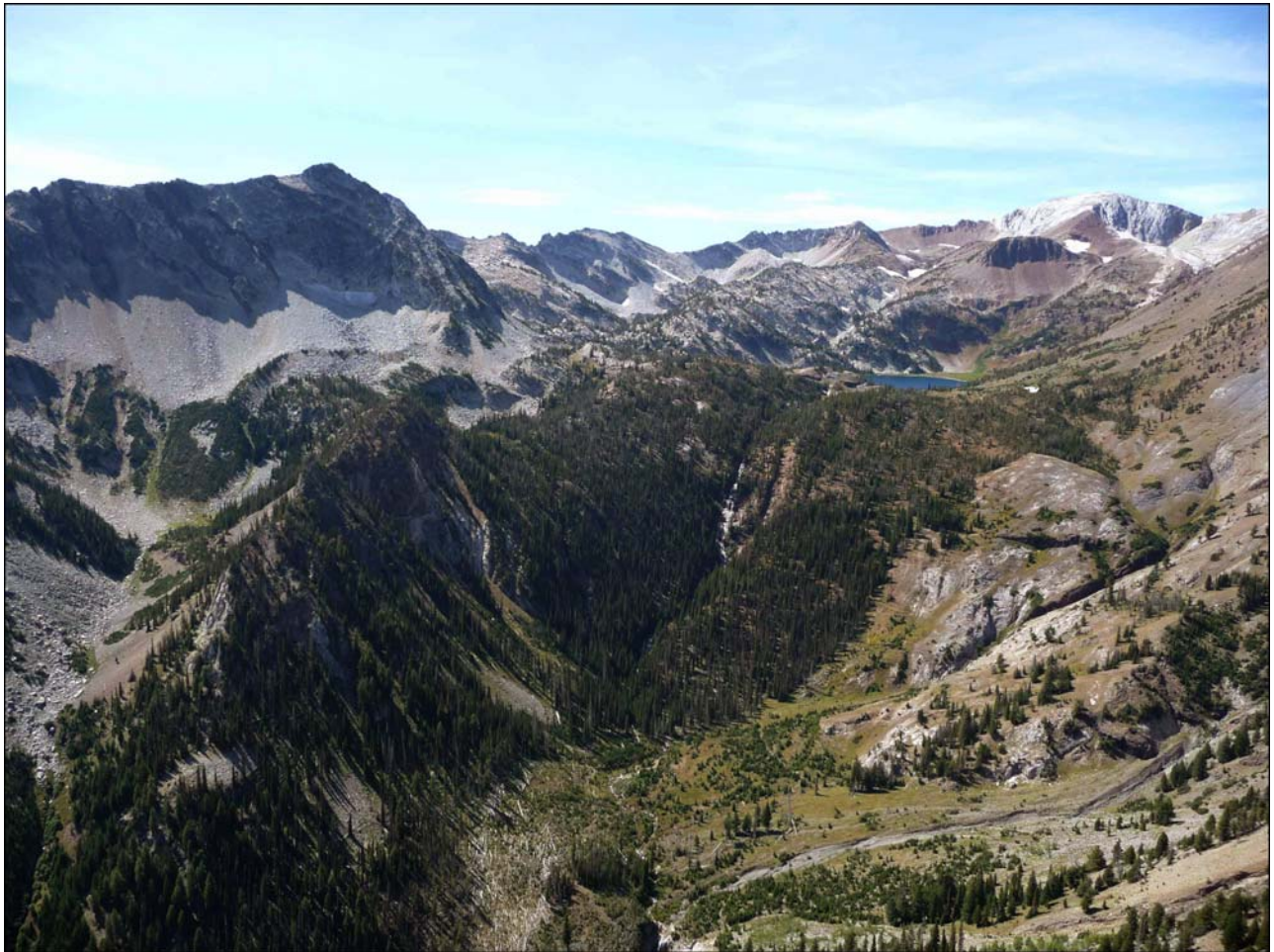


Wolverine Survey: Wallowa-Whitman National Forest, NE Oregon



November 2010



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A pilot study to survey for wolverines (*Gulo gulo*) in the Wallowa-Whitman National Forest within and adjacent to the Eagle Cap Wilderness using proven non-invasive detection methods for wolverines.

Investigators:

Clint Long – Project Coordinator (TWF)

Audrey Magoun – Principle Investigator (TWF)

Pat Valkenburg – Pilot and field assistant (WRAM)

Location of study:

The proposed study area is located within and adjacent to the 1,418-km² Eagle Cap Wilderness (ECW) in the Wallowa-Whitman National Forest (WWNF) of northeastern Oregon, USA (Fig. 1). The ECW is comprised of montane forests at lower elevations and sub-alpine/alpine habitat with glacial cirques, perpetual snow/ice fields, and glaciers at higher elevation. Elevations range from 1,220 m to 3,027 m. No motorized travel is allowed in the ECW and access to the periphery of the ECW is limited to a series of unimproved USFS, county, and state roads.

Background:

We believe the ECW and adjacent forest may contain suitable wolverine habitat and comprise an important linkage area between disjunct wolverine habitats in the Pacific Northwest; however, a resident population of wolverines has not been verified in the study area. At higher elevations, temperatures and snow cover are historically consistent with the hypothesized bioclimatic criteria for wolverine presence (Copeland et al. 2010) and, based on discussions with biologists familiar with the area, food resources appear to be adequate to support wolverines. Although 28 wolverine sightings have been reported in the WWNF (USFS Wallowa-Whitman National Forest data base), including 1 in 2008, no sighting or evidence of presence has been verified using criteria outlined by Aubry et al. 2007. Approximately 95 km to the east of the ECW, a resident reproducing wolverine population is present in the Payette National Forest of central Idaho (USFS RMRS 2010; unpublished data). During aerial track surveys in 1998 (Edelmann et al. 1999) and again in 2009 (USFS RMRS; unpublished data), at least 1 set of wolverine tracks was detected in the Seven Devils Mountains of central Idaho, approximately 45 km east of the ECW. Viability of a potential “Seven Devils”

wolverine population is unknown. Photographs and/or DNA from wolverines in the WWNF would verify the presence of this species (Aubry et al. 2007) and could provide evidence of a breeding population if lactating females are detected (Magoun, unpublished data), or if specific familial (parent/offspring) relationships from DNA are determined. Even if a resident population of wolverines is not verified during this study, long-term monitoring for wolverines in the WWNF and ECW may be desirable for assessing habitat suitability for wolverines in the WWNF and the role the study area plays in providing dispersal habitat for wolverines in the Northwestern Forested Mountains ecoregion, a Level 1 ecoregion designated by the United States Environmental Protection Agency (<http://www.epa.gov/wed/pages/ecoregions.htm>). For example; the study area may have served as a dispersal route for a wolverine recently documented in northern California, because mitochondrial DNA indicated that this wolverine probably originated from along the western edge of the Rocky Mountains and could even have originated from within the Wallowas or Seven Devils Mountains, but DNA samples from wolverines have not been collected from this area (Moriarty et al. 2009). Despite their unknown status in Oregon, the wolverine is listed as “Threatened” by the Oregon Department of Fish and Wildlife (ODFW) and ODFW recognizes the need for monitoring as an essential element of successful implementation of the Oregon Conservation Strategy (ODFW 2006).

Objectives:

- A. Use two independent, non-invasive detection methods to investigate the presence of wolverines in the Wallowa-Whitman National Forest within and adjacent to the ECW.
 - 1. Repeated aerial track surveys (≥ 3) for the presence of wolverine tracks in treeless portions of the ECW.
 - 2. Motion detection cameras and associated hair-snag devices to detect wolverines in the forested portions of the study area.

- B. Make recommendations regarding future surveys and monitoring for wolverines in the WWNF and ECW.

Project Timeline:

Preparation for field work January 2011
Field work to begin on February 1, 2011 and end on May 31, 2011.
Field project report and other deliverables by December 31, 2011.

Methods:

We will conduct a minimum of 3 comprehensive aerial track surveys within the study area using a PA-18 Supercub. We will thoroughly search all open areas of the study area for wolverine tracks. We will keep a track log for each survey flight and record location of wolverine tracks with GPS. The aircraft and pilot will be stationed in Enterprise, Oregon, near the study area and flights will be undertaken whenever aerial tracking conditions are suitable in the survey area following fresh snowfalls. Pilot and observer have extensive

experience tracking wolverines from the air in forest and tundra habitats (Magoun et al. 2007). The purpose of the aerial track surveys is to document wolverine tracks in a portion of the study area that may not be accessible for deployment of cameras and hair snags, yet may contain the most suitable wolverine habitat in the study area.

We will deploy up to 27 motion detection cameras in and around the ECW using food baits (primarily road-killed deer) and scent lures (beaver castor and perfume) for attractants. Hair snag devices will be deployed at camera sites if wolverine presence is detected either on cameras or during aerial surveys (Magoun et al. *in press*). Placement of camera sites will be determined based on a scoping visit to the study area by Long and Magoun in September 2009, records of wolverine sightings in the study area, location of wolverine tracks, and accessibility via snowmachines, skis and snowshoes.

Photographs and DNA will be analyzed to determine the number of individual wolverines visiting the sites, their respective sexes, and familial relationships (Magoun et al. *in press*). We will also attempt to determine if females are lactating using photographs taken in April and May (Magoun et al. *in press*). DNA will be analyzed by the USFS - Rocky Mountain Research Station Genetics Lab in Missoula, Montana to determine species identity, minimum number of wolverines detected, and genetic relationship to other wolverine populations in the western states.

Management and Conservation Implications:

Verification of wolverines in the WWNF would have a number of both state and federal management and conservation implications depending on whether or not evidence of a breeding population is detected. For example, the additional knowledge concerning the distribution and numbers of wolverines in the continental United States will be especially important if wolverines are listed under the USFWS endangered species ruling due out in December 2010, because this ruling mandates habitat protection measures for listed species. Regardless of outcomes of the detection surveys and the listing decision, we anticipate that information from this study will be incorporated into future Forest Management Plans for the WWNF as well as the Oregon Conservation Strategy. A breeding population of wolverines would require consideration in Forest Travel Plans of the impacts of human uses on potential wolverine denning habitat, particularly in the Eagle Cap Wilderness area, and monitoring of wolverines under the Oregon Conservation Strategy. Genetic information on wolverines occurring in the study area will be incorporated into the broadscale genetic database on wolverines in the western states maintained by the Rocky Mountain Research Station's Genetics Lab in Missoula, Montana (Schwartz, personal communication). This data is being used for analysis of population parameters such as effective population size, dispersal patterns, defining connectivity zones and the importance of metapopulations in the western states. If no wolverines are detected in the study area after completion of comprehensive surveys under suitable conditions, future research in the

WWNF and ECW could focus on determining what factors limit occupancy of wolverines in what would otherwise appear to be suitable wolverine habitat.

Deliverables:

- Maps showing the distribution of cameras/hair snags with data on deployment dates, number of camera and hair snag days, and presence of wolverine tracks.
- Maps showing the routes taken during aerial surveys with associated data on dates, time, tracking conditions, and location of wolverine tracks.
- Final detailed report on the methods and results of the camera trapping, hair snags, and aerial surveys relative to wolverine occurrence in the study area.
- List of other species detected at the camera traps.
- Recommendations for future work depending upon the following 3 possible outcomes:
 1. No wolverines detected.
 2. Wolverines detected, but no lactating females detected and no familial relationships from DNA determined.
 3. Wolverines detected, including lactating females and/or familial relationships from DNA determined.

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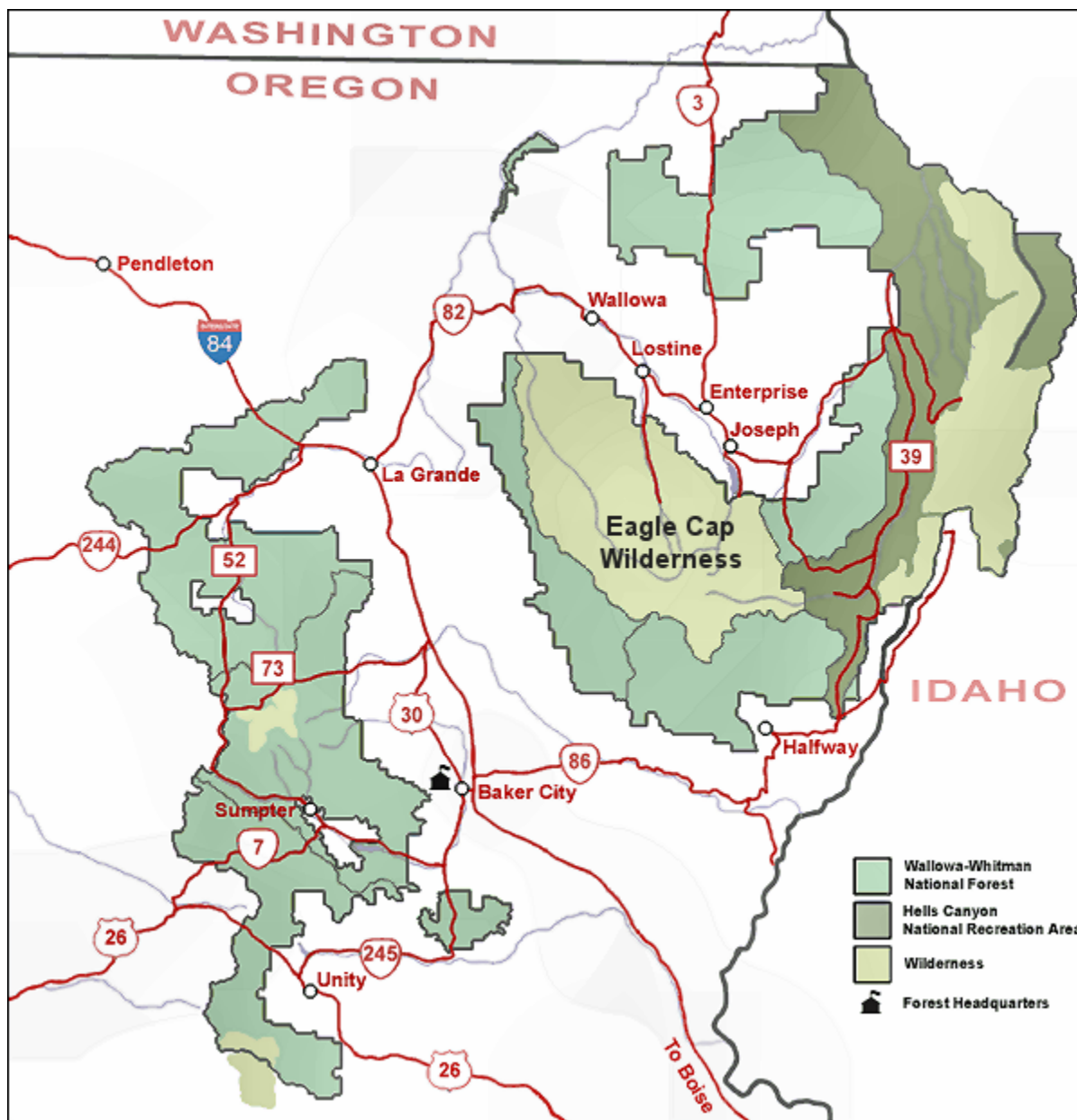


Figure 1. Study area location showing the Eagle Cap Wilderness and surrounding portion of the Wallowa-Whitman National Forest in northeast Oregon.