

## Cascades Wolverine Project: Winter 2017-2018 Report

Prepared by Steph Williams, May 2018

509-699-9545, stephwilli@gmail.com

[www.cascadeswolverineproject.org](http://www.cascadeswolverineproject.org)



### Introduction

The wolverine (*Gulo gulo*) is a rare boreal carnivore inhabiting regions where snowpack persists well into spring (Copeland 2010). In the Cascades, at the southern edge of their range, wolverine occupy subalpine and alpine habitat, an ecosystem particularly vulnerable to long-term shifts in temperature and precipitation. Wolverines were nearly extirpated from the Cascades by the 1930's, but naturally recolonized part of their former range in Washington State by dispersing from Canada (Aubry 2007). Presently, researchers estimate the population to be 30-40 individuals within the North Cascades (Aubry 2016), approximately 25% below carrying capacity. The number of wolverine across the contiguous United States is estimated to be less than half of carrying capacity (Inman 2013). Primary threats to this species' natural recovery include reduced spring snowpack, increased average maximum summer temperature, habitat fragmentation, and disturbance secondary to trapping and recreational activity (McKelvey 2011).

Nearly all contiguous U.S. wolverine habitat is federally managed. Though Washington State considers the wolverine a Candidate Species, in 2014 the U.S. Fish & Wildlife Service denied listing status. In 2016, the United States District Court for the District of Montana overturned the USFWS's decision as "arbitrary and capricious." Federally endowed protection remains uncertain. The scientific community agrees that the wolverine lacks sufficient monitoring across the contiguous U.S., and likely faces a future challenged by climate change and other human disturbances (Inman 2013).

Winter recreation has the potential to impact wolverine recovery in the North Cascades. A recent study in the Rocky Mountains of Idaho, Wyoming, and Montana found altered behavior in breeding females where winter recreation was relatively high, leading to potentially negative impacts to reproduction and kit-rearing (Heinemeyer 2017). No such study has occurred in the North Cascades, where winter recreation is rapidly increasing among backcountry skiers and snowmobilers. Engaging winter recreationists with wildlife awareness in the North Cascades is beneficial in two primary ways: first, to help mitigate potentially

negative impacts to wolverine recovery, and second, to crowd-source rare species observations to supplement the limited wolverine monitoring currently ongoing in the North Cascades.

Cascades Wolverine Project is a Methow Valley based effort to boost winter wolverine monitoring in the North Cascades, capture engaging images of this rare mountain carnivore, and leverage and enhance the skills of winter backcountry recreationists as wildlife observers and stewards of the alpine. Our team includes photographer and field biologist David Moskowitz, mountain guide and avalanche forecaster Drew Lovell, and field biologist and mountain guide Steph Williams. We work in collaboration with Conservation Northwest (CNW), U. S. Forest Service (USFS) Supervisory Wildlife Biologist John Rohrer, and Washington Department of Fish & Wildlife (WDFW) District Wildlife Biologist Scott Fitkin. Patagonia's Environmental Programs Department, in addition to donations generated by mountain guides Forest McBrian and Trevor Kostanich, and individual contributions via CNW and GoFundMe.com provided initial funding.

## **Methods**

### Objective 1: Wolverine Monitoring

**Monitoring area** – Our remote-camera sites were located in the eastern portion of the North Cascade Range, within the Chelan and Methow watersheds and Okanogan-Wenatchee National Forest. In collaboration with John Rohrer (USFS), Scott Fitkin (WDFW), and CNW Science Director Dave Werntz, we chose specific drainages based on findings of the now concluded North Cascades Wolverine Study (2005-2015), and current efforts by Woodland Park Zoo Senior Conservation Scientist Dr. Robert Long with North Cascades Wolverine Project (2013-present), targeting areas where wolverine are known to occur, but currently lack winter monitoring. All sites fell within the bioclimatic envelope as described by Copeland, et al. (2010), and were accessible within a day by snowmobile and ski from the Methow Valley, or the village of Holden.

**Methods** – We installed and maintained seven remote-camera stations baited with Gusto scent lure (a skunk and beaver castor-based attractant), as well as parts of road-kill deer. Each of five stations (Washington Pass, Hairpin, Cutthroat, South Creek, Reynolds) included one motion-triggered DSLR camera with supplemental flash lighting, in addition to one motion-triggered trail camera. We suspended bait two to three meters above the snow surface by cable strung

between trees at Washington Pass, Hairpin, and Reynolds. Where sites lacked well-positioned trees for suspended cable (Cutthroat, and South Creek) we attached bait directly to a tree and above the snow surface. The Pine Creek and Holden stations included a single trail camera focused on bait cabled to a tree. We maintained stations every three to four weeks between December and April or May, with the exception of the Holden site, which we ran over a shorter monitoring period from January to March due to limited accessibility. We entered data and photo-captures into the Conservation Northwest Citizen Wildlife Monitoring Program database, and sent field updates directly to biologists John Rohrer and Scott Fitkin. Currently all stations have been removed with the exception of Hairpin, which we plan to remove this summer.

### Objective 2: Engaging Images

Five of our stations included remotely triggered DSLR camera kits designed and operated by David Moskowitz. During the field season we shared relevant images with collaborators, and we publically shared select images on social media, and/or our website [cascadeswolverineproject.org](http://cascadeswolverineproject.org).

These images will be shared with Conservation Northwest and other conservation groups to support their outreach, educational, and advocacy work related to wolverine conservation. They will also be made available to news media to support coverage of related stories.

### Objective 3: Winter Recreation Community Outreach

We connected with backcountry skiers and snowmobilers through four public talks and events, social media, inviting volunteers into the field to check stations, and chance encounters with curious skiers wondering why we packed road-kill for a ski tour.

## **Results**

### Objective 1: Wolverine Monitoring

Of seven stations, three detected wolverine (see Table 1 & Figure 1). Two wolverine detections, at Holden and Hairpin, included views of the animal's chest blaze pattern. Based on matching chest blazes, we were able to identify, with reasonable confidence, the Hairpin

individual as a female known as Stella who was detected by the North Cascades Wolverine Study in 2015 at the Rattlesnake site approximately 20km to the north.

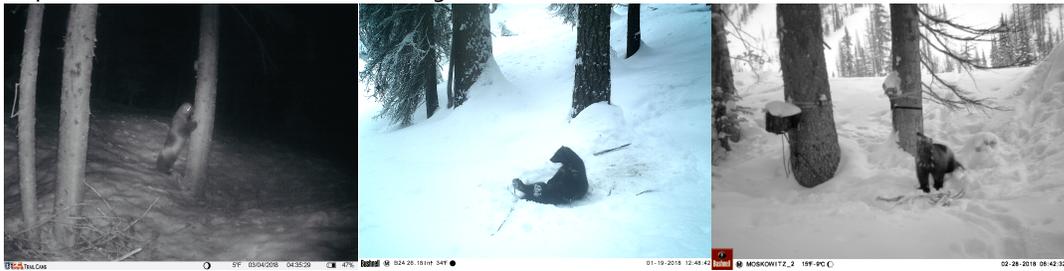
Table 1. Wolverine detections from our winter 2017-2018 camera-trapping season collected from seven stations on the east side of the North Cascades Ecoregion.

	Camera Station						
Winter 2017-2018	Washington Pass	Pine Creek	Hairpin	Cutthroat	South Creek	Reynolds	Holden
Elevation (meters)	1670	1146	1738	1500	969	919	1066
Run period*	Dec 11-May 13	Dec 11-May 14	Dec 12-present	Dec 12-May 20	Dec 14-Apr 18	Dec 14-Apr 18	Jan 15-Mar 5
Wolverine detections*	0	1	1**	0	0	0	1

\*Our winter field season data, including trap nights and number of wolverine and non-target species events, is currently being processed by Conservation Northwest Citizen Wildlife Monitoring Program, and will be made available in their annual report, or by request.

\*\*Based on the chest blaze pattern, we identified this individual as a female named Stella who was first detected at a run-pole and hair snag station in 2015 by the North Cascades Wolverine Study.

Figure 1. Over the course of the winter field season we had a total of three wolverine detections. The site locations from left to right are: Pine Creek, Holden, and Hairpin. The Hairpin station had a DSLR camera-trap in addition to a trail-camera (see Figure 2).

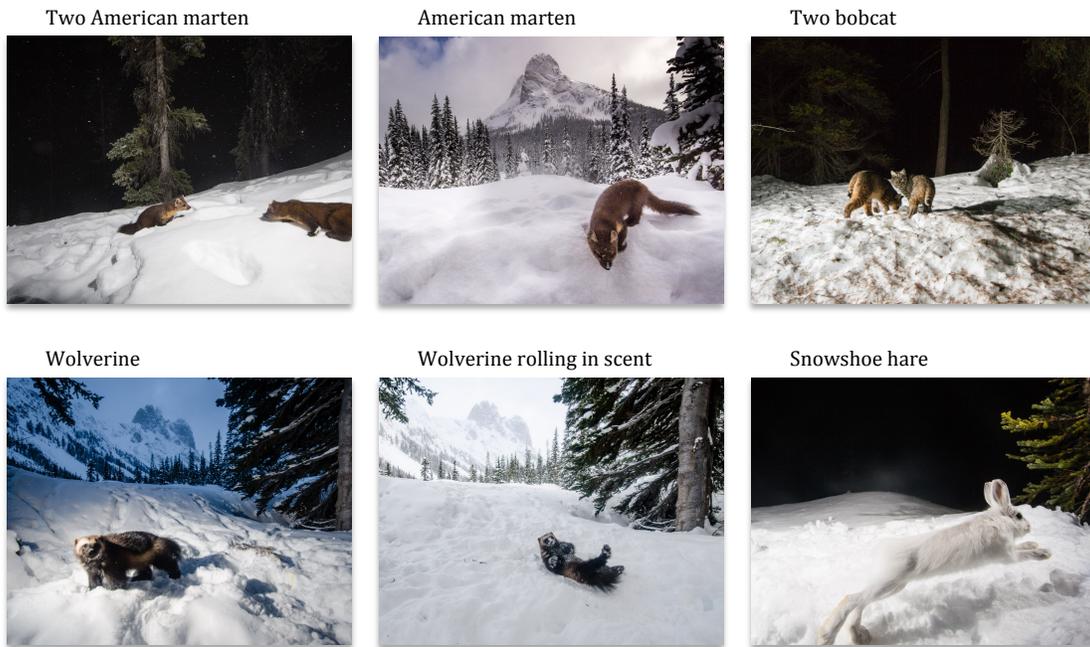


Objective 2: Engaging images

We collected remotely triggered DSLR photographs of a variety of species including: gray jay, stellar jay, marten, snowshoe hare, bobcat, two bobcats together, two marten interacting with one another, and a series of a wolverine images (see Figure 2). Additionally, we

captured trail camera video of marten and wolverine. During the season we contributed photographs to North Cascades National Park, North Cascades Institute, and Conservation Northwest, and we have offered the use of photographs to WDFW and USFS biologists in the North Cascades.

Figure 2. Examples of images we captured for raising awareness of North Cascades wildlife. Based on the chest blaze pattern, the wolverine pictured here is likely a female, named Stella, identified in 2015 by the North Cascades Wolverine Study.



### Objective 3: Winter Recreation Community Outreach

We presented in October 2017 at the Northwest Snow and Avalanche Workshop in Seattle to an audience of 600, which was then publically posted to Facebook and watched more than 1400 times. In January at The Mountaineers in Seattle we introduced our project in conjunction with an adventure slideshow by ski guides Forest McBrian and Trevor Kostanich, who volunteered to represent our project at the Foothills branch of the Mountaineers, the annual Olympic Mountain Rescue banquet, and at Pro Guiding Service in North Bend. This May we are slated to present in Ballard, Seattle at the outdoor retailer Ascent Outdoors in collaboration with Patagonia and Conservation Northwest.

The amount of support and interest among mountain recreationists has been remarkable. We opened a social media account on Instagram to share select wildlife images; currently we have over 400 followers. Four separate recreationists found either our website or

Instagram page to report wolverine observations, including tracks on Mt. Baker (October 2016), upper Entiat drainage (September 2017), east of Mt. Rainier at Sourdough Gap (March 2018), and an encounter on Cascade River road (April 2018). Observations made at Mt. Baker, Sourdough Gap, and Cascade River road add valuable clues regarding the western and southern extents of wolverine distribution in the Cascades.

## **Discussion**

At a time when resources for winter wolverine monitoring in the North Cascades are limited, we successfully deployed seven stations in two major watersheds of the eastern North Cascades Ecoregion, and detected wolverines in three locations. Our detection at the Hairpin of Stella, a female wolverine, on February 28, 2018 is relevant to questions regarding long-term wolverine recovery and fine scale habitat use by female wolverines amidst recreational activity. The Hairpin is regularly used for backcountry skiing, snowmobiling, and heli-skiing with a trend towards increasing recreational traffic in the coming years. Keeping track of female wolverines and identifying denning habitat—the limiting factor to wolverine recovery—in the North Cascades will help land managers determine how to regulate the recreational use of public lands.

Engaging the broader winter recreational community in an inclusive and educational way is essential to mitigating the potentially negative impacts to wolverine recovery, and can possibly aid biologists by extending citizen science into the winter season. With photographs, talks, social media, web resources, and volunteer coordination, we reached upwards of a few thousand people, many of which were likely outside of the typical conservation-minded demographic. Next winter, we plan to boost monitoring in the North Cascades as needed, in coordination with the Multi-State Wolverine Study, North Cascades Wolverine Project, Cascades Carnivore Project, and the CNW Citizen Wildlife Monitoring Program. We will continue to develop tools to better enable winter recreationists identify and report rare species observations.

## **Literature Cited**

AUBRY, K. B., K. S. MCKELVEY, AND J. P. COPELAND. 2007. Distribution and broadscale habitat relations of the wolverine in the contiguous United States. *Journal of Wildlife Management*.

AUBRY, K. B., ET AL. 2016. Wolverine distribution and ecology in the north cascades ecosystem. Final progress report.

COPELAND, J. P., ET AL. 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geo- graphic distribution? Canadian Journal of Zoology.

HEINEMEYER, K. S., ET AL. 2017. Wolverine – winter recreation research project: Investigating the interactions between wolverines and winter recreation. Final report.

INMAN, R. M., ET AL. 2013. Developing priorities for metapopulation conservation at the landscape scale: wolverines in the western united states. Biological Conservation.

MCKELVEY, K.S., ET AL. 2011. Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors. Ecological Applications.