

HABITAT ASSOCIATION AND POPULATION DENSITY
OF SOME BIRDS OF THE ALABAMA COASTAL PLAIN

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Studies of bird populations in different habitats of the southeastern U. S. have lagged behind similar studies from other parts of the country. This is particularly true with respect to quantitative studies of avian populations. During the early part of the summer of 1966, a study of bird populations and habitat associations was initiated at the University of Alabama Biological Station in Hale County. This investigation was part of a series of studies to be done at that Station.

The initial problem was to find uniform vegetational communities which were large enough to give meaningful estimates of avian population density. Only two such communities could be found in the general area. One of the communities was a late stage in the development of climax Oak-Hickory forest which is characteristic of the region. The present overstory is composed largely of pine, sweetgum, and oak with dogwood forming much of the understory (referred to hereafter as a hardwood community). This area was bordered on one side by the pine-sweetgum community described below, and on the other sides by extensions of the hardwood community. Two small areas within the hardwood community contained small streams which had different vegetation associated with them. These small areas contained bay trees and beech.

The other community which was large enough for quantitative bird study was a field which was covered largely with broomsedge, ragweed and large patches of pokeweed. This field was bordered on one side by a highway and on three sides by a mature oak-hickory forest.

The third community was almost pure pine but with a developing understory of sweetgum (referred to hereafter as a pine-sweetgum community), and was used to observe habitat association of birds but was not used for density estimates because it was too small. This community was bordered by a corn field on one side, and by the mixed hardwood community on the other sides.

Population density was estimated by the spot-mapping technique which entails determination of territories of singing males in a known area after several days observation. The number of males is then multiplied by two in order to include females. This figure is the population estimate. Table 1 gives a summary of the results of this six week study.

In a study of habitat association, any area will have birds visiting it from bordering areas. Thus surrounding habitats play an important role. A good example of this is the Bobwhite which was found in the field and the pine-sweetgum community. If the pine-sweetgum community had been bordered completely by hardwoods, it is unlikely that the Bobwhite would appear there. Also, the presence of Cardinals, Carolina Wrens and

towhees in the field can be explained by the presence of the bordering hardwood community.

Another consideration is that the size and shape of the area being censused will affect the density estimate. A smaller or more elongated area will have proportionally greater area of edge with surrounding communities. Both areas used for population density estimates in this paper were nearly square, thus minimizing the edge effect. The field was twelve acres and the hardwood community was twenty acres. Thus the total estimate of 268 birds per 100 acres for the field as opposed to 210 birds for the hardwood area may be slightly biased in favor of the field because of a greater relative edge in the field. However, in view of other uncertainties the effect is probably small.

This research was supported by the University of Alabama Research Committee, Project 517.

TABLE 1. Community association and population density of birds in Hale County, Alabama. An asterisk indicates that the bird was present but an accurate population estimate was not possible. Number per 100 acres.

	<u>Field</u>	<u>Pine-Sweetgum</u>	<u>Hardwood</u>
Indigo Bunting	117		
Blue Grosbeak	33		
Field Sparrow	*		
Song Sparrow	*		
Ruby-throated Hummingbird	*		
Orchard Oriole	*		
Yellowthroat	17		
Broad-Winged Hawk			*
Brown Thrasher	*		
Hooded Warbler			50
Blue-gray Gnatcatcher	*		
Pine Warbler		*	*
Kentucky Warbler			10
Bobwhite	50	*	
Summer Tanager		*	40
Blue Jay		*	*
Carolina Chickadee		*	*
Tufted Titmouse		*	*
Yellow-billed Cuckoo		*	*
Hairy Woodpecker		*	*
Wood Pewee	*	*	10
Cardinal	17	*	40
Carolina Wren	17	*	30
Rufous-sided Towhee	*	*	10
White-eyed Vireo			10
Louisiana Waterthrush			*
Worm-eating Warbler			*
Red-eyed Vireo			*
Yellow-throated Vireo			*
Yellow-breasted Chat	17		

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