

# STATUS OF FLORIDA NESTING BROWN PELICANS, 1971 - 1976<sup>1</sup>

BY STEPHEN A. NESBITT, MICHAEL J. FOGARTY,  
AND LOVETT E. WILLIAMS, JR.

Populations of the Brown Pelican (*Pelecanus occidentalis*) have declined throughout most of its range in the United States since 1960. Williams and Martin (1968) reported that the last nesting of the species in Louisiana occurred in 1961; Keith et al (1970), Jehl (1969), and Schreiber and DeLong (1969) reported drastic population declines and reproductive failures in California; Beckett (1966) reported a population decline in South Carolina; and Hildebrand and Blacklock (unpublished data) reported a reduction in the Texas population to only 13 birds in 1968. Concern for the future of the species has been expressed by government agencies, in news articles, and in conservation magazines (Laycock, 1974). The Brown Pelican was placed on the Endangered Species List of the U. S. Department of the Interior in May 1974. An important portion of the North American Brown Pelican population nests in Florida, where we conducted annual surveys of this breeding population between 1968 and 1976. Results of this survey are reported here.

## METHODS

Aerial inventories of nesting colonies were made from a single-engine airplane flown at an average airspeed of 190 km/hr and at altitudes ranging from 60 to 120 m. Speed and altitude were reduced to about 120 km/hr at 45 m when circling nesting colonies. We used U. S. Dept. of Commerce NOAA nautical charts to maintain orientation and to plot locations of new colonies.

Ownership of colony sites was obtained from various county, state, and federal agencies. If discrepancies occurred between reporting agencies, an effort was made to obtain the most recent, reliable assessment of ownership.

## RESULTS AND DISCUSSION

The nesting survey conducted from 1968 through 1970 (Williams and Martin, 1968, 1970) indicated a relatively stable nesting population ranging between 12,200 and 15,380 Brown Pelicans. Data collected during the present survey (1971 to 1976) from 33 colonies (Fig. 1) further substantiates population stability (Table 1) with an estimated nesting population ranging from 10,982 to 15,980 pelicans. Some variation in nest estimates is no doubt the result of observer error as well as variation in date of survey. A survey date of mid-April to early May seems preferable, although this is too late to inventory accurately the Florida Bay—Monroe

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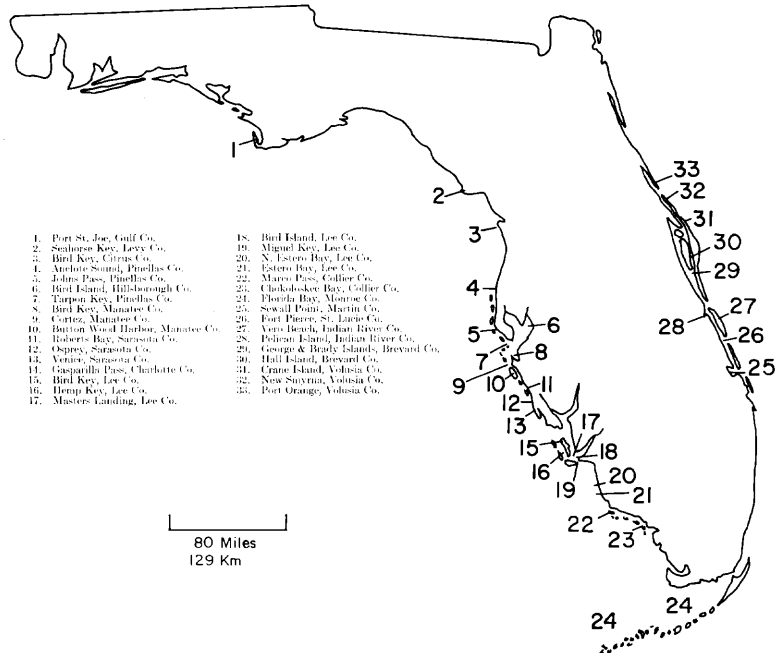


FIGURE 1. Location of Brown Pelican nesting sites in Florida since 1968.

County populations. That area should be censused in February or March.

Six Atlantic Coast colonies (Table 2) were occupied continuously since the initiation of the aerial inventories in 1968. Nine Gulf Coast colonies (Table 2) were active each year from 1968 through 1976. Fifteen colonies on the west coast were initiated, abandoned, and/or used intermittently during the survey period (1968-1975). Three colonies on the Atlantic coast were initiated during the present survey.

The colony near the town of Osprey (Sarasota County) was initiated in 1972 on an island on the east side of the intracoastal waterway. On 24 April 1973, this colony was located on two islands on the west side of the intracoastal waterway. Similarly, a colony developed on two small islands situated at the southern end of Pine Island Sound (Lee County): on Miguel Key in 1969, and in 1973 on Bird Island, 1.7 m north. These two colonies were probably composed of birds from nearby colonies. A colony developed in the north end of Estero Bay in 1972 and its use by pelicans has increased each year since.

Other new colonies established on the Gulf Coast during the survey period (1971-1976) were at Marco Pass, Bird Island (Lee County), Gasparella Pass, Johns Pass, and Port St. Joe (Fig. 1). The Port St. Joe colony is of special interest because it was located

TABLE 1.  
Estimated numbers of brown pelican nests in Florida.

Colony Name and County	Average size of active colony 1968-1970 <sup>1</sup>	1971 (19-21 April)	1972 (26-28 April)	1973 (23-25 April)	1974 (12-13 June)	1975 (20-21 May)	1976 (13-14 May)	Average size of active colonies 1968-1976
Gulf Coast Colonies								
Port St. Joe, Gulf Co.	0	13	0 <sup>2</sup>	0	0	0	1 <sup>2</sup>	13
Seahorse Key, Levy Co.	320	200	600	375	450	580	360	412
Bird Key, Citrus Co.	58	160	70	50	42	0	34	69
Anclote Sound, Pinellas Co.	83	15	15	0	0	0	0	33
Johns Pass, Pinellas Co.	0	30	75	75	150	125	20	79
Tarpon Key, Pinellas Co.	1,067	425	600	245	300	350	375	466
Bird Island, Hillsborough Co.	283	225	250	225	50	245	320	228
Bird Key, Manatee Co.	380	90	275	200	300	200	80	218
Cortez, Manatee Co.	405	500	700	600	450	475	420	514
Buttonwood Harbor, Manatee Co.	165	0	0	0	0	0	0	165
Roberts Bay, Sarasota Co.	0	160	95	125	275	0	0	164
Osprey, Sarasota Co.	0	0	30	90	6	0	12	35
Venice, Sarasota Co.	28	80	120	125	150	0	0	101
Gasparrilla Pass, Charlotte Co.	0	0	0	0	0	30	30	30
Bird Key, Lee Co.	967	520	1,300	940	1,200	1,150	1,200	1,040
Hemp Key, Lee Co.	467	375	500	400	350	125	380	371
Masters Landing, Lee Co.	78	60	85	75	0	18	30	58
Bird Island, Lee Co.	0	0	0	453	0	0	0	45

Miguel Key, Lee Co.	200	0	0	0	0	0	0	0	0	0	200
N. Estero Bay, Lee Co.	0	0	20	145	150	140	230	0	0	0	137
Estero Bay, Lee Co.	75	65	120	40	0	85	0	77	0	0	77
Marco Pass, Collier Co.	0	75	225	125	350	240	200	203	0	0	203
Chokolskee Bay, Collier Co.	98	110	100	140	230	130	120	133	0	0	133
Florida Bay, Monroe Co. <sup>4</sup>	802	660	485	355	112	132	110	379	0	0	379
Atlantic Coast Colonies											
Sewalls Point, Martin Co.	0	0	0	0	50	125	140	105	0	0	105
Fort Pierce, St. Lucie Co.	100	350	350	260	200	200	70	219	0	0	219
Vero Beach, Indian River Co.	190	450	400	225	200	175	210	264	0	0	264
Pelican Island, Indian River Co.	433	60	275	325	325	125	200	249	0	0	249
George & Brady Islands, Brevard Co.	0	0	0	0	85	125	110	107	0	0	107
Hall Island, Brevard Co.	427	500	450	275	175	225	100	307	0	0	307
Crane Island, Volusia Co.	400	500	500	250	350	350	325	382	0	0	382
New Smyrna, Volusia Co.	0	0	0	0	0	0	35	35	0	0	35
Pt. Orange, Volusia Co.	385	300	350	250	350	400	350	341	0	0	341
Misc. other colonies	71										
Total Nests	6,920	5,923	7,990	6,010	6,090	5,950	5,491	6,339	0	0	6,339
Total Nesting Adults (nest x 2)	13,839	11,846	15,980	12,020	12,180	11,900	10,982	12,678	0	0	12,678

<sup>1</sup>Williams and Martin (1970).<sup>2</sup>Nesting initiated but destroyed.<sup>3</sup>Found prematurely abandoned when visited later.<sup>4</sup>Monroe Co. colonies are lumped due to their fluctuations from year to year and because the general survey date was often later than optimum for an accurate estimate of these colonies.

TABLE 2.  
Ownership of Florida Pelican colonies.

Colony	Years of activity	Ownership
Port St. Joe, Gulf Co.	1971-2, 1976	State Owned Sovereignty Land
Seahorse Key, Levy Co.	1968-1976	National Wildlife Refuge
Bird Key, Citrus Co.	1968-1976	State Owned Sovereignty Land
Anclote Sound, Pinellas Co.	1968-1972	State Owned Sovereignty Land
Johns Pass, Pinellas Co.	1971-1976	Private Ownership
Bird Island, Hillsborough Co.	1968-1976	Private Ownership
Tarpon Key, Pinellas Co.	1968-1976	National Wildlife Refuge
Bird Key, Manatee Co.	1968-1976	State Owned Sovereignty Land
Cortez, Manatee Co.	1968-1976	State Owned Sovereignty Land
Buttonwood Harbor, Manatee Co.	1968-1976	State Owned Sovereignty Land
Roberts Bay, Sarasota Co.	1968, 1970-74	State Owned Sovereignty Land
Osprey, Sarasota Co.	1972-74, 1976	State Owned Sovereignty Land
Venice, Sarasota Co.	1968-1974	State Owned Sovereignty Land
Gasparilla Pass, Charlotte Co.	1975-1976	West Coast Inland Navigation Dist.
Bird Key, Lee Co.	1968-1976	State Owned Sovereignty Land
Hemp Key, Lee Co.	1968-1976	Federal Public Land (Bur. Land Mgmt.)
Masters Landing, Lee Co.	1968-1973, 1975-1976	State Owned Aquatic Prairie
Bird Island, Lee Co.	1973	State Owned Sovereignty Land
Miguel Key, Lee Co.	1969	State Owned Sovereignty Land
N. Estero Bay, Lee Co.	1972-1976	State Owned Sovereignty Land
Estero Bay, Lee Co.	1968, 1970- 1973, 1975	State Owned Sovereignty Land
Marco Pass, Collier Co.	1971-1976	Unknown, no response
Chokoloskee Bay, Collier Co.	1968-1976	National Park
Florida Bay, Monroe Co.	1968-1976	National Wildlife Refuge & Private Ownership
Sewalls Point, Martin Co.	1974-1976	Private Ownership
Fort Pierce, St. Lucie Co.	1968-1976	State Owned Spoil Island
Vero Beach, Indian River Co.	1968-1976	State Owned Spoil Island
Pelican Island, Indian River Co.	1968-1976	National Wildlife Refuge
Georges Island, Brevard Co.	1974-1976	Brevard County
Hall Island, Brevard Co.	1968-1976	State Owned Sovereignty Land
Crane Island, Volusia Co.	1968-1976	National Wildlife Refuge
New Smyrna, Volusia Co.	1976	State Owned Spoil Island
Port Orange, Volusia Co.	1968-1976	State Owned Spoil Island

farther north and west than nesting had previously been recorded in Florida (Sprunt, 1954; Williams and Martin, 1969). During the period surveyed, a new Atlantic coast colony was initiated on a small island on the west side of Indian River near Sewall Point (Fig. 1). On 4 July 1974, the colony contained several young, but no more than 40 nests. The colony has enlarged during subsequent seasons. A second colony was established in 1974 on George and Brady islands in Brevard County (Fig. 1). This colony is approximately 9.2 km south of Hall Island where the white (*Laguncularia racemosa*) and black mangrove (*Avicennia germinans*) nesting substrate is disappearing. We believe this new colony is being formed from individuals displaced from the deteriorating Hall Island site. A third new Atlantic coast colony at New Smyrna contained approximately 35 pairs during 1976.

Schreiber (1976) found no interchange between pelicans hatched on Florida's Atlantic coast and those hatched on the Gulf coast and suggested the possibility of two distinct "sub-groups." Our nesting population estimates seem to point out a difference in site tenacity between east and west coast nesting pelicans. Variation was compared by looking at the ratio of the pooled, within sample variation and showed use of west coast nesting sites to be slightly more variable from year to year than east coast sites, but the difference in variation was not significant ( $P > 0.05$ ). Such variations in nesting effort are probably the expression of difference in the amount and quality of available habitat and human population pressure rather than any intrinsic difference between the two populations.

Security of colony sites is important to the continued stability of the Florida Brown Pelican population. Table 2 contains the most recent information on ownership of the nesting sites used by pelicans since 1968. The majority of the sites, 20 (60.6 percent) are in state ownership. Seven sites (21.2 percent) are in federal ownership, 5 (15.2 percent) of which are in National Wildlife Refuges, one (3.0 percent) is in a National Park and one is administered by the Bureau of Land Management. Three sites (9.1 percent) and part of two others (Florida Bay-Monroe Co.) are in private ownership. Two of these are small ( $< 50$  pairs) and are among the Florida Bay, Monroe Co. colonies. The other sites, Johns Pass, Bird Island (Hillsborough Co.) and Sewall Point contain much larger colonies. One additional colony (3.0 percent) is in county ownership and ownership of another (3.0 percent) was not determined.

Every effort should be made to secure public ownership of the privately owned colony sites. Those sites in state or county ownership should be dedicated in such a way as to insure their continued availability as pelican nesting sites.

#### SUMMARY

Thirty-three Brown Pelican nesting sites were inspected during annual surveys conducted in Florida between 1971 and 1976. The average nesting population was 12,484 pelicans which is comparable to the average population of 13,839 reported by Williams and

Martin (1970) for the 1968, 1969, and 1970 nesting seasons. These data suggest a stable population of pelicans which, when subadult and nonbreeding birds were taken into account, may reach 18,000 to 20,000 individuals.

Variations exist between birds nesting on the east and west coast. Such variations are probably the result of extrinsic rather than intrinsic differences between the two populations.

Ownership of pelican nesting sites rests primarily (60.6 percent) with the state. Private ownership accounts for 9.1 percent of the major nesting sites and 21.2 percent are in federal ownership. In addition, 9.0 percent are in miscellaneous or unknown ownership.

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*Wildlife Research Laboratory, Florida Game and Fresh Water Fish Commission, 4005 S. Main St., Gainesville, Fla. 32601. (Present address of M.J.F.: 1101 5th St., Rt. 5, Stuart, Fla. 33494.)* Received 13 October 1976, accepted 8 February 1977.