

## **\*\*Microhabitat Selection by Reproductive State in Greater Sage Grouse**

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Greater sage grouse (*Centrocercus urophasianus*; hereafter sage-grouse) are the focus of much research and conservation efforts owing to their obligate relationship with sagebrush (*Artemisia* spp.) and dramatic population declines over the last 50 years. Research suggests female survival and chick survival are two of the most important demographic parameters for sage-grouse. In addition, recent research has shown habitat partitioning occurs between broodless (i.e., females without a brood) and brood-rearing females and that broodless females have lower mortality risk than females with chicks. Thus, habitat used by both reproductive states must be considered in management plans. Our study was initiated in spring 2018 in Carbon County, Montana to identify seasonal habitat use and compare landscape and microhabitat characteristics between brood-rearing and broodless females. Identifying differences in habitat use between reproductive states can inform better management to account for all life stages of sage-grouse. We monitored 39 and 43 females captured at 7 leks in 2018 and 2019, respectively, with the use of GPS transmitters. We monitored 17 broods in 2018 and 21 broods in 2019 until 5 weeks post-hatch. We examined 5-minute locations for females to focus vegetation surveys during different behavior's day and night roosts and active day locations. We measured vegetation characteristics (e.g., shrub, grass, forb, and ground cover) at 66 early brood-rearing (2 weeks post-hatch), 72 late brood-rearing 5 weeks post-hatch), 75 broodless locations, and 123 random locations. Understanding female sage-grouse habitat use during both reproductive states will better inform wildlife practitioners to manage habitat for all sage-grouse life stages.