

****A Preliminary Look at The Effects of Livestock Grazing on Greater Sage Grouse Nest Success and Hen Survival in Central Montana**

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Livestock grazing is a dominant land use in sagebrush habitat, leading to ongoing questions about the relationships between grazing and coexisting wildlife populations. We investigated the effects of livestock grazing on greater sage grouse demographic rates. This work is based on a decade-long collaboration among multiple agencies and private landowners in central Montana. We evaluated whether rotational grazing systems implemented through the Sage Grouse Initiative (SGI) in central Montana can be used to effectively manage sage grouse habitat to support different vital rates. We collected data on livestock grazing and sage grouse demographic rates from 2011-2020. First, we synthesized grazing data in several different ways to investigate both short- and long-term effects of SGI grazing systems on demographic rates. Second, we explored the influence of the different grazing systems on sage grouse nest success and hen survival. Preliminary results suggest that inter-annual variation has a stronger effect on both demographic rates than grazing management. In our ongoing work, we will expand our current preliminary models by adding additional habitat and weather variables. Ultimately, our findings will help inform grazing management to support sage grouse in central Montana.