

Colonial Birds in South Florida National Parks, 1976-1977

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Abstract. --This report summarizes the status of colonial birds in the national parks of south Florida and nearby areas from October 1976 through September 1977. Birds nesting in winter and spring were generally unsuccessful. The largest traditional spring colonies at Rodgers River Bay, Lane River, and Frank Key were relatively small this year. Except for Little Blue Herons, heron and ibis numbers were down, and Wood Stork nesting failed again this year. Cattle Egrets and Laughing Gulls, which nest in summer, were apparently successful with an increase in Cattle Egrets over previous years. Cormorants nested nearly year round. In total there were about 1880 Great Egret, 1000 Snowy Egret, 830 Louisiana Heron, 430 Little Blue Heron, 4200 Cattle Egret, 1340 White Ibis, 720 Wood Stork, 1070 Brown Pelican, 3650 Double-crested Cormorant, 690 Laughing Gull, 25,000 Sooty Tern, and 2300 Noddy Tern nests in and near south Florida national parks.

## Introduction

Colonial nesting birds are ecologically important components of south Florida ecosystems as well as popular attractions for visitors to south Florida's national parks. Several populations of these birds have been decreasing in recent years, and some have reached a point where there is much concern for their future. National parks in south Florida protect much of the remaining habitat of these birds. The U.S. National Park Service is attempting to monitor colonial bird populations in order to assess their status.

This report summarizes the status of colonial birds in Everglades National Park, the Big Cypress National Preserve, Biscayne National Monument, Fort Jefferson National Monument, and nearby areas. The data are from monthly aerial surveys of bird colonies with additional information from ground censuses, particularly at Fort Jefferson and Biscayne National Monuments. Although information from previous years is less comprehensive than this year, some comparative trends are discussed where warranted. Such comparisons should become more meaningful in future years. This report includes the period of October 1976 through September 1977. Three resource status reports issued on a quarterly basis (Kushlan and Baumann 1977, Kushlan and Kushlan 1977, Kushlan and McEwan 1977) have discussed month-to-month changes in detail.

## Methods

This year a systematic survey of colonial nesting birds was initiated to monitor colonies in south Florida national parks. Although the Park Service has been conducting surveys for many years, they had been made irregularly with emphasis placed on certain species being studied. A complete south Florida survey conducted in 1975, sponsored by the U.S. National Park Service and U.S. Fish and Wildlife Service (Kushlan and White, 1977a), has provided the foundation for systematizing the monitoring of colonial nesting birds in National Park Service areas in south Florida.

Monthly aerial surveys were flown using a fixed-wing airplane. All known and previous colony sites were visited and other park habitats were covered. Areas surveyed included all of Everglades National Park and the Big Cypress National Preserve. Data were also obtained by ground censuses. The total number of nests of each species was counted or estimated each month. Both aerial and ground observations were used to evaluate nesting success.

Throughout the year procedures for the survey were developed and tested in an attempt to increase accuracy and coverage while reducing costs. Aerial surveys have inherent biases owing to the difficulty of identifying and counting nests in some habitats. As a result, aerial surveys can at best provide approximate data. For some species that nest in the open or on top of trees such as Brown Pelicans, Wood Storks, Great Egrets, and Laughing Gulls, aerial estimates can be quite accurate. For other species such as Reddish Egrets, Roseate Spoonbills, and night herons, aerial estimates are very inaccurate, and therefore these species are not included in aerial counts. The use of helicopters to increase census accuracy was investigated. It was found that helicopters created minimal disturbance on nesting birds and that their use was cost- and manpower-effective. (Kushlan in press). Helicopters will therefore be used on some surveys in 1978-79. Development work on the colonial bird monitoring program will continue through the next nesting year.

## Status of Colonial Birds

Heavy rainfall through January 1977 delayed the development of colonies of early nesting species. In addition extraordinarily heavy rain at the beginning of May 1977 brought an unusually early end to the dry season. These two episodes of rainfall compressed the annual drying period and consequently the nesting season of many colonial bird species. Young birds were particularly affected in several late-forming colonies and suffered substantial mortality when elevated water levels caused deterioration of feeding conditions for adults. Great Egrets, Snowy Egrets, Louisiana Herons, and Wood Storks were most affected.

In Everglades National Park, colonial birds nested at 47 locations in 1976-77. By comparison, only 36 locations were found in 1975-76. This increase was probably a result of greater search effort this year. At the six major Park colonies, the numbers of most species were lower than in the previous two years (Table 1). This may reflect the effects of adverse weather conditions during this past season.

In the Big Cypress Preserve three relatively small colonies of Little Blue Herons and White Ibis developed north of the Training and Transition Jetport. The colony at Roberts Lake Strand, active in 1975-76, had only a single egret nest.

In Biscayne National Monument the major colony site was at Arsenicker Key. This year only 200 Cattle Egrets, 15 Little Blue Herons, and some Double-crested Cormorants nested successfully.

On Bush Key in Fort Jefferson National Monument the colony of pelagic terns nested successfully. There were 25,000 Sooty Tern and 2,300 Noddy Tern nests and a small colony of Brown Pelicans.

The total number of colonial bird nests in U.S. National Park Service areas in south Florida were 8300 egrets and herons, 4200 of which were Cattle Egrets, 1340 White Ibis, 720 Wood Storks, 1080 Brown Pelicans, 3650 Double-crested Cormorants, 690 Laughing Gulls, 25,000 Sooty Terns, and 2,300 Noddy Terns.

There were about 1000 Great Egret nests in the six major colonies in 1976-77 (Table 1). The low numbers nesting this year can be seen by contrasting the number of nests counted in the major colonies in the previous two years. Overall there were about 1880 nests in 1976-77, slightly more than in each of the two previous years. Thus the relatively low numbers in major colonies may have been compensated for by egrets moving to other sites.

Snowy Egrets had slightly fewer nests in the major colonies than last year and less than half the number of nests than in 1974-75 (Table 1). Other nesting occurred in summer on Porjoe Key (40 nests) and on East Buchanan Key (10 nests). These nests may have been re-nesting attempts attributed to poor success of spring nesting. Overall about 1000 Snowy Egrets nests were found in 1976-77.

Number of Louisiana Herons nests in Park Service areas over the past three nesting seasons decreased from about 3100 in 1974-75, to 2000 in 1975-76, to 800 nests this past year (Table 1). At Chokoloskee, for example, where over 400 nests were counted in 1974-75, only 50 nests were found in 1975-76 and 2 in 1976-77. The largest colony this year was at Rodgers River Bay. Lane River and Frank Key colonies also had Louisiana Herons nesting, although fewer than in previous years.

An additional 70 nests were at Sandy Key and 30 nests at Tern Key. In previous years, 406 and 610 nests were on Sandy and Tern Keys, respectively. Overall 830 Louisiana Heron nests were found in Park Service colonies.

About 430 Little Blue Heron nests were found in the survey area. Three hundred and twenty-five of these nests were in two previously unknown colonies in the Big Cypress Preserve north of 50-mile Bend on U.S. 41. Hole-in-Donut and Taylor Slough colonies had 45 nests, Arsenicker Key in Biscayne National Monument had 15, and in Shark River Slough a few nests were found southwest of Panther Mound. Forty and about 100 Little Blue Heron nests were counted in 1974-75 and 1975-76, respectively. The higher numbers found this year reflects an increased effort to locate Little Blue Heron colonies.

While the general decline of nesting herons in National Park Service colonies has only recently been recognized, the decline in number of nesting Wood Storks and the low productivity of birds that do nest has been a matter of concern for several years (Kushlan, Ogden, and Higer 1975). The largest traditional colonies have formed at East River and Cuthbert Lake and since the early 1960's at Madeira colony. Hurricane Donna damaged the mangroves at Cuthbert and the numbers of birds nesting there decreased as storks presumably moved to other colony sites. Madeira colony has shown a drastically declining trend over the past several years, probably because of loss of feeding habitat in the eastern Everglades near Everglades National Park. It is doubtful that nesting will continue to be attempted at Madeira for many more years. East River has dropped in numbers as storks shifted their nesting activity to nearby Lane River rookery which was discovered in the early 1970's.

During 1973-74, in their first successful season since 1966-67, 2000 Wood Stork nests produced about 1900 young (Ogden, Kushlan, and Tilmant in press). The peak number of nests has declined since the 1973-74 season with 1335, 1310, and 720 in the following three years (Table 1). Although productivity figures are not available, 1974-75 was considered to be a successful year, while both 1975-76 and 1976-77 years the birds failed to nest successfully. This year a few birds attempted to nest at East River and Madeira and several hundred birds nested at Lane River colony. The return of storks (100 nests) to Cuthbert where no birds had nested for several years suggests the unusual nature of last year's nesting effort. Overall only 720 nests were found in Everglades National Park this year and nearly all birds failed to produce young.

About 1300 White Ibis nests were found at major colonies, Rodgers River Bay and Frank Key (Table 1). In 1975-76 there were approximately 2400 nests, at these two colonies. Additionally, White Ibis nesting occurred in a previously unknown Big Cypress National Preserve site. The last year of heavy White Ibis nesting in Everglades National Park was 1971-72 when 6320 nests were found there (Kushlan 1977). The continued pattern is for White Ibis, constituting the largest wading bird population in south Florida and perhaps its most successful wetland species, to form colonies outside Everglades National Park.

The number of Cattle Egret nests in Everglades National Park has increased over the past three years from about 1600, to 2600, to 4000 nests, respectively (Table 2). The Hole-in-Donut colony has declined in the past two years coincident with the cessation of farming there. Concurrently at the Taylor Slough colony the number of nests in 1976-77 almost doubled compared to 1975-76. Although some of

the increase at Taylor Slough was probably due to a shift of birds from the Hole-in-Donut, the size of the Taylor Slough Colony indicates an overall increase in numbers of this species in the Park. A few Cattle Egrets nested at Chekika colony, outside Everglades National Park, and 60 nested at a site in the Big Cypress Preserve. In Biscayne Bay National Monument, 200 nested at Arsenicker Key, fewer than in past years.

This year 1070 Brown Pelican nests were found in Everglades National Park. The largest colonies were at Frank Key (350 nests), Chokoloskee (250 nests), and Buchanan Keys (225 nests). Another 220 nests were at the Arsnicker Keys, Cowpens Keys, and Nest Key-south in Florida Bay. In addition there were seven other sites where Pelicans nested. A small colony at Fort Jefferson National Monument included 7 nests in June, 1977.

This year for the first time a concerted effort has been made to evaluate Double-crested Cormorant populations. Cormorants were nesting somewhere in park service colonies throughout the year. There was a peak of nesting in the early spring with at least 2700 nests and a second peak in late summer with more than 1000 nests. Nesting occurred at 28 sites in the survey area. The largest colony was at Upper Arsnicker Key (350 nests). A small number nested at Duck Rock, a historical west coast roost site thought to have been abandoned for many years.

Laughing Gulls were closely censused during the summer of 1975-76, primarily by ground counts (Kushlan and White 1977b). That year approximately 800 nests were found at 13 sites in Florida Bay. In 1976-77, 685 nests were found at seven sites in the bay. Nest Key-south was the largest colony both years with 250 nests in 1975-76 and 230 nests in 1976-77. Four other keys accounted for 136 nests in 1976 and 380 in 1977. In 1975-76, 183 nests were found on East Key but no nesting occurred there in 1976-77.

The 1977 Sooty Tern nesting population on Bush Key, Dry Tortugas, Fort Jefferson National Monument, was estimated at 25,000 breeding pairs. This population is somewhat reduced from that of the immediately preceding years apparently because heavy vegetation made portions of the usual nesting area unavailable to the terns. Production of fledged young was estimated at 16,000. Brown Noddy nesting population on Bush Key was estimated from partial nest count to be about 2,300 breeding pairs.

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TABLE 1

Number of nests at six major colonies in Everglades National Park and other colony sites during the 1974-75, 1975-76 and 1976-77 seasons.

Colony Name	Year	Great Egret	Snowy Egret	Louisiana Heron	Wood Stork	White Ibis
Major Colonies						
Chokoloskee	1974-75	252		416		
	1975-76	150	75	50		
	1976-77	90		2		
Rodgers River Bay	1974-75	443	1,330	588		923
	1975-76	300	400	559		969
	1976-77	155	720	431		620
Lane River	1974-75	200	577	842	1,100	
	1975-76	300	350	225	1,200	
	1976-77	150	109	150	500	
Frank Key	1974-75	350	42	101		841
	1975-76	400	300	420		1,400
	1976-77	400	100	150		650
East River	1974-75	90			110	
	1975-76	200			75	
	1976-77	150			45	
Madeira	1974-75	100	150		125	
	1975-76	75			35	
	1976-77	60	15		75	
Subtotal	1974-75	1,435	2,099	1,947	1,335	1,764
	1975-76	1,425	1,125	1,254	1,310	2,369
	1976-77	1,005	944	733	620	1,270
Other Colonies - South Florida national parks	1974-75	275	243	1,148	0	150
	1975-76	185	22	780	0	504
	1976-77	871	50	100	100	72
Total (rounded)	1974-75	1,710	2,340	3,100	1,330	1,910
	1975-76	1,610	1,150	2,030	1,310	2,870
	1976-77	1,880	1,000	830	720	1,340

TABLE 2

Number of Cattle Egret nests in south Florida national parks and nearby areas during the 1974-75, 1975-76, and 1976-77 nesting season.

Year	Colony Name						Total (rounded)
	Hole-in-Donut	Taylor Slough	Frank Key	Big Cypress Preserve	Biscayne Natl.Mon.	Chekika	
1974-75	630	1000	12	-	879	0	2520
1975-76	600	2000	0	-	-	0	2600
1976-77	350	3600	0	60	200	5	4200