Dispersal and Genetic Relationships of Recolonizing Wolves in the Rockies [TWS]

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Gray wolves (*Canis lupus*) have recently recolonized western Montana, southeastern British Columbia, and southwestern Alberta, 50 years after their systematic extirpation from the region. Recovery of recolonizing wolf populations depends on successful dispersal from source populations, subsequent reproduction, and maintenance of genetic variation. We tagged 56 wolves in the Glacier National Park area during 1984-1996. We used a combination of telemetry and field data to determine the characteristics of dispersers, including age, sex, season of dispersal, longevity, dispersal distance, direction traveled, temporary associations with other packs, and reproductive success. Thirty-two of the tagged wolves dispersed 20-832 km from their natal home range. Fourteen dispersers produced at least one litter of pups each. Gene flow due to dispersal must be maintained to prevent a population bottleneck and consequent reduced genetic variation. We used DNA microsatellite genotyping to examine the genetic relationship of recolonizing Rocky Mountain wolves. For genetic analyses, we combined samples from adjacent Canadian wolf studies, Montana wolves tagged by the U.S. Fish and Wildlife Service, and our data (n=91). We found high genetic variation, measured in terms of heterozygosity and allelic diversity, indicating a lack of a founding population bottleneck. To maintain high genetic variation, gene flow between wolf subpopulations must be assured through dispersal. Combining field data with genetic analyses yielded information that neither study alone could determine, including the synergetic synthesis of long dispersal distances, high dispersal rates, and adequate gene flow among colonizers.