

## BREEDING STATUS AND DISTRIBUTION OF THE LEAST TERN IN THE FLORIDA KEYS

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**Abstract.**—The mainline Florida Keys were surveyed for nesting Least Terns (*Sterna antillarum*) between 1 June and 1 July 1987. The results of this and other recent surveys suggest that the breeding population is stable at about 700-900 pairs. Since 1973, all colonies reported for the mainline Keys have been on artificial substrates, primarily dredge-material sites and rooftops. Long-term protection of colony sites and public education are essential to the continued presence of nesting Least Terns in the Keys.

The Least Tern (*Sterna antillarum*) has been listed as a threatened species by the Florida Game and Fresh Water Fish Commission (FGFWFC) since 1975 (Florida Wildlife Code 16E-3, 1975). Although several factors have contributed to its decline, loss of natural nesting habitat due to development constitutes the major threat to the species in Florida (Fisk 1978a). Typically, Least Terns prefer to nest on open, flat beaches with sparse vegetation and a coarse substrate of sand or shell. The species is opportunistic, however, and in recent years has begun to nest on a variety of man-made habitats, including gravel rooftops (Fisk 1975; 1978b,c), dredge-material sites (Downing 1973), highway easements (Skoog 1982), and strip mines (Loftin 1973, Maehr 1982).

Excluding the Dry Tortugas (Robertson 1964), little was published about the nesting status of the Least Tern in the Florida Keys prior to the 1970s. Simpson (1920) recorded one Least Tern colony on Sandy Key, a small island approximately 13 km southwest of Key West. Other colonies reportedly occurred near Bahia Honda Key (Howell 1932), on Key Largo (Howell 1932), and on Lake Key in Florida Bay (Bent 1921).

In 1973, two surveys for nesting Least Terns were conducted along the mainline Florida Keys (i.e., the islands connected by U.S. Highway 1). During a 1-day survey in mid-May, Downing (1973) recorded 12 colonies, located on 9 keys, for an estimated total of 570 breeding pairs. Between mid-May and early June, R. T. Paul (unpubl. data) documented 24 colonies on 13 keys and estimated the breeding population at 918+ pairs. All colonies located during both surveys were on dredge-material sites associated with development activities.

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Table 1. Results of Least Tern nesting survey along the mainline Florida Keys, 1 June-1 July 1987.

Colony location	Latitude	Longitude	Date	Estimated no. of breeding pairs	Nesting substrate
Key Largo					
Snapper Point	25°19.5'	80°17.5'	1 June	7	Coral rock
Crocodyle Lake	25°17.0'	80°18.5'	1 June	2	Dredge material
Winn Dixie	25°09.5'	80°23.0'	1 June	200+	Rooftop
Dove Sound	25°01.5'	80°30.0'	1 June	4	Dredge material
Upper Matecumbe Key					
Indian Key Fill	24°53.5'	80°40.0'	1 June	?	Dredge material
Duck Key					
Hawk's Cay Resort	24°46.5'	80°54.5'	17 June	22	Rooftop
Key Colony Beach					
Sea Isle Condos	24°43.0'	81°01.5'	19 June	10	Rooftop
Key Vaca					
Casa Cayá Condos	24°42.5'	81°06.5'	1 June	75	Rooftop
Bahia Honda Key <sup>1</sup>					
Cabins	24°39.5'	81°16.5'	9 June	10	Dredge material
Cleared Area	24°39.5'	81°16.0'	9 June	1	Dredge material
West Summerland Key					
Spoil Area	24°39.5'	81°18.0'	1 June	8	Dredge material
Big Pine Key					
Eden Pines Colony	24°41.0'	81°23.0'	1 June	20	Dredge material
Egret Lane	24°41.5'	81°21.5'	22 June	1	Dredge material
Big Torch Key					
Dorns Subdivision	24°41.5'	81°25.5'	1 June	1	Dredge material
Bluefish Canal	24°42.5'	81°26.0'	9 June	1	Dredge material
Ramrod Key					
Indies Drive	24°39.0'	81°24.5'	1 June	2	Dredge material
Cudjoe Key					
Tarmac Mine	24°40.5'	81°30.0'	1 June	50	Dredge material

Sugarloaf Key											
Park Channel Bridge	24°39.0'	81°32.5'	1 June	2	Dredge material						
Orchid Park	24°37.5'	81°32.5'	18 June	4	Dredge material						
Cypress Road	24°38.5'	81°34.5'	1 July	8	Dredge material						
Harris Channel Bridge	24°38.0'	81°35.0'	1 June	14	Dredge material						
Shark Key	24°36.5'	81°39.0'	22 June	37	Dredge material						
Rockland Key											
Tarmac Mine	24°35.5'	81°41.0'	1 June	9	Dredge material						
Boca Chica Key <sup>2</sup>											
NW-SE Runway	24°34.0'	81°40.5'	9 June	2	Dredge material						
E-W Runway	24°35.0'	81°40.0'	9 June	10	Dredge material						
Bldg. A931	24°35.0'	81°42.0'	9 June	26	Dredge material						
Key West											
Golf Course	24°34.5'	81°44.0'	9 June	3	Dredge material						
Searstown	24°34.0'	81°45.5'	16 June	55	Roof top						
Lopez Liquors	24°34.0'	81°46.0'	17 June	20	Roof top						
Pantry Pride	24°34.0'	81°46.0'	16 June	20	Roof top						
First Federal Bank	24°34.0'	81°46.0'	16 June	?8	Roof top						
H. O'Bryant School	24°33.5'	81°47.0'	17 June	50	Roof top						
G. Archer School	24°33.0'	81°47.0'	16 June	?3	Roof top						
High School	24°33.0'	81°46.5'	17 June	?8	Roof top						
Fish House	24°33.5'	81°48.0'	16 June	6	Roof top						
Naval Commissary	24°33.0'	81°48.0'	16 June	9	Roof top						
Truman Annex <sup>4</sup>	24°33.0'	81°48.5'	17&22 June	?8	Roof top						
Total				689 +							

<sup>1</sup>All colonies on Bahia Honda Key were within Bahia Honda State Recreation Area.

<sup>2</sup>All colonies on Boca Chica Key were within the Boca Chica Naval Air Station.

<sup>3</sup>Colony was censused too late in the season to estimate the number of breeding pairs.

<sup>4</sup>Includes at least 14 buildings within the Key West Naval Air Station. Several of these buildings are now owned by the Truman Annex Company.

The mainline Keys were surveyed again for nesting Least Terns in 1976 (Kushlan and White 1985). This survey, conducted between mid-May and early July, yielded 29 colonies on 18 keys and an estimated breeding population of 770+ pairs. As before, all colonies were on dredge-material sites.

In 1987, the Nongame Wildlife Program of the FGFWFC resurveyed the mainline Florida Keys for nesting Least Terns. The primary objectives of this survey were to update the breeding status and distribution of the Least Tern along the mainline Keys, and to document the types of nesting substrates being used by the birds.

#### METHODS

The survey was conducted between 1 June and 1 July 1987 by driving all major roads and trails along the mainline Florida Keys from Key Largo to Key West. The geographic location, type of nesting substrate, and estimated number of breeding pairs were recorded for each Least Tern colony found. To minimize disturbance, most colonies were surveyed from the periphery either on foot or from a motorized vehicle.

#### RESULTS AND DISCUSSION

During our survey we found 37 Least Tern colonies on 16 keys (Table 1). Twenty-two (59%) of these colonies were on dredge-material sites and 14 (38%) were on building rooftops. The remaining colony was on a group of coral boulders that had been placed in a man-made lake as part of a residential development project (A. Sprunt IV, pers. comm.). Based on these findings, we estimated the Least Tern population at 689+ breeding pairs (Table 1). This figure is comparable to previous estimates (R. T. Paul, unpubl. data; Kushlan and White 1985) and suggests that the Least Tern breeding population along the mainline Keys has remained relatively stable during the past 10-15 years.

Historically, the Least Tern probably was not an abundant nester in the Florida Keys. Most likely, small colonies were scattered throughout the archipelago wherever a suitable patch of nesting habitat could be found (A. Sprunt IV, pers. comm.). The Least Tern breeding population apparently did not increase until man began to develop the Keys in earnest. The creation of numerous dredge-material sites and the construction of large, commercial buildings with gravel rooftops provided an abundance of nesting habitat that had not existed previously.

The use of artificial nesting sites by Least Terns in the Keys presents an interesting situation. As long as development continues, some nesting habitat will be created by landfilling. However, most dredge-material sites do not constitute stable nesting habitat because they are temporary and subject to high levels of human disturbance (Fisk 1978a). Rooftops

may provide a more permanent form of nesting habitat, but many roofs flood or are otherwise hazardous to flightless young (Fisk 1978b). Given that Least Terns tend to use the same colony sites from year to year (Burger 1984, Atwood and Massey 1988), it is important to ensure that safe, suitable nesting sites are available on a long-term basis.

Kushlan and White (1985) suggested that permanent nesting sites for Least Terns be constructed and maintained on publicly owned lands in the Keys. Although no sites have been created specifically for this purpose, both state and federal land-management agencies have taken steps to protect existing Least Tern colonies on their properties (i.e., Bahia Honda State Recreation Area and Crocodile Lake National Wildlife Refuge). Clearly, the concept of creating nesting habitat on public lands has not been aggressively pursued, and we support Kushlan and White's earlier recommendation that it be considered as a management option in the Keys. Furthermore, we believe that permanent nesting sites could be created or maintained on private lands in the Keys through the regulatory process. For example, if Least Terns were known to nest on a proposed development site, then the environmental permitting agencies reviewing the project could require the applicant to create and/or maintain Least Tern nesting habitat as mitigation. With the cooperation of the landowner, these nesting areas could be designated as Critical Wildlife Areas by the FGFWFC (Florida Administrative Code 39-19.005, 1988) and thereby closed to pedestrians and vehicles during the breeding season (April-August). Ideally, nesting sites created specifically for Least Terns should be located on offshore islands in order to discourage human disturbance and protect the area from mammalian predators (Burger 1984).

The management of rooftop colonies is primarily an educational task. Many building owners are unaware that Least Terns are nesting on their roofs, and when alerted to the situation they often want to protect the colony. Typically, this involves little more than limiting access to the rooftop during the nesting season. Other steps that can be taken to improve the nesting success of rooftop colonies include providing shade, preventing flooding, and erecting a boundary fence to keep flightless young from falling over the edge (O'Meara and Gore 1988).

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