

PETITION TO END THE TRAPPING OF WOLVERINE (*Gulo gulo*)  
IN MONTANA



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- EXHIBIT A Department of the Interior, U.S. Fish & Wildlife Service. December 14, 2010. *12-Month Finding on a Petition to List the North American Wolverine as Endangered or Threatened*. 75 Fed. Reg. 78030.
- EXHIBIT B Montana Fish Wildlife & Parks. 2011. *Montana Trapping and Hunting Regulations, Furbearer*.
- EXHIBIT C Squires, J.R., J. Copeland, T.J. Ulizio, M.K. Schwartz, and L.F. Ruggiero. 2007. *Sources and patterns of wolverine mortality in western Montana*. Journal of Wildlife Management 71:2213-2220.
- EXHIBIT D Schwartz, M.K., J.P. Copeland, N.J. Anderson, J.R. Squires, R.M. Inman, K.S. McKelvey, K.L. Pilgrim, L.P. Waits, and S.A. Cushman. 2009. *Wolverine gene flow across a narrow climatic niche*. Ecology 90:3222-3232.
- EXHIBIT E 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.
- EXHIBIT F McKelvey, K.S., J.P. Copeland, M.K. Schwartz, J.S. Littell, and K.B. Aubry. 2011. *Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors*. The Ecology Society of America, Ecological Applications, 21 (8), 2011 pp. 2882-2897.
- EXHIBIT G Lofroth, E.C., and P.K Ott. 2007. *Assessment of the sustainability of wolverine harvest in British Columbia, Canada*. Journal of Wildlife Management 71(7):2193-2199.

- EXHIBIT H Krebs, J., E. Lofroth, J. Copeland, V. Banci, D. Cooley, H. Golden, A. Magoun, R. Mulders, and B. Shults. 2004. *Synthesis of survival rates and causes of mortality in North American wolverines*. Journal of Wildlife Management 68(3): 493-502.
- EXHIBIT I Hornocker, M.G., and H.S. Hash. 1981. *Ecology of the wolverine in northwestern Montana*. Canadian Journal of Zoology 59:1286–1301.
- EXHIBIT J Banci, V. et al. 1994. *The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States* (excerpt). USDA Forest Service, General Tech. Report RM-254, Fort Collins, Colorado.
- EXHIBIT K Inman, R.M., K.H. Inman, A.J. McCue, M.L. Packila, G.C. White, and B.C. Aber. 2007a. *Wolverine Harvest in Montana: Survival Rates and Spatial Considerations for Harvest Management*. Wildlife Conservation Society, Greater Yellowstone Wolverine Program, Cumulative Report, May 2007 (Chapter 5).
- EXHIBIT L Inman, R et al. 2012. *The wolverine’s niche: linking reproductive chronology, caching, competition, and climate*. Journal of Mammalogy, 93 (3):634-644.
- EXHIBIT M Cegelski, C.C., L.P. Waits, N.J. Anderson, O. Flagstad, C. Strobeck, and C.J. Kyle. 2006. *Genetic diversity and population structure of wolverine (Gulo gulo) populations at the southern edge of their current distribution in North America with implications for genetic viability*. Conservation Genetics 7:197-211.
- EXHIBIT N Squires, J. et al. 2006. *The Association Between Landscape Features and Transportation Corridors on Movements and Habitat-Use Patterns of Wolverine*. Prepared for MDOT, FHWA/MT-06-0058171.

- EXHIBIT O Inman, R. et al. 2004. *Wolverine Makes Extensive Movements in the Greater Yellowstone Ecosystem*. Northwest Science, Vol. 78, No. 3, 2004.
- EXHIBIT P Cegelski, C.C., L.P. Waits, and N.J. Anderson. 2003. *Assessing population structure and gene flow in Montana wolverines (Gulo gulo) using assignment-based approaches*. Molecular Ecology 12:2907-2918.
- EXHIBIT Q Ruggiero, L.F., K.S. McKelvey, K.B. Aubry, J.P. Copeland, D.H. Pletscher, and M.G. Hornocker. 2007. *Wolverine conservation and Management*. Journal of Wildlife Management 71:2145-2146.
- EXHIBIT R Inman, R.M., M.L. Packila, K.H. Inman, R. Spence, and D. McCauley. 2008. *Montana Steps Forward with Metapopulation Management Strategy*. In Greater Yellowstone Wolverine Program, Progress Report – November 2008. Wildlife Conservation Society, North America Program, General Report, Bozeman, Montana, U.S.A.
- EXHIBIT S Copeland, J.P., and R.E. Yates. 2006. *Wolverine population assessment in Glacier National Park spring 2006 progress report*. USDA Forest Service, Rocky Mountain Research Station, Missoula, Montana.

A thing is right when it tends to increase the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.

ALDO LEOPOLD  
from *A Sand County Almanac*

## I. INTRODUCTION

Pursuant to §§ 2-4-315, 2-4-501 Montana Code Annotated (“MCA”), the Western Environmental Law Center (“WELC”) hereby submits this petition to end the trapping of wolverine (*Gulo gulo*), a candidate species for protection under the federal Endangered Species Act (“ESA”), 16 U.S.C. §§ 1531-1544.<sup>1</sup>

This petition is submitted on behalf of Friends of the Wild Swan, Helena Hunters and Anglers Association, Montana Ecosystems Defense Council, George Wuerthner, Native Ecosystems Council, The Alliance for the Wild Rockies, Swan View Coalition, WildEarth Guardians, and Footloose Montana (collectively, “Petitioners”). All Petitioners qualify as interested persons pursuant to § 2-4-315, MCA, and hereby request that they be notified and placed on any and all lists of interested persons regarding wolverine management in Montana.<sup>2</sup>

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<sup>1</sup>The reference to “trapping” in this petition includes any and all forms of intentional take authorized by the State of Montana.

<sup>2</sup> Under the Montana APA, an “interested person” means “a person who has expressed to the agency an interest concerning agency actions . . . and has requested to be placed on the agency’s list of interested persons as to matters of which the person desires to be given notice.” § 2-4-102(5)(a), MCA. “‘Person’

Petitioners are non-profit organizations (and one individual) dedicated to protecting and preserving the natural function and biological integrity of Montana's natural resources and native wildlife populations, including wolverine. Petitioners' members and staff live near and/or routinely recreate in the wolverine's current and historic range in Montana. Petitioners enjoy observing and studying wolverine in the wild, including signs of the wolverine's presence, throughout Montana. The opportunity to possibly view wolverine or signs of wolverine in the wild—by itself—is of significant interest and value to Petitioners and increases Petitioners' use and enjoyment of Montana's wild places.

Petitioners derive aesthetic, recreational, scientific, inspirational, educational, and other benefits from these activities and in working to protect and restore wolverine in Montana. Petitioners also have an interest in knowing that wolverine are still present in Montana, that Montana's native predator-prey system remains fully intact, and that "some real teeth remain" in Montana's scenery. The continued presence of wolverine and other native carnivores is, in part, what makes Montana so unique and special in the contiguous United States and why Petitioners choose to live and/or recreate in Montana. Petitioners' interests have

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means an individual, partnership, corporation, association, governmental subdivision, agency, or public organization of any character." § 2-4-102(9), MCA.

been, are being, and unless this petition is granted, will continue to be adversely and irreparably harmed by Montana Fish Wildlife and Parks Commission's ("Commission") and the Montana Department of Fish, Wildlife and Parks' ("Department") authorization of wolverine trapping.

As described in this petition, the total wolverine population in Montana is extremely small, somewhere between 100-175 individuals (the effective population able to contribute offspring is significantly smaller). This population is well below the number needed for genetic viability and nowhere near high enough to provide recreational trapping opportunities or to "preserve our time-honored trapping heritage" in Montana.

Moreover, the best available science reveals this already small and extremely vulnerable population will continue to decline as climate change shrinks the amount of available wolverine habitat in Montana and increases the distance, and thus fragmentation, between existing islands of wolverine habitat. This, in part, is why wolverines are now warranted for listing and a candidate species awaiting protective ESA status. *See* Exhibit ("Ex.") A. Authorizing the trapping of wolverines under these circumstances—which will increase the speed by which small populations are lost, cause mortality to exceed reproduction, and increase mortality levels for dispersing wolverine—makes a bad situation worse.

Wherefore, with this petition, Petitioners respectfully request that the Commission or the Department or both take two related but distinct actions:

- (1) immediately issue a declaratory order and/or ruling closing the wolverine trapping season in Montana pursuant to § 87-1-304(4), MCA, or any other legal authority afforded the Commission and/or Department until wolverine are no longer a candidate or protected species under the ESA; and
- (2) initiate and complete rulemaking pursuant to § 2-4-315, MCA, to adopt a new rule closing the wolverine trapping season in Montana until wolverine are no longer a candidate or protected species under the ESA. The new rule, as proposed, must go into effect before December 1, 2012, and provide as follows: The trapping season for wolverine is hereby closed until such time as wolverine are no longer a candidate or protected species under the federal Endangered Species Act.<sup>3</sup>

In the alternative, Petitioners request the Commission, Department, and/or Director take any and all action within their authority to end the trapping of wolverine before the 2012 season and until such time as the species is no longer a

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<sup>3</sup> This request to initiate rulemaking pursuant to § 2-4-315, MCA, is not a request to adopt, repeal, or amend a seasonal rule adopted annually or biennially by the Commission and/or Department. Rather, Petitioners request the adoption of a new rule that extends beyond the annual or biennial seasons, until wolverine are no longer a candidate or listed species under the ESA. In addition, the new rule, as proposed, in this petition is not meant to limit the scope of the proposed rule(s) that the Commission and/or Department should consider. It is merely a proposal, a “model or point of departure” for the Commission’s and Department’s consideration if and when it decides to initiate rulemaking. *See Common Cause of Mont. v. Argenbright*, 276 Mont. 382, 388-89, 917 P.2d 425, 429 (1996) (citation omitted).

candidate or protected species under the ESA. The reasons and authority supporting this petition are outlined below.

## II. BACKGROUND

### A. Wolverine (*Gulo gulo*).

“If wolverines have a strategy, it’s this: Go hard, and high, and steep, and never back down, not even for the biggest grizzly, and least of all from a mountain. Climb everything: trees, cliffs, avalanche chutes, summits. Eat everybody: alive, dead, long-dead, moose, mouse, fox, frog, its still warm heart or frozen bones.” Douglas Chadwick, *The Wolverine Way*, 47 (2010) (hereinafter, “Chadwick 2010 ”).

The largest member of the *Mustelidae* (weasel) family, the wolverine resembles a small bear with a bushy tail and a broad, rounded head, short rounded ears, and small eyes and a body that is custom built for high-elevation, mountain living. Ex. A at 78031. The wolverine’s large, crampon-clawed feet (each with five toes with curved, semi-retractile claws used for digging and climbing) are enormous relative to its body, “spreading its weight like snowshoes—a major advantage over most competitors and prey during cold months.” Chadwick 2010 at 61; Ex. A at 78031. Wolverines also operate at a higher metabolic rate than other animals their size. If “you were to picture [wolverines] as organic cruising

machines with a souped-up carburetor, you wouldn't be far off the mark.”

Chadwick 2010 at 61. “To hold in the heat of this internal engine, wolverines, like many other northern mammals, wear a double coat—a dense inner layer of air-trapping wool beneath a cover of stout guard hairs, which add extra insulation. Textured to resist absorbing moisture, the long guard hairs that drape from wolverines are not only close to waterproof but also excel at shedding frost.” *Id.* This makes a wolverine’s pelt highly desirable and valuable.<sup>4</sup>

A wolverine’s weapons “include well developed claws, sharp front teeth (the incisors), long fangs (canines), and cheek teeth (premolars and molars) specialized for cutting rather than grinding. On each side of a carnivore’s mouth, the last upper premolar and first lower molar . . . are arranged so that as the jaws close, they generate a slicing action like scissors or pruning shears.” Chadwick 2010 at 77. The wolverine’s bite force is extremely strong. “When a wolverine comes upon an elk or moose carcass that larger predators have worked over, it can crunch up the skeleton left behind, shattering massive bones that not even a grizzly would try to crack.” *Id.* at 78. Wolverines also have “robust skulls that protect relatively large brains and eyes positioned in the front of the head rather

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<sup>4</sup> The average price for a wolverine pelt in 2011 was \$253.11.

than on the sides, a trait common to hunters that rely on accurate depth perception.” *Id.* at 77.

Wolverine reproductive rates are low. In fact, actual rates of successful reproduction are among the lowest known for mammals. Ex. A at 78031. Approximately 40% of all female wolverines are capable of giving birth at two years old (the average age of reproduction, however, is likely more than three years), become pregnant most years, and produce litter sizes of approximately 3.4 kits on average. *Id.* It is common, however, for “females to forgo reproducing every year, possibly saving resources to increase reproductive success in subsequent years.” Ex. A at 78031. Female wolverines are also known to resorb or spontaneously abort litters prior to giving birth. *Id.* “It is likely that, despite the high rate of initiation of pregnancy, due to the spontaneous abortion of litters resulting from resource limitation, actual rates of successful reproduction in wolverines are among the lowest known for mammals.” *Id.*

Breeding generally occurs from late spring to early fall. “Females undergo delayed implantation until the following winter to spring, when active gestation lasts from 30 to 40 days.” Ex. A at 78031. Wolverine litter are born from mid-February through March. *Id.* Female wolverines use natal (birthing) dens that are excavated in snow. Stable snow pack greater than five feet deep “appears to be a

requirement for natal denning, because it provides security for offspring and buffers cold winter temperatures.” *Id.* These natal dens “consist of tunnels that contain well-used runways and bed sites and may naturally incorporate shrubs, rocks, and downed logs as part of their structure.” *Id.*

In Montana, natal dens typically occur above 7,874 feet and are located on north aspects in avalanche debris, typically in alpine habitats near treeline. *Id.* Once the litter is born, wolverines will continue to use the natal den through late April and early May (occupancy of such dens varies from 9 to 65 days). *Id.* As wolverines grow, females will move the kits to multiple secondary “maternal” dens. Researchers think the timing of natal den abandonment may be tied to the accumulation of water in the dens due to snowmelt, the maturation of offspring, disturbance, and/or geographic location. *Id.* After using natal and maternal dens, wolverines may also use rendezvous sites through early July. *Id.* These “sites are characterized by natural (unexcavated) cavities formed by large boulders, downed logs (avalanche debris), and snow. *Id.*

In Montana, wolverines occur primarily in the high-elevation alpine portions of the State. Ex. A at 78031; Ex. K at 90 (fig. 4); Ex. D at 2 (map). “Wolverines do not appear to specialize on specific vegetation or geological habitat aspects, but instead select areas that are cold and receive enough winter

precipitation to reliably maintain deep persistent snow late into the warm season.”

*Id.*; Ex. E. The requirement of cold, snowy winters means wolverine distribution is restricted to high elevations. At present, the majority (95%) of wolverine habitat currently occupied by the species in the contiguous lower 48 states is federally owned and managed, mostly by the United States Forest Service. Ex. A at 78051.

Wolverines are opportunistic feeders that feed on just about everything. They scavenge, prey on small animals, birds, and ungulates, and eat fruit, berries and insects. Ex. A at 78032. In Glacier National Park, wolverines compete with grizzly bears for prey and carcasses. “Sometimes the 30 pound wolverines succeed in driving off the giant bears. And sometimes they die trying.” Chadwick 2010 at 98. Wolverines also cache food in snow banks and in boulder fields with icy water running underneath. Ex. L; Chadwick 2010 at 61. Supplies in such caches may keep not just for one month but from one year to the next. *Id.* Wolverines also have an excellent sense of smell that enables them to find food beneath deep snow. Ex. A at 78032.

Like other native carnivores in Montana, wolverines need secure, core areas of habitat that are large and interconnected to link populations and the genes they carry in order to survive. Chadwick 2010 at 269. As explained by the United

States Fish and Wildlife Service (Service), wolverines require “a lot of space; the availability and distribution of food is likely the primary factor in determining wolverine movements and home range size.” Ex. A at 78032. “Female wolverines forage close to den sites in early summer, progressively ranging further from dens as kits become more independent. Wolverines travel long distances over rough terrain and deep snow, and adult males generally cover greater distances than females.” *Id.* Wolverine home ranges in Montana and Idaho vary from 193 to 588 square miles for males and from 55 to 148 square miles for females. *Id.*

Wolverines “often move long distances in short periods of time when dispersing from natal ranges, into habitats that are unsuitable for long-term survival.” Ex. A at 78033. Such movements make it difficult to estimate total population size and distinguish between occurrence records that represent established populations and those that represent short-term occupancy or exploratory movements. *Id.*<sup>5</sup>

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<sup>5</sup>During the Glacier Wolverine Project, male wolverine number 3 (“M3”) summited the 10,466-foot Mount Cleveland—Glacier National Park’s large peak—during the heart of winter. Based on data from his GPS collar, M3 climbed the central wall of the cirque basin to the summit, ascending 4,900 vertical feet in 90 minutes. Chadwick 2010 at 237; *see also* Chadwick 2010 at 164-65 (map depicting typical week of movement in Glacier Park, along the Continental Divide). Subsequent human attempts to re-trace M3's route up Mount Cleveland have been unsuccessful.

Studies suggest that wolverine occur at naturally low densities, approximately 1 per 65 to 337 sq. km. Ex. A at 78032. At present, however, no systematic or accurate population census of wolverines in the lower 48 exists, so “the current population level and trends remain unknown.” *Id.* Based on the Service’s current knowledge of occupied wolverine habitat and wolverine densities, however, the agency estimates that the wolverine population in the entire lower 48 states to be approximately 250-300 individuals, with the bulk of the population in the Northern Rockies, especially Montana. The Service estimates that approximately 175 wolverine occupy Montana, 75 in Idaho, 15 in Wyoming, 1 in Colorado, 10 in Washington, 5 in Oregon, and 1 in California (Service 2012, pers. comm.). Others say a more realistic estimate of the number of wolverines in Montana “would be 100 to 150, tops.” Chadwick 2010 at 120.

In the contiguous United States, the Service explains that wolverines likely exist as a “metapopulation.” Ex. A at 78031. By definition, a metapopulation “is a network of semi-isolated populations, each occupying a suitable patch of habitat in a landscape of otherwise unsuitable habitat. . . . Metapopulations require some level of regular or intermittent migration and gene flow among subpopulations, in which individual populations support one another by providing genetic and demographic enrichment through mutual exchange of individuals. Individual

subpopulations may go extinct or lose genetic viability, but are then ‘rescued’ by immigration from other subpopulations, thus ensuring the persistence of the metapopulation as a whole. Metapopulation dynamics rely on the ability of subpopulations to support one another through exchange of individuals for genetic and demographic enrichment. If metapopulation dynamics break down, either due to changes within subpopulations or loss of connectivity, then the entire metapopulation may be jeopardized due to subpopulations becoming unable to persist in the face of inbreeding or demographic and environmental stochasticity.”

*Id.*

B. Threats to Wolverine.

On December 14, 2010, the Service determined that the addition of wolverine to the ESA’s list of threatened and endangered wildlife was warranted but precluded by “higher priority actions.” Ex. A at 78030. “On the basis of the best scientific and commercial data available, we find that [listing wolverine in the contiguous United States] as threatened or endangered is warranted.” Ex. A at 78054 (emphasis added). However, the Service explained that adopting a rule to list wolverine “is precluded by higher priority listing actions . . . .” *Id.* In other words, even though warranted for listing, the Service is too busy to provide

wolverines the protection they need and deserve under the ESA. Wolverine are now on the Service's candidate species list awaiting federal, ESA protection. *Id.*<sup>6</sup>

The Service's determination that wolverines are "warranted" for listing was made in accordance with Section 4 of the ESA, 16 U.S.C. § 1533, and the ESA's implementing regulations, 50 C.F.R. § 424, which direct the Agency to evaluate and consider five factors or threats to the species to determine if a species should be listed as threatened or endangered under the ESA. Ex. A at 78042. The five factors include: (1) present or threatened loss of the species' habitat and range; (2) overutilization of the species; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) other factors affecting the species' continued existence. *Id.*

1. Destruction, modification, or curtailment of habitat and range.

Climate change poses a serious threat to wolverine in the lower 48. In the Service's own words, wolverines are "likely to become in danger of extinction in the foreseeable future due to the destruction, modification, and curtailment of its habitat and range by climate change." Ex. A at 78050.

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<sup>6</sup> The Service is in the process of developing a proposed rule to list wolverine which will likely be made available for public review and comment in September, 2012. A final decision on whether to list wolverine will be made in 2013.

Deep snow that persists into the late spring (May) is essential for wolverine reproduction. Ex. A at 78043. In fact, “[n]o records exist for wolverines denning anywhere but in snow, despite the wide availability of snow-free denning opportunities within the species’ geographic range.” *Id.* The “snow tunnel and complex structures associated with dens is likely required to protect young from interspecific and intraspecific predation.” *Id.* A “layer of deep snow may also add crucial insulation from cold temperatures and wind prevalent in denning habitat.” *Id.* Female wolverines have been known to “abandon reproductive dens when temperatures warm and snow conditions become wet . . . indicating that the condition of the snow is also important to successful reproduction and that the onset of spring snowmelt forces female wolverines to move kits into alternate denning sites with better snow conditions if they are available.” *Id.*

Deep snow conditions and persistent cold temperatures are also important for food storage. Ex. L. Wolverines cache food in snow banks and in boulder fields with icy water running underneath. “During all seasons and regions, caching in cold, structured microsites to inhibit competition with insects, bacteria, and other scavengers is likely a critical behavioral adaptation because total food resources are relatively limited within the wolverine’s niche.” Ex. L at 634. The wolverine’s reliance on late spring snow for denning and consistent snowpack and

cold sites for food storage, as well as recent evidence revealing the species rarely occurs where the average maximum daily temperature in August exceeds 70 degrees, makes the species extremely sensitive to climate change.

McKelvey et al. (2010) used downscaled global climate change models to project the impacts of changes in temperature and precipitation to wolverine habitat as modeled by Copeland et al. (2010). Ex. A at 78045; Ex. F (McKelvey 2010); Ex. E (Copeland 2010). The authors also presented an alternative method for evaluating climate impacts to wolverine habitat by “projecting onset of spring snowmelt to occur 2 weeks earlier than it currently does.” Ex. A at 78045.

Essentially, the authors asked the question: “What would happen if spring snowmelt occurred 2 weeks earlier than it occurs now?” *Id.* The results reveal wolverine’s survival and recovery in the lower 48 is threatened by climate change in two respects.

First, is loss of habitat. Warming temperatures and changes in precipitation will result in reduced snowpack and permanent loss of essential wolverine habitat in the contiguous United States. Ex. A at 78045. “Habitat losses are likely to occur throughout the range of [wolverine in the lower 48] and are projected to be most severe in central Idaho . . . .” *Id.*; Ex. F at 14 (fig. 2). In central Idaho, areas that currently support wolverines are likely to lose proportionally more snow-

covered area than other parts of the lower 48. *Id.* By 2045, McKelvey et al. (2010) estimates that “23 percent of current wolverine habitat in the contiguous United States will be lost due to climate warming.” Ex. A at 78045; Ex. F at 2888 (fig. 3), 2889 (fig. 4). “That loss expands to 63 percent of wolverine habitat by the time interval between 2070 and 2099.” Ex. A at 78045; Ex. F at 2889 (fig. 4).

Based on these projections, the Service concludes that “climate changes are likely to result in permanent loss of a significant portion of essential wolverine habitat within the foreseeable future.” Ex. A at 78045. Given the spatial needs of wolverine and the limited availability of suitable habitat, this projected loss in wolverine habitat will likely “result in a loss of wolverine numbers that is greater than the overall loss of habitat area.” *Id.* (emphasis added). As “habitat patches become smaller and more isolated, they are likely to lose the ability to support wolverines . . . .” *Id.*

Second, the loss of wolverine habitat (described above) increases habitat fragmentation as islands of wolverine habitat become smaller and intervening areas between wolverine habitat become larger. Ex. F at 2889 (fig. 4); Ex. A at 78045; Ex. E at 11. Currently, wolverine habitat in the contiguous United States “can be described as a series of habitat islands.” Ex. A at 78045. Some of these islands are large and clumped closely together such as the Glacier Park/Bob

Marshall wilderness complex and Greater Yellowstone Area in Montana. Ex. D at 2 (fig. 1). Other areas of wolverine habitat, however, are smaller and more isolated such as the island mountain ranges of central and southwestern Montana. *Id.* “Climate change projections indicate that, as warming continues, large continuous blocks will become reduced in size and isolated to the extent that their ability to support robust populations is reduced and their connectivity to other source populations resembles the current situation for our most isolated wolverine populations.” Ex. A at 78045; Ex. F at 2891 (fig. 8). This “habitat alteration would result in a high likelihood of loss of genetic diversity due to inbreeding within a few generations.” *Id.* “Further isolation of wolverines on small habitat islands with reduced connectivity to other populations would also increase the likelihood of subpopulations loss due to demographic stochasticity, impairing the functionality of the wolverine metapopulation in the contiguous United States.” Ex. A at 78045. This is particularly true in Montana, where the wolverine population is already very small (approximately 100-175 individuals) and already highly fragmented. Ex. K at 88, 90 (maps); Ex. F at 2889 (fig. 4) Ex. D at 2 (fig. 1).

In sum, the best available science reveals climate change will: (1) decrease the amount of available wolverine habitat in Montana; and (2) result in more

isolation and fragmentation between areas of suitable wolverine habitat in Montana in the foreseeable future. Ex. A at 78045. Together, these two related but distinct impacts from climate change are expected to result in a smaller and more isolated population of wolverines in Montana. Ex. F at 2882. According to the Service:

[Climate change will] have direct and indirect effects to wolverine populations in the contiguous United States including reducing the number of wolverines that can be supported by the available habitat and reducing the ability of wolverines to travel between patches of suitable habitat. This reduction in connectivity is likely to affect metapopulation dynamics making it more difficult for subpopulations to recolonize areas where wolverines have been extirpated and to bolster the genetics or demographics of adjacent subpopulations.

Ex. A at 78045-46.<sup>7</sup>

2. Mortality from trapping.

Wolverines are trapped and killed for their fur, “which is valued for its durability and capacity to resist frost accumulation.” Ex. C at 2213. Over the last hundred years, trapping has been the primary cause of wolverine mortality. Ex. A at 78050; Ex. J at 120. “Unregulated trapping is believed to have played a role in

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<sup>7</sup> In addition to climate change, the Service notes that collectively, human activities, such as dispersed recreation activities, infrastructure development, and the presence of transportation corridors, may also result “in reduced habitat values for wolverines.” Ex. A at 78049. Additional study and research is needed to fully understand such threats.

the historic decline of wolverines in North America in the late 1800s and early 1900s.” *Id.* Trapping is also the “driving force” behind local extirpations of wolverine populations. Ex. C at 2213. “Trapping accounts for a high proportion of wolverine mortality, affecting even populations that are locally protected.” Ex. J at 120.

Wolverines, in particular, are especially vulnerable to trapping and predator reduction campaigns due to their “habit of ranging widely in search of carrion, which would bring them into frequent contact with poison baits and traps.” Ex. A at 78050; Ex. I at 1297. “Because of their scavenging nature, wolverines come readily to bait and are vulnerable to skilled trappers . . . . Females with newborn young are limited in their ranging and foraging and are especially vulnerable to easily obtained trap baits.” Ex. I at 1300. In one study, many of the wolverines captured and marked for study “were missing one or more toes and many had broken teeth.” Ex. I at 1297. The researchers believed “many of these mutilations were the result of encounters with leg-hold traps.” *Id.*

The best available science reveals that human caused mortality of wolverine from trapping can harm local populations of wolverine in a number of ways. According to the Service, “[h]uman caused mortality is likely additive to natural mortality due to the low reproductive rate and relatively long life expectancy of

wolverines . . . This means that trapped populations likely live at densities that are lower than carrying capacity, and may need to be reinforced by recruits from untrapped populations to maintain population viability and persistence.” *Id* (emphasis added). A study in British Columbia, for example, found that wolverine trapping in 15 of 71 wolverine population units “was unsustainable, and that populations in those unsustainable population units are dependent on immigration from neighboring populations or untrapped refugia.” Ex. A at 78050; Ex. G (B.C. study). This finding is consistent with other research studies, including Krebs et al. 2004, which documented that nearly half of all wolverine mortalities in populations open to trapping were human-induced and that wolverine populations “would decrease . . . in the absence of immigration from untrapped populations.” *Id.*; Ex. H (Krebs et al. 2004).

In Montana, the “wolverine is especially susceptible to [trapping] . . . due to reduced levels of gene flow, low reproductive rates and need for large areas of undisturbed habitat.” Ex. P at 2916; *see also* Ex. Q at 2146 (same). “Our current understanding is that no other type of human activity has the same potential to cause populations to become dangerously small or locally extirpated. Thus, decisions concerning wolverine [trapping] appear to be critical to the persistence

of extant populations and to the recolonization of depleted populations, especially isolated mountain ranges.” Ex.Q at 2146.

Indeed, the best available science suggests that trapping “could have significant negative effects” on wolverine populations inhabiting small mountain ranges. Ex. A at 78050; Ex. C. Hornocker and Hash (1981) captured and marked 24 wolverine in the Flathead National Forest during a 5-year period from 1972-1977. Ex. I at 1289. During this study, 15 of the 24 wolverines were killed by trappers, only 3 by natural causes. Ex. I at 1290.<sup>8</sup> An additional 6 wolverines were also caught by trappers in the South Fork before the study even began. *Id.* The large number of wolverines killed in traps during the five-year study led the researchers to conclude that “of the biotic factors in the wolverine’s environment, predation by humans appears to be the most likely factor to have affected the number of wolverines.” Ex. I at 1297 (citation omitted).

Between 2001-2007, Inman et al. (2007) monitored 26 wolverines (16 females and 10 males) in the Greater Yellowstone Area of Montana, Idaho, and Wyoming. Ex. K. During the project, the researchers documented 11 wolverine

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<sup>8</sup> Two of the wolverines that died of natural causes died of starvation. The third, which was examined by a pathologist at Washington State, determined the cause of death to be “suppurative metritis.” Ex. I at 1296. The wolverine’s uterus was badly infected and contained decomposed tissue, possibly a retained fetus which apparently is not uncommon in mustelids. *Id.*

mortalities. Five mortalities resulted from natural causes (2 predation, 2 avalanche, and 1 unknown) and 6 were human-caused, including 5 trapped and 1 roadkill. Ex. K at 88-89.<sup>9</sup> In the end, trapping “accounted for the majority of human-related mortality of wolverines” in the six year study. Ex. K at 91.<sup>10</sup>

In another study, the United States Forest Service’s Rocky Mountain Research Station instrumented and followed 36 wolverines in two study areas in western Montana (Pioneer Mountains and Glacier National Park) and one study area on the Idaho-Montana border (Clearwater). Ex. C. From 2002-2005, the researchers documented 14 wolverine mortalities (10 males and 4 females) and reported losing contact with 5 additional male wolverines (they were unable to determine if the lost males were the result of dispersal, radio failure, or

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<sup>9</sup> One young male wolverine in the Yellowstone study—M304—covered approximately 412 km in 19 days, traveling from Grant Teton National Park, Wyoming to the Portneuf Range just east of Pocatello, Idaho, and then subsequently returned to the Teton Range. Ex. O at 262. Soon afterward, he moved north to Mount Washburn in the northern portion of Yellowstone National Park and back to the Teton Range, traveling approximately 226 km in 7 days. *Id.*; Ex. O at 263 (map of movement). M304 was eventually killed by trappers in Montana (in the Centennial Range) on January 11, 2004. *Id.* A similar incident occurred during the Glacier Study. Ex. R at 16. After being captured on the east side of Glacier National Park, near Many Glacier, M8 traveled over 200 km to the Kootenai National Forest in Northwest Montana where he was subsequently trapped and killed in December, 2004. Ex. R at 16, 21-22.

<sup>10</sup> During the six year period the study team documented the “production of only 4 offspring.” Ex. K at 90.

undocumented mortality). Ex. C at 2216. Nine of the documented 14 wolverine mortalities (6 males and 3 females)—64% of the total wolverine mortalities—were attributable to trapping. *Id.* at 2218. According to the researchers, “harvest from trapping was the primary factor that affected wolverine survival.” Ex. C at 2218. The documented wolverine mortalities in the Pioneer Mountains—a small island range in southwestern Montana with a high density of forest roads and snowmobile access—were particularly harmful to the local population.

Of the 14 wolverines instrumented and followed in the Pioneer Mountains study area during the three year period, 6 were killed in traps, including 4 adult males and 2 pregnant adult females. Ex. C at 2217-18. These mortalities had a “disproportionately large effect on wolverine demography” in the Pioneers. *Id.* The researchers report that while they were able to capture 2 subadults in the Pioneers during the first year of live trapping (2002), they failed to capture any subadults in the 3 subsequent years, “suggesting that the harvesting of reproductive adults may have suppressed reproduction in the area.” Ex. C 2218. Trapping was the “dominant factor affecting wolverine survival across our study areas.” *Id.* The researchers reasoned:

Our mark-recapture results showed that few individuals occupied the small ranges that comprised the Pioneer study area. Given the few individuals that occupy small ranges, localized trapping pressure can affect these small populations despite a moderate state-wide harvest limit. For example, the

wolverine population on the Pioneer study was reduced by an estimated 50% from harvest during 2003-2005.

Ex.C at 2218 (emphasis added).

Likewise, in a June 2006 report prepared for the Montana Department of Transportation (MDOT) on the association between transportation corridors and wolverine movement, researchers noted that “[h]igh mortality rates, especially of reproductive females, appeared to be the major issue facing wolverine populations.” Ex. N at 41. For example, of the three individual wolverines captured in the Beaverhead Mountains for the study (a family group consisting of the a mother (F12), father (M10), and one offspring (M11)), two—the mother and father—were killed by trappers in 2005 and the sole offspring died of natural causes. Ex. N at 40. “Subsequent to this event, no other wolverine tracks were detected in the entire portion of the Beaverhead Mountains ranging from Hamby Lake to Lost Trail Ski Area during 2005. Determining whether other animals still exist, and if not, whether this area is recolonized, and how quickly, would require future monitoring.” *Id.*

Overall, the Service now recognizes that the intentional trapping of wolverines in Montana can have “significant negative effects” on local populations inhabiting small ranges, like the Pioneers in western Montana. Ex. A at 78050. The best science also indicates the trapping usually accounts for the

majority of wolverine mortalities. This was true in Hornacker and Hash (1981), Krebs et al. (2004), Inman et al. (2007), and Squires (2007). Exs. I, H, K, C. For these reasons, the Service recognizes that the impacts from trapping, when combined with other existing threats, are serious. In the Service's own words:

[Trapping may] contribute to the likelihood that the wolverine will become extirpated in the foreseeable future by increasing the speed at which small populations of wolverine are lost from isolated habitats, and also by increasing mortality levels for dispersing wolverines that are required to maintain the genetics and demographics of wolverine populations in the contiguous United States.

Ex. A at 78051 (emphasis added). The “additive mortality caused by trapping could become a concern in the future as the size of wolverine population shrinks in response to the loss of habitat due to climate change . . . .” *Id.* The intentional trapping of wolverine in Montana is therefore a threat to the species. *Id.*

An additional source of wolverine mortality often occurs when wolverine are killed in traps set for other species. The Service reports that the current amount of accidental or incidental trapping of wolverines has been suggested as an additional threat to the species, but maintains that “no supporting information for this assertion is available.” Ex. A at 78050. This is not entirely accurate.

“Whether [Montana's kill quota of five wolverines] stays at that level or is reduced even further is less relevant to the wolverines' future than the number of traps spread throughout the same habitats to catch coyotes, bobcats, otters, and the like.

Those jaws maim and kill unintended victims every year, wolverines included . . . . How many occur is unclear, because not all of them get reported.” Chadwick 2010 at 120. Indeed, the best available science, including Hornacker and Hash (1981), Inman et al (2007 and December, 2009), reveals that wolverines—which, again, are highly vulnerable to trapping—are routinely caught in traps left for other species. Ex. I at 1299; Ex. K at 89.<sup>11</sup> Such incidents are likely to increase due to the Commission’s recent decision in allow wolf trapping in Montana.

3. Others sources of wolverine mortality.

Wolverines sometimes die of disease and starvation, are killed on highways, caught in avalanches, and killed by other predators. Ex. K at 89 (documenting 2 avalanche deaths, 2 predation deaths by black bears, and 3 road-kill mortalities).<sup>12</sup> Hornacker and Hash (1981) report that several species, including golden eagles,

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<sup>11</sup> The accidental or incidental trapping or killing of wolverines is well documented throughout the literature. Inman reported the incidental capture of a wolverine by a bobcat trapper on Menan Buttes in Idaho and incidental trapping of F421 in Wyoming. During the Glacier study, M9 was shot and killed after being treed by a mountain lion hunter on the Blackfeet reservation.

<sup>12</sup> During the Glacier study, female wolverine 21 (“F21”), the daughter of F2, had apparently slipped and fell to her death while crossing a cliff face on Piegan Mountain. Chadwick 2010 at 206, 207 (photo). When a researcher finally got to the body he found the mother’s (F2’s) tracks leading to a nearby section. “She had etched scratch marks into the stone trying in vain to climb to her fallen daughter from one side.” *Id.*

mountain lions, black bears, and grizzly bears “are capable of killing wolverines, particularly younger inexperienced wolverines.” Ex. I at 1296; Ex. K at 89 (“[B]oth predation deaths appeared to be related to interactions with black bears”).<sup>13</sup> Wolverine dens are also subject to predation but how often this occurs is unknown. Overall, the Service does not consider mortality from these other sources to be above natural or sustainable levels. Ex. A at 78051.

4. Inadequacy of existing regulatory mechanisms.

While some existing regulatory mechanisms are in place to protect wolverine and wolverine habitat in the lower 48, i.e., some wolverine habitat is located in Wilderness, Wilderness Study Areas (WSAs), or National Parks, the Service notes that there are no known regulatory mechanisms currently in place at the national or international level that effectively address the primary threats to wolverine from climate change. Ex. A at 78052. “Therefore, the current

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<sup>13</sup> Female No. 11 in Hornacker and Hash (1981) was first captured in 1975 and had her entire muzzle torn away. The researchers first speculated that this might have occurred in a fight with another wolverine. The researchers “discounted this when subsequent snow tracking and radio tracking of all wolverines showed no overt intraspecific strife of any kind.” Ex. I at 1297. “Captured again in 1976, this same wolverine had several deep, serious wounds on its neck and the back of its head. They appeared to be talon or claw wounds and were badly infected. [The researchers] held the animal, treated it with antibiotics until it appeared recovered, and released it.” *Id.* The researchers believe these wounds were “inflicted by a mountain lion; at least four lions inhabited the area.” *Id.*

inadequacy of regulatory mechanisms to protect wolverines and their habitat is a threat” to wolverine in the lower 48. *Id.*

5. Small population size and low genetic diversity.

Biologists draw a distinction between a species’ total or “absolute” population size and the “effective” size of a population which is the number of individuals that actually contribute offspring to the next generation. Chadwick 2010 at 259. To determine the effective population size, biologists must “take the overall count, subtract nonbreeding animals (immature, infertile, or prevented from mating by dominant individuals), then subtract the adult females that skipped breeding that year because they were nursing young or replenishing their energy reserves. Then subtract the mothers whose offspring of that year failed to survive to breeding age.” *Id.* In Glacier National Park, for instance, biologists estimate the absolute population to be approximately 40-50 wolverines. *Id.* The effective population in the Park, however, “is somewhere around a dozen.” *Id.*<sup>14</sup>

The Service notes that the effective population size of wolverine in the contiguous United States “is exceptionally low . . . and is below what is thought to be adequate for short-term maintenance of genetic diversity.” *Id.* (emphasis

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<sup>14</sup> Effective population size is important because it determines rates of loss of genetic variation, fixation of deleterious alleles, and the rate of inbreeding.

added).<sup>15</sup> As explained by the Service, the “concern with low effective population size was highlighted in a recent analysis which determined that without immigration from other populations at least 400 breeding pairs [of wolverine] would be necessary to sustain the long-term genetic viability of the contiguous U.S. wolverine population.” Ex. A at 78053. The absolute population size in the contiguous United States, however, is likely only 250-300 individuals total, with a substantial number of these being unsuccessful breeders or non-breeding subadults. *Id.* The effective population size of these wolverines in the entire lower 48 states “appears to be less than 50.” Chadwick 2010 at 259. Based on these numbers, the effective population size of wolverine in Montana is likely well below 50 individuals. Wolverine numbers are thus too low to sustain the genetic viability of the species in the lower 48 and in Montana. The threat posed by such a small population with low genetic diversity “is likely to become more significant if populations become smaller and more isolated, as predicted due to climate changes.” Ex. A at 78053.

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<sup>15</sup> Wolverines in the contiguous United States are thought to be derived from a recent re-colonization event after they were extirpated from the area in the early Twentieth Century. Ex. A at 78052. As such, wolverine populations in the lower 48 already “have reduced genetic diversity relative to larger Canadian populations as a result of founder effects or inbreeding.” *Id.*

C. Montana: The only state in the contiguous United States to allow the trapping of wolverine.

Despite the threats facing wolverine described above and the Service's determination that the species qualifies for federal ESA protection, the State of Montana continues to treat wolverines as "furbearers" that can be trapped and hunted for their fur. In so doing, Montana stands alone as the only state in the entire contiguous United States that still allows trapping of wolverine. By contrast, in Washington wolverine are listed and protected as a state endangered species. Ex. A at 78039. Idaho and Wyoming designate wolverine as a "protected non-game" species and Oregon has closed the season on trapping wolverines. *Id.* California and Colorado currently each have only one confirmed wolverine and both states prohibit trapping. *Id.*

Montana's furbearer regulations currently authorize the killing of up to five wolverines (maximum of three females) a year. Ex. A at 78039; Ex. B at Individuals with a \$20 license are authorized to trap and hunt wolverine between December 1<sup>st</sup> and February 15<sup>th</sup> in three wolverine management units (WMUs).

Ex. B at 5, 7, 8, 10 (map of WMUs), 11 (legal descriptions).<sup>16</sup> The specific quotas by WMU region are as follows:

<u>WMU</u>	<u>One (northern)</u>	<u>Two (central)</u>	<u>Three (southern)</u>
wolverine quota	3	1	1
female subquota	1	-	-

Ex. B at 7. No wolverine trapping is allowed in WMU 4, which covers part of the central area of Montana, between the Greater Yellowstone Ecosystem and the Crown of the Continent. *See* Ex. B at 10 (map).<sup>17</sup>

The Service reports that “[l]egal trapping in Montana in the recent past removed an average of 10.5 individual [wolverine] . . . each year.” Ex. A at 78035. This figure is consistent with the Department’s annual “harvest reports” which

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<sup>16</sup> Trapping means to take or participate in the taking of wolverine “by setting or placing any mechanical device, snare, deadfall, pit, or device intended to take wildlife or to remove wildlife from any of these devices.” Ex. B at 2. Wolverines and bobcats are the only animals defined by law as furbearing animals that may also be taken by hunting per § 87-2-601, MCA.

<sup>17</sup> Prior to 2004, the Commission regulated wolverines “through the licensing of trappers, a bag limit of one wolverine per year per trapper, and no statewide limit.” Ex. A at 78052. Due to the preliminary results from Squires et al. (2007) (Ex. C), the Commission adopted new regulations for the 2004-2005 trapping season that divided the State into three units “with the goal of spreading the harvest more equitably throughout the State.” *Id.* In 2008, the Commission further refined their regulations by reducing the overall statewide harvest to the current level of 5 wolverines and no more than 3 females. These changes are a step in the right direction but they do not go far enough.

document the killing of approximately 175 wolverines over the last 15 years, from 1996 to 2011.<sup>18</sup> Based on current population estimates, therefore, more wolverine have been killed in Montana over the last 15 years than likely currently reside in the State.<sup>19</sup>

### III. REASONS FOR GRANTING THE PETITION

There are five reasons for the Commission and/or Department to grant this petition, issue a declaratory order closing the 2012-2013 wolverine trapping season in Montana, and initiate rulemaking to promulgate a new rule closing the wolverine trapping season until wolverine are no longer a candidate or listed species under the ESA.

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<sup>18</sup> This approximate figure is based on the Department's harvest reports, which are available online at <http://fwp.mt.gov/hunting/trapping/>. No report was available for 2004 but information on the number of wolverine killed in 2004 was included in the Department's newsletter from that year.

<sup>19</sup> The documented mortality of approximately 175 wolverine does not include the accidental or incidental killing of wolverines in traps set for other species or other, unreported harvests (in Canada, the Service estimates that reported wolverine kills only account "one-fifth to one-third" of the total wolverines killed). Ex. A at 78039. The 175 mortality figure also does not include other sources of wolverine mortality in Montana including vehicle collisions, disease, predation, starvation, and avalanches.

A. Trapping wolverines does not “assist in the maintenance or recovery” of the species.

First, pursuant to § 87-1-201(9)(a)(ii), MCA, the Department must manage wolverine—a candidate species for listing under the ESA—in a manner that “assists in the maintenance or recovery” of the species.<sup>20</sup>

By definition, the word “maintain” means to “‘keep in a state of repair, efficiency, or validity’ and as to ‘preserve from failure or decline.’” *Russell Country Sportsmen v. U.S. Forest Serv.*, 668 F. 3d 1037, 1042 (9th Cir. 2011) (citing dictionary definitions). At a minimum, therefore, the Department must take steps within its power and control to preserve wolverine in Montana against further decline. *See id.* The word “recovery” denotes a broader concept, one that requires more than mere preservation, preserving against decline, or ensuring the survival of a species. *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1069-71 (9th Cir. 2004). “Recovery means improvement in the status of listed species to the point at which listing [under the ESA] is no longer appropriate.” 50 C.F.R. § 402.02 (emphasis added).

Here, the Commission’s and Department’s authorization of trapping wolverines does nothing to assist in the maintenance or recovery of wolverine as

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<sup>20</sup> The Commission must ensure that the Department is able to fulfill this and other statutory obligations. § 87-1-301(1)(a), MCA.

required by § 87-1-201(9)(a)(ii), MCA. As outlined above (*see supra* Section II.B), the best available science reveals that the current levels of trapping in Montana are harming and will continue to harm an already fragile wolverine population in Montana. Wolverine numbers in the lower 48 are already at dangerous levels and well below the 400 breeding pairs necessary to sustain long-term genetic viability in the contiguous United States. Ex. A at 78053; Ex. M. The total population in the lower 48 is approximately 250-300 individuals and a substantial number of these are likely “unsuccessful breeders or nonbreeding subadults.” Ex. A at 78053; Ex. M; *see also supra* Section II.B.5. “[T]he effective population size of all wolverines left in the lower 48 states appears to be less than 50.” Chadwick 2010 at 259. The best estimates for Montana are approximately 100-175 total individuals; some say a more realistic “estimate would be 100 to 150, tops.” Chadwick 2010 at 120,259. How many of those wolverines are breeding individuals is unknown, though based on estimates for the lower 48 and Glacier Park the effective wolverine population in Montana is likely around 25-30 individuals.

This small population of wolverine in Montana will continue to shrink as climate change lowers the amount of available wolverine habitat in the State (less habitat means fewer wolverines) and increases the distances between sub-

populations. Ex. A at 78044-46; Ex. F; *see also supra* Section II.B.1. As mentioned earlier, McKelvey 2010 projects an estimated 63% of wolverine habitat will be lost between 2070 and 2099. Ex. A at 78045; Ex. F. This projected habitat loss is likely to “result in a loss of wolverine numbers that is greater than the overall loss of habitat area.” Ex. A at 78045. This is because as “habitat patches become smaller and more isolated, they are likely to lose the ability to support wolverines as some home ranges become so reduced that they cannot support individual animals, and other become so fragmented or isolated that they no longer continue to function.” *Id.*; *see* Ex. F at 2889 (fig. 4). Under these circumstances we cannot afford to lose even one wolverine to trapping. The total population is “nowhere near high enough to ‘provide recreational and economic harvest opportunities’ or ‘preserve our frontier traditions.’” Chadwick 2010 at 120.

For example, based on data from the Glacier Wolverine Project (2002-2007) researchers determined that the population in the protected park “was stable to just very slightly increasing.” Chadwick 2010 at 250.<sup>21</sup> But, using the same data, the researchers predicted “that the additional death of one more adult, particularly a breeding-age female, would have put the population on a downward trend. Two

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<sup>21</sup> No trapping is allowed in Glacier National Park.

such deaths would have made for a much sharper rate of decline.” *Id.* Chadwick

2010 explains how this occurs:

Wolverine females don’t produce offspring until at least age three and then have two kits per litter every other year, on average . . . . So in a female’s breeding life, which would end after around age ten, she’ll have three litters and a total of six kits. The sex ratio is 50:50, so we’ve got three new males and three new females in the population. Half those kits will die before reaching maturity. Now we’re down to 1.5 males and 1.5 females as the offspring. One of each has to survive and stick around to replace their parents in the population. That leaves half a male and half a female to disperse and carry genes somewhere else. You can see how a small change in the number of breeding females would make a big difference.

Chadwick 2010 at 250. If a nursing mother, for instance, “is taken in a trap anywhere within her wide hunting range, you’d have to subtract both that breeding-age female and her young starving back in the den from the population.” *Id.* at 250. Likewise, should “the resident adult male be trapped instead during the course of his still wider and more frequent travels, a transient male could come in and kill the kits. If the newcomer doesn’t kill them, the kits still grown up with less protection from other wolverine and less experience gained from traveling with a father after they separate from the mother. Both factors lower the offspring’s chances of successfully reaching adulthood and either replacing numbers in the population or transporting genes to other homelands.” *Id.*<sup>22</sup>

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<sup>22</sup> In commenting on the Commission’s decision to eliminate wolverine trapping in WMU 4 (central insular Mountains), Inman notes that the decision

To conserve wolverine, McKelvey 2010 and others recommend that conservation efforts “focus on maintaining wolverine populations in the largest remaining areas of contiguous habitat and, to the extent possible, facilitating connectivity among habitat patches.” Ex. F at 2896. Montana’s authorization of the trapping of wolverines, however, does just the opposite by allowing additional mortalities (up to 5 individuals, including 3 females) in an already shrinking wolverine population awaiting ESA protective status. In short, it makes an already bad and extremely fragile situation worse. As explained by the Service:

[The trapping of wolverine], when combined with other threats . . . may contribute to the likelihood that the wolverine will become extirpated in the foreseeable future by increasing the speed with which small populations of wolverines are lost from isolated habitats, and also by increasing mortality levels for dispersing wolverines that are required to maintain the genetics and demographics of wolverine populations in the contiguous United States.

Ex. A at 78051 (emphasis added). This is precisely what happened in the Pioneer Mountains, where trapping—including the killing of two pregnant females—was the primary factor responsible for decreased survival in western Montana and resulted in an estimated 50% reduction in the local wolverine population. Ex. C at

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“could result in higher adult female survival, which is influential in population growth rate . . . Protection in WMU 4 could also result in higher survival of young dispersing wolverines as they move through these mountain ranges. In essence, protection in WMU 4 maximizes the chance that these areas are source areas rather than sinks.” Ex. R.

2218, 2219. The researchers “were not surprised that [trapping] was the dominant factor affecting wolverine survival . . . given the consistency of this result with other wolverine studies.” Ex. C at 2218 (citing Hornacker and Hash 1981, Banci 1994, Krebs et al. 2004); *see also* Ex. K at 91 (wolverine trapping accounted for majority of deaths in Yellowstone study).

Clearly, the Commission and Department are not assisting in the “maintenance” or “recovery” of wolverine in Montana by causing more harm to the species, increasing the speed with which wolverines in small island ranges are killed, and increasing mortality levels for dispersing wolverines required to maintain viable populations. *See Russell Country*, 668 F. 3d at 1042 ( “maintain” means to preserve against decline).<sup>23</sup>

B. Trapping wolverine does not prevent the species from being listed.

Second, pursuant to § 87-1-201(9)(a)(i), MCA, the Department must manage wolverine to “in a manner the prevents the need for listing” under the

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<sup>23</sup> When viewed in isolation, the Service notes that trapping, by itself, is not likely to cause wolverine to “be in danger of extinction or likely to become in danger of extinction in the foreseeable future” Ex. A at 78050. But as the Service concedes, trapping cannot be viewed by itself—in isolation—or in the absence of other, pre-existing threats from climate change. Ex. A at 78050, 78052. Rather, the trapping of wolverines must be considered in combination with other existing threats. When it is, trapping is contributing to the likelihood that wolverine will become extirpated in the foreseeable future in the lower 48. Ex. A at 78050.

ESA, 16 U.S.C. § 1531 et seq. The Department (and Commission) are failing to comply with this legal obligation. As described above, allowing the trapping of a small population of wolverine (living below viable levels) that will continue shrink as habitat is lost due to climate change does not prevent the need for listing or otherwise improve the situation for wolverine. Rather, it creates an additional threat and makes listing more likely by increasing the speed with which small populations of wolverines are lost and increasing mortality levels for dispersing individuals needed for long-term viability. Ex. A at 78050-51.

C. Trapping wolverines does not “protect, preserve, and ensure the propagation of the species.”

Third, pursuant to § 87-1-301(1)(a), MCA, the Commission must “set policies for the protection, preservation, management, and propagation of the wildlife, fish, game, furbearers, waterfowl, nongame species, and endangered species of the state . . . .” As outlined above, allowing wolverine—a candidate species warranted for listing under the ESA—to be intentionally trapped and killed every year in Montana, in combination with other sources of wolverine mortality and threats does not protect, preserve, or ensure the propagation of wolverine in Montana. Ex. A at 78050.

D. The State does not have a wolverine management plan.

Fourth, pursuant to § 87-1-201(9), MCA, the Department is to develop a wolverine management program and plan for wolverine. One purpose of the management plan is to ensure the species is managed in a way that prevents the need for listing and ensures viable populations are maintained or recovered. § 87-1-201(9), MCA. Preparation of a management plan also triggers the need for an environmental analysis (either an EA or EIS) under the Montana Environmental Policy Act (MEPA), thereby ensuring the Department takes a hard look at the direct, indirect, and cumulative impacts to the species. § 87-1-201(9)(c), MCA.<sup>24</sup>

For example, the Department currently has management plans (with corresponding MEPA analyses) for sage grouse, bighorn sheep, arctic grayling, numerous species of birds, bison, black bears, the common loon, deer, elk, grizzly bears, least terns, mountain lions, pallid sturgeon, piping plover, prairie dogs, wolves, westslope cutthroat trout, and yellowstone cutthroat trout. *See* <http://fwp.mt.gov/fishAndWildlife/management/> (last visited on July 19, 2012).

The sage grouse plan describes the current status of Montana's sage grouse population and sagebrush habitat, the desired conditions for habitat, and the risks

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<sup>24</sup> To date, the Commission and Department have yet to analyze the direct, indirect, and cumulative impacts of authorizing wolverine trapping as required by MEPA.

confronting habitat and sage grouse populations. The goal is to provide for “the long-term conservation and enhancement of the sagebrush steppe/mixed-grass prairie complex in Montana in a manner that supports sage grouse and a healthy diversity and abundance of wildlife species and human uses.” *Id.* No such plan exists for wolverine.

At present, neither the Department nor Commission has a program or management plan in place for wolverine. And, but for trapping records, they are not engaging in any meaningful or comprehensive survey or monitoring effort of wolverine numbers (actual and trends) throughout the State. Nor are the federal agencies. While trapping data does provide some insight, as one research paper noted, without “information on the proportion of the population being harvested, on natural mortality, and on the additive or compensatory nature of trapping mortality, little can be said about the sustainability of [trapping].” Ex. J at 120. In other words, in the absence of the requisite management plan for wolverine there is no way for the Department and/or Commission to ensure that trapping is sustainable or in compliance with its § 87-1-201(9), MCA, obligations.

E. The State must preserve wolverine for future generations.

Fifth, the Montana Constitution provides that “the state . . . shall maintain and improve a clean and healthful environment in Montana for present and future

generations.” Mont. Const. art. IX, § 1(1). The State must also protect environmental life support systems from degradation, prevent the unreasonable depletion and degradation of our natural resources, and forever preserve the opportunity to harvest wild fish and game in Montana. Mont. Const. art. IX, § 1(3), §7 ; *see also* Mont. Const. Preamble (establishing rights to protect interests of “future generations”).

These constitutional provisions and the public trust doctrine enshrined therein, direct the State (including the Commission and Department ) as trustee, to manage our native wildlife for the common benefit of all Montanans, including future generations. Conversely, it forbids the State from managing our native wildlife in a manner that substantially impairs or unreasonably depletes the resource. *See Ill. Cent. R. Co. v. Illinois*, 146 U.S. 387, 452 (1892); *Geer v. Connecticut*, 161 U.S. 519, 529 (1896), *overruled in part on other grounds Hughes v. Oklahoma*, 441 U.S. 322, 335-36 (1979). Here, the Commission’s and Department’s authorization of the trapping of wolverine—a candidate species awaiting federal ESA protection—violates this trust obligation. In the Service’s own words, trapping wolverine in Montana, in conjunction with other existing threats, “may contribute to the likelihood that the wolverine will become extirpated in the foreseeable future.” Ex. A at 78050.

#### IV. CONCLUSION

Wherefore, for the forgoing reasons, Petitioners respectfully request the Commission and/or Department: (1) immediately issue a declaratory order and/or ruling closing the 2012-2013 wolverine trapping season in Montana pursuant to § 87-1-304(4), MCA, or any other legal authority; and (2) initiate and complete rulemaking pursuant to § 2-4-315, MCA, to adopt a new rule (before December 1, 2012) closing the wolverine trapping season in Montana until wolverine are no longer a candidate or listed species under the ESA.

In the alternative, Petitioners respectfully request the Commission, Department, and/or Director take any and all action within their authority to end the trapping of wolverine before the 2012 season and until such time as the species is no longer a candidate or listed species under the federal ESA.

Respectfully submitted this 31<sup>st</sup> day of July, 2012.

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