

Population Ecology of Wolverines Within Kobuk Valley National Park and Selawik National Wildlife Refuge

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Abstract:

The Kobuk River Valley (specifically Kobuk Valley National Park, KOVA) and the Selawik National Wildlife Refuge (SNWR) have historically experienced relatively high use for wolverine (*Gulo gulo*) hunting and trapping. During the last few years, concern has been expressed by agency personnel and local hunters/trappers that wolverine abundance has declined appreciably in northwestern Alaska. Sealing records indicate that the harvest has declined by 75% since the winter of 1977-1978. The ecological factors driving wolverine population parameters are unknown and thus the cause of this particular decline is unknown but may result from harvest pressure. We started collecting wolverine carcasses in FY 96 in an effort to assess population demographics and harvest impacts. We propose to significantly expand our current project to better understand wolverine population ecology by initiating a telemetry study. Our objectives are to:

1. Determine demographic parameters (i.e., survival, fecundity, age/sex structure)

for wolverines using radiotelemetry and carcass collections.

2. Determine home ranges and habitat selection of wolverines using conventional and satellite radiotransmitters.
3. Derive a population estimate for the study area based on telemetry data, carcass collection, and local knowledge.
4. Estimate the annual harvest of wolverines from the SNWR and KOVA using radiotelemetry, carcass collection, harvest questionnaires, and informal village contacts.
5. Quantify seasonal diet by sex/age classes
6. Use demographic data collected to develop a predictive model with which to determine the effects of various harvest strategies on wolverine populations, make long term management decisions with respect to trapping/hunting seasons and set harvest limits that meet legal requirements and traditional harvest practices.

Problem Statement:

Wolverines are highly prized for their use as a ruff and trim material for parkas because the fur possesses unique qualities which allow less frost accumulation than other furs. Due to a scavenging life style and large home range, wolverines are very vulnerable to harvest in the open habitats of northwestern Alaska. Under heavy trapping or hunting pressure, wolverine populations can decline over a large area because of their naturally low density and reproductive potential (Magoun 1985). Sealing records indicate that the harvest has declined by 75% in northwestern Alaska since the winter of 1977-1978 (Alaska Dept. of Fish and Game unpublished data). Wolverine harvest has declined statewide by 38% over the last 20 years (Golden et al. 1993). Because so little is known about what ecological factors drive wolverine population dynamics, the cause for these declines are largely unknown but may be related to harvest (Banci 1994). The current size and trend of this and other wolverine populations in northwestern Alaska remain unknown. Sealing data alone are inadequate for monitoring populations and protecting wolverines from overharvest (McCullough 1996). Sealing data does not provide population estimates, and the use of sealing reports are, at best, a minimum harvest estimate, as many wolverine pelts are used locally and are not sealed.

Managers within national parks in Alaska are mandated to manage harvests of wolverines to maintain "natural and healthy" populations of wolverines. Harvests within preserves must be managed to maintain "healthy" populations of wolverines. Whether these obligations are currently being met in the Western Arctic National Parklands (Kobuk Valley, Noatak, Cape Krusenstern, and Bering Land Bridge national parks and preserves) or other national parks in Alaska is unknown because we lack basic

information on ecology and population demographics of wolverines. Additionally, we currently do not have a reliable and efficient way to monitor population trends. In order to be able to predict population trends and harvest impacts, we need to determine population parameters (survival, fecundity, density, dispersal rates) and factors that drive these including the role of prey abundance, habitat factors, and harvest. By learning the role and relative importance of these factors, we will be able to meet agency mandates and ensure and achieve proper management.

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