**Targeted Cattle Grazing to Enhance Sage-Grouse Brood-Rearing Habitat (Poster)

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Often, greater sage-grouse (*Centrocercus urophasianus*) brood-rearing habitats dominated by dense mountain big sagebrush (*Artemisia tridentata vaseyana*; >10-25% canopy cover) limit important forbs and arthropods sage-grouse rely on during summer. We investigated whether protein supplementation could concentrate cattle during fall to reduce sagebrush canopy cover and increase the diversity and abundance of forbs and arthropods. We applied targeted cattle grazing within three large, contiguous pastures in the Beaverhead Mountains of southwestern Montana. In each pasture, we selected one 4-ha macroplot of dense sagebrush (>30%). Within each macroplot, we placed low-moisture block protein supplement in four microsites (78.5-m2) and compared cattle response to four untreated control microsites. The following summer we measured herbaceous canopy cover and composition, shrub canopy cover, ground cover, forb and arthropod diversity, and arthropod density for each treated and untreated microsites. Mountain big sagebrush canopy cover was 71% less in treated vs. untreated microsites (11% vs. 38% canopy cover, respectively; $P < 0.001$). Bite count observations indicated that sagebrush cover was reduced by cattle trampling rather than browsing, as sagebrush comprised <1% of cattle diets. Forb diversity was 13% greater in treated microsites ($P = 0.094$), forb species richness was 16% greater in treated microsites ($P = 0.044$), and forb composition trended higher in treated microsites (45% of herbaceous composition in treated microsites vs. 32% in untreated microsites; $P = 0.106$). Lepidoptera density trended 18% greater in treated microsites ($P = .133$). Our results indicate that protein supplementation during late fall can concentrate cattle to enhance sage-grouse brood-rearing habitat.