Bird Community Composition

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Neotropical migrants are birds that breed in North America and winter primarily in Central and South America. Long-term population studies of birds in the Eastern United States indicated declines of some forest-dwelling birds, many of which winter in the Neotropics (Peterjohn and others 1995). These declines were attributed to loss of wintering and breeding habitat due to deforestation and fragmentation, respectively. Many species of Nearctic migrants—birds that breed in the northern regions of North America and winter in the Southern United States—are also experiencing population declines. Because large areas of undisturbed, older, bottomland hardwood forests often contain large numbers of habitat specialists, including forest-interior neotropical migrants and wintering Nearctic migrants, these forests may be critical in maintaining avian diversity.

This study had two primary objectives: (1) to create a baseline data set that can be used as a standard against which other bottomland hardwood forests can be compared, and (2) to establish long-term monitoring stations during both breeding and wintering seasons to discern population trends of avian species using bottomland hardwood forests.

The same methods were used on the Coosawhatchie, Cache, and Iatt Creek study sites. A grid system was established at each site with intersections at 250-m intervals (fig. 2.6), and bird surveys were conducted at each grid intersection. The number of sampling points varied among sites because site sizes differed: Coosawhatchie River (60), Cache River (47), and Iatt Creek (44). The intent was to saturate the sites with grid points. Surveys began in 1995 and continued through the spring of 1998; data for winter 1995–96 and spring 1996 are presented here. Breeding-bird counts were conducted during May and June, and winter surveys were conducted during December and January.

Overall, species richness was similar across sites (table 2.2). The Cache and Iatt sites had significantly higher average species richness for Nearctic migrants than did the Coosawhatchie River site, and the Coosawhatchie River had the highest number of species detected during the breeding season, followed by Iatt Creek and the Cache River site. The Cache and Coosawhatchie Rivers had significantly higher average species richness for breeding neotropical migrants than Iatt Creek. Initial avian/vegetation comparisons suggest that a diversity of habitats within a bottomland hardwood forest is important for increasing avian species richness. In addition, sightings of both the prothonotary and Swainson's warblers, priority species for conservation, occurred on the Coosawhatchie and Cache River sites. This database will assist in the design of research examining the effects of forest structure manipulations on bird communities, exploring patterns of vegetation-bird associations, and monitoring bottomland hardwood bird communities.

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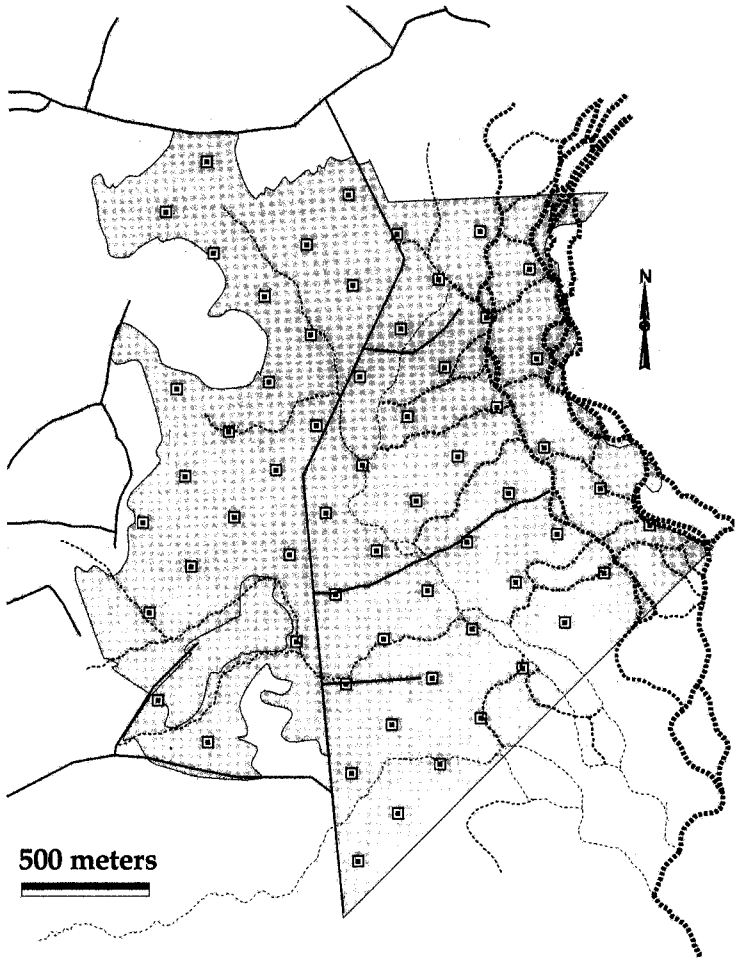

Figure 2.6—The 250-m-interval grid system established on the Coosawhatchie Bottomland Ecosystem Study site.

Table 2.2—Breeding and wintering birds detected on the Coosawhatchie Bottomland Ecosystem Study and two other Southern Forested Wetlands Initiative sites in 1996

Bird species	Coosawhatchie River, SC[a]	Cache River, AR[b]	Iatt Creek, LA[c]	Total observations
Wintering				
Nearctic, migrant	13[d] (452)	16 (111)	15 (307)	19 (870)
Resident	24 (831)	20 (1,413)	20 (757)	28 (3,001)
Total	37 (1,283)	36 (1,524)	35 (1,064)	47 (3,871)
Breeding				
Neotropical, migrant	19 (478)	16 (549)	19 (301)	23 (1,328)
Resident	21 (415)	19 (442)	19 (337)	26 (1,194)
Total	40 (893)	35 (991)	38 (638)	49 (2,522)
Total species	60 (2,176)	54 (2,515)	57 (1,702)	75 (6,393)

[a] 60 sampling points.
[b] 47 sampling points.
[c] 44 sampling points.
[d] Numbers represent total detections of species; numbers in parentheses represent total detections of individuals.