

Stringham, R.B. 2010. Greater Sage-Grouse Response to Sagebrush Reduction Treatments in Rich County, Utah. M.S. Thesis, Utah State University, Logan.

Management of greater sage-grouse (*Centrocercus urophasianus*) in the west has changed over the last several decades in response to environmental and anthropogenic causes. Many land and wildlife management agencies have begun manipulating sagebrush with herbicides, machinery, and fire. The intent of these manipulations (treatments) is to reduce sagebrush canopy cover and increase the density of grass and forb species, thus providing higher quality sage-grouse brood-rearing habitat. However, monitoring of sage-grouse response to such manipulations has often been lacking or non-existent. The objective of our study was to determine the response of sage-grouse to sagebrush reduction treatments that have occurred recently in Rich County, Utah. Our study areas were treated with a pasture aerator with the intent of creating sage-grouse brood-rearing habitat. We used pellet transects, occupancy sampling, and GPS radio telemetry to quantify sage-grouse habitat use in treated and untreated areas. Pellet transect, occupancy, and GPS radio telemetry methods all showed a strong pattern of sage-grouse use of treated sites during the breeding and early brood-rearing periods. Sage-grouse use of treated sites was greatest in lower elevation habitat (1950 to 2110 m), and use was highest during the breeding and early brood-rearing periods. We found very little use of higher elevation (2120 to 2250 m) treated or untreated sites. Our results suggest that sagebrush reduction treatments can have positive impacts on sage-grouse use at lower elevations and can be successful in creating brood-rearing habitat. Elevation differences and period of sage-grouse use were significant factors in our study in determining how beneficial sagebrush reduction treatments were for sage-grouse.