month							
1999–00	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
2006–07	0	0	13	21	2	0	0	36
2007–08	0	0	4	9	1	0	0	14
2008–09	0	0	7	3	14	0	0	24
2009–10	0	0	26	6	6	0	0	38
2010–11	0	0	14	18	0	0	0	32
2011–12	0	0	6	32	15	0	0	53

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

Table 9. Unit 3 wolverine harvest chronology by month, regulatory years 1999–2011.

Regulatory	Month						
year	November	December	January	February	March	April	*n*
1999–00	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
2006–07	0	0	0	0	0	0	0
2007–08	0	0	0	0	0	0	0
2008–09	0	0	0	0	0	0	0
2009–10	0	0	0	1	0	0	1
2010–11	0	1	0	0	0	0	1
2011–12	0	0	0	0	0	0	0

Table 10. Unit 3 beaver harvest, method of transportation, regulatory years 1999–2011.

Regulatory year	Airplane	Boat	3-wheeler	Highway	Off Road Vehicle	Skis/snowshoes	Snowmachine	Unknown	Total
1999–00	0	1	0	42	0	0	0	0	43
2000–01	0	50	20	69	0	0	0	0	139
2001–02	0	14	0	91	0	0	5	0	110
2002–03	0	18	12	56	0	0	0	0	86
2003–04	0	20	1	21	0	0	1	0	43
2004–05	0	11	0	50	0	0	0	0	61
2005–06	0	7	6	28	2	0	0	0	43
2006–07	0	2	0	14	0	0	0	0	16
2007–08	0	0	0	1	0	0	10	0	11
2008–09	0	0	0	17	8	0	0	2	27
2009–10	0	15	0	25	0	0	0	1	41
2010–11	0	0	0	17	0	0	0	0	17
2011–12	0	1	3	3	0	0	4	0	11

Table 11. Unit 3 marten harvest, method of transportation, regulatory years 1999–2011.

Regulatory year	Airplane	Boat	3-wheeler	Snowmachine	Highway	Skis/snowshoes	Unknown	Total
1999–00	0	29	0	0	131	0	0	160
2000–01	4	82	27	6	171	0	0	290
2001–02	0	33	9	44	93	0	0	179
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
2006–07	0	14	0	0	42	0	0	56
2007–08	0	3	4	27	34	3	0	71
2008–09	0	54	18	17	64	0	0	153
2009–10	0	32	60	0	49	5	26	172
2010–11	0	34	82	20	23	0	0	159
2011–12	0	166	15	15	33	8	6	279

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: Unit 4 (5,820 mi^2)

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

BACKGROUND

A general synopsis of the history of furbearer trapping in Game Management Unit 4 can be found in earlier editions of the management report (Mooney 2007).

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). As part of this study, marten densities in the study area were assessed using mark-recapture techniques (Flynn and Schumacher, 1994). Data from this study revealed just how variable the marten numbers were over time. Marten numbers declined during the winter of 1991–92 and remained low into 1993. They then peaked in fall and winter of 1996 but declined substantially by winter 1997. At the same time, numbers of small mammals, especially long-tailed voles (*Microtus longicaudus), s*howed 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, information acquired from trappers using the trapper questionnaires is probably adequate to reveal general population trends.

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.

Martens are common throughout the unit and provide for most of the annual furbearer harvest. Next in importance are mink and otters, which are also abundant because they thrive in the vast intertidal areas and estuarine habitats in Unit 4. Short tailed weasels and red squirrels are found on all 3 of the ABC islands but caught incidentally and not targeted by trappers. Beavers are only found in limited areas, and represent only a small portion of the annual furbearer harvest.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

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

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, river otter and beaver 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 using the presence or absence of a preputial orifice and/or the direction of the growth of the underfur at the posterior end of the abdominal gland (Lensink 1953). Sealers recorded width and length measurements for otters and beavers. Marten pelts were sexed by the larger size of males (Strickland and Douglas 1987). Trappers provided data on the method of take (trap, snare, or firearm), primary transport means, month of catch, and location of take.

During the report period a mail-out questionnaire was sent to 2,401 and 2,323 trappers statewide in RY10 and RY11 respectively, with an average of 24% of the recipients responding. In the Southeast region 287 and 264 trappers received the questionnaire and an average of 27% responded (ADF&G 2012 and 2013).

Responses to trapper questionnaires provided a profile of trappers and their activities and observations. Also, responses can be analyzed to provide a more precise indication of the amount of harvest of furbearers that do not require sealing, like mink. Formerly, the annual estimate of mink taken in Unit 4 was based on biologists' estimates or from combining Fur Export Reports and Fur Acquisition Reports. Neither of these methods was deemed accurate; they greatly underestimated the harvest.

During this reporting period, we did not collect carcasses from area trappers for necropsies or a determination of parasites, particularly roundworm (*Soboliphyme baturini).* Only incidental information has been collected due to budget and scheduling conflicts.

As indicated by Flynn (personal communication), small mammal abundance may best reflect marten abundance. In previous report periods we have used small mammal snap-trap lines as a way to monitor potential prey abundance and assess the technique's relative value as a predictor of marten abundance and harvests.

Data in this report are compiled by regulatory year (RY), with the current report period pertaining to RY09, RY10 and RY11. A regulatory year begins on 1 July and ends on 30 June of the following calendar year: RY10 = 1 July 2010–30 June 2011.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

During this report period we did not conduct any studies to determine the population size of furbearers. However, an indication of relative population levels can be inferred from male:female ratios or from young:adult female ratios in the harvested segment of the population, particularly for marten. Flynn and Schumacher 2009 suggest using young to adult ratios as an index to the population size versus sex ratios.

Total young:adult female ratios are probably a better indication of population status (Strickland and Douglas 1987) than male:female ratios. 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 RY00 and 4.8:1 during RY01.

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 2001). Based on trap line captures in good habitat near Sitka, densities have been as high as 12 mink per linear mile of beach. No statistically based census techniques were employed.

River otters occur throughout the islands of Unit 4. No census data are available, but based on long-term harvest data, populations are thought to be stable.

Admiralty Island beaver populations are believed to be stable and harvest over the last decade has been minimal. Beavers occur in low, but increasing numbers, on Baranof and Chichagof islands. Timber harvest in Chichagof Island (and to a lesser degree Baranof Island) valley bottoms appears to favor beaver habitat because of alder and willow regeneration. The limited areas of cottonwood habitat within the unit usually attract beavers. Since 2001 on both of these islands, higher beaver densities in localized areas have caused road drainage problems and resulted in an increasing number of beavers being trapped or shot under nuisance permits. The number of beavers killed as nuisances have sometimes exceeded the total number of beavers taken during the regular trapping season.

Trappers were queried on the status of prey populations potentially available to martens and mink based on their field observations. On mail-out questionnaires, trappers gave subjective estimates of the 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. Although this survey information is dated, it is believed to represent the current status during this report period. Small rodent and soricid populations were reported to be high during 1995–1996, and again in 2006–2007. Declines to moderate numbers were noted during 2000–2002 and 2008–2009. Field observations by staff and trappers appear to indicate higher populations during 2010–2012.

Population Composition

Marten. Our only insight into the composition of the marten population is based on the harvest. Based on sealing documents during RY09, RY10, and RY11 marten harvests consisted of 63%, 64% and 65% males, respectively. With the raw fur price rising during the report period, the marten harvest increased about 24% from RY09 to RY10, and jumped another 64% from RY10 to RY11(Table 1). In the ADF&G research program, 59% males were caught in RY91 (Flynn and Blundell 1992). In RY92 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 in the wild (Buskirk and Lindstedt 1989).

River otter. The percentages of male river otters taken by trappers were 61% males in RY09 and 63% males during the RY10–11 seasons (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 if the increase is sustained.

Beaver. The percentages of male beavers taken by trappers when sex was determined were 66% males in RY09, and 50% males during RY10–11. Because identifying the sex of a beaver is difficult, we were unable to identify the sex of most harvested animals (Table 1).

Mink. See Whitman 2003 for a discussion of mink population parameters in Unit 4 and management recommendations.

MORTALITY

Harvest

Hunting	Season	Limit
Coyote	1 September–30 April	2 coyotes
Wolf	1 August–30 April	5 wolves
Wolverine	10 November–15 February	1 wolverine

Trapping	Season	Limit
Beaver	10 November – 30 April	No limit
Coyote, red fox, lynx, otter	1 December–15 February	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 December–31 December	No limit
Marten and mink	1 December–15 February	No limit

Board of Game Actions and Emergency Orders. The Board of Game took no actions and the department issued no emergency orders affecting trapping in Unit 4 during this report period.

Seasons for most furbearer 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).

Trapper Harvest. Marten sealed in RY09 totaled 547, 345 males, 188 females and 14 of unknown sex. In RY10 439 males, 221 females, and 21 of undetermined sex were sealed for a total of 681. Marten sealed in RY11 totaled 1,115, 721 males, 383 females, and 11 of unknown sex. Table 1 summarizes the sexes of marten in the harvest during RY07–RY12.

In RY09 89 otters were sealed, including 51 males, 33 females and 5 of unknown sex. The RY10 harvest was 236 otters, 146 males, 85 females and 5 of unknown sex. The RY11 season produced 197 otters, 121 males and 72 females and 4 of unknown sex (Table 1).

When Baranof and Chichagof islands were opened in RY07 for beaver harvest, 5 males, 5 females, and 2 beavers of unknown sex were harvested. The RY09 season produced a harvest of 7 beavers (2 males, 1 female, and 4 of unknown sex). The RY10 season produced a harvest of 19 beavers (1 male, 1 female, and 17 (89%) of unknown sex). The RY11 season produced a harvest of 26 beavers (2 males, 2 females, and 22 (85%) of unknown sex) (Table1).

Over the years we've compared marten harvest data from sealing documents with harvest data from trapper questionnaires and derived a conversion factor (number of sealed marten/number of marten reported on trapper questionnaires). Applying that same conversion factor to mink, we 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 RY09, 24 of 29 marten trappers reporting listed residency in Unit 4. For RY10, 22 of 31 trappers were unit residents, and in RY11, 32 of 40 trappers reported residency in the unit (Table 2).

Of the 18 trappers sealing Unit 4 otters in RY09, 16 reported they were unit residents. In RY10, 17 of 20 successful otter trappers claimed Unit 4 residency. During RY11, 14 of 20 successful trappers were unit residents (Table 2).

In RY09 both successful beaver trappers resided inside the unit. In RY10 all 6 trappers were Unit 4 residents. Three of 5 trappers claimed Unit 4 residency in RY11 and the remaining 2 trappers were nonlocal residents (Table 2).

Harvest Chronology. The greatest marten harvest consistently occurs in the first month of the trapping season. In RY09, 381 (70%) martens were caught in December. A total of 481 (71%) of the RY10 martens were taken in December. In RY11, 762 (68%) martens were caught in December (Table 3).

In RY09, 33 (37%) of harvested otters were taken in December. For the RY10 and RY11 seasons, 142 (60%) and 95 (48%), respectively, were taken in December (Table 3).

Beaver harvest has not consistently followed December patterns as above. In the RY09 season, 7 beavers were harvested in December as the entire season total. In RY10, 7 (37%) beavers were harvested in December and 10 (53%) were harvested in March. During RY11, 7 (47%) beavers were harvested in December. One of the beavers for that year was a nuisance beaver taken outside of the trapping season. Although included in the yearly total, nuisance kills are not included in the harvest chronology outside of the established season.

Transport Methods. Trappers using boats for transportation take most martens. In RY09, 72% of all martens were taken by trappers who used boats; in RY10, 67%; and in RY11, 75%. The take of otters is almost entirely with the aid of boats. For the 3 seasons of this reporting period (RY09–RY11), boats were reportedly used for 90%, 97%, and 98% of the harvest respectively. Trappers also favored the aid of boats in taking beavers during this reporting period (Table 4).

Other transportation means that may be important in any given year include snow machines, 4-wheelers, highway vehicles, and walking. Weather conditions influence the degree to which these other transportation types are used in any given year.

HABITAT

Assessment

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

CONCLUSIONS AND RECOMMENDATIONS

It is impractical to set harvest levels for furbearer populations in Southeast Alaska, because we have little to no data on population levels. Instead, the general approach in furbearer management has been to expect furbearer population levels to govern trapper effort and harvest. That is, at low furbearer densities, trapping effort will decrease and, due to declining catch rates, the harvest impact on the population will be minimized. Conversely, at times of high furbearer populations, trappers' effort will increase resulting in higher catch rates but, at a time the population can sustain the added harvest. Over time, this approach has been successful and furbearer populations, though cyclic, have been sustainable.

Otter populations appear to be healthy, and trapping pressure is relatively light. Although increases in raw fur value have contributed to increased trapping effort over the last 3 years, we recommend no changes to trapping regulations at this time.

The beaver harvest has been higher during the past 5 years since the opening of Baranof and Chichagof islands to beaver trapping. Many unit trappers indicated they were looking forward to having an opportunity to trap another species in the unit. We will monitor the situation over the next few years to see if the low fur value for beavers and the lack of good habitat in the unit flatten out the numbers harvested.

Marten populations during this report period may have been affected by trapping, but the declines in harvest may correlate directly to the lower densities of small mammals. Trapping season 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). This approach operates on the premise that when the population is relatively high, existing trapping regulations are appropriate. If the population decreases, more conservative season dates may be appropriate.

The 10 years prior to this reporting period was a period of reduced fur prices and decreasing interest in trapping. As a result, the possibility of over-trapping most species in Unit 4 appeared low. Our discomfort of having to manage furbearers without definitive information is eased somewhat when trapping effort is low. However, if the current 3-year trend of substantial increased value of raw fur continues and trapping effort increases, the need for better population data could become a greater priority.

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Table 1. Unit 4 furbearer harvest data, regulatory years 2007 through 2011.

Season	Male	Female	Unknown	Total
Marten				
2007–08	637	395	36	1,068
2008–09	518	319	51	888
2009–10	345	188	14	547
2010–11	439	221	21	681
2011–12	721	383	11	1,115
Otter				
2007–08	37	20	2	59
2008–09	71	74	1	146
2009–10	51	33	5	89
2010–11	146	85	5	236
2011–12	121	72	4	197
Beaver				
2007–08[a]	5	5	2	12
2008–09	4	2	12	18
2009–10	2	1	4	7
2010–11	1	1	17	19
2011–12	8	0	7	15

[a] Trapping for beaver was opened on Baranof and Chichagof islands in addition to Admiralty Island.

Table 2. Unit 4 trapper residency and success, regulatory years 2007 through 2011.

Season	Local[a]	Nonlocal	Nonresident	Total
Marten				
2007–08	25	9	0	34
2008–09	33	5	0	38
2009–10	24	5	0	29
2010–11	22	9	0	31
2011–12	32	8	0	40
Otter				
2007–08	8	3	0	11
2008–09	19	1	0	20
2009–10	16	2	0	18
2010–11	17	3	0	20
2011–12	14	6	0	20
Beaver				
2009–10	2	0	0	2
2010–11	6	0	0	6
2011–12	3	2	0	5

[a] Unit 4 residents includes Baranof, Chichagof, & Admiralty Islands.

Table 3. Unit 4 furbearer harvest chronology by month, regulatory years 2007 through 2011.

Season	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
Marten								
2007–08	0	763	273	32				1,068
2008–09	0	690	182	16				888
2009–10	0	381	147	19				547
2010–11	0	481	174	26				681
2011–12	0	762	310	40			3	1,115
Otter								
2007–08	0	36	20	3				59
2008–09	0	87	37	22				146
2009–10	0	33	42	12		1	1	89
2010–11	0	142	76	17	1			236
2011–12	0	95	72	30				197
Beaver								
2009–10	0	7	0	0	0	0	0	7
2010–11	0	7	2	0	10	0	0	19
2011–12	0	7	0	0	3	4	1	15

Table 4. Unit 4 successful trapper transport methods, regulatory years 2007 through 2011.

Season	Airplane	Horse/ dog team	Boat	Highway vehicle	4-wheeler/ snowmachine	Walked	Off-road vehicle	Unknown
Marten								
2007–08	0	0	568	68	285	101	0	46
2008–09	12	0	447	7	289	113	13	7
2009–10	0	0	394	0	89	59	0	5
2010–11	0	0	453	46	154	21	0	7
2011–12	2	0	839	9	169	96	0	0
Otter								
2007–08	0	0	55	3	0	0	1	0
2008–09	0	0	146	0	0	0	0	0
2009–10	0	0	80	0	0	9	0	0
2010–11	0	0	228	2	0	6	0	0
2011–12	0	0	194	0	0	3	0	0
Beaver								
2009–10	0	0	1	6	0	0	0	0
2010–11	0	0	13	0	6	0	0	0
2011–12	0	0	8	0	3	4	0	0

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: Unit 5 (5,800 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 (*Castor Canadensis*), river otters *(Lutra canadensis)*, and mink *(Mustela vison)* are the common water-associated species. Lynx *(Lynx canadensis)* are present in small numbers, and 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. Yakutat typically has 1 or 2 ambitious trappers, and whether or not they participate usually determines whether the furbearer catch is high or low. Winter weather also affects trapping effort by enhancing or inhibiting access. In winters with little snow, the roads remain open to vehicle traffic allowing more trapping opportunity. This is the opposite of the case in many other areas of the state where lack of snowfall inhibits trapping effort.

Trapping effort in Unit 5 occurs almost entirely in Unit 5A, and much of that effort occurs only in the area west of the Dangerous River. Although a number of airstrips are associated with U.S. Forest Service cabins on the forelands, the trapping effort from aircraft access to 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, trappers do not use much of Unit 5.

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 Fish and Game and Alaska Wildlife Troopers sealed furbearer hides during the report period. All known trappers were encouraged to fill out a trapper survey to provide us with information on furbearer abundance and trapping effort. Information on trapper's efforts as well as other factors associated with trapping are collected in the Annual Trapper Questionnaire that is sent out to all trappers who seal furs (ADF&G 2012). All furbearer harvest in this report is listed by regulatory year (RY). For the purposes of this report, a regulatory year runs from 1 July through 30 June; e.g. RY09 = 1 July 2009–30 June 2010.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

We do not conduct any formal furbearer research to document or monitor population status or trends but instead we depend on trapper questionnaires and trapper effort for furbearer information. Trapping pressure is generally light within this unit and we believe trends in harvest reflect factors that affect trapper effort rather than furbearer population levels. A few individuals changing their trapping intensity can have substantial effect on harvests. Based on fur sealing data and anecdotal observations, furbearer populations appear to be well distributed and relatively stable in Unit 5. The lynx harvest remains low, which is related to the low density of snowshoe hares. Little is known about marten abundance in Unit 5. The inconsistent harvest levels are likely due to inconsistent trapper effort and natural variation in marten numbers. The relative abundance index for marten in GMUs 1–5, as reported by trappers (ADF&G 2012), is common. The abundance index has not changed over the last 5 years and we assume it is representative of marten numbers in the Yakutat area. River otters and beavers are more common in Unit 5 than the harvest suggests because low trapping effort results in few harvested. As with other furbearers, no population estimate exists for wolverines. It is believed that they occur at low densities in remote areas away from town and roads.

MORTALITY

Harvest

Seasons and Bag Limits

Hunting	Season	Bag Limit
Beaver, marten, otter, mink, red fox, lynx	No open season	
Coyote	1 September–30 April	2
Wolverine	1 September–15 February	1

Trapping	Season	Bag Limit
Beaver	10 November–30 April	No limit
Lynx	1 December–15 February	No limit
Coyote, Red fox, Marten, Mink, Weasel, Otter, wolverine	10 November–15 February	No limit

Board of Game Actions and Emergency Orders. The Board of Game met in Ketchikan in 2010 during the report period. The board adopted 2 proposals that affect furbearer trapping in Unit 5. The first adopted proposal aligned beaver trapping seasons in all Southeast Alaska Units (1–5) to 10 November–30 April. This action reduced the beaver trapping season in Unit 5 by 15 days. The second proposal adopted by the board that affects Unit 5 prohibited trapping activities within certain distances (e.g., 50–500 yards) of residential areas and popular trails.

Trapper Harvest: Table 1 shows the furbearer harvest during RY97–RY11. Thirteen beavers were harvested during this report period, which is about half of the historical harvest during RY97–RY05 but more than the previous report period (RY06–RY08) when only 4 beavers were taken. Nearly all the beaver trapping effort took place near the community of Yakutat, with the Situk River the farthest extent of beaver trapping effort. Beginning in 2010, nuisance beaver removal permits have been issued annually to remove beavers from airport property due to flooding from dams. No beavers were taken under authority of the permits because the Department of Transportation (DOT) encourages local trappers to harvest beavers in this area. One additional nuisance permit was issued to remove up to 3 beavers whose dams were impeding coho salmon (*Oncorhynchus kisutch*) migration in a local stream; 1 beaver was taken under this permit.

Nine lynx were harvested during this report period. Given the ease with which lynx can be trapped, this relatively low harvest is an indication that lynx were generally scarce or at low densities during this report period. The harvest of 301 marten during this report period was slightly higher than the mean marten harvest for the previous 4 reporting periods (RY97–08). Table 1 shows no apparent pattern in the Unit 5 marten harvest. Marten are consistently listed as one of the most important furbearer species for Southeast Alaska trappers (ADF&G 2012). It is unlikely the harvest reflects fluctuations in marten numbers. The inconsistent harvest is likely due to changes in trapper effort, which is affected by a variety of factors including fur price, weather and snow conditions.

The 9 otters taken during the report period are slightly lower than the mean otter harvest of 10 for the previous 4 reporting periods (RY97–RY08). As with marten, the otter harvest does not reflect the number of animals available. Prices for river otter fur remained depressed at the beginning of the report period; however in RY09 and RY10, prices for otter fur showed small increases. The 10 wolverine harvested during the current report period is an increase over recent report periods, and above the mean number of wolverines harvested (6) for the previous four report periods (RY97–08). Without both trapper effort and wolverine population data we don’t know whether this reflects changes in wolverine abundance or an increase in effort for this large furbearer.

Harvest Chronology: Most furbearers were caught in early to midwinter, especially marten (Table 2). Trappers typically target marten aggressively early in the season and then put out sets for other furbearers while afield. Thus, most catch of other furbearers in Unit 5 occurs at the same time as the bulk of the marten harvest.

Transport Methods: Schumacher (ADF&G 2012) collected transportation data for Southeast Alaska trappers in the Trapper Questionnaire and Report. Although the transportation data is not specific to Unit 5, the questionnaire collected information on trappers' means of transport getting to their trap lines and the means used for running their trap lines. Highway vehicles and boats were favored for both getting to and running trap lines. To a lesser extent, airplanes and ORVs are used to get to trap lines. In Unit 5, highway vehicles, snow machines and skiing are prominent modes of transportation used by trappers.

CONCLUSIONS AND RECOMMENDATIONS

We believe the furbearer populations in Unit 5 can sustain the present trapping seasons and harvest pressures. However, it is not possible to determine if the annual harvest of each species indicates declining, stable, or increasing populations because of the variation in amount and intensity of trapper effort from year to year. Trapping effort is largely influenced by weather conditions and fur prices. Weather is unpredictable so it cannot be used to predict future trapping effort or success; and fur prices vary year to year. Favorable weather during trapping seasons and an increase in fur prices could increase the number of furbearers harvested; the opposite is also possible if weather conditions restrict trapper mobility, and/or fur prices decrease. Failure of some trappers to report catch or effort further hampers what we can learn from the data.

Area management biologists lack data necessary to assess in-season fur harvest, or to predict future season furbearer abundance, which could be used to adjust trapping seasons to better ensure sustainable harvests. As an example, marten harvest sex ratios have been thought to be insightful for assessing the following years' marten availability; however, based on research in Southeast Alaska this may be a false assumption (Flynn and Schumacher 2008). They found that the sex ratio of the harvest was not strongly correlated to abundance, but rather that the age structure of the harvest was. Given that the potential to overharvest marten in localized areas is high, especially if the population is declining, it is important to assure the proper data is being used to assess marten population status. In addition to harvest data, it is important to continue to collect information on furbearer populations directly from trappers, hunters and fishermen through general conversation, interviews and through the annual trapper surveys. We get at least a subjective estimate of the relative abundance of furbearers from sportsmen who have the most direct access to evidence in the field.

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Table 1. Unit 5 furbearer harvest, regulatory years 1997–2011.

Regulatory year	Beavers	Lynx	Martens	Otters	Wolverines
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
2006–2007	0	1	156	1	1
2007–2008	0	0	28	0	0
2008–2009	4	6	86	2	2
2009–2010	7	5	95	1	5
2010–2011	3	1	54	7	0
2011–2012	3	3	152	1	5

Table 2. Unit 5 marten harvest chronology by sex, regulatory years 2000–2011.

	RY00			RY01			RY02		
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

	RY03			RY04			RY05		
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

Table 2. (continued.) Unit 5 marten harvest chronology by sex, regulatory years 2000–2011.

	RY06			RY07			RY08		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	12	1	19	10	4	0	26	12	0
December	42	23	15	8	4	0	38	9	0
January	11	2	15	2	0	0	0	1	0
February	3	3	10	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0
Total	68	29	59	20	8	0	64	22	0

	RY09			RY10			RY11		
Month	Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown
November	6	5	30	4	1	0	11	3	0
December	13	9	15	8	5	0	60	30	0
January	3	2	6	12	4	9	8	4	28
February	0	0	6	3	8	0	5	3	0
Unknown	0	0	0	0	0	0	0	0	0
Total	22	16	57	27	18	9	84	40	28

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

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

GEOGRAPHIC DESCRIPTION: Prince William Sound and north Gulf Coast

BACKGROUND

Beavers (*Castor canadensis*), coyotes (*Canis latrans*), lynx (*Lynx canadensis*), marten (*Martes americana*), mink (*Neovison vison*), muskrats (*Ondatra zibethicus*), river otters (*Lontra canadensis*), weasels or ermine (*Mustela spp*.) and wolverines (*Gulo gulo*) are 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, marten, river 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. Cache surveys in 1988 and 1990 indicated 2,400 and 3,100 animals, respectively (Nowlin 1993). Beaver habitat, particularly in 6C, increased when uplift caused by the 1964 earthquake transformed what had previously been an intertidal area into an uplifted marsh. 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. S. 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 wildly. In 1938 C. Rhode (ADF&G unpublished data) reported a harvest of 700 from the deltas. When the town of Katalla was abandoned (circa 1943), trapping pressure declined considerably and now the average for all of Unit 6 is about 60 beavers annually.

Coyotes are relatively new arrivals in Unit 6. Heller (1910) did not note their presence in 1908 however they must have arrived by 1915. Coyotes were hunted and trapped extensively on the delta during the bounty era (1915–1960). They increased in abundance after predator control ended, and are reported as common to abundant by trappers. Coyote numbers in Alaska fluctuate with availability of their primary prey, snowshoe hares (Prugh 2004). Carnes (2004) reported snowshoe hare was the most important prey of coyotes, followed by moose and microtines. Alternate prey included salmon, beavers, waterfowl and eulachon. Griese (1990) estimated coyote density at 0.1-1.0/mi^2 in suitable habitat. F. Robards (ADF&G unpublished data) suggested coyotes replaced red foxes as the dominant canid by 1938. Red foxes are now rare to absent in Unit 6. 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, 2000, and 2011.

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 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 unit wide, trappers reported a higher abundance than normal, and a record harvest occurred. A sealing requirement was instituted in 1999 to track harvest. The average annual harvest since 1999 is 152 marten.

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 (Larry Kritchen, former Cordova fur dealer, personal communication). Trapping effort for mink was low except along the road system by recreational trappers. Mink on Naked Island have been the subject of much interest due to their impact on the pigeon guillemot population on the island, particularly since the Exxon Valdez oil spill. Genetic analysis of samples from the island cannot conclusively determine whether the population is native or introduced. Discussion relative to the appropriateness of a predator control program continues on introduced vs. wild mink. Regardless, all parties agree that the level of predation on pigeon guillemots should be reduced to allow for their recovery.

Muskrats occur at low density in Unit 6 east of PWS. Heller (1910) did not report muskrats in 1908, and 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*). Many trappers were successful at catching muskrats in the 1950s and 1960s but since that time, populations dropped and catches decreased (Lyle Kritchen, personal communication); J. Reynolds (ADF&G files) asserted their absence in 1976. The cause of this decline could be related to icing and overflows or changes in habitat caused by the 1964 earthquake. Now most harvested muskrats are caught incidentally in beaver sets.

River otters are common in most of Unit 6. Heller (1910) reported that 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, otters were reported as recovered by the *Exxon Valdez* Oil Spill Trustee Council in 1999. Otter harvest fluctuates annually, and is often dependent on projected pelt prices.

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 at statehood 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 RY92-RY98. From RY03-RY08, the harvest was high again with an average of 19 wolverines caught.

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 gathered information regarding the population status of beavers, lynx, marten, river otters, and wolverines from fur sealing certificates, conversations with local residents, responses to the statewide trapper questionnaire from residents of Unit 6 and opportunistic observations of furbearers and their tracks during other wildlife surveys. Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g. RY10 = 1 July 2010–30 June 2011).

We recorded location and date of harvest, method of take, and type of transportation for all species. Sex was recorded for otters, marten and wolverines, and we measured length and width of beavers, lynx, and otters. Sealing of marten began in RY99. 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.

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. Trapping pressure is generally highest near the Copper River Highway and numbers there appear to be down.

Coyotes were common to abundant in Unit 6. Coyotes observed during moose surveys yielded minimum densities of 40–50/1000 km^2 (0.1-0.13/mi^2) Red foxes were absent during the reporting period.

Lynx were rare to absent in Unit 6, which was typical when prey and lynx populations were rebuilding in adjacent, interior areas (Units 11 and 13). Conversely, in years where the population was high in those units (e.g. 2011, more lynx were caught and observed.)

Marten were common and appear to be stable despite declines in other parts of the state. Mink and river otters were both common, with stable numbers in most of Unit 6. A cooperative study between the ADFG and the University of Wyoming found a river otter density estimate of 46 river otters per 100 km of shoreline in select areas of western PWS (Golden et al. 2011). Muskrats were uncommon during the reporting period. However, pop-ups are increasingly being observed (Marvin Van den Broek, personal communication) Wolverines were present at low to moderate density and were stable.

Population Composition

Beaver — In most years, the juvenile harvest of beavers is less than 25% of the harvest. In 2009, 48% of the harvest was juveniles. Juveniles are considered to be animals whose length and width measurements sum to ≤ 52.” Sex information is not required or collected during the sealing process (Table 1).

Lynx — Until RY00, there were no juvenile lynx in the harvest and very few since RY00. Juvenile lynx are considered to be animals that measure <34” in length. Sex information is not required or collected during the sealing process (Table 2).

River Otter — Juvenile harvest in most years is around 60% of the harvest. In most years, males also make up 60% of the otters that are taken (Table 3).

Wolverine — Harvest is predominantly male in nearly every year and in most years it exceeds 60% (Table 4). Information on juveniles in the harvest is not collected during the sealing process.

Marten — Harvest of males is more than 60% in all years since sealing began. Information on juveniles in the harvest is not collected during the sealing process (Table 5).

Distribution and Movements

The low number of juveniles in the harvest likely supports the local belief that there have not been resident lynx in the unit and that adults that are caught are simply moving in from neighboring units. In 2011, the lynx population peaked in GMUs 11 and 13. Anecdotal information suggests that at times beaten down trails can be observed from neighboring units. Some people believe that there are not enough hares to maintain a population. Others maintain that the climate is too wet for them.

MORTALITY

Harvest

Hunting Season and Bag Limits.

RY09, RY10, RY11 Species	Season	Bag Limit
Beaver	No open season	
Coyote	10 Aug–25 May	No limit
Fox, Red	No open season	
Lynx	10 Nov–28 Feb	2 lynx
Wolverine	1 Sep–1 Mar	1 wolverine

Trapping Seasons and Bag Limits.

RY09, RY10, RY11 Species	Season	Bag Limit
Beaver	10 Nov-Apr 30	No limit
Coyote	10 Nov–31 Mar	No limit
Fox, Red	1 Nov–28 Feb	No limit
Lynx	10 Nov–28 Feb	No limit
Marten	10 Nov–28 Feb	No limit
Mink	10 Nov–28 Feb	No limit
Muskrat	10 Nov-10 Jun	No limit
River Otter	10 Nov–31 Mar	No limit
Wolverine	10 Nov–28 Feb	No limit

Board of Game Actions and Emergency Orders. The lynx season was opened in RY09 to allow for the opportunistic harvest of lynx that move in from neighboring units when their populations are high. Based on the conclusion that Unit 6 does not have a "resident" lynx population, they were effectively removed from the lynx harvest tracking strategy.

Human-Induced Harvest.

Beaver — Harvest ranged 22–55, which was about half of the usual harvest with fewer trappers participating (Table 1). The 5 year average harvest is 40 beavers, compared with a ten year average of 65 beavers. Traps were the most common method of take, and the proportion of juveniles in the harvest varied greatly. Beavers reported as shot were killed under nuisance permits for airport or highway maintenance purposes. Unit 6C receives the majority of harvest pressure (87-96% annually) during the last 5 years (Table 8).

Lynx —Only two years during this reporting period had an open lynx season. Harvest was low the first year, and moderate the second year (Table 2). Approximately half of the successful participants trapped lynx and the other half shot them. Lynx were only caught in 6C and 6D (Table 8).

River Otter —Harvest was lower than normal compared to the 10 year average (13 otters) despite increasing pelt prices (Table 3). Annually, more than 80% of the harvested otters were taken in Unit 6D (Table 8). Most otters were taken using traps or snares.

Wolverine —Harvest was lower than the 10 year average (15 wolverines) during the reporting period despite stability in fur prices (Table 4). The majority of these animals were trapped. In most years most were taken in 6D however in some years, 6B and 6C experience significant harvest (Table 8).

Marten — Harvest was lower than the 10 year average (156 marten) during this reporting period (Table 5). Marten prices have been high and stable until RY12 when they nearly doubled. Almost all the marten were taken in traps. In most years, the majority of the harvest is in 6D, however in some years, significant harvest is taken from 6B and 6C (Table 8).

Other species — There are no harvest data for coyote, mink, muskrat, and weasels due to the absence of sealing requirements and minimal harvest and effort.

Harvest Chronology. The maritime climate often causes annual variation in timing and endurance of winter conditions favorable to trappers. Peak beaver harvest occurred in November during most of the last 5 years (Table 6). River otters were primarily harvested during December (Table 6). The highest harvest of marten occurred during November and December (Table 6). Wolverine harvest was usually highest during December and January (Table 6).

Transport Methods. Beaver trappers consistently used highway vehicles for the majority of transportation (Table 7). Heavy reliance on highway vehicles occurred because the Copper River Highway provided easy access to high beaver populations in Subunit 6C. River otter trappers used primarily boats. Transportation used by wolverine and marten trappers and hunters varied between boat and snowmachine, depending on snow conditions (Table 7). Typically, good snow conditions allow better access with snowmachines and increased use and associated harvest. During the reporting period snow conditions were relatively good, which increased snowmachine use. The winter of RY11 set records for snowfall and although there was plenty of snow, concerns regarding avalanche conditions and extreme snow depth may have limited their use.

CONCLUSIONS AND RECOMMENDATIONS

Quantifiable management objectives need to be established for beavers, river 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.

Harvests of furbearers appear to be within sustainable limits, and no changes in seasons or bag limits are recommended.

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Table 1. Harvest and method of take for beavers sealed in Unit 6, RY92 through RY11.

Regulatory Year	Total harvest	Successful Participants	% Juveniles[a]	Method of take			
				Shot	Trapped	Snared	Unk
RY92	23	8	17	0	13	9	1
RY93	44	8	25	0	26	18	0
RY94	46	6	11	2	40	4	0
RY95	48	11	0	0	44	4	0
RY96	91	8	1	0	76	15	0
RY97	80	10	16	0	60	7	13
RY98	33	6	12	0	31	2	0
RY99	108	12	20	0	108	0	0
RY00	139	9	11	0	139	0	0
RY01	75	9	5	15	60	0	0
RY02	116	18	6	10	106	0	0
RY03	83	14	5	7	73	3	0
RY04	109	15	8	8	98	1	2
RY05	98	12	7	17	81	0	0
RY06	49	10	33	17	32	0	0
RY07	55	9	16	1	51	0	3
RY08	46	6	7	9	37	0	0
RY09	48	5	48	3	45	0	0
RY10	27	6	19	0	27	0	0
RY11	22	4	0	0	22	0	0

[a] Juvenile beavers measure (length + width) $\leq$ 52”

Table 2. Harvest and method of take for lynx sealed in Unit 6, RY81 through RY11.

Regulatory Year[a]	Total harvest	Successful Participants	% Juveniles[b]	Method of take			
				Shot	Trapped	Snared	Unk
RY81	1	1	0	0	1	0	0
RY82	1	1	0	1	0	0	0
RY84	1	1	0	1	0	0	0
RY85	2	2	0	0	2	0	0
RY86	7	5	0	0	7	0	0
RY87	2	2	0	1	1	0	0
RY92	4	4	0	0	4	0	0
RY96	1	1	0	0	1	0	0
RY99	1	1	0	0	1	0	0
RY00	2	1	100	0	2	0	0
RY01	19	9	5	2	16	1	0
RY02	3	3	0	1	2	0	0
RY10	1	1	0	0	1	0	0
RY11	7	6	14	3	4	0	0

[a] Season closed RY04-RY09
[b] Juvenile lynx measure(length) < 34”.

Table 3. Harvest and method of take for otter sealed in Unit 6, RY92 through RY11.

		Successful			Method of take			
Reg Year	Total harvest	Participants	% Males	% Juveniles[a]	Shot	Trapped	Snared	Unk
RY92	74	21	59	59	6	67		1
RY93	43	12	68	74	5	36	2	
RY94	78	16	68	56	3	74		1
RY95	112	15	70	44	1	111		
RY96	106	12	64	47	4	102		
RY97	76	17	60	51	25	45		6
RY98	36	7	38	61	1	27	4	4
RY99	47	16	70	45	4	39	4	
RY00	64	12	55	66	2	62		
RY01	64	13	52	48	14	50		
RY02	176	20	59	42	8	168		
RY03	107	20	55	54	4	103		
RY04	196	26	64	33	5	173	1	17
RY05	188	27	63	51	1	187		
RY06	149	19	65	46	2	146	1	
RY07	136	17	66	55	1	113	22	
RY08	107	20	68	62	5	97		5
RY09	59	13	69	66	4	54		1
RY10	118	17	60	66	1	117		
RY11	91	18	65	51	7	67	15	2

[a] Juvenile otters measure (length) <42”

Table 4. Harvest and method of take for wolverine sealed in Unit 6, RY92 through RY11.

		Successful		Method of take			
Reg Year	Total harvest	Participants	% Males	Shot	Trapped	Snared	Unk
RY92	19	10	74		19		
RY93	16	7	67	2	13	1	
RY94	19	8	37	1	18		
RY95	19	9	79	1	17	1	
RY96	25	10	64	1	21		3
RY97	15	10	73	2	12	1	
RY98	21	9	71	3	17	1	
RY99	10	3	60	1	9		
RY00	8	6	50		8		
RY01	10	7	70	1	9		
RY02	4	4	100		3	1	
RY03	16	8	38		14		2
RY04	15	8	46		14		1
RY05	19	13	68	1	18		
RY06	26	14	58	1	24	1	
RY07	20	10	50	1	18	1	
RY08	16	13	69	3	13		
RY09	10	7	60	3	6	1	
RY10	8	4	50	1	5	2	
RY11	17	9	62	1	14	1	

Table 5. Harvest and method of take for marten sealed in Unit 6, RY99 through RY11.

		Successful		Method of take			
Reg Year	Total harvest	Participants	% Males	Shot	Trapped	Snared	Unk
RY99	198	11	70		198		
RY00	157	8	61	3	88		66
RY01	114	14	67		114		
RY02	84	13	67		84		
RY03	149	17	64		134		15
RY04	162	17	66		162		
RY05	256	24	65		256		
RY06	200	20	67		198		2
RY07	137	21	66		137		
RY08	171	17	78		171		
RY09	156	19	70		156		
RY10	97	15	60		96	1	
RY11	147	14	75		146	1	

TABLE 6. Unit 6 beaver, river otter, lynx, marten and wolverine harvest chronology percent by time period, RY07–RY11.

Regulatory year	Sep	Oct	Nov	Dec	Month Jan	Feb	Mar	Apr	*n*
Beaver [a]									
RY07	0	5	36	16	7	22	5	0	52[b]
RY08	7	0	39	11	2	7	7	13	46
RY09	0	0	27	8	29	0	29	0	48
RY10	0	11	22	7	7	0	15	37	27
RY11	0	27	32	5	0	5	0	27	21 [b]
River otter									
RY07	0	0	8	22	21	35	11	0	131 [b]
RY08	0	0	36	29	5	19	12	0	107
RY09	0	0	22	37	22	15	3	0	59
RY10	0	0	34	46	6	5	9	0	118
RY11	0	0	21	53	1	12	13	0	91
Lynx									
RY10	0	0	0	0	100	0	0	0	1
RY11	0	0	14	29	29	29	0	0	7
Marten									
RY07	0	0	36	31	24	9	0	0	137
RY08	0	0	26	49	13	12	0	0	171
RY09	0	0	47	38	6	6	3	0	156
RY10	0	0	45	39	12	3	0	0	97
RY11	0	0	26	14	37	22	0	0	147
Wolverine									
RY07	0	0	5	30	20	40	5	0	20
RY08	13	0	13	38	19	19	0	0	16
RY09	0	20	0	40	40	0	0	0	10
RY10	0	0	0	38	38	13	13	0	8
RY11	0	0	12	24	29	29	6	0	17

[a] Beavers were taken during May through August under damage control permits as follows:1(2%) in RY07, 7 (15%) in RY08, 3 (6%) and RY09.
[b] Total includes unknown month of take.

Table 7. Unit 6 beaver, river otter, marten and wolverine harvest percent by transport method, RY07–RY11.

	Percent of harvest							
Reg year	Airplane	Dogsled /foot	Boat	3 or 4-wheeler	Snow-machine	Highway vehicle	Unk	*n*
Beaver								
RY07	7	0	33	0	0	55	5	55
RY08	0	4	0	2	7	87	0	46
RY09	0	0	0	13	13	75	0	48
RY10	0	0	7	0	0	93	0	27
RY11	0	0	0	5	0	95	0	22
River otter								
RY07	1	15	75	0	1	8	0	136
RY08	2	2	76	1	10	9	0	107
RY09	0	0	85	0	3	10	2	59
RY10	0	0	74	0	3	23	0	118
RY11	0	1	80	0	0	16	2	91
Lynx								
RY10	0	0	0	0	0	100	0	1
RY11	0	0	14	0	43	43	0	7
Marten								
RY07	1	9	37	0	39	13	0	137
RY08	16	9	9	4	39	23	0	171
RY09	0	7	29	0	44	9	11	156
RY10	0	9	13	3	45	29	0	97
RY11	37	0	20	4	31	9	0	147
Wolverine								
RY07	0	15	15	5	50	15	0	20
RY08	6	13	25	6	44	0	6	16
RY09	10	0	30	0	50	10	0	10
RY10	0	0	38	13	38	13	0	8
RY11	29	12	29	0	29	0	0	17

TABLE 8. Unit 6 beaver, river otter, marten and wolverine harvest percent by Game Management Unit, RY07–RY11.

	Game Management Unit				
Reg year	06A	06B	06C	06D	*n*
Beaver					
RY07	0	0	87	13	55
RY08	4	0	96	0	46
RY09	0	4	96	0	48
RY10	0	0	93	7	27
RY11	0	0	95	5	22
Lynx					
RY07					0
RY08					0
RY09					0
RY10	0	0	100	0	1
RY11	0	0	71	29	7
River otter					
RY07	0	2	8	90	136
RY08	2	1	15	82	107
RY09	0	2	14	85	59
RY10	0	0	19	81	118
RY11	0	0	16	84	91
Wolverine					
RY07	0	15	25	60	20
RY08	6	25	6	63	16
RY09	0	30	30	40	10
RY10	0	0	13	88	8
RY11	0	35	18	47	17
Marten					
RY07	0	21	20	58	137
RY08	16	17	33	34	171
RY09	0	34	26	40	156
RY10	0	28	31	41	97
RY11	10	39	18	33	147

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNITS: 7 and 15 (8,397 mi^2)

GEOGRAPHIC DESCRIPTION: Kenai Mountains

BACKGROUND

Beavers (*Castor canadensis*), coyotes (*Canis latrans*), least weasels (*Mustela nivalis*), lynx (*Lynx canadensis*), marten (*Martes americana*), mink (*Neovison vison*), muskrats (*Ondatra zibethicus*), red fox (*Vulpes vulpes*), river otters (*Lontra canadensis*), ermine (*Mustela erminea*), wolves (*Canis lupus*), and wolverines (*Gulo gulo*) are found on the Kenai Peninsula at varying densities, depending upon habitat quality and prey abundance. Furbearers are harvested under both hunting and trapping seasons and regulations.

Of the three canid species, red fox are considered uncommon. Unit 15C supports small remnant populations with occasional observations reported from other areas of the Kenai Peninsula. Wolves recolonized the Kenai Peninsula in the 1960s after a 50-year absence (Peterson et al. 1984). Wolf management information can be found in the species specific wolf management report. 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 Subunit 15B between the Kenai and Skilak rivers and increasingly in Subunit 15A. There have been no reports of marten being widespread or common on the western side of the Kenai Peninsula (Osgood 1901, Allen 1902). It seems likely habitat and/or prey availability or some other regional limiting factor influences their distribution. The spread of marten into 15A as the forest has matured is an indication that habitat might be the limiting factor. Marten harvest in western 15A increased in the late 2000s but declined in 2012 along with harvest in Unit 7.

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. The average harvest since the early 1980s has been 139 animals.

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. Long-term average harvest has been stable at 45 otters per year since the 1970s.

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 (Golden et al. 2007a). The long-term average annual harvest is 19 wolverines.

Lynx are cyclically abundant in the forest habitats of the Kenai Peninsula. Mixed deciduous and spruce forests in Units 15A and 15B historically appeared to have a higher abundance of snowshoe hares, and consequently, lynx numbers were usually higher in these areas than in spruce forests of Units 7 and 15C. This did not appear to be the case during the most recent snowshoe hare cycle peak (2009–2010) likely due to recent fires in 15C and a lack of recent fire history in 15A and 15B. Lynx harvest peaked in regulatory year (RY) 2011 at 456 total animals, which was 3 times higher than the previous recorded harvest peak in regulatory year 1998 (A regulatory year runs from 1 July through 30 June; e.g., RY98 = 1 July 1998–30 June 1999). More than half of these lynx were taken in Unit 15C.

Mink and ermine are common throughout Units 7 and 15. Least weasels are uncommon, only recently being documented on the Kenai Peninsula (McDonough and Olson 2009). Their abundance and distribution is currently unknown. Although the pelt values for mink and weasels are generally low, they continue to be important furbearers, especially for young trappers. Muskrat distribution is limited over much of the Kenai Peninsula. Mink weasel, and muskrat harvest numbers are not currently well documented for this area.

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 department 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 2011, Golden et al. 2007a and 2007b).

MORTALITY

Seasons and Bag Limits. Hunting season and bag limit regulations for coyotes were liberalized twice during this reporting period by the Board of Game. The bag limit for wolf hunting was also liberalized. The only notable change in trapping seasons and bag limits was an extension of the beaver season. See Board of Games Actions and Emergency Orders below for specific changes.

Harvest. The annual variations in the furbearer harvest reflect effort, trapping conditions, and access. Only beaver, lynx, marten, otter, wolf, and wolverine are required to be sealed. The beaver harvest has averaged 80 animals over the past 5 seasons (Table 1). Marten harvest averaged 128 animals per year over the past 5 seasons with the majority of harvest occurring in Unit 7 (Table 1). The mean 5-year percentage of females in the marten harvest was 26%. The harvest of river otters averaged 42 animals over the past 5 seasons (Table 1). The mean 5-year percentage of females in the river otter harvest was 32%. Wolverine harvest averaged 15 animals over the past 5 seasons (Table 1). The mean 5-year percentage of females in the wolverine harvest was 37%.

Board of Game Actions and Emergency Orders. The Board of Game extended the hunting season for coyotes in Units 7 and 15 to 10 August–25 May starting in 2009. The trapping season for beaver was also extended to 10 November–30 April in 2009. In 2010, the board clarified regulations, extending the trapping season to 29 February during leap years for red fox, lynx, marten, mink, weasel, land otter, and wolverine for all of Units 7 and 15. In 2011, the hunting bag limit for wolves was aligned for inside and outside the Kenai National Wildlife Refuge to 5 wolves per season; and the hunting bag limit for coyotes was changed to “no limit” for Units 7 and 15.

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 by snowmachine. 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 a snowmachine or snowshoes/skis as they travel along their traplines.

CONCLUSIONS AND RECOMMENDATIONS

Trapping effort varies substantially year to year based on snow conditions, fur prices, and other factors. A louse infestation currently affects wolves and coyotes on the Kenai and can greatly decrease the quality of the fur, which can further reduce trapping effort. The infestation appears to be declining since 2011.

Lynx management on the Kenai Peninsula currently follows the recommendations of Brand and Keith (1979) and the principles set forth in Golden 1999. Brand and Keith (1979) showed that trapping mortality was additive to natural mortality during a lynx population decline in Alberta Canada. Using computer modeling, they showed more lynx would be produced and greater long-term harvest would be achieved when trapping was curtailed for 3 to 4 years, starting with the second year after the lynx harvest peak. Following these principles, lynx trapping was closed in Units 7 and 15 from 2002 through 2007 and opened again from 2008 through 2012. Hunting has remained open, but the limited harvest suggests impacts to the population from hunting are minimal. Lynx harvest peaked in 2011, and as such, we are moving into a closure period.

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Table 1. Annual furbearer harvest on the Kenai Peninsula, 2007–2011.

Regulatory Year	Game Management Units 7	15A	15B	15C	15Z	Total
Beaver						
2007-08	27	16	5	15	0	63
2008-09	12	48	3	24	0	87
2009-10	25	88	4	5	0	122
2010-11	30	24	6	6	0	66
2011-12	6	43	3	9	0	61
Lynx						
2007-08[a]	0	4	3	2	0	9
2008-09	8	33	35	21	0	97
2009-10	33	85	85	75	0	278
2010-11	21	123	146	143	0	433
2011-12	26	93	96	241	0	456
Marten						
2007-08	72	16	8	0	0	96
2008-09	119	26	6	0	0	151
2009-10	158	9	8	0	0	175
2010-11	96	25	0	0	0	121
2011-12	94	3	1	1	0	99
River otter						
2007-08	9	26	1	9	0	45
2008-09	5	19	2	8	0	34
2009-10	15	19	5	17	0	56
2010-11	4	28	5	5	0	42
2011-12	3	15	3	10	0	31
Wolverine						
2007-08	14	0	0	4	0	18
2008-09	9	0	1	14	0	24
2009-10	5	0	1	0	0	6
2010-11	10	0	2	4	0	16
2011-12	6	0	0	5	0	11

[a] Trapping season closed.

Table 2. Chronology of furbearer harvest on the Kenai Peninsula, 2007–2011.

	Regulatory	Month									
	Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown	Total
Beaver											
	2007-08	0	2	25	16	8	6	5	0	1	63
	2008-09	0	0	19	20	12	10	18	0	8	87
	2009-10	0	7	12	27	30	11	3	15	0	105
	2010-11	0	8	10	6	15	10	3	14	0	66
	2011-12	0	1	6	8	36	8	2	4	0	65
Lynx											
	2007-08[a]	0	0	1	2	4	0	0	0	2	9
	2008-09	0	0	1	3	91	0	0	0	2	97
	2009-10	0	0	6	5	151	116	0	0	0	278
	2010-11	0	0	3	7	271	146	1	0	5	433
	2011-12	0	0	2	7	286	170	0	0	0	465
Marten											
	2007-08	0	0	26	22	48	0	0	0	0	96
	2008-09	0	0	34	51	64	2	0	0	0	151
	2009-10	0	0	41	78	56	0	0	0	0	175
	2010-11	0	0	42	51	28	0	0	0	0	121
	2011-12	0	0	22	49	26	2	0	0	0	99
River otter											
	2007-08	0	0	12	7	19	7	0	0	0	45
	2008-09	0	0	12	8	8	4	1	0	1	34
	2009-10	0	0	11	9	23	14	0	0	0	57
	2010-11	0	0	2	11	21	8	0	0	0	42
	2011-12	0	0	5	8	15	3	0	0	0	31
Wolverine											
	2007-08	0	0	3	5	3	6	1	0	0	18
	2008-09	1	0	4	7	6	6	0	0	1	25
	2009-10	0	0	0	0	3	3	0	0	0	6
	2010-11	0	1	0	5	4	6	0	0	0	16
	2011-12	0	0	0	1	4	5	1	0	0	11

[a] Trapping season closed.

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 8 (5,097 mi^2)

GEOGRAPHIC DESCRIPTION: Kodiak and adjacent islands

BACKGROUND

Archeological evidence indicates the only furbearers indigenous to the Kodiak Archipelago are red foxes, river otters, and short-tailed weasel (Rausch 1969). Recent evidence suggests ground squirrels may have been translocated to the archipelago from the Alaska Peninsula by indigenous peoples more than 4,000 years ago (Clark 2008). There is also evidence Native traders brought furbearer carcasses and parts into the area, resulting in the skeletal remains of those species being deposited in middens. 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, and sightings were common in the Uyak Bay area until the 1980s. Captive red, blue and arctic foxes escaped or were released from widespread fox farms in the early 1900s. Introduced foxes now occur only on Chirikof Island.

Red foxes, river otters, beavers, and weasels (ermine) are the most abundant furbearers on the archipelago. Marten occur only on Afognak Island. Trappers most commonly pursue red foxes, river otters, and beavers. Furbearer populations and trapping pressure have been relatively 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 for all species except river otter is typically affected more by weather than by vagaries in the fur market. The majority of river otter pelts are exported for sale, while most other species are kept on the island for personal use or to sell locally.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

Our goal is to develop measurable objectives for all furbearer species and collect harvest data on river otters and beavers through the mandatory sealing program and statewide trapper questionnaire.

METHODS

We monitored beaver and river otter harvests through a mandatory sealing program. Harvest data were organized by regulatory year (RY). A regulatory year runs from 1 July through 30 June (e.g., RY11 = 1 July 2011–30 June 2012). We distributed statewide trapper questionnaires each year and recorded the number of furs exported from the state. In 2007, a project was initiated to assess the viability of ascertaining river otter population density and trends by investigating DNA from scats deposited at latrine sites on Afognak and the northern part of Kodiak islands.

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.

We surveyed portions of the Kodiak Archipelago coastline for river otter latrine sites during 6–14 June 2011. This was the continuation of a multi-year project and part of a larger effort we are conducting in southcentral Alaska to estimate actual and relative abundance of river otters, to estimate harvest and refugia patterns, and to develop a sustainable-yield model (Golden et al. 2009, 2013). The project is still in the experimental stage, but initial results are promising and it may prove to be a viable tool to use to track otter population trends.

MORTALITY

Harvest

<u>Season and Bag Limit</u>. River 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. River otter harvests declined during this reporting period from an average of 188 during the previous 5 years (RY04 through RY08) to 95 in RY09, 126 in RY10 and 129 in RY11 (Table 1). The number of successful otter trappers remained stable from an average of 24.2 during the previous 5 years to 20 in RY09, 26 in RY10 and 26 in RY11. The average take per trapper dropped from an average of 7.7 otters/trapper during the previous 5 years to an average of 4.8 in RY09, 4.8 in RY10, and 5.0 in RY11.

Beaver trapping season was 10 November–30 April with a bag limit of 30 beavers per trapper. Harvests fluctuated tremendously with an average annual harvest during the previous 5 years (RY04 through RY08) of 39.6 and annual harvests of 54 in RY09, 56 in RY10, and 11 in RY11 (Table 2). The number of successful trappers also fluctuated with an average of 11.6 during the previous 5 years to 13 in RY09, 10 in RY10, and 8 in RY11. The average take per trapper went from an average of 3.4 beavers/trapper during the previous 5 years to 4.2 in RY09, 5.6 in RY10, and 1.4 in RY11.

Red fox trapping season was open 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. Red foxes are the most commonly pursued furbearer in Unit 8 but current methods of monitoring harvest may underestimate the take. Sealing is not required for red fox at this time.

The average annual harvest by trappers and hunters is estimated at 300. 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. Although we have no objective measure, there appeared to be very little trapping effort or take during this reporting period.

Harvests of marten, squirrels and weasels were also 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 during this reporting period.

Harvest Chronology. November is typically the most active month for fur trappers in Unit 8 but harvest chronology for both river 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 4-wheelers common in some years.

Other Mortality

During this reporting period we issued 1 beaver depredation permit in 2011, and 2 permits in 2012. No beavers were reportedly killed as a result of these permits. A single otter depredation permit issued in 2011 and no otters were reportedly killed.

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 there have been no studies of the effects of logging on furbearers in Unit 8.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

The population trend estimation technique for river otters being developed hopefully will provide our first objective analysis of the status of the population. The reported harvest declined from recent highs during this reporting period probably because of a large drop in prices offered for pelts, but the river otter is still the furbearer most susceptible to overexploitation in Unit 8. Genetic data collected during the population surveys indicated the overall allele diversity and levels of observed heterozygosity among otters in the Kodiak Archipelago were relatively low, which is typical of isolated island populations of mammalian carnivores. In comparison with river otter DNA sampled from other areas in southcentral Alaska, we found that despite the relatively short distance (approximately 50 km) between the Kodiak Archipelago and the Alaska Peninsula, Kodiak animals appear to be as isolated genetically from their mainland conspecifics as otters inhabiting Prince William Sound are from those from British Columbia (approximately 1,400 km). Our results also suggest that otters in Katmai National Park and Preserve and in Kodiak Archipelago likely differentiated from one ancestral stock that inhabited the Pleistocene southwestern shores of Alaska and was isolated from other more easterly populations by distance (Seymour et al. 2012).

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) has periodically issued a beaver depredation permit to allow control of nuisance beavers along the highway.

Ground squirrels are a chronic concern at the state airport in Kodiak where they undermine runway edges and damage runway lights. DOT&PF has been issued an unrestricted permit to shoot ground squirrels in the past, but recent concerns about the status of this species has made the stipulations of such permits more constrained.

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 and the restriction remained in effect during this reporting period. 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 remained relatively high during this reporting period. Less than 25 beaver and otter trappers were active in most years and the average annual harvest of all species was estimated at 500 animals. It is important to continue to explore ways to objectively ascertain furbearer population statuses and trends.

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Table 1. Unit 8 river otter harvest, regulatory years 2002 through 2011.

Regulatory	Reported Harvest				Method of Take			Successful
Year	M (%)[a]	F (%)[b]	Unk[c]	Total	Trap/Snare (%)	Shot (%)	Unk[c]	Trappers
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
2006–07	72 (53)	65 (47)	14	151	140 (93)	11 (7)	0	25
2007–08	52 (44)	65 (56)	5	122	110 (95)	6 (5)	6	21
2008–09	56 (53)	50 (47)	2	108	82 (85)	15 (15)	11	18
2009–10	58 (64)	33 (36)	4	95	85 (92)	7 (8)	3	20
2010–11	68 (55)	56 (45)	2	126	118 (96)	5 (4)	2	26
2011–12	57 (63)	33 (37)	39	129	118 (92)	10 (8)	1	26

Table 2. Unit 8 beaver harvest, regulatory years 2002 through 2011.

Regulatory	Reported Harvest					Method of Take					Successful
Year	Juv [a]	(%)	Adult	(%)	Total [b]	Trap/Snare	(%)	Shot	(%)	Unknown	Trappers
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
2006–07	4	(17)	19	(83)	33	20	(69)	9	(31)	4	11
2007–08	15	(29)	37	(71)	56	41	(84)	8	(16)	7	15
2008–09	4	(21)	15	(79)	22	22	(100)	0	(0)	0	7
2009–10	19	(37)	32	(63)	54	47	(87)	7	(13)	0	13
2010–11	17	(31)	38	(69)	56	56	(100)	0	(0)	0	10
2011–12	2	(20)	8	(80)	11	9	(90)	1	(10)	1	8

[a] Beavers ≤ 52" were reported as juveniles (Juv); beavers not measured are not included in analysis, but are included in totals.
[b] Includes beavers that could not be measured.

Table 3. Unit 8 river otter harvest chronology percent by month, regulatory years 2002 through 2011.

	Harvest periods					
Regulatory year	November	December	January	February[a]	Unknown	*n*
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
2006–07	30	56	9	0	5	151
2007–08	35	46	19	0	0	122
2008–09	31	30	30	0	9	108
2009–10	21	72	7	0	0	95
2010–11	35	50	13	0	2	126
2011–12	18	67	10	0	5	129

[a] season closed 31 January

Table 4. Unit 8 beaver harvest chronology percent by month, regulatory years 2002 through 2011.

	Harvest periods								
Regulatory year	November	December	January	February	March	April	May	Unknown	*n*
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
2006–07	43	15	6	6	0	30	0	0	33
2007–08	47	15	8	2	14	12	0	2	49
2008–09	31	23	23	0	9	5	0	9	22
2009–10	26	46	19	0	0	9	0	0	54
2010–11	52	16	16	2	7	7	0	0	56
2011–12	27	19	27	0	0	27	0	0	11

Table 5. Unit 8 river otter harvest percent by transport method, regulatory years 2002 through 2011.

Regulatory year	Percent of harvest								
	Airplane	Boat	3/4-wheeler	Snow machine	ORV[a]	Highway vehicle	Foot	Unknown	*n*
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
2006–07	18	52	12	0	1	4	1	12	151
2007–08	4	49	9	3	0	30	0	5	122
2008–09	3	65	0	0	0	2	5	25	108
2006–07	18	52	12	0	1	4	1	12	151
2007–08	4	49	9	3	0	30	0	5	122
2008–09	3	65	0	0	0	2	5	25	108
2009–10	3	58	0	1	0	12	18	8	95
2010–11	9	47	5	0	0	29	1	9	126
2011–12	3	62	1	0	0	22	1	11	129

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

Table 6. Unit 8 beaver harvest percent by transport method, regulatory years 2002 through 2011.

Regulatory year	Percent of harvest								
	Airplane	Boat	4-wheeler	Snow machine	ORV[a]	Highway vehicle	Foot	Unknown	*n*
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
2006–07	0	27	37	3	0	15	0	18	33
2007–08	14	11	21	9	0	30	2	13	56
2008–09	0	0	45	0	0	14	41	0	22
2009–10	4	4	13	0	0	76	3	0	54
2010–11	0	28	15	0	15	25	2	15	40
2011–12	0	18	0	0	9	46	0	27	11

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

SPECIES

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 2009
To: 30 June 2012

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*), river 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 2,000 feet. Beaver harvests have declined dramatically since 867 were taken in regulatory year (RY) 1987 (a regulatory year runs from 1 July through 30 June; e.g., RY87 = 1 July 1987–30 June 1988). Harvests averaged 171 beaver during the 1990s and have averaged 105 since 2000. Beaver harvests averaged 112 during RY06–RY08. 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.

Coyotes apparently first arrived in Alaska near the turn of the twentieth 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 efforts. Sport hunters generally take a few coyotes.

Red foxes occur 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 (USFWS) removed introduced fox populations from many Aleutian islands to return the habitat to a "pre-introduction" 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 that come every 8 to 10 years can sometimes be predicted. 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. The last apparent peak, based on harvest, occurred during 2003.

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 factor 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.

River 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. Otter harvest reached a peak of 160 during 2004 but has since declined to below 100.

Wolverines live on the mainland and Unimak Island. Compared to other furbearers, wolverines never attain high densities, due in part to their large territorial requirements and low reproductive rate. On average, 64 wolverines per year were taken from Unit 9 during regulatory years 1974 through 1994. Since 2003 harvests have averaged 35 wolverines. There has not been a reported harvest of wolverines from Unit 10 since 1980.

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 that obtained from this data source. Harvest data were summarized by regulatory year (RY).

The harvest of unsealed furbearers (coyote, red fox, arctic fox, marten, mink, and muskrat) could not be estimated with any confidence. However, a trapper questionnaire survey from RY10 (ADF&G 2012) and other incidental information provided a rough, qualitative index to trends in populations of furbearers and key prey species.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver. During the late 1990s through RY08 trappers rated beaver as abundant and increasing. In RY10 trappers (*n*=6) rated beaver as common and increasing (ADF&G 2012).

Coyote. Trappers rated the coyote population as being low in abundance but increasing since 2000. Interspecific conflict with wolves, which were ranked abundant and increasing, may be limiting the coyote population to relatively low numbers. In RY10 trappers rated coyotes as, interestingly, not present and decreasing.

Red Fox. Red fox were the most prevalent furbearer species based on trapper ratings since 2000. In RY10 trappers rated red fox as abundant with no change in trend.

Lynx. Trappers reported that lynx increased to a rating of common and increasing trend in RY10. Snowshoe hares were also rated common with a stable trend.

Marten. Marten distribution is very limited within Unit 9, and changes in status are difficult to document. In RY10 trappers rated marten as scarce with no change in trend.

Mink. Mink abundance was reported as common with no change in trend in RY10.

Otter. Otter abundance was reported as abundant and stable in Unit 9 during the reporting period.

Wolverine. Trappers reported wolverines as common and stable in RY10.

MORTALITY

Harvest

Based on harvest of sealed species, trapping conditions were generally favorable during the reporting period. During RY10, 90% of southwestern trappers reported fair to good trapping conditions.

Season and Bag Limits. The beaver trapping season in Unit 9 was 10 October–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. Beaver harvest ranged from 104 to 122 during the reporting period, which was similar to previous years (Table 1).

The coyote trapping season in Unit 9 was 1 October–30 April with no bag limit during this reporting period. The trapping season in Unit 10 was 10 November–31 March with no bag limit during this reporting period. The coyote trapping season in Unit 10 was 10 November–31 March with no bag limit. The coyote hunting seasons in these units were 10 August–25 May with a bag limit of 10 coyotes. 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 10 November through the last day of February with no bag limit. The red fox hunting season in both units was 1 September–15 February with a 2 fox bag limit. The arctic fox hunting season in Unit 9 was 1 September–30 April with a bag limit of 2 foxes. 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 Units 9 and 10 were 10 November through the last day of February with no bag limits either year. The lynx hunting season in Unit 9 ran concurrent with the trapping season with a bag limit of 2. Unit 10 was not open for lynx or marten trapping or hunting. Lynx harvest reached 2 consecutive record highs of 64 and then 86 during regulatory years 2010 and 2011, respectively (Table 1), as a result of increasing population size and favorable trapping conditions. Marten are not required to be sealed in Unit 9, so no harvest estimates are available.

The mink trapping season was 10 November through the last day of February in Units 9 and 10 with no bag limit. In both units 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 harvest averaged 70 during this reporting period which is within the normal range of fluctuation (Table 1).

The trapping season for wolverines in Units 9 and 10 was from 10 November through the last day of February with no bag limit. Harvest in Unit 9 ranged from 28 to 35 during the reporting period, and no harvest was reported for Unit 10. These were normal harvest levels.

Board of Game Actions and Emergency Orders. There were no actions taken by the Board nor were any emergency orders issued during the reporting period.

Trapper Residency and Success. Residents of communities in Unit 9 have taken 87% of the reported fur harvest in the unit since 2000. Alaska residents from other areas and nonresidents accounted for 8% and 5% of the fur harvest, respectively.

For species with sealing requirements, an average of 19, 26, and 20 trappers successfully took beaver, lynx, otter, and wolverine, respectively, during this reporting period. The average take per successful trapper of each species was 7 beavers, 5 lynx, 4 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 all-terrain vehicles were the most common means of access for beaver, lynx, otter, and wolverine trappers (Table 3). Variation in the use of these 2 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.

CONCLUSIONS AND RECOMMENDATIONS

The furbearer harvests in Units 9 and 10 remain low with a relatively stable long-term trend despite annual fluctuations in the harvest of some species. 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 to be below sustainable yield based on abundance indices and the lack of harvest in vast areas.

Harvest information was sufficient for management purposes for all species of furbearers requiring sealing in Unit 9. Harvest information for unsealed species does not exist except through discussions with individual trappers.

Reports from trappers through both personal contact and trapper questionnaires provided a useful relative index to species 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. Assessing lynx and wolverine population densities using probability sampling is not feasible in Unit 9 due to typically poor snow conditions. Given the logistical constraints to assessing 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.

LITERATURE CITED

ADF&G (Alaska Department of Fish and Game). 2012. Trapper Questionnaire Statewide Annual Report, 1 July 2010–30 June 2011. Wildlife Management Report ADF&G/DWC/WMR-2012-2. Alaska Department of Fish and Game, Juneau.

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Crowley, D. W. 2013. Unit 9 and 10 furbearer management report. Pages 129–137 [*In*] P. Harper and Laura A. McCarthy, editors. Furbearer management report of survey and inventory activities 1 July 2009–30 June 2012. Alaska Department of Fish and Game, Species Management Report, ADF&G/DWC/SMR-2013-5, Juneau.

Table 1. Unit 9 beaver, lynx, otter and wolverine harvest, regulatory years 2007–2011.

Species	Regulatory Year	Reported Harvest							Method of Take			
		M	F	Unk.	Juvenile	Adults	Unk.	Total	Trap/Snare	Shot	Unk.	Total Trappers
Beaver	2007-08	0	0	66	25	41	0	66	64	0	2	11
	2008-09	0	0	125	23	102	0	125	125	0	0	14
	2009-10	0	2	120	16	83	23	122	122	0	0	17
	2010-11	5	4	95	17	86	1	104	85	3	0	18
	2011-12	0	0	111	27	78	6	111	111	0	0	12
Lynx	2007-08	0	0	14	0	7	7	14	11	2	1	9
	2008-09	0	0	12	1	8	3	12	12	0	0	6
	2009-10	18	8	4	4	23	3	30	30	0	0	9
	2010-11	42	21	1	2	49	13	64	63	1	0	17
	2011-12	14	13	59	5	70	11	86	86	0	0	10
Otter	2007-08	43	28	6	0	0	77	77	67	5	5	20
	2008-09	50	35	17	0	0	102	102	90	8	4	24
	2009-10	38	29	9	0	0	76	76	73	3	0	17
	2010-11	44	27	8	0	0	79	79	77	2	0	26
	2011-12	23	9	22	0	0	54	54	51	3	0	16
Wolverine	2007-08	24	3	0	0	0	27	27	22	5	0	17
	2008-09	19	11	2	0	0	32	32	28	4	0	18
	2009-10	20	9	0	0	0	29	29	24	4	0	19
	2010-11	22	3	3	0	0	28	28	25	3	0	16
	2011-12	22	7	6	0	0	35	35	29	5	1	20

Table 2. Unit 9 beaver, lynx, otter and wolverine harvest percent chronology by month, regulatory years 2007–2011.

		Harvest Periods						
Species	Regulatory Year	September-October	November	December	January	February	March	April-May
Beaver	2007-08	35	46	8	2	6	3	0
	2008-09	38	16	26	12	6	2	0
	2009-10	16	25	38	12	7	2	0
	2010-11	22	9	21	7	17	21	3
	2011-12	68	21	8	1	0	3	0
Lynx	2007-08	0	29	21	29	21	0	0
	2008-09	0	0	25	33	42	0	0
	2009-10	0	0	23	37	40	0	0
	2010-11	0	2	22	48	28	0	0
	2011-12	0	2	9	31	29	28	0
Otter	2007-08	0	25	27	6	26	16	0
	2008-09	0	22	23	22	25	9	1
	2009-10	0	16	36	18	25	5	0
	2010-11	1	13	20	22	29	15	0
	2011-12	0	24	9	35	19	9	4
Wolverine	2007-08	4	4	15	33	41	4	0
	2008-09	0	3	28	31	34	3	0
	2009-10	3	7	28	34	24	3	0
	2010-11	0	4	7	36	39	14	0
	2011-12	6	9	37	20	23	6	0

Table 3. Unit 9 beaver, lynx, otter, and wolverine harvest percent by transportation method, regulatory years 2007–2011.

		Percent of Harvest								
Species	Regulatory Year	Airplane	Dogsled	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway Vehicle	Ski, Snowshoe	Unk.
Beaver	2007-08	0	0	17	12	14	0	3	53	2
	2008-09	0	0	32	42	13	0	0	14	0
	2009-10	19	0	13	64	4	0	0	0	0
	2010-11	0	0	7	48	15	0	2	13	15
	2011-12	0	0	87	1	10	0	0	2	0
Lynx	2007-08	0	0	0	0	50	0	36	0	14
	2008-09	0	0	0	33	50	0	8	8	0
	2009-10	0	0	0	63	27	0	0	0	10
	2010-11	3	0	0	70	22	0	3	2	0
	2011-12	0	0	0	2	92	0	0	6	0
Otter	2007-08	0	0	1	26	26	3	5	32	6
	2008-09	0	0	0	27	31	0	4	36	3
	2009-10	3	0	0	54	16	0	5	22	0
	2010-11	0	0	1	58	16	4	9	9	3
	2011-12	0	0	7	30	24	0	11	26	2
Wolverine	2007-08	4	0	0	7	52	0	4	30	4
	2008-09	0	0	3	18	42	0	3	33	0
	2009-10	3	0	0	48	3	0	14	28	3
	2010-11	4	0	0	43	32	0	4	18	0
	2011-12	3	0	3	11	51	0	3	26	3

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

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 river 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 GOAL

- 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 (ADF&G 2012, ADF&G 2013) 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. Standardized aerial transects, each approximately 8 km long and 0.4 km wide, are flown in late winter. While unfavorable conditions prevented a lynx track survey in 2010, survey flights were conducted the winters of 2011 and 2012.

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 considered beavers and river otters to be common on their lines and indicated that current population levels are similar to those reported in previous years.

Based on the aerial lynx track survey index, combined with sealing records and field observations, lynx numbers in Units 11 and 13 are down slightly from a high in 2010–2011. The lynx population appears to follow a 9- to 10-year cycle, with peaks in 1972, 1982, 1991, 2000, and 2010. Harvest data indicate the peak in 2010 was the highest in recent history. 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 8-fold. Minimal lynx track surveys were flown between 1998 and 2001, though the population likely peaked in 1999 or 2000. Lynx numbers declined again in 2002, rebounding in 2010 when a record of 1,297 lynx were sealed from Unit 13, a 30-fold increase from 2002.

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 peaks in 1989 and 1990. The 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 (Judy Putera, Wildlife Biologist, 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 increased substantially. Hare numbers (and then lynx harvest) generally increase first in northern portions of Units 11 and 13, and then gradually increase south 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 4.7–5.2 wolverine/1,000 km^2 (Gardner and Becker 1991, Golden 1996). Trappers responding to the trapper questionnaires in 2011 and 2012 considered wolverines to be scarce, though recent staff observations indicate 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. While marten tracks were common during the winter of 2006–2007, they have declined substantially since then. Most trappers indicate a relative absence of marten in areas where lynx are abundant; however, there has been no documented cause and effect between the existences of these species. This relationship is likely due to complex predator/prey dynamics. Direct interactions between marten and voles, as well as lynx and marten may play some part in this pattern. Another consideration is the tremendous increase in numbers of birds of prey during exceptional snowshoe hare highs, and their impact on the vole population, and subsequently marten. Martin numbers continue to be low in Units 11 and 13.

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 and other small groups, though, have 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 be on the rise. In the past 7 years, competition with wolves has declined substantially in Unit 13 due to an ongoing predator management program, and trappers reported coyotes to be common in the 2011 and 2012 trapper questionnaires.

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. Foxes were considered common in 2001 and 2002, but scarce in 2003. Since then, snowshoe hare numbers as well as fox numbers have increased. Annual variations in brood survival of spruce grouse, limited numbers of ruffed and sharp-tailed grouse, and ptarmigan population levels likely also impact fox abundance. Early winter temperatures can also impact survival of young fox. Trappers surveyed for the 2011 and 2012 trapper questionnaires reported foxes to be common in Units 11 and 13.

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 2002–2003 had the highest muskrat population in over 20 years, based on the number of houses and pushups in many lakes and marshes, although it only seemed to last 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 stable, though trappers reported mink to be scarce in the 2011 and 2012 trapper questionnaires.

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 areas of the state, followed by increases in southcentral areas. Many lynx carcasses observed 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 movement and dispersal of these lynx is 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 to 15 May, with no bag limit. Beginning in 2001, 2 weeks were added to the beginning of the season. In 2003, 2 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 to 31 May.

Between 1988 and 2004, the beaver trapping season in Unit 11 was 10 November to 30 April, with a bag limit of 30 beavers per season. In 2005 the season was lengthened to 31 May, and a take-by-firearm provision was added to be in effect between 15 April and 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. Since RY07, the Unit 11 and 13 beaver trapping regulations have been the same. The state and federal subsistence trapping seasons are also aligned. Beaver cannot be harvested under state hunting regulations, but can be harvested under federal subsistence hunting regulations on federal lands from 1 June to 10 October in Unit 11, and from 15 June to 10 September in Unit 13.

The coyote hunting season was aligned with Interior Alaska game management units beginning in RY03; the season was 10 August to 30 April with a bag limit of 10 coyotes. In 2009, the season was liberalized further across much of Southcentral Alaska. The season was lengthened to 10 August to 31 May, and the bag limit was changed to 10 per day. Currently the Unit 13 coyote hunting season runs from 10 August to 25 May, with no bag limit. While this change added some opportunity to take coyotes in the spring, the effect of this change is expected to be minimal. The coyote trapping season in Unit 11 runs from 10 November to 31 March, with no bag limit. In Unit 13 coyote may be trapped from 15 October to 30 April, with no bag limit.

The fox hunting seasons in Unit 11 and 13 were aligned with Interior Alaska game management units beginning in RY03, and currently the fox hunting season runs from 1 September to 15 March, with a bag limit of 10 foxes (no more than 2 may be taken prior to 1 October). The fox trapping season in Units 11 and 13 runs 10 November to 28 February with no bag limit.

The hunting season for wolverine runs 1 September to 31 January, with a bag limit of 1 wolverine in both Units 11 and 13. Between 1985 and 1991, the trapping season ran 10 November to 28 February, but in 1992 the trapping seasons in both Units 11 and 13 were reduced to 10 November to 31 January. Between 1992 and 1996, a 2-wolverine bag limit was in place, but the limit was determined to be unnecessary and was eliminated by the Board of Game. In 2008 the federal subsistence trapping season in Unit 11 was increased to 10 November to 28 February.

From 1997 to 2002, the marten trapping season in Subunit 13E was 10 November–31 December, and marten had to be sealed. The season in the remainder of Unit 13, and in 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 Units 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 runs 25 September to 10 June in Unit 13 and 10 November to 10 June in Unit 11.

River otter trapping seasons in Units 11 and 13 run from 10 November to 31 March, with no bag limit.

Since 1997, the trapping season for mink and weasels has been 10 November–28 February. There are no hunting seasons for these species.

The lynx trapping seasons in Units 11 and 13 were set according to the lynx tracking harvest strategy (THS) from the late 1980s to 2009. 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 during the cyclic decline to keep the population from being pushed even lower by high harvests.

Between 2002 and 2004, during the last lynx low, the season was shortened to 1 December–15 January. Beginning in 2005, the season has been slowly increased each year. Since 2007, the season has run 10 November through the end of February. Since 2005 the lynx hunting season has been 10 November–28 February, with a bag limit of 2 lynx.

Hunter/Trapper Harvest. The beaver harvest in Unit 11 has fluctuated between zero and 31 during the last several reporting periods, with the highest harvest of 31 reported in RY07 (Table 1). Historically, the highest harvest was 56 beaver taken in 1985, but harvests have fluctuated appreciably between years. An average of 2 trappers harvested beaver annually in Unit 11 during this reporting period.

The beaver harvest in Unit 13 over the past decade has been relatively stable, and averaged 233 beaver per year during this reporting period (Table 2). The harvest of 360 beavers in RY02 was the highest annual harvest ever recorded. The previous historic peak was during the RY86 and RY88 seasons, with reported catches of 333 and 300 beavers, respectively. The percentage of kits in the harvest has ranged from 19% to 30% over the last 5 years (Table 2).

While beaver 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. The season was extended 45 days in Unit 13 in 2003 to add additional opportunity to take muskrats during the fall, though the harvest has not likely increased significantly.

River otter harvests in Unit 11 are very low, and have ranged from 2 to 5 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 34 otters (Table 4), down from the previous 5-year average of 40 otters per year. Since 1977 the annual harvest has averaged 31 otters (range 5–68) for Unit 13.

During the lynx peak in 2000, the annual combined lynx harvest in Units 11 and 13 was 693. In 2010, the most recent lynx peak, the combined harvest of lynx for the two units was 1,583, the highest recorded in the last 30 years. During the last low, very few trappers even attempted to take lynx in Unit 11 due to the difficult access. The average take between 2002 and 2004 was only 4 lynx by an average of 3 trappers each year. Take started to increase rapidly in 2005 as lynx numbers increased, reaching a peak of 350 lynx in 2008 (Table 5). The number of successful lynx trappers in Unit 11 went from 2 in 2003 up to 25 in 2008. The percentage of kittens has been variable since 2007, averaging 21%.

In Unit 13, kittens peaked at 43% of harvest in 1997 and dropped off steadily until they bottomed out at 12% in 2001, just one year after the peak harvest. Harvest of all lynx bottomed out in 2002. From there, the percentage of kittens increased steadily until they reached 31% in 2005. The following year the number of kittens harvested dropped to 11%, even though harvest of lynx continued to steadily climb. Kittens in the harvest peaked at 29% in 2008, dropped to 23% in 2009, then dropped significantly to only 1% in 2011 (Table 6). In 2010, 1,297 lynx were harvested in Unit 13, the highest recorded in the past 30 years. Observations during 2010 suggested the snowshoe hare population had started to decline in certain areas, and reports suggested that hare numbers continued to decline during the following years. Presently, hares are scarce across most of Units 11 and 13.

The take of wolverine in Unit 11 remains relatively low for the amount of wolverine habitat available (Table 7). Wolverine season has historically opened 10 November. Prior to 1985, the season ran through the end of March. From 1971 to 1984 the average take was 28 wolverines per year. Between 1985 and 1991, the season was shortened to 10 November–28 February; the average harvest dropped to 10 per year, 34% of which were females. In 1992, the season was shortened again to 10 November to 31 January; the average harvest since then has been 10 per year, 32% of which have been females. Due to the low number of successful wolverine trappers and wolverine taken, the federal subsistence season was lengthened in Unit 11 in 2008 and the season was extended to 28 February. During this reporting period an average of 11 wolverine were harvested annually in Unit 11.

While there is better access and there are more wolverine trappers in Unit 13, the wolverine harvest, similar to Unit 11, has remained stable since 1985. The Unit 13 take has averaged 37 per year, and ranged from 16 in 1988 to a high of 63 in 2009. For the past 5 years the annual harvest has averaged 45 (Table 8), up from the previous 5-year average of 36 wolverine. Males have consistently accounted for the majority of the harvest in Unit 13. The female percentage of the harvest averaged 37% during this reporting period.

Harvest locations from both units indicate most wolverines harvested are from the foothills of the Chugach, Talkeetna, Alaska, and Wrangell mountain ranges. There appear to be large areas of refugia between harvest locations, particularly in Unit 11.

Marten harvest data are not directly available in Units 11 and 13, due to the lack of sealing requirements. Sealing of marten was required between 1992 and 2002 in Subunit 13E, but has since been discontinued. The price paid by Alaskan fur buyers dropped considerably on most furs in 1997, marten included. Lower prices led to drastic declines in the number of marten purchased by Alaskan fur buyers as well as exported by individual Alaska trappers statewide (Kephart 2001). The price for marten remained low until 2004, when prices more than doubled. Higher prices held up in 2005 and 2006, but declined in 2009, before doubling again in 2011. Marten have historically been the most economically important furbearer in Units 11 and 13. However, during this reporting period many trappers shifted their trapping efforts in response to the high in the lynx population, and a decline in marten numbers.

Hunter/Trapper Residency and Trapper Success. Interest in beaver trapping in Unit 11 has remained low; 2–3 trappers reported taking beaver annually during this reporting period. The highest beaver trapping pressure was in the mid-1980s, when 13 trappers reported taking 56 beaver in 1985. Trapping and snaring were the most reported methods of take (Table 1). Interest in trapping beaver in Unit 13 has varied year to year, though the number of successful trappers averaged 33 over the past 5 years. Trapping and snaring were the most reported methods of take; however, 20 (12%) beaver were shot in 2007 under federal subsistence regulations (Table 2).

On average 4 otters have been harvested annually from Unit 11 over the last 5 years by 2 to 3 trappers (Table 3). The harvest and number of successful trappers in Unit 13 peaked in 1983 (68 otters were taken by 24 trappers), then again in 1994 (61 otters were taken by 26 trappers). An average of 17 trappers successfully harvested otter annually during the last 5 years in Unit 13, down from the previous 5-year average of 21. The average successful trapper caught 2 otters annually during this reporting period. Trapping and snaring were the most reported methods of take for otters in Unit 11 and 13 (Tables 3 and 4 respectively).

In Unit 11 the number of successful lynx trappers dropped to only 2 during the low in 2002 and 2003, reflecting the lack of effort when lynx are scarce. Since then the lynx population has increased substantially, and the number of successful lynx trappers increased to 25 in 2008. Similar to the other trapped species, nearly all lynx harvested in Unit 11 are taken by local residents. These trappers harvested an average of 14 lynx per person, for a total record catch of 350 in 2008 (Table 5). During this reporting period an average of 18 trappers harvested an average of 254 lynx annually. In Unit 13, trapping effort is more consistent, even during the lynx lows. During the last low in 2002, 27 trappers reported taking an average of 2 lynx per person in Unit 13. This number has since increased to 119 successful trappers in 2009, each catching an average of 11 lynx (Table 6) for a total take of 1,257 lynx. For this reporting period, the most commonly reported method of take for lynx in both Units 11 and 13 was trapping (Table 5 and 6), accounting for 95% and 86% of all lynx taken, respectively. Snaring is also another commonly used method for taking lynx in this area.

During this reporting period, an average of 7 trappers harvested an average of less than 2 wolverines each per year in Unit 11. The total annual take in Unit 11 ranged from 8 to 14 (Table 7). The number of trappers taking wolverine in Unit 11 has been relatively stable, averaging 7 per year since 1982. The average successful wolverine trapper in Unit 13 takes 2 wolverines per year; however, there are more trappers in Unit 13 due to better accessibility. An average of 26 trappers successfully harvested wolverine each year during this reporting period. The most common method of take for wolverine in both units has been trapping (Table 7 and 8). While ground shooting is uncommon for wolverine in Unit 11 (Table 7), an average of 4 wolverines per year were shot in Unit 13 during this reporting period (Table 8).

Harvest Chronology. In Unit 11, beaver harvests have been low and chronology highly variable. In 2007 the season opener was moved up to 25 September to allow more open water trapping opportunity. During this reporting period no beavers were reported harvested in September in Unit 11, though an average of 4 were harvested in October. In Unit 13, chronology data indicate most beaver are taken early or late in the season, with few trappers expending much energy trying to take beaver 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 RY01, the early 25 September season opening has afforded trappers a longer open water season. Since RY01, 51% of beaver harvested annually in Unit 13 have been taken during this early period (September and October). The summer federal subsistence season has likewise added additional early season opportunity in recent years. During this reporting period, up to 18% of the total harvest has occurred during the fall months of August and September. Much of the remaining harvest occurs during October (Table 10). Harvest generally increases again 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 chronology highly variable (Table 11). In Unit 13, December through February continue to be popular (Table 12). During years of late freeze-up and continual open water, the harvest chronology is more variable.

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; however, the exceptional number of lynx in the last few years has allowed trappers to take lynx consistently throughout the season (Table 14). While Unit 13 trappers utilize the entire season length, the late freeze-up of large rivers such as the Copper and Chitina rivers generally keep trappers from accessing their lines in Unit 11 till midwinter. The harvest chronology reflects this access problem. As the season is lengthened, the majority of the harvest shifts to later in the season.

Harvest chronology data for wolverine in Units 11 and 13 are included in Tables 15 and 16, respectively. 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 to 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. The take is generally similar in December and January.

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 due to the extended season dates and accessibility (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 Units 11 and 13 are compiled annually from the trapper questionnaire, sealing data, and staff contact with trappers. Although the average age of trapper questionnaire respondents increased slightly in recent years, the number of trappers taking a young person (under 16) along has remained around 40% (Schumacher 2013). While fuel prices have come down somewhat in the last 2 years, fur prices have been highly variable year to year.

Trapping in Southcentral Alaska 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 spent trapping 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. 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 another person's trapline. These problems are exacerbated when trappers let their lines sit vacant for a year or two, or poor snow conditions early in the season preclude setting during the first few days of the season.

Furbearer populations in Units 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 2 weeks in late May in 2003 had no effect. After 2002, the harvest dropped back to the average observed prior to the changes, then increased again in 2010 and 2011. 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 $12.82 and $32.56 between 2006 and 2011. Despite low prices, trappers still trap beaver for a variety of reasons. Some trappers have found markets for carcasses, and sometimes for skulls. Beaver trapping continues to be an educational tool for young people as well. Beaver populations are considered healthy across both Units 11 and 13. Trapping is not concentrated, with the possible exception of 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 related to prices paid for pelts. As with other furs, there was a decline in harvest and price paid for otter during the late 1990s, though in the past few years harvest has risen slightly and the price has rebounded to $80–$90. Otter harvest in Unit 11 is extremely low, similar to beaver. Trapper reports and field observations suggest the current otter harvests are sustainable.

Since the peak in the early 1970s, lynx population highs in this area have had decreasing amplitudes until these past few reporting periods. In RY01, the peak was comparable to that in the early 1970s. For RY09, the population appeared to be twice what it was in RY00. It is unknown whether the high amplitude of the most recent peak is due to the THS, environmental conditions, or a combination of both. Regardless, the lynx population appears healthy, and the cycle on track. We expect a sharp decline in the lynx harvest after the 2011 season, evidenced by a reduction in the snowshoe hare population, and the large drop in the number of juveniles harvested in 2011.

Trapper reports and general observations suggest wolverine numbers are common in mountainous areas of Units 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 been detected since 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, with the federal subsistence season recently being lengthened to the end of February, local wolverine trappers now have some additional opportunity to take wolverine. The lack of access, the low harvest, and the high percentage of males being taken by relatively few trappers suggest this longer season should be sustainable in Unit 11.

Marten will continue to be the most important furbearer to individuals trapping in Units 11 and 13, even though many shifted to lynx during the recent high. Though pelt prices dropped by over 50% during the 1990s, they have recovered somewhat in recent years. 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.

With high snowshoe hare numbers, the abundance of both fox and coyote has increased during this reporting period. With reduced wolf numbers across Unit 13 due to an active wolf control program, there is a possibility coyotes have been moving in to new areas as a result. Recent reports of coyotes on the lower Tyone River in central Unit 13 this winter, previously an area with high wolf numbers, lend some support to this idea. 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 increased during this reporting period, hitting 329 in 2010 (Schumacher, 2012). As with lynx, we expect a sharp decline over the next few years in the productivity of both fox and coyotes as a result of the recent drop in the population of snowshoe hares. This decline in productivity will likely be reflected in lower harvest numbers for fox and coyote during the next reporting period.

While muskrat, mink, and weasels are common in Units 11 and 13, the harvest of all 3 continues to be low and largely dependent on individual trapping efforts. Average prices paid by Alaska fur buyers in RY10 were $7.22 for muskrat, $16.78 for mink, and $3.49 for weasels (Schumacher 2012), and $9.97, $22.83, and $3.57, respectively, in RY11 (Schumacher 2013); these prices were considerably more than what was reported in RY04. There were no overall population trends detected other than annual fluctuations in abundance for these species.

Comments received from the trapper questionnaire have, in the past, 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. Trapping effort was higher than average during this reporting period due to the exceptionally high lynx numbers. 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.

Recent trapper questionnaires have included questions regarding the recent louse infestation of wolves in the Matanuska-Susitna Valley and elsewhere. Trappers have been very concerned about the spread of lice to wolves in Unit 13. Since RY00, several lousy wolves have been confirmed in Unit 13; however, these infestations have been isolated to localized areas. While it is common to see coyotes and foxes with skin infections that cause hair matting, thin hair, or broken guard hairs, no species other than wolf has been confirmed to have lice in this area.

These incidents have created concern over the future of wolf management in the Copper River Basin. During this reporting period no lousy wolves were confirmed; however, some trappers and Same Day Airborne wolf control pilots reported poor fur quality around the groin and between the shoulders of some wolves, indicating possible lice infestations. Trappers will have little incentive to trap wolves, and pilots will have less incentive to participate in Same Day Airborne programs if lice become more prevalent in the area and the hides are of diminished value.

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. During this reporting period, trappers utilized the full length of the extended lynx season, with up to 30% of the lynx taken in February. With high lynx and fox numbers, in addition to increasing fur prices, trappers will likely continue to trap through the end of the season during the next couple of years. Competition for available roadside trapping areas, and existing trails will continue to be an issue for trappers in Unit 13. Responses to the trapper 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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Table 1. Unit 11 beaver harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv.[a]	%[a]	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2007	26	5	16%	0	31	31	100%	0	0%	0
2008	16	6	27%	0	22	22	100%	0	0%	0
2009	6	3	33%	0	9	9	100%	0	0%	0
2010	2	2	50%	0	4	4	100%	0	0%	0
2011	10	1	9%	0	11	11	100%	0	0%	0

[a] Beaver < 52 inches.

Table 2. Unit 13 beaver harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv.[a]	%[a]	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2007/08	124	53	30%	9	186	152	88%	20	12%	14
2008/09	139	34	20%	0	173	170	100%	0	0%	3
2009/10	119	28	19%	1	148	146	99%	1	1%	0
2010/11	173	62	26%	24	259	258	100%	1	0%	0
2011/12	230	60	21%	3	293	291	100%	1	0%	1

[a] Beaver < 52 inches.

Table 3. Unit 11 otter harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Males	%	Females	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2007	1	33%	2	1	4	4	100%	0	0%	0
2008	3	60%	2	0	5	5	100%	0	0%	0
2009	2	67%	1	0	3	3	100%	0	0%	0
2010	2	40%	3	0	5	5	100%	0	0%	0
2011	2	100%	0	0	2	2	100%	0	0%	0

Table 4. Unit 13 otter harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Males	%	Females	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2007	13	54%	11	1	25	25	100%	0	0%	0
2008	28	80%	7	6	41	40	98%	1	2%	0
2009	13	72%	5	8	26	26	100%	0	0%	0
2010	26	67%	13	4	43	43	100%	0	0%	0
2011	15	69%	8	12	35	33	97%	1	3%	1

Table 5. Unit 11 lynx harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv.[a]	%[a]	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2007	144	52	27%	0	196	196	100%	0	0%	0
2008	235	115	33%	0	350	349	100%	1	0%	0
2009	213	78	27%	0	291	270	97%	8	3%	13
2010	214	72	25%	0	286	285	100%	1	0%	0
2011	164	21	11%	1	186	181	97%	5	3%	0

[a] Lynx $\le$ 35” in length.

Table 6. Unit 13 lynx harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest					Method of Take				
Year	Adult	Juv.[a]	%[a]	Unk.	Total	Trap/snare	%	Shot	% Shot	Unk.
2007	417	123	23%	11	551	532	98%	12	2%	7
2008	671	269	29%	53	993	965	98%	15	2%	13
2009	943	278	23%	36	1,257	1,193	96%	45	4%	19
2010	931	294	24%	72	1,297	1,215	97%	34	3%	48
2011	763	9	1%	37	809	757	94%	52	6%	0

[a] Lynx $\le$ 35 inches in length.

Table 7. Unit 11 wolverine harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest						Method of Take				
Year	Males	(%)	Females	(%)	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2007	16	76%	5	24%	0	21	21	100%	0	0%	0
2008	6	75%	2	25%	0	8	8	100%	0	0%	0
2009	9	64%	5	36%	0	14	13	93%	1	7%	0
2010	5	56%	4	44%	0	12	12	100%	0	0%	0
2011	4	50%	4	50%	0	8	7	88%	1	12%	0

Table 8. Unit 13 wolverine harvest, regulatory years 2007–2012.

Regulatory	Reported Harvest						Method of Take				
	Males	(%)	Females	(%)	Unk.	Total	Trap/snare	(%)	Shot	% Shot	Unk.
2007	34	76%	11	24%	1	46	38	83%	8	17%	0
2008	23	59%	16	41%	1	40	38	95%	2	5%	0
2009	34	56%	27	44%	2	63	60	95%	3	5%	0
2010	22	65%	12	35%	3	37	35	95%	2	5%	0
2011	29	74%	10	26%	2	41	35	85%	6	15%	0

Table 9. Unit 11 beaver harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest Periods								
Year	September	October	November	December	January	February	March	April	*n*
2007	0	6	23	16	0	0	29	26	31
2008	9	0	23	14	0	0	32	23	22
2009	0	100	0	0	0	0	0	0	9
2010	0	50	50	0	0	0	0	0	4
2011	0	27	0	18	36	18	0	0	11

[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, regulatory years 2007–2012.

Regulatory	Harvest Periods										
Year	August[a]	September	October	November	December	January	February	March	April	May	*n*
2007	5	18	32	17	2	2	0	8	8	8	186
2008	0	28	27	12	3	2	6	3	1	18	173
2009	0	21	18	4	2	3	10	33	7	1	147
2010	0	27	16	6	10	6	2	0	10	22	259
2011	0	8	33	4	5	1	0	4	17	27	293

[a] All beavers harvested in August were taken under Federal Subsistence Regulations.

Table 11. Unit 11 otter harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest periods						
Year	November	December	January	February	March	April	*n*
2007	50	0	25	25	0	0	4
2008	80	0	0	0	20	0	5
2009	0	100	0	0	0	0	3
2010	80	20	0	0	0	0	5
2011	0	0	50	0	50	0	2

Table 12 . Unit 13 otter harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest Periods						
Year	November	December	January	February	March	April	*n*
2007	4	12	52	24	4	4	25
2008	15	32	22	29	2	0	41
2009	4	44	20	12	20	0	25
2010	14	21	31	17	17	0	42
2011	17	37	20	17	9	0	35

Table 13. Unit 11 lynx harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest Periods				
Year	November	December	January	February	*n*
2007	1	20	37	42	196
2008	11	19	33	37	350
2009	8	19	57	16	291
2010	2	24	51	23	286
2011	2	36	29	33	186

Table 14. Unit 13 lynx harvest chronology percent by month, regulatory years 2007–2013.

Regulatory	Harvest Periods				
Year	November	December	January	February	*n*
2007	9	26	36	30	551
2008	19	31	27	23	993
2009	12	34	33	21	1257
2010	15	36	30	19	1297
2011	18	40	28	14	809

Table 15 . Unit 11 wolverine harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest Periods					
Year	November	December	January	February	March	*n*
2007	0	48	52	0	0	21
2008	13	25	25	38	0	8
2009	8	46	38	8	0	14
2010	0	33	50	17	0	12
2011	0	13	75	13	0	8

Table 16. Unit 13 wolverine harvest chronology percent by month, regulatory years 2007–2012.

Regulatory	Harvest periods							
Year	September	October	November	December	January	February	March	*n*
2007	11	0	15	35	39	0	0	46
2008	0	0	10	48	43	0	0	40
2009	3	0	8	24	57	8	0	63
2010	3	0	16	27	54	0	0	37
2011	7	5	5	32	51	0	0	41

Table 17. Unit 11 beaver harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest: Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	0	0	0	74	0	26	31
2008	0	5	0	27	59	0	9	22
2009	0	0	0	0	33	0	67	9
2010	0	50	0	0	0	0	50	4
2011	0	5	0	0	100	0	0	11

Table 18. Unit 13 beaver harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest: Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	7	22	18	18	6	28	186
2008	5	2	38	6	21	3	25	173
2009	0	7	1	21	56	0	14	147
2010	2	3	26	12	25	0	32	259
2011	0	18	25	7	26	0	24	293

Table 19. Unit 11 otter harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest							
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	25	0	0	75	0	0	4
2008	0	20	0	0	80	0	0	5
2009	0	33	0	0	67	0	0	3
2010	0	0	0	0	100	0	0	5
2011	0	0	0	0	100	0	0	2

Table 20. Unit 13 otter harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest							
	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	0	0	0	96	0	4	25
2008	0	17	0	0	78	0	5	41
2009	0	4	0	0	92	0	4	26
2010	0	5	0	0	93	0	2	43
2011	0	14	0	0	83	0	3	35

Table 21. Unit 11 lynx harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest: Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	1	0	0	99	0	1	196
2008	0	2	0	1	97	0	0	350
2009	1	3	0	0	94	0	3	291
2010	1	3	0	0	96	0	0	286
2011	0	0	0	0	99	0	1	186

Table 22. Unit 13 lynx harvest percent by transport method, regulatory years 2007–2012.

Regulatory Year	Percent of Harvest: Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	3	0	0	93	1	3	551
2008	0	2	0	0	94	0	5	993
2009	0	2	0	0	90	0	7	1257
2010	0	0	1	0	90	0	9	1297
2011	0	2	0	0	89	0	8	809

Table 23. Unit 11 wolverine harvest percent by transport method, regulatory years 2007–2012.

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	0	0	0	0	100	0	0	21
2008	0	0	0	0	100	0	0	8
2009	7	7	0	0	86	0	0	14
2010	0	0	0	0	100	0	0	12
2011	0	0	0	0	100	0	0	8

Table 24. Unit 13 wolverine harvest percent by transport method, regulatory years 2007–2012.

	Percent of Harvest							
Regulatory Year	Airplane	Dogsled Skis Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway Vehicle	*n*
2007	7	2	0	11	72	0	9	46
2008	8	0	0	0	83	0	8	40
2009	0	5	0	2	85	0	8	63
2010	0	0	5	0	92	0	3	37
2011	5	3	0	3	79	0	10	41

Note: Percentages in tables in this report reflect known information only; unknown numbers are excluded from percentage calculations.

SPECIES

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 2009
To: 30 June 2012[1]

LOCATION

GAME MANAGEMENT UNITS: 12 (10,107 mi^2) and 20E (10,680 mi^2)

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

BACKGROUND

Marten and lynx are the most economically important furbearers in Units 12 and 20E where trapping continues to provide for subsistence use and additional income for many local residents. However, trapping effort varies greatly depending on fur prices and species abundance. Beavers are an important subsistence resource to Northway residents but are lightly trapped in most of the area. Wolverine trapping in Unit 20E has historically been low due to low abundance. During population highs, muskrats are also economically and culturally important in Unit 12. Little trapping effort is spent on coyotes, red foxes, mink, river otters, ermine, or red squirrels because of low pelt values, low abundance, or difficulty and expense of trapping. Wolves are discussed in a separate management report.

MANAGEMENT DIRECTION

MANAGEMENT GOAL

- Provide the greatest opportunity to participate in hunting and trapping furbearers.

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

METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed. 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 trappers' homes and were not sealed. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY09 = 1 July 2009 through 30 June 2010).

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 trapline. For this report only the RY10 trapper questionnaire was available (Alaska Department of Fish and Game [ADF&G] 2012). However, the best information about overall furbearer abundance and trapping pressure was collected during interviews with long-term trappers and pilots.

In February–March 2006, a coarse-scale aerial wolverine survey was conducted in Interior Alaska, including all of Unit 20E and a portion of Unit 12, to estimate wolverine distribution and occurrence probabilities (Gardner et al. 2010). To examine sex ratios, age structure, diet and fecundity of marten harvested by trappers in Interior Alaska during RY09–RY12, staff necropsied 2,957 marten carcasses, including hundreds from Units 12 and 20E (C. Gardner and N. Pamperin, ADF&G unpublished data, Fairbanks).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

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; the availability of prey species; and possibly predation.

<u>Lynx</u>. Based on track surveys (T. Bentzen, ADF&G unpublished data, Tok), harvest data (Tables 1 and 2), lynx necropsy (Hollis 2007), and comments from area trappers, the last lynx population cyclic high in Units 12 and 20E was during 2007–2009. Years of high kitten production corresponded with years of high snowshoe hare numbers. The percentage of kittens in the harvest (Tables 1 and 2) was low during RY09–RY11, except during RY09 in Unit 20E. The combination of these data with annual harvests indicates that the lynx population was in decline during RY09–RY11.

<u>Red Fox, Muskrat, Coyote, Beaver, Marten, and Wolverine</u>. Information from interviews with trappers indicates red fox, coyote, and beaver populations were stable at moderate to high levels, while muskrat declined during RY09–RY11 (ADF&G 2012). Based on observations by department personnel and interviews with area trappers, marten numbers appear to have remained low throughout most of Units 12 and 20E since the decline observed during RY03–RY05 (Blejwas 2007, ADF&G 2012). Carcass necropsies indicate low reproductive success, especially in Unit 12, that may explain low population numbers. Wolverine numbers appear to be stable based on harvest and trapper comments.

Trends of prey species were noted during RY09–RY11. Tetlin National Wildlife Refuge staff monitored snowshoe hare abundance on the refuge by counting hare pellets on 7 transects of 50 1-meter plots. Hares increased to very high levels by winter RY08, declined in RY09 and remained low through RY11 (N. Berg, USFWS unpublished data, Tetlin National Wildlife Refuge). Although grouse and ptarmigan numbers were low during RY09–RY10, numbers appeared to be increasing by RY11 (T. Bentzen, ADF&G unpublished data, Tok). Based on interviews and my field observations, microtines were common to abundant throughout Units 12 and 20E.

Population Composition

Lynx. The percentage of kittens in the harvest was high through RY06–RY08 and decreased during winter of RY09 indicating a peak in the cycle in 2008 followed by a decline. The percentage of kittens in the harvest remained low during RY10 and RY11 (Table 1).

Marten. Based on necropsy of marten carcasses from Unit 12, the percentage of juveniles in the catch declined from more than 3 young-of-the-year per adult female in RY08 to a low of less than 1 per adult female in RY12 (C. Gardner, ADF&G unpublished data 2013, Fairbanks). However, low juvenile numbers cannot be explained by reduced pregnancy rates because pregnancy rates remained high (85–90%) during RY10 and RY11 and then declined to approximately 70% in RY12. Unlike Unit 12, reproductive and pregnancy rates observed among marten improved in most of Interior Alaska in RY12.

There is no information on the population composition of other furbearer species in Units 12 and 20E during RY09–RY11.

Distribution and Movements

Wolverine. Results from a wolverine distribution study conducted throughout Interior Alaska found that wolverines were distributed throughout Unit 20E and the portion of Unit 12 surveyed (Alaska Range in northern Unit 12) (Gardner et al. 2010).

There were no other studies on the specific distribution or movements of furbearers in Units 12 and 20E during RY09–RY11.

MORTALITY

Harvest

Seasons and Bag Limits. Seasons and bag limits for RY09–RY11 are presented in Table 3.

Alaska Board of Game Actions and Emergency Orders.

Lynx — At the March 2010 board meeting, the 5 lynx bag limit in November was eliminated and the season was set at 1 November–15 March with no bag limit in Units 12, 25C, and all of 20, including Unit 20E.

Beaver — In 2008, based on low harvest numbers and abundant beaver populations, the beaver trapping season in Units 12, 20A, 20C, 20E, and 20F was set at 15 September–10 June with no bag limit, and the board specified that during the established season, a firearm or bow could also be used to legally take beaver and either the meat or hide must be salvaged.

Other Species — In 2010 the coyote hunting season was expanded to 10 August–25 May with no bag limit. At the March 2012 board meeting the coyote hunting season was again expanded in Units 12 and 20E to no closed season with no bag limit.

Hunter Trapper Harvest.

Lynx — Lynx harvest declined in Unit 12 from 278 in RY09 to 153 in RY11 (Table 1) and in Unit 20E from 146 in RY09 to 42 in RY11 (Table 2). Based on pelt measurements during RY09–RY11, the percentage of kittens (pelts ≤35 inches) in the harvest ranged 5–10% in Unit 12 and 8–15% in Unit 20E (Tables 1 and 2). During RY09–RY11 the greatest harvest occurred during December, January, and February in both units and was dependent on season timing and length, as well the bag limit (Tables 4 and 5). In March 2012 prices paid for lynx pelts averaged $203 (Fur Harvesters Auction, Inc., http://www.furharvesters.com).

Marten — Information from trapper questionnaires and trapper interviews indicate marten remains the most economically important furbearer in Units 12 and 20E. During RY09–RY11 marten trapping efforts remained high due to high pelt prices. In March 2012 marten pelts averaged $132 (Fur Harvesters Auction, Inc., http://www.furharvesters.com).

Wolverine — During RY09–RY11 the wolverine harvest was 7–21 ($\bar{x}$ = 16) in Unit 12 and 4–22 ($\bar{x}$ = 13) in Unit 20E (Tables 1 and 2). Wolverine harvest did not differ substantially from the long-term (RY99–RY08) mean annual harvest of 21 in Unit 12 and 9 in Unit 20E.

Method of Take. Most trappers (96%) used traps or snares as their primary method of harvesting furbearers, in Units 12 and 20E during RY09–RY11 (Tables 1 and 2).

Transport Methods. Most trappers (73%) used snowmachines as their primary form of transportation to access all furbearer species in Units 12 and 20E during RY09–RY11 (Tables 6 and 7).

Other Mortality

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

HABITAT

Assessment and Enhancement

Maintaining a near-natural fire regime through provisions of the *Alaska Interagency Fire Management Plan: Fortymile Area* (Alaska Wildland Fire Coordinating Group 1998) has restored habitat diversity and productivity for all species. In 2004 and 2005, wildfires burned 1,875 mi^2 of land within, or adjacent to Unit 20E, burning approximately 17% of the total furbearer habitat within Unit 20E. Wildfires occurred on 434 mi^2 and 28 mi^2 in Unit 12 during 2004 and 2010 respectively. A cooperative timber harvest project between ADF&G and the Alaska Department of Natural Resources is ongoing in the Tok River valley in Unit 12; 20- to 80-acre clearcuts are being treated to encourage hardwood regeneration with the objective of simulating natural succession. More than 1,000 acres are planned to be harvested in this project by 2020. All furbearers and their prey species are expected to benefit from revegetation of early successional plant species following both natural fires and habitat enhancement efforts.

CONCLUSIONS AND RECOMMENDATIONS

The furbearer management objective to maintain viable populations of furbearers that will support annual hunting and trapping harvest was met during RY09–RY11. We maintained accurate annual harvest records for river otter, wolverine, and lynx based on sealing documents and monitored population trends using harvest totals and/or conducting trapper surveys and interviews.

Overall trapping effort was not directly measured. However, information collected from sealing data, trapper questionnaires, and discussions with area trappers indicated that following the cyclic high in snowshoe hare and lynx numbers, trapping effort and harvest increased to high levels in Units 12 and 20E during RY07–RY08. Although lynx pelt prices remained high during RY09–RY11, the downward trend of the lynx cycle decreased trapper effort during RY09–RY11.

Marten were the most sought-after furbearer in both units. Sustained high marten prices during RY06–RY12 probably caused an increase in effort compared to RY00–RY05. Marten harvest varied among trappers and was proportional to local marten abundance and trapper effort. Preliminary information from necropsied marten carcasses indicate low proportions of juveniles in the harvest, suggesting several years of very low reproduction in Units 12 and 20E. If high trapping pressure continues without an increase in reproduction, marten populations in heavily trapped portions of Units 12 and 20E may continue to decline. We recommend continued monitoring of marten reproductive rates in this area.

No changes in furbearer trapping or hunting regulations are recommended at this time.

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Table 1. Unit 12 lynx, river otter, and wolverine harvest, regulatory years[a] 2002–2011.

Species/	Reported harvest												Successful
Regulatory	Sex			Age			Estimated harvest		Method of reported take			Total	trappers/
year	M	F	Unk	Juv	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	Unk	harvest	hunters
Lynx													
2002	0	0	27	0	27	0	0	0	25	2	0	27	16
2003	0	0	30	2	28	0	0	0	26	3	1	30	11
2004	0	0	98	18	79	1	0	0	90	5	3	98	16
2005	0	0	113	26	87	0	0	0	107	6	0	113	20
2006	0	0	356	50	306	0	0	0	348	1	7	356	37
2007	0	0	373	30	343	0	0	0	337	8	28	373	44
2008	0	0	481	76	405	0	0	0	474	3	4	481	52
2009	0	0	278	26	249	3	0	0	273	4	1	278	44
2010	0	0	291	22	255	14	0	0	270	9	12	291	43
2011	0	0	153	7	142	4	0	0	148	5	0	153	29
River Otter													
2002	3	2	0	0	0	5	3	0	5	0	0	8	2
2003	0	0	1	0	0	1	3	0	1	0	0	4	1
2004	5	1	0	0	0	6	3	0	6	0	0	9	4
2005	2	0	0	0	0	2	3	0	2	0	0	5	2
2006	2	1	2	0	0	5	3	0	5	0	0	8	5
2007	2	0	0	0	0	2	3	0	2	0	0	5	2
2008	1	1	0	0	0	2	3	0	2	0	0	5	2
2009	0	1	1	0	0	2	3	0	1	1	0	5	2
2010	1	1	0	0	0	2	3	0	2	0	0	5	2
2011	1	0	0	0	0	1	3	0	1	0	0	4	1
Wolverine													
2002	13	3	0	0	0	16	0	0	16	0	0	16	12
2003	9	3	0	0	0	12	0	0	10	2	0	12	8
2004	15	11	0	0	0	26	0	0	23	3	0	26	14
2005	15	5	0	0	0	20	0	0	19	1	0	20	11
2006	12	5	0	0	0	17	0	0	17	0	0	17	13
2007	18	4	0	0	0	22	0	0	20	2	0	22	12
2008	13	6	0	0	0	19	0	0	17	2	0	19	9
2009	4	2	1	0	0	7	0	0	6	1	0	7	5
2010	11	5	5	0	0	21	0	0	21	0	0	21	14
2011	11	9	1	0	0	21	0	0	20	1	0	21	13

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

Table 2. Unit 20E lynx, river otter, and wolverine harvest, regulatory years[a] 2002–2011.

Species/ Regulatory year	Reported harvest: Sex M	F	Unk	Age Juv	Adults	Unk	Estimated harvest: Unreported	Illegal	Method of take: Trap/snare	Shot	Unk	Total harvest	Successful trappers/ hunters
Lynx													
2002	0	0	18	2	16	0	0	0	17	1	0	18	5
2003	0	0	6	0	6	0	0	0	6	0	0	6	3
2004	0	0	22	10	12	0	0	0	22	0	0	22	5
2005	0	0	89	10	79	0	0	0	89	0	0	89	10
2006	0	0	142	24	117	1	0	0	141	1	0	142	11
2007	0	0	298	48	249	1	0	0	295	3	0	298	17
2008	0	0	331	19	311	1	0	0	331	0	0	331	18
2009	0	0	146	22	124	0	0	0	144	2	0	146	16
2010	0	0	49	4	45	0	0	0	47	2	0	49	14
2011	0	0	42	4	38	0	0	0	42	0	0	42	11
River Otter													
2002	0	0	0									0	0
2003	1	0	0	0	0	1	0	0	1	0	0	1	1
2004	0	0	0									0	0
2005	0	0	0									0	0
2006	0	0	0									0	0
2007	0	0	0									0	0
2008	0	0	1	0	0	1	0	0	1	0	0	1	1
2009	0	0	0									0	0
2010	0	0	0									0	0
2011	0	0	0									0	0
Wolverine													
2002	3	1	0	0	0	4	0	0	4	0	0	4	3
2003	3	0	0	0	0	3	0	0	3	0	0	3	3
2004	4	3	0	0	0	7	0	0	4	3	0	7	7
2005	5	0	0	0	0	5	0	0	5	0	0	5	3
2006	13	3	1	0	0	17	0	0	15	0	2	17	9
2007	6	1	1	0	0	8	0	0	8	0	0	8	8
2008	16	8	0	0	0	24	0	0	24	0	0	24	6
2009	3	1	0	0	0	4	0	0	4	0	0	4	3
2010	13	2	0	0	0	15	0	0	14	1	0	15	6
2011	11	7	4	0	0	22	0	0	22	0	0	22	10

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

Table 3. Furbearer trapping and hunting seasons in Units 12 and 20E, regulatory years[a] 2009–2011.

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Beaver				
2009	15 Sep–10 Jun	No limit	No open season	
2010	15 Sep–10 Jun	No limit	No open season	
2011	15 Sep–10 Jun	No limit	No open season	
Coyote				
2009	15 Oct–30 Apr	No limit	10 Aug –30 Apr	10 per day
2010	15 Oct–30 Apr	No limit	10 Aug –30 Apr	10 per day
2011	15 Oct–30 Apr	No limit	10 Aug–30 Apr	10 per day
Lynx				
2009	1 Nov–30 Nov	5	1 Nov–15 Mar	2
	1 Dec–15 Mar	No limit		
2010	1 Nov–15 Mar	No limit	1 Nov–15 Mar	2
2011	1 Nov–15 Mar	No limit	1 Nov–15 Mar	2
Marten				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–28 Feb	No limit	No open season	
Mink				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–28 Feb	No limit	No open season	
Muskrat				
2009	20 Sep–10 Jun	No limit	No open season	
2010	20 Sep–10 Jun	No limit	No open season	
2011	20 Sep–10 Jun	No limit	No open season	

Species/ Regulatory year	Trapping		Hunting	
	Trapping season	Bag limit	Hunting season	Bag limit
River Otter				
2009	1 Nov–15 Apr	No limit	No open season	
2010	1 Nov–15 Apr	No limit	No open season	
2011	1 Nov–15 Apr	No limit	No open season	
Red Fox				
2009	1 Nov–15 Mar	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2010	1 Nov–15 Mar	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2011	1 Nov–15 Mar	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Red Squirrel				
2009	No closed season	No limit	No closed season	No limit
2010	No closed season	No limit	No closed season	No limit
2011	No closed season	No limit	No closed season	No limit
Weasel (Ermine)				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–28 Feb	No limit	No open season	
Wolverine				
2009	1 Nov–15 Mar	No limit	1 Sep–31 Mar	1
2010	1 Nov–15 Mar	No limit	1 Sep–31 Mar	1
2011	1 Nov–15 Mar	No limit	1 Sep–31 Mar	1

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2009 = 1 July 2009–30 June 2010).

Table 4. Unit 12 percent harvest chronology by month for lynx, river otter, and wolverine, regulatory years[a] 2001–2011.

Species/ Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown	*n*
	Percent harvest chronology by month								
Lynx									
2001	0	6	16	40	32	6	0	0	88
2002	0	0	40	56	0	4	0	0	27
2003	0	10	23	60	7	0	0	0	30
2004	0	5	76	14	0	0	1	4	98
2005	0	1	52	24	19	2	0	2	113
2006	0	4	33	26	27	10	0	0	356
2007	0	10	22	31	25	8	0	4	373
2008	0	8	38	24	27	3	0	0	481
2009	0	5	23	45	24	3	0	0	278
2010	0	9	23	38	26	4	0	0	291
2011	0	8	29	24	34	5	0	0	153
River Otter									
2001	0	0	100	0	0	0	0	0	2
2002	0	0	40	60	0	0	0	0	5
2003	0	100	0	0	0	0	0	0	1
2004	0	0	33	33	17	0	17	0	6
2005	0	0	50	50	0	0	0	0	2
2006	0	0	0	60	20	20	0	0	5
2007	0	50	0	50	0	0	0	0	2
2008	0	0	0	50	50	0	0	0	2
2009	0	0	50	0	50	0	0	0	2
2010	0	0	0	50	50	0	0	0	2
2011	0	100	0	0	0	0	0	0	1
Wolverine									
2001	0	14	43	5	33	5	0	0	21
2002	0	0	6	50	44	0	0	0	16
2003	8	0	17	50	17	8	0	0	12
2004	8	8	31	23	27	4	0	0	26
2005	4	24	24	24	24	0	0	0	25
2006	0	6	24	12	46	12	0	0	17
2007	0	0	5	36	23	36	0	0	22
2008	11	21	26	21	21	0	0	0	19
2009	0	14	28	29	29	0	0	0	7
2010	0	10	33	29	14	14	0	0	21
2011	0	9	24	29	19	14	5	0	21

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2001 = 1 July 2001–30 June 2002).

Table 5. Unit 20E percent harvest chronology by month for lynx, river otter, and wolverine, regulatory years[a] 2001–2011.

Species/ Regulatory year	Percent harvest chronology by month								
	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown	*n*
Lynx									
2001	0	4	34	26	32	0	0	4	56
2002	0	6	6	82	6	0	0	0	18
2003	0	17	17	66	0	0	0	0	6
2004	0	27	68	0	5	0	0	0	22
2005	0	1	46	31	22	0	0	0	89
2006	0	2	40	23	17	15	0	3	142
2007	0	3	35	31	24	7	0	0	298
2008	0	2	38	36	23	1	0	0	331
2009	0	7	19	52	15	7	0	0	146
2010	0	2	25	48	19	6	0	0	49
2011	0	14	17	21	43	5	0	0	42
River Otter									
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	100	0	0	0	1
2004	29	0	29	0	28	14	0	0	7
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	100	0	0	0	1
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0
Wolverine									
2001	0	0	20	60	20	0	0	0	5
2002	0	0	25	25	50	0	0	0	4
2003	0	0	33	33	34	0	0	0	3
2004	29	0	29	0	29	14	0	0	7
2005	0	40	20	20	20	0	0	0	5
2006	0	18	18	18	36	12	0	0	17
2007	0	0	0	62	0	38	0	0	8
2008	0	4	8	58	25	5	0	0	24
2009	0	0	0	50	50	0	0	0	4
2010	0	7	20	53	20	0	0	0	15
2011	0	5	18	36	41	0	0	0	22

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2001 = 1 July 2001–30 June 2002).

Table 6. Unit 12 percent harvest by transport method, regulatory years[a] 2002–2011.

Species/ Regulatory year	Percent harvest by transport method								
	Airplane	Dogsled, Skis, Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	*n*
Lynx									
2002	0	0	0	4	93	0	4	0	27
2003	0	10	0	0	83	0	7	0	30
2004	3	3	0	0	88	0	3	3	98
2005	0	1	0	0	94	0	5	0	113
2006	2	0	0	0	88	0	3	7	356
2007	8	4	0	1	69	0	9	9	373
2008	14	2	0	1	73	0	9	1	481
2009	1	4	0	0	69	0	26	0	278
2010	0	3	0	0	77	0	15	5	291
2011	0	5	0	0	79	0	16	0	153
River Otter									
2002	0	0	0	20	80	0	0	0	5
2003	0	0	0	0	100	0	0	0	1
2004	0	17	0	0	83	0	0	0	6
2005	0	0	0	0	100	0	0	0	2
2006	0	0	0	0	50	0	17	33	5
2007	0	0	0	0	100	0	0	0	2
2008	0	0	0	0	100	0	0	0	2
2009	0	0	0	0	50	0	50	0	2
2010	0	0	0	0	100	0	0	0	2
2011	0	0	0	0	100	0	0	0	1
Wolverine									
2002	0	19	0	0	81	0	0	0	16
2003	33	0	0	0	67	0	0	0	12
2004	23	4	0	0	73	0	0	0	26
2005	10	5	0	0	80	0	5	0	25
2006	12	0	0	0	82	0	0	6	17
2007	9	0	0	0	86	0	5	0	22
2008	16	5	0	0	79	0	0	0	19
2009	14	0	0	0	86	0	0	0	7
2010	14	10	0	10	57	0	9	0	21
2011	10	24	5	0	62	0	0	0	21

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

Table 7. Unit 20E percent harvest by transport method, regulatory years[a] 2002–2011.

Species/ Regulatory year	Percent harvest by transport method								
	Airplane	Dogsled, Skis, Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown	*n*
Lynx									
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	100	0	0	0	6
2004	9	0	0	0	91	0	0	0	22
2005	8	2	0	0	62	0	28	0	89
2006	0	1	0	1	79	0	12	6	142
2007	3	1	0	1	89	0	6	0	298
2008	17	1	0	0	80	0	2	0	331
2009	8	5	0	1	61	0	25	0	146
2010	19	2	0	0	67	0	12	0	49
2011	19	0	0	0	64	0	17	0	42
River Otter									
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	100	0	0	0	1
2004	0	0	0	0	0	0	0	0	7
2005	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	100	0	0	0	1
2009	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0
Wolverine									
2002	50	0	0	0	50	0	0	0	4
2003	0	0	0	0	100	0	0	0	3
2004	14	0	0	0	57	0	14	14	7
2005	0	0	0	0	100	0	0	0	5
2006	6	0	0	0	82	0	0	12	17
2007	12	0	0	0	88	0	0	0	8
2008	87	0	0	0	13	0	0	0	24
2009	25	0	0	0	25	0	50	0	4
2010	27	0	0	0	60	0	13	0	15
2011	23	18	0	0	54	0	5	0	22

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNITS: 14A and 14B (4,713 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 320,000) 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 village 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 (Peltier, 2007).

In 2010 Region II was subdivided into 2 separate regions, with Subunits 14A, and 14B becoming part of Region IV, and the Municipality of Anchorage, Subunit 14C, remaining with Region II. Previous versions of the furbearer management report included all 3 subunits and management objectives were based on the needs of all 3 subunits. However given the differences in the separate regions and the differences in management needs of the subunits, this management report will address Subunits 14A and 14B and management objectives for those only; information about Subunit 14C can be found in a separate unit report.

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.

METHODS

Harvest data were collected for beaver, river otter, lynx, wolverine, and marten through sealing certificates. During sealing, harvest location, age based on size (for beaver and lynx), and sex (for river otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, and mode of hunter/trapper transport were also recorded. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY09 = 1 July 2009–30 June 2010). Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to a sampling of trappers statewide. The questionnaire also supplies minimum harvest data for those species which do not require sealing. A trapper questionnaire report is usually produced on an annual basis; however, only the RY10 report was available during the writing of this report.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Trappers reported that all species were common during the reporting period, except wolverine and marten, which were reported as scarce. Prey species such as grouse, hare, mice, rodents, and ptarmigan were reported as either abundant or common (ADF&G 2012).

MORTALITY

Harvest

Trapping Seasons and Bag Limits (seasons for RY09–RY11 unless otherwise stated):

Species	Season	Bag Limit
Beaver		
Unit14A and B	10 Nov–15 May	No limit
Coyote		
Unit 14A	10 Nov–31 Mar	No limit
Unit 14B	10 Nov–30 Apr	No limit
Red Fox		
Unit 14(RY09, RY10)	10 Nov–28 Feb	No limit
(RY11)	10 Nov–29 Feb	No limit
Lynx	15 Dec–31 Jan	No limit
Marten		
Unit 14A	10 Nov – 31 Dec	No limit
Unit 14B	10 Nov – 31 Jan	No limit
Mink/Weasels	10 Nov–31 Jan	No limit

Muskrat	10 Nov–15 May	No limit
River Otter	10 Nov–31 Mar	No limit
Wolverine		
Unit 14A	15 Dec–31 Jan	2 per season
Unit 14B	10 Nov–31 Jan	2 per season

Hunting Seasons and Bag Limits.

Species	**Season**	**Bag Limit**
Coyote (RY09, RY10)	10 Aug–25 May	10 per day
(RY11)	10 Aug–25 May	No limit
Red Fox	1 Sep–15 Feb	2 per season
Lynx	1 Dec–31 Jan	2 per season
Wolverine	1 Sep–31 Jan	1 per season

Board of Game Actions and Emergency Orders. In spring 2009 the Board of Game lengthened the coyote hunting season by extending the end from 30 April to May 25 and increasing the bag limit from 10 per season to 10 per day. In spring of 2010 the board extended the trapping season for fox and lynx to end on February 29 in leap years. During its spring 2011 meeting, the board increased the hunting bag limit on coyotes to no limit.

Hunter/Trapper Harvest. Fur harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair during RY10. In general, fur prices for coyote, fox, lynx, muskrat, and wolverine increased, while fur prices for beaver, marten, mink, otter, squirrel, and weasel fell during the reporting period (ADF&G, 2012).

Harvest of beavers increased during the reporting period (Table 1). However there was a significant drop in the number of beaver taken during the last year of the reporting period. Whether this was a response to weather, beaver abundance, fur prices, or a combination of factors is unclear. RY11 was an exceptionally snowy year and trapping effort for beaver may have been reduced as a result.

Otter harvest has remained relatively constant from the previous reporting period. Annual average otter harvest during RY09–RY11 was 23 otters (Table 1).

Average lynx harvest was tripled from 5 lynx annually during the RY06–RY08 period to 15 lynx annually during the current period. Wolverine harvest decreased slightly during the reporting period (Table 1).

Marten harvest averaged 223 animals during the 3-year reporting period. This is an increase from the previous reporting period of an average of 168 marten (Table 1). Marten trapping is less time consuming and less difficult than other species, therefore it is less market driven and harvest for this species is probably a better indicator of abundance than it may be for other species. In addition, harvests reflect productivity/survival of martens in response to 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.

Typically, information for the harvest of species that do not require sealing was taken from trapper questionnaires that are produced yearly, however only the RY10 trapper questionnaire was available for reporting on this period. During RY10 the trappers in Units 14A and 14B that responded to the questionnaire reported a take of 35 coyotes, 15 weasels, 4 mink, 60 muskrats and 16 foxes combined between the 2 units. Many trappers either do not receive, or fail to return, the questionnaires; therefore, these should be considered minimum harvest totals.

Harvest Chronology. Interannual variation in weather conditions can affect trapping success because of freezing rain, deep snow, and other conditions that can limit access and effort. Variation in trapping conditions and trapping effort can be seen via the chronology of the harvest across years (Table 2).

Transport Methods. Snowmachines are still the most popular transport means for trappers (Table 3). Use of all-terrain vehicles (ATVs) and highway vehicles reflect years of poor snow cover.

Other Mortality

There were 6, 17, and 17 nuisance beaver permits in Units 14A and 14B combined issued in RY09, RY10, and RY11 respectively. These allowed the taking of up to 20 beavers per permit (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. Beaver nuisance permits were up significantly from the previous reporting period (Peltier 2010).

HABITAT

No significant changes to habitat occurred during the reporting period. However, development and growth in the Matanuska-Susitna area may have had localized impacts on habitat values and movement corridors, and development and growth are continuing.

CONCLUSIONS AND RECOMMENDATIONS

Desirable harvest standards were developed by Masteller (1993) based on a 10-year average of harvest for furbearers from RY81 to RY90. These averages included the take from Subunit 14C and therefore are inapplicable to management objectives set out in previous reports. Using his same methodology for the current 10-year period, the desired harvest standards for Subunits 14A and 14B combined would be: river otter, 29; lynx, 16 (when the season is open); wolverine, 7; and beaver, 144. While this method allows for a starting point to set management objectives it is problematic in that it does not account for population density, composition, or productivity and may be influenced by a trend in fur prices, weather, or population cycles that may result in the objectives being set unsustainably high, or may result in an underestimation of the available resource.

Indirect survey techniques, such as those tested by Golden (1994, 1999) can be used as an index of abundance and should be conducted yearly. An index would 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. A relatively high proportion of females caught late in the season is an indication of an overharvest. 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. The percent of females in the harvest remains the best available method for managers to assess the health of the population. However getting accurate sex data from trappers remains problematic. Trappers should be reminded of the importance of keeping accurate records at the time of sealing.

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Table 1. Unit 14 furbearer harvest, regulatory years 2002–2011.

		Reported Harvest								Method of Take			
Species	Regulatory Year	M	F	Unk.	Juvenile	(%)	Adults	Unk.	Total	Trap/Snare	Shot	Unk.	Total Trappers
Beaver[a]	2002	--	--	189	59	(33)	121	9	189	188	0	1	43
	2003	--	--	125	25	(21)	94	6	125	121	1	3	31
	2004	--	--	158	47	(32)	100	11	158	152	2	4	32
	2005	--	--	174	44	(25)	129	1	174	173	0	1	29
	2006	--	--	109	27	(29)	65	17	109	99	4	6	33
	2007	--	--	125	46	(44)	58	21	125	120	5	0	37
	2008	--	--	132	41	(36)	74	17	132	116	1	15	31
	2009	--	--	166	41	(29)	102	23	166	164	1	1	37
	2010	--	--	176	46	(32)	100	30	176	166	6	4	33
	2011	--	--	87	29	(38)	48	10	87	81	6	0	32
Lynx[b,c]	2002	--	--	33	0	0	23	10	33	31	2	0	21
	2003	--	--	--	--	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--	--	--	--	--
	2005	--	--	2	0	0	2	0	2	2	0	0	1
	2006	--	--	1	0	0	1	0	1	1	0	0	1
	2007	--	--	4	0	0	4	0	4	4	0	0	2
	2008	--	--	9	0	0	8	1	9	9	0	0	7
	2009	--	--	16	1	6	14	2	16	16	0	0	9
	2010	--	--	17	0	0	14	3	17	16	1	0	11
	2011	--	--	13	0	0	11	2	13	12	1	0	9
Otter	2002	27	22	2	--	--	--	51	51	50	0	1	22
	2003	14	5	0	--	--	--	19	19	19	0	0	13
	2004	14	15	0	--	--	--	29	29	29	0	0	8
	2005	15	12	0	--	--	--	27	27	23	2	2	17
	2006	13	16	0	--	--	--	29	29	28	0	1	18
	2007	15	7	0	--	--	--	22	22	22	0	0	18
	2008	10	8	0	--	--	--	18	18	18	0	0	9
	2009	15	7	0	--	--	--	22	22	22	0	0	15
	2010	17	7	0	--	--	--	24	24	24	0	0	15
	2011	7	4	11	--	--	--	22	22	22	0	0	12

Table 1 (continued).

Species	Regulatory Year	Reported Harvest M	F	Unk.	Juvenile	(%)	Adults	Unk.	Total	Method of Take Trap/Snare	Shot	Unk.	Total Trappers
Wolverine	2002	1	0	0	--	--	--	1	1	1	0	0	1
	2003	5	5	0	--	--	--	10	10	9	0	1	8
	2004	3	1	0	--	--	--	4	4	3	1	0	3
	2005	7	3	0	--	--	--	10	10	9	1	0	7
	2006	6	2	0	--	--	--	8	8	7	1	0	6
	2007	7	4	0	--	--	--	11	11	11	0	0	8
	2008	4	1	0	--	--	--	5	5	3	2	0	4
	2009	5	2	0	--	--	--	7	7	6	1	0	6
	2010	4	4	0	--	--	--	8	8	7	1	0	6
	2011	4	3	0	--	--	--	7	7	5	2	0	6
Marten	2002	35	18	1	--	--	--	54	54	53	0	1	11
	2003	11	63	130	--	--	--	204	204	200	0	4	30
	2004	51	18	14	--	--	--	83	83	83	0	0	18
	2005	12	69	180	--	--	--	261	261	256	0	5	31
	2006	10	82	107	--	--	--	199	199	194	4	1	33
	2007	77	57	19	--	--	--	153	153	149	0	4	24
	2008	20	15	118	--	--	--	153	153	153	0	0	33
	2009	54	58	275	--	--	--	387	387	387	0	0	24
	2010	35	23	53	--	--	--	111	111	111	0	0	21
	2011	37	33	100	--	--	--	170	170	170	0	0	28

[a]Juvenile beaver measure ≤ 52 inches (length + width).
[b]Juvenile lynx measure < 34 inches in length.
[c]Lynx season closed during RY 2003 and RY 2004.

Table 2. Unit 14 Furbearer harvest chronology, regulatory years 2002–2011.

		Percent Harvested											
Species	Regulatory	Jun–Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk.	Harvest
Beaver[a]	2002	1	1	1	35	20	24	9	5	1	2	2	189
	2003	0	2	1	34	20	6	10	5	13	9	1	125
	2004	1	4	18	27	7	4	13	13	6	8	0	158
	2005	1	12	0	16	17	12	21	13	2	7	0	174
	2006	4	1	13	9	13	6	6	14	17	18	0	109
	2007	2	4	8	18	11	3	22	14	10	6	1	125
	2008	1	0	0	12	21	8	5	10	29	11	3	132
	2009	4	1	13	28	14	5	4	4	10	16	1	166
	2010	4	0	3	23	7	5	1	6	6	45	0	176
	2011	8	0	7	15	34	2	9	1	7	16	0	87
Wolverine	2002	--	0	0	0	100	0	0	0	--	--	0	1
	2003	--	0	0	10	60	30	0	0	--	--	0	10
	2004	--	0	0	0	50	50	0	0	--	--	0	4
	2005	--	10	0	0	20	70	0	0	--	--	0	10
	2006	--	0	0	13	13	63	13	0	--	--	0	8
	2007	--	0	0	27	36	9	9	18	--	--	0	11
	2008	--	40	0	0	20	40	0	0	--	--	0	5
	2009	--	14	0	0	14	57	14	0	--	--	0	7
	2010	--	0	0	25	63	13	0	0	--	--	0	8
	2011	--	14	0	0	29	57	0	0	--	--	0	7
Otter	2002	--	--	--	43	22	25	4	6	0	--	0	51
	2003	--	--	--	25	30	30	10	5	0	--	0	20
	2004	--	--	--	71	10	13	0	6	0	--	0	31
	2005	--	--	--	19	23	29	19	10	0	--	0	31
	2006	--	--	--	8	30	42	11	3	6	--	0	36
	2007	--	--	--	21	32	18	11	14	0	--	4	28
	2008	--	--	--	16	21	32	21	10	0	--	0	19
	2009	--	--	--	13	21	50	8	8	0	--	0	24
	2010	--	--	--	4	32	8	28	28	0	--	0	25
	2011	--	--	--	41	27	9	9	9	5	--	0	22

Table 2 continued

		Percent Harvested											
Species	Regulatory Year	Jun–Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk.	Harvest
Marten	2002	--	--	--	41	59	0	0	--	--	--	0	54
	2003	--	--	--	22	76	1	0	--	--	--	0	204
	2004	--	--	--	34	57	10	0	--	--	--	0	83
	2005	--	--	--	33	67	0	0	--	--	--	0	261
	2006	--	--	--	44	56	0	0	--	--	--	0	199
	2007	--	--	--	25	59	13	0	--	--	--	3	153
	2008	--	--	--	39	56	5	0	--	--	--	0	387
	2009	--	--	--	17	62	20	1	--	--	--	0	198
	2010	--	--	--	13	67	20	0	--	--	--	0	111
	2011	--	--	--	18	50	24	8	--	--	--	0	170

[a] Beaver may be taken out of season with a nuisance beaver permit.

Table 3. Unit 14 furbearer trapper transport methods, regulatory years 2002–2011.

Species	Regulatory Year	Percent Harvested									Total Harvest
		Airplane	Horse, Dogsled	Boat	3 or 4 – wheeler	Snow machine	ORV	Highway vehicle	Skis, Snowshoes	Unk.	
Beaver	2002	10	0	4	6	23	0	30	13	14	189
	2003	0	0	3	7	43	0	31	14	2	125
	2004	0	0	4	3	28	1	44	6	14	158
	2005	0	0	11	4	52	1	19	12	1	174
	2006	0	1	5	8	30	0	33	17	6	109
	2007	0	0	6	18	23	4	22	6	21	125
	2008	0	2	3	5	39	0	27	11	13	132
	2009	0	0	4	15	45	0	26	5	5	166
	2010	1	0	14	3	21	0	38	20	3	176
	2011	0	0	1	16	23	0	33	24	3	87
Otter	2002	2	0	0	8	24	2	35	23	6	51
	2003	0	0	0	0	25	0	55	20	0	20
	2004	0	0	0	0	16	0	84	0	0	31
	2005	0	0	0	0	26	0	52	16	6	31
	2006	0	0	0	5	64	0	25	3	3	36
	2007	0	0	4	14	36	0	28	18	0	28
	2008	0	0	0	16	74	0	10	0	0	19
	2009	0	0	0	4	46	0	29	21	0	24
	2010	0	0	0	12	52	0	8	28	0	25
	2011	0	0	0	4	41	0	41	14	0	22

Table 3 (continued).

Species	Regulatory Year	Percent Harvested: Airplane	Horse, Dogsled	Boat	3 or 4 – wheeler	Snow machine	ORV	Highway vehicle	Skis, Snowshoes	Unk.	Total Harvest
Wolverine	2002	0	0	0	0	100	0	0	0	0	1
	2003	10	0	0	10	60	0	0	10	10	10
	2004	0	0	0	0	50	0	0	50	0	4
	2005	0	0	0	30	50	10	10	0	0	10
	2006	0	0	0	12	75	0	0	13	0	8
	2007	0	0	0	36	55	0	0	9	0	11
	2008	20	0	20	0	60	0	0	0	0	5
	2009	15	0	0	14	57	0	0	14	0	7
	2010	0	0	0	13	62	0	13	12	0	8
	2011	14	0	0	0	43	14	14	15	0	7
Marten	2002	0	0	0	45	7	0	35	6	7	54
	2003	0	0	0	0	82	0	6	11	1	204
	2004	0	0	0	1	80	0	1	18	0	83
	2005	0	0	0	0	80	0	11	6	3	261
	2006	0	0	0	10	67	1	8	11	3	199
	2007	0	0	0	8	72	0	1	17	2	153
	2008	0	0	0	5	92	0	0	2	1	387
	2009	0	0	0	0	73	0	26	1	0	198
	2010	0	0	0	0	88	0	6	6	0	111
	2011	0	0	0	2	88	0	0	10	0	170

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 14C (1,912 mi^2)

GEOGRAPHIC DESCRIPTION: Municipality of Anchorage

BACKGROUND

Unit 14C supports a wide array of furbearer species, including beavers, coyotes, red fox, lynx, North American river otter, wolverine, marten, and squirrel. Habitat for these species is found throughout urban municipal parks, Chugach State Park, Chugach National Forest, and other state and military lands. Trapping and hunting of furbearers is permitted throughout Unit 14C; however, few animals are harvested annually. Access to hunting and trapping areas is primarily via foot, as many public lands restrict motorized travel, which impacts hunter and trapper participation and effort. In addition, trapping and hunting are prohibited or severely limited in the Anchorage Management Area, which includes the metropolitan area of Anchorage and the highest amount of human development.

Conflicts due to trapping are common throughout Unit 14C. In areas open to trapping, conflicts with other trail users occur. Each winter, dogs are caught in legally set traps. In attempts to mitigate such conflicts, Chugach State Park requires trappers to register with the Park, have identification numbers on all traps and snares, and not have traps and snares within a certain distance from maintained trails. Illegal trapping is also prevalent on private and municipal lands and illegally set traps and snares also catch dogs every year. Alaska Department of Fish and Game (ADF&G) staff and Alaska State Troopers (AST) have spent considerable person-hours dealing with illegal trapping issues. ADF&G has partnered with the Alaska Trappers Association to educate trail users on how to safely extract dogs from traps and snares and on areas that are legally open to trapping throughout the municipality. To date, educational efforts have included a rack card and several public presentations.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

The management goals for Unit 14C are to maintain stable populations of furbearer species, and to provide for both consumptive and nonconsumptive uses, such as trapping, hunting, viewing, and photographing.

METHODS

Information on trapping conditions, trapper effort, and trends in furbearer abundance and distribution were collected using a statewide trapper questionnaire. However, during this reporting period, only one trapper questionnaire report (i.e., for harvest during regulatory year 2010) was written, and this report does not specifically address the Anchorage area. Harvest data were collected for beaver, North American river otter, lynx, wolverine, and marten through sealing certificates, and analyzed by regulatory year (RY; a regulatory year runs from 1 July to 30 June; e.g., RY10 = 1 July 2010–30 June 2011). Data on age (for beaver and lynx) and sex (for North American river otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, location of harvest, and mode of hunter/trapper transport were also recorded. Additional harvest data for other species were collected from available trapper questionnaires (ADF&G 2012).

Typically, hunting and trapping seasons must be changed through Board of Game (BOG) action. In 1987, the BOG adopted the Lynx Tracking Harvest Strategy (Golden 1999) to manage lynx trapping seasons in several units in Interior and Southcentral Alaska connected by the road system. Under this system, the BOG delegated authority to ADF&G to shorten and lengthen lynx hunting and trapping seasons within a set framework based on current population trends without going through the board process. There were no restrictions imposed by this system in Unit 14C during the current reporting period.

In April 2008, a Sample Unit Probability Estimator (SUPE)-based wolverine survey was conducted for the mountainous portion of Unit 14C.

RESULTS

POPULATION STATUS AND TREND

Currently, there are few data on the population status of most furbearer species in Unit 14C other than harvest numbers, which have remained relatively consistent for a number of years (Tables 1–5).

During the 2008 wolverine SUPE survey, 13 sets of wolverine tracks representing 16 individuals were recorded. A population estimate of 18.1 wolverines (Standard Error [SE] = 1.6) was obtained. This was a very precise estimate as evidenced by a low coefficient of variation (CV= 8.9%). Density was estimated to be 4.9 wolverines/1,000 km^2, which is very close to the median (4.8) of the 5 Alaska wolverine density estimates available, which ranged from 3.0 to 5.2 (Becker and Golden 2008).

MORTALITY

Trapping Seasons and Bag Limits (seasons for 2009–12 unless otherwise stated).

Species	**Season**	**Bag Limit**
Beaver	1 Dec–15 Apr	20 per season

Coyote	10 Nov–28 Feb	No limit
Red Fox (within Chugach State Park)	10 Nov–28 Feb	1 per season
(Remainder of 14C)	10 Nov–28 Feb	No limit
Lynx	15 Dec–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
North American river otter	10 Nov–28 Feb	No limit
Wolverine	10 Nov–31 Jan	2 per season

Hunting Seasons and Bag Limits.

Species	**Season**	**Bag Limit**
Coyote (2009 – 2011)	10 Aug–25 May	10 per day
(2011 – 2012)	10 Aug –25 May	No limit
Red Fox	1 Sep–15 Feb	2 per season
Lynx	1 Dec–31 Jan	2 per season
Wolverine	1 Sep–31 Jan	1 per season

Board of Game Actions and Emergency Orders. The relatively high harvest of wolverine and high proportion of harvested females resulted in biologists suggesting the closure of Chugach State Park to wolverine trapping in 2009. In 2009, the Board of Game closed wolverine trapping in the Chugach State Park Management Area due to overharvest concerns. However, in the rest of Unit 14C the trapping season for wolverine was extended to include an opening date of 10 November. In 2011 the Board of Game changed the bag limit for coyotes in Unit 14C from 10 coyotes per day to no limit.

Hunter/Trapper Harvest. Furbearer harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair to good during RY10 (ADF&G 2012). Since RY09, market value of beaver, coyote, fox, lynx, marten, mink, otter, and wolverine increased, whereas market value of muskrat, squirrel, and weasel decreased (ADF&G 2012).

The harvest of beavers increased during the reporting period, including increased harvest of juveniles in RY10 and RY11. With the higher proportion of juveniles harvested, average pelt size has decreased (Table 1). Harvest of otters during this reporting period was similar to the previous reporting period (RY06–RY09, Table 2), except for 2009, when 7 otters were taken. Lynx harvest increased from an average of 0.67 lynx per year RY06–RY09 to 1.7 lynx per year during this reporting period (Table 3). In contrast, wolverine harvest was lower than in previous reporting periods (Table 4). The harvest of marten in Unit 14C has declined since RY08, when 44 martens were harvested (Table 5).

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

Transport Methods. Highway vehicle is the most popular transport means for trappers in Unit 14C (Tables 11–15).

Other Mortality. There were 6, 12, and 3 nuisance beaver permits issued in Unit 14C in RY09, RY10, and RY11, respectively. These permits allowed the taking of up to 4 beavers per permit. In addition, ADF&G personnel removed additional nuisance beavers every year, primarily to alleviate flooding and other property damage.

HABITAT

Significant urban development continues in the Municipality of Anchorage, which may have localized and/or cumulative impacts on furbearer species.

CONCLUSIONS AND RECOMMENDATIONS

The lack of data on population density, composition, and productivity of furbearers makes it difficult to identify sustainable harvest levels in Unit 14C. However, harvests of most furbearer species are comparably low and should not negatively impact the resource. In RY10, trappers reported that all species were common in the nearby Lower Susitna Basin (Units 14A, 14B, and 16), except lynx and wolverine, which were reported as scarce (ADF&G 2012). Additionally, within the Lower Susitna Basin, trappers reported small prey species as abundant or common in RY10 (ADF&G 2012).

Trends in harvest levels of furbearers reflect a variety of factors, including population status of a species and hunting and trapping pressure. Marten harvest is probably less market driven than harvest of species more difficult or time-consuming to trap, such as beaver. Therefore, harvest is probably an adequate index of population abundance. Unit 14C is generally considered marginal marten habitat due to the high level of human settlement disturbing continuous coniferous forests. Harvest levels of martens in 14C have declined since RY08, potentially indicating that marten populations have declined during this reporting period. Similarly, wolverine harvest has declined since the previous reporting period. With a population estimate of 18 individuals within the mountainous portion of 14C, the increased harvest of this species RY06–RY09 (> 4 individuals harvested per year) could have reduced their population size and limited availability for harvest. In contrast, harvest levels for several other furbearer species, including beaver, North American river otter, and lynx, have increased since the last reporting period, which could potentially indicate increases in population size or hunting pressure.

Other ways to monitor furbearer population status in Unit 14C include indirect survey techniques tested by Golden (1994) that can be used as an index of abundance. An index would provide more precise information on population trends than sealing data, which often follow fur prices and trapping conditions rather than population trends.

The health of furbearers is also important when managing these species as issues such as lice and mange could impact both the sale of their fur and the health of the population. 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 were reported in RY07 but were not reported in RY06 or RY08, suggesting that the infection is decreasing in Unit 14A. There have been no indications that packs in Unit 14C have been infected.

In addition to providing sustainable populations of furbearers for harvest, management goals for Unit 14C include managing these species for viewing opportunities. Even though harvest appears to have a minimal impact on furbearer populations, there appears to be limited viewing opportunities for many of the more elusive species such as lynx, marten, and wolverine. However, species such as squirrels and beavers can often be viewed within the Municipality of Anchorage.

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Table 1. Unit 14C beaver harvest, regulatory years 1999–2011 (using Fur Sealing Records).

	Reported harvest[a]			Method of Take				Successful
Regulatory Year	Juv [b]	(%)	Adult	Trap/snare	Shot	Unk	Total	Trappers/hunters
1999–2000	5	(19)	21	28	2	1	31	5
2000–01	4	(16)	21	22	3	1	26	7
2001–02	1	(17)	5	6	0	0	6	3
2002–03	10	(34)	19	29	0	0	29	5
2003–04	2	(17)	10	12	0	0	12	4
2004–05	0	(0)	6	6	0	0	6	2
2005–06	4	(29)	10	14	6	0	20	5
2006–07	0	(0)	4	6	0	0	6	2
2007–08	3	(43)	4	10	8	0	18	6
2008–09	1	(50)	1	4	0	0	4	3
2009–10	2	(33)	4	6	0	0	6	3
2010–11	8	(50)	8	19	1	0	20	4
2011–12	13	(65)	7	21	0	0	21	4
Average (2009–2011)	8	(49)	6.3	15	0.3	0	16	4

[a] Includes only beavers with reported measurements.
[b] Beaver measuring ≤ 52 inches (length + width) .

Table 2. Unit 14C North American river otter harvest, regulatory years 1999–2011(using Fur Sealing Records).

	Reported harvest			Method of Take				Successful
Regulatory Year	Male	Female	Unk	Trap/snare	Shot	Unk	Total	Trappers/hunters
1999–2000	0	0	0	0	0	0	0	0
2000–01	1	1	0	2	0	0	2	1
2001–02	0	0	0	0	0	0	0	0
2002–03	1	1	0	2	0	0	2	1
2003–04	1	1	0	2	0	0	2	2
2004–05	2	0	1	3	0	0	3	2
2005–06	2	1	0	3	1	2	3	2
2006–07	1	0	0	1	0	0	1	1
2007–08	0	1	0	1	0	0	1	1
2008–09	0	3	0	3	0	0	3	2
2009–10	4	2	1	6	1	0	7	3
2010–11	1	0	0	1	0	0	1	1
2011–12	1	1	0	2	0	0	2	2
Average (2009–2011)	2	1	0.3	3	0.3	0	3.3	2

Table 3. Unit 14C lynx harvest, regulatory years 1999–2011(using Fur Sealing Records).

Regulatory	Age Composition				Method of Take					Successful
Year	Juv[a]	(%)	Adult	Unk	Trap/Snare	Shot	Roadkill	Unk	Total	Hunters/trappers
1999–2000	0	(0)	1	3	1	0	2	1	4	3
2000–01	1	(50)	1	3	0	0	1	4	5	4
2001–02	0	(0)	0	3	0	0	1	2	3	2
2002–03	0	(0)	1	2	3	0	0	0	3	2
2003–04[b]	-	-	-	-	-	-	-	-	-	-
2004–05[b]	-	-	-	-	-	-	-	-	-	-
2005–06	0	(0)	1	0	1	0	0	0	1	1
2006–07	1	(100)	0	1	1	0	1	0	2	2
2007–08	0	(0)	0	0	0	0	0	0	0	0
2008–09	0	(0)	0	0	9	0	0	0	0	0
2009–10	0	(0)	1	0	1	0	0	0	1	1
2010–11	0	(0)	0	1	0	0	1	0	1	1
2011–12	2	(100)	0	1	3	0	0	0	3	3
Average	0.7	(33)	0.3	0.7	1.3	0	0.3	0	1.7	1.7

[a] Lynx measuring ≤ 34 inches in length.

[b] Season closed.

Table 4. Unit 14C wolverine harvest, 1999–2011, regulatory years (using Fur Sealing Records).

	Reported Harvest				Method of Take				Successful
Regulatory Year	Male	Female	(%)	Unk	Trap/snare	Shot	Unk	Total	Trappers/hunters
1999–2000	2	1	(33)	0	3	0	0	3	2
2000–01	3	1	(25)	0	4	0	0	4	3
2001–02	2	2	(50)	0	4	0	0	4	3
2002–03	0	0	(0)	0	0	0	0	0	0
2003–04	3	3	(50)	0	6	0	0	6	4
2004–05	1	0	(0)	0	1	0	0	1	1
2005–06	2	0	(0)	0	1	1	0	2	2
2006–07	2	4	(67)	0	6	0	0	6	5
2007–08	0	4	(100)	0	4	0	0	4	3
2008–09	4	1	(20)	0	3	2	0	5	3
2009–10	2	0	(0)	0	1	1	0	2	2
2010–11	1	0	(0)	0	1	0	0	1	1
2011–12	1	0	(0)	0	0	0	1	1	1
Average (2009–2011)	1.3	0	(0)	0	0.7	0.3	0.3	1.3	1.3

Table 5. Unit 14C marten harvest, 1999–2011, regulatory years (using Fur Sealing Records).

	Reported harvest				Method of Take				Successful
Regulatory Year	Male	Female	(%)	Unk	Trap/snare	Shot	Unk	Total	Trappers/hunters
1999–2000	1	0	(0)	1	2	0	0	2	2
2000–01	10	6	(38)	0	16	0	0	16	1
2001–02	7	2	(22)	0	9	0	0	9	2
2002–03	1	2	(67)	13	16	0	0	16	4
2003–04	7	2	(22)	4	13	0	0	13	3
2004–05	4	3	(43)	0	7	0	0	7	2
2005–06	6	6	(50)	0	12	0	0	12	4
2006–07	15	11	(42)	0	26	0	0	26	3
2007–08	7	4	(36)	0	11	0	0	11	2
2008–09	19	6	(24)	19	44	0	0	44	6
2009–10	17	10	(37)	0	27	0	0	27	6
2010–11	12	4	(25)	1	17	0	0	17	3
2011–12	4	5	(56)	4	13	0	0	13	4
Average (2009–2011)	11	6.3	(39.3)	1.7	19	0	0	19	4.3

Table 6. Unit 14C beaver harvest chronology by month, regulatory years 1999–2011.

	Percent harvested													Total
Regulatory Year	Jul[a]	Aug[a]	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun[a]	Unk	Harvest
1999–2000	3	0	11	4	0	9	0	0	1	3	0	0	0	31
2000–01	2	0	1	0	1	1	4	0	2	12	0	2	1	26
2001–02	0	0	0	3	0	2	0	0	0	0	0	1	0	6
2002–03	1	0	0	7	0	6	12	0	2	0	0	1	0	29
2003–04	0	0	6	0	4	1	1	0	0	0	0	0	0	12
2004–05	0	0	0	0	0	2	1	3	0	0	0	0	0	6
2005–06	0	0	3	0	0	6	3	1	3	4	0	0	0	20
2006–07	0	0	0	0	0	3	0	0	1	0	0	2	0	6
2007–08	0	4	0	0	0	3	0	0	0	2	0	8	1	18
2008–09	0	0	0	0	0	0	0	1	1	2	0	0	0	4
2009–10	0	0	0	0	0	3	2	0	0	0	0	1	0	6
2010–11	1	5	5	0	0	1	5	1	0	2	0	0	0	20
2011–12	0	0	1	6	0	0	0	8	3	1	2	0	0	21
Average (2009–2011)	0.3	1.7	2	2	0	1.3	2.3	3	1	1	0.7	0.3	0	15.7

[a] These are beaver taken on damage control permits.

Table 7. Unit 14C North American river otter harvest chronology by month, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	Total Harvest
1999–2000	0	0	0	0	0	0	0	0	0
2000–01	0	0	2	0	0	0	0	0	2
2001–02	0	0	0	0	0	0	0	0	0
2002–03	0	0	0	1	1	0	0	0	2
2003–04	0	0	0	1	1	0	0	0	2
2004–05	0	0	0	2	1	0	0	0	3
2005–06	0	0	0	3	0	0	0	0	3
2006–07	0	0	1	0	0	0	0	0	1
2007–08	0	0	0	0	0	0	1	0	1
2008–09	0	0	2	0	1	0	0	0	3
2009-10	0	0	4	3	0	0	0	0	7
2010–11	0	0	0	1	0	0	0	0	1
2011–12	0	0	0	0	2	0	0	0	2
Average (2009–2011)	0	0	1.3	1.3	0.7	0	0	0	3.3

Table 8. Unit 14C lynx harvest chronology by month, regulatory years 1999–2011.

Regulatory	Percent harvested											Total
Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Unk	Harvest
1999–2000	1	0	0	1	0	0	0	1	0	1	0	4
2000–01	1	0	1	0	1	0	0	0	0	0	2	5
2001–02	1	0	0	0	0	0	0	1	0	0	1	3
2002–03	0	0	0	3	0	0	0	0	0	0	0	3
2003–04[a]	-	-	-	-	-	-	-	-	-	-	-	-
2004–05[a]	-	-	-	-	-	-	-	-	-	-	-	-
2005–06	0	0	0	0	1	0	0	0	0	0	0	1
2006–07	0	0	0	0	1	0	0	0	1	0	0	2
2007–08	0	0	0	0	0	0	0	0	0	0	0	0
2008–09	0	0	0	0	0	0	0	0	0	0	0	0
2009–10	0	0	0	1	0	0	0	0	0	0	0	1
2010–11	0	1	0	0	0	0	0	0	0	0	0	1
2011–12	0	0	0	1	2	0	0	0	0	0	0	3
Average (2009–2011)	0	0.3	0	0.7	0.7	0	0	0	0	0	0	1.7

[a] Lynx season was closed.

Table 9. Unit 14C wolverine harvest chronology by month, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest								Total Harvest
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	
1999–2000	0	0	0	2	1	0	0	0	3
2000–01	0	0	0	0	4	0	0	0	4
2001–02	0	0	0	3	1	0	0	0	4
2002–03	0	0	0	0	0	0	0	0	0
2003–04	0	0	0	3	2	1	0	0	6
2004–05	0	0	0	1	0	0	0	0	1
2005–06	1	0	0	0	1	0	0	0	2
2006–07	0	0	2	4	0	0	0	0	6
2007–08	0	0	0	2	0	2	0	0	4
2008–09	1	0	1	0	3	0	0	0	5
2009–10	1	0	0	1	0	0	0	0	2
2010–11	0	0	0	0	1	0	0	0	1
2011–12	0	0	0	0	0	1	0	0	1
Average (2009–2011)	0.3	0	0	0.3	0.3	0.3	0	0	1.3

Table 10. Unit 14C marten harvest chronology by month, regulatory years 1999–2011.

	Percent of Harvest								Total
Regulatory Year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Unk	Harvest
1999–2000	0	0	1	1	0	0	0	0	2
2000–01	0	0	3	13	0	0	0	0	16
2001–02	0	0	6	3	0	0	0	0	9
2002–03	0	0	10	6	0	0	0	0	16
2003–04	0	0	2	11	0	0	0	0	13
2004–05	0	0	5	2	0	0	0	0	7
2005–06	0	0	5	7	0	0	0	0	12
2006–07	0	0	0	9	17	0	0	0	26
2007–08	0	0	8	3	0	0	0	0	11
2008–09	0	0	14	11	19	0	0	0	44
2009–10	0	0	8	13	6	0	0	0	27
2010–11	0	0	7	9	1	0	0	0	17
2011–12	0	0	4	8	1	0	0	0	13
Average (2009–2011)	0	0	6.3	10	2.7	0	0	0	19

Table 11. Unit 14C beaver trapper transport methods, regulatory years 1999–2011.

	Percent of Harvest									
Regulatory Year	Airplane	Dogsled/ Horse	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	On Foot/Skis/ Snowshoes	Unk	Total Harvest
1999–2000	0	0	0	0	19	0	77	0	3	31
2000–01	0	0	46	0	0	0	31	19	4	26
2001–02	0	0	0	0	0	17	0	83	0	6
2002–03	0	0	0	0	0	0	69	24	7	29
2003–04	0	0	0	0	0	0	100	0	0	12
2004–05	0	0	0	0	0	0	100	0	0	6
2005–06	0	0	0	0	0	0	90	10	0	20
2006–07	0	0	0	0	0	0	100	0	0	6
2007–08	0	0	0	11	0	0	89	0	0	18
2008–09	25	0	0	25	50	0	0	0	0	4
2009–10	0	0	0	0	0	0	50	50	0	6
2010–11	0	0	0	15	0	0	60	20	5	20
2011–12	0	0	0	0	5	0	90	5	0	21

Table 12. Unit 14C North American river otter trapper transport methods, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest									Total Harvest
	Airplane	Dogsled/ Horse	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	On Foot/Skis/ Snowshoes	Unk	
1999–2000	0	0	0	0	0	0	0	0	0	0
2000–01	0	0	0	0	0	0	100	0	0	2
2001–02	0	0	0	0	0	0	0	0	0	0
2002–03	0	0	0	0	0	0	100	0	0	2
2003–04	0	0	0	0	0	0	100	0	0	2
2004–05	0	0	0	0	33	0	0	67	0	3
2005–06	0	0	0	0	0	0	100	0	0	3
2006–07	0	0	0	0	0	0	100	0	0	1
2007–08	0	0	0	0	0	0	100	0	0	1
2008–09	0	0	0	0	33	0	67	0	0	3
2009–10	0	0	0	0	0	0	14	86	0	7
2010–11	0	0	0	0	0	0	0	100	0	1
2011–12	0	0	0	0	0	0	50	50	0	2

Table 13. Unit 14C lynx trapper transport methods, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest									Total Harvest
	Airplane	Dogsled/ Horse	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	On Foot/Skis/ Snowshoes	Unk	
1999–2000	0	0	0	0	0	0	25	0	75	4
2000–01	0	0	0	0	0	0	20	0	80	5
2001–02	0	0	0	0	0	0	0	0	100	3
2002–03	0	0	0	0	0	0	100	0	0	3
2003–04[a]	-	-	-	-	-	-	-	-	-	-
2004–05[a]	-	-	-	-	-	-	-	-	-	-
2005–06	0	0	0	0	0	0	100	0	0	1
2006–07	50	0	0	0	0	0	50	0	0	2
2007–08	0	0	0	0	0	0	0	0	0	0
2008–09	0	0	0	0	0	0	0	0	0	0
2009–10	0	0	0	0	0	0	0	100	0	1
2010–11	0	0	0	0	0	0	0	0	100	1
2011–12	0	0	0	0	0	0	33	67	0	3

[a] Lynx season closed

Table 14. Unit 14C wolverine trapper transport methods, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest									Total Harvest
	Airplane	Dogsled/ Horse	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	On Foot/Skis/ Snowshoes	Unk	
1999–2000	67	0	0	0	33	0	0	0	0	3
2000–01	25	0	0	0	0	0	0	75	0	4
2001–02	25	0	0	0	0	0	0	75	0	4
2002–03	0	0	0	0	0	0	0	0	0	0
2003–04	33	0	0	0	0	0	50	17	0	6
2004–05	100	0	0	0	0	0	0	0	0	1
2005–06	100	0	0	0	0	0	0	0	0	2
2006–07	17	0	0	0	0	0	67	17	0	6
2007–08	0	0	0	0	50	50	0	0	0	4
2008–09	40	0	0	0	60	0	0	0	0	5
2009–10	0	0	0	0	0	0	0	100	0	2
2010–11	0	0	0	0	0	0	0	100	0	1
2011–12	0	0	0	0	0	0	0	0	100	1

Table 15. Unit 14C marten trapper transport methods, regulatory years 1999–2011.

Regulatory Year	Percent of Harvest: Airplane	Dogsled/ Horse	Boat	3- or 4-wheeler	Snow-machine	ORV	Highway Vehicle	On Foot/Skis/ Snowshoes	Unk	Total Harvest
1999–2000	0	0	0	0	50	0	0	50	0	2
2000–01	0	0	0	0	0	0	0	100	0	16
2001–02	0	0	0	0	0	0	0	100	0	9
2002–03	0	0	0	0	0	0	100	0	0	16
2003–04	0	0	0	0	0	0	69	31	0	13
2004–05	0	0	0	0	0	0	100	0	0	7
2005–06	0	0	0	0	0	0	50	50	0	12
2006–07	0	0	0	0	0	0	100	0	0	26
2007–08	0	0	0	0	0	0	0	100	0	11
2008–09	0	0	0	0	43	0	57	0	0	44
2009–10	0	0	0	7	4	0	0	89	0	27
2010–11	0	0	0	0	0	0	100	0	0	17
2011–12	0	0	0	0	0	0	85	15	0	13

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

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

GEOGRAPHIC DESCRIPTION: West side of Cook Inlet

BACKGROUND

Game Management Unit 16 has very few roads and mostly remote wildlife habitat. Most of the area is sparsely populated; however, people who do reside there are active in hunting and trapping. Recreational cabins, and fishing and hunting lodges are scattered throughout the unit. There are maintained roads in the eastern and northern portions of Subunit 16A and near the settlements of Tyonek and Beluga in Subunit 16B. Most of the 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 (Peltier 2010).

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 as established by Masteller (1993). These desired standards are: river otter, 40; wolverine, 20; and beaver, 350.

METHODS

Harvest data were collected for beaver, river otter, lynx, wolverine, and marten through sealing certificates. During sealing, harvest location, age based on size (for beaver and lynx), and sex (for river otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, and mode of hunter/trapper transport were also recorded. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY09 = 1 July 2009–30 June 2010). Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to a sampling of trappers statewide. The questionnaire also supplies minimum harvest data for those species which do not require sealing. The trapper questionnaire report is usually produced on an annual basis however only the report for RY10 (ADF&G 2012) was available during preparation of this report.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Trappers reported that most species were relatively common in RY10. Red squirrels were reported as abundant. Lynx and muskrat were reported as scarce in RY08 but had increased to common by RY10. Wolverine which were reported as common in RY03 (Peltier 2005), but since then have been reported as scarce each year for which data have been available. Trappers reported small prey species as abundant or common (ADF&G 2012).

No specific studies investigating furbearer population size or composition were conducted during the reporting period. Due to time constraints track transects have not been developed. Development of a series of track transects are planned for future years.

MORTALITY

Trapping Seasons and Bag Limits (seasons for 2009–11 unless otherwise stated).

Species	Season	Bag Limit
Beaver	25 Sep–31 May	No limit
Coyote	15 Oct–30 Apr	No limit
Red Fox (2009–2010)	10 Nov–28 Feb	No limit
(2011)	10 Nov–29 Feb	No limit
Lynx	15 Dec–31 Jan	No limit
Marten	10 Nov–31 Jan	No limit
Mink/Weasels	10 Nov–31 Jan	No limit
Muskrat	10 Nov–10 Jun	No limit
River 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 (2009–2010)	10 Nov–28 Feb	No limit
(2011)	10 Nov–29 Feb	No limit

Hunting Seasons and Bag Limits.

Species	**Season**	**Bag Limit**
Coyote (2009–2010)	10 Aug–25 May	10 per season
(2011)	10 Aug–25 May	No Limit
Red Fox	1 Sep–15 Feb	2 per season
Lynx	1 Dec–31 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 the spring of 2009 the Board of Game (BOG) lengthened the coyote hunting season to 10 August–25 May and increased the bag limit to 10 per day. The board also lengthened the coyote trapping season by starting it on 15 October, and the prohibited the use of steel traps or snares smaller than 3/32-inch diameter until 10 November. During the 2010 BOG meeting for those species that had a trapping season end on 28 February, which in Unit 16 was red fox, lynx, and wolverine, the season was extended on leap years to 29 February. During its spring 2011 meeting the BOG increased the hunting bag limit for coyotes to no bag limit. It also eliminated the sealing requirement for beavers.

Hunter/Trapper Harvest. Fur harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair to good during RY10 (ADF&G, 2012). A comparison of fur prices from RY08 to RY10 shows that fur prices for all the species commonly targeted have increased (ADF&G, 2010). These increases help offset the increases in gas prices that trappers often cite as the reason for a decrease in their personal trapping effort.

Beaver harvests have varied over the last 10 years. The average harvest between RY02 and RY10 was 221 beavers (Table 1). The large decrease in the reported harvest in RY11 is not due to a decrease in actual take but due to the fact that beavers are no longer required to be sealed in Unit 16.

Otter harvest has varied from 18 to 38 otters annually since the peak of 103 otters in RY05 (Peltier 2005). The price of otter pelts dropped in 2005 and has remained at about half of its value at the peak. (Table 1).

The lynx harvest historically has been low in Unit 16 (Table 1), reflecting a lack of good habitat for the species’ primary prey, hare. While trappers reported that lynx were common in the area in

RY10 (ADF&G 2012), compared to reports they were scarce in RY08 (ADF&G. 2010), this did not result in an increase in lynx take.

The 3-year average harvest of 31 wolverines annually in this report period was an increase from 29 wolverines during the RY06–RY08 reporting period (Table 1).

The marten harvest has remained high since populations recovered from a decline in the early 1990s and fluctuated greatly during the last 3 seasons, (Table 1).

Information for the harvest of species that do not require sealing is typically taken from the trapper questionnaires. However given that only the RY10 report is available and that survey response was relatively low, reporting harvest levels for coyote, mink, weasel, and red fox would be misleading. Increased outreach to trappers should improve the questionnaire and allow a comparison of these species harvest levels in the future (ADF&G, 2012).

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, 2004). Which packs have lice changes from year to year; however, since the original discovery in 1998, lice had been found in at least one pack in Unit 16 every season, until recently. In February of 2011 2 wolves from the Johnson Creek area in GMU 16B were known to have lice. They were the only lousy wolves noted during the reporting period.

<u>Harvest Chronology</u>. 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 is reflected in the chronology of the harvest across years (Table 2).

<u>Transport Methods</u>. Most Unit 16 trappers use snowmachines to access their trapping areas (Table 3). Boats were used much more commonly for beaver, and aircraft were used more frequently for wolverine than for any other species, attesting to their remote and mountainous habitat.

Other Mortality

There were 6 nuisance beaver permits issued in RY09, and 4 permits each issued in RY10 and RY11. The number of beaver allowed to be taken under a permit varied by permittee and location. As in previous years, road and railroad maintenance personnel identified most problem areas where beavers have plugged culverts and flooded roadbeds. Two common problem areas are Oilwell Road in Subunit 16A and the road system near Tyonek and Beluga in Subunit 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

The removal of the sealing requirement for beaver in Unit 16 will result in a decrease of information about the harvest levels of this species. Other indices of harvest, such as the trapper questionnaire, will need to be relied upon more heavily in order to adequately monitor the population. The annual harvest standard for beaver developed by Masteller (1993) and outlined in the "Management Objectives" section of this report will need to be dropped as monitoring of the harvest will no longer be feasible.

The population sizes of many different species in Unit 16 are unknown. 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 follow fur prices and trapping conditions rather than population trends.

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Wildlife Biologist II

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Management Coordinator

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Table 1. Unit 16 furbearer harvest, regulatory years 2002–2011.

		Reported Harvest								Method of Take			
Species	Regulatory Year	M	F	Unk.	Juvenile	(%)	Adults	Unk.	Total	Trap/Snare	Shot	Unk.	Total Trappers
Beaver[a]	2002	--	--	300	66	(22)	228	6	300	233	2	65	35
	2003	--	--	218	60	(28)	158	0	218	204	4	10	30
	2004	--	--	161	31	(19)	128	2	161	156	5	0	29
	2005	--	--	278	47	(20)	194	37	278	274	4	0	33
	2006	--	--	215	50	(24)	156	9	215	210	4	2	23
	2007	--	--	157	23	(15)	130	4	157	154	3	0	28
	2008	--	--	217	34	(16)	176	7	217	214	3	0	29
	2009	--	--	191	44	(23)	144	3	191	180	10	1	27
	2010	--	--	256	48	(20)	194	14	256	254	2	0	32
	2011	--	--	65	8	(12)	57	0	65	64	1	0	12
Lynx[b,c]	2002	--	--	8	0	--	8	0	8	8	0	0	6
	2003	--	--	--	--	--	--	--	--	--	--	--	--
	2004	--	--	--	--	--	--	--	--	--	--	--	--
	2005	--	--	9	3	(50)	3	3	9	9	0	0	4
	2006	--	--	0	0	(0)	0	0	0	0	0	0	0
	2007	--	--	0	0	(0)	0	0	0	0	0	0	0
	2008	--	--	1	1	(100)	0	0	1	1	0	0	1
	2009	--	--	5	0	(0)	5	0	5	5	0	0	3
	2010	--	--	3	1	(33)	2	0	3	2	1	0	3
	2011	--	--	7	0	(0)	5	2	7	7	0	0	3
Otter	2002	30	19	7	--	--	--	56	56	55	1	0	19
	2003	22	28	0	--	--	--	50	50	50	0	0	15
	2004	19	26	2	--	--	--	47	47	47	0	0	15
	2005	50	47	6	--	--	--	103	103	103	0	0	27
	2006	15	17	6	--	--	--	38	38	34	0	4	19
	2007	6	5	7	--	--	--	18	18	18	0	0	10
	2008	17	9	2	--	--	--	28	28	19	0	9	12
	2009	14	4	0	--	--	--	18	18	18	0	0	10
	2010	18	10	0	--	--	--	28	28	28	0	0	13
	2011	14	7	14	--	--	--	35	35	35	0	0	11

Table 1 (continued).

		Reported Harvest								Method of Take			
Species	Regulatory Year	M	F	Unk.	Juvenile	(%)	Adults	Unk.	Total	Trap/Snare	Shot	Unk.	Total
Wolverine	2002	15	4	0	--	--	--	19	19	15	4	0	11
	2003	29	21	2	--	--	--	52	52	47	4	1	31
	2004	32	19	0	--	--	--	51	51	44	7	0	28
	2005	24	20	1	--	--	--	45	45	40	5	0	26
	2006	21	8	0	--	--	--	27	27	18	9	0	18
	2007	20	9	0	--	--	--	29	29	22	7	0	19
	2008	19	8	0	--	--	--	28	28	24	4	0	19
	2009	29	14	3	--	--	--	46	46	43	3	0	18
	2010	11	15	2	--	--	--	28	28	28	0	0	14
	2011	9	9	1	--	--	--	19	19	18	1	0	13
Marten	2002	274	139	85	--	--	--	498	498	473	0	25	35
	2003	424	206	99	--	--	--	729	729	721	0	8	48
	2004	536	212	99	--	--	--	847	847	713	0	134	32
	2005	868	394	46	--	--	--	1308	1308	1294	0	14	49
	2006	537	303	32	--	--	--	872	872	844	28	0	55
	2007	321	128	124	--	--	--	573	573	522	0	51	37
	2008	847	399	176	--	--	--	1422	1422	1364	1	57	43
	2009	349	201	232	--	--	--	782	782	782	0	0	50
	2010	149	86	298	--	--	--	533	533	508	0	25	42
	2011	316	184	423	--	--	--	923	923	876	9	38	43

[a]Juvenile beaver measure ≤ 52 inches (length + width)
[b]Juvenile lynx measure < 34 inches in legnth
[c]Lynx season closed during RY 2003 and 2004

Table 2 Unit 16 furbearer harvest chronology, regulatory years 2002–2011.

		Percent Harvested											
Species	Regulatory	Jun–	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk.	Harvest
Beaver	2002	0	3	18	18	26	6	3	2	7	7	10	294
	2003	0	8	35	2	2	11	13	8	3	12	5	218
	2004	2	4	17	15	7	2	4	11	5	33	0	161
	2005	1	4	5	15	4	14	8	21	10	18	0	278
	2006	0	1	12	20	24	5	7	12	11	1	8	215
	2007	0	4	31	14	8	17	4	10	3	10	0	157
	2008	1	0	3	22	38	6	0	2	22	6	0	217
	2009	3	13	8	8	15	17	7	8	5	18	0	191
	2010	0	5	16	2	13	17	4	9	11	23	0	256
	2011	0	0	63	6	14	7	0	5	6	2	0	65
Wolverine	2002	--	0	0	0	22	33	33	11	--	--	0	18
	2003	--	0	0	3	19	31	39	6	--	--	3	36
	2004	--	0	0	0	17	41	35	7	--	--	0	46
	2005	--	3	0	9	3	45	27	6	--	--	6	33
	2006	--	7	7	3	14	10	55	3	--	--	0	29
	2007	--	7	0	7	10	34	28	10	--	--	3	29
	2008	--	0	4	0	22	33	30	11	--	--	0	27
	2009	--	0	0	7	2	46	39	6	--	--	0	46
	2010	--	0	0	4	28	43	25	0	--	--	0	28
	2011	--	5	0	0	21	53	21	0	--	--	0	19
Otter	2002	--	--	0	18	45	20	13	5	0	--	0	56
	2003	--	--	0	8	18	14	24	36	0	--	0	50
	2004	--	--	0	0	40	6	19	34	0	--	0	47
	2005	--	--	0	17	25	37	12	10	0	--	0	103
	2006	--	--	0	11	26	42	8	3	0	--	11	38
	2007	--	--	0	0	44	28	6	22	0	--	0	18
	2008	--	--	0	43	32	11	14	0	0	--	0	28
	2009	--	--	0	0	6	61	22	11	0	--	0	18
	2010	--	--	0	7	11	32	25	25	0	--	0	28
	2011	--	--	0	9	20	23	37	11	0	--	0	35

Table 2. (continued).

Species	Regulatory Year	Percent Harvested											Harvest
		Jun–Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Unk.	
Marten	2002	--	0	0	29	32	38	0	0	--	--	1	498
	2003	--	0	0	16	46	32	5	0	--	--	0	729
	2004	--	0	0	25	38	33	4	0	--	--	0	847
	2005	--	0	0	29	47	24	0	0	--	--	1	1308
	2006	--	0	0	25	49	23	3	0	--	--	0	872
	2007	--	0	0	12	32	48	3	0	--	--	5	573
	2008	--	0	1	27	42	29	0	0	--	--	0	1422
	2009	--	0	0	13	45	41	1	0	--	--	0	782
	2010	--	0	0	23	45	28	3	1	--	--	0	533
	2011	--	0	0	19	36	28	10	0	--	--	7	923

Table 3. Unit 16 furbearer trapper transport methods, regulatory years 2002–2011.

Species	Regulatory Year	Percent Harvested								Total Harvest
		Airplane	Dogsled, Skis, Snowshoes	Boat	3 or 4 – wheeler	Snow machine	ORV	Highway vehicle	Unk.	
Beaver	2002	17	10	23	8	12	0	8	22	300
	2003	25	6	18	7	27	0	16	1	218
	2004	7	3	37	1	24	22	0	6	161
	2005	6	6	21	0	59	8	0	0	278
	2006	7	6	0	10	67	5	2	3	221
	2007	8	2	29	12	34	2	11	2	161
	2008	23	2	7	4	59	2	4	0	217
	2009	4	13	17	11	48	0	8	0	190
	2010	11	3	15	10	52	0	9	0	256
	2011	2	2	9	6	35	0	46	0	65
Otter	2002	14	11	2	32	32	2	7	0	56
	2003	14	0	0	0	84	0	2	0	50
	2004	19	0	0	0	81	0	0	0	47
	2005	13	17	0	0	67	3	0	0	103
	2006	18	0	0	3	61	0	5	13	38
	2007	0	17	0	0	83	0	0	0	18
	2008	25	0	0	0	43	0	0	32	28
	2009	6	0	0	0	78	0	6	0	18
	2010	14	0	0	0	86	0	0	0	28
	2011	6	0	0	0	85	0	9	0	35

Table 3 (continued).

Species	Regulatory Year	Percent Harvested: Airplane	Dogsled, Skis, Snowshoes	Boat	3 or 4 – wheeler	Snow machine	ORV	Highway vehicle	Unk.	Total Harvest
Wolverine	2002	16	11	0	0	68	0	5	0	19
	2003	37	4	0	2	50	0	6	2	52
	2004	45	4	0	0	51	0	0	0	51
	2005	31	2	0	7	53	2	4	0	45
	2006	55	0	3	0	31	0	3	7	29
	2007	38	0	3	3	55	0	0	0	29
	2008	26	0	0	4	67	0	4	0	27
	2009	52	0	0	0	48	0	0	0	46
	2010	75	4	0	0	21	0	0	0	28
	2011	68	0	0	0	32	0	0	0	19
Marten	2002	3	18	0	4	61	2	7	5	498
	2003	15	2	0	0	78	0	1	4	729
	2004	12	1	0	1	70	0	0	16	847
	2005	17	3	0	0	78	0	1	1	1308
	2006	11	3	0	1	82	0	1	0	872
	2007	14	2	0	2	73	0	0	9	573
	2008	21	1	0	0	74	0	0	4	1422
	2009	11	3	0	0	85	0	1	0	782
	2010	30	2	0	0	67	0	1	0	533
	2011	6	1	0	2	91	0	0	0	923

SPECIES

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 2009
To: 30 June 2012

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 of the residents of northern Bristol Bay and was at one time an important source of income along with the commercial fishing industry. In the past, 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. Fur buyers purchased thousands of pelts during the week-long rendezvous and celebration. During the last two decades there has been a continued decline in the importance of fur trapping to the economy and seasonal activities of local people. While the Beaver Round-up is still held in Dillingham as a spring celebration, few furs are brought in and no fur buyers from outside the area come to the celebration to purchase furs.

Beaver historically was the most important furbearer in Game Management Unit 17. Beavers are abundant throughout most of the 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 created provide good rearing habitat for juvenile salmon as well as other fish species.

Adverse winter weather and predation are probably the most significant mortality factors 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. Low fur prices and the costs associated with trapping (purchase of snowmachines, fuel, etc.) contribute to the low amount of beaver trapping activity. However, the use of beaver fur for making and selling of hats and mittens and its' importance as food for local residents assures a base level of harvest regardless of other factors.

Red fox is another common furbearer in Unit 17. Foxes occur throughout the unit, preying on ptarmigan, grouse, and various small mammals, as well as using remains from hunter and predator-killed moose and caribou. Fox populations fluctuate widely, perhaps because of periodic disease outbreaks. In the past, they have been an economically important fur species to local trappers.

River otter populations increased steadily during the 1980s, and appeared to stabilize during the 1990s. The high value of otter pelts during this and the past several reporting periods resulted in trappers targeting otters rather than just catching them incidentally while trapping for beaver. Otter fur is also highly sought after for fur products by local sewers so there is a continuous demand locally for their fur.

Lynx are uncommon in Unit 17. The lynx population fluctuates, but even at peak numbers lynx are generally found in low-to-moderate densities. Much of the fluctuation is probably due to local hare abundance and lynx dispersal from adjacent units. Most of the lynx harvested are caught in the mountains near Manokotak.

Wolverines occur throughout Unit 17, ranging from ridgetops 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, their value in fur products, and the 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 they are becoming more widespread. Most of their habitat occurs along the Wood–Tikchik Lakes 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 occasional 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. Presently, it appears they are not common anywhere in Unit 17

MANAGEMENT DIRECTION

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 that fur buyers are required to fill out and report to the department 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. 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 throughout the unit, lynx occasionally become plentiful in isolated areas where snowshoe hares become abundant. Population data for lynx are derived from incidental observations and harvest records. Snowshoe hare populations appeared to be moderate in Subunits 17B and 17C with isolated pockets of abundance 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

<u>Season and Bag Limit.</u>

Beaver trapping season for regulatory years (RY) 2009 (RY09 = 1 July 2009–30 June 2010) and RY10 was 10 October–31 March, and 15 April–31 May when firearms could be used to take up to 2 beaver per day for human consumption. There was no season bag limit. Beaver trapping season for RY11 was changed through board of game action to 10 October–31 May, however the firearm season and daily bag limit was unchanged. Beaver harvests during this reporting period were 231 in RY09; 206 in RY10; and 157 in RY11, compared to the mean annual harvest for the previous 5 years (RY04 through RY08) of 213 (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 2). In the past, snares and traps were equally important methods of trapping beavers in Unit 17. In recent years most trappers report using traps (usually Conibear-type body gripping traps; Table 2).

Marten, mink, and weasel seasons were 10 November–28 February with no bag limit. Wolverine trapping season was 10 November–31 March, and wolverine could be hunted 1 September–31 March. There was a bag limit of 1 wolverine per season with a hunting license, but no bag limit for trapping. Harvests were 42 wolverines in RY09; 63 in RY10; and 50 in RY11, compared to the mean annual harvest for the previous five years (RY04 through RY08) of 43 (Table 1). Trapping was the most common method of harvest (Table 3).

Arctic fox, red fox, and lynx seasons were 10 November–31 March. Coyote seasons were 10 November–30 April. There was no bag limit. The number of lynx caught this reporting period was similar to previous years, with 4 reported in RY09; 7 in RY10; and 18 in RY11, compared to the mean annual harvest from the previous 5 years (RY04 through RY08) of 5 (Table 1). Most lynx taken in the past 5 years have been trapped (Table 4).

River otter season was 10 November–31 March with no bag limit. Reported harvests of otters were 74 in RY09; 72 in RY10; and 54 in RY11. These harvest totals are similar to most years since RY97; excepting RY04–RY06 when otter harvest was exceptionally high due to high prices (Table 1). Traps (probably Conibears) are the most common method used by successful trappers, although snares and firearms are also used (Table 5).

Muskrat season was 10 November–31 March, with no bag limit. Little information is available on the number of muskrats trapped, if any. Occasional reports from trappers taking muskrats indicate any muskrats taken in Unit 17 are typically taken in traps set for beaver or otters.

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.

<u>Board of Game Actions and Emergency Orders</u>. During its March 2011 meeting the Board of Game extended beaver trapping season through 31 May. No emergency orders affecting trapping were issued during this reporting period.

<u>Permit Hunts</u>. 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.

<u>Hunter Residency and Success</u>. Data on trapper residency and success have not been specifically analyzed. Individuals from communities within Subunit 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.

<u>Transport Methods</u>. 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.

<u>Harvest Chronology</u>. 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 (December through February; Table 12). Wolverine harvests were historically highest in January and February, though with the present later season, March has become an important month for harvest (Table 13).

Other Mortality

Beaver and an occasional otter are sometimes caught in gillnets during the summer fishing season. The total number caught unit wide 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.

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.

Enhancement

The only human-caused habitat enhancement activities documented in Unit 17 during the past several years has been some limited willow cutting on islands in the lower Nushagak River directed towards enhancing browse for moose. Because of the relative inaccessibility of most of the unit, and the occurrence of natural enhancement, human-caused habitat enhancement specifically for furbearers 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 AND RECOMMENDATIONS

The management objectives for furbearer management in Unit 17 will be under review and likely changes prior to the next furbearer management report cycle. For example, the management objectives for beaver caches per mile of stream though once a reasonable objective, is no longer since we do not routinely conduct beaver cache surveys. The objective for a harvest of 400 red fox also needs to be reconsidered since we have no way of tracking fox harvest since this species does not have a sealing requirement, and, we will no longer have furbearer acquisition reports to assess fox pelts being bought by furbearers. Additionally, based on the statewide Trapper Questionnaire up to 50% of the furs taken in southwest Alaska are kept by the trappers rather than sold. This makes it very difficult to assess furs that are not sealed in this unit such as fox and pine marten.

Most furbearer populations in Unit 17 appear to be healthy and stable. Relatively low prices paid for most pelts, coupled with high fuel prices, have reduced trapping pressure on beavers in many areas, which in turn affects trapping pressure on all other species. 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 for local fur sewing, and prices have remained consistently high.

Lynx populations rebounded from the low levels first noted in RY87, peaked in RY94, and have been relatively low since then until the last year of this reporting period. Lynx are cyclic with their favorite food, the snowshoe hare. The harvest data reflects this pattern of abundance.

Though trappers prize this furbearer, it is unlikely that trapper effort has much of an impact on population levels; rather, snowshoe hare numbers dictate lynx abundance.
Red fox populations remained relatively stable during this reporting period. Data from the statewide Trapper Questionnaire suggests red fox 2nd only to beaver as the most sought after furbearer in Southwest Alaska.

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.

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Table 1. Reported harvest of furbearers in Unit 17, regulatory years 1956 through 2011 (sealing record data).

Regulatory	Beaver		Lynx		River 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 Year	Beaver % Kits	Beaver Total	Lynx % Kits	Lynx Total	River Otter Male	River Otter Female	River Otter Unk	River Otter Total	Wolverine Male	Wolverine Female	Wolverine Unk	Wolverine 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[e]	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
2006–07	21.3	188	66.7	3	47	35	30	112	23	10	3	36
2007–08	20.6	189	12.5	8	31	22	9	62	26	21	6	53
2008–09	25.6	203	16.7	6	21	11	0	32	18	10	0	28
2009–10	18.6	231	25.0	4	36	23	15	74	22	16	4	42
2010–11	17.7	206	20.0	7	33	23	16	72	43	18	2	63
2011–12[f]	17.2	157	29.0	18	30	24	0	54	34	13	3	50

[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 10 Nov.–31 Mar. unit-wide, with 15 Apr–31May season when 2 beaver/day could be taken with a firearm.

[e] Beaver trapping season changed to 10 Oct.–31 Mar. unit-wide and no bag limit, with 15 April–31May season when 2 beaver/day could be taken with a firearm.

[f] Beaver trapping season changed to 10 Oct.–31 Mar. unit-wide and no bag limit, with 15 April–31 May season when 2 beaver/day could be taken with a firearm.

Table 2. Unit 17 beaver harvest[a], regulatory years 1992 through 2011.

Regulatory	Reported harvest				Method of take			
year[b]	Kits[c] (%)	Adults (%)	Unk.	Total	Trap (%)	Snare (%)	Unk	Successful Trappers
1992–93	136 (29.9)	319 (70.1)	0	455	218 (50.6)	213 (49.4)	24	45
1993–94	135 (20.0)	541 (80.0)	0	676	345 (51.9)	320 (48.1)	11	57
1994–95	254 (23.3)	837 (76.7)	0	1091	564 (52.2)	517 (47.8)	10	90
1995–96	115 (26.2)	324 (73.8)	0	439	244 (55.6)	195 (44.4)	0	44
1996–97	174 (20.0)	695 (80.0)	0	869	311 (35.8)	558 (64.2)	0	65
1997–98	90 (23.7)	289 (76.3)	3	382	177 (46.3)	179 (46.9)	26	38
1998–99	120 (27.5)	316 (72.5)	0	436	187 (46.9)	212 (53.1)	37	43
1999–00	94 (43.7)	121 (56.3)	0	215	98 (47.6)	108 (52.4)	9	25
2000–01	50 (15.8)	266 (84.2)	10	326	132 (42.4)	179 (57.6)	15	26
2001–02	55 (25.1)	164 (74.9)	0	219	78 (36.4)	136 (63.6)	5	21
2002–03	44 (17.1)	214 (82.9)	0	258	166 (68.9)	75 (31.1)	17	24
2003-04	56 (22.5)	193 (77.5)	0	249	132 (55.0)	106 (44.2)	9	27
2004-05	31 (16.7)	155 (83.3)	0	186	162 (87.1)	24 (12.9)	0	17
2005-06	73 (24.7)	223 (75.3)	5	301	252 (86.6)	39 (13.4)	10	29
2006-07	40 (21.3)	148 (78.7)	0	188	116 (69.5)	51 (30.5)	21	22
2007-08	39 (21.3)	144 (78.7)	6	189	181 (97.3)	5 (2.7)	3	23
2008-09	52 (25.6)	151 (74.4)	0	203	149 (83.7)	29 (16.3)	25	22
2009-10	40 (18.6)	175 (81.4)	16	231	199 (95.2)	10 (4.8)	22	20
2010-11	36 (17.7)	167 (82.3)	3	206	189 (97.4)	5 (2.6)	12	24
2011-12	26 (17.2)	125 (82.8)	6	157	145 (94.2)	9 (5.8)	3	18

[a] Percentages based on animals with reported information.

[b] Season dates: RY92–RY96 — Unit 17A: 1 Jan–31 Jan, 20 per season; Units 17B & 17C: 1 Jan–28 Feb, 20 per season

RY93 — Unit 17A season extended to 1 Jan–28 Feb by emergency regulation.

RY99 — 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.

RY03 — Unitwide season extended to 10 October–31 March, and 15 April–31 May, when 2 beaver/day can be taken with a firearm. No season bag limit.

RY11 — Unitwide season extended to 10 October–31 May, and 15 April–31 May, when 2 beaver/day can be taken with a firearm. No season bag limit.

[c] Juveniles < 52"

Table 3. Unit 17 wolverine harvest, regulatory years 1992 through 2011.

Regulatory	Reported harvest[a]				Method of take				Successful
Year[b]	Males (%)	Females (%)	Unk.	Total	Trap (%)	Snare (%)	Shot (%)	Unk	Trappers
1992–93	8 (80.0)	2 (20.0)	0	10	8 (80.0)	0 (---)	2 (20.0)	0	10
1993–94	18 (64.3)	10 (35.7)	1	29	7 (24.1)	1 (3.4)	21 (72.4)	0	20
1994–95	32 (60.4)	21 (39.6)	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 (66.7)	14 (33.3)	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 (76.9)	6 (23.1)	1	27	15 (57.7)	1 (3.8)	10 (38.5)	1	27
1999–00	21 (70.0)	9 (30.0)	0	30	13(43.3)	0 (---)	17 (56.7)	0	22
2000–01	20 (62.5)	12 (37.5)	1	33	11 (35.5)	0 (---)	20 (64.5)	2	22
2001–02	30 (68.2)	14 (32.8)	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[c]	58 (66.7)	29 (33.3)	1	88	68 (78.2)	1 (1.1)	18 (20.7)	1	34
2004-05	39 (70.9)	16 (29.1)	0	55	43 (79.6)	1 (1.9)	10 (18.5)	1	24
2005-06	36 (80.0)	9 (20.0)	0	45	33 (73.3)	2 (4.4)	10 (22.2)	0	27
2006-07	23 (69.7)	10 (30.3)	3	36	22 (62.9)	6 (17.1)	7 (20.0)	1	18
2007-08	26 (55.3)	21 (44.7)	6	53	39 (83.0)	3 (6.4)	5 (10.6)	6	25
2008-09	18 (64.3)	10 (35.7)	0	28	20 (74.1)	6 (22.2)	1 (3.7)	1	15
2009-10	22 (57.9)	16 (42.1)	4	42	28 (71.8)	2 (5.1)	9 (23.1)	3	23
2010-11	43 (70.5)	18 (29.5)	2	63	37 (63.8)	4 (6.9)	17 (29.3)	5	28
2011-12	34 (72.3)	13 (27.7)	3	50	30 (61.2)	5 (10.2)	14 (28.6)	1	24

[a] Percentages based on animals with reported information.

[b] Trapping season dates: RY92–RY02 Unit 17 10 Nov–28 Feb No limit

[c] Trapping season dates: RY03–present Unit 17 10 Nov–31 Mar No limit

Hunting season dates: RY92–present Unit 17 1 Sep–31 Mar 1 wolverine

Table 4. Unit 17 lynx harvest[a], regulatory years 1992 through 2011.

Regulatory Year[b]	Reported harvest Males (%)	Females (%)	Unk	Juveniles[c] (%)	Adults (%)	Unk Age	Total	Method of take Trap/Snare (%)	Shot (%)	Unk	Successful Trappers
1992–93	5 (55.6)	4 (44.4)	6	2 (13.3)	13 (86.7)	0	15	13 (86.7)	2(13.3)	0	4
1993–94	5 (41.7)	7 (58.3)	3	2 (13.3)	13 (86.7)	0	15	14 (93.3)	1 (6.7)	0	11
1994–95	10 (40.0)	15 (60.0)	3	4 (14.3)	24 (85.7)	0	28	28 (100)	0 (---)	0	14
1995–96	2 (28.6)	5 (71.4)	0	0 (---)	7 (100)	0	7	6 (85.7)	1(14.3)	0	6
1996–97	1 (20.0)	4 (80.0)	2	1 (16.7)	5 (83.3)	1	7	6 (100)	0 (---)	1	7
1997–98	8 (57.1)	6 (42.9)	0	3 (21.4)	11 (78.6)	0	14	9 (64.3)	5(35.7)	0	9
1998–99	3 (42.9)	4 (57.1)	2	1 (11.1)	8 (88.9)	0	9	9 (100)	0 (---)	0	7
1999–00	3 (27.3)	8 (72.7)	1	0 (---)	12 (100)	0	12	11 (91.7)	1 (8.3)	0	4
2000–01	0 (---)	0 (---)	3	1 (33.3)	2 (66.7)	0	3	3 (100)	0 (---)	0	1
2001–02	0 (---)	0 (---)	2	0 (---)	2 (100)	0	2	2 (100)	0 (---)	0	2
2002–03	0 (---)	0 (---)	1	0 (---)	1 (100)	0	1	0 (---)	1 (100	0	1
2003-04	6 (50.0)	6 (50.0)	0	0 (---)	12 (100.0)	0	12	11 (91.7)	1 (8.3)	0	8
2004-05	1 (50.0)	1 (50.0)	1	0 (---)	2 (100)	1	3	2 (66.7)	1 (33.3)	0	3
2005-06	3 (75.0)	1 (25.0)	0	0 (---)	4 (100)	0	4	4 (100)	0 (---)	0	4
2006-07	0 (---)	0 (---)	3	2 (66.7)	1 (33.3)	0	3	3 (100)	0 (---)	0	3
2007-08	5 (62.5)	3 (37.5)	0	1 (16.7)	5 (83.3)	2	8	8 (100)	0 (---)	0	4
2008-09	4 (80.0)	1 (20.0)	1	1 (16.7)	5 (83.3)	0	6	5 (83.3)	1 (16.7)	0	5
2009-10	2 (50.0)	2 (50.0)	0	1 (25.0)	3 (75.0)	0	4	4 (100.0)	0 (---)	0	3
2010-11	2 (33.3)	4 (66.7)	1	1 (20.0)	4 (80.0)	2	7	4 (57.1)	3 (42.9)	0	6
2011-12	8 (47.1)	9 (52.9)	0	4 (23.5)	13 (76.5)	1	18	11 (61.1)	7 (38.9)	0	9

[a] Percentages based on known reported males and females in harvest.

[b] Trapping season dates: RY92–RY96 Unit 17 10 Nov–28 Feb No limit
RY97–present Unit 17 10 Nov–31 Mar No Limit
Hunting season dates: RY92–present Unit 17 10 Nov–28 Feb 2 lynx

[c] Juveniles < 34" in length.

Table 5. Unit 17 otter harvest[a], regulatory years 1992 through 2011.

Regulatory	Reported harvest				Method of take				Successful
Year[b]	Males (%)	Females (%)	Unk.	Total	Trap (%)	Snare (%)	Shot (%)	Unk	Trappers
1992–93	38 (51.4)	36 (48.6)	9	83	60 (74.1)	20 (24.7)	1 (1.2)	2	29
1993–94	46 (53.5)	40 (46.5)	10	96	62 (69.7)	21 (23.6)	6 (6.7)	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 (86.1)	8 (10.1)	3 (3.8)	4	24
1996–97	75 (44.1)	95 (55.9)	24	194	118 (62.8)	64 (34.0)	6 (3.2)	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 (88.3)	3 (8.8)	1 (2.9)	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 (82.1)	4 (14.3)	1 (3.6)	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 (86.3)	7 (8.8)	4 (5.0)	1	24
2004-05	73 (56.6)	56 (43.4)	3	132	112 (88.2)	8 (6.3)	7 (5.5)	5	25
2005-06	56 (54.4)	47 (45.6)	21	124	120 (98.4)	1 (0.8)	1 (0.8)	2	29
2006-07	47 (57.3)	35 (42.7)	30	112	100 (91.7)	3 (2.8)	5 (4.6)	3	23
2007-08	31 (58.5)	22 (41.5)	9	62	59 (95.2)	2 (3.2)	1 (1.6)	0	16
2008-09	21 (65.6)	11 (34.4)	0	32	30 (93.8)	1 (3.1)	1 (3.1)	0	12
2009-10	36 (61.0)	23 (39.0)	15	74	57 (89.0)	3 (4.7)	4 (6.3)	10	13
2010-11	33 (58.9)	23 (41.1)	16	72	53 (93.0)	0 (---)	4 (7.0)	15	15
2011-12	30 (55.6)	24 (44.4)	0	54	43 (79.6)	1 (1.9)	10 (18.5)	0	16

[a] Percentages based on known reported males and females in harvest.

[b] Season dates:	RY92–RY96	Unit 17	10 Nov–31 Mar	No limit
	RY97–RY98	Unit 17	10 Nov–28 Feb	No limit
	RY99–present	Unit 17	10 Nov–31 Mar	No limit

Table 6. Unit 17 beaver harvest percentage by transport method, regulatory years 1992 through 2011.

	Percent of harvest								
Regulatory Year	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unk	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
2006–07	11.7	---	14.9	4.8	47.3	0.5	4.8	15.9	188
2007–08	4.2	---	44.4	---	45.5	---	2.7	3.2	189
2008–09	---	---	13.3	---	71.9	---	2.0	12.8	203
2009–10	1.7	---	51.1	0.9	30.7	3.4	3.9	8.2	231
2010–11	---	---	34.0	---	52.4	---	5.3	8.3	206
2011–12	3.8	---	44.6	---	42.7	---	7.6	1.3	157

Table 7. Unit 17 lynx harvest percentage by transport method, regulatory years 1992 through 2011.

	Percent of harvest								
Regulatory Year	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unk	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
2006–07	---	---	---	---	66.7	33.3	---	---	3
2007–08	75.0	---	---	---	25.0	---	---	---	8
2008–09	---	---	---	---	83.3	---	16.7	---	6
2009–10	---	---	---	---	100	---	---	---	4
2010–11	14.3	---	---	---	85.7	---	---	---	7
2011–12	---	---	5.6	---	94.4	---	---	---	17

Table 8. Unit 17 otter harvest percentage by transport method, regulatory years 1992 through 2011.

	Percent of harvest								
Regulatory year	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unk	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
2006–07	1.8	---	---	1.8	74.1	---	---	22.3	112
2007–08	---	---	11.3	1.6	74.2	---	---	12.9	62
2008–09	---	---	---	---	100	---	---	---	32
2009–10	---	---	---	5.4	71.6	4.1	1.4	18.9	74
2010–11	---	---	---	---	75.0	---	4.2	20.8	72
2011–12	---	---	5.6	---	94.4	---	---	---	54

Table 9. Unit 17 wolverine harvest percentage by transport method, regulatory years 1992 through 2011.

Regulatory Year	Percent of harvest								Total
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unk	
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
2006–07	11.1	---	---	---	69.4	---	---	19.4	36
2007–08	28.3	---	3.8	---	56.6	---	---	11.3	53
2008–09	21.4	---	---	---	75.0	---	---	3.6	28
2009–10	23.8	---	2.4	2.4	54.8	2.4	--	14.3	42
2010–11	11.1	---	---	---	81.0	---	---	7.9	63
2011–12	4.0	---	---	---	90.0	---	---	6.0	50

Table 10. Unit 17 beaver harvest chronology percentage by month, regulatory years 1992 through 2011.

Regulatory	Month									
Year	October	November	December	January	February	March	April	May	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
1999–00	---	7.0	5.6	70.2	13.0	4.2	---	---	---	215
2000–01	---	8.3	14.4	34.4	18.1	18.7	0.3	1.2	4.6	326
2001–02	---	10.5	15.5	44.3	18.7	8.7	---	0.9	1.4	219
2002–03	---	9.7	25.6	24.0	33.7	---	6.6	0.4	---	258
2003–04	12.5	6.4	12.9	26.5	36.6	4.4	---	0.8	---	249
2004–05	31.7	3.8	11.8	25.8	24.2	2.2	---	0.5	---	186
2005–06	24.3	3.3	20.9	28.9	19.6	1.3	1.0	---	0.7	301
2006–07	21.3	21.3	12.2	20.2	22.9	1.1	---	1.1	---	188
2007–08	41.3	20.1	13.8	18.0	5.3	---	---	---	1.6	189
2008–09	13.8	13.3	24.1	16.3	15.8	3.5	---	6.9	6.4	203
2009–10	58.9	1.3	15.6	4.8	8.2	3.0	---	---	8.2	231
2010–11	41.7	2.4	29.1	14.6	8.3	1.9	---	1.5	0.5	206
2011–12	45.2	13.4	5.1	17.2	5.1	5.1	6.4	1.3	0.6	157

Table 11. Unit 17 lynx harvest chronology percentage by month, regulatory years 1992 through 2011.

Regulatory	Month						
Year	November	December	January	February	March	Other/Unk	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
1999–00	---	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
2006–07	33.3	----	----	66.7	----	----	3
2007–08	---	---	12.5	50.0	37.5	---	8
2008–09	16.7	---	33.3	33.3	---	16.7	6
2009–10	---	---	---	75.0	25.0	---	4
2010–11	---	---	---	---	100	---	7
2011–12	5.6	11.1	5.6	5.6	72.2	---	18

Table 12. Unit 17 otter harvest chronology percentage by month, regulatory years 1992 through 2011.

Regulatory	Month						
Year	November	December	January	February	March	Other/Unk	Total
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
1999–00	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
2006–07	16.1	24.1	19.6	26.8	7.1	6.3	112
2007–08	16.1	35.5	19.4	25.8	1.6	1.6	62
2008–09	18.8	53.1	18.8	---	9.4	---	32
2009–10	13.5	16.2	18.8	25.7	10.8	14.9	74
2010–11	22.2	26.4	15.3	20.8	4.2	11.1	72
2011–12	11.1	20.4	33.3	16.7	18.5	---	54

Table 13. Unit 17 wolverine harvest chronology percentage by month, regulatory years 1992 through 2011.

Regulatory Year	Month					Other/Unk	Total
	November	December	January	February	March		
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
1999–00	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
2006–07	---	19.4	22.2	33.3	19.4	5.6	36
2007–08	---	3.8	15.1	43.4	26.4	11.3	53
2008–09	3.6	10.7	21.4	28.6	32.1	3.6	28
2009–10	---	7.1	23.8	42.9	14.3	11.9	42
2010–11	---	12.7	28.6	31.7	27.0	---	63
2011–12	2.0	16.0	20.0	30.0	28.0	4.0	50

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

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. In recent years the number of trappers and harvest have been quite low compared to historical numbers; however, these numbers may increase with the availability of a new local fur buyer in Unit 18. Other factors, including fluctuations in fur prices, varying travel conditions, and natural cycling of furbearers (especially lynx) will also influence levels of trapping effort and harvest.

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, fall moose hunters occasionally shoot beavers for camp meat, spring duck hunters take muskrats, and winter 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.

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 trends 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, muskrats 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 payment for every fur they seal 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 harvest reporting is poor in Unit 18. We use public communication and broad educational efforts to address this problem. That said we only require harvest reporting on only wolverine, lynx, and river otter. We gather only anecdotal information on number of foxes, weasels, beavers, muskrats, mink, martens or squirrels harvested in Unit 18

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; attended local chapter meetings of the Alaska Trappers Association; and made incidental observations of furbearer species during fieldwork for other species. Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011).

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 stable and increasing at low levels. A long-time local fur buyer stated that he bought only one coyote a year through most of the 1980s, but by the mid-1990s buying 1–5 a year from Kuskokwim villages was not uncommon. Coyotes are established on the mainstream of the Kuskokwim River and most of it drainages, including the Tuluksak, Gweek, Eek, Kisaralik, Kasigluk, and Kwethluk rivers. Based on information from a fur buyer on the lower Yukon River, coyote are present at very low numbers with only 1–2 being taken in any given year by trappers.

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. During the winter of 2011–2012 we experienced a spike in the arctic fox population. Trappers harvested several outside the traditional coastal zones and on the Kisaralik River and near Bethel.

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, there have been foxes known to have tested positive for rabies.

Lynx — During this reporting period lynx numbers reached peak levels and started declining throughout the unit. The Kuskokwim lynx population has declined based on very low numbers of kittens in the harvest and very restricted areas where lynx were harvested. Lynx numbers on the Yukon River were high throughout the reporting time but are expected to start decreasing. Overall, there has been an increase in the number of lynx sealed in the unit, primarily because more trappers are active, perhaps stimulated by the presence of a new fur buyer on the Yukon River at a time when peak numbers of lynx were present.

Marten —Marten numbers are stable at low levels. The limited marten habitat in Unit 18 is accessed by village residents, but only small numbers of trappers directly target this species. It is expected that increasing fur prices and the presence of a local fur buyer will foster more trapping effort and harvest of marten. The current 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. Normally, levels for mink abundance in the Yukon-Kuskokwim Delta are higher than elsewhere in the unit, but they are not perceived as being high or exceptional by trappers who are accustomed to mink being abundant in this area. With low fur prices being offered for wild mink, the number of mink trappers has declined.

Muskrat — Trappers report that muskrat numbers have dramatically declined unitwide. Trappers don't target muskrats as deliberately as in the past, when spring camps were established expressly for hunting muskrats. Their low numbers are independent of trapping pressure and are the result of environmental factors, such as thick ice and colder than normal temperature in combination with little or no snow for significant portions of the winter.

River Otter — As with mink, river otters are found throughout the extensive habitats available to them. 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. Their population level 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 and stable within the mountains of Unit 18.

Population Composition

The only furbearers for which sex composition of the harvest is collected during sealing are river otters and wolverines. During this reporting period, male otters outnumbered females in the harvest by a ratio of 7:5. Similarly, male wolverines outnumbered females by a ratio of 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 habitat and food stores. 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, including Nunivak Island. They are less abundant but still present in the Kilbuck Mountains, the Andreafsky Mountains, and along the coast, where arctic foxes are also found.

Lynx abundance in Unit 18 is not correlated with habitat but with high densities of snowshoe hare. During the reporting period, snowshoe hares and lynx were more abundant in the upstream portions of the Kuskokwim River above the community of Tuluksak. Lower abundance of both species occurred below Tuluksak and just inside the mountains on most of its tributaries. On the Yukon River, snowshoe hares were reported at higher densities on the north side of the river leading to high numbers of lynx, especially in the vicinity of Marshall. Lynx are occasionally found elsewhere in Unit 18 as they seek out scattered pockets of hares.

Martens and red squirrels can be found in the limited forested areas of Unit 18. Suitable habitat occurs: along the main stem of the Kuskokwim River; along portions of the Kisaralik, Gweek, Kwethluk, Fog, and Tuluksak rivers; in eastern coniferous zones; in the upper portions of the Atchuelinguk, Andreafsky, and East Fork Andreafsky rivers; and in broad areas of coniferous forest along the Yukon River upriver from Marshall.

Arctic ground squirrels are found in the upland areas of the Kilbuck Mountains and the Andreafsky Mountains. They have not been documented on Nelson or Nunivak Islands, nor in the Askinuk Mountains, the only other locations with suitable habitat for them.

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 the occurrence of caribou, moose, salmon spawning grounds 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, Kisaralik River drainage, Gweek River drainage, the Fog River drainage, and just above Bethel.

MORTALITY

Harvest

Seasons and Bag Limit. Trapping and hunting seasons and bag limits were as follows:

RY09, RY10, RY11

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	10 Nov–31 Jan	No limit	N/A	N/A
Muskrat	1 Jul–30 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.

Board of Game Actions and Emergency Orders. There were no Board of Game actions during this reporting period.

Human-Induced Harvest. Coffing (2000) estimated that 5–100% of furbearers caught in Akiachak were sold, depending on the species. Furs 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 fluctuated during this reporting period (Table 2) as interest followed fur prices. The average otter pelt price has fluctuated from a high of more than $120 to a low of $60. Harvest does seem to increase with higher prices but we suspect local demand can temper the low prices.

Lynx harvest (Table 2) increased through this reporting period to record high numbers, following typical lynx population cycles. We anticipate that lynx numbers and harvest will decline in the next reporting period.

Wolverine harvest from sealing data has remained consistent with a low of 9 in RY09 (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 wolverines 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 higher wolverine populations responding to higher prey populations of snowshoe hare, ptarmigan, beaver, moose and the seasonal presence of caribou and salmon.

Mink are harvested along with otters in sets using a *taluyaq* (funnel type trap), and even though otters are also targeted directly with body-gripping 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 has probably increased as well.

Red foxes are particularly abundant, but the interest in trapping them, except around a few communities, is low and the harvest is well below the potential. With fox pelt prices at $40–$60, 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 heavily 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.

<u>Permit Hunts</u>. No special permits were required to trap or hunt furbearers in Unit 18 during the reporting period.

<u>Hunter Residency and Success</u>. Most of the trappers who sealed Unit 18 furs were Alaska residents. One nonresident sealed a wolverine that had been shot and one nonresident sealed a lynx that had been trapped.

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.

<u>Harvest Chronology</u>. 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, trapping begins when travel conditions allow mink and otter trappers to reach trapping areas. In some years, 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 potential fall 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 reporting period RY09–RY11.

<u>Transport Methods</u>. Trappers used snowmachines to take nearly all of the furbearers sealed in Unit 18 during this reporting period.

Other Mortality

The high furbearer populations of most species in Unit 18 seem to have negative effects on furbearer health and furbearer habitats. Beaver and red fox show these effects readily, but the inherent effects from high abundance 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. Most of coastal Alaska including Unit 18 falls within the rabies endemic area of the state. As population densities increase so does the potential for an epizootic year. Epizootic and non-epizootic years are cyclical on the Yukon-Kuskokwim Delta. Since 1997, 91 animals with human or pet interactions or potential exposure have been tested for rabies, resulting in 30 positive cases. During this reporting period, 3 Arctic foxes, 3 dogs, and 11 red foxes tested positive for rabies. With the high population of foxes in Unit 18 and high densities of foxes living in and around communities the threat of rabies will continue to be a health concern to people, pets, and other wildlife.

In a joint study between UAF and ADF&G, 344 trapper-harvested red foxes from the Bethel area were test for rabies in RY09 and RY10. The purpose was to determine the prevalence and incidence rate within the wild population. This 2-year study captured both an epizootic and a non-epizootic year. One hundred thirty five red foxes trapped in the winter of RY09 had a 3% prevalence rate. Two hundred nine trapper-harvested red foxes in the winter of RY10 showed a 1% prevalence rate.

Thirty-eight trapper-harvested wolverine from Unit 18 were also tested for rabies between RY09 and RY11 and all tests were negative. This was interesting because fox and wolverine overlap in habitat, as does wolves in the unit. Through this reporting period we detected a decreased number of wolves and believe the cause was disease related.

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. 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, resulting in reduced or marginalized economic importance of this activity. The number of trappers, trapper participation, and volume of fur harvested has shown improvement within the reporting period. One of the significant factors leading to this revival has been the start-up of Kwik'pak Fur, a local community development quota (CDQ) group based in Mountain Village that buys raw furs and hosts trapping clinics. The efforts of the CDQ group have been dedicated to reestablishing the trapping tradition with educational and economic support to trappers. As a result, the number of trappers, largely on the Yukon River, has dramatically increased.

Foxes and beavers were once highly valued by trappers, 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, Steller's Eider, and Emperor Goose are 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 at levels causing conservation concerns. Previous high harvests provide some context. In 1988–1989, 4,686 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.

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Table 1. Furbearer harvest from sealing records, Unit 18, RY06 through RY11.

Species	RY06	RY07	RY08	RY09	RY10	RY11
Lynx	111	103	203	467	516	656
River otter	245	39	102	179	138	114
Wolverine	13	16	23	9	64	29

Table 2. River otter harvest per trapper, Unit 18, RY97 through RY11.

Regulatory year	Number of trappers	River otter harvest	River otters/trapper	Trappers with > 10 river otters	Highest catch
RY97	79	447	5.7	5	29
RY98	43	167	3.9	2	16
RY99	21	61	2.9	0	9
RY00	40	191	4.8	4	18
RY01	24	138	5.8	4	32
RY02	43	410	9.5	10	43
RY03	40	336	8.4	12	41
RY04	47	426	9.1	13	44
RY05	48	339	7.1	13	26
RY06	38	245	6.4	7	31
RY07	11	39	3.5	0	9
RY08	20	102	5.1	3	20
RY09	34	179	5.2	6	19
RY10	25	138	5.5	7	28
RY11	29	114	3.9	4	13

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012[1]

LOCATION

GAME MANAGEMENT UNITS: 19, 21A, and 21E (55,343 mi^2)

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. 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 (Brown et al. 2012). 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 and the economic incentive to trap furs has fluctuated with market conditions. Several other factors also influence the annual harvest of various furbearer species; including population levels, snow conditions, climate, fuel prices, availability of alternate income, 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.

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

- 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.

MANAGEMENT ACTIVITIES

- Seal furs of selected species 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.
- 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., RY09 = 1 July 2009–30 June 2010) based on sealing certificates. Additionally, the Alaska Department of Fish and Game's (ADF&G) trapper questionnaire statewide annual report (ADF&G 2012) was reviewed for RY10 but no report was done in RY09, and RY11 was not available. This questionnaire lumped Unit 21E with Units 21B, 21C, 21D, and 24, precluding a more thorough assessment of Unit 21E. Pelt prices were based on the average prices paid at the late winter North American Fur Auctions sale (Table 1). Fur acquisition reports and fur export reports were not analyzed for this report.

Beaver cache surveys were conducted in October 2010 and 2011 in the Big River (BR) and Takotna (TR) beaver cache count areas (Figs. 1 and 2). The BR area is east of McGrath in the riparian area on the south side of the Kuskokwim River downriver from Big River to Sand Bluffs and south to a ridge that defines the lowland riparian area. The TR area is located north of McGrath in the riparian area on the north side of the Takotna River downriver from latitude 63°02.576′N, longitude 155°44.794′W to latitude 63°03.379′N, longitude 155°41.016′W on the Nixon Fork and includes beaver habitat to the north of the Takotna River and stops where black spruce forests predominate. These areas are expected to be sensitive to changes in beaver trapping effort and are monitored to identify gross changes in the number of active lodges. Initial aerial surveys were conducted using a Super Cub flying ¼-mile transects. Lodges were marked using a GPS and identified as active or inactive based on the presence or absence of a food cache. Subsequent surveys were conducted by flying a point-to-point route connecting previously identified lodges, reassessing their activity, and noting any new or previously unidentified lodges.

POPULATION STATUS AND TREND

Beaver

Beavers are seen during surveys for other species in all suitable habitats within the McGrath area. There is less suitable habitat in Units 19B and 19C than in Units 19A, 19D, 21A, and 21E. However, even marginal habitats were generally occupied.

In the BR area in 2010 we identified 17 lodges, including 14 active and 3 inactive lodges. In 2011 we identified 19 lodges, including 12 active and 7 inactive lodges. In the TR area in 2010 we identified 15 lodges, including 8 active and 7 inactive lodges. In 2011 we identified 16 lodges, including 7 active and 9 inactive lodges.

Results of the RY10 trapper questionnaire indicated that beavers were common and populations were stable in Units 19 and 21A (ADF&G 2012). These questionnaire data are consistent with our cache count data.

Coyote

Trappers reported that coyotes were scarce and populations stable in Units 19 and 21A during RY10 (ADF&G 2012).

Lynx

Trappers reported that lynx were common and the population was stable in RY10 (ADF&G 2012). However, harvest suggests lynx numbers peaked during RY08 or RY09 and began declining thereafter (Table 2).

River Otter

River otters were reported as common and populations stable in Units 19 and 21A during RY10 (ADF&G 2012).

Wolverine

Wolverines were reported by trappers as common and populations stable during RY10 in Units 19 and 21A (ADF&G 2012).

Marten

Trapper questionnaire results indicated that marten were scarce and populations were stable during RY10 in Units 19 and 21A (ADF&G 2012). However, interviews with trappers suggested marten were common in RY09 and RY10, but trappers said that fewer marten than normal were found on their traplines in RY11.

Gardner and Pamperin (C. Gardner, ADF&G, memorandum, 1 May 2012, Fairbanks) necropsied 1,183 marten carcasses harvested during November 2011–February 2012 from 12 areas distributed from the upper Kuskokwim River to the Canada border border, including 394 from northeastern Unit 19D. These data indicated that marten in northeastern Unit 19D, as well as adjacent areas in Unit 20C, experienced a near reproductive failure. This lack of recruitment resulted in a substantial decline in marten numbers. Further, the pregnancy rate was slightly below normal. Based on these data, we predicted that trappers would catch fewer marten in Unit 19D than normal during RY12. Trapper interviews corroborate this prediction.

Mink

Mink were reported by trappers as scarce and populations were stable in Units 19 and 21A during RY10 (ADF&G 2012).

Muskrat

Trappers reported that muskrats were scarce and populations were stable in Units 19 and 21A during RY10 (ADF&G 2012).

Red Fox

Trappers reported that red fox were common and populations were stable during RY10 (ADF&G 2012).

MORTALITY

Harvest

Trapping Seasons and Bag Limits, RY09–RY11. Furbearer seasons ending on the last day of February closed 29 February in RY11.

Species	Season	Bag limit
Beaver	1 Sep–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
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, RY09–RY11.

Species	Season	Bag limit
Beaver		
Units 21A and 21E	1 Sep–10 Jun	No limit
Coyote		
RY09		
Unit 19	10 Aug–30 Apr	10/day
Units 21A and 21E	10 Aug–30 Apr	10
RY10–RY11		
Units 19, 21A, and 21E	10 Aug–25 May	No limit
Red fox	1 Sep–15 Mar	10 (no more than 2 before 1 Oct)

Species	Season	Bag limit
Lynx	1 Nov–28 Feb	2
Wolverine	1 Sep–31 Mar	1

Alaska Board of Game Actions and Emergency Orders. In RY10 the coyote hunting seasons and bag limits were changed from a 10 August–30 April season to a 10 August–25 May season throughout the area and from a 10 coyotes per day limit in Unit 19 and a 10 coyote per season bag limit in Units 21A and 21E to no bag limit throughout the area.

Trapper Harvest, Residency, and Chronology.

Beaver — Beaver sealing has not been required since RY02 and current harvest information is limited. During RY84–RY89 an average of 1,864 beaver pelts were sealed from Units 19, 21A, and 21E. During the 1990s, the average dropped to 355 per year, and during RY01, the last year sealing was required, only 180 beavers were sealed.

Fur prices, ranging $22–$38 during RY09–RY11 (Table 1), did not encourage interest in harvesting beaver. However, subsistence harvest during calendar year 2009 in 8 villages in Unit 19A was 569 beavers (Brown et al. 2012) and was motivated largely by interest in the meat.

Few nonresidents take beavers. Only 3 beavers were sealed by nonresidents out of nearly 14,000 total beavers reported during RY77–RY02. Participation by nonresidents during RY09–RY11 was likely similar.

During RY77–RY02, sealing records indicate that, of 13,704 beavers sealed where month of harvest is reported, 11% were taken in January, 22% in February, 43% in March, 8% in April, 5% in November, 10% in December, and less than 1% in May, June, September, and October. Chronology of harvest during RY09–RY11 was probably similar, with the exception that more beavers are likely taken during the spring after the ice goes out because longer seasons now allow such harvest.

Lynx — Harvest during RY07–RY11 ranged 57–122 lynx (Table 2). Harvest totals indicate that the lynx population peaked in RY08 and began to decline in RY09. During the harvest peak, the average catch was 5.1 lynx/successful trapper. By RY11, average catch declined to 2.8 lynx. Most lynx were harvested in Units 19C and 19D. Area trappers primarily used foot-hold traps to catch lynx (Table 3). Prices ranged $89–$243 during RY09–RY11 (Table 1). Lynx were harvested throughout the trapping season (Table 4), with variations depending on travel conditions. Fewer lynx were taken during November before adequate travel conditions developed. Snowmachines were the primary method of transport (Table 5). No nonresidents took lynx in RY09, 1 nonresident reported taking a lynx during RY10, and 2 nonresidents took 15 lynx in RY11.

River Otter — During RY09–RY11, river otter harvest ranged 12–32 animals per year (Table 2) and most were harvested with traps (Table 3). Average prices paid at auction ranged $46–$102 (Table 1). Most harvest occurred in January but December, February, and March were also important months (Table 4). Most trappers used snowmachines for access (Table 5). One nonresident reported taking an otter in RY09 and another in RY11.

Wolverine — During RY09–RY11, annual wolverine harvest ranged 35–68 animals (Table 2), and they were harvested primarily with traps (Table 3). The number of wolverines harvested per successful trapper ranged 1.6–1.8. Average prices varied from $198 to $234 (Table 1). Harvest occurred throughout the season with lower harvests early and late when snow conditions are more difficult (Table 4). Trappers generally used snowmachines, but aircraft and skis/snowshoes were also important modes of travel (Table 5). Nonresidents sealed 3% of the wolverines taken during RY09–RY11.

Marten — Marten are the most sought-after and valuable furbearer species and average pelt prices reached $116 in RY11 (Table 1). Most trappers use snowmachines. Due to ice and snow conditions in most years, trappers are unable to begin trapping until late November to early December. Typically, area trappers target marten until the end of season except in some years of reduced marten availability; some trappers stop early in an attempt to protect the resident marten population in their trapping area.

Mink — Market demand for wild-caught mink was low and prices paid during RY09–RY11 ranged $13–$23 (Table 1). Consequently, few trappers targeted mink 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). Some are harvested by shooting in the spring, and most pelts are used domestically.

Ermine and Red Squirrel — Weasels (ermine) and squirrels have little recreational or economic value in the region. Most harvest occurs incidentally to other trapping.

Red Fox — Average red fox prices increased from $16 in RY09 to $57 in RY11 (Table 1), prompting a small amount of renewed interest. However, most foxes were probably captured incidentally to other species.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY07–RY11 was trapping (Table 3). Transportation was dominated by snowmachines, although airplanes and skis/snowshoes were commonly used (Table 5). Beavers taken during open water seasons are generally shot from boats.

CONCLUSIONS AND RECOMMENDATIONS

We met the management objective to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses. Furbearers fully occupy all available habitats in Units 19, 21A, and 21E, populations are lightly harvested, and there are no concerns of overharvest of any furbearer species. Trapper questionnaire results for RY10 indicated that most furbearer populations in the area were common or abundant with the exceptions of coyote, mink, muskrat, and marten, which were considered scarce. However, coyote populations have never been high and mink and muskrat trapping is light and not population limiting. Contrary to trapper questionnaires, marten trapper interviews suggested that numbers were common in some local areas but were lower unitwide.

Marten prices were high in recent years. Pelt prices, particularly for marten, provide motivation for trappers and marten prices drive interest not only in marten trapping, but for other species. Further, trapper interviews and research results indicate marten numbers declined to low levels during RY12. This decline was not due to trapper harvest but to an areawide reproductive failure. Considering these factors, we do not recommend changes to marten seasons and bag limits because 1) although average prices of about $100 are sufficient for trappers who have established traplines to trap marten aggressively, established trappers are generally knowledgeable about how many marten their lines can support; 2) marten prices are insufficient for new trappers to establish new lines because of the high operating costs, including gasoline (>$7.00/gallon); 3) many large areas not actively trapped because most established traplines are within a 1-day trip from villages; and 4) low reproductive success in RY11 was likely a short-term phenomenon.

To verify our assumptions that adequate marten refugia areas will continue to exist and that trapping intensity and scope will not increase due to the current market, we recommend reconnaissance flights to search for trapping activity during the marten season. We also recommend continuing to interview marten trappers about take and harvest pressure and providing information to trappers to help them manage their traplines.

With low pelt prices for other species, other motivations influence their harvest. Many furbearers are taken primarily for personal uses such as for hats, mittens, and other garments. Beaver in particular are also taken for meat (Brown et al. 2012), particularly in areas where access to moose is poor. Beavers are also taken for bait, and the longer seasons and authorized use of firearms during the trapping season beginning in RY08 reflect these uses. Meat of other furbearers such as muskrats and lynx is also utilized. Wolverines are valued as a trophy animal and some incidental harvest in association with big game hunts is accommodated by hunting regulations.

Beaver cache counts provide a tool to assess whether gross changes in beaver numbers occur and should be continued on a regular basis. This will allow us to reconsider beaver regulations if heavy trapping pressure depresses their numbers.

The trapper questionnaire has been a useful tool to survey trapper perceptions. During RY09–RY11, the questionnaire results were only available for RY10. Additional support for this tool would be beneficial.

During the next report period the management goals, objectives, and activities will remain the same except that we will no longer use the fur acquisition reports and fur exports reports as an activity to assess harvest. These are not tracked closely enough to provide accurate harvest information and the Board of Game has eliminated the fur acquisition report requirement for RY13.

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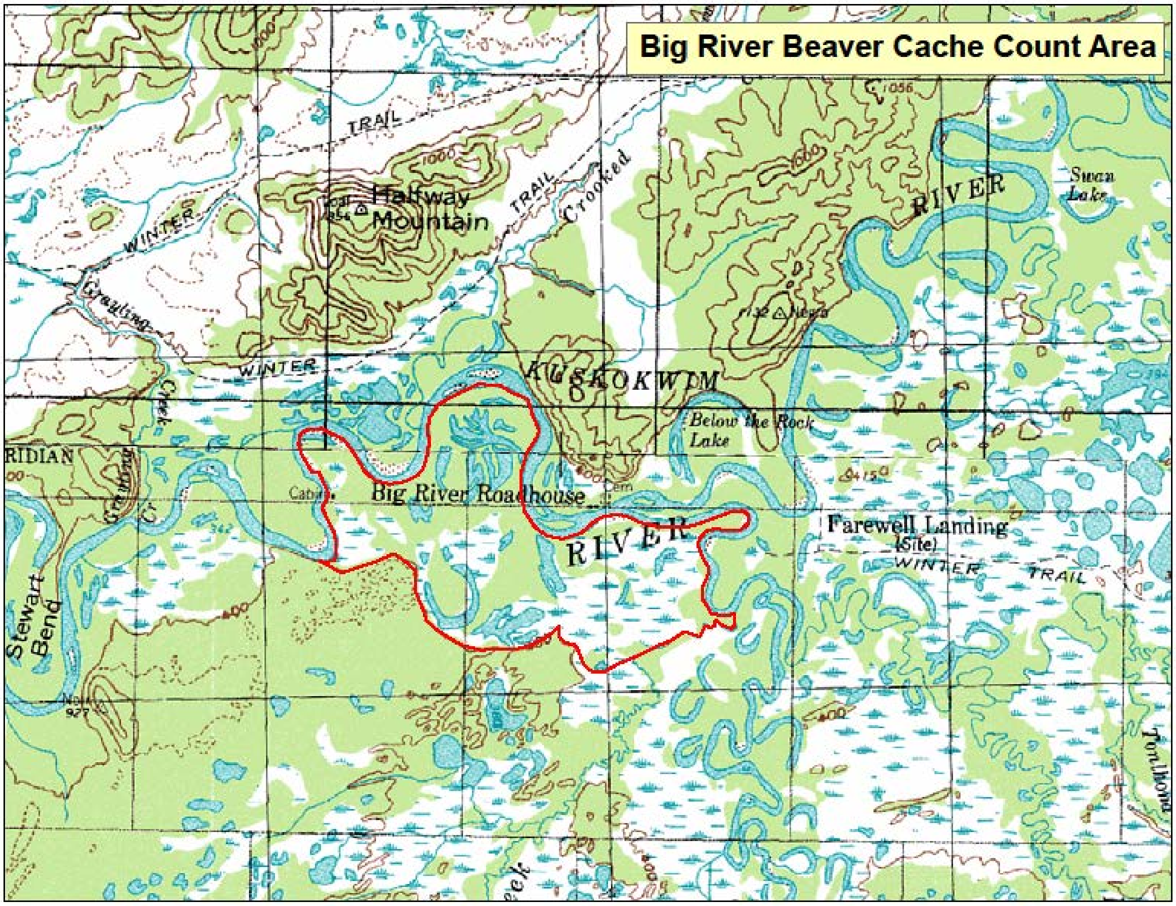

Figure 1. Big River beaver cache count area.

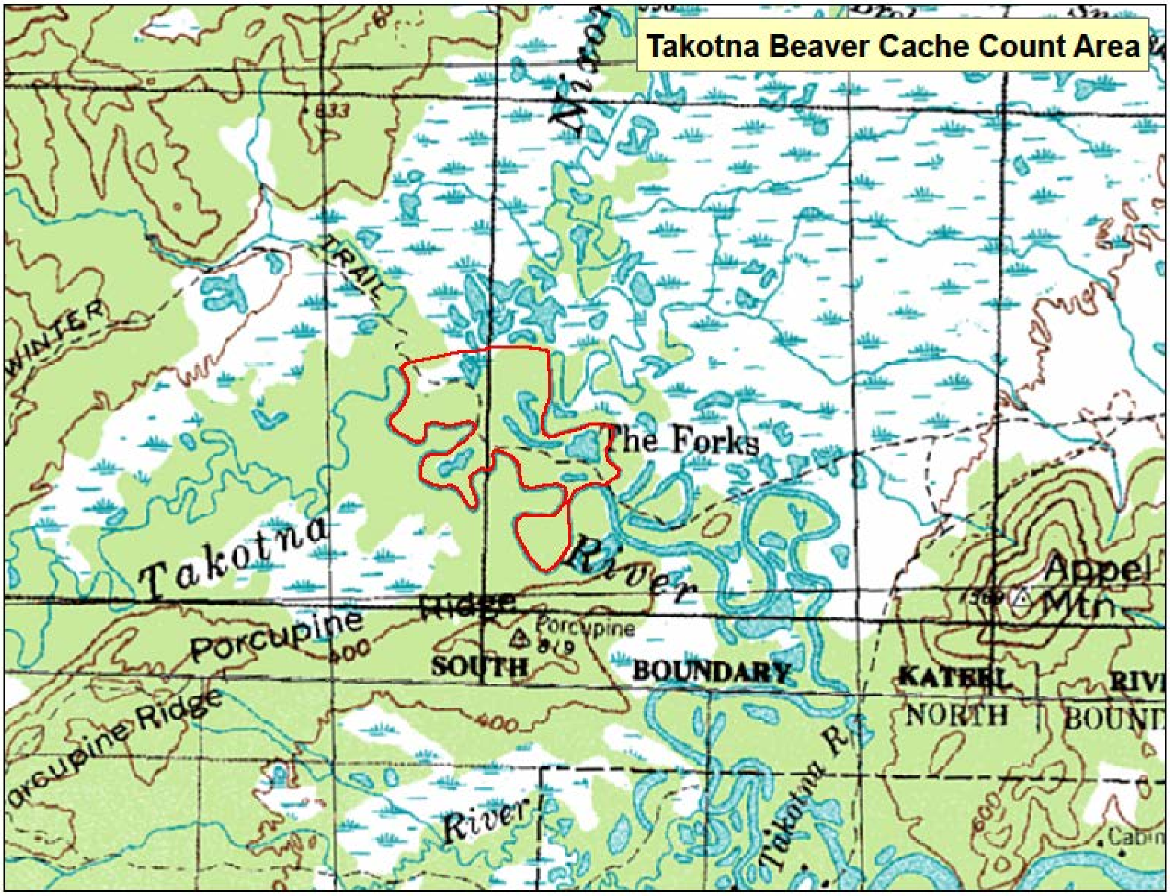

Figure 2. Takotna beaver cache count area.

Table 1. Average North American Fur Auctions[a] furbearer pelt prices (U.S. dollars), regulatory years[b] 2007–2011.

Species	Regulatory year				
	2007[c]	2008[d]	2009[e]	2010[f]	2011[g]
Beaver	25	13[h]	15[i]	21	38
Marten	108	51	49	94	116
Mink	17	12	13	19	23
Red fox	22	15[h]	16	32	57
Lynx	299	128	89	106[j]	243
River otter	41	31	46	84	102
Wolverine	280	255	198	234	320

[a] North American Fur Auctions, http://www.nafa.ca (Accessed 13 February 2015).
[b] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).
[c] Prices from 13 March 2008 sale.
[d] Prices from 4 February 2009 sale.
[e] Prices from May 2010 sale.
[f] Prices from May 2011 sale.
[g] Prices from February 2012 sale.
[h] Price from 16 May 2009 sale.
[i] Heavy I grade
[j] Northern region.

Table 2. Units 19, 21A, and 21E furbearer harvest by unit, regulatory years[a] 2007–2011.

Species/ Regulatory year	Unit 19A	19B	19C	19D	19Z[b]	21A	21E	Total
Lynx								
2007	2	3	26	24	0	0	2	57
2008	3	12	58	42	3	0	4	122
2009	8	1	56	28	0	2	11	106
2010	6	17	41	27	0	1	4	96
2011	9	0	28	36	0	0	6	79
River Otter								
2007	3	2	1	5	0	0	2	13
2008	10	10	0	7	0	0	0	27
2009	8	0	0	12	1	2	9	32
2010	6	0	0	3	1	0	2	12
2011	3	4	0	3	0	2	0	12
Wolverine								
2007	9	13	2	15	0	1	6	46
2008	23	14	14	12	0	4	19	86
2009	19	11	3	13	1	4	17	68
2010	12	9	10	11	1	3	13	59
2011	6	11	6	5	1	1	5	35

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).
[b] Unit 19Z designates an unknown location within Units 19A, 19B, 19C, or 19D.

Table 3. Units 19, 21A, and 21E furbearer reported harvest by sex and method of take, regulatory years[a] 2007–2011.

Regulatory year	Reported harvest Sex M	F	Unk	Method of take Shot	Trap	Snare	Unk	Total harvest	Successful trappers/ hunters
Lynx									
2007	0	0	57	1	51	5	0	57	16
2008	0	0	122	4	108	10	0	122	24
2009	50	40	15	0	95	10	0	105	29
2010	41	29	26	0	95	1	0	96	27
2011	18	18	43	1	71	7	0	79	28
River Otter									
2007	8	3	2	0	12	1	0	13	9
2008	13	6	8	0	25	2	0	27	7
2009	9	12	11	0	16	14	2	32	27
2010	5	6	1	0	5	7	0	12	6
2011	6	4	2	0	10	2	0	12	7
Wolverine									
2007	29	16	1	5	24	12	5	46	25
2008	49	29	8	4	74	7	1	86	36
2009	31	24	13	9	50	4	5	68	42
2010	31	16	12	9	42	8	0	59	35
2011	16	11	8	3	31	1	0	35	20

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).

Table 4. Units 19, 21A, and 21E furbearer percent harvest chronology by month, regulatory years[a] 2007–2011.

Regulatory	Percent harvest chronology by month							
year	Sep	Nov	Dec	Jan	Feb	Mar	Apr	*n*
Lynx								
2007	0	11	25	44	19	2	0	57
2008	0	28	31	22	18	1	0	122
2009	0	1	23	35	31	1	0	105
2010	0	9	33	30	27	0	0	96
2011	0	5	27	34	33	1	0	79
River Otter								
2007	0	38	8	23	23	8	0	13
2008	0	22	37	37	0	0	4	27
2009	0	9	9	44	9	25	0	32
2010	0	0	33	33	33	0	0	12
2011	0	0	17	17	0	58	8	12
Wolverine								
2007	4	4	22	15	17	37	0	46
2008	1	12	19	27	13	29	0	86
2009	3	2	15	22	37	21	0	67
2010	2	3	27	32	17	19	0	59
2011	6	9	20	23	23	17	3	35

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).

Table 5. Units 19, 21A, and 21E furbearer percent harvest by transport method, regulatory years[a] 2007–2011.

Species/ Regulatory year	Percent harvest by transport method									
	Airplane	Dogsled	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Skis or snowshoes	Unknown	*n*
Lynx										
2007	7	0	0	0	75	0	0	18	0	57
2008	14	0	0	0	48	0	0	39	0	122
2009	4	3	0	1	49	0	0	44	0	105
2010	12	0	0	0	76	0	0	13	0	96
2011	13	0	0	0	47	0	4	37	0	78
River Otter										
2007	0	0	0	0	92	0	0	8	0	13
2008	0	0	0	0	100	0	0	0	0	27
2009	9	3	0	0	78	0	6	3	0	32
2010	16	8	0	0	75	0	0	0	0	12
2011	17	0	0	0	58	0	0	25	0	12
Wolverine										
2007	22	0	0	0	70	0	0	0	9	46
2008	12	0	1	0	71	0	0	16	0	86
2009	16	0	3	0	66	0	0	7	7	68
2010	14	5	0	3	66	0	0	10	2	59
2011	11	0	0	0	74	0	0	14	0	35

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).

SPECIES 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 2009
To: 30 June 2012[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 is an important use of wildlife resources for many people and can be significant to the economies of rural areas because alternative sources of income are limited (Wolfe 1996). Furbearers provide food and clothing for personal use and cash income. Trapping is also a recreational activity for many people during the winter months. 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, Perham 1995); 2) beaver population ecology (Boyce 1974, 1981); 3) marten population ecology (Shults 2001), 4) the effects of fire on furbearers (Stephenson 1984, Magoun and Vernam 1986); 5) development of techniques to survey furbearer populations using track counts (Golden 1987, Schwartz et al. 1988, Stephenson 1988) and 6) wolverine distribution (Gardner et al. 2010).

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.

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[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 harvest by the public.

MANAGEMENT OBJECTIVES

Beaver

- Manage beaver in the lower Chena River portion of Unit 20B for an annual fall beaver colony density of 0.3–0.8 colonies/mile (0.2–0.5 colonies/km) of river.

Lynx

- Maintain populations of lynx that will support a minimum level of consumptive and nonconsumptive use.

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 Alaska Department of Transportation and Public Facilities to minimize dammed culverts and flooded roads.

Lynx

- Estimate the annual sex and age of harvested lynx by analyzing sealing records.

Wolverine

- Estimate the annual sex ratio of harvested wolverine from sealing records.

METHODS

We monitored beaver (until 2002), lynx, river otter, and wolverine harvest by compiling data from the required sealing documents. Sealing data provided minimum harvest estimates because some pelts may be used domestically and not reported. To monitor harvest distribution, we used the recorded harvest location. Lynx pelt measurements <36 inches were used to determine percent kittens in the harvest (Stephenson 1988). After July 2002 we kept accurate records of beaver taken under nuisance and ATA permits through a permit condition that required harvest reporting. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY11 = 1 July 2011–30 June 2012).

Fur prices were compiled from data provided by the North American Fur Auctions (http://www.nafa.ca) or Fur Harvesters Auction, Inc. (http://www.furharvesters.com). Prices were the averages from February or March and May sales and sections of fur most closely representing Alaska grade fur.

We conducted beaver cache surveys from a riverboat during late September–early October 2009–2011 to determine fall beaver colony density in the lower Chena River (downstream from the confluence with the Little Chena River; 25 miles of river). We estimated beaver colony density by dividing the number of beaver caches by the 25 linear miles of river (40 linear kilometers) over which the survey was conducted. We mitigated problems with dammed culverts and flooded property arising from beaver activity by issuing nuisance or registration permits to trappers. All activities were coordinated with the affected public and Alaska Department of Transportation and Public Facilities highway crews. We developed the program in 1999 along this stretch of river to include ATA members mentoring local youth, teaching ethical and responsible trapping practices.

Generally we send Alaska Department of Fish and Game (ADF&G) trapper questionnaires to 100–150 area trappers per year to obtain information regarding trapping activities and opinions on furbearer population levels and trends. These questionnaires provide the department with important information regarding furbearers for which sealing is not required and gives us some data on areas where other anecdotal information is not available. For this report, only results from the 2010 trapper survey questionnaire were available.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Beaver

Cache surveys indicated beaver numbers are high in the lower Chena River with a cache density ranging 0.8–1.2 caches/mile (0.5–0.7 caches/km) of river between 1999 and 2012 (Table 1). Boyce (1981) suggested that 0.8 colonies/mile (0.5 colonies/km) was a saturation density for beaver in Interior Alaska. Further, Boyce (1974) reported a mean of 5 beavers per colony along Interior Alaska rivers. During RY09–RY11, colony density observed in the lower Chena River ranged from 1.0 caches/mile to 1.1 caches/mile (0.60–65 caches/km), exceeding our objective of 0.3–0.8 colonies/mile (0.2–0.5 colonies/km; Table 1).

Lynx

As indicated by harvest, lynx reached the low of an approximately 10-year population cycle in RY03 and remained low through RY05. Harvest began to increase in RY06 and the lynx population appeared to reach the peak of the cycle in RY08. High harvest continued in RY09, began to decrease in RY10 and continued to drop in RY11 (Table 2). The previous lynx population high appeared to be in RY00; therefore the lynx population reached its peak in RY08 after only 8 years and remained high for 2–3 years. Typically, lynx population cycles are 9–11 years. Based on harvest trend and the percentage of kittens in the harvest, it appears the lynx population will reach a low point in RY12 or RY13, 9–10 years following the past population low.

MORTALITY

Harvest

Seasons and Bag Limits. Hunting and trapping seasons and bag limits varied among species, subunits, and over time (Tables 3–4).

Alaska Board of Game Actions and Emergency Orders. During the March 2010 meeting, the Alaska Board of Game (board) adopted a 1 November–15 March lynx season in all of Unit 20 and Unit 25C (Table 3). Several trappers from the public testified at the meeting that trapping wasn't the limiting factor on the fluctuation of the lynx population and that a 1 November–15 March season would have no effect on the lynx population. ADF&G concurred with the testimony and the board applied the new season. Also during the 2010 meeting, the board liberalized the coyote hunting season in Units 20A, 20B, 20C, 20F, and 25C by closing the season on 25 May instead of 30 April, and changed the annual bag limit to no limit (Table 4). This change was made to increase opportunity and to possibly increase coyote harvest by allowing the season to extend through the time when many hunters pursue spring bears.

Hunter/Trapper Harvest.

Beaver — Low demand for beaver pelts due to depressed fur prices (Table 5) contributed to low trapping effort for this species during RY09–RY11. Beaver harvested in the Fairbanks area were not required to be sealed beginning in RY02. Since then, harvest records have been recorded only for beaver taken under nuisance and ATA permits as a reporting condition of these permits. Harvest increased under these permits during RY10 and RY11 when 61 and 50 beavers were harvested, respectively. This is higher than the previous 5-year average harvest of 32 beavers during RY05–RY09 (Table 6), and is mostly due a more proactive approach by ADF&G to harvest beavers in areas with chronic nuisance problems and higher than desired population numbers.

Use of the ATA program to remove nuisance beavers has been well accepted by the local public; however, participation is limited and participation by ATA members has declined. ADF&G continues to encourage trappers to mentor youth when trapping nuisance beaver in the area, particularly along the lower Chena River. 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 6).

Lynx — The reported lynx harvest decreased annually during RY09–RY11 (10–37% decrease per year; Table 2). In contrast, changes in number of lynx harvested during RY06–RY08 increased 86%–94%. The percentage of kittens in the harvest also decreased from 31% in RY08 and RY09 to 12% in RY11 (Table 7). This is consistent with lynx populations that have peaked and then crashed. The lynx population closely follows the snowshoe hare population and when the hare population crashes, the lynx follow after a year or two lag time. The primary factor influencing lynx harvest is abundance; however, other factors that may influence lynx harvest include 1) changes in season lengths, 2) pelt value, and 3) environmental conditions affecting trapping effort. During RY09–RY11, lynx were abundant although decreasing, lynx seasons were long, no abnormal weather and snow conditions that would have limited access occurred, and pelt prices were low to moderate ($99–$150).

Wolverine — During RY09–RY11 annual harvest of wolverine ($\bar{x}$ = 59; Table 8) was the highest since RY79, when the department began maintaining a permanent harvest database for these units; 40% higher than in RY90–RY08 ($\bar{x}$ = 36). Wolverine numbers and distribution likely increased due to the previous hare high (Audrey Magoun, Principal Scientist, The Wolverine Foundation, personal communication to Craig Gardner, ADF&G, 2012). For all units combined, males made up 57–65% of the annual harvest during RY09–RY11 (Table 8), and exceeded 50% (53–100%) of the annual harvest in each of Units 20A, 20B, 20C, and 25C. In Unit 20F, however, males made up 67% (6 of 9) of wolverines harvested in RY09, but 40% (2 of 5) in RY10 and 25% (3 of 12) in RY11. Male wolverines have larger home ranges (Gardner 1985, Magoun 1985), typically disperse longer 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 use of the population and harvest models developed by Gardner et al. (1993) and Golden et al. (2007).

Gardner et al. (2010) found that wolverines were distributed throughout most of Interior Alaska and wolverine presence was positively associated with elevation and negatively associated with human influences. The 2 areas within the report area that did not support resident wolverines were in the vicinity of Fairbanks in Units 20A and 20B and around Circle in Unit 25C. These areas are primarily low elevation, but differ from other low elevation areas with high probabilities of wolverine occurrence because of higher human influences. 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. 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). Even though there are areas in Interior Alaska with low wolverine numbers, adequate refugia surround those areas (Gardner et al. 2010).

Other Furbearers — Because there are no sealing requirements for coyote, weasels (ermine), marten, mink, muskrat, red fox, or red squirrel, population trends for these species were monitored using the 2010 trapper questionnaire results (ADF&G 2012), biologist observations, and personal conversations with trappers. Based on these indices, foxes remained at low to moderate levels throughout RY09–RY11, while coyotes achieved moderate densities in localized areas along the Tanana River. Marten densities were low to moderate during RY09–RY11 but varied greatly between areas. Marten numbers declined throughout the area due to a reproductive failure during RY11 (C. Gardner and N. Pamperin, ADF&G unpublished data, Fairbanks). Weasel numbers tended to be moderate to high. Mink populations also appeared to be moderate throughout the region. Anecdotal observations also suggested that muskrat populations may be slowly increasing and may be beginning to occupy habitats that have not been occupied since the 1970s. Squirrel numbers were high in suitable habitats but rarely targeted by trappers and are mainly caught incidentally in traps for other species.

<u>Method of Take and Transportation</u>. Methods of take and transportation during RY09–RY11 were typical for Interior Alaska. Traps were the most common method of harvesting furbearers and snowmachines were the most common method of transportation used by trappers (Table 9).

Fur Prices. Fur prices were variable among species during RY09–RY11 (Table 5). Fur prices are important because harvest of individual species can be influenced by high fur prices. Beaver pelt prices remained low during RY09–RY11, ranging $17–$19. Coyote prices were low in RY09, but began improving in RY10 and reached a moderately high level in RY11. Red fox remained low. Lynx prices were low during RY09 but improved to moderate levels during RY10 and RY11. Marten prices were moderate during RY09–RY11. Mink, weasel, and otter prices were low during RY09–RY11. Muskrat prices were low during RY09 and high in RY10 and RY11 (Table 5).

CONCLUSIONS AND RECOMMENDATIONS

The Chena River beaver population remained high as indicated by >0.8 caches/mi of river during RY09–RY11; therefore, the management objective was not met. Further efforts to reduce the number of beaver and 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. In the meantime, the department will continue to try to address chronic problems more aggressively by issuing nuisance permits more readily in these areas.

The lynx management objective was met to maintain populations of lynx that will support a minimum level of consumptive and nonconsumptive use during RY09–RY11. We continued to estimate the annual sex and age of harvested lynx by examining the sealing records during RY09–RY11. These data allowed us to closely monitor and assess the lynx population cycle.

The wolverine management objective to manage for a 3-year mean annual harvest of >50% males by subunit was met in all units except Unit 20F during RY09–RY11. During RY09–RY11 the 3-year mean annual harvest of wolverine in Unit 20F was 42%. This may be an artifact of the small sample size of wolverines harvested in the unit. We will monitor harvest in the Fairbanks, Central, and surrounding areas to detect possible contraction of resident wolverine distribution and determine whether harvest of females in Unit 20F continues at a higher rate than harvest of males.

For all furbearer species addressed in this report, we did not detect population, habitat, or harvest changes requiring management actions; therefore, we recommend no regulatory action at this time. Trappers will continue to be the most important source of information for managing furbearers. Communication with the trappers should be improved by 1) expanding the trapper questionnaire, 2) writing articles about furbearer research and management projects for the Alaska Trappers Association magazine, 3) soliciting input regarding management issues, and 4) keeping trappers informed about issues affecting them.

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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, 1999–2012.

Year	Caches	Stream distance (km)	Density (caches/km)
1999	24	40	0.60
2000	20	40	0.50
2001	22	40	0.55
2002	24	40	0.60
2003	29	40	0.73
2005	29	40	0.73
2006	29	40	0.73
2007	28	40	0.70
2008	27	40	0.68
2009	28	40	0.70
2010	26	40	0.65
2011	25	40	0.63
2012	24	40	0.60

Table 2. Reported harvest of lynx, river otter, and wolverine in Units 20A, 20B, 20C, 20F, and 25C, regulatory years[a] 2000–2011.

Regulatory	Lynx						River otter						Wolverine					
year	20A	20B	20C	20F	25C	Total	20A	20B	20C	20F	25C	Total	20A	20B	20C	20F	25C	Total
2000	628	527	267	84	18	1,524	16	27	4	1	0	48	9	18	15	8	1	51
2001	295	299	156	18	8	776	16	19	14	0	0	49	15	7	16	4	2	44
2002	118	48	83	44	3	296	7	10	13	1	0	31	11	16	5	2	0	34
2003	116	49	48	30	11	254	6	15	15	0	0	36	11	14	11	10	2	48
2004	98	40	65	40	3	246	4	35	5	3	0	47	6	8	10	3	0	27
2005	116	57	68	50	0	291	6	32	3	1	0	42	6	4	11	9	2	32
2006	170	112	158	127	10	577	27	19	7	3	3	59	10	13	21	5	4	53
2007	262	246	263	143	20	934	16	23	4	0	2	45	9	12	8	1	4	34
2008	512	518	425	298	60	1,813	8	32	2	0	0	42	7	9	7	4	1	28
2009	382	682	283	232	46	1,625	7	24	6	5	1	43	17	17	11	9	5	59
2010	217	402	236	124	45	1,024	13	20	10	2	1	46	17	11	21	5	4	58
2011	202	241	134	88	8	673	6	18	4	0	1	29	11	13	15	12	8	59

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).

Table 3. Trapping seasons and bag limits for river otter, wolverine, mink, marten, weasel, fox, coyote, muskrat, squirrel, lynx and beaver within the Fairbanks area (Units 20A, 20B, 20C, 20F, and 25C), regulatory years[a] (RY) 2009–2011.

Species	Season dates	Bag limit
River otter	1 Nov–15 Apr	No limit
Wolverine, mink, marten weasel, and fox	1 Nov–28 Feb	No limit
Coyote	1 Nov–31 Mar	No limit
Muskrat	1 Nov–10 Jun	No limit
Squirrel	No closed season	No limit
Lynx		
RY09		
Units 20A, 20B, and 20C east of the Teklanika River, and Unit 25C	1 Nov–30 Nov 1 Dec–28 Feb	2 No limit
Unit 20F and remainder of Unit 20C	1 Nov–28 Feb	No limit
RY10–RY11		
Units 20 and 25C	1 Nov–15 Mar	No limit
Beaver		
Unit 20B, that portion of the Chena River downstream from its confluence with the Little Chena River and Creamer's Field Migratory Waterfowl Refuge	Department sets seasons and bag limits by permit only to reduce problems caused by high beaver populations	
Units 20A, 20C, and 20F	15 Sep–10 Jun	No limit
Unit 25C	1 Sep–10 Jun	No limit
Remainder of Unit 20B	25 Sep–31 May	No limit

[a] Regulatory year (RY) begins 1 July and ends 30 June (e.g., RY09 = 1 July 2009–30 June 2010).

Table 4. 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[a] (RY) 2009–2011.

Species	Season dates	Bag limit
Lynx	1 Dec–31 Jan	2
Wolverine	1 Sep–31 Mar	1
Red fox	1 Sep–15 Mar	10
Coyote		
RY09	10 Aug–30 Apr	10 per day
RY10–RY11	10 Aug–25 May	No limit
Squirrel	No closed season	No limit

[a] Regulatory year (RY) begins 1 July and ends 30 June (e.g., RY09 = 1 July 2009–30 June 2010).

Table 5. Average furbearer pelt prices (U.S. dollars), compiled from North American Fur Auctions or Fur Harvesters Auctions, Inc., regulatory years[a] 2004–2011.

Regulatory year	Beaver	Coyote	Red Fox	Lynx	Marten	Mink	Muskrat	River otter	Weasel
2004[a]	19	39	20	150	42	15	2	110	3
2005[a]	18	38	19	133	48	15	3	112	3
2006[a]	28	48	27	145	88	29	7	118	4
2007[a]	23	50	23	117	61	17	2	24	6
2008[a]	27	36	22	289	108	16	3	40	6
2009[b]	19	24	21	99	63	10	4	34	4
2010[b]	17	40	28	147	57	14	9	44	5
2011[b]	18	61	24	150	80	19	9	67	5

[a] North American Fur Auctions (http://www.nafa.ca [Accessed 19 February 2015]) average of February and May sales.
[b] Fur Harvesters Auction, Inc. (http://www.furharvesters.com [Accessed 19 February 2015]) averages of February–March and May sales.

Table 6. Beaver taken by permit in the Fairbanks area (Unit 20B) during regulatory years[a] 2002–2011.

Regulatory year	Take in lower Chena area[b]		Take outside lower Chena area
	Nuisance	ATA[c]	Nuisance
2002	10	6	12
2003	9	7	50
2004	17	0	18
2005	22	0	11
2006	10	23	32
2007	11	6	5
2008	4	0	15
2009	5	7	7
2010	11	3	47
2011	21	14	15

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).
[b] Lower Chena area is the Chena River downstream from its confluence with the Little Chena River.
[c] Alaska Trappers Association's mentoring program for local youth or trappers who take youth with them while targeting the nuisance beaver.

Table 7. The number of lynx sealed, number of kittens and percentage of kittens in Units 20A, 20B, 20C, 20F, and 25C during regulatory years[a] 2007–2011.

Regulatory year	Sealed[b]	Kittens	% Kittens[b]
2007	935	259	28
2008	1,813	561	31
2009	1,625	501	31
2010	1,024	250	24
2011	673	84	12

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).
[b] Kittens are determined in the sealing data by lynx pelts that have a total length of 36 inches or less.

Table 8. Wolverine harvest (number of pelts sealed) and percentage of males in the harvest, Units 20A, 20B, 20C, 20F, and 25C, regulatory years[a] 1993–2011.

Regulatory year	Sealed[b]	Males	% Males[b]
1993	42	35	83
1994	32	17	53
1995	14	12	86
1996	37	21	57
1997	40	24	60
1998	23	18	78
1999	41	31	76
2000	52	39	75
2001	41	29	71
2002	31	24	77
2003	45	27	60
2004	26	15	58
2005	35	28	80
2006	53	35	66
2007	31	17	55
2008	26	18	69
2009	58	37	64
2010	55	36	65
2011	58	33	57

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1993 = 1 July 1993–30 June 1994).
[b] Excludes wolverines of unknown sex.

Table 9. Percent method of take and transportation used to harvest furbearers from Units 20A, 20B, 20C, 20F, and 25C, regulatory years[a] 2006–2011.

Regulatory year/ Species	Percent method of take				Percent method of transportation			
	Ground shooting	Trapping	Snaring	Other/ Unk	Airplane	Dogsled/ snowshoe/skis	Snowmachine	Other/Unk/ Highway
2006								
River Otter	2	92	7	0	0	8	85	7
Lynx	2	78	15	5	2	4	77	16
Wolverine	2	85	13	0	4	4	91	1
2007								
River Otter	0	76	2	22	0	16	80	4
Lynx	1	76	20	3	1	14	77	8
Wolverine	3	85	12	0	0	6	94	0
2008								
River Otter	2	79	12	7	0	17	67	16
Lynx	1	82	17	1	1	10	82	7
Wolverine	0	88	12	0	0	3	75	22
2009								
River Otter	0	84	16	0	14	7	77	2
Lynx	1	81	16	2	1	8	80	11
Wolverine	7	76	15	2	5	10	73	12
2010								
River Otter	0	89	11	0	13	4	63	20
Lynx	3	84	13	0	1	8	79	12
Wolverine	3	85	12	0	2	3	88	7
2011								
River Otter	21	76	3	0	3	3	94	0
Lynx	7	82	9	2	1	6	76	17
Wolverine	10	86	0	0	3	0	88	9

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2006 = 1 July 2006–30 June 2007).

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012[1]

LOCATION

GAME MANAGEMENT UNIT: 20D (5,633 mi^2)

GEOGRAPHIC DESCRIPTION: Central Tanana Valley near Delta Junction

BACKGROUND

Furbearer species in Unit 20D include beaver, coyote, lynx, marten, mink, muskrat, red fox, red squirrel, river otter, weasel, wolverine, and wolf. Wolves are discussed in a separate management report.

Furbearers provide multiple values to people in Alaska. These values include aesthetic, cultural, economic, recreational, and food or personal use (Alaska Trappers Association 2013).

Sustained interest and demand for partaking in and realizing values for furbearers exist in Unit 20D. The combination of population centers (Delta Junction, Fort Greely, and Fairbanks) in or proximate to Unit 20D, and easy access into the unit by road, river, and trails create competition for traplines and furbearers.

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 consumptive and nonconsumptive uses.
  - Seal furs and analyze harvest patterns.
  - Conduct trapper questionnaires and interviews as a basis for determining the status of various furbearer populations.

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

- ❖ Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports, and fur export reports.
- ❖ Monitor trends in abundance of furbearer prey species by evaluating snowshoe hare trend surveys.
- ❖ Conduct snowshoe hare surveys to monitor prey abundance.

METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have these furs sealed. Information collected at the time of sealing included name of trapper, harvest location and date, pelt measurements for lynx and river otter, sex of river otter and wolverine, method of take, and method of transportation used. During regulatory years (RY; regulatory year begins 1 July and ends 30 June, e.g., RY10 = 1 July 2010–30 June 2011) 2010 and 2011 we mailed questionnaires to trappers in Unit 20D through the Statewide Furbearer Management Program. A trapper questionnaire was not conducted during RY09. The RY11 trapper questionnaire report was not available at this time. Trappers were asked to rate furbearer and prey 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. Numerical values were assigned to trappers' responses and abundance and numerical trend indices were calculated for each species (Alaska Department of Fish and Game [ADF&G] 2012).

Pelt measurements for lynx were used to determine the proportion of juveniles in the harvest. This proportion was compared to known lynx age distributions in trapped samples during different phases of the snowshoe hare cycle, and used to make an assessment of reproductive success. 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 (Table 1).

Data were summarized by regulatory year.

RESULTS AND DISCUSSION

POPULATION STATUS

Population Status, Trend, and Composition

Beaver — RY09 data were not collected to calculate relative abundance and numerical trend indices. In RY10 the relative abundance of beaver was common and the numerical population trend index indicated trappers felt the beaver population was the same as the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for beaver in Unit 20D during RY09–RY11.

Coyote — RY09 data were not collected to calculate relative abundance and numerical trend indices. For RY10 the relative abundance of coyote was scarce and the numerical population trend index indicated trappers felt there was no change to the population from the previous year

(ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for coyote in Unit 20D during RY09–RY11.

Lynx — In RY09 the proportion of juveniles in the harvest was 23%. Data were not collected to calculate relative abundance and numerical trend indices. In RY10 the relative abundance of lynx was common and the numerical population trend index indicated trappers felt lynx numbers were the same as the previous year (ADF&G 2012). Juveniles made up 31% of the harvest in RY10 and 17% in RY11. Analysis of information from the trapper questionnaire was not completed at the time of reporting. Lynx sex composition in the harvest was unknown for Unit 20D during RY09–RY11.

Marten — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of marten in RY10 was scarce and the numerical population trend index indicated trappers felt there was no change to the population from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for marten in Unit 20D during RY09–RY11.

Mink — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of mink in RY10 was scarce and the numerical population trend index indicated trappers felt there was a decrease in mink numbers from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for mink in Unit 20D during RY09–RY11.

Muskrat — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of muskrat in RY10 was scarce and the numerical population trend index indicated trappers felt there was no change to the population from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for muskrat in Unit 20D during RY09–RY11.

Red Fox — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of red fox in RY10 was common and the numerical population trend index indicated trappers felt there was no change in the population from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for red fox in Unit 20D during RY09–RY11.

Red Squirrel — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of red squirrel in RY10 was abundant. The numerical population trend index indicated trappers felt there was no change in the red squirrel population from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. Population composition was unknown for red squirrel in Unit 20D during RY09–RY11.

River Otter — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of river otter in RY10 was scarce and the numerical population trend index indicated trappers felt there was no change in the population from the previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. The sex composition in the harvest is presented in Table 2.

Wolverine — RY09 data were not collected to calculate relative abundance and numerical trend indices. The relative abundance of wolverine in RY10 was scarce and the numerical population trend index indicated trappers felt there was no change in the population previous year (ADF&G 2012). Analysis of information from the RY11 trapper questionnaire was not completed at the time of reporting. The sex composition in the harvest is presented in Table 2.

Prey Species — Counts of snowshoe hares along the Donnelly Dome breeding bird survey route suggest that the hare population declined in 2010 (Table 1).

Population Size

Population size was unknown for furbearer species in Unit 20D.

Distribution and Movements

No work was performed to determine furbearer distribution and movements during RY09–RY11.

MORTALITY

Harvest

Season and Bag Limit RY09–RY11. Unit 20D furbearer seasons and bag limits are listed in Table 3.

Alaska Board of Game Actions and Emergency Orders. Coyote hunting season dates and bag limit were expanded from 10 August–30 April to 10 August–25 May in Unit 20 during the February–March 2010 Board of Game meeting.

Harvest by Hunters and Trappers.

Lynx — Lynx harvest in RY09 was the highest since RY00 (DuBois 2010). Harvest declined each year during the remainder of the reporting period (Table 2).

River Otter — River otter harvest during RY09–RY11 was higher than the previous reporting period (Table 2). Trapping effort for river otter continued to be low in Unit 20D.

Wolverine — Wolverine harvest during RY09–RY11 ranged 9–13 per year. Reported harvest for RY09–RY11 was lower than the previous reporting period (Table 2).

Method of Take. Traps and snares were the most commonly used method for taking lynx, river otter, and wolverine in Unit 20D during RY09–RY11 (Table 2).

Harvest Chronology. Reported lynx harvest during November RY10 and RY11 was the highest November harvest since RY00 (Table 4). The harvest chronology assessment for RY10 was incomplete due to the omission of harvest dates on sealing forms for 16 lynx.

River otter were harvested throughout most of the trapping season in RY09, but harvest was concentrated during November and April in RY10, and February in RY11. Wolverine were captured throughout the trapping season (November–February; Table 4).

Transport Methods. Snowmachines continued to be a commonly used means of transportation for lynx, river otter, and wolverine trappers in Unit 20D during RY09–RY11. Highway vehicle and skis/snowshoes were the most commonly used means of transportation for river otter trappers during RY10 and RY11 (Table 5).

Other Mortality

Rates of natural mortality were unknown for furbearers in Unit 20D.

HABITAT

Assessment and Enhancement

No habitat assessment or enhancement projects were specifically directed toward furbearers during RY09–RY11.

CONCLUSIONS AND RECOMMENDATIONS

Several indicators suggest the lynx population in Unit 20D is likely on a downward trend. These indicators are decline in harvest, decline in the proportion of juvenile lynx in the harvest, and decline in the number of hares seen during surveys.

The high lynx harvest in RY09 followed by a decline during the remainder of the reporting period tracked the number of snowshoe hares observed in the Donnelly Dome breeding bird surveys. Survey data suggests the hare cycle entered the low portion of the population cycle in this area of Unit 20D and hares have remained at low numbers through 2012. Hare abundance influences lynx reproduction, kitten survival (Brand and Keith 1979), and ultimately, the abundance of lynx. When hares are in low abundance, lynx populations decline (Finerty 1979).

The proportion of juvenile lynx in the harvest tracks with known and previously documented lynx age compositions during different phases of the hare cycle (Stephenson and Karczmarczyk 1989). The overall reproductive success of lynx in Unit 20D is typical based on this comparison to other known-age compositions of lynx populations.

Reported lynx harvest for November increased in RY10 and RY11. This increase was likely due to eliminating the bag limit of 2 for the month of November and establishing no limit bag for the entire season.

Wolverine harvest (reported) during RY09–RY11 was lower than during RY06–RY08. The reduced harvest was likely a function of decreased trapping effort reported in the *Trapper Questionnaire Statewide Annual Report: 1 July 2010–30 June 2011* (ADF&G 2012). We had no information or data to suggest a declining wolverine population in Unit 20D.

Population status analyses remained general and incomplete for most of the furbearer populations in Unit 20D due to the lack of reproductive, harvest, and sex and age composition data. These data will continue to be lacking unless research is conducted or there are changes to regulation.

Most of the stated and planned management activities for this reporting period were conducted. These included sealing furs and analyzing harvest patterns; conducting trapper questionnaires and interviews; monitoring furbearer population trends and annual harvest using sealing documents; monitoring trends in abundance of furbearer prey species by evaluating snowshoe hare trend surveys; and conducting snowshoe hare surveys to monitor prey abundance. Fur acquisition and export reports were not used to monitor furbearer population and harvest trends.

Based on information and trapper comments from the trapper questionnaire statewide annual report, the furbearer management objective to manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses appears to have been met. We had no data to suggest furbearer populations were adversely affected by sustained yield management, and we had no information from trappers or nontrappers to suggest their furbearer values are not being generally fulfilled. No changes in furbearer trapping or hunting regulations or management goals, objectives, and activities are recommended at this time.

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Table 1. Snowshoe hare numbers seen during the summer Donnelly Dome breeding bird survey, Unit 20D, 1995–2012.

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
2007	96
2008	89
2009	87
2010	18
2011	7
2012	8

Table 2. Unit 20D lynx, river otter, and wolverine harvest, regulatory years[a] 2002–2011.

	Reported harvest									
Regulatory	Sex			Age			Method of take			Total
year	M	F	Unk	Juv[b]	Adults	Unk	Trap/snare	Shot	Unk	harvest
Lynx										
2002				3	32	0	35	0	0	35
2003				1	17	1	17	0	2	19
2004				3	22	1	26	0	0	26
2005				17	58	1	72	3	1	76
2006				9	54	0	62	1	0	63
2007				45	126	0	166	3	2	171
2008				35	128	0	160	3	0	163
2009				50	159	10	184	7	28	219
2010				48	100	7	144	11	0	155
2011				20	87	11	114	1	3	118
River otter										
2002	0	0	7				7	0	0	7
2003	4	0	4				8	0	0	8
2004	0	0	7				4	0	3	7
2005	5	1	1				7	0	0	7
2006	2	0	0				2	0	0	2
2007	2	1	2				3	2	0	5
2008	0	0	1				1	0	0	1
2009	2	3	2				7	0	0	7
2010	0	1	1				1	1	0	2
2011	2	1	1				4	0	0	4
Wolverine										
2002	5	3	0				6	2	0	8
2003	1	1	6				5	2	1	8
2004	4	1	10				13	2	0	15
2005	1	2	3				6	0	0	6
2006	7	1	0				7	1	0	8
2007	9	5	6				20	0	0	20
2008	13	3	0				16	0	0	16
2009	4	7	2				13	0	0	13
2010	4	4	1				7	1	1	9
2011	4	5	1				10	0	0	10

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).
[b] Juvenile = ≤35 inches in pelt length.

Table 3. Furbearer trapping and hunting seasons in Unit 20D, regulatory years[a] 2009–2011.

Species/	Trapping		Hunting	
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Beaver				
2009	25 Sep–31 May	No limit	No open season	
2010	25 Sep–31 May	No limit	No open season	
2011	25 Sep–31 May	No limit	No open season	
Coyote				
2009	1 Nov–31 Mar	No limit	10 Aug–30 Apr	10
2010	1 Nov–31 Mar	No limit	10 Aug–25 May	No limit
2011	1 Nov–31 Mar	No limit	10 Aug–25 May	No limit
Lynx				
2009	1 Nov–30 Nov	2	1 Dec–31 Jan	2
	1 Dec–18 Feb	No limit		
2010	1 Nov–15 Mar	No limit	1 Dec–31 Jan	2
2011	1 Nov–15 Mar	No limit	1 Dec–31 Jan	2
Marten				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–29 Feb	No limit	No open season	
Mink				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–29 Feb	No limit	No open season	
Muskrat				
2009	1 Nov–10 Jun	No limit	No open season	
2010	1 Nov–10 Jun	No limit	No open season	
2011	1 Nov–10 Jun	No limit	No open season	

Species/ Regulatory year	Trapping		Hunting	
	Trapping season	Bag limit	Hunting season	Bag limit
River Otter				
2009	1 Nov–15 Apr	No limit	No open season	
2010	1 Nov–15 Apr	No limit	No open season	
2011	1 Nov–15 Apr	No limit	No open season	
Red Fox				
2009	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2010	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
2011	1 Nov–29 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Red Squirrel				
2009	No closed season	No limit	No closed season	No limit
2010	No closed season	No limit	No closed season	No limit
2011	No closed season	No limit	No closed season	No limit
Weasel				
2009	1 Nov–28 Feb	No limit	No open season	
2010	1 Nov–28 Feb	No limit	No open season	
2011	1 Nov–29 Feb	No limit	No open season	
Wolverine				
2009	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2010	1 Nov–28 Feb	No limit	1 Sep–31 Mar	1
2011	1 Nov–29 Feb	No limit	1 Sep–31 Mar	1

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2009 = 1 July 2009–30 June 2010).

Table 4. Unit 20D lynx, river otter, and wolverine harvest chronology percent by month(s), regulatory years[a] 2002–2011.

Species/ Regulatory year	Harvest chronology percent by month(s)							
	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk
Lynx								
2002	0	0	69	29	3	0	0	0
2003	0	0	47	47	5	0	0	0
2004	0	0	92	4	4	0	0	0
2005	0	1	39	61	0	0	0	0
2006	0	1	40	56	3	0	0	0
2007	0	2	32	42	21	0	0	3
2008	1	6	44	26	22	1	0	0
2009	0	3	31	40	19	0	0	7
2010	0	19	26	16	18	5	0	16
2011	0	19	38	18	21	4	0	0
River Otter								
2002	0	0	43	43	0	0	14	0
2003	0	0	25	50	25	0	0	0
2004	0	14	57	0	0	29	0	0
2005	0	0	57	29	14	0	0	0
2006	0	0	0	50	0	0	50	0
2007	0	20	40	20	20	0	0	0
2008	0	0	0	0	100	0	0	0
2009	0	14	43	29	14	0	0	0
2010	0	50	0	0	0	0	50	0
2011	0	0	0	0	100	0	0	0
Wolverine								
2002	0	0	13	0	63	25	0	0
2003	13	13	25	25	13	0	0	13
2004	7	7	13	27	47	0	0	0
2005	0	17	67	17	0	0	0	0
2006	0	13	25	13	50	0	0	0
2007	0	0	15	40	45	0	0	0
2008	0	18	25	38	19	0	0	0
2009	0	8	31	38	23	0	0	0
2010	0	22	11	34	22	0	11	0
2011	0	10	30	20	40	0	0	0

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

Table 5. Unit 20D harvest percent by transport method, regulatory years[a] 2002–2011.

Species/ Regulatory year	Airplane	Dogsled	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Skis/ Snowshoes	Other	Unk
	Harvest percent by transport method									
Lynx										
2002	0	0	0	3	57	0	31	9	0	0
2003	0	0	0	0	84	0	11	0	5	0
2004	0	0	0	0	69	0	15	15	0	0
2005	0	4	0	5	75	0	4	4	8	0
2006	0	3	0	0	86	0	10	1	0	0
2007	0	2	0	15	65	0	11	3	0	3
2008	7	16	0	2	58	0	14	1	0	2
2009	0	4	0	4	58	0	17	3	0	13
2010	0	0	0	1	62	1	30	6	0	0
2011	0	0	0	7	67	0	12	12	0	2
River Otter										
2002	0	0	0	0	100	0	0	0	0	0
2003	0	0	0	0	100	0	0	0	0	0
2004	0	0	57	0	43	0	0	0	0	0
2005	0	0	71	0	14	0	14	0	0	0
2006	0	0	0	0	50	0	0	50	0	0
2007	40	0	0	0	40	0	0	0	0	20
2008	0	100	0	0	0	0	0	0	0	0
2009	14	0	0	29	57	0	0	0	0	0
2010	0	0	0	0	0	0	100	0	0	0
2011	0	0	0	0	0	0	25	75	0	0
Wolverine										
2002	0	0	0	0	63	25	13	0	0	0
2003	13	0	0	0	63	13	0	0	0	13
2004	0	0	0	7	67	0	27	0	0	0
2005	0	0	0	0	50	50	0	0	0	0
2006	0	25	0	0	50	0	25	0	0	0
2007	10	10	0	5	60	0	10	0	5	0
2008	25	0	0	0	44	0	31	0	0	0
2009	8	8	0	15	61	0	8	0	0	0
2010	0	0	0	0	67	0	33	0	0	0
2011	20	0	0	0	30	0	10	40	0	0

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

SPECIES MANAGEMENT REPORT

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012[1]

LOCATION

GAME MANAGEMENT UNITS: 21B, 21C, and 21D (25,078 mi^2)

GEOGRAPHIC DESCRIPTION: Yukon River drainage above Blackburn to Tozitna River including Koyukuk River to Dulbi Slough

BACKGROUND

Furbearers have traditionally been an important resource in Unit 21 (Robert 1984). 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 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 targeted by area 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 OBJECTIVES

Lynx

- Maintain populations of lynx that will support a reported harvest of 30 lynx in low-cycle years and 100 lynx in high-cycle years.

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

Otter

- Maintain populations of otter that will support a reported harvest of 26 otters annually.

Wolverine

- Maintain populations of wolverine that will support a reported harvest of 28 wolverines annually.

MANAGEMENT ACTIVITIES

- Monitor harvest of lynx, wolverine, and otter through fur sealing records and of the remaining furbearers by acquisition forms, trapper questionnaires, or trapper interviews.

- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

- Recommend season changes if harvest exceeds objectives for 3 consecutive years.

METHODS

We monitored harvest through sealing records and personal interviews. Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY11 = 1 July 2011–30 June 2012). We tracked furbearer abundance by interviewing trappers, and gathered incidental data during surveys of other species and other field activities. We monitored age (proportion of young-of-the-year to adult female) and sex of marten in a portion of Units 21B and 21D using the skulls of trapper-harvested marten. I used the average and range of reported harvest for lynx during RY91–RY10 ($\bar{x}$ = 50; SE = 7.5; range = 7–113), to estimate the sustainable harvestable surplus during high and low cycles for lynx. Further, I used the average and range of reported harvest during RY91–RY10 as an indicator of the sustainable harvestable surplus for otter ($\bar{x}$ = 16; SE = 2.0; range = 3–37) and wolverine ($\bar{x}$ = 19; SE = 1.9; range = 6–36).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

During RY09–RY11, beavers and river otters were present throughout the area in suitable habitat. Based on incidental observations and trapper reports, beaver populations were high and stable and river otters were common and stable. Muskrat numbers were stable at low levels.

Snowshoe hares, an important prey species for lynx and red fox increased during RY06–RY08 in pockets of Units 21B, 21C, and 21D. During RY09–RY11, ptarmigan and snowshoe hares declined. Microtine numbers were not monitored, but were probably stable because no major winter freeze and thaw events that can cause microtine population declines occurred during RY09–RY11. In response to hare numbers, lynx numbers increased in RY08. 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.

Marten populations during RY09–RY11 were moderate in Units 21B and western and southern Unit 21D, but low in northern Unit 21D and in Unit 21C. Most trappers reported that marten were found in pockets of habitat at various times during the trapping season. Overall, marten numbers were stable in the area during RY09, but juvenile numbers declined during RY10–RY11 (Table 1). As noted above, no notable increases in microtines (important marten prey) were documented. Mink populations were low in the area but not adequately monitored to assess causes. Weasels occur throughout the area but numbers and distribution are not adequately monitored to assess trend.

Distribution and Movements

All furbearer species were present throughout Units 21B, 21C, and 21D in the areas of suitable habitat.

MORTALITY

Harvest

<u>Trapping Seasons and Bag Limits during RY09–RY11</u>.

Species	Season	Bag limit
Beaver	1 Sep–10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Muskrat	1 Nov–10 Jun	No limit
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

<u>Trapping Seasons and Bag Limits during RY09</u>.

Species	Season	Bag limit
Lynx	1 Nov–28 Feb	No limit
Red fox	1 Nov–28 Feb	No limit
Marten	1 Nov–28 Feb	No limit
Mink and Weasel	1 Nov–28 Feb	No limit

<u>Trapping Seasons and Bag Limits during RY10–RY11</u>.

Species	Season	Bag limit
Lynx	1 Nov–Last day of Feb	No limit
Red fox	1 Nov–Last day of Feb	No limit
Marten	1 Nov–Last day of Feb	No limit
Mink and Weasel	1 Nov–Last day of Feb	No limit

Hunting Seasons and Bag Limits during RY09–RY11.

Species	Season	Bag limit
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

Hunting Seasons and Bag Limits during RY09.

Species	Season	Bag limit
Coyote	10 Aug–30 Apr	10

Hunting Seasons and Bag Limits during RY10–RY11.

Species	Season	Bag limit
Coyote	10 Aug–25 May	No limit

Alaska Board of Game Actions and Emergency Orders. Since RY86, trapping seasons and bag limits remained the same for coyote, muskrat, otter, and wolverine. At the March 2010 meeting, the Alaska Board of Game (board) aligned the seasons for lynx, red fox, marten, mink, and weasels to close on the last day of February to account for leap year. In 2010 the board also extended the hunting season for coyotes to 25 May and liberalized the bag limit to no limit.

Trapper Harvest.

Beaver — Since 2002, beaver harvest is unknown and effects on local populations are difficult to detect in Units 21B, 21C, and 21D because sealing is not required. Harvest is often for personal use both as food and to make the fur into garments; therefore, many of the pelts never enter the fur market and are not recorded through fur acquisition and export permits. However, the composition of the harvest probably has not changed. Historically, kit harvest was low even though total beaver harvest was relatively high (Tables 2 and 3) because experienced trappers used snares with large diameter openings and placed their sets outside food caches, away from lodges. Harvest was greatest during February and March (Table 4).

Lynx — Based on harvest data, lynx populations apparently reached the low point of their 10-year cycle near RY04–RY05. Reports indicate that numbers increased thereafter and peaked around RY09 (Tables 2 and 3). Most lynx harvest occurred during December–February (Table 4). It is unclear why so few kits were harvested even in years of increasing population. The low harvest of kits could possibly be a bias due to the low overall harvest or the low trapping intensity on individual traplines. It could also be a result of inaccurate measuring by fur sealers or fur handling methods.

River Otter — Although river otters were common in Units 21B, 21C, and 21D, harvest was relatively low (Tables 2–4). During RY09–RY11, most harvest likely occurred when river otters were incidentally taken in beaver sets, and therefore, harvest levels were consistent with beaver trapping efforts.

Wolverine — Harvest of wolverines was stable (Tables 2 and 3) during RY09–RY11. Harvest was lower in RY08, possibly due to trappers selecting more for marten and lynx, which were more plentiful, easier to catch, and were in good demand on the fur market. Total harvest was slightly higher in December and February than other months (Table 4).

Marten — Marten harvest during the mid-1990s was greatly reduced due to low trapping effort and low prices. Pelt prices for marten improved during RY09–RY11, averaging $65–$115. Age and sex of marten trapped in Unit 21B and 21D during RY09–RY11 indicated that juvenile:adult female harvest ratios were low (0.6–1.9 juveniles:1 adult female; Table 1) and the population was experiencing poor recruitment. The harvest ratios of 0.9–1.4 males:1 female (Table 1) was comparable to other trapped population (Strickland and Douglas 1987, Whitman 2001). Because of the possible sex-based differences in vulnerability of marten to trapping or possible skewed age structure in the population (Flynn and Schumacher 2009), these ratios may not accurately reflect the sex ratio in the wild (Buskirk and Lindstedt 1989).

Other Species — 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. Coyote numbers are probably also limited by deep snow conditions common to this area. Mink occur at low densities. Furthermore, pelt prices for mink harvested in Interior Alaska were low, so few trappers targeted them.

<u>Transportation and Trapping Conditions</u>. Snowmachines are the primary means of transportation, with 3–4 trappers (4–6%) using airplanes. Highway vehicles or ATVs are used by a few individuals near Galena and Ruby, but their effort is restricted due to limited road systems. Very few beavers were harvested by people who used boats during the September season. The use of dog teams on traplines is limited to 2 known trappers in the area. Weather was moderate during RY09–RY10 and severe in RY11 (Table 5). Snowfall was normal except in RY11 when deep snowfall for a prolonged period limited access. Overall, trapping conditions were adequate for most trappers.

CONCLUSIONS AND RECOMMENDATIONS

Furbearer populations throughout Units 21B, 21C, and 21D were stable or increasing and were at moderate-to-high levels, except coyote, mink and muskrat which exist at low levels. We were not aware of any areas with excessive harvest. Marten fur prices were moderate to high during RY09–RY11. Otter fur prices were stable at moderate levels and wolverine fur prices were stable at relatively high levels. Lynx prices were moderate to high. It is doubtful any significant increases in harvest will occur based on forecasts for future fur prices and because the number of trappers in the area most likely will remain consistent. I recommend continuing the present seasons and bag limits. Marten and lynx seasons should be reviewed annually, but overharvest is unlikely due to low trapper participation and the availability of large expanses of refugia. Population trend information for all species should continue to be gathered from discussions with local Fish and Game advisory committees and trapper interviews.

Goals were met 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.

Furbearer populations were adequate to support the stated levels of harvest for lynx, otter and wolverine, and therefore met all of our objectives. Mean harvest during RY09–RY11 fluctuated but none of the furbearer populations declined to levels that would not allow for those minimal levels of harvest. Among furbearers, lynx, otter, and wolverine are potentially most susceptible to overharvest and will continue to be used as indicators of harvest trend for other furbearers (beaver, marten, muskrat, fox, coyote, and weasel). These 3 furbearers also will continue to serve as good indicator species because they use habitats and occupy niches that overlap the other furbearers.

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Table 1. Units 21D and 21B sex and age of trapper-harvested marten, regulatory years[a] 2007–2011.

Regulatory	Male		Female			% Male		% Female	
year	Adult	Juv	Adult	Juv	Total	Adult	Juv	Adult	Juv
Marten									
2007	54	73	21	61	209	25.8	34.9	10.0	29.2
2008	99	98	49	141	387	25.6	25.3	12.7	36.4
2009	70	36	39	39	184	38.0	19.6	21.2	21.2
2010	28	17	32	19	96	29.2	17.7	33.3	19.8
2011	93	11	54	23	181	51.3	6.1	29.8	12.7
Total	344	235	195	283	1,057	32.5	22.2	18.4	26.8

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2007 = 1 July 2007–30 June 2008).

Table 2. Units 21B, 21C, and 21D reported harvest of sealed furbearer species, regulatory years[a] 2000–2011[b]

Regulatory	Species			
year	Beaver	Lynx	River Otter	Wolverine
2000	166	99	8	18
2001	212	96	12	12
2002	20	32	37	27
2003		21	13	22
2004		35	30	35
2005		25	19	36
2006		60	16	22
2007		36	11	20
2008		108	4	12
2009		113	12	20
2010		80	3	14
2011		76	12	19

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).
[b] Sealing requirement for beaver eliminated in regulatory year 2002.

Table 3. Units 21B, 21C, and 21D beaver, lynx, otter, and wolverine harvest, regulatory years[a] 2000–2011.

Regulatory	Reported harvest						Estimated harvest		Successful				Trappers/
year	M	F	Unk	Juv[b]	Adults	Unk	Unreported	Illegal	Trap/Snare	Shot	Unk	Total	Hunters
Beaver													
2000				9	156	1	0	0	118	0	48	166	13
2001				8	164	40	0	0	212	0	0	212	15
2002[c]				0	20	0	0	0	20	0	0	20	2
Lynx													
2000				0	77	22	0	0	99	0	0	99	16
2001				0	80	16	0	0	95	0	1	96	24
2002				0	20	12	0	0	30	1	1	32	16
2003				0	17	4	0	0	21	0	0	21	9
2004				0	31	4	0	0	33	1	1	35	11
2005				0	25	0	0	0	23	2	0	25	7
2006				0	60	0	0	0	60	0	0	60	12
2007				4	32	0	0	0	36	0	0	36	9
2008				0	104	4	0	0	99	1	8	108	18
2009				5	108	0	0	0	111	1	1	113	17
2010				2	76	2	0	0	79	1	0	80	11
2011				4	71	1	0	0	75	1	0	76	14
River Otter													
2000	1	5	2				0	0	8	0	0	8	3
2001	5	5	2				0	0	11	0	1	12	6
2002	16	13	8				0	0	32	5	0	37	13
2003	9	4	0				0	0	13	0	0	13	5
2004	23	2	5				0	0	27	3	0	30	9
2005	9	6	4				0	0	18	1	0	19	6
2006	6	4	6				0	0	16	0	0	16	6
2007	1	4	6				0	0	11	0	0	11	6
2008	2	1	1				0	0	4	0	0	4	4
2009	8	4	0				0	0	10	2	0	12	6
2010	0	3	0				0	0	3	0	0	3	3
2011	6	1	5				0	0	11	1	0	12	7

Regulatory year	Reported harvest						Estimated harvest		Successful				Trappers/ Hunters
	M	F	Unk	Juv[b]	Adults	Unk	Unreported	Illegal	Trap/Snare	Shot	Unk	Total	
Wolverine													
2000	10	6	5				10	0	19	2	0	31	10
2001	5	4	3				10	0	12	0	0	22	8
2002	17	8	2				10	0	25	2	0	37	14
2003	12	9	1				10	0	22	0	0	32	13
2004	22	12	1				10	0	34	1	0	45	17
2005	22	13	1				10	0	36	0	0	46	18
2006	11	10	1				10	0	21	0	1	32	12
2007	9	8	3				10	0	17	0	3	30	12
2008	5	7	0				10	0	11	1	0	22	9
2009	12	3	5				10	0	20	0	0	30	10
2010	9	5	0				10	0	14	0	0	24	8
2011	12	5	2				10	0	17	2	0	29	6

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).
[b] Juveniles: beavers <52″ (length + width); lynx <34″ in length.
[c] Sealing requirement for beaver eliminated in regulatory year 2002.

Table 4. Units 21B, 21C, and 21D beaver, lynx, river otter, and wolverine harvest chronology percent by month, regulatory years[a] 2000–2011.

Regulatory	Harvest chronology percent by month								
year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	*n*
Beaver									
2000	0	3	21	54	22	0			146
2001	10	7	12	38	33	0			212
2002[b]	0	0	0	100	0	0			20
Lynx									
2000	6	41	24	28	0				99
2001	6	19	43	32	0				95
2002	0	13	59	28	0				32
2003	5	19	48	24	5				21
2004	3	25	38	34	0				32
2005	8	44	8	40	0				25
2006	0	7	40	53	0				60
2007	0	47	0	53	0				34
2008	11	32	43	14	0				107
2009	2	24	38	34	3				113
2010	4	24	53	20	0				80
2011	8	34	22	36	0				76
River Otter									
2000	0	0	13	50	38	0			8
2001	8	0	25	67	0	0			12
2002	5	5	59	8	3	19			37
2003	23	23	8	8	15	23			13
2004	23	23	13	17	10	13			30
2005	0	5	16	79	0	0			19
2006	6	25	13	0	50	6			16
2007	9	9	0	18	64	0			11
2008	25	50	0	0	0	25			4
2009	25	8	8	25	33	0			12
2010	0	0	33	33	0	33			3
2011	17	8	0	50	8	17			12
Wolverine									
2000	6	12	0	65	18	0			17
2001	17	0	0	0	75	8			12
2002	7	7	15	44	22	4			27
2003	14	10	10	48	19	0			21
2004	9	23	20	26	23	0			35
2005	14	22	17	19	28	0			36
2006	10	29	24	24	14	0			21
2007	0	25	25	45	5	0			20
2008	8	50	0	17	25	0			12
2009	20	15	10	35	20	0			20
2010	0	29	7	36	29	0			14
2011	0	26	16	32	26	0			19

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).
[b] Sealing requirement for beaver eliminated in regulatory year 2002.

Table 5. Units 21D and 21B snow and temperature reporting at Galena weather station (1978–1994, 1997–2012), (NOAA station ID GHCND:USC00503212) and Tanana weather station (1994–1997), (NOAA station ID GHCND:USW00026529).

Regulatory year[a]	Days with 12″ of snow	Days with 24″ of snow	Days with 36″ of snow	Days with sub-zero temperatures	Ratio of no-snow days:snow days
2006	96	0	0	84	1.05
2007	118	16	0	63	0.71
2008	162	141	59	73	0.75
2009	123	0	0	76	0.99
2010	174	116	0	79	0.83
2011	171	134	46	89	0.88
Average[b]	122.4	63.7	8.8	71.1	0.80

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2006 = 1 July 2006–30 June 2007).
[b] Averages for winters 1978–1979 through 2011–2012.

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

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 believed to be most abundant in the eastern portion of Unit 22, which is characterized by extensive spruce forests and riparian willow habitat. Furbearer populations have likely fluctuated over the years in response to natural factors. There is no population estimate for furbearer species in Unit 22.

Harvest activity is partly related to of the abundance of furbearers. The number of hunters and trappers increase when furbearer abundances are high. However, most of the furbearer harvest in Unit 22 is by subsistence and recreational users, or harvest is opportunistic by residents while engaged in other outdoor activities. Very few residents in Unit 22 trap as their sole winter occupation (Persons 2001, Gorn 2004, Persons and Gorn 2007).

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 select 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 staff and the public. Harvest information for lynx, river otters, and wolverines are collected annually from fur sealing certificates. Additional harvest information for these species and for beaver and marten are gathered from hunter/trapper questionnaires and village harvest surveys. Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Unit 22 has participated in the statewide trapper survey program since 1998. The surveys have provided useful impressions about furbearer abundance from hunter and trappers throughout the unit (Persons 2001, Gorn 2004, Persons and Gorn 2007). Additional furbearer observations have been reported by staff and by interested local residents.

Population Size

Beaver — During this reporting period, trapper survey respondents reported beaver continued to be common (ADF&G 2012) and increasing in Units 22A, 22B, 22C and 22D. In Unit 22E, beaver numbers are believed to have increased in the Serpentine River drainage. Household subsistence harvest surveys conducted in 2008 show beaver is the most highly used furbearer (Braem 2012a), with the exception of Shaktoolik (Braem 2012b).

Many Unit 22 residents are dismayed by the proliferation of beavers on the western Seward Peninsula over the last 25 years, and regard beavers as nuisances. Precautions must now be taken to prevent giardia infection when drinking water from local streams (Gorn 2004, Persons and Gorn 2007). Complaints at public meetings on nuisance beavers are common. Beavers block culverts along the road system, which causes the Alaska Department of Transportation and Public Facilities to request permits to remove dams, and recreational boaters complain about the blockage of waterways.

There is concern beaver dams prevent the return of chum salmon (*Oncorhynchus keta*) to their spawning grounds, thus causing a decline in the chum run (S. Kent, Commercial Fishery Biologist, ADF&G, Nome, personal communication). On the other hand, beaver ponds have provided adequate pool areas for coho salmon spawning and rearing (S. Kent, Commercial Fishery Biologist, ADF&G, Nome, personal communication).

Lynx—Lynx observations and harvest continued to be high in Units 22A and 22B during this reporting period. Public and staff observations noted increased signs of snowshoe hare, which is the predominant prey for lynx (O'Donoghue et al. 1997, Ward and Krebs 1985). In Units 22C and 22D, lynx are scarce, but may increase in response to an increase in numbers of snowshoe hares. Lynx was reported as the number one target species for trappers in the Arctic and Western regions (ADF&G 2012). Household subsistence harvest surveys conducted in 2009 indicate lynx had the highest percentage (6%) of use for furbearers in Shaktoolik (Braem 2012b).

River Otter — River otters are found throughout most of the major drainages of Unit 22. Hunter/trappers who responded to 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. Suitable habitat and food resources are thought to be the primary factors determining population density in Unit 22. Household subsistence harvest surveys conducted in 2009 show 17% of the households surveyed in Shishmaref had use for wolverine (Braem 2012b).

Fox — During the reporting period, red fox was noted to be common throughout much of the unit. The Norton Sound Health Corporation's Office of Environmental Health now handles the majority of specimens suspected of rabies infection in the Norton Sound area. Arctic foxes were found along the Seward Peninsula coastline and coastal shore-fast sea ice during the reporting period. Harvest of arctic fox 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. Household surveys conducted in 2009 show marten are not heavily used by communities, though Shaktoolik respondents reported they had a use for marten (Braem 2012b). There were no sealing records for marten during this reporting period. Mink were noted to be abundant in some river drainages in Unit 22C. There is little information on the status of mink and marten abundance 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

<u>Hunting Seasons and Bag Limits.</u> Furbearer seasons and bag limits remained unchanged.

Species	Season	Bag Limit
RY09, *RY10*, *RY11*		
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. Furbearer seasons and bag limits remained unchanged. There was no difference between resident and nonresident seasons and bag limits.

Species	Season	Bag Limit
RY09, *RY10*, *RY11*		
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 & Weasel	1 Nov–15 Apr	No limit
Muskrat	1 Nov–31 Jan	No limit
Wolverine	1 Nov–15 Apr	No limit

Board of Game Actions and Emergency Orders. There were no Board of Game actions during this reporting period.

Human-Induced Harvest.

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 provides only minimum estimates of harvest. Additional harvest information is obtained from statewide trapper surveys.

Beaver — Sealing requirements were removed by the Board of Game in 1999, harvest reporting is not required, and the number of beavers harvested in Unit 22 is unknown. During RY10–11, 8 beavers (6 males, 2 females) were sealed from Unit 22A. A trapper questionnaire covering RY10 reported a harvest of 61 beavers: 24 from Unit 22A, 5 from Unit 22B, 8 from Unit 22D, and 24 from unknown subunits. Trappers in the Arctic and Western regions reported that beaver ranked third among their important target species (ADF&G 2012).

Lynx — The Unit 22 reported lynx harvest has increased since the period RY88–RY98, from an average annual harvest of 4 per year (range 1–10) to an average annual harvest of 83 lynx per year (range = 28–137) since RY99 (Table 1). Unit 22A and 22B harvested 161 and 162 lynx, respectively, during this reporting period. This represented no change for Unit 22B from the RY06–RY08 period; however, lynx harvest in Unit 22A more than doubled from that during RY06–RY08. The reported harvest in Unit 22C was 1 lynx, and 3 lynx were harvested in 22D. No harvest was reported in 22E.

River Otter — A total of 27 river otters were sealed in Unit 22 during the reporting period. The average annual reported harvest from RY88 to RY11 was 7 per year (range 0-18) (Table 2). River otters are believed to be more common than the harvest numbers indicate, but their abundance is unknown.

Wolverine — The total of 90 wolverines sealed in Unit 22 during this period (Table 3). The average annual reported wolverine harvest from RY88 to RY11 was 34 per year (range 16–64). The reported sex composition for this current period was 58% males (*n* = 52), 28% females (*n* =

25), and 14% unknown (*n* = 13). Historical sealing records from RY88 to RY11 indicated the harvest of males was 60% (*n* = 496), 30% (*n* = 246) females, and 10% (*n* = 82) unknown sex.

In this reporting period, wolverines were harvested from all subunits with distribution as follows: Unit 22A, 33% (*n* = 30); Unit 22B, 44% (*n* = 40); Unit 22C, 6% (*n*=5); Unit 22D, 9% (*n*=8); and Unit 22E, 8% (*n*=7) (Table 3). Sealing records indicate the majority of wolverine harvest comes from Units 22A and 22B. One female wolverine was harvested on St. Lawrence Island (Unit 22D) in January 2009. Wolverines are not known to inhabit the island this female likely traveled over sea ice from the mainland of Alaska or Russia to get there.

Mink — The number of mink harvested in Unit 22 is unknown as there is no sealing requirement for this species. Four mink were reported harvested on the trapper survey for RY10. The RY10 trapper survey respondents stated that mink were common in the unit (ADF&G 2012).One mink was taken in defense of life or property (DLP) during RY08 in Unit 22C.

Marten — The harvest of marten in Unit 22 is unknown as there is no sealing requirement for the species. Respondents to the trapper questionnaire for RY08 indicated 51 marten were harvested from Unit 22, and marten were reported as abundant in 22 (ADF&G 2010). The trapper questionnaire for RY10 indicated 134 marten were harvested in Unit 22, and that marten continued to be abundant (ADF&G 2012). Marten was reported as the number two target species for trappers in the Arctic and Western regions (ADF&G 2012).

Permit Hunts. Two permits to take nuisance beaver were issued to the Department of Transportation during this reporting period, one in 2009 and one in 2011. Norton Sound Economical Development was issued one nuisance beaver permit in 2011. One permit to take red fox was issued to the Department of Transportation in 2009.

Hunter Residency and Success. During this reporting period, all but one of the hunters or trappers who harvested furbearers in Unit 22 were Alaska residents. The one nonresident trapper harvested one lynx. Success is difficult to accurately measure because most individuals take furbearers on an opportunistic basis. Frequently, hunters are out hunting for bears or ungulates and not specifically hunting or trapping furbearers (Persons and Gorn 2007).

Harvest Chronology. Travel and snow conditions are important components in the harvest of furbearer in Unit 22. Sealing records for this reporting period show 65% of the furbearer harvest took place from December through February, 28% in March and April, and the remaining 7% in other parts of the year.

Transport Methods. Snowmachines are the primary means of transportation for hunters/trappers who harvest furbearers in Unit 22. Sealing certificate data for this reporting period show 92% (*n* = 411) of the furbearer harvest occurred by snowmachine, 2% by 4-wheeler, and the remaining 6% occurred by boat, highway vehicle, foot, 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

The department should continue to work with local trappers and the City of Nome if the need arises to allow special permits to trap within city municipal boundaries. Maps depicting prohibited trapping areas in the City of Nome should continue to be made available to trappers and the public.

CONCLUSIONS AND RECOMMENDATIONS

We lack quantitative data on furbearer population status in Unit 22. However, observations and reports from unit residents, and harvest data indicate that furbearer populations are likely 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.

Region 5 began participating in the statewide trapper survey program in 1998. The annual surveys were sent to people who hunt or trap furs in the region. We have had good cooperation from fur harvesters, and the comments and information provided by Unit 22 respondents have given us important harvest information and a better picture of furbearers in different parts of the unit. It is important we continue to work with the Trapper Questionnaire Coordinator and provide information about who is hunting and trapping furbearers in Unit 22 so they can receive survey material.

The most effective means of collecting harvest information in villages is through subsistence harvest surveys, which we began in spring 1999 in selected Unit 22 villages. 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 hunters and trappers, sealing vendors, and biologists is important to encourage harvest reporting, and to gain information about harvest and furbearer abundance in Unit 22.

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Table 1. Unit 22 lynx harvest reported on sealing certificates, RY88 through RY11.

Regulatory	Reported lynx harvest								Method of harvest, %			# hunters/
Year	22A	22B	22C	22D	22E	Unk.	Total	Male Harvest, %[a]	Shot	Trap/snare	Unk.	trappers
RY88	1	2	0	1	0	0	4	67	50	50	0	4
RY89	0	2	1	0	0	0	3	50	67	33	0	3
RY90	2	0	0	0	0	0	2	0	0	100	0	1
RY91	4	0	0	0	1	0	5	40	40	0	60	4
RY92	4	2	4	0	0	0	10	0	10	80	10	4
RY93	2	0	0	0	0	0	2	0	50	50	0	1
RY94	3	1	0	0	0	0	4	0	25	75	0	2
RY95	0	1	0	0	0	0	1	0	100	0	0	1
RY96	5	0	0	0	0	0	5	0	40	60	0	2
RY97	2	0	0	0	0	0	2	100	0	100	0	1
RY98	6	0	0	0	1	0	7	43	14	86	0	3
RY99	27	1	0	0	0	0	28	85	4	96	0	5
RY00	56	0	0	0	0	0	56	79	5	82	13	9
RY01	64	5	0	0	0	0	69	46	3	94	3	9
RY02	35	11	0	5	0	0	51	47	14	86	0	9
RY03	28	33	1	0	0	0	62	46	30	70	0	16
RY04	52	44	4	0	0	0	100	45	11	87	2	16
RY05	75	40	1	0	0	0	116	61	5	95	0	23
RY06	34	69	0	0	0	0	103	62	10	89	1	19
RY07	17	27	0	0	0	0	44	59	7	84	9	15
RY08	14	70	0	0	0	0	84	69	8	87	5	16
RY09	38	98	0	1	0	0	137	59	8	91	1	14
RY10	51	32	0	0	0	0	83	66	10	90	0	16
RY11	72	32	1	2	0	0	107	55	8	82	10	18

[a] Reported percentages may be different from previous reports as unknown sex animals have been removed from the calculation.

Table 2. Unit 22 river otter harvest reported on sealing certificates, RY88 through RY11.

Regulatory Year	Reported river otter harvest: 22A	22B	22C	22D	22E	Unk	Total	Male Harvest, % [a]	Method of harvest, %: Shot	Trap/snare	Unk	# of hunters/trappers
RY88	0	0	0	0	0	0	0	0	0	0	0	0
RY89	1	1	0	0	0	0	2	0	100	0	0	1
RY90	0	0	1	0	0	0	1		0	100	0	1
RY91	2	0	2	0	0	0	4	0	0	100	0	2
RY92	6	1	0	4	1	0	12	25	50	50	0	5
RY93	9	0	4	4	0	1	18	0	22	78	0	6
RY94	8	0	2	1	0	0	11	27	9	82	9	4
RY95	1	0	0	0	0	1	2	0	100	0	0	1
RY96	6	0	1	3	2	0	12	66	83	17	0	4
RY97	4	3	3	1	1	0	12	80	0	75	25	8
RY98	2	4	0	1	0	2	9	40	11	67	22	5
RY99	3	0	1	0	0	2	6	75	17	50	33	4
RY00	4	8	3	0	0	1	16	69	38	50	12	9
RY01	5	0	1	0	0	0	6	100	0	100	0	2
RY02	0	4	4	0	0	0	8	44	0	100	0	6
RY03	4	2	6	0	0	0	12	73	58	42	0	7
RY04	3	1	3	1	1	0	9	67	33	67	0	8
RY05	2	1	1	0	0	0	4	50	0	100	0	3
RY06	3	3	1	0	1	0	8	50	0	88	12	7
RY07	3	9	5	1	0	0	18	69	56	44	0	11
RY08	3	3	0	0	0	0	6	60	40	60	0	3
RY09	3	6	1	0	0	0	10	63	10	70	20	6
RY10	10	1	1	0	1	0	13	50	23	39	38	7
RY11	3	0	1	0	0	0	4	67	50	50	0	4

[a] Reported percentages may be different from previous reports as unknown sex animals have been removed from the calculation.

Table 3. Unit 22 wolverine harvest reported on sealing certificates, RY88 through RY11.

Regulatory	Reported wolverine harvest								Method of harvest, %			# of
Year	22A	22B	22C	22D	22E	Unk	Total	Male Harvest, % [a]	Shot	Trap/snare	Unk.	hunters/trappers
RY88	16	3	6	4	3	0	32	0	63	37	0	13
RY89	23	9	4	2	8	0	46	59	30	70	0	14
RY90	33	6	14	9	4	0	66	0	64	36	0	23
RY91	31	10	9	8	4	0	62	69	58	42	0	17
RY92	26	3	14	6	2	1	52	68	62	35	4	17
RY93	24	4	9	3	4	4	48	0	71	29	0	20
RY94	13	7	5	1	0	0	26	77	77	23	0	13
RY95	9	0	8	0	1	0	18	0	78	22	0	7
RY96	24	1	12	4	2	4	47	46	63	33	4	22
RY97	13	26	0	2	1	0	42	70	31	55	14	16
RY98	10	10	1	0	4	0	25	76	29	71	0	12
RY99	5	11	5	8	6	1	36	80	63	27	10	24
RY00	17	29	7	9	9	0	71	74	44	42	14	35
RY01	9	14	7	6	4	0	40	56	40	60	0	18
RY02	7	17	2	7	0	0	33	70	50	50	0	20
RY03	42	19	7	3	3	0	74	69	23	70	7	35
RY04	16	12	9	5	7	0	49	62	33	67	0	23
RY05	13	11	9	6	5	0	44	70	42	58	0	31
RY06	9	14	6	0	6	0	35	69	29	71	0	20
RY07	11	13	7	6	6	0	43	56	26	61	14	24
RY08	7	10	2	3	1	0	23	64	22	74	4	14
RY09	9	23	2	4	0	0	38	66	24	76	0	17
RY10	10	9	1	1	5	0	26	77	30	62	8	13
RY11	11	8	2	3	2	0	26	62	19	73	8	16

[a] Reported percentages may be different from previous reports as unknown sex animals have been removed from the calculation.

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

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 (*Neovison vison*), muskrat (*Ondatra zibethicus*), river (land) otter (*Lontra 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 may have been much higher when furs were a popular trade item, predating the turn of the twentieth century. Later, as villages transitioned to a cash economy, the sale of furs was one of the few sources of cash available to the region's residents (Anderson et al. 1977). Today furbearer harvest in Unit 23 is by subsistence and recreational users, and by a few 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 and are not sealed. Harvest of many furbearers occurs on an opportunistic basis by local residents while engaged in other activities.

MANAGEMENT DIRECTION

MANAGEMENT GOALS

Maintain viable numbers of furbearers to provide for subsistence, commercial and recreational uses of furbearers, recognizing that populations will fluctuate in response to a variety of natural and anthropogenic factors.

MANAGEMENT OBJECTIVES

- Monitor harvest through the fur sealing program, annual hunter/trapper questionnaires and community-based harvest assessments.

- Actively work to increase the number of license vendors and fur sealers in Unit 23.
- Improve compliance with current sealing requirements through increased public communication and education.

METHODS

We gathered information regarding the population status of beaver, lynx, marten, river otters, and wolverines 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. Harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Beaver — Beaver numbers remained high, particularly 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.

Fox — Red foxes were abundant during each year of this reporting period. During the winter of 2012–2013 numerous red foxes were observed throughout Kotzebue. The city police and animal control officer received frequent phone calls about foxes. Abundant hares and rodents may have led to an increasing fox population. In every year since 2007, numerous foxes shot in or around communities tested positive for rabies. In 2012, only one sample was submitted, a significant drop from previous years; this is primarily because rabies has been classed an enzootic disease in this area where testing is applied to cases of human exposure. We continue to encourage the public to vaccinate their animals against rabies. Additionally, we assist Maniilaq Association in acquiring samples from animals that are potentially rabies positive.

Lynx — Snowshoe hare (*Lepus americanus*) numbers appeared to be increasing throughout Unit 23 during this reporting period. Lynx numbers have appeared to increase in response. During the winter of 2009–2010 lynx and snowshoe hare numbers were high in the portion of the Noatak drainage downstream from the Nimiuktuk River. Sealing records since that time support this observation.

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 to 1999, marten appeared to be expanding their range in Unit 23 westward. Opportunistic observations of marten and their tracks and reports from trappers have occurred infrequently during 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 believed to be low compared to years prior to 1970.

Wolverine — Opportunistic sightings by staff and reports from local residents suggest wolverine numbers were low during this reporting period. Local hunters intensively pursue wolverines for their fur and the prestige associated with taking them. However, the price of gasoline increased dramatically in recent years and may have reduced local effort to take wolverines since harvesting a wolverine can require more lengthy travel.

Population Composition

Lynx — Survival of lynx kittens is known to be strongly linked to availability of prey and has a dramatic influence on the overall size of the population. When lynx harvests are high and a high number of kittens are trapped, it may be further evidence that the population is high and the catches are not a product of increased effort. There has been a marked increase in the number of sealed juveniles (measuring <34 inches in length) since RY09. This corresponds with high numbers of lynx observed in the lower Noatak drainage. A previous peak in the number of juveniles sealed was in RY03 in the Kobuk drainage. This also corresponds with observed high numbers of lynx in that area.

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.

RY09, RY10, RY11 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.

RY09, RY10, RY11 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–15 Apr	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. Community-based harvest assessments provide a reliable source for harvest data on all big game species. Sealing records account for only a fraction of the harvest. For example, extrapolating wolverine take from these household surveys shows an estimated total harvest of 93 wolverines for RY11 (Table 1). Fur sealing records for the same year indicate that only 19 wolverines were reported harvested. Community-based harvest assessments also quantify harvest of species that are not accounted for in sealing records, such as marten, beaver, ground squirrels, and foxes. However, since data are collected in only a few communities each year, it is difficult to monitor trends. Additionally, all furbearers have not been included in every survey year.

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 — Lynx harvest has been high since RY09 (Table 2). In the last twenty years of sealing data, more than 80% of the annual harvest of lynx had been from the Kobuk drainage until RY09 and RY10, when that percentage dropped to 57% and 58%, respectively. In RY11 the harvest in the Noatak drainage (37%) surpassed the Kobuk drainage for the first time since sealing records have been kept.

River Otter — Harvests of river otters have been stable, between zero and 10 otters annually for more than 20 years (Table 3). In the last 10 years, sealed otters were predominantly taken in the Noatak (54%), Kobuk (24%), and Northern Seward Peninsula (17%) drainages. Most of the animals in the sealed were male (76% 10-year average, SD = 26).

Wolverine — Wolverine harvest during RY03 was higher than in any year since RY86 (Table 4). Since that time, wolverine harvests have dropped steadily. More than half of sealed wolverines (55%) were taken in the Kobuk Drainage. The Noatak Drainage accounted for 31% of the sealed wolverines. Most of the wolverines sealed were male (73% 10 year average, SD=10).

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 sealed furbearers were taken by residents of Unit 23. Kotzebue residents were responsible for 72% of the sealed otters harvested over the last 10 years. Noorvik residents harvested 59% of the lynx sealed in the last 10 years. The two communities that sealed the most wolverines in the last 10 years are Noorvik (38%) and Kotzebue (36%).

Harvest Chronology. In the last 10 years, most sealed lynx were taken between December and March. Most sealed wolverines were taken between January and March. Otter harvest was more evenly distributed throughout the entire trapping season, with December being the month with the highest harvest over the last 10 years.

Methods of Transport and Take. As in past years, snowmachine was the primary form of transport for hunters and trappers for taking furbearers in Unit 23 (Table 5). In the past, most local residents shot furbearers rather than trapped them (Uhl 1977). Although sealing records show the majority of sealed furs were trapped, we believe the majority of the harvest that is unsealed is harvested by ground shooting. Much of the region is tundra and conducive to ground shooting using a snowmachine.

Other Mortality

We think fox numbers are affected primarily by rabies and occasionally distemper rather than by harvest. Additionally, hare and rodent abundance may influence their populations. Brown bears and wolves kill wolverines occasionally, but human harvests probably affect population levels more than natural mortality. Lynx represents a classic example of a predator being linked to the abundance of its primary prey, snowshoe hares. In Unit 23, where harvest is not intense and access to many areas is difficult, 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.

- Continue to encourage hunters and trappers to have their furs sealed in a timely fashion.
- Actively seek to increase knowledge of fur sealing requirements and the number of fur sealers designated in the region.

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Table 1. Estimated wolverine harvest in Unit 23 villages for 2011–2012 from community harvest estimates 1991–2010 (Subsistence Division unpublished data, except as noted).

Village	Year of survey	Mean human population in survey years	Mean number wolverine reported harvested	Per capita wolverine harvest	Estimated village population in 2011	Estimated annual wolverine harvest in 2011–2012
Ambler	2003,2009	236	7	0.03	276	8
Buckland	2009	418	4	0.01	437	4
Deering	1994	147	12	0.08	123	10
Kiana	1999, 2006,2009	375	2	0.01	372	4
Kivalina	1992, 2007, 2010	377	12	0.03	386	12
Kotzebue	1991	3,649	49	0.01	3,224	32
Noatak	1994, 1999, 2001, 2007, 2010	466	9	0.02	546	11
Noorvik	2008	656	5	0.01	643	6
Selawik	1999, 2006	736	2	0.00	868	3
Shungnak	1998, 2008	246	3	0.01	261	3
Unit 23 Total					7136	93

Table 2. Harvest and method of take for lynx sealed in Unit 23, RY92 through RY11.

Regulatory	Total	Method of take			
Year	harvest	Shot	Trapped	Snared	Unknown
RY92	0	0	0	0	0
RY93	6	0	5	0	1
RY94	1	0	1	0	0
RY95	3	2	1	0	0
RY96	0	0	0	0	0
RY97	0	0	0	0	0
RY98	0	0	0	0	0
RY99	6	3	3	0	0
RY00	8	1	7	0	0
RY01	71	1	70	0	0
RY02	33	0	24	0	9
RY03	36	0	36	0	0
RY04	18	0	18	0	0
RY05	26	1	24	0	1
RY06	23	1	21	1	0
RY07	12	0	12	0	0
RY08	47	2	45	0	0
RY09	135	2	133	0	0
RY10	124	13	111	0	0
RY11	109	11	98	0	0

Table 3. Total harvest, percent males (excluding unknown sex) and method of take for river otters sealed in Unit 23, RY92 through RY11.

Regulatory Year	Total harvest	Males (%)	Method of take			
			Shot	Trapped	Snared	Unknown
RY92	3	100	3	0	0	0
RY93	0	0	0	0	0	0
RY94	6	40	0	6	0	0
RY95	0	0	0	0	0	0
RY96	7	33	1	5	1	0
RY97	10	83	3	6	0	1
RY98	7	100	2	3	0	2
RY99	10	50	1	6	0	3
RY00	9	57	1	5	0	3
RY01	6	60	0	4	1	1
RY02	10	33	0	10	0	0
RY03	3	67	0	3	0	0
RY04	1	0	0	0	0	1
RY05	9	100	0	8	1	0
RY06	9	89	0	9	0	0
RY07	1	100	0	0	0	1
RY08	3	67	0	3	0	0
RY09	7	50	1	6	0	0
RY10	3	100	1	2	0	0
RY11	0	0	0	0	0	0

Table 4. Total harvest, percent males (excluding unknown sex) and method of take for wolverines sealed in Unit 23, RY92 through RY11.

Regulatory Year	Total harvest	Males (%)	Method of take			
			Shot	Trapped	Snared	Unknown
RY92	38	70	17	21	0	0
RY93	19	53	13	6	0	0
RY94	16	67	8	8	0	0
RY95	30	68	12	14	1	3
RY96	42	63	19	20	2	1
RY97	19	50	4	15	0	0
RY98	13	100	3	7	1	2
RY99	31	60	15	9	2	5
RY00	39	63	4	31	0	4
RY01	29	78	2	11	0	16
RY02	27	83	7	20	0	0
RY03	44	49	1	41	0	2
RY04	22	73	2	13	0	7
RY05	17	75	1	15	0	1
RY06	21	71	5	16	0	0
RY07	8	86	1	6	0	1
RY08	11	70	1	10	0	0
RY09	21	70	0	20	1	0
RY10	18	78	8	10	0	0
RY11	19	72	6	13	0	0

Table 5. Harvest and method of transportation used to harvest lynx, river otter and wolverine in Unit 23, RY02 through RY11.

		Method of transportation				
Species/year	Harvest	Snowmachine	Boat	Airplane	Other	Unknown
Lynx						
RY02	33	22	0	0	0	11
RY03	36	36	0	0	0	0
RY04	18	18	0	0	0	0
RY05	26	25	0	0	0	1
RY06	23	23	0	0	0	0
RY07	12	12	0	0	0	0
RY08	47	47	0	0	0	0
RY09	135	127	0	8	0	0
RY10	124	124	0	0	0	0
RY11	109	109	0	0	0	0
River Otter						
RY02	10	9	0	0	1	0
RY03	3	3	0	0	0	0
RY04	1	0	0	0	1	0
RY05	9	9	0	0	0	0
RY06	9	9	0	0	0	0
RY07	1	0	0	0	0	1
RY08	3	3	0	0	0	0
RY09	7	5	0	2	0	0
RY10	3	3	0	0	0	0
RY11	0	0	0	0	0	0
Wolverine						
RY02	27	27	0	0	0	0
RY03	44	39	0	2	3	0
RY04	22	13	1	0	8	0
RY05	17	15	0	1	1	0
RY06	21	18	0	1	2	0
RY07	8	7	0	0	0	1
RY08	11	11	0	0	0	0
RY09	21	12	0	9	0	0
RY10	18	18	0	0	0	0
RY11	19	17	0	0	0	2

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012[1]

LOCATION

GAME MANAGEMENT UNITS: 24A, 24B, 24C, and 24D (26,055 mi^2)

GEOGRAPHIC DESCRIPTION: Koyukuk River drainage above the Dulbi River

BACKGROUND

Furbearers have traditionally been an important resource in Unit 24 (Marcotte and Haynes 1985). They supply food, clothing, trade items, and monetary income. Fur populations have been sufficient to meet local needs, but lynx, marten, and muskrat populations are subject to changes in abundance. 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 that occur 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 foxes 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

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

MANAGEMENT ACTIVITIES

- Monitor harvest through fur sealing records and trapper questionnaires.

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[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

I monitored harvest through sealing records and the Alaska Department of Fish and Game (ADF&G) trapper questionnaire. Harvest data were summarized by regulatory year, which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011). During RY09–RY11 data from the trapper questionnaire were only available for RY10.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Occurrence

No direct estimates of furbearer abundance were conducted during RY09–RY11. Indices to furbearer abundance are calculated in the trapper questionnaire; however data were only available for RY10 during RY09–RY11. Trapper harvests have been used historically as an index to relative abundance of furbearer species but with fewer trappers operating on the landscape this approach becomes increasingly unreliable as effort declines.

Ten responses regarding Unit 24 in the RY10 statewide trapper questionnaire (ADF&G 2012) indicated that red fox, mink and weasels, lynx, otter, and wolverine were common, beaver were abundant, and arctic fox, coyote and marten were scarce.

Distribution and Movements

No studies were conducted to monitor furbearer distribution and movements in Unit 24 during RY09–RY11.

MORTALITY

Harvest

Trapping Seasons and Bag Limits during RY09–RY11.

Species	Season	Bag limit
Arctic fox	1 Nov–29 Feb	No limit
Beaver	1 Sep–10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Lynx	1 Nov–29 Feb	No limit
Marten	1 Nov–29 Feb	No limit
Mink and Weasel	1 Nov–29 Feb	No limit
Muskrat	1 Nov–10 Jun	No limit
Red fox	1 Nov–29 Feb	No limit
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

Hunting Seasons and Bag Limits during RY09–RY11.

Species	Season	Bag limit
Arctic fox	1 Sep–15 Mar	2
Coyote		
RY09	10 Aug–30 Apr	10
RY10–RY11	10 Aug–25 May	No limit
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. At their March 2008 meeting, the Alaska Board of Game (board) lengthened the beaver trapping season to 1 September–10 June. At their March 2010 meeting, the board aligned the seasons for lynx, fox, marten, mink, and weasels to close on the last day of February to account for leap year and the hunting season for coyotes was extended to 25 May with no bag limit.

Trapper Harvest.

Beaver — The beaver sealing requirement was eliminated in RY02. With that change, beaver populations in rural areas are managed solely through trapper questionnaires. Prices and subsistence needs (food and garments) have typically determined beaver harvest more than bag limits. The RY09–RY11 average price for beaver was $24 (Fur Harvesters Auction, Inc., http://www.furharvesters.com), offering little economic incentive to area trappers and most beaver harvest continues to be for local uses. Traditionally, most beaver harvest occurs in the spring, although some trappers take beavers in early winter because beaver carcasses are effective bait for other furbearer species (Hollis 2007). Because beaver are not required to be sealed, few data exist on the timing of harvest during RY09–RY11.

Lynx — Harvest reached a low point in RY05, increased through RY08, and remained stable during RY09–RY11 (Table 1). Pelt prices averaged $150 for lynx during RY09–RY11 (Fur Harvesters Auction, Inc.). Most lynx harvest occurred during December–February (Table 2).

River Otter —There is little local interest in river otters, resulting in minimal trapping effort and harvest (Tables 1–3). River otters are primarily taken incidentally in beaver sets.

Wolverine — Wolverine harvest varied during RY09–RY11 (Table 1). Harvest during RY09 and RY11 was consistent with historic harvest, but was low during RY10. Actual harvest may be higher by 10 animals per year (Table 3; G. Stout, ADF&G, personal communication, 2007) because furs used for subsistence purposes are seldom sealed. No harvest chronology pattern was readily discernible from sealing data (Table 2).

Other Species — Even though trappers indicated that marten numbers were low, harvest may have increased during RY11 due to improving fur prices. During RY09–RY11 marten pelts averaged $72 in the fur market (Fur Harvesters Auction, Inc.). Increased trapping effort for marten probably resulted in increased harvest of other species susceptible to marten sets such as mink, ermine, and red squirrel.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY09–RY11 was traps and snares, followed by ground shooting (Table 3). The transportation type most used by trappers in Unit 24 for species other than beaver was snowmachines (76% of trappers) followed by highway vehicle (21%).

Trapping Conditions. Weather was moderate during RY09–RY11 based on weather data from Bettles, Alaska. Snowfall was below normal in RY09 and above normal during RY10–RY11, but not extreme (NOAA National Climatic Data Center, http://www.ncdc.noaa.gov/). Overall, trapping conditions were adequate for most trappers.

CONCLUSIONS AND RECOMMENDATIONS

Furbearer harvest was low, and the situation is not likely to change significantly given the low density of trappers and difficult access into the area. I recommend continuing the present seasons and bag limits.

Unit 24 furbearer goals and objectives were met during RY09–RY11. Based on observations and trapper survey data, the current low levels of harvest are likely not limiting any of the furbearer populations. Opportunities were available for consumptive and nonconsumptive users. Participation in future trapper questionnaires will be monitored and if the number of respondents decreases substantially their use will be discontinued.

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Table 1. Unit 24 reported harvest of sealed furbearer species, regulatory years[a] 1999–2011.

Regulatory year	Species			
	Beaver	Lynx	River otter	Wolverine
1999	192	102	9	29
2000	206	286	23	19
2001	221	212	9	21
2002[b]	50	63	8	25
2003	92	26	9	22
2004	5	19	20	16
2005	22	10	12	20
2006	23	21	6	21
2007	30	35	3	8
2008	0	93	0	20
2009	106	61	3	29
2010	11	53	0	9
2011	0	61	0	14

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1999 = 1 July 1999–30 June 2000).
[b] Sealing requirement for beaver eliminated in regulatory year 2002.

Table 2. Unit 24 beaver, lynx, river otter, and wolverine harvest chronology percent by month, regulatory years[a] 1999–2011[b].

Regulatory year	Percent harvest chronology										
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	*n*
Beaver											
1999			4	0	7	45	16	2	25	0	165
2000			0	3	3	64	30	0	0		188
2001			3	1	8	40	26	0	24		197
2002[c]			0	0	0	0	0	0	100		50
2003[c]			13	0	0	0	0	0	87		92
2004[c]			60	0	40	0	0	0	0	0	5
2005[c]			86	9	0	5	0	0	0	0	22
2006[c]			35	30	13	0	13	9	0	0	23
2007[c]			80	10	0	0	0	3	7	0	30
2008[c]			0	0	0	0	0	0	0	0	0
2009[c]	33	0	0	0	0	0	0	0	67	0	106
2010[c]	82	0	18	0	0	0	0	0	0	0	11
2011[c]	0	0	0	0	0	0	0	0	0	0	0
Lynx											
1999			3	28	30	36	2				102
2000			11	36	27	25	0				280
2001			8	20	38	35	0				212
2002			11	27	43	19	0				63
2003			0	19	38	42	0				26
2004			0	26	26	42	5				19
2005			30	0	10	60	0				10
2006			5	15	45	35	0				20
2007			6	26	14	54	0				35
2008			9	33	17	41	0				93
2009			7	23	31	36	3				61
2010			11	30	19	40	0				53
2011			2	13	17	58	3	7			60

Regulatory year	Percent harvest chronology										n
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
River Otter											
1999			0	11	0	78	11	0			9
2000			0	9	30	52	9	0			23
2001			0	29	0	43	29	0			7
2002			25	13	50	0	13	0			8
2003			11	0	11	44	22	11			9
2004			5	20	5	25	45	0			20
2005			17	0	8	25	17	33			12
2006			0	17	17	17	33	17			6
2007			67	0	0	0	33	0			3
2008			0	0	0	0	0	0			0
2009			0	33	0	67	0	0			3
2010			0	0	0	0	0	0			0
2011			0	0	0	0	0	0			0
Wolverine											
1999			7	22	22	33	15	0			27
2000			16	21	47	11	5	0			19
2001			5	38	19	24	14	0			21
2002			12	24	16	32	16	0			25
2003			0	14	24	24	38	0			21
2004			0	13	13	50	25	0			16
2005			10	20	30	35	5	0			20
2006			14	10	19	52	5	0			21
2007			0	25	13	50	13	0			8
2008			25	5	40	25	5	0			20
2009			3	7	34	45	10	0			29
2010			0	22	33	44	0	0			9
2011			7	50	7	21	14	0			14

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1999 = 1 July 1999–30 June 2000).
[b] This table does not include harvested animals where month of harvest is unknown therefore it does not represent total harvest.
[c] Sealing requirement for beaver eliminated in regulatory year 2002.

Table 3. Unit 24 beaver, lynx, river otter, and wolverine harvest, regulatory years[a] 1999–2011.

Species/ Regulatory year	Reported harvest: Sex M	Sex F	Sex Unk	Age Juv[b]	Age Adults	Age Unk	Estimated harvest: Unreported	Estimated harvest: Illegal	Method of take: Trap/Snare	Method of take: Shot	Method of take: Unk	Total harvest	Successful trappers/ hunters
Beaver													
1999				14	178	0	0	0	165	0	27	192	25
2000				4	185	17	0	0	188	0	18	206	16
2001				21	194	6	0	0	219	0	2	221	16
2002[c]				12	38	0	0	0	50	0	0	50	1
2003[c]				16	76	0	0	0	92	0	0	92	1
2004[c]				0	5	0	0	0	5	0	0	5	2
2005[c]				7	15	0	0	0	22	0	0	22	2
2006[c]				6	17	0	0	0	20	3	0	23	2
2007[c]				5	25	0	0	0	30	0	0	30	1
2008[c]				0	0	0	0	0	0	0	0	0	0
2009[c]				5	101	0	0	0	106	0	0	106	1
2010[c]				1	10	0	0	0	11	0	0	11	2
2011[c]				0	0	0	0	0	0	0	0	0	0
Lynx													
1999				0	101	1	0	0	100	2	0	102	30
2000				24	244	18	0	0	260	2	24	286	31
2001				25	184	3	0	0	207	5	0	212	24
2002				2	60	1	0	0	63	0	0	63	16
2003				1	25	0	0	0	26	0	0	26	10
2004				0	19	0	0	0	19	0	0	19	8
2005				0	10	0	0	0	9	1	0	10	6
2006				1	18	2	0	0	21	0	0	21	11
2007				4	31	0	0	0	35	0	0	35	11
2008				6	86	1	0	0	92	1	0	93	18
2009				6	51	4	0	0	52	4	5	61	13
2010				1	50	2	0	0	50	3	0	53	11
2011				3	55	2	0	0	57	3	0	60	15

Species/ Regulatory year	Reported harvest: Sex M	F	Unk	Age: Juv[b]	Adults	Unk	Estimated harvest: Unreported	Illegal	Method of take: Trap/Snare	Shot	Unk	Total harvest	Successful trappers/ hunters
River Otter													
1999	3	0	6				0	0	9	0	0	9	5
2000	11	5	7				0	0	23	0	0	23	10
2001	3	0	6				0	0	8	0	1	9	5
2002	1	3	4				0	0	8	0	0	8	3
2003	8	0	1				0	0	7	0	2	9	4
2004	8	3	9				0	0	18	2	0	20	9
2005	4	6	2				0	0	12	0	0	12	4
2006	2	1	3				0	0	5	1	0	6	4
2007	0	0	3				0	0	3	0	0	3	2
2008	0	0	0				0	0	0	0	0	0	0
2009	0	1	2				0	0	3	0	0	3	3
2010	0	0	0				0	0	0	0	0	0	0
2011	0	0	0				0	0	0	0	0	0	0
Wolverine													
1999	21	7	1				10	0	26	1	2	39	18
2000	13	5	1				10	0	19	0	0	29	9
2001	19	2	0				10	0	18	3	0	31	10
2002	15	8	2				10	0	25	0	0	35	8
2003	12	8	2				10	0	20	2	0	32	10
2004	12	3	1				10	0	16	0	0	26	9
2005	10	5	5				10	0	17	3	0	30	6
2006	14	7	0				10	0	19	2	0	31	7
2007	6	2	0				10	0	7	1	0	18	5
2008	9	10	1				10	0	20	0	0	30	8
2009	16	9	4				10	0	29	0	0	39	8
2010	5	2	2				10	0	9	0	0	19	6
2011	8	3	3				10	0	12	2	0	24	10

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1999 = 1 July 1999–30 June 2000).
[b] Juveniles: beavers <52″ (length+width); lynx <34″ in length.
[c] Sealing requirement for beaver eliminated in regulatory year 2002.

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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012[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 consisting of abundant wetlands, riparian, and upland seral vegetation communities. The area supports extensive populations of a variety of furbearers, especially beaver, lynx (cyclic), and red fox. Information about furbearer abundance and species composition on the Arctic Slope is limited. Wolf, wolverine, and arctic fox are the most important species for trappers on the Arctic Slope. Wolves are discussed in a separate management report.

Information on furbearers is obtained from pelt sealing records for lynx, river otter, and wolverine and trapper questionnaires. Until 2002, beaver populations were monitored by Alaska Department of Fish and Game (ADF&G) pelt sealing documents and periodic lodge and cache surveys conducted by staff from the Yukon Flats National Wildlife Refuge (NWR) (McLean 1986; Yukon Flats NWR, unpublished data, Fairbanks). Limited surveys of other furbearers were conducted in the 1980s (Golden 1987) and a survey of wolverine occurrence was conducted by ADF&G in 2006 (Gardner et al. 2010).

Lynx trapping seasons were reduced beginning in 1985 because of 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 season in Units 25A, 25B, and 25D to 1 November–28 February beginning in regulatory year (RY) 1985 (regulatory year begins 1 July and ends 30 June, e.g., RY85 = 1 July 1985–30 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 and has been maintained at that season length since.

[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 shooting bag limit was changed to 2 per day in RY96 and the meat of beavers taken by this method 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 ensure their capability of providing sustained opportunities for trapping 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 data collected from required sealing certificates for lynx, wolverine, and river otter, to estimate total harvest, method of take, transport method, the proportion of juveniles in the harvest (lynx), and the sex composition of harvest (wolverines only). Because there are no sealing requirements for marten, mink, red fox, arctic fox, coyote, ermine, and muskrat, populations trends and harvest levels were monitored using the trapper questionnaire report and biologist observations and conversations with trappers.

Fur prices were compiled from data provided by the Fur Harvesters Auction, Inc. (http://www.furharvesters.com). Prices compiled were from sales that occurred in February or March and from sections and grades that most closely represented typical Alaska fur quality.

In February–March 2006, a coarse-scale aerial wolverine survey was conducted in Interior Alaska, including portions of Units 25B and 25D, to estimate wolverine distribution and occurrence probabilities (Gardner et al. 2010). A study assessing marten population status using trapper caught marten carcasses was initiated in 2010. Marten carcasses were collected from one trapper on the Yukon Flats during RY11 and RY12.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Trappers in Unit 25D indicated that beavers were common in RY10 and trappers had not observed any recent changes in abundance (ADF&G 2012). Trapper reports and harvest data indicated that lynx numbers peaked in the late 1980s and again in the late 1990s. Lynx numbers crashed to a low in RY02 and subsequently increased to a high in RY08 then crashed during RY09–RY11. Although 8- to 10-year cycles in lynx abundance have been strongly evident in harvest data for other Interior Alaska game management units, predictable cycles in lynx abundance have been less evident for Unit 25 which appears to experience protracted highs and reduced periods of scarcity (Fig. 1; ADF&G unpublished data [WinfoNet], Fairbanks).

In February–March 2006, ADF&G conducted a coarse-scale aerial wolverine survey in Interior Alaska (including most of Units 25D and Unit 25B) to estimate wolverine distribution and occurrence probabilities (Gardner et al. 2010). Results demonstrated strong evidence of presence of wolverines across most of Units 25D and 25B, but absence of wolverines in the Birch Creek area between Circle, Central, and Fort Yukon. The study suggests that wolverines prefer higher elevation habitats and also avoid human influences, most likely due to a combination of development intensity and harvest. Wolverines in Interior Alaska can persist even in lower-quality lowland habitats like the Yukon Flats in Unit 25D except where harvest and human influences are high.

Trappers reported that beaver, lynx, red fox, and wolverine were common in Unit 25, and coyote, marten, river otter, mink, muskrat, and ermine were scarce during RY10 (ADF&G 2012). The ADF&G marten study found that marten numbers in Unit 25B were low during RY11 and, based on the ratio of juveniles:adult females in the harvest, the marten population had experienced a reproductive failure (Gardner and Pamperin, ADF&G unpublished data, Fairbanks). The study's forecast for RY12 was continued low marten numbers in Unit 25B. In Unit 26, trappers reported that red fox were abundant, arctic fox were common, and river otter, ermine, and wolverine were scarce in RY10. Survey results for RY09 and RY11 were not available because the trapper questionnaire was not conducted in RY09 and data from RY11 have not been analyzed.

MORTALITY

Harvest

Hunting Seasons and Bag Limits during RY09–RY11.

Unit/Species	Bag limit	Resident season	Nonresident season
Unit 25			
Coyote			
RY09	10 coyotes	10 Aug–30 Apr	10 Aug–30 Apr
RY10–RY11	no limit	no closed season	no closed season
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

Unit/Species	Bag limit	Resident season	Nonresident season
Lynx	2 lynx	1 Nov–28 Feb	1 Nov–28 Feb
Wolverine	1 wolverine	1 Sep–31 Mar	1 Sep–31 Mar
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 10 foxes	1 Sep–30 Sep 1 Oct–15 Mar	1 Sep–30 Sep 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

Trapping Seasons and Bag Limits during RY09–RY11.

Unit/Species	Bag limit	Resident season
Unit 25		
Beaver	No limit	1 Sep–10 Jun
Coyote	No limit	1 Nov–31 Mar
Arctic fox	No limit	1 Nov–28 Feb
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

Alaska Board of Game Actions and Emergency Orders. In 2010 the Alaska Board of Game lengthened the coyote hunting season from 10 August–30 April to no closed season and changed the bag limit from 10 coyotes per day to no limit. In 2010 the Yukon Flats Advisory Committee submitted a proposal to the board to reduce the bag limit from no limit to 50 beaver per year. The board did not pass this proposal because they concluded that maintaining no bag limit would not constitute a conservation concern.

<u>Hunter/Trapper Harvest</u>.

Lynx — Annual lynx harvest declined substantially from an average of 1,992 lynx during RY06–RY08 to 587 lynx during RY09–RY11 (Table 1). Harvest of 307 lynx in RY11 was similar to the RY02 harvest during the previous low in the lynx population cycle (Table 1). Although we do not yet know whether the bottom of the low in the current cycle occurred in RY11, trapper harvest records indicate that lynx abundance is similar to past lows in this approximately 10-year cyclical pattern (Fig. 1).

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. 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). During the most recent high in the lynx cycle, kittens made up a high of 24% of the harvest in RY06 and 16% in RY08 when overall harvest peaked. Kittens composed 6%, 5%, and 1% of the harvest in RY09, RY10, and RY11, respectively. This strongly suggests the current lynx population is at or near a low in the cycle.

Although harvest occurred over an extensive area, it was greatest in Unit 25D along the Yukon, Chandalar, Christian, Black, Little Black, Porcupine, and Hodzana rivers, and Birch and Beaver Creeks in the vicinity of villages and where access is easiest. Average prices paid for lynx pelts ranged $135–$154 during RY09–RY11 (Table 2).

River Otter and Wolverine — River otter harvest was low in Unit 25 and averaged 5 per regulatory year during RY09–RY11 (Table 1). No river otters were harvested in Unit 26. Average pelt price increased from $37 dollars during RY06–RY08 to $70 dollars during RY09–RY11 (Table 2). Fluctuations in pelt prices do not likely affect trapper effort for otter as fewer than 10 river otters were reported harvested annually since RY01.

Wolverine harvest averaged 55 per regulatory year during RY09–RY11 and was within the range of 38–73 harvested annually since RY02 (Table 1). Most wolverine harvest occurred in Unit 25. Few wolverines were taken in Unit 26B and Unit 26C. Males accounted for over 74% of the harvest during RY09–RY11 (Table 3).

<u>Trapper Success</u>. Among sealed species, lynx and wolverines were the most commonly harvested furbearers (Table 1). The number of successful lynx trappers declined in RY10–RY11 compared to RY06–RY09 (Table 3), likely due to a significant reduction in lynx abundance during RY10–RY11. The number of successful lynx trappers in RY10–RY11 was similar to the number of successful lynx trappers in RY01–RY03, when the last low in the lynx cycle occurred (Table 3). The number of trappers who harvested wolverines remained stable.

<u>Harvest and Transport Methods</u>. Traps and snares were the predominant methods 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 and were used for taking more than 80% of the furbearers in most years (Table 4).

A few furbearers were taken with the use of aircraft, dogsled, skis, snowshoes, or highway vehicles. In Unit 26B, highway vehicles were used by trappers on the Dalton Highway (Table 5).

CONCLUSIONS AND RECOMMENDATIONS

Although we lack quantitative data on the status of most furbearer populations in the upper Yukon and eastern Arctic, harvest data and anecdotal reports from trappers indicate that furbearer populations were not adversely affected by harvest during RY09–RY11. The management objective to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses was met during RY09–RY11. The trapper questionnaire was completed in RY10, but was not compiled in RY09 and the analysis of trapper responses for RY11 has not been completed. Present seasons and bag limits provide reasonable trapping and hunting opportunity, while also providing for the conservation of furbearer populations. No regulatory changes are recommended at this time.

The RY12–RY15 management goals, objectives, and activities are as follows:

MANAGEMENT GOALS

- Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem to ensure their capability of providing sustained opportunities for trapping 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.

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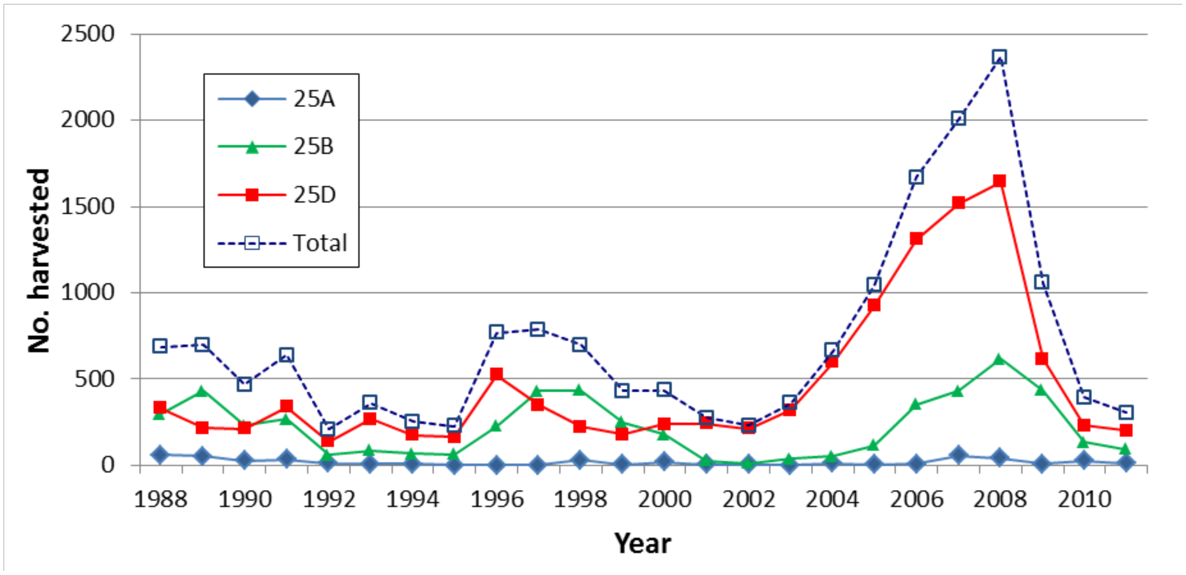

Figure 1. Lynx harvest in Unit 25 by subunit, regulatory years[a] 1988–2010.

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1988 = 1 July 1988–30 June 1989).

Table 1. Units 25A, 25B, 25D, 26B, and 26C furbearer harvest, regulatory years[a] 1995–2001 for beaver and regulatory years 2001–2011 for lynx, river otter, and wolverine.

Species/ Regulatory year	Unit 25A	25B	25D	26B	26C	Total
Beaver						
1995	2	20	66	0	0	88
1996	14	10	164	0	0	188
1997	20	36	62	0	0	118
1998	1	13	32	0	0	46
1999	9	10	102	0	0	121
2000	4	14	86	0	0	104
2001[b]	4	20	93	0	0	117
Lynx						
2001	4	26	243	3	1	277
2002	3	13	213	0	0	229
2003	1	38	320	0	0	359
2004	13	51	599	0	0	663
2005	4	115	917	3	0	1,039
2006	8	351	1,309	0	0	1,668
2007	57	432	1,518	2	0	2,009
2008	40	615	1,642	4	0	2,301
2009	9	435	614	2	0	1,060
2010	26	135	232	1	0	394
2011	11	94	200	2	0	307
River Otter						
2001	1	0	1	0	0	2
2002	1	1	0	0	0	2
2003	1	0	0	1	0	2
2004	0	0	0	0	0	0
2005	1	0	4	0	0	5
2006	0	2	3	0	0	5
2007	0	0	2	0	0	2
2008	2	1	0	0	0	3
2009	0	6	1	0	0	7
2010	3	0	2	0	0	5
2011	0	0	3	0	0	3
Wolverine						
2001	22	7	4	8	2	43
2002	13	4	22	6	1	46
2003	10	12	20	6	0	48
2004	16	19	26	12	0	73
2005	18	7	11	3	1	40
2006	18	7	13	7	0	45
2007	7	12	11	8	0	38
2008	12	10	24	12	0	58
2009	13	22	23	6	0	64
2010	12	12	20	4	0	48
2011	14	6	25	7	2	54

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2001 = 1 July 2001–30 June 2002).
[b] Beginning in regulatory year 2002, beaver sealing was no longer required.

Table 2. Average North American furbearer pelt auction prices[a] (U.S. dollars), regulatory years[b] 2003–2011.

Species	Regulatory year								
	2003[c]	2004[c]	2005[c]	2006[c]	2007[c]	2008[c]	2009[c]	2010[c]	2011[c]
Beaver	19	22	32	22	25	25	21	21	44
Marten	50	63	101	70	100	72	87	80	132
Mink	13	15	25	17	15	11	14	20	27
Red fox	26	18	25	20	22	n/a	17	26	40
Lynx	153	165	140	156	288	101	135	154	150
River otter	95	98	122	49	31	31	42	70	99
Wolverine	215	n/a	n/a	205	254	306	239	279	296

[a] Prices for larger sizes and better quality and colors.

[b] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2003 = 1 July 2003–30 June 2004).

[c] Prices compiled from Fur Harvesters Auction, Inc. (http://www.furharvesters.com [Accessed 10 April 2013]) February and March sales.

Table 3. Units 25A, 25B, 25D, 26B, and 26C beaver, lynx, river otter, and wolverine sex, age, and method of take, regulatory years[a] 1995–2001 for beaver and regulatory years 2002–2011 for lynx, river otter, and wolverine.

	Reported harvest						Method of take					
Units/Species/ Regulatory year	M	F	Unk sex	Juv[b]	Adults	Unk age	Trap/snare	Shot	Land and Shoot[c]	Unk	Total harvest	Successful trappers and hunters
<u>Units 25A, 25B, and 25D</u>:												
Beaver												
1995			88	25	62	1	88	0	0	0	88	15
1996			188	51	137	0	168	20	0	0	188	18
1997			118	33	85	0	110	6	0	2	118	19
1998			46	8	38	0	45	1	0	0	46	11
1999			121	27	94	0	112	9	0	0	121	13
2000			104	23	68	13	104	0	0	0	104	14
2001[d]			117	22	95	0	110	7	0	0	117	17
Lynx												
2002			229	6	217	6	207	0	0	22	229	31
2003			359	34	322	3	310	0	0	49	359	33
2004			663	84	561	18	657	2	0	4	663	46
2005			1,036	235	789	12	998	0	0	38	1,036	45
2006			1,668	394	1,259	15	1,653	0	0	15	1,668	81
2007			2,007	329	1,674	4	1,863	6	0	138	2,007	71
2008			2,297	374	1,914	9	2,205	9	0	83	2,297	77
2009			1,060	65	991	4	1,054	2	0	4	1,060	64
2010			384	18	363	3	363	5	0	16	384	46
2011			307	4	302	1	293	1	0	13	307	40
River Otter												
2002	1	1	0			2	2	0	0	0	2	2
2003	2	0	0			2	1	0	0	1	2	2
2004	0	0	0			0	0	0	0	0	0	0
2005	1	1	3			5	5	0	0	0	5	4
2006	1	0	4			5	5	0	0	0	5	5
2007	1	0	2			3	3	0	0	0	3	2
2008	1	1	1			3	3	0	0	0	3	2
2009	3	1	3			7	7	0	0	0	7	4
2010	2	1	2			5	5	0	0	0	5	3
2011	1	1	1			3	3	0	0	0	3	2

Units/Species/ Regulatory year	Reported harvest M	F	Unk sex	Juv[b]	Adults	Unk age	Method of take Trap/snare	Shot	Land and Shoot[c]	Unk	Total harvest	Successful trappers and hunters
Wolverine												
2002	26	10	3			39	37	2	0	0	39	16
2003	26	13	3			42	39	3	0	0	42	25
2004	42	11	8			61	60	1	0	0	61	27
2005	21	14	1			36	36	0	0	0	36	14
2006	19	9	10			38	37	1	0	0	38	25
2007	20	9	1			30	30	0	0	0	30	13
2008	25	17	4			46	39	3	0	4	46	27
2009	46	9	3			58	56	2	0	0	58	19
2010	32	10	2			44	43	1	0	0	44	20
2011	29	10	6			45	44	1	0	0	45	23
<u>Units 26B and 26C</u>:												
Lynx												
2002			0	0	0	0	0	0	0	0	0	0
2003			0	0	0	0	0	0	0	0	0	0
2004			0	0	0	0	0	0	0	0	0	0
2005			3	0	3	0	3	0	0	0	3	1
2006			0	0	0	0	0	0	0	0	0	0
2007			2	0	2	0	2	0	0	0	2	2
2008			4	0	1	3	3	1	0	0	4	3
2009			2	1	1	0	2	0	0	0	2	2
2010			2	0	1	1	1	1	0	0	2	2
2011			2	0	2	0	1	1	0	0	2	2
Wolverine												
2002	6	1	0			7	3	4	0	0	7	3
2003	0	0	6			6	4	2	0	0	6	2
2004	9	2	1			12	8	4	0	0	12	7
2005	3	1	0			4	2	2	0	0	4	3
2006	4	3	0			7	3	4	0	0	7	5
2007	4	2	2			8	6	2	0	0	8	8
2008	8	4	0			12	6	6	0	0	12	8
2009	5	0	1			6	4	2	0	0	6	3
2010	1	3	0			4	3	1	0	0	4	3
2011	5	3	1			9	7	2	0	0	9	7

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1995 = 1 July 1995–30 June 1996).

[b] Beavers ≤52″ for length and width; lynx ≤34″ in length.
[c] Land and shoot refers to animals taken by hunters the same day hunters were airborne.
[d] Beginning regulatory year 2002, beaver sealing was no longer required.

Table 4. Units 25A, 25B, and 25D beaver, lynx, river otter, and wolverine harvest percent by transport method, regulatory years[a] 1995–2001 for beaver and regulatory years 2002–2011 for lynx, river otter, and wolverine.

	Harvest percent by transport method							
Species/ Regulatory year	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Beaver								
1995	0	9	0	0	89	0	0	2
1996	0	1	11	0	88	0	0	0
1997	0	6	0	0	87	0	5	2
1998	0	13	0	0	83	0	0	4
1999	0	21	1	0	76	0	2	0
2000	0	17	0	0	82	0	0	1
2001[b]	5	8	6	0	71	0	0	10
Lynx								
2002	0	6	0	0	62	0	1	31
2003	1	6	0	0	74	0	0	19
2004	2	2	0	1	88	0	0	7
2005	<1	3	0	0	91	0	0	6
2006	<1	4	<1	<1	87	<1	0	7
2007	3	3	<1	0	87	0	0	7
2008	3	7	0	0	86	0	0	4
2009	1	12	<1	0	86	<1	0	<1
2010	<1	7	0	0	90	<1	<1	1
2011	8	9	0	0	78	0	0	4
River Otter								
2002	0	50	0	0	50	0	0	0
2003	0	0	0	0	100	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	20	0	0	80	0	0	0
2006	0	0	0	0	100	0	0	0
2007	0	0	0	0	100	0	0	0
2008	0	0	0	0	100	0	0	0
2009	0	14	0	0	86	0	0	0
2010	0	0	0	0	100	0	0	0
2011	0	0	0	0	100	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
Wolverine								
2002	3	20	0	0	77	0	0	0
2003	5	5	5	0	71	0	5	9
2004	8	11	0	0	75	0	2	3
2005	5	17	0	0	78	0	0	0
2006	3	16	0	0	82	0	0	0
2007	3	23	0	0	73	0	0	0
2008	4	9	0	0	78	0	0	9
2009	1	1	0	0	97	0	0	0
2010	5	20	0	0	75	0	0	0
2011	7	7	0	0	87	0	0	0

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 1995 = 1 July 1995–30 June 1996).
[b] Beginning in regulatory year 2002, beaver sealing was no longer required.

Table 5. Units 26B and 26C lynx and wolverine harvest percent by transport method, regulatory years[a] 2002–2011.

	Harvest percent by transport method							
Species/ Regulatory year	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Lynx								
2002	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	100	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	50	0	50	0
2008	0	0	0	0	75	0	25	0
2009	0	50	0	0	0	0	50	0
2010	0	0	0	0	50	0	50	0
2011	0	0	0	0	50	0	50	0
Wolverine								
2002	14	0	0	0	57	0	29	0
2003	0	0	0	0	0	0	100	0
2004	0	8	0	0	33	0	58	0
2005	0	0	0	0	25	0	75	0
2006	0	0	0	0	29	0	71	0
2007	0	25	13	0	13	13	38	0
2008	8	0	8	0	58	0	25	0
2009	0	0	0	0	83	0	17	0
2010	25	0	0	0	50	0	25	0
2011	0	0	0	0	63	0	37	0

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2002 = 1 July 2002–30 June 2003).

SPECIES

MANAGEMENT REPORT

Alaska Department of Fish and Game
Division of Wildlife Conservation
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FURBEARER MANAGEMENT REPORT

From: 1 July 2009
To: 30 June 2012

LOCATION

GAME MANAGEMENT UNIT: 26A (56,000 mi^2)

GEOGRAPHIC DESCRIPTION: Western North Slope

BACKGROUND

Red fox, arctic fox, wolverine, and least weasels are commonly found in Unit 26A. Lynx expanded its 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 the 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 2007). Least weasels are trapped around villages and hunting camps, and are utilized for crafts and displays, but principally are trapped to reduce the amount of harvested meat that they consume or ruin by urinating on it.

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 appropriate.

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

- 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. Using sealing certificate records, harvest data are summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size, Composition, and Distribution and Movements

No quantitative population data are available for red foxes, arctic foxes, river otters, or coyotes in Unit 26A. 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. Lynx followed snowshoe hares that 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

Magoun (1984) estimated a fall population size of 821 wolverines for Unit 26A, assuming an extrapolated 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 recorded sightings of 3 wolverines in 2010 (0.47/hr), 4 in 2011 (0.18/hr), and 3 in 2012 (0/.51/ hr). We recorded 4 lynx sightings in 2010 (0.63/hr), 2 in 2011 (0.06/hr), and 0 in 2012 (Table 1).

The number of wolverines seen during surveys is variable and doesn’t seem to be showing a clear trend. The number of lynx appeared to increase through 2009 but has decreased in recent years.

During the 2005 survey, and again during our 2007 survey, we observed incidents of a wolverine killing a moose.

MORTALITY

Harvest

<u>Hunting Seasons and Bag Limits.</u>
Unit 26A: *RY10, RY11, RY12*

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: *RY10, RY11, RY12*

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
Mink/Weasel	1 Nov–15 Apr	No limit

Board of Game Actions and Emergency Orders. During the fall 2009 meeting the Board of Game increased the Mink/Weasel season from 1 November–31 January to 1 November–15 April.

Human-Induced Harvest, Harvest Chronology, Transport Methods.

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.

Lynx — In RY09, 10 lynx were sealed in Unit 26A: 5 were male and 5 were female. Five were ground-shot and 5 were trapped. Snowmachines were used as transportation for all of the harvested lynx. All of them were harvested in March, by trappers that were residents of the unit. In RY10, 3 lynx were sealed in Unit 26A: 2 were males and one was a female. All were ground-shot. Snowmachines were used as transportation for all of the harvested lynx. All of them were harvested in March. Two were harvested by a resident of the unit and one by a nonlocal resident. In RY11, 4 lynx were sealed in Unit 26A: one was male and 3 were female. All were ground-shot. Snowmachines were used as transportation for all of the harvested lynx. All of them were harvested in March, by one trapper who was a resident of the unit. (Table 2).

Wolverine — Twenty-two wolverines were sealed during RY09. One was female, 19 were males and 2 were of unknown sex. Sixteen were ground-shot and 5 were trapped, and 1 was found dead (Table 2). Snowmachines were used as transportation for all of the harvested wolverines and an airplane was used for the one that was found dead. Three were taken in November, 1 in December, 2 in January, 2 in February, and 14 in March (Table 3). All 9 trappers were residents of the unit.

Thirty-two wolverines were sealed during RY10. Ten were females and 22 were males. Twenty were ground shot and 12 were trapped (Table 2). Snowmachines were used as transportation for all of the harvested wolverines. Three were taken in November, 1 in December, 4 in January, 18 in March, and 6 in April (Table 3). All 10 trappers were residents of the unit.

Twenty wolverines were sealed during RY11. Four were female and 16 were males. Sixteen were ground-shot, 3 were trapped, and one was found dead and later found to be rabid (Table 2). Snowmachines were used as transportation for all of the harvested wolverines. Five were taken in February, 9 in March, 5 in April, and the rabid one was taken in June (Table 3). All 8 trappers and hunters 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 harvest survey, at least 42 wolverines were harvested in Unit 26A during calendar year 1992 (Fuller and George 1997). This compares to 2 wolverines sealed during RY91 and 11 sealed during RY92. 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). During the same period, 16 wolverines were sealed from Unit 26A (Table 2).

The reported harvests of 22, 32, and 20 wolverines during the last 3 years were generally greater than the reported harvests since 1991 (Table 2). This could be an indication of increasing wolverine numbers, but could also be a result of increased hunting effort.

<u>Permit Hunts</u>. No special permits were required to trap or hunt furbearers in Unit 26A during the reporting period.

<u>Hunter Residency and Success</u>. Most reported harvests of 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

No habitat assessment projects were attempted or completed 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 for lynx, wolverines, and foxes.

Enhancement

No habitat enhancement projects were attempted or completed in Unit 26A during the reporting period.

NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

Trappers reported that harvest was reduced in RY06 because seismic surveys for petroleum exploration drove wolves and wolverines out of areas where people normally hunt and trap. A similar situation of reduced trapping harvest in relation to seismic surveys was reported in RY02 and RY04. There was very little seismic exploration during the reporting period in most of the areas people harvest wolverines.

CONCLUSIONS AND RECOMMENDATIONS

It would be useful to obtain more accurate population information for furbearers, particularly wolverines. Survey techniques should be investigated and a determination made as to whether the cost would be justified at this time.

It would also be useful to obtain more accurate harvest information. Because the department fur sealing system underreports harvest, we need to work with the North Slope Borough Department of Wildlife Management and ADF&G's Subsistence Division to obtain information through village harvest monitor programs.

To minimize adverse interactions between furbearers and the public, we need to continue working with the North Slope Borough to educate people on dealing with rabid animals and having their pets immunized. We also need to continue the policy of killing foxes that appear to be rabid and collecting specimens so they can be tested for rabies.

Based on reports of seismic exploration influencing furbearer harvest in RY02, RY04, and RY06, an investigation of the effect of seismic exploration on furbearer distribution may be warranted.

Even though there is considerable underreporting, the reported harvests of 22, 32, and 20 wolverines during the last 3 years would indicate that the harvest is under the sustainable harvest level for Unit 26A. In addition, there is no evidence of overharvest of lynx, arctic fox, or red fox. We recommend no changes in seasons and bag limits for these species.

The trapping season for weasels and mink was increased from 1 November–31 January to 1 November–15 April to allow people to legally trap them all winter and to align the season with other fur animals in Unit 26A. This has also made it legal for people to catch problem weasels all winter that are eating and urinating on people's stored meat.

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Table 1. Total number and observation rate of wolverines and lynx counted during spring moose counts. Wolverine sightings were recorded in 1984, 1991, and 1994–2009. Lynx sightings were recorded 2002–2012. Prior to 2002, lynx sightings were relatively rare and were not recorded.

		Wolverine		Lynx	
Year	Hours Flown	Nr.	Nr./hr	Nr.	Nr./hr
1984	35	11	0.31		
1991	39	12	0.31		
1994	32	5	0.16		
1995	34	6	0.18		
1998	9	3	0.33		
1999	24	5	0.21		
2000	12	3	0.31		
2001	13	4	0.31		
2002	16	7	0.44	3	0.19
2003	12	4	0.33	2	0.17
2004	13	2	0.15	0	0.00
2005	20	5	0.25	0	0.00
2006	12	1	0.08	0	0.00
2007	7	3	0.43	1	0.14
2008	38	5	0.13	5	0.13
2009	7	2	0.29	8	1.14
2010	6.4	3	0.47	4	0.63
2011	31.4	4	0.18	2	0.06
2012	5.9	3	0.51	0	0

Table 2. Total reported harvest, sex composition, and method of take for wolverines and lynx sealed in Unit 26A, RY91 through RY11.

			Method of take					Method of take		
Regulatory year (RY)	Wolverine Harvest	Males (%)	Shot	Trapped or Snared	Unknown	Lynx Harvest	Males (%)	Shot	Trapped or Snared	Unknown
RY91	2	50	2	0						
RY92	11	80	8	2	1					
RY93	14	57	12	1	1					
RY94	16	63	12	3	1					
RY95	21	67	20	1						
RY96	11	64	5	6						
RY97	20	70	19	1						
RY98	26	73	25	1						
RY99	19	53	9	8	2					
RY00	23	83	16	7						
RY01	26	62	25	1		7	77	7	0	
RY02	11	73	11	0		1	100	1	0	
RY03	20	90	17	3		3	66	1	2	
RY04	7	86	6	1		4	25	3	1	
RY05	27	67	16	11		6	100	1	5	
RY06	6	31	2	4		0				
RY07	11	91	6	5		4	50	4	0	
RY08	13	92	8	5		6	67	0	6	
RY09	22	95	16	5	1	10	50	5	5	
RY10	32	69	19	12	1	3	67	3	0	
RY11	20	80	16	3	1	4	25	4	0	

Table 3. Chronology for reported wolverine harvest in Unit 26A, RY91 through RY11.

Regulatory year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unknown	Total
RY91	1						1			2
RY92	3		1				6		1	11
RY93			4				5	4	1	14
RY94	4		3	2	1	3	2		1	16
RY95	4		3	2	1	4	6		1	21
RY96			4	2	1	2	1	1		11
RY97	1	1	2	5	3	1	6	1		20
RY98			1	4	1	7	3	10		26
RY99			1	1		2	1	12	2	19
RY00	1	1	1	1	3	5	10	1	0	23
RY01	0	0	4	5	0	3	14	0	0	26
RY02	1	0	0	0	0	0	10	0	0	11
RY03	1	0	2	0	0	1	16	0	0	20
RY04	0	0	1	0	0	1	5	0	0	7
RY05	2	0	0	0	0	2	21	2	0	27
RY06	0	0	0	0	1	2	2	1	0	6
RY07	0	0	2	0	1	2	6	0	0	11
RY08	1	0	0	0	2	0	9	1	0	13
RY09	0	0	3	1	2	2	14	0	0	22
RY10	0	0	3	1	4	0	18	6	0	32
RY11	0	0	0	0	0	5	9	5	1	20