

## ASSESSING HABITAT QUALITY FOR FOUR GRASSLAND SONGBIRD SPECIES OF CONCERN IN NORTHERN MIXED-GRASS PRAIRIE

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During the past 40 years grassland bird populations have declined faster than any other avian guild in North America. In northern Montana, four species are experiencing severe population declines, Baird's sparrow (*Centronyx bairdii*), chestnut-collared longspur (*Calcarius ornatus*), McCown's longspur (*Rynchophanes mccownii*), and Sprague's pipit (*Anthus spragueii*). In 2017 and 2018, we evaluated abundance and nest density of these species in relation to local vegetative conditions with the goal of identifying important breeding season habitat conditions to inform management. We conducted fixed-radius point-counts at 100 sites to estimate local abundance, rope drag surveys to estimate nest density, and vegetation surveys to estimate vegetation structure and composition across grassland habitats in Phillips County, MT. Point-counts and rope drag surveys were carried out with replicated visits to allow estimation of species-specific detection probabilities. Habitat conditions were measured at the plot level (9 ha) to provide information at scales relevant for land managers. The abundance of Baird's sparrows was positively associated with residual grass cover and litter cover. Chestnut-collared longspur abundance was negatively associated with residual grass and shrub cover and had a quadratic relationship with biomass. Plot-level abundance of McCown's longspurs was negatively associated with both shrub cover and biomass. Sprague's pipit abundance exhibited a quadratic relationship with biomass. Limited sample size only allowed inference of nest density for chestnut-collared longspurs which was negatively associated with plot scale biomass.