

OBSERVATIONS AT THE LAKE MARTIN ROOKERY, CYPRESS ISLAND PRESERVE, ST. MARTIN PARISH, LOUISIANA

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ABSTRACT

Within the southeastern portion of the Lake Martin cypress-tupelo swamp is a large rookery where a variety of avian types nest from late January through the spring. A sabbatical leave afforded the opportunity to observe the rookery during the nesting season of 2002. The primary goal was to observe the changes in wildlife in order to make comparisons with paleontological occurrences at higher latitudes. Utilization of the uniformitarian principle resulted in a number of ancillary zoological observations recorded herein.

A procession of events occurred at Lake Martin from January to April, 2002. During early January when leaves had been lost and cooler conditions prevailed, Great (American) and Snowy Egrets, Great and Little Blue Herons, Anhinga, and White Ibis foraged, usually as individuals or in small flocks. During a warm spell in late January, the first birds to begin mating/nesting behavior were the Great Egrets. They displayed and nested principally in cypress and water tupelo trees 5-7 meters above water level; none nested in the higher reaches of the canopy or near water level. Great Blue Herons and Anhinga were the next to congregate in early February. The herons took residence in the treetops, whereas the Anhinga normally nested 3-5 meters below and approximately 6 meters above the egrets. In early March, the Little Blue Herons began to congregate at the Lake, followed by Cattle Egrets in mid-March. Both taxa began nesting in the lower reaches of the buttonbush, some only a meter above water level. The last major nesting group was the Roseate Spoonbill, which arrived in the third week in March, and began building nests at the same level as the American Egrets. This is also when the first hatchlings of the American Egrets were observed, as well as the initiation of mating behavior of the American alligator. By the end of March, all major large water birds had engaged in nesting behavior, and some American Egrets were ready to fledge.

The persistence of the rookery is dependent, among other parameters, upon the vegetation, isolation by water, a rich feeding area, and probably the prevalence of alligators. More alligators occur in the rookery than anywhere else in Lake Martin. Alligators do feed upon the birds, but they also aid in the restriction of other terrestrial predators such as raccoons and opossums from the nesting area.

INTRODUCTION

A major rookery for larger water birds occurs in St. Martin Parish, southern Louisiana, at Lake Martin, which lies between the towns of Lafayette and Breaux Bridge. Estimates of 20 to 30,000 wading birds occur within this 600-acre cypress-tupelo swamp known as Lake Martin. Lake Martin lies within the Cypress Island Preserve, an 8600-acre preserve donated to the Nature Conservancy by Texaco. Observations of the procession of waterfowl from January through March were made in the southwestern portion of the Lake. In order to maintain consistency, observations were confined to this smaller area of easy access. Observations were recorded along with temperature, cloud cover, and wind, as these parameters appeared to affect wildlife behavior. Unfortunately, daily observations were not possible due to other commitments; nevertheless, the major processional events were noted. The Lake was normally checked twice a day, once at midday and again at dusk when birds returned to roost. These observations are not comprehensive but provide insight into the major zoological procession during a specific interval at a specific area.

Lake Martin originated through flooding scour within the Atchafalaya-Mississippi River floodplains. The result was a marshy depression that was deepened up to four meters (averaging slightly over a meter) in 1952 when a dirt levee was built around the marsh by the Louisiana Department of Public Works. The deeper water provided the necessary parameters for a rookery, and according to local informants, nesting began in the late 1980's.

Over 200 species of birds have been observed at Lake Martin. Of these, this study concentrated on larger water birds, including the following major groups: herons, egrets, grebes, anghina, ibis, spoonbills, some ducks, and gallinules (Table 1). Observations of other taxa such as turtles, American alligators, and nutria (*Myocastor coypus*) were also conducted.

Table 1. Avian Taxa Observed at the Lake Martin Cypress-Tupelo Swamp.

Cormorants	<i>Anbinga anbinga</i> , Anhinga
Herons	<i>Ardea herodias</i> , Great Blue Heron <i>Hydranassa tricolor</i> , Louisiana (Tricolored) Heron <i>Florida coerulea</i> , Little Blue Heron <i>Nycticorax nycticorax</i> , Black Crowned Night Heron
Egrets	<i>Casmerodius albus</i> , Great (American) Egret <i>Leucophoyx thula</i> , Snowy Egret <i>Bubulcus ibis</i> , Cattle Egret
Ibis	<i>Guara alba</i> , White Ibis
Spoonbill	<i>Ajaia ajaja</i> , Roseate Spoonbill
Ducks	<i>Aix sponsa</i> , Wood Duck
Gallinules and Coots	<i>Gallinula chloropus</i> , Florida Gallinule <i>Fulica americana</i> , American Coot

TIMELINE

January

The later part of December and the first three weeks of January were cool (~12C), and little activity occurred at the Lake, except for that of a few nutria. Thereafter, a warm spell (22-27C) persisted until the end of the month. At the beginning of the warm interval (1/21/02), approximately 30 Great (American) Egrets arrived in the southeastern portion of Lake Martin. The egrets were solitary but began taking up scattered nesting sites at a horizon of 5 meters above the water level in the cypress-tupelo stand. At the same time, a few White Ibis appeared. Only three days later (1/23), twice as many Great Egrets were in the rookery, and the males began their display. A solitary Great Blue Heron appeared, as well as 10 Snowy Egrets. The first three American alligators of the year were also observed. By the last two days of the month, the zenith of the warm spell resulted in hundreds of Great Egrets, most of which were paired, mating, and engaged in nest building. A flock of 18 Snowy Egrets were observed foraging, and the first pair of Florida Gallinules was observed. Nine adult and two juvenile alligators were sunning themselves, as well as numerous turtles and a water moccasin.

February

The first 12 days of the month were very cool (4-9C), so no alligators or turtles were observed, although a few nutria remained active. One day (2/2) was warmer (16C), and five Great Blue Herons (including 2 pairs) and a second pair of Gallinules were observed. A few White Ibis were noted, including a gray-brown juvenile. By the first week of February, hundreds of Snowy Egrets and ~50 White Ibis were roosting in the buttonbush just north of the principal nesting area of the Great Egrets, although some Great Egrets established nests north of the roost. Nineteen Little Blue Herons were vying for roosting sites, principally on the periphery of the Snowy Egret/White Ibis roost. The first pair of Tricolored Herons and numerous nutria were active. By the end of the first week of February, six Great Blue Herons were observed nesting at the treetops west of the roost. Anhinga began pairing and built initial nests 1-3 meters below the Great Blue Heron nests, well above the Great Egrets. Two pair of Black Crowned Night Herons were noted foraging, and a flock of nearly 40 American Coots was among the cypress trees within the Great Egret rookery. At the roost, many more White Ibis arrived so the proportions of Snowy Egrets and White Ibis were nearly the same of approximately 1000 birds; only 45 Little Blue Herons were counted in the roost. By the end of the cold spell, most of the ~500 pairs of Great Egrets were incubating eggs, 55 Anhinga and 14 herons were nesting. Hundreds of White Ibis foraged in the area during the day (many less Snowy Egrets, usually 15-30 individuals, foraged along the eastern margin of the Lake).

Although nearly freezing at night, daytime temperatures reached 16C by 2/13 and warmed into the upper teens and lower twenties during the remain-

der of the month. The moderate warm spell brought the return of alligators and turtles. Additional Gallinules (5 pairs), the first observed pair of Wood Ducks, and additional flocks of American Coots appeared. A huge flock (>100 individuals) of yellow-beaked grebes (Holboell's Grebe) was observed feeding on the open waters of the Lake.

March

Another cool interval occurred during the first part of March. During this interval, the northern roost was abandoned, although many Little Blue Herons took up residence. The Snowy Egrets had moved south in the buttonbush within the major portion of the Great Egret rookery. By the second week of March, they were joined by equal numbers of Little Blue Herons; the White Ibis were now roosting high up in the cypress-tupelo trees. The first Roseate Spoonbills arrived on 3/18.

By the third week in March, the major nesting birds had arrived, and the Great Egrets who had arrived in January now had hatchlings. By this time, the Spoonbills numbered 51 individuals, most were solitary, but one pair was observed constructing a nest. The last nesting bird of the study, the Cattle Egret, was observed in the southern portion of the rookery on 3/21. The alligators were relatively abundant, and all large males that hitherto had been solitary, were now accompanied by smaller females. The American Coots were no longer in flocks but found in discrete pairs. By this time, the Little Blue Herons outnumbered the Snowy Egrets at the southern roost.

During the remainder of the month, a warming trend with temperatures up to 25C occurred. By the end of the month, 71 pairs of Spoonbills were counted in the study area where they nested at the same level as the Great Egrets. The Night Herons were nesting just above the Great Egrets, over 500 pairs of Little Blue Herons and nearly 100 pairs of Cattle Egrets were building nests within the buttonbush, some less than a meter above water level. Interestingly, the Snowy Egrets, which had been observed at the Lake in January, were building nests at the end of the month, competing for space in the buttonbush with Cattle Egrets and the very abundant Little Blue Herons, but many were found near the base of the bushes. The Great Egrets were ready to fledge when the Spoonbills began their nesting. Overall, all major wading birds had begun the nesting process by the end of the month, and some had young ready to fly.

OBSERVATIONS AND INTERPRETATIONS

The nesting levels of various avian species differs. The Great Egrets first colonized the horizon 4-7 meters above the water level in the cypress-tupelo trees. The herons nested at the highest reaches of the trees, and the Anhinga nested 3-5 meters below, but well above (~6 meters) the Great Egrets. The night herons nested about a meter above the Great Egrets. The only taxon to nest at about the same level as the Great Egrets were the Roseate Spoonbills,

and they appeared very late when the Great Egrets were about to fledge. The Snowy Egrets, Cattle Egrets, and Little Blue Herons nested in the lower buttonbush, less than 1 meter to 2.5 meters above water level. Great Egrets occasionally nested at the highest reaches of the buttonbush that was at about the same level as the other Great Egrets in the cypress-tupelo stands. Therefore, most species nested at discrete horizons, although those in the buttonbush competed for any space in the short vertical distance above the water.

The original northern buttonbush roost was dominated by hundreds of Snowy Egrets initially with few White Ibis and Little Blue Herons. The White Ibis became much more abundant until nearly equal numbers of Snowy Egrets and ibis dominated the roost. Relatively few Little Blue Herons were found interspersed, but mostly on the periphery of the roost. The Snowy Egrets roosted lowest on the buttonbush, whereas the White Ibis were higher. Juvenile ibis are brown and become patchy until they finally are white except for the black tipped wings. Interestingly each night, the darker juveniles were at the highest reaches of the roost, and the white birds were down among the branches. The darker birds would be better camouflaged at night, and the adults certainly show dominance forcing the juveniles to the top of the branches. The highest occurring birds would be vulnerable to night predators, such as Great Horned Owls, which I observed at the Lake. Eventually, Little Blue Herons nested within this roost, and the Snowy Egrets and White Ibis moved to a roost farther south.

In the southern roost, Snowy Egrets and Little Blue Herons dominated, and eventually began nesting. The White Ibis were forced out and would roost higher in the cypress-tupelo trees; many juvenile ibis were observed roosting in this manner. Later, Cattle Egrets appeared and also began nesting in the buttonbush.

The occurrence of the rookery at Lake Martin may be explained by the cypress-tupelo forest environment, which provides ample forage and nesting materials. The rookery is surrounded by water, affording protection for nesting birds from most predators. Of course, the relative abundance of alligators results in some loss of birds, but these creatures also reduce the numbers of nocturnal mammalian predators such as raccoons and opossums that wreck havoc upon nesting birds.

SUMMARY

During 2002, a progression of wading birds arrived to nest at the Lake Martin rookery. The first appearing birds were the Great Egrets, followed by herons and anhingas, followed by Night Herons, with Little Blue Herons, Snowy Egrets, Roseate Spoonbills and Cattle Egrets beginning to nest at about the same time. Each species nested at discrete horizons, although Little Blue Herons, Snowy Egrets, and Cattle Egrets competed for space within the 1-2.5 meter interval above the water level in the buttonbush, with the Snowy Egrets normally the lowest. The Spoonbills began nesting at approximately the same level as the Great Egrets, although by the time the Spoonbills arrived, the Great Egret hatchlings were ready to fledge.

Initially, a major roosting area of thousands of Snowy Egrets and White Ibis was established north of the Great Egret rookery on the eastern margin of the Lake. However, it later was moved to the south within the Great Egret rookery. The old roost was taken over by Little Blue Herons that eventually began nesting. The new roost was dominated by Snowy Egrets and Little Blue Herons; the White Ibis were excluded from the low buttonbush and were forced up into the surrounding cypress-tupelo forest. The roost eventually became a nesting area for Snowy Egrets, Little Blue Herons, and Cattle Egrets.

The rookery is the result of a number of parameters, including cypress, tupelo, and buttonbush isolated by water, a rich feeding area, and probably the prevalence of alligators. More alligators occur in the rookery than anywhere else in Lake Martin. Alligators do feed upon the birds, but they also aid in the restriction of other nocturnal predators such as raccoons and opossums from the nesting area.

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