

From: [Grizzle, Betty](#)
To: [Shoemaker, Justin](#)
Subject: Maps
Date: Tuesday, February 7, 2017 8:35:46 AM
Attachments: [Wolverine D Inman Habitat Obs.pdf](#)
[Wolverine D Den 7yr Snow.pdf](#)
[Wolverine D Obs Prior Range.pdf](#)

Hi Justin - Ed and I have been working on various maps, including re-constructing some of Bob Inman's maps and previous GIS efforts. I am attaching a couple here in case you think they might be worth distributing to Core Team prior to today's call.

If you do send them out, please add that these are **preliminary drafts** and should not be widely distributed.

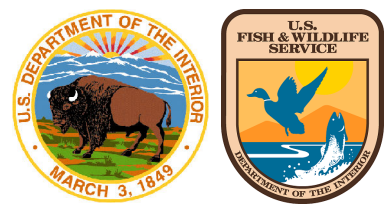
Let me know if you have questions

Thanks,

Betty

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Wolverine Habitat in the Western United States

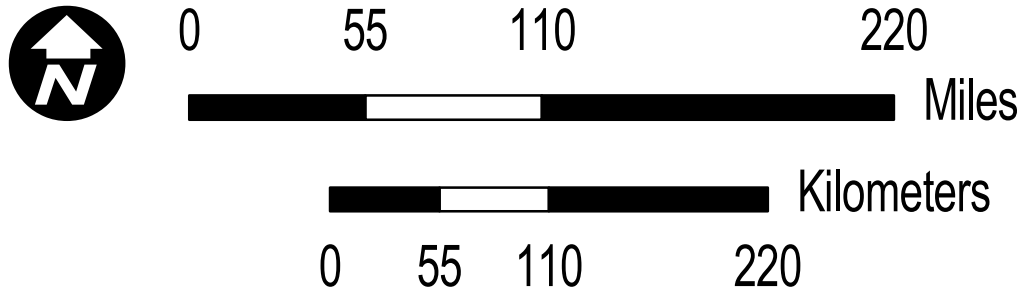
This map represents areas of western United States predicted to be maternal wolverine habitat (suitable for use by reproductive females), primary wolverine habitat (suitable for survival, i.e., use by resident adults), female dispersal habitat (suitable for relatively brief female dispersal movements), and male dispersal habitat (suitable for relatively brief male dispersal movements) based on resource selection function modeling developed with wolverine telemetry locations from the Greater Yellowstone Ecosystem, of Montana, Idaho, and Wyoming, USA, 2001-2010.

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DATA SOURCE: USFWS, INMAN (WCS), COPELAND
IMAGE SOURCE: ESRI Online Mapper
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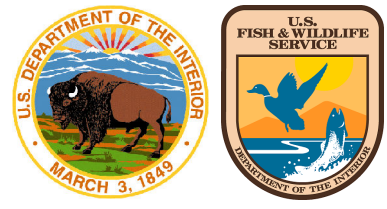


Legend

▲ Wolverine Observations
Compiled by USFWS-CFWO in the 2017 effort.



Map is a reproduction of Figure 4., from Robert Inman's
Doctoral Thesis No. 2013:4,
Wolverine Ecology and Conservation in
the Western United States

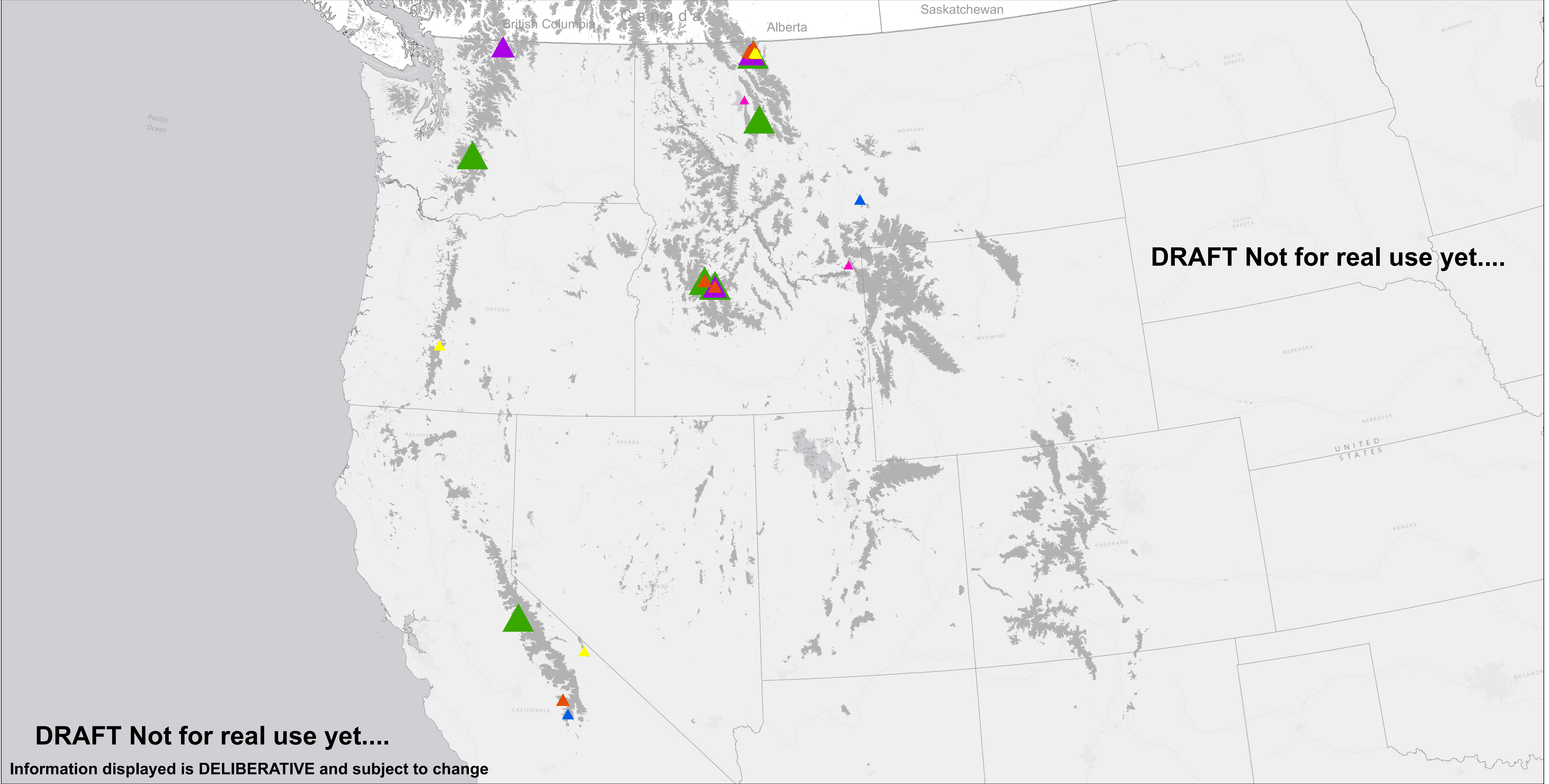


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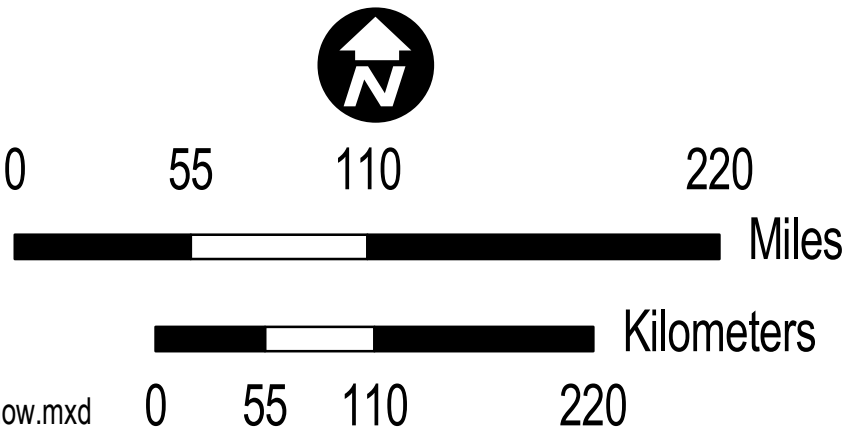
Wolverine Den Sites by Years of Snow Cover



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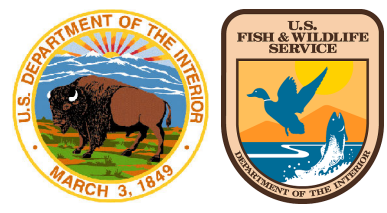
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Legend

- 1 Year of Snow
- 2 Years of Snow
- 3 Years of Snow
- 4 Years of Snow
- 5 Years of Snow
- 6 Years of Snow
- 7 Years of Snow
- Snow Cover - Areas that were covered once or more, by snow during a 3 week period in late April, early May, from 2000-2006

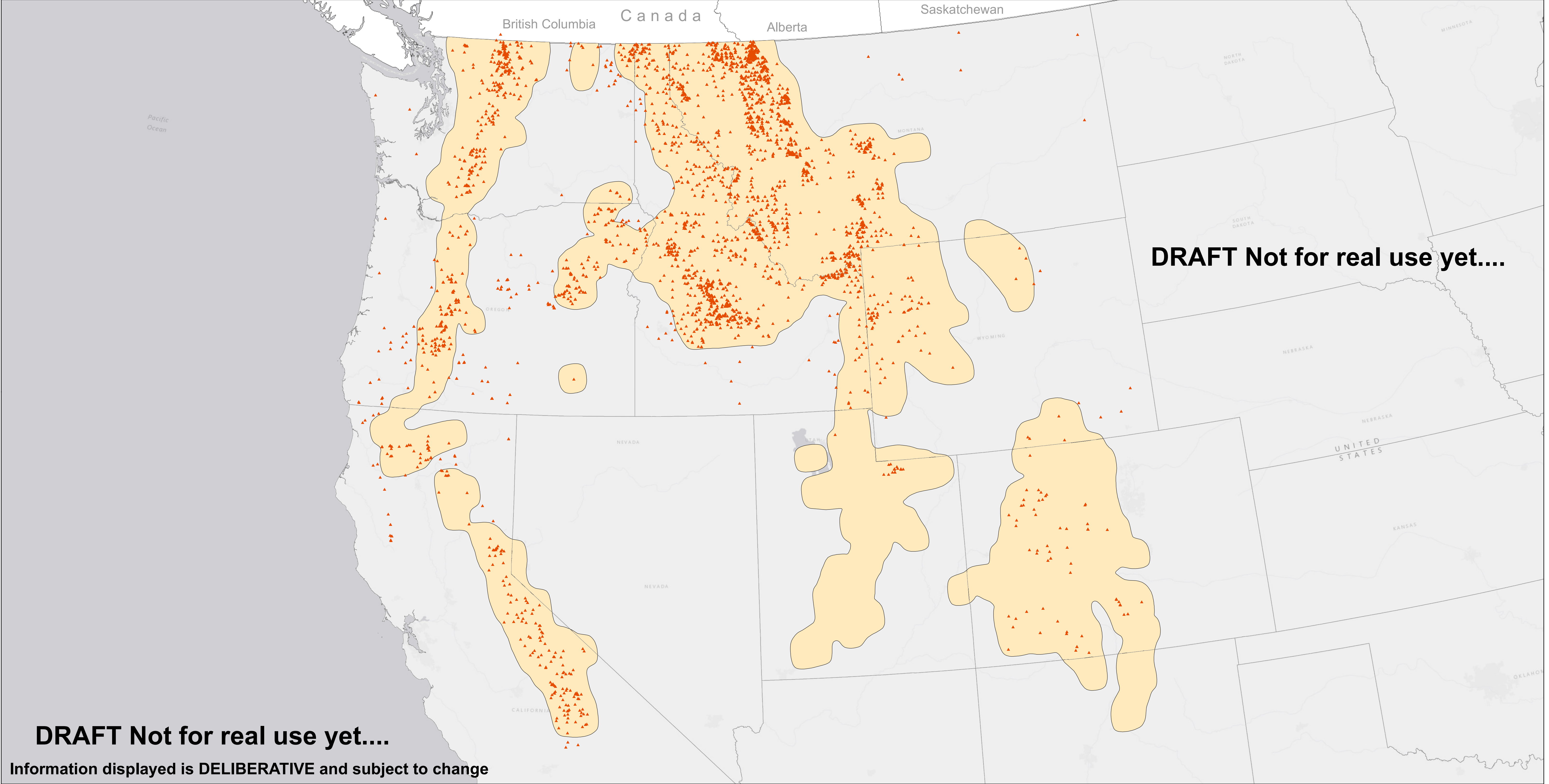


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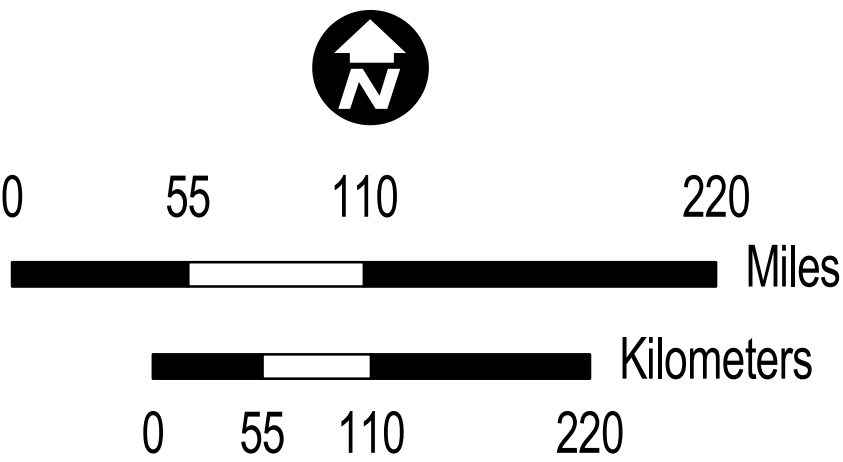
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Wolverine Observations and Prior Geographic Range Map



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Legend

▲ Wolverine Observations
Compiled by USFWS-CFWO in the 2017 effort.

■ Prior Geographic Range - Map represents areas that were considered the Geographic Range created prior by Nick Hardy and Shawn Sartious, USFWS, using the Snow model, PH model, FD model limiting areas to >100km2 and finally buffered to 20km.