

THE EFFECT OF GLOBAL CLIMATE CHANGE ON A SNOW DEPENDENT SPECIES: A CASE FOR THE WOLVERINE

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Wolverine (*Gulo gulo*) show a circumpolar arctic distribution with southern peninsular extensions occurring in mountainous regions of North America and Eurasia. It has been hypothesized that wolverines require snow for reproductive denning. If wolverines are associated with a climatic zone associated with persistent snow during the denning season (Feb-May), they could be adversely affected by global warming. To investigate the association of wolverine reproductive denning to the presence of persistent spring snow, we overlaid all documented wolverine den sites on a MODIS-based snow coverage for the period 24 April to 21 May, from 2000 through 2006. Of the 631 dens, all but six occurred in pixels which were typed as snow throughout the period in at least 1 of 7 yrs. Additionally, we found that year-around habitat use was also constrained to these same areas. In 6 radio telemetry studies in the western U. S., over 90 percent of year-around relocations occurred within areas associated with persistent spring snow. Coupled with recent analyses of historical occurrence and genetic studies (see Schwartz et al), these data provide strong evidence that wolverines are confined to a narrow and easily defined climatic niche.