**Immigration as a Compensatory Mechanism to Offset Harvest Mortality in Harvested Wolf Populations

Sarah B. Bassing*, Montana Cooperative Wildlife Research Unit, Missoula
David E. Ausband, Idaho Department of Fish & Game, Coeur d'Alene
Michael S. Mitchell, USGS Montana Cooperative Wildlife Research Unit, Missoula
Michael K. Schwartz, USFS Rocky Mountain Research Station, Missoula, MT
Lisette P. Waits, University of Idaho, Moscow

In less than a decade the U.S. Northern Rocky Mountain gray wolf (*Canis lupus*) population has experienced large shifts in management practices, from federal protection under the Endangered Species Act to increasingly liberal hunting and trapping seasons in many portions of their range after delisting. As a result, there is interest in how current wolf management practices will affect this population over time. Recent research suggests wolf pup recruitment in central Idaho has declined since harvest was initiated, yet wolf densities appear stable in many regions of the state, suggesting other compensatory mechanisms are offsetting the effects of harvest mortality. Our objective was to evaluate immigration as a compensatory mechanism that may offset the effects of harvest mortality and facilitate population persistence in a heavily harvested wolf population. Using noninvasively sampled DNA we identified dispersers into two focal study areas in central Idaho prior to and after harvest was initiated. We measured genetic relatedness within and among wolf packs using three different metrics to assess how immigration has changed with changing management practices. Our results suggest that at current harvest rates immigration is not acting as a

compensatory mechanism to offset the effects of harvest mortality. Local dispersal may be unaffected by harvest pressure whereas harvest has negative effects on long-distance dispersal. Our research can help managers consider the effects of immigration on local wolf populations when making harvest management decisions.