Assessing Sharp-Tailed Grouse Occupancy and Abundance Across Eastern Montana

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Sharp-tailed grouse (*Tympanuchus phasianellus*) are widely distributed across eastern Montana and are the most harvested native upland game bird in the state. The species was extirpated in Montana west of the continental divide in the early 2000s. While annual harvest suggests stable populations in eastern Montana, more information is needed to improve long-term management of the species in the state. The status of sharp-tailed grouse populations is generally based on annual lek surveys, but lek survey effort in Montana is non-random and spatial coverage is limited. Our objective was to develop and evaluate a survey method to estimate regional sharp-tailed grouse abundance and distribution, and investigate habitat- abundance relationships across their range in eastern Montana. In 2024 we conducted a pilot season survey using a distance sampling protocol for sharp-tailed grouse. Surveyors walked a U-shaped transect within a stratified-random selection of 2.56 km2 (1 mi2) Public Land Survey System sections and recorded all detections of lekking sharp-tailed grouse, the location of detected leks, and the number of grouse with visual and flush counts. Results of 47 completed surveys include detection of 26 sharp-tailed grouse leks with successful distance calculations and counts for 19 leks. Sample size for distance sampling is small but the probability of detecting a lek within 600 meters was high, suggesting the method is suitable for use in occurrence models at the section scale with a single survey visit. Preliminary analysis remains underway and additional findings will be presented along with plans for a future full-scale survey effort.