

# Study: Wolverines need refrigerators

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This is a wolverine. Credit: Mark Packila, WCS

Wolverines live in harsh conditions; they range over large areas of cold mountainous low-productivity habitat with persistent snow. The paper suggests wolverines take advantage of the crevices and boulders of the mountainous terrain, as well as the snow cover to cache and "refrigerate" food sources such as elk, caribou, moose and mountain goat carrion, ground squirrels and other food collected during more plentiful times of year. These cold, structured chambers provide protection of the food supply from scavengers, insects and bacteria. In addition, the refrigerated caches increase the predictability of available food resources, reduce the energy spent by females searching for food while in lactation phase, and decrease the time mothers spend away from cubs.

The paper appears in the current edition of the *Journal of Mammalogy* and was co-authored by Robert M. Inman of WCS, Audrey J. Magoun of Wildlife Research and Management, Jens Persson of the Swedish University of [Agricultural Sciences](#), and Jenny Mattisson of the Norwegian Institute for Nature Research.

"People don't normally think of insects and microbes as being in competition for [food](#) with [wolverines](#)," said lead author Robert Inman of the [Wildlife Conservation Society](#)'s North America Program. "But in fact, bacteria will devour an unprotected [food source](#) if that source is available."

Through an extensive literary review, the authors noted that wolverine reproduction is confined to a brief period of the year, and the lactation phase in females (February through April) corresponds to a period of low availability of [food resources](#). Wolverines, which are opportunistic [foragers](#), have adapted by amassing food caches during the preceding winter months when food is more readily available. Without the cached food supply or an unforeseen alternative (such as a winter-killed ungulate), early litter loss occurs.

Inman said, "Understanding why and how wolverines exist where they do and the various adaptations they have evolved to eke out a living will better inform population management strategies and conservation of the species."

Climate change will play a key role in management planning for the conservation of wolverines, the authors say.

In a study published in 2010, wolverine biologists demonstrated a relationship between the areas where wolverines exist (their distribution) and persistent [snow cover](#). The first theory advanced was that wolverines must have deep snow available in springtime so that they can give birth

to their small cubs in a warm, secure den. The newly released study suggests that other factors related to climate and snow pack, such as competition for food, may also be involved in explaining the limits to wolverine distribution.

Because of their dependence on snow pack, wolverines were recently listed as warranted for protection under the Endangered Species Act due in large part to the threat of climate change reducing distribution and habitat connectivity. The authors say that a deeper understanding of how and why wolverines use snow pack the ways they do is critical to understanding how climate change will impact survival and reproductive rates.

"Shedding light on the specific mechanism of how climate will affect wolverines is important in order to know what to do to help them hold on," said WCS's North America Program Director, Jodi Hilty.

Inman and co-authors published a study in December of 2011 on the spatial ecology of wolverines in the *Journal of Wildlife Management*. This latest paper represents the second of several that will help to inform a conservation strategy for the species.

Provided by Wildlife Conservation Society

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