Using Carnivore Habitat Suitability Models to Design Nature Reserves[1ws]

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This paper is a review of recent work using GIS-based habitat suitability models of key carnivore species as an approach to designing reserves capable of maintaining viable populations of those species. The emphasis is upon single-species models used as an 'umbrella' to delineate habitat necessary to support a population with an estimated genetic effective size of 500. Recent models developed by the authors include grizzly bear habitat suitability models for coastal British Columbia and the U.S. Northern Rockies, and forest carnivore models for the U.S. Northern Rockies. Recent work by other investigators on similar species will be briefly reviewed. The development of these types of habitat suitability models is constrained by the type and accuracy of the data available over large (regional) spatial scales. Thus, predictions of the amount of habitat needed, and the delineation of spatially-explicit reserves, is a 'best-guess' estimate which can be improved over time in subsequent iterations of the model as better data become available. It is apparent that reserves of the size necessary for long-term conservation of large carnivore can not be designed from contiguous blocks of habitat in most areas of temperate North America because of current land ownership and habitat fragmentation. The use of 'core' blocks of contiguous habitat connected by linkage 'corridors' is discussed along with evidence of dispersal through those corridors. For conservation purposes it is argued that current land-use practices, particularly on public lands, should be focused on protecting enough habitat for long-term persistence rather than minimum viable populations.