

RARE CARNIVORES AND HIGHWAYS: MANAGEMENT

PROBLEMS AND SOLUTIONS ^{TWS}

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The impacts of highways is a serious conservation issue facing rare carnivores (grizzly bear, *Ursus arctos*; gray wolf, *Canis lupus*; wolverine, *Gulo gulo*; lynx, *Lynx canadensis*; fisher, *Martes pennanti*). Carnivores are vulnerable to highways because of their large spatial requirements, which require frequent crossings of busy roads. Highways are habitat and ecosystem issues. Highways affect carnivores by increasing direct and indirect mortality, habitat loss, habitat fragmentation, and displacement. The impacts of highways on carnivores are permanent and severe. The author hypothesizes that: 1) there is an increasing effect on carnivores as the standard of road or highway is increased and 2) that extirpation of rare carnivores in the lower 48 states is partially a factor of highway density. Suggested priorities for reducing highway impacts on carnivores include: 1) educating agency personnel, biologists, engineers, and the public on highway/wildlife impacts; 2) emphasis on research; 3) identification and protection of land corridors; 4) implementation of highway crossing structures; and 5) improving wildlife/highway mitigation policies.