

From: [Grizzle, Betty](#)
To: [Shoemaker, Justin](#)
Cc: [Guinotte, John](#); [Jodi Bush](#)
Subject: Re: wolverine RD briefing memo 6/12 version
Date: Monday, June 12, 2017 9:08:21 AM
Attachments: [Briefing Memo for RD Wolverine SSA update 06122017 BJGedits.docx](#)

See attached for edits/suggestions.

On Mon, Jun 12, 2017 at 7:44 AM, Shoemaker, Justin <justin_shoemaker@fws.gov> wrote:
Betty and John,

I've taken the last version that Betty reviewed and added in some info to the Genetics section. Unless Steve gets us some real dollar amounts to use, I don't see having the genetics options paper ready in time to include w/ this memo. So thought we should have some points in that section to discuss. I left "see genetics options paper" in there, but we can take out if needed. Let me know what you think and we'll get this moving through surname.

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BRIEFING MEMORANDUM FOR THE REGIONAL DIRECTOR

DATE: June 12, 2017

FROM: Michael Thabault, Assistant Regional Director, Ecological Services

SUBJECT: Wolverine Species Status Assessment Update

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To inform the Regional Director of the progress made on the North American wolverine (wolverine) Species Status Assessment (SSA) Report and the key information that will be of interest to the eventual wolverine listing decision. A briefing is scheduled for June 15.

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BACKGROUND

In compliance with a Court order that remanded our previous withdrawal of a proposed rule to list the contiguous U.S. Distinct Population Segment (DPS) of the wolverine (79 FR 47522; August 13, 2014), we will prepare either a revised proposed rule to list or a revised withdrawal of the previous proposed rule (78 FR 7864; February 4, 2013). In October 2016, we published a notice to announce the vacature of the withdrawal rule to the public, announce the proposed status since the judge's ruling, and to reopen the public comment period on the February 4, 2013 proposed rule to list the wolverine as a threatened species.

DISCUSSION

Highlighted in Judge Christensen's Court order remanding the withdrawal were the Service's determinations regarding: (a) the threat posed to the wolverine by the effects of climate change at the reproductive denning scale, (b) the threat posed to the wolverine by small population size and lack of genetic diversity, and (c) application of the SPR Policy to the wolverine. In our SSA Report we are reviewing previously considered information and new information to inform these points to ensure we are using the best available science upon which to base our listing decision.

Range of the Species – using both previously considered and new information, we have revised our approach to delineate the range of the wolverine across North America and in the contiguous United States to more accurately represent the species' range.

Trapping Data – we have collected additional trapping data not available to us in 2014 to inform the range of the species and the effect of trapping in Canada (British Columbia and Alberta); this information is directly relevant to informing our DPS determination.

NOAA/CU snow persistence model – High resolution snow pack models have been developed for Glacier and Rocky Mountain National Parks. These areas bracket the DPS range for the wolverine in the contiguous United States. The majority of model scenarios indicate significant future snow persistence through April and May for 1) elevations currently used for denning (Glacier) and 2) the inferred elevations where wolverines would be expected to den in Rocky Mountain National Park.

Deleted: In our SSA we are making every effort to inform these points and also ensure that we are using the most up-to-date science upon which to base our listing decision. ¶
The following topics for discussion either directly inform the points highlighted by the Court or inform data gaps/uncertainties that are highly relevant to our DPS and listing decision for wolverine. ¶

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New denning information – we have received several peer-reviewed publications and other information from wolverine researchers that were not available to us in 2014 documenting natal den sites and den site conditions that provide new insight into the timing and location of wolverine den sites; natal den sites have been documented in locations outside of areas previously predicted by Copeland et al. (2010) snow model in North America and in Scandinavia.

Population Viability Analysis (PVA) underway – we are coordinating with USGS to develop a PVA to inform minimum viable population size and to develop future scenarios that model the potential effects of demographic and habitat parameters on the wolverine population in the contiguous United States.

Genetics – The court [stated](#) that, in our 2014 withdrawal, we failed to articulate how our statements regarding the following did not constitute adverse effects to wolverine:

- Apparent loss of connectivity between Rocky Mountains and Canada prevented influx of genetic material needed to maintain or increase the genetic diversity in contiguous U.S.
- Effective population size is too low to support the subpopulations in contiguous U.S.
- Genetic drift has already occurred in subpopulations in contiguous U.S. as compared to Canada, and a continued loss of genetic diversity may lead to inbreeding depression and inability of wolverines in contiguous U.S. to persist.

To address these concerns we need to evaluate our [analysis](#) in previous rules in which we [concluded](#) that there is “good evidence” that genetic diversity is lower in wolverines in the contiguous U.S. as compared to Canada and Alaska. We also need to determine whether there is a threat for inbreeding depression based on small population [size](#). In addition to informing these points, knowledge gained through a more thorough and complete [analysis](#) of the genetic structure of wolverine populations [throughout North America](#) would [better inform](#) our DPS determination.

See attached options paper.

NEXT STEPS

We plan to [present](#) the final SSA [Report](#), with peer and partner review incorporated, to the RD and decision team by December 2017.

ATTACHMENTS

See attached for a [schedule outlining steps and timelines](#) for preparation of the North American wolverine SSA Report and listing decision documents.

Genetics options paper.

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Trapping Data – We have gathered additional trapping data not available to us in 2014 to inform the range of the species and the effect of trapping in Canada (British Columbia and Alberta) as it relates to an updated DPS determination. ¶
NOAA/CU snow persistence model – High resolution snow pack models have been developed for Glacier and Rocky Mountain National Parks. These areas bracket the DPS range in the lower 48. The majority of model scenarios indicate significant future snow persistence through April and May for elevations currently used for denning (Glacier) and the inferred elevations where wolverines would be expected to den in Rocky Mountain National Park. ¶
New denning information – We have several records that were not available to us in 2014 of den sites found outside of modeled snow habitat in North America, as well as confirmation of successful wolverine dens outside of snow in Scandinavia. ¶
PVA underway – We are coordinating with USGS on a PVA to inform minimum viable population size and the effects of demographic and habitat parameters on the wolverine population in the lower 48 States. ¶

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