

CHARACTERISTICS, TRAPPING TECHNIQUES, AND VIEWS OF TRAPPERS ON A WILDLIFE REFUGE IN ALASKA

THEODORE N. BAILEY, U.S. Fish and Wildlife Service, Kenai National Moose Range, P.O. Box 2139, Soldotna, Alaska 99669

ABSTRACT: Persons requesting permits to trap on a 691,000-ha wildlife refuge on Alaska's Kenai Peninsula answered questions about their trapping experience, trapping techniques, and views on trapping on the refuge and its impacts. Fifty-one percent had no trapping experience outside Alaska and 24 percent had no previous experience at all. Less than 21 percent had more than 10 yr of experience trapping in the state. Outdoor adventure was the main reason for trapping, most trappers trapped for land as well as aquatic furbearers; the wolf, coyote, and wolverine were considered the most difficult to trap. Forty-five percent of the respondents had not trapped on the refuge before. Less than 39 percent reported having no significant problems trapping on the refuge, yet only 32 percent favored changing trapping procedures. Interference by nontrappers and stolen traps were reported by 25 percent of the respondents. The majority of trappers indicated they would support additional regulations or closed areas to protect furbearers. Of those trappers who felt high prices were contributing to excessive trapping pressure on long-haired furbearers, most listed the lynx as the most vulnerable species.

The behavior and attitudes of people can influence the success or failure of wildlife management programs as much as wildlife management techniques. The attitudes and goals of those deriving benefits from wildlife should therefore be one of the elements considered in developing management programs. Trappers are but one of many user groups who derive benefits from wildlife on wildlife refuges. To better understand trappers on the Kenai National Moose Range wildlife refuge in Alaska, persons obtaining permits to trap on the refuge during the 1977 - 1978 season were requested to provide information about their experience, trapping techniques, and views. The findings of that survey are the subject of this report.

TRAPPING ON A WILDLIFE REFUGE IN ALASKA

MATERIALS AND METHODS

All trappers are required to obtain a free permit each year to trap on the refuge. During the 1977 - 1978 season, there was no limit on the number of permits issued and trappers were free to select their trapping areas. Refuge personnel contacted all trappers as they obtained their permits at refuge headquarters. The purpose of the survey was explained to the trappers who were then given the opportunity to answer 19 multiple-choice and fill-in-the-blank questions regarding trapping on the refuge. All 86 trapping permit holders in 1977 - 1978 provided answers to most of the questions. Only those trappers responding to specific questions were included in that question's response rate. Response rates varied from 77 - 100 percent per question. For example, some trappers would not answer questions without additional data or because they did not feel knowledgeable about the particular subject. Some trappers checked more than 1 answer on multiple-choice questions and 2 questions were not applicable to all trappers.

THE KENAI NATIONAL MOOSE RANGE

The Kenai National Moose Range was established as a wildlife refuge by executive order in 1941 to protect the habitat and breeding grounds of the giant Kenai moose and other wildlife values. This 691,000-ha (1.7 million acre) refuge is located on the western side of the Kenai Peninsula in southcentral Alaska. About 70 percent of the refuge is boreal forest comprised of black and white spruce (Picea mariana, P. glauca), paper birch (Betula papyrifera), aspen (Populus tremuloides), willow (Salix sp.), and alder (Alnus sp.). The northern 1/3 of the boreal forest region is dotted with 2,000 lakes, ponds, and bogs; the central 1/3 is dominated by gently, westward-sloping benchlands; and the southern 1/3 is composed of upland and lowland terrain. Another 20 percent of the refuge is sub-alpine to alpine habitat in the Kenai Mountains which rise to a height of 1,820 m. Beyond the alpine zone is a zone of glaciers and permanent icefields which comprise about 10 percent of the refuge.

Furbearers on the refuge include aquatic species such as the beaver (Castor canadensis), otter (Lutra canadensis), mink (Mustela vison), and muskrat (Ondatra zibethicus). Common terrestrial furbearers are the lynx

(Lynx canadensis), coyote (Canis latrans), wolverine (Gulo gulo), and weasel (Mustela erminea). Red fox (Vulpes vulpes) and marten (Martes americana) are rare. Wolves (Canis lupus) were extirpated from the Kenai Peninsula in the early 1900s but since the 1960s have recolonized and now are found throughout most wolf habitat on the refuge (Peterson and Woolington 1979).

Trapper access to the refuge is by 35 km of paved highway, 50 km of maintained dirt roads, 3,000 km of seismic trails and an unmaintained road. Aircraft are permitted to land on most of the refuge's lakes during the trapping season. Wheeled vehicular traffic is restricted to maintained roads but snowmachines are permitted on most unmaintained roads and seismic trails.

THE HUMAN POPULATION

The human population in the Kenai Borough (predominantly the Kenai Peninsula) grew from 9,053 in 1960 - 25,335 in 1978 for an average annual increase of 6.1 percent. In 1978 most of these people were concentrated in the towns of Kenai (17 percent), Soldotna (9 percent), and 5 other smaller population centers in the central Peninsula (35 percent). On a borough-wide basis in 1979, 29 percent of the population had lived in their communities less than 2 continuous years, 24 percent 2 - 5 yr, 18 percent 6 - 10 yr, and 29 percent more than 10 yr. In 1977 the average income per worker was \$23,427 in the Kenai/Cook Inlet area, with most of the 7,340 workers employed in construction (25 percent), state and local government (14 percent), manufacturing (14 percent), and the retail trade (11 percent)(Kenai Peninsula Borough 1980).

People from the Anchorage Basin area also use the Kenai National Moose Range. Only about 16 km by air and 190 km by paved highway from the refuge, this largest population center of Alaska contains about 200,000 people. Nearly all Anchorage trappers using the refuge trap by aircraft.

TRAPPER STATISTICS

Statistics were taken from permits and harvest reports during the 1977 - 1978 season. Of the 86 permit holders, 73 (85 percent) were from the

TRAPPING ON A WILDLIFE REFUGE IN ALASKA

Kenai Peninsula, 9 (10 percent) from Anchorage and 4 (5 percent) from other parts of Alaska. Most of the Kenai Peninsula trappers were from Soldotna (28) and Kenai (17). Of 83 trappers reporting mode of transportation while trapping, 59 (71 percent) used wheeled vehicles, 31 (37 percent) used snowmachines, 22 (26 percent) used aircraft, and 1 used a dogsled. Four trappers used 3 transportation modes (vehicle, snowmachine and aircraft).

Sixty-four trappers (74 percent) returned harvest reports after the trapping season. Twenty-two (34 percent) reported they did not trap and 10 (16 percent) trapped but did not catch a furbearer. Of the 32 successful trappers, 17 reported capturing only land furbearers, 12 both land and aquatic furbearers, and 3 only aquatic furbearers.

Reporting trappers took 304 furbearers during the 1977 - 1978 season (Table 1). Lynx and coyote were captured by more trappers than other land furbearers. Lynx, because of their high pelt value, were probably the most sought-after land furbearer and 50 percent of the successful trappers (17) caught at least 1 lynx. The greatest number of lynx taken by a single trapper was 15. Greatest numbers of other species taken by single trappers were 10 mink, 6 beaver, 6 weasel, 5 coyote, 3 otter, 2 wolf, and 2 wolverine.

RESULTS

Trapper Characteristics

Based on years of trapping experience in Alaska, 24 percent (21) of the trappers had no previous experience, 35 percent (30) 1 - 5 yr, 20 percent (17) 5 - 10 yr, and 21 percent (18) more than 10 yr of Alaskan trapping experience. Slightly more than 50 percent of all trappers had not trapped outside Alaska (Table 2). The majority (65 percent) of trappers who had never previously trapped in Alaska also had never previously trapped outside of Alaska. A majority (56 percent) of trappers with the most Alaskan trapping experience apparently gained their experience in Alaska instead of outside the state. In summary, most Alaskan-experienced trappers, with the exception of those trapping 5 - 10 yr, gained their trapping experience in Alaska.

Table 1. Furbearer pelt values,^a harvest and capture rates on the Kenai National Moose Range, 1977 - 1978. (Source: T. Whitaker, Peninsula Furs, Sterling, Alaska.)

Furbearer	Average Pelt Value ^a (\$)	1977 - 1978 Total Taken	Average Number per Successful Trapper		
			Aircraft Trappers	Non-aircraft Trappers	All Trappers
Lynx	\$325.00	43	4.5	1.9	1.3
Coyote	47.50	34	1.0	2.4	1.1
Weasel	1.00	14	1.0	2.6	0.4
Wolf	200.00	8	1.0	1.0	0.3
Wolverine	200.00	4	1.5	1.0	0.1
Muskrat	2.00	140	1.0	34.8	4.4
Mink	15.00	33	2.5	3.1	1.0
Beaver	40.00	19	3.0	2.2	0.6
Otter	52.50	9	2.5	1.3	0.3

^aBased on 1978 - 1979 average values for Kenai Peninsula pelts.

The majority of all trappers (67 percent), regardless of their Alaska trapping experience, reported that they trapped for the outdoor adventure and personal enjoyment. Less than 50 percent of the trappers trapped to supplement their income and less than 10 percent claimed that trapping furbearers was their main source of income.

Most trappers appeared to be opportunists. Only 5 percent attempted to capture only aquatic furbearers and only 14 percent attempted to capture only land furbearers. More than 80 percent reported they trapped for all furbearers. Pelt values presumably had some influence on this response. Pelt values were generally 5 times higher for land furbearers than aquatic furbearers during the period of the survey.

The wolf was considered to be the most difficult species to trap regardless of the trapper's Alaskan trapping experience. More than 50 percent of all trappers considered the wolf difficult to capture, followed by the coyote (17 percent), wolverine (16 percent), and otter (7 percent). The more experience trappers had in Alaska, the higher they rated the wolf in

difficulty of capture. Because few trappers actually had taken a wolf by 1977 and because the wolf was considered too abundant on the refuge by some trappers, wolves were probably assumed very difficult to capture. Trappers with 5 yr or less experience in Alaska rated the lynx as difficult to capture, but trappers with more than 5 yr did not rate the lynx as difficult to capture. No other trends were apparent in the difficult-to-trap ratings attributed to other species.

Trapping Techniques

The leghold trap was the most popular type of trap used by refuge trappers (89 percent) for land furbearers, followed by snares and killer-type traps (Table 3). Trappers with more than 10 yr of trapping experience in Alaska used snares more often (56 percent) than any other group of trappers. Trappers with no previous Alaska trapping experience used snares the least (26 percent).

Bait sets were the most common set used by trappers to capture land furbearers. Eighty-two percent of all respondents used bait sets, whereas only 40 percent used scent-only sets. The more experienced Alaskan trappers (more than 5 yr experience) used scent-only sets more often (50 percent) than trappers with less experience (33 percent). Trappers with more than 10 yr experience in Alaska used blind or trail sets more often (56 percent) than other trappers. Trappers with no previous trapping experience in Alaska used blind or trail sets the least (39 percent).

Trappers used leghold traps only slightly more often than killer-type traps to capture aquatic furbearers. Trappers with no previous Alaska trapping experience tended to use killer-type traps more often than other groups of trappers. Trail and blind sets and bait sets were used about equally by all trappers to capture aquatic furbearers. Trappers with no previous Alaska trapping experience used blind and trail sets most often (76 percent) and trappers with the most experience used blind and trail sets least often (47 percent) to capture aquatic furbearers. Trappers with more than 10 yr of Alaska experience trapped least often in aquatic furbearer food caches and feeding areas. The majority (68 percent) of all trappers trapped aquatic furbearers under the ice, but those trappers with 1 - 5 yr experience trapped under the ice least often.

Table 3. Techniques of trappers on the Kenai National Moose Range in relation to years of trapping experience in Alaska, 1977 - 1978.

Alaska Trapping Experience									
Trapping Technique	No Previous Trapping Experience		Trapped 1 - 5 yr		Trapped 5 - 10 yr		Trapped Over 10 yr		Total
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	
<u>Traps Used For Land Furbearers</u>									
Leghold	(15)	79	(26)	90	(15)	94	(15)	94	(71) 89
Killer-type	(4)	21	(6)	21	(8)	50	(5)	31	(23) 29
Snares	(5)	26	(11)	38	(5)	31	(9)	56	(30) 38
<u>Sets Used for Land Furbearers</u>									
Bait sets	(16)	89	(21)	75	(14)	88	(13)	81	(64) 82
Scent-only sets	(3)	17	(12)	43	(8)	50	(8)	50	(31) 40
Trail-blind sets	(7)	39	(14)	50	(7)	44	(9)	56	(37) 47
<u>Traps Used for Aquatic Furbearers</u>									
Leghold	(10)	63	(19)	70	(9)	60	(9)	60	(47) 64
Killer-type	(14)	88	(12)	44	(10)	67	(7)	47	(43) 59
<u>Sets Used for Aquatic Furbearers</u>									
Food cache/feeding areas	(6)	35	(8)	29	(6)	40	(3)	20	(23) 31
Bait sets	(7)	41	(18)	64	(7)	47	(11)	73	(43) 57
Trail-blind sets	(13)	76	(17)	61	(8)	53	(7)	47	(45) 60
<u>Trap for Aquatic Furbearers Under Ice</u>									
Yes	(12)	71	(14)	54	(12)	80	(12)	75	(50) 68
No	(5)	29	(12)	46	(3)	20	(4)	25	(24) 32

Views of Trappers

This series of questions to trappers was related to their views of the status of furbearer populations on the refuge, the status of trapping on the refuge, and problems they had encountered on their traplines (Table 4). Although 45 percent of the respondents had not previously trapped on the refuge, this percentage decreased with increased trapping experience in Alaska.

The majority of trappers (61 percent) believed that furbearer populations on the refuge were in balance with the food supply. This was especially the conviction of trappers with no previous trapping experience in Alaska (83 percent). Trappers with 5 - 10 yr of Alaska trapping experience (more than any other group of trappers) believed there was an overpopulation of predators. Ten trappers believed wolves were too abundant and 5 believed coyotes were too plentiful. Trappers with no previous trapping experience in Alaska and trappers with more than 10 yr experience were less likely to believe some furbearer populations were too large. The few (11) trappers who believed furbearer populations were too small cited lynx (3), wolves (2), beaver (1), and marten (1) as examples.

The majority of trappers (71 percent) on the refuge felt that their trapping enjoyment and success were reduced by interference from nontrappers (19), limited access (16), excessive regulations (11), and too many trappers (5). The most satisfied group appeared to be trappers with no previous trapping experience and the least satisfied were trappers with 5 - 10 yr experience. The more experience trappers had, the more likely they were to feel there were too many trappers. The most frequent problem listed by trappers with no previous experience was limited access, by trappers with 1 - 5 yr experience excessive regulations, by trappers with 5 - 10 yr and more than 10 yr experience interference by nontrappers.

Many trappers (40 percent) had their sets visited by other persons and 27 percent had traps stolen. Only 6 percent had conflicts with other trappers. Half of the trappers with 5 - 10 yr experience had both traps and furbearers stolen, but only 37 percent of those trapping more than 10 yr had traps and furbearers stolen.

Table 4. Views of trappers on furbearer status, trapping conditions and trapline problems on the Kenai National Moose Range, 1977 - 1978.

	Alaska Trapping Experience									
	No Previous Trapping Experience		Trapped 1 - 5 yr		Trapped 5 - 10 yr		Trapped Over 10 yr		Total	
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)
Trapper's Perceptions, Opinions and Views of Trapping Conditions on the Refuge										
<u>Trapping History</u>										
Did not previously trap on the refuge	(10)	63	(12)	57	(3)	21	(3)	18	(28)	45
<u>Furbearer Status</u>										
Balanced populations	(15)	83	(16)	59	(5)	33	(10)	67	(46)	61
Under-populated	(2)	11	(3)	11	(4)	27	(2)	13	(11)	15
Over-populated	(1)	6	(8)	30	(8)	53	(3)	20	(20)	27
<u>Trapping Conditions</u>										
Excessive regulations	(2)	13	(6)	24	(1)	7	(2)	14	(11)	16
Limited access	(4)	27	(5)	20	(4)	27	(3)	21	(16)	23
Excessive number of trappers	-	-	(1)	4	(2)	13	(2)	14	(5)	7
Interference by nontrappers	(2)	13	(5)	20	(8)	53	(4)	29	(19)	28
No problems	(7)	47	(11)	44	(3)	20	(6)	43	(27)	39
<u>Trapline Problems</u>										
Stolen traps	(1)	6	(0)	0	(11)	79	(5)	45	(17)	27
Stolen traps and furbearers	(0)	0	(1)	21	(7)	50	(3)	27	(11)	18
Trapper conflicts	(1)	6	(0)	0	(2)	14	(1)	9	(4)	6
Sets visited	(1)	6	(8)	38	(9)	64	(7)	64	(25)	40

Response to Change

Despite some apparent dissatisfaction with trapping conditions on the refuge, approximately 2/3 of all trappers did not favor any change in current refuge trapping procedures (Table 5). More trappers in the group with over 10 yr experience favored changes than any other group of trappers. Of those favoring change, the majority offered their own suggestions for change rather than selecting 1 of the given alternatives. Their suggestions ranged from changes favoring experienced trappers to changes giving equal chance to all trappers regardless of experience or income.

The majority of all trappers, with the exception of those with 5 - 10 yr experience, favored additional restrictions or closed areas to protect furbearers if the need arose. Trappers with 5 - 10 yr experience were equally divided on these issues. Interestingly, trappers with more than 10 yr experience and trappers with no previous experience shared nearly equal concern in the protection of furbearers by closing areas to trapping.

The majority of trappers (66 percent) did not believe high prices for long-haired fur contributed to excessive trapping pressure on some species. Only the majority of trappers with more than 10 yr trapping experience believed high prices may have contributed to excessive trapping pressure. Of 32 responses to the question about which species trappers thought were being trapped excessively, lynx were the most frequently listed (16), followed by wolf (6), wolverine (4), coyote (3), all long-haired species (2), and all high-priced furs (1).

DISCUSSION

Public use on the Kenai National Moose Range is greater than on any other refuge in Alaska. Furbearer populations are more vulnerable to local or widespread exploitation than in more remote sectors of Alaska because the refuge is near major population centers; accessible to trappers because of its roads, seismic trails, and lakes; and the relatively high income in the region enables trappers to own snowmachines, 4-wheel drive vehicles or aircraft. Over the past 5 yr the high value of certain

Table 5. Response to changes in trapping conditions and the impact high fur prices have on trapping pressure as expressed by trappers on the Kenai National Moose Range, 1977 - 1978.

Alaska Trapping Experience										
Response of Trappers	No Previous Trapping Experience		Trapped 1 - 5 yr		Trapped 5 - 10 yr		Trapped Over 10 yr		Total	
	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)	(N)	(%)
<u>Favor Changing Current Trapping Conditions?</u>										
Yes										
No	(5)	29	(8)	30	(5)	31	(6)	40	(24)	32
	(12)	71	(19)	70	(11)	69	(9)	60	(51)	68
<u>Suggested Changes:</u>										
Exclusive areas - random drawing	-	-	(1)	9	(2)	50	(1)	14	(4)	13
Exclusive areas - highest bidder	-	-	(2)	18	(1)	25	(1)	14	(1)	3
Limit number of trappers	(2)	22	(8)	73	(2)	50	(5)	71	(22)	71
Other	(7)	78	(8)	73	(2)	50	(5)	71	(22)	71
<u>Support Additional Regulations to Protect Furbearers?</u>										
Yes	(16)	84	(20)	74	(8)	50	(12)	75	(56)	72
No	(3)	16	(7)	26	(8)	50	(4)	25	(22)	28
<u>Support Closure of Areas to Protect Furbearers?</u>										
Yes	(14)	74	(19)	66	(7)	50	(11)	73	(51)	66
No	(5)	26	(10)	34	(7)	50	(4)	27	(26)	34
<u>High Long-Hair Prices Cause Excessive Trapping Pressure?</u>										
Yes	(3)	19	(19)	32	(5)	31	(9)	56	(26)	34
No	(13)	81	(19)	68	(11)	69	(7)	44	(50)	66

long-haired furs has also stimulated an interest in trapping in the area. Trapping to many persons appears to be one of the components of an Alaskan lifestyle. But even with the high value of long-hair fur during the past several years, trappers cannot make enough profit to consider trapping their sole source of income. For example, a trapper capturing 15 lynx must deduct from the pelt sales the cost of running a car, snow-machine, or aircraft. The profit derived would be but a fraction of the average personal income in the area. For these reasons, trapping on the refuge under the present system does not appear economical from a trapper's viewpoint. Why then do the trappers come?

The results of this survey suggest that trapping may be considered by many to be an attractive aspect of Alaskan adventure or the Alaskan life style. The apparent high turnover rate of trappers each year as measured by the number of persons obtaining permits for the 1st time and by previous permit holders failing to renew permits indicate that many people have little success trapping on the refuge. The fact that nearly 1/4 of all trappers had no previous trapping experience and that 45 percent had not trapped previously on the refuge suggests that many people trap for the 1st time on the refuge. Unsuccessful and nonrepeating trappers appear to be replaced annually by newcomers. An estimated 1 of every 340 persons on the Kenai Peninsula obtained a refuge trapping permit during the 1977 - 1978 season.

The wolf apparently plays a significant role in influencing the attitudes of refuge trappers. One-half of the trappers on the refuge considered the wolf the most difficult species to trap and some believed wolves were too abundant. This attitude probably stems from an ongoing controversy regarding wolves on the refuge and their influence on the refuge moose population that was once larger (because of other ecological factors in addition to predation). It appears that it is a challenge to many trappers to capture a wolf and to do so (in their opinion) enhances their prowess as outdoorsmen. Others may feel that they are improving the moose-wolf relationship by reducing the number of wolves.

The contrast between groups of trappers based on their years of Alaska trapping experience was informative. The majority of trappers with the most trapping experience believed furbearer populations were in balance

TRAPPING ON A WILDLIFE REFUGE IN ALASKA

with the food supply, favored additional regulations (if needed) to protect furbearers, felt trapping pressure may have been excessive on some species (especially lynx) and as a group were most likely to accept changes in trapping procedures. Trappers with 5 - 10 yr of Alaska trapping experience generally had quite different attitudes than the more experienced trappers. They were the least likely to believe furbearer populations were balanced with the food supply, did not as a majority favor additional regulations to protect furbearers, did not feel trapping of certain species was excessive, and were the least satisfied with the current trapping conditions. As a group, they believed wolves were too numerous, perhaps because they could remember when wolves were less numerous and still recolonizing their habitat on the Peninsula.

Trappers with less than 5 yr experience were more likely to believe in balanced furbearer populations, favored protection of furbearers (if needed), were more satisfied with the current trapping conditions, but did not believe trapping pressure was excessive on long-haired furbearers. Less experienced trappers were more apt to use killer-type traps for aquatic furbearers and favored blind or trail sets for aquatic furbearers. More experienced trappers favored leghold traps but used snares more often than less experienced trappers.

In summary, it appeared that trapping was an important part of Alaskan lifestyle and most trappers on the refuge were concerned about the status of most furbearers on the refuge and favored steps to protect species from the potential adverse impacts of trapping if they could be convinced of such a need. The wolf appeared to be an exception, probably because of its perceived role as a predator on moose which are still a significant source of food for some trappers. The wolf was apparently viewed as a predator competing with man rather than as a traditional furbearer. Although most trappers identified various problems which in their opinion interfered with the enjoyment of trapping on the refuge, the majority did not favor any change in trapping procedures which might reduce their opportunity to experience that enjoyment.

LITERATURE CITED

- KENAI PENINSULA BOROUGH. 1980. Situation and prospects: Kenai Peninsula Borough. Plan. Dept., Kenai Peninsula Borough, Soldotna, Alaska. 135 pp.
- PETERSON, R.O., and J.D. WOOLINGTON. 1979. The extirpation and reappearance of wolves on the Kenai Peninsula, Alaska. In: Portland Wolf Symposium Proceedings, 12 - 16 August 1979, Portland, Oregon. 19 pp.