

Abundance of Birds in the Oak Savannas of the Southwestern United States

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Abstract—Oak ecosystems of the Southwestern United States are important habitats for a variety of wildlife species. Information is available on the abundance and habitat preferences of some species inhabiting the more densely structured oak woodlands, but little information is available on these topics for the comparatively open oak savannas. Studies are underway to alleviate this situation by determining the abundance of wildlife species commonly found in the oak savannas, identifying the habitat preferences of these species, and assessing the impacts of prescribed burning on the wildlife species. Initial estimates of the abundance of birds in oak savannas obtained in the first year of a comprehensive investigation on the abundance and habitat preferences of a more complete representation of avifauna, mammals, and herpetofauna inhabiting oak savannas are presented in this paper.

Introduction

Abundance and habitat preferences of birds and some of the other wildlife found in the densely structured oak woodlands of the Southwestern United States are known for some of the representative species, but little information on these topics is available for the more open oak savannas of the region. In terms of avifauna, habitat needs of the diverse bird species permanently or temporarily inhabiting the oak woodlands and associated vegetation include food, protective cover, and nest, roost, and perch sites (Block and others 1992; Schemnitz and Zeedyk 1992; Schemnitz and Zornes 1995). However, the species of oak, proportion of the tree foraged upon, and accompanying herbaceous plants foraged upon are species-specific (Marshall 1957; Balda 1969; Hutto 1985; Block and others 1992; Morrison 1999). Comparable information is needed for oak savannas to enhance the knowledge base for the assemblage of wildlife species in the composite of oak ecosystems in the region. A study of abundance and species diversity of birds in oak savannas is part of a comprehensive investigation of the abundance of a representation of avifauna, mammals, and herpetofauna inhabiting the oak savannas, their habitat preferences, and the impacts of prescribing burning on these species. This paper presented the first-year results of this study. This effort is coordinated with other investigations of the ecological and hydrologic characteristics of oak savannas and their response to land management practices such as prescribed burning treatments.

Study Protocol

Twelve small watersheds located on the eastern side of the Peloncillo Mountains in southwestern New Mexico to

evaluate the impacts of prescribed burning on ecological and hydrologic characteristics of these watersheds (Gottfried and others 2000) are (collectively) the study area. The areal aggregation of these watersheds, called the Cascabel watersheds, is about 450 acres. Baseline geological and physiological characteristics of the Cascabel watersheds have been described by Gottfried and others (2000) and, therefore, will not be presented. Vegetation has been described by Ffolliott and Gottfried (this proceedings).

On each of the watersheds, between 35 and 45 sample points have been permanently established along transects perpendicular to the main stream system and situated from ridge to ridge to provide a sampling basis for this and the companion studies. Intervals between sample plots varied among the watersheds depending on the size and configuration of the watershed sampled. The total of 421 sample points on the 12 watersheds served as the sites to tally birds in the spring and fall of the initial year (2003) of this study. Bird sightings in a 5-minute observation period were tallied by species in the spring and in the autumn at the sample points.

Results and Discussion

A larger number of birds and a greater diversity of species were observed on the Cascabel watersheds in the spring than in the fall. While some species (bushtit, Mexican jay, juniper titmice, mourning dove, and scaled quail) were tallied in both observation periods, other species (dusky-capped flycatcher, northern mockingbird, and turkey vulture) were observed in spring but not fall. Montezuma quail were observed only in the fall. Listings of the birds tallied on the Cascabel watersheds in the spring and autumn of 2003 follow.

Whether this pattern of abundance and species diversity continues to persist on the watersheds remains to be seen. It should be noted that 2003 was the sixth year of a prolonged drought period in the region, and, it is assumed that the listings of birds presented reflect these conditions. No meaningful relationships between bird sightings and the habitat conditions (vegetation, physiography, etc.) represented by the sample points were observed in this initial year of study.

Species	Number of birds seen
Spring birds	
Bushtit (<i>Psaltriparus minimus</i>)	71
Cardinal (<i>Cardinalis cardinalis</i>)	2
Common nighthawk (<i>Chordeiles minor</i>)	7
Common raven (<i>Corvus corax</i>)	2
Dusky-capped flycatcher (<i>Myiarchus tuberculifer</i>)	11
Gambel's quail (<i>Callipepla gambelii</i>)	9
Gila woodpecker (<i>Melanerpes uropygialis</i>)	3
Gould's turkey (<i>Meleagris gallopavo</i> var <i>mexicana</i>)	10
Hummingbirds (species unknown)	4
Juniper titmice (<i>Baeolophus ridgwayi</i>)	31
Lark sparrow (<i>Chondestes grammacus</i>)	2
Mexican jay (<i>Aphelocoma ultramarina</i>)	44
Mexican spotted owl (<i>Strix occidentalis</i>)	1
Mourning dove (<i>Zenaida macroura</i>)	28
Northern mockingbird (<i>Mimus polyglottos</i>)	15
Phainopepla (<i>Phainopepla nitens</i>)	4
Red-tailed hawk (<i>Buteo jamaicensis</i>)	9
Say's phoebe (<i>Sayornis saya</i>)	1
Scaled quail (<i>Callipepla squamata</i>)	24
Turkey vulture (<i>Cathartes aura</i>)	13
Unknown	30
Total	321
Fall birds	
Bushtit (<i>Psaltriparus minimus</i>)	77
Common nighthawk (<i>Chordeiles minor</i>)	5
Common raven (<i>Corvus corax</i>)	7
Gila woodpecker (<i>Melanerpes uropygialis</i>)	1
Juniper titmice (<i>Baeolophus ridgwayi</i>)	16
Mexican jay (<i>Aphelocoma ultramarina</i>)	24
Montezuma quail (<i>Cyrtonyx montezumae</i>)	6
Mourning dove (<i>Zenaida macroura</i>)	2
Phainopepla (<i>Phainopepla nitens</i>)	4
Scaled quail (<i>Callipepla squamata</i>)	10
Unknown	13
Total	165

Conclusion

The listings of birds observed on the Cascabel watersheds represent only one year of observations and, therefore, must be considered preliminary. Continuing observations will be necessary to determine how representative of the oak savannas these listings might be. Avifauna habitat associations, or lack thereof, will also be evaluated with future measurements and monitoring.

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