Evaluating Nest Success and Migratory Behavior of Intermountain Grassland Species

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Grassland bird populations in North America, particularly those dependent on intermountain grasslands in the Rocky Mountain region, are rapidly declining due to habitat loss, climate shifts, and invasive species. Nest success and migratory behavior are vital indicators of habitatquality and species health, yet little research has focused on these factors in intermountain grasslands. This study aims to evaluate the nest success and migratory patterns of three grassland bird species—Western Meadowlark (*Sturnella neglecta*), Vesper Sparrow (*Pooecetes gramineus*), and Grasshopper Sparrow (*Ammodramus savannarum)*—in western Montana's Bitterroot Valley. We monitored 386 nests across three breeding seasons, estimating daily survival rates and overall nest success using logistic exposure models. Preliminary results indicated that daily survival rates overall decreased throughout the season, with Western Meadowlarks exhibiting the highest nest success and lowest variability. Migratory behavior wastracked using Motus-compatible tags, with 50 Western Meadowlarks, 41 Grasshopper Sparrows, and 30 Vesper Sparrows tagged. Western Meadowlarks were detected during migration and wintering across four states, utilizing the Pacific Flyway and wintering in central California, diverging from the typical Central Flyway. Grasshopper and Vesper sparrows were not detected outside the study area. These findings underscore the influence of nesting timing on success and highlight the need for further research on migratory routes and habitat use across the full life cycle of these species. Understanding these patterns is critical for developing targeted conservation strategies to preserve intermountain grassland ecosystems and the birds that rely on them.