

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: The Effect of Elk Grazing Intensity on the Vegetation Structure and Breeding Birds in the Shrubsteppe of Grand Teton National Park, Wyoming
Type of Project : Research
Funding Agency: National Park Service, Rocky Mountains CESU and Grand Teton National Park
Effective Dates: May 14 - November 30, 2001
Funding Amount: \$10,600
Investigators and Agency Representatives: Anna Chalfoun, University of Montana, Cooperative Wildlife Unit, Missoula, MT 59812, ph 406-243-4396, annac@selway.umt.edu and Dr. Tom Martin, University of Montana, Missoula, MT. Steve Haynes, Grand Teton National Park, Moose, WY, ph 307-739-3486, steve_haynes@nps.gov
Project Abstract: Elk (<i>Cervus elaphus</i>) graze more intensely in certain areas of the shrubsteppe in Grand Teton National Park, Wyoming. This allowed examination of whether elk grazing intensity may lead to changes in shrubsteppe vegetation structure, including the presence of invasive weed species, and whether higher order effects were evident. Higher order effects were assessed by measuring the community structure of breeding bird species in relation to elk habitat use and vegetation structure. High elk use areas were characterized by lower shrub cover (density) and height, with lower forb and grass cover and increased bare ground. Only one species of noxious weed (musk thistle, <i>Carduus nutans</i>) was detected during the study and at only 2 of 60 study sites that both experience relatively low ungulate use but that had localized anthropogenic soil disturbance. Total breeding bird abundance, avian species richness, and abundance of 5 of 6 individual bird species (Brewer's sparrow, <i>Spizella breweri</i> , Green-tailed towhee, <i>Pipilo chlorurus</i> , Sage thrasher, <i>Oreoscoptes montanus</i> , Western Meadowlark, <i>Sturnella neglecta</i> , and Brewer's Blackbird, <i>Euphagus cyanocephalus</i>) were inversely correlated to elk grazing intensity. By contrast, the abundance of Vesper Sparrows (<i>Pooecetes gramineus</i>) increased with higher elk use. Avian abundance and species richness were positively correlated to shrub cover, shrub height and % forb cover. High elk use may thus impact breeding shrubsteppe bird communities by initiating changes to the shrub and forb layer, although direct causative links cannot be inferred from these data. An alternative explanation is that elk select areas with low shrub and forb cover. Regardless, in order to facilitate healthy populations of shrubsteppe birds, managers should focus on ways to maintain areas with high shrub density and structural complexity, and a dense forb layer.
Outcomes with completion dates (reports, publications, workshops, videos, etc.): Final report submitted: electronic version and hard copy, November 2001
Keywords: Elk grazing, weeds, Grand Teton NP, shrubsteppe, bird densities
<u>For Administrative use only:</u> Date Final Report Received: November 2001 Publications, etc. on file: WPD final report and hard copy