

**BANDED ROYAL TERNS RECOVERED AT KEY BISCAIYNE, FLORIDA**

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In Florida, Royal Terns (*Sterna maxima*) occur along both the Gulf and Atlantic coasts year-round (Egensteiner et al. 1996). In winter, the local population is augmented by terns migrating from breeding colonies farther north (Van Velzen 1968, Van Velzen 1971, Clapp et al. 1983, Robertson and Woolfenden 1992, Smith et al. 1994, Bard et al. 2002a). Florida recoveries of banded migrants from Virginia (Van Velzen 1968, Smith et al. 1994, Bard et al. 2002a,b) and the Carolinas (Van Velzen 1971, Smith et al. 1994, Bard et al. 2002a,b) have been reported previously. In this note, we report data obtained from six banded Royal Terns recovered by state park staff on Key Biscayne from 1996 through 2001.

Key Biscayne is a barrier island located 5 km south of Miami Beach, along the southeastern coast of Florida. At its north end, it is linked to the island of Virginia Key by Bear Cut Bridge. The northern portion of Key Biscayne is occupied by Miami-Dade County's Crandon Park, the southern end of the island is home to Bill Baggs Cape Florida State Park, and the village of Key Biscayne occupies the land between. From March 1996 through May 2001, dead Royal Terns were opportunistically recovered by state park staff from 3 km of beach bordering the east side of the state park and village. One additional bird was recovered injured from a fishhook in December 2001; this bird was transferred to a licensed rehabilitation facility.

All six of the recovered Royal Terns had been banded while chicks at northern breeding colonies (Table 1). Three of the five dead birds were approximately in the 0.5 yr age class when recovered. Another was aged 6 yr 9 mo, and the oldest was 13 yr 9 mo. Smith et al. (1994) reviewed 41 Royal Tern band recoveries from 1979 to 1992 at Sebastian In-

**Table 1. Banding locations of recovered Royal Terns.**

Band number	Approximate banding location*	Date banded	Date recovered	Age at recovery
0684-01190	18 km S of Wanchese, NC	06/20/1982	03/24/1996	13 yr 9 mo
0784-44062	Lola, NC	06/26/1989	03/24/1996	6 yr 9 mo
0714-16205	18 km S of Wanchese, NC	06/28/1995	03/24/1996	0 yr 9 mo
1704-58378	Kiptopeke, VA	06/27/1996	11/02/1996	0 yr 4 mo
0814-33856	Portsmouth Island, NC	08/08/2000	05/15/2001	0 yr 9 mo
0814-46657	18 km S of Wanchese, NC**	07/02/2001	12/26/2001	0 yr 5 mo

\*Locations obtained from individual USFWS recovery certificates.

\*\*Injured bird; data obtained from bander.

let, Melbourne Beach, Florida, and reported an age range of 5 mo to 3 yr 10 mo. The age of birds recovered ( $n = 23$ ) during a subset period of more intensive surveys (1989 to 1992) ranged from approximately 5 mo to 1 yr 6 mo, with a majority of approximately 0.5 yr ( $n = 11$ ) and 1.5 yr ( $n = 7$ ) age-class birds (Smith et al. 1994). Bard et al. (2002a) reviewed 41 additional band recoveries from 1993 to 2001 at the same Sebastian Inlet site and reported an age range of 5 mo to approximately 12 yr 7 mo, with 34 (82.9%) of these Royal Terns aged approximately 5 mo to 8 mo (0.5 yr). Likewise, all of the recoveries in Florida that Van Velzen (1968) obtained from Royal Terns banded in Virginia were less than one year old; and, most of the 21 Royal Terns banded in South Carolina (Van Velzen 1971) also were recovered in the first fall/winter after being banded. Our data show very similar age-class structure to these previous studies. However, our oldest bird (13 yr 9 mo) exceeded previous Florida reports by 1 yr 2 mo.

Three of our recoveries were of birds banded at a breeding colony near Wanchese, North Carolina, and one each at colonies near Lola and near Portsmouth Island, North Carolina. One tern was banded near Kiptopeke, Virginia. These results differ somewhat from the 23-year findings of the Sebastian Inlet study where recoveries for the aforementioned colonies ranked as follows: Wanchese 9.8%, Lola 9.8%, Portsmouth Island 7.3%, and Kiptopeke 7.3% (Smith et al. 1994, Bard et al. 2002a). However, our sample size is too small to suggest any true differentiation.

Three of our recoveries occurred on 24 March 1996 and represented all age classes we report. Due to the condition of these birds (broken wing, head/neck injuries), it appears that they died from a vehicle collision or subsequent drowning. We conjecture that perhaps they died at the Bear Cut Bridge (see Smith et al. 1994, Bard et al. 2002b) and were swept out and down-shore to their recovery sites. We also had one recovery each in the months of November, December, and May. Recoveries at Sebastian Inlet most often occurred in winter, December through February (Smith et al. 1994, Bard et al. 2002a).

Royal Terns occur around Key Biscayne year-round (R. Diaz, in litt.), though there are no known breeding colonies closer than the central Florida coast (Egensteiner et al. 1996). In winter, their numbers increase significantly. From the data presented here, it appears that the area around Key Biscayne is a wintering location for some Royal Terns migrating south from the Carolinas and Virginia, as are the areas around Ft. Pierce Inlet (H. Smith, unpubl. data), and Sebastian Inlet (Smith et al. 1994, Bard et al. 2002a,b).

Most wintering Royal Terns at Key Biscayne are seen loafing on Crandon Park's beach and on two docks adjacent to Bear Cut Bridge. They frequently are seen foraging in the waters around the bridge. Buckley and Buckley (1972:344) reported that Royal Tern breeding colonies in Virginia and North Carolina were consistently located "at or very near an inlet between bay and ocean." Smith et al. (1994) speculated a similar attraction for inlets in wintering Royal Terns at Sebastian Inlet in Melbourne Beach, Florida. Likewise, the Bear Cut inlet may influence Royal Terns to winter at Key Biscayne.

ACKNOWLEDGMENTS.—We thank J. A. Jackson, B. Jackson, and an anonymous reviewer for helpful comments on an earlier draft of the manuscript.

#### LITERATURE CITED

- BARD, A. M., H. T. SMITH, T. V. HARBER, G. W. STEWART, J. S. WESKE, M. M. BROWNE, AND S. T. EMSLIE. 2002a. Road-killed Royal Terns (*Sterna maxima*) recovered at Sebastian Inlet State Park, Florida, USA: A 23-year analysis of banding data. Pages 386-389 in 2001 Proceedings of the International Conference on Wildlife Ecology and Transportation, September 24-28, 2001. Keystone, CO.
- BARD, A. M., H. T. SMITH, E. D. EGENSTEINER, R. MULHOLLAND, T. V. HARBER, G. W. STEWART, W. J. B. MILLER, AND J. S. WESKE. 2002b. A simple structural method to reduce road-kills of Royal Terns at bridge sites. *Wildlife Society Bulletin* 30:603-605.

- BUCKLEY, F. G., AND P. A. BUCKLEY. 1972. The breeding ecology of Royal Terns *Sterna (Thalasseus) maxima maxima*. *Ibis* 114:344-359.
- CLAPP, R. B., D. MORGAN-JACOBS, AND R. C. BANKS. 1983. Marine birds of the southeastern United States and Gulf of Mexico. Part III: Charadriiformes. U.S. Fish Wildl. Serv., Div. Biol. Serv., FWS/OBS-83/30, Washington, D.C.
- EGENSTEINER, E. D., H. T. SMITH, AND J. A. RODGERS, JR. 1996. Royal Tern. Pages 532-540 in *Rare and Endangered Biota of Florida*. Vol.V: Birds (J. A. Rodgers, Jr., H. W. Kale, II, and H. T. Smith, eds.). University Press of Florida, Gainesville.
- ROBERTSON, W. B., JR., AND G. E. WOOLFENDEN. 1992. Florida bird species—an annotated list. Florida Ornithological Society Special Publication No. 6, Gainesville.
- SMITH, H. T., W. J. B. MILLER, R. E. ROBERTS, C. V. TAMBORSKI, W. W. TIMMERMAN, AND J. S. WESKE. 1994. Banded Royal Terns recovered at Sebastian Inlet, Florida. *Florida Field Naturalist* 22:81-83.
- VAN VELZEN, W. T. 1968. The status and dispersal of Virginia Royal Terns. *Raven* 39:55-60.
- VAN VELZEN, W. T. 1971. Recoveries of Royal Terns banded in the Carolinas. *Chat* 35:64-66.