

Switching Sagebrush Types Influences Survival of Sage Grouse Broods in Grazed Landscape (Poster)

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Human activities, including livestock grazing, can alter heterogeneity in habitat structure and function, leading to animal displacement. However, we understand less about how these changes influence animal survival. The sagebrush-steppe contains high levels of heterogeneity, created by distinct patches of sagebrush species and understory plant communities. We quantified survival of sage grouse broods based on telemetry data from females ($n = 99$) from 2014-2019 and explored how survival changed as a function of whether broods moved to different species of sagebrush, capitalizing on heterogeneous conditions. We were also interested in how survival changed with the influence of grazing, such as water tank presence and reductions in vegetation diversity. Using generalized linear models, we assessed the probability of sagebrush type switching after accounting for grazing, biotic, and abiotic variables. We found no evidence that broods preferred specific sagebrush types. Broods were most likely to switch sagebrush types when they were in areas with low forb and high shrub cover, and near water tanks and mesic areas. Survival rates to 32 days in broods that switched sagebrush types ($n = 26$) were higher (38.5%) than broods that did not (25.2%, $n = 73$). For sedentary broods, survival rose with increasing distance to mesic areas and accumulated precipitation. For broods that switched, survival was buffered against changes in these same variables. Survival was highest for broods at higher slope positions, regardless of switch status. Ultimately, survival increased when sage-grouse broods were mobile in a heterogeneous landscape and could avoid areas of high grazing impact.