Ecosystem Scale Linkage Identification and Implementation for Grizzly Bears and Other Rocky Mountain Carnivores [TWS]

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The fragmentation of carnivore habitat in the Rocky Mountains on both sides of the U.S.-Canada border is an ongoing threat to the survival and recovery of these populations. Human developments are the cause of this fragmentation. Major developments causing fragmentation include private land conversion into homesites and highway construction and improvement. If carnivores such as grizzly bears (*Ursus arctos horribilis*), wolves, (*Canis lupus*), wolverines (*Gulo gulo*), lynx (*Lynx lynx)*, and fishers (*Martes pennanti*) are to survive and recover to healthy population levels in the Rocky Mountains, the issue of fragmentation must be addressed in a proactive and effective manner. Addressing the issues of habitat fragmentation for carnivores requires an organized effort. We have been involved in the development of a linkage zone identification effort as part of the grizzly bear recovery program. As part of this effort, we have developed a linkage zone prediction model that was used to identify the linkage areas within and between the major blocks of public lands in the Rocky Mountains of Montana and Idaho.There is a need for careful management of activities to allow carnivores the continued opportunity to move across lands in linkage areas. We have proposed general management considerations on public lands to facilitate movement across such areas by carnivores. Lands that offer the greatest threat to movement and occupancy by carnivores are private lands where development and subdivision can have serious impacts on wildlife and the statutory authority of the government under the Endangered Species Act is minimal. Management efforts must be undertaken on these lands with the cooperation and coordination of the owners. Suggested management activities on private lands to maintain linkage opportunities for carnivores were discusssed. Highways are a major factor in habitat and population fragmentation. As existing highways are improved for safety and increased traffic, they become increasingly difficult for wildlife to cross. Designing highways to allow wildlife crossing will also improve human safety by decreasing vehicle-wildlife collisions saving human and animal lives. Suggestions for maintaining and enhancing crossing of highways by carnivores were discussed. The future cumulative levels

of human development on private lands combined with accelerating highway improvements will result in complete fragmentation of many carnivore populations unless management of linkage zones is initiated immediately. It will be necessary for management efforts to simultaneously address the linkage needs on public and private lands and on the highways that traverse these areas. It will be much easier to maintain opportunities for population linkage than to recreate them, so the time for action is now.