

Three Year Post Treatment Effects of Habitat Management on a Wintering Grassland-bird Community in South Texas

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Abstract: Ecologically sound habitat management will be essential to reverse the current decline of grassland birds. The objective of this study is to evaluate the effects of two habitat management practices: (1) summer prescribed fire [SF], (2) a combined treatment of roller chopper, summer prescribed fire, and chemical application [CT], and (3) an open grassland [C] as “control” on wintering grassland-shrub bird community composition and abundance. Line transects of variable lengths were used to assess the bird community structure. Grassland bird species richness during first season was 31 and 15 species on summer fire and combined treatment, respectively. Compared to the first season, species richness on second and third season decreased 1.3 and 2.4 times, respectively, on SF, whereas on CT it increased and decreased 1.7 and 1.1 times during second and third season, respectively. On the control site, species richness remained similar with seven and eight species on first two seasons and decrease about 1.5 times on third season. Based on the mean and confidence intervals of most abundant species, Savanna sparrow (*Passerculus sandwichensis*) abundance was similar (95% CI) between CT and C, and SF was different compared with CT on the first season. Savanna sparrow abundance on the second and third season was similar among treatments. Meadowlark (*Sturnella magna*) abundance was similar among treatments on the three seasons. Northern bobwhite (*Colinus virginianus*) abundance was similar between CT and SF during the first two seasons and was never detected on C or during the third season at any treatment. Brush canopy cover and density differs among treatments with 34.7%, 11.5%, and 0% on SF, CT, and C, respectively; and 1,840, 680, and 16 plants/ha on SF, CT, and C, respectively. SF and CT treatments seem to support the greatest diversity of grassland bird community in Coastal Bend in South Texas.

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