

Spatiotemporal factors affecting occupancy and phenology of a declining pine savanna songbird

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Introduction

Understanding the relationship between a declining species and its habitat is paramount for its conservation as identifying significant habitat variables informs land managers and agencies on the spatial preferences of the species. The Bachman's Sparrow (*Peucaea aestivalis*) is a pine savanna specialist that relies on frequent burning of pine woodlands to maintain a well-developed herbaceous understory that provides cover and nesting habitat. Across its range, fire suppression and habitat loss have resulted in population declines. In Texas, Bachman's Sparrow is a species of greatest conservation need and only occurs in the extreme eastern portion of the state. Prior research on Bachman's Sparrow focuses on eastern populations, where understory vegetation and land management practices differ. The distribution and habitat requirements for the western population remains poorly understood. Comprehensive surveys are needed to determine its distribution in Texas, but the lack of information on their singing phenology is critical to understanding their spatiotemporal patterns of detectability. The proposed research will correlate occupancy with habitat variables to identify significant habitat covariates of occupancy and assess singing phenology and detection probability of the species to inform future monitoring efforts.



Methods



Occurrence will be determined by placing automated recording units (ARUs, Wildlife Acoustic SM4s) at 240 sites of projected occupancy in east Texas based on a species distribution model. Vegetation characteristics will be assessed to score habitat quality and then correlated with presence/absence to identify significant predictors of occupancy. Singing phenology and detection probability will also be investigated by placing ARUs at sites of known occupancy in Angelina National Forest and passively sampling for two years.

Liam Wolff is pursuing a Master of Science in Forestry at Stephen F. Austin State University. He received his Bachelor of Science in Ecology from Augusta University in the coastal plain of Georgia. Liam's research interests focus on avian ecology and conservation.