# Furbearer
# Management Report
## of survey-inventory activities
## 1 July 2006–30 June 2009

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



Funded through
Federal Aid in Wildlife Restoration
Grants W-33-5, W-33-6, and W-33-7, Project 7.0
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Please note that this report was released as a complete set in 2011, but is part of the 2010 set of species management reports. We encourage referencing this report as a 2010 report to maintain understanding of when reports were written and ease of locating this particular set of reports.

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



**Cover Photo**: A beaver near Nancy Lake. ©1993 ADF&G/Photo by Boyd Porter.

# FURBEARER MANAGEMENT REPORT

**From: 1 July 2006**
**To: 30 June 2009**

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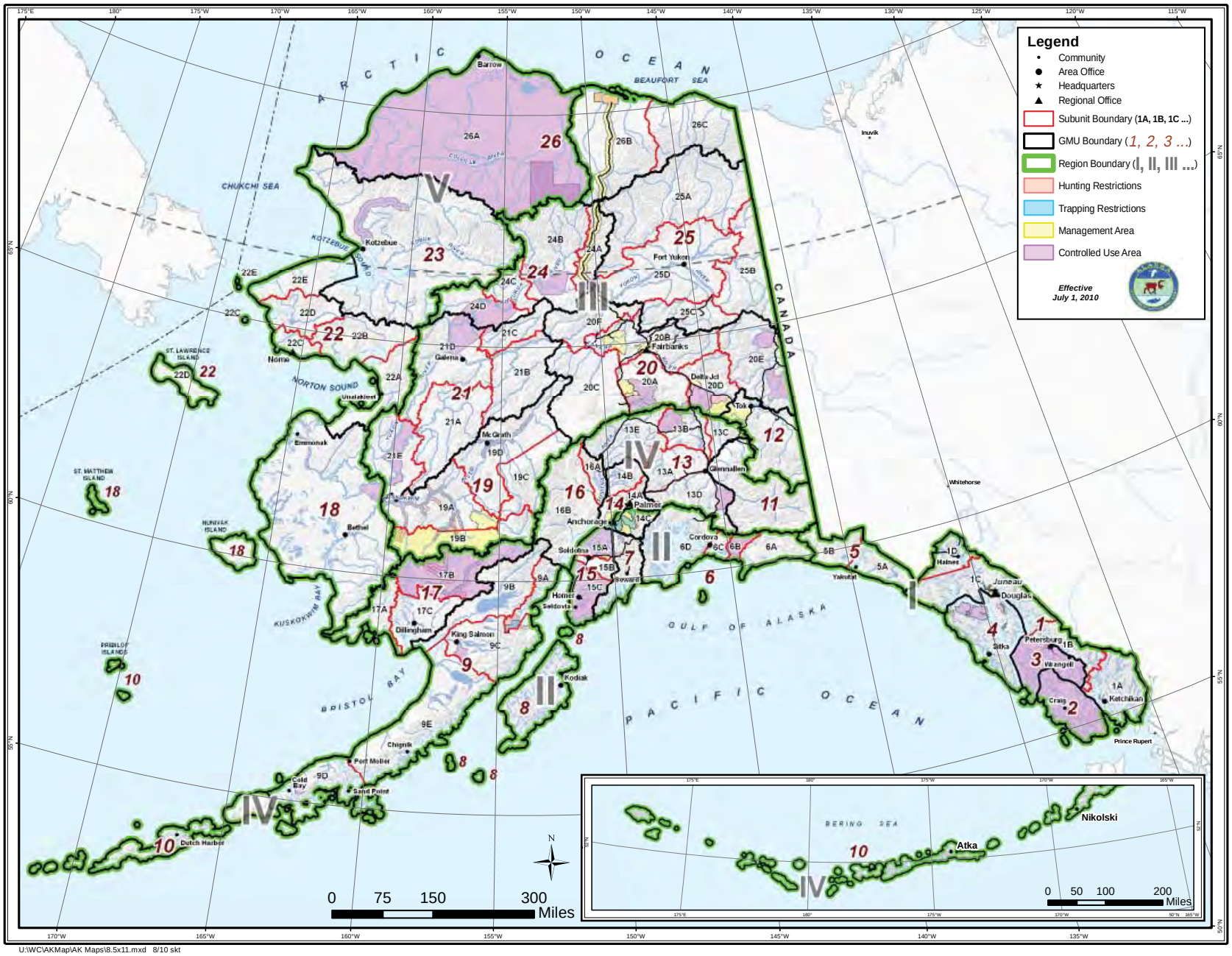


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**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

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

## BACKGROUND

Furbearer trapping pressure and harvests fluctuate annually, primarily as a function of weather conditions and changes in market fur prices.

Southeast Alaska trappers are more interested in martens than any other furbearer species. Martens are easy to trap, their pelts are easy to care for, and combined income from the pelts is generally greater than for any other furbearer species in southern Southeast. Marten prices have increased dramatically this past decade from an average of $24.00 in 1998-1999 to a high of $105.83 in 2007-2008. Prices then dipped sharply in 2008-2009 to $39.63, but remained near the 12-year average of $46.92 (Table 1). Discussions with trappers suggest that martens prefer old-growth stands and avoid clearcuts. This observation is also consistent with marten research in southern Southeast Alaska, which shows the importance of old-growth stands for foraging, travel and shelter (Flynn and Schumacher 1997). Schumacher (1999) also found martens preferred the larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for martens (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984). Extensive logging in much of Unit 1A continues to remove uneven-aged old-growth habitat required by martens. As a result, we believe the area's capacity to support marten populations will decline over time.

Southeast Alaska provides excellent habitat for land otters (*Lutra canadensis*), and fur buyers consider Southeast pelts to be high quality. Some local trappers report selling Southeast otter pelts to taxidermists 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. During this report period, average prices of otter decreased every year from $58.69 in 2006–2007 to $39.81 in 2007–2008, to $30.57 in 2008–2009. These prices are substantially down from the average price of approximately $100

for 2004–2005 (Table 1). The low catches in 2007-08 and 2008-09 probably reflect these lower prices and, if prices remain low, continued low trapping effort is expected.

Beaver (*Castor Canadensis*) prices for this reporting period have remained low and are likely contributing to decreasing participation rates. The average price paid for raw beaver pelts in 2008-2009 was just $14.04, well below the 12 year average of $25.21 (range $14.04-$45.00). The average price of all 3 years in this reporting period ($19.52) was also well below the 12-year average (Table 1).

Mink (*Mustela vison*) pelt prices have remained low and stable over the past decade. The average price of $14.80 (range $10.50-$17.84) during this reporting period is virtually identical to the average price of $14.22 (range $7.36-$24.08) over the past 12 years (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.

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

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

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

## 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

Our harvest data comes from mandatory sealing of marten, beaver, otter and wolverine pelts. Wolverines have been sealed since 1971 and river 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. Weasel and squirrel harvests are not monitored.

We do not perform furbearer population surveys in Southeast Alaska to estimate population sizes or follow trends. Some ecological information is available for mink and river otters from short-term research studies completed in Southeast (Harbo 1958, Home 1977, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology was completed on northeast Chichagof Island (Flynn and Schumacher 1997). We also have genetic-based investigations of marten population structure (Mitton and Raphael 1990; McGowan et al. 1999; Kyle et al. 2000) which explore dispersal patterns, gene flow and genetic diversity in marten. Prior to 2007 no wolverine research had been conducted in SE Alaska. In 2007, ADFG initiated studies of wolverine ecology in SE Alaska (S. Lewis unpublished data) to determine methodology to measure survival of reproductive females, movement patterns and habitat associations (Magoun et al. 2007), development of a method for estimating population density (Magoun et al. 2008), and the use of camera traps and hair snagging for DNA analysis (Magoun et al. submitted). This ongoing research is adding significantly to our knowledge of wolverine ecology in SE Alaska.

Because furbearer population surveys are not conducted in SE Alaska we get population information from anecdotal reports provided by trappers, from field observations and largely from an annual statewide trapper questionnaire.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TRENDS

Marten populations fluctuate annually throughout Southeast Alaska. These dramatic shifts are directly correlated to cyclic or irregular prey fluctuations (Novak et al. 1987). Small mammals are the principal prey for marten 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 contribute to reduced marten numbers.

Otter populations were believed to be low in the late 1970s when prices were high (Wood 1990), but after that 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 trapping effort down except in easily accessible areas.

Given the current 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 current research in Unit 1B and 1C is adding to our knowledge. Most wolverine catches are incidental to other trapping efforts along shorelines. During the past decade, an average of 4 wolverines have been caught each year in Unit 1A with 57% being males (Table 2).

**MORTALITY**

*Harvest*

Seasons and Bag Limits

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

Board of Game Actions and Emergency Orders. During the 2006 BOG meeting, the board passed regulations 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.

During the 2008 BOG meeting, the wolverine trapping season was shortened, with the ending date changed to February 15 from April 30.

Trapper Harvest. The past 3-year average harvest of 329 martens was approximately 30 percent higher than the 10-year mean ($\bar{x}$ =251) (Table 2). An average of 17 trappers caught totals of 548, 140 and 300 martens during 2006, 2007 and 2008 respectively. Marten auction prices during 2007-2008 were the highest in recent years and averaged over $100.00 (Table 1).

During each of the past 3 years (2006–2008) an average of 11 trappers sealed 61, 18, and 22 otters, respectively. All 3 years were well below the 10-year average ($\bar{x}$ =68). The 2007 Unit 1A otter harvest composed the lowest male to female ratio since records began in 1984 (Table 2).

An average of 4 trappers caught 26, 6, and 12 beaver during the 2006–2008 seasons compared to the 10-year average of 17 beavers. The harvest of only 6 beaver during the 2007 season was one of the lowest since 1990 and likely reflects low market prices, lack of trapper interest, and poor weather conditions rather than any measure of beaver abundance.

The Unit 1A wolverine harvest has remained low during the past 10 years. During this report period (2006–2008) trappers sealed 6, 5, and 5 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 traplines. Most wolverines trapped in Unit 1A

historically are caught along the Cleveland Peninsula and along the North Behm Canal. The majority of wolverines caught each year tend to be male. This held true with this report period with 63% of the take being male. In some prior years this average has been 100% (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. For all species of furbearers trapped in Unit 1A the chronology of the harvest is related more to hide quality than availability of the animals during the trapping season. However, long periods of inclement winter weather also deter trappers from using boats to access many trapping areas.

During this 3-year report period the majority of martens were taken during December (59%), followed by January (35%) and February (6%) (Table 3). The otter harvest was similar during the months of December (43%) and January (40%) and then declined in February (15%). The beaver harvest has been well distributed during this report period: December (20%), January (25%), February (32%), March (18%) and April (5%) (Table 3).

Transport Methods. Due in large part to the limited road system in Unit 1A, trappers typically report using boats as the major mode of transportation. The exception is beaver trapping, where, during this report period, the use of highway vehicles is at 55%. Still, the majority of these trappers report reaching the isolated road systems with boats, then deploying ATVs. Marten trappers reported using boats more than 86% and highway vehicles just 12% of the time during 2006–2008. Similarly, otter trappers used boats 93% and highway vehicles only 1% of the time. Trappers that sealed wolverine hides in Unit 1A have used boats over 86% of the time during the past 10 years (Table 2).

*Other Mortality*

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

## CONCLUSIONS AND RECOMMENDATIONS

During this report period the 2006 season had the best combined catch of all furbearer species and may indicate a peak in trapper interest. In 2007 the combined catch dropped significantly, particularly with marten, (22 trappers in 2006 compared to only 10 in 2007) even though marten prices nearly doubled from 2006 prices (Table 1). Interest in Marten trapping surged in 2008 (18 trappers) possibly because of optimism fueled by 2007 prices, but unfortunately prices plummeted from $105.83 in 2007 to $39.63 (table 2).

We will continue monitoring the otter harvest and the male/female sex ratios. Although the 35 percent male to female ratio during 2007 is concerning it may be a function of the low sample size with only 18 total otters harvested.

Because furbearer populations in Unit 1A appear to be healthy and thriving, we do not anticipate any regulation changes at this time. With high gas and operational costs we expect trapping effort and catches to be reflective of fur prices which appear to be on a downward trend at this time.

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.

## LITERATURE CITED


Blejwas, K. 2010. Trapper Questionnaire. Pages 1-75 *in* P. Harper, editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006–30 June 2007. Alaska Department of Fish and Game. Juneau, Alaska.

Flynn, R. W., and T. Schumacher. 1997. Ecology of martens in Southeast Alaska. Federal Aid Wildlife Restoration Prog. Report Grant W-24-2, Study 7.16. Juneau. 38pp.

Harbo, S. 1958. An investigation of mink in interior and Southeastern Alaska. M.S. Thesis, University of Alaska, Fairbanks. 108pp.

Hargis, C.D., and D.R. McCullough. 1984. Winter diet and habitat selection of marten in Yosemite National Park. Journal of Wildlife Management. 48:140–146.

Hauptman, T. N. 1979. Spatial and temporal distribution and feeding ecology of pine marten. M.S. Thesis, Idaho State University, Pocatello. 84 pp.

Home, W. S. 1977. Otter. Pages 48–57 *in* Dixon Harbor biological survey: Final report on winter mammal and bird studies. National Park Service, Juneau, Alaska.

Johnson, C. B. 1985. Use of coastal habitat by mink on Prince of Wales Island, Alaska. M.S. Thesis, University of Alaska, Fairbanks. 179pp.

Kyle C. J., S. C. Davis, and C. Strobeck C. 2000. Microsatellite analysis of North American pine marten (*Martes americana*) populations from the Yukon and Northwest Territories. Canadian Journal of Zoology, 78:1150–1157.

Larsen, D. N. 1983. Habitats, movements, and foods of river otters in coastal southeastern Alaska. M.S. Thesis, University of Alaska, Fairbanks. 149pp.

McGowan C., L. A. Howes, and D. S. Davidson. 1999. Genetic analysis of an endangered pine marten (*Martes americana*) population from Newfoundland using randomly amplified polymorphic DNA markers. Canadian Journal of Zoology, 77: 661–666.

Magoun, A.J., J.C. Ray, D.S. Johnson, P. Valkenberg, F.N. Dawson, and J. Bowman. 2007. Modeling wolverine occurrence using aerial surveys of tracks in snow. Journal of Wildlife Management. 71:2221-2229.

Magoun, A.J., P. Valkenburg and R. E. Lowell. 2008. Habitat associations and movement patterns of reproductive female wolverines (Gulo gulo luscus) on the Southeast Alaska Mainland. Wildlife Research Annual Progress Report. Alaska Department of Fish and Game. Petersburg, Alaska 29 pp.

Mitton J.B., and M. G. Raphael. 1990. Genetic variation in the marten *Martes americana*. Journal of Mammology, 71: 195–197.

Novak, M., J.A. Baker, M.E. Obbard, and B. Malloch editors. 1987. Wild Furbearer Management and Conservation in North America. Pages 574–585. Ontario Ministry of Natural Resources.

Schumacher, T.V. 1999. A Multi-scale analysis of habitat selection at dens and resting sites of American Martens in Southeast Alaska. M.S. Thesis, University of Wyoming. 90pp.

Schumacher, T. V. 2010. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

Simon, T.L. 1980. An ecological study of the marten in the Tahoe National Forest, California. M.S. Thesis, California State University, Sacramento. 143 pp.

Wood, R. E. 1990. Annual report of survey-inventory activities. Furbearers. Pages 1–7 *in* S. O. Morgan, editor. Federal Aid Wildlife Restoration Project W-23-1, Study 7.0. Juneau.

Woolington, J. D. 1984. Habitat use and movements of river otters at Kelp Bay, Baranof Island, Alaska. M.S. Thesis, University of Alaska, Fairbanks. 147pp.

Wynne, K.M., and J.A. Sherburne. 1984. Summer home range use by adult marten in northwestern Maine. Canadian Journal of Zoology. 62:941–943.

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Table 1. Statewide Average Prices Paid for Raw Furs 1997-2009[a]

| | Species | | | |
|---|---|---|---|---|
| Regulatory year | Beaver | Marten | Mink | Otter |
| 1997–1998 | $32.50 | $27.00 | $12.25 | $50.00 |
| 1998–1999 | $25.75 | $24.00 | $10.25 | $38.75 |
| 1999–2000 | $21.77 | $26.89 | $13.14 | $41.13 |
| 2000–2001 | $20.65 | $35.36 | $7.36 | $72.82 |
| 2001–2002 | $45.00 | $45.50 | $15.84 | $59.83 |
| 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 |
| Average | $25.21 | $46.92 | $14.22 | $64.09 |

[a] Prices from the two major fur auction houses (North American Fur Auction and Fur Harvesters Auction Inc.) were averaged to produce the 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 (Schumacher 2010, Blejwas 2010 and Scott & Kephart 2002).

Table 2. Unit 1A furbearer reported harvests, 1999–2008.

| Species/regulatory Year | Total take | Percent male | Method of take (percent) | | | Transportation used (percent) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Shot | Trapped or snared | Unk | Boat | Road | Air | Unknown | Other[b] |
| Beaver | | | | | | | | | | |
| 1999–2000 | 37 | -- | -- | 97 | 3 | 43 | 47 | 0 | 3 | 0 |
| 2000–2001 | 28 | -- | -- | 100 | 0 | 79 | 21 | 0 | 0 | 0 |
| 2001–2002 | 13 | -- | -- | 100 | 0 | 8 | 92 | 0 | 0 | 0 |
| 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 |
| $\bar{x}$ | 17 | -- | -- | 98 | 2 | 54 | 39 | 5 | 2 | 0 |
| Marten | | | | | | | | | | |
| 1999–2000 | 222 | 63 | 0 | 100 | 0 | 95 | 5 | 0 | 0 | 0 |
| 2000–2001 | 298 | 68 | 0 | 100 | 0 | 74 | 18 | 0 | 0 | 8 |
| 2001–2002 | 334 | 67 | 0 | 100 | 0 | 90 | 4 | 0 | 1 | 5 |
| 2002–2003 | 120 | 78 | 0 | 100 | 0 | 93 | 7 | 0 | 0 | 0 |
| 2003–2004 | 223 | 71 | 0 | 100 | 0 | 94 | 6 | 0 | 0 | 0 |
| 2004–2005 | 193 | 68 | 0 | 100 | 0 | 71 | 16 | 0 | 0 | 13 |
| 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 | 0 |
| 2008–2009 | 300 | 63 | 0 | 100 | 0 | 89 | 11 | 0 | 0 | 0 |
| $\bar{x}$ | 251 | 66 | 0 | 100 | 0 | 85 | 12 | 0 | 0 | 3 |

Table 2. continued.

| Species/regulatory Year | Total take | Percent male | Method of take (percent) | | | Transportation used (percent) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Shot | Trapped or snared | Unk | Boat | Road | Air | Unknown | Other |
| Otter | | | | | | | | | | |
| 1999–2000 | 133 | 57 | 26 | 74 | 0 | 89 | 10 | 0 | 0 | 1 |
| 2000–2001 | 68 | 58 | 0 | 100 | 0 | 97 | 1 | 0 | 1 | 0 |
| 2001–2002 | 103 | 50 | 3 | 97 | 0 | 100 | 0 | 0 | 0 | 0 |
| 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 | 0 |
| $\bar{x}$ | 68 | 55 | 14 | 86 | 0 | 95 | 2 | 1 | 0 | 2 |
| Wolverine | | | | | | | | | | |
| 1999–2000 | 1 | 100 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 |
| 2000–2001 | 5 | 100 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 |
| 2001–2002 | 2 | 0 | 0 | 100 | 0 | 100 | 0 | 0 | 0 | 0 |
| 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 |
| $\bar{x}$ | 4 | 57 | 3 | 97 | 0 | 86 | 0 | 4 | 0 | 10 |

Table 3. Unit 1A furbearer harvest chronology by month, 1999–2008.

| Species/regulatory year | Harvest periods | | | | | | | Successful trappers/hunters |
|---|---|---|---|---|---|---|---|---|
| | Dec | Jan | Feb | Mar | Apr | May | Unk | |
| Beaver | | | | | | | | |
| 1999–2000 | 10 | 7 | 6 | 9 | 4 | 0 | 1 | 9 |
| 2000–2001 | 1 | 8 | 3 | 11 | 5 | 0 | 0 | 10 |
| 2001–2002 | 12 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| 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 |
| $\bar{x}$ | 4 | 3 | 3 | 4 | 2 | 0 | >1 | 5 |
| Marten | | | | | | | | |
| 1999–2000 | 125 | 71 | 26 | 0 | 0 | 0 | 0 | 15 |
| 2000–2001 | 135 | 84 | 79 | 0 | 0 | 0 | 0 | 16 |
| 2001–2002 | 200 | 75 | 59 | 0 | 0 | 0 | 0 | 16 |
| 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 |
| $\bar{x}$ | 143 | 69 | 33 | 0 | 0 | 0 | 1 | 15 |
| Otter | | | | | | | | |
| 1999–2000 | 63 | 49 | 21 | 0 | 0 | 0 | 0 | 18 |
| 2000–2001 | 21 | 37 | 10 | 0 | 0 | 0 | 0 | 14 |
| 2001–2002 | 37 | 30 | 33 | 0 | 0 | 0 | 3 | 12 |
| 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 |
| $\bar{x}$ | 27 | 26 | 14 | 0 | 0 | 0 | 1 | 13 |

Table 3. continued.

| Species/regulatory year | Harvest periods | | | | | | | Successful trappers/hunters |
|---|---|---|---|---|---|---|---|---|
| | Dec | Jan | Feb | Mar | Apr | May | Unk | |
| Wolverine | | | | | | | | |
| 1999–2000 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 2000–2001 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| 2001–2002 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 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 |
| $\bar{x}$ | 0.5 | 1.1 | 1.0 | 0.4 | 0.4 | 0 | 0 | 2 |

**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

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

## BACKGROUND

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

The combined income from marten (*Martes americana*) pelts is generally greater than from any other furbearer species in Southeast Alaska. Accordingly, martens are the most important furbearer species in Unit 1B. Marten populations tend to fluctuate widely in response to both prey abundance and trapping pressure. With the exception of 2005–2006, pelt prices for martens have remained consistent at moderate levels through the past decade.

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

With the exception of 1996 and 1997, 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, traditionally just 1–3 trappers per year target beavers.

Land otters (*Lutra canadensis*) are common along the protected coastal areas and inland waters of Unit 1B. Otter populations fluctuate in response to trapping effort, harvest, and fur prices. The otter harvest was above the long-term average in 2003–2004 and 2004–2005, probably in

response to increased prices for Southeast Alaska otter pelts, but decreased in 2005–2006 as a result of reduced fur prices.

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

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

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

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

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

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

## METHODS

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

Methods for estimating furbearer population abundance, trends, and distribution include field surveys, the Alaska trapper questionnaires (Blejwas 2010, Schumacher 2010a, 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 an ongoing multiyear study to determine the movement patterns and habitat associations of wolverines in GMU 1B. The final phase of the study will involve continued experimentation with infra-red 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, no formal field surveys were conducted in this unit to determine furbearer population status or trends. Information obtained from the trapper questionnaire and biologists' field observations provides our best indication of status and trends (Table 1). Trappers rated beavers as "common" in 2006 but increased their estimates to "abundant" during 2007 and 2008 (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 2006, "abundant" in 2007, with a decrease to "common" again in 2008.

Mink populations were reported to be "common" during 2006 and 2007, with estimates increasing to "abundant" during 2008.

Land otter populations were reported to be "common" and stable throughout the report period.

Wolverines were seen to fluctuate slightly from "scarce" to "common" and back to "scarce" during the report period. This is understandable as wolverines, though 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 saw the grouse and ptarmigan numbers as generally "common" to "abundant," and rodent numbers dropping suddenly from "abundant" in 2006 to "scarce" in 2007 and 2008.

## MORTALITY

*Harvest*

Seasons and Bag Limits

Hunting

| | | | |
|---|---|---|---|
| Wolverine | RY 2006-07 | 10 Nov–15 Feb | 1 Wolverine |
| | RY 2007-08 | 1 Sep–15 Feb | 1 Wolverine |

Trapping

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

Board of Game Actions and Emergency Orders. In fall 2006 the board adopted a trap marking requirement and extended the hunting season for wolverines in Units 1–5 by 70 days (1 September–15 February). These regulations took effect beginning in fall of 2007.

In fall of 2008 the board reduced the trapping season for wolverines by 74 days (10 November – 15 February) to reduce the harvest of reproductive female wolverines and dependent kits in dens. The regulation is to take effect beginning fall of 2009.

No emergency orders were issued 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, no beaver harvest was reported in 2006, 1 trapper reported taking 22 beaver in 2007, and 2 trappers reported taking 10 beavers in 2008 (Table 2). The marten harvest increased over the previous report period, yet was considerably lower than that registered during 1997–1999 when the harvest exceeded 300 animals in each of those years. Totals of 209, 147, and 192 martens were taken in 2006, 2007, and 2008, respectively. The 209 martens taken during the 2006 season was above the 10-year average of 193, while the harvest of 147 martens in 2007 was well below average, and the harvest of 192 marten in 2008 was nearly equal to the average (Table 3).

Unit 1B had an otter harvest of 20 during the 2006 season, 7 in 2007, and 6 in 2008. The 20 otters taken during the 2006 season was above the 10 year annual mean of 16 per year, while the harvest of 7 otter in 2007 and 6 otter in 2008 were each well below this level (Table 4).

The numbers of wolverines harvested were 2, 8, and 8 in 2006, 2007, and 2008, respectively. The harvest of 2 wolverines in 2006 was well below the 10 year annual mean of 6 wolverines, while the harvest of 8 wolverines each in 2007 and 2008 were both above this level (Table 5). Record snowfall during the winter of 2006–2007 hampered trapper access and made it difficult to keep traps functioning.

Harvest levels are directly related to fur prices and winter weather conditions during the trapping season. Mink and beaver pelt values have been low in recent years. Southeast Alaska martens vary widely in quality and color and typically bring lower prices than Interior Alaska martens. After a spike in prices from 2005 to 2007, marten prices decreased to more typical levels in 2008 and 2009. The market favors southeastern Alaska otters, however, because of their larger size, good color, and silky fur. After fueling high prices for otter pelts during the first half of the decade, the Oriental market's interest in land otters declined markedly in 2006 and prices stabilized at low levels during the report period.

Harvest Chronology. During this report period, most beaver harvested in Unit 1B were trapped during April, followed by March and February. Most marten harvest took place in January, followed by December and February. Most otter harvest occurred in December followed closely by January, with light harvest in February. Most wolverine harvest occurred in February followed by January, and December (Tables 6–9).

Transport Methods. Most beaver trapping areas in Unit 1B are typically accessed by boat. During the report period, the highest numbers of beavers were taken by trappers using snow machines and boats, respectively, to access their trapping areas. One trapper using a snowmachine on the

road system at Thomas Bay harvested 22 beavers in 2007, and was primarily responsible for snow machines exceeding boats as the primary method of transportation. Most marten trapping areas were accessed by boat, snow machine, ATV and highway vehicle, respectively (Tables 10–11).

#### RESEARCH

In 2007 the department initiated an ongoing 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 is 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 encompasses the Southeast Alaska mainland from Port Houghton southward to the Stikine River drainage. This area includes portions of GMU 1B and 1C as well as portions of the Juneau, Petersburg and Wrangell Ranger Districts (U.S. Forest Service).

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

The final phase of the study will involve continued experimentation with infra-red 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. The objectives of this phase of the study will include: 1) using different types, amounts, and positioning of baits to determine the best set-up for identifying individual wolverines from photographs, 2) application of non-bait lures to various places at the camera sites to position the animals 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 at the sites and compare the number of animals detected with cameras with the number detected with hair snares, and 4) developing protocols for using cameras as a method for estimating population size, documenting proportion of reproductive females, and estimating turnover rate in harvested and unharvested areas.

## CONCLUSIONS AND RECOMMENDATIONS

Most furbearer populations appear to be abundant or common and remain stable in suitable habitat. Trapping effort is for the most part moderate, reflecting the current low to moderate fur prices and high fuel prices. 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 and the Stikine River. Large areas of noncoastal habitat in unroaded portions of the mainland are not utilized by trappers, and continue to provide refuge for furbearers.

Variation in fall and winter weather conditions can have a profound influence on trapper effort and success in Southeast Alaska. Much of the Unit 1B mainland received record snowfall during winter 2006–2007, followed by well above average snowfall in 2007–2008 and 2008–2009. 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 reached extremely high levels during the report period which probably reduced to trapper effort.

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

## LITERATURE CITED


Blejwas, K. 2010. Trapper Questionnaire. Pages 1-75 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006-30 June 2007. Alaska Department of Fish and Game. Juneau, AK.

Magoun, A. J., P. Valkenburg and R. E. Lowell. 2008 Habitat Associations and Movement Patterns of Reproductive Female Wolverines (*Gulo gulo luscus*) on the Southeast Alaska Mainland. Wildife Research Annual Progress Report. Alaska Department of Fish and Game. Petersburg, Alaska. 29 pp.

Schumacher, T. V. 2010a. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.



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

| | 2006–07 Petersburg, Wrangell, Kupreanof & vicinity | | 2007–08 Petersburg, Wrangell, Kupreanof & vicinity | | 2008–09 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, 1999–2008.

| Regulatory year | Reported harvest | Method of Take | | Successful trappers |
|---|---|---|---|---|
| | | Trap/snare | Unknown | |
| 1996–97 | 40 | 40 | 0 | 2 |
| 1997–98 | 16 | 16 | 0 | 2 |
| 1998–99 | 0 | 0 | 0 | 0 |
| 1999–00 | 4 | 4 | 0 | 2 |
| 2000–01 | 1 | 1 | 0 | 1 |
| 2001–02 | 4 | 4 | 0 | 2 |
| 2002–03 | 1 | 1 | 0 | 1 |
| 2003–04 | 19 | 19 | 0 | 2 |
| 2004–05 | 23 | 23 | 0 | 2 |
| 2005–06 | 1 | 1 | 0 | 1 |
| 2006–07 | 0 | 0 | 0 | 0 |
| 2007–08 | 22 | 22 | 0 | 1 |
| 2008–09 | 10 | 10 | 0 | 2 |

Table 3. Unit 1B marten harvest, 1999–2008.

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

Table 4. Unit 1B land otter harvest, 1999–2008.

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

Table 5. Unit 1B wolverine harvest, 1999–2008.

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

Table 6. Unit 1B beaver harvest, chronology by month, 1999–2008.

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

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

Table 7. Unit 1B marten harvest, chronology by month, 1999–2008.

| Regulatory year | Month | | | |
|---|---|---|---|---|
| | December | January | February | *n* |
| 1996–97 | 128 | 101 | 6 | 235 |
| 1997–98 | 130 | 187 | 23 | 340 |
| 1998–99 | 249 | 114 | 2 | 365 |
| 1999–2000 | 51 | 295 | 7 | 353 |
| 2000–01 | 192 | 46 | 1 | 239 |
| 2001–02 | 9 | 98 | 8 | 115 |
| 2002–03 | 53 | 116 | 26 | 195 |
| 2003–04 | 49 | 63 | 16 | 128 |
| 2004–05 | 82 | 69 | 0 | 151 |
| 2005–06 | 71 | 94 | 35 | 200 |
| 2006–07 | 93 | 93 | 23 | 209 |
| 2007–08 | 87 | 50 | 10 | 147 |
| 2008–09 | 56 | 103 | 33 | 192 |

Table 8. Unit 1B otter harvest, chronology by month, 1999–2008.

| Regulatory year | Month | | | | | Nr Unk. | n |
|---|---|---|---|---|---|---|---|
| | December | January | February | March | April | | |
| 1996–97 | 12 | 2 | 10 | 0 | 0 | 0 | 24 |
| 1997–98 | 10 | 19 | 1 | 0 | 0 | 0 | 30 |
| 1998–99 | 3 | 9 | 1 | 0 | 0 | 0 | 13 |
| 1999–2000 | 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 |

Table 9. Unit 1B wolverine harvest, chronology by month, 1999–2008.

| Regulatory year | Month | | | | | | |
|---|---|---|---|---|---|---|---|
| | November | December | January | February | March | April | n |
| 1996–97 | 0 | 3 | 5 | 0 | 1 | 1 | 10 |
| 1997–98 | 0 | 1 | 5 | 2 | 0 | 0 | 8 |
| 1998–99 | 6 | 2 | 0 | 0 | 1 | 0 | 9 |
| 1999–2000 | 0 | 0 | 14 | 2 | 1 | 1 | 18 |
| 2000–01 | 0 | 3 | 1 | 0 | 0 | 0 | 4 |
| 2001–02 | 0 | 0 | 1 | 1 | 0 | 0 | 2 |
| 2002–03 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 2003–04 | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| 2004–05 | 0 | 1 | 3 | 2 | 0 | 1 | 7 |
| 2005–06 | 0 | 1 | 1 | 2 | 1 | 3 | 8 |
| 2006–07 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 2007–08 | 0 | 1 | 1 | 6 | 0 | 0 | 8 |
| 2008–09 | 0 | 1 | 1 | 6 | 0 | 0 | 8 |

Table 10. Unit 1B beaver harvest, method of transportation, 1999–2008.

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

Table 11. Unit 1B marten harvest, method of transportation, 1999–2008.

| Regulatory year | Boat | 3-wheeler | Snowmachine | Highway | Off Road Vehicle | Skis/snowshoes | Total |
|---|---|---|---|---|---|---|---|
| 1996–97 | 69 | 17 | 112 | 37 | 0 | 0 | 235 |
| 1997–98 | 239 | 0 | 97 | 4 | 0 | 0 | 340 |
| 1998–99 | 210 | 60 | 89 | 6 | 0 | 0 | 365 |
| 1999–2000 | 262 | 0 | 0 | 0 | 0 | 91 | 353 |
| 2000–01 | 217 | 0 | 22 | 0 | 0 | 0 | 239 |
| 2001–02 | 115 | 0 | 0 | 0 | 0 | 0 | 115 |
| 2002–03 | 139 | 16 | 0 | 0 | 0 | 40 | 195 |
| 2003–04 | 88 | 40 | 0 | 0 | 0 | 0 | 128 |
| 2004–05 | 130 | 4 | 11 | 0 | 2 | 4 | 151 |
| 2005–06 | 135 | 15 | 26 | 24 | 0 | 0 | 200 |
| 2006–07 | 155 | 0 | 20 | 0 | 34 | 0 | 209 |
| 2007–08 | 115 | 0 | 5 | 27 | 0 | 0 | 147 |
| 2008–09 | 98 | 0 | 94 | 0 | 0 | 0 | 192 |

**Alaska Department of Fish and Game**
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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

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

## BACKGROUND

Martens (*Martes americana*), mink (*Mustela vison*), otters (*Lutra canadensis*), and beavers (*Castor canadensis*) make up the majority of the Unit 1C furbearer harvest. Smaller numbers of wolverines (*Gulo gulo*), weasels (*Mustela erminea*), and an occasional fisher (*Martes 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. There is limited natural or human-caused disturbance affecting beaver habitat in this subunit. Berners Bay, Taku River, Herbert/Eagle River system, Cowee Creek, St. James Bay, Shelter Island, and Lincoln Island contribute to the total harvest. Few beavers have been seen on Douglas Island. Although the beaver harvest varies annually, this variation seems 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 martens have occasionally been seen.

Wolverines occur in small numbers. Sealing information provides little 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 there may now be a small population 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*), though once scarce to nonexistent in this subunit, are now common near Gustavus and in the foothills of the Chilkat Mountains. Residents of Gustavus routinely hear coyotes, and trappers have begun 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 martens, beavers, otters, wolverines, and lynx was the chief source of furbearer harvest data. For each species we recorded method and month of take, transportation means, and harvest location. 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 (Blejwas 2010, Schumacher 2010a, and Schumacher 2010b).

## 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 one or two inadvertently each year in their marten traps. Wolverines are present in low densities and found throughout the remote portions of the unit.

Lewis et. al. (2009) initiated a wolverine research project in the Berners Bay portion of Unit 1C. This project was intended to determine spatial-use patterns and habitat selection of wolverines, investigate wolverines' food habits, and attempt to enumerate the number of wolverines in the area of a proposed road (Juneau Access Road) from Juneau to the Katzehin River flats in Unit 1D (Lewis et. al. 2009). During the report period, 10 wolverines (6 males and 4 females) were captured and radio-collared with GPS equipped collars. Additional data and information from this project will be included in future reports.

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 feeding on a road-killed deer in the Auk Recreation Area bypass during the summer of 2008. A juvenile coyote carcass was recovered near downtown Juneau in spring 2008, and trail camera images of a coyote were taken in winter 2009 in the Basin Road area on Juneau. Sightings and anecdotal information suggests 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, 2009, a total of 5 fishers have been documented as being taken in the Juneau area.

**MORTALITY**

*Harvest*

Seasons and Bag Limits

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

Board of Game Actions and Emergency Orders. Two Southeast Alaska Board of Game meetings occurred during this report period; 2006 (Wrangell), and 2008 (Juneau). Two proposals during the fall 2006 board meeting, and 4 during the 2008 board meeting that dealt with Unit 1C furbearers and trapping were addressed by the board.

In 2006 the board adopted a regionwide proposal to require trappers to mark or tag their traps and snares. A second proposal prohibiting trapping with ½ mile of most hiking trails near Juneau failed.

In 2008, the board shortened the wolverine trapping season by 2½ months throughout the Region in an effort to protect pregnant and denning females. The revised season now runs from November 10 to February 15. A proposal to eliminate the requirement to put ID tags on traps failed. The board reduced the width of the corridors closed to trapping to 50 yards, but required traps to be set 5 feet above the ground or snow, and traps could not have a jaw spread greater than 5 inches. The use of large, instant kill type traps (e.g., 330 conibear) is still prohibited within one quarter of a mile of trails identified in the Alaska Trapping Regulations. The intent of this proposal was to allow marten trapping to occur in accessible areas, while providing for safety of pets by having the traps elevated. Another proposal to add additional trails to those with corridors closed to trapping was adopted.

Trapper Harvest. The number of beavers harvested varied greatly throughout the report period. Five were taken in 2006, 33 were taken in 2007, and 24 in 2008 (Table 1). A total of 62 beaver mortalities were recorded for the current report period, including 1 beaver that was euthanized after it was discovered on a Douglas Island beach with severe injuries, 1 beaver that was found dead, and 4 beavers taken under authority of a nuisance permit. The low harvest in 2006 is likely due to severe winter weather and extreme snow conditions that limited travel to trapping areas well into spring. Given the low value of their fur, and the amount of effort required to trap and handle beavers and their pelts, trappers often ignore 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). 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 the previous reporting period (2003–2005) when 140 otters were taken (Table 1). During the current period 57 otters were harvested. The most significant factor likely responsible for the reduced harvest is reduced trapper effort from a decrease in the price of otter hides. Otter fur prices appear to have stabilized which may lead to increased harvest in the future.

The mean annual harvest of wolverines during this report period was 4.7 which is an increase of 1 wolverine over the previous report period of 2003–2005. Trappers report wolverines are present throughout the unit even in the upper reaches of drainages crossed by the Juneau road system. During the report period, 8 of 14 wolverines harvested came off the Juneau road system, and the remaining 6 were taken from various remote locations in the unit.

The marten harvest increased from a 3-year annual mean of 171 during the previous report period to 218 during this report period. The number of martens taken increased substantially in 2006–2007 to 419 (Table 1). As often happens with trapping harvest, a small number of trappers (10-12) accounted for the majority of martens taken during this report period. The marten harvests for 2007 and 2008 were 115 and 121 martens, respectively (Table 1).

Harvest Chronology. Most furbearers, with the exception of beavers, were caught during December and January. The harvest is high during these months because this is the current trapping season for most furbearer species in the Unit (Dec. 1–Feb. 15). The season for beaver is longer and the majority was caught in March and April when the days are longer and the weather is better. Table 2 shows the chronology of the marten harvest for the past 12 years. During this report period, 55% of the marten harvest occurred in December, 30% in January, and 15% 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. 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 the price for 2 species changed significantly; river otter pelt prices fell, and marten pelts rose in value. Martens continue to be ranked the most important furbearer species by trappers in Southeast, Alaska (Blejwas 2010, Schumacher 2010a, and Schumacher 2010b) and will continue to be targeted as long as marten prices remain at their current levels or increase. Beavers continue to be abundant and thrive in many areas in the unit especially in areas of the Juneau road system closed to trapping. Nuisance permits issued by the department are used routinely to address beaver flooding issues, allowing a few trappers an additional trapping opportunity. Wolverines, though relatively scarce compared to other furbearers, seem to be present at low densities throughout the unit and available to those trappers that put in the effort to target them. Mink, though probably one of the most abundant furbearers in this unit, are not highly sought after because of the effort required to prepare furs for selling and their low price compared to hides of otters and martens.

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.

## LITERATURE CITED

Blejwas, K. 2010. Trapper Questionnaire. Pages 1-75 *in* C. Healy, editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006 – 30 June 2007. Alaska Department of Fish and Game. Juneau, Alaska.

Lewis, S. B., R. W. Flynn, and N. L. Barten. 2009. Wolverine Monitoring for the Juneau Access Improvements Project. Wildlife Research Annual Progress Report. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010a. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

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Scott, R. 2010. Unit 1C furbearer management report. Page 30–38 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2006–30 June 2009. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Table 1. Unit 1C furbearer harvest, 1997–2008.

| 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 |

Table 2. Unit 1C marten harvest chronology by sex, 1997–2008.

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

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

Table 2. continued.

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

| | 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 |

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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT**: 1D (2854mi$^2$)

**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 may 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 (Blejwas 2010). 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, and have attracted moderate trapping pressure in recent years. Depending on the number of snowshoe hares, lynx *(Lynx canadensis)* numbers in the unit range from abundant to almost none. Extensive mountainous terrain in the unit provides habitat for wolverines (*Gulo gulo*), which likely have ample opportunities to scavenge the carrion of other unit inhabitants, moose (*Alces alces*) and mountain goat (*Oreamnos americanus*). Late season salmon runs provide food for many furbearers beginning in early summer and throughout the winter.

Wolves are discussed in a separate management report.

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

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

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

Alaska Statute classifies furbearers into 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), Schumacher (2010a) and Schumacher (2010b).

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

We do not conduct any formal furbearer research to document or monitor furbearer population status or trends in this unit; rather we depend on trapper questionnaires and trapper effort for furbearer information. Indications are that most furbearer populations are stable in Unit 1D.

Marten continue to attract the most attention of trappers, and if the harvest is a reflection of abundance, the population appears to be healthy. The high proportion of males (62%) in the harvest is consistent with the prior reporting period. Flynn and Schumacher (2008) recently 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 land otters appears to be healthy and widespread based on the abundance of otter tracks seen while flying winter moose surveys.

Beavers have increased over the past 20 years, prompting the Department of Fish and Game to submit a proposal to the Board of Game (BOG) in fall 2000 to open a beaver trapping season with a 5 beaver bag limit. The BOG adopted the proposal that allowed a trapping season beginning in the fall of 2001. The beaver season had been closed since 1976 due to low numbers.

In 2006 the Upper Lynn Canal Fish and Game Advisory Committee (ULCF&G AC) submitted a proposal to the BOG to lengthen the beaver trapping season to 1 November – 30 May and eliminate the bag limit in Unit 1D. Department staff believed the population was capable of withstanding additional harvest and observations during winter moose surveys indicated abundant beaver activity throughout the area. The BOG eliminated the bag limit but did not approve extending the season because of declining pelt quality late in the season. In 2008 the ULCF&G AC proposed to lengthen both beaver hunting and trapping seasons to 1 September –

30 June, and to institute a bounty for beaver control in Unit 1D, due to beaver impacts on salmon resources.

The department discussed the proposals with area trappers and fisheries managers who are in positions to see beaver numbers and activity. All the information provided to wildlife managers indicated an increasing number of beavers in the Unit, but the impacts to salmon were viewed as mixed, as beaver complexes are considered negative for returning adult salmon yet positive for rearing juvenile salmon. The BOG did not adopt the proposal to lengthen the season given the department's ability to address specific beaver problems through a permit system which allows for the taking of nuisance animals out of the regular season dates. The proposal to institute a bounty also failed as legislative action is required to authorize bounties for game animals.

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 initiated in Berners Bay in Unit 1C in 2009 should provide biological information applicable to Unit 1D wolverines. 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 Sept–15 Feb | One wolverine |

Trapping

| | | |
|---|---|---|
| Beaver | 1 Dec–15 May | No limit |
| Marten, otter, lynx | 1 Dec–15 Feb | No limit |
| Mink | 10 Nov–30 Apr | No limit |
| Wolverine | 10 Nov-15 Feb | No limit |

Board of Game Actions and Emergency Orders. The Board of Game met twice in Southeast Alaska during this report period; 2006 in Wrangell, and 2008 in Juneau. In 2006 the BOG adopted a regulation to require tagging or marking of traps and snares across the entire region including Unit 1D, and the board adopted a proposal to increase the bag limit of beavers from 5 per year to no limit.

In 2008, the board adopted a proposal to shorten the wolverine trapping season changing the closing date from April 30 to February 15.

No emergency orders were issued for fur animal hunting or furbearer trapping seasons.

Trapper Harvest. Table 1 lists Unit 1D trapper harvest since regulatory year 1997. The mean annual harvest of 130 marten during this report period was higher than the 10-year mean of 95 marten per year. The percentage of males (61%) in the harvest remained relatively high suggesting that recruitment of young marten is sufficient to maintain a relatively high and male skewed harvest.

The land otter harvest during the reporting period was 7 with a mean harvest of approximately 2 otter per year. This harvest was lower than the 10-year mean annual harvest of 4 otters. An anticipated increase in otter harvest due to higher pelt prices did not materialize. The 2004–2005 harvest of 9 otters is the still the highest number of animals taken since the 1980s.

The mean annual beaver harvest since the Board of Game reopened the trapping season in 2001 is 7 beavers. During the reporting period trappers harvested a mean of 5 beavers with no beaver harvest during the 2007–2008 regulatory year. Division of Wildlife Conservation staff received fewer complaints of beavers blocking culverts and flooding roads. Because beavers can now be taken without a permit in Unit 1D during the trapping season, we anticipate nuisance beaver permit requests will continue to decline.

Two lynx of unknown gender were trapped during the reporting period equaling the previous 10 year average annual harvest. Given the vulnerability of lynx to trapping, it is unlikely that many lynx were present during the report period. The annual lynx harvest depicts a cyclical oscillation in lynx abundance that commonly lags behind changes in snowshoe hare abundance (Table 1). Though lynx are typically rare in this unit, there are times when their abundance results in a much higher harvest such as during the 2000–2002 report period when 18 were taken. Anecdotal information from trappers and hunters in the Chilkat River Valley indicates that hare numbers have increased in recent years, and we anticipate a higher harvest of lynx during the next reporting period.

The wolverine harvest decreased from a mean annual harvest of 4 during the previous report period to 3 wolverines per year during 2006–2008. This mean annual harvest was also lower than the 10-year mean annual harvest of 5 wolverines. During this period 6 trappers harvested 10 wolverines between November and March.

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 access, 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 marten. Although impacts to wildlife populations are considered in timber harvest plans, mitigation measures or habitat enhancement opportunities for marten are limited because marten need old growth climax forests.

## CONCLUSIONS AND RECOMMENDATIONS

Marten harvest during this reporting period increased from the previous report period and the mean annual harvest was higher than that of the previous 10 years. It is not clear how much of this increase was due to a change in marten abundance or in trapper effort. Males continue to dominate the harvest, considered a good sign, and monitoring sex ratios in the marten harvest should be continued.

Otter pelt prices decreased sharply during the first year of the report period and stabilized by the third year but are well below the high prices paid during the previous report period. The drop in pelt price likely led to less trapping effort for otter and resulted in fewer otter 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 recent board of game decision to eliminate the 5 beaver bag limit to no limit suggests the beaver population is 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.

## LITERATURE CITED

Blejwas, K. 2010. Trapper Questionnaire. Pages 1-75 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006 – 30 June 2007. Alaska Department of Fish and Game. Juneau, Alaska.

Flynn, R.W., and T. V. Schumacher. 2008. Temporal changes in population dynamics of American martens. Journal of Wildlife Management 73(8):1269-1281.

Schumacher, T. V. 2010a. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

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Table 1. Unit 1D furbearer harvest, 1997–2008.

| Regulatory Year | Beaver | Lynx | Marten | Otter | Wolverine |
|---|---|---|---|---|---|
| 1997–1998 | N/A | 0 | 86 | 3 | 3 |
| 1998–1999 | N/A | 0 | 48 | 0 | 0 |
| 1999–2000 | N/A | 0 | 61 | 1 | 2 |
| 2000–2001 | 11 | 12 | 31 | 3 | 3 |
| 2001–2002 | 2 | 4 | 57 | 7 | 9 |
| 2002–2003 | 22 | 2 | 95 | 3 | 8 |
| 2003-2004 | 5 | 0 | 172 | 2 | 9 |
| 2004-2005 | 1 | 0 | 75 | 9 | 2 |
| 2005-2006 | 7 | 0 | 73 | 5 | 2 |
| 2006-2007 | 6 | 1 | 206 | 5 | 4 |
| 2007-2008 | 0 | 0 | 108 | 1 | 3 |
| 2008-2009 | 8 | 1 | 76 | 1 | 3 |

Table 2. Unit 1D marten harvest chronology by sex 1997–2008.

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

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

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

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

Table 2. (continued). Unit 1D marten harvest chronology by sex, 1997–2008.

| | 2003–2004 | | | | 2004–2005[1] | | | | 2005–2006[2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Males | % | Females | % | Males | % | Females | % | Males | % | Females | % |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| December | 46 | 70 | 20 | 30 | 20 | 54 | 17 | 46 | 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 |

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

| | 2006–2007 | | | | 2007–2008[1] | | | | 2008–2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Males | % | Females | % | Males | % | Females | % | Males | % | Females | % |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| December | 71 | 67 | 35 | 33 | 34 | 71 | 15 | 29 | 30 | 60 | 20 | 40 |
| January | 58 | 72 | 23 | 28 | 11 | 38 | 16 | 62 | 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 |

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

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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT:** 2 (3900 $mi^2$)

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

## BACKGROUND

Unit 2 includes Prince of Wales Island (POW) and a complex of smaller islands with their associated bays and estuaries. The combined archipelago consists of a large amount of sheltered waters that provide relatively safe boat access along many miles of shoreline. POW and many other islands have thousands of miles of logging roads (2500–3000) accessible by motor vehicle. Thus, access to a large amount of furbearer habitat is exceptional and trappers can operate long traplines with relative ease. However, 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 plowed during the winter and consequently the vast majority of roaded areas become impassable. Boat access is also weather dependent and trappers often find themselves waiting for long periods for safe boating conditions to reach traplines.

Southeast Alaska provides excellent habitat for land otters (*Lutra canadensis*), and fur buyers consider Southeast pelts to be high quality. Some local trappers report selling Southeast otter pelts to taxidermists because of the demand for the exceptional large body sizes and the high-quality fur. 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 decreased every year from $58.69 in 2006–2007 to $35.45 in 2007–2008, to $30.57 in 2008–2009. These prices are substantially down from the average price of approximately $100

for 2004–2005 (Table 1). Because most otter trappers use boats for transportation in Unit 2, weather, as well as prices can determines the amount of effort.

Beaver (*Castor Canadensis*) prices for this reporting period have remained low and are likely contributing to decreasing participation rates. The average price paid for raw beaver pelts in 2008–2009 was just $14.04, well below the 12 year average of $25.21 (range $14.04-$45.00). The average price of all three years in this reporting period ($19.52) was also well below the 12-year average (Table 1).

Southeast Alaska trappers are more interested in martens than any other furbearer species. Martens are easy to trap, their pelts are easy to care for, and combined income from the pelts is generally greater than for any other furbearer species in southern Southeast. Marten prices have increased dramatically this past decade from an average of $24.00 in 1998-1999 to a high of $105.83 in 2007–2008. Prices then dipped sharply in 2008–2009 to $39.63, but remained near the 12-year average of $46.92 (Table 1). Discussions with trappers suggest that martens prefer old-growth stands and avoid clearcuts. This observation is also consistent with marten research in southern Southeast Alaska, which shows the importance of old-growth stands for foraging, travel and shelter (Flynn and Schumacher 1997). Schumacher (1999) also found martens preferred the larger diameter timber structures for dens and resting sites. Large old trees and old logs are important as den sites for martens (Hauptman 1979, Simon 1980, Hargis and McCullough 1984, Wynne and Sherburne 1984). Extensive logging in much of Unit 2 continues to remove uneven-aged old-growth habitat required by martens. As a result, we believe the area's capacity to support marten populations will decline over time.

Mink (*Mustela vison*) pelt prices have remained low and stable over the past decade. The average price of $14.80 (range $10.50-$17.84) during this reporting period is virtually identical to the average price of $14.22 (range $7.36-$24.08) over the past twelve years (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.

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

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

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

2. Seal harvested beaver, marten, 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 otters from short-term research studies completed in Southeast (Harbo 1958, Home 1977, Larsen 1983, Woolington 1984, Johnson 1985). A study of marten ecology was done on northeast Chichagof Island (Flynn and Schumacher 1997). ADFG is currently conducting marten research on Kuiu island in Unit 3.

Since furbearer population surveys are not conducted in SE 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 (Blejwas 2010).

## 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 which can cause localized flooding by blocking culverts. Current low levels of predators as well as low interest in trapping due to poor pelt prices may be influencing high beaver numbers.

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 by wolves. This reliable food source is not available in areas such as Unit 4, where wolves are absent. We anticipate that reductions in old-growth habitat, increasing road construction, increased traffic along fragmented habitat, and refugia loss will eventually result in fewer martens in the unit.

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 1970s when prices were high (Wood 1990) and after that time prices and trapper interest dropped substantially. Only recently has effort recovered, although with the recent downturn in price, interest may again wane. Most otter trapping occurs along shorelines using boats.

A much higher percentage of otters are taken by ground shooting in SE Alaska than across the rest of the state. For example in 2008–2009, 53% of the otters taken in SE were by shooting compared to just 3% for the remainder of the state. During this reporting period between 20-53% of otters in SE Alaska were shot compared to between 1-3% for the remainder of the state (Schumacher 2010 and Blejwas 2010). For Unit 2 the average falls between these two extremes, averaging 19% over the past decade, but has varied widely from 0-54% (Table 2).

**MORTALITY**

*Harvest*

Seasons and Bag Limits.

| | | |
|---|---|---|
| Hunting | | |
| Wolverine | 1 Sept–15 Feb | 1 wolverine |
| Trapping | | |
| Beaver | 1 Dec–15 May | No limit |
| Lynx, mink, marten, otter, weasel, muskrat | 1 Dec–15 Feb | No limit |
| Wolverine | 10 Nov–15 Feb | No limit |

Board of Game Actions and Emergency Orders. During the 2006 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.

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 (2006–2008) was 972 (range 672–1226). Annual marten harvest during 2006–2008 was 1,226, 1,019, and 672, respectively (Table 2).

The annual river otter harvest during 2006–2008 was 98, 71, and 74 with a 3-year mean of 81. This is down significantly from the previous report period average of 357 and 10-year average of 247. Trapping, rather than shooting, remained the predominant method of take, except for 2006 when 54% of the harvest was taken by shooting. Most successful otter trappers relied on boats for transportation, although boats and road use were nearly equal in 2007 (Table 2). During this report period an average of 25% of the otters sealed were shot, rather than trapped, slightly above the 10-year average of 19%. Old-growth forest is preferred otter habitat and little use is made of cutover areas. Otters are most commonly found close to saltwater and prefer adjacent old-growth habitat for resting and denning. We hope future timber sales close to saltwater will include beach buffers to protect some of this important habitat. Low prices paid for Southeast Alaska otters during this report period may have contributed to the decreased effort and harvest. Pelt prices

averaging $43.02 for this report period were down from the normal going market rate near $100 in years past (Table 1), providing little incentive for trappers to concentrate on otters.

The Unit 2 beaver harvest has fluctuated widely during the past 10 years, from a low of 53 in 2006 to a high of 345 during 2003. The average harvest during the past 3-year report period was 158 (range 53–309). 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 about 25% of the beaver harvest occurred during March, followed by February (19%), December and January (18%), April (15%), and May (4%). During this report period an average of 15 trappers participated in the harvest, which is 25% lower than the 10-year trend ($\bar{x}$ =20). We also had the two lowest rates of participation in the last decade with just 12 and 11 trappers reporting beaver harvests in 2006 and 2008, respectively (Table 3). This is most likely indicative of low financial incentive to trap beaver.

December is the preferred month for marten trappers. Over the past 10 years about 62% of all martens taken were caught in December, followed by January (23%), February (8%) and March (6%). The average number of active marten trappers ($\bar{x}$ =34) during this 3-year report period was slightly higher than the 10-year average ($\bar{x}$ =32).

During the past 10 years the land otter harvest has typically been split between December (34%), January (40%), February (23%) and March (4%). The number of successful otter trappers during this 3-year report period ($\bar{x}$ =18) was also 25% lower than the ten year average ($\bar{x}$ =20).

Transport Methods. The Unit 2 road system consists of more than 2,500 miles of drivable surface and provides trappers and hunters with more road access than in any other unit in Alaska. Some of this road system is disconnected from the main road and is only accessible by boat. This requires trappers to transport ATVs by boat to some of the more remote areas.

The three seasons covered by this report period were all harsh winters that made the road system unusable for large periods of time, hampering trapper access. Beaver and marten trappers continue to use road vehicles 85% and 64% respectively, while otter trappers prefer boats (75%) as the major modes of transportation to areas in Unit 2 (Table 2).

*Other Mortality*

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

## CONCLUSIONS AND RECOMMENDATIONS

Unit 2 furbearer populations appear stable at this time. We are observing decreased effort because of low market prices for some furbearers, particularly river otter and beaver. Furbearer harvest is spread across the unit and appears sustainable at this time.

Closures of logging roads by the US Forest Service under the recently passed Access and Travel Management Plan (ATM) will reduce vehicle access to parts of the unit. This could reduce harvests and concentrate trapper efforts. ADFG will be monitoring the effects of the ATM on long-term harvests 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.

## LITERATURE CITED


Blejwas, K. 2010. Trapper Questionnaire Statewide Annual Report. 1 July 2006–30 June 2007. Alaska Department of Fish and Game. Juneau, Alaska.

Brand, C.J., and L.B. Keith. 1979. Lynx demography during a snowshoe hare decline in Alberta. Journal of Wildlife Management. 43:827–849.

Flynn, R.W., and T. Schumacher. 1997. Ecology of martens in Southeast Alaska. Federal Aid in Wildlife Restoration Progress Report. Grant W-24-2, Study 7.16. Juneau. 38pp.

Hauptman, T.N. 1979. Spatial and temporal distribution and feeding ecology of pine marten. M.S. Thesis, Idaho State University, Pocatello. 84 pp.

Harbo, S. 1958. An investigation of mink in interior and Southeastern Alaska. M.S. Thesis, University of Alaska, Fairbanks. 108pp.

Hargis, C.D., and D.R. McCullough. 1984. Winter diet and habitat selection of marten in Yosemite National Park. Journal of Wildlife Management. 48:140–146.

Home, W.S. 1977. Otter. Pages 48-57 *in* Dixon Harbor biological survey: Final report on winter mammal and bird studies. National Park Service, Juneau, Alaska.

Johnson, C.B. 1985. Use of coastal habitat by mink on Prince of Wales Island, Alaska. M.S. Thesis, University of Alaska, Fairbanks. 179pp.

Larsen, D.N. 1983. Habitats, movements, and foods of river otters in coastal southeastern Alaska. M.S. Thesis, University of Alaska, Fairbanks. 149pp.

Novak, M., J.A. Baker, M.E. Obbard, and B. Malloch editors. 1987. Wild Furbearer Management and Conservation in North America. Pages 574–585. Ontario Ministry of Natural Resources.

Schumacher, T.V. 1999. A multi-scale analysis of habitat selection at dens and resting sites of American Martens in Southeast Alaska. M.S. Thesis, University of Wyoming. 90pp.

Schumacher, T. V. 2010. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

Scott, R and Kephart, J. 2002. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2000–30 June 2001. Alaska Department of Fish and Game. Juneau, Alaska.

Simon, T.L. 1980. An ecological study of the marten in the Tahoe National Forest, California. M.S. Thesis, California State University, Sacramento. 143 pp.

Wood, R.E. 1990. Annual report of survey-inventory activities. Furbearers. Pages 1–7 *in* S.O. Morgan, editor. Federal Aid in Wildlife Restoration Project W-23-1, Study 7.0. Juneau.

Woolington, J.D. 1984. Habitat use and movements of river otters at Kelp Bay, Baranof Island, Alaska. M.S. Thesis, University of Alaska, Fairbanks. 147pp.

Wynne, K.M., and J.A. Sherburne. 1984. Summer home range use by adult marten in northwestern Maine. Canadian Journal of Zoology. 62:941–943.

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Bethune, S. 2010. Unit 2 furbearer management report. Pages 48–58 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2006–30 June 2009. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Table 1 Statewide Average Prices Paid for Raw Furs 1997–2008[a]

| | Species | | | |
|---|---|---|---|---|
| Regulatory year | Beaver | Marten | Mink | Otter |
| 1997–1998 | $32.50 | $27.00 | $12.25 | $50.00 |
| 1998–1999 | $25.75 | $24.00 | $10.25 | $38.75 |
| 1999–2000 | $21.77 | $26.89 | $13.14 | $41.13 |
| 2000–2001 | $20.65 | $35.36 | $7.36 | $72.82 |
| 2001–2002 | $45.00 | $45.50 | $15.84 | $59.83 |
| 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 |
| Average | $25.21 | $46.92 | $14.22 | $64.09 |

[a] Prices from the two major fur auction houses (North American Fur Auction and Fur Harvesters Auction Inc.) were averaged to produce the 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 (Schumacher 2010, Blejwas 2010 and Scott & Kephart 2002).

Table 2 Unit 2 furbearer reported harvests 1999–2008.

| Species/regulatory year | Total take | Percent male | Method of take (percent) | | | Transportation used (percent) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Shot | Trapped or snared | Unk | Boat | Road | Air | Unknown | Other |
| Beaver | | | | | | | | | | |
| 1999–2000 | 315 | -- | 0 | 100 | 0 | 5 | 88 | 7 | 0 | 0 |
| 2000–2001 | 302 | -- | 0 | 100 | 0 | 2 | 96 | 2 | 0 | 0 |
| 2001–2002 | 221 | -- | 0 | 100 | 0 | 3 | 97 | 0 | 0 | 0 |
| 2002–2003 | 144 | -- | 0 | 100 | 0 | 17 | 78 | 0 | 0 | 0 |
| 2003–2004 | 345 | -- | 0 | 100 | 0 | 8 | 75 | 17 | 0 | 0 |
| 2004–2005 | 214 | -- | 0 | 100 | 0 | 15 | 85 | 0 | 0 | 0 |
| 2005–2006 | 182 | -- | 0 | 100 | 0 | 15 | 62 | 23 | 0 | 0 |
| 2006–2007 | 53 | -- | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2007–2008 | 309 | -- | 0 | 100 | 0 | 24 | 76 | 0 | 0 | 0 |
| 2008–2009 | 113 | -- | 0 | 100 | 0 | 3 | 97 | 0 | 0 | 0 |
| $\bar{x}$ | 220 | -- | 0 | 100 | 0 | 9 | 85 | 5 | 0 | 1 |
| Marten | | | | | | | | | | |
| 1999–2000 | 783 | 58 | 0 | 100 | 0 | 32 | 68 | 0 | 0 | 0 |
| 2000–2001 | 953 | 59 | 0 | 100 | 0 | 26 | 74 | 0 | 0 | 0 |
| 2001–2002 | 824 | 66 | 0 | 100 | 0 | 20 | 78 | 0 | 2 | 0 |
| 2002–2003 | 805 | 61 | 0 | 100 | 0 | 36 | 59 | 0 | 0 | 5 |
| 2003–2004 | 637 | 62 | 0 | 100 | 0 | 56 | 43 | 0 | 0 | 1 |
| 2004–2005 | 1018 | 60 | 0 | 100 | 0 | 28 | 72 | 0 | 0 | 0 |
| 2005–2006 | 844 | 60 | 0 | 100 | 0 | 34 | 66 | 0 | 0 | 0 |
| 2006–2007 | 1226 | 62 | 0 | 100 | 0 | 51 | 48 | 0 | 0 | 1 |
| 2007–2008 | 1019 | 58 | 0 | 100 | 0 | 44 | 56 | 0 | 0 | 0 |
| 2008–2009 | 672 | 62 | 0 | 100 | 0 | 25 | 75 | 0 | 0 | 0 |
| $\bar{x}$ | 878 | 61 | 0 | 100 | 0 | 35 | 64 | 0 | 0 | 1 |

Table 2 continued.

| Species/regulatory year | Total take | Percent male | Method of take (percent) | | | Transportation used (percent) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Shot | Trapped or snared | Unk | Boat | Road | Air | Unknown | Other |
| Otter | | | | | | | | | | |
| 1999–2000 | 194 | 55 | 14 | 86 | 0 | 78 | 22 | 0 | 0 | 0 |
| 2000–2001 | 143 | 58 | 26 | 74 | 0 | 65 | 35 | 0 | 0 | 0 |
| 2001–2002 | 321 | 66 | 0 | 100 | 0 | 58 | 42 | 0 | 0 | 0 |
| 2002–2003 | 486 | 62 | 6 | 94 | 0 | 93 | 7 | 0 | 0 | 0 |
| 2003–2004 | 337 | 56 | 13 | 87 | 0 | 85 | 14 | 0 | 0 | 0 |
| 2004–2005 | 413 | 57 | 21 | 79 | 0 | 87 | 13 | 0 | 0 | 0 |
| 2005–2006 | 341 | 59 | 35 | 65 | 0 | 83 | 15 | 0 | 2 | 0 |
| 2006–2007 | 98 | 53 | 54 | 46 | 0 | 74 | 20 | 1 | 5 | 0 |
| 2007–2008 | 71 | 57 | 13 | 87 | 0 | 52 | 48 | 0 | 0 | 0 |
| 2008–2009 | 74 | 59 | 8 | 92 | 0 | 73 | 27 | 0 | 0 | 0 |
| $\bar{x}$ | 247 | 58 | 19 | 81 | 0 | 75 | 24 | 0 | 1 | 0 |

Table 3 Unit 2 furbearer harvest chronology by month 1999–2008.

| Species/regulatory Year | Harvest periods | | | | | | | Successful trappers/hunters |
|---|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | April | May | |
| Beaver | | | | | | | | |
| 1999–2000 | 0 | 53 | 46 | 60 | 142 | 12 | 2 | 22 |
| 2000–2001 | 0 | 53 | 39 | 46 | 66 | 71 | 27 | 28 |
| 2001–2002 | 0 | 32 | 54 | 50 | 9 | 73 | 3 | 19 |
| 2002–2003 | 0 | 47 | 24 | 44 | 27 | 2 | 0 | 20 |
| 2003–2004 | 0 | 35 | 86 | 57 | 104 | 58 | 5 | 24 |
| 2004–2005 | 5 | 45 | 21 | 24 | 69 | 45 | 5 | 24 |
| 2005–2006 | 0 | 56 | 47 | 7 | 6 | 66 | 0 | 16 |
| 2006-2007 | 0 | 7 | 7 | 32 | 2 | 4 | 1 | 12 |
| 2007-2008 | 0 | 31 | 66 | 87 | 86 | 30 | 9 | 21 |
| 2008-2009 | 0 | 32 | 4 | 5 | 20 | 25 | 27 | 11 |
| $\bar{x}$ | 0 | 39 | 39 | 41 | 54 | 32 | 8 | 20 |
| Marten | | | | | | | | |
| 1999–2000 | 0 | 521 | 199 | 63 | 0 | 0 | 0 | 31 |
| 2000–2001 | 55 | 543 | 17 | 123 | 215 | 0 | 0 | 33 |
| 2001–2002 | 0 | 61 | 327 | 90 | 346 | 0 | 0 | 33 |
| 2002–2003 | 0 | 798 | 0 | 5 | 2 | 0 | 0 | 33 |
| 2003–2004 | 0 | 381 | 212 | 44 | 0 | 0 | 0 | 28 |
| 2004–2005 | 0 | 605 | 270 | 143 | 0 | 0 | 0 | 40 |
| 2005–2006 | 4 | 581 | 170 | 89 | 0 | 0 | 0 | 31 |
| 2006–2007 | 0 | 735 | 426 | 65 | 0 | 0 | 0 | 35 |
| 2007–2008 | 0 | 759 | 253 | 7 | 0 | 0 | 0 | 38 |
| 2008–2009 | 0 | 466 | 131 | 75 | 0 | 0 | 0 | 28 |
| $\bar{x}$ | 6 | 545 | 201 | 70 | 56 | 0 | 0 | 32 |
| Otter | | | | | | | | |
| 1999–2000 | 1 | 96 | 80 | 16 | 1 | 0 | 0 | 24 |
| 2000–2001 | 0 | 34 | 71 | 31 | 7 | 0 | 0 | 20 |
| 2001–2002 | 1 | 23 | 118 | 102 | 77 | 0 | 0 | 21 |
| 2002–2003 | 0 | 167 | 240 | 78 | 1 | 0 | 0 | 27 |
| 2003–2004 | 0 | 116 | 120 | 98 | 2 | 1 | 0 | 30 |
| 2004–2005 | 0 | 161 | 159 | 93 | 0 | 0 | 0 | 33 |
| 2005–2006 | 0 | 144 | 111 | 86 | 0 | 0 | 0 | 26 |
| 2006–2007 | 0 | 28 | 41 | 29 | 0 | 0 | 0 | 19 |
| 2007–2008 | 0 | 40 | 11 | 20 | 0 | 0 | 0 | 20 |
| 2008–2009 | 0 | 32 | 32 | 7 | 3 | 0 | 0 | 15 |
| $\bar{x}$ | 0 | 84 | 98 | 56 | 9 | 0 | 0 | 24 |

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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT:** 3 (3000 $mi^2$)

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

## BACKGROUND

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

Past declines in some wild furbearer populations prompted regulations. In 1913 beaver trapping was prohibited for 5 years, and a renewal of the prohibition extended the closure another 5 years. Martens were protected for 5 years starting in 1915. 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 a form of recreation. Seasons and bag limits have remained unchanged in recent years. However, increasing road densities and improved trapper access on several Unit 3 islands may necessitate future restrictions on seasons and/or bag limits for species such as marten and wolves to ensure harvests remain within sustainable limits.

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

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

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

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

## METHODS

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

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

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

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TRENDS

With the exception of 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, Schumacher 2010a, 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 incidental sightings of wolverines reported on Kupreanof and Kuiu Islands, harvest of this species has been restricted to Mitkof Island, adjacent to the Unit 1B mainland. No wolverines were harvested in Unit 3 during this report period.

Trappers reported on the questionnaire that rodent populations were abundant and stable in 2006–2007, but scarce in 2007–2008 and 2008–2009.

## MORTALITY

Season and Bag Limit

Hunting

| | | | |
|---|---|---|---|
| Wolverine | RY 2006-07 | 10 Nov–15 Feb | 1 Wolverine |
| | RY 2007-08 | 1 Sept–15 Feb | 1 Wolverine |

Trapping

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

Board of Game Actions and Emergency Orders: In fall 2006 the board adopted a trap marking requirement and extended the hunting season for wolverines in Units 1–5 by 70 days (September 1–February 15). These regulations took effect beginning in fall of 2007.

In fall of 2008 the board closed the marten trapping season on Kuiu Island and reduced the wolverine trapping season in Units 1–5 by 74 days (November 10–February 15) to protect reproductive female wolverines. These regulations are to take effect beginning in fall 2009.

In fall of 2008 we issued an emergency order closing the resident and nonresident marten trapping season on Kuiu Island due to low population density.

Trapper Harvest: During the report period, the number of trappers targeting beaver continued to decline, as did the harvest. For all 3 years the beaver harvest was well below the 10-year average of 58 beaver annually. Three to 8 successful trappers harvested 14, 11, and 27 beavers in 2006, 2007, and 2008, respectively. The total harvest of 52 beavers during the current report period was less than half that harvested during the preceding report period (Table 2).

The average annual harvest of 93 marten during the report period was lower than the 10-year average of 154 annually. Trappers harvested 56 martens in 2006–2007, 71 in 2007–2008, and 153 in 2008–2009. 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 9 in 2006, 10 in 2007, and 15 in 2008 (Table 3).

Unit 3 had otter harvests of 36, 14, and 24 during the 2006, 2007, and 2008 seasons, respectively; the annual average harvest of 25 was down significantly from the 10-year average of 53 (Table 4).

No wolverines were harvested during the report period (Table 5).

Harvest level for all furs is directly related to fur prices and winter weather conditions during the trapping season. Mink, otter and beaver pelt values have been low in recent years. 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 of their larger size, 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 majority of Unit 3 beavers were harvested during December and January, respectively. The majority of the marten harvest in the unit occurred during December, January and February, respectively; and the highest months for otter harvest during the report period, in order, were January, December, and February (Tables 6–9).

Transport Methods: During the report period, access to beaver trapping areas in Unit 3 was mostly by highway vehicles with some ORV and boat access. Most marten trappers used highway vehicles, snow machines, and boats to get to their traplines with off-road vehicles also used (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 Department of Fish and Game radio-telemetry study indicates a high degree of natural over-winter mortality as well which makes us worried about marten recruitment and their ultimate survival on the island

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

Due to low population density and our growing concerns about the risks to the endemic Kuiu marten population, in fall of 2008, we issued an emergency order closing the resident and nonresident marten trapping season on Kuiu Island. Additional research is needed to evaluate the population status of marten on the island. The department recommends that the resident and nonresident marten trapping season on Kuiu island remain closed until the population increases.

Variation in fall and winter weather conditions can have a profound influence on trapper effort and success in Southeast Alaska. Many of the Unit 3 islands received record snowfall during winter 2006–2007, followed by well above average snowfall in 2007–2008 and 2008–2009. 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 reached extremely high levels during the report period, contributing to 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.

## LITERATURE CITED

Blejwas, K. 2010. Trapper Questionnaire. Pages 1–75 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006-30 June 2007. Alaska Department of Fish and Game. Juneau, AK.

Paul, T. W. 2009. Game transplants in Alaska. Technical bulletin No. 4, second edition. Alaska Department of Fish and Game. Juneau, Alaska. 150pp.

Roppel, P. 1983. Southeast Alaska: A Pictorial History. Library of Congress. Publication Data. 137pp.

Schumacher, T. V. 2010a. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

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Table 1. Results from trappers questionnaire, Unit 1B & 3 combined.

| | 2006–2007 Petersburg, Wrangell, Kupreanof and vicinity | | 2007–2008 Petersburg, Wrangell, Kupreanof and vicinity | | 2008–2009 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, 1996–2008.

| | | Method of Take | | | |
|---|---|---|---|---|---|
| Regulatory year | Reported harvest | Trap/snare | Shot | Unknown | Successful trappers |
| 1996–97 | 44 | 44 | 0 | 0 | 6 |
| 1997–98 | 56 | 56 | 0 | 0 | 11 |
| 1998–99 | 54 | 53 | 0 | 1 | 11 |
| 1999–2000 | 43 | 43 | 0 | 0 | 10 |
| 2000–01 | 139 | 139 | 0 | 0 | 16 |
| 2001–02 | 110 | 110 | 0 | 0 | 14 |
| 2002–03 | 86 | 86 | 0 | 0 | 13 |
| 2003–04 | 43 | 43 | 0 | 0 | 11 |
| 2004–05 | 61 | 61 | 0 | 0 | 13 |
| 2005–06 | 43 | 43 | 0 | 0 | 9 |
| 2006–07 | 16 | 14 | 3 | 0 | 8 |
| 2007–08 | 11 | 11 | 0 | 0 | 3 |
| 2008–09 | 27 | 27 | 0 | 0 | 5 |

Table 3. Unit 3 marten harvest, 1996–2008.

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

Table 4. Unit 3 land otter harvest, 1996–2008.

| Regulatory year | Reported harvest | | | | | | Method of take | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | % | F | % | Unk. | Total | Trap/snare | % | Shot | % | Unk. | Successful trappers |
| 1996–97 | 32 | (59) | 22 | (41) | 13 | 67 | 62 | (93) | 5 | (7) | 0 | 14 |
| 1997–98 | 20 | (48) | 22 | (52) | 4 | 46 | 45 | (98) | 1 | (2) | 0 | 11 |
| 1998–99 | 18 | (67) | 9 | (33) | 6 | 33 | 33 | (100) | 0 | (0) | 0 | 11 |
| 1999–2000 | 23 | (56) | 18 | (44) | 0 | 41 | 25 | (61) | 16 | (39) | 0 | 11 |
| 2000–01 | 25 | (48) | 27 | (52) | 4 | 56 | 52 | (93) | 4 | (7) | 0 | 16 |
| 2001–02 | 22 | (54) | 19 | (46) | 0 | 41 | 40 | (98) | 1 | (2) | 0 | 16 |
| 2002–03 | 23 | (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 |

Table 5. Unit 3 wolverine harvest, 1996–2008.

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

Table 6. Unit 3 beaver harvest chronology by month, 1996–2008.

| Regulatory year | Month | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | November | December | January | February | March | April | May | June[a] | *n* |
| 1996–97 | 0 | 12 | 5 | 18 | 9 | 0 | 0 | 0 | 44 |
| 1997–98 | 0 | 19 | 14 | 8 | 8 | 7 | 0 | 0 | 56 |
| 1998–99 | 0 | 21 | 4 | 0 | 0 | 24 | 1 | 4 | 54 |
| 1999–2000 | 0 | 12 | 1 | 7 | 11 | 12 | 0 | 0 | 43 |
| 2000–01 | 0 | 62 | 40 | 31 | 1 | 5 | 0 | 0 | 139 |
| 2001–02 | 2 | 28 | 28 | 18 | 12 | 14 | 8 | 0 | 110 |
| 2002–03 | 0 | 29 | 26 | 16 | 7 | 8 | 0 | 0 | 86 |
| 2003–04 | 0 | 6 | 13 | 2 | 17 | 1 | 4 | 0 | 43 |
| 2004–05 | 0 | 38 | 3 | 3 | 14 | 3 | 0 | 0 | 61 |
| 2005–06 | 3 | 26 | 11 | 0 | 3 | 0 | 0 | 0 | 43 |
| 2006–07 | 0 | 4 | 8 | 1 | 1 | 2 | 0 | 0 | 16 |
| 2007–08 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 11 |
| 2008–09 | 0 | 25 | 2 | 0 | 0 | 0 | 0 | 0 | 27 |

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

Table 7. Unit 3 marten harvest chronology by month, 1996–2008.

| Regulatory year | Month | | | | | |
|---|---|---|---|---|---|---|
| | December | January | February | March | Unknown | *n* |
| 1996–97 | 132 | 95 | 33 | 0 | 2 | 262 |
| 1997–98 | 189 | 64 | 17 | 0 | 4 | 274 |
| 1998–99 | 161 | 58 | 2 | 0 | 0 | 221 |
| 1999–2000 | 94 | 56 | 10 | 0 | 0 | 160 |
| 2000–01 | 184 | 73 | 9 | 0 | 24 | 290 |
| 2001–02 | 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 |

Table 8. Unit 3 land otter harvest chronology by month, 1996–2008.

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

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

Table 9. Unit 3 wolverine harvest chronology by month, 1996–2008.

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

Table 10. Unit 3 beaver harvest, method of transportation, 1996–2008.

| Regulatory year | Airplane | Boat | 3-wheeler | Highway | Off Road Vehicle | Skis/snowshoes | Snowmachine | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1996–97 | 0 | 12 | 0 | 26 | 0 | 5 | 1 | 0 | 44 |
| 1997–98 | 0 | 25 | 0 | 31 | 0 | 0 | 0 | 0 | 56 |
| 1998–99 | 0 | 38 | 0 | 16 | 0 | 0 | 0 | 0 | 54 |
| 1999–2000 | 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 |

Table 11. Unit 3 marten harvest, method of transportation, 1996–2008.

| Regulatory year | Airplane | Boat | 3-wheeler | Snowmachine | Highway | Skis/snowshoes | Unknown | Total |
|---|---|---|---|---|---|---|---|---|
| 1996–97 | 0 | 170 | 8 | 29 | 55 | 0 | 0 | 262 |
| 1997–98 | 0 | 136 | 18 | 0 | 120 | 0 | 0 | 274 |
| 1998–99 | 0 | 72 | 9 | 5 | 120 | 15 | 0 | 221 |
| 1999–2000 | 0 | 29 | 0 | 0 | 131 | 0 | 0 | 160 |
| 2000–01 | 4 | 82 | 27 | 6 | 171 | 0 | 0 | 290 |
| 2001–02 | 0 | 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 |

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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

**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).

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

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

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

Furbearers occurring in Unit 4 are marten (*Martes americana and Martes caurina*), river otter (*Lontra canadensis*), mink (*Mustela vison*), short-tailed weasel (*Mustela erminea*), red squirrel (*Tamiasciurus hudsonicus*), and beaver (*Castor canadensis*). Coastal marten (*Martes caurina*)

are found only on Admiralty Island, where they are an indigenous population. American marten (*Martes americana*) were introduced on Baranof and Chichagof islands.

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

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

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

During the report period a mail-out questionnaire was sent to 2402, 2884 and 2718 trappers statewide in 2007, 2008 and 2009 respectively, with an average of 30% of the recipients responding. In the southeast region 374, 351 and 302 trappers received the questionnaire and an average of 32% responded (Blejwas 2010, Schumacher 2010a, 2010b).

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 unsealed furbearers. Formerly, the annual estimate of mink taken in Unit 4 was based on biologist estimates or from combining Fur Export Reports and Fur Acquisition Reports. Neither of these methods was deemed accurate; they severely underestimated the amount of harvest.

A method initiated during the 1999–2000 season compared the number of marten reported harvested on the questionnaires to the number of marten sealed (Whitman 2001). The method assumes the number of marten sealed is more accurately reflected for the total harvest than the questionnaire returns. By applying an annual conversion factor, this method was used to estimate the number of mink harvested. That is, the number of mink reported on the questionnaire responses was multiplied by the conversion factor derived for marten to estimate total mink harvest.

During this reporting period, no carcasses were collected 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. Previously we have used small mammal snap-trap lines in an effort to monitor potential prey abundance and assess the technique's relative value as a predictor of marten abundance and harvests.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size*

An indication of relative population levels can be inferred from male:female ratios or from total young:adult female ratios in the harvested segment of the population, particularly for marten. Based on sealing documents during 2006–2007 and 2007–2008, and 2008–2009 marten harvests consisted of 61%, 62% and 58% males, respectively. With the raw fur price falling in 2007–2008, the marten harvest declined to nearly half from 2006–2007. Total young:adult female ratios are probably a better indication of population status (Strickland and Douglas 1987). Various Canadian jurisdictions use a ratio of 3:1 in management of their seasons. If ratios fall below that, seasons are curtailed. Higher ratios signify populations in which production and subsequent survival of young were high. Ratios from Unit 4 were 6.8:1 during 2000–2001 and 4.8:1 during 2001–2002. Necropsies were not conducted in the 2006–2009 seasons.

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

River (land) 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. Limited areas of cottonwood habitat within the unit usually attract beavers. On both of these islands, higher beaver densities in localized areas have caused road drainage problems and resulted in an increasing number of nuisance permits since 2001 that have sometimes exceed the total number of beaver trapped in the unit. A proposal before the Board of Game in its fall 2006 meeting to open up the season on Baranof and Chichagof islands was supported by the department and approved by the board. The season opened on both Chichagof and Baranof islands in the 2007–2008 regulatory year with 12 beaver harvested and 18 beaver harvested during 2008–2009.

Status of prey populations potentially available to marten and mink were queried from trapper observations. On mail-out questionnaires, trappers indicated 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.

*Population Composition*

Marten

In 2006–2007, trappers caught 61% male marten and 62% males in both 2007–2008 and 2008–2009 seasons (Table 1), according to reports on sealing documents. In the ADF&G research program, 59% males were caught in 1991–1992 (Flynn and Blundell 1992). In 1992–1993 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

Sex ratios of river otters taken by trappers were 61% males in 2006–2007, 63% males in 2007–2008, and 49% males in 2008–2009. The ratio was 56% males during the last season of the previous reporting period in 2005–2006 (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. In the final year of this period, male otters were only 49% of harvest.

Beaver

Sex ratios of beavers taken by trappers were 0% males in 2006–2007, 42% males in 2007–2008, and 22% males in 2008–2009 (Table 1).

Mink

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

**MORTALITY**

*Harvest*

| | Season | Limit |
|---|---|---|
| Hunting | | |
| Coyote | 1 Sep–30 Apr | 2 coyotes |
| Wolf | 1 Aug–30 Apr | 5 wolves |
| Wolverine | 10 Nov–15 Feb | 1 wolverine |
| | Season | Limit |
| Trapping | | |
| Beaver | 1 Dec–15 May | No limit |
| Beaver (that portion west of Chatham Strait)* | No open season | |

| | | |
|---|---|---|
| Coyote, red fox, lynx, otter | 1 Dec–15 Feb | No limit |
| Marten and mink, that portion of Chichagof Island east of Idaho Inlet and north of Trail River and Tenakee Inlet and north of a line from the headwaters of Trail River to the head of Tenakee Inlet | 1 Dec–31 Dec | No limit |
| Marten and mink | 1 Dec–15 Feb | No limit |

*Beaver were not trapped west of Chatham Strait (Baranof and Chichagof islands in 2006–2007 and previous) until approved by the Board of Game for the 2007–2008 regulatory year.

Board of Game Actions and Emergency Orders. A proposal before the Board of Game at its fall 2006 meeting to open a trapping season for beaver on Baranof and Chichagof islands was supported by the department and approved by the board. The season opened on both Chichagof and Baranof islands in the 2007–2008 regulatory year. No emergency orders were issued during the period.

Trapper Harvest. Of 1,815 marten pelts sealed in 2006–2007, 1,083 were males, 707 were females, and 25 were of unknown sex. In 2007–2008 there were 637 males, 395 females, and 36 of undetermined sex, for a total of 1,068. Marten sealed in 2008–2009 totaled 888; 518 males, 319 females, and 51 of unknown sex. Table 1 summarizes the sexes of marten in the harvest for the 2001–2008 regulatory years.

In 2006–2007 110 otters were sealed: 67 males, 43 females and 0 of unknown sex. The 2007–2008 harvest was 59 otters: 37 males, 20 females and 2 of unknown sex. The 2008–2009 season produced 146 otter; 71 males and 74 females and 1 of unknown sex. Harvest by sex since 2001 is presented in Table 1.

In 2006–2007 only 1 beaver was sealed (a female). With the area of Baranof and Chichagof islands opening in 2007–2008 for beaver harvest, 5 males, 5 females, and 2 beavers of unknown sex were harvested. The 2008–2009 season produced a harvest of 18 beavers (4 males, 2 females, and 12 of unknown sex). Harvest totals by sex of beavers taken by trappers since 2001 are found in Table 1.

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 2006–2007 there were 53 marten trappers reporting, and 42 who listed residency in Unit 4. For 2007–2008 there were 34 trappers, of which 25 were unit residents, and in 2008–2009, 33 of 38 trappers reported residency in the unit (see Table 2).

Of the 19 trappers sealing Unit 4 otters, 12 were unit residents in 2006–2007. In 2007–2008 11 trappers reported catching otters; 8 of them claimed Unit 4 residency. For 2008–2009 there were 20 trappers, 19 of them unit residents (see Table 2).

In 2006–2007, beaver trappers in Unit 4 were limited to a single trapper from outside of the unit. In 2007–2008 that changed to all 12 trappers residing inside the unit and again in 2008–2009 to all 18 trappers from inside the unit.

Harvest Chronology. The greatest marten harvest consistently occurs in the first month of the trapping season. A total of 1,299 (72%) of the 2006–2007 martens were taken in December. In 2007–2008, 763 (71%) martens were caught in December. In 2008–2009 the December harvest was 690 martens (78%). See Table 3.

In 2006–2007, 84 (76%) of harvested otters were taken in December. For the 2007–2008 and 2008–2009 seasons, 36 (61%) and 87 (60%), respectively, were taken in December (Table 3).

Beaver harvest has not consistently followed December patterns as above. In the 2006-07 season, the single beaver was taken in February. In 2007–2008, 5 (50%) beavers were harvested in April, and 3 were harvested in December. Two of the beavers totaled for that year were nuisance beavers taken outside of the trapping season. Although included in the year total, they are not calculated in the harvest chronology outside of the established season. In the 2008–2009 season, 14 (78%) beavers were harvested in December.

Transport Methods. Trappers using boats for transportation take most martens. In 2006–2007, 66% of all martens were taken by trappers who used boats; in 2007–2008, 53%; and in 2008–2009, 50%. The take of otters is almost entirely with the aid of boats. For the respective three seasons of this reporting period (2006–2009), boats were reportedly used for 95%, 93%, and 100% of the harvest. The take of beavers also favors the aid of boats 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 carrying capability for marten is undoubtedly decreasing in many areas in Unit 4 because of clear cutting of old-growth habitats. 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 is probably secure in terms of mink habitat.

## CONCLUSIONS AND RECOMMENDATIONS

For marten in general as well as those in Southeast Alaska, it is impractical to set harvest levels by determining an absolute population level. The need for trapping restrictions can be supported by monitoring the sex ratio and the presence of juveniles in the harvest (Strickland and Douglas 1987, Young and Schenck 1991). When the population is relatively high, existing trapping regulations are appropriate. If the population decreases more conservative season dates may be appropriate. Because marten are often captured in mink sets, the seasons for the 2 species should coincide to reduce the incidental take of martens at the low end of their cycle.

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

The beaver harvest was much higher during the report period because of the opening of the 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 couple of years to see if the small price value for beavers and the lack of good habitat in the unit flatten out the numbers harvested.

Given the cyclic nature of marten populations and economic factors that affect trapping effort, management objectives based on some past harvest levels are not realistic. Also, we do not have reasonable means of monitoring population densities over such a large area to establish appropriate yearly harvest objectives. So, evaluating population status will continue to be inexact. We can enhance this evaluation by examining harvest statistics and collecting anecdotal information from trappers and local residents. Fortunately, in the current circumstances of reduced fur prices and decreasing interest in trapping, the possibility for over-trapping most species in Unit 4 appears low, so our discomfort with need to manage furbearers without definitive information is eased somewhat.

## LITERATURE CITED


Blejwas, K. 2010. Trapper Questionnaire. Pages 1-75 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2006-30 June 2007. Alaska Department of Fish and Game. Juneau, AK.

Buskirk, S.W. and S.L. Lindstedt. 1989. Sex biases in trapped samples of mustelidae. Journal of Mammology 70(1):88–97.

Flynn, R.W. and G. Blundell. 1992. Ecology of martens in Southeast Alaska. Alaska Department of Fish and Game, Federal Aid in Wildlife Restoration, Research Progress Report. Project. W-23-5, Study 7.16, 32pp.

Flynn, R, W. 1993. Ecology of martens in Southeast Alaska. Alaska Department of Fish and Game, Federal Aid in Wildlife Restoration, Research Progress Report. Project W-24-1, Study 7.16, 49pp.

Flynn, R.W. and T.V. Schumacher. 1994. Age structure and fecundity of martens on Chichagof Island and northern Baranof Island, Southeast Alaska, during 1993–94. Alaska Department of Fish and Game, Federal Unpublished Report to USDA Forest Service. 14pp.

Larsen, D.N. 1983. Habitats, movements, and foods of land otters in coastal Southeast Alaska. M.S. Thesis. University of Alaska, Fairbanks. 149pp.

Lensink, C J. 1953. An investigation of the marten in interior Alaska. M.S. Thesis. University of Alaska, Fairbanks. 89pp.

Melquist, W.E. and A.E. Dronkert. 1987. River otter. pp 626-641 in Novak, M., J.A., Baker, M.E. Obbard, and B. Malloch, ed. Wild furbearer management and conservation in North America. Ontario Ministry of Natural Resources, Toronto, Canada.

Mooney, P. 2007. Unit 4 furbearer management report. Pages 64-74 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Schumacher, T. V. 2010a. Trapper Questionnaire. ages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

Strickland, M.A. and C.W. Douglas. 1987. Marten. Pages 531–546 *in* Wild Furbearer Management and Conservation in North America. M. Novak, J.A. Baker, M.E. Obbard and B. Malloch, eds. Ontario Ministry of Nat. Resources. Toronto.

Whitman, J.S. 2001. Unit 4 furbearer management report. Pages 58-76 *in* C. Healy, editor. Furbearer management report of survey and inventory activities 1 July 1999–30 June 2001. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Whitman, J.S. 2003. Age structure differences in American Mink, *Mustela vison*, populations under varying harvest regimes. Canadian Field-Naturalist. 117(1):35–38.

Young, E.L. and T.E. Schenck. 1991. Development of Federal/State management criteria for an impacted marten (*Martes americana*) population in southeastern Alaska. Presented at North West Section of The Wildlife Society. Silverdale, WA.

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Table 1. Unit 4 furbearer harvest data, 2001-02 through 2008-09.

| Season | Male | Female | Unknown | Total |
|---|---|---|---|---|
| Marten | | | | |
| 2001–02 | 434 | 286 | 35 | 755 |
| 2002–03 | 697 | 411 | 1 | 1109 |
| 2003-04 | 777 | 420 | 2 | 1199 |
| 2004-05 | 1113 | 608 | 8 | 1729 |
| 2005-06 | 1419 | 806 | 6 | 2231 |
| 2006-07 | 1083 | 707 | 25 | 1815 |
| 2007-08 | 637 | 395 | 36 | 1068 |
| 2008-09 | 518 | 319 | 51 | 888 |
| | | | | |
| Otter | | | | |
| 2001–02 | 78 | 65 | 4 | 147 |
| 2002–03 | 132 | 149 | 2 | 283 |
| 2003-04 | 140 | 103 | 0 | 243 |
| 2004-05 | 215 | 212 | 0 | 427 |
| 2005-06 | 192 | 152 | 10 | 354 |
| 2006-07 | 67 | 43 | 0 | 110 |
| 2007-08 | 37 | 20 | 2 | 59 |
| 2008-09 | 71 | 74 | 1 | 146 |
| | | | | |
| Beaver | | | | |
| 2001-02* | 3 | 6 | 5 | 14 |
| 2002-03 | 0 | 0 | 1 | 1 |
| 2003-04 | 0 | 0 | 4 | 4 |
| 2004-05 | 0 | 2 | 3 | 5 |
| 2005-06 | 0 | 0 | 2 | 2 |
| 2006-07 | 0 | 1 | 0 | 1 |
| 2007-08** | 5 | 5 | 2 | 12 |
| 2008-09 | 4 | 2 | 12 | 18 |

* trapping for beaver only open on Admiralty Island

** trapping for beaver was opened on Baranof and Chichagof islands in addition to Admiralty Island.

Table 2. Unit 4 trapper residency and success, 2001-2002 through 2008-2009.

| Season | Local[a] | Nonlocal | Nonresident | Total |
|---|---|---|---|---|
| Marten | | | | |
| 2001–02 | 28 | 6 | 0 | 34 |
| 2002–03 | 27 | 4 | 0 | 31 |
| 2003-04 | 30 | 3 | 0 | 33 |
| 2004-05 | 35 | 11 | 0 | 46 |
| 2005-06 | 37 | 10 | 0 | 47 |
| 2006-07 | 42 | 11 | 0 | 53 |
| 2007-08 | 25 | 9 | 0 | 34 |
| 2008-09 | 33 | 5 | 0 | 38 |
| | | | | |
| Otter | | | | |
| 2001–02 | 17 | 4 | 0 | 21 |
| 2002–03 | 20 | 5 | 0 | 25 |
| 2003-04 | 27 | 5 | 0 | 32 |
| 2004-05 | 26 | 4 | 0 | 30 |
| 2005-06 | 23 | 7 | 0 | 30 |
| 2006-07 | 12 | 7 | 0 | 19 |
| 2007-08 | 8 | 3 | 0 | 11 |
| 2008-09 | 19 | 1 | 0 | 20 |

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

Table 3. Unit 4 furbearer harvest chronology by month, 2001–2002 through 2008-2009.

| Season | November | December | January | February | Seasonwide | Total |
|---|---|---|---|---|---|---|
| Marten | | | | | | |
| 2001–02 | 0 | 702 | 52 | 0 | 0 | 755 |
| 2002–03 | 0 | 1073 | 32 | 4 | 0 | 1109 |
| 2003-04 | 0 | 939 | 173 | 87 | 0 | 1199 |
| 2004-05 | 0 | 1216 | 380 | 129 | 0 | 1729 |
| 2005-06 | 0 | 1269 | 809 | 153 | 0 | 2231 |
| 2006-07 | 0 | 1299 | 446 | 70* | 0 | 1815 |
| 2007-08 | 0 | 763 | 273 | 32 | 0 | 1068 |
| 2008-09 | 0 | 690 | 182 | 16 | 0 | 888 |
| | | | | | | |
| Otter | | | | | | |
| 2001–02 | 0 | 78 | 68 | 0 | 0 | 147 |
| 2002–03 | 0 | 170 | 70 | 43 | 0 | 283 |
| 2003-04 | 0 | 88 | 75 | 79 | 0 | 243 |
| 2004-05 | 0 | 214 | 151 | 62 | 0 | 427 |
| 2005-06 | 0 | 201 | 109 | 44 | 0 | 354 |
| 2006-07 | 0 | 84 | 17 | 9 | 0 | 110 |
| 2007-08 | 0 | 36 | 20 | 3 | 0 | 59 |
| 2008-09 | 0 | 87 | 37 | 22 | 0 | 146 |

*Includes 4 listed as "no transportation used" - likely walked, as harvest was near residency

Table 4. Unit 4 successful trapper transport methods, 2001-2002 through 2008-2009.

| Season | Airplane | Horse/ dog team | Boat | Highway vehicle | 4-wheeler/ snowmachine | Walked | Off-road vehicle | Unknown |
|---|---|---|---|---|---|---|---|---|
| Marten | | | | | | | | |
| 2001–02 | 7 | 0 | 451 | 241 | 5 | 3 | 48 | 0 |
| 2002–03 | 0 | 0 | 753 | 349 | 1 | 6 | 0 | 0 |
| 2003-04 | 0 | 0 | 919 | 89 | 158 | 33 | 0 | 0 |
| 2004-05 | 16 | 0 | 1289 | 168 | 214 | 58 | 0 | 0 |
| 2005-06 | 5 | 6 | 1394 | 387 | 42 | 56 | 339 | 13 |
| 2006-07 | 18 | 0 | 1189 | 17 | 501 | 70 | 20 | 0 |
| 2007-08 | 0 | 0 | 568 | 68 | 285 | 101 | 0 | 46 |
| 2008-09 | 12 | 0 | 447 | 7 | 289 | 113 | 13 | 7 |
| Otter | | | | | | | | |
| 2001–02 | 0 | 0 | 137 | 4 | 0 | 6 | 0 | 0 |
| 2002–03 | 0 | 0 | 274 | 6 | 0 | 3 | 0 | 0 |
| 2003-04 | 0 | 0 | 240 | 3 | 0 | 0 | 0 | 0 |
| 2004-05 | 0 | 0 | 418 | 6 | 0 | 2 | 1 | 0 |
| 2005-06 | 12 | 0 | 317 | 7 | 17 | 2 | 4 | 7 |
| 2006-07 | 0 | 0 | 105 | 0 | 0 | 5 | 0 | 0 |
| 2007-08 | 0 | 0 | 55 | 3 | 0 | 0 | 1 | 0 |
| 2008-09 | 0 | 0 | 146 | 0 | 0 | 0 | 0 | 0 |

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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

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

## BACKGROUND

Furbearer species probably gained access to the Yakutat Forelands via the Alsek/Tatshenshini corridor (Klein 1965). Beavers, river otters *(Lutra canadensis)*, and mink *(Mustela vison)* are the common water-associated species. Muskrats *(Ondatra zibethacus)* are noticeably absent, although they were once plentiful, according to some Yakutat residents. Lynx *(Lynx canadensis)* are present in small numbers, while marten *(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 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 (Blejwas 2007, Schumacher 2010a, Schumacher 2010b).

## 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 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 are 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 natural variation in marten numbers, and inconsistent trapper effort. The relative abundance index for marten in 2009 as reported by trappers (Schumacher 2010b) lists marten as common in Game Management Units 1C, 1D, and 5. The index has not changed over the last 5 years and we assume it is representative of marten numbers in the Yakutat area. Land 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 areas remote from habitation or roads.

### MORTALITY

*Harvest*

Seasons and Bag Limits

| Hunting | Season | Bag Limit |
|---|---|---|
| Beaver, marten, otter, mink, red fox, lynx | No open season | |
| Coyote | 1 Sep–30 Apr | 2 |

| | | |
|---|---|---|
| Wolverine | 10 Nov–15 Feb | 1 |
| Trapping | Season | Bag Limit |
| Beaver | 10 Nov–15 May | No limit |
| Coyote , red fox, lynx, marten | 1 Dec–15 Feb | No limit |
| Mink, weasel, otter, wolverine | 10 Nov–15 Feb | No limit |

Board of Game Actions and Emergency Orders. The Board of Game met twice in Southeast Alaska during this report period; 2006 in Wrangell, and 2008 in Juneau. In 2006 the board adopted a regulation to require tagging or marking of all traps and snares across the entire region including Unit 5, and the board adopted proposals to lengthen the red fox and coyote trapping seasons in Unit 5. In 2008, the board did not adopt any proposals affecting Unit 5 furbearers.

Trapper Harvest: Table 1 shows the furbearer harvest during the period 1997–2008. Four beavers were harvested during this report period, which is a significant decrease from the 24 taken in the previous report period. Nearly all the beaver trapping effort took place near town, with the Situk River being the farthest extent of beaver trapping effort. A nuisance beaver permit was issued in each of the report period years to remove beavers from airport property. No beavers were taken under authority of the permits because the Department of Transportation (DOT) encourages trappers to harvest beavers in this area because beavers cause flooding problems.

Seven lynx were harvested during this report period. Given the ease with which lynx can be trapped, the lack of harvest is an indication that lynx were generally scarce or available only in small pockets of habitat supporting snowshoe hares.

The harvest of 270 marten during this report period was the third highest harvest since the 1997–1999 report period, but lower than the last report period when 373 marten were harvested. Table 1 shows no apparent pattern in the Unit 5 marten harvest. Marten are consistently listed as the most important furbearer species for Southeast Alaska trappers (Blejwas 2007). It is unlikely the harvest reflects fluctuations in marten numbers. The erratic 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 3 otters taken during the report period is slightly higher than the 10-year mean. As with marten, the otter harvest does not reflect the number of animals available. Current prices for otter hides are depressed and trappers likely focus their efforts on more lucrative species. The 3 wolverine harvested during the current report period is the lowest of the 4 reporting periods that appear in Table 1. We don't know whether this reflects lower wolverine abundance or a lack of 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: Blejwas (2007) and Schumacher (2010a and 2010b) collected transportation data for Southeast Alaska trappers in the Trapper Questionnaire and Report. Although the transportation data is not specific to Unit 5, they 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.

## CONCLUSIONS AND RECOMMENDATIONS

We believe harvests were within sustainable limits during the report period. It is not possible to determine if the annual harvest of each species indicates declining, stable, or increasing populations because of the variation in amount and intensity of trapper effort from year to year. Failure of some trappers to report catch or effort further hampers what we can learn from the data. So, 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. From these we get at least a subjective estimate of the relative abundance of furbearers by those with the most direct access to evidence in the field of animals' abundance.

## LITERATURE CITED

Klein, David R. 1965. Postglacial distribution patterns of mammals in the southern coastal regions of Alaska. Arctic, Vol. 18, No. 1. 14 pp.

Blejwas, K. 2007. Statewide Annual Report. 1 July 2005-30 June 2006. Trapper Questionnaire. Alaska Department of Fish and Game. Juneau, AK. USA.

Schumacher, T. V. 2010a. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

Schumacher, T. V. 2010b. Trapper Questionnaire. Pages 1-65 *in* P. Harper editor. Trapper Questionnaire Statewide Annual Report. 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

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Table 1. Unit 5 furbearer harvest. 1997-2008.

| 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 |

Table 2. Unit 5 marten harvest chronology by sex, 1997–2008.

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

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

Table 2. (continued.) Unit 5 marten harvest chronology by sex, 1997–2008.

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

| | 2006–2007 | | | 2007–2008 | | | 2008–2009 | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 |

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

**GEOGRAPHIC DESCRIPTION:** Prince William Sound and north Gulf Coast

## BACKGROUND

Beavers, coyotes, lynx, martens, mink, muskrats, river otters, weasels and wolverines 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, martens, 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). Density is lower in Subunit 6D, where less habitat is available. Heller (1910) reported beavers in the Rude River drainage of eastern Prince William Sound (PWS), but he apparently did not find them on islands in the sound. 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 widely. In 1938 C. Rhode (ADF&G unpublished data) reported a harvest of 700 from the deltas. When the town of Katalla was abandoned, trapping pressure on the Bering River delta declined considerably. By 1951 beaver harvest declined to a low of 27, and then increased again to more than 300 in 1960 and 1963 (Griese 1990). Average harvest during the last 20 years was 60 beavers.

Coyotes are relatively new arrivals in Unit 6. Heller (1910) did not note their presence in 1908, and F. Robards (ADF&G unpublished data) suggested coyotes replaced red foxes as the dominant canid by 1938. 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, but there is no scientific estimate of abundance. 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, beaver, waterfowl and eulachon. Griese (1990) estimated coyote density at 0.1-1.0/mi$^2$ in suitable habitat. 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, and 2000. Few kittens have been reported in the harvest.

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

Mink are common in most of Unit 6. Observations made between 1931 and 1955 (ADF&G files) suggested the potential for high numbers may not have been realized because of periodic overharvest. Trapping effort declined during the 1980s because of low pelt prices, and mink numbers increased throughout the unit (Larry Kritchen, former Cordova fur dealer, personal communication). Trapping effort for mink was low except along the road system by recreational trappers.

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

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 the western sound. However, otters were reported as recovered by the *Exxon Valdez* Oil Spill Trustee Council in 1999. Otter harvest fluctuates annually, usually depending 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 1992–1998.

## MANAGEMENT DIRECTION

*Management Objectives*

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

## METHODS

We sealed hides of beavers, river otters, lynx, martens, and wolverines taken by trappers and hunters. Sealing of martens began in 1999–2000. We recorded location and date of harvest, method of take, and type of transportation for all species. Sex was recorded for otters, martens and wolverines, and we measured length and width of beavers, lynx, and otters. We also sent questionnaires to trappers to obtain information on relative abundance and trends in furbearer populations. I calculated indices of density (coyotes/km$^2$) by recording observations of coyotes while conducting aerial surveys for moose. Starting in 2006, I established furbearer track transects on roads or trails that did not become blocked with snow-laden alders so that transects could be run efficiently by snowmachine and repeated annually.

## 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.

Coyotes were common to abundant in Unit 6. Coyotes observed during moose surveys yielded minimum densities of 40–50/1000 km$^2$ (100-130/1000 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). Marten were common and apparently stable to increasing. Mink and land otters were both common, with stable numbers in most of Unit 6. Muskrats were uncommon during the reporting period. Wolverines were present at low to moderate density and were stable.

**MORTALITY**

*Harvest*

Seasons and Bag Limits. The beaver trapping season was 10 November–30 April with no bag limit. Harvest ranged 45–55, which was about half of the usual harvest. with fewer trappers participating (Table 1). Traps or snares were the normal method of take, and the proportion of juveniles in the harvest varied. Beavers reported as shot were killed under nuisance permits for airport or highway maintenance purposes. As in past years, 90–100% of the harvest came from Unit 6C.

The coyote trapping season was 10 November–31 March with no bag limit for all of Unit 6. The coyote hunting season was 10 August–31 March and the bag limit was 10 coyotes during the reporting period. No harvest data are available. Because of low prices, trapping effort was minimal.

The lynx trapping and hunting seasons were closed during the reporting period.

The marten trapping season during the reporting period was 10 November–28 February with no bag limit. Marten harvest and proportion of females was normal (Table 1). The mink trapping season during the reporting period was 10 November–28 February with no bag limit. No harvest data are available.

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

River otter trapping season was 10 November–31 March with no bag limit. Harvest was lower than normal during 2008 because of poor pelt prices (Table 1). About 80% of the otters were taken in Unit 6D. Most otters were taken using traps or snares.

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

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

Board of Game Actions and Emergency Orders. Coyote trapping season was shortened by one month beginning in 2007–08 to align with other GMUs. The lynx trapping season remained closed each year based on the tracking harvest strategy. Emergency orders were issued to modify season lengths as lynx and prey populations varied, to ensure sustainable harvest.

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 the reporting period (Table 2). A similar pattern occurred over the past 5 years. River otters were primarily harvested during December (Table 2). The highest harvest of martens occurred during

November and December (Table 2), as was reported during the previous 2 years. Wolverine harvest was usually highest during December.

Transport Methods. Beaver trappers consistently used highway vehicles for the majority of transportation (Table 3). Heavy reliance on highway vehicles occurred because the Copper River Highway provided easy access to high beaver populations in Subunit 6C. River otter trappers used primarily boats. Transportation used by wolverine and marten trappers and hunters varied, depending on snow conditions (Table 3). Typically, good snow conditions allow better access with snowmachines and harvest increases. During the reporting period snow conditions were relatively good, which increased snowmachine 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 most furbearers were within sustainable limits, and no changes in seasons or bag limits are recommended.

## LITERATURE CITED


CARNES J.C. 2004. Wolf ecology on the Copper and Bering River deltas, Alaska. PhD Dissertation, University of Idaho, Moscow, Idaho.

COURTRIGHT, A.M. 1968. Game harvests in Alaska. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Report. Juneau.

GRIESE, H. J. 1990. Unit 6 furbearer survey-inventory progress report. Pages 42–55 *in* S. O. Morgan, editor. Annual report of survey-inventory activities. Part XIV. Furbearers. Volume XX. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-23-2, Study 7.0. Juneau.

———. 1988*a*. Unit 6 furbearer survey-inventory progress report. Pages 24–26 *in* S.O. Morgan, editor. Annual report of survey-inventory activities. Part XIV. Furbearers. Vol. XVII. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-22-5, Job 7.0. Juneau.

———. 1988*b*. Unit 6 furbearer survey-inventory progress report. Pages 31–44 *in* S.O. Morgan, editor. Annual report of survey-inventory activities. Part XIV. Furbearers. Volume XVIII. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-22-6, Job 7.0. Juneau.

HELLER, E. 1910. Mammals of the 1908 Alexander Alaska expedition, with descriptions of the localities visited and notes on the flora of the Prince William Sound region. University of California Publications in Zoology. 5(11):321–360.

NOWLIN, R.A. 1993. Unit 6 furbearer survey-inventory management report. Pages 47–58 *in* S.M. Abbott, editor. Furbearer survey-inventory management report. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Report Project W-23-3, W-23-4, Study 7.0. Juneau.

PRUGH, L. R. 2004. Foraging ecology of coyotes in the Alaska Range. Dissertation. University of British Columbia. Vancouver, British Columbia

RAUSCH, R. 1977. Alaska wildlife management plans, Southcentral Alaska. Alaska Department of Fish and Game. Juneau.

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TABLE 1 Unit 6 beaver, river otter, marten, lynx and wolverine reported harvest by sex, age and method of take, 2004–2008

| Regulatory | Sex | | | | Reported harvest | | | | | Method of take | | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| year | M | F | (%) | Unk | Juv.[a] | (%) | Adults | Unk | Total | Trap/snare | (%) | Shot | L&S | Unk | trappers |
| *Beaver* | | | | | | | | | | | | | | | |
| 2004–05 | | | | 109 | 10 | (37) | 17 | 82 | 109 | 99 | (93) | 8 | 0 | 2 | 15 |
| 2005–06 | | | | 92 | 7 | (22) | 25 | 60 | 92 | 80 | (87) | 12 | 0 | 0 | 12 |
| 2006–07 | | | | 49 | 13 | (54) | 11 | 25 | 49 | 32 | (65) | 17 | 0 | 0 | 10 |
| 2007–08 | | | | 55 | 9 | (35) | 17 | 29 | 55 | 54 | (98) | 1 | 0 | 0 | 9 |
| 2008–09 | | | | 45 | 3 | (27) | 8 | 34 | 45 | 37 | (80) | 9 | 0 | 0 | 6 |
| *River otter* | | | | | | | | | | | | | | | |
| 2004–05 | 121 | 72 | (37) | 3 | 71 | (37) | 119 | 6 | 196 | 187 | (97) | 5 | 0 | 4 | 26 |
| 2005–06 | 117 | 68 | (37) | 3 | 102 | (56) | 79 | 7 | 188 | 188 | (100) | 0 | 0 | 0 | 26 |
| 2006–07 | 93 | 49 | (35) | 7 | 62 | (44) | 80 | 7 | 149 | 147 | (99) | 2 | 0 | 0 | 16 |
| 2007–08 | 87 | 45 | (34) | 4 | 74 | (57) | 56 | 6 | 136 | 134 | (99) | 1 | 0 | 1 | 17 |
| 2008–09 | 57 | 27 | (32) | 23 | 64 | (63) | 37 | 6 | 107 | 97 | (95) | 5 | 0 | 5 | 21 |
| *Marten* | | | | | | | | | | | | | | | |
| 2004–05 | 98 | 51 | (34) | 13 | | | | | 162 | 162 | (100) | 0 | 0 | 0 | 19 |
| 2005–06 | 154 | 83 | (35) | 19 | | | | | 256 | 256 | (100) | 0 | 0 | 0 | 23 |
| 2006–07 | 130 | 65 | (33) | 5 | | | | | 200 | 198 | (100) | 0 | 0 | 2 | 20 |
| 2007–08 | 89 | 46 | (34) | 2 | | | | | 137 | 137 | (100) | 0 | 0 | 0 | 20 |
| 2008–09 | 128 | 37 | (22) | 6 | | | | | 171 | 171 | (100) | 0 | 0 | 0 | 17 |
| *Wolverine* | | | | | | | | | | | | | | | |
| 2004–05 | 6 | 7 | (54) | 2 | | | | | 15 | 14 | (100) | 0 | 0 | 1 | 9 |
| 2005–06 | 13 | 6 | (32) | 0 | | | | | 19 | 18 | (95) | 1 | 0 | 0 | 19 |
| 2006–07 | 15 | 11 | (42) | 0 | | | | | 26 | 25 | (96) | 1 | 0 | 0 | 12 |
| 2007–08 | 10 | 10 | (50) | 0 | | | | | 20 | 19 | (95) | 1 | 0 | 0 | 10 |
| 2008–09 | 11 | 5 | (31) | 0 | | | | | 16 | 7 | (70) | 3 | 0 | 0 | 12 |
| *Lynx* | | | | | | | | | | | | | | | |
| 2004–09 | No open season | | | | | | | | | | | | | | |

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

TABLE 2 Unit 6 beaver, river otter, marten and wolverine harvest chronology percent by time period, 2004–2008

| Regulatory year | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | October | November | December | January | February | March | April | *n* |
| *Beaver* [a] | | | | | | | | |
| 2004–05 | 0 | 14 | 20 | 9 | 2 | 25 | 17 | 109 |
| 2005–06 | 0 | 26 | 11 | 9 | 0 | 42 | 0 | 92 |
| 2006–07 | 2 | 48 | 15 | 0 | 0 | 2 | 0 | 46 |
| 2007–08 | 6 | 38 | 17 | 8 | 23 | 6 | 0 | 52 |
| 2008–09 | 0 | 40 | 11 | 2 | 7 | 7 | 13 | 45 |
| *River otter* | | | | | | | | |
| 2004–05 | 6 | 28 | 29 | 15 | 14 | 8 | 0 | 196 |
| 2005–06 | 0 | 27 | 43 | 18 | 11 | 2 | 0 | 188 |
| 2006–07 | 0 | 14 | 32 | 15 | 13 | 26 | 0 | 149 |
| 2007–08 | 0 | 8 | 23 | 21 | 36 | 11 | 0 | 131 |
| 2008–09 | 0 | 36 | 29 | 5 | 19 | 12 | 0 | 107 |
| *Marten* | | | | | | | | |
| 2004–05 | 0 | 28 | 41 | 14 | 18 | 0 | 0 | 162 |
| 2005–06 | 0 | 42 | 25 | 18 | 14 | 0 | 0 | 256 |
| 2006–07 | 0 | 38 | 30 | 23 | 10 | 0 | 0 | 200 |
| 2007–08 | 0 | 36 | 31 | 24 | 9 | 0 | 0 | 137 |
| 2008–09 | 0 | 26 | 49 | 13 | 12 | 0 | 0 | 171 |
| *Wolverine* | | | | | | | | |
| 2004–05 | 0 | 20 | 27 | 27 | 27 | 0 | 0 | 15 |
| 2005–06 | 5 | 5 | 53 | 5 | 32 | 0 | 0 | 19 |
| 2006–07 | 0 | 12 | 38 | 15 | 35 | 0 | 0 | 26 |
| 2007–08 | 0 | 5 | 30 | 20 | 40 | 5 | 0 | 20 |
| 2008–09 | 12 | 13 | 38 | 19 | 13 | 5 | 0 | 16 |

[a] Beavers were taken during May through September under damage control permits as follows:,8(13%) in 2004–05, 10 (15%) in 2005–06,18 (39%) in 2006–07, and 9 (20%) in 2008-09.

TABLE 3 Unit 6 beaver, river otter, marten and wolverine harvest percent by transport method, 2004–2008

| Regulatory year | Percent of harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled skis snowshoes | Boat | 3-or 4-wheeler | Snowmachine | Highway vehicle | Unknown | *n* |
| *Beaver* | | | | | | | | |
| 2004–05 | 0 | 2 | 4 | 19 | 1 | 72 | 2 | 109 |
| 2005–06 | 0 | 0 | 8 | 15 | 0 | 77 | 0 | 92 |
| 2006–07 | 0 | 0 | 0 | 24 | 2 | 73 | 0 | 49 |
| 2007–08 | 7 | 0 | 33 | 0 | 0 | 55 | 5 | 55 |
| 2008–09 | 4 | 4 | 0 | 2 | 7 | 82 | 0 | 45 |
| *River otter* | | | | | | | | |
| 2004–05 | 0 | 0 | 76 | 1 | 1 | 14 | 9 | 196 |
| 2005–06 | 0 | 2 | 70 | 4 | 5 | 19 | 0 | 188 |
| 2006–07 | 0 | 1 | 78 | 0 | 1 | 13 | 7 | 149 |
| 2007–08 | 1 | 15 | 74 | 0 | 1 | 8 | 1 | 136 |
| 2008–09 | 2 | 2 | 74 | 1 | 9 | 9 | 3 | 107 |
| *Marten* | | | | | | | | |
| 2004–05 | 1 | 0 | 38 | 11 | 9 | 41 | 0 | 162 |
| 2005–06 | 11 | 0 | 30 | 5 | 17 | 36 | 0 | 256 |
| 2006–07 | 10 | 9 | 31 | 0 | 27 | 23 | 1 | 200 |
| 2007–08 | 1 | 9 | 36 | 0 | 39 | 13 | 1 | 137 |
| 2008–09 | 16 | 9 | 12 | 1 | 42 | 19 | 1 | 171 |
| *Wolverine* | | | | | | | | |
| 2004–05 | 0 | 13 | 33 | 7 | 13 | 33 | 0 | 15 |
| 2005–06 | 0 | 0 | 68 | 0 | 16 | 11 | 5 | 19 |
| 2006–07 | 0 | 0 | 50 | 4 | 38 | 8 | 0 | 26 |
| 2007–08 | 0 | 15 | 15 | 5 | 50 | 15 | 0 | 20 |
| 2008–09 | 6 | 13 | 25 | 6 | 44 | 0 | 6 | 16 |

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
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**JUNEAU, AK 99811-5526**

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

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

**GEOGRAPHIC DESCRIPTION:** Kenai Mountains

## BACKGROUND

Beavers, coyotes, lynx, marten, mink, muskrats, river otters, short-tailed weasels, and wolverines are found on the Kenai Peninsula at varying densities, depending upon habitat quality or prey abundance. Of the 3 canid species, red fox is considered uncommon. Subunit 15C supports a small remnant population of red fox, with an occasional observation reported from other areas of the Kenai Peninsula. The wolf population re-colonized the Kenai Peninsula in the 1960s after a 50-year absence (Peterson et al. 1984). Wolves and coyotes are currently distributed throughout the peninsula.

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

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

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

Wolverines are found most commonly in the Kenai Mountains, including the southern and eastern peninsula coastal areas, Caribou Hills, and the hilly terrain that forms the headwaters of the Deep Creek and Anchor River drainages. Much of their range is essentially protected from

trapping due to very difficult access, and, in the case of Kenai Fjords National Park, trapping closures (Golden et al. 2007a).

Lynx are cyclically abundant in the forest habitats of the Kenai Peninsula. Mixed deciduous and spruce forests in Subunits 15A and 15B appear to have a higher abundance of snowshoe hares, and consequently, lynx numbers are usually higher in these areas than in spruce forests of Unit 7 and Subunit 15C. The current snowshoe hare cycle is at or near its peak.

Mink and short-tailed weasels are common throughout Units 7 and 15. Least weasels were recently documented on the Kenai Peninsula, but their abundance and distribution are unknown (McDonough and Olson 2009). Although the pelt value 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.

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

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

## METHODS

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

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Other than monitoring harvest trends, no research has been conducted on furbearer populations in Units 7 and 15, except for wolverines. The Alaska Department of Fish and Game (ADF&G, 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 et al. 2007a and 2007b).

### MORTALITY

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

Harvest. The annual variations in the furbearer harvest reflect effort, trapping conditions, and access. Only beaver, lynx, marten, otter, and wolverine are required to be sealed. The beaver harvest has averaged 110 animals over the past 5 seasons (Table 1). The marten harvest averaged more than 100 animals per year over the past 5 seasons with almost all of the harvest occurring in Unit 7 (Table 1). The mean 5-year percentage of females in the marten harvest was 37%. The harvest of river otters averaged 46 animals over the past 5 seasons (Table 1). The mean 5-year

percentage of females in the otter harvest was 44%. The wolverine harvest averaged 22 animals over the past 5 seasons (Table 1). The mean 5-year percentage of females in the wolverine harvest was 34%.

Board of Game Actions and Emergency Orders. There were no Board of Game actions during the reporting period.

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

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

## CONCLUSIONS AND RECOMMENDATIONS

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

Lynx management on the Kenai Peninsula has followed the recommendations of Brand and Keith (1979). Their study indicated that, during a lynx population decline in Alberta, trapping mortality was additive to natural mortality. Using computer modeling they showed more lynx would be produced and greater long-term harvest would be achieved when trapping was curtailed for 3–4 years, starting with the second year after the lynx harvest peak. This harvest strategy is in place on the Kenai Peninsula. Lynx trapping was closed in Units 7 and 15 from 2002–2007. Hunting has remained open, but the limited harvest suggests impacts to the population from hunting are minimal.

## LITERATURE CITED

ALLEN, J. A. 1902. List of mammals collected in Alaska by the Andrew J. Stone Expedition of 1901. Bulletin of the American Museum of Natural History 16 (Art. 18):215-230.

BRAND, C. AND L. KEITH. 1979. Lynx demography during a snowshoe hare decline in Alberta. Journal of Wildlife Management 43(4): 827–849.

GOLDEN, H. N., A. M. CHRIST, AND E. K. SOLOMON. 2007a. Spatiotemporal analysis of wolverine harvest in Alaska. Wildlife Biology 13:68-75.

GOLDEN, H. N., J. D. HENRY, E. F. BECKER, M. I. GOLDSTEIN, J. M. MORTON, D. FROST SR., AND A. J. POE. 2007b. Estimating wolverine population size using quadrant sampling of tracks in snow. Wildlife Biology 13:52-61.

MCDONOUGH, T.J., AND L.E. OLSON. 2009. First record of a least weasel, *Mustela nivalis*, on the Kenai Peninsula, Alaska. Northwestern Naturalist 90:256-258.

OSGOOD, W. H. 1901. Natural history of the Cook Inlet Region, Alaska. North American Fauna 2:51-81.

PETERSON, R. O., J. D. WOOLINGTON, T. N. BAILEY. 1984. Wolves of the Kenai Peninsula, Alaska. Wildlife Monographs 88.

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Table 1. Annual furbearer harvest on the Kenai Peninsula, 2004–2008.

| Regulatory Year | Game Management Units | | | | Total |
|---|---|---|---|---|---|
| | 7 | 15A | 15B | 15C | |
| Beaver | | | | | |
| 2004-05 | 63 | 49 | 7 | 23 | 142 |
| 2005-06 | 67 | 52 | 11 | 35 | 165 |
| 2006-07 | 10 | 59 | 5 | 19 | 93 |
| 2007-08 | 27 | 16 | 5 | 15 | 63 |
| 2008-09 | 12 | 48 | 3 | 24 | 87 |
| Lynx | | | | | |
| 2004-05* | 0 | 2 | 6 | 0 | 8 |
| 2005-06* | 7 | 1 | 4 | 0 | 12 |
| 2006-07* | 1 | 4 | 2 | 1 | 8 |
| 2007-08* | 0 | 4 | 3 | 2 | 9 |
| 2008-09 | 8 | 33 | 35 | 21 | 97 |
| Marten | | | | | |
| 2004-05 | 68 | 0 | 1 | 0 | 69 |
| 2005-06 | 127 | 6 | 0 | 0 | 133 |
| 2006-07 | 115 | 16 | 0 | 3 | 134 |
| 2007-08 | 72 | 16 | 8 | 0 | 96 |
| 2008-09 | 119 | 26 | 6 | 0 | 151 |
| River Otter | | | | | |
| 2004-05 | 10 | 18 | 8 | 9 | 45 |
| 2005-06 | 8 | 21 | 3 | 26 | 58 |
| 2006-07 | 4 | 26 | 10 | 9 | 49 |
| 2007-08 | 9 | 26 | 1 | 9 | 45 |
| 2008-09 | 5 | 19 | 2 | 8 | 34 |
| Wolverine | | | | | |
| 2004-05 | 17 | 0 | 2 | 7 | 26 |
| 2005-06 | 14 | 0 | 1 | 7 | 22 |
| 2006-07 | 12 | 1 | 3 | 5 | 21 |
| 2007-08 | 14 | 0 | 0 | 4 | 18 |
| 2008-09 | 9 | 0 | 1 | 14 | 24 |

* Trapping season closed

Table 2. Chronology of furbearer harvest on the Kenai Peninsula, 2004–2008.

| Regulatory Year | Month Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | other/ unknown | Total |
|---|---|---|---|---|---|---|---|---|---|
| Beaver | | | | | | | | | |
| 2004-05 | 0 | 51 | 20 | 24 | 26 | 21 | 0 | 0 | 142 |
| 2005-06 | 2 | 63 | 46 | 22 | 11 | 11 | 0 | 10 | 165 |
| 2006-07 | 2 | 7 | 21 | 22 | 21 | 12 | 0 | 8 | 93 |
| 2007-08 | 2 | 25 | 16 | 8 | 6 | 5 | 0 | 1 | 63 |
| 2008-09 | 0 | 19 | 20 | 12 | 10 | 18 | 0 | 8 | 87 |
| Lynx | | | | | | | | | |
| 2004-05* | 0 | 2 | 1 | 5 | 0 | 0 | 0 | 0 | 8 |
| 2005-06* | 0 | 2 | 3 | 7 | 0 | 0 | 0 | 0 | 12 |
| 2006-07* | 0 | 1 | 3 | 1 | 2 | 1 | 0 | 0 | 8 |
| 2007-08* | 0 | 1 | 2 | 4 | 0 | 0 | 0 | 2 | 9 |
| 2008-09 | 0 | 1 | 3 | 91 | 0 | 0 | 0 | 2 | 97 |
| Marten | | | | | | | | | |
| 2004-05 | 1 | 21 | 23 | 24 | 0 | 0 | 0 | 0 | 69 |
| 2005-06 | 0 | 54 | 49 | 29 | 1 | 0 | 0 | 0 | 133 |
| 2006-07 | 0 | 34 | 50 | 50 | 0 | 0 | 0 | 0 | 134 |
| 2007-08 | 0 | 26 | 22 | 48 | 0 | 0 | 0 | 0 | 96 |
| 2008-09 | 0 | 34 | 51 | 64 | 2 | 0 | 0 | 0 | 151 |
| River Otter | | | | | | | | | |
| 2004-05 | 0 | 11 | 12 | 8 | 10 | 0 | 0 | 4 | 45 |
| 2005-06 | 0 | 17 | 23 | 6 | 12 | 0 | 0 | 0 | 58 |
| 2006-07 | 0 | 10 | 12 | 17 | 8 | 0 | 0 | 2 | 49 |
| 2007-08 | 0 | 12 | 7 | 19 | 7 | 0 | 0 | 0 | 45 |
| 2008-09 | 0 | 12 | 8 | 8 | 4 | 1 | 0 | 1 | 34 |
| Wolverine | | | | | | | | | |
| 2004-05 | 3 | 0 | 6 | 5 | 9 | 1 | 0 | 2 | 26 |
| 2005-06 | 0 | 1 | 7 | 7 | 5 | 1 | 0 | 1 | 22 |
| 2006-07 | 0 | 2 | 6 | 6 | 5 | 1 | 0 | 1 | 21 |
| 2007-08 | 0 | 3 | 5 | 3 | 6 | 1 | 0 | 0 | 18 |
| 2008-09 | 0 | 4 | 7 | 6 | 6 | 0 | 0 | 1 | 24 |

* Trapping season closed

**WILDLIFE**

**MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009

## 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 weasels (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. Norway rats are common in the vicinity of Kodiak and other villages. 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. Feral dogs are occasionally observed near villages on Kodiak, where they sometimes form packs and hunt deer.

Red foxes, river otters, beavers, and short-tailed weasels are the most abundant furbearers on the archipelago. Marten occur only on Afognak Island. Trappers most commonly pursue red foxes, 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

Management objectives for furbearers in Unit 8 are 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. 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 Island Archipelago coastline for river otter latrine sites during 13–25 June 2007. This was the first year of a multi-year project and part of a larger effort we are conducting in southcentral Alaska to estimate river otter actual and relative abundance, to estimate harvest and refugia patterns, and to develop a sustainable-yield model (Golden et al 2009). 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*

Season and Bag Limit. 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 each year of this reporting period from an average of 223.8 during the previous 5 years (2001–02 through 2005–06) to 151 in 2006–07, 122 in 2007–08, and 108 in 2008–09 (Table 1). The number of otter trappers also declined from an average of 26.4 during the previous 5 years to 25 in 2006–07, 21 in 2007–08, and 18 in 2008–09. The average take per trapper dropped from an average of 7.9 otters/trapper during the previous 5 years to 6.0 in 2006–07, 5.8 in 2007–08, and 6.0 in 2008–09.

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 (2001–02 through 2005–06) of 48.6, and annual harvests of 33 in 2006–07, 56 in 2007–08, and 22 in 2008–09 (Table 2). The number of trappers also fluctuated with an average of 14.8 during the previous 5 years to 11 in 2006–07, 15 in 2007–08, and 7 in 2008–09. The average take per trapper went from an average of 3.4 beavers/trapper during the previous 5 years to 3.0 in 2006–07, 3.7 in 2007–08, and 3.1 in 2008–09.

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. 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 3 beaver depredation permits in 2006, 2 in 2007, and 3 in 2008. A total of 3 beavers were reportedly killed as a result of these permits. A single otter was killed under authority of a depredation permit issued in 2008.

## 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 Kodiak otters 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 Island 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. 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 (Golden et al 2009).

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

Ground squirrels are a chronic 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.

## LITERATURE CITED

BURRIS, O. E. AND D. E. MCKNIGHT. 1973. Game transplants in Alaska. Wildlife Technical Bulletin 4. Alaska Department of Fish and Game. Juneau. Federal Aid Wildlife Restoration Project W-17-R. 57pp.

CLARK, D.W. 2008. Ground Squirrel: the Mysterious Rodent of Kodiak. Unpublished manuscript. Alutiiq Museum. Kodiak, Alaska. 15 pp.

GOLDEN, H., M. BEN-DAVID, M. SEYMOUR, AND E.SOLOMON. 2009. Estimating coastal river otter abundance and harvest potential in the Kodiak Island Archipelago. 2009 Progress Report. Alaska Department of Fish and Game, Division of Wildlife Conservation, Anchorage, Alaska. 119 pp.

RAUSCH, R.L. 1969. Origin of the terrestrial mammalian fauna of the Kodiak Archipelago *in* The Kodiak Island Refugium: Its geology, flora, fauna and history. T.N.V. Karlstrom and G.R. Ball, editors. The Boreal Institute, University of Alberta. Ryerson Press, Toronto, Canada. 62 pp.

YOUNG, E. L. 1990. Unit 4 furbearer survey-inventory progress report. Pages 26–31 *in* S. O. Morgan, editor. Annual report of survey-inventory activities. Part XIV. Furbearers Vol. XX. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Juneau, 238 pp.

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Table 1. Unit 8 river otter harvest, 1996-97 through 2008–09.

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

Table 2. Unit 8 beaver harvest, 1996-97 through 2008–09.

| Regulatory | Reported Harvest | | | | | Method of Take | | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Juv [a] | (%) | Adult | (%) | Total [b] | Trap/Snare | (%) | Shot | (%) | Unknown | Trappers |
| 1996–97 | 9 | (24) | 28 | (76) | 38 | 37 | (97) | 1 | (3) | 0 | 8 |
| 1997–98 | 10 | (28) | 26 | (72) | 42 | 31 | (82) | 7 | (18) | 4 | 12 |
| 1998–99 | 8 | (19) | 35 | (81) | 43 | 39 | (91) | 4 | (9) | 0 | 13 |
| 1999–2000 | 4 | (13) | 28 | (87) | 48 | 39 | (91) | 4 | (9) | 5 | 13 |
| 2000–01 | 13 | (25) | 39 | (75) | 60 | 34 | (74) | 12 | (26) | 14 | 13 |
| 2001–02 | 7 | (39) | 11 | (61) | 18 | 14 | (78) | 4 | (22) | 0 | 18 |
| 2002–03 | 15 | (28) | 39 | (72) | 71 | 49 | (69) | 22 | (31) | 0 | 17 |
| 2003–04 | 14 | (27) | 37 | (73) | 67 | 52 | (79) | 14 | (21) | 1 | 14 |
| 2004–05 | 8 | (17) | 40 | (83) | 57 | 35 | (61) | 22 | (39) | 0 | 15 |
| 2005–06 | 8 | (27) | 22 | (73) | 30 | 27 | (93) | 2 | (7) | 1 | 10 |
| 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 |

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

Table 3. Unit 8 river otter harvest chronology percent by month, 1996-97 through 2008–09.

| Regulatory year | Harvest periods | | | | | *n* |
|---|---|---|---|---|---|---|
| | November | December | January | February[a] | Unknown | |
| 1996–97 | 44 | 21 | 35 | 0 | 0 | 126 |
| 1997–98 | 29 | 49 | 22 | 0 | 0 | 148 |
| 1998–99 | 66 | 26 | 8 | 0 | 0 | 173 |
| 1999–00 | 38 | 45 | 15 | 0 | 2 | 100 |
| 2000–01 | 30 | 35 | 35 | 0 | 0 | 189 |
| 2001–02 | 31 | 40 | 19 | 0 | 10 | 216 |
| 2002–03 | 21 | 66 | 12 | 0 | 1 | 110 |
| 2003–04 | 23 | 43 | 29 | 0 | 5 | 234 |
| 2004–05 | 26 | 25 | 46 | 0 | 3 | 325 |
| 2005–06 | 19 | 72 | 9 | 0 | 0 | 234 |
| 2006–07 | 30 | 56 | 9 | 0 | 5 | 151 |
| 2007–08 | 35 | 46 | 19 | 0 | 0 | 122 |
| 2008–09 | 31 | 30 | 30 | 0 | 9 | 108 |

[a] season closed 31 January

Table 4. Unit 8 beaver harvest chronology percent by month, 1996-97 through 2008–09.

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

Table 5. Unit 8 river otter harvest percent by transport method, 1996-97 through 2008–09.

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

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

Table 6. Unit 8 beaver harvest percent by transport method, 1996-97 through 2008–09.

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

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

**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## 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 (*Lontra canadensis*) and wolverine (*Gulo gulo*). All species are found on at least part of the mainland of Unit 9. There are fewer species on the islands in both units. On some islands furbearers are present because of past introductions for fur farming or efforts to establish harvestable wild populations.

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

Coyotes apparently first arrived in Alaska near the turn of the 20$^{th}$ 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 (FWS) removed introduced fox populations from many Aleutian islands to revert the habitat to a "preintroduction" state and to benefit sea bird populations.

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

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

Mink inhabit the mainland of the Alaska Peninsula and Unimak Island. Microtine populations typically fluctuate drastically and are the primary 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.

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.

## 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 harvests exceed that obtained from this data source.

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

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

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size*

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

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

Red Fox. A moderate outbreak of rabies in 1997–98 temporarily diminished the red fox population in 1998–99 (AI = 4.7, TI = 3.2), but it recovered within a year to more normal abundance in 1999–2000 (AI = 7.3 and TI = 7.7). Red fox were the most prevalent furbearer species based on trapper ratings since 2000 (Average AI = 7.0), but the relative abundance index declined during the previous reporting period (AI = 9.2, 8.3, and 5.0 in 2003, 2004, and 2005, respectively). Several animals were tested for rabies during the previous period, but none tested positive. Fox are frequently observed throughout the Alaska Peninsula during survey flights for other species, and the population appears to have returned to normal levels during this reporting period based on anecdotal observations.

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

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

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

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

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

**MORTALITY**

*Harvest*

The winters of 2006–07 and 2008-09 appear to have had more favorable conditions for trapping based on higher harvests of several furbearer species during those regulatory years. Furbearer harvests during the winter of 2007–08 were lower particularly during the months of January and February, which may reflect less favorable conditions for trapping during that period.

Season and Bag Limits. The beaver trapping season in Unit 9 was 10 November–31 March with no bag limit, and trappers in all of Unit 9 were allowed to take 2 beavers per day using firearms 15 April–31 May. Unit 10 was not open for beaver trapping. Harvests have declined dramatically since 867 were taken in 1987–88. Harvests averaged 171 beaver during the 1990s and 105 since 2000. The reduction in harvests during the 1990s was primarily attributed to reduced prices for beaver pelts, a high cost in both effort and expenses, and a diminished interest in trapping among village residents. Poor conditions for trapping and traveling have likely contributed to the more recent reductions in harvests. Beaver harvests averaged 112 during this reporting period with above average harvests in 2006–07 (145) and 2008–09 (125) (Table 1).

The coyote trapping season in Units 9 and 10 was 10 November–31 March with no bag limit during the 2006-07 regulatory year. The trapping season in Unit 9 was liberalized during the 2007–08 and 2008–09 regulatory years to a season 10 October–30 April with no bag limit. The trapping season in Unit 10 was unaffected by this change. The coyote hunting seasons in these units were 1 September–30 April with a bag limit of 2 coyotes during 2006–07 and was liberalized to 1 September–25 May with a bag limit of 10 coyotes during the 2007–08 and 2008–09 regulatory years. Because sealing was not required for coyotes, no estimate of harvest is available.

The red fox and arctic fox trapping seasons in Units 9 and 10 were open 10 November–28 February with no bag limit. The red fox hunting season in both units was 1 September–15 February and the bag limit was 2. 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 Unit 9 was 10 November–28 February with no bag limit for either species. The lynx hunting season in Unit 9 ran concurrent with the trapping season, but the bag limit was 2. Unit 10 was not open for lynx or marten trapping or hunting. The lynx harvest reached a high of 51 lynx in 2003 as the result of increased take in Subunit 9B, but decreased to lower than average harvests during this reporting period (Table 1). Marten are not required to be sealed in Unit 9, so no harvest estimates are available.

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

The otter trapping season in Units 9 and 10 was 10 November–31 March with no bag limit. During this reporting period otter harvests decreased to more typical values relative to historic harvests due to reduced effort by one or two trappers in Units 9C and 9D. Otter harvests averaged 101 this reporting period relative to 135 the previous reporting period (Table 1).

The trapping season for wolverines in Units 9 and 10 was from 10 November–28 February with no bag limit. The hunting season was 1 September–31 March with a bag limit of one. On average, 64 wolverines per year were taken from Unit 9 during 1974–94. Poor travel conditions and overall low fur prices reduced trapping effort. Since 2003 harvests have averaged 35 wolverine (range = 27–56 Table 1). There has not been a reported harvest of wolverines from Unit 10 since 1980.

Board of Game Actions and Emergency Orders. During the March 2005 meeting the Board of Game liberalized hunting and trapping seasons for coyote in Unit 9. The primary reason for the change was to align coyote and wolf seasons. Finding that there were no biological concerns for the coyote population and that harvest was minimal, hunters and trappers successfully persuaded the Board to align the season dates so that users could retain coyote pelts if the coyote was inadvertently taken while in pursuit of wolves.

Permits. Five permits were issued to trap beaver obstructing road culvert during this reporting period. Four of the permits were issued to prevent road damage in Unit 9C, and 1 was issued for a similar purpose in Unit 9B.

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 14, 9, 23, and 19 trappers successfully took beaver, lynx, otter, and wolverine, respectively, during this reporting period. The average take per successful trapper of each species was 8 beavers, 2 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 ATVs 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.

**HABITAT**

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

## CONCLUSIONS AND RECOMMENDATIONS

The furbearer harvests in Units 9 and 10 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, based on export and acquisition reports, was incomplete and potentially biased because of inaccurate unit coding by fur buyers and a lack of enforcement of fur export regulations. We have discontinued using these data.

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

We lacked adequate field observations to augment harvest data and trapper questionnaires in evaluating population sizes and trends. 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.

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

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

| Species | Regulatory Year | Reported Harvest | | | | | | | Method of Take | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | M | F | Unk. | Juvenile | Adults | Unk. | Total | Trap/Snare | Shot | Unk. | Total Trappers |
| *Beaver* | 2003-04 | 0 | 0 | 74 | 10 | 64 | 0 | 74 | 69 | 5 | 0 | 14 |
| | 2004-05 | 0 | 0 | 103 | 29 | 73 | 1 | 103 | 81 | 1 | 21 | 16 |
| | 2005-06 | 0 | 0 | 70 | 20 | 50 | 0 | 70 | 69 | 1 | 0 | 18 |
| | 2006-07 | 0 | 0 | 145 | 38 | 98 | 9 | 145 | 143 | 2 | 0 | 16 |
| | 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 |
| *Lynx* | 2003-04 | 0 | 0 | 51 | 0 | 51 | 0 | 51 | 51 | 0 | 0 | 15 |
| | 2004-05 | 0 | 0 | 28 | 1 | 26 | 1 | 28 | 28 | 0 | 0 | 8 |
| | 2005-06 | 0 | 0 | 22 | 0 | 18 | 4 | 22 | 20 | 1 | 1 | 10 |
| | 2006-07 | 0 | 0 | 31 | 0 | 26 | 5 | 31 | 30 | 1 | 0 | 12 |
| | 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 |
| *Otter* | 2003-04 | 75 | 50 | 25 | 0 | 0 | 150 | 150 | 140 | 4 | 6 | 22 |
| | 2004-05 | 95 | 57 | 8 | 0 | 0 | 160 | 160 | 150 | 4 | 6 | 28 |
| | 2005-06 | 51 | 36 | 9 | 0 | 0 | 96 | 96 | 81 | 6 | 9 | 22 |
| | 2006-07 | 71 | 44 | 10 | 0 | 0 | 125 | 125 | 105 | 18 | 2 | 26 |
| | 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 |
| *Wolverine* | 2003-04 | 38 | 17 | 1 | 0 | 0 | 56 | 56 | 47 | 5 | 4 | 24 |
| | 2004-05 | 19 | 5 | 2 | 0 | 0 | 26 | 26 | 25 | 1 | 0 | 15 |
| | 2005-06 | 24 | 6 | 1 | 0 | 0 | 31 | 31 | 28 | 3 | 0 | 18 |
| | 2006-07 | 29 | 7 | 0 | 0 | 0 | 36 | 36 | 26 | 10 | 0 | 22 |
| | 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 |

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

| Species | Regulatory Year | Harvest Periods | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | September-October | November | December | January | February | March | April-May |
| *Beaver* | 2003-04 | 11 | 9 | 4 | 32 | 38 | 5 | 0 |
| | 2004-05 | 1 | 31 | 8 | 29 | 26 | 4 | 0 |
| | 2005-06 | 27 | 4 | 3 | 20 | 20 | 24 | 1 |
| | 2006-07 | 43 | 6 | 11 | 13 | 21 | 5 | 1 |
| | 2007-08 | 35 | 46 | 8 | 2 | 6 | 3 | 0 |
| | 2008-09 | 38 | 16 | 26 | 12 | 6 | 2 | 0 |
| *Lynx* | 2003-04 | 0 | 24 | 18 | 27 | 31 | 0 | 0 |
| | 2004-05 | 0 | 39 | 14 | 36 | 11 | 0 | 0 |
| | 2005-06 | 0 | 27 | 32 | 14 | 27 | 0 | 0 |
| | 2006-07 | 0 | 29 | 29 | 35 | 6 | 0 | 0 |
| | 2007-08 | 0 | 29 | 21 | 29 | 21 | 0 | 0 |
| | 2008-09 | 0 | 0 | 25 | 33 | 42 | 0 | 0 |
| *Otter* | 2003-04 | 0 | 7 | 19 | 19 | 43 | 11 | 0 |
| | 2004-05 | 0 | 14 | 18 | 29 | 29 | 9 | 0 |
| | 2005-06 | 2 | 11 | 15 | 32 | 25 | 16 | 0 |
| | 2006-07 | 2 | 14 | 10 | 37 | 32 | 5 | 0 |
| | 2007-08 | 0 | 25 | 27 | 6 | 26 | 16 | 0 |
| | 2008-09 | 0 | 22 | 23 | 22 | 25 | 9 | 1 |
| *Wolverine* | 2003-04 | 0 | 2 | 21 | 34 | 43 | 0 | 0 |
| | 2004-05 | 4 | 4 | 31 | 23 | 35 | 4 | 0 |
| | 2005-06 | 3 | 3 | 19 | 43 | 26 | 6 | 0 |
| | 2006-07 | 0 | 3 | 33 | 39 | 14 | 8 | 3 |
| | 2007-08 | 4 | 4 | 15 | 33 | 41 | 4 | 0 |
| | 2008-09 | 0 | 3 | 28 | 31 | 34 | 3 | 0 |

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

| Species | Regulatory Year | Percent of Harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Airplane | Dogsled | Boat | 3- or 4-Wheeler | Snowmachine | ORV | Highway Vehicle | Ski, Snowshoe | Unk. |
| *Beaver* | 2003-04 | 8 | 0 | 0 | 29 | 47 | 0 | 8 | 7 | 1 |
| | 2004-05 | 0 | 17 | 2 | 55 | 16 | 0 | 5 | 0 | 5 |
| | 2005-06 | 0 | 0 | 9 | 47 | 24 | 4 | 2 | 0 | 14 |
| | 2006-07 | 0 | 0 | 37 | 45 | 6 | 4 | 0 | 4 | 4 |
| | 2007-08 | 0 | 0 | 17 | 12 | 14 | 0 | 3 | 53 | 1 |
| | 2008-09 | 0 | 0 | 32 | 42 | 13 | 0 | 0 | 13 | 0 |
| *Lynx* | 2003-04 | 0 | 0 | 0 | 45 | 45 | 0 | 8 | 2 | 0 |
| | 2004-05 | 0 | 0 | 0 | 61 | 32 | 0 | 7 | 0 | 0 |
| | 2005-06 | 5 | 4 | 4 | 23 | 64 | 0 | 0 | 0 | 0 |
| | 2006-07 | 3 | 0 | 3 | 68 | 26 | 0 | 0 | 0 | 0 |
| | 2007-08 | 0 | 0 | 0 | 0 | 50 | 0 | 36 | 0 | 14 |
| | 2008-09 | 0 | 0 | 0 | 34 | 50 | 0 | 8 | 8 | 0 |
| *Otter* | 2003-04 | 2 | 0 | 3 | 34 | 40 | 1 | 9 | 7 | 4 |
| | 2004-05 | 4 | 0 | 5 | 38 | 23 | 0 | 21 | 3 | 6 |
| | 2005-06 | 0 | 0 | 2 | 40 | 8 | 1 | 32 | 7 | 10 |
| | 2006-07 | 1 | 0 | 4 | 42 | 25 | 0 | 13 | 14 | 1 |
| | 2007-08 | 0 | 0 | 1 | 26 | 26 | 3 | 5 | 33 | 6 |
| | 2008-09 | 0 | 0 | 0 | 32 | 19 | 0 | 5 | 44 | 0 |
| *Wolverine* | 2003-04 | 7 | 0 | 0 | 11 | 61 | 2 | 9 | 3 | 7 |
| | 2004-05 | 0 | 0 | 0 | 42 | 31 | 0 | 23 | 0 | 4 |
| | 2005-06 | 10 | 0 | 13 | 19 | 26 | 10 | 0 | 22 | 0 |
| | 2006-07 | 0 | 0 | 0 | 19 | 61 | 0 | 3 | 11 | 6 |
| | 2007-08 | 4 | 0 | 0 | 7 | 52 | 0 | 4 | 29 | 4 |
| | 2008-09 | 0 | 0 | 3 | 19 | 44 | 0 | 3 | 31 | 0 |

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
**Division of Wildlife Conservation**
**(907) 465-4190 P.O. BOX 115526**
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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## 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 OBJECTIVE

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

### MANAGEMENT OBJECTIVES

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

## METHODS

Beaver, lynx, river otter, and wolverine pelts were sealed, and trappers interviewed at the time of sealing to obtain harvest statistics for these species. Between 1992 and 2002, marten pelts were also sealed in subunit 13E. Recent trapper questionnaire results (ADF&G 2010a, 2010b) provided additional harvest and relative abundance information on both sealed and unsealed furbearers.

Yearly trends in lynx abundance were monitored by conducting track surveys within favorable lynx habitat in both Units 11 and 13. Twenty-six aerial transects (7 in Unit 11 and 19 in Unit 13) were established in 1988 for the purpose of conducting lynx track surveys on a yearly basis. Standardized aerial transects, each approximately 8 km long and 0.4 km wide, are flown in late winter.

# 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 to abundant 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, other field observations, and sealing records, lynx numbers in Units 11 and 13 are up substantially from the low point in 2002–03. The lynx population appears to follow a 9- to 10-year cycle, with peaks in 1972, 1982, 1991, and 2000. The next peak is expected shortly . Aerial lynx track survey and harvest data indicate this next peak may be the highest in recent history. Even though the lynx trapping season was closed for three 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.

In Units 11 and 13, hares have historically followed a 10-year cycle that has varied in amplitude. Hare peak amplitude was very high during the 1972 high, and lower during subsequent peaks, with the lowest being in 1989 and 1990. The most recent peak, between 1999 and 2001, was the highest since that observed in the early 1970s, as indicated by snowshoe hare pellet transect surveys conducted in Unit 11 by National Park Service staff (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 from 4.5–5.2 wolverine/1,000 $km^2$ (Becker and Van Daele 1988, Gardner and Becker 1991, Golden 1996). While trappers responding to the trapper questionnaire between 1996 and 2003 considered wolverine to be scarce, since then the consensus has been that wolverine are common. 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 2006–07, 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.

Trappers reported coyotes to be common or abundant, depending on the habitat type trapped. Coyotes are relatively abundant throughout both Units 11 and 13, and are commonly found in river bottoms and creek drainages, as these appear to be favored habitat. Coyote family 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 5 years, competition with wolves has declined substantially in Unit 13 due to an ongoing predator management program. Additionally, the increasing snowshoe hare population across Units 11 and 13 is likely helping to increase coyote productivity and survival (Krebs et al. 2001).

Foxes are found in both Units 11 and 13, from forested lowlands to alpine tundra. Trappers reported that fox numbers increased during the late 1990s and were considered abundant until 2000. Fox were considered common in 2001 and 2002, but scarce in 2003. 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, as well as ptarmigan population levels, likely also impact fox abundance. Early winter temperatures can also impact survival of young fox. In recent years, November temperatures have been mild compared to years past, likely allowing more young fox to survive.

Muskrats were abundant during the early 1980s in Units 11 and 13, but their numbers declined dramatically only a few years later. Trappers considered muskrats either not present or scarce on their lines during the mid 1990s. Since 1998, trappers have considered muskrats relatively common. The winter of 2002–03 had the highest muskrat population in over 20 years, based on the number of houses and pushups in many lakes and marshes, although 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.

*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 movements and dispersal of these lynx are an integral part of the lynx population cycle in Units 11 and 13.

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

**MORTALITY**

*Harvest*

Seasons and Bag Limits. Between 1995 and 2000, the beaver trapping season in Unit 13 was 10 October 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 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 2007–08, 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 game management units beginning 200304; 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. While this change added some opportunity to take coyotes in the spring, the effect of this change is expected to be minimal.

The fox hunting seasons in Unit 11 and 13 were aligned with Interior game management units beginning 2003–04, and currently run 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 are set according to the lynx tracking harvest strategy (THS). Season lengths are adjusted during the various stages of the lynx cycle in an attempt to control the harvest. The lynx harvest objective under the THS is to reduce the catch of lynx 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. In recent years, trappers have indicated a desire to keep the opening of lynx trapping season set at 10 November. As the lynx population declines over the next several years, our intent is to maintain this season opening date, while shortening the season on the back end.

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 2007–08 (Table 1). Historically, the highest harvest was 56 beaver taken in 1985, but harvests have fluctuated appreciably between years. An average of 3 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 196 beaver per year during this reporting period (Table 2). The harvest of 360 beavers in 2002–03 was the highest annual harvest ever recorded. The previous historic peak was during the 1986–87 and 1988–89 seasons, with reported catches of 333 and 300 beavers, respectively. The percentage of kits in the harvest has ranged from 20% to 28% over the last 5 years (Table 2).

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

Though muskrats are not sealed in Units 11 or 13, trapping pressure is variable year to year based on winter conditions. 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 3 to 6 during the last 5 years (Table 3). River otter harvests in this unit have historically been low, averaging fewer than 4 animals per year (range 0–12) since 1977. In Unit 13, the average reported harvest during the last 5 years was 38 otters (Table 4), up from the previous 5-year average of 30 otters per year. Since 1977 the annual harvest has averaged 31 otters (range 5–68) for Unit 13.

During the last lynx peak in 2000, the annual combined lynx harvest in Units 11 and 13 was 693. The most recent combined harvest of lynx for the two units was 1,343 in 2008, the highest ever recorded.

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 a low of 2 in 2002 and 2003, up to 25 in 2008. The percentage of kittens has been variable since 2005, averaging 30%.

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. Harvests bottomed out in 2002. From there, the percentage of kittens increased steadily until they reached 31% in 2005 (Table 6). The following year the number of kittens dropped to 11%, even though the harvest continued to steadily climb. Kittens averaged 23% in 2007 and 29% in 2008. In 2008, a total of 993 lynx were harvested in Unit 13, the highest ever recorded. Observations during 2009 suggest the snowshoe hare population has declined in certain areas; however, hares remain abundant 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 9 per

year, 35% 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. Most of Unit 11 is federal land, and all current wolverine trappers are federally qualified.

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 35 per year, and ranged from 16 in 1988 to a high of 53 in 2001. For the past 5 years the annual harvest has averaged 41 (Table 8), up slightly from the previous 5-year average of 36 wolverine. Males have consistently accounted for the majority of the harvest in 13. The female percentage averaged 34% 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 and2002 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 Alaskan 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 have declined somewhat since. Marten have historically been the most economically important furbearer in Units 11 and 13, however many trappers have shifted to lynx in the past couple of years.

Hunter/Trapper Residency and Trapper Success. Interest in beaver trapping in Unit 11 has remained low; 2–5 trappers reported taking beaver during this reporting period. The highest beaver trapping pressure was in the mid 1980s, when 13 trappers reported taking 44 beaver in 1985. Most beaver in Unit 11 are trapped, followed by snaring (Table 1). All trappers who sealed beaver from Unit 11 were local residents. Interest in trapping beaver in Unit 13 has varied year to year, though the number of successful trappers averaged 29 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 5 otters have been harvested annually from Unit 11 over the last 5 years by 1 to 4 trappers (Table 3). The harvest and number of successful trappers in Unit 13 peaked in 1983 (68 otter were taken by 24 trappers), then again in 1994 (61 otter were taken by 26 trappers). An average of 19 trappers successfully harvested otter annually during the last 5 years in Unit 13, up from the previous 5-year average of 16. The average successful trapper caught 2 otters annually. Trapping and snaring were the most reported methods of take for otters in Unit 11 and 13 (Table 3 and 4 respectively). Trapping was responsible for 93% and 94% of all otters taken in Units 11 and 13 respectively.

In Unit 11 the number of successful lynx trappers dropped to only 2 during the low in 2002 and 2003 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 by local residents. These trappers harvested an average of 14 lynx per person, for a total catch of 350 in 2008 (Table 5). 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 80 successful trappers in 2008, each catching an average of 12 lynx (Table 6) for a total take of 993 lynx. Of those, 632 (63%) were taken by local residents. 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 93% and 87% 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 6 trappers harvested 2 wolverines per year in Unit 11. The total annual take in Unit 11 ranged from 7 to21 (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 also takes 2 wolverines per year; however, there are more trappers in Unit 13 due to better accessibility. An average of 24 wolverine trappers successfully harvested wolverine each year during this reporting period. While Unit 11 wolverine trappers are all local, only 7 of 40 successful wolverine trappers in Unit 13 in 2008 were local. 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 5 wolverines per year are shot in Unit 13 (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; 2 beavers were taken in September in 2007 and 2 were taken in October in 2008 (Table 9). 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 2001–02, the early 25 September season opening has afforded trappers a longer open water season. Since 2001, 43% to 66% 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 28% 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. In 2008 in Unit 13, trappers harvested 190 lynx in November compared to only 47 taken the same month the year before (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 later in the season. In 2007 and 2008, February was the most common month reported (Table 13).

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. In 2008–09, the federal subsistence season dates were extended through the end of February in Unit11, though no wolverine were reported taken in February that year.

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 between 40 and50% (Blejwas 2010). 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 (up to 30%). This type of trapping does not allow for line establishment, and often results in trapper conflicts. The questionnaire respondents also indicate a growing number of unethical trappers in the field. The main complaint is new trappers setting on top of established trappers. While some of this activity is unintentional, most new trappers have limited time and are drawn to established trails, seismic lines, rivers and pond edges, which are often already considered part of 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. The harvest

has since dropped back to the average observed prior to the changes. The seasons have been lengthened in Unit 11 as well, although trapping pressure is so low, the additional opportunity has had little effect. In Alaska, average beaver prices have fluctuated between $17.50 and $45.00 between 1992 and 2008. Despite low prices, trappers still trap beaver for a variety of reasons. Some trappers have found markets for carcasses, and sometimes skulls. Beaver trapping continues to be an educational tool for young people as well. Beaver populations are considered healthy across 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-$100. Otter harvest in Unit 11 is extremely low, similar to beaver. Trapper reports and field observations suggest the current otter harvests are sustainable.

Lynx in these units have successfully been managed by the lynx THS since the late 1980s. Since the peak in the early 1970s, lynx highs in this area have had decreasing amplitudes until these past few reporting periods. In 2000–01, the peak was comparable to that in the early 1970s. For 2008–09, the population appears to be twice what it was in 2000–01. 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, the cycle is on track and perhaps a year or two ahead of normal, and the current trapping pressure appears optimal.

Trapper reports and general observations suggest wolverine numbers are common in mountainous areas of Unit 11 and 13; however, numbers remain relatively low in forested habitats at lower elevations. Management actions during the early 1990s included shortening the season and setting a bag limit of 2 in an attempt to increase wolverine numbers at lower elevations. No change has since been detected in harvest or observation trends. The bag limit was eliminated in 1997, though the season has remained short. The wolverine harvest in Unit 13 has been stable and appears sustainable; no changes are recommended at this time. In Unit 11, 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 have 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 coyotes has likely increased. 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 Alaskan furbuyers combined with the number of pelts sent to auction by trappers, has steadily declined over the last 10 years, hitting a low of 68 in 2004 (Blejwas 2007).

While muskrat, mink and weasels are common in Units 11 and 13, the harvest of all three continues to be low and largely dependent on individual trapping efforts. Average prices paid by Alaskan fur buyers in 2005–06 were $4.25 for muskrat, $15.55 for mink, and $4.89 for weasels. (Blejwas 2007), and $5.00, $17.84, and $7.55, respectively, in 2006-07 (Blejwas 2010); these prices were considerably more than what was reported in 2004-05. 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 2000–01, 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 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 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.

## LITERATURE CITED


ADF&G. 2010a. Trapper Questionnaire Statewide Annual Report, 1 July 2008–30 June 2009. Alaska Department of Fish and Game. Juneau, Alaska.

ADF&G 2010b. Trapper Questionnaire Statewide Annual Report, a July 2007–30 June 2008. Alaska Department of Fish and Game. Juneau, Alaska.

BECKER, E. AND L. VAN DAELE. 1988. Wolverine density estimate in Unit 13. Unpublished Report. Alaska Department of Fish and Game. Anchorage. BLEJWAS, K.. 2010. Trapper Questionnaire Statewide Annual Report. 1 July 2006–30 June 2007. Alaska Department of Fish and Game. Juneau. 80pp.

BLEJWAS, K. 2007. Trapper Questionnaire Statewide Annual Report. 1 July 2005–30 June 2006. Alaska Department of Fish and Game. Juneau. 69pp.

GARDNER, C. L., AND E. F. BECKER. 1991. Wolf and wolverine density estimation techniques. Federal Aid in Wildlife Restoration Research Progress Report, Project W-23-4. Alaska Dept. Fish and Game. Juneau. 8pp.

GARDNER, C. L. 1985. The ecology of wolverines in south central Alaska. M.S. Thesis, University of Alaska, Fairbanks. 82 pp.

———., M. E. MCNAY, AND R. TOBEY. 1993. Estimates of wolverine densities and sustainable harvests in the Nelchina Basin in southcentral Alaska. Unpubl. Rep. *In*: Abstracts, 7th Northern Furbearer Conference; April 22–23, Whitehorse, Yukon. Abstract. 33pp.

GOLDEN, H. N. 1996. Federal Aid in Wildlife Restoration Research Progress Report, Project W-24-3. Alaska Department of Fish and Game. Juneau. 9pp.

———. 1997. Federal Aid in Wildlife Restoration Research Progress Report, Project W-24-5. Alaska Department of Fish and Game. Juneau. 8pp.

KEPHART, J. 2001. Trapper Questionnaire Statewide Annual Report. Alaska Department of Fish and Game. Juneau. 65pp.

KREBS, C.J., BOUTIN, S. AND R. BOONSTRA eds. 2001. Ecosystem Dynamics of the Boreal Forest: the Kluane Project. 511pp.



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Table 1. Unit 11 beaver harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Adult | Juv.[a] | %[a] | Unk. | Total | Trap/snare | (%) | Shot | % Shot | Unk. |
| 2001/02 | 2 | 0 | 0% | 4 | 6 | 3 | 50% | 3 | 50% | 0 |
| 2002/03 | 0 | 0 | 0% | 0 | 0 | 0 | 0% | 0 | 0% | 0 |
| 2003/04 | 7 | 0 | 0% | 0 | 7 | 7 | 100% | 0 | 0% | 0 |
| 2004/05 | 15 | 0 | 0% | 3 | 15 | 12 | 80% | 3 | 20% | 0 |
| 2005/06 | 1 | 0 | 0% | 0 | 1 | 1 | 100% | 0 | 0% | 0 |
| 2006/07 | 4 | 3 | 43% | 0 | 7 | 7 | 100% | 0 | 0% | 0 |
| 2007/08 | 26 | 5 | 16% | 0 | 31 | 31 | 100% | 0 | 0% | 0 |
| 2008/09 | 16 | 6 | 27% | 0 | 22 | 22 | 100% | 0 | 0% | 0 |

[a] Beaver < 52”



Table 2. Unit 13 beaver harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Adult | Juv.[a] | %[a] | Unk. | Total | Trap/snare | % | Shot | % Shot | Unk. |
| 2001/02 | 148 | 51 | 26% | 3 | 202 | 187 | 94% | 13 | 6% | 2 |
| 2002/03 | 240 | 104 | 30% | 16 | 360 | 349 | 100% | 1 | 0% | 10 |
| 2003/04 | 136 | 46 | 25% | 10 | 192 | 111 | 90% | 13 | 10% | 68 |
| 2004/05 | 115 | 28 | 20% | 44 | 187 | 157 | 99% | 1 | 1% | 29 |
| 2005/06 | 165 | 63 | 28% | 3 | 231 | 223 | 98% | 5 | 2% | 3 |
| 2006/07 | 171 | 50 | 23% | 7 | 228 | 228 | 100% | 0 | 0% | 0 |
| 2007/08 | 124 | 53 | 30% | 9 | 186 | 152 | 88% | 20 | 12% | 14 |
| 2008/09 | 139 | 34 | 20% | 0 | 173 | 170 | 100% | 0 | 0% | 3 |

[a] Beaver < 52”

Table 3. Unit 11 otter harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Males | % | Females | Unk. | Total | Trap/snare | % | Shot | % Shot | Unk. |
| 2001/02 | 0 | 0% | 1 | 1 | 1 | 1 | 100% | 0 | 0% | 0 |
| 2002/03 | 1 | 50% | 1 | 0 | 2 | 2 | 100% | 0 | 0% | 0 |
| 2003/04 | 2 | 40% | 3 | 0 | 5 | 5 | 100% | 0 | 0% | 0 |
| 2004/05 | 4 | 80% | 1 | 1 | 6 | 2 | 67% | 1 | 33% | 3 |
| 2005/06 | 4 | 80% | 1 | 0 | 5 | 5 | 100% | 0 | 0% | 0 |
| 2006/07 | 3 | 100% | 0 | 0 | 3 | 3 | 100% | 0 | 0% | 0 |
| 2007/08 | 1 | 33% | 2 | 1 | 4 | 4 | 100% | 0 | 0% | 0 |
| 2008/09 | 3 | 60% | 2 | 0 | 5 | 5 | 100% | 0 | 0% | 0 |



Table 4. Unit 13 otter harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Males | % | Females | Unk. | Total | Trap/snare | % | Shot | % Shot | Unk. |
| 2001/02 | 21 | 81% | 5 | 8 | 34 | 31 | 91% | 3 | 9% | 0 |
| 2002/03 | 15 | 68% | 7 | 6 | 28 | 26 | 93% | 2 | 7% | 0 |
| 2003/04 | 24 | 51% | 23 | 2 | 49 | 46 | 98% | 1 | 2% | 2 |
| 2004/05 | 27 | 73% | 10 | 1 | 38 | 37 | 100% | 0 | 0% | 1 |
| 2005/06 | 26 | 59% | 18 | 1 | 46 | 40 | 100% | 0 | 0% | 6 |
| 2006/07 | 25 | 68% | 12 | 1 | 38 | 33 | 87% | 5 | 13% | 0 |
| 2007/08 | 13 | 54% | 11 | 1 | 25 | 25 | 100% | 0 | 0% | 0 |
| 2008/09 | 28 | 80% | 7 | 6 | 41 | 40 | 98% | 1 | 2% | 0 |

Table 5. Unit 11 lynx harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Adult | Juv.[a] | %[a] | Unk. | Total | Trap/snare | % | Shot | % Shot | Unk. |
| 2001/02 | 28 | 3 | 10% | 1 | 32 | 28 | 88% | 4 | 13% | 0 |
| 2002/03 | 1 | 1 | 50% | 0 | 2 | 2 | 100% | 0 | 0% | 0 |
| 2003/04 | 6 | 0 | 0% | 0 | 6 | 6 | 100% | 0 | 0% | 0 |
| 2004/05 | 5 | 0 | 0% | 0 | 5 | 4 | 100% | 0 | 0% | 1 |
| 2005/06 | 23 | 12 | 34% | 0 | 35 | 32 | 100% | 0 | 0% | 3 |
| 2006/07 | 73 | 24 | 25% | 0 | 97 | 97 | 100% | 0 | 0% | 0 |
| 2007/08 | 144 | 52 | 27% | 0 | 196 | 196 | 100% | 0 | 0% | 0 |
| 2008/09 | 235 | 115 | 33% | 0 | 350 | 349 | 100% | 1 | 0% | 0 |

[a] Lynx ≤ 35” in length.



Table 6. Unit 13 lynx harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Adult | Juv.[a] | %[a] | Unk. | Total | Trap/snare | % | Shot | % Shot | Unk. |
| 2001/02 | 158 | 22 | 12% | 15 | 195 | 161 | 85% | 29 | 15% | 5 |
| 2002/03 | 33 | 7 | 18% | 2 | 42 | 37 | 88% | 5 | 12% | 0 |
| 2003/04 | 51 | 14 | 22% | 7 | 72 | 64 | 89% | 8 | 11% | 0 |
| 2004/05 | 78 | 26 | 25% | 1 | 105 | 101 | 96% | 4 | 4% | 0 |
| 2005/06 | 104 | 47 | 31% | 4 | 155 | 123 | 95% | 6 | 5% | 26 |
| 2006/07 | 281 | 35 | 11% | 14 | 330 | 319 | 97% | 11 | 3% | 0 |
| 2007/08 | 417 | 123 | 23% | 11 | 551 | 532 | 98% | 12 | 2% | 7 |
| 2008/09 | 671 | 269 | 29% | 53 | 993 | 965 | 98% | 15 | 2% | 13 |

[a] Lynx ≤ 35” in length.

Table 7. Unit 11 wolverine harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Males | (%) | Females | (%) | Unk. | Total | Trap/snare | (%) | Shot | % Shot | Unk. |
| 2001/02 | 2 | 40% | 3 | 60% | 1 | 6 | 5 | 83% | 1 | 17% | 0 |
| 2002/03 | 2 | 67% | 1 | 33% | 0 | 3 | 3 | 100% | 0 | 0% | 0 |
| 2003/04 | 7 | 78% | 2 | 22% | 0 | 9 | 8 | 89% | 1 | 11% | 0 |
| 2004/05 | 13 | 81% | 3 | 19% | 0 | 16 | 16 | 100% | 0 | 0% | 0 |
| 2005/06 | 10 | 83% | 2 | 17% | 0 | 12 | 11 | 92% | 1 | 8% | 0 |
| 2006/07 | 2 | 29% | 5 | 71% | 0 | 7 | 6 | 86% | 1 | 14% | 0 |
| 2007/08 | 16 | 76% | 5 | 24% | 0 | 21 | 21 | 100% | 0 | 0% | 0 |
| 2008/09 | 6 | 75% | 2 | 25% | 0 | 8 | 8 | 100% | 0 | 0% | 0 |



Table 8. Unit 13 wolverine harvest, 2001-2009

| Regulatory | Reported Harvest | | | | | | Method of Take | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | (%) | Females | (%) | Unk. | Total | Trap/snare | (%) | Shot | % Shot | Unk. |
| 2001/02 | 27 | 59% | 19 | 41% | 7 | 53 | 49 | 96% | 2 | 4% | 0 |
| 2002/03 | 12 | 50% | 12 | 50% | 1 | 25 | 23 | 92% | 2 | 8% | 0 |
| 2003/04 | 26 | 74% | 9 | 26% | 0 | 35 | 31 | 89% | 4 | 11% | 0 |
| 2004/05 | 26 | 60% | 17 | 40% | 0 | 43 | 32 | 74% | 11 | 26% | 0 |
| 2005/06 | 23 | 53% | 20 | 47% | 0 | 43 | 42 | 98% | 1 | 2% | 0 |
| 2006/07 | 22 | 63% | 13 | 37% | 0 | 35 | 29 | 85% | 5 | 15% | 1 |
| 2007/08 | 34 | 76% | 11 | 24% | 1 | 46 | 38 | 83% | 8 | 17% | 0 |
| 2008/09 | 23 | 59% | 16 | 41% | 1 | 40 | 38 | 95% | 2 | 5% | 0 |

Table 9. Unit 11 beaver harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | September | October | November | December | January | February | March | April | *n* |
| 2001/02[a] | -- | -- | 17 | 0 | 0 | 33 | 17 | 0 | 6 |
| 2002/03 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003/04 | -- | -- | 57 | 43 | 0 | 0 | 0 | 0 | 7 |
| 2004/05[b] | -- | -- | 7 | 53 | 20 | 0 | 0 | 0 | 15 |
| 2005/06 | -- | -- | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| 2006/07 | -- | -- | 29 | 71 | 0 | 0 | 0 | 0 | 7 |
| 2007/08 | 0 | 6 | 23 | 16 | 0 | 0 | 29 | 26 | 31 |
| 2008/09 | 9 | 0 | 23 | 14 | 0 | 0 | 32 | 23 | 22 |

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



Table 10. Unit 13 beaver harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | August[a] | September | October | November | December | January | February | March | April | May | *n* |
| 2001/02[b] | 5 | 7 | 36 | 12 | 23 | 2 | 4 | 3 | 3 | 6 | 202 |
| 2002/03 | 0 | 17 | 49 | 15 | 12 | 2 | 2 | 1 | 1 | 1 | 360 |
| 2003/04 | 10 | 5 | 38 | 12 | 5 | 2 | 2 | 3 | 8 | 15 | 192 |
| 2004/05 | 0 | 16 | 44 | 18 | 9 | 1 | 5 | 8 | 0 | 0 | 187 |
| 2005/06 | 0 | 28 | 25 | 10 | 5 | 2 | 1 | 7 | 7 | 15 | 230 |
| 2006/07 | 0 | 19 | 35 | 8 | 7 | 1 | 5 | 0 | 4 | 21 | 228 |
| 2007/08 | 5 | 18 | 32 | 17 | 2 | 2 | 0 | 8 | 8 | 8 | 186 |
| 2008/09 | 0 | 28 | 27 | 12 | 3 | 2 | 6 | 3 | 1 | 18 | 173 |

[a] All beaver harvested in August were taken under Federal Subsistence Regulations.
[b] One (5%) was taken in June under Federal Subsistence Regulations.

Table 11. Unit 11 otter harvest chronology percent by month, 2001-2009

| Regulatory | Harvest periods | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | November | December | January | February | March | April | *N* |
| 2001/02 | 0 | 0 | 0 | 100 | 0 | 0 | 1 |
| 2002/03 | 0 | 50 | 0 | 50 | 0 | 0 | 2 |
| 2003/04 | 0 | 80 | 0 | 0 | 20 | 0 | 5 |
| 2004/05 | 50 | 0 | 17 | 33 | 0 | 0 | 6 |
| 2005/06 | 20 | 20 | 0 | 40 | 20 | 0 | 5 |
| 2006/07 | 0 | 0 | 0 | 0 | 100 | 0 | 3 |
| 2007/08 | 50 | 0 | 25 | 25 | 0 | 0 | 4 |
| 2008/09 | 80 | 0 | 0 | 0 | 20 | 0 | 5 |



Table 12 . Unit 13 otter harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | November | December | January | February | March | April | *n* |
| 2001/02 | 3 | 24 | 35 | 29 | 3 | 6 | 34 |
| 2002/03 | 28 | 34 | 17 | 10 | 10 | 0 | 29 |
| 2003/04 | 6 | 21 | 17 | 33 | 23 | 0 | 48 |
| 2004/05 | 16 | 24 | 21 | 18 | 21 | 0 | 38 |
| 2005/06 | 9 | 11 | 39 | 26 | 15 | 0 | 46 |
| 2006/07 | 8 | 24 | 14 | 41 | 14 | 0 | 38 |
| 2007/08 | 4 | 12 | 52 | 24 | 4 | 4 | 25 |
| 2008/09 | 15 | 32 | 22 | 29 | 2 | 0 | 41 |

Table 13. Unit 11 lynx harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | |
|---|---|---|---|---|---|
| Year | November | December | January | February | *n* |
| 2001/02 | 0 | 69 | 28 | 3 | 32 |
| 2002/03 | 0 | 50 | 50 | 0 | 2 |
| 2003/04 | 0 | 50 | 50 | 0 | 6 |
| 2004/05 | 0 | 60 | 40 | 0 | 5 |
| 2005/06 | 0 | 44 | 56 | 0 | 35 |
| 2006/07 | 0 | 21 | 49 | 30 | 97 |
| 2007/08 | 2 | 20 | 37 | 42 | 196 |
| 2008/09 | 11 | 19 | 33 | 37 | 350 |

Table 14 . Unit 13 lynx harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | |
|---|---|---|---|---|---|
| Year | November | December | January | February | *n* |
| 2001/02 [a] | 7 | 52 | 38 | 3 | 195 |
| 2002/03 | 2 | 55 | 43 | 0 | 42 |
| 2003/04 | 3 | 47 | 47 | 3 | 72 |
| 2004/05 | 1 | 57 | 42 | 0 | 105 |
| 2005/06 | 3 | 42 | 54 | 0 | 155 |
| 2006/07 [a] | 2 | 36 | 42 | 19 | 330 |
| 2007/08 | 9 | 26 | 36 | 30 | 551 |
| 2008/09 | 19 | 31 | 27 | 23 | 993 |

[a] One (1%) taken in March, turned in.

Table 15 . Unit 11 wolverine harvest chronology percent by month, 2001-2009

| Regulatory | Harvest Periods | | | | | |
|---|---|---|---|---|---|---|
| Year | November | December | January | February | March | *n* |
| 2001/02 | 0 | 0 | 100 | 0 | 0 | 6 |
| 2002/03 | 0 | 0 | 100 | 0 | 0 | 3 |
| 2003/04 | 25 | 0 | 63 | 13 | 0 | 9 |
| 2004/05 | 0 | 31 | 69 | 0 | 0 | 16 |
| 2005/06 | 0 | 42 | 58 | 0 | 0 | 12 |
| 2006/07 | 0 | 0 | 50 | 50 | 0 | 7 |
| 2007/08 | 0 | 48 | 52 | 0 | 0 | 21 |
| 2008/09 | 13 | 25 | 25 | 38 | 0 | 8 |



Table 16. Unit 13 wolverine harvest chronology percent by month, 2001-2009

| Regulatory | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | September | October | November | December | January | February | March | *n* |
| 2001/02 | 0 | 0 | 4 | 45 | 49 | 2 | 0 | 51 |
| 2002/03 | 4 | 0 | 4 | 20 | 72 | 0 | 0 | 25 |
| 2003/04 | 3 | 0 | 3 | 34 | 57 | 3 | 0 | 35 |
| 2004/05 | 12 | 0 | 9 | 26 | 53 | 0 | 0 | 43 |
| 2005/06 | 0 | 0 | 2 | 35 | 58 | 5 | 0 | 43 |
| 2006/07 | 11 | 0 | 14 | 31 | 43 | 0 | 0 | 35 |
| 2007/08 | 11 | 0 | 15 | 35 | 39 | 0 | 0 | 46 |
| 2008/09 | 0 | 0 | 10 | 48 | 43 | 0 | 0 | 40 |

Table 17. Unit 11 beaver harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 0 | 0 | 0 | 50 | 0 | 0 | 50 | 6 |
| 2002/03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003/04 | 0 | 57 | 0 | 0 | 43 | 0 | 0 | 7 |
| 2004/05 | 0 | 0 | 0 | 0 | 80 | 0 | 20 | 15 |
| 2005/06 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 1 |
| 2006/07 | 0 | 29 | 0 | 0 | 71 | 0 | 0 | 7 |
| 2007/08 | 0 | 0 | 0 | 0 | 74 | 0 | 26 | 31 |
| 2008/09 | 0 | 5 | 0 | 27 | 59 | 0 | 9 | 22 |



Table 18. Unit 13 beaver harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 2 | 30 | 8 | 13 | 20 | 5 | 23 | 202 |
| 2002/03 | 0 | 4 | 39 | 14 | 15 | 0 | 28 | 360 |
| 2003/04 | 0 | 6 | 10 | 12 | 33 | 0 | 39 | 192 |
| 2004/05 | 3 | 7 | 21 | 14 | 31 | 3 | 22 | 187 |
| 2005/06 | 7 | 11 | 12 | 13 | 17 | 0 | 40 | 231 |
| 2006/07 | 1 | 10 | 36 | 7 | 22 | 0 | 25 | 228 |
| 2007/08 | 0 | 7 | 22 | 18 | 18 | 6 | 28 | 186 |
| 2008/09 | 5 | 2 | 38 | 6 | 21 | 3 | 25 | 173 |

Table 19. Unit 11 otter harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2002/03 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 2 |
| 2003/04 | 0 | 80 | 0 | 0 | 0 | 0 | 20 | 5 |
| 2004/05 | 0 | 33 | 0 | 0 | 67 | 0 | 0 | 6 |
| 2005/06 | 20 | 0 | 0 | 0 | 80 | 0 | 0 | 5 |
| 2006/07 | 0 | 67 | 0 | 0 | 33 | 0 | 0 | 3 |
| 2007/08 | 0 | 25 | 0 | 0 | 75 | 0 | 0 | 4 |
| 2008/09 | 0 | 20 | 0 | 0 | 80 | 0 | 0 | 5 |



Table 20. Unit 13 otter harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 24 | 6 | 0 | 0 | 56 | 3 | 12 | 34 |
| 2002/03 | 7 | 0 | 0 | 7 | 64 | 0 | 21 | 28 |
| 2003/04 | 6 | 2 | 0 | 0 | 66 | 0 | 26 | 49 |
| 2004/05 | 0 | 0 | 0 | 0 | 81 | 0 | 19 | 38 |
| 2005/06 | 3 | 3 | 5 | 3 | 80 | 5 | 3 | 46 |
| 2006/07 | 0 | 3 | 0 | 0 | 97 | 0 | 0 | 38 |
| 2007/08 | 0 | 0 | 0 | 0 | 96 | 0 | 4 | 25 |
| 2008/09 | 0 | 17 | 0 | 0 | 78 | 0 | 5 | 41 |

Table 21. Unit 11 lynx harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 0 | 0 | 0 | 0 | 81 | 0 | 19 | 32 |
| 2002/03 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 2 |
| 2003/04 | 0 | 33 | 0 | 0 | 67 | 0 | 0 | 6 |
| 2004/05 | 0 | 20 | 0 | 0 | 80 | 0 | 0 | 5 |
| 2005/06 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 35 |
| 2006/07 | 2 | 5 | 0 | 0 | 82 | 10 | 0 | 97 |
| 2007/08 | 0 | 1 | 0 | 0 | 99 | 0 | 1 | 196 |
| 2008/09 | 0 | 2 | 0 | 1 | 97 | 0 | 0 | 350 |



Table 22. Unit 13 lynx harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 0 | 10 | 1 | 1 | 65 | 1 | 23 | 195 |
| 2002/03 | 0 | 0 | 7 | 0 | 83 | 0 | 10 | 42 |
| 2003/04 | 0 | 0 | 0 | 1 | 78 | 0 | 20 | 72 |
| 2004/05 | 1 | 4 | 0 | 2 | 86 | 0 | 7 | 105 |
| 2005/06 | 0 | 2 | 0 | 2 | 83 | 0 | 14 | 155 |
| 2006/07 | 0 | 0 | 0 | 0 | 90 | 3 | 6 | 330 |
| 2007/08 | 0 | 3 | 0 | 0 | 93 | 1 | 3 | 551 |
| 2008/09 | 0 | 2 | 0 | 0 | 94 | 0 | 5 | 993 |

Table 23. Unit 11 wolverine harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 17 | 0 | 0 | 0 | 83 | 0 | 0 | 6 |
| 2002/03 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 3 |
| 2003/04 | 0 | 22 | 0 | 11 | 56 | 11 | 0 | 9 |
| 2004/05 | 6 | 13 | 0 | 0 | 81 | 0 | 0 | 16 |
| 2005/06 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 12 |
| 2006/07 | 0 | 0 | 14 | 0 | 86 | 0 | 0 | 7 |
| 2007/08 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 21 |
| 2008/09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |



Table 24. Unit 13 wolverine harvest percent by transport method, 2001-2009

| | Percent of Harvest | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway Vehicle | *n* |
| 2001/02 | 6 | 8 | 0 | 0 | 76 | 0 | 10 | 51 |
| 2002/03 | 9 | 5 | 0 | 5 | 77 | 0 | 5 | 25 |
| 2003/04 | 14 | 0 | 0 | 0 | 83 | 0 | 3 | 35 |
| 2004/05 | 12 | 2 | 0 | 5 | 67 | 2 | 12 | 43 |
| 2005/06 | 7 | 2 | 0 | 0 | 86 | 0 | 5 | 43 |
| 2006/07 | 16 | 6 | 0 | 6 | 63 | 0 | 9 | 35 |
| 2007/08 | 7 | 2 | 0 | 11 | 72 | 0 | 9 | 46 |
| 2008/09 | 8 | 0 | 0 | 0 | 83 | 0 | 8 | 40 |

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

**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

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

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

## BACKGROUND

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

Marten and lynx are the most economically important furbearers in Units 12 and 20E. During population highs, muskrats are also economically and culturally important in Unit 12. Beavers are an important subsistence resource to Northway residents but are lightly trapped in most of the area. Most wolverine trapping in Unit 20E occurs in the southern portion of the unit and remains relatively consistent. Wolverine trapping in Unit 20E has historically been low due to low abundance. 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 GOALS

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

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

### 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.

## METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed. Additional information collected at the time of sealing included: trapper name; harvest location; harvest date; pelt measurements for lynx and river otter; sex of the furbearer; method of take; and method of transportation used. Annual harvest estimates for river otter included a subjective estimate of unreported take because some pelts were used in the trappers' homes and were not sealed. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY06 = 1 July 2006 through 30 June 2007).

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. 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. in press).

## 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.

*Lynx* — Based on track surveys, 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 1997–1999. Years of high kitten production corresponded with years of high snowshoe hare numbers. The percentage of kittens in the harvest (Tables 1 and 2) indicate that lynx numbers were at a low in their cycle during RY03 and began increasing in RY04. The combination of these data with annual harvests indicates that the lynx population was increasing during RY06–RY08.

*Red Fox, Muskrat, Coyote, Beaver, Marten, and Wolverine* — Information from interviews with trappers indicates red fox, muskrat, coyote, and beaver populations were stable at moderate to high levels, while marten declined to moderate to low numbers during RY03–RY05 (Blejwas 2007). Based on observations by department personnel and interviews with area trappers, marten increased during RY06–RY08, particularly within large areas burned in the 2004 and 2005 wildfires. Wolverine numbers appear to be increasing in Unit 20E based on harvest and trapper comments.

*River Otter, Ermine, Mink, Red Squirrels* —Trapper questionnaire (Blejwas 2009) results and observations by area pilots and department personnel indicated that river otters were common in both Units 12 and 20E during RY06, and ermine and mink were common and stable. Red squirrels were also reported to be abundant in both units. There was little trapper demand for these species. Based on incidental sightings made by department personnel during surveys for other species and on discussions with many area trappers, population trends for these species remained the same during RY06–RY08. In addition, trends of prey species were noted during RY06–RY08, snowshoe hares were common and increased to very high levels by winter of RY08 and declined in RY09. Ptarmigan were declining in some areas, grouse were uncommon, and microtines were common to abundant throughout Units 12 and 20E.

*Population Composition*

*Lynx* — The low percentage of kittens in the harvest (Tables 1 and 2) indicate that lynx numbers were at a low in their cycle during RY03. The percent kitten in the harvest began increasing in RY04, continued increasing through RY06–RY08 and likely peaked by winter of RY08.

There is no information on the population composition of other furbearer species in Units 12 and 20E during RY06–RY08.

*Distribution and movements*

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

There were no other studies on the specific distribution or movements of furbearers in Units 12 and 20E during RY06–RY08.

**MORTALITY**

*Harvest*

Seasons and Bag Limits. Seasons and bag limits for RY06–RY08 are presented in Table 3.

Alaska Board of Game Actions and Emergency Orders.

*Lynx* — In spring 2004 the Board of Game adopted a proposal by local residents to discontinue use of the lynx harvest tracking strategy in Units 12 and 20E. Because few people targeted lynx, they believed that harvest would not adversely affect the lynx population, even when the lynx population is at cyclic lows. This action maintained the lynx season at

1 November–28 February each year, regardless of the lynx cycle. The bag limit remained at 5 lynx during November and no bag limit during the remainder of the season. In 2006 the Board of Game extended the lynx trapping season in Units 12 and 20E to 15 March. 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 Unit 20, including 20E.

*Beaver* — At the March 2006 meeting, the board lengthened the beaver trapping season to 15 September–31 May, with a limit of 25 beavers in Units 12 and 20E. 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* — At the March 2006 meeting, the trapping season for red fox and wolverine in Units 12 and 20E was lengthened to 1 November–15 March with no bag limit for either species. In 2010 the coyote hunting season was expanded to 10 August–25 May with no bag limit.

Hunter Trapper Harvest.

*Lynx* — During RY06–RY08, the lynx harvest increased from 356 to 481 in Unit 12 (Table 1) and from 142 to 331 in Unit 20E (Table 2). Lynx pelt prices ranged $126–$280 during RY06–RY08 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 15 June 2010). Based on pelt measurements, the percentage of kittens (≤35 inches) in the harvest ranged 8–18% in Unit 12 and decreased from 20% to 6% in Unit 20E (Tables 1 and 2). During RY06–RY08 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).

*Marten* — Historically in Units 12 and 20E, marten trapping contributed most of the income for area trappers. Information from trapper questionnaires and trapper interviews indicated marten remains the most economically important furbearer in Units 12 and 20E. During RY06–RY08 many area trappers increased marten trapping efforts due to increased pelt prices in 2008 (ranging $107–$108 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 15 June 2010), which continued until fur prices declined in 2009.

*Wolverine* — During RY06–RY08 the wolverine harvest was 17–22 ($\bar{x}$ = 19*)* in Unit 12 and 8–24 ($\bar{x}$ = 16*)* in Unit 20E (Tables 1 and 2). The Unit 12 harvest was average, while the Unit 20E harvest was above average compared to the long-term (RY86–RY05) mean annual harvest of 19 and 7 respectively. Wolverine pelt prices ranged from $199–$280 during RY06–RY08 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 15 June 2010).

*Beaver* — Sealing requirements for beaver were eliminated in RY02, therefore no harvest data are available for RY06–RY08. Beaver harvest in Units 12 and 20E was historically low (Gross 2004). Most harvest in Unit 12 occurred near Northway, while in Unit 20E most harvest occurred along the Yukon River by residents of Eagle who use beaver as food and for

making handicrafts. Beaver pelt prices ranged from $19–$28 during RY06–RY08 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 15 June 2010).

*River Otter* — River otter populations in both Units 12 and 20E were low due to a lack of suitable habitat. Trappers seldom selected for river otters due to low fur prices and the difficulty of catching them. During the past 10 years, an average of 5 river otters were taken annually in Unit 12 (Table 1), while only 2 otters have been trapped in Unit 20E since 2000 (Table 2). River otter pelt prices ranged $28–$47 during RY06–RY08 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 15 June 2010).

Method of Take. Most trappers (97%) used traps or snares as their primary method of harvesting furbearers, in Units 12 and 20E during RY06–RY08 (Tables 1 and 2).

Transport Methods. Most trappers (88%) used snowmachines as their primary form of transportation to access all furbearer species in Units 12 and 20E during RY06–RY08 (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) was the primary action taken in Units 12 and 20E to restore habitat diversity and productivity for all species. Prior to the mid 1990s, 30 years of strict fire suppression in Units 12 and 20E created an older, less diverse mosaic of habitats than would have existed under a natural fire regime. Lack of early- to medium-aged seral habitats may have limited snowshoe hare and microtine numbers, and ultimately, lynx, marten, and other species. Since 1995, 3 prescribed burns increased areas of early- to medium-aged seral habitats in Unit 20E, and incidental sightings and trapping records indicate that snowshoe hare and lynx numbers were higher in these areas compared to the remainder of Unit 20E. In 2004 and 2005, wildfires burned 1875 $mi^2$ of land within, or adjacent to Unit 20E, burning approximately 17% of the total furbearer habitat within Unit 20E.

Past logging operations occurred in various areas in Unit 12, and a cooperative Alaska Department of Fish and Game–Alaska Department of Natural Resources timber harvest project has been developed for the Tok River valley; 20- to 80-acre clearcuts will be treated to encourage hardwood regeneration with the objective of simulating natural succession. Logging and the subsequent forest treatments were begun in 2008. More than 1000 acres are planned to be harvested in this project by 2020. In Unit 12, wildfires burned approximately 434 $mi^2$ during 1990 and 2004. All furbearers and their prey species are expected to benefit from the 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 RY06–RY08. We maintained accurate annual harvest records based on sealing documents and monitored population trends and harvest through sealing selected furs, and conducting trapper surveys and interviews. During RY06–RY08 no new research or management findings were available to develop specific population or harvest objectives for furbearers.

Overall trapping effort was not directly measured. However, information collected from sealing data, trapper questionnaires, and discussions with area trappers indicated that trapping effort was increasing during RY03–RY06, and peaked during RY07 and RY08, coinciding with high pelt prices and elevated lynx numbers.

Following the cyclic high in snowshoe hare numbers, lynx numbers and harvest increased to high levels in Units 12 and 20E during RY07 and RY08. Lynx pelt prices were relatively high during this period. The combination of the downward trend of the lynx cycle, and possibly lower lynx pelt prices will likely decrease trapper effort in the next few years as the trend continues. Although I expect the lynx population and harvest to decline during the next report period, I do not expect the population decline to be detrimental to the long-term health of the lynx population and I recommend no regulatory change.

Marten were the most sought-after furbearer in both units. High marten prices in RY06–RY08 probably caused an increase in effort compared to RY00–RY02. Marten harvest varied among individual trappers and was proportional to local marten abundance along individual traplines and trapper effort. However, compared to the amount of refugia available, marten harvest is unlikely to be limiting the population. I recommend no regulatory changes.

The majority of wolverines are harvested by a few area trappers who selected for wolverine due to their high market value relative to other furbearer species. Wolverine harvest is currently low compared to the amount of refugia available and I recommend no change in wolverine management.

Other furbearer populations are not targeted by area trappers. Based on incidental observations made by department personnel and discussions with area trappers, population status and trends of these species do not warrant changes in seasons and bag limits or methods and means.

## LITERATURE CITED

ALASKA WILDLAND FIRE COORDINATING GROUP. 1998. Alaska interagency wildland fire management plan. <http://forestry.alaska.gov/pdfs/98AIFMP.pdf> Accessed 15 June 2010

BLEJWAS, K. 2007 Trapper Questionnaire – Statewide Annual Report, 1 July 2005–30 June 2006. Alaska Department of Fish and Game. 70pp.

BLEJWAS, K. 2009. Trapper Questionnaire – Statewide Annual Report, 1 July 2006–30 June 2007. Alaska Department of Fish and Game. 76pp.

GARDNER, C. L., J. P. LAWLER, J. M. VER HOEF, A. J. MAGOUN, AND K. A. KELLIE. In press. Coarse-scale distribution surveys and occurrence probability modeling for wolverine in Interior Alaska. Journal of Wildlife Management.

GROSS, J. A. 2004. Units 12 and 20E furbearer. Pages 150–169 *in* C. Healy, editor. Furbearer management report of survey and inventory activities 1 July 2000–30 June 2003. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.

HOLLIS, A. L. 2007. Units 12 and 20E furbearer. Pages 140–154 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.

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TABLE 1 Unit 12 lynx, river otter, and wolverine harvest, regulatory years 2000–2001 through 2008–2009

| Species/ Regulatory year | Reported harvest | | | | | | Estimated harvest | | Method of reported take | | | Total harvest | Successful trappers/ hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sex | | | Age | | | | | | | | | |
| | M | F | Unk | Juv | Adults | Unk | Unreported | Illegal | Trap/snare | Shot | Unk | | |
| *Lynx* | | | | | | | | | | | | | |
| 2000–2001 | 0 | 0 | 171 | 27 | 126 | 18 | 0 | 0 | 103 | 28 | 40 | 171 | 38 |
| 2001–2002 | 0 | 0 | 88 | 10 | 65 | 13 | 0 | 0 | 79 | 9 | 0 | 88 | 36 |
| 2002–2003 | 0 | 0 | 27 | 0 | 27 | 0 | 0 | 0 | 25 | 2 | 0 | 27 | 16 |
| 2003–2004 | 0 | 0 | 30 | 2 | 28 | 0 | 0 | 0 | 26 | 3 | 1 | 30 | 11 |
| 2004–2005 | 0 | 0 | 98 | 18 | 79 | 1 | 0 | 0 | 90 | 5 | 3 | 98 | 16 |
| 2005–2006 | 0 | 0 | 113 | 26 | 87 | 0 | 0 | 0 | 107 | 6 | 0 | 113 | 20 |
| 2006–2007 | 0 | 0 | 356 | 50 | 306 | 0 | 0 | 0 | 348 | 1 | 7 | 356 | 37 |
| 2007–2008 | 0 | 0 | 373 | 30 | 343 | 0 | 0 | 0 | 337 | 8 | 28 | 373 | 44 |
| 2008–2009 | 0 | 0 | 481 | 76 | 405 | 0 | 0 | 0 | 474 | 3 | 4 | 481 | 52 |
| *River Otter* | | | | | | | | | | | | | |
| 2000–2001 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 0 | 3 | 0 | 0 | 6 | 3 |
| 2001–2002 | 1 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | 2 | 0 | 0 | 5 | 1 |
| 2002–2003 | 3 | 2 | 0 | 0 | 0 | 5 | 3 | 0 | 5 | 0 | 0 | 8 | 2 |
| 2003–2004 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 4 | 1 |
| 2004–2005 | 5 | 1 | 0 | 0 | 0 | 6 | 3 | 0 | 6 | 0 | 0 | 9 | 4 |
| 2005–2006 | 2 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 2 | 0 | 0 | 5 | 2 |
| 2006–2007 | 2 | 1 | 2 | 0 | 0 | 5 | 3 | 0 | 5 | 0 | 0 | 8 | 5 |
| 2007–2008 | 2 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 2 | 0 | 0 | 5 | 2 |
| 2008–2009 | 1 | 1 | 0 | 0 | 0 | 2 | 3 | 0 | 2 | 0 | 0 | 5 | 2 |
| *Wolverine* | | | | | | | | | | | | | |
| 2000–2001 | 18 | 9 | 0 | 0 | 0 | 27 | 0 | 0 | 26 | 1 | 0 | 27 | 15 |
| 2001–2002 | 16 | 4 | 1 | 0 | 0 | 21 | 0 | 0 | 20 | 1 | 0 | 21 | 13 |
| 2002–2003 | 13 | 3 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 0 | 0 | 16 | 12 |
| 2003–2004 | 9 | 3 | 0 | 0 | 0 | 12 | 0 | 0 | 10 | 2 | 0 | 12 | 8 |
| 2004–2005 | 15 | 11 | 0 | 0 | 0 | 26 | 0 | 0 | 23 | 3 | 0 | 26 | 14 |
| 2005–2006 | 15 | 5 | 0 | 0 | 0 | 20 | 0 | 0 | 19 | 1 | 0 | 20 | 11 |
| 2006–2007 | 12 | 5 | 0 | 0 | 0 | 17 | 0 | 0 | 17 | 0 | 0 | 17 | 13 |
| 2007–2008 | 18 | 4 | 0 | 0 | 0 | 22 | 0 | 0 | 20 | 2 | 0 | 22 | 12 |
| 2008–2009 | 13 | 6 | 0 | 0 | 0 | 19 | 0 | 0 | 17 | 2 | 0 | 19 | 9 |

TABLE 2 Unit 20E lynx, river otter, and wolverine harvest, regulatory years 2000–2001 through 2008–2009

| Species/ Regulatory year | Reported harvest | | | | | | Estimated harvest | | Method of take | | | Total harvest | Successful trappers/ hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sex | | | Age | | | | | | | | | |
| | M | F | Unk | Juv | Adults | Unk | Unreported | Illegal | Trap/snare | Shot | Unk | | |
| *Lynx* | | | | | | | | | | | | | |
| 2000–2001 | 0 | 0 | 74 | 4 | 44 | 26 | 0 | 0 | 54 | 2 | 18 | 74 | 12 |
| 2001–2002 | 0 | 0 | 56 | 4 | 52 | 0 | 0 | 0 | 39 | 7 | 10 | 56 | 16 |
| 2002–2003 | 0 | 0 | 18 | 2 | 16 | 0 | 0 | 0 | 17 | 1 | 0 | 18 | 5 |
| 2003–2004 | 0 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 6 | 0 | 0 | 6 | 3 |
| 2004–2005 | 0 | 0 | 22 | 10 | 12 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 5 |
| 2005–2006 | 0 | 0 | 89 | 10 | 79 | 0 | 0 | 0 | 89 | 0 | 0 | 89 | 10 |
| 2006–2007 | 0 | 0 | 142 | 24 | 117 | 1 | 0 | 0 | 141 | 1 | 0 | 142 | 11 |
| 2007–2008 | 0 | 0 | 298 | 48 | 249 | 1 | 0 | 0 | 295 | 3 | 0 | 298 | 17 |
| 2008–2009 | 0 | 0 | 331 | 19 | 311 | 1 | 0 | 0 | 331 | 0 | 0 | 331 | 18 |
| *River Otter* | | | | | | | | | | | | | |
| 2000–2001 | 0 | 0 | 0 | | | | | | | | | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | | | | | | | | | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | | | | | | | | | 0 | 0 |
| 2003–2004 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008–2009 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| *Wolverine* | | | | | | | | | | | | | |
| 2000–2001 | 8 | 1 | 2 | 0 | 0 | 11 | 0 | 0 | 10 | 1 | 0 | 11 | 7 |
| 2001–2002 | 3 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 3 |
| 2002–2003 | 3 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 3 |
| 2003–2004 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 3 | 3 |
| 2004–2005 | 4 | 3 | 0 | 0 | 0 | 7 | 0 | 0 | 4 | 3 | 0 | 7 | 7 |
| 2005–2006 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 | 5 | 3 |
| 2006–2007 | 13 | 3 | 1 | 0 | 0 | 17 | 0 | 0 | 15 | 0 | 2 | 17 | 9 |
| 2007–2008 | 6 | 1 | 1 | 0 | 0 | 8 | 0 | 0 | 8 | 0 | 0 | 8 | 8 |
| 2008–2009 | 16 | 8 | 0 | 0 | 0 | 24 | 0 | 0 | 24 | 0 | 0 | 24 | 6 |

TABLE 3 Furbearer trapping and hunting seasons in Units 12 and 20E, regulatory years 2006–2007 through 2008–2009

| Species/ | Trapping | | Hunting | |
|---|---|---|---|---|
| Regulatory year | Trapping season | Bag limit | Hunting season | Bag limit |
| *Beaver* | | | | |
| 2006–2007 | 15 Sep–31 May | 25 in Unit 12 and 20E | No open season | |
| 2007–2008 | 15 Sep–31 May | 25 in Unit 12 and 20E | No open season | |
| 2008–2009 | 15 Sep–10 June | No limit | No open season | |
| *Coyote* | | | | |
| 2006–2007 | 15 Oct–30 Apr | No limit | 10 Aug –30 Apr | 10 per day |
| 2007–2008 | 15 Oct–30 Apr | No limit | 10 Aug –30 Apr | 10 per day |
| 2008–2009 | 15 Oct–30 Apr | No limit | 10 Aug–30 Apr | 10 per day |
| *Lynx* | | | | |
| 2006–2007 | 1 Nov–30 Nov | 5 | 1 Nov–15 Mar | 2 |
| | 1 Dec–15 March | No limit | | |
| 2007–2008 | 1 Nov–30 Nov | 5 | 1 Nov–15 Mar | 2 |
| | 1 Dec–15 March | No limit | | |
| 2008–2009 | 1 Nov–30 Nov | 5 | 1 Nov–15 Mar | 2 |
| | 1 Dec–15 March | No limit | | |
| *Marten* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Mink* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Muskrat* | | | | |
| 2006–2007 | 20 Sep–10 Jun | No limit | No open season | |
| 2007–2008 | 20 Sep–10 Jun | No limit | No open season | |

| Species/ | Trapping | | Hunting | |
|---|---|---|---|---|
| Regulatory year | Trapping season | Bag limit | Hunting season | Bag limit |
| 2008–2009 | 20 Sep–10 Jun | No limit | No open season | |
| *River Otter* | | | | |
| 2006–2007 | 1 Nov–15 Apr | No limit | No open season | |
| 2007–2008 | 1 Nov–15 Apr | No limit | No open season | |
| 2008–2009 | 1 Nov–15 Apr | No limit | No open season | |
| *Red Fox* | | | | |
| 2006–2007 | 1 Nov–15 March | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| 2007–2008 | 1 Nov–15 March | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| 2008–2009 | 1 Nov–15 March | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| *Red Squirrel* | | | | |
| 2006–2007 | No closed season | No limit | No closed season | No limit |
| 2007–2008 | No closed season | No limit | No closed season | No limit |
| 2008–2009 | No closed season | No limit | No closed season | No limit |
| *Weasel (Ermine)* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Wolverine* | | | | |
| 2006–2007 | 1 Nov–15 March | No limit | 1 Sep–31 Mar | 1 |
| 2007–2008 | 1 Nov–15 March | No limit | 1 Sep–31 Mar | 1 |
| 2008–2009 | 1 Nov–15 March | No limit | 1 Sep–31 Mar | 1 |

TABLE 4 Unit 12 percent harvest chronologies by month for lynx, river otter, and wolverine, regulatory years 2000–2001 through 2008–2009

| Species/ Regulatory year | Harvest chronology by month | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sep/Oct | Nov | Dec | Jan | Feb | Mar | Apr | Unknown | *n* |
| *Lynx* | | | | | | | | | |
| 2000–2001 | 0 | 10 | 20 | 35 | 26 | 4 | 0 | 5 | 171 |
| 2001–2002 | 0 | 6 | 16 | 40 | 32 | 6 | 0 | 0 | 88 |
| 2002–2003 | 0 | 0 | 40 | 56 | 0 | 4 | 0 | 0 | 27 |
| 2003–2004 | 0 | 10 | 23 | 60 | 7 | 0 | 0 | 0 | 30 |
| 2004–2005 | 0 | 5 | 76 | 14 | 0 | 0 | 1 | 4 | 98 |
| 2005–2006 | 0 | 1 | 52 | 24 | 19 | 2 | 0 | 2 | 113 |
| 2006–2007 | 0 | 4 | 33 | 26 | 27 | 10 | 0 | 0 | 356 |
| 2007–2008 | 0 | 10 | 22 | 31 | 25 | 8 | 0 | 4 | 373 |
| 2008–2009 | 0 | 8 | 38 | 24 | 27 | 3 | 0 | 0 | 481 |
| *River Otter* | | | | | | | | | |
| 2000–2001 | 0 | 0 | 0 | 0 | 67 | 0 | 33 | 0 | 3 |
| 2001–2002 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2002–2003 | 0 | 0 | 40 | 60 | 0 | 0 | 0 | 0 | 5 |
| 2003–2004 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2004–2005 | 0 | 0 | 33 | 33 | 17 | 0 | 17 | 0 | 6 |
| 2005–2006 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 0 | 2 |
| 2006–2007 | 0 | 0 | 0 | 60 | 20 | 20 | 0 | 0 | 5 |
| 2007–2008 | 0 | 50 | 0 | 50 | 0 | 0 | 0 | 0 | 2 |
| 2008–2009 | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 2 |
| *Wolverine* | | | | | | | | | |
| 2000–2001 | 0 | 15 | 22 | 33 | 30 | 0 | 0 | 0 | 27 |
| 2001–2002 | 0 | 14 | 43 | 5 | 33 | 5 | 0 | 0 | 21 |
| 2002–2003 | 0 | 0 | 6 | 50 | 44 | 0 | 0 | 0 | 16 |
| 2003–2004 | 8 | 0 | 17 | 50 | 17 | 8 | 0 | 0 | 12 |
| 2004–2005 | 8 | 8 | 31 | 23 | 27 | 4 | 0 | 0 | 26 |
| 2005–2006 | 4 | 24 | 24 | 24 | 24 | 0 | 0 | 0 | 25 |
| 2006–2007 | 0 | 6 | 24 | 12 | 46 | 12 | 0 | 0 | 17 |
| 2007–2008 | 0 | 0 | 5 | 36 | 23 | 36 | 0 | 0 | 22 |
| 2008–2009 | 11 | 21 | 26 | 21 | 21 | 0 | 0 | 0 | 19 |

TABLE 5 Unit 20E percent harvest chronologies by month for lynx, river otter, and wolverine, regulatory years 2000–2001 through 2008–2009

| Species/ | Harvest chronology by month | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory year | Sep/Oct | Nov | Dec | Jan | Feb | Mar | Apr | Unknown | *n* |
| *Lynx* | | | | | | | | | |
| 2000–2001 | 0 | 1 | 1 | 18 | 39 | 0 | 0 | 41 | 74 |
| 2001–2002 | 0 | 4 | 34 | 26 | 32 | 0 | 0 | 4 | 56 |
| 2002–2003 | 0 | 6 | 6 | 82 | 6 | 0 | 0 | 0 | 18 |
| 2003–2004 | 0 | 17 | 17 | 66 | 0 | 0 | 0 | 0 | 6 |
| 2004–2005 | 0 | 27 | 68 | 0 | 5 | 0 | 0 | 0 | 22 |
| 2005–2006 | 0 | 1 | 46 | 31 | 22 | 0 | 0 | 0 | 89 |
| 2006–2007 | 0 | 2 | 40 | 23 | 17 | 15 | 0 | 3 | 142 |
| 2007–2008 | 0 | 3 | 35 | 31 | 24 | 7 | 0 | 0 | 298 |
| 2008–2009 | 0 | 2 | 38 | 36 | 23 | 1 | 0 | 0 | 331 |
| *River Otter* | | | | | | | | | |
| 2000–2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| 2004–2005 | 29 | 0 | 29 | 0 | 28 | 14 | 0 | 0 | 7 |
| 2005–2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008–2009 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| *Wolverine* | | | | | | | | | |
| 2000–2001 | 0 | 0 | 27 | 28 | 36 | 9 | 0 | 0 | 11 |
| 2001–2002 | 0 | 0 | 20 | 60 | 20 | 0 | 0 | 0 | 5 |
| 2002–2003 | 0 | 0 | 25 | 25 | 50 | 0 | 0 | 0 | 4 |
| 2003–2004 | 0 | 0 | 33 | 33 | 34 | 0 | 0 | 0 | 3 |
| 2004–2005 | 29 | 0 | 29 | 0 | 29 | 14 | 0 | 0 | 7 |
| 2005–2006 | 0 | 40 | 20 | 20 | 20 | 0 | 0 | 0 | 5 |
| 2006–2007 | 0 | 18 | 18 | 18 | 36 | 12 | 0 | 0 | 17 |
| 2007–2008 | 0 | 0 | 0 | 62 | 0 | 38 | 0 | 0 | 8 |
| 2008–2009 | 0 | 4 | 8 | 58 | 25 | 5 | 0 | 0 | 24 |

TABLE 6 Unit 12 percent harvest by transport method, regulatory years 2000–2001 through 2008–2009

| Species/ Regulatory year | Percent harvest by transport method | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis, Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | *n* |
| *Lynx* | | | | | | | | | |
| 2000–2001 | 3 | 6 | 0 | 1 | 74 | 0 | 16 | 0 | 171 |
| 2001–2002 | 2 | 3 | 0 | 0 | 79 | 0 | 13 | 2 | 88 |
| 2002–2003 | 0 | 0 | 0 | 4 | 93 | 0 | 4 | 0 | 27 |
| 2003–2004 | 0 | 10 | 0 | 0 | 83 | 0 | 7 | 0 | 30 |
| 2004–2005 | 3 | 3 | 0 | 0 | 88 | 0 | 3 | 3 | 98 |
| 2005–2006 | 0 | 1 | 0 | 0 | 94 | 0 | 5 | 0 | 113 |
| 2006–2007 | 2 | 0 | 0 | 0 | 88 | 0 | 3 | 7 | 356 |
| 2007–2008 | 8 | 4 | 0 | 1 | 69 | 0 | 9 | 9 | 373 |
| 2008–2009 | 14 | 2 | 0 | 1 | 73 | 0 | 9 | 1 | 481 |
| *River Otter* | | | | | | | | | |
| 2000–2001 | 0 | 0 | 0 | 0 | 67 | 0 | 33 | 0 | 3 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 2 |
| 2002–2003 | 0 | 0 | 0 | 20 | 80 | 0 | 0 | 0 | 5 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| 2004–2005 | 0 | 17 | 0 | 0 | 83 | 0 | 0 | 0 | 6 |
| 2005–2006 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 2 |
| 2006–2007 | 0 | 0 | 0 | 0 | 50 | 0 | 17 | 33 | 5 |
| 2007–2008 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 2 |
| 2008–2009 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 2 |
| *Wolverine* | | | | | | | | | |
| 2000–2001 | 4 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 27 |
| 2001–2002 | 0 | 5 | 0 | 0 | 95 | 0 | 0 | 0 | 21 |
| 2002–2003 | 0 | 19 | 0 | 0 | 81 | 0 | 0 | 0 | 16 |
| 2003–2004 | 33 | 0 | 0 | 0 | 67 | 0 | 0 | 0 | 12 |
| 2004–2005 | 23 | 4 | 0 | 0 | 73 | 0 | 0 | 0 | 26 |
| 2005–2006 | 10 | 5 | 0 | 0 | 80 | 0 | 5 | 0 | 25 |
| 2006–2007 | 12 | 0 | 0 | 0 | 82 | 0 | 0 | 6 | 17 |
| 2007–2008 | 9 | 0 | 0 | 0 | 86 | 0 | 5 | 0 | 22 |
| 2008–2009 | 16 | 5 | 0 | 0 | 79 | 0 | 0 | 0 | 19 |

TABLE 7 Unit 20E percent harvest by transport method, regulatory years 2000–2001 through 2008–2009

| Species/ Regulatory year | Percent harvest by transport method | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis, Snowshoes | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | *n* |
| *Lynx* | | | | | | | | | |
| 2000–2001 | 0 | 3 | 0 | 0 | 96 | 0 | 1 | 0 | 74 |
| 2001–2002 | 2 | 0 | 0 | 0 | 82 | 0 | 13 | 4 | 56 |
| 2002–2003 | 0 | 44 | 0 | 0 | 50 | 0 | 6 | 0 | 18 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 6 |
| 2004–2005 | 9 | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 22 |
| 2005–2006 | 8 | 2 | 0 | 0 | 62 | 0 | 28 | 0 | 89 |
| 2006–2007 | 0 | 1 | 0 | 1 | 79 | 0 | 12 | 6 | 142 |
| 2007–2008 | 3 | 1 | 0 | 1 | 89 | 0 | 6 | 0 | 298 |
| 2008–2009 | 17 | 1 | 0 | 0 | 80 | 0 | 2 | 0 | 331 |
| *River Otter* | | | | | | | | | |
| 2000–2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 2005–2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008–2009 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| *Wolverine* | | | | | | | | | |
| 2000–2001 | 18 | 18 | 0 | 0 | 64 | 0 | 0 | 0 | 11 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 5 |
| 2002–2003 | 50 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 4 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 3 |
| 2004–2005 | 14 | 0 | 0 | 0 | 57 | 0 | 14 | 14 | 7 |
| 2005–2006 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 5 |
| 2006–2007 | 6 | 0 | 0 | 0 | 82 | 0 | 0 | 12 | 17 |
| 2007–2008 | 12 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 8 |
| 2008–2009 | 87 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 24 |

**WILDLIFE**

**MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT:** 14 (6625 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** Eastern Upper Cook Inlet

## BACKGROUND

Game Management Unit 14 is divided into three subunits, and contains more than half (more than 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.

## 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) to evaluate long-term harvest levels. These desired harvest standards are: land otter, 20; lynx, 12 (when the season is open); wolverine, 10; and beaver, 250.

## METHODS

Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to Unit 14 trappers. Harvest data were collected for beaver, land otter, lynx, wolverine, and marten through sealing certificates. The location of harvest was identified and recorded. During sealing, data on age (for beaver and lynx) and sex (for land otter, lynx, marten, and wolverine) were collected when possible. The month, method of take, and mode of hunter/trapper transport were also recorded. Minimum harvest data for other species were collected from available trapper questionnaires (Kavalok 2004, Peltier 2007).

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

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Trappers reported that all species were common or abundant in during the reporting period, except lynx, which were reported as scarce, and wolverine, which were reported as common in 2003–2004 (Peltier, 2005) and have been reported as scarce each year since for which data are available. Wolves were reported as scarce during the 2006 – 2007 and the 2008 – 2009 seasons, but were reported as common during the 2007 – 2008 season. Trappers reported small prey species as abundant or common with the possibility of ptarmigan which was reported as scarce in 2006– 2007 (Blewjas 2010).

Results of the SUPE survey showed a total of 13 sets of wolverine tracks containing 16 individuals were observed. A population estimate of 18.07 wolverines (se = 1.61) was obtained. This was a very precise estimate as evidenced by a low coefficient of variation (CV= 8.9%). We estimated density to be 4.9 wolverines/1000 $km^2$; which is very close to the median (4.8) of the 5 Alaska wolverine density estimates (3.0 to 5.2). 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. No other specific studies investigating furbearer population size or composition were conducted during the reporting period, due to sub-optimal weather and other commitments.

### MORTALITY

Trapping Seasons and Bag Limits (seasons for 2006–09 unless otherwise stated).

| Species | Season | Bag Limit |
|---|---|---|
| Beaver | | |
| Unit14A and B | 10 Nov–15 May | No limit |
| Unit 14C | 1 Dec–15 Apr | 20 per season |
| Coyote | | |
| Unit 14A and B | 10 Nov–31 Mar | No limit |
| Unit 14B (2007–2009) | 10 Nov–30 Apr | No limit |
| Unit 14C | 10 Nov–28 Feb | No limit |
| Red Fox | | |
| Unit 14 | 10 Nov–28 Feb | No limit |
| Unit 14C (within Chugach State Park) | 10 Nov–28 Feb | 1 per season |
| Lynx | 15 Dec–31 Jan | No limit |
| Marten (2006–2007) | 10 Nov–31 Dec | No limit |
| (2007–2009) Unit 14A & C | 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 |
| Land Otter | | |
| Unit 14A and B | 10 Nov–31 Mar | No limit |
| Unit 14C | 10 Nov–28 Feb | No limit |
| Wolverine (2006 – 2007) | 10 Nov–31 Jan | 2 per season |
| (2007 – 2009) Unit 14B | 10 Nov–31 Jan | 2 per season |
| Units 14A & C | 15 Dec–31 Jan | 2 per season |

Hunting Seasons and Bag Limits.

| Species | Season | Bag Limit |
|---|---|---|
| Coyote | 10 Aug–30 Apr | 10 per season |
| Red Fox | 1 Sep–15 Feb | 2 per season |
| Lynx | 1 Dec–31 Jan | 2 per season |
| Wolverine | 1 Sep–31 Jan | 1 per season |

Board of Game Actions and Emergency Orders. In spring 2007 the Board of Game aligned the 14B coyote and marten seasons to coincide with Unit 16. In addition the wolverine seasons in Units 14A and 14C were reduced 35 days from starting 10 November to starting 15 December, and wolverine trapping was opened in the Chugach State Park Management Area. In 2009 the Board of Game closed wolverine trapping in Chugach State Park due to biological concerns.

Hunter/Trapper Harvest. Fur harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair to poor during the reporting period. In general, fur prices for coyote, mink, muskrat, squirrel, and weasel increased, while fur prices for beaver, fox, lynx, marten, and otter fell during the reporting period (Blejwas, 2006, 2007, and 2010).

The harvest of beavers decreased during the reporting period. However respondents to the survey stated that beavers were common and that the population was unchanged. The harvest of adults fell; also, average pelt size appears to have decreased (Table 1 and Figure 1).

The harvest of otters did not differ greatly during the reporting period compared to the previous period (Table 2). Lynx harvest (Table 3) was lower than the period prior to the closure in 2003–2005. Lynx seasons and closures are determined by the Lynx Harvest Tracking Strategy (Golden 1999). Wolverine harvest was good and at or above harvest objective (Table 4).

The harvest of marten in Unit 14 continues to increase although the price declined in 2006–2007 (Table 5). The marten harvest is probably less market driven than is the harvest of species more difficult or time-consuming to trap, such as beaver. Therefore, the harvest is probably an adequate index of population abundance. 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.

Information for the harvest of species that do not require sealing was taken from trapper questionnaires. . During a 3-year average of 2006–2008, the trappers in Units 14A and 14B that responded reported a yearly average take of 27 coyotes, 33 weasels, 32 mink, 133 muskrats and 50 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.

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 2007–2008 but were not reported in 2006–2007 or 2008–2009, suggesting that the infection is decreasing in Unit 14A. There have been no indications that packs in Units 14B or 14C have been infected.

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

Transport Methods. Snowmachines are still the most popular transport means for trappers (Tables 11–15). Use of all-terrain vehicles (ATVs) and highway vehicles reflect years of poor snow cover.

*Other Mortality*

There were 8, 13, and 7 nuisance beaver permits in Units 14A and 14B issued in 2006–07, 2007–08, and 2008–09, 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 down significantly from the previous reporting period (Peltier 2007).

### HABITAT

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

## CONCLUSIONS AND RECOMMENDATIONS

The lack of data on population density, composition, and productivity of furbearers makes it difficult to identify optimal harvest levels. Harvest was at or above objective for otter and wolverine, but below objective for beaver and lynx. While harvests have exceeded annual harvest standards for some species in Unit 14, there is no reason to believe that this has had a negative impact on the resource. Indirect survey techniques tested by Golden (1994) 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. There was a suspected overharvest of martens in the Matanuska-Susitna area in the late 1980s, resulting in a season reduction and a sealing program for the species in Units 14 and 16. Due to potentially high trapper density in this area, information taken at the time of sealing is important for successfully determining the health and status of the population. The sex of the animal is recorded at the time of sealing, and trappers are asked to keep records of their harvest by sex and month. A relatively high proportion of females caught late in the season is an indication of an overharvest. This trend may not be totally accurate because many sealed martens do not have sex distinguished. The percent of females in the harvest remains the best available method for managers to assess the health of the population. Because of this, there needs to be a concerted effort by trappers and sealers to keep accurate records in noting the sex of the animal and when it was taken.

## LITERATURE CITED

ADF&G. 2010*a*. Trapper Questionnaire – Statewide Annual Report, 1 July, 2007 – June 30, 2008. Alaska Department of Fish & Game.

ADF&G 2010*b*. Trapper Questionnaire – Statewide Annual Report, 1 July, 2008 – June 30, 2009. Alaska Department of Fish & Game.

BLEJWAS, K. 2006. Trapper Questionnaire – Statewide Annual Report, July 1, 2004–June 30, 2005. Alaska Department of Fish and Game. 65pp.

BLEJWAS, K. 2007. Trapper Questionnaire – Statewide Annual Report, July 1, 2005–June 30, 2006. Alaska Department of Fish and Game. 65pp.

BLEJWAS, K. 2010. Trapper Questionnaire – Statewide Annual Report, July 1, 2006–June 30, 2007. Alaska Department of Fish and Game. (*in press*)

KAVALOK, T. 2004. Unit 14 furbearer management report. Pages 170–192 *in* C. Brown, editor. Furbearer management report of survey and inventory activities 1 July 2000–30 June 2003. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

GOLDEN, H.N. 1994. Furbearer track count index testing and development. Federal Aid in Wildlife Restoration Progress Report Project W-24-2. Study 7.17. Juneau. 44pp.

GOLDEN, H.N. 1999. An expert-system model for lynx management in Alaska. Pages 205–231 in G. Proulx, editor. Mammal Trapping. Alpha Wildlife Research & Management, Sherwood Park, Alberta, Canada.

MASTELLER, M. A. 1993. Game Management Unit 14. Pages 132–146 *in* Abbott, S. M., editor. Furbearers, survey-inventory management report, July 1989–June 1991. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-23-3/4. Study 7.0. Juneau. 303pp.

PELTIER, T. 2005. Trapper Questionnaire – Statewide Annual Report, July 1, 2003–June 30, 2004. Alaska Department of Fish and Game. 63pp.

PELTIER, T. C. 2007. Unit 14 furbearer management report. Pages 155–176 *in* , P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

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Table 1. Unit 14 beaver harvest, 1999–2008

| Regulatory Year | Reported harvest[a] Juv [b] | (%) | Adults | Method of Take Trap/snare | Shot | Unk | Total | Successful Trappers/hunters |
|---|---|---|---|---|---|---|---|---|
| 1999–2000 | 37 | (22) | 133 | 181 | 2 | 0 | 183 | 33 |
| 2000–01 | 66 | (28) | 170 | 227 | 3 | 1 | 231 | 38 |
| 2001–02 | 31 | (22) | 110 | 133 | 0 | 0 | 133 | 31 |
| 2002–03 | 69 | (33) | 140 | 217 | 0 | 1 | 218 | 51 |
| 2003–04 | 27 | (21) | 104 | 133 | 1 | 2 | 136 | 36 |
| 2004–05 | 47 | (31) | 106 | 158 | 2 | 0 | 160 | 33 |
| 2005–06 | 48 | (26) | 139 | 187 | 6 | 1 | 194 | 32 |
| 2006–07 | 27 | (28) | 69 | 105 | 4 | 0 | 109 | 34 |
| 2007–08 | 50 | (45) | 61 | 130 | 13 | 0 | 143 | 41 |
| 2008–09 | 42 | (36) | 75 | 120 | 1 | 0 | 121 | 34 |
| Average (2006–2008) | 40 | (37) | 68 | 159 | 3 | 1 | 163 | 36 |

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

Table 2. Unit 14 land otter harvest, 1999–2008.

| Regulatory Year | Reported harvest | | | Method of Take | | | Total | Successful Trappers/hunters |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Unk | Trap/snare | Shot | Unk | | |
| 1999–2000 | 18 | 11 | 1 | 30 | 0 | 0 | 30 | 18 |
| 2000–01 | 13 | 14 | 5 | 30 | 0 | 2 | 32 | 18 |
| 2001–02 | 17 | 8 | 7 | 32 | 0 | 0 | 32 | 15 |
| 2002–03 | 28 | 23 | 2 | 52 | 0 | 1 | 53 | 23 |
| 2003–04 | 15 | 6 | 1 | 22 | 0 | 0 | 22 | 16 |
| 2004–05 | 16 | 15 | 3 | 34 | 0 | 0 | 34 | 10 |
| 2005–06 | 17 | 13 | 4 | 31 | 1 | 2 | 34 | 19 |
| 2006–07 | 14 | 16 | 6 | 36 | 0 | 0 | 36 | 19 |
| 2007–08 | 17 | 8 | 4 | 29 | 0 | 0 | 29 | 19 |
| 2008–09 | 11 | 10 | 0 | 22 | 0 | 0 | 21 | 11 |
| Average (2006–2008) | 14 | 11 | 3 | 29 | 0 | 0 | 29 | 16 |

Table 3. Unit 14 lynx harvest, 1999–2008.

| Regulatory Year | Age Composition | | | | Method of Take | | | | Total | Successful Hunters/trappers |
|---|---|---|---|---|---|---|---|---|---|---|
| | Juv[a] | (%) | Ad | Unk | Trap/Snare | Shot | (L&S)[b] | Unk | | |
| 1999–2000 | 2 | (40) | 3 | 4 | 6 | 0 | (0) | 3 | 9 | 8 |
| 2000–01 | 8 | (21) | 31 | 6 | 37 | 3 | (0) | 5 | 45 | 21 |
| 2001–02 | 5 | (14) | 30 | 12 | 40 | 4 | (0) | 3 | 47 | 27 |
| 2002–03 | 4 | (17) | 20 | 12 | 34 | 2 | (0) | 0 | 36 | 22 |
| 2003–04[c] | - | - | - | - | - | - | - | - | - | - |
| 2004–05[c] | - | - | - | - | - | - | - | - | - | - |
| 2005–06 | 0 | (0) | 3 | 0 | 3 | 0 | (0) | 0 | 3 | 2 |
| 2006–07 | 1 | (50) | 1 | 1 | 3 | 0 | (0) | 0 | 3 | 3 |
| 2007–08 | 1 | (25) | 3 | 0 | 4 | 0 | (0) | 0 | 4 | 2 |
| 2008–09 | 1 | (13) | 7 | 1 | 9 | 0 | (0) | 0 | 9 | 7 |
| Average 2006–2008) | 1 | (25) | 4 | 1 | 5 | 0 | 0 | 0 | 48 | 4 |

[a] Lynx measuring $\leq$ 34 inches in length.

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

[c] Season closed.

Table 4. Unit 14 wolverine harvest, 1999–2008.

| | Reported Harvest | | | | Method of Take | | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Male | Female | (%) | Unk | Trap/snare | Shot | (L&S)[a] | Unk | Total | Trappers/hunters |
| 1999–2000 | 3 | 2 | (40) | 0 | 5 | 0 | (0) | 0 | 5 | 6 |
| 2000–01 | 7 | 4 | (37) | 0 | 11 | 0 | (0) | 0 | 11 | 7 |
| 2001–02 | 7 | 5 | (42) | 0 | 12 | 0 | (0) | 0 | 12 | 10 |
| 2002–03 | 1 | 0 | (0) | 0 | 1 | 0 | (0) | 0 | 1 | 1 |
| 2003–04 | 8 | 8 | (50) | 0 | 15 | 0 | (0) | 1 | 16 | 13 |
| 2004–05 | 4 | 1 | (20) | 0 | 4 | 1 | (0) | 0 | 5 | 4 |
| 2005–06 | 9 | 3 | (25) | 0 | 10 | 2 | (1) | 0 | 12 | 9 |
| 2006–07 | 8 | 6 | (43) | 0 | 13 | 1 | (1) | 0 | 14 | 10 |
| 2007–08 | 7 | 8 | (53) | 0 | 15 | 0 | (0) | 0 | 15 | 11 |
| 2008–09 | 8 | 2 | (20) | 0 | 6 | 4 | (3) | 0 | 10 | 7 |
| Average (2006–2008) | 8 | 5 | (39) | 0 | 11 | 2 | (1) | 0 | 13 | 9 |

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

Table 5. Unit 14 marten harvest, 1999–2008.

| | Reported harvest | | | | Method of Take | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Male | Female | (%) | Unk | Trap/snare | Shot | Unk | Total | Trappers/hunters |
| 1999–2000 | 49 | 23 | (32) | 2 | 74 | 0 | 0 | 74 | 13 |
| 2000–01 | 100 | 31 | (24) | 0 | 131 | 0 | 0 | 131 | 10 |
| 2001–02 | 76 | 37 | (33) | 15 | 104 | 0 | 24 | 128 | 23 |
| 2002–03 | 36 | 20 | (36) | 14 | 69 | 0 | 1 | 70 | 16 |
| 2003–04 | 118 | 65 | (36) | 34 | 213 | 0 | 4 | 217 | 32 |
| 2004–05 | 55 | 21 | (28) | 14 | 90 | 0 | 0 | 90 | 20 |
| 2005–06 | 128 | 75 | (37) | 70 | 268 | 0 | 5 | 273 | 35 |
| 2006–07 | 118 | 93 | (44) | 14 | 220 | 4 | 1 | 225 | 35 |
| 2007–08 | 84 | 61 | (42) | 19 | 160 | 0 | 4 | 164 | 26 |
| 2008–09 | 219 | 157 | (42) | 55 | 431 | 0 | 0 | 431 | 39 |
| Average (2006–2009) | 140 | 104 | (43) | 29 | 270 | 1 | 2 | 273 | 33 |

Table 6. Unit 14 beaver harvest chronology by month, 1999–2008.

| Year | Percent harvested | | | | | | | | | | | Harvest |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jun–Aug[a] | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Unk | |
| 1999–2000 | 2 | 10 | 2 | 16 | 28 | 13 | 5 | 14 | 4 | 6 | 0 | 173 |
| 2000–01 | 1 | 0 | 1 | 29 | 12 | 13 | 5 | 7 | 29 | 2 | 0 | 241 |
| 2001–02 | 1 | 0 | 2 | 23 | 19 | 6 | 6 | 12 | 20 | 11 | 0 | 147 |
| 2002–03 | 1 | 0 | 4 | 31 | 20 | 26 | 8 | 4 | 1 | 2 | 2 | 219 |
| 2003–04 | 0 | 6 | 1 | 33 | 14 | 6 | 9 | 4 | 11 | 8 | 1 | 140 |
| 2004–05 | 1 | 4 | 17 | 25 | 8 | 4 | 14 | 12 | 6 | 8 | 0 | 166 |
| 2005–06 | 0 | 13 | 0 | 14 | 18 | 13 | 18 | 14 | 4 | 6 | 1 | 191 |
| 2006–07 | 5 | 1 | 12 | 9 | 15 | 5 | 5 | 14 | 17 | 17 | 0 | 115 |
| 2007–08 | 10 | 3 | 7 | 16 | 12 | 3 | 19 | 13 | 10 | 6 | 1 | 143 |
| 2008–09 | 1 | 0 | 0 | 12 | 21 | 7 | 6 | 10 | 29 | 11 | 3 | 136 |
| Average (2006–2008) | 5 | 1 | 6 | 37 | 16 | 5 | 10 | 12 | 19 | 11 | 1 | 131 |

[a] These are beaver taken on damage control permits

Table 7. Unit 14 land otter harvest chronology by month, 1999–2008.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Unk | |
| 1999–2000 | 0 | 0 | 30 | 47 | 10 | 3 | 10 | 0 | 30 |
| 2000–01 | 0 | 0 | 28 | 22 | 31 | 3 | 16 | 0 | 32 |
| 2001–02 | 0 | 0 | 22 | 13 | 28 | 16 | 22 | 0 | 32 |
| 2002–03 | 0 | 0 | 42 | 23 | 26 | 4 | 6 | 0 | 53 |
| 2003–04 | 0 | 0 | 23 | 32 | 32 | 9 | 5 | 0 | 22 |
| 2004–05 | 0 | 0 | 65 | 15 | 15 | 0 | 6 | 0 | 34 |
| 2005–06 | 0 | 0 | 18 | 29 | 26 | 18 | 9 | 0 | 34 |
| 2006–07 | 0 | 0 | 11 | 30 | 41 | 11 | 3 | 5 | 37 |
| 2007–08 | 0 | 0 | 21 | 31 | 17 | 10 | 17 | 3 | 29 |
| 2008–09 | 0 | 0 | 23 | 18 | 32 | 18 | 9 | 0 | 22 |
| Average (2006–2008) | 0 | 0 | 18 | 26 | 30 | 13 | 10 | 3 | 29 |

Table 8. Unit 14 lynx harvest chronology by month, 1999–2008.

| Regulatory Year | Percent of Harvest | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | Unk | |
| 1999–2000 | 11 | 33 | 22 | 0 | 0 | 33 | 9 |
| 2000–01 | 2 | 38 | 40 | 0 | 0 | 20 | 45 |
| 2001–02 | 0 | 40 | 53 | 0 | 0 | 6 | 47 |
| 2002–03 | 0 | 64 | 33 | 0 | 3 | 0 | 33 |
| 2003–04[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004–05[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–06 | 0 | 0 | 100 | 0 | 0 | 0 | 3 |
| 2006–07 | 0 | 33 | 33 | 0 | 0 | 33 | 3 |
| 2007–08 | 0 | 50 | 50 | 0 | 0 | 0 | 4 |
| 2008–09 | 11 | 78 | 11 | 0 | 0 | 0 | 9 |

[a] lynx season closed

Table 9. Unit 14 wolverine harvest chronology by month, 1999–2008.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Unk | |
| 1999–2000 | 0 | 0 | 0 | 41 | 60 | 0 | 0 | 0 | 5 |
| 2000–01 | 0 | 0 | 0 | 36 | 64 | 0 | 0 | 0 | 11 |
| 2001–02 | 0 | 0 | 8 | 58 | 33 | 0 | 0 | 0 | 12 |
| 2002–03 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 1 |
| 2003–04 | 0 | 0 | 6 | 56 | 31 | 6 | 0 | 0 | 16 |
| 2004–05 | 0 | 0 | 0 | 60 | 40 | 0 | 0 | 0 | 5 |
| 2005–06 | 17 | 0 | 0 | 17 | 67 | 0 | 0 | 0 | 12 |
| 2006–07 | 0 | 0 | 21 | 36 | 36 | 7 | 0 | 0 | 14 |
| 2007–08 | 0 | 0 | 20 | 40 | 7 | 20 | 13 | 0 | 15 |
| 2008–09 | 30 | 0 | 10 | 10 | 50 | 0 | 0 | 0 | 10 |

Table 10. Unit 14 marten harvest chronology by month, 1999–2008.

| | Percent of Harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Unk | Harvest |
| 1999–2000 | 0 | 0 | 55 | 45 | 0 | 0 | 0 | 0 | 74 |
| 2000–01 | 0 | 0 | 53 | 47 | 0 | 0 | 0 | 0 | 131 |
| 2001–02 | 0 | 0 | 47 | 52 | 0 | 0 | 0 | 0 | 128 |
| 2002–03 | 0 | 0 | 46 | 54 | 0 | 0 | 0 | 0 | 70 |
| 2003–04 | 0 | 0 | 22 | 77 | 1 | 0 | 0 | 0 | 217 |
| 2004–05 | 0 | 0 | 37 | 54 | 9 | 0 | 0 | 0 | 90 |
| 2005–06 | 0 | 0 | 33 | 67 | 0 | 0 | 0 | 0 | 273 |
| 2006–07 | 0 | 0 | 43 | 57 | 0 | 0 | 0 | 0 | 225 |
| 2007–08 | 0 | 0 | 28 | 57 | 12 | 0 | 0 | 3 | 164 |
| 2008–09 | 0 | 0 | 38 | 52 | 9 | 0 | 0 | 0 | 431 |

Table 11. Unit 14 beaver trapper transport methods, 1999–2009.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–2000 | 0 | 22 | 0 | 0 | 22 | 0 | 22 | 33 | 173 |
| 2000–01 | 0 | 10 | 24 | 6 | 28 | 10 | 17 | 7 | 241 |
| 2001–02 | 1 | 10 | 0 | 5 | 60 | 1 | 10 | 12 | 147 |
| 2002–03 | 8 | 14 | 4 | 5 | 20 | 0 | 36 | 13 | 219 |
| 2003–04 | 0 | 15 | 2 | 6 | 39 | 0 | 36 | 2 | 140 |
| 2004–05 | 0 | 5 | 3 | 3 | 27 | 1 | 47 | 13 | 166 |
| 2005–06 | 0 | 12 | 10 | 2 | 48 | 1 | 27 | 1 | 191 |
| 2006–07 | 0 | 18 | 4 | 8 | 29 | 0 | 37 | 5 | 115 |
| 2007–08 | 0 | 6 | 6 | 20 | 22 | 4 | 34 | 8 | 127 |
| 2008–09 | 1 | 2 | 3 | 6 | 45 | 30 | 13 | 0 | 119 |

Table 12. Unit 14 land otter trapper transport methods, 1999–2009.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–2000 | 0 | 24 | 0 | 3 | 33 | 0 | 33 | 7 | 30 |
| 2000–01 | 0 | 19 | 0 | 16 | 38 | 0 | 22 | 6 | 32 |
| 2001–02 | 0 | 28 | 0 | 6 | 63 | 0 | 3 | 0 | 32 |
| 2002–03 | 2 | 23 | 0 | 8 | 23 | 2 | 38 | 6 | 53 |
| 2003–04 | 0 | 18 | 0 | 0 | 23 | 0 | 59 | 0 | 22 |
| 2004–05 | 0 | 6 | 0 | 0 | 18 | 0 | 76 | 0 | 34 |
| 2005–06 | 0 | 15 | 0 | 0 | 24 | 0 | 56 | 6 | 34 |
| 2006–07 | 0 | 3 | 0 | 5 | 62 | 0 | 27 | 3 | 37 |
| 2007–08 | 0 | 17 | 3 | 14 | 35 | 0 | 31 | 0 | 29 |
| 2008–09 | 0 | 0 | 0 | 14 | 68 | 0 | 18 | 0 | 22 |

Table 13. Unit 14 lynx trapper transport methods, 1999–2008.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–2000 | 0 | 22 | 0 | 0 | 22 | 0 | 22 | 33 | 9 |
| 2000–01 | 0 | 13 | 0 | 36 | 7 | 0 | 22 | 22 | 45 |
| 2001–02 | 0 | 21 | 0 | 17 | 43 | 0 | 11 | 9 | 47 |
| 2002–03 | 0 | 12 | 6 | 18 | 10 | 0 | 48 | 6 | 33 |
| 2003–04[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004–05[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–06 | 0 | 0 | 0 | 67 | 0 | 0 | 33 | 0 | 3 |
| 2006–07 | 33 | 0 | 0 | 33 | 0 | 0 | 33 | 0 | 3 |
| 2007–08 | 0 | 0 | 0 | 25 | 0 | 0 | 75 | 0 | 4 |
| 2008–09 | 0 | 11 | 0 | 22 | 67 | 0 | 0 | 0 | 9 |

[a] Lynx season closed

Table 14. Unit 14 wolverine trapper transport methods, 1999–2009.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–2000 | 40 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 5 |
| 2000–01 | 18 | 27 | 0 | 0 | 55 | 0 | 0 | 0 | 11 |
| 2001–02 | 8 | 25 | 0 | 17 | 42 | 8 | 0 | 0 | 12 |
| 2002–03 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 1 |
| 2003–04 | 19 | 13 | 0 | 6 | 38 | 0 | 19 | 6 | 16 |
| 2004–05 | 20 | 40 | 0 | 0 | 40 | 0 | 0 | 0 | 5 |
| 2005–06 | 17 | 0 | 25 | 0 | 42 | 8 | 8 | 0 | 12 |
| 2006–07 | 7 | 14 | 0 | 7 | 43 | 0 | 29 | 0 | 14 |
| 2007–08 | 0 | 7 | 0 | 40 | 53 | 0 | 0 | 0 | 15 |
| 2008–09 | 30 | 0 | 10 | 0 | 60 | 0 | 0 | 0 | 10 |

Table 15. Unit 14 marten trapper transport methods, 1999–2009.

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–2000 | 0 | 43 | 0 | 0 | 54 | 0 | 3 | 0 | 74 |
| 2000–01 | 0 | 27 | 0 | 0 | 69 | 0 | 4 | 0 | 131 |
| 2001–02 | 0 | 12 | 0 | 0 | 62 | 0 | 7 | 20 | 128 |
| 2002–03 | 0 | 4 | 0 | 34 | 6 | 0 | 50 | 6 | 70 |
| 2003–04 | 0 | 12 | 0 | 0 | 77 | 0 | 10 | 1 | 217 |
| 2004–05 | 0 | 17 | 0 | 1 | 73 | 0 | 9 | 0 | 90 |
| 2005–06 | 0 | 8 | 0 | 0 | 76 | 0 | 13 | 3 | 273 |
| 2006–07 | 0 | 10 | 0 | 8 | 60 | 0 | 19 | 3 | 225 |
| 2007–08 | 0 | 23 | 0 | 7 | 67 | 0 | 1 | 2 | 164 |
| 2008–09 | 0 | 2 | 0 | 4 | 87 | 0 | 6 | 1 | 431 |

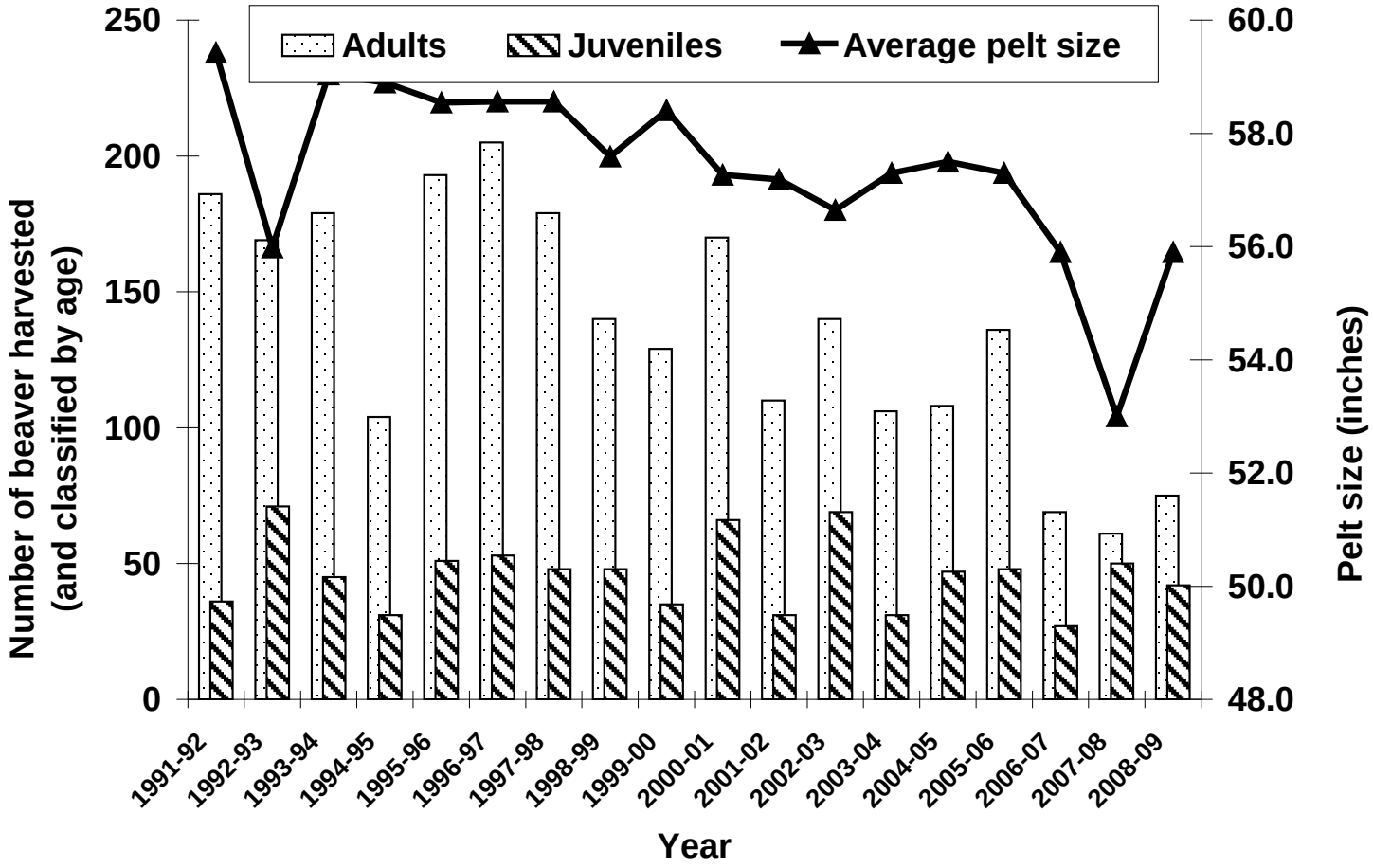


Figure 1. Unit 14 beaver harvest depicted by age group and average pelt size (length + width) across years, 1991–2009 (Juvenile beaver measure $\leq$ 52 inches). Harvest numbers are incomplete due to some beaver measurements unrecorded at time of sealing.

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
**Division of Wildlife Conservation**
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**JUNEAU, AK 99811-5526**

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## 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. It is bordered to the east by Upper Cook Inlet and the Susitna River, to the west by the Alaska Range, and to the north and south by Denali and Lake Clark National Parks and Preserves, respectively. The area has had no major wildfires since the 1950s, but hundreds of acres of white spruce have been killed over the last two decades by a spruce bark beetle infestation. Most of the area is sparsely populated; however, those that 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, 2007).

## 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

Information on trapping conditions, trapper effort, and trends in fur abundance and distribution were collected using a questionnaire sent to Unit 16 trappers. Harvest data were collected for beaver, 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. Minimum harvest data for other species were collected from trapper questionnaires.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Trappers reported that all species were common or abundant in during the reporting period, except lynx, which were reported as scarce, and wolverine, which were reported as common in 2003–2004 (Peltier, 2005) and have been reported as scarce each year since for which data are available. Wolves were reported as scarce during the 2006 – 2007 and the 2008 – 2009 seasons, but were reported as common during the 2007 – 2008 season. Trappers reported small prey species as abundant or common with the possibility of ptarmigan which was reported as scarce in 2006– 2007 (Blejwas 2010).

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

### MORTALITY

Trapping Seasons and Bag Limits (seasons for 2006–08 unless otherwise stated).

| Species | Season | Bag Limit |
|---|---|---|
| Beaver | 25 Sep–31 May | No limit |
| Coyote (2006–2007) | 10 Nov–31 Mar | No limit |
| (2007–2008) | 10 Nov–30 Apr | No limit |
| Red Fox | 10 Nov–28 Feb | No limit |
| Lynx | 15 Dec–15 Jan | No limit |
| Marten (2006 – 2007) | | |
| Unit 16A | 10 Nov–31 Dec | No limit |
| Unit 16B | 10 Nov–31 Jan | No limit |

| | | |
|---|---|---|
| (2007–2008) | 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 | 10 Nov–28 Feb | No limit |

Hunting Seasons and Bag Limits.

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

Board of Game Actions and Emergency Orders. In spring 2005 the department recommended delaying the start of lynx season from 15 December to 1 January, based on the Lynx Harvest Tracking strategy (Golden 1999). In 2007, the board extended the coyote season to 30 April. The board also aligned marten trapping seasons in Subunits 16A and B to close on 31 January.

Hunter/Trapper Harvest. Fur harvest fluctuates with trapping conditions, effort, and fur prices. Trapping conditions were described as generally fair to poor during the reporting period. In general, fur prices for decreased during the reporting period, however prices for lynx, marten, wolf, and wolverine spiked during the 2007–2008 season. (ADF&G 2010*a*).

Beaver harvests have varied over the last 10 years, (Table 1), but remain below historic levels. The previous peak in harvest occurred during 1986–87, when trappers took 651 beavers in Unit 16 (Masteller 1997). Beaver populations throughout the unit are believed to be stable based on harvest parameters and trapper feedback (Table 1). The average beaver pelt size was greater than 62 inches during the reporting period. The proportion of juvenile beaver in the harvest has been relatively constant the last several seasons (Figure 1).

Otter harvest has decreased from the previous reporting period. The reason for the decrease is most likely related to the significant drop in otter pelt prices during the 2005–2006 season (Table 2).

The lynx harvest historically has been low in Unit 16 (Table 3), reflecting a lack of good hare habitat. The 3-year average harvest of 29 wolverines in this report period was less than the 10-

year average of 36 animals (Table 4). The marten harvest has remained high since populations recovered from a decline in the early 1990s and fluctuated greatly during the last three seasons, (Table 5).

Information for the harvest of species that do not require sealing was taken from trapper questionnaires. During a 3-year average of 2006–2008 the trappers that did respond reported a yearly average take of 24 coyotes, 35 weasels, 33 mink, 23 muskrats, and 21 foxes. Many trappers either do not receive, or fail to return, the questionnaires; therefore, these should be considered minimum harvest totals.

In November and December 1998 trappers reported catching coyotes and wolves with lice (*Trichodectes canis*) between Willow and Talkeetna in the lower Susitna River valley (Kavalok, 2004). Lousy packs change from year to year, however, since the original discovery in 1998, lice have been found in at least one pack in Unit 16 every season.

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

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

*Other Mortality*

There were 5, 3, and 2 nuisance beaver permits issued in 2006–07, 2007–08, and 2008–09, respectively. The number of beaver allowed to be taken under a permit varied by permittee and location. As in previous years, road/railroad maintenance personnel identified most problem areas where beavers have plugged culverts and flooded roadbeds. Two common problem areas are Oilwell Road in 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

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

than sealing data, which often follow fur prices and trapping conditions rather than population trends. The average beaver harvest has been below the harvest standard while the average harvest of wolverine has been above the harvest standard (Masteller, 1993). However without more accurate wolverine population information it is not clear if the elevated harvest has had a detrimental impact on the population. The variation in the number of animals harvested each trapping season indicates that price of furs, fuel, and weather have a greater impact on the number of animals harvested than changes in the management of the species.

## LITERATURE CITED


ADF&G. 2010*a*. Trapper Questionnaire – Statewide Annual Report, 1 July, 2007–June 30, 2008. Alaska Department of Fish & Game.

ADF&G 2010*b*. Trapper Questionnaire – Statewide Annual Report, 1 July, 2008–June 30, 2009. Alaska Department of Fish & Game.

BLEJWAS, K. 2006. Trapper Questionnaire – Statewide Annual Report, July 1, 2004–June 30, 2005. Alaska Department of Fish and Game. 65pp.

KAVALOK, T. 2004. Unit 16 furbearer management report. Pages 193–212 *in* C. Brown editor. Furbearer management report of survey and inventory activities 1 July 2000 30–June 2003. Alaska Department of Fish & Game. Project 7.0 Juneau, Alaska.

GOLDEN, H.N. 1994. Furbearer track count index testing and development. Federal Aid in Wildlife Restoration Progress Report Project W-24-2. Study 7.17. Juneau. 44pp.

———. 1999. An expert-system model for lynx management in Alaska. Pages 205–231 in G. Proulx, editor. Mammal Trapping. Alpha Wildlife Research & Management, Sherwood Park, Alberta, Canada.

MASTELLER, M. A. 1993. Game Management Unit 14. Pages 132–146 *in* Abbott, S. M., editor. Furbearers, survey-inventory management report, July 1989–June 1991. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-23-3/4. Study 7.0. Juneau. 303pp.

MASTELLER, M. A. 1997. Game Management Unit 14. Pages 144–167 *in* Hicks, M. V., editor. Furbearers, survey-inventory management report, July 1994–June 1997. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report Project W-24-3/5. Study 7.0. Juneau. 322 pp.

PELTIER, T. 2005. Trapper Questionnaire – Statewide Annual Report, July 1, 2003–June 30, 2004. Alaska Department of Fish and Game. 57pp.

PELTIER, T.C. 2007. Unit 16. Pages 176–196 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2006–30 June 2009. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

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TABLE 1 Unit 16 beaver harvest, 1999–2008

| Regulatory Year | Reported harvest | | | | Method of Take | | | Total | Successful Trappers/hunters |
|---|---|---|---|---|---|---|---|---|---|
| | Juv [a] | (%) | Adults | Unk | Trap/snare | Shot | Unk | | |
| 1999–00 | 40 | (24) | 131 | 2 | 171 | 2 | 0 | 173 | 21 |
| 2000–01 | 32 | (17) | 160 | 4 | 193 | 3 | 0 | 196 | 23 |
| 2001–02 | 18 | (13) | 125 | 20 | 156 | 6 | 1 | 163 | 33 |
| 2002–03 | 66 | (22) | 228 | 6 | 233 | 2 | 65 | 300 | 35 |
| 2003–04 | 60 | (28) | 158 | 0 | 204 | 4 | 10 | 218 | 30 |
| 2004–05 | 31 | (19) | 128 | 2 | 156 | 5 | 0 | 161 | 29 |
| 2005–06 | 47 | (20) | 194 | 37 | 274 | 4 | 0 | 278 | 33 |
| 2006–07 | 50 | (24) | 156 | 9 | 210 | 4 | 2 | 215 | 23 |
| 2007–08 | 23 | (15) | 130 | 4 | 154 | 3 | 0 | 157 | 28 |
| 2008–09 | 34 | (16) | 176 | 7 | 214 | 3 | 0 | 217 | 29 |
| Average (2006-2008 | 36 | (18) | 154 | 7 | 193 | 3 | 1 | 196 | 27 |

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

TABLE 2 Unit 16 river otter harvest, 1999–2008

| | Reported harvest | | | | Method of Take | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory Year | Male | Female | (%) | Unk | Trap/snare | Shot | Unk | Total | Trappers/hunters |
| 1999–00 | 22 | 17 | (44) | 3 | 42 | 0 | 0 | 42 | 17 |
| 2000–01 | 15 | 4 | (21) | 13 | 30 | 0 | 2 | 32 | 20 |
| 2001–02 | 31 | 25 | (45) | 4 | 60 | 0 | 0 | 60 | 18 |
| 2002–03 | 30 | 19 | (39) | 7 | 55 | 1 | 0 | 56 | 19 |
| 2003–04 | 22 | 28 | (56) | 0 | 50 | 0 | 0 | 50 | 15 |
| 2004–05 | 19 | 26 | (58) | 2 | 47 | 0 | 0 | 47 | 15 |
| 2005–06 | 50 | 47 | (48) | 6 | 103 | 0 | 0 | 103 | 27 |
| 2006–07 | 15 | 17 | (53) | 6 | 34 | 0 | 4 | 38 | 19 |
| 2007–08 | 6 | 5 | (45) | 7 | 18 | 0 | 0 | 18 | 10 |
| 2008–09 | 17 | 9 | (35) | 2 | 19 | 0 | 9 | 28 | 12 |
| Average (2006–2008) | 13 | 10 | (44) | 5 | 24 | 0 | 4 | 28 | 14 |

TABLE 3 Unit 16 lynx harvest, 1999–2008

| Regulatory Year[a] | Reported Harvest | | | | | | | | Method of Take | | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | (%) | Unk sex | Juv[b] | (%) | Ad | Unk age | Trap/Snare | Shot | (L&S)[c] | Unk | Total | Hunters/ trappers |
| 1999–00 | 3 | 0 | (0) | 0 | 2 | (67) | 1 | 0 | 3 | 0 | (0) | 0 | 3 | 2 |
| 2000–01 | 0 | 0 | -- | 2 | 0 | -- | 1 | 1 | 2 | 0 | (0) | 0 | 2 | 2 |
| 2001–02 | 0 | 0 | -- | 23 | 0 | -- | 21 | 2 | 21 | 2 | (0) | 0 | 23 | 16 |
| 2002–03 | 0 | 0 | -- | 8 | 0 | -- | 8 | 0 | 8 | 0 | (0) | 0 | 8 | 6 |
| ---- | | | | | | | | | | | | | | |
| ---- | | | | | | | | | | | | | | |
| 2005–06 | 0 | 0 | -- | 9 | 3 | | 3 | 3 | 9 | 0 | (0) | 0 | 9 | 4 |
| 2006–07 | 0 | 0 | -- | 0 | 0 | -- | 0 | 0 | 0 | 0 | (0) | 0 | 0 | 0 |
| 2007–08 | 0 | 0 | -- | 0 | 0 | -- | 0 | 0 | 0 | 0 | (0) | 0 | 0 | 0 |
| 2008–09 | 0 | 1 | (100) | 0 | 1 | (100) | 0 | 0 | 1 | 0 | (0) | 0 | 1 | 1 |
| Average (2006–2008) | 0 | 0 | -- | 3 | 0 | (100) | 0 | 0 | 0 | 0 | -- | 0 | 0 | 0 |

[a] Season closed during 2003–2005

[b] Lynx measuring ≤ 34 inches in length.

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

TABLE 4 Unit 16 wolverine harvest, 1999–2008

| | Reported Harvest | | | | Method of Take | | | | | Successful |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Male | Female | (%) | Unk | Trap/snare | Shot | (L&S)[a] | Unk | Total | Trappers/hunters |
| 1999–00 | 15 | 13 | (46) | 1 | 20 | 9 | (0) | 0 | 29 | 20 |
| 2002–01 | 24 | 8 | (25) | 2 | 25 | 6 | (0) | 3 | 34 | 17 |
| 2001–02 | 30 | 14 | (32) | 1 | 41 | 4 | (0) | 0 | 45 | 28 |
| 2002–03 | 15 | 4 | (21) | 0 | 15 | 4 | (0) | 0 | 19 | 11 |
| 2003–04 | 29 | 21 | (42) | 2 | 47 | 4 | (1) | 1 | 52 | 31 |
| 2004–05 | 32 | 19 | (37) | 0 | 44 | 7 | (0) | 0 | 51 | 28 |
| 2005–06 | 24 | 20 | (45) | 1 | 40 | 5 | (1) | 0 | 45 | 26 |
| 2006–07 | 21 | 8 | (28) | 0 | 18 | 9 | (3) | 0 | 27 | 18 |
| 2007–08 | 20 | 9 | (31) | 0 | 22 | 7 | (0) | 0 | 29 | 19 |
| 2008–09 | 19 | 8 | (30) | 0 | 24 | 4 | (0) | 0 | 28 | 19 |
| Average (2006–2008) | 20 | 8 | (30) | 0 | 22 | 7 | (1) | 0 | 29 | 19 |

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

TABLE 5 Unit 16 marten harvest, 1999–2008

| Year | Reported Harvest | | | | Method of Take | | | | Total | Successful Trappers/hunters |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | (% female)[a] | Unk | Trap/snare | Shot | (L&S)[b] | Unk | | |
| 1999–00 | 259 | 109 | (30) | 115 | 485 | 0 | (0) | 0 | 485 | 31 |
| 2000–01 | 326 | 193 | (37) | 295 | 814 | 0 | (0) | 0 | 814 | 29 |
| 2001–02 | 566 | 289 | (34) | 90 | 922 | 1 | (0) | 23 | 946 | 40 |
| 2002–03 | 274 | 139 | (34) | 85 | 473 | 0 | (0) | 25 | 498 | 35 |
| 2003–04 | 424 | 206 | (33) | 99 | 721 | 0 | (0) | 8 | 729 | 48 |
| 2004–05 | 536 | 212 | (28) | 99 | 713 | 0 | (0) | 134 | 847 | 32 |
| 2005–06 | 868 | 394 | (31) | 46 | 1294 | 0 | (0) | 14 | 1308 | 49 |
| 2006–07 | 537 | 303 | (36) | 32 | 844 | 28 | (0) | 0 | 872 | 55 |
| 2007–08 | 321 | 128 | (29) | 124 | 522 | 0 | (0) | 51 | 573 | 37 |
| 2008–09 | 847 | 399 | (32) | 176 | 1364 | 1 | (0) | 57 | 1422 | 43 |
| Average (2006–2008) | 568 | 277 | (32) | 111 | 910 | 10 | (0) | 36 | 956 | 45 |

[a] Not calculated in years when a large proportion was of unknown sex.

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

TABLE 6 Unit 16 beaver harvest chronology, 1999–2008

| | Percent harvested | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Jun–Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Unk | Harvest |
| 1999–00[a] | 0 | 0 | 9 | 19 | 13 | 6 | 12 | 4 | 37 | 0 | 0 | 173 |
| 2000–01 | 1 | 1 | 7 | 10 | 23 | 19 | 14 | 21 | 4 | 0 | 0 | 196 |
| 2001–02 | 2 | 3 | 23 | 17 | 20 | 12 | 2 | 7 | 11 | 1 | 1 | 163 |
| 2002–03 | 0 | 3 | 18 | 18 | 26 | 6 | 3 | 2 | 7 | 7 | 10 | 294 |
| 2003–04 | 0 | 8 | 35 | 2 | 2 | 11 | 13 | 8 | 3 | 12 | 5 | 218 |
| 2004–05 | 2 | 4 | 17 | 15 | 7 | 2 | 4 | 11 | 5 | 33 | 0 | 161 |
| 2005–06 | 1 | 4 | 5 | 15 | 4 | 14 | 8 | 21 | 10 | 18 | 0 | 278 |
| 2006–07 | 0 | 1 | 12 | 20 | 24 | 5 | 7 | 12 | 11 | 1 | 8 | 215 |
| 2007–08 | 0 | 4 | 31 | 14 | 8 | 17 | 4 | 10 | 3 | 10 | 0 | 157 |
| 2008–09 | 1 | 0 | 3 | 22 | 38 | 6 | 0 | 2 | 22 | 6 | 0 | 217 |

[a] Season lengthened 1 month in fall.

TABLE 7 Unit 16 river otter harvest chronology, 1999–2008

| | Percent of Harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Oct | Nov | Dec | Jan | Feb | Mar | Apr | Unk | Harvest |
| 1999–00 | 0 | 27 | 22 | 12 | 10 | 29 | 0 | 0 | 42 |
| 2000–01 | 0 | 6 | 44 | 28 | 9 | 13 | 0 | 0 | 32 |
| 2001–02 | 0 | 3 | 33 | 30 | 27 | 7 | 0 | 0 | 60 |
| 2002–03 | 0 | 18 | 45 | 20 | 13 | 5 | 0 | 0 | 56 |
| 2003–04 | 0 | 8 | 18 | 14 | 24 | 36 | 0 | 0 | 50 |
| 2004–05 | 0 | 0 | 40 | 6 | 19 | 34 | 0 | 0 | 47 |
| 2005–06 | 0 | 17 | 25 | 37 | 12 | 10 | 0 | 0 | 103 |
| 2006–07 | 0 | 11 | 26 | 42 | 8 | 3 | 0 | 11 | 38 |
| 2007–08 | 0 | 0 | 44 | 28 | 6 | 22 | 0 | 0 | 18 |
| 2008–09 | 0 | 43 | 32 | 11 | 14 | 0 | 0 | 0 | 28 |

TABLE 8 Unit 16 wolverine harvest chronology, 1999–2008

| Year | Percent of Harvest | | | | | | | | Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Unk | |
| 1999–00 | 3 | 0 | 3 | 24 | 14 | 31 | 24 | 0 | 29 |
| 2000–01 | 3 | 0 | 6 | 26 | 18 | 38 | 6 | 3 | 34 |
| 2001–02 | 4 | 0 | 7 | 24 | 24 | 38 | 2 | 0 | 45 |
| 2002–03 | 0 | 0 | 0 | 22 | 33 | 33 | 11 | 0 | 18 |
| 2003–04 | 0 | 0 | 3 | 19 | 31 | 39 | 6 | 3 | 36 |
| 2004–05 | 0 | 0 | 0 | 17 | 41 | 35 | 7 | 0 | 46 |
| 2005–06 | 3 | 0 | 9 | 3 | 45 | 27 | 6 | 6 | 33 |
| 2006–07 | 7 | 7 | 3 | 14 | 10 | 55 | 3 | 0 | 29 |
| 2007–08 | 7 | 0 | 7 | 10 | 34 | 28 | 10 | 3 | 29 |
| 2008–09 | 0 | 4 | 0 | 22 | 33 | 30 | 11 | 0 | 27 |

TABLE 9 Unit 16 marten harvest chronology, 1999–2008

| Year | Percent of Harvest | | | | | | | | Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Unk | |
| 1999–00 | 0 | 0 | 36 | 36 | 21 | 6 | 0 | 0 | 485 |
| 2000–01 | 0 | 0 | 29 | 45 | 25 | 1 | 0 | 0 | 814 |
| 2001–02 | 0 | 0 | 21 | 47 | 32 | 0 | 0 | 1 | 945 |
| 2002–03 | 0 | 0 | 29 | 32 | 38 | 0 | 0 | 1 | 498 |
| 2003–04 | 0 | 0 | 16 | 46 | 32 | 5 | 0 | 0 | 729 |
| 2004–05 | 0 | 0 | 25 | 38 | 33 | 4 | 0 | 0 | 847 |
| 2005–06 | 0 | 0 | 29 | 47 | 24 | 0 | 0 | 1 | 1308 |
| 2006–07 | 0 | 0 | 25 | 49 | 23 | 3 | 0 | 0 | 872 |
| 2007–08 | 0 | 0 | 12 | 32 | 48 | 3 | 0 | 5 | 573 |
| 2008–09 | 0 | 1 | 27 | 42 | 29 | 0 | 0 | 0 | 1422 |

TABLE 10 Unit 16 beaver trapper transport methods, 1999–2008

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–00 | 5 | 20 | 6 | 0 | 62 | 0 | 6 | 0 | 173 |
| 2000–01 | 18 | 5 | 0 | 3 | 54 | 1 | 11 | 9 | 196 |
| 2001–02 | 11 | 10 | 7 | 0 | 58 | 0 | 11 | 2 | 163 |
| 2002–03 | 17 | 10 | 23 | 8 | 12 | 0 | 8 | 22 | 300 |
| 2003–04 | 25 | 6 | 18 | 7 | 27 | 0 | 16 | 1 | 218 |
| 2004–05 | 7 | 3 | 37 | 1 | 24 | 22 | 0 | 6 | 161 |
| 2005–06 | 6 | 6 | 21 | 0 | 59 | 8 | 0 | 0 | 278 |
| 2006–07 | 7 | 6 | 0 | 10 | 67 | 5 | 2 | 3 | 221 |
| 2007–08 | 8 | 2 | 29 | 12 | 34 | 2 | 11 | 2 | 161 |
| 2008–09 | 23 | 2 | 7 | 4 | 59 | 2 | 4 | 0 | 217 |

TABLE 11 Unit 16 river otter trapper transport methods, 1999–2008

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-Wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–00 | 0 | 7 | 5 | 0 | 86 | 0 | 2 | 0 | 42 |
| 2000–01 | 0 | 19 | 0 | 0 | 63 | 0 | 13 | 6 | 32 |
| 2001–02 | 15 | 13 | 2 | 0 | 70 | 0 | 0 | 0 | 60 |
| 2002–03 | 14 | 11 | 2 | 32 | 32 | 2 | 7 | 0 | 56 |
| 2003–04 | 14 | 0 | 0 | 0 | 84 | 0 | 2 | 0 | 50 |
| 2004–05 | 19 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 47 |
| 2005–06 | 13 | 17 | 0 | 0 | 67 | 3 | 0 | 0 | 103 |
| 2006–07 | 18 | 0 | 0 | 3 | 61 | 0 | 5 | 13 | 38 |
| 2007–08 | 0 | 17 | 0 | 0 | 83 | 0 | 0 | 0 | 18 |
| 2008–09 | 25 | 0 | 0 | 0 | 43 | 0 | 0 | 32 | 28 |

TABLE 12 Unit 16 wolverine trapper transport methods, 1999–2008

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–00 | 21 | 7 | 0 | 0 | 72 | 0 | 0 | 0 | 29 |
| 2000–01 | 26 | 3 | 0 | 3 | 56 | 3 | 0 | 9 | 34 |
| 2001–02 | 33 | 2 | 0 | 2 | 60 | 0 | 0 | 2 | 45 |
| 2002–03 | 16 | 11 | 0 | 0 | 68 | 0 | 5 | 0 | 19 |
| 2003–04 | 37 | 4 | 0 | 2 | 50 | 0 | 6 | 2 | 52 |
| 2004–05 | 45 | 4 | 0 | 0 | 51 | 0 | 0 | 0 | 51 |
| 2005–06 | 31 | 2 | 0 | 7 | 53 | 2 | 4 | 0 | 45 |
| 2006–07 | 55 | 0 | 3 | 0 | 31 | 0 | 3 | 7 | 29 |
| 2007–08 | 38 | 0 | 3 | 3 | 55 | 0 | 0 | 0 | 29 |
| 2008–09 | 26 | 0 | 0 | 4 | 67 | 0 | 4 | 0 | 27 |

TABLE 13 Unit 16 marten trapper transport methods, 1999–2008

| Regulatory Year | Percent of Harvest | | | | | | | | Total Harvest |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled Skis Snowshoes | Boat | 3- or 4-wheeler | Snow-machine | ORV | Highway Vehicle | Unk | |
| 1999–00 | 0 | 5 | 1 | 0 | 87 | 0 | 2 | 4 | 485 |
| 2000–01 | 1 | 11 | 0 | 0 | 87 | 0 | 1 | 0 | 814 |
| 2001–02 | 5 | 4 | 0 | 0 | 87 | 0 | 1 | 2 | 945 |
| 2002–03 | 3 | 18 | 0 | 4 | 61 | 2 | 7 | 5 | 498 |
| 2003–04 | 15 | 2 | 0 | 0 | 78 | 0 | 1 | 4 | 729 |
| 2004–05 | 12 | 1 | 0 | 1 | 70 | 0 | 0 | 16 | 847 |
| 2005–06 | 17 | 3 | 0 | 0 | 78 | 0 | 1 | 1 | 1308 |
| 2006–07 | 11 | 3 | 0 | 1 | 82 | 0 | 1 | 0 | 872 |
| 2007–08 | 14 | 2 | 0 | 2 | 73 | 0 | 0 | 9 | 573 |
| 2008–09 | 21 | 1 | 0 | 0 | 74 | 0 | 0 | 4 | 1422 |

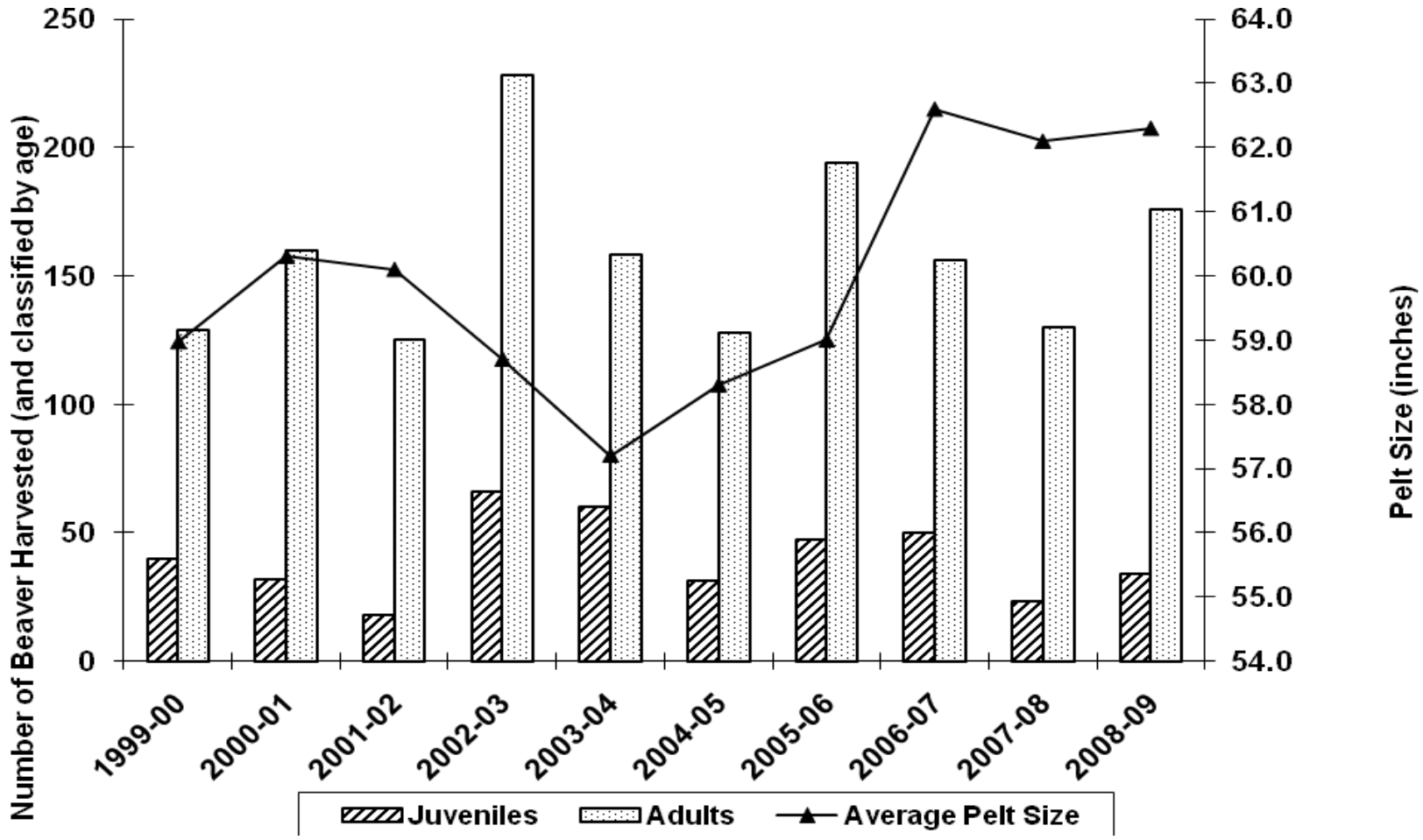


FIGURE 1 Unit 16 beaver harvest depicted by age group and average pelt size (length + width) across years. (Juvenile beaver measure ≤ 52 inches). Harvest numbers are incomplete due to some beaver unmeasured at time of sealing.

**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT:** 17 (18,800 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** Northern Bristol Bay

## BACKGROUND

Trapping has long been an important part of the culture and economy of the residents of northern Bristol Bay. Trapping was one of the main sources of income for many local people prior to the growth of the commercial fishing industry. Until recently, large numbers of trappers from around the region would come to Dillingham to tag and sell pelts at the annual "Beaver Round-up" in March. In the past, fur buyers purchased thousands of pelts during the week-long rendezvous and celebration. During the past decade there has been a continued decline in the importance of fur trapping to the economy and seasonal activities of local people.

Beaver historically was the most important furbearer in Game Management Unit 17. Beavers are abundant throughout most of 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 provide good rearing habitat for different 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, with low fur prices contributing to the low amount of beaver trapping activity. However, the importance of beaver as food for local residents assures a base level of harvest regardless of other factors.

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

River otter populations increased steadily during the 1980s, and appeared to stabilize during the 1990s. The high value of otter pelts during the previous reporting period resulted in trappers targeting otters rather than just catching them incidentally while trapping for beaver. However, the decline in prices during the past several years resulted in most otters trapped as incidental to beaver trapping during this reporting period.

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 ridge tops to river mouths. Although no data have been collected on the wolverine population in the unit, incidental observations and trapper reports suggest it is stable. Harvest levels fluctuate annually, but they have remained relatively constant since 1976. The high price for wolverine fur, as well as some interest in wolverine as a big game species by hunters during the fall, contributes to continued interest in taking wolverine in Unit 17.

Marten were uncommon in most of Unit 17 prior to 1970, but recent reports suggest they are becoming more widespread. Most of their habitat occurs along the Wood-Tikchik Lake system and the spruce forests along the Nushagak and Mulchatna rivers. Marten were reported in moderate numbers during the reporting period.

Mink occur in most of the riparian areas of Unit 17, but the size of the population and its relative trend are unknown. Pelts are smaller than mink found in the Kuskokwim River drainage, and prices paid for Unit 17 mink are much lower. Consequently, there is little trapping effort targeted toward mink in this area.

Coyotes have become common throughout Unit 17 as they expanded their range westward from the Alaska Range. Arctic foxes are uncommon visitors to the unit, probably dispersing from the lower Kuskokwim River drainages during peaks in their population cycles. Weasels are common throughout the unit, but there is little trapping effort targeting the species. Long-term residents of Unit 17 report that muskrats were common along the lower Nushagak and Togiak Rivers and on the Nushagak Peninsula in the past. Presently, it appears they are not common anywhere in Unit 17

## POPULATION OBJECTIVES

**Beaver:** To maintain a population in Subunit 17A at an average stream density index of 1.0 cache per river mile. To maintain populations throughout Subunits 17B and 17C at a level sufficient to sustain an average stream density of 1.2 caches per river mile.

**Otter:** To maintain a population in Unit 17 capable of sustaining an average annual harvest of 200 otters.

**Red Fox:** To maintain a population in Unit 17 capable of sustaining a 5-year average annual harvest of 400 foxes.

**Wolverine:** To maintain a population in Unit 17 capable of sustaining an average annual harvest of 50 wolverines.

## METHODS

Harvest data were collected when beavers, wolverines, lynx, and otters were sealed. Fur acquisition reports provided additional harvest data for those species not required to be sealed. A trapper questionnaire designed to provide an index of population status of various furbearer species was sent to a sample of trappers throughout the unit each spring. Aerial cache surveys were flown most years between 1968 and 2002 to provide an index of abundance in selected streams and rivers. With the exception of Subunit 17A, cache surveys have not been flown in recent years.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Beaver populations in the unit appeared to be stable during this reporting period. Most residents report high beaver densities throughout the area, but low prices kept harvests low during this reporting period. Reports of nuisance beavers, particularly in salmon spawning streams and along roads, have remained constant over the past several years.

Otter and wolverine populations appeared to be stable. Both species occur throughout the unit. No objective population data have ever been collected on these species in Unit 17.

Although never common in the unit, lynx populations probably increased in the early 1990s but are currently low. Population data for lynx are derived from incidental observations and harvest records. Snowshoe hare populations appeared to be moderate in Subunits 17B and 17C during this reporting period.

Red fox populations appeared to be stable during this reporting period, though trends are difficult to determine because of low trapping effort.

Coyotes have become common in the unit; though no objective population data have been collected. Population data for coyotes are derived from incidental observations. Highest densities appeared to be along the lower Nushagak River and Nushagak Peninsula.

No data were available to assess marten, mink, or weasel population trends. Trapper reports indicate that these species are common in suitable habitat and that marten populations have expanded their range in recent years.

Muskrats remained scarce throughout the unit during this reporting period. In spite of intensive human use of area waterways, observations of muskrats are rare. The only portions of the unit with viable populations appeared to be the Weary and Igushik river drainages.

## MORTALITY

## HARVEST

Season and Bag Limit.

Beaver season was 10 October–31 March, and 15 April–31 May firearms could be used to take up to 2 beaver per day for food. There is no season bag limit. Beaver harvests during this reporting period were 188 in 2006–07; 189 in 2007–08; and 203 in 2008–09, compared to the mean annual harvest for the previous 5 years (2001–02 through 2005–06) of 243 (Table 1). Trappers indicated the main reasons for the reduced harvest were low fur prices and high transportation costs, affecting the number of trappers afield (Table 2). The percentage of kits in the harvest remained relatively consistent with past seasons (Table 1). In the past, snares and traps were equally important methods of trapping beavers in Unit 17. 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 36 in 2006–07; 53 in 2007–08; and 28 in 2008–09, compared to the mean annual harvest for the previous five years (2001–02 through 2005–06) of 50 (Table 1). Trapping was the most common method of harvest (Table 3).

Coyote, arctic fox, red fox, and lynx seasons were 10 November–31 March. There was no bag limit. The number of lynx caught this reporting period was similar to previous years, with 3 reported in 2006–07; 8 in 2007–08; and 6 in 2008–09, compared to the mean annual harvest from the previous 5 years (2001–02 through 2005–06) of 4 (Table 1). Most lynx taken in the past 5 years have been trapped (Table 4).

River otter season was 19 November–31 March with no bag limit. Historically, most of the otters trapped were probably taken incidental to beaver trapping. With the decline in beaver trapper effort, the harvest of otters decline substantially (Table 1.) However from 2004 through 2006, prices in excess of $100 for otters were paid, resulting in considerable trapping effort directed towards otters. At the end of this reporting period, prices for otter hides declined, resulting in reduced effort towards otter trapping. Reported harvests of otters were 112 in 2006–07; 62 in 2007–06; and 32 in 2008–09; compared to the mean annual harvest for the previous 5 years (2001–02 though 2005–06) of 83 (Table 1). During the past 5 years the sex ratio of the harvest has indicated slightly more males taken by trappers (Table 5). Traps (probably Conibears) are the most common method used by successful trappers, followed by snares and firearms (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.

Harvest data on furbearers that are not sealed are sketchy at best. Fur export and acquisition reports provide only minimum harvest levels because many furs are used locally during periods of low fur prices.

Board of Game Actions and Emergency Orders. During its March 2007 meeting the Board of Game extended muskrat trapping season through 31 March, and eliminated the bag limit. No emergency orders affecting trapping were issued during this reporting period.

Permit Hunts. Permits for trapping nuisance beavers were issued each fall during this reporting period to remove beavers that were plugging culverts on local roads in the Dillingham area.

Hunter Residency and Success. Data on trapper residency and success have not been specifically analyzed. Individuals from 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.

Transport Methods. Snowmachines were typically the most common means of access used by successful trappers in Unit 17 (Tables 6–9). During most years snowmachines allow reliable access to most of the unit from late December to March. With the beaver trapping season opening in October, some trappers used boats to access beaver trapping areas.

Harvest Chronology. Beaver harvest chronology is dependent on weather conditions. Fluctuations noted on Table 10 should be viewed with caution. Many trappers did not keep close track of when their beavers were trapped during the course of the season. The relatively few lynx harvested during this reporting period do not provide any meaningful information on harvest chronology (Table 11). Otters were caught throughout the trapping season with most of the harvest occurring during the period when most of the beaver trapping occurs (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 when they are reported taken (Table 13).

### OTHER MORTALITY

Beaver and an occasional otter are sometimes caught in gillnets during the summer fishing season. The total number caught unitwide is probably less than 50 per year. These incidental catches are rarely reported, and carcasses are either used for food or discarded. Natural mortality of beavers can be high in the Bristol Bay area during winters of low temperatures and low snowfall, when beaver caches in shallow areas become ice-bound. High mortality rates can also occur for beavers along major rivers during severe spring breakup periods.

## HABITAT

### ASSESSMENT

No formal habitat monitoring programs were conducted in Unit 17. Furbearer habitat along the Nushagak, Mulchatna, and Togiak Rivers, and along the lower reaches of the major tributaries to those rivers, appeared to be in very good to excellent condition. Although there was evidence of heavy browsing, willow stands on gravel bars were abundant.

**ENHANCEMENT**

No human-caused habitat enhancement activities have been documented in Unit 17. Because of the relative inaccessibility of most of the unit, and the occurrence of natural enhancement, human-caused habitat enhancement is neither practical nor necessary at this time.

**NONREGULATORY PROBLEMS/NEEDS:**

Supposed conflicts with beavers and spawning salmon along streams are periodically reported from throughout the unit. Permits are issued each year to the Alaska Department of Transportation and Public Facilities to remove beavers that are impacting road culverts in the Dillingham area.

## CONCLUSIONS

Most furbearer populations in Unit 17 appear to be healthy and stable. Low prices paid for most pelts, coupled with high fuel prices, have reduced trapping pressure on beavers in many areas. For a few years, the increased value of otter pelts led to increased otter trapping effort, but probably didn't negatively impact the unitwide population. Local trappers are generally satisfied with current beaver and otter seasons and bag limits.

Wolverine harvests have been relatively consistent, with fluctuations likely reflecting changes in trapper effort due to traveling conditions. Reinstatement of the March portion of the trapping season seemed to increase the harvest to levels of previous years. Many wolverine pelts are used for local fur sewing, and prices have remained consistently high.

Lynx populations rebounded from the low levels first noted in 1987–88 and peaked in 1994–95. Liberal seasons have probably had little effect on the recovery of the lynx population because most trappers in the unit catch lynx incidentally in fox and wolverine sets.

Red fox populations remained relatively stable during this reporting period. If the fox population cycle is driven by periodic endemic disease outbreaks, there are probably few practical measures the department can implement to achieve the objective of maintaining a population that will support a harvest of 400 foxes per year.

Reasons for the low muskrat population in Unit 17 remain a mystery. However, this seems to be a statewide phenomenon. More research into the historic abundance and distribution of this species in the Bristol Bay area is needed.

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Table 1. Reported harvest of furbearers in Unit 17, 1956–57 through 2008–09 (sealing record data).

| Regulatory | Beaver | | Lynx | | Land Otter | | | | Wolverine | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| year | % Kits | Total | % Kits | Total | Male | Female | Unk | Total | Male | Female | Unk | Total |
| 1956–57 | 22.9 | 367 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1957–58 | 19.1 | 3165 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1958–59 | 19.6 | 3245 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1959–60 | 24.3 | 3721 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1960–61 | 23.1 | 2849 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1961–62 | 29.5 | 1903 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1962–63 | 23.3 | 2172 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1963–64 | 28.4 | 1766 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1964–65 | 22.1 | 957 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1965–66 | 25.2 | 1424 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1966–67 | 25.3 | 2711 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1967–68 | 25.7 | 3158 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1968–69 | N/A | 1750[a] | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1970–71 | 27.5 | 824 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1971–72 | 20.5 | 762 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1972–73 | 23.9 | 1849 | --- | --- | --- | --- | --- | --- | 10 | 5 | 6 | 21 |
| 1973–74 | 23.9 | 1681 | --- | --- | --- | --- | --- | --- | 27 | 18 | 0 | 45 |
| 1974–75 | 15.8 | 929[b] | --- | --- | --- | --- | --- | --- | 14 | 7 | 1 | 22 |
| 1975–76 | 22.2 | 637[b] | --- | --- | --- | --- | --- | --- | 50 | 25 | 3 | 78 |
| 1976–77 | 17.7 | 766[b] | --- | --- | --- | --- | --- | --- | 37 | 12 | 2 | 51 |
| 1977–78 | 23.5 | 802[b] | 11.1 | 36 | 52 | 49 | 7 | 108 | 32 | 14 | 3 | 49 |
| 1978–79 | 20.5 | 959 | 26.7 | 30 | 70 | 54 | 9 | 133 | 26 | 14 | 3 | 43 |
| 1979–80 | 27.7 | 1478 | 32.0 | 25 | 68 | 62 | 9 | 139 | 28 | 19 | 0 | 47 |
| 1981–82 | 20.9 | 1693 | 11.8 | 17 | 94 | 83 | 1 | 178 | 28 | 10 | 0 | 38 |
| 1982–83 | 12.8 | 1824 | 12.0 | 25 | 100 | 72 | 31 | 203 | 34 | 17 | 1 | 52 |
| 1983–84 | 18.7 | 1360 | 8.3 | 12 | 94 | 63 | 3 | 160 | 10 | 4 | 0 | 14 |
| 1984–85 | 22.9 | 1661 | 27.6 | 29 | 105 | 94 | 20 | 219 | 39 | 16 | 2 | 57 |

Table 1. Continued.

| Regulatory | Beaver | | Lynx | | Land Otter | | | | Wolverine | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | % Kits | Total | % Kits | Total | Male | Female | Unk | Total | Male | Female | Unk | Total |
| 1985–86 | 15.9 | 1452 | 12.5 | 8 | 49 | 46 | 6 | 101 | 13 | 8 | 2 | 23 |
| 1986–87 | 20.1 | 2817 | 21.4 | 14 | 87 | 90 | 11 | 188 | 31 | 9 | 0 | 40 |
| 1987–88 | 21.8 | 3048 | 0 | 1 | 133 | 133 | 1 | 267 | 22 | 20 | 2 | 44 |
| 1988–89 | 18.8 | 965 | 0 | 1 | 66 | 57 | 19 | 142 | 21 | 16 | 7 | 44 |
| 1989–90 | 19.7 | 1245 | 0 | 1 | 67 | 46 | 3 | 116 | 14 | 7 | 5 | 26 |
| 1990–91 | 20.2 | 1092 | 50.0 | 2 | 68 | 71 | 10 | 149 | 19 | 19 | 8 | 46 |
| 1991–92 | 21.8 | 1183 | 0 | 5 | 40 | 45 | 18 | 103 | 25 | 23 | 3 | 51 |
| 1992–93 | 29.9 | 455 | 13.3 | 15 | 38 | 36 | 9 | 83 | 8 | 2 | 0 | 10 |
| 1993–94 | 20.0 | 676[c] | 13.3 | 15 | 46 | 40 | 10 | 96 | 18 | 10 | 1 | 29 |
| 1994–95 | 23.3 | 1091 | 14.3 | 28 | 63 | 50 | 21 | 134 | 32 | 21 | 5 | 58 |
| 1995–96 | 26.2 | 439 | 0 | 7 | 43 | 40 | 0 | 83 | 22 | 12 | 0 | 34 |
| 1996–97 | 20.0 | 869 | 14.3 | 7 | 75 | 95 | 24 | 194 | 28 | 14 | 8 | 50 |
| 1997–98 | 24.4 | 382 | 21.4 | 14 | 40 | 43 | 3 | 86 | 29 | 18 | 0 | 47 |
| 1998–99 | 27.5 | 436 | 11.1 | 9 | 23 | 22 | 5 | 50 | 20 | 6 | 1 | 27 |
| 1999–00[d] | 43.7 | 215 | 0 | 12 | 14 | 18 | 10 | 42 | 21 | 9 | 0 | 30 |
| 2000–01 | 18.4 | 326 | 33 | 3 | 20 | 26 | 21 | 67 | 20 | 12 | 1 | 33 |
| 2001–02 | 25.1 | 219 | 0 | 2 | 15 | 12 | 2 | 29 | 30 | 14 | 3 | 47 |
| 2002–03[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 |

[a] No harvest records available, estimates only

[b] Beaver trapping season closed in units 17A and 17C.

[c] Beaver trapping season in unit 17A extended by one month by emergency regulation.

[d] Beaver trapping season changed to November 10–March 31 unit-wide, with April 15–May 31 season when 2 beaver/day could be taken with a firearm.

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

Table 2. Unit 17 beaver harvest[a], 1992–93 through 2008–09.

| Regulatory year[b] | Kits[c] (%) | Reported harvest | | | Method of take | | | Successful Trappers |
|---|---|---|---|---|---|---|---|---|
| | | Adults (%) | Unk. | Total | Trap (%) | Snare (%) | Unk.(%) | |
| 1992–93 | 136 (29.9) | 319 (70.1) | 0 | 455 | 218 (47.9) | 213 (46.8) | 24 (5.3) | 45 |
| 1993–94 | 135 (20.0) | 541 (80.0) | 0 | 676 | 345 (51.0) | 320 (47.3) | 11 (1.6) | 57 |
| 1994–95 | 254 (23.3) | 837 (76.7) | 0 | 1091 | 564 (51.7) | 517 (47.4) | 10 (0.9) | 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 (23.6) | 289 (75.7) | 3 | 382 | 177 (46.3) | 179 (46.9) | 26 (6.8) | 38 |
| 1998–99 | 120 (27.5) | 316 (72.5) | 0 | 436 | 187 (42.9) | 212 (48.6) | 37 (8.5) | 43 |
| 1999–00 | 94 (43.7) | 121 (56.3) | 0 | 215 | 98 (45.6) | 108 (50.2) | 9 (4.2) | 25 |
| 2000–01 | 50 (15.3) | 266 (81.6) | 10 | 326 | 132 (40.5) | 179 (54.9) | 15 (4.6) | 26 |
| 2001–02 | 55 (25.1) | 164 (74.9) | 0 | 219 | 78 (35.6) | 136 (62.1) | 5 (2.3) | 21 |
| 2002–03 | 44 (17.1) | 214 (82.9) | 0 | 258 | 166 (64.3) | 75 (29.1) | 17 (6.6) | 24 |
| 2003-04 | 56 (22.5) | 193 (77.5) | 0 | 249 | 132 (53.0) | 106 (42.6) | 9 (3.6) | 27 |
| 2004-05 | 31 (16.7) | 155 (83.3) | 0 | 186 | 162 (87.1) | 24 (12.9) | 0 (---) | 17 |
| 2005-06 | 73 (24.3) | 223 (74.1) | 5 | 301 | 252 (83.7) | 39 (13.0) | 10 (3.3) | 29 |
| 2006-07 | 40 (21.3) | 148 (78.7) | 0 | 188 | 116 (61.7) | 51 (27.1) | 21 (11.2) | 22 |
| 2007-08 | 39 (20.6) | 144 (76.2) | 6 | 189 | 181 (95.8) | 5 (2.7) | 3 (1.6) | 23 |
| 2008-09 | 52 (25.6) | 151 (74.4) | 0 | 203 | 149 (73.4) | 29 (14.3) | 25 (12.3) | 22 |

[a] Percentages based on total reported harvest.

[b] Season dates: 1992/93–96/97 Unit 17A: 1 Jan–31 Jan 20 per season
Units 17B & 17C: 1 Jan–28 Feb 20 per season

1993–1994 Unit 17A season extended to 1 Jan–28 Feb by emergency regulation.

1999–2000 Unit-wide 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

2003-2004 Unit-wide 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.

[c] Juveniles < 52"

Table 3. Unit 17 wolverine harvest[a], 1992–93 through 2008–09.

| Regulatory | Reported harvest | | | | 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 (62.1) | 10 (34.5) | 1 | 29 | 7 (24.1) | 1 (3.4) | 21 (72.4) | 0 | 20 |
| 1994–95 | 32 (55.2) | 21 (36.2) | 5 | 58 | 44 (75.9) | 1 (1.7) | 13 (22.4) | 0 | 29 |
| 1995–96 | 22 (64.7) | 12 (35.3) | 0 | 34 | 25 (73.5) | 1 (2.9) | 8 (23.5) | 0 | 17 |
| 1996–97 | 28 (56.0) | 14 (28.0) | 8 | 50 | 36 (72.0) | 1 (2.0) | 13 (26.0) | 0 | 24 |
| 1997–98 | 29 (61.7) | 18 (38.3) | 0 | 47 | 37 (78.7) | 0 (---) | 10 (21.3) | 0 | 18 |
| 1998–99 | 20 (74.1) | 6 (22.2) | 1 | 27 | 15 (55.6) | 1 (37.0) | 10 (37.0) | 1 | 27 |
| 1999–00 | 21 (70.0) | 9 (30.0) | 0 | 30 | 13(43.3) | 0 (---) | 17 (56.7) | 0 | 22 |
| 2000–01 | 20 (60.6) | 12 (36.4) | 1 | 33 | 11 (33.3) | 0 (---) | 20 (60.6) | 2 | 22 |
| 2001–02 | 30 (63.8) | 14 (29.8) | 3 | 47 | 34 (72.3) | 0 (---) | 13 (27.7) | 0 | 25 |
| 2002–03 | 11 (73.3) | 4 (26.7) | 0 | 15 | 8 (53.3) | 0 (---) | 7 (46.7) | 0 | 14 |
| 2003-04[c] | 58 (65.9) | 29 (33.0) | 1 | 88 | 68 (77.3) | 1 (1.1) | 18 (20.5) | 1 | 34 |
| 2004-05 | 39 (70.9) | 16 (29.1) | 0 | 55 | 43 (78.2) | 1 (1.8) | 10 (18.2) | 1 | 24 |
| 2005-06 | 36 (80.0) | 9 (20.0) | 0 | 45 | 33 (73.3) | 2 (4.4) | 10 (22.2) | 0 | 27 |
| 2006-07 | 23 (63.9) | 10 (27.8) | 3 | 36 | 22 (61.1) | 6 (16.7) | 7 (19.4 ) | 1 | 18 |
| 2007-08 | 26 (49.1) | 21 (39.6) | 6 | 53 | 39 (73.6) | 3 (5.7) | 5 (9.4) | 6 | 25 |
| 2008-09 | 18 (64.3) | 10 (35.7) | 0 | 28 | 20 (71.4) | 6 (21.4) | 1 (3.6) | 1 | 15 |

[a] Percentages based on total reported harvest.

[b] Trapping season dates: 1992/93–2002-03 Unit 17 10 Nov–28 Feb No limit

[c] Trapping season dates: 2003-04–present Unit 17 10 Nov–31Mar No limit

Hunting season dates: 1992/93–present Unit 17 1 Sep–31 Mar 1 wolverine

Table 4. Unit 17 lynx harvest[a], 1992–93 through 2008–09.

| Regulatory Year[b] | Reported harvest | | | | | | | Method of take | | | Successful Trappers |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males (%) | Females (%) | Unk. | Juveniles [c](%) | Adults (%) | Unk. Age | Total | Trap/Snare (%) | Shot (%) | Unk. | |
| 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 (14.3) | 5 (71.4) | 1 | 7 | 6 (85.7) | 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 (66.7) | 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 (0.38) | 0 | 1 (12.5) | 5 (62.5) | 2 | 8 | 8 (100) | 0 (---) | 0 | 4 |
| 2008-09 | 4 (66.7) | 1 (16.7) | 1 | 1 (16.7) | 5 (83.3) | 0 | 6 | 5 (83.3) | 1 (16.7) | 0 | 5 |

[a] Percentages based on total reported harvest.

[b] Trapping season dates: 1992/93–1996/97 Unit 17 10 Nov–28 Feb No limit
1997/98–present Unit 17 10 Nov–31 Mar No Limit

Hunting season dates: 1992/93–present Unit 17 10 Nov–28 Feb 2 lynx

[c] Juveniles < 34" in length

Table 5. Unit 17 otter harvest[a], 1992–93 through 2008–09.

| Regulatory Year[b] | Reported harvest | | | | Method of take | | | | Successful Trappers |
|---|---|---|---|---|---|---|---|---|---|
| | Males (%) | Females (%) | Unk. | Total | Trap (%) | Snare (%) | Shot (%) | Unk. | |
| 1992–93 | 38 (51.4) | 36 (48.6) | 9 | 83 | 60 (72.3) | 20 (24.1) | 1 (1.2) | 2 | 29 |
| 1993–94 | 46 (53.5) | 40 (46.5) | 10 | 96 | 62 (64.6) | 21 (21.9) | 6 (6.3) | 7 | 33 |
| 1994–95 | 63 (55.8) | 50 (44.2) | 21 | 134 | 122 (91.0) | 12 (9.0) | 0 (---) | 0 | 41 |
| 1995–96 | 43 (51.8) | 40 (48.2) | 0 | 83 | 68 (81.9) | 8 (9.6) | 3 (3.6) | 4 | 24 |
| 1996–97 | 75 (44.1) | 95 (55.9 | 24 | 194 | 118 (60.8) | 64 (33.0) | 6 (3.1) | 6 | 51 |
| 1997–98 | 40 (48.2) | 43 (51.8) | 3 | 86 | 57 (66.3) | 19 (22.1) | 10 (11.6) | 0 | 30 |
| 1998–99 | 23 (51.1) | 22 (48.9) | 5 | 50 | 28 (56.0) | 18 (36.0) | 4 (8.0) | 0 | 16 |
| 1999–2000 | 14 (43.8) | 18 (56.2) | 10 | 42 | 30 (71.4) | 3 (7.1) | 1 (2.4) | 8 | 19 |
| 2000–01 | 20 (43.5) | 26 (56.5) | 21 | 67 | 56 (83.6) | 8 (11.9) | 3 (4.5) | 0 | 14 |
| 2001–02 | 15 (55.6) | 12 (44.4) | 2 | 29 | 23 (79.3) | 4 (13.8) | 1 (3.4) | 1 | 12 |
| 2002–03 | 28 (58.3) | 20 (41.7) | 2 | 50 | 41 (82.0) | 3 (6.0) | 6 (12.0) | 0 | 15 |
| 2003-04 | 45 (56.3) | 35 (43.7) | 1 | 81 | 69 (85.2) | 7 (8.6) | 4 (4.9) | 1 | 24 |
| 2004-05 | 73 (56.6) | 56 (43.4) | 3 | 132 | 112 (84.9) | 8 (6.1) | 7 (5.3) | 5 | 25 |
| 2005-06 | 56 (54.4) | 47 (45.6) | 21 | 124 | 120 (96.8) | 1 (0.8) | 1 (0.8) | 2 | 29 |
| 2006-07 | 47 (42.0) | 35 (31.3) | 30 | 112 | 100 (89.3) | 3 (2.7) | 5 (4.5) | 3 | 23 |
| 2007-08 | 31 (50.0) | 22 (35.5) | 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 |

[a] Percentages based on total reported harvest.

[b] Season dates:

| | | | |
|---|---|---|---|
| 1992/93–1996/97 | Unit 17 | 10 Nov–31 Mar | No limit |
| 1997/98–1998/99 | Unit 17 | 10 Nov–28 Feb | No limit |
| 1999/2000–present | Unit 17 | 10 Nov–31 Mar | No limit |

Table 6. Unit 17 beaver harvest percentage by transport method, 1992–93 through 2008–09.

| Regulatory Year | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | Total |
| 1992–93 | --- | --- | --- | --- | 96.3 | --- | --- | 3.7 | 455 |
| 1993–94 | 1.3 | --- | --- | --- | 96.4 | --- | --- | 2.2 | 676 |
| 1994–95 | 0.4 | 1.3 | --- | --- | 98.2 | --- | 0.2 | --- | 1091 |
| 1995–96 | 0.9 | 2.7 | --- | --- | 96.4 | --- | --- | --- | 439 |
| 1996–97 | 1.5 | --- | --- | --- | 98.4 | 0.1 | --- | --- | 869 |
| 1997–98 | --- | --- | --- | 6.3 | 84.0 | --- | 1.8 | 6.8 | 382 |
| 1998–99 | 0.5 | 2.3 | --- | --- | 88.8 | --- | --- | 8.5 | 436 |
| 1999–00 | 0.5 | --- | 0.5 | --- | 93.0 | --- | --- | 6.0 | 215 |
| 2000–01 | --- | --- | 2.8 | --- | 89.0 | --- | 4.0 | 4.3 | 326 |
| 2001–02 | --- | --- | --- | --- | 98.6 | --- | 0.5 | 0.9 | 219 |
| 2002–03 | --- | --- | 22.5 | 9.3 | 49.2 | --- | 14.3 | 4.7 | 258 |
| 2003-04 | 1.6 | --- | 11.7 | 2.0 | 80.7 | --- | 0.4 | 3.6 | 249 |
| 2004-05 | --- | --- | 29.0 | --- | 69.4 | --- | --- | 1.6 | 186 |
| 2005-06 | --- | --- | 22.9 | 3.3 | 71.1 | --- | 2.3 | 0.3 | 301 |
| 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 |

Table 7. Unit 17 lynx harvest percentage by transport method, 1992–93 through 2008–09.

| Regulatory Year | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | Total |
| 1992–93 | --- | --- | --- | --- | 100 | --- | --- | --- | 15 |
| 1993–94 | --- | --- | 6.7 | --- | 80.0 | --- | --- | 13.3 | 15 |
| 1994–95 | 3.6 | --- | --- | --- | 96.4 | --- | --- | --- | 28 |
| 1995–96 | 42.9 | --- | --- | --- | 57.1 | --- | --- | --- | 7 |
| 1996–97 | --- | --- | --- | --- | 85.7 | --- | --- | 14.3 | 7 |
| 1997–98 | --- | --- | --- | 7.1 | 64.3 | --- | --- | 28.6 | 14 |
| 1998–99 | --- | --- | 22.2 | --- | 77.8 | --- | --- | --- | 9 |
| 1999–00 | --- | --- | --- | --- | 100 | --- | --- | --- | 12 |
| 2000–01 | --- | --- | --- | --- | 100 | --- | --- | --- | 3 |
| 2001–02 | --- | --- | --- | --- | 100 | --- | --- | --- | 2 |
| 2002–03 | --- | --- | 100 | --- | --- | --- | --- | --- | 1 |
| 2003-04 | 8.3 | --- | --- | --- | 91.7 | --- | --- | --- | 12 |
| 2004-05 | --- | --- | --- | --- | 100 | --- | --- | --- | 3 |
| 2005-06 | --- | --- | --- | --- | 100 | --- | --- | --- | 4 |
| 2006-07 | --- | --- | --- | --- | 66.7 | 33.3 | --- | --- | 3 |
| 2007-08 | 75.0 | --- | --- | --- | 25.0 | --- | --- | --- | 8 |
| 2008-09 | --- | --- | --- | --- | 83.3 | --- | 16.7 | --- | 6 |

Table 8. Unit 17 otter harvest percentage by transport method, 1992–93 through 2008–09.

| Regulatory year | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | Total |
| 1992–93 | --- | --- | 6.0 | --- | 91.6 | --- | --- | 2.4 | 83 |
| 1993–94 | --- | --- | 10.4 | --- | 80.2 | --- | --- | 9.4 | 96 |
| 1994–95 | --- | --- | --- | --- | 99.3 | --- | --- | 0.7 | 134 |
| 1995–96 | --- | --- | --- | --- | 86.7 | --- | 1.2 | 12.0 | 83 |
| 1996–97 | --- | --- | --- | --- | 94.8 | --- | --- | 5.2 | 194 |
| 1997–98 | --- | --- | --- | 7.0 | 93.0 | --- | --- | --- | 86 |
| 1998–99 | --- | --- | --- | --- | 100 | --- | --- | --- | 50 |
| 1999–00 | --- | --- | 16.7 | --- | 50.0 | --- | --- | 33.3 | 42 |
| 2000–01 | 11.9 | --- | --- | --- | 80.6 | --- | 7.5 | --- | 67 |
| 2001–02 | --- | --- | --- | --- | 96.6 | --- | --- | 3.4 | 29 |
| 2002–03 | --- | --- | 30.0 | --- | 52.0 | --- | 6.0 | 12.0 | 50 |
| 2003-04 | --- | --- | 12.4 | 2.5 | 70.4 | --- | 11.1 | 3.7 | 81 |
| 2004-05 | --- | --- | 8.3 | --- | 86.4 | --- | --- | 5.3 | 132 |
| 2005-06 | --- | --- | 0.8 | 1.6 | 95.2 | --- | 0.8 | 1.6 | 124 |
| 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 |

Table 9. Unit 17 wolverine harvest percentage by transport method, 1992–93 through 2008-09.

| Regulatory Year | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Unknown | Total |
| 1992–93 | --- | --- | --- | --- | 100.0 | --- | --- | --- | 10 |
| 1993–94 | 17.2 | --- | --- | --- | 79.3 | --- | --- | 3.4 | 29 |
| 1994–95 | 13.8 | --- | --- | --- | 86.2 | --- | --- | --- | 58 |
| 1995–96 | 52.9 | --- | --- | --- | 41.2 | --- | --- | 5.9 | 34 |
| 1996–97 | 38.0 | --- | --- | --- | 62.0 | --- | --- | --- | 50 |
| 1997–98 | 46.8 | --- | --- | --- | 51.1 | --- | --- | 2.1 | 47 |
| 1998–99 | 37.0 | --- | --- | --- | 55.6 | --- | --- | 7.4 | 27 |
| 1999–00 | 16.7 | --- | 6.7 | --- | 73.3 | --- | --- | 3.3 | 30 |
| 2000–01 | 24.2 | --- | 3.0 | --- | 63.6 | --- | 3.0 | 6.1 | 33 |
| 2001–02 | 15.0 | --- | 4.3 | --- | 76.6 | --- | --- | 4.3 | 47 |
| 2002–03 | 40.0 | --- | 26.7 | --- | 33.3 | --- | --- | --- | 15 |
| 2003-04 | 22.7 | --- | --- | --- | 71.6 | --- | --- | 5.7 | 88 |
| 2004-05 | 9.1 | --- | 1.8 | --- | 83.6 | --- | --- | 5.5 | 55 |
| 2005-06 | 17.8 | --- | 2.2 | --- | 80.0 | --- | --- | --- | 45 |
| 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 |

Table 10. Unit 17 beaver harvest chronology percentage by month, 1992–93 through 2008-09.

| Regulatory Year | Month | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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. |

Table 11. Unit 17 lynx harvest chronology percentage by month, 1992–93 through 2008-09.

| Regulatory Year | Month | | | | | | |
|---|---|---|---|---|---|---|---|
| | November | December | January | February | March | Other/Unknown | Total |
| 1992–93 | 13.3 | 46.7 | --- | 40.0 | --- | --- | 15 |
| 1993–94 | 8.3 | 33.3 | 13.3 | 53.3 | --- | --- | 15 |
| 1994–95 | --- | 25.0 | 35.7 | 35.7 | 3.6 | --- | 28 |
| 1995–96 | --- | 28.6 | 57.1 | 14.3 | --- | --- | 7 |
| 1996–97 | --- | 14.3 | 28.6 | 42.9 | --- | 14.3 | 7 |
| 1997–98 | --- | 21.4 | 35.7 | 7.1 | --- | 35.7 | 14 |
| 1998–99 | 11.1 | 11.1 | 11.1 | 44.4 | 11.1 | 11.1 | 9 |
| 1999–00 | --- | 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 | --- | |
| 2008–09 | 16.7 | --- | 33.3 | 33.3 | --- | 16.7 | |

Table 12. Unit 17 otter harvest chronology percentage by month, 1992–93 through 2008-09.

| Regulatory Year | Month | | | | | | |
|---|---|---|---|---|---|---|---|
| | November | December | January | February | March | Other/Unknown | 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 |

Table 13. Unit 17 wolverine harvest chronology percentage by month, 1992–93 through 2008-09.

| Regulatory Year | Month | | | | | | |
|---|---|---|---|---|---|---|---|
| | November | December | January | February | March | Other/Unknown | Total |
| 1992–93 | --- | 10.0 | 40.0 | 50.0 | --- | --- | 10 |
| 1993–94 | --- | 10.3 | 13.8 | 51.7 | 3.4 | 20.7 | 29 |
| 1994–95 | --- | 13.8 | 36.2 | 41.4 | 5.2 | 3.4 | 58 |
| 1995–96 | 14.7 | 8.8 | 20.6 | 38.2 | --- | 17.6 | 34 |
| 1996–97 | --- | 20.0 | 42.0 | 28.0 | 8.0 | 2.0 | 50 |
| 1997–98 | --- | 6.4 | 51.1 | 38.3 | --- | 4.3 | 47 |
| 1998–99 | --- | 11.1 | 29.6 | 40.7 | --- | 18.5 | 27 |
| 1999–00 | 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 |

**WILDLIFE**

**MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT**: 18 (42,000 $mi^2$)

**GEOGRAPHIC DESCRIPTION**: Yukon–Kuskokwim Delta

## BACKGROUND

Furbearers are abundant throughout Unit 18, and extensive areas of suitable habitat support large populations of red fox and aquatic furbearers, such as mink, river otter, muskrat and beaver. Less extensive habitats suitable for lynx, marten, arctic fox, squirrel, wolverine and coyote occur in Unit 18 and are occupied by these furbearers.

Fur harvests are well below desirable levels and are far below the historic highs of the 1930s. Historically, approximately one-third of the fur sealed in the state originated in Unit 18 and the sale of furs provided an important financial boost to the mixed subsistence/cash economy. However in recent years, the number of trappers and the harvest of fur with the exception of lynx have declined with minor fluctuations driven by fur prices and travel conditions.

Furbearers are still widely used in traditional ways. Fur garments, including parkas, mittens, mukluks, and hats, are ubiquitous and most are homemade. Beaver fur is the favored material for hats in the inland portions of the unit, while seal is the fur of choice along the coast. Parkas are made from a variety of furs, including beaver, seal, otter, and arctic ground squirrel. Ruffs are generally made from wolf or wolverine fur, and children often have arctic fox fur ruffs. Other furs, such as ermine and red squirrel, are used for trim. Active skin sewers create a steady demand for local fur.

Probably more than anywhere else in Alaska, furbearers in Unit 18 are regularly used for food with beaver, otter, mink, arctic ground squirrels, muskrats, and lynx being common table fare. The pattern of preferences varies from village to village, but meat from these species is rarely discarded, even if it is only saved for dog food. For some species, the prime motivation for trapping them is the meat, and occasionally the fur is not used. The Board of Game recognized this when it adopted beaver regulations that permit beavers to be taken strictly for the meat.

Furbearers are often harvested opportunistically during other outdoor pursuits. For example, moose hunters occasionally shoot beavers for camp meat, spring duck hunters take muskrats, and caribou hunters will shoot foxes, lynx, or wolverines if they have the opportunity.

Furbearer harvest information is poor for most species. This is partly because they're not sealed when home-tanned and used in the home, taken primarily for meat, or taken opportunistically with little planning. Poor harvest information is also due to poor understanding of the regulations, the tedium of compliance, occasional poor access to fur sealers, and the low risk of consequences for failing to comply.

## 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 a dollar for every fur they seal, fur buyers are required to fill out a report of acquisition of furs and hides, and trappers sending furs out of Alaska are required to fill out a raw fur export permit. Our objectives include maintaining these programs for harvest assessment.

- Compliance with 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 wolverine, lynx, and otter. We only gather anecdotal information on number of fox, weasels, beaver, muskrats, mink, martens or squirrels harvested in GMU 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; attend local chapter meeting of the Alaska trapper association and made incidental observations of furbearer species during fieldwork for other species.

## 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 moderate 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 only bought one coyote a year through most of the 80s but by the mid 90s, 1–5 furs a year were not uncommon. Coyotes are established on the mainstream Kuskokwim and most of its drainages including the Tuluksak, Gweek, Kisarolik, Kasigluk, and Kwethluk rivers.

*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. The winter of 2007–2008, we experienced a spike in the arctic fox population. Trappers harvested several outside the traditional coastal zone they were associated with. Arctic fox were harvested on the Akalikutak River near Bethel, on the rolling hills just south of the Yukon River by Ohogamint.

*Red Fox* — Red foxes are abundant throughout Unit 18. They are commonly seen during aerial surveys for other species; are routinely seen in the villages, including Bethel; and trappers consistently answered the questionnaire stating that fox numbers were moderate-to-high and stable-to-increasing. During this and the previous reporting period, foxes are known to have tested positive for rabies, which is consistent with a large population.

*Lynx* — During this reporting period it appears that lynx numbers are increasing. Numerous lynx and lynx tracks have been seen during winter moose surveys, there has been an increase in the number of lynx sealed, and good numbers of kittens have been sealed. Lynx densities are increasing on the mainstream Kuskokwim and reaching from Kalskag to Bethel on the Kuskokwim and from Paimiut to Anuk River on the Yukon. This is a change from the last reporting period, when the higher densities were found mountainous parts of the tributaries.

*Marten* —Marten numbers are stable at low levels. The limited marten habitat in Unit 18 is not conveniently accessed by village residents, so only small numbers of trappers target them directly. This limited harvest pressure does not influence marten population levels.

*Mink* — Mink are plentiful throughout the extensive habitats available to them, but they are rarely seen and appear to have low abundance. Normal levels for mink abundance in the Yukon-Kuskokwim Delta are generally higher than elsewhere, but may not be perceived as exceptional

by area trappers who are accustomed to mink being abundant. With low prices being offered, the number of mink trappers has declined.

*Muskrat* — Trappers report that muskrat numbers are stable at moderate levels. Trappers don't target muskrats as deliberately as in the past, when spring camps were established expressly for hunting muskrats. Their numbers are independent of trapping pressure.

*River Otter* — **As** with mink, river otters are found throughout the extensive habitats available to them. During surveys for other species, we normally see otter tracks and have noted that otters appear to be more abundant than during the previous reporting period.

*Red Squirrel* — As with marten, red squirrel habitat is limited in Unit 18 and squirrel numbers are stable at low levels. Trappers rarely target red squirrels except when they are being a nuisance, and their population is independent of trapping pressure.

*Arctic Ground Squirrel* — Arctic ground squirrels are abundant in the habitats available to them. As with muskrats, trappers don't target ground squirrels as deliberately as in the past, when spring "parky squirrel" camps were established to collect squirrel furs for parkas. Arctic ground squirrel numbers are stable and independent of trapping pressure.

*Ermine (Weasel)* — Weasel numbers are not influenced by trapping because trappers rarely target them unless they are a nuisance around home or field camps.

*Wolverine* — Wolverine numbers are moderate to low but are probably increasing in Unit 18, as greater numbers of caribou, moose and wolves provide prey and carrion.

*Population Composition*

The only furbearers for which sex composition of the harvest is collected during sealing are otters and wolverines. During this reporting period, male otters outnumber females in the harvest by a ratio of about 7:5 and male wolverines outnumber females by about 5:3. This probably does not reflect the composition of the population. Rather, it reflects the tendency for males of both species to be more vulnerable to trapping than females.

*Distribution and Movements*

The distribution of furbearers in Unit 18 is reflected by the distribution of their habitats. The aquatic furbearers (beavers, mink, otters, and muskrats) are particularly abundant along the Yukon and Kuskokwim rivers and within the wet tundra environments between the main rivers. They are also found along the tributaries and distributaries throughout the unit.

Red foxes are abundant along riparian corridors throughout Unit 18. They are less abundant but still present in the Kilbuck Mountains, the Andreafsky Mountains, and along the coast where arctic foxes are also found.

Good lynx habitat can be found around Kusilvak Mountain, along the Yukon and Kuskokwim rivers, along the larger tributaries of the main rivers, and in the Kilbuck and Andreafsky mountains. They are occasionally found elsewhere in Unit 18, as lynx seek out scattered pockets of hares.

Martens and red squirrels can be found in the limited forested areas of Unit 18. These occur along the upper portions of the Kisaralik, Fog, and Tuluksak rivers in eastern Unit 18; in the upper portions of the Atchuelinguk, Andreafsky, and East Fork Andreafsky rivers; and north of the Yukon River, upriver from Marshall.

Arctic ground squirrels are found in the upland areas of the Kilbuck Mountains and the Andreafsky Mountains. These are the only areas of suitable habitat available to them in Unit 18.

Ermine are ubiquitous in Unit 18. When we hear of ermine, it is usually because they are causing problems at a fish camp, cabin, or home.

Wolverines are found in the Kilbuck and Andreafsky mountains, with fewer animals found along riparian habitats throughout the unit. The wolverine population is probably growing and its distribution roughly parallels that of caribou, moose, and wolves.

Coyotes remain rare and they are found mostly in the upland areas north of the Yukon River and in the Kilbuck Mountains south and east of the Kuskokwim River. During the previous reporting period, they were taken in the Andreafsky River drainage, the Goodnews River drainage, the Kwethluk River drainage, and in the Fog River drainage.

**MORTALITY**

*Harvest*

Seasons and Bag Limit. Trapping and hunting seasons and bag limits were as follows:

*2006–2007, 2007–2008, 2008–2009*

| 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. During the fall 2005 Board of Game meeting, the Unit 18 mink and weasel seasons changed to 10 Nov–31 Mar. Either the meat or the fur must

be salvaged; the sealing requirement was eliminated; and shooting was made a legal method of harvest year-round. These regulations took effect at the beginning of this reporting period.

Human-Induced Harvest. Coffing (2000) estimated that from about 5% to 100% of furbearers caught in Akiachak were sold, depending on the species. Those that are not sold are used domestically for crafts and garments and are rarely reported, so harvest report data in Unit 18 should be viewed as minimum estimates.

Otter harvest grew during this reporting period (Table 2) as interest followed fur prices. The average otter pelt price had risen to more than $120 by the end of the previous reporting period. We suspect that if prices remain that high harvest will remain the same or increase.

Lynx harvest (Table 2) increased through this reporting period, following typical lynx population cycles. We anticipate that lynx numbers and harvest will decline in next 5 years.

Wolverine harvest from sealing data has stayed fairly consistent with a low of 22 in 2004–2005 (Table 2). Wolverine ruffs are prized locally and some fur sewers prefer the stiffer hides derived from home tanning to those commercially tanned. As a result, many wolverines are not sealed. In the past 5 years, more 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 a higher wolverine population that may exist along with higher populations of wolves, moose and caribou.

Mink are harvested along with otters in sets using a *taluyat* (funnel-type trap), and even though otters are also targeted directly using 330 Conibear or similar quick-kill traps, mink are taken indirectly by otter trappers, making otter harvest a reasonable index of mink harvest. Because otter harvest increased during this reporting period, mink harvest probably increased as t

Red foxes are particularly abundant, but the interest in trapping them is low and the harvest is well below the potential. With fox prices averaging about $30, the harvest is not likely to increase.

Coyote, arctic fox, marten, ermine, and red squirrel are all peripheral species to trappers in Unit 18. Even during years when trapping interest is high, the harvest of these species will be low.

Muskrat harvest remains low. Traditionally, trappers would hunt muskrats after the ice went out, but spring muskrat camp is uncommon today. The spring camp tradition remains, but it is abbreviated and directed mostly at waterfowl with muskrats being incidental to that activity.

Arctic ground squirrels were at one time hunted in the spring from camps established expressly for that purpose. They are still occasionally taken for home use and new parkas made from parky squirrel pelts are occasionally seen, but ground squirrel harvest is low.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 18 during the reporting period.

Hunter Residency and Success. All of the trappers who sealed Unit 18 furs were Alaska residents.

No direct measure of trapper success is available. Very few trappers are full-time trappers with most being recreational trappers who trap in their spare time. The amount of time a trapper spends per week varies widely and probably has more to do with success than any other factor.

Harvest Chronology. The trapping season generally begins on 10 November. However, the commencement of trapping is largely dictated by travel conditions around that date. According to interviews with trappers and fur buyers, if travel conditions allow mink and otter trappers to reach trapping areas, they will begin trapping earlier than 10 November. Likewise, travel conditions can remain poor for weeks after the official start of the trapping season.

This early part of the season provides the best opportunity to deploy *taluyat*, and most mink are harvested during the first few weeks of the season. Otters and muskrats are also caught in these mink traps. Even though otters are caught in *taluyat*, there is no early spike in otter harvest since otters are targeted throughout the season and are also caught in beaver sets. The spike in muskrat harvest is tempered as well because muskrats are also harvested in the spring.

Beavers are typically taken under the ice after travel conditions allow for safe travel and ice conditions permit safe trapping near lodges. While trappers may take a few beavers throughout the season for food and early in the season for bait, the most common time for trappers to target beavers is from the middle of February through the end of March, when fur quality is high; food caches are depleted so beavers respond to bait; and longer days make for more pleasant trapping conditions. Beavers are also taken after the ice goes out, incidental to other outdoor activities.

Other furbearers are harvested throughout the season when snow conditions permit travel by snowmachine. In Unit 18, snow conditions can be quite variable. Travel conditions were generally good during the entire 2006–2007 season, highly variable during the 2007–2008 season, and generally poor for the entire 2008–2009 season.

Transport Methods. Trappers used snowmachines to take nearly all of the furbearers sealed in Unit 18 during this reporting period.

*Other Mortality*

The high populations of most furbearer species in Unit 18 have negative effects on furbearer health and furbearer habitats. Beaver and red fox show these effects readily, but other species with populations above average levels are likely affecting other furbearer populations as well.

The high beaver population forces dispersing beavers to establish lodges in marginal habitats. During survey flights for other species, we commonly find old, vacant beaver ponds with dams overflowing and unrepaired. Often we will find a ring around these ponds devoid of woody vegetation. These marginal habitats support beavers for only a few years before the food supply is exhausted.

Rabies is a concern, especially with the large red fox population. Since 1997, 91 animals have been tested for rabies in Unit 18, including 30 positive cases. During this reporting period, 3 arctic foxes, 3 dogs, and 11 red foxes tested positive. With the high population of foxes in Unit 18 and low fur prices, the threat of rabies will continue.

### HABITAT

*Assessment*

Habitats for all furbearers are extensive and healthy throughout Unit 18, though some are overused. The only portions of the unit that have been disturbed are the areas around the villages.

*Enhancement*

Unit 18 furbearers are currently underutilized. Enhancement aimed at increasing furbearer populations is not necessary or contemplated.

### NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

There were no nonregulatory problems or needs identified for furbearers in Unit 18 during the reporting period.

## CONCLUSIONS AND RECOMMENDATIONS

Trapping has traditionally been very important in Unit 18, as fur offered the only source of income during the winter for many trappers, and it is still one of the few resources of economic value produced in this area. However, due to low fur prices, the incentive to trap is diminished and as a result, the economic importance of trapping is fading.

The tradition of trapping is fading, and the average age of trappers responding to the trapper questionnaire is increasing each year. The trappers in Unit 18 follow this statewide pattern, with only a few local trappers younger than 20.

Foxes and beavers were once highly valued but are now largely thought of as nuisance wildlife. Red fox numbers are high and the threat of rabies remains an issue; both red and arctic foxes prey on waterfowl eggs and nestlings; and the threatened spectacled eider is among their prey species. Beaver numbers are high and are blamed for disrupting fish movements and impeding boat traffic.

It would take a profound increase in fur prices to entice trappers to harvest any furbearer in Unit 18 to the point that there is a conservation concern. Previous high harvests provide some context. In 1988–1989, 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.

## LITERATURE CITED

COFFING, M., M.L. BROWN, G JENNINGS, AND C.J. UTERMOHLE. 2000. Subsistence Harvest and Use of Wild Resources in Akiachak, 1998. Technical Paper No. 258. Alaska Department of Fish and Game. Division of Subsistence. Juneau, Alaska.

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Table 1. Furbearer harvest from sealing records 2003–2004 through 2008–2009.

| Species | 2003–2004 | 2004–2005 | 2005–2006 | 2006–2007 | 2007–2008 | 2008–2009 |
|---|---|---|---|---|---|---|
| Lynx | 73 | 121 | 121 | 111 | 103 | 203 |
| River otter | 336 | 426 | 339 | 245 | 39 | 102 |
| Wolverine | 32 | 22 | 34 | 13 | 16 | 23 |

Table 2. Otter harvest per trapper, 1997–1998 through 2008–2009.

| Year | # of trappers | Otter harvest | Otters/trapper | Trappers with > 10 otters | Highest catch |
|---|---|---|---|---|---|
| 1997–1998 | 79 | 447 | 5.7 | 5 | 29 |
| 1997–1998 | 43 | 167 | 3.9 | 2 | 16 |
| 1997–1998 | 21 | 61 | 2.9 | 0 | 9 |
| 2000–2001 | 40 | 191 | 4.8 | 4 | 18 |
| 2001–2002 | 24 | 138 | 5.8 | 4 | 32 |
| 2002–2003 | 43 | 410 | 9.5 | 10 | 43 |
| 2003–2004 | 40 | 336 | 8.4 | 12 | 41 |
| 2004–2005 | 47 | 426 | 9.1 | 13 | 44 |
| 2005–2006 | 48 | 339 | 7.1 | 13 | 26 |
| 2006–2007 | 38 | 245 | 6.4 | 7 | 31 |
| 2007–2008 | 11 | 39 | 3.5 | 0 | 9 |
| 2008–2009 | 20 | 102 | 5.1 | 3 | 20 |

**WILDLIFE MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

**GAME MANAGEMENT UNITS:** 19, 21A, and 21E (55,303 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.

Unit 21A no longer includes the upper Nowitna River drainage, which was excluded from Unit 21A, and included in Unit 21B beginning 1 July 2006.

## BACKGROUND

Furbearers historically have contributed to the economic base in western Interior Alaska and have been an integral part of the subsistence lifestyle in the region. Native people relied on furbearers for garments, food, and trade goods. The quest for furs prompted early Russian settlement in the area. During the middle part of the 20th century, miners in the area were largely unemployed during winter and supplemented their income by trapping and selling fur. Local economies are still influenced by income from the sale of wild pelts. However, the economic incentive to trap furs has fluctuated with market conditions.

Furbearer seasons and bag limits have varied dramatically since regulations were adopted in the early 20th century. Several factors influence the annual harvest of various furbearer species. These include population levels, snow conditions, climate, pelt prices, availability of alternate income, fuel prices, and regulations.

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

## MANAGEMENT DIRECTION

Furbearer management is designed to annually assess populations, maintain or enhance those populations, and develop regulations to encourage sustainable harvests.

### MANAGEMENT GOALS

- Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem.

- Provide for continued use of furbearers by Alaska residents who have customarily and traditionally depended on these populations.

### MANAGEMENT OBJECTIVES

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

### MANAGEMENT ACTIVITIES

1. Seal furs of selected species to monitor harvest levels and trends.

2. Conduct trapper questionnaires and interviews to determine the status of various furbearer populations.

3. Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports, and fur export reports.

4. Monitor trends in the McGrath area beaver populations by conducting beaver cache surveys.

## METHODS

Total harvest, harvest chronology, sex, method of take, and transportation were summarized by regulatory year (RY) which begins 1 July and ends 30 June (e.g., RY06 = 1 July 2006 through 30 June 2007) based on sealing certificates. Additionally, the Alaska Department of Fish and Game's Trapper Questionnaire Statewide Annual Report for RY06 was reviewed (subsequent Trapper Questionnaire Statewide Annual Reports were not available). Pelt prices were based on the average prices paid at the North American Fur Auction in February, March, or May (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 5 Apr 2010) (Table 1).

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Beaver*

Beavers occupy 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. Beaver cache surveys were not conducted due to unsuitable weather conditions. Results of the RY06 trapper questionnaire indicated that beavers were abundant and populations were stable in Units 19, 21A and 21E (Blejwas 2009). During RY07–RY08, beaver populations throughout the McGrath area remained abundant and stable based on observations made during surveys for other species.

*Coyote*

Trappers reported that coyotes were scarce and populations were stable in Units 19, 21A, and 21E during RY06 (Blejwas 2009).

*Lynx*

Trappers reported that lynx were common and the population was stable in RY06 (Blejwas 2009). However, trapper interviews conducted while sealing fur during RY07 and RY08 suggest a growing trend.

*River Otter*

River otters were reported as common and populations were stable in all areas during RY06 (Blejwas 2009).

*Wolverine*

Wolverines were reported by trappers as common and populations were stable during RY06 in Units 19, 21A, and 21E (Blejwas 2009).

*Marten*

Trappers indicated that marten were common and populations were stable during RY06 in Units 19, 21A, and 21E (Blejwas 2009).

*Mink*

Mink were reported by trappers as common and populations were stable in Units 19 and 21A and increasing in Unit 21E during RY06 (Blejwas 2009).

*Muskrat*

Trappers reported that muskrats were scarce and populations were stable in Units 19, 21A, and 21E during RY06 (Blejwas 2009).

*Red Fox*

Trappers reported that red fox were common and populations were decreasing during RY06 (Blejwas 2009).

## MORTALITY

*Harvest*

Trapping Seasons and Bag Limits, RY06–RY08.

| Species | Season | Bag limit |
|---|---|---|
| Beaver (RY06–RY07) | 1 Nov–10 Jun | No limit |
| Beaver (RY08) | 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 |
| Red fox (Units 21A and 21E) | 1 Nov–28 Feb | No limit |
| River otter | 1 Nov–15 Apr | No limit |
| Wolverine | 1 Nov–31 Mar | No limit |

Hunting Seasons and Bag Limits, RY06–RY08.

| Species | Season | Bag limit |
|---|---|---|
| Beaver | | |
| Unit 21E (RY06–RY07) | 1 Nov–10 Jun | No limit |
| Units 21A and 21E (RY08) | 1 Sep–10 Jun | No limit |
| Coyote | | |
| Unit 19 | 10 Aug–30 Apr | 10/day |
| Units 21A and 21E | 10 Aug–30 Apr | 10 |
| Red fox | 1 Sep–15 Mar | 10 (no more than 2 before 1 Oct) |
| Lynx | 1 Nov–28 Feb | 2 |
| Wolverine | 1 Sep–31 Mar | 1 |

Alaska Board of Game Actions and Emergency Orders. During the March 2008 board meeting, beaver regulations were liberalized and standardized across Interior Alaska. Beginning in RY08, beavers could be trapped 1 September–10 June; firearms could be used under trapping regulations throughout the trapping season; salvage requirements were changed so that hunters and trappers could salvage either the hide or meat for human use; and the Unit 21E hunting season was extended from 1 November–10 June to 1 September–10 June and expanded into Unit 21A.

The board removed the upper Nowitna River drainage from Unit 21A and included it in Unit 21B beginning 1 July 2006.

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 1864 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. Harvest during RY06–RY08 is estimated at about 200 per year, similar to the number reported prior to the elimination of the sealing requirement.

Few nonresidents take beavers. Only 3 beavers were sealed by nonresidents out of nearly 14,000 total beavers reported since 1977. Participation by nonresidents during RY06–RY08 was likely similar.

Sealing records for RY77–RY09 (including years when beavers were not required to be sealed) indicate that, of 13,539 beavers sealed, 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 RY06–RY08 was probably similar, with the possibility of an increase in harvest during the open water months because longer seasons allowed it.

Pelt prices influence beaver and other furbearer harvest. Beaver pelt prices reached their highest value in RY05 at $33, but averaged $23 during RY04–RY08 and $20 during RY06–RY08 (Table 1).

*Lynx* — During RY04–RY08, lynx harvest reached a low of 15 animals in RY04 and peaked at 122 in RY08, (Table 2) coinciding with the increase in the lynx population cycle. Most lynx were taken using traps (Table 3) and prices ranged $109–$299 during RY06–RY08 (Table 1). Lynx were harvested throughout the trapping season (Table 4), with variations depending on travel conditions and lynx abundance. Snowmachines were the primary method of transport (Table 5). Only one nonresident reported taking a lynx during RY04–RY08.

*River Otter* — During RY06–RY08, river otter harvest varied from 13 to 33 animals per year (Table 2) with most being harvested with traps (Table 3). Average prices paid at auction ranged $31–$48 (Table 1). The greatest percentage of the harvest occurred in December and January (Table 4), and most trappers used snowmachines for access (Table 5). Only 2 otters were sealed by one nonresident trapper, during RY07.

*Wolverine* — During RY06–RY08, wolverine harvest ranged from 46 to 86 animals (Table 2), and they were harvested primarily with traps (Table 3). The number of wolverines harvested per successful trapper ranged 1.8–2.4. Average prices varied from $215 to $280 (Table 1). Harvest was generally highest in March (Table 4) and trappers used both snowmachines and aircraft (Table 5). Five percent of the wolverines sealed during RY04–RY08 were taken by nonresidents.

*Marten* — Marten are the most sought-after and valuable furbearer species and average pelt prices reached $108 in RY07 (Table 1).

*Mink* — Market demand for wild-caught mink was low and prices paid during RY06–RY08 ranged from $12 to $21 (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). There is some harvest by shooting in the spring, and most pelts are used in domestically produced hats.

*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* — Red fox were also generally captured incidentally to other species. Pelt prices ranged $15–$25 during RY06–RY08.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY04–RY08 was trapping, followed by snaring (Table 3). Transportation was dominated by snowmachines, although skis/snowshoes for lynx and aircraft for wolverines were also commonly used (Table 5).

## CONCLUSIONS AND RECOMMENDATIONS

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 RY06 indicated that most furbearer populations in the area were common or abundant with the exceptions of coyote and muskrat, which were considered scarce. However, coyote populations have never been high and muskrat trapping is light and trapping is not preventing these populations from growing.

Pelt prices, particularly for marten, provide motivation for trappers. Average prices of about $100 are sufficient for trappers who have established traplines to trap marten aggressively. Based on the frequency of questions received in our office, marten prices of around $100 are also sufficient to generate a modest amount of new interest. However, with high operating costs, even $100 marten are unlikely to prompt sufficient trapping activity to pose concerns of overharvest.

With low pelt prices, other motivations influence the harvest of other furbearers. Many furbearers are taken primarily for personal uses such as for hats, mittens, and other garments. Beaver, in particular, are occasionally taken primarily for their meat, and the longer seasons and authorized use of firearms beginning in RY08 reflect that use. Meat of other furbearers such as muskrats and lynx is also utilized. Established muskrat seasons accommodate such use. Lynx meat, while used, is not the primary motivation for trapping these furbearers. Wolverines are valued as a trophy animal and some incidental harvest in association with big game hunts is accommodated by hunting regulations.

Pelt prices remain the primary motivation for most trappers and harvest will probably remain low in the foreseeable future. Therefore, existing regulations are appropriate and we can continue to provide substantial opportunities to harvest furbearers.

The trapper questionnaire has been a useful tool to survey trapper perceptions. During this reporting period, the questionnaire results were only available for RY06. Additional support for this tool would be beneficial.

Fur acquisition and raw fur export reports do not provide useful harvest information. They are the only harvest assessment tools we have for most furbearer species and should be given sufficient support so that they function as designed.

During the next report period the management goals, objectives, and activities will remain the same.

## LITERATURE CITED

BLEJWAS, K. 2009. 1 July 2006–30 June 2007 Trapper questionnaire statewide annual report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

WHITMAN, J. 1998. Unit 19 furbearer. Pages 211–237 *in* M. V. Hicks, editor. Furbearer management report of survey and inventory activities. Alaska Department of Fish and Game. Study 7.0. Juneau, Alaska, USA.

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TABLE 1 Average North American Fur Auction[a] furbearer pelt prices (U.S. dollars), regulatory years 2004–2005 through 2008–2009

| Species | Regulatory year | | | | |
|---|---|---|---|---|---|
| | 2004–2005[b] | 2005–2006[c] | 2006–2007[d] | 2007–2008[e] | 2008–2009[f] |
| Beaver | 22 | 33 | 22 | 25 | 13[g] |
| Marten | 49 | 95 | 59 | 108 | 51 |
| Mink | 15 | 32 | 21 | 17 | 12 |
| Red fox | 20 | 31 | 25 | 22 | 15[g] |
| Lynx | 295 | 158 | 109 | 299 | 128 |
| River otter | 106 | 143 | 48 | 41 | 31 |
| Wolverine | 154 | 158 | 215 | 280 | 255 |

[a] North American Fur Auction http://nafa.ca.landing.asp Accessed 6 Apr 2010
[b] Prices from 14 Feb 2005 sale.
[c] Prices from 13 Feb 2006 sale.
[d] Prices from 11 Feb 2007 sale.
[e] Prices from 13 Mar 2008 sale.
[f] Prices from 4 Feb 2009 sale.
[g] Prices from 16 May 2009 sale.

TABLE 2 Units 19, 21A, and 21E furbearer harvest by subunit, regulatory years 2004–2005 through 2008–2009. Unit 21A data does not include the upper Nowitna River drainage, which was excluded from Unit 21A beginning 1 July 2006.

| Species/ | Unit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory year | 19A | 19B | 19C | 19D | 19Z | 21A | 21E | Total |
| *Lynx* | | | | | | | | |
| 2004–2005 | 1 | 0 | 5 | 4 | 0 | 0 | 5 | 15 |
| 2005–2006 | 4 | 2 | 36 | 9 | 2 | 0 | 9 | 62 |
| 2006–2007 | 4 | 0 | 18 | 11 | 0 | 1 | 4 | 38 |
| 2007–2008 | 2 | 3 | 26 | 24 | 0 | 0 | 2 | 57 |
| 2008–2009 | 3 | 12 | 58 | 42 | 3 | 0 | 4 | 122 |
| *River Otter* | | | | | | | | |
| 2004–2005 | 20 | 5 | 3 | 14 | 0 | 1 | 4 | 47 |
| 2005–2006 | 20 | 1 | 0 | 12 | 0 | 0 | 22 | 55 |
| 2006–2007 | 11 | 0 | 4 | 6 | 0 | 0 | 12 | 33 |
| 2007–2008 | 3 | 2 | 1 | 5 | 0 | 0 | 2 | 13 |
| 2008–2009 | 10 | 10 | 0 | 7 | 0 | 0 | 0 | 27 |
| *Wolverine* | | | | | | | | |
| 2004–2005 | 10 | 26 | 9 | 15 | 0 | 3 | 3 | 66 |
| 2005–2006 | 38 | 19 | 7 | 18 | 0 | 7 | 8 | 97 |
| 2006–2007 | 22 | 29 | 12 | 5 | 0 | 4 | 10 | 82 |
| 2007–2008 | 9 | 13 | 2 | 15 | 0 | 1 | 6 | 46 |
| 2008–2009 | 23 | 14 | 14 | 12 | 0 | 4 | 19 | 86 |

TABLE 3 Units 19, 21A and 21E furbearer reported harvest by sex, and method of take, regulatory years 2004–2005 through 2008–2009. Unit 21A data does not include the upper Nowitna River drainage, which was excluded from Unit 21A beginning 1 July 2006.

| Regulatory year | Reported harvest: Sex M | F | Unk | Method of take: Shot | Trap | Snare | Unk | Total harvest | Successful trappers/ hunters |
|---|---|---|---|---|---|---|---|---|---|
| *Lynx* | | | | | | | | | |
| 2004–2005 | 0 | 0 | 15 | 2 | 10 | 3 | | 15 | 11 |
| 2005–2006 | 0 | 0 | 62 | 2 | 55 | 3 | 2 | 62 | 22 |
| 2006–2007 | 0 | 0 | 38 | 1 | 35 | 2 | | 38 | 17 |
| 2007–2008 | 0 | 0 | 57 | 1 | 51 | 5 | | 57 | 16 |
| 2008–2009 | 0 | 0 | 122 | 4 | 108 | 10 | | 122 | 24 |
| *River Otter* | | | | | | | | | |
| 2004–2005 | 20 | 21 | 6 | 3 | 36 | 8 | | 47 | 17 |
| 2005–2006 | 22 | 13 | 20 | 2 | 33 | 20 | | 55 | 17 |
| 2006–2007 | 13 | 15 | 5 | 1 | 23 | 9 | | 33 | 13 |
| 2007–2008 | 8 | 3 | 2 | 0 | 12 | 1 | | 13 | 9 |
| 2008–2009 | 13 | 6 | 8 | 0 | 25 | 2 | | 27 | 7 |
| *Wolverine* | | | | | | | | | |
| 2004–2005 | 48 | 17 | 1 | 9 | 37 | 13 | 7 | 66 | 29 |
| 2005–2006 | 65 | 32 | 0 | 8 | 73 | 16 | | 97 | 47 |
| 2006–2007 | 55 | 27 | 0 | 5 | 63 | 14 | | 82 | 37 |
| 2007–2008 | 29 | 16 | 1 | 5 | 24 | 12 | 5 | 46 | 25 |
| 2008–2009 | 49 | 29 | 8 | 4 | 74 | 7 | 1 | 86 | 36 |

TABLE 4 Units 19, 21A and 21E furbearer percent harvest chronology by month, regulatory years 2004–2005 through 2008–2009. Unit 21A data does not include the upper Nowitna River drainage, which was excluded from Unit 21A beginning 1 July 2006.

| Regulatory year | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Sep | Nov | Dec | Jan | Feb | Mar | Apr | n |
| *Lynx* | | | | | | | | |
| 2004–2005 | 0 | 13 | 27 | 20 | 40 | 0 | 0 | 15 |
| 2005–2006 | 0 | 8 | 32 | 24 | 34 | 0 | 2 | 62 |
| 2006–2007 | 0 | 24 | 34 | 18 | 21 | 3 | 0 | 38 |
| 2007–2008 | 0 | 11 | 25 | 44 | 19 | 2 | 0 | 57 |
| 2008–2009 | 0 | 28 | 31 | 22 | 18 | 1 | 0 | 122 |
| *River Otter* | | | | | | | | |
| 2004–2005 | 0 | 2 | 17 | 45 | 23 | 13 | 0 | 47 |
| 2005–2006 | 0 | 15 | 20 | 16 | 11 | 27 | 11 | 55 |
| 2006–2007 | 0 | 12 | 39 | 15 | 21 | 12 | 0 | 33 |
| 2007–2008 | 0 | 38 | 8 | 23 | 23 | 8 | 0 | 13 |
| 2008–2009 | 0 | 22 | 37 | 37 | 0 | 0 | 4 | 27 |
| *Wolverine* | | | | | | | | |
| 2004–2005 | 12 | 11 | 3 | 2 | 36 | 36 | 0 | 66 |
| 2005–2006 | 4 | 2 | 19 | 32 | 19 | 25 | 0 | 97 |
| 2006–2007 | 5 | 9 | 27 | 12 | 11 | 37 | 0 | 82 |
| 2007–2008 | 4 | 4 | 22 | 15 | 17 | 37 | 0 | 46 |
| 2008–2009 | 1 | 12 | 19 | 27 | 13 | 29 | 0 | 86 |

TABLE 5 Units 19, 21A, and 21E furbearer percent harvest by transport method, regulatory years 2004–2005 through 2008–2009. Unit 21A data does not include the upper Nowitna River drainage, which was excluded from Unit 21A beginning 1 July 2006.

| Species/ Regulatory year | Harvest by transport method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-wheeler | Snowmachine | ORV | Highway vehicle | Skis or snowshoes | Unknown | *n* |
| *Lynx* | | | | | | | | | | |
| 2004–2005 | 7 | 0 | 0 | 0 | 47 | 0 | 0 | 47 | 0 | 15 |
| 2005–2006 | 11 | 0 | 0 | 0 | 71 | 0 | 0 | 18 | 0 | 62 |
| 2006–2007 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 37 | 0 | 38 |
| 2007–2008 | 7 | 0 | 0 | 0 | 75 | 0 | 0 | 18 | 0 | 57 |
| 2008–2009 | 14 | 0 | 0 | 0 | 48 | 0 | 0 | 39 | 0 | 122 |
| *River Otter* | | | | | | | | | | |
| 2004–2005 | 0 | 2 | 0 | 0 | 87 | 0 | 0 | 6 | 4 | 47 |
| 2005–2006 | 2 | 0 | 0 | 0 | 96 | 0 | 2 | 0 | 0 | 55 |
| 2006–2007 | 3 | 0 | 0 | 0 | 97 | 0 | 0 | 0 | 0 | 33 |
| 2007–2008 | 0 | 0 | 0 | 0 | 92 | 0 | 0 | 8 | 0 | 13 |
| 2008–2009 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 27 |
| *Wolverine* | | | | | | | | | | |
| 2004–2005 | 45 | 0 | 9 | 2 | 30 | 0 | 2 | 2 | 11 | 66 |
| 2005–2006 | 25 | 1 | 1 | 2 | 61 | 0 | 0 | 8 | 2 | 97 |
| 2006–2007 | 33 | 0 | 0 | 0 | 48 | 2 | 0 | 16 | 1 | 82 |
| 2007–2008 | 22 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 9 | 46 |
| 2008–2009 | 12 | 0 | 1 | 0 | 71 | 0 | 0 | 16 | 0 | 86 |

**WILDLIFE MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009[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. 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.

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

- Provide an opportunity for education, viewing, and photography of beaver on the lower Chena River.

- Minimize problems caused by nuisance beaver with the aid of public harvest.

**MANAGEMENT OBJECTIVES**

*Beaver*

- Manage beaver in the lower Chena River portion of Unit 20B for an annual fall beaver colony density of 0.3 to 0.8 colonies/mile (0.2 to 0.5 colonies/km) of river.

*Lynx*

- Manage lynx according to a tracking harvest strategy.

*Wolverine*

- Manage for a 3-year mean annual harvest of >50% males by subunit for the Fairbanks area.

**MANAGEMENT ACTIVITIES**

*Beaver*

- Conduct annual fall beaver cache surveys in the lower Chena River to estimate colony density, identify cache locations, and direct harvest.

- Issue nuisance beaver permits to remove problem beavers.

- Coordinate with the Alaska Trappers Association (ATA) to incorporate their youth trapper mentoring program into the nuisance beaver permitting system.

- Coordinate with Department of Transportation and Public Facilities (DOT&PF) to minimize dammed culverts and flooded roads.

*Lynx*

- Estimate the annual sex and age of harvested lynx by examining carcasses from Units 20A and 20B.

- Conduct aerial track surveys in Units 20A and 20B to provide indices to trends in lynx and hare populations

*Wolverine*

- Estimate the annual sex ratio of harvested wolverine from sealing records.

## METHODS

We maintained records of harvest by compiling data from the required sealing documents for beavers (until July 2002), lynx, river otters, and wolverines. After July 2002 we kept accurate records of beaver taken under nuisance and ATA permits through a permit condition that required harvest reporting. To monitor harvest distribution, we recorded harvest location. Sealing data provided minimum harvest estimates because some pelts may be used domestically and not reported. Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY08 = 1 July 2008 through 30 June 2009). Fur prices were compiled from data provided by the North American Fur Auction (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 12 Apr 2010). Prices were the averages from February and May sales and sections of fur most closely representing Alaska grade fur.

We conducted beaver cache surveys from a riverboat in 2006–2008 during late September–early October to determine fall beaver colony density in the lower Chena River (downstream from the confluence with the Little Chena River; 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 arising from beaver activity by issuing nuisance or registration permits to trappers and by coordinating with the public and DOT&PF highway crews to minimize dammed culverts and flooded property. We continued to administer the program we initiated in 1999 along this stretch of river through which ATA members mentor local youth, teaching ethical and responsible trapping practices.

Generally we send ADF&G trapper questionnaires to 100–150 area trappers per year to get information regarding their trapping activities and their opinions on furbearer population levels and trends. However, during the writing of this report only data for RY06 were available for RY06–RY08.

In 1987 the Board of Game adopted a “tracking harvest strategy” to manage lynx trapping seasons in the road-connected game management units of Interior and Southcentral Alaska. Under that strategy, lynx seasons were reduced when lynx populations were low and liberalized when lynx were abundant. Beginning in 1995, to better monitor lynx population trends, we purchased lynx carcasses ($10/carcass) from trappers and conducted necropsies to annually monitor pregnancy rates, average litter size, and percent kittens in the harvest. We also established lynx track survey transects in Units 20A and 20B in 1995, but inadequate snow conditions often precluded surveys, limiting their usefulness for monitoring year-to-year trends. However, when track survey data were combined with harvest numbers from sealing documents, and reproductive rates from carcass data, important population trends could be identified.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Beaver*

Cache surveys indicated beaver colony density in the lower Chena River is high, and varied from 0.8 caches/mile to 1.2. caches/mile (0.5 to 0.7 caches/km) of river between 1999 and 2008 (Table

1). Boyce (1981) suggested that 0.8 colonies/mile (0.5 colonies/km) was a saturation density for beaver in Interior Alaska. During RY06–RY08, colony density observed in the lower Chena River ranged from 1.1 caches/mile to 1.2 caches/mile (0.68 caches/km to 0.7 caches/km), which exceeded our objective of 0.3 colonies/mile to 0.8 colonies/mile (0.2 to 0.5 colonies/km; Table 1). Boyce (1974) reported a mean of 5 beavers per colony, along Interior Alaska rivers.

*Lynx*

As indicated by harvest, carcass necropsy results, and aerial surveys, lynx reached the low of the 10-year population cycle in RY00 (Tables 2, 3, and 4) During RY01–RY03, reproduction success was poor and lynx numbers remained low. Sealing records and carcass data indicated that reproductive success and population numbers increased in RY04 and continued to increase during RY05–R08. If lynx continue to follow the standard 9- to 11-year cycle, we expect the lynx population to reach peak numbers in RY09 or RY10.

## MORTALITY

*Harvest*

Seasons and Bag Limits. Seasons and bag limits varied among species, subunits, and over time (Tables 5–6).

Alaska Board of Game Actions and Emergency Orders. During the March 2006 meeting, the Board of Game applied the 25 September–31 May beaver season in Unit 20B to Units 20A, 20C, 20F, and 25C and allowed shooting of beaver in mostly rural units (Units 20A, 20C, 20F, and 25C). In March 2008, the board eliminated the 25 beaver limit in Units 20A, 20B, 20C, 20F, and 25C and authorized the use of a bow and arrow as a method of take in Units 12, 19, 20A, 20C, 20E, 20F, 21, 24, and 25. In Unit 20B, the board and removed Badger Slough from the area closed to beaver trapping and added it to the remainder of 20B. Also, in March 2008, the board eliminated the lynx tracking harvest strategy in Units 20A, 20B, and in Unit 20C east of the Teklanika River, and returned the season to 1 November–28 February. Only 2 lynx could be harvested during the November portion of the season. The reason for the 2 lynx bag limit in November was because lynx are susceptible in traps or snares set for other species, but many trappers and fur buyers believe that lynx pelts are not prime in November. This bag limit allows trappers to keep lynx caught incidentally in sets for other species.

Hunter/Trapper Harvest.

*Beaver* — Low demand for beaver pelts due to depressed fur prices (Table 7) contributed to low trapping effort for this species during RY06–RY08. Beaver harvested in the Fairbanks area were not required to be sealed after 1 July 2002. Since then, harvest records have been recorded only for beaver taken under nuisance and ATA permits, via a reporting condition of these permits. Since RY99, ATA representatives have served as mentors to teach local youth ethical and responsible beaver trapping principles. The program has been well accepted by the local public; however, participation is limited. 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 8).

*Lynx* — The reported lynx harvest increased annually during RY06–RY08 (38–50% per year; Table 3). In contrast, changes in number of lynx harvested during RY03–RY05 ranged from a 16% decline to a 15% increase. The primary factor influencing lynx harvest is abundance; however, other factors that may influence lynx harvests include 1) changes in season lengths, 2) pelt value, and 3) environmental conditions affecting trapping effort. During RY06–RY08, lynx were abundant, lynx seasons were long, and pelt prices were relatively good ($126–$280).

Lynx carcass necropsy data and harvest data all suggest lynx were at a low in the population cycle throughout RY02–RY05. Information about hares (a primary food item for lynx) from the trapper questionnaires, ADF&G surveys, and observations indicates hares were abundant and increasing throughout RY06–RY08. The increasing hare densities, lynx kitten production, and survival resulted in a rapidly increasing lynx population during RY06–RY08. As the lynx density increased the trapping season was lengthened in RY06 and RY07, according to the lynx harvest tracking strategy. However, the lynx harvest tracking strategy was eliminated in RY08, so the season will remain consistent throughout future population cycles.

Postseason lynx track surveys have been employed since 1995 to help track the lynx cycle (Table 2). Through the population high in RY00, these surveys correlated loosely with harvest. During RY06–RY07, poor weather conditions precluded lynx track surveys. In RY08, lynx track surveys were not conducted because the lynx tracking harvest strategy was eliminated by the Board of Game.

*Wolverine* — The percentage of males in the harvest was 55–69% annually during RY06–RY08 (Table 9). 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 the population and harvest model 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 and differ from other low elevation areas with high probabilities of wolverine occurrence in the amount of human influences that occurred. Magoun (1985) stated that factors responsible for long-term wolverine population declines could include 1) widespread declines in food resources, particularly the demise or shift in range of large ungulate populations; 2) widespread habitat destruction; and 3) heavy harvests over large areas. Recent work has found that human-caused mortality is mostly additive and conserving refugia areas may be important to maintain sustainable harvests of wolverine (Krebs et al. 2004; Golden et al. 2007). Even though there are areas in the Interior with low wolverine numbers there continue to be adequate refugia surrounding those areas (Gardner et al. 2010). No changes to wolverine harvest regulations are recommended at this time.

*Other Furbearers* — Because there are no sealing requirements for coyote, ermine, marten, mink, muskrat, red fox, or red squirrel, population trends for these species were monitored using

the trapper questionnaire report, biologist observations, and personal conversations with trappers. Based on these indices, foxes remained at low to moderate levels throughout RY06–RY08, while coyotes achieved moderate densities in localized areas along the Tanana River. Marten and weasel densities tended to be moderate to high during RY06–RY08 but varied greatly between areas. Mink populations also appeared to be moderate to high (Blejwas 2009) throughout the region. Anecdotal observations also suggested that muskrat populations were slowly rising from a long-term low and were beginning to occupy habitats that haven't been occupied since the 1970s. Squirrels are rarely targeted by trappers and are mainly caught incidentally in traps for other species.

Method of Take and Transportation. Methods of take and transportation 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 most trappers (Table 10).

Fur Prices. Fur prices were variable amongst species during RY06–RY08 (Table 7). Fur prices are important because harvest of individual species can be influenced by high fur prices. Beaver pelt prices remained low during RY06–RY08, ranging from $23 to $28. Coyote prices remained at a low to moderate level. Red fox remained low. Lynx prices were moderate during RY06 and RY07 but were high during RY08. Marten prices were moderate during RY06 and RY07, but were high during RY08. Mink prices were high during RY06 and low during RY07 and RY08. Muskrat prices were high during RY06 and low in RY07 and RY08. Otter pelt prices were high during RY06 and extremely low during RY07 and RY08 (Table 7). Weasel prices remained low throughout RY06–RY08.

## CONCLUSIONS AND RECOMMENDATIONS

The Chena River beaver population remained above 0.5 caches/km of river during RY06–RY08; therefore, the management objective was not met. Further efforts to reduce the number of beaver and reduce the number of nuisance permits issued should be investigated. One possibility would be to solicit local residents to trap beaver during the regular season in chronic nuisance areas.

During RY06–RY08, we conducted fall beaver cache surveys each fall in the lower Chena River to estimate colony density, used nuisance beaver permits to remove problem beavers, coordinated with the ATA to incorporate their youth trapper mentoring program, and coordinated with DOT&PF to minimize dammed culverts and flooded roads.

The lynx management objective was met during RY06–RY07, when we managed lynx seasons using the tracking harvest strategy. This management objective was not met in RY08 because of regulation changes by the Board of Game. However, we continued to estimate the annual sex and age of harvested lynx by examining carcasses from Units 20A and 20B during RY06–RY08. We did not conduct aerial track surveys in Units 20A and 20B because of poor conditions in RY06 and RY07, and because of elimination of the lynx tracking harvest strategy in RY08. Because the lynx tracking harvest strategy was eliminated by the Board of Game, our management objective and activities for lynx will change for the next report period, and will be:

**MANAGEMENT OBJECTIVE**

*Lynx*

- Maintain populations of lynx that will support a minimum level of consumptive and nonconsumptive use.

**MANAGEMENT ACTIVITY**

*Lynx*

- Estimate the annual sex and age of harvested lynx by analyzing sealing records.

The wolverine management objective was met. Trappers and hunters harvested more than 50% male wolverines every year during RY06–RY08. We will monitor harvest in the Fairbanks, Central, and surrounding areas to ensure against contraction of resident wolverine distribution.

For other furbearer species, we did not detect any problems requiring management changes; therefore, we recommend no regulatory action at this time. Trappers will continue to be an important source of information. Communication with the trappers should be improved by 1) expanding the trapper questionnaire, 2) visiting traplines, 3) writing articles about furbearer research and management projects for the Alaska Trapper's Association magazine, 4) soliciting input regarding management issues, and 5) keeping trappers informed about issues affecting them.

## LITERATURE CITED


BERRIE, P. M. 1973. Ecology and status of the lynx in Interior Alaska. Pages 4–41 *in* R. L. Eaton, editor. The world's cats, Volume I. World Wildlife Safari. Winston, Oregon, USA.

BLEJWAS, K. 2009. 1 July 2006–30 June 2007 Trapper questionnaire statewide annual report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

BOYCE, M. S. 1974. Beaver population ecology in interior Alaska. Thesis, University of Alaska Fairbanks, Alaska, USA.

———. 1981. Habitat ecology of an unexploited population of beavers in Interior Alaska. Pages 155–186 *in* J. A. Chapman and D. Pursley, editors. Proceedings of worldwide furbearer conference. Frostburg, Maryland, USA.

GARDNER, C. L., J. P. LAWLER, J. M. VER HOEF, A. M. MAGOUN, K. A. KELLIE. 2010. Using coarse-scale wolverine distribution surveys and occurrence probability modeling to monitor wolverine populations in Interior Alaska. Journal of Wildlife Management 74:1894–1903.

GARDNER, C. L. 1985. The ecology of wolverines in Southcentral Alaska. Thesis, University of Alaska Fairbanks, Alaska, USA.

———, M. E. MCNAY, AND R. TOBEY. 1993. Estimates of wolverine densities and sustainable harvests in the Nelchina Basin in Southcentral Alaska. Seventh northern fur conference. Abstracts, p. 32.

GOLDEN, H. N. 1987. Survey of furbearer populations on the Yukon Flats National Wildlife Refuge. Final Report. Alaska Department of Fish and Game and U.S. Fish and Wildlife Service Cooperative Agreement. Project 14-16-007-84-7416.

———, A. M. CHRIST, AND E. K. SOLOMON. 2007. Spatiotemporal analysis of wolverine *Gulo gulo* harvest in Alaska. Wildlife Biology 13(2):in press.

KREBS, J., E. LOFROTH, J. COPELAND, V. BANCI, D. COOLEY, H. GOLDEN, A. MAGOUN, R. MULDERS, AND B. SHULTS. 2004. Synthesis of survival rates and causes of mortality in North American wolverine. Journal of Wildlife Management 68:493–502.

MAGOUN, A. J. 1985. Population characteristics, ecology, and management of wolverines in northwestern Alaska. Dissertation, University of Alaska Fairbanks, Alaska, USA.

———, AND D. J. VERNAM. 1986. An evaluation of the Bear Creek burn as marten (*Martes americana*) habitat in Interior Alaska. Bureau of Land Management and Alaska Department of Fish and Game. Special Cooperative Project AK-950-CAH-0. Final Report.

NAVA, J. A., JR. 1970. The reproductive biology of the Alaska lynx (*Lynx canadensis*). Thesis, University of Alaska Fairbanks, Alaska, USA.

O'CONNOR, R. M. 1984. Population trends, age structure, and reproductive characteristics of female lynx in Alaska, 1961 through 1973. Thesis, University of Alaska Fairbanks, Alaska, USA.

PERHAM, C. J. 1995. Home range, habitat selection, and movements of lynx (*Lynx canadensis*) in eastern interior Alaska. MS thesis, University of Alaska Fairbanks. 139 pages.

SCHWARTZ, C. C., E. BECKER, AND K. J. HUNDERTMARK. 1988. Development of population assessment techniques for lynx. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration. Final Research Report. Grant W-23-1. Study 7.14. Juneau, Alaska, USA.

SHULTS, B. S. 2001. Abundance and ecology of martens (*Martes americana*) in Interior Alaska. MS thesis, University of Alaska Fairbanks. 79 pages.

STEPHENSON, R. O. 1984. The relationship of fire history to furbearer populations and harvest. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration. Final Report. Project W-22-2. Job 7.13. Juneau, Alaska, USA.

———. 1988. Development of techniques for evaluating lynx population status in Alaska. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration. Progress Report. Grant W-22-6. Study 7.13. Juneau, Alaska, USA.

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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, 1999–2009

| Year | Caches | Stream distance (km) | Density (caches/km) |
|---|---|---|---|
| 1999 | 24 | 40 | 0.6 |
| 2000 | 20 | 40 | 0.5 |
| 2001 | 22 | 40 | 0.6 |
| 2002 | 24 | 40 | 0.6 |
| 2003 | 29 | 40 | 0.7 |
| 2005 | 29 | 40 | 0.7 |
| 2006 | 29 | 40 | 0.7 |
| 2007 | 28 | 40 | 0.7 |
| 2008 | 27 | 40 | 0.68 |
| 2009 | 28 | 40 | 0.7 |

TABLE 2 Postseason lynx track count data, Units 20A and 20B combined, regulatory years 1994–1995 through 2007–2008[a]

| Regulatory year | Month | Miles | Lynx tracks observed | Tracks per mile | Percent of 1-mile segments with lynx tracks |
|---|---|---|---|---|---|
| 1994–1995 | Feb | 134 | 32 | 0.24 | 38 |
| 1995–1996 | Feb | 405 | 69 | 0.17 | 13 |
| 1995–1996 | Mar | 405 | 97 | 0.24 | 19 |
| 1998–1999 | Mar | 399 | 137 | 0.34 | 22 |
| 2000–2001 | Mar | 442 | 170 | 0.38 | 26 |
| 2003–2004 | Mar | 265 | 116 | 0.44 | 26 |
| 2004–2005 | Mar | 557 | 440 | 0.79 | 34 |
| 2005–2006 | Mar | 134 | 35 | 0.26 | 13 |
| 2006–2007[a] | | | | | |
| 2007–2008[a] | | | | | |

[a] Lack of adequate weather conditions precluded surveys in some years.

TABLE 3 Reported harvest of Lynx, River Otter, and Wolverine in Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1997–1998 through 2008–2009

| Regulatory | Lynx | | | | | | River otter | | | | | | Wolverine | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| year | 20A | 20B | 20C | 20F | 25C | Total | 20A | 20B | 20C | 20F | 25C | Total | 20A | 20B | 20C | 20F | 25C | Total |
| 1997–1998 | 168 | 251 | 186 | 50 | 29 | 684 | 0 | 27 | 9 | 2 | 0 | 38 | 10 | 10 | 17 | 1 | 4 | 42 |
| 1998–1999 | 260 | 371 | 173 | 29 | 2 | 835 | 4 | 12 | 4 | 1 | 0 | 21 | 11 | 9 | 4 | 1 | 2 | 27 |
| 1999–2000 | 440 | 388 | 135 | 56 | 43 | 1062 | 20 | 6 | 6 | 0 | 0 | 32 | 22 | 10 | 7 | 3 | 0 | 42 |
| 2000–2001 | 628 | 527 | 267 | 84 | 18 | 1524 | 16 | 27 | 4 | 1 | 0 | 48 | 9 | 18 | 15 | 8 | 1 | 51 |
| 2001–2002 | 295 | 299 | 156 | 18 | 8 | 776 | 16 | 19 | 14 | 0 | 0 | 49 | 15 | 7 | 16 | 4 | 2 | 44 |
| 2002–2003 | 118 | 48 | 83 | 44 | 3 | 296 | 7 | 10 | 13 | 1 | 0 | 31 | 11 | 16 | 5 | 2 | 0 | 34 |
| 2003–2004 | 116 | 49 | 48 | 30 | 11 | 254 | 6 | 15 | 15 | 0 | 0 | 36 | 11 | 14 | 11 | 10 | 2 | 48 |
| 2004–2005 | 98 | 40 | 65 | 40 | 3 | 246 | 4 | 35 | 5 | 3 | 0 | 47 | 6 | 8 | 10 | 3 | 0 | 27 |
| 2005–2006 | 116 | 57 | 68 | 50 | 0 | 291 | 6 | 32 | 3 | 1 | 0 | 42 | 6 | 4 | 11 | 9 | 2 | 32 |
| 2006–2007 | 170 | 112 | 158 | 127 | 10 | 577 | 27 | 19 | 7 | 3 | 3 | 59 | 10 | 13 | 21 | 5 | 4 | 53 |
| 2007–2008 | 262 | 246 | 263 | 143 | 20 | 934 | 16 | 23 | 4 | 0 | 2 | 45 | 9 | 12 | 8 | 1 | 4 | 34 |
| 2008–2009 | 512 | 518 | 425 | 298 | 60 | 1813 | 8 | 32 | 2 | 0 | 0 | 42 | 7 | 9 | 7 | 4 | 1 | 28 |

TABLE 4 Number of carcasses examined and percentages of kittens, and pregnancy, Units 20A and 20B, regulatory years 2000–2001 through 2008–2009

| | Regulatory year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Category | 2000–2001 | 2001–2002 | 2002–2003 | 2003–2004 | 2004–2005 | 2005–2006 | 2006–2007 | 2007–2008 | 2008–2009 |
| Carcasses | 365 | 197 | 31 | 27 | 31 | 77 | 66 | 131 | 81 |
| Kittens | 19% | 8% | 0% | 0% | 30% | 34% | 18% | 28% | 11% |
| Adult females | 37% | 42% | 52% | 56% | 29% | 31% | 32% | 35% | 38% |
| Pregnant females | 19% | 19% | 19% | 33% | 16% | 26% | 44% | 56% | 51% |
| Adult males | 45% | 50% | 48% | 44% | 41% | 35% | 50% | 37% | 51% |
| Pregnancy rate | 51% | 46% | 38% | 60% | 42% | 52% | 52% | 76% | 60% |

TABLE 5 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 2006–2008[a]

| Species | Season dates | Regulatory years[a] | Bag limit |
|---|---|---|---|
| River otter | 1 Nov–15 Apr | 2006–2008 | No limit |
| Wolverine, Mink, Marten Weasel, and Fox | 1 Nov–28 Feb | 2006–2008 | No limit |
| Coyote | 1 Nov–31 Mar | 2006–2008 | No limit |
| Muskrat | 1 Nov–10 Jun | 2006–2008 | No limit |
| Squirrel | No closed season | 2006–2008 | No limit |
| Lynx | | | |
| 20A, 20B, and 20C east of the Teklanika river | 15 Dec–31 Jan | 2006–2007 | No limit |
| | 15 Dec–15 Feb | 2008 | No limit |
| | 1 Nov–30 Nov | 2008 | 2 |
| | 1 Dec–28 Feb | 2008 | No limit |
| 20F, 25C and remainder of 20C | 1 Nov–28 Feb | 2006–2007 | No Limit |
| 20F and remainder of 20C | 1 Nov–28 Feb | 2008 | No limit |
| 25C | 1 Nov–30 Nov | 2008 | 2 |
| | 1 Dec–28Feb | 2008 | No limit |
| Beaver | | | |
| 20B, that portion of the Chena River downstream from its confluence with the Little Chena River, Badger Slough downstream from Plack Road, and Creamer's Field Migratory Waterfowl Refuge | No open season | 2006–2007 | The department may set seasons and bag limits by permit only to reduce problems caused by high beaver populations. |

| Species | Season dates | Regulatory years[a] | Bag limit |
|---|---|---|---|
| 20B, that portion of the Chena River downstream from its confluence with the Little Chena River and Creamer's Field Migratory Waterfowl Refuge | No open season | 2008 | The department may set seasons and bag limits by permit only to reduce problems caused by high beaver populations |
| 20A, Remainder of 20B, 20C, 20F and 25C | 25 Sept–31 May | 2006–2007 | 25 |
| Remainder of 20B | 25 Sept–31 May | | No limit |
| 20A, 20C, and 20F | 15 Sept–10 Jun | | No limit |
| 25C | 15 Sept–10 Jun | | No limit |

[a] Regulatory year = 1 July through 30 June (e.g., regulatory year 2006 begins 1 Jul 2006 and ends 30 Jun 2007).

TABLE 6 Hunting seasons and bag limits for lynx, wolverine, red fox, coyote, and squirrel within the Fairbanks area (Units 20A, 20B, 20C, 20F, and 25C), regulatory years[a] 2006–2008.

| Species | Season dates | Regulatory year(s) | Bag limit |
|---|---|---|---|
| Lynx | 1 Dec–31 Jan | 2006–2008 | 2 |
| Wolverine | 1 Sep–31 Mar | 2006–2008 | 1 |
| Red fox | 1 Sep–15 Mar | 2006–2008 | 10 |
| Coyote | 10 Aug–30 Apr | 2006–2008 | 10 per day |
| Squirrel | No closed season | 2006–2008 | No limit |

[a] Regulatory year = 1 July through 30 June (e.g., regulatory year 2006 begins 1 Jul 2006 and ends 30 Jun 2007).

TABLE 7 Average furbearer pelt prices (U.S. dollars), compiled from North American Fur Auctions, regulatory years 2004–2005 through 2008–2009[a]

| Year | Beaver | Coyote | Red Fox | Lynx | Marten | Mink | Muskrat | River Otter | Weasel |
|---|---|---|---|---|---|---|---|---|---|
| 2004–2005 | 19 | 39 | 20 | 150 | 42 | 15 | 2 | 110 | 3 |
| 2005–2006 | 18 | 38 | 19 | 133 | 48 | 15 | 3 | 112 | 3 |
| 2006–2007 | 28 | 48 | 27 | 145 | 88 | 29 | 7 | 118 | 4 |
| 2007–2008 | 23 | 50 | 23 | 117 | 61 | 17 | 2 | 24 | 6 |
| 2008–2009 | 27 | 36 | 22 | 289 | 108 | 16 | 3 | 40 | 6 |

[a] North American Fur Auction http://nafa.ca.landing.asp Accessed 12 Apr 2010, average of February and May sales.

TABLE 8 Beaver taken by permit in the Fairbanks area during regulatory years 1999–2000 through 2008–2009

| Regulatory year | Take in lower Chena area[a] | | Take outside lower Chena area |
|---|---|---|---|
| | Nuisance | ATA[b] | Nuisance |
| 1999–2000 | Unk | 27 | Unk |
| 2000–2001 | Unk | 13 | 9 |
| 2001–2002 | 6 | 11 | 21 |
| 2002–2003 | 10 | 6 | 12 |
| 2003–2004 | 9 | 7 | 50 |
| 2004–2005 | 17 | 0 | 18 |
| 2005–2006 | 22 | 0 | 11 |
| 2006–2007 | 10 | 23 | 32 |
| 2007–2008 | 11 | 6 | 5 |
| 2008–2009 | 4 | 0 | 15 |

[a] Lower Chena area is the Chena River downstream from its confluence with the Little Chena River and Badger Slough downstream from Plack Road.
[b] Alaska Trappers Association's mentoring program for local youth.

TABLE 9 Wolverine harvest (number of pelts sealed) and percentage of males in the harvest, Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1989–1990 through 2008–2009

| Regulatory year | Sealed[a] | Males | % Males[a] |
|---|---|---|---|
| 1989–1990 | 17 | 10 | 59 |
| 1990–1991 | 22 | 13 | 59 |
| 1991–1992 | 44 | 26 | 59 |
| 1992–1993 | 23 | 18 | 78 |
| 1993–1994 | 42 | 35 | 83 |
| 1994–1995 | 32 | 17 | 53 |
| 1995–1996 | 14 | 12 | 86 |
| 1996–1997 | 37 | 21 | 57 |
| 1997–1998 | 40 | 24 | 60 |
| 1998–1999 | 23 | 18 | 78 |
| 1999–2000 | 41 | 31 | 76 |
| 2000–2001 | 52 | 39 | 75 |
| 2001–2002 | 41 | 29 | 71 |
| 2002–2003 | 31 | 24 | 77 |
| 2003–2004 | 45 | 27 | 60 |
| 2004–2005 | 26 | 15 | 58 |
| 2005–2006 | 35 | 28 | 80 |
| 2006–2007 | 53 | 35 | 66 |
| 2007–2008 | 31 | 17 | 55 |
| 2008–2009 | 26 | 18 | 69 |

[a] Excludes wolverines of unknown sex.

TABLE 10 Percent method of take and transportation used to harvest furbearers from Units 20A, 20B, 20C, 20F, and 25C, regulatory years 2006–2007 through 2008–2009

| | Method of take | | | | Method of transportation | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory year/Species | Ground shooting | Trapping | Snaring | Other/ Unk | Airplane | Dogsled/ snowshoe/skis | Snowmachine | Other/Unk/ Highway |
| 2006–2007 | | | | | | | | |
| 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 |
| 2007–2008 | | | | | | | | |
| 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 |
| 2008–2009 | | | | | | | | |
| 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 |

**WILDLIFE MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

**GAME MANAGEMENT UNIT:** 20D (5633 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** Central Tanana Valley near Delta Junction

## BACKGROUND

Furbearers are an important natural resource in Unit 20D. Species include beaver, coyote, lynx, marten, mink, muskrat, river otter, red fox, red squirrel, weasel, wolverine, and wolf. Wolves are discussed in a separate management report. Competition for traplines and furbearers is intense. Much of the area is easily accessible from the road system and/or major rivers.

## MANAGEMENT DIRECTION

### MANAGEMENT GOALS

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

### MANAGEMENT OBJECTIVES AND ACTIVITIES

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.
  - Seal furs as they are harvested and presented for sealing and analyze harvest patterns.
  - Conduct trapper questionnaires and interviews as a basis for determining the status of various furbearer populations.
  - Monitor furbearer population trends and annual harvest using sealing documents, fur acquisition reports and fur export reports.

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

- ❖ Monitor trends in abundance of furbearer prey species by establishing snowshoe hare and small mammal trend surveys.

- ❖ Conduct snowshoe hare surveys to monitor prey abundance.

- ➢ Manage lynx harvest with a tracking harvest strategy whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce.

  - ❖ Purchase lynx carcasses from trappers and examine them for reproductive status as needed.

  - ❖ Adjust lynx season dates and bag limits annually to reflect current population trend.

## METHODS

We collected harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed. Information collected at the time of sealing included: name of trapper; harvest location and date; pelt measurements for lynx and river otter; sex of the furbearer; method of take; and method of transportation used.

We mailed questionnaires to trappers in Unit 20D through the Statewide Furbearer Management Program. Trappers were asked to rate species abundance as scarce, common, or abundant. They were also asked to rate species population trends as fewer, same, or more than the previous year.

During RY06 and RY07, we examined lynx carcasses voluntarily given to ADF&G by trappers to determine age, sex, and reproductive status of females.

A summer snowshoe hare population trend index was completed in conjunction with a nongame breeding bird survey. The breeding bird survey was conducted by surveying the Richardson Highway from Milepost 256.2 to 230.4. It required the surveyor to stop at ½-mile intervals for 3 minutes at each stop. The survey was begun ½-hour before sunrise (approximately 3:00 AM) in late June or early July. All hares seen during the survey were counted.

Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY06 = 1 July 2006 through 30 June 2007).

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Counts of snowshoe hares along the Donnelly Dome breeding bird survey route maintained prolonged high numbers during RY06–RY08, ranging from a high of 96 in 2007 to a low of 87 in 2009 (Table 1). This prolonged high population level should benefit furbearers that prey upon hares.

Furbearer and prey population abundance and trends based on responses to trapper questionnaires during RY06 were reviewed and discussed in Blejwas (2009). Trapper questionnaire reports for RY07 and RY08 were not available at this time.

*Population Size*

Trappers donated 9 and 61 lynx carcasses during RY06 and RY07, respectively. The RY06 sample included 5 males (4 adults and 1 kitten) and 4 females (3 adults and 1 kitten). Of the 3 adult females, 2 were yearlings and had 0 and 3 recent placental scars and the other adult (3 years old) had 5 placental scars. The RY07 sample included 37 males (25 adults and 12 kittens) and 24 females (16 adults and 8 kittens). Kittens composed 33% of the sample. Of the yearling females, 5 of 8 had recent placental scars (bred during first winter, range 1–5 scars) indicating that prey were abundant. The remaining 8 adults, aged using cementum annuli (2–9 years old) had 0–5 recent placental scars. The one female without scars was 2 years old. Of the 18 adult males aged, 13 were yearlings and 5 were 2 years old. I expect the lynx population to decline during RY10 or RY11.

Population size was unknown for the other furbearer species in Unit 20D.

*Population Composition*

Population composition was unknown for furbearers in Unit 20D.

*Distribution and Movements*

No work was performed to determine furbearer distribution and movements during RY06–RY08, except for wolverine. A wolverine distribution survey was conducted during February and March 2006 in a 180,000 $km^2$ portion of Interior Alaska, including Unit 20D (Gardner et al. 2010). Resident wolverines were distributed throughout Unit 20D except in the agricultural lands east of Delta Junction.

**MORTALITY**

*Harvest*

Season and Bag Limit. Unit 20D furbearer seasons and bag limits are listed in Table 2.

Alaska Board of Game Actions and Emergency Orders. The lynx harvest tracking strategy was eliminated in Unit 20 during the March 2008 Board of Game meeting.

Hunter–Trapper Harvest.

*Lynx* — Lynx harvest increased this reporting period from 63 in RY06 to 171 in RY07 and then declined slightly in RY08 to 163 (Table 3).

*River Otter* — River otter harvest during RY06–RY08 ranged 1–5 (Table 3).

*Wolverine* — Wolverine harvest during RY06–RY08 ranged from 8 to 20 per year and did not vary greatly from previous years (Table 3).

Method of Take. Traps and snares were the most commonly used method for capturing all furbearers in Unit 20D during RY06–RY08 (Table 3).

Harvest Chronology. Lynx were primarily captured during December–February, which coincided with the legal trapping season (Table 4).

River otter and wolverine were captured throughout the legal trapping season, and most harvest occurred from December through February (Table 4).

Transport Methods. Snowmachines continued to be the most commonly used means of transportation for lynx, river otter, and wolverine trappers in Unit 20D (Table 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 this reporting period. However, large portions of Unit 20D north of the Tanana River were burned by wildfire during RY03–RY05 and should eventually benefit furbearers by creating quality habitat for microtines and hares, major food sources for many of the furbearer species.

## CONCLUSIONS AND RECOMMENDATIONS

The furbearer management objective to manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses was met by monitoring population trends and harvest through sealing selected furs and conducting trapper questionnaires. The lynx harvest tracking strategy was eliminated by the Board of Game effective July 2008. Therefore, the Unit 20D lynx management objective, to manage lynx harvest with a tracking harvest strategy whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce, will be eliminated. The lynx management objective will be the same as for other species during the next reporting period. No changes in furbearer trapping or hunting regulations are recommended at this time.

For the next reporting period the management objectives and activities will be changed slightly to the following:

### 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.
    - 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.

- ➢ Manage lynx harvest with a tracking harvest strategy whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce.

  - ❖ Purchase lynx carcasses from trappers and examine them for reproductive status as needed.

  - ❖ Adjust lynx season dates and bag limits annually to reflect current population trend.

## LITERATURE CITED

BLEJWAS, K. 2009. Statewide Annual Report 1 July 2006 – 30 June 2007. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

GARDNER, C. L. J. P. LAWLER, J. M VERHOEF, A. MAGOUN, and K. A. KELLIE. 2010. Coarse-Scale Distribution Surveys and Occurrence Probability Modeling for Wolverine in Interior Alaska. J. Wildlife Management.

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TABLE 1 Snowshoe hare numbers seen during the Donnelly Dome breeding bird survey, Unit 20D, 1995–2009

| 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 |

TABLE 2 Furbearer trapping and hunting seasons in Unit 20D, regulatory years 2006–2007 through 2008–2009

| Species/ | Trapping | | Hunting | |
|---|---|---|---|---|
| Regulatory year | Trapping season | Bag limit | Hunting season | Bag limit |
| *Beaver* | | | | |
| 2006–2007 | 25 Sep–31 May | 25 | No open season | |
| 2007–2008 | 25 Sep–31 May | 25 | No open season | |
| 2008–2009 | 25 Sep–31 May | 25 | No open season | |
| *Coyote* | | | | |
| 2006–2007 | 1 Nov–31 Mar | No limit | 1 Sep–30 Apr | 2 |
| 2007–2008 | 1 Nov–31 Mar | No limit | 1 Sep–30 Apr | 10, no more than 2 before 1 Oct |
| 2008–2009 | 1 Nov–31 Mar | No limit | 10 Aug–30 Apr | 10 |
| *Lynx* | | | | |
| 2006–2007 | 15 Dec–31 Jan | No limit | 1 Dec–31 Jan | 2 |
| 2007–2008 | 15 Dec–15 Feb | No limit | 1 Dec–31 Jan | 2 |
| 2008–2009 | 1 Nov–30 Nov | 2 | 15 Dec–31 Jan | 2 |
| | 1 Dec–18 Feb | No limit | | |
| *Marten* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Mink* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Muskrat* | | | | |
| 2006–2007 | 1 Nov–10 Jun | No limit | No open season | |
| 2007–2008 | 1 Nov–10 Jun | No limit | No open season | |
| 2008–2009 | 1 Nov–10 Jun | No limit | No open season | |

| Species/ | Trapping | | Hunting | |
|---|---|---|---|---|
| Regulatory year | Trapping season | Bag limit | Hunting season | Bag limit |
| *River Otter* | | | | |
| 2006–2007 | 1 Nov–15 Apr | No limit | No open season | |
| 2007–2008 | 1 Nov–15 Apr | No limit | No open season | |
| 2008–2009 | 1 Nov–15 Apr | No limit | No open season | |
| *Red Fox* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| 2007–2008 | 1 Nov–28 Feb | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| 2008–2009 | 1 Nov–28 Feb | No limit | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| *Red Squirrel* | | | | |
| 2006–2007 | No closed season | No limit | No closed season | No limit |
| 2007–2008 | No closed season | No limit | No closed season | No limit |
| 2008–2009 | No closed season | No limit | No closed season | No limit |
| *Weasel* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | No open season | |
| 2007–2008 | 1 Nov–28 Feb | No limit | No open season | |
| 2008–2009 | 1 Nov–28 Feb | No limit | No open season | |
| *Wolverine* | | | | |
| 2006–2007 | 1 Nov–28 Feb | No limit | 1 Sep–31 Mar | 1 |
| 2007–2008 | 1 Nov–28 Feb | No limit | 1 Sep–31 Mar | 1 |
| 2008–2009 | 1 Nov–28 Feb | No limit | 1 Sep–31 Mar | 1 |

TABLE 3 Unit 20D lynx, river otter, and wolverine harvest, regulatory years 1999–2000 through 2008–2009

| Regulatory year | Reported harvest | | | | | | | | | Total harvest |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sex | | | Age | | | Method of take | | | |
| | M | F | Unk | Juv[a] | Adults | Unk | Trap/snare | Shot | Unk | |
| *Lynx* | | | | | | | | | | |
| 1999–2000 | | | | 37 | 120 | 3 | 145 | 4 | 11 | 160 |
| 2000–2001 | | | | 55 | 190 | 12 | 234 | 11 | 12 | 257 |
| 2001–2002 | | | | 29 | 164 | 23 | 202 | 11 | 3 | 216 |
| 2002–2003 | | | | 3 | 32 | 0 | 35 | 0 | 0 | 35 |
| 2003–2004 | | | | 1 | 17 | 1 | 17 | 0 | 2 | 19 |
| 2004–2005 | | | | 3 | 22 | 1 | 26 | 0 | 0 | 26 |
| 2005–2006 | | | | 17 | 58 | 1 | 72 | 3 | 1 | 76 |
| 2006–2007 | | | | 9 | 54 | 0 | 62 | 1 | 0 | 63 |
| 2007–2008 | | | | 45 | 126 | 0 | 166 | 3 | 2 | 171 |
| 2008–2009 | | | | 35 | 128 | 0 | 160 | 3 | 0 | 163 |
| *River Otter* | | | | | | | | | | |
| 1999–2000 | 0 | 1 | 2 | | | | 3 | 0 | 0 | 3 |
| 2000–2001 | 1 | 0 | 1 | | | | 2 | 0 | 0 | 2 |
| 2001–2002 | 4 | 1 | 1 | | | | 6 | 0 | 0 | 6 |
| 2002–2003 | 0 | 0 | 7 | | | | 7 | 0 | 0 | 7 |
| 2003–2004 | 4 | 0 | 4 | | | | 8 | 0 | 0 | 8 |
| 2004–2005 | 0 | 0 | 7 | | | | 4 | 0 | 3 | 7 |
| 2005–2006 | 5 | 1 | 1 | | | | 7 | 0 | 0 | 7 |
| 2006–2007 | 2 | 0 | 0 | | | | 2 | 0 | 0 | 2 |
| 2007–2008 | 2 | 1 | 2 | | | | 3 | 2 | 0 | 5 |
| 2008–2009 | 0 | 0 | 1 | | | | 1 | 0 | 0 | 1 |
| *Wolverine* | | | | | | | | | | |
| 1999–2000 | 3 | 3 | 0 | | | | 6 | 0 | 0 | 6 |
| 2000–2001 | 11 | 7 | 4 | | | | 21 | 1 | 0 | 22 |
| 2001–2002 | 5 | 2 | 1 | | | | 7 | 1 | 0 | 8 |
| 2002–2003 | 5 | 3 | 0 | | | | 6 | 2 | 0 | 8 |
| 2003–2004 | 1 | 1 | 6 | | | | 5 | 2 | 1 | 8 |
| 2004–2005 | 4 | 1 | 10 | | | | 13 | 2 | 0 | 15 |
| 2005–2006 | 1 | 2 | 3 | | | | 6 | 0 | 0 | 6 |
| 2006–2007 | 7 | 1 | 0 | | | | 7 | 1 | 0 | 8 |
| 2007–2008 | 9 | 5 | 6 | | | | 20 | 0 | 0 | 20 |
| 2008–2009 | 13 | 3 | 0 | | | | 16 | 0 | 0 | 16 |

[a]Juvenile = ≤ 35 inches in pelt length

TABLE 4 Unit 20D lynx, river otter, and wolverine harvest chronology percent by month(s), regulatory years 1999–2000 through 2008–2009

| Species/ | Harvest chronology percent by month(s) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory year | Sep/Oct | Nov | Dec | Jan | Feb | Mar | Apr | Unk |
| *Lynx* | | | | | | | | |
| 1999–2000 | 0 | 0 | 36 | 33 | 31 | 0 | 0 | 0 |
| 2000–2001 | 0 | 21 | 32 | 29 | 18 | 0 | 0 | 1 |
| 2001–2002 | 1 | 18 | 32 | 33 | 16 | 1 | 0 | 1 |
| 2002–2003 | 0 | 0 | 69 | 29 | 3 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 47 | 47 | 5 | 0 | 0 | 0 |
| 2004–2005 | 0 | 0 | 92 | 4 | 4 | 0 | 0 | 0 |
| 2005–2006 | 0 | 1 | 39 | 61 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 1 | 40 | 56 | 3 | 0 | 0 | 0 |
| 2007–2008 | 0 | 2 | 32 | 42 | 21 | 0 | 0 | 3 |
| 2008–2009 | 1 | 6 | 44 | 26 | 22 | 1 | 0 | 0 |
| *River Otter* | | | | | | | | |
| 1999–2000 | 0 | 0 | 67 | 33 | 0 | 0 | 0 | 0 |
| 2000–2001 | 0 | 50 | 50 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 17 | 0 | 83 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 43 | 43 | 0 | 0 | 14 | 0 |
| 2003–2004 | 0 | 0 | 25 | 50 | 25 | 0 | 0 | 0 |
| 2004–2005 | 0 | 14 | 57 | 0 | 0 | 29 | 0 | 0 |
| 2005–2006 | 0 | 0 | 57 | 29 | 14 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 50 | 0 | 0 | 50 | 0 |
| 2007–2008 | 0 | 20 | 40 | 20 | 20 | 0 | 0 | 0 |
| 2008–2009 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| *Wolverine* | | | | | | | | |
| 1999–2000 | 0 | 0 | 50 | 17 | 17 | 17 | 0 | 0 |
| 2000–2001 | 5 | 5 | 5 | 36 | 50 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 13 | 75 | 13 | 0 | 0 |
| 2002–2003 | 0 | 0 | 13 | 0 | 63 | 25 | 0 | 0 |
| 2003–2004 | 13 | 13 | 25 | 25 | 13 | 0 | 0 | 13 |
| 2004–2005 | 7 | 7 | 13 | 27 | 47 | 0 | 0 | 0 |
| 2005–2006 | 0 | 17 | 67 | 17 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 13 | 25 | 13 | 50 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 15 | 40 | 45 | 0 | 0 | 0 |
| 2008–2009 | 0 | 18 | 25 | 38 | 19 | 0 | 0 | 0 |

TABLE 5 Unit 20D harvest percentage by transport method[a], regulatory years 1999–2000 through 2008–2009

| Species/ Regulatory year | Harvest percent by transport method | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled | Boat | 3- or 4-Wheeler | Snowmachine | ORV | Highway vehicle | Skis, Snowshoes | Other | Unk |
| *Lynx* | | | | | | | | | | |
| 1999–2000 | 3 | 0 | 0 | 0 | 81 | 0 | 10 | 1 | 5 | 0 |
| 2000–2001 | 4 | 0 | 0 | 0 | 66 | 4 | 14 | 3 | 7 | 0 |
| 2001–2002 | 1 | 0 | 0 | 0 | 74 | 2 | 14 | 7 | 3 | 0 |
| 2002–2003 | 0 | 0 | 0 | 3 | 57 | 0 | 31 | 9 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 84 | 0 | 11 | 0 | 5 | 0 |
| 2004–2005 | 0 | 0 | 0 | 0 | 69 | 0 | 15 | 15 | 0 | 0 |
| 2005–2006 | 0 | 4 | 0 | 5 | 75 | 0 | 4 | 4 | 8 | 0 |
| 2006–2007 | 0 | 3 | 0 | 0 | 86 | 0 | 10 | 1 | 0 | 0 |
| 2007–2008 | 0 | 2 | 0 | 15 | 65 | 0 | 11 | 3 | 0 | 3 |
| 2008–2009 | 7 | 16 | 0 | 2 | 58 | 0 | 14 | 1 | 0 | 2 |
| *River Otter* | | | | | | | | | | |
| 1999–2000 | 0 | 0 | 67 | 0 | 33 | 0 | 0 | 0 | 0 | 0 |
| 2000–2001 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2004–2005 | 0 | 0 | 57 | 0 | 43 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 0 | 0 | 71 | 0 | 14 | 0 | 14 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 50 | 0 | 0 |
| 2007–2008 | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 20 |
| 2008–2009 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Wolverine* | | | | | | | | | | |
| 1999–2000 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2000–2001 | 5 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | 0 | 63 | 25 | 13 | 0 | 0 | 0 |
| 2003–2004 | 13 | 0 | 0 | 0 | 63 | 13 | 0 | 0 | 0 | 13 |
| 2004–2005 | 0 | 0 | 0 | 7 | 67 | 0 | 27 | 0 | 0 | 0 |
| 2005–2006 | 0 | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 0 |
| 2006–2007 | 0 | 25 | 0 | 0 | 50 | 0 | 25 | 0 | 0 | 0 |
| 2007–2008 | 10 | 10 | 0 | 5 | 60 | 0 | 10 | 0 | 5 | 0 |
| 2008–2009 | 25 | 0 | 0 | 0 | 44 | 0 | 31 | 0 | 0 | 0 |

[a] Transportation codes were revised in 1989; however, some errors may exist due to use of some old sealing certificates.

**WILDLIFE MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

**GAME MANAGEMENT UNIT:** 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. They supply food, clothing, and trade items. Fur populations have always been sufficient to meet local needs but are subject to cycles of abundance or scarcity primarily due to fluctuations in small mammal and gallinaceous bird populations. The innumerable lakes, rivers, and streams found in Units 21B, 21C, and 21D support a large number of water-dependent furbearers such as beaver, mink, river otter, and muskrat. The following species found in the area are listed in the order of their economic importance: marten, beaver, lynx, wolverine, wolf, red fox, mink, river otter, and muskrat. Wolves are discussed in detail in a separate management report. Coyotes are rare. Weasels and red squirrels are common but not targeted by area trappers.

## MANAGEMENT DIRECTION

Data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g., RY08 = 1 July 2008 through 30 June 2009).

### MANAGEMENT GOALS

- Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.

- Provide for continued use of furbearers by local Alaska residents who have customarily and traditionally depended on these populations.

### MANAGEMENT OBJECTIVE

- Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years.

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

### MANAGEMENT ACTIVITIES

- Monitor harvest through fur sealing records, fur acquisition reports, and fur export permits.
- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

## METHODS

We monitored harvest through sealing records and personal interviews. We tracked furbearer abundance by interviewing trappers, reviewed trapper questionnaires, 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 Unit 21B using the skulls of trapper-harvested marten.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size*

During RY06–RY09, 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 their numbers appeared stable. Muskrat numbers were stable at low levels during this report period.

Lynx numbers increased during the RY09 season in response to increasing snowshoe hare numbers. Snowshoe hares began increasing in RY06–RY08 in pockets of Units 21B, 21C, and 21D. Red foxes were numerous throughout the area and appeared stable or slightly increasing. During RY06–RY08, ptarmigan and snowshoe hares, important winter prey species for red fox, increased. Microtine numbers were not monitored, but were probably stable. No major winter freeze and thaw events occurred during RY06–RY08 and no notable increases in microtines were documented. Coyotes were rare in Units 21B, 21C, and 21D, with only a few observations and incidental harvest.

Marten populations during RY06–08 were moderate in Units 21B and the western and southern portion of Unit 21D, but low in the northern portion of Unit 21D and in Unit 21C. Most trappers reported that marten were found in pockets of habitat at various times during the trapping season. These apparent absences were temporary and were likely caused either by local migrations or by restricted movement of the animals. Overall, marten numbers were stable in the area during RY06–RY08. As noted above, no notable increases in microtines (important marten prey) were documented. Mink populations were low in the area and were probably associated with low numbers of muskrats and microtines. Weasels occur throughout the area but at relatively low numbers.

*Distribution and Movements*

All furbearer species were present throughout Units 21B, 21C, and 21D in the areas of suitable habitat.

**MORTALITY**

*Harvest*

Trapping Seasons and Bag Limits during RY06–RY08.

| Species | Season | Bag limit |
|---|---|---|
| Coyote | 1 Nov–31 Mar | No limit |
| Lynx | 1 Nov–28 Feb | No limit |
| Marten | 1 Nov–28 Feb | No limit |
| Mink and Weasel | 1 Nov–28 Feb | No limit |
| Muskrat | 1 Nov–10 Jun | No limit |
| Red fox | 1 Nov–28 Feb | No limit |
| River otter | 1 Nov–15 Apr | No limit |
| Wolverine | 1 Nov–31 Mar | No limit |

Trapping Seasons and Bag Limits during RY06–RY07.

| Species | Season | Bag limit |
|---|---|---|
| Beaver | 1 Sep–10 Jun | No limit |

Trapping Seasons and Bag Limits during RY08.

| Species | Season | Bag limit |
|---|---|---|
| Beaver | 1 Nov–10 Jun | No limit |

Hunting Seasons and Bag Limits during RY06–RY08.

| Species | Season | Bag limit |
|---|---|---|
| Coyote | 10 Aug–30 Apr | 10 |
| Red fox | 1 Sep–15 Mar | 10, no more than 2 before 1 Oct |
| Lynx | 1 Nov–28 Feb | 2 |
| Wolverine | 1 Sep–31 Mar | 1 |

Alaska Board of Game Actions and Emergency Orders. Since RY86, trapping seasons and bag limits remained the same for marten, coyote, lynx, fox, mink, muskrat, otter, and wolverine. In RY02 the requirement for sealing beaver was eliminated. At the March 2006 meeting, the Board of Game allowed for the harvest of beaver using firearms in Units 21B and 21D, provided the meat was salvaged for human consumption. At the March 2008 meeting, beaver seasons were aligned throughout Region III (Interior Alaska), opening trapping season on 1 September, two months earlier than previously allowed.

Trapper Harvest.

*Beaver* — Beaver harvest is unknown and potential effects on local populations are difficult to detect in Units 21B, 21C, and 21D because sealing was no longer required beginning RY02. Harvest is often for personal use both as food or 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, historically, kit harvest was low even though total beaver harvest was relatively high (Tables 1 and 2) because experienced trappers used snares with large diameter openings and placed their sets outside food caches, away from lodges. Harvest was greatest during February and March (Table 3).

*Lynx* — Lynx populations reached the low point of their 10-year cycle during RY04–RY05, but reports indicate that numbers increased in RY08 with a peak expected to occur between RY09–RY10 (Tables 1 and 2). Most lynx harvest occurred during December through February. Lynx pelt prices ranged from moderate to high ($126–$280) during RY06–RY08 (Table 3).

*River Otter* — Although river otters were abundant in Units 21B, 21C, and 21D, harvest remained relatively low throughout the trapping season (Tables 1–3). Most harvest occurred when river otters were incidentally taken in beaver sets, and therefore, harvest levels are consistent with beaver trapping efforts.

*Wolverine* — Harvest of wolverines was stable (Tables 1 and 2) during RY06 and RY07. 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 3).

*Marten* — Marten harvest during the mid 1990s was greatly reduced due to low trapping effort and low prices. Pelt prices for marten improved during RY06–RY08 ranging $62–$107. Age and sex of marten trapped in Unit 21B during RY07 and RY08 indicated that juvenile:adult female harvest ratios of 6.4 and 5.3 juveniles:1 adult female were high and the population was not overharvested (Table 4). The harvest ratios of 1.5 and 1.0 males:1 female was also appropriate for a trapped population (Strickland and Douglas 1987, Whitman 2001). Because of the possible sex-based differences in the vulnerability of marten trapping, 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 and, furthermore, pelt prices for mink harvested in Interior Alaska were low, so few trappers targeted them.

Transportation and Trapping Conditions. Snowmachines are the primary means of transportation, with 3–4 trappers 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. A very few beavers were harvested by people who used boats during the new September season. The use of dog teams on traplines is limited to 2 known trappers in the area. Weather was moderate for the 3 years of the reporting period. Snowfall was normal except in RY08 when deep snowfall limited access. Overall, trapping conditions were adequate for most trappers.

## CONCLUSIONS AND RECOMMENDATIONS

With the exception of coyote, mink, and muskrat, furbearer populations throughout Units 21B, 21C, and 21D were stable or increasing and were at moderate-to-high levels. We were not aware of any areas with excessive harvest. Marten fur prices were moderate to high during RY06–RY08. Otter fur prices also surged briefly during RY06–RY07, then dropped by RY08, and wolverine 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. Population trend information for all species should continue to be gathered from trapper questionnaires, 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.

The objective to maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years was met. Mean harvest during the RY06–RY09 report period fluctuated, but none of the furbearer populations declined to levels that would not allow for those minimal levels of harvest.

Because furbearer populations were relatively stable since 1990, I assumed that the harvest levels that occurred were sustainable and represented a conservative harvest. I used the average and range of reported harvest for lynx during RY90–RY08 ($\bar{x}$ = 45; SE=7.2; range = 6–108), to estimate the sustainable harvestable surplus during high and low cycles for lynx. I used the average reported harvest plus the standard error during RY90–RY08 to calculate the sustainable harvestable surplus for otter ($\bar{x}$ = 16; SE=2.0) and wolverine ($\bar{x}$ = 18; SE=2.2). Among furbearers, these three species (lynx, otter, and wolverine) are potentially most susceptible to overharvest and will be used as indicators of harvest trend for other furbearers (beaver, marten, muskrat, fox, coyote, and weasel). These three furbearers also will serve as good indicator species because they use habitats and occupy niches that overlap the other furbearers. For the next report period, the management objectives will be changed to the following:

### 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.

*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 through fur sealing records.
- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.
- Recommend season changes if harvest exceeds objectives for 3 consecutive years.

## LITERATURE CITED


BUSKIRK, S. W. AND S. L. LINDSTEDT. 1989. Sex biases in trapped samples of mustelidae. Journal of Mammalogy. 70(1):88–97.

STRICKLAND, M. A. AND C. W. DOUGLAS. 1987. Marten. Pages 531–546 *in* Wild Furbearer Management and Conservation in North America. M. Novak, J. A. Baker, M. E. Obbard and B. Malloch, eds. Ontario Ministry of Nat. Resources. Toronto.

WHITMAN, J. S. 2001. Unit 4 furbearer management report. Pages 58–76 *in* C. Healy, editor. Furbearer management report of survey and inventory activities 1 July 1997–30 June 2000. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.



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TABLE 1 Unit 21B, 21C, and 21D reported harvest of sealed furbearer species, regulatory years 1998–1999 through 2008–2009[a]

| Regulatory year | Species | | | |
|---|---|---|---|---|
| | Beaver | Lynx | Otter | Wolverine |
| 1998–1999 | 212 | 25 | 8 | 8 |
| 1999–2000 | 231 | 76 | 12 | 11 |
| 2000–2001 | 166 | 99 | 8 | 18 |
| 2001–2002 | 212 | 96 | 12 | 12 |
| 2002–2003 | 20 | 32 | 37 | 27 |
| 2003–2004 | 0 | 21 | 13 | 22 |
| 2004–2005 | 0 | 35 | 30 | 35 |
| 2005–2006 | 0 | 25 | 19 | 36 |
| 2006–2007 | 0 | 60 | 16 | 22 |
| 2007–2008 | 0 | 36 | 11 | 20 |
| 2008–2009 | 0 | 108 | 4 | 9 |

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 2 Units 21B, 21C, and 21D beaver, lynx, otter, and wolverine harvest, regulatory years 1998–1999 through 2008–2009

| Regulatory year | Reported harvest | | | | | | Estimated harvest | | Successful trappers/hunters | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | Unk | Juv[a] | Adults | Unk | Unreported | Illegal | Trap/Snare | Shot | Unk | |
| *Beaver* | | | | | | | | | | | | |
| 1998–1999 | -- | -- | -- | 8 | 192 | 12 | 0 | 0 | 212 | 0 | 0 | 212 |
| 1999–2000 | -- | -- | -- | 5 | 207 | 19 | 0 | 0 | 225 | 0 | 6 | 231 |
| 2000–2001 | -- | -- | -- | 9 | 156 | 1 | 0 | 0 | 118 | 0 | 48 | 166 |
| 2001–2002 | -- | -- | -- | 8 | 164 | 40 | 0 | 0 | 212 | 0 | 0 | 212 |
| 2002–2003[b] | -- | -- | -- | 0 | 20 | 0 | 0 | 0 | 20 | 0 | 0 | 20 |
| *Lynx* | | | | | | | | | | | | |
| 1998–1999 | -- | -- | -- | 0 | 24 | 1 | 0 | 0 | 24 | 1 | 0 | 25 |
| 1999–2000 | -- | -- | -- | 0 | 52 | 24 | 0 | 0 | 74 | 2 | 0 | 76 |
| 2000–2001 | -- | -- | -- | 0 | 77 | 22 | 0 | 0 | 99 | 0 | 0 | 99 |
| 2001–2002 | -- | -- | -- | 0 | 80 | 16 | 0 | 0 | 95 | 0 | 1 | 96 |
| 2002–2003 | -- | -- | -- | 0 | 20 | 12 | 0 | 0 | 30 | 1 | 1 | 32 |
| 2003–2004 | -- | -- | -- | 0 | 17 | 4 | 0 | 0 | 21 | 0 | 0 | 21 |
| 2004–2005 | -- | -- | -- | 0 | 31 | 4 | 0 | 0 | 33 | 1 | 1 | 35 |
| 2005–2006 | -- | -- | -- | 0 | 25 | 0 | 0 | 0 | 23 | 2 | 0 | 25 |
| 2006–2007 | -- | -- | -- | 0 | 60 | 0 | 0 | 0 | 60 | 0 | 0 | 60 |
| 2007–2008 | -- | -- | -- | 4 | 32 | 0 | 0 | 0 | 36 | 0 | 0 | 36 |
| 2008–2009 | -- | -- | -- | 0 | 104 | 4 | 0 | 0 | 99 | 1 | 8 | 108 |
| *Otter* | | | | | | | | | | | | |
| 1998–1999 | 3 | 0 | 5 | -- | -- | -- | 0 | 0 | 8 | 0 | 0 | 8 |
| 1999–2000 | 1 | 1 | 10 | -- | -- | -- | 0 | 0 | 11 | 1 | 1 | 12 |
| 2000–2001 | 1 | 5 | 2 | -- | -- | -- | 0 | 0 | 8 | 0 | 0 | 8 |
| 2001–2002 | 5 | 5 | 2 | -- | -- | -- | 0 | 0 | 11 | 0 | 1 | 12 |
| 2002–2003 | 16 | 13 | 8 | -- | -- | -- | 0 | 0 | 32 | 5 | 0 | 37 |
| 2003–2004 | 9 | 4 | 0 | -- | -- | -- | 0 | 0 | 13 | 0 | 0 | 13 |
| 2004–2005 | 23 | 2 | 5 | -- | -- | -- | 0 | 0 | 27 | 3 | 0 | 30 |
| 2005–2006 | 9 | 6 | 4 | -- | -- | -- | 0 | 0 | 18 | 1 | 0 | 19 |
| 2006–2007 | 6 | 4 | 6 | -- | -- | -- | 0 | 0 | 16 | 0 | 0 | 16 |
| 2007–2008 | 1 | 4 | 6 | -- | -- | -- | 0 | 0 | 11 | 0 | 0 | 11 |
| 2008–2009 | 2 | 1 | 1 | -- | -- | -- | 0 | 0 | 4 | 0 | 0 | 4 |
| *Wolverine* | | | | | | | | | | | | |
| 1998–1999 | 5 | 2 | 1 | -- | -- | -- | 10 | 0 | 8 | 0 | 0 | 18 |
| 1999–2000 | 6 | 5 | 0 | -- | -- | -- | 10 | 0 | 10 | 1 | 1 | 21 |
| 2000–2001 | 9 | 4 | 5 | -- | -- | -- | 10 | 0 | 17 | 1 | 1 | 28 |
| 2001–2002 | 5 | 4 | 3 | -- | -- | -- | 10 | 0 | 12 | 0 | 0 | 22 |

| Regulatory | Reported harvest | | | | | | Estimated harvest | | Successful | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| year | M | F | Unk | Juv[a] | Adults | Unk | Unreported | Illegal | Trap/Snare | Shot | Unk | Total | trappers/hunters |
| 2002–2003 | 17 | 8 | 2 | -- | -- | -- | 10 | 0 | 25 | 2 | 0 | 37 | 14 |
| 2003–2004 | 12 | 9 | 1 | -- | -- | -- | 10 | 0 | 22 | 0 | 0 | 32 | 13 |
| 2004–2005 | 22 | 12 | 1 | -- | -- | -- | 10 | 0 | 34 | 1 | 0 | 45 | 17 |
| 2005–2006 | 22 | 13 | 1 | -- | -- | -- | 10 | 0 | 36 | 0 | 0 | 46 | 18 |
| 2006–2007 | 11 | 10 | 1 | -- | -- | -- | 10 | 0 | 21 | 0 | 1 | 32 | 12 |
| 2007–2008 | 9 | 8 | 3 | -- | -- | -- | 10 | 0 | 17 | 0 | 3 | 30 | 12 |
| 2008–2009 | 3 | 6 | 0 | -- | -- | -- | 10 | 0 | 9 | 0 | 0 | 19 | 6 |

[a] Juveniles: beavers <52" (length + width); lynx <34" in length.

[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 3 Units 21B, 21C, and 21D beaver, lynx, otter, and wolverine harvest chronology percentage by month, regulatory years 1998–1999 through 2008–2009

| Regulatory year | Harvest chronology percentage by month | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Total |
| *Beaver* | | | | | | | | | |
| 1998–1999 | 2 | 8 | 10 | 13 | 66 | 1 | -- | -- | 212 |
| 1999–2000 | 16 | 0 | 0 | 25 | 58 | 1 | -- | -- | 225 |
| 2000–2001 | 0 | 3 | 21 | 54 | 22 | 0 | -- | -- | 146 |
| 2001–2002 | 10 | 7 | 12 | 38 | 33 | 0 | -- | -- | 212 |
| 2002–2003[a] | 0 | 0 | 0 | 100 | 0 | 0 | -- | -- | 20 |
| *Lynx* | | | | | | | | | |
| 1998–1999 | 0 | 52 | 20 | 24 | 4 | -- | -- | -- | 25 |
| 1999–2000 | 1 | 28 | 22 | 47 | 1 | -- | -- | -- | 76 |
| 2000–2001 | 6 | 41 | 24 | 28 | 0 | -- | -- | -- | 99 |
| 2001–2002 | 6 | 19 | 43 | 32 | 0 | -- | -- | -- | 95 |
| 2002–2003 | 0 | 13 | 59 | 28 | 0 | -- | -- | -- | 32 |
| 2003–2004 | 5 | 19 | 48 | 24 | 5 | -- | -- | -- | 21 |
| 2004–2005 | 3 | 25 | 38 | 34 | 0 | -- | -- | -- | 32 |
| 2005–2006 | 8 | 44 | 8 | 40 | 0 | -- | -- | -- | 25 |
| 2006–2007 | 0 | 7 | 40 | 53 | 0 | -- | -- | -- | 60 |
| 2007–2008 | 0 | 47 | 0 | 53 | 0 | -- | -- | -- | 34 |
| 2008–2009 | 11 | 32 | 43 | 14 | 0 | -- | -- | -- | 107 |
| *River otter* | | | | | | | | | |
| 1998–1999 | 25 | 25 | 25 | 0 | 25 | 0 | -- | -- | 8 |
| 1999–2000 | 10 | 50 | 10 | 30 | 0 | 0 | -- | -- | 10 |
| 2000–2001 | 0 | 0 | 13 | 50 | 38 | 0 | -- | -- | 8 |
| 2001–2002 | 8 | 0 | 25 | 67 | 0 | 0 | -- | -- | 12 |
| 2002–2003 | 5 | 8 | 58 | 8 | 3 | 18 | -- | -- | 38 |
| 2003–2004 | 23 | 23 | 8 | 8 | 15 | 23 | -- | -- | 13 |
| 2004–2005 | 23 | 23 | 13 | 17 | 10 | 13 | -- | -- | 30 |
| 2005–2006 | 0 | 5 | 16 | 79 | 0 | 0 | -- | -- | 19 |
| 2006–2007 | 6 | 25 | 13 | 0 | 50 | 6 | -- | -- | 16 |
| 2007–2008 | 9 | 9 | 0 | 18 | 64 | 0 | -- | -- | 11 |
| 2008–2009 | 25 | 50 | 0 | 0 | 0 | 25 | -- | -- | 4 |
| *Wolverine* | | | | | | | | | |
| 1998–1999 | 13 | 38 | 13 | 38 | 0 | -- | -- | -- | 8 |
| 1999–2000 | 0 | 27 | 0 | 45 | 27 | -- | -- | -- | 11 |
| 2000–2001 | 6 | 12 | 0 | 65 | 18 | 0 | -- | -- | 17 |
| 2001–2002 | 17 | 0 | 0 | 0 | 75 | 8 | -- | -- | 12 |
| 2002–2003 | 7 | 7 | 15 | 44 | 22 | 4 | -- | -- | 27 |
| 2003–2004 | 14 | 10 | 10 | 48 | 19 | 0 | -- | -- | 21 |
| 2004–2005 | 9 | 23 | 20 | 26 | 23 | 0 | -- | -- | 35 |
| 2005–2006 | 14 | 22 | 17 | 19 | 28 | 0 | -- | -- | 36 |
| 2006–2007 | 10 | 29 | 24 | 24 | 14 | 0 | -- | -- | 21 |

| Regulatory year | Harvest chronology percentage by month | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Total |
| *Wolverine continued* | | | | | | | | | |
| 2007–2008 | 0 | 25 | 25 | 45 | 5 | 0 | -- | -- | 20 |
| 2008–2009 | 11 | 44 | 0 | 22 | 22 | 0 | -- | -- | 9 |

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 4 Unit 21D and 21B sex and age of trapper-harvested marten, regulatory years 2007–2008 through 2008–2009

| Regulatory year | Male | | Female | | Total | % Male | | % Female | |
|---|---|---|---|---|---|---|---|---|---|
| | Adult | Juven. | Adult | Juven. | | Adult | Juven. | Adult | Juven. |
| *Marten* | | | | | | | | | |
| 2007–2008 | 54 | 73 | 21 | 61 | 209 | 25.8 | 34.9 | 10.0 | 29.2 |
| 2008–2009 | 99 | 98 | 49 | 141 | 387 | 25.6 | 25.3 | 12.7 | 36.4 |
| 21B Total | 153 | 171 | 70 | 202 | 596 | 25.7 | 28.7 | 11.7 | 33.9 |

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
**Division of Wildlife Conservation**
**(907) 465-4190 P.O. BOX 115526**
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# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## LOCATION

**GAME MANAGEMENT UNIT:** 22 (25,230 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** Seward Peninsula and the adjacent mainland drained by all streams flowing into Norton Sound

## BACKGROUND

Furbearers found in Unit 22 include beaver, red fox, arctic fox, lynx, marten, mink, muskrat, river (land) otter, wolverine, and wolves. Wolves are discussed in a separate survey and inventory report.

Furbearers are most abundant in the eastern portion of Unit 22, which is characterized by extensive spruce forests and riparian willow habitat. Densities of furbearers have fluctuated widely over the years, generally in response to natural factors. Hunting and trapping activity has at times reduced furbearer densities in close proximity to Unit 22 villages.

Harvest activity is partly related to densities of furbearers. When population densities are high, the number of hunters and trappers increases. However, most of the furbearer harvest in Unit 22 is by subsistence and recreational users, or is done opportunistically by local residents while engaged in other activities. Very few individuals in Unit 22 trap as their sole winter occupation (Persons 2001, 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 the staff and the public. Harvest information for beavers, lynx, river otters and wolverines are collected annually from fur sealing certificates, hunter/trapper questionnaires and village harvest surveys.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Information was collected regarding the status of Unit 22 furbearer populations from observations made by staff, while conducting surveys of other species and from information provided by interested local residents. Since 1998, Unit 22 has participated in the statewide trapper survey program, which has provided useful impressions about furbearer abundance from hunter/trappers throughout the unit (Persons 2001, Gorn 2004, Persons and Gorn 2007).

*Population Size*

*Beaver* — During this reporting period, beavers were abundant and trapper survey respondents reported beaver numbers to be stable or increasing in Units 22A, 22B, 22C and 22D. In Unit 22E, beaver numbers are believed to be increasing in the Serpentine River drainage. Harvest pressure throughout the unit has been minimal in recent years.

Many unit residents are dismayed by the proliferation of beavers on the western Seward Peninsula over the last 25 years and regard beavers as nuisances. Complaints are common; for example: beavers have blocked culverts along the road system, forcing the Alaska Department of Transportation and Public Facilities to destroy a number of dams and kill nuisance beavers; recreational boaters complain about the blockage of waterways; there is concern that beaver dams are preventing salmon from returning to their spawning grounds; and precautions must now be taken to prevent giardia infection when drinking from local streams (Gorn 2004, Persons and Gorn 2007).

*Lynx*—In Unit 22A, lynx and their primary food source, hares, continued to be common during this reporting period and reports indicate lynx numbers were stable. In Unit 22B, observations and harvest data indicate lynx numbers increased significantly during this reporting period and

survey respondents reported lynx were common. In Units 22C and 22D, lynx are scarce, but may be increasing in response to increasing numbers of hares.

*River Otter* — Otters are found throughout most of the major drainages of the unit. Hunter/trappers who responded to our trapper surveys indicated otters in Units 22A, 22B, 22C and 22D were common and their numbers stable. Otter tracks were observed during a March 2007 moose census in Unit 22C. We have no information about otters in Unit 22E.

*Wolverine* — Observations and trapper questionnaires indicate wolverines were common throughout the unit and their numbers were thought to be generally stable or perhaps down slightly in some areas since the 2003–2004 regulatory year. During a March 2004 and February 2010 moose census in western Unit 22B, wolverine tracks were noted to be unusually numerous, indicating an abundance of wolverine. Suitable habitat and food resources are thought to be the primary factors determining population density in Unit 22, although hunting pressure around Nome in Unit 22C can be an important factor regulating population density.

*Fox* — During the reporting period, red foxes were noted to be common throughout much of the unit. The Norton Sound Health Corporation's Office of Environmental Health now handles all specimens suspected of rabies infection in the Norton Sound area. Arctic fox were found along the Seward Peninsula coastline and coastal shore-fast sea ice during the reporting period. Arctic fox harvest is not recorded, but subsistence crab fisherman commonly trapped arctic fox near their crab pots within 2 miles of the coast near Nome.

*Mink/Marten* — Most of the suitable marten habitat occurs in Units 22A and 22B. During the previous reporting period, marten were reported to be abundant in Unit 22A. During this reporting period, several trappers reported decreasing numbers of marten in parts of Units 22A and 22B, which they correlated with increasing lynx numbers. Mink were noted to be abundant in some river drainages in Unit 22C. Little else is known about the status of mink and marten populations in Unit 22.

*Population Composition*

There were no activities to determine furbearer population composition in Unit 22 during the reporting period.

*Distribution and Movements*

There were no activities to determine furbearer distribution and movements in Unit 22 during the reporting period.

## MORTALITY

*Harvest*

Hunting Seasons and Bag Limits. Furbearer seasons and bag limits remained unchanged.

| Species | Season | Bag Limit |
|---|---|---|
| *2006–2007*,*2007–2008*, *2008–2009* | | |
| 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 |
|---|---|---|
| *2006–2007*,*2007–2008*, *2008–2009* | | |
| 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. The overall number of hunters/trappers sealing lynx, otter and wolverine, was stable during this reporting period. However, compared to the reporting period ending in 2003, the combined number of hunters and trappers actively taking furbearers during 2006-2009 has increased 86%. It is not known if this increase is the result of increased hunter effort or better compliance with sealing requirements. Accurate harvest data are lacking for all furbearer species found in Unit 22, even for those species that are sealed. Many furs from the unit are home tanned and used locally for clothing, so there is little incentive to have them sealed. The fur sealing data provide only minimum estimates of harvest. Additional harvest information is obtained from statewide trapper surveys.

*Beaver* — Since 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. However, 6 beavers were sealed from Unit 22A during 2006–2008. A Trapper Questionnaire from 2006–2007, reported a harvest of 58 beavers: 3 from Unit 22A, 14 from Unit 22B, and 35 from Unit 22C. Forty-four trappers in the Arctic & Western regions reported that beaver were one of their 3 most important target species, ranking second behind marten (Trapper Questionnaire 2009).

*Lynx* — Unit 22A reported lynx harvest has increased since the mid 1990s, peaked in 2005–2006 when 75 lynx were reported taken, and has decreased to 14–34 lynx per year since 2006 (Table 1). In Unit 22B, lynx harvest increased substantially during this reporting period with 166 lynx sealed which is a 42% increase compared to the 2003–2006 reporting period. The reported harvest in Unit 22C was 0 lynx, a decrease from 6 lynx in the previous reporting period. No harvest was reported in Units 22D or 22E.

*River Otter* — An average of 10 otters per year was sealed in Unit 22 during the 2006–2008 period, which is a 25% increase from the previous reporting period. The number of river otters sealed in Unit 22 since 1988 range from 0-22 otters (Table 2).

*Wolverine* — The number of wolverines sealed in Unit 22 averaged 34 per year and ranged from 23–43 wolverine (Table 3). The number of wolverines sealed compared to the previous reporting period decreased 40%. The reported sex composition for the reporting period was 58% males, 36% females, and 6% unknown. Wolverines taken from all subunits were sealed with a distribution as follows: Unit 22A, 27%; Unit 22B, 37%; Unit 22C, 15%; Unit 22D, 9%; and Unit 22E, 13% (Table 3). It is noteworthy to mention a female was harvested in the village of Savoonga, in Unit 22D located on St. Lawrence Island, in January 2009 by a hunter traveling by snowmachine. Wolverines are non-existent on the island and would have traveled over sea ice from the mainland of Alaska or Russia.

*Mink* — The number of mink harvested in Unit 22 is unknown due to no sealing requirement for this species. Thirteen mink were reported harvested on the 2006–2007 trapper survey; 12 were harvested in Unit 22A and 1 in Unit 22B. One mink was taken in defense of life or property (DLP) during 2008–2009 in Unit 22C, due to occupying captive Gyrfalcon and Homing Pigeon pens. Two years earlier, a mink went into the same pigeon pen and killed every bird (30) in the loft.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 22 during the reporting period.

Hunter Residency and Success. During this reporting period, all but four of the hunters/trappers who harvested furbearers in Unit 22 were Alaska residents. One nonresident hunter/trapper harvested lynx, and 3 harvested wolverines. Success is difficult to accurately measure because most individuals take furbearers on an opportunistic basis. Frequently, hunters are out doing other activities and not specifically hunting or trapping furbearers (Persons and Gorn 2007).

Harvest Chronology. Travel conditions are an important component in timing of furbearer harvest. Snow conditions dictate the timing of harvest for beaver, red fox, arctic fox, lynx, marten, mink, otter, and wolverine in Unit 22. Beavers are also harvested by boat in late spring during breakup or in the fall in some parts of the unit. Trappers have indicated trapping conditions have been poor to fair during this reporting period.

Transport Methods. Snowmachines are the primary means of transportation for hunters/trappers taking furbearers within Unit 22. Sealing certificate data shows that 91% of the furbearer harvest

occurred by snowmachine, 4% by 4-wheeler, and the remaining 5% occurred by airplane, highway vehicle, 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 trappers, city of Nome, and the public on trapping within city limits and advising the public of active trapping trails within city limits.

## CONCLUSIONS AND RECOMMENDATIONS

We lack quantitative data on furbearer population status in Unit 22. However, observations, reports from unit residents, and harvest data indicate that furbearer populations are generally stable or increasing in most parts of the unit. Although a significant portion of furbearer harvest is unreported, we believe reporting has increased throughout the unit in recent years. The actual harvest and its impact on furbearer populations are unknown.

In 1998, Region 5 began participating in the statewide trapper survey program. The annual surveys were sent to people who trap furs in the region. We have had good cooperation from fur harvesters, and the comments and information provided by Unit 22 hunters/trappers have given us important harvest information and a better and more timely picture of changes in furbearer abundance in different parts of the unit.

The most effective means of collecting harvest information in unit villages is through household harvest surveys, which we began in spring 1999 in select Unit 22 villages. However, these surveys focus on big game, and only wolf and wolverine data are collected.

Trapper surveys and community-based harvest assessments give us some additional harvest information, but the accuracy of furbearer harvest data still needs to be improved. Increased contact between local hunters/trappers and biologists is desirable to encourage harvest reporting and to gain information about harvest and furbearer abundance.

## LITERATURE CITED

GORN, T. 2004. Unit 22 furbearer management report. Pages 304–314 *in* C. Healy, editor. Furbearer management report of survey and inventory activities 1 July 2000–30 June 2003. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

PERSONS, K. 2001. Furbearer management report. Units Pages 301–309 *in* C. Healy, editor. Furbearer management report of survey and inventory activities 1 July 1999–30 June 2001. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

PERSONS, K. AND GORN, T. 2007. Unit 22 furbearer. Pages 281–290 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.

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HUGHES, L. 2010. Unit 22 furbearer. Pages 297–306 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2006–30 June 2009. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.

Table 1. Unit 22 lynx harvest reported on sealing certificates, 1988–1989 through 2008–2009.

| Regulatory Year | Reported lynx harvest | | | | | | | Male Harvest, %[a] | Method of harvest, % | | | # hunters/ trappers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 22A | 22B | 22C | 22D | 22E | Unk. | Total | | Shot | Trap/snare | Unk. | |
| 1988–1989 | 1 | 2 | 0 | 1 | 0 | 0 | 4 | 67 | 50 | 50 | 0 | 4 |
| 1989–1990 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 50 | 67 | 33 | 0 | 3 |
| 1990–1991 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 100 | 0 | 1 |
| 1991–1992 | 4 | 0 | 0 | 0 | 1 | 0 | 5 | 40 | 40 | 0 | 60 | 4 |
| 1992–1993 | 4 | 2 | 4 | 0 | 0 | 0 | 10 | 0 | 10 | 80 | 10 | 4 |
| 1993–1994 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 50 | 50 | 0 | 1 |
| 1994–1995 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 25 | 75 | 0 | 2 |
| 1995–1996 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 100 | 0 | 0 | 1 |
| 1996–1997 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 40 | 60 | 0 | 2 |
| 1997–1998 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 100 | 0 | 100 | 0 | 1 |
| 1998–1999 | 6 | 0 | 0 | 0 | 1 | 0 | 7 | 43 | 14 | 86 | 0 | 3 |
| 1999–2000 | 27 | 1 | 0 | 0 | 0 | 0 | 28 | 85 | 4 | 96 | 0 | 5 |
| 2000–2001 | 56 | 0 | 0 | 0 | 0 | 0 | 56 | 79 | 5 | 82 | 13 | 9 |
| 2001–2002 | 64 | 5 | 0 | 0 | 0 | 0 | 69 | 46 | 3 | 94 | 3 | 9 |
| 2002–2003 | 35 | 11 | 0 | 5 | 0 | 0 | 51 | 47 | 14 | 86 | 0 | 9 |
| 2003–2004 | 28 | 33 | 1 | 0 | 0 | 0 | 62 | 46 | 30 | 70 | 0 | 16 |
| 2004–2005 | 52 | 44 | 4 | 0 | 0 | 0 | 100 | 45 | 11 | 87 | 2 | 16 |
| 2005–2006 | 75 | 40 | 1 | 0 | 0 | 0 | 116 | 61 | 5 | 95 | 0 | 23 |
| 2006–2007 | 34 | 69 | 0 | 0 | 0 | 0 | 103 | 62 | 10 | 89 | 1 | 19 |
| 2007–2008 | 17 | 27 | 0 | 0 | 0 | 0 | 44 | 59 | 7 | 84 | 9 | 15 |
| 2008–2009 | 14 | 70 | 0 | 0 | 0 | 0 | 84 | 69 | 8 | 87 | 5 | 16 |

[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, 1988–1989 through 2008–2009.

| Regulatory | Reported river otter harvest | | | | | | | | Method of harvest, % | | | # of |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 22A | 22B | 22C | 22D | 22E | Unk | Total | Male Harvest, % [a] | Shot | Trap/snare | Unk | hunters/trappers |
| 1988–1989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1989–1990 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 100 | 0 | 0 | 1 |
| 1990–1991 | 2 | 1 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 100 | 0 | 2 |
| 1991–1992 | 2 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 100 | 0 | 2 |
| 1992–1993 | 6 | 1 | 0 | 4 | 1 | 0 | 12 | 25 | 50 | 50 | 0 | 5 |
| 1993–1994 | 9 | 0 | 4 | 4 | 0 | 1 | 18 | 0 | 22 | 78 | 0 | 6 |
| 1994–1995 | 11 | 8 | 0 | 2 | 1 | 0 | 22 | 30 | 9 | 82 | 9 | 4 |
| 1995–1996 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 100 | 0 | 0 | 1 |
| 1996–1997 | 6 | 0 | 1 | 3 | 2 | 0 | 12 | 66 | 83 | 17 | 0 | 4 |
| 1997–1998 | 4 | 3 | 3 | 1 | 1 | 0 | 12 | 80 | 0 | 75 | 25 | 8 |
| 1998–1999 | 2 | 4 | 0 | 1 | 0 | 2 | 9 | 33 | 11 | 67 | 22 | 5 |
| 1999–2000 | 3 | 0 | 1 | 0 | 0 | 2 | 6 | 75 | 17 | 50 | 33 | 4 |
| 2000–2001 | 4 | 8 | 3 | 0 | 0 | 1 | 16 | 69 | 38 | 50 | 12 | 9 |
| 2001–2002 | 5 | 0 | 1 | 0 | 0 | 0 | 6 | 100 | 0 | 100 | 0 | 2 |
| 2002–2003 | 0 | 4 | 4 | 0 | 0 | 0 | 8 | 38 | 0 | 100 | 0 | 6 |
| 2003–2004 | 4 | 2 | 6 | 0 | 0 | 0 | 12 | 73 | 58 | 42 | 0 | 7 |
| 2004–2005 | 3 | 1 | 3 | 1 | 1 | 0 | 9 | 67 | 33 | 67 | 0 | 8 |
| 2005–2006 | 1 | 1 | 1 | 0 | 0 | 0 | 3 | 50 | 0 | 100 | 0 | 3 |
| 2006–2007 | 3 | 3 | 1 | 0 | 1 | 0 | 8 | 50 | 0 | 88 | 12 | 7 |
| 2007–2008 | 3 | 9 | 5 | 1 | 0 | 0 | 18 | 69 | 56 | 44 | 0 | 11 |
| 2008–2009 | 2 | 3 | 0 | 0 | 0 | 0 | 5 | 60 | 40 | 60 | 0 | 3 |

[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, 1988–1989 through 2008–2009.

| Regulatory Year | Reported wolverine harvest | | | | | | | Male Harvest, % [a] | Method of harvest, % | | | # of hunters/trappers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 22A | 22B | 22C | 22D | 22E | Unk | Total | | Shot | Trap/snare | Unk. | |
| 1988–1989 | 16 | 3 | 6 | 4 | 3 | 0 | 32 | 0 | 63 | 37 | 0 | 13 |
| 1989–1990 | 23 | 9 | 4 | 2 | 8 | 0 | 46 | 59 | 30 | 70 | 0 | 14 |
| 1990–1991 | 33 | 6 | 14 | 9 | 4 | 0 | 66 | 0 | 64 | 36 | 0 | 23 |
| 1991–1992 | 31 | 10 | 9 | 8 | 4 | 0 | 62 | 69 | 58 | 42 | 0 | 17 |
| 1992–1993 | 26 | 3 | 14 | 6 | 2 | 1 | 52 | 68 | 62 | 35 | 4 | 17 |
| 1993–1994 | 24 | 4 | 9 | 3 | 4 | 4 | 48 | 0 | 71 | 29 | 0 | 20 |
| 1994–1995 | 13 | 7 | 5 | 1 | 0 | 0 | 26 | 77 | 77 | 23 | 0 | 13 |
| 1995–1996 | 9 | 0 | 8 | 0 | 1 | 0 | 18 | 0 | 78 | 22 | 0 | 7 |
| 1996–1997 | 24 | 1 | 12 | 4 | 2 | 4 | 47 | 46 | 63 | 33 | 4 | 22 |
| 1997–1998 | 13 | 26 | 0 | 2 | 1 | 0 | 42 | 70 | 31 | 55 | 14 | 16 |
| 1998–1999 | 10 | 10 | 1 | 0 | 4 | 0 | 25 | 76 | 29 | 71 | 0 | 12 |
| 1999–2000 | 5 | 11 | 5 | 8 | 6 | 1 | 36 | 80 | 63 | 27 | 10 | 24 |
| 2000–2001 | 17 | 29 | 7 | 9 | 9 | 0 | 71 | 74 | 44 | 42 | 14 | 35 |
| 2001–2002 | 9 | 14 | 7 | 6 | 4 | 0 | 40 | 56 | 40 | 60 | 0 | 18 |
| 2002–2003 | 7 | 17 | 2 | 7 | 0 | 0 | 33 | 70 | 50 | 50 | 0 | 20 |
| 2003–2004 | 42 | 19 | 7 | 3 | 3 | 0 | 74 | 69 | 23 | 70 | 7 | 35 |
| 2004–2005 | 16 | 12 | 9 | 5 | 7 | 0 | 49 | 62 | 12 | 37 | 0 | 23 |
| 2005–2006 | 13 | 11 | 9 | 6 | 5 | 0 | 44 | 70 | 42 | 58 | 0 | 31 |
| 2006–2007 | 9 | 14 | 6 | 0 | 6 | 0 | 35 | 69 | 29 | 71 | 0 | 20 |
| 2007–2008 | 11 | 13 | 7 | 6 | 6 | 0 | 43 | 56 | 26 | 61 | 14 | 24 |
| 2008–2009 | 7 | 10 | 2 | 3 | 1 | 0 | 23 | 64 | 22 | 74 | 4 | 14 |

[a] Reported percentages may be different from previous reports as unknown sex animals have been removed from the calculation.

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
**Division of Wildlife Conservation**
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**JUNEAU, AK 99802-5526**

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## 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 20$^{th}$ 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.

## 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, beaver 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 2006–2007 numerous red foxes were observed throughout Kotzebue. The city police and animal control officer killed several of these foxes: all were negative for rabies. Difficult winter conditions may have caused foxes to come into Kotzebue to scavenge garbage and steal dog food. However, in each of the following years (2007–2008 and 2008–2009), numerous foxes shot in or around communities tested positive for rabies, including three in the first months of 2010. We continue to encourage the public to vaccinate their animals against rabies. Additionally, we assist the 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 Noatak drainage from at least the Nimiuktuk River downstream. Preliminary sealing records 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 1990–1999, 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 numbers are high, a higher proportion of kittens are trapped. There has been a marked increase in the number of sealed juvenile (measuring <34 inches in length) for the 2009–2010 regulatory year thus far. This corresponds with high numbers of lynx observed in the lower Noatak drainage. A previous peak in the number of juveniles sealed was in 2003–2004 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.

*2006–2007, 2007–2008, 2008–2009*

| 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.

*2006–2007, 2007–2008, 2008–2009*

| 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 are a reliable source for harvest data on all big game species. Sealing records only account for a fraction of the harvest. For example, extrapolating wolverine from these household surveys, shows an estimated total harvest of 84 wolverines for the 2008–2009 regulatory year (Table 1). Fur sealing records for the same year indicate that only 5 wolverines were reported harvested. Community 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 is collected in 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 was moderate with a slight decrease at the end of the reporting period (Table 2). Most of the lynx that have been sealed in the last 10 years were reported from the Kobuk River drainage (84%.)

*River Otter* — Harvests of river otters have been stable, between zero and ten otters annually for more than 20 years (Table 3). Sealed otters were predominantly taken in the Kobuk (36%), Northern Seward Peninsula (28%), and Noatak Drainages (25%). The majority of the sealed harvest was male (69% 10 year average, SD= 12).

*Wolverine* — Wolverine harvest during 2003–2004 was higher than in any year since 1986–1987 (Dau 2007; Table 3). Since that time, wolverine harvests have dropped steadily. More than half of sealed wolverines (53%) were taken in the Kobuk Drainage. The Noatak Drainage accounted for 24% of the sealed wolverines. The majority of the sealed harvest of wolverines was male (68% on a 10 year average, SD=23).

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. Nearly 50% of the sealed otters harvested over the last 10 years were taken by Kotzebue residents. Noorvik residents harvested 60% of the lynx sealed in the last 10 years. The two communities that sealed the most wolverine in the last 10 years are Noorvik (24%) and Kotzebue (23%).

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.

Transport Methods. As in past years, snow machines were the primary form of transport for hunters and trappers for taking furbearers in Unit 23 (Table 5). In the past, most local residents have 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 is 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. Brown bears and wolves kill wolverines occasionally, but human harvests probably affect population levels more than natural mortality. Lynx are a classic example of a predator being linked to the abundance of its primary prey, snowshoe hares. In Unit 23, where trapping is not intense, it may be unnecessary to restrict hunting and trapping regulations for lynx during low periods of their population oscillations.

### HABITAT

*Assessment*

We did no habitat assessment projects in Unit 23 during the reporting period.

*Enhancement*

We did no habitat enhancement projects in Unit 23 during the reporting period.

### NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

There were no nonregulatory problems or needs identified for furbearers in Unit 23 during the reporting period.

## CONCLUSIONS AND RECOMMENDATIONS

- Simplify hunting and trapping regulations for fur animals when possible. Establishing consistent hunting and trapping regulations would substantially reduce regulatory complexity.
- Encourage the public to vaccinate their dogs against rabies.

- 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.

## LITERATURE CITED


Anderson, D.D., R. Bane, R.K. Nelson, W.W. Anderson and N. Sheldon. 1977. Kuuvangmiut: Traditional Eskimo Life in the Latter Twentieth Century. National Park Service, U.S. Department of the Interior, Washington, D.C.

Dau, J. 2004. Unit 23 furbearer management report. Pages 315–324 *in* C. Brown, editor. Furbearer management report of survey and inventory activities 1 July 2000–30 June 2003. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Dau, J. 2007. Unit 23 furbearer management report. Pages 291–300 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska.

Erlich, J. and J. Magdanz. 1994. Qikiqtagrunmiut Subsistence: Conservation in an *Inupiaq* Context. Kotzebue IRA Council, Kotzebue AK. 75pp.

Uhl, W.R. and C.K. Uhl. 1977. Tagiumsinaaqmiit Ocean Beach Dwellers of the Cape Krusenstern Area Subsistence Patterns. Anthropology and Historic Preservation Cooperative Park Studies Unit. University of Alaska Fairbanks. Occasional Paper No. 14.



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Table 1. Estimated wolverine harvest in Unit 23 villages for 2008–2009 from community harvest estimates 1991–2008 (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 2008 | Estimated annual wolverine harvest in 2008–2009 |
|---|---|---|---|---|---|---|
| Ambler | 2003 | 251 | 14 | 0.01 | 259 | 3 |
| Deering | 1994 | 147 | 12 | 0.08 | 145 | 12 |
| Kiana | 1999, 2006 | 383 | 3 | 0.01 | 383 | 4 |
| Kivalina | 1992, 2007 | 388 | 11 | 0.03 | 406 | 12 |
| Kotzebue | 1991 | 3,649 | 49 | 0.01 | 3,126 | 31 |
| Noatak | 1994, 1999, 2001, 2007 | 447 | 12 | 0.03 | 512 | 15 |
| Selawik | 1999, 2006 | 736 | 2 | 0.00 | 846 | 2 |
| Shungnak | 1998 | 245 | 5 | 0.02 | 272 | 5 |
| Unit 23 Total | | | | | 5949 | 84 |

Table 2. Harvest and method of take for lynx sealed in Unit 23, 1989–1990 through 2008–2009.

| Regulatory Year | Total harvest | Method of take | | | |
|---|---|---|---|---|---|
| | | Shot | Trapped | Snared | Unknown |
| 1989–1990 | 0 | 0 | 0 | 0 | 0 |
| 1990–1991 | 0 | 0 | 0 | 0 | 0 |
| 1991–1992 | 1 | 0 | 1 | 0 | 0 |
| 1992–1993 | 0 | 0 | 0 | 0 | 0 |
| 1993–1994 | 6 | 0 | 5 | 0 | 1 |
| 1994–1995 | 1 | 0 | 1 | 0 | 0 |
| 1995–1996 | 3 | 2 | 1 | 0 | 0 |
| 1996–1997 | 0 | 0 | 0 | 0 | 0 |
| 1997–1998 | 0 | 0 | 0 | 0 | 0 |
| 1998–1999 | 0 | 0 | 0 | 0 | 0 |
| 1999–2000 | 6 | 3 | 3 | 0 | 0 |
| 2000–2001 | 8 | 1 | 7 | 0 | 0 |
| 2001–2002 | 71 | 1 | 70 | 0 | 0 |
| 2002–2003 | 33 | 0 | 24 | 0 | 9 |
| 2003–2004 | 36 | 0 | 36 | 0 | 0 |
| 2004–2005 | 18 | 0 | 18 | 0 | 0 |
| 2005–2006 | 26 | 1 | 24 | 0 | 1 |
| 2006–2007 | 23 | 1 | 21 | 1 | 0 |
| 2007–2008 | 12 | 0 | 12 | 0 | 0 |
| 2008–2009 | 10 | 2 | 8 | 0 | 0 |

Table 3. Total harvest, percent males (excluding unknown sex) and method of take for river otters sealed in Unit 23, 1989–1990 through 2008–2009.

| Regulatory Year | Total harvest | Males (%) | Method of take | | | |
|---|---|---|---|---|---|---|
| | | | Shot | Trapped | Snared | Unknown |
| 1989–1990 | 4 | 82 | 1 | 3 | 0 | 0 |
| 1990–1991 | 6 | 59 | 1 | 1 | 0 | 4 |
| 1991–1992 | 3 | 73 | 1 | 2 | 0 | 0 |
| 1992–1993 | 3 | 70 | 3 | 0 | 0 | 0 |
| 1993–1994 | 0 | 53 | 0 | 0 | 0 | 0 |
| 1994–1995 | 6 | 67 | 0 | 6 | 0 | 0 |
| 1995–1996 | 0 | 68 | 0 | 0 | 0 | 0 |
| 1996–1997 | 7 | 63 | 1 | 5 | 1 | 0 |
| 1997–1998 | 10 | 50 | 3 | 6 | 0 | 1 |
| 1998–1999 | 7 | 100 | 2 | 3 | 0 | 2 |
| 1999–2000 | 9 | 60 | 1 | 6 | 0 | 2 |
| 2000–2001 | 9 | 63 | 1 | 5 | 0 | 3 |
| 2001–2002 | 6 | 78 | 0 | 4 | 1 | 1 |
| 2002–2003 | 10 | 83 | 0 | 10 | 0 | 0 |
| 2003–2004 | 3 | 49 | 0 | 3 | 0 | 0 |
| 2004–2005 | 1 | 73 | 0 | 0 | 0 | 1 |
| 2005–2006 | 9 | 75 | 0 | 8 | 1 | 0 |
| 2006–2007 | 9 | 71 | 0 | 9 | 0 | 0 |
| 2007–2008 | 1 | 86 | 0 | 0 | 0 | 1 |
| 2008–2009 | 3 | 60 | 0 | 3 | 0 | 0 |

Table 4. Total harvest, percent males (excluding unknown sex) and method of take for wolverines sealed in Unit 23, 1989–1990 through 2008–2009.

| Regulatory Year | Total harvest | Males (%) | Method of take | | | |
|---|---|---|---|---|---|---|
| | | | Shot | Trapped | Snared | Unknown |
| 1989–1990 | 17 | 82 | 3 | 8 | 1 | 5 |
| 1990–1991 | 28 | 59 | 16 | 10 | 0 | 2 |
| 1991–1992 | 38 | 73 | 15 | 23 | 0 | 0 |
| 1992–1993 | 38 | 70 | 17 | 21 | 0 | 0 |
| 1993–1994 | 19 | 53 | 13 | 6 | 0 | 0 |
| 1994–1995 | 16 | 67 | 8 | 8 | 0 | 0 |
| 1995–1996 | 30 | 68 | 12 | 14 | 1 | 3 |
| 1996–1997 | 42 | 63 | 19 | 20 | 2 | 1 |
| 1997–1998 | 19 | 50 | 4 | 15 | 0 | 0 |
| 1998–1999 | 13 | 100 | 3 | 7 | 1 | 2 |
| 1999–2000 | 31 | 60 | 15 | 9 | 2 | 5 |
| 2000–2001 | 39 | 63 | 4 | 31 | 0 | 4 |
| 2001–2002 | 29 | 78 | 2 | 11 | 0 | 16 |
| 2002–2003 | 27 | 83 | 7 | 20 | 0 | 0 |
| 2003–2004 | 44 | 49 | 1 | 41 | 0 | 2 |
| 2004–2005 | 22 | 73 | 2 | 13 | 0 | 7 |
| 2005–2006 | 17 | 75 | 1 | 15 | 0 | 1 |
| 2006–2007 | 21 | 71 | 5 | 16 | 0 | 0 |
| 2007–2008 | 8 | 86 | 1 | 6 | 0 | 1 |
| 2008–2009 | 5 | 60 | 0 | 5 | 0 | 0 |

Table 5. Harvest and method of transportation used to harvest furbearers and fur animals in Unit 23, 1999–2000 through 2008–2009.

| | | Method of transportation | | | | |
|---|---|---|---|---|---|---|
| Species/year | Harvest | Snowmachine | Boat | Airplane | Other | Unknown |
| *Lynx* | | | | | | |
| 1999–2000 | 6 | 6 | 0 | 0 | 0 | 0 |
| 2000–2001 | 8 | 8 | 0 | 0 | 0 | 0 |
| 2001–2002 | 71 | 70 | 0 | 0 | 1 | 0 |
| 2002–2003 | 33 | 22 | 0 | 0 | 0 | 11 |
| 2003–2004 | 36 | 36 | 0 | 0 | 0 | 0 |
| 2004–2005 | 18 | 18 | 0 | 0 | 0 | 0 |
| 2005–2006 | 26 | 25 | 0 | 0 | 0 | 1 |
| 2006–2007 | 23 | 23 | 0 | 0 | 0 | 0 |
| 2007–2008 | 12 | 12 | 0 | 0 | 0 | 0 |
| 2008–2009 | 10 | 10 | 0 | 0 | 0 | 0 |
| *Otter* | | | | | | |
| 1999–2000 | 9 | 7 | 0 | 0 | 2 | 0 |
| 2000–2001 | 9 | 6 | 0 | 0 | 3 | 0 |
| 2001–2002 | 6 | 5 | 0 | 0 | 1 | 0 |
| 2002–2003 | 10 | 9 | 0 | 0 | 1 | 0 |
| 2003–2004 | 3 | 3 | 0 | 0 | 0 | 0 |
| 2004–2005 | 1 | 0 | 0 | 0 | 1 | 0 |
| 2005–2006 | 9 | 9 | 0 | 0 | 0 | 0 |
| 2006–2007 | 9 | 9 | 0 | 0 | 0 | 0 |
| 2007–2008 | 1 | 0 | 0 | 0 | 0 | 1 |
| 2008–2009 | 3 | 3 | 0 | 0 | 0 | 0 |
| *Wolverine* | | | | | | |
| 1999–2000 | 31 | 26 | 0 | 0 | 5 | 0 |
| 2000–2001 | 39 | 33 | 1 | 0 | 5 | 0 |
| 2001–2002 | 29 | 15 | 0 | 1 | 13 | 0 |
| 2002–2003 | 27 | 27 | 0 | 0 | 0 | 0 |
| 2003–2004 | 44 | 39 | 0 | 2 | 3 | 0 |
| 2004–2005 | 22 | 13 | 1 | 0 | 8 | 0 |
| 2005–2006 | 17 | 15 | 0 | 1 | 1 | 0 |
| 2006–2007 | 21 | 18 | 0 | 1 | 2 | 0 |
| 2007–2008 | 8 | 7 | 0 | 0 | 0 | 1 |
| 2008–2009 | 5 | 5 | 0 | 0 | 0 | 0 |

**WILDLIFE MANAGEMENT REPORT**

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

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

**GAME MANAGEMENT UNIT:** 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. 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

- Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species over the last 10 regulatory years.

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

### MANAGEMENT ACTIVITIES

- Monitor harvest through fur sealing records and trapper questionnaires.
- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

## METHODS

I monitored harvest through sealing records, the ADF&G trapper questionnaire, and personal interviews. However, data from the ADF&G trapper questionnaire was available only through regulatory year (RY) 2006 (RY06; 1 July 2006 through 30 June 2007). Harvest data were summarized by regulatory year, which begins 1 July and ends 30 June (e.g., RY07 = 1 July 2007 through 30 June 2008). We interviewed trappers about furbearer abundance and harvest and gathered incidental data during surveys of other species and other field activities.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size*

Beavers were abundant throughout Unit 24 during RY06–RY08 (Blejwas 2010). Beaver cache surveys conducted on the Kanuti NWR in 2002 and 2003 yielded estimates of 1135 (± 112.5, 90% CI) and 1337 (± 184.3, 90% CI) active caches respectively, over a 2168 $mi^2$ area (Kanuti NWR, unpublished data, Fairbanks). By multiplying each active cache by an average of 5 beavers per cache, Kanuti staff estimated there were 5675 beavers on the Kanuti NWR in 2002 and 6685 in 2003.

Muskrat numbers remained low during RY06 (Blejwas 2010), and did not likely change during RY07–RY08. Possible factors for the long-term decline are loss of habitat due to low water levels, predation by pike and mink, and disease. None of these explanations have been investigated. Harvest by trappers was not a factor, based on trapper effort determined through trapper interviews. While conducting a moose study in Units 24A and 24B during 2008–2010, ADF&G personnel noticed an increase in muskrat push-ups compared to previous years, indicating that muskrat numbers may be increasing.

The 10-year lynx cycle last peaked during RY00 and reached its low in RY05. During RY06–RY08 the lynx population began to increase, and, based on harvest (Tables 1 and 2), the most significant growth occurred during RY08. During moose surveys in RY06–RY08, lynx tracks were frequently observed in portions of the Kanuti Flats in Unit 24B, especially along the lower Kanuti River and the Dalton Highway in Unit 24A. Based on historical data and trapper reports, I expect the lynx population will peak in RY10 (Table 2).

Red fox populations were moderately high throughout Unit 24 and Arctic fox occasionally ranged from the Arctic Slope into the unit. Coyotes were rare, but based on trapper reports, incidental sightings, and occasional harvest, numbers appeared to be increasing.

River otters were common and numbers were likely stable during RY06–RY08, based on incidental sightings, trapper reports, and harvest. River otter tracks were frequently observed during early winter aerial moose surveys. Marten populations were moderately high throughout the unit. Marten tracks were particularly abundant in old burns west of the Koyukuk River in the lower Alatna River drainage (1999 moose survey observations, ADF&G files, Galena), in the Huslia River drainage (2000 wolf survey observations, ADF&G files, Galena), in the Hogatza river drainage (2007 moose survey observation, ADF&G files, Fairbanks) and in portions of the Kanuti Flats (2007 moose survey observations, ADF&G files, Fairbanks). Wolverine, mink, and weasel populations were moderate and stable, based on trapper reports and incidental sightings.

Small mammal prey populations varied in Unit 24 during RY06–RY08. Microtine species, which are important prey for furbearers such as marten, mink, weasels, and fox were moderate to abundant. Snowshoe hare populations increased substantially in much of Unit 24, especially in the Kanuti Flats and along the Dalton Highway. The snowshoe hare cycle had stabilized at the low end of the cycle during RY03 and RY04, and began increasing in RY05.

*Distribution and Movements*

No studies were conducted to monitor furbearer distribution and movements in Unit 24 during RY06–RY08.

**MORTALITY**

*Harvest*

*Trapping Seasons and Bag Limits during RY06–RY08.*

| Species | Season | Bag limit |
|---|---|---|
| Arctic fox | 1 Nov–28 Feb | No limit |
| Beaver (RY06–RY07) | 1 Nov–10 Jun | No limit |
| Beaver (RY08) | 1 Sept.–10 Jun | No limit |
| Coyote | 1 Nov–31 Mar | No limit |
| Lynx | 1 Nov–28 Feb | No limit |
| Marten | 1 Nov–28 Feb | No limit |
| Mink and Weasel | 1 Nov–28 Feb | No limit |
| Muskrat | 1 Nov–10 Jun | No limit |
| Red fox | 1 Nov–28 Feb | No limit |
| River otter | 1 Nov–15 Apr | No limit |
| Wolverine | 1 Nov–31 Mar | No limit |

Hunting Seasons and Bag Limits during RY03–RY05.

| Species | Season | Bag limit |
|---|---|---|
| Arctic fox | 1 Sep–15 Mar | 2 |
| Coyote | 10 Aug–30 Apr | 10 |
| Lynx | 1 Nov–28 Feb | 2 |
| Red fox | 1 Sep–15 Mar | 10 |
| Wolverine | 1 Sep–31 Mar | 1 |

Alaska Board of Game Actions and Emergency Orders. The Alaska Board of Game changed the beaver season opening from 1 November to 1 September beginning in RY08, and allowed the use of firearms or bow and arrow to take beaver. Since RY91, trapping seasons and bag limits remained unchanged for marten, lynx, fox, mink, muskrat, river otter, and wolverine. During RY91–RY06, minor regulatory changes occurred to increase trapping opportunity for beaver, coyote, and Arctic fox. In RY92 the bag limit for beaver was changed from 50 per year to no limit. In RY96 the beaver season was extended to 10 June from 15 April. In RY02 the requirement for sealing beaver was eliminated; the opening date for hunting coyotes was changed to 10 August from 1 September, and the bag limit of 2 coyotes before 1 October was eliminated. In 2004 the Alaska Board of Game added an Arctic fox season to account for incidental take of Arctic fox that extend to the extreme southern portion of their range.

Trapper Harvest.

*Beaver* — The beaver sealing requirement was eliminated in RY02 because we found that beaver populations in rural areas can be managed solely through trapper questionnaires and surveys. Prices have typically determined beaver harvest more than bag limits and the RY06–RY08 average price for beaver was $26 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 12 April 2010), offering little incentive to area trappers. In Unit 24, beavers are often harvested for food or clothing, so beaver harvest continues for local uses even when prices are low. Reported harvest during RY92–RY02 (Tables 1 and 2) indicates level of area resident use of beavers in Unit 24. Traditionally, most beaver harvest occurs in the spring, although some trappers take beavers early in the winter because beaver carcasses are effective bait for other furbearer species (Hollis 2007). Because beaver are not required to be sealed, little data exist on the timing of harvest during RY06–RY08.

*Lynx* — Harvest data supported field observations that lynx reached the lowest point in their 10–year cycle in RY05 and increased since then (Table 1). The number of lynx harvested increased each year from a low of 10 in RY05 to 93 in RY08 (Table 1). Increased harvest levels, increase in number of kittens in the harvest (Table 2), comments by trappers, and incidental observations indicated the lynx population was increasing during RY06–RY08. Pelt prices varied from moderate to high for lynx ($126–$280) during RY06–RY08 (North American Fur Auction website, accessed March 2010). Most lynx harvest was during December, January, and February (Table 3).

*River Otter* — River otters were abundant. However, there is little local interest for river otters, resulting in minimal trapping effort and harvest (Tables 1, 2, and 3). River otters are primarily taken incidentally in beaver sets.

*Wolverine* — Wolverine harvest varied during RY06–RY08 (Table 1). Harvest during RY06 and RY08 was consistent with historic harvest, but low during RY07. Actual harvest may be higher by 10 animals per year (Table 2; G. Stout, ADF&G, personal communication) because furs used for subsistence purposes are seldom sealed. No harvest chronology pattern was readily discernible from sealing data (Table 3).

*Other Species* — Marten harvest may have increased during RY06–RY08 due to improving fur prices. During RY06–RY08 marten pelts averaged $83 in the fur market compared to $40 during RY03 (North American Fur Auction <http://nafa.ca/landing.asp> Accessed 12 April 2010).

Increased trapping effort for marten probably resulted in increased harvest of other species susceptible to marten sets such as mink, ermine, and red squirrel. Red fox populations were high, but low prices elicited little trapper interest. An Arctic fox season was added to the regulations in RY04 to allow for the incidental catch of Arctic foxes that range south of the Brooks Range into Unit 24. No Arctic foxes were known to be caught during RY06–RY08. Coyotes were scarce in Unit 24 resulting in low harvest.

Harvest and Transportation Methods. The most frequently used method of take for all sealed species during RY06–RY08 was traps and snares, followed by ground shooting (Table 2). The transportation type most used by trappers in Unit 24 was snowmachines (74% of trappers) followed by highway vehicle (23%).

*Trapping Conditions* — Weather was moderate for the 3 years of the reporting period. Snowfall was normal and access was not limited. Overall, trapping conditions were adequate for most trappers.

## CONCLUSIONS AND RECOMMENDATIONS

Trapper reports and observations by ADF&G staff while conducting various field projects indicate that furbearer populations were abundant and stable or increasing. Furbearer harvest was low, and the situation is not likely to change significantly given the low density of trappers and difficult access.

As was the trend throughout the Interior, the age of trappers in Unit 24 was increasing and few young trappers were recruited. In the future this may play an important role in deciding whether trapping can be a practical population regulation tool for some species. I recommend continuing the present seasons and bag limits. Population trend information for furbearer species can continue to be gathered from trapper questionnaires, discussions with local Fish and Game advisory committees, and trapper interviews.

Unit 24 furbearer goals were met during RY06–RY08. The objective of maintaining mean harvest is difficult to assess because harvest totals are not being enumerated for most of the furbearer species. Harvest levels are relatively low, and, based on observational and trapper survey data, are not limiting any of the furbearer populations. I will restructure the current objective to be more appropriate with Unit 24 furbearer management and it will read as follows for the next report period:

- Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

## LITERATURE CITED

BLEJWAS, K. 2010. 1 July 2006–30 June 2007 Trapper questionnaire statewide annual report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

HOLLIS, A. L. 2010. Unit 24 furbearer. Pages 366–376 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2006–30 June 2009. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA

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TABLE 1 Unit 24 Reported harvest of sealed furbearer species, regulatory years 1999–2000 through 2008–2009

| | Species | | | |
|---|---|---|---|---|
| Regulatory year | Beaver | Lynx | River otter | Wolverine |
| 1999–2000 | 192 | 102 | 9 | 29 |
| 2000–2001 | 206 | 286 | 23 | 19 |
| 2001–2002 | 221 | 212 | 9 | 21 |
| 2002–2003[a] | 50 | 63 | 8 | 25 |
| 2003–2004 | 92 | 26 | 9 | 22 |
| 2004–2005 | 5 | 19 | 20 | 16 |
| 2005–2006 | 22 | 10 | 12 | 20 |
| 2006–2007 | 23 | 21 | 6 | 21 |
| 2007–2008 | 30 | 35 | 3 | 8 |
| 2008–2009 | 0 | 93 | 0 | 20 |

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 2 Unit 24 beaver, lynx, river otter, and wolverine harvest, regulatory years 1999–2000 through 2008–2009

| Regulatory year | Reported harvest: Sex M | Sex F | Sex Unk | Age Juv[a] | 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* | | | | | | | | | | | | | |
| 1999–2000 | -- | -- | -- | 14 | 178 | 0 | 0 | 0 | 165 | 0 | 27 | 192 | 25 |
| 2000–2001 | -- | -- | -- | 4 | 185 | 17 | 0 | 0 | 188 | 0 | 18 | 206 | 16 |
| 2001–2002 | -- | -- | -- | 21 | 194 | 6 | 0 | 0 | 219 | 0 | 2 | 221 | 16 |
| 2002–2003[b] | -- | -- | -- | 12 | 38 | 0 | 0 | 0 | 50 | 0 | 0 | 50 | 1 |
| 2003–2004[b] | -- | -- | -- | 16 | 76 | 0 | 0 | 0 | 92 | 0 | 0 | 92 | 1 |
| 2004–2005[b] | -- | -- | -- | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 2 |
| 2005–2006[b] | -- | -- | -- | 7 | 15 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 2 |
| 2006–2007[b] | -- | -- | -- | 6 | 17 | 0 | 0 | 0 | 20 | 3 | 0 | 23 | 2 |
| 2007–2008[b] | -- | -- | -- | 5 | 25 | 0 | 0 | 0 | 30 | 0 | 0 | 30 | 1 |
| 2008–2009[b] | -- | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Lynx* | | | | | | | | | | | | | |
| 1999–2000 | -- | -- | -- | 0 | 101 | 1 | 0 | 0 | 100 | 2 | 0 | 102 | 30 |
| 2000–2001 | -- | -- | -- | 24 | 244 | 18 | 0 | 0 | 260 | 2 | 24 | 286 | 31 |
| 2001–2002 | -- | -- | -- | 25 | 184 | 3 | 0 | 0 | 207 | 5 | 0 | 212 | 24 |
| 2002–2003 | -- | -- | -- | 2 | 60 | 1 | 0 | 0 | 63 | 0 | 0 | 63 | 16 |
| 2003–2004 | -- | -- | -- | 1 | 25 | 0 | 0 | 0 | 26 | 0 | 0 | 26 | 10 |
| 2004–2005 | -- | -- | -- | 0 | 19 | 0 | 0 | 0 | 19 | 0 | 0 | 19 | 8 |
| 2005–2006 | -- | -- | -- | 0 | 10 | 0 | 0 | 0 | 9 | 1 | 0 | 10 | 6 |
| 2006–2007 | -- | -- | -- | 1 | 18 | 2 | 0 | 0 | 21 | 0 | 0 | 21 | 11 |
| 2007–2008 | -- | -- | -- | 4 | 31 | 0 | 0 | 0 | 35 | 0 | 0 | 35 | 11 |
| 2008–2009 | -- | -- | -- | 6 | 86 | 1 | 0 | 0 | 92 | 1 | 0 | 93 | 18 |

| Regulatory year | Reported harvest | | | | | | Estimated harvest | | Method of take | | | Total harvest | Successful trappers/ hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sex | | | Age | | | | | | | | | |
| | M | F | Unk | Juv[a] | Adults | Unk | Unreported | Illegal | Trap/Snare | Shot | Unk | | |
| *River Otter* | | | | | | | | | | | | | |
| 1999–2000 | 3 | 0 | 6 | -- | -- | -- | 0 | 0 | 9 | 0 | 0 | 9 | 5 |
| 2000–2001 | 11 | 5 | 7 | -- | -- | -- | 0 | 0 | 23 | 0 | 0 | 23 | 10 |
| 2001–2002 | 3 | 0 | 6 | -- | -- | -- | 0 | 0 | 8 | 0 | 1 | 9 | 5 |
| 2002–2003 | 1 | 3 | 4 | -- | -- | -- | 0 | 0 | 8 | 0 | 0 | 8 | 3 |
| 2003–2004 | 8 | 0 | 1 | -- | -- | -- | 0 | 0 | 7 | 0 | 2 | 9 | 4 |
| 2004–2005 | 8 | 3 | 9 | -- | -- | -- | 0 | 0 | 18 | 2 | 0 | 20 | 9 |
| 2005–2006 | 4 | 6 | 2 | -- | -- | -- | 0 | 0 | 12 | 0 | 0 | 12 | 4 |
| 2006–2007 | 2 | 1 | 3 | -- | -- | -- | 0 | 0 | 5 | 1 | 0 | 6 | 4 |
| 2007–2008 | 0 | 0 | 3 | -- | -- | -- | 0 | 0 | 3 | 0 | 0 | 3 | 2 |
| 2008–2009 | 0 | 0 | 0 | -- | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Wolverine* | | | | | | | | | | | | | |
| 1999–2000 | 21 | 7 | 1 | -- | -- | -- | 10 | 0 | 26 | 1 | 2 | 39 | 18 |
| 2000–2001 | 13 | 5 | 1 | -- | -- | -- | 10 | 0 | 19 | 0 | 0 | 29 | 9 |
| 2001–2002 | 19 | 2 | 0 | -- | -- | -- | 10 | 0 | 18 | 3 | 0 | 31 | 10 |
| 2002–2003 | 15 | 8 | 2 | -- | -- | -- | 10 | 0 | 25 | 0 | 0 | 35 | 8 |
| 2003–2004 | 12 | 8 | 2 | -- | -- | -- | 10 | 0 | 20 | 2 | 0 | 32 | 10 |
| 2004–2005 | 12 | 3 | 1 | -- | -- | -- | 10 | 0 | 16 | 0 | 0 | 26 | 9 |
| 2005–2006 | 10 | 5 | 5 | -- | -- | -- | 10 | 0 | 17 | 3 | 0 | 30 | 6 |
| 2006–2007 | 14 | 7 | 0 | -- | -- | -- | 10 | 0 | 19 | 2 | 0 | 31 | 7 |
| 2007–2008 | 6 | 2 | 0 | -- | -- | -- | 10 | 0 | 7 | 1 | 0 | 18 | 5 |
| 2008–2009 | 9 | 10 | 1 | -- | -- | -- | 10 | 0 | 20 | 0 | 0 | 30 | 8 |

[a] Juveniles: beavers <52" (length+width); lynx <34" in length.
[b] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

TABLE 3 Unit 24 beaver, lynx, river otter, and wolverine harvest chronology by month, regulatory years 1999–2000 through 2008–2009[b]

| Regulatory year | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |
| ***Beaver*** | | | | | | | | |
| 1999–2000 | 7 | 0 | 12 | 74 | 27 | 3 | 42 | 0 |
| 2000–2001 | 0 | 5 | 6 | 121 | 56 | 0 | 0 | -- |
| 2001–2002 | 5 | 1 | 15 | 78 | 51 | 0 | 47 | -- |
| 2002–2003[a] | 0 | 0 | 0 | 0 | 0 | 0 | 50 | -- |
| 2003–2004[a] | 12 | 0 | 0 | 0 | 0 | 0 | 80 | -- |
| 2004–2005[a] | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006[a] | 19 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2006–2007[a] | 8 | 7 | 3 | 0 | 3 | 2 | 0 | 0 |
| 2007–2008[a] | 24 | 3 | 0 | 0 | 0 | 1 | 2 | 0 |
| 2008–2009[a] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Lynx* | | | | | | | | |
| 1999–2000 | 3 | 29 | 31 | 37 | 2 | -- | -- | -- |
| 2000–2001 | 32 | 101 | 76 | 71 | 0 | -- | -- | -- |
| 2001–2002 | 16 | 42 | 80 | 74 | 0 | -- | -- | -- |
| 2002–2003 | 7 | 17 | 27 | 12 | 0 | -- | -- | -- |
| 2003–2004 | 0 | 5 | 10 | 11 | 0 | -- | -- | -- |
| 2004–2005 | 0 | 5 | 5 | 8 | 1 | -- | -- | -- |
| 2005–2006 | 3 | 0 | 1 | 6 | 0 | -- | -- | -- |
| 2006–2007 | 1 | 3 | 9 | 7 | 0 | -- | -- | -- |
| 2007–2008 | 2 | 9 | 5 | 19 | 0 | -- | -- | -- |
| 2008–2009 | 8 | 31 | 16 | 38 | 0 | -- | -- | -- |
| *River Otter* | | | | | | | | |
| 1999–2000 | 0 | 1 | 0 | 7 | 1 | 0 | -- | -- |
| 2000–2001 | 0 | 2 | 7 | 12 | 2 | 0 | -- | -- |
| 2001–2002 | 0 | 2 | 0 | 3 | 2 | 0 | -- | -- |
| 2002–2003 | 2 | 1 | 4 | 0 | 1 | 0 | -- | -- |
| 2003–2004 | 1 | 0 | 1 | 4 | 2 | 1 | -- | -- |
| 2004–2005 | 1 | 4 | 1 | 5 | 9 | 0 | -- | -- |
| 2005–2006 | 2 | 0 | 1 | 3 | 2 | 4 | -- | -- |
| 2006–2007 | 0 | 1 | 1 | 1 | 2 | 1 | -- | -- |
| 2007–2008 | 2 | 0 | 0 | 0 | 1 | 0 | -- | -- |
| 2008–2009 | 0 | 0 | 0 | 0 | 0 | 0 | -- | -- |

| Regulatory year | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |
| *Wolverine* | | | | | | | | |
| 1999–2000 | 2 | 6 | 6 | 9 | 4 | 0 | -- | -- |
| 2000–2001 | 3 | 4 | 9 | 2 | 1 | 0 | -- | -- |
| 2001–2002 | 1 | 8 | 4 | 5 | 3 | 0 | -- | -- |
| 2002–2003 | 3 | 6 | 4 | 8 | 4 | 0 | -- | -- |
| 2003–2004 | 0 | 3 | 5 | 5 | 8 | 0 | -- | -- |
| 2004–2005 | 0 | 2 | 2 | 8 | 4 | 0 | -- | -- |
| 2005–2006 | 2 | 4 | 6 | 7 | 1 | 0 | -- | -- |
| 2006–2007 | 3 | 2 | 4 | 11 | 1 | 0 | -- | -- |
| 2007–2008 | 0 | 2 | 1 | 4 | 1 | 0 | -- | -- |
| 2008–2009 | 5 | 1 | 8 | 5 | 1 | 0 | -- | -- |

[a] Sealing requirement for beaver eliminated in regulatory year 2002–2003.

[b] This table does not include harvested animals where month of harvest is unknown therefore it does not represent total harvest.

**WILDLIFE MANAGEMENT REPORT**

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

From: 1 July 2006
To: 30 June 2009[1]

## LOCATION

**GAME MANAGEMENT UNITS:** 25A, 25B, 25D, 26B, and 26C (75,000 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** Eastern Interior, Eastern Brooks Range, and Central and Eastern Arctic Slope

## BACKGROUND

The upper Yukon River valley in eastern Interior Alaska is one of Alaska's most productive furbearer habitats. Diverse and abundant habitats include wetlands, riparian, and upland seral vegetation communities. The area supports extensive populations of a variety of furbearers, especially beaver, lynx, and fox in the Yukon River valley. Information about furbearer abundance and species composition on the Arctic Slope is limited. However, wolf, wolverine, and 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; fur acquisition reports; export reports; and trapper questionnaires. Beaver populations used to be monitored by 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) but both were curtailed during 2002. Limited surveys of other furbearers were conducted in the 1980s (Golden 1987) and a more recent survey of wolverine occurrence was conducted in 2006 (Gardner et al. 2010).

Lynx trapping seasons were changed during the 1980s 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 (RY = 1 July–30 June, e.g., RY85 = 1 July 1985 through 30 June 1986). The RY86 season was further reduced to 1 December–31 January. As lynx numbers began to recover, the season was again lengthened to 1 November–28 February in RY88 and has been maintained at that season length since. In

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

contrast to more populated areas, trapping pressure is relatively light, especially during years of low fur prices. A more restrictive harvest strategy is not necessary in this area under present conditions.

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 assure 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 harvest data from sealing certificates, fur acquisition reports, and fur export reports (data from fur acquisition and export reports were not available for RY06–RY09). Reports from trappers were evaluated (results from the Trapper Questionnaire were not available for RY08–RY09 during the writing of this report). Yukon Flats NWR biologists previously conducted annual beaver lodge and food cache surveys in the area but terminated this effort during 2002. Therefore, no population survey data were collected for beavers during RY06–RY09. 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).

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size*

Beaver are common and sometimes occur in high numbers throughout the Yukon Flats in Units 25B and 25D. Aerial surveys of beaver lodges and food caches conducted prior to 2002 indicated that beaver activity fluctuated from year to year. During RY00–RY02, the number of active lodges in some areas was below the long-term average. The decline in beaver populations appeared to be greatest in lake systems; however, the number of active lodges in riparian areas has remained near or above the long-term average (Yukon Flats NWR, unpublished data). Trappers in Unit 25D indicated that beavers were abundant in 2006–2007 and trappers had not observed any recent trends in abundance (Blejwas 2009).

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 2002 and subsequently have been building through 2008. Although 8–10 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 (Figure 1, ADF&G unpublished data, Fairbanks).

In February–March 2006, a coarse-scale aerial wolverine survey was conducted in Interior Alaska to estimate wolverine distribution and occurrence probabilities (Gardner et al. 2010). As part of this survey, most of Unit 25D and Unit 25B were surveyed. Study results demonstrated strong evidence of presence of wolverines across most of Units 25D and 25B and absence of wolverines in the Birch Creek area between Circle, Central, and Fort Yukon. The study suggests that wolverines prefer higher habitats and also avoid human influences, most likely due to a combination of development intensity and harvest. However, wolverines in Interior Alaska can persist even in lower quality lowland habitats like the Yukon Flats except where harvest and human influences are high.

Trappers reported that mink, muskrat, red fox, ermine, and red squirrel were common in Unit 25, and coyote, marten, river otter, and wolverine were scarce during RY06 (Blejwas 2009). Trappers reported that muskrat populations were low during RY06 (Blejwas 2009). Low muskrat populations were reported throughout Interior Alaska during that time period.

In Unit 26, trappers reported that red and Arctic fox abundance varied significantly from scarce to abundant. Although trappers reported that wolverine were scarce in Unit 26, wolverine tracks were commonly observed during department moose surveys of Unit 26B in April 2008 and 2009.

### MORTALITY

*Harvest*

Hunting Seasons and Bag Limits during RY06–RY08.

| Unit/Species | Bag limit | Resident season | Nonresident season |
|---|---|---|---|
| *Unit 25*: | | | |
| Coyote | 10 coyotes | 10 Aug–30 Apr | 10 Aug–30 Apr |
| Arctic fox[a] | 2 foxes | 1 Sep–30 Apr | 1 Sep–30 Apr |

| Unit/Species | Bag limit | Resident season | Nonresident season |
|---|---|---|---|
| Red fox | 2 foxes | 1 Sep–30 Sep | 1 Sep–30 Sep |
| | 10 foxes | 1 Oct–15 Mar | 1 Oct–15 Mar |
| Lynx | 2 lynx | 1 Nov–28 Feb | 1 Nov–28 Feb |
| Wolverine | 1 wolverine | 1 Sep–31 Mar | 1 Sep–31 Mar |
| *Unit 26*: | | | |
| Coyote | 10 coyotes | 10 Aug–30 Apr | 10 Aug–30 Apr |
| Arctic fox | 2 foxes | 1 Sep–30 Apr | 1 Sep–30 Apr |
| Red fox | 2 foxes | 1 Sep–30 Sep | 1 Sep–30 Sep |
| | 10 foxes | 1 Oct–15 Mar | 1 Oct–15 Mar |
| Lynx | 2 lynx | 1 Nov–15 Apr | 1 Nov–15 Apr |
| Wolverine | 1 wolverine | 1 Sep–31 Mar | 1 Sep–31 Mar |

Trapping Seasons and Bag Limits during RY06–RY09.

| Unit/Species | Bag limit | Resident season |
|---|---|---|
| *Unit 25*: | | |
| Beaver | | |
| RY06–RY07 | 50 beavers | 1 Nov–15 Apr |
| | 2 beavers/day by shooting | 16 Apr–1 Jun |
| RY08 | No limit | 1 Sept–10 Jun[a] |
| 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 |

[a] Shooting allowed during entire season for full bag limit.

Alaska Board of Game Actions and Emergency Orders. In 2008, the Alaska Board of Game lengthened the beaver trapping season from 1 November–15 April to 1 September–10 June, increased the bag limit from 50 beavers per year to no limit, and allowed the use of firearms during the trapping season as a method of take. In addition, salvage requirements were changed to allow salvage of the hide or meat. In 2008, the longer season and no bag limit changes were not supported by the Yukon Flats Advisory Committee. In 2010 the Yukon Flats Advisory Committee submitted a proposal to the Board of Game to reduce the bag limit from no limit to 50 beaver per year. The Alaska Board of Game failed the proposal.

Hunter/Trapper Harvest.

*Lynx* — Annual lynx harvest increased substantially from an average of 687 lynx during RY03–RY05 to 1,993 lynx during RY06–RY08 (Table 1). Since the most recent low in the lynx population cycle in RY02, harvest has increased annually, rising from 229 lynx to 2,301 lynx in RY08. 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. Lynx pelt prices ranged $126–$280 during RY06–RY08 (North American Fur Auction website, accessed March 2010).

Snowshoe hare is 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). Since the last low in the lynx cycle, the proportion of kittens in the harvest has increased from 3% in RY02 to a peak of 24% in RY06. During RY07–RY08, kittens composed 16% of the harvest each year, indicating hare abundance may have declined and lynx populations may have neared the high in the cycle by RY08.

*River Otter and Wolverine* — River otter harvest was low in Unit 25 and averaged 3 per regulatory year during RY06–RY08 (Table 1). No river otters were harvested in Unit 26. Average pelt price declined from 118 U.S. dollars during RY03–RY05 to 40 U.S. dollars during RY06–RY08. A recent decline in pelt prices likely did not affect trapper effort as fewer than 10 river otters were reported harvested annually since RY98.

Wolverine harvest averaged 40 per regulatory year during RY06–RY08 and was within the range of 25–73 harvested annually since RY98 (Table 1). Most wolverine harvest occurred in Unit 25. Fewer wolverines were taken in Unit 26B and no wolverines were taken in Unit 26C. Males accounted for 65% of the harvest during RY06–RY08.

*Unsealed species* — The estimated harvest of most species of furbearers that are not sealed has gradually declined in Unit 25 since the late 1980s. Fur prices declined, with few exceptions, to relatively low levels for most species during RY00–RY08, and that probably accounted for some of the decline in trapping effort and harvest (Table 2). Fluctuations in furbearer populations also may have contributed to the gradual declines in harvest. Fur prices increased substantially for marten in RY05 and RY07, which likely resulted in greater trapper effort for marten.

Sealing data for beavers was not available during RY06–RY08 because the Board of Game terminated beaver sealing requirements in RY02. Prior to RY02 beavers were most commonly

taken in and near major drainages such as the Black, Little Black, Coleen, Hodzana, Chandalar, and Christian Rivers, and Birch and Beaver creeks. Beaver harvest in Unit 25 during the late 1990s and early 2000s was relatively low compared to the late 1980s (Table 1), and was probably related to lower pelt values and consequent reduction in trapper effort. Estimates of beaver harvest during RY06–RY08 from fur acquisition and export reports are not available for this report. However, estimates of harvest from fur acquisition and export reports during RY03–RY05 ranged 26–64 beavers (Table 4) and have likely not changed significantly. Some caution should be used in interpreting fur acquisition and export report data as their value relative to sealing data is limited because many trappers retain pelts for personal use.

Muskrats were historically taken in large numbers, but information collected from trapper questionnaires (Blejwas 2007) and fur acquisition and export reports indicated that harvest was low during RY03–RY05. Estimated harvest fluctuated widely and averaged 376 per year during RY93–RY02, but declined to 40 per year during RY03–RY05 (Table 4). Muskrat numbers may have increased on the Yukon Flats during RY06–RY08 (Blejwas 2009) but harvest information was not available for this report, except for RY07, when 57 muskrats were reported.

Harvests of red fox, marten, and mink fluctuated during RY93–RY05 (Table 4) but were likely similar for the current report period (Blejwas 2009). Harvests of weasels and squirrels in Unit 25 are likely stable at low levels, and mostly the result of incidental catch in marten and mink sets.

Trapper Success. Among sealed species, lynx and wolverines were the most commonly harvested furbearers (Table 1). Numerically and economically, marten were once the most important furbearer for most trappers. However, lynx were important during the last few years due to the recent increase in abundance and because of relatively good pelt prices, especially in RY07 (Table 4). The number of trappers who harvested lynx nearly doubled compared to RY03–RY05, while the number of trappers who harvested wolverines remained stable.

Harvest Chronology. Lynx were harvested primarily in December, January, and February, corresponding to the period when lynx pelts are at their prime and winter travel conditions are safer (Table 5). Harvest of river otters and wolverines was distributed over a broader period, but in Unit 25 most were harvested in December, January, and February when trapping activity for other species was greatest. Few lynx or wolverines were taken in Unit 26, and harvest occurred throughout the trapping seasons (Table 6).

Harvest and Transport Methods. 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. Snowmachine was the most common method of transportation (Table 7); snowmachines were used for taking more than 80% of the furbearers in most years. A few 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 8).

## 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 RY06–RY08. The management objective to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses was met. Present seasons and bag limits provide reasonable trapping and hunting opportunity, while also providing for the conservation of furbearer populations.

Continued communication with local trappers and efforts to increase the number of fur sealing agents in the area is recommended. This includes continued personal contact with trappers and efforts to communicate through the trapper questionnaire.

## LITERATURE CITED


BLEJWAS, K. 2007. 1 July 2005–30 June 2006 Trapper questionnaire statewide annual report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

BLEJWAS, K. 2009. 1 July 2006–30 June 2007 Trapper questionnaire statewide annual report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska, USA.

GARDNER, C. L., J. P. LAWLER, J. M. VER HOEF, A. M. MAGOUN, K. A. KELLIE. 2010. Using coarse-scale wolverine distribution surveys and occurrence probability modeling to monitor wolverine populations in Interior Alaska. Journal of Wildlife Management 74:1894–1903.

GOLDEN, H. M. 1987. Survey of furbearer populations on the Yukon Flats National Wildlife Refuge. Final Report 14-16-007-84-2416. Alaska Department of Fish and Game. U.S. Fish and Wildlife Service, Yukon Flats National Wildlife Refuge, Fairbanks, Alaska, USA.

MCLEAN, L. S. 1986. Beaver food cache survey, Yukon Flats National Wildlife Refuge, Alaska, 1985. Project Report 86-5. U.S. Fish and Wildlife Service, Yukon Flats National Wildlife Refuge, Fairbanks, Alaska, USA.

STEPHENSON, R. O., AND P. F. KARCZMARCZYK. 1989. Development of techniques for evaluating lynx population status in Alaska. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration. Final Report. Study 7.13. Grant W-23-1. Juneau, Alaska, USA.



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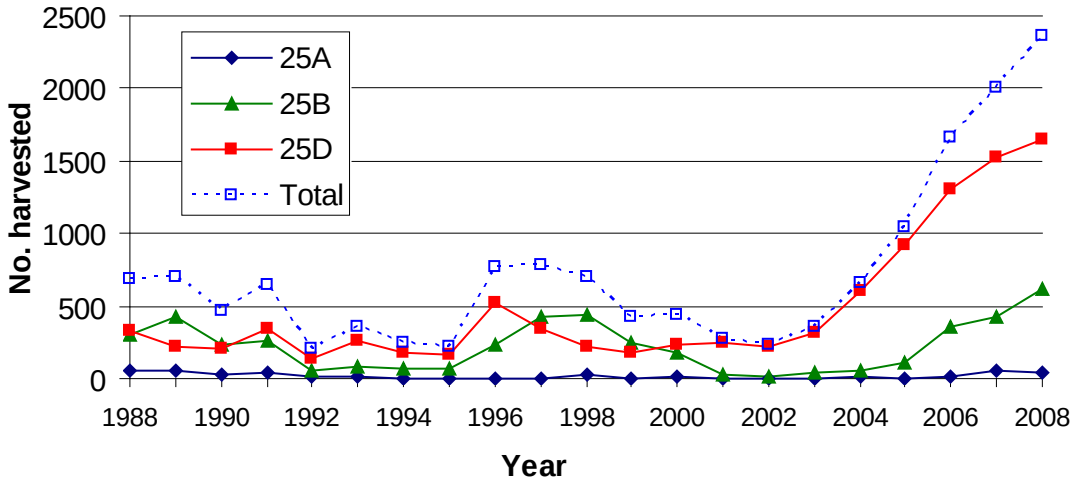


FIGURE 1 Lynx harvest in Unit 25 by Unit, 1998–2008

TABLE 1 Units 25A, 25B, 25D, 26B, and 26C furbearer harvest, regulatory years 1995–1996 through 2008–2009

| Species/ | Unit | | | | | |
|---|---|---|---|---|---|---|
| Regulatory year | 25A | 25B | 25D | 26B | 26C | Total |
| *Beaver* | | | | | | |
| 1995–1996 | 2 | 20 | 66 | 0 | 0 | 88 |
| 1996–1997 | 14 | 10 | 164 | 0 | 0 | 188 |
| 1997–1998 | 20 | 36 | 62 | 0 | 0 | 118 |
| 1998–1999 | 1 | 13 | 32 | 0 | 0 | 46 |
| 1999–2000 | 9 | 10 | 102 | 0 | 0 | 121 |
| 2000–2001 | 4 | 14 | 86 | 0 | 0 | 104 |
| 2001–2002[a] | 4 | 20 | 93 | 0 | 0 | 117 |
| *Lynx* | | | | | | |
| 1998–1999 | 31 | 434 | 219 | 0 | 0 | 684 |
| 1999–2000 | 5 | 247 | 179 | 0 | 0 | 431 |
| 2000–2001 | 19 | 180 | 236 | 0 | 0 | 435 |
| 2001–2002 | 4 | 26 | 243 | 3 | 1 | 277 |
| 2002–2003 | 3 | 13 | 213 | 0 | 0 | 229 |
| 2003–2004 | 1 | 38 | 320 | 0 | 0 | 359 |
| 2004–2005 | 13 | 51 | 599 | 0 | 0 | 663 |
| 2005–2006 | 4 | 115 | 917 | 3 | 0 | 1039 |
| 2006–2007 | 8 | 351 | 1309 | 0 | 0 | 1668 |
| 2007–2008 | 57 | 432 | 1518 | 2 | 0 | 2009 |
| 2008–2009 | 40 | 615 | 1642 | 4 | 0 | 2301 |
| *River Otter* | | | | | | |
| 1998–1999 | 2 | 1 | 0 | 0 | 0 | 3 |
| 1999–2000 | 2 | 0 | 0 | 0 | 0 | 2 |
| 2000–2001 | 7 | 1 | 0 | 0 | 0 | 8 |
| 2001–2002 | 1 | 0 | 1 | 0 | 0 | 2 |
| 2002–2003 | 1 | 1 | 0 | 0 | 0 | 2 |
| 2003–2004 | 1 | 0 | 0 | 1 | 0 | 2 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 1 | 0 | 4 | 0 | 0 | 5 |
| 2006–2007 | 0 | 2 | 3 | 0 | 0 | 5 |
| 2007–2008 | 0 | 0 | 2 | 0 | 0 | 2 |
| 2008–2009 | 2 | 1 | 0 | 0 | 0 | 3 |
| *Wolverine* | | | | | | |
| 1998–1999 | 11 | 11 | 3 | 8 | 2 | 35 |
| 1999–2000 | 23 | 10 | 3 | 19 | 4 | 59 |
| 2000–2001 | 25 | 11 | 7 | 7 | 0 | 50 |
| 2001–2002 | 22 | 7 | 4 | 8 | 2 | 43 |
| 2002–2003 | 13 | 4 | 22 | 6 | 1 | 46 |
| 2003–2004 | 10 | 12 | 20 | 6 | 0 | 48 |
| 2004–2005 | 16 | 19 | 26 | 12 | 0 | 73 |
| 2005–2006 | 18 | 7 | 11 | 3 | 1 | 40 |
| 2006–2007 | 18 | 7 | 13 | 7 | 0 | 45 |
| 2007–2008 | 7 | 12 | 11 | 8 | 0 | 38 |
| 2008–2009 | 12 | 10 | 24 | 12 | 0 | 58 |

[a] Beginning in regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 2 Average North American furbearer pelt prices[a] (U.S. dollars), regulatory years 2000–2001 through 2008–2009

| Species | Regulatory year | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2000–01[b] | 2001–02[c] | 2002–03[d] | 2003–04[e] | 2004–05[e] | 2005–06[e] | 2006–07[f] | 2007–08[f] | 2008–09[f] |
| *Beaver* | 17 | 19 | 18 | 19 | 17 | 31 | 22 | 25 | 40 |
| *Marten* | 29 | 38 | 33 | 38 | 46 | 92 | 59 | 138 | 66 |
| *Mink* | 15 | 11 | 10 | 15 | 15 | 32 | 21 | 17 | 12 |
| *Red fox* | 23 | 32 | 29 | 22 | 20 | 26 | 25 | 22 | 15 |
| *Lynx* | 40 | 76 | 119 | 158 | 133 | 158 | 109 | 299 | 128 |
| *River otter* | 61 | 72 | 114 | 104 | 107 | 143 | 48 | 41 | 31 |
| *Wolverine* | 136 | 256 | n/a | 165 | 155 | 158 | 232 | 280 | 255 |

[a] Prices for larger sizes and better quality and colors.
[b] Prices from 11 Jan 2001 sale.
[c] Prices from 17 Feb 2002 sale.
[d] Prices from 19 Jun 2003 sale.
[e] Prices compiled from North American Fur Auction, Jan and Feb sales.
[f] Prices compiled from North American Fur Auction, Feb and Mar sales.

TABLE 3 Units 25A, 25B, 25D, 26B, and 26C beaver, lynx, river otter, and wolverine sex, age, and method of take, regulatory years 1995–1996 through 2008–2009

| Units/Species/ Regulatory year | Reported harvest | | | | | | Method of take | | | | Total harvest | Successful trappers and hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | Unk sex | Juv[a] | Adults | Unk age | Trap/snare | Shot | (L&S)[b] | Unk | | |
| Units 25A, 25B, and 25D: | | | | | | | | | | | | |
| *Beaver* | | | | | | | | | | | | |
| 1995–1996 | | | 88 | 25 | 62 | 1 | 88 | 0 | 0 | 0 | 88 | 15 |
| 1996–1997 | | | 188 | 51 | 137 | 0 | 168 | 20 | 0 | 0 | 188 | 18 |
| 1997–1998 | | | 118 | 33 | 85 | 0 | 110 | 6 | 0 | 2 | 118 | 19 |
| 1998–1999 | | | 46 | 8 | 38 | 0 | 45 | 1 | 0 | 0 | 46 | 11 |
| 1999–2000 | | | 121 | 27 | 94 | 0 | 112 | 9 | 0 | 0 | 121 | 13 |
| 2000–2001 | | | 104 | 23 | 68 | 13 | 104 | 0 | 0 | 0 | 104 | 14 |
| 2001–2002[c] | | | 117 | 22 | 95 | 0 | 110 | 7 | 0 | 0 | 117 | 17 |
| *Lynx* | | | | | | | | | | | | |
| 1998–1999 | | | 684 | 112 | 565 | 7 | 681 | 1 | 0 | 2 | 684 | 42 |
| 1999–2000 | | | 431 | 48 | 297 | 86 | 431 | 0 | 0 | 0 | 431 | 26 |
| 2000–2001 | | | 435 | 29 | 398 | 8 | 434 | 1 | 0 | 0 | 435 | 36 |
| 2001–2002 | | | 273 | 16 | 252 | 5 | 271 | 1 | 0 | 1 | 273 | 32 |
| 2002–2003 | | | 229 | 6 | 217 | 6 | 207 | 0 | 0 | 22 | 229 | 31 |
| 2003–2004 | | | 359 | 34 | 322 | 3 | 310 | 0 | 0 | 49 | 359 | 33 |
| 2004–2005 | | | 663 | 84 | 561 | 18 | 657 | 2 | 0 | 4 | 663 | 46 |
| 2005–2006 | | | 1036 | 235 | 789 | 12 | 998 | 0 | 0 | 38 | 1036 | 45 |
| 2006–2007 | | | 1668 | 394 | 1259 | 15 | 1653 | 0 | 0 | 15 | 1668 | 81 |
| 2007–2008 | | | 2007 | 329 | 1674 | 4 | 1863 | 6 | 0 | 138 | 2007 | 71 |
| 2008–2009 | | | 2297 | 374 | 1914 | 9 | 2205 | 9 | 0 | 83 | 2297 | 77 |
| *River Otter* | | | | | | | | | | | | |
| 1998–1999 | 0 | 0 | 3 | -- | -- | 3 | 3 | 0 | 0 | 0 | 3 | 2 |
| 1999–2000 | 1 | 1 | 0 | -- | -- | 2 | 2 | 0 | 0 | 0 | 2 | 1 |
| 2000–2001 | 5 | 3 | 0 | -- | -- | 8 | 8 | 0 | 0 | 0 | 8 | 2 |
| 2001–2002 | 1 | 0 | 1 | -- | -- | 2 | 2 | 0 | 0 | 0 | 2 | 2 |
| 2002–2003 | 1 | 1 | 0 | -- | -- | 2 | 2 | 0 | 0 | 0 | 2 | 2 |
| 2003–2004 | 2 | 0 | 0 | -- | -- | 2 | 1 | 0 | 0 | 1 | 2 | 2 |
| 2004–2005 | 0 | 0 | 0 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 1 | 1 | 3 | -- | -- | 5 | 5 | 0 | 0 | 0 | 5 | 4 |
| 2006–2007 | 1 | 0 | 4 | -- | -- | 5 | 5 | 0 | 0 | 0 | 5 | 5 |
| 2007–2008 | 1 | 0 | 2 | -- | -- | 3 | 3 | 0 | 0 | 0 | 3 | 2 |
| 2008–2009 | 1 | 1 | 1 | -- | -- | 3 | 3 | 0 | 0 | 0 | 3 | 2 |
| *Wolverine* | | | | | | | | | | | | |
| 1998–1999 | 13 | 8 | 4 | -- | -- | 25 | 24 | 1 | 0 | 0 | 25 | 13 |
| 1999–2000 | 21 | 12 | 3 | -- | -- | 36 | 36 | 0 | 0 | 0 | 36 | 11 |
| 2000–2001 | 30 | 12 | 1 | -- | -- | 43 | 39 | 4 | 0 | 0 | 43 | 18 |

| Units/Species/ Regulatory year | Reported harvest | | | | | | Method of take | | | | Total harvest | Successful trappers and hunters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | Unk sex | Juv[a] | Adults | Unk age | Trap/snare | Shot | (L&S)[b] | Unk | | |
| 2001–2002 | 24 | 7 | 2 | -- | -- | 33 | 24 | 9 | 0 | 0 | 33 | 12 |
| 2002–2003 | 26 | 10 | 3 | -- | -- | 39 | 37 | 2 | 0 | 0 | 39 | 16 |
| 2003–2004 | 26 | 13 | 3 | -- | -- | 42 | 39 | 3 | 0 | 0 | 42 | 25 |
| 2004–2005 | 42 | 11 | 8 | -- | -- | 61 | 60 | 1 | 0 | 0 | 61 | 27 |
| 2005–2006 | 21 | 14 | 1 | -- | -- | 36 | 36 | 0 | 0 | 0 | 36 | 14 |
| 2006–2007 | 19 | 9 | 10 | -- | -- | 38 | 37 | 1 | 0 | 0 | 38 | 25 |
| 2007–2008 | 20 | 9 | 1 | -- | -- | 30 | 30 | 0 | 0 | 0 | 30 | 13 |
| 2008–2009 | 25 | 17 | 4 | -- | -- | 46 | 39 | 3 | 0 | 4 | 46 | 27 |
| Units 26B and 26C: | | | | | | | | | | | | |
| *Lynx* | | | | | | | | | | | | |
| 1998–1999 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999–2000 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000–2001 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | | | 4 | 0 | 3 | 1 | 3 | 1 | 0 | 0 | 4 | 2 |
| 2002–2003 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004–2005 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | | | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 3 | 1 |
| 2006–2007 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | | | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 2 |
| 2008–2009 | | | 4 | 0 | 1 | 3 | 3 | 1 | 0 | 0 | 4 | 3 |
| *Wolverine* | | | | | | | | | | | | |
| 1998–1999 | 9 | 1 | 0 | -- | -- | 10 | 8 | 2 | 0 | 0 | 10 | 7 |
| 1999–2000 | 14 | 8 | 1 | -- | -- | 23 | 15 | 5 | 0 | 3 | 23 | 10 |
| 2000–2001 | 3 | 4 | 0 | -- | -- | 7 | 2 | 5 | 0 | 0 | 7 | 7 |
| 2001–2002 | 7 | 2 | 1 | -- | -- | 10 | 7 | 3 | 0 | 0 | 10 | 6 |
| 2002–2003 | 6 | 1 | 0 | -- | -- | 7 | 3 | 4 | 0 | 0 | 7 | 3 |
| 2003–2004 | 0 | 0 | 6 | -- | -- | 6 | 4 | 2 | 0 | 0 | 6 | 2 |
| 2004–2005 | 9 | 2 | 1 | -- | -- | 12 | 8 | 4 | 0 | 0 | 12 | 7 |
| 2005–2006 | 3 | 1 | 0 | -- | -- | 4 | 2 | 2 | 0 | 0 | 4 | 3 |
| 2006–2007 | 4 | 3 | 0 | -- | -- | 7 | 3 | 4 | 0 | 0 | 7 | 5 |
| 2007–2008 | 4 | 2 | 2 | -- | -- | 8 | 6 | 2 | 0 | 0 | 8 | 8 |
| 2008–2009 | 8 | 4 | 0 | -- | -- | 12 | 6 | 6 | 0 | 0 | 12 | 8 |

[a] Beavers ≤52" for length and width; lynx ≤34" in length.

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

[c] Beginning regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 4 Unit 25 estimated harvest[a] of unsealed furbearer species, regulatory years 1993–1994 through 2005–2006[b]

| | Regulatory Year[c] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| Arctic fox | 5 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Beaver[d] | | | | | | | | | | | 27 | 64 | 26 |
| Coyote | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Marten | 1234 | 1422 | 748 | 2233 | 536 | 152 | 490 | 700 | 209 | 642 | 524 | 620 | 980 |
| Mink | 34 | 54 | 81 | 232 | 26 | 6 | 4 | 10 | 0 | 7 | 28 | 240 | 52 |
| Muskrat | 92 | 784 | 558 | 126 | 9 | 138 | 131 | 519 | 403 | 999 | 29 | 23 | 67 |
| Red fox | 115 | 139 | 86 | 235 | 69 | 3 | 24 | 25 | 16 | 47 | 40 | 28 | 40 |
| Squirrel | 4 | 55 | 13 | 43 | 8 | 2 | 3 | 3 | 2 | 3 | 6 | 34 | 9 |
| Weasel | 11 | 19 | 31 | 13 | 0 | 0 | 11 | 36 | 10 | 35 | 4 | 1 | 7 |

[a]Estimates calculated by combining fur acquisition reports and fur export permits. Fur acquisition reports were not available for RY06–RY08.

[b] Regulatory years 2006–2007 through 2008–2009 not available.

[c] Regulatory year = 1 July through 30 June, e.g., regulatory year 1993 = 1 July 1993 through 30 June 1994.

[d] Beaver were sealed prior to regulatory year 2002.

TABLE 5 Units 25A, 25B, and 25D reported beaver, lynx, river otter, and wolverine harvest chronology by month, regulatory years 1995–1996 through 2008–2009

| Species/ | Harvest chronology by month | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regulatory year | Aug/Sep/Oct | Nov | Dec | Jan | Feb | Mar | Apr | May |
| *Beaver* | | | | | | | | |
| 1995–1996 | 0 | 3 | 13 | 0 | 25 | 35 | 12 | |
| 1996–1997 | 0 | 0 | 15 | 1 | 31 | 100 | 15 | 14 |
| 1997–1998 | 0 | 16 | 3 | 10 | 41 | 39 | 0 | 6 |
| 1998–1999 | 0 | 6 | 5 | 5 | 4 | 25 | 0 | 1 |
| 1999–2000 | 0 | 19 | 3 | 3 | 20 | 64 | 4 | 7 |
| 2000–2001 | 1 | 22 | 8 | 7 | 27 | 36 | 2 | 0 |
| 2001–2002[a] | 5 | 0 | 8 | 7 | 21 | 53 | 16 | 5 |
| *Lynx* | | | | | | | | |
| 1998–1999 | 0 | 15 | 208 | 223 | 238 | 0 | | |
| 1999–2000 | 0 | 6 | 178 | 158 | 89 | 0 | | |
| 2000–2001 | 0 | 24 | 184 | 130 | 84 | 13 | | |
| 2001–2002 | 0 | 19 | 140 | 65 | 48 | 0 | | |
| 2002–2003 | 0 | 35 | 40 | 117 | 17 | 1 | | |
| 2003–2004 | 3 | 60 | 91 | 79 | 113 | 3 | | |
| 2004–2005 | 0 | 55 | 192 | 172 | 232 | 0 | | |
| 2005–2006 | 0 | 33 | 268 | 342 | 340 | 13 | | |
| 2006–2007 | 0 | 57 | 496 | 702 | 304 | 59 | | |
| 2007–2008 | 0 | 109 | 546 | 632 | 638 | 0 | | |
| 2008–2009 | 0 | 55 | 1002 | 721 | 458 | 4 | | |
| *River Otter* | | | | | | | | |
| 1998–1999 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | |
| 1999–2000 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| 2000–2001 | 0 | 2 | 2 | 0 | 1 | 3 | 0 | |
| 2001–2002 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | |
| 2002–2003 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | |
| 2003–2004 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 2005–2006 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | |
| 2006–2007 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | |
| 2007–2008 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | |
| 2008–2009 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | |
| *Wolverine* | | | | | | | | |
| 1998–1999 | 0 | 2 | 6 | 7 | 7 | 3 | 0 | |
| 1999–2000 | 0 | 3 | 2 | 11 | 12 | 1 | 7 | |
| 2000–2001 | 2 | 6 | 17 | 6 | 8 | 4 | 0 | |
| 2001–2002 | 0 | 5 | 10 | 6 | 11 | 1 | 0 | |
| 2002–2003 | 1 | 1 | 14 | 12 | 6 | 5 | 0 | |
| 2003–2004 | 4 | 3 | 6 | 14 | 11 | 3 | 0 | |
| 2004–2005 | 1 | 4 | 13 | 16 | 21 | 6 | 0 | |
| 2005–2006 | 0 | 2 | 5 | 20 | 7 | 2 | 0 | |
| 2006–2007 | 1 | 2 | 12 | 10 | 8 | 0 | 0 | |
| 2007–2008 | 0 | 1 | 9 | 8 | 11 | 1 | 0 | |
| 2008–2009 | 0 | 2 | 16 | 5 | 17 | 2 | 0 | |

[a] Beginning in regulatory year 2002, beaver sealing was no longer required.

TABLE 6 Units 26B and 26C lynx and wolverine harvest chronology by month, regulatory years 1998–1999 through 2008–2009

| Species/ Regulatory year | Harvest chronology by month | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sep/Oct | Nov | Dec | Jan | Feb | Mar | Apr |
| *Lynx* | | | | | | | |
| 1998–1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999–2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000–2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 3 | 0 | 0 | 1 |
| 2002–2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 2006–2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 2008–2009 | 0 | 0 | 1 | 0 | 2 | 0 | 1 |
| *Wolverine* | | | | | | | |
| 1998–1999 | 0 | 0 | 1 | 0 | 3 | 4 | 2 |
| 1999–2000 | 1 | 0 | 3 | 4 | 8 | 4 | 3 |
| 2000–2001 | 0 | 1 | 1 | 1 | 1 | 1 | 2 |
| 2001–2002 | 0 | 1 | 2 | 1 | 4 | 2 | 0 |
| 2002–2003 | 1 | 0 | 2 | 0 | 1 | 3 | 0 |
| 2003–2004 | 0 | 4 | 2 | 0 | 0 | 0 | 0 |
| 2004–2005 | 2 | 1 | 3 | 2 | 2 | 2 | 0 |
| 2005–2006 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 200–2007 | 0 | 2 | 0 | 0 | 0 | 3 | 2 |
| 2007–2008 | 2 | 0 | 1 | 1 | 3 | 1 | 0 |
| 2008–2009 | 2 | 2 | 0 | 2 | 0 | 4 | 2 |

TABLE 7 Units 25A, 25B, and 25D beaver, lynx, river otter, and wolverine harvest percent by transport method, regulatory years 1995–1996 through 2008–2009

| Species/ Regulatory year | Harvest percent by transport method | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis, or Snowshoes | Boat | 3- or 4-Wheeler | Snowmachine | ORV | Highway vehicle | Unknown |
| *Beaver* | | | | | | | | |
| 1995–1996 | 0 | 9 | 0 | 0 | 89 | 0 | 0 | 2 |
| 1996–1997 | 0 | 1 | 11 | 0 | 88 | 0 | 0 | 0 |
| 1997–1998 | 0 | 6 | 0 | 0 | 87 | 0 | 5 | 2 |
| 1998–1999 | 0 | 13 | 0 | 0 | 83 | 0 | 0 | 4 |
| 1999–2000 | 0 | 21 | 1 | 0 | 76 | 0 | 2 | 0 |
| 2000–2001 | 0 | 17 | 0 | 0 | 82 | 0 | 0 | 1 |
| 2001–2002[a] | 5 | 8 | 6 | 0 | 71 | 0 | 0 | 10 |
| *Lynx* | | | | | | | | |
| 1998–1999 | <1 | 16 | <1 | <1 | 82 | 0 | <1 | <1 |
| 1999–2000 | 15 | 9 | 0 | 0 | 77 | 0 | 0 | 0 |
| 2000–2001 | 2 | 14 | 0 | 0 | 82 | 0 | 2 | <1 |
| 2001–2002 | 0 | 5 | 0 | 0 | 90 | 0 | <1 | 4 |
| 2002–2003 | 0 | 6 | 0 | 0 | 62 | 0 | 1 | 31 |
| 2003–2004 | 1 | 6 | 0 | 0 | 74 | 0 | 0 | 19 |
| 2004–2005 | 2 | 2 | 0 | 1 | 88 | 0 | 0 | 7 |
| 2005–2006 | <1 | 3 | 0 | 0 | 91 | 0 | 0 | 6 |
| 2006–2007 | <1 | 4 | <1 | <1 | 87 | <1 | 0 | 7 |
| 2007–2008 | 3 | 3 | <1 | 0 | 87 | 0 | 0 | 7 |
| 2008–2009 | 3 | 7 | 0 | 0 | 86 | 0 | 0 | 4 |
| *River Otter* | | | | | | | | |
| 1998–1999 | 0 | 67 | 0 | 0 | 33 | 0 | 0 | 0 |
| 1999–2000 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2000–2001 | 0 | 25 | 0 | 0 | 75 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2002–2003 | 0 | 50 | 0 | 0 | 50 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 0 | 20 | 0 | 0 | 80 | 0 | 0 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2008–2009 | 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* | | | | | | | | |
| 1998–1999 | 0 | 20 | 0 | 0 | 60 | 0 | 0 | 20 |
| 1999–2000 | 8 | 6 | 0 | 0 | 86 | 0 | 0 | 0 |
| 2000–2001 | 2 | 28 | 0 | 0 | 67 | 0 | 2 | 0 |
| 2001–2002 | 0 | 12 | 0 | 0 | 85 | 0 | 3 | 0 |
| 2002–2003 | 3 | 20 | 0 | 0 | 77 | 0 | 0 | 0 |
| 2003–2004 | 5 | 5 | 5 | 0 | 71 | 0 | 5 | 9 |
| 2004–2005 | 8 | 11 | 0 | 0 | 75 | 0 | 2 | 3 |
| 2005–2006 | 5 | 17 | 0 | 0 | 78 | 0 | 0 | 0 |
| 2006–2007 | 3 | 16 | 0 | 0 | 82 | 0 | 0 | 0 |
| 2007–2008 | 3 | 23 | 0 | 0 | 73 | 0 | 0 | 0 |
| 2008–2009 | 4 | 9 | 0 | 0 | 78 | 0 | 0 | 9 |

[a] Beginning in regulatory year 2002–2003, beaver sealing was no longer required.

TABLE 8 Units 26B and 26C lynx and wolverine harvest percent by transport method, regulatory years 1998–1999 through 2008–2009

| Species/ Regulatory year | Harvest percent by transport method | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Airplane | Dogsled, Skis, or Snowshoes | Boat | 3- or 4-Wheeler | Snowmachine | ORV | Highway vehicle | Unknown |
| *Lynx* | | | | | | | | |
| 1998–1999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999–2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000–2001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2001–2002 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| 2002–2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004–2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005–2006 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007–2008 | 0 | 0 | 0 | 0 | 50 | 0 | 50 | 0 |
| 2008–2009 | 0 | 0 | 0 | 0 | 75 | 0 | 25 | 0 |
| *Wolverine* | | | | | | | | |
| 1998–1999 | 0 | 20 | 0 | 0 | 50 | 0 | 30 | 0 |
| 1999–2000 | 4 | 9 | 0 | 0 | 48 | 0 | 26 | 13 |
| 2000–2001 | 0 | 0 | 0 | 0 | 71 | 0 | 29 | 0 |
| 2001–2002 | 10 | 0 | 0 | 0 | 60 | 0 | 30 | 0 |
| 2002–2003 | 14 | 0 | 0 | 0 | 57 | 0 | 29 | 0 |
| 2003–2004 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 |
| 2004–2005 | 0 | 8 | 0 | 0 | 33 | 0 | 58 | 0 |
| 2005–2006 | 0 | 0 | 0 | 0 | 25 | 0 | 75 | 0 |
| 2006–2007 | 0 | 0 | 0 | 0 | 29 | 0 | 71 | 0 |
| 2007–2008 | 0 | 25 | 13 | 0 | 13 | 13 | 38 | 0 |
| 2008–2009 | 8 | 0 | 8 | 0 | 58 | 0 | 25 | 0 |

**WILDLIFE**

**MANAGEMENT REPORT**

**Alaska Department of Fish and Game**
**Division of Wildlife Conservation**
**(907) 465-4190 PO BOX 25526**
**JUNEAU, AK 99802-5526**

# FURBEARER MANAGEMENT REPORT

From: 1 July 2006
To: 30 June 2009

## 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 their range into Unit 26A during the late 1990s, following a snowshoe hare irruption in the Colville River drainage. River otters can be found on some tributaries of the Colville River. Because of limited habitat, boreal forest species such as 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. We summarized harvest data from sealing certificate records.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

*Population Size, Composition, and Distribution and Movements*

No quantitative population 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 2007 (0.43/hr), 5 in 2008 (0.13/hr), and 2 in 2009 (0/.29/ hr). We recorded 1 lynx sighting in 2007 (0.14/hr), 5 in 2008 (0.13/hr), and 8 in 2009 (1.14/hr). (Table 1)

The number of wolverines seen during surveys is variable and doesn't seem to be showing a clear trend. The increasing number of lynx seen in recent years would indicate that the lynx population may be increasing in this area.

During the 2005 survey, and again during our 2007 survey, we observed incidents of a wolverine killing a moose.

**MORTALITY**

*Harvest*

Hunting Seasons and Bag Limits.

Unit 26A: *2006–2007, 2007–2008, 2008–2009*

| 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: *2006–2007, 2007–2008, 2008–2009*

| 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–31 Jan | No limit |

Board of Game Actions and Emergency Orders. There were no Board of Game actions or emergency orders during the reporting period.

Human-Induced Harvest, Harvest Chronology, Transport Methods.

*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* — No lynx were sealed in Unit 26A during 2006–2007. (Table 2)

Four lynx were sealed in Unit 26A during 2007–2008. Two were male and 2 were female. All were ground-shot. Snow machines 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).

Six lynx were sealed in Unit 26A during 2008–2009. Four were males and 2 were females. All were trapped. Snow machines were used as transportation for all of the harvested lynx. All of them were harvested in March by one trapper, who is a resident of the unit (Table 2).

*Wolverine* — Six wolverines were sealed during 2006–2007. One was female and 5 were males. Two were ground-shot and 4 were trapped (Table 2). Snowmachines were used as transportation for all of the harvested wolverines. One was taken in January, 2 in February, 2 in March, and 1 in April (Table 3). All 3 trappers were residents of the unit.

Eleven wolverines were sealed during 2007–2008. One was a female and 10 were males. Six were ground shot and 5 were trapped (Table 2). Snowmachines were used as transportation for all of the harvested wolverines. Two were taken in November, 1 in January, 2 in February, and 6 in March (Table 3). All 3 trappers were residents of the unit.

Thirteen wolverines were sealed during 2008–2009. One was female, 11 were males, and 1 was of unknown sex. Thirteen were ground-shot and 5 were trapped (Table 2). Snowmachines were used as transportation for 12 and a hunter used a boat for 1. One was taken in September, 2 in January, 9 in March, and 1 in April (Table 3). All 6 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 1991–1992 and 11 sealed during 1992–1993. According to the North Slope Borough Harvest Documentation study, 8, 10, 7, and 3 wolverines were harvested in Nuiqsut, Atqasuk, Barrow, and Anaktuvuk Pass during 1994–1995 (Brower and Opie, 1996 and 1997; Hepa and Brower, 1997). During the same period, 8 wolverines were sealed.

The reported harvests of 6, 11, and 13 wolverines during the last 3 years were generally less than the reported harvests since 1991 (Table 2). This could be an indication of decreasing wolverine numbers, but could also be a result of reduced hunting effort. Magoun (1984) estimated that Unit 26A could sustain an annual harvest of 300 wolverines, if less than 90 females were harvested.

Trappers reported that the harvest was reduced in 2006–2007 because seismic petroleum exploration drove wolves and wolverines out of areas where people normally hunt.

Permit Hunts. No special permits were required to trap or hunt furbearers in Unit 26A during the reporting period.

Hunter Residency and Success. All 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*

We did no habitat assessment projects in Unit 26A during the reporting period. It was apparent that the migration and increasing population of snowshoe hares in Unit 26A expanded the prey base for lynx, wolverines, and foxes.

*Enhancement*

We did no habitat enhancement projects in Unit 26A during the reporting period.

### NONREGULATORY MANAGEMENT PROBLEMS/NEEDS

Trappers reported that harvest was reduced in 2006–2007 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 2002–2003 and 2004–2005.

## 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 the ADFG 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 2002–2003, 2004–2005, and 2006–2007, an investigation of the effect of seismic exploration on furbearer distribution may be warranted.

Even though there is considerable underreporting, the reported harvest of 6, 11, and 13 wolverines during the last 3 years would indicate that the harvest is well under Magoun's estimated sustainable annual harvest of 300 wolverines per year. In addition, there is no evidence of over-harvest of lynx, arctic foxes, or red foxes. We recommend no changes in seasons and bag limits for these species.

The trapping season for weasels and mink should be increased from 1 Nov–31 Jan to 1 Nov–15 Apr to allow people to legally trap them all winter and to align the season with other fur animals in Unit 26A.

## LITERATURE CITED


Brower, H.K. and R.T. Opie. 1996. North Slope Borough Subsistence Documentation Project: Data for Anaktuvuk Pass, Alaska for the Period July 1, 1994–June 30, 1995. North Slope Borough Department of Wildlife Management Report. 36 pp. Available from North Slope Borough Department of Wildlife Management, Box 69, Barrow, Alaska 99723.

Brower, H.K. and R.T. Opie. 1997. North Slope Borough Subsistence Documentation Project: Data for Nuiqsut, Alaska for the Period July 1, 1994–June 30, 1995. North Slope Borough Department of Wildlife Management Report. 44 pp. Available from North Slope Borough Department of Wildlife Management, Box 69, Barrow, Alaska 99723.

Carroll, G. 2007. Unit 26A furbearer. Pages 335–343 *in* P. Harper, editor. Furbearer management report of survey and inventory activities 1 July 2003–30 June 2006. Alaska Department of Fish and Game. Project 7.0. Juneau, Alaska, USA.

Fuller, A.S. and J.C. George. 1997. Evaluation of Subsistence Harvest Data from the North Slope Borough 1993 Census for Eight North Slope Villages: for the Calendar Year 1992. Report by Department of Wildlife Management, North Slope Borough, Barrow, Alaska.

Hepa, R.T. and H.K. Brower. 1997. North Slope Borough Subsistence Documentation Project: Data for Atqasuk, Alaska for the Period July 1, 1994–June 30, 1995. North Slope Borough Department of Wildlife Management Report. 41 pp. Available from North Slope Borough Department of Wildlife Management, Box 69, Barrow, Alaska 99723.

Magoun, A.J. 1984. Population characteristics, ecology, and management of wolverines in northwestern Alaska. Ph.D. Dissertation, University of Alaska, Fairbanks. 197pp.



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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 2002–2009. 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 |

Table 2. Total reported harvest, sex composition, and method of take for wolverines and lynx sealed in Unit 26A, 1991–1992 through 2008–2009.

| | | | Method of take | | | | | Method of take | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Wolverine Harvest | Males (%) | Shot | Trapped or Snared | Unknown | Lynx Harvest | Males (%) | Shot | Trapped or Snared | Unknown |
| 1991–1992 | 2 | 50 | 2 | 0 | | | | | | |
| 1992–1993 | 11 | 80 | 8 | 2 | 1 | | | | | |
| 1993–1994 | 14 | 57 | 12 | 1 | 1 | | | | | |
| 1994–1995 | 16 | 63 | 12 | 3 | 1 | | | | | |
| 1995–1996 | 21 | 67 | 20 | 1 | | | | | | |
| 1996–1997 | 11 | 64 | 5 | 6 | | | | | | |
| 1997–1998 | 20 | 70 | 19 | 1 | | | | | | |
| 1998–1999 | 26 | 73 | 25 | 1 | | | | | | |
| 1999–2000 | 19 | 53 | 9 | 8 | 2 | | | | | |
| 2000–2001 | 23 | 83 | 16 | 7 | | | | | | |
| 2001–2002 | 26 | 62 | 25 | 1 | | 7 | 77 | 7 | 0 | |
| 2002–2003 | 11 | 73 | 11 | 0 | | 1 | 100 | 1 | 0 | |
| 2003–2004 | 20 | 90 | 17 | 3 | | 3 | 66 | 1 | 2 | |
| 2004–2005 | 7 | 86 | 6 | 1 | | 4 | 25 | 3 | 1 | |
| 2005–2006 | 27 | 67 | 16 | 11 | | 6 | 100 | 1 | 5 | |
| 2006–2007 | 6 | 31 | 2 | 4 | | 0 | | | | |
| 2007–2008 | 11 | 91 | 6 | 5 | | 4 | 50 | 4 | 0 | |
| 2008–2009 | 13 | 92 | 8 | 5 | | 6 | 67 | 0 | 6 | |

Table 3. Chronology for reported wolverine harvest in Unit 26A, 1991–1992 through 2008–2009.

| Year | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1991–1992 | 1 | | | | | | 1 | | | 2 |
| 1992–1993 | 3 | | 1 | | | | 6 | | 1 | 11 |
| 1993–1994 | | | 4 | | | | 5 | 4 | 1 | 14 |
| 1994–1995 | 4 | | 3 | 2 | 1 | 3 | 2 | | 1 | 16 |
| 1995–1996 | 4 | | 3 | 2 | 1 | 4 | 6 | | 1 | 21 |
| 1996–1997 | | | 4 | 2 | 1 | 2 | 1 | 1 | | 11 |
| 1997–1998 | 1 | 1 | 2 | 5 | 3 | 1 | 6 | 1 | | 20 |
| 1998–1999 | | | 1 | 4 | 1 | 7 | 3 | 10 | | 26 |
| 1999–2000 | | | 1 | 1 | | 2 | 1 | 12 | 2 | 19 |
| 2000–2001 | 1 | 1 | 1 | 1 | 3 | 5 | 10 | 1 | 0 | 23 |
| 2001–2002 | 0 | 0 | 4 | 5 | 0 | 3 | 14 | 0 | 0 | 26 |
| 2002–2003 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 11 |
| 2003–2004 | 1 | 0 | 2 | 0 | 0 | 1 | 16 | 0 | 0 | 20 |
| 2004–2005 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 7 |
| 2005–2006 | 2 | 0 | 0 | 0 | 0 | 2 | 21 | 2 | 0 | 27 |
| 2006–2007 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 6 |
| 2007–2008 | 0 | 0 | 2 | 0 | 1 | 2 | 6 | 0 | 0 | 11 |
| 2008–2009 | 1 | 0 | 0 | 0 | 2 | 0 | 9 | 1 | 0 | 13 |

**The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge and attitudes for responsible hunting.**