

THE EFFECT OF CLIMATE CHANGE ON WOLVERINES

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Wolverines (*Gulo gulo*) are climate specialists. They obligately den in snow and their movements year-around are almost exclusively confined to areas characterized by snow that persists into mid May. This pattern occurred historically, occurs currently worldwide, and likely will occur in the future. We investigated the potential impacts of climate change on wolverine habitat by analyzing observed and projected spring snow cover. We determined the temperature threshold for different probabilities of snow cover associated with wolverine denning and range through analysis of snow cover from MODIS satellite data (See Copeland et al. talk this session) and 800 m resolution PRISM temperature data. We then used temperature projections from nine general circulation models, downscaled to 8 km spatial resolution to project. By 2050, snow cover suitable for wolverine dens could decline by up to 95 percent in the lower 48 states of the U.S. Refugia may persist in high mountain areas of Colorado and California, but wolverines have been extirpated from these areas.