

## Distribution of the Wolverine in Idaho as Determined by Mail Questionnaire

### Abstract

The wolverine was once thought to be extinct in Idaho, but reports of its occurrence persist. In order to better determine the status and distribution of this rare species, questionnaires were sent to biologists and trappers statewide in 1985. Responses to the questionnaires resulted in 10 confirmed and 89 probable reports of wolverines in Idaho between 1960 and 1987. At least three areas in the state (Selkirk Mountains, Lochsa and Kelly Creek drainages, Sawtooth and Smoky Mountains) appear to contain wolverine populations. These areas can be characterized as remote, mountainous habitat with little human disturbance. The present-day distribution of the wolverine in Idaho is probably in the mountainous portions of the state from the South Fork of the Boise River north to the Canadian border. Although this survey has provided insights into the current distribution of the wolverine in Idaho, detailed analysis on population status and ecology are needed.

### Introduction

Wolverine (*Gulo gulo*) numbers declined steadily in the contiguous United States (Wilson 1982) after the late 1800s. Today, they are uncommon in the lower 48 states and likely only occur in Oregon, Washington, California, Idaho, Montana, and Wyoming. Davis (1939) believed the wolverine to be extinct in Idaho by the 1930s. Pengelly (1951) summarized seven records of wolverine in Idaho from 1930 to 1949. These records were primarily from the northern Idaho counties of Bonner, Boundary, Kootenai, and Shoshone. The next verified records of wolverines in the state were two kills, one in northern Idaho in 1953 and one in southern Idaho in 1954.

Larrison and Johnson (1981) considered the wolverine to be rare and restricted in distribution to areas north of the Salmon River Mountains and to the mountains of southeastern Idaho. Because of its restricted distribution and apparent rarity in Idaho, the Idaho Department of Fish and Game has classified the wolverine as a protected species since 1965. In addition, Region 1 of the U.S. Forest Service, which includes northern Idaho, and the U.S. Bureau of Land Management in Idaho have designated the wolverine as a Sensitive Species. The U.S. Fish and Wildlife Service, under the authority of the Endangered Species Act, has listed the wolverine as a candidate for federal listing as a threatened or endangered species (U.S. Fish and Wildlife Service 1985). To better determine the status

and distribution of the wolverine in Idaho, I mailed questionnaires to wildlife biologists and registered trappers throughout Idaho in 1985. The purpose of this paper is to report the results of the 1985 survey.

### Methods

During May 1985, questionnaires on wolverine sightings were mailed to all Idaho Department of Fish and Game biologists, conservation officers, and land managers; wildlife biologists in Idaho employed by the U.S. Forest Service, U.S. Bureau of Land Management, U.S. Bureau of Reclamation, and the U.S. Fish and Wildlife Service; academicians and graduate students in biology, zoology, and wildlife departments at Idaho universities and colleges; Nongame Citizens Advisory Committees; the National Audubon Society chapters in Idaho; and state park managers. Concurrently, similar questionnaires were mailed to trappers licensed by the Idaho Department of Fish and Game.

The questionnaire sent to biologists asked respondents to provide information on the date, location (place name, county, latitude/longitude or township-range-section), habitat type, and type of observation (animal, tracks, scat) they had made, if any, during the last 25 years. Biologists were also asked to provide the name, address, and phone number of other people they knew who had information on wolverine sightings in the state.

Each licensed trapper was sent a cover letter explaining the purpose of the wolverine survey along with an addressed and postage-paid postcard for them to return with information on wolverine sightings. The postcard provided them with space to list their name, address, and telephone number; their general trapping area; a "yes" or "no" on whether they had trapped or seen wolverines or wolverine sign during the last 25 years; and the date and area where wolverines or sign had been observed.

Follow-up telephone calls were made to all individuals (biologists and trappers) that responded positively to the wolverine survey. Confirmed wolverine reports consisted of either a photograph or a carcass. For those reports that were not confirmed (i.e., sightings of wolverines or tracks), respondents were asked for a description of the animal, their level of confidence that they had seen a wolverine or tracks of a wolverine, whether they had previously seen a wolverine, the distance and amount of time of their observation, and their amount of experience as a biologist or trapper. If the observer lacked confidence in his/her observation, poorly described the animal, or saw it for a short time span and/or at a great distance, I did not include the wolverine observation in this report. Sightings of wolverines or wolverine tracks included in this paper are referred to as probable reports.

## Results and Discussion

One hundred eighty-five of the 296 biologists who were mailed the questionnaire responded to the survey for a return rate of 62.5 percent (Table 1). Thirty-seven of these 185 responses reported observations of wolverines or wolverine sign. Thirty-five of 427 responding trappers reported observations of wolverines or wolverine sign. Some positive responses from biologists and trappers included information on more than one wolverine report. Thirty-five positive reports returned by biologists or trappers were not included in this report due to insufficient information or lack of credibility in the report.

The survey resulted in only 10 confirmed reports of wolverine in Idaho between 1960 and 1986 (Table 1, Figure 1).<sup>1</sup> Eight of these 10

reports came from northern Idaho north of the Lochsa River, and all but two reports were from national forest lands. Five of the reports occurred between 1960 and 1975 while the other half occurred between 1976 and 1986.

I documented 89 probable reports of wolverines or wolverine tracks between 1960 and February 1987 (Table 1, Figure 1). Nine of these reports (10%) occurred from 1960-1969, 28 (32%) from 1970-1979, and 52 (58%) from 1980-1987. Twenty-one percent of the probable reports were from Bonner and Boundary counties in extreme northern Idaho. Eighteen percent of the reports occurred in the north-central counties of Clearwater and Idaho, and another 22 percent came from a cluster of south-central counties (Custer, Elmore, Blaine, Camas, and Boise).

At least three areas in Idaho, from which confirmed and probable reports were received, appear to contain wolverines. These areas are the Selkirk Mountains adjacent to and north of Priest Lake, the Lochsa and Kelly Creek drainages, and the headwaters of the South Fork and Middle Forks of the Boise River (i.e., Sawtooth-Smoky Mountains) (Figure 1). Several confirmed reports also occurred in the Purcell Mountains north of the Kootenai River, but all of these reports were prior to 1965. Because the longevity of wolverines in the wild is 8-10 years (Wilson 1982), these reports were not indicative of present-day occupancy by wolverines.

Concentrations of probable reports indicated that wolverines also likely occur in Fremont County adjacent to Yellowstone National Park and in the upper St. Joe and Coeur d'Alene River drainages. The Selway and Salmon River drainages in central Idaho were conspicuously absent of any confirmed reports and contained only a few probable reports. The lack of wolverine reports in these areas may reflect their roadless nature and low density of people, particularly biologists and trappers. If we assume that wolverines do occur in these areas, then the present-day distribution of wolverines in Idaho is in the mountainous portions of the state from the South Fork of the Boise River north to the Canadian border.

In a study of wolverines in western Montana, Hornocker and Hash (1981) concluded that wilderness or remote country where human activity was minimal appeared essential to maintaining

<sup>1</sup>Information on the observer's name, affiliation, date of observation, and exact location of observation for confirmed and probable reports is available from the author on request.

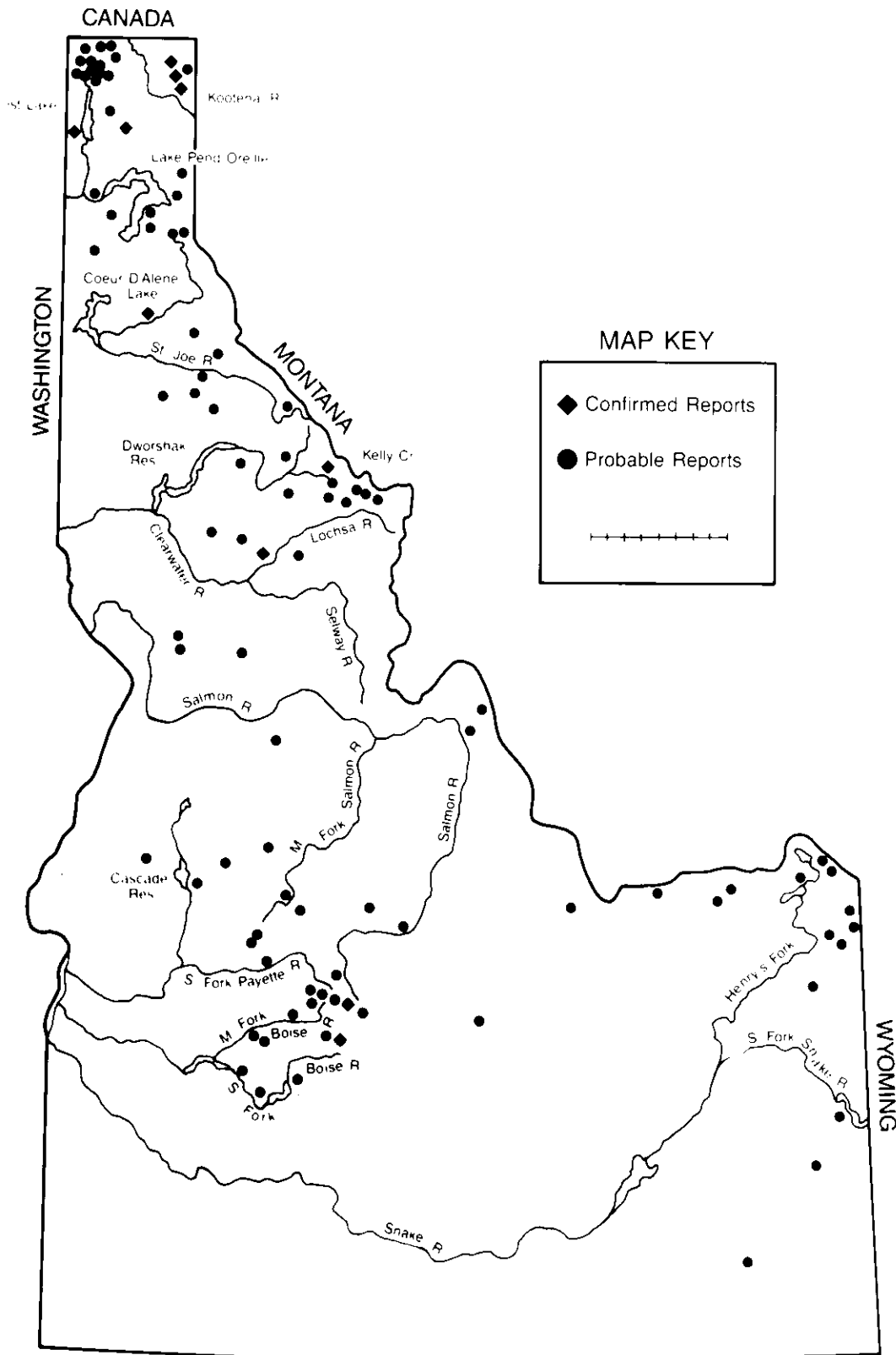


Figure 1. Distribution of wolverine reports in Idaho, 1960-1987. See text for definition of confirmed and probable reports.

TABLE 1. Summary of questionnaires mailed, response rates, and resulting numbers of confirmed and probable wolverine reports. See text for details.

Category	Number of Questionnaires Mailed	Number of Questionnaires Returned (%)	Number of Positive Responses (%)	Number of Confirmed Wolverine Reports	Number of Probable Wolverine Reports		
					Total	Tracks	Sightings
Biologists	296 +	185 (62.5%)	37 (20%)	6	57 + +	16	41
Trappers	1,500	427 (28.5%)	35 (8.2%)	4	32	16	16
Total	1,796	612 (34.1%)	72 (11.8%)	10	89	32	57

+ Twenty-one responses were received from individuals not included in the original (n = 296) mailing. Eleven of the 21 responses were positive. Those positive responses that resulted in probable wolverine reports were included in this table (+ +).

a viable wolverine population. Although results of this survey can offer no insights to the viability of wolverine populations in Idaho, it does appear that wolverines are occupying large, mountainous, essentially roadless areas in Idaho. In the Montana study, wolverines used both wilderness and non-wilderness areas, although the latter areas were used primarily in winter when human activity was minimal. Such may also be the case in Idaho because many of our reports occurred during winter.

G. Koehler (pers. comm.) suggested that wolverines may be increasing in northern Idaho due to numerous reports. Hoak *et al.* (1982) made a similar conclusion for the wolverine in western Wyoming. Because more than half of the wolverine reports compiled during this survey occurred between 1980 and 1987, there is a tendency to similarly suggest that wolverines are increasing in Idaho. However, such a conclusion could be misleading. In analyzing the historical abundance of wolverines in Washington, Johnson (1977) correctly pointed out that in earlier times less access was available to remote areas and the total number of people in the field was less. In addition, no effort to assemble information on wolverine distribution, such as in the present survey, was conducted in the past. Thus, the increasing number of wolverine reports in Idaho from 1960 to 1987 could just as easily be attributed to greater access to remote areas, more

people in the field, and no prior survey efforts, as to increasing numbers of wolverines in the state.

Surveys such as this one can provide insights to the distribution of a species but are of little aid in estimating population size. Hornocker's and Hash's (1981) study in western Montana showed that wolverines occupy annual home ranges of approximately 400 km<sup>2</sup>. A recent study of wolverines in Alaska documented a long distance movement of 378 km by an adult wolverine (Gardner *et al.* 1986). In addition, longevity of wolverines in the wild is 8-10 years with a possible maximum of 18 years (Wilson 1982). Thus, over several years a small number of individuals could be responsible for a large number of sightings over widespread areas in Idaho. Results of this survey indicate where wolverines likely occur in the state. What is needed now is information on the size, status, and ecology of wolverine populations in Idaho.

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### Literature Cited

- Davis, W. B. 1939. The Recent mammals of Idaho. Caxton Printers, Caldwell, Idaho.  
 Gardner, C. L., W. B. Ballard, and R. H. Jessup. 1986. Long distance movement by an adult wolverine. *J. Mammal.* 67:603.

- Hoak, J. H., J. L. Weaver, and T. W. Clark. 1982. Wolverines in western Wyoming. *Northw. Sci.* 56:159-161.  
 Hornocker, M. G., and H. S. Hash. 1981. Ecology of the wolverine in northwestern Montana. *Can. J. Zool.* 59:1286-1301.

- Johnson, R. E. 1977. A historical analysis of wolverine abundance and distribution in Washington. *Murrelet* 58:13-16.
- Larrison, E. J., and D. R. Johnson. 1981. *Mammals of Idaho*. University Press of Idaho, Moscow, Idaho.
- Pengelly, W. L. 1951. Recent records of wolverines in Idaho. *J. Mammal.* 32:224-225.
- U.S. Fish and Wildlife Service. 1985. Endangered and threatened wildlife and plants; review of vertebrate wildlife. *Federal Register* 50:37957-37967.
- Wilson, D. E. 1982. Wolverine. *In* J. A. Chapman and G. A. Feldhamer (eds.) *Wild Mammals of North America*, Johns Hopkins University Press, Baltimore. Pp. 644-652.

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