Relationships among Moose Abundance, Willow Community Structure and Migratory Landbirds at Red Rock Lakes National Wildlife Refuge

Megan O'Reilly, Department of Ecology, Montana State University, P.O. Box 173460, Bozeman, MT 59717

Karen R. Newlon and Jeffrey M. Warren, Red Rock Lakes National Wildlife Refuge. USDI Fish and Wildlife Service, Lima, MT 59739

Critical relationships exist between vegetation structure and avian diversity and abundance. Browsing by herbivores can lead to changes in the structural heterogeneity and species composition of plant communities, resulting in decreased use of heavily browsed habitats by avian species. We assessed the current levels of browse by moose and resulting effects on composition and structure of willow communities on Red Rock Lakes National Wildlife Refuge in southwestern Montana. We also determined abundance and community composition of breeding landbirds in these habitats and related these to willow structure. Bird counts and vegetation sampling were conducted along two riparian corridors and one fen habitat during the summer of 2006. Measurements indicate current levels of moose browsing on the Refuge are low to moderate. Species composition of willow communities varied between riparian and fen habitats and contributed to differences in willow volume and structural heterogeneity. Five species of birds (Yellow Warbler, Common Yellowthroat, Lincoln's Sparrow, White-crowned Sparrow and Song Sparrow) were used for examining relationships between avian abundance and willow vegetation characteristics. Of these species, only White-crowned Sparrow and Yellow Warbler demonstrated habitat selection based on willow vegetation characteristics

quantified. Common Yellowthroat, Lincoln's Sparrow, and Song Sparrow were best predicted by habitat type. Thus, consideration of other habitat characteristics such as herbaceous cover and bare ground should be considered in future management objectives. Additional vegetation sampling in conjunction with improved monitoring of moose populations utilizing the Refuge will allow managers to make informed decisions concerning moose harvest limits and conservation of willow communities.