

Following the hardening of the batter and removal of the casting from the mold, the unpainted decoy may be sanded, carved, or otherwise shaped as necessary. The decoy is then hand painted to the general appearance of an adult tern. Excessive detail is apparently unnecessary, as well as inefficient to achieve. However, the minimum level of detail is unknown. Flat finish acrylic artist's paints are suggested. A final coating of a clear, flat finish sealer offers additional protection from weathering.

In 1982, the cost of materials came to less than \$.50 per decoy. This technique is also appropriate for the manufacture of decoys for larger birds, but at higher cost due to the larger rubber mold and greater casting volume necessary.—JACK M. FANCHER, *Fish and Wildlife Service, 24000 Avila Rd., Laguna Niguel, California 92677*. Received 4 Apr. 1983; accepted 24 Jan. 1984.

Cayenne × Sandwich Terns Nesting in Virgin Islands, Greater Antilles.—Recent sightings of Cayenne Terns (*Sterna sandvicensis eurygnatha*) on the Puerto Rico Bank (Heilbrun et al. 1981; Norton 1981, 1982, 1983) stimulated speculation on attempted breeding with Sandwich Terns (*S. s. acuftavida*) which nest locally from Culebra, Puerto Rico, to Anegada, British Virgin Islands (Fig. 1). The two forms are nearly identical in appearance except the Cayenne Tern typically has a straw-yellow bill and the Sandwich Tern has a black bill tipped with yellow.

Sandwich Terns have been expanding their range southeasterly through the Caribbean (Table 1) since the 1960's, albeit unnoticed until the 1970's. The Cayenne's range

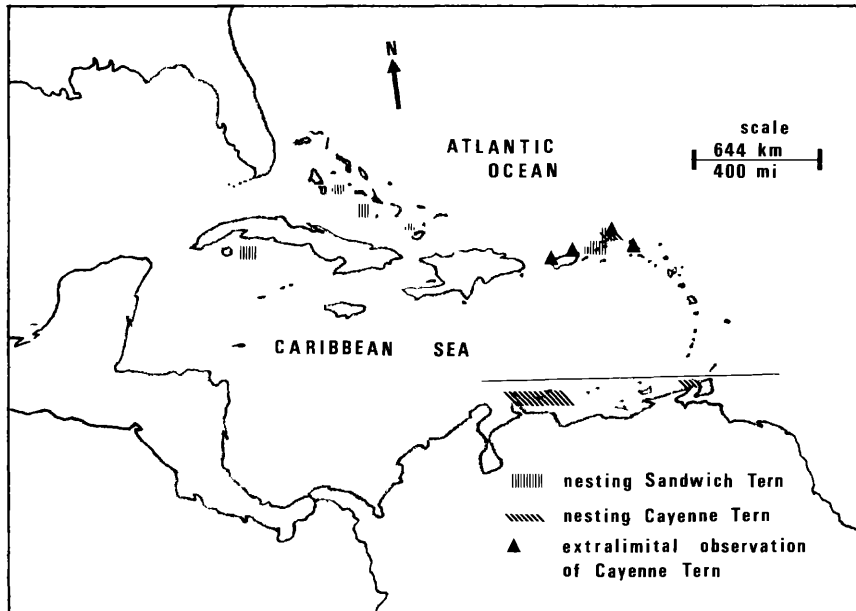


FIGURE 1. Map of the Bahamas and the Caribbean Basin showing normal breeding ranges of Sandwich Terns (above line), Cayenne Terns (below line), and extra-limital sites of breeding and non-breeding Cayenne Terns in the area of the Virgin Islands, Greater Antilles.

TABLE 1. Breeding sites and population status of Sandwich Terns in the Bahamas and Greater Antilles and extra-limital reports of Cayenne Terns in the Greater and northern Lesser Antilles.

| Islands | Dates | Numbers | | Source |
|-------------------------|------------------|----------------------------|---------------------------|----------------------------|
| | | <i>S.s.a.</i> ^a | <i>S.s.e</i> ^b | |
| Bahamas: | | | | |
| Green Cay | N/A ^c | N/A | | Bond 1971 |
| Hogsty Reef | May 1962 | N/A | | Bond 1971 |
| Ragged Island | N/A | N/A | | Bond 1971 |
| Cuba: | | | | |
| Los Canarreos | 24 May 1965 | N/A | | Montana and Garrido 1965 |
| Puerto Rico: | | | | |
| Mayaguez | 8 April 1962 | | 1 | Bond 1969 |
| San Juan | 26 January 1969 | | 1 | Buckley and Buckley 1970 |
| San Juan | 12 December 1980 | | 2 | Heilbrun et al. 1981 |
| Culebra | 1 June 1971 | 1470 | | Kepler and Kepler 1978 |
| Culebra | ca. 12 June 1981 | 840 | | Sean Furniss pers. observ. |
| Culebra | 10 June 1982 | 278 | | Sean Furniss pers. observ. |
| Culebra | 18 June 1983 | 712 | | Sean Furniss pers. observ. |
| U.S. Virgin Islands: | | | | |
| Flat Cay | 28 May 1978 | 56 | | Dick Dewey pers. observ. |
| Pelican Cay | 2 June 1978 | 684 | | Ken Turbe pers. observ. |
| Cricket Cay | 11 July 1980 | 32 | | Norton pers. observ. |
| Pelican Cay | 16, 30 June 1982 | 880 | 5np ^c | Norton 1982 |
| Pelican Cay | 27 May 1983 | 662 | 13n | Norton 1983 |
| British Virgin Islands: | | | | |
| Anegada | ca. 20 June 1976 | 75 | | Mirecki et al. 1976 |
| Anegada | 23 August 1980 | 54 | 1 | Norton 1981 |
| Anegada | 12 June 1982 | 130 | 1 | Norton 1982 |
| Anegada | 18 June 1983 | 76 | 3n | Norton 1982 |
| St. Martin, Neth. Ant. | 13 April 1973 | | 1 | Voous 1983 |
| St. Martin | February 1974 | | 1 | Voous 1983 |
| St. Martin | 19 April 1981 | | 1 | Voous 1983 |

^a *Sterna s. acutiflvida*.^b *S. s. eurygnatha*.^c N/A = not available; p = photograph; n = nesting.

is described as Aruba, Netherlands Antilles, to Trinidad in the southeastern Caribbean and the Atlantic coast of South America to Argentina (French 1976).

Observations of Cayenne Terns on the eastern archipelago of the Puerto Rico Bank refer to single birds until late 1980 and then to multiples at breeding stations since 1982 (Table 1). Among the 440 pairs of *S. sandvicensis* at Pelican Cay on 30 June 1982 were 5 individuals (<1% of the colony) with varying amounts of yellow in their otherwise black bills. On 27 May 1983 again at Pelican Cay, the number of intermediate types increased to 13 (<2%) in a group of 331 pairs. Three intermediate types (<4%) were found at Anegada among 41 pairs of *S. sandvicensis* on 19 June 1983. Voous (1983) reports the proportions of each type at Aruba, Curacao, and Bonaire to be 5–25% black-billed, 40–80% yellow-billed, and 10–35% intermediate-colored bills. Kepler and Kepler (1978) did not observe *S. s. eurygnatha* at Culebra in June 1971, though specifically searched for them among the 735 pairs of nesting *S. s. acuflavida*. Recent studies at Culebra have yet to uncover the presence of *S. s. eurygnatha* (Sean Furniss, pers. comm.). The reported small percentage of intermediate types and recent nesting at different colonies suggests that the invasion of Cayenne Terns to the Greater Antilles through the eastern terminus of the Puerto Rico Bank probably occurred in the late 1970's though was not confirmed until 1982. The apparent total population of *S. sandvicensis* discovered on the Bank in 1971 was no more than 735 pairs. The current dispersed and local populations of the Bank in 1983 total about the same (Table 1).

The winter range of *S. s. acuflavida* overlaps the breeding range of *S. s. eurygnatha* on the coasts of South America where social bonds may be formed in early spring, influencing extra-limital movements and recruitment of young breeding-age birds seeking nesting habitat. Long-distance recruitment of Sooty Terns (*S. fuscata fuscata*) in the Caribbean-Gulf Basin has been discussed (Robertson et al. 1982). This strategy may account for the occurrence of breeding *S. s. eurygnatha* in the Greater Antilles some 940 km north of their original range.

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Food Brought by Broad-winged Hawks to a Wisconsin Nest.—Published studies which provide detailed accounts of prey of nesting Broad-winged Hawks (*Buteo platypterus*) in North America are from Alberta, Canada (Rusch and Doerr 1972), Kansas (Fitch 1974), and New York (Mosher and Matray 1974). Here we present food habits of Broad-winged Hawks at a nest (2 young) observed from 18 June through 7 July 1981 in Lincoln County, Wisconsin.

Observations totalling 200 h were made from a tree blind placed 7.5 m from the

TABLE 1. Food habits of Broad-winged Hawks at a nest in Lincoln County, Wisconsin.^a

| Prey species | n | % frequency | % biomass |
|---|----|----------------|-----------------|
| Mammals | | | |
| Eastern Chipmunk (<i>Tamias striatus</i>) | 12 | 11.2 | 36.7 |
| Short-tailed Shrew (<i>Blarina brevicauda</i>) | 7 | 6.5 | 3.9 |
| Southern Red-backed Vole (<i>Clethrionomys gapperi</i>) | 6 | 5.6 | 3.6 |
| Unidentified vole (<i>Microtus</i> spp.) | 4 | 3.7 | 2.8 |
| Star-nosed Mole (<i>Condylura cristata</i>) | 3 | 2.8 | 4.4 |
| Unidentified flying squirrel (<i>Glaucomys</i> spp.) | 1 | 0.9 | 4.9 |
| Water Shrew (<i>Sorex palustris</i>) | 1 | 0.9 | tr ^b |
| Unidentified shrew, mouse, or vole | 9 | 8.4 | 6.2 |
| Total mammals | 43 | 40.2 | 62.5 |
| Birds | | | |
| Northern Flicker (<i>Colaptes auratus</i>) | 2 | 1.9 | 5.2 |
| Ruffed Grouse (<i>Bonasa umbellus</i>) | 1 | 0.9 | 6.6 |
| Nashville Warbler (<i>Vermivora ruficapilla</i>) | 1 | 0.9 | tr |
| Blue Jay (<i>Cyanocitta cristata</i>) | 1 | 0.9 | 1.6 |
| Yellow-billed Cuckoo (<i>Coccyzus americanus</i>) | 1 | 0.9 | 0.9 |
| Ovenbird (<i>Seiurus aurocapillus</i>) | 1 | 0.9 | tr |
| Unidentified small birds | 23 | 21.5 | 7.2 |
| Total birds | 30 | 28.0 | 21.5 |
| Amphibians | | | |
| Eastern American Toad (<i>Bufo americanus</i>) | 16 | 14.9 | 9.3 |
| Wood Frog (<i>Rana sylvatica</i>) | 7 | 6.5 | 1.2 |
| Unidentified toad or frog | 3 | 2.8 | 1.2 |
| Total amphibians | 26 | 24.2 | 12.7 |
| Reptiles | | | |
| Eastern Garter Snake (<i>Thamnophis sirtalis</i>) | 5 | 4.7 | 1.6 |
| Northern Ringneck Snake (<i>Diadophis punctatus</i>) | 2 | 1.9 | 0.6 |
| Smooth Green Snake (<i>Opheodrys vernalis</i>) | 1 | 0.9 | tr |
| Total reptiles | 8 | 7.5 | 2.2 |

^a Sample size of 107 prey items.

^b tr = trace; 0.5% or less.