

## THIRD ANNUAL BREEDING BIRD FORAY: HOKE COUNTY, N.C.

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Between 25 and 30 May 1981 members of the Carolina Bird Club and the North Carolina State Museum of Natural History conducted the third annual Breeding Bird Foray near McCain, Hoke County, N.C. The 1700-acre site is on both sides of NC 211 at the town of McCain. Additional field work was conducted between 21 and 27 October 1981 by members and associates of the State Museum. Several brief trips were also made during 1981 primarily for inventorying mammals, but bird records were obtained at those times as well. Participants in the May 1981 Breeding Bird Foray include Alvin Braswell, Cindy Clark, John Funderburg, Peter Hertl, Tom Howard, David Lee, Steve Platania, John Watson, and the authors.

The 1981 Foray was part of a general, long-range floral and faunal survey of the McCain Tract. The property is owned by the State of North Carolina and administered by the State Farms Division of the Department of Agriculture and the North Carolina Biological Survey through a mutual agreement of understanding in response to concern over the preservation of Sandhills ecosystems and pocosins in the state. This area is the first in a series of Department of Agriculture properties to be surveyed and eventually managed for floral and nongame enhancement. These lands will also be used for long-range population studies and other types of field research conducted by the North Carolina State Museum of Natural History. The base-line information obtained during the study will provide a yardstick against which to measure the effects of long-range habitat management.

### HABITAT DIVERSITY

Major vegetative types on the McCain Tract include pine-dominated communities, pine plantations, and a variety of wetlands. Elevations on the sandy site range from 290 to 520 feet above sea level. Plant community diversity can be attributed to the differences in elevation and the various wetland types. Six principal habitats were inventoried for breeding birds: Longleaf Pine - Turkey Oak - Wiregrass (*Pinus palustris* - *Quercus laevis* - *Aristida stricta*), Loblolly Pine (*P. taeda*) plantations, a Carolina Bay, creek-bottom hardwoods, and a Beaver pond and Cattail marsh. Miscellaneous ecotonal and successional habitats such as fields, utility rights-of-way, and road cuts were also covered.

The most extensive vegetative type is a typical Sandhills community, Longleaf Pine - Turkey Oak - Wiregrass (Fig. 1), which characterizes the high ridges on the property. A Longleaf Pine - Wiregrass savanna grows over a clay layer at the tract's highest elevation. Most of the pines in these communities are second growth, but much of the property has not been lumbered in over 80 years. Old flattops, often bearing scars (Fig. 2) from turpentine operations in the 1930s, are scattered throughout the stands. Longleaf Pine - Wiregrass swales occur along drainage ways in low areas.

Loblolly Pine plantations (Fig. 3) occupy the next highest percentage of area on the tract. The canopy is closed in these plantations as opposed to the open canopy of the Longleaf Pine communities. The understory is composed of some hardwoods and an abundance of honeysuckle.

The most distinctive feature on the property is a 5-acre Carolina Bay (Fig. 4) situated in the northwest corner. One of the few bays occurring in the North Carolina Sandhills, it is the only known clay-subsoil bay in state ownership. Jointweed (*Polygonella polygama*), uncommon in the Sandhills, grows in the sandy ridges that form the margins of the bay. Dense thickets of evergreen shrubs, predominantly Titi or Leatherwood (*Cyrilla racemiflora*), make entrance to the interior difficult. Growing



Fig. 1. Longleaf Pines, Turkey Oaks, and Wiregrass are characteristic plants on the high ridges of the McCain Tract in Hoke County, N.C. This typical Sandhills plant community is the most extensive vegetative type on the tract and prime habitat for the Red-cockaded Woodpecker. (Photo by Mary Kay Clark)

within the bay are small, scattered Bald Cypress (*Taxodium distichum*) as well as Sarvis Holly (*Ilex amelanchar*), Black Gum (*Nyssa sylvatica*), Fetter-bush (*Leucothoe recurva*), Red Maple (*Acer rubrum*), and Sphagnum (*Sphagnum* sp.).

Mountain Creek flows through the property, enhancing habitat diversity in several ways. Along the creek bottom is a dense zone of evergreen shrubs that occupy the ecotone between the uplands and a hardwood swamp. Scattered throughout this zone are a few clumps of the rare White Wicky (*Kalmia cuneata*), Slender Clubmoss (*Lycopodium carolinianum*), and a small population of Purple Pitcher Plants (*Saracenia purpurea*).

Found along the creek are a 2-acre Cattail marsh in an active Beaver pond and a man-made pond. Alders (*Alnus serrulata*) are common around the edges of the marsh.

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Fig. 2 Most of the McCain Tract has not been lumbered in over 80 years. The trunk of this old flattop bears scars from turpentine operations in the 1930s. Trees like this one are scattered throughout the Longleaf Pine stands. (Photo by Mary Kay Clark)



Fig. 3. A Loblolly Pine plantation on the McCain Tract has a closed canopy as opposed to the open canopy of the Longleaf Pine communities. (Photo by Mary Kay Clark)

Fig. 4 (at right). The Carolina Bay in the northwest corner of the McCain Tract is ringed by dense thickets of evergreen shrubs. Deciduous trees around and in the bay include Bald Cypress, Black Gum, and Red Maple. This bay is particularly interesting because of its clay subsoil. (Photo by Mary Kay Clark)



TABLE 1. Birds known or assumed to have nested in the McCain Tract, Hoke County, N.C., during the 1981 breeding season are listed below. An asterisk (\*) following the name of the species indicates positive evidence of breeding. The six types of habitat surveyed are (1) Longleaf Pine - Turkey Oak; (2) Loblolly Pine; (3) Carolina Bay; (4) creek-bottom hardwoods; (5) lake, pond, and marsh; and (6) other, including fields, roadsides, and residential neighborhoods.

Species	Habitat						Species	Habitat					
	1	2	3	4	5	6		1	2	3	4	5	6
Green Heron*	—	—	—	—	X	—	Gray Catbird*	—	X	X	X	—	—
Wood Duck	—	—	—	—	X	—	Brown Thrasher*	—	—	X	—	—	—
Turkey Vulture	—	—	—	—	—	X	American Robin*	X	—	X	X	—	X
Black Vulture	—	—	—	—	—	X	Wood Thrush*	X	X	X	X	—	—
Red-tailed Hawk	X	—	—	—	—	X	Eastern Bluebird	X	—	—	—	—	X
American Kestrel	—	—	—	—	—	X	Blue-gray Gnatcatcher*	X	X	X	X	—	—
Bobwhite*	X	X	X	X	—	X	Starling	—	—	—	—	—	X
Mourning Dove*	X	X	X	X	—	—	White-eyed Vireo	—	—	X	X	—	X
Yellow-billed Cuckoo*	—	—	—	X	—	—	Yellow-throated Vireo*	X	X	—	X	—	—
Great Horned Owl	X	—	—	—	—	X	Red-eyed Vireo*	X	X	—	X	—	—
Barred Owl	—	—	—	—	X	—	Black-and-white Warbler	—	—	—	X	—	—
Chuck-will's-widow*	X	X	—	—	—	—	Prothonotary Warbler	—	—	—	X	X	—
Whip-poor-will*	—	X	—	X	—	—	Northern Parula	—	—	—	X	X	—
Common Nighthawk*	X	—	—	—	—	—	Yellow-throated Warbler	—	—	—	X	X	—
Chimney Swift	—	—	—	—	—	X	Pine Warbler*	X	X	—	—	—	—
Ruby-throated Hummingbird	—	—	—	X	—	—	Prairie Warbler*	—	—	—	—	—	X
Belted Kingfisher*	—	—	—	—	X	—	Ovenbird	—	—	—	X	—	—
Common Flicker*	X	X	—	X	—	—	Kentucky Warbler	—	—	—	X	—	—
Pileated Woodpecker*	X	—	—	X	X	—	Common Yellowthroat*	—	—	—	X	X	—
Red-bellied Woodpecker*	—	X	X	—	—	—	Yellow-breasted Chat	—	—	X	—	—	—
Red-headed Woodpecker*	—	—	—	—	X	—	Hooded Warbler*	—	X	X	X	—	—
Hairy Woodpecker	—	X	X	X	—	—	American Redstart*	—	—	—	X	—	—
Downy Woodpecker	—	X	X	X	—	—	House Sparrow	—	—	—	—	—	X
Red-cockaded Woodpecker*	X	—	—	—	—	—	Eastern Meadowlark*	—	—	—	—	—	X
Eastern Kingbird*	—	—	—	—	X	X	Red-winged Blackbird*	—	—	—	—	X	X
Great Crested Flycatcher*	X	X	X	X	—	—	Orchard Oriole	—	—	X	—	—	X
Acadian Flycatcher*	—	—	—	X	—	—	Common Grackle	—	—	—	—	X	X
Eastern Wood Pewee*	X	X	—	—	—	—	Brown-headed Cowbird	X	X	—	—	—	—
Rough-winged Swallow	—	—	—	—	X	X	Summer Tanager*	X	X	X	X	—	—
Purple Martin	—	—	—	—	—	X	Cardinal*	—	X	X	—	—	—
Blue Jay*	—	X	—	—	—	—	Blue Grosbeak	X	—	—	—	—	X
Common Crow	—	—	—	—	—	X	Indigo Bunting	—	—	—	—	—	X
Fish Crow	X	X	X	X	—	—	American Goldfinch	X	—	—	X	—	X
Carolina Chickadee*	X	X	X	X	—	—	Rufous-sided Towhee*	X	X	X	X	—	—
Tufted Titmouse*	X	X	X	X	—	—	Chipping Sparrow*	X	X	—	—	—	—
Brown-headed Nuthatch*	X	X	—	—	—	—	Field Sparrow	—	—	—	—	—	X
Carolina Wren*	—	X	X	X	—	—	Bachman's Sparrow	—	—	—	—	—	X
Mockingbird	—	—	—	—	—	X							

A hardwood swamp forest (Fig. 5), with standing water resulting from Beaver activity, contains large-dead trees that provide habitat for several species of woodpeckers.

## BIRD LIFE

At least 75 species of nesting birds were observed on the property. Previously, Carter (1971) discussed the birds of the general Sandhills region but did not consider specific sites within the four-county area. The emphasis of this foray was to document avian breeding activity as related to the major vegetation types described in Table 1.

Represented among the birds of the McCain Tract are several species nesting at or near the southeastern limit of the presently known breeding range. These and a few other species require brief discussion.

*Caprimulgids*: All three caprimulgids nest on the property. Lee found a Chuck-will's-widow nest with two eggs on 26 May. Whip-poor-wills exhibited territorial behavior, but no nest was found. This is unfortunate, for to the best of our knowledge



Fig. 5. Red-headed Woodpeckers are among the cavity-nesting species using the large standing dead trees in a portion of the hardwood swamp forest flooded by a Beaver dam. (Photo by Mary Kay Clark)

there is no documented breeding record of the species from the North Carolina coastal plain. Calling stations have been reported as far east as Gates, Bertie, Johnston, Cumberland, Moore, and Hoke Counties. The Common Nighthawk collected on 25 May 1981 (NCSM 8006) appears to be intermediate between *Chordeiles minor minor* and *C. m. chapmani*. The former race breeds in the mountains, most of the piedmont, and the northern part of the coastal plain, whereas the latter race is generally believed to breed "in the southern half of the coastal plain and neighboring margin of the piedmont region of North Carolina" (Pearson et al. 1959). The nighthawks exhibited territorial behavior in the open pine woods where they apparently nest on the sandy ground in the manner of the population found on the immediate coast northward at least to Carteret County.

**Belted Kingfisher:** An active nest burrow was discovered at a sandpit by Tom Howard.

**Red-headed Woodpecker:** This species was found only where Beaver ponds had created plots of large-diameter standing dead timber.

**Red-cockaded Woodpecker:** To date approximately 40 to 50 cavity trees have been located on the McCain Tract. Clearing of brush has begun in the vicinity of some active colonies where the understory was on the verge of becoming too tall and dense to meet the habitat requirements of the species.

**Crows:** Fish Crows were more numerous than Common Crows during the breeding season. We do not know when the Fish Crow began nesting in Hoke County. Carter (1971) commented that the species was already well established in the Sandhills when he collected the first local specimen in 1970.

**Warblers:** In addition to the warblers that are known to breed throughout the southern part of the North Carolina coastal plain, we found several species at or near the



southeastern edge of their nesting range in this state. Additional field work is needed to determine the breeding status of the Black-and-white Warbler, Ovenbird, Kentucky Warbler, and American Redstart in the southeastern counties.

**Summer Tanager:** This species, which is frequently associated with pine-hardwood forests in the piedmont, was among the most numerous of the birds breeding in the pines of the McCain Tract.

**Blue Grosbeak:** Although we seemed to miss most of them, Mr. and Mrs. John Watson assure us that the Blue Grosbeaks are common in open habitats in the McCain area.

**Rufous-sided Towhee:** According to Blake (1961), the McCain Tract lies within a band of presumed intergradation between *Pipilo erythrophthalmus rileyi*, of the South Carolina and southern North Carolina coastal plain, and *P. e. canaster* and *P. e. erythrophthalmus*, the other two races that breed in the Carolinas. An adult male (NCSM 8244) taken in late May had a very pale yellowish-white iris, which is considered typical of *P. e. rileyi* in spite of the fact that some individual adults may have orangish or reddish irides. This race is listed in some books written before publication of the 1957 A.O.U. Check-list as *P. e. alleni* and given the common name "White-eyed Towhee."

**Bachman's Sparrow:** Potter heard one singing several times from pines at the edge of a field, but she was unable to confirm the identification visually. The species is known to have bred in the county as recently as 1974 (Carter 1974).

**Introductions:** Only two introduced species were recorded. House Sparrows and Starlings visit the edges of the McCain Tract, but so far their breeding sites remain in developed areas adjacent to the property.

## OTHER VERTEBRATES

Other vertebrate species recorded from the property include (\*voucher specimens in the NCSM collections):

**MAMMALS:** Opossum (*Didelphis marsupialis*), \*Carolina Short-tailed Shrew (*Blarina carolinensis*), Least Shrew (*Cryptotis parva*), Southeastern Shrew (*Sorex longirostris*), Eastern Mole (*Scalopus aquaticus*), \**Myotis* sp., \*Eastern Pipistrelle (*Pipistrellus subflavus*), \*Red Bat (*Lasiurus borealis*), \*Eastern Cottontail (*Sylvilagus floridanus*), Marsh Rabbit (*S. palustris*), Gray Squirrel (*Sciurus carolinensis*), \*Fox Squirrel (*S. niger*), \*Southern Flying Squirrel (*Glaucomys volans*), Beaver (*Castor canadensis*), \*Harvest Mouse (*Reithrodontomys humulis*), \*White-footed Mouse (*Peromyscus leucopus*), \*Cotton Mouse (*P. gossypinus*), \*Golden Mouse (*Ochrotomys nuttali*), \*Cotton Rat (*Sigmodon hispidus*), \*Pine Vole (*Microtus pinetorum*), \*House Mouse (*Mus musculus*), Red Fox (*Vulpes fulva*), Gray Fox (*Urocyon cinereoargenteus*), Raccoon (*Procyon lotor*), Bobcat (*Lynx rufus*), White-tailed Deer (*Odocoileus virginianus*).

**REPTILES AND AMPHIBIANS:** Dwarf Waterdog (*Necturus punctatus*), Lesser Siren (*Siren intermedia*), Red-spotted Newt (*Notophthalmus viridescens*), Dusky Salamander (*Desmognathus fuscus/auriculatus*), Mud Salamander (*Pseudotriton montianus*), Red Salamander (*P. ruber*), Two-lined Salamander (*Eurycea* sp.), Dwarf Salamander (*E. quadridigitata*), Slimy Salamander (*Plethodon glutinosus*), Eastern Spadefoot (*Scaphiopus holbrookii*), Southern Toad (*Bufo terrestris*), Southern Cricket Frog (*Acris gryllus*), Green Treefrog (*Hyla cinerea*), Southern Gray Treefrog (*H. chrysoscelis*), Spring Peeper (*H. crucifer*), Barking Treefrog (*H. gratioiosa*), Bullfrog (*Rana catesbiana*), Bronze Frog (*R. clamitans*), Southern Leopard Frog (*Rana utricularia*), Snapping Turtle (*Chelydra serpentina*), Stinkpot (*Sternotherus odoratus*), Yellow-bellied Turtle (*Chrysemys scripta*), Eastern Box Turtle (*Terrapene carolina*), Green Anole (*Anolis carolinensis*), Northern Fence Lizard (*Sceloporus undulatus hyacinthinus*), Ground Skink (*Scincella lateralis*), Six-lined Racerunner (*Cnemidophorus sexlineatus*), Eastern Worm Snake (*Carphopis amoenus*), Black



Racer (*Coluber constrictor*), Ringneck Snake (*Diadophis punctatus*), Corn Snake (*Elaphe guttata*), Black Rat Snake (*E. obsoleta*), Eastern Mud Snake (*Farancia abacura*), Eastern Hognose Snake (*Heterodon platyrhinos*), Banded Water Snake (*Nerodia fasciata*), Southeastern Crowned Snake (*Tantilla coronata*), Eastern Cottonmouth (*Agkistrodon piscivorus*).

FISHES: Eastern Mudminnow (*Umbra pygmaea*), Redfin Pickerel (*Esox americanus*), Lake Chubsucker (*Erimyzon succetta*), Yellow Bullhead (*Ictalurus natalis*), Pirate Perch (*Aphredoderus sayanus*), Mosquitofish (*Gambusia affinis*), Mud Sunfish (*Acantharchus pomotis*), Warmouth (*Lepomis gulosus*), Dollar Sunfish (*Lepomis marginatus*).

## CONCLUSIONS

Although the above lists of vertebrate fauna for the McCain Tract must be considered preliminary, the bird list probably includes all of the locally common breeding species and most of the uncommon nesters. The success of the 1981 Breeding Bird Foray emphasizes the advantages of intensive field work by a team of experienced observers covering a small geographic areas for several consecutive days. Even when no rare birds are found, valuable base-line data can be compiled on habitat relationships and made available for future research projects, including studies of long-range habitat management practices.

## LITERATURE CITED

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