

## **Alberta Conservation Association 2013/14 Project Summary Report**

**Project Name:** Wildlife Habitat Initiative in Low Disturbance Zones – Working with Alberta’s Trappers to Map Wolverine Distribution and Identify Conservation Risks

**Wildlife Program Manager:** Doug Manzer

**Project Leader:** Robert Anderson

### **Primary ACA staff on project:**

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### **Partnerships**

Alberta Environment and Sustainable Resource Development  
Alberta Trappers’ Association  
Daishowa-Marubeni International Ltd.  
Environment Canada  
Shell FuellingChange

### **Key Findings**

- Our traditional knowledge survey with trappers indicated that the detection of wolverine sign on a trapline was positively associated with lower road density as well as years of experience of the trapper.
- We identified 17 individual wolverines using camera images from winter 2012/13.
- Using non-lethal methods, we collected 24 marten, 62 fisher, 2 bobcat, 10 cougar and 114 wolverine DNA samples from hair collected during winter 2012/13.
- In winter 2013/14, 24 trappers from the Boreal region of the province operated 46 run poles to passively collect wolverine photos and DNA samples. Alberta Conservation Association staff operated another four run poles.

### **Introduction**

We are partnering with the Alberta Trappers’ Association (ATA) to identify where wolverines occur in the province and to determine the main factors influencing their distribution. As the project advances, we hope to better understand gene flow within Alberta and between Alberta and other jurisdictions, which will provide useful information to help conserve this species over the long term. We predict that areas with high human disturbance will have a lower probability of use by wolverines than areas with low disturbance and that areas with persistent late spring snow cover will have a higher probability of use (Copeland et al. 2010). We also predict that

wolverines in the boreal forest will be more closely related to each other than they are to wolverines in the mountains.

## **Methods**

Working together with the ATA, we developed a questionnaire that draws on trapper traditional knowledge to determine trapper effort, attitude and experience with wolverines, and, in particular, evidence of wolverines (tracks or sightings) on their traplines. Responses were analyzed to test whether a series of variables could be used to predict where trappers have seen wolverine sign.

The field component of the wolverine distribution project is largely focused on a citizen-science approach, where ATA members collect wolverine population and distribution data using a run pole (baited hair trap and remote camera) field protocol (Magoun et al. 2011). We tested the method during winter 2011/12 and expanded the field program in 2012/13 to include trappers province-wide who span a variety of habitats. In 2013/14, we concentrated on the Boreal Forest Natural Region to get better information on an area where very little is known about wolverines. Genetic information (DNA) in hair samples will help us understand genetic relationships of wolverines across the province, and occurrence data (photographs) will provide information on the distribution of wolverines in relation to factors such as human disturbance, landscape features and snow cover.

## **Results**

The trapper questionnaire provided insight into local traditional knowledge of wolverine, including information on the species' distribution that is not limited to areas where wolverine harvests have occurred. The highest incidence of wolverines occurring at some point on a trapline was in the northwest Boreal and Rocky Mountain areas of the province; interestingly, the northeast Boreal was lowest (Figure 1). Wolverine sign was more likely to be detected if the trapper had more years of experience, had harvested a wolverine in the past, had a larger trapline, and travelled further on the trapline as part of their regular activities. They were less likely to report wolverine sign as road density within their registered fur management area (RFMA) increased (Figure 2). Despite our predictions, distance to the closest area of persistent spring snowpack was not significantly related to whether wolverine sign was observed on a trapline.

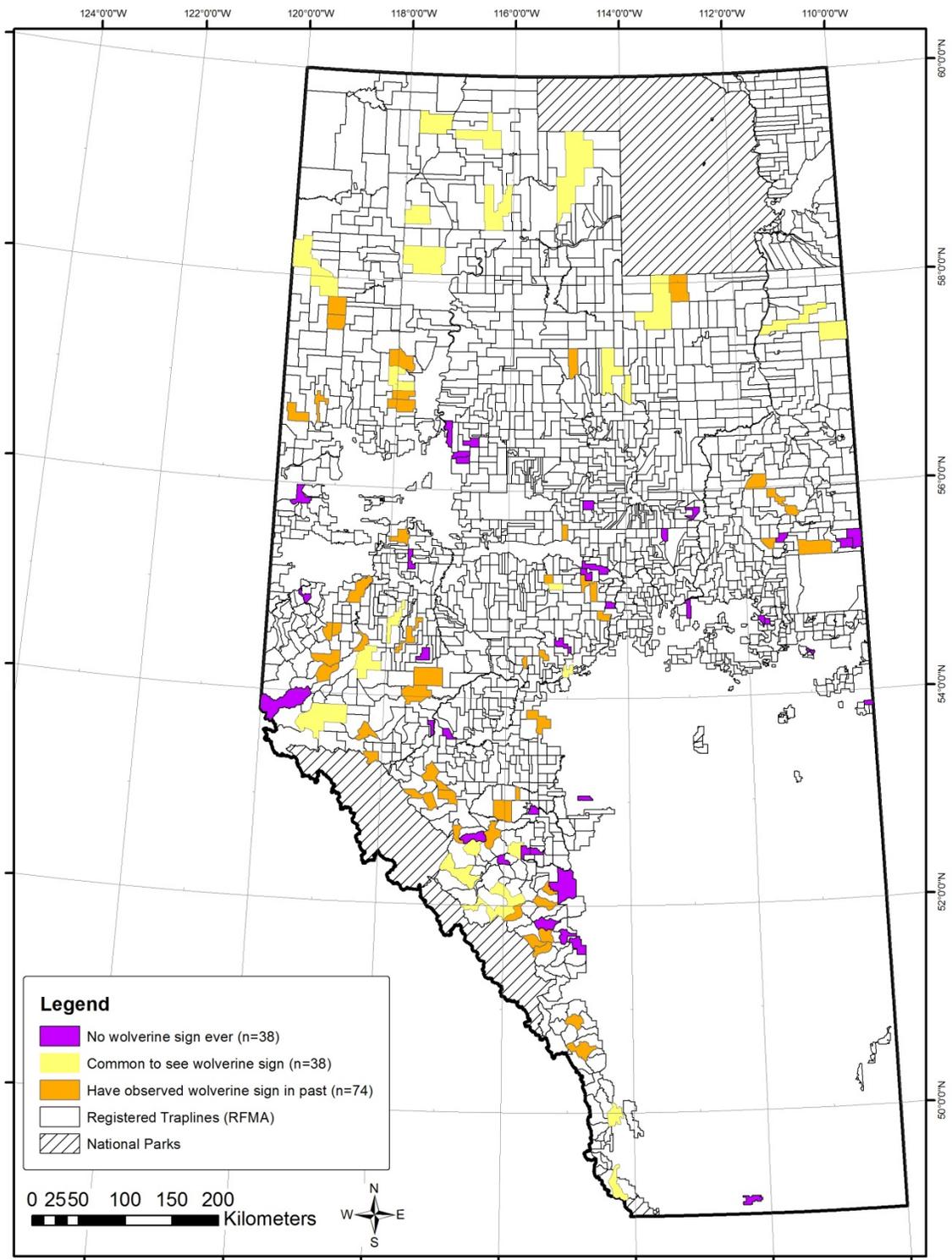


Figure 1. Our traditional knowledge survey suggests that wolverine were most commonly reported in the northwest Boreal and Rocky Mountain areas, with a lower proportion of respondents reporting observations in the Foothills and northeast Boreal regions.

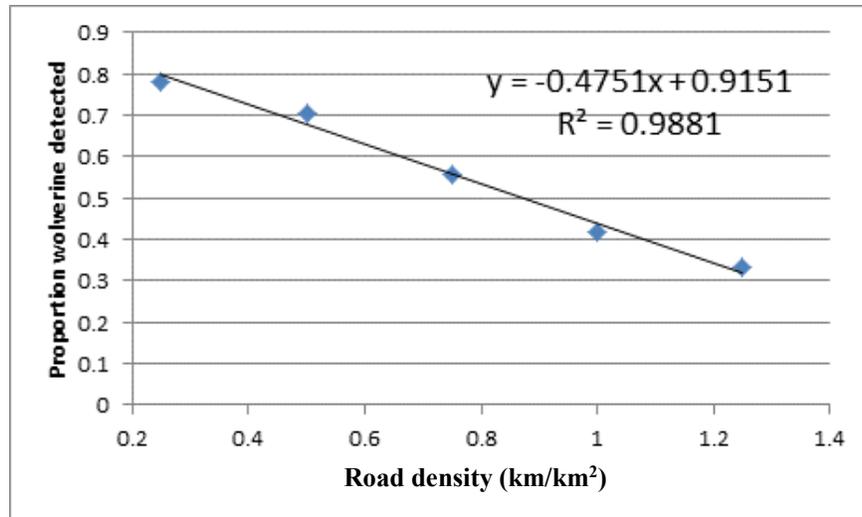


Figure 2. Trappers with lower road densities within their registered fur management areas were more likely to report wolverine sign than those with higher road densities.

Between November 2013 and March 2014, volunteer trappers and Alberta Conservation Association staff deployed 50 run poles to passively collect wolverine photographs and hair (DNA) samples. Sampling was focused on Boreal regions of the province. All camera images and hair samples collected during this period will be analyzed during spring and summer 2014, and will be used to direct future sampling efforts.

## Conclusions

Trapper involvement in this project has been phenomenal. Not only is the vast majority of data being collected by trapper volunteers, but they are also assisting with acquiring funds for the project and contributing to study design discussions. And participation isn't restricted to a single trapper per trapline; in many cases the set-up and monitoring of camera stations is a family activity, involving spouses, children and even grandchildren. This is a citizen-science project that is not only contributing to our understanding of the biology of a *Data Deficient* species but also engaging resource users in discussions about the types of habitat that need to be conserved to ensure long-term sustainability of that resource within a working landscape.

## Communications

### Presentations

- Society of Conservation Biologists conference, Baltimore, Maryland, USA, July 2013.
- Beauvais Lake Provincial Park, Alberta, July 2013.
- Alberta Trappers' Association Rendezvous, Grimshaw, Alberta, July 2013. Delivered two separate presentations (twice each) and staffed a wolverine booth to promote our partnership with ATA and to encourage trappers to sign up to look after run poles in the Boreal region.
- Cabelas Outdoor Days, Edmonton, Alberta, August 2013.
- Alberta Trappers' Association Annual General Meeting, Westlock, Alberta, September 2013.

- ATA Slave Lake local chapter, Slave Lake, Alberta, October 2013.
- ATA Lac La Biche local chapter, Lac La Biche, Alberta, October 2013.
- ATA High Level local chapter, High Level, Alberta, October 2013.
- ATA Peace River local chapter, Grimshaw, Alberta, November 2013.
- ATA Eureka River local chapter, November 2013.
- Explore More event, Camrose, Alberta, November 2013.
- Alberta Chapter of the Wildlife Society, Wildlife in the Wind Series, Lethbridge, Alberta, January 2014.

#### Other

- Attended an invitation-only innovation summit hosted by Shell Canada in Vancouver, British Columbia, October 2013. Staffed a booth that showcased the wolverine project and our citizen-science approach.
- Prepared quarterly project newsletter.
- Prepared project progress report.
- Delivered monthly telephone/e-mail updates with participating trappers.
- Participated in monthly team conference call, including ATA representatives.
- Participated in annual planning meeting with ATA representatives, Sherwood Park, Alberta, April 2013.
- Provided updates for the ACA website and Facebook site.
- Produced technical report: Webb, S., D. Manzer, R. Anderson, and M. Jokinen. 2013. Estimating wolverine occurrence using traditional trapping knowledge in Alberta. Draft Technical Report, produced by Alberta Conservation Association, Sherwood Park, Alberta, Canada.

#### Literature Cited

- Copeland, J.P., K.S. McKelvey, K.B. Aubry, A. Landa, J. Persson, R.M. Inman, J. Krebs, E. Lofroth, H. Golden, J.R. Squires, A. Magoun, M.K. Schwartz, J. Wilmot, C.L. Copeland, R.E. Yates, I. Kojola, and R. May. 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution. *Canadian Journal of Zoology* 88: 233–246.
- Magoun, A.J., C.D. Long, M.K. Schwartz, K.L. Pilgrim, R.E. Lowell, and P. Valkenburg. 2011. Integrating motion-detection cameras and hair snags for wolverine identification. *Journal of Wildlife Management* 75: 731–739.

## Photo Captions



One of the key components of a good citizen-science project is ensuring consistency in data collection across participants, which is why Alberta Conservation Association staff visited each trapper on their trapline, assisting with equipment set-up and ensuring that data were being collected in a similar manner over a study area larger than the size of the United Kingdom. Here, Len Peleshok checks a remote camera while the trapper constructs the run pole. Photo: Robert Anderson

[filename: Photo1\_WHILDZ Wolverine\_2013-14\_Robert Anderson.JPG]



Set-up and monitoring of run poles by trapper citizen scientists isn't a solitary activity. In fact, multiple family members, including spouses, children and even grandchildren, are often included in the activities and the accompanying discussion about what makes for good wolverine habitat. Photo: Ken Wright

(Note, two potential photos were provided.)

[filename: Photo2A\_WHILDZ Wolverine\_2013-14\_Ken Wright.JPG]

[filename: Photo2B\_WHILDZ Wolverine\_2013-14\_Ken Wright\_alternate.JPG]



During the first half of the field season, trappers incorporate data collection into their regular activities, checking the cameras while they check the rest of their traps. When the fur harvesting seasons close, however, they continue checking the cameras as volunteer citizen scientists for another two months, donating their own time, food and accommodations. The grant money and donations the project receives help to offset out-of-pocket fuel and equipment costs. Photo: Robert Anderson

[Photo3\_WHILDZ Wolverine\_2013-14\_Robert Anderson.JPG]



Travel among camera stations is almost always by snowmobile. For some of the participants in the project, each time they check their run poles it comes with a 250 km snowmobile ride, equivalent to riding from Edmonton, Alberta, to Lloydminster, Saskatchewan. Photo: Len Peleshok

[Photo4\_WHILDZ Wolverine\_2013-14\_Len Peleshok.JPG]