

NESTING WADING BIRD POPULATIONS IN SOUTHERN FLORIDA

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ABSTRACT: *Wading birds, including ibises, herons, and storks, which once nested in southern Florida by the millions have decreased because of habitat destruction. A 1974-1975 survey located 41 colonies and 129,800 wading birds nesting in southern Florida. White Ibis and Cattle Egret were most abundant; populations of Great Egrets, Little Blue Herons, Louisiana Herons and Snowy Egrets were lower than expected. Wading birds nested year round but individual species had more circumscribed nesting seasons which differed seasonally and between inland and coastal colonies.*

FIFTEEN species of herons, storks and ibises nest in southern Florida. As many as 2.5 million wading birds are estimated to have nested in this area under the pristine, natural conditions of the 1800's (Robertson, 1965). The subsequent decline caused by plume hunting and recovery after the end of that era are well known chapters in the story of American conservation (Robertson and Kushlan, 1974). Since that time, progressive degradation of the southern Florida environment has led to a second period of population decline from the 1930's to present. Study of the recent decline and its causes has been pursued by the National Park Service and National Audubon Society which preserve many of the traditional nesting sites from disturbance. The occurrence of population declines despite protection of their colony sites shows that preservation of the vitally important feeding habitat has been less successful. Monitoring the population levels of 15 species over the vast marshes, swamps and marine habitats of southern Florida has proved to be a difficult undertaking because of the time and resources required. Nonetheless, such data are crucial in order to understand the current status and to provide for future preservation of these possibly diminishing populations.

During a one year study we attempted to determine, at least roughly, the number of wading birds nesting in southern Florida. We collected information from September 1974 through August 1975. Active colony sites were located and abundance was estimated for some of the most abundant species. Deficiencies exist in the data base because, for instance, some colonies in the Big Cypress Swamp were only estimated by aerial survey. Some early nesting individuals and Great Blue Herons that nested in scattered inland sites were not censused. Black-crown Night Herons (*Nycticorax nycticorax*), Yellow-crown Night Herons (*Nyctinassa violacea*), Green Herons (*Butorides striatus*), Reddish Egrets (*Dichromanassa rufescens*), and Least Bitterns (*Ixobrychus exilis*), because of the dispersed nature of their nesting sites, were too inadequately censused to be included in the summary. We do provide estimates of colony and population totals

for the most abundant species as a step towards achieving a complete picture of wading bird nesting in southern Florida.

Southern Florida is bordered by the Caloosahatchee and St. Lucie Rivers, including Lake Okeechobee, and extends south to the southern boundary of Everglades National Park in Florida Bay (Fig. 1). This does not include the lower Florida Keys. Initial estimates of colony size were made by aerial observation. For all but 6 sites, aerial surveys were followed by one or more censuses from the ground. Wading birds censused were the White Ibis (*Eudocimus albus*), Roseate Spoonbill (*Ajaia ajaja*), Wood Stork (*Mycteria americana*), Great Blue Heron (*Ardea herodias*), Great Egret (*Casmerodius alba*), Snowy Egret (*Egretta thula*), Little Blue Heron (*Florida caerulea*), Louisiana Heron (*Hydranassa tricolor*), and Cattle Egret (*Bubulcus ibis*). Locations where Black-crown Night Herons, Yellow-crown Night Herons and Reddish Egrets nested are included. Data on colony associates, the Brown Pelican (*Pelicanus occidentalis*), Double-crested Cormorant (*Phalacrocorax auritus*) and Anhinga (*Anhinga anhinga*), are also included where available. There was no count of Glossy Ibis (*Plegadis falcinellus*) nesting in southern Florida this year, although the species has nested in the area in the past (Kushlan and Schortemeyer, 1974) and some evidence suggests it may have nested at Okaloacoochee in Fall of 1974 (J. C. Ogden, personal communication).

RESULTS—Forty-two colony sites active in 1974-75 are listed on Table 1. The location of each colony is given in the table and shown on Figure 1. The number of nests of each species includes all birds nesting at the site during a complete year's cycle of nesting. In some cases this includes more than one wave of nesting and approximate dates when nesting began are included. In addition, Great Blue Herons (including Great White Herons) that nested on some islands in Florida Bay and in the 10,000 Islands along the west coast are combined in the table. Where the totals are known to underestimate several species, this is noted.

The largest colony of about 40,600 wading birds was a late summer and autumn nesting in the Okaloacoochee Slough in the Big Cypress Swamp. A nearby colony at Sunniland Grade consisted of about another 600 birds. These colonies were the first known to occur in this area, although previous coverage was not extensive. The Big Cypress nesting was the largest nesting episode of the year.

The levee-surrounded water conservation areas north of Everglades National Park held three sizable colonies during the usual spring nesting season. These colonies accounted for about 32,700 nesting wading birds. Large, successful wading bird colonies were first found in Water Conservation Area 3 in 1972 (Kushlan, 1973), although they may have existed previously and at least one colony was found in 1967 (Ogden). Wading birds have formed large colonies at various sites in the conservation areas each year from 1972 through 1975. Kings Bar, the primary nesting colony in Lake Okeechobee, had about 14,400 nesting wading birds during the spring. A mid-summer 1974 nesting apparently also occurred there, before the present census began (Ogden).

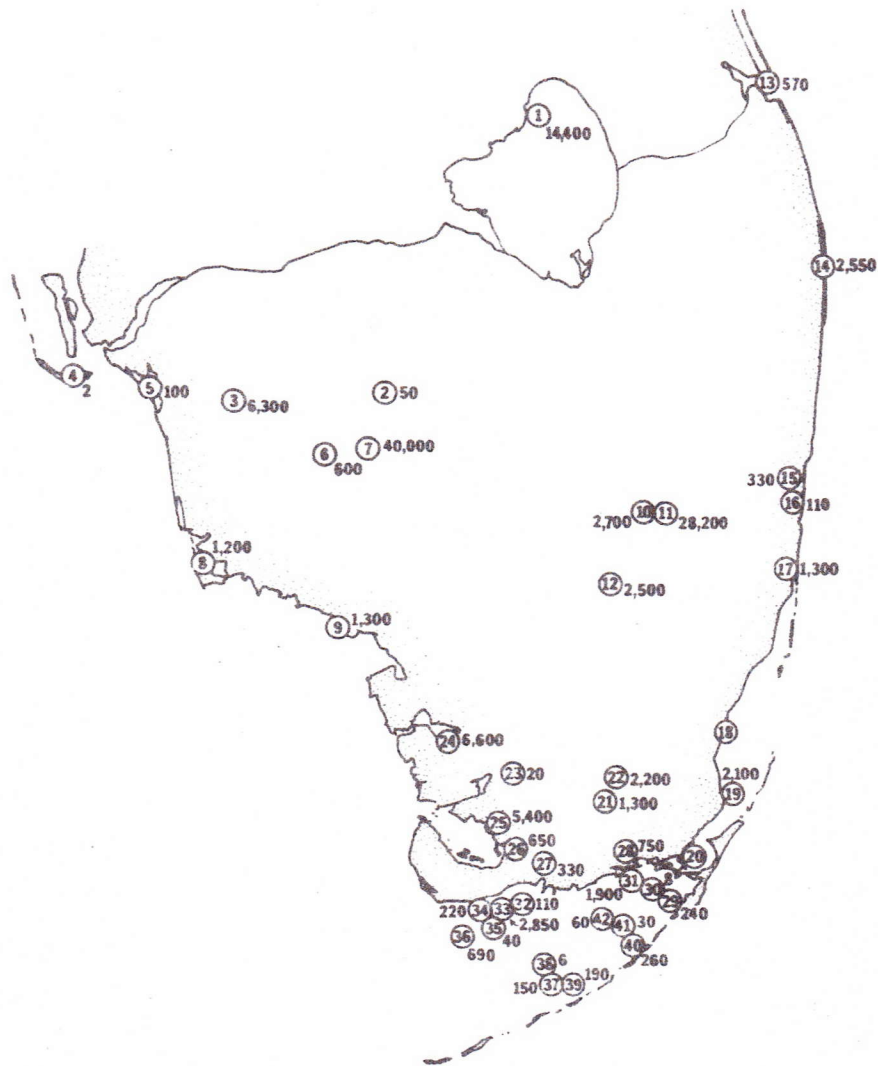


Fig. 1. Number of wading birds at the colony sites active in 1974-75. Colony numbers are keyed to names listed in Table 1.

The largest colonies in Everglades National Park were at Rodgers River Bay, Lane River, Frank Key and Taylor Slough. The Rodgers River Bay colony was active from fall through late summer of 1975 with several successive waves of nesting beginning with Great Egrets, followed by Snowy Egrets, then Louisiana Herons, and finally White Ibis. Lane River is the principal Wood Stork colony in the park. This year four other species nested there, including 6 Roseate Spoonbills (Ogden) which represent one of the few inland nesting records of this species in southern Florida. Frank Key contained 10 species of wading birds in-

cluding the first Cattle Egrets known to nest in northwest Florida Bay. Taylor Slough is primarily a summer Cattle Egret colony.

Corkscrew was the largest southern Florida stork colony with 6,300 nesting birds. Storks also nested at Madeira, East River, Lane River and Sadie Cypress. Of the 8,700 Wood Storks that nested in southern Florida in 1974-75, 30% nested in Everglades National Park and the rest in the Big Cypress Swamp. Rookery Branch, the location of the traditional Everglades nesting colonies that in the 1930's numbered in the hundreds of thousands of birds, was nearly inactive for the third year in a row with only 20 herons and 30 Anhingas nesting. Cuthbert and East River, two other famous park colony sites of the 1950's and early 1960's, contained only 330 and 750 birds respectively.

The following list summarizes available data on the nesting population of various species in 1974-75:

White Ibis	56,000
Roseate Spoonbill	1,000
Wood Stork	8,700
Great Blue Heron	1,000
Great Egret	9,200
Snowy Egret	10,300
Little Blue Heron	500
Louisiana Heron	9,800
Cattle Egret	33,300
Total	129,800

The most numerous wading bird species in southern Florida was the White Ibis, 56,000 of which nested at 13 sites during the study period. The Cattle Egret, with 33,300 nesting birds was the next most abundant species. Together these two species accounted for 69% of the wading birds nesting in southern Florida in 1974-75. Censused nesting populations of the Snowy Egret (10,300 birds), Louisiana Herons (9,800 birds) and Great Egrets (9,200 birds) were relatively small. The nests of about 1,000 Great Blue and Great White Herons were counted but at least a couple hundred more nesting birds were not included. At least 1,000 Roseate Spoonbills nested in Florida Bay.

One interesting aspect of wading bird nesting in southern Florida, contrasted with the rest of North America, is the long duration of the nesting season. Wading birds were nesting somewhere in southern Florida during every month in 1974-75 (Fig. 2). Colonies along the east coast generally began in winter and continued through the largest peaks in summer. Florida Bay colonies began earlier than those along the east coast. Most inland nesting occurred during the winter and spring dry season, but nesting by some species, particularly White Ibis, Cattle Egrets and Great Egrets, perhaps in response to localized water conditions, may result in year round nesting. Generally however, November is the low point of nesting. Various species tend to show more seasonality in their nesting cycle (Fig. 2). In 1974-75, White Ibis and Cattle Egrets nested in both fall and spring, while Great Egrets nested year round. Other species tended to be circumscribed.

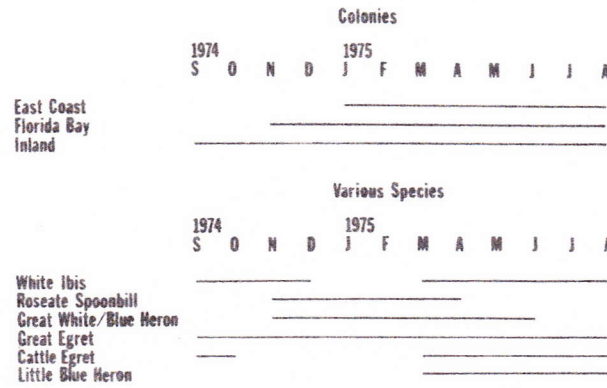


Fig. 2. Timing of nesting at wading bird colonies and nesting season of various species in southern Florida, 1974-75.

DISCUSSION—Robertson estimated wading bird numbers in southern Florida to have been 2,500,000 in 1800's, 500,000 in 1920's, 1,200,000 in 1930, 300,000 in 1960 and 150,000 in 1970 (Robertson and Kushlan, 1974). The 1975 population level is estimated to be 129,800 birds. This compares well with the 128,000 birds estimated to have nested in this area in 1972, based on aerial surveys of the National Audubon Society (Sprunt, 1973), and the National Park Service (Robertson and Kushlan, 1974). The present estimate represents a 95% decrease in population since the 1800's, and 89% decrease since the 1930's, and a 13% decrease since 1970. The estimates of 1972 and of 1975 are essentially identical. The differences between them are within the error associated with either census.

Of considerable concern is the low percentage of the total population nesting in Everglades National Park. During the 1930's the largest colonies in Florida, and perhaps in the United States, were located in what is now Everglades National Park. Rookery Branch of the Shark River, the site of the largest colonies, supported only 20 nesting wading birds in 1975. Furthermore, birds nested there in numbers only twice since 1967. The largest colonies are now located north of the Park. Only 20% of southern Florida wading bird population, 25,900 birds, nested in the Park in 1975. Although a greater percentage may nest there in some years, the situation is still very different than in the 1930's. Since Park colony sites are protected, this means that the feeding habitat that the Everglades marsh in the Park once supplied for hundreds of thousands of wading birds is now sufficiently altered to preclude nesting of a large percentage of the South Florida population in most years. These changes suggest strongly that some aspects of the natural ecological processes are no longer functioning in the southern Everglades of Everglades National Park.

Two species of special concern, the Wood Stork and Roseate Spoonbill, both nested successfully in 1974-75. Ogden (1971, 1972, 1973) has summarized recent history of Wood Stork nesting in Florida. In 1975, Wood Storks produced 8,000 young. The Spoonbills produced about 1,000 young. Also on the positive side is population total of 56,000 nesting White Ibis. This species nests in irregular numbers often at different locations each year, but the count for 1975 is similar

in magnitude to the fairly precise 1972 and 1973 censuses of 60,300 and 40,200 birds (Robertson and Kushlan, 1974). Both White Ibis and Cattle Egrets appear to be maintaining substantial and probably biologically viable populations. Both, it might also be noted, appear to be capable of taking advantage of suitable foraging conditions by establishing colonies in areas where such opportunities present themselves. This was shown by the Big Cypress nesting of 1974. Despite the optimistic outlook for these species, it should be kept in mind that the 1975 southern Florida nesting population of White Ibis is probably about 10% of what it was in the 1930's.

The Snowy Egret, Great Egret and Louisiana Heron each have about 9,000-10,000 birds nesting in southern Florida. According to our data, only 500 Little Blue Herons nested during the year. This is almost certainly an underestimate, but very little is known about this species. All totals are surprisingly low and are considerably below the 40,000-50,000 birds that Robertson and Kushlan (1974) estimated to be the combined population of these four species. More attention needs to be given to study of the population levels and biology of these species of egrets and herons.

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