MARTEN USE OF POST-FIRE SERES IN THE ALASKAN TAIGA

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Abstract: To assess the effects of wildfire on marten (*Martes americana*) in interior Alaska, we studied habitat use in 3 post-fire seres: (1) tall shrub-sapling (1985 burn, 140 km^2), (2) dense tree (1966 burn, 210 km^2), and (3) 50 km^2 of mature coniferous forest (100-115 years old). Livetrapping and aerial telemetry were used to estimate habitat use of 42 marten. We used 2 habitat classification schemes: (1) burn feature (edge, burned interior, unburned interior, mature forest) and (2) forest type (coniferous, deciduous, mixed, scrub). We estimated habitat selection by 8 (4M:4F) marten ≥1 year old with ≥25 relocations each. To explain habitat selection, we estimated marten food habits from scats collected during 3 winters and compared relative abundance of microtines (Johnson et al. 1995) among seres. We also backtracked marten 72 km to infer frequency of subnivean and supranivean investigations, which we used as indices to foraging opportunity. High turnover of individuals (only 1 recapture among livetrapping sessions) and apparent lack of residency for most individuals suggested that the study area was a "sink" for non-breeding marten. Based on livetrapping success and tracks/km along snowmachine trails, marten were most abundant in the 1985 burn and least abundant in the 1966 burn. However, harvest data showed that marten in the 1985 burn were younger than in mature forest in the study area, and marten in the study area were younger and had lower ovulation rates than in mature forest adjacent to the study area. Marten did not exhibit selection for burn features but had a lower preference for deciduous forest compared to other types within home ranges. Biomass/effort of microtine rodents was different among years ($P = 0.02$) and among seres ($P = 0.06$; rank order: 1985 burn > mature forest > 1966 burn for all years). Most (76% of captures) *Microtus* spp. were found in the 1985 burn; however *Microtus* spp. composed only 12-30% of biomass each year for all seres combined. Microtines occurred in 78% of 240 marten scats, with order of diet preferences as *Microtus* spp. > *Clethrionomys rutilus* > *Sorex* for all 3 winters. Rank order for frequency of investigations was consistent with marten abundance and microtine biomass. Adult marten may not defend territories in sub-mature seres in the taiga because food availability is variable and resources necessary for natal denning are limited. If recent burns are sinks for non-breeding marten, fur trapping in recent burns might be a conservative and productive harvest strategy, although not all recent burns have abundant marten.

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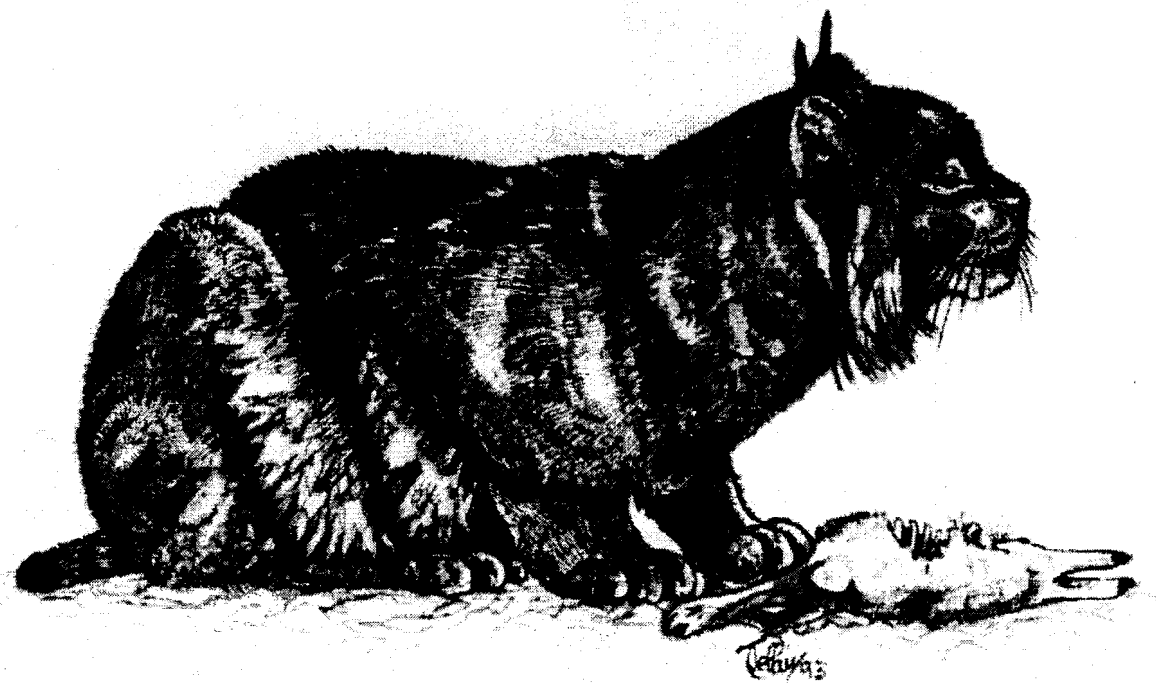

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