Furbearer Management Technique Development (Research Progress Report)

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SUMMARY:

A comprehensive process to develop furbearer management techniques is presented. Research is focused on 4 projects that represent furbearer management issues, other than those affecting wolves (Canis lupus), of greatest concern in Southcentral Alaska. The goals of these 4 projects are: (1) develop ground and aerial techniques for counting tracks in winter to monitor the distribution and trend of marten (Martes americana), lynx (Felis lynx), and snowshoe hare (Lepus americanus) populations in Southcentral Alaska; (2) assess the accuracy of existing density-estimation techniques and develop techniques to monitor the trend and harvest potential of wolverine (Gulo gulo) populations in Southcentral Alaska; (3) develop techniques to index river otter (Lutra canadensis) populations, determine the availability and use of their habitat, and assess their harvest potential in coastal environments of Southcentral Alaska; and (4) develop a rule-based lynx management model for use in the decision-making process in the lynx-tracking harvest strategy.

Golden (1994) reported results of tests on the variability among track deposition and retention rates for marten, lynx, and snowshoe hare populations in several areas of Interior and Southcentral Alaska. Since then, plans were established to examine effects that track sightability and observer bias may have on the use of winter track counts as indices of relative abundance of furbearers and to evaluate how indices from harvest-related data compare with track-count data. No field work was conducted on these

factors during this reporting period.

Progress on radiocollaring new wolverines and testing the accuracy of 2 density estimation techniques was limited due to poor snow and weather conditions. We radiocollared 6 new wolverines in February and March, 1995 and 1996. These captures increased the total number of wolverines radiocollared in the study area since April, 1992 to 18, 7 females and 11 males. We made 4 attempts to conduct density-estimation tests in winter 1994-95 and all were unsuccessful. Weather conditions permitted only a partial density estimate and an inconclusive test of the transect-intercept probability sampling scheme on 15 February, 1996. During the survey, we encountered tracks of 6 individual wolverines in a 1611.4-km² area. We weighted calculations for unequal transect lengths to obtain a calculated population estimate of 8.3 wolverines (SE = 3.6; 90% CI = 6-18.2) in the count area, equivalent to an estimated density of 5.2 wolverines/1000 km² (90% CI = 3.7-11.3). We estimated wolverine density in 1 of 2 trend-count areas on the Kenai Peninsula using the sample-unit probability estimation technique. We counted tracks of 5 individual wolverines in the 2,050-km² area. This resulted in a calculated population size of 10.7 wolverines (SE = 4.2; 90% CI = 5-17.5) in the count area at an estimated density of 5.2 wolverines/1000 km² (90% CI = 3.8-8.5). This density was similar to densities of 4.7-5.2 wolverines/1000 km² found during other estimates in the eastern Talkeetna Mountains, the northern Chugach Range, the western Chugach Range, and the Chugach Mountains east of Anchorage. Wolverine harvest in 1994-95 was 11 for Unit 11 and 35 for Unit 13. In 1995-96 the take in Unit 11 dropped to 4 but remained about the same at 31 in Unit 13. Harvest in Unit 13A, which contains the eastern Talkeetna Mountains study area, was 6 in 1994-95 and 3 in 1995-96. One of the wolverines taken in Unit 13A in 1994-95 was a radiocollared animal. Four of the 18 wolverines collared since April 1992 have been harvested by trappers. Three of the 4 were trapped in the study area; 1 was taken by a trapper on the north side of the Alaska Range, approximately 144 km from its original capture location. A discussion of wolverine harvests and habitat characteristics on the Kenai Peninsula, prepared by Audrey Magoun for the 8th Northern Furbearer Conference, is presented in the Appendix.

We reexamined 51 river otter latrine sites in Tutka and Jakalof Bays originally found in 1994 along the south side of Kachemak Bay on the Kenai Peninsula. The number of scats per latrine site among the 23 sites that were sampled on 3 surveys ranged from 0 to 36; averages were 9.5 (SD = 7.5; n = 219) on 2-4 July, 14 (SD = 8.8; n = 323) on 24-25 July, and 8.9 (SD = 9.1; n = 205) on 15-17 August (Table 2). Mean scat deposition rates for those same sampling periods were 0.6 (SD = 0.4), 0.6 (SD = 0.4), and 0.4 (SD = 0.4) scats/day, respectively, which were significantly different (Kruskal-Wallis Test, P = 0.047, Chi² = 6.10, df = 2). The high variability of the rates reflects the wide difference in use of latrine sites by the river otters as the summer progressed. We set 16 Hancock live traps on 15 of the latrine sites and captured 5 otters after an average of 40.2 trap nights per otter. Radiotransmitters were surgically implanted into 2 females and 2 males, and we radiotracked these otters a combined total of 83 times between May, 1995 and June, 1996. Each of the animals were found on both sides and along the full length of Tutka Bay. One male traveled between Tutka Bay and nearby

Sadie Cove, Jakalof Bay, and Kasitsna Bay. Preliminary analysis of 90 scat samples from 38 latrine sites sampled in 1995 indicates the river otters eat a wide variety of bony fishes.

I used a computer program shell to develop a rule-based lynx management model. I built upon an initial 50-rule model to develop a 257-rule prototype designed to assist wildlife managers in the decision-making process as part of the lynx tracking harvest strategy. This modeling approach, known as a knowledge system or expert system, incorporates the user's experience and available information into a decision tree. This model incorporates qualitative and quantitative variables the user provides. It calculates the potential of the lynx population in question. Population potential is a function of lynx abundance, food availability, production, and survival. The estimated optimal yield of the population is based on its potential and estimated size and leads to the calculation of the target harvest index. Harvest pressure is a function of lynx harvest, trapping effort, and the amount of refugia. The reciprocal of the target harvest index divided by the harvest pressure results in a determination of the risk factor to the lynx population. The risk factor in combination with the current lynx season results in a new season recommendation as the final choice in the model.

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