

**IDAHO DEPARTMENT OF FISH AND GAME**

**Ed Schriever, Director**

**Project F19AF00810**

**Demographic Monitoring of Sentinel Populations of Wolverines  
Cooperative Endangered Species Conservation**

**Interim Performance Report**



Performance Period  
August 13, 2019 to June 30, 2022

Compiled and edited by: Cory Mosby

August, 2020  
Boise, Idaho

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**ESA TRADITIONAL SECTION 6  
INTERIM PERFORMANCE REPORT**

**1. State:** Idaho

**Grant number:** F19AF00810

**Grant name:** Demographic Monitoring of Sentinel Populations of Wolverines

**2. Report Period:** July 1, 2019 to June 30, 2020

**Report due date:** September 28, 2020

**3. Location of work.**

**4. Objectives**

- 1) Investigate occupancy and residency of wolverines in disjunct suitable habitat and in areas with anecdotal evidence of past wolverine use, but not identified as habitat in previous habitat modeling efforts, henceforth referred to as “fringe habitat”.
- 2) Explore methods to improve detection and extend viability of DNA samples collected through non-invasive sampling
- 3) Contribute to the multi-state wolverine survey scheduled for the winter of 2021.

**5. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project**  
Not applicable.

**6. Describe how the objectives were met.**

**Objective 1:**

Approach: Previous wolverine survey efforts in Idaho have documented status of animals across much of the high quality predicted habitat. However, wolverine use of smaller and lower quality patches of modeled habitat, and/or areas of high quality habitat but disjunct from known wolverine populations remains unclear. A better understanding of status of wolverine in these areas is needed to inform the Idaho Department of Fish & Game’s (IDFG) understanding of how wolverines are distributed across the landscape to adequately guide conservation and land management planning.

Using habitat models developed by Copeland et al. (2007) and Inman et al. (2012), and verified incidental wolverine observations, focal areas to survey were identified. The same grid system as developed for the 2016 survey (Lukacs et al. 2020) was laid over these focal areas, and used to guide camera station placement while maintaining appropriate spacing between survey locations. Stations were placed between October and December of 2019, and retrieved between May and July of 2020, depending on accessibility and station type (baited or scent pump). Both stations types were comprised of a single trail camera mounted to a tree, with the view shed focused on a tree 15-18 ft. away. At this tree either a scent pump with a cow femur was attached to the tree, or

a sponge soaked with scent above a large piece of roadkill ungulate was wired to the tree. Scent pump stations did not require revisits throughout the winter, whereas baited stations required monthly visits.

Preliminary Results: Stations were placed in the Caribou Targhee National Forest in both the Southeast (n = 5) and Upper Snake IDFG regions (n=12), and in the Boise National Forest in the Magic Valley Region (n=2; Figure 1). Wolverine were detected at one location in the Magic Valley Region, and one in the Southeast Region (Figure 2). Other forest carnivores of note were pacific marten and red fox. The same stations are planned to be resurveyed during the 2020/2021 seasons to see if repeat observations are observed and if they are the same animals. Of interest was that zero wolverine were detected in the Upper Snake Region, despite this containing a larger amount of moderate quality modeled wolverine habitat and that it is near an area known to contain wolverine—the Greater Yellowstone Area.

## **Objective 2**

Approach: Demographic Monitoring Development: Monitoring any demographic parameters of wolverines is extremely difficult and costly due to the low densities and solitary nature exhibited by the species. IDFG is testing different sampling station types to allow for individual identification (through pictures and/or DNA) that would require minimal staff maintenance in comparison to conventional methods where a baited camera station is visited monthly. The 2 station types tested were a “run pole station” (Figure 2) and a “DNA box station” (Figure 3). For the run pole stations, the goal is to individually identify animals through their unique throat/chest patch color patterns. For the DNA box stations, the goal is to acquire hair samples to determine sex and individual identification through DNA analysis. The primary factors that degrade DNA samples in field settings is sunlight and moisture. By keeping DNA samples enclosed in a box while in the field we suspect that this approach will extend the viability of our samples.

During the 2019 season, a total of 6 run pole and 3 DNA box stations were deployed at existing, but inactive wolverine trap sites, or at sites previously sampled under other forest carnivore monitoring efforts and had confirmed wolverine presence. Locations were in the Payette, Sawtooth, and the Nez Perce–Clearwater national forests.

Preliminary Results: With run pole stations, wolverine were detected at 4 of the 8 sites, 2 in the vicinity of the Gospel Hump Wilderness (but not within it), and 2 near the Sawtooth National Recreation Area. While detections were limited, some preliminary observations were made. First, wolverine often used the vertical tree and not the “run pole” to access the bait/lure. Second, snow buildup occurred on the run pole and could partially obstruct the camera. Both of these factors limited the ability to identify animals through photos.

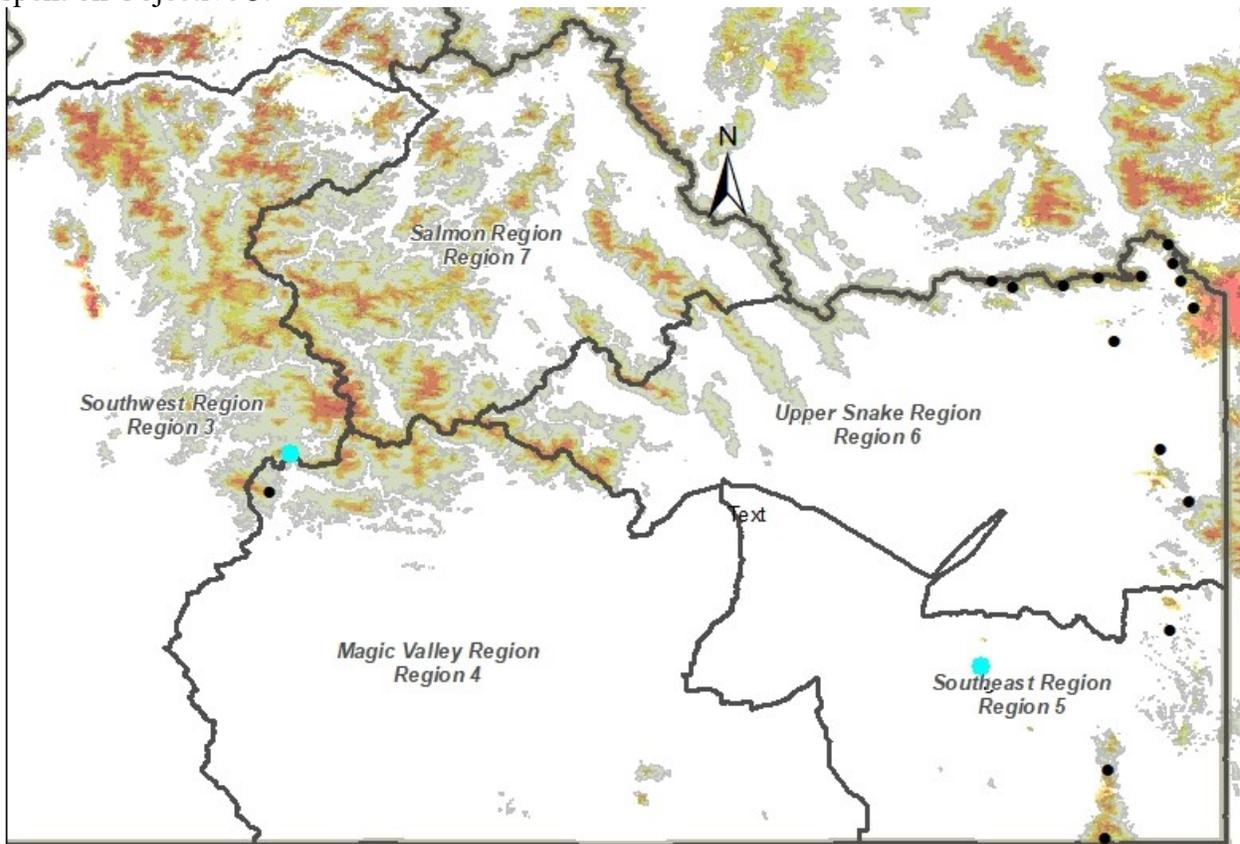
With DNA box stations, we detected wolverine at 2 of the 3 camera stations, and marten at 2 of 3 stations. At least 3 individual wolverines were identified from photographs. We submitted 13 hair samples to the National Genomics Center for Wildlife and Fish Conservation. Hair from these samples was held in the gun brushes 69 to 81 days before being collected. DNA extracted from hair samples will be analyzed first for species confirmation. Wolverine-positive samples will subsequently be analyzed for haplotype, sex, and individual genetic profile. Species tests

should confirm marten to 1 of the 2 species known to occur in Idaho. Results are expected in late 2020.

This work is anticipated to continue for 2 more winters. The run pole design will be modified to encourage use by wolverine, and redeployed. DNA box stations are to be modified for a stronger bait cage, with them being redeployed in the original 3 locations, and an additional 2-3 deployed to expand this effort. An additional station is being deployed with marten hair applied to the brushes and the brushes being submitted to the US Forest Service genomics lab on 30-day schedules to gain insight on how the station extends sample viability on a longer time scale.

### Objective 3

This effort is not scheduled to begin until the summer/fall of 2021. Currently no funds have been spent on Objective 3.



**Figure 1.** Locations of 19 camera stations (dark colored dots) in southern and eastern Idaho, and associated wolverine detections (bright blue dots). Yellow and Orange areas represent habitat identified in the Copeland model and grey represents identified habitat in the Inman model.



**Figure 2.** An example of a prototype Wolverine Run Pole Station.



**Figure 3.** An example of a prototype DNA box station with wolverine visiting the box.

**7. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds.**

As stated in section 6 of this report, we did not conduct any work related to Objective 3 of this grant during this reporting period. It was determined that our needs identified during the Idaho Wolverine Working Group meeting were not feasible and that our best approach to contribute to wolverine population monitoring was with the larger multi-state effort scheduled to begin in 2021.

**8. List any publications or in-house reports resulting from this work. Not applicable.**

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