

Furbearer Management Report and Plan, Game Management Units 12 and 20E:

Report Period 1 July 2012–30 June 2017, and
Plan Period 1 July 2017–30 June 2022

Marie M. Jamison



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Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for Game Management Units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Jason Caikoski, Management Coordinator of Region III for the Division of Wildlife Conservation.

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Purpose of this Report

This report provides a record of survey and inventory management activities for furbearers in Units 12 and 20E during the 5 regulatory years 2012–2016, along with plans for the next 5 regulatory years, 2017–2021. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY12 = 1 July 2012–30 June 2013). This report is produced primarily to provide agency staff with data and analysis to help guide and agency efforts. It is also made available to the public to inform them of wildlife management activities. The Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC, the division) publishes these reports on a 5-year cycle to document trends and describe potential changes in data collection activities for furbearers.

I. RY12–RY16 Management Report

Management Area

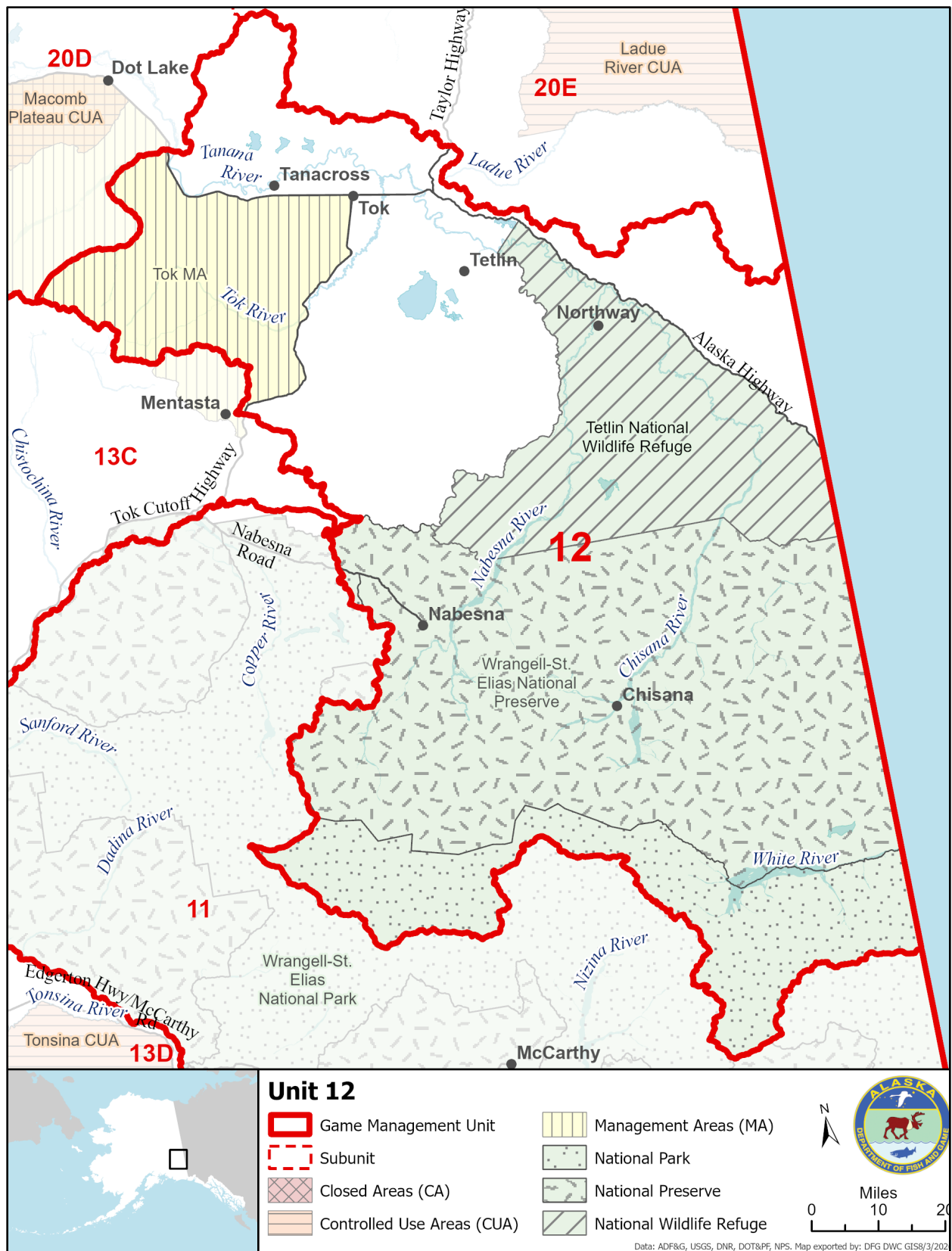
Unit 12 (9,978 mi²) encompasses the Tanana River drainage upstream from the Robertson River including all drainages into the east bank of the Robertson River, the White River drainage excluding the Ladue River drainage (Fig. 1), and the entirety of the Tetlin National Wildlife Refuge and portions of the Wrangell-St. Elias National Park and Preserve. The landscape of Unit 12 is diverse, exhibiting 6 of Alaska's ecoregions including the Tanana-Kuskokwim Lowlands, the Yukon-Tanana Uplands, the Alaska Range, the Wrangell Mountains, the Kluane Range, and a small portion of the Chugach-St. Elias Mountains.

Unit 20E (10,680 mi²) includes portions of Unit 20 that drain into the south bank of the Yukon River upstream from and including the Charley River drainage and the Ladue River drainage (Fig. 2). The unit contains over half of the Yukon-Charley Rivers National Preserve. The landscape of Unit 20E is primarily defined by Yukon-Tanana Uplands, with the northernmost part of the unit including the southwestern portion of the North Ogilvie Mountains.

Both units experience subarctic climates typical of Interior Alaska, with temperatures ranging from –40°F during winter to as high as 80°F in the summer. Annual precipitation averages between 10" and 15". Snow cover typically begins in October and persists until late spring, with average snow depths ranging from 30" to 60".

Summary of Status, Trend, Management Activities, and History of Furbearers in Units 12 and 20E

Furbearer trapping has historically played a significant part in the economy of Units 12 and 20E, evolving upon the expansion of the western fur trade from a subsistence- and bartering-based system among local communities to one of income generation (Haynes and Simeone 2007). Mining in the early 1900s further boosted commercial trapping, as miners arrived and capitalized on the demand for fur. As exploration declined, trapping pressure eased, though many locals continued trapping for supplemental income. Today, with the fur market in decline, trapping is increasingly driven by recreational interests rather than economic motives (Dorendorf 2016).



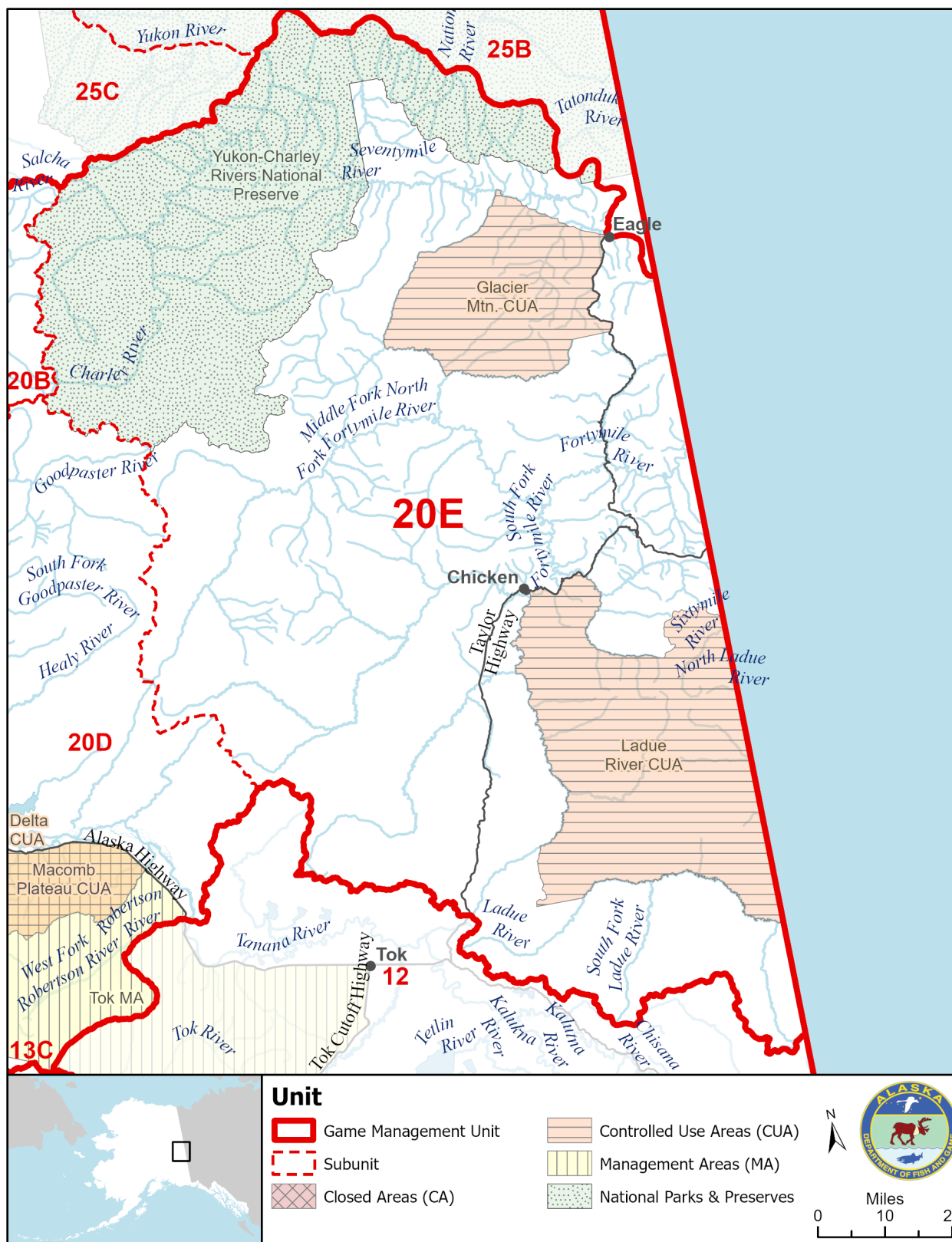


Figure 2. Unit 20E boundaries, controlled use areas, and federal lands, regulatory years 2012–2016, Interior Alaska.

The diverse landscape of Units 12 and 20E offers productive habitats for a variety of furbearer species including marten (*Martes americana*), lynx (*Lynx canadensis*), wolverine (*Gulo gulo*), red fox (*Vulpes vulpes*), beaver (*Castor canadensis*), coyote (*Canis latrans*), mink (*Neovison vison*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), ermine (*Mustela erminea*), marmot (*Marmota broweri*), and red squirrel (*Tamiasciurus hudsonicus*). Wolves (*Canis lupus*), due to their specific management needs, are addressed in a separate management report. Many furbearer species are difficult to study due to their elusive behavior and naturally low population densities; therefore, distribution data within the units are limited. Additionally, their populations are known to fluctuate in response to factors such as weather patterns, habitat suitability, prey and food availability, competition, and predation. The Alaska Trapper Questionnaire has also provided harvest managers with valuable insights into furbearer harvest and population trends; results of the questionnaire are published in the Alaska Trapper Report series¹. Most other harvest data are collected from sealing documents, with mandatory sealing requirements introduced for wolverine in 1971 and for river otter and lynx in 1977.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

The “Greater Alaska furbearer management plan” established in *Alaska wildlife plans: Furbearers* (ADF&G 1976) provides the framework for furbearer management in Units 12 and 20E.

GOALS

During RY12–RY16, the Units 12 and 20E furbearer management goal was as follows:

G1. Provide the greatest opportunity to participate in hunting and trapping furbearers.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

Units 12 and 20E have a positive finding for customary and traditional use of furbearers. The amount reasonably necessary for subsistence uses is 90% of the harvestable portion for each furbearer species (5 AAC 99.025(13)).

Intensive Management

Intensive management strategies are not applicable to furbearer populations.

¹ The Alaska Trapper Report series can be found on the ADF&G website here:
<https://www.adfg.alaska.gov/index.cfm?adfg=trapping.reports>

MANAGEMENT OBJECTIVES

M1. Maintain viable populations of furbearers that will support annual hunting and trapping harvest.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

No activities to assess the status and trends of furbearer populations were necessary during RY12–RY16.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor furbearer harvest trends (M1).

Data Needs

Annual harvest data are needed to assess the relative abundance, availability, and consumptive uses of furbearer species.

Methods

Annual furbearer harvest is monitored using a combination of various data sources. The department collects harvest data for lynx, river otter, and wolverine by requiring trappers to have their furs sealed (5 AAC 92.170). Information collected at the time of sealing includes the trapper's name, harvest location, harvest date, pelt measurements for lynx and river otter, sex of the furbearer, method of take, and method of transportation used.

From RY11 to RY16, the department collected marten carcasses and harvest information from trappers. Staff performed necropsies on these specimens to analyze sex and age structure, diet, and fecundity.

Staff also sent the Alaska Trapper Questionnaire to trappers in Units 12 and 20E. In the questionnaire, trappers were asked to rate species abundance based on field observations along their trapline. Information and perceptions about overall furbearer abundance and trapping effort, methods, and pressure were collected. Responses were summarized by regulatory year and published in the annual Alaska Trapper Report. Interviews with long-term trappers and area pilots were also conducted.

Season and Bag Limit

In Units 12 and 20E, furbearers that may be taken with a resident or nonresident trapping license are beaver, coyote, red fox, lynx, marten, mink, weasel, muskrat, river otter, squirrel, marmot, and wolverine. Furbearers that are either defined as fur animals (beaver, coyote, red fox, lynx, and squirrel) or big game animals (wolverine) may also be taken with a hunting license under hunting regulations. In addition to state seasons, there are also federal seasons in Units 12 and 20E with bag limits applicable on federal lands for residents meeting the customary and traditional use determination for select species (beaver, coyote, fox, lynx, wolverine, muskrat).

Trapping seasons and bag limits in Units 12 and 20E during RY12–RY16:

Species	Trapping season	Bag limit
Beaver	15 Sep–10 Jun	No limit
Coyote	15 Oct–30 Apr	No limit
Red fox	1 Nov–15 Mar	No limit
Lynx	1 Nov–15 Mar	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
River otter	1 Nov–15 Apr	No limit
Wolverine	1 Nov–15 Mar	No limit

Hunting seasons and bag limits in Units 12 and 20E during RY12–RY16:

Species	Hunting season	Bag limit
Coyote	No closed season	No limit
Red fox	1 Sep–15 Mar	10 red foxes, no more than 2 may be taken prior to 1 Oct
Lynx	1 Nov–15 Mar	2 lynx
Wolverine	1 Sep–31 Mar	1 wolverine

Results and Discussion

Harvest by Hunters-Trappers

LYNX

Lynx harvest in the region is associated with fluctuations in their populations, which follow 8–11 year cycles driven by the abundance of their primary prey, the snowshoe hare. Lynx numbers typically lag behind hare peaks by 1–3 years, and declines in hare numbers lead to reduced lynx reproduction and survival, and increased dispersal (Arnold et al. 2024).

During RY09–RY14, the lynx population entered a low phase of its cycle; however, as hare density began increasing in RY15 (Woodruff 2022), lynx harvest subsequently rebounded (Fig. 3). In Unit 12, lynx harvest increased from 96 in RY12 to 182 in RY16. In Unit 20E, it increased from 10 in RY12 to 19 in RY16. Over the span of the reporting period (RY12–RY16), a total of 564 lynx were harvested in Unit 12, representing a 45% increase from the previous reporting period; and 56 lynx were harvested in Unit 20E, representing a 90% increase (Tables 1 and 2) as compared to the previous reporting period.

The proportion of kittens (defined as lynx with pelts measuring $\leq 36''$) in the harvest is a key indicator of lynx population status, reflecting growth and recruitment rates. In Unit 12, the percentage of kittens in the harvest ranged from $<1\%$ to 30%, while in Unit 20E, it ranged from 0% to 50% (Tables 1 and 2). The lower percentages of kittens harvested, and the total lynx harvested between 2012 and 2014, correspond to a period of decline in the lynx population, a trend that started in RY09. Data from hare pellet counts in Unit 12 (Woodruff 2022) indicate that the snowshoe hare population rose from an estimated 0.23 hares/acre (0.57 hares/ha) in 2015 to

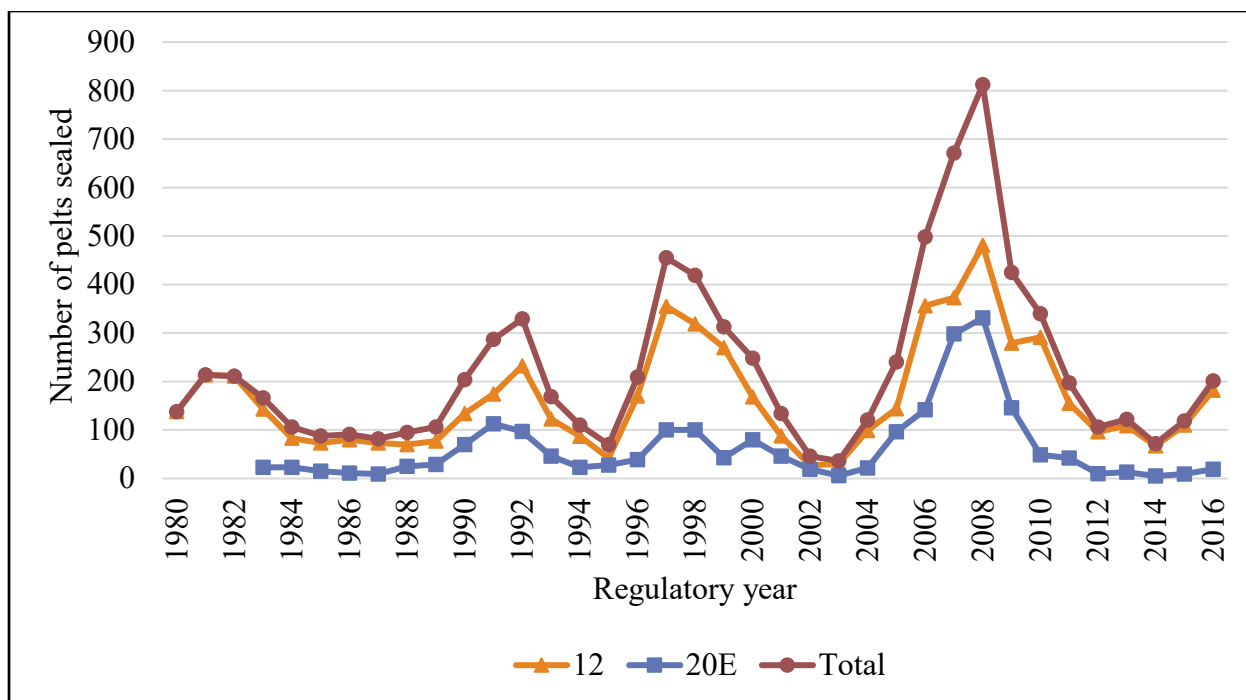


Figure 3. Number of lynx sealed in Units 12 and 20E, regulatory years 1980–2016, Interior Alaska.

Table 1. Unit 12 lynx harvest, regulatory years 2012–2016, Interior Alaska.

Regulatory year	Reported harvest					Method of take					
	Adult	Juvenile ^a	(%) ^{a,b}	Unk	Total	Trap/snare	(%)	Shot	(%)	Unk	(%)
2012	88	8	8	0	96	91	95	4	4	1	1
2013	95	7	<1	7	109	101	93	5	4	3	3
2014	48	8	14	11	67	61	91	6	9	0	–
2015	73	32	30	5	110	105	95	5	5	0	–
2016	125	53	30	4	182	149	82	9	5	24	13

Note: En dashes indicate no data.

^a Kittens are defined as lynx with pelt lengths ≤ 36 " (Stephenson and Karczmarczyk 1989).

^b Harvest of unknown age is not included in percentage.

Table 2. Unit 20E lynx harvest, regulatory years 2012–2016, Interior Alaska.

Regulatory year	Reported harvest					Method of take					
	Adult	Juvenile ^a	(%) ^{a,b}	Unk	Total	Trap/snare	(%)	Shot	(%)	Unk	(%)
2012	8	1	11	1	10	10	100	0	–	0	–
2013	9	3	25	1	13	11	85	2	15	0	–
2014	5	0	0	0	5	5	100	0	–	0	–
2015	2	5	35	2	9	9	100	0	–	0	–
2016	8	8	50	3	19	17	90	2	10	0	–

Note: En dashes indicate not applicable.

^a Kittens are defined as lynx with pelt lengths ≤ 36 " (Stephenson and Karczmarczyk 1989).

^b Harvest of unknown age is not included in percentage.

0.38 hares/acre (0.93 hares/ha) in 2016. As a result, both the percentage of kittens in the harvest and the total lynx harvest increased in both units in RY15 and RY16.

WOLVERINE

Wolverine are highly valued for their fur, making them a coveted species to harvest. In Units 12 and 20E, wolverine occur at low but stable densities, predominately inhabiting remote mountainous areas that provide optimal denning conditions and forest cover (Gardner et al. 2010). Historically, wolverine in these units have thrived during periods of high ground squirrel, ungulate, and wolf densities (Gardner 2001).

During RY12–RY16 the wolverine population remained stable, based on harvest data, observations, and information from the Alaska Trapper Questionnaire (Schumacher 2013a, 2013b; Parr 2016, 2018). Harvest in Unit 12 ranged from 10 to 17 per year ($\bar{x} = 16$), while in Unit 20E, it ranged from 9 to 23 ($\bar{x} = 15$; Tables 3 and 4). Harvest in both units was similar to the previous reporting period (RY09–RY11; Bentzen 2013). The harvest in Unit 20E was consistent with its long-term (RY83–RY16) mean ($n = 18$); whereas harvest in Unit 12 was nearly double its long-term average ($n = 9$).

Given that males have larger home ranges, harvest should not disproportionately target females, as this could impact the reproductive capacity of the population. A continuing trend of harvesting

Table 3. Unit 12 wolverine harvest, regulatory years 2012–2016, Interior Alaska.

Regulatory year	Reported harvest					Method of take					
	Male	(%)	Female	Unk	Total	Trap/snare	(%)	Shot	(%)	Unk	(%)
2012	8	80	2	0	10	9	90	0	–	1	10
2013	10	48	11	0	21	19	91	0	–	2	9
2014	12	75	2	2	16	15	94	1	6	0	–
2015	13	68	6	0	19	19	100	0	–	0	–
2016	13	76	4	0	17	13	76	2	12	2	12

Note: En dashes indicate not applicable.

Table 4. Unit 20E wolverine harvest, regulatory years 2012–2016, Interior Alaska.

Regulatory year	Reported harvest					Method of take					
	Male	(%)	Female	Unk	Total	Trap/snare	(%)	Shot	(%)	Unk	(%)
2012	4	50	5	0	9	9	100	0	0	0	–
2013	14	44	8	1	23	22	96	1	4	0	–
2014	8	61	4	5	17	16	94	1	6	0	–
2015	15	47	3	0	18	17	94	1	6	0	–
2016	7	83	3	0	10	8	80	2	20	0	–

Note: En dashes indicate not applicable.

fewer than 50% males could indicate a potential disruption in breeding patterns and suggest unsustainable harvest rates (Gardner et al. 1993, Golden et al. 2007). Sex ratios in harvested wolverine in Units 12 and 20E reveal no significant trends indicating overharvest during the reporting period. The average percentage of males in the harvest was 69% in Unit 12 and 61% in Unit 20E (Tables 3 and 4), which is similar to the long-term trends of 65% in Unit 12 and 69% in Unit 20E.

RIVER OTTER

River otter harvest is low throughout the region due to limited abundance, low fur prices, and sealing requirements, making the species a rare target for trappers. During the reporting period (RY12–RY16), trappers reported river otters as scarce (Schumacher 2013a, 2013b; Parr 2016, 2018). A total of 9 river otters were harvested in Unit 12 (Table 5), while none were harvested in Unit 20E.

Table 5. Unit 12 river otter harvest, regulatory years 2012–2016, Interior Alaska.

Regulatory year	Reported harvest					Method of take					
	Male	(%)	Female	Unk	Total	Trap/snare	(%)	Shot	(%)	Unk	(%)
2012	0	0	0	0	0	0	—	0	—	0	—
2013	0	0	0	5	5	2	40	3	60	0	—
2014	2	67	0	1	3	3	100	0	—	0	—
2015	0	0	1	0	1	1	100	0	—	0	—
2016	0	0	0	0	0	0	—	0	—	0	—

Note: En dashes indicate not applicable.

AMERICAN MARTEN

Between RY12 and RY16, direct harvest data were not available for marten in Units 12 and 20E due to the absence of sealing requirements. Instead, harvest information and relative abundance were derived from the Alaska Trapper Questionnaire (Schumacher 2013a, 2013b; Parr 2016, 2018) and interviews with local trappers and pilots. These sources indicated that marten harvest remained low in Unit 12 and moderate in Unit 20E, continuing a trend initially noted during RY06–RY08 (Bentzen 2013).

Between 2011 and 2016, the department also conducted necropsies on marten carcasses provided by trappers throughout the Interior to assess demographic indicators of population productivity. These analyses revealed that marten densities, juvenile recruitment, and reproductive output are highly variable and affected by environmental stressors and the availability of food sources like microtines, squirrels, birds, and berries (Keogh et al. 2022). Signs of a productive marten population typically include a juvenile-to-adult harvest ratio $\geq 3:1$, pregnancy rates over 70%, and catches comprised of 50–60% juveniles (Strickland and Douglas 1987). However, necropsy data across the Interior revealed marten survival rates did not reflect these benchmarks. Data from the RY11 catch in Unit 12 showed only a 32.3% juvenile harvest and a juvenile-to-adult ratio of 1:1, despite a high pregnancy rate of 90%. In contrast, Unit 20E had a higher juvenile harvest rate of 50%, with a juvenile-to-adult ratio of nearly 4:1, though the pregnancy rate was significantly lower at 46.2% (Gardner, C., research biologist, ADF&G, unpublished manuscript, Fairbanks, AK). The marten population across the Interior slowly increased and by RY16, harvest exhibited

higher juvenile-to-adult ratios. Despite this, suboptimal pregnancy rates continue to raise concerns about the reproductive health of the marten population regionwide (Nicholson et al. 2017).

OTHER FURBEARERS

During RY12–RY16, direct harvest data were not available for other furbearers in Units 12 and 20E due to the absence of sealing requirements. Instead, harvest data and relative abundance were derived from the Alaska Trapper Questionnaire (Schumacher 2013a, 2013b; Parr 2016, 2018) and interviews with local trappers and residents. Beaver, muskrat, and mink populations were considered to be stable during the reporting period, likely influenced by average amounts of snowfall and precipitation, resulting in productive habitat conditions. Based on comments from area trappers, muskrat and beaver numbers remained low to moderate and mink remained scarce.

Red fox and coyote populations were present in low to moderate densities with low trapping rates in both units. Grouse and ptarmigan, which serve as a prey source for many mesopredators, were reported to be stable or increasing, according to both the Alaska Trapper Questionnaire and surveys conducted by the department (Schumacher 2013a, 2013b; Parr 2016, 2018; Merizon and Carroll 2015, 2016, 2017a, 2017b).

Hunter and Trapper Residency and Success

During the reporting period (RY12–RY16) in Units 12 and 20E, residents accounted for the vast majority of the successful wolverine, lynx, and river otter harvest, composing 96% of the total participants. Of this group, 75% were local to the Upper Tanana, Fortymile, and Chisana-Nabesna regions, while 21% resided outside the units. Nonresident hunters and trappers were few and made up only 4% of the total successful trapping effort.

Participation in trapping and hunting remained relatively stable across both units except during RY14 when success rates dipped, likely due to a downturn in the lynx population. Over the reporting period, an average of 7 hunters and trappers in Unit 20E reported harvesting a mean of 1.64 lynx per person per year, while an average of 30 hunters and trappers in Unit 12 averaged 3.70 lynx per person per year. Wolverine harvests averaged 1.62 per person in Unit 12 and 1.92 per person in Unit 20E. River otter harvest success remained low in Unit 12, with only 1–3 successful trappers each year (Table 6).

Trappers in the Interior consistently demonstrated some of the highest levels of effort in the state. During RY12–RY16, they reported longer traplines ($\bar{x}$ = 24.0 mi), more sets per trapline ($\bar{x}$ = 44.0 sets), and the longest trapping seasons ($\bar{x}$ = 11.5 weeks), as compared to other regions (Schumacher 2013a; Parr 2016, 2018).

Sealing records for lynx, wolverine, and river otter over the reporting period revealed that 39% of trappers who had over 10 years' of experience trapping in Units 12 and 20E reported 41% of the total harvest while 61% of trappers with less than 10 years' of experience reported 59% of the total harvest. Although statewide surveys indicated a growing interest in trapping among younger generations (Parr 2016), the Interior region, despite having some of the most experienced trappers in the state, reported the lowest rates of involving youth in trapping efforts (Schumacher 2013a, 2013b; Parr 2016, 2018). Statewide surveys of trappers revealed that key factors influencing trapping effort from 2004 to 2016 included recreational interest, fluctuating

winter temperatures, land access, declining economic incentives, and perceived furbearer abundance (Dorendorf et al. 2016; Parr 2016, 2018).

Table 6. Units 12 and 20E average lynx, wolverine, and river otter harvest per successful hunters and trappers, regulatory years 2012–2016, Interior Alaska.

Species	Regulatory year	Unit 12		Unit 20E	
		$\bar{x}$ harvest per person	Successful hunters and trappers	$\bar{x}$ harvest per person	Successful hunters and trappers
Lynx	2012	2.7	35	1.7	6
	2013	3.3	33	1.4	9
	2014	3.2	21	1.7	3
	2015	4.2	26	1.3	7
	2016	5.1	36	2.1	9
Wolverine	2012	1.4	7	1.3	7
	2013	1.8	12	2.9	8
	2014	1.5	11	1.7	10
	2015	2.1	9	2.0	9
	2016	1.3	13	1.7	6
River otter	2012	5.0	5	0.0	0
	2013	0.0	0	0.0	0
	2014	0.0	0	0.0	0
	2015	3.0	3	0.0	0
	2016	1.0	1	0.0	0

Harvest Chronology

The timing and patterns of furbearer harvest are influenced by a variety of factors. Seasonal weather conditions, such as temperature, snowfall, and the freeze-thaw periods in bodies of water regulate access and harvest periods. Fur prices and prime fur periods, along with environmental factors such as humidity and temperatures that affect fur quality, also greatly impact the timing of harvest.

In both units, the lynx harvest pattern typically begins in November and December, peaks in January and February, and tapers off by March. The harvest chronology for wolverine in both units exhibits more variability throughout the trapping season, beginning in November and continuing into March (Tables 7 and 8). Trappers report that wolverine prime pelt periods generally extend into March. All harvest occurring in September falls under hunting regulations and is often incidental harvest during the moose and caribou hunting seasons. Periods for marten, ermine, mink, river otter, and red fox trapping usually occur in late fall to early winter when furs are in their best condition. Muskrat hunting and trapping generally extends into the spring season.

Transport Methods

During RY12–RY16, the majority of trappers (70%) in Units 12 and 20E primarily relied on snowmachines for accessing traplines. In Unit 12, highway vehicles were the second most

common method for lynx harvest, while airplanes were frequently used for wolverine and reached more remote locations inaccessible by ground transportation. In Unit 20E, airplanes

Table 7. Unit 12 lynx, wolverine, and river otter harvest chronology percent by month, regulatory years 2012–2016, Interior Alaska.

Species	Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	<i>n</i>
Lynx	2012	0	10	0	40	40	10	0	10
	2013	0	23	23	54	0	0	0	13
	2014	0	0	0	60	40	0	0	5
	2015	0	11	11	67	11	0	0	9
	2016	0	21	26	16	21	16	0	19
Wolverine	2012	0	33	22	22	11	11	0	9
	2013	0	13	9	43	22	13	0	23
	2014	0	12	29	12	24	24	0	17
	2015	6	11	17	17	44	6	0	18
	2016	20	20	50	0	10	0	0	10
River otter	2012	0	0	0	0	0	0	0	0
	2013	40	0	0	60	0	0	0	5
	2014	0	0	0	0	0	33	67	3
	2015	0	0	100	0	0	0	0	1
	2016	0	0	0	0	0	0	0	0

Table 8. Unit 20E lynx and wolverine reported harvest chronology percent by month, regulatory years 2012–2026, Interior Alaska.

Species	Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	<i>n</i>
Lynx	2012	0	14	24	28	26	8	0	96
	2013	0	6	35	34	19	6	0	109
	2014	0	15	15	43	19	7	0	67
	2015	0	7	27	32	27	6	0	110
	2016	0	14	20	14	40	12	0	182
Wolverine	2012	10	0	60	0	10	20	0	10
	2013	0	14	33	14	14	24	0	21
	2014	6	31	6	19	31	6	0	16
	2015	0	26	26	16	26	5	0	19
	2016	12	0	29	0	24	35	0	17

were also a popular mode of transport to more isolated areas, along with ground-based methods such as skis and snowshoes in areas closer to roads (Tables 9 and 10). Off-road access in Unit 12 is facilitated by the Alaska Highway and the Tok-Cut-off Highway, while in Unit 20E, access is primarily concentrated around the community of Eagle and the southern portion of the unit due to limited winter road maintenance on the Taylor Highway.

Other Mortality

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

Table 9. Unit 12 percent harvest by transport method, regulatory years 2012–2016, Interior Alaska.

Species	Regulatory year	Airplane	Boat	ATV ^a	Snow-machine	ORV ^b	Highway vehicle	Dog sled/skis/snowshoes	Unknown	<i>n</i>
Lynx	2012	1	1	0	68	0	27	3	0	96
	2013	0	0	0	73	0	25	2	0	109
	2014	0	0	0	73	0	27	0	0	67
	2015	0	0	4	70	0	17	0	9	110
	2016	0	0	10	65	0	13	1	12	182
Wolverine	2012	10	0	0	60	0	10	0	20	10
	2013	19	0	0	71	0	0	0	10	21
	2014	0	0	0	94	6	0	0	0	16
	2015	21	0	11	68	0	0	0	0	19
	2016	0	6	6	71	0	6	12	0	17
River otter	2012	0	0	0	0	0	0	0	0	1
	2013	40	0	0	60	0	0	0	0	5
	2014	0	0	0	100	0	0	0	0	3
	2015	0	0	0	100	0	0	0	0	1
	2016	0	0	0	0	0	0	0	0	0

^a ATV refers to all-terrain vehicles.

^b ORV refers to off-road vehicles.

Table 10. Unit 20E percent harvest by transport method, regulatory years 2012–2016, Interior Alaska.

Species	Regulatory year	Airplane	Boat	ATV ^a	Snowmachine	ORV ^b	Highway vehicle	Dog sled/skis/snowshoes	Unknown	<i>n</i>
Lynx	2011	19	0	0	64	0	17	0	0	42
	2012	0	0	0	100	0	0	0	0	10
	2013	0	0	0	62	0	8	31	0	13
	2014	0	0	0	80	0	0	20	0	5
	2015	0	0	0	78	0	0	22	0	9
Wolverine	2012	22	0	0	78	0	0	0	0	9
	2013	52	0	0	48	0	0	0	0	23
	2014	6	0	0	65	0	6	24	0	17
	2015	6	0	6	89	0	0	0	0	18
	2016	0	0	10	70	0	20	0	0	10

^a ATV refers to all-terrain vehicles.

^b ORV refers to off-road vehicles.

Alaska Board of Game Actions and Emergency Orders

During RY12–RY16, there were no applicable Alaska Board of Game actions or emergency orders concerning furbearer management in Units 12 or 20E.

Recommendations for Activity 2.1

Continue. The department will continue to monitor harvest trends by sealing lynx, wolverine, and river otter as mandated by 5 AAC 92.170, and will continue to collect harvest and population data for furbearer species using the Alaska Trapper Questionnaire, interviews, and other sources.

3. Habitat Assessment-Enhancement

Activities to assess or enhance habitat specifically for furbearers are currently not necessary to achieve the management goals. The primary strategy to restore habitat diversity and productivity for all furbearer species in Units 12 and 20E is to maintain a near-natural fire regime as per *Alaska interagency wildland fire management plan* (Alaska Wildland Fire Coordinating Group 2016). Fire, used as a management tool, promotes a variety of vegetative successional stages and supports prey species which, in turn, influence habitat use by many furbearer species (Stephenson 1984, Paragai et al. 1996).

Between 2006 and 2016, only 8% of the landscape in Units 12 and 20E entered into an early successional vegetation stage, with wildfires burning approximately 2,154 mi². These early seral habitats support increased densities of prey such as microtines, attracting mesopredators such as red fox and eventually marten. Across both the units, the majority (54%) of recorded historic wildfires were between 10 and 20 years old, and predominantly located in Unit 20E. These mid-successional stands provide increased shrub and understory growth that improve foraging and cover for snowshoe hare, which subsequently attract lynx in older-aged stands (Stephenson 1984, Gardner 2001, Fisher and Wilkinson 2005). Wildfire-burned areas aged between 20 and 50 years old accounted for 36% of the area in both units while those older than 50 years represented 2% (Barnes et. al [n.d.]).

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

None.

Data Recording and Archiving

Harvest data are stored on WinfoNet (ADF&G's Wildlife Information Network). Original sealing records are stored in file folders located in the Tok area office.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

During the reporting period (RY12–RY16), the management objective (M1) was met. Although overall trapping effort was not directly measured, sealing data and input from area trappers indicated that trapping effort and harvest fluctuated in response to population highs and lows, particularly for lynx and marten. Harvest data for wolverine and river otter suggest stable populations for these species. No abundance estimates for individual furbearer species were obtained and sustainable harvest rates remain undetermined. However, there were no indications

that any populations were adversely impacted by harvest levels. Hunting and trapping opportunities continued to be supported by viable furbearer populations (G1).

The department recommends that furbearer harvest levels be continually monitored and used as a coarse index to infer population trends, with a particular focus on species with higher pelt values and those most susceptible to overharvest. We recommend encouraging trappers to continue monitoring marten harvest to assist the department in tracking population trends and identifying challenges that may affect sustainable harvest levels. The department will continue to support hunting and trapping opportunities by sealing furs, collecting harvest data, and gathering public input to assess both past and current trends in furbearer availability and use.

II. Project Review and RY17–RY21 Plan

Review of Management Direction

MANAGEMENT DIRECTION

There are no changes to the management direction for furbearers in Units 12 and 20E for RY17–RY21. The department will continue to report the harvest of lynx, river otter, and wolverine, and to collect information on other furbearers from the Alaska Trapper Questionnaire and interviews as these data may be useful for trappers, advisory committees, and the Board of Game.

GOALS

G1. Provide the greatest opportunity to participate in hunting and trapping furbearers.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

Units 12 and 20E have a positive finding for customary and traditional use of furbearers. The amount reasonably necessary for subsistence uses is 90% of the harvestable portion for each furbearer species (5 AAC 99.025(13)).

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

M1. Maintain viable populations of furbearers that will support annual hunting and trapping harvest.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

There are no activities planned for RY17–RY21 to assess the population status or trend of furbearers in Units 12 or 20E.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor furbearer harvest trends.

Data Needs

No changes from RY12–RY16.

Methods

No changes from RY12–RY16.

3. Habitat Assessment-Enhancement

No activities for furbearer habitat assessment or enhancement are planned in Units 12 or 20E during RY17–RY21.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

None.

Data Recording and Archiving

No changes from RY12–RY16.

Agreements

None.

Permitting

None.

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