



Poster Session Tuesday 1: Poster Pod 41, Poster 81

DETERMINING APPROPRIATE UTILIZATION MEASUREMENTS FOR MULTISCALE SPATIAL ANALYSIS OF GREATER SAGE-GROUSE HABITAT IN SOUTHERN IDAHO

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ABSTRACT: MS STUDENT

Intensity and timing of cattle grazing can have diverse effects on rangeland vegetation structure and composition which can influence wildlife-livestock interactions. Yet, commonly implemented methods for measuring grazing use were not designed to provide data at broad spatial and temporal scales commensurate with landscape wildlife species such as Greater Sage-grouse (*Centrocercus urophasianus*). Understanding the strengths and limitations of these different methods with respect to their precision and scalability is fundamental to effective management of multiple-use landscapes. In 2012 the University of Idaho, U.S. Fish and Wildlife Service, Bureau of Land Management and others initiated a large-scale 10-year research project investigating the effects of spring cattle grazing on the demographic traits and habitat characteristics of Greater Sage-grouse. Wildlife and vegetation data were collected at 5 study sites in central and southern Idaho comprising more than 30,000 acres of rangeland. As part of that study, grazing utilization has been measured using 5 different methods concurrently, which represent commonly accepted and widely used protocols across rangelands in the west: landscape appearance, biomass clipping from utilization cages, vegetation height/weight, percent cover of grazed plants and ocular estimates of percent forage removed. This study looked at the correspondence between these 5 methods and compared their efficacy across different scales relevant to Greater Sage-grouse life cycles. Results indicate correlation between different methods varies across spatial and temporal scales and in some cases across environmental gradients. Main drivers of non-sampling error such as inter-observer bias varied with method selection. Creating hybrid indicators from combinations of methods proved useful in minimizing error and strengthening statistical inference. Spatial analysis of these measurements with cattle telemetry data may further improve our understanding of patterns of grazing intensity across the study area. These conclusions highlight the importance of selecting appropriate monitoring methods which can provide valuable information for sustainable multiple-resource management.