

Impact of management regime on genetic diversity

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Wildlife managers often focus on population size to guide hunting and trapping regulations. Existing management regimes in some areas of North America permit humans to kill 30% or more of wolf populations annually, for many consecutive years. Due to high reproductive potential, the number of individuals in a population can remain stable. Populations that face these sustained and high levels of mortality, however, may be influenced in less obvious but important ways. We compare genetic diversity in adjacent populations of wolves in coastal British Columbia and southeast Alaska. These populations share a single habitat and evolutionary history, but are subject to very different levels of hunting. We show that high levels of human caused mortality, although not necessarily reducing population size, are associated with a lowered level of genetic variability. Reduced genetic variability may lessen resiliency, making populations more susceptible to extinction due to disease, inbreeding depression, or other unforeseen environmental challenges.

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