

Furbearer Management Report and Plan, Game Management Units 21B, 21C, 21D and 24:

Report Period 1 July 2012–30 June 2017, and

Plan Period 1 July 2017–30 June 2022

Glenn W. Stout

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Purpose of this Report

This report provides a record of survey and inventory management activities for furbearers in Units 21B, 21C, 21D, and 24 for the 5 regulatory years 2012–2016 and plans for survey and inventory management activities in the following 5 years, 2017–2021. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY16 = 1 July 2016–30 June 2017). This report is produced primarily to provide agency staff with data and analysis to help guide and record its own efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to more efficiently report on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the furbearer management report of survey and inventory activities that was previously produced every 3 years and supersedes the 1976 draft Alaska wildlife management plans (ADF&G 1976).

I. RY12–RY16 Management Report

Management Area

Units 21B, 21C, and 21D (25,083 mi² combined) are located in western Interior Alaska and encompass the Yukon River drainage upstream from Paimiut to the Tozitna River, including Koyukuk River up to Dulbi Slough and the Nowitna River drainage. Unit 24 (26,068 mi²) is located in western Interior Alaska and encompasses the Koyukuk River drainage upstream of the Dulbi River drainage and is further divided into 4 administrative units, 24A (4,146 mi²), 24B (13,523 mi²), 24C (3,049 mi²), and 24D (5,350 mi²).

Summary of Status, Trend, Management Activities, and History of Furbearers in Units 21B, 21C, 21D, and 24:

Furbearers have traditionally been an important resource for food, clothing, and trade items in Units 21 (Robert 1984) and 24 (Marcotte and Haynes 1985). Furbearer populations have historically been sufficient to meet the needs of local people, 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, 21D, and 24 support abundant water-dependent furbearers such as beaver, mink, river otter, and muskrat. The following furbearer species found in the area are listed in order of their economic importance: marten, wolf, beaver, lynx, wolverine, red fox, mink, river otter, and muskrat; coyote and arctic fox are rare. Weasel and red squirrel are common but not typically targeted by area trappers.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

There are no other existing management plans for furbearers in Units 21B, 21C, 21D, and 24. The previous management direction was documented in the furbearer management reports of survey and inventory activities.

GOALS

- G1. Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.
- G2. Provide for continued use of furbearers by local Alaska residents who have customarily and traditionally depended on these populations.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

- C1. Units 21B, 21C, 21D, and 24 has a positive finding for customary and traditional uses for furbearers. Amounts reasonably necessary for subsistence uses is set at 90 percent of the harvestable portion for each furbearer species.

Intensive Management

None.

MANAGEMENT OBJECTIVES

UNITS 21B, 21C, 21D

- M1. Maintain populations of lynx that will support a reported harvest of 30 lynx during low-cycle years and 100 lynx during high-cycle years.
- M2. Maintain populations of otter that will support a reported harvest of 26 otters annually.
- M3. Maintain populations of wolverine that will support a reported harvest of 28 wolverines annually.

UNIT 24

- M4. Manage furbearer populations to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

1. Population Status and Trend

ACTIVITY 1.1. Monitor furbearer populations by reconnaissance surveys, trapper questionnaires, and trapper interviews.

Data Needs

Trapper harvests were used historically as an index of relative abundance of furbearer species. These surveys allowed ADF&G management biologists to determine the status of various furbearer populations. These surveys and interviews included data regarding trapping area,

frequency, distance travelled, transportation method, trapline composition, target species, harvest methods, species abundance and harvest trends.

Methods

We monitored harvest through sealing data reported in WinfoNet, the Alaska Department of Fish and Game's (ADF&G) fur sealing database. Harvest data were summarized by regulatory year, which begins 1 July and ends 30 June (e.g., RY16 = 1 July 2016 through 30 June 2017).

Results

No direct estimates of furbearer abundance were conducted during RY12–RY16.

Recommendations for Activity 1.1.

We recommend continuing with the approach of monitoring annual reported harvest and being attentive to public concerns.

2. Mortality–Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor harvest through fur sealing records.

Data Needs

Trapper harvests were used as an index to relative abundance of furbearer species.

Methods

We monitored harvest through sealing data entered in ADF&G's Wildlife Information Network database (WinfoNet). The sealer will record location and date of harvest, method of take, transportation mode, sex, coat color, skull size, and any previous captures if applicable. Sealing must occur by authorized ADF&G staff or a state appointed sealer within 30 days of kill. Furbearers sealing involves a physical tag and biological info are collected at that time. Harvest data were summarized by regulatory year, which begins 1 July and ends 30 June (e.g., RY16 = 1 July 2016–30 June 2017).

Results and discussion

Harvest by Hunters

BEAVER

Since 2002, beaver harvest is unknown and effects on local populations are difficult to detect in Units 21B, 21C, 21D, and 24 because sealing is no longer required. Consequently, few data exist on the timing of harvest during RY12–RY16. Harvest is often for personal use both as food and to make the fur into garments; therefore, many of the pelts never enter the fur market and are not recorded through fur acquisition and export permits. However, the composition of the harvest probably has not changed for many years. Traditionally, most beaver harvest occurred in the spring, although some trappers take beavers in early winter because beaver carcasses are effective bait for other furbearer species (Hollis 2007).

The RY12–RY16 average price for beaver was \$23 (Fur Harvesters Auction Inc. 2014), offering little incentive to area trappers. Most beaver harvest continues to be used locally.

LYNX

Based on harvest data, lynx populations reached the low point of their 10-year cycle in RY13–RY14 and began increasing in RY17 (Tables 1 and 2). Most lynx harvest occurred during December–February (Table 2). The reason why there was a low harvest of kits during years of increasing population is unclear, but it could be due to small sample size (i.e., low overall harvest or low trapping intensity on individual traplines); it could also be a result of measurement error by sealers, or fur handling methods. Pelt prices averaged \$132 for lynx during RY12–RY16 which is comparable to previous years.

RIVER OTTER

There was little local interest in river otters during the report period, although river otters were abundant in Units 21B, 21C, 21D, and 24; harvest was relatively low (Tables 1 and 2). During RY12–RY16, most harvest likely occurred when river otters were incidentally taken in beaver sets and harvest levels were consistent with beaver trapping effort. Prices averaged \$63 during the RY12–RY16 which is comparable to previous years.

WOLVERINE

Wolverine harvest varied (Tables 1 and 2) during RY12–RY16 but was consistent with historic harvest. Actual harvest may be higher by 10 animals per year (Table 1; Pamperin 2013) because furs used for subsistence purposes are seldom sealed. Total harvest was slightly higher in December, January, and February than other months (Table 2). Prices averaged \$258 during RY12–RY16 which is comparable to previous years.

MARTEN

Pelt prices for marten were moderate and averaged \$86 during RY12–RY16. Age and sex of marten trapped in Units 21B, 21D, and 24 during RY12–RY16 indicated that the total juvenile-to-adult female harvest ratio was 5:1, which is high (Table 3); the population was possibly experiencing high recruitment, and harvest was at the appropriate level. The male-to-female harvest ratio, which includes both adult and juvenile marten, was approximately 2:1 (Table 3) which was comparable to other populations of marten that are trapped in other areas (Strickland and Douglas 1987, Whitman 2001), and indicates that the harvest level was appropriate. Because of the possible sex-based differences in vulnerability of marten to trapping, or possible skewed age structure in the population (Flynn and Schumacher 2009), these ratios may not accurately reflect the actual sex ratio of the wild population (Buskirk and Lindstedt 1989). The reproductive values of pregnant females are reported in Table 4. The average number of blastocysts, the pregnancy rate, and the fecundity rate varied little during the reporting period, but sample size of adult females may be too low to detect a trend in these parameters.

Table 1. Units 21B, 21C, 21D, and Unit 24, Alaska, lynx, river otter, and wolverine harvest, regulatory years 2012–2016.

Species	Regulatory year	Reported harvest						Estimated harvest		Method of take			Total harvest	Successful trappers/hunters
		Sex			Age			Unreported	Illegal	Trap/snare	Shot	Unk		
		M	F	Unk	Juv ^a	Adults	Unk							
<i>Lynx</i>														
	2012	–	–	–	2	124	4	0	0	116	9	5	130	45
	2013	–	–	–	0	39	1	0	0	38	2	0	40	20
	2014	–	–	–	3	43	3	0	0	41	8	0	49	24
	2015	–	–	–	1	28	22	0	0	51	0	0	51	14
	2016	–	–	–	2	54	4	0	0	55	5	0	60	13
<i>River Otter</i>														
	2012	8	7	6	–	–	–	0	0	21	0	0	21	12
	2013	12	4	6	–	–	–	0	0	20	2	0	22	12
	2014	5	5	2	–	–	–	0	0	12	0	0	12	6
	2015	5	3	4	–	–	–	0	0	12	0	0	12	5
	2016	8	3	4	–	–	–	0	0	15	0	0	15	6
<i>Wolverine</i>														
	2012	42	18	3	–	–	–	10	0	57	5	1	73	25
	2013	39	16	3	–	–	–	10	0	55	3	0	68	27
	2014	33	18	7	–	–	–	10	0	55	2	1	68	23
	2015	21	14	1	–	–	–	10	0	32	4	0	46	17
	2016	16	8	4	–	–	–	10	0	28	0	0	38	15

Note: En dash indicates no data.

^a Juveniles: lynx <34" in length.

Table 2. Units 21B, 21C, and 21D, Alaska, lynx, river otter, and wolverine harvest percent by month, regulatory years 2012–2016.

Species	Regulatory year	Harvest percent by month								<i>n</i>
		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
<i>Lynx</i>										
	2012	9	32	29	30	0	–	–	–	130
	2013	15	23	20	40	3	–	–	–	40
	2014	12	14	41	27	6	–	–	–	49
	2015	4	10	8	35	43	–	–	–	51
	2016	2	20	27	42	10	–	–	–	60
<i>River Otter</i>										
	2012	19	19	19	24	14	5	–	–	21
	2013	5	18	9	50	18	0	–	–	22
	2014	8	17	25	33	17	0	–	–	12
	2015	0	0	17	42	33	8	–	–	12
	2016	7	7	0	47	33	7	–	–	15
<i>Wolverine</i>										
	2012	8	24	11	25	30	2	–	–	63
	2013	14	12	26	34	14	0	–	–	58
	2014	5	26	25	25	18	2	–	–	57
	2015	11	37	11	31	9	0	–	–	35
	2016	4	21	36	14	25	0	–	–	28

Note: Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2012 = 1 July 2012–30 June 2013). En dash indicates no data.

Table 3. Units 21B, 21D, and 24, sex and age of trapper-harvested marten, regulatory years 2012–2016.

Regulatory year	Male		Female			Ratios	
	Adult (%)	Juvenile (%)	Adult (%)	Juvenile (%)	Total	Total juvenile: adult F	Total M: total F
2012	85 (39)	58 (26)	38 (17)	41 (19)	222	2.6	1.8
2013	63 (32)	49 (25)	38 (19)	47 (24)	197	2.5	1.3
2014	86 (28)	101 (33)	39 (13)	82 (27)	308	4.7	1.5
2015	162 (25)	272 (41)	50 (8)	175 (27)	659	8.9	1.9
2016	80 (23)	130 (37)	38 (11)	99 (29)	347	6.0	1.5
Total	476 (27)	610 (35)	203 (12)	444 (26)	1,733	5.2	1.7

Table 4. Units 21B, 21D, and 24, adult female marten reproductive values of trapper harvested marten, regulatory years 2012–2016.

Regulatory year	No. adult females examined ^a	No. pregnant	Percent pregnant	No. blastocysts	Average blastocysts per pregnant female	Average fecundity
2012	27	16	59.3	43	2.7	1.6
2013	33	23	69.7	54	2.3	1.6
2014	37	16	43.2	36	2.3	1.0
2015	46	22	47.8	50	2.3	1.1
2016	37	15	40.5	37	2.5	1.0
Total	180	92	51.1	220	2.4	1.2

^a Sample size differs from adult females reported in Table 2, in cases where an adult female was not suitable for examination.

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. Mink occurred at low densities. Furthermore, pelt prices for mink harvested in Interior Alaska were low, so few trappers targeted them. Increased trapping effort for marten probably resulted in increased harvest of other species susceptible to marten sets such as mink, ermine, and red squirrel.

Hunter Residency and Success

Based on 655 harvest reports, only 2 (less than 1%) were nonresidents.

Season and Bag Limit

Trapping seasons and bag limits in Units 21B, 21D, and 24 during regulatory years 2012–2016, Alaska.

Species	Season	Bag limit
Arctic fox	1 Nov–28 Feb	No limit
Beaver	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 in Units 21B, 21D, and 24 during regulatory years 2012–2016, Alaska.

Species	Season	Bag limit
Arctic fox	1 Sep–15 Mar	2
Coyote	No closed season	No Limit
Lynx	1 Nov–28 Feb	2
Red fox	1 Sep–15 Mar	10
Wolverine	1 Sep–31 Mar	1

Transport Methods

Snowmachines are the primary means of transportation, with 3–4 trappers (4–6%) using airplanes. Highway vehicles or ATVs are used by a few individuals near Galena and Ruby, but their effort is restricted due to limited road and trail systems. A few beavers were harvested by people who used boats during the September season.

Based on weather data reported at both Galena and Bettles, Alaska, winter severity was mild RY12–RY16, with average or lower than average, temperatures, and snowfall (NOAA [n.d.]). Overall, trapping conditions were good for most trappers, although some reported rough trail conditions due to low snow accumulations.

Alaska Board of Game Actions and Emergency Orders

No actions or emergency orders occurred during RY12–RY16.

Recommendations for Activity 2.1

Continue harvest monitoring, however, participation in future trapper questionnaires will be discontinued due to low participation. Continue monitoring age and sex ratios and reproductive success of marten carcasses from trapper harvested marten. Develop a long-term dataset of these vital statistics to assess population trends and response to environmental effects.

3. Habitat Assessment–Enhancement

No habitat monitoring activity occurred during RY12–RY16, and no changes are recommended.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Harvest data is stored on an internal database housed on ADF&G's Wildlife Information Network (WinfoNet) server (<http://winfonet.alaska.gov/index.cfm>) and archived in WinfoNet under Harvest Information and Survey and Inventory Tools.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

It is unknown whether the ANS objective (set at 90 percent of the harvestable portion for each furbearer species) was met because abundance estimates for any furbearer species were not obtained and the sustainable harvest rate for each furbearer species is unknown.

Although furbearer populations were likely sufficient to meet the harvest and sustained consumptive and nonconsumptive use objectives, we did not obtain population estimates that would allow objectives M1–M4 to be assessed, therefore, they will be discontinued from the RY17–RY21 Plan.

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 21B, 21C, 21D, and 24. We will continue to report the harvest of lynx, river otter, and wolverine as these data may be useful for trappers, advisory committees, and the Board of Game.

REVIEW OF GOALS

The previous report period goals to 1) Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem to ensure their capability of providing sustained opportunities for trapping furbearers, and 2) Provide people with sustained opportunities to participate in hunting, subsistence use, viewing, and photographing of furbearers, was combined into a single goal for RY17–RY21. The modified single goal also incorporates the previous report period management objective to maintain populations at levels sufficient to provide for sustained consumptive and nonconsumptive uses.

GOALS

G1. Provide for sustained opportunity for harvesting and viewing furbearers.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

C1. Units 21B, 21C, 21D, and 24 has a positive finding for customary and traditional uses for furbearers. Amounts reasonably necessary for subsistence uses is set at 90 percent of the harvestable portion for each furbearer species.

Intensive Management

None.

MANAGEMENT OBJECTIVES

M1. Provide marten trappers with vital statistics of marten from their trapline.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor trends in marten harvest, assess annual age and sex structure, and assess reproductive performance using marten carcasses obtained from trappers (M1).

Data Needs

Marten are the most pursued furbearer in the Galena Management Area, and because they are highly susceptible to trapping, they have a greater potential of over harvest compared to other furbearers. Marten are not required to be sealed in Unit 21B, 21C, 21D, and 24, so collection of carcasses from a consistent group of trappers will provide an index to annual harvest, age and sex composition of the harvest, pregnancy rate, fecundity rate, and blastocysts-to-adult female ratios. In addition, trends and habitat quality for marten are valuable indicators for other microtine furbearer species.

Methods

Marten harvest, annual age and sex structure, and reproductive performance will be assessed using marten purchased from trappers in the Galena Management Area and handled according to established methods (K. Nicholson, Wildlife Research Biologist, ADF&G, Galena, personal communication, 30 January 2019). Fresh or frozen carcasses are received from trappers. If the carcass is frozen, it will be thawed for these procedures. The carcasses are sorted by month trapped if the information is provided by the trapper. Carcasses will then be sorted by sex based on external genitalia. Age class will be assigned based on development of the sagittal crest, coalescence of temporal musculature, and/or gross size of the uterine horns (Poole et al. 1994). ADF&G biologists will extract reproductive tracts from adult females and use water filled syringe to flush each uterine horn with ≥ 3 ml of water injected through a 20-gauge needle inserted immediately below the ovary into a clean petri dish (Strickland and Douglas 1987). We will count all blastocysts occurring in the flushed solution using a 10 \times power dissecting scope. Trappers providing carcasses will be interviewed to determine effort based on number of traps set per month and drainages trapped. Each trapping location is assigned a location using Uniform Coding Units (UCUs), which are further subdivided areas used by DWC within each GMU that provide a higher level of precision in analysing harvest data.

Because marten have delayed implantation, and mating occurs prior to the trapping season, we considered the pregnancy rates and mean count of blastocysts representative for that year (Flynn and Schumacher 2009, Poole et al. 1994). Additionally, because all reproductive tracts will be flushed using the same methods, we assume the number of blastocysts missed will be consistent

across samples, management areas, and years, and we recognize that using blastocysts may potentially underestimate our fecundity estimates. The primary cause of reduced counts of blastocysts will be disintegration caused by poor preservation of the carcasses (Strickland et al. 1982).

Two middle toes and the lower jaw, including both incisors, both canines, and the first 2 premolars will be collected from each carcass and stored in a loess solution (7% glycerol, 51% ethyl alcohol, and 42% water). When funding allows, teeth will be submitted for aging and the remaining samples will be archived. Marten carcass data will be recorded on the data form in Appendix A.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Report annual harvest of species required by regulation to be sealed (lynx, wolverine, and river otter (C1)).

Data Needs

Harvest data are not needed to achieve management goals or to evaluate codified objectives. The current opportunity to harvest furbearers is not restricted because there are no overharvest concerns effecting furbearer abundance or population sustainability. However, tracking harvest of those species required by regulation to be sealed may provide useful information for trappers, advisory committees, and the Board of Game.

Methods

Total harvest for lynx, river otter, and wolverine, by Unit (21B, 21C, 21D, and 24) and cumulative harvest will be queried from sealing data reported in WinfoNet.

3. Habitat Assessment-Enhancement

Activities to assess or enhance habitat for furbearers are not currently needed to achieve the management goals or to evaluate codified objectives.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Harvest data will be stored on an internal database housed on ADF&G's Wildlife Information Network (WinfoNet) server (<http://winfonet.alaska.gov/index.cfm>) and archived in WinfoNet under Harvest Information and Survey and Inventory Tools.

Agreements

None.

Permitting

None.

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