Wolverine Project: Ecology of Captive-born Kits Raised in Natural Habitat

---

Update: Captive born wolverine kits were not available at planned project schedule.
At this time, the extended project is placed on "indefinite hold".

Principle Investigator: Dr. Audrey J. Magoun

Proposed Study Dates: Mid May - Mid Oct., 2004

In recent years, conservation biologists have become increasingly concerned about the lack of information on wolverines. Wolverines are difficult to observe in the wild because of their relative scarcity, secretive nature, and the remoteness of the habitats they frequent. Information on habitat suitability is particularly lacking for females with young. The first study of wild wolverine families was only completed in 1985 (Magoun 1985), providing new information on social behavior and habitat requirements of wolverine family units. However, direct sightings of female wolverines and their offspring are rare despite more than a dozen additional wolverine research projects since the early 1980's (Banci 1987, Copeland 1996, and others).

From limited observations of juvenile wolverines in the wild, researchers have developed a generalized understanding of the life history of wolverine kits in their first year. Kits are born around March 1 and remain in their natal den or a secondary (maternal) den until around May 1. A female with young uses an area of 40-200 mi^2. In May juveniles are often left at rendezvous sites while the adult female hunts. The female brings food back to the rendezvous site or moves the kits to a new site, perhaps close to food she has cached. During June the kits begin to spend less time at rendezvous sites and more time traveling with their mother. From July through October, the juveniles appear to become more independent of the adult female and begin hunting on their own, even though they remain in their natal area during that time. Dispersal of a juvenile may happen as early as October, but more often later in the winter or at the time of the kit's first birthday. Some kits remain for 2 years or more in their mother's home range.

Juveniles as young as 3 months have been observed scent-marking while traveling with the adult female. The function of scent-marking is unknown, but the intensity and frequency of scent-marking in wild wolverines suggest an important function in wolverine social interactions and perhaps in habitat familiarity and foraging success.

The availability of prey and secure resting sites may be important determinants of wolverine rearing habitat. Small prey items appear to be important in the diet of juvenile wolverine during their first summer, and the abundance of small prey may be an important factor determining where female wolverines raise their young. Habitat features, such as snow beds in spring and early summer, rock outcrops, fallen trees, and thick brush may serve as secure resting sites and influence movements of females with young. Only certain areas within the wolverine's circumpolar distribution may be suitable for rearing young.

The wolverine is found only in northern wilderness areas that are sufficiently large to support this wide-ranging species and its associated predators and prey. Human activities, including wilderness recreation and resource development, are expanding into North America's wilderness at a pace that alarms many conservationists. Areas receiving increased human use include high mountain basins that may be prime denning and rearing habitat for wolverines. There is almost no information on how wolverine families use these mountain areas or on what factors influence the choice of rearing habitat by females with young.

Goal, Objectives, and Strategies

The goal of this project is to provide information that will help conserve wolverines and their habitat. The specific objectives are to study the growth and behavior of captive-born wolverine kits that are raised in natural wolverine habitat, compare their behavior to that of wild wolverine kits, and recommend ways to use this information in conservation plans for wild wolverine populations.

To learn appreciably more about the behavior and habitat requirements of wolverine kits, innovative strategies for observing young wolverines are necessary. The encouraging results from the pilot project indicate that a more extensive study using captive-born kits can add valuable new information on the relationship of wolverine kits to their environment. (Click here to obtain a pilot study video)

Two wolverine kits will be obtained on loan from a private donor and shipped to Alaska at about 6 weeks of age. At 10 weeks of age, Dr. Magoun will take the young to a remote region of the Alaska Range where they will be raised free-ranging until they are 6-8 months old. The specific study area was selected based on its use by wild wolverines and similarity to habitats used by denning females in other areas (Magoun and Copeland 1998). Results from the study will be applicable to wolverine populations worldwide because of similarities in denning and rearing habitats throughout the range

of this wilderness species.

The kits will be fed natural prey, and radio collars will be used to track the kits when they begin to display independent movements. Observations on the development and behavior of the kits will be obtained on a daily basis. Specifically, information will be collected on growth, tooth eruption, food intake, weight gain, and motor development. Behavioral observations will be made on scent-marking, hunting, food caching, play, sleep, predator avoidance, grooming, vocalizing, and interactions with other animals. Observations will also be made on how the kits relate to different structural features in their environment. As particular behavior patterns emerge, research hypotheses will be developed and tested when possible.

The methodology proposed in this study has been used only in the pilot study and in an earlier endeavor by Krott (1959). Most of the observations collected during this project can be classified as "descriptive research" (Lehner 1996: p.13), which can be used to generate hypotheses and lead to additional experimental research. The number of animals that can be observed in the proposed project is necessarily small (wolverines have only 2 or 3 kits in a litter). However, by combining the results of all information available on wolverine kit behavior and habitat use, a considerable advance can be made in understanding the critical elements of wolverine kit rearing habitat. The results of this study will be presented in professional journals, popular articles, and on TWF's website both in narrative and video formats. The Wolverine Foundation anticipates that results from this research will be incorporated into conservation and habitat management plans for wolverines worldwide, particularly in areas where this species is considered at risk (Banci 1994).

Timeline

Kits are usually born in late February or early March. Two kits will be selected at about 6 weeks of age and bottle fed until weaned at 10 weeks of age. Fieldwork will begin in mid May, 2004 and continue until mid October, 2004, or until the kits become too difficult to follow.

Literature Cited

Magoun, A. J. and J. P. Copeland. 1998. Characteristics of wolverine reproductive den sites. J. Wildl. Manage. 62(4):1313-1320.

Copeland, J. P. 1996. Biology of the wolverine in central Idaho. Thesis, University of Idaho, Moscow, Idaho, USA.

Lehner, P. N. 1996. Handbook of ethological methods. 2nd. Ed. Cambridge University Press, Cambridge.

Banci, V. 1994. Wolverine. Pages 99-127 in L. F. Ruggiero et al. (eds.) The Scientific

Basis for Conserving Forest Carnivores—American Marten, Fisher, Lynx, and Wolverine in the Western United States. General Technical Report RM-254. Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado.

Banci, V. 1987. Ecology and behavior of wolverine in Yukon. Thesis, Simon Fraser University, Vancouver, British Columbia, Canada.

Magoun, A. J. 1985. Population characteristics, ecology, and management of wolverine in northwestern Alaska. Dissertation, University of Alaska, Fairbanks, Alaska, USA.

Krott, P. 1959. Der Vielfrass. Monographien der Wildsaugetiere 13:131-159. (In German).

| Home | About TWF | Wolverine Life History | Management | Art |
| **Current Research** | Bibliography | Our Directors | Donations | FAQ's | Kid's Page | Gift Shop |

THE WOLVERINE FOUNDATION, Inc.

9450 S. Black Cat Road
Kuna, ID 83634-1118 USA

208-922-4746

gulo@wolverinefoundation.org