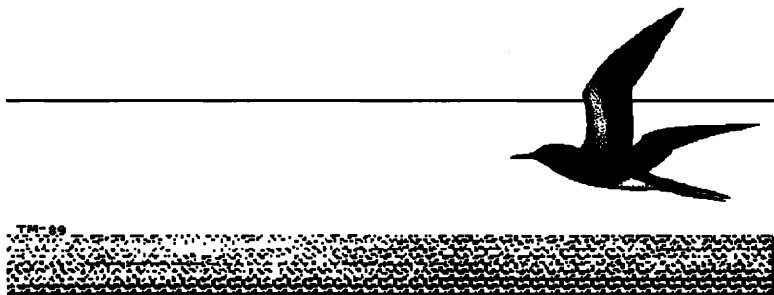


The following article is the sixth in a series on California rarities edited by Morlan and Roberson. It is based on materials submitted to the California Bird Records Committee (CBRC). The description and circumstances were drawn from the account of the observer and have been reviewed by him. Roberson prepared the distributional summary; Morlan prepared the identification summary. In this way we hope much important information accumulated in CBRC files will become widely available.



Sooty Tern

Sketch by Tim Manolis

FIRST RECORD OF THE SOOTY TERN IN CALIFORNIA

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At about 1500 on Monday, 27 September 1982, Webster was birding at the San Diego River mouth, San Diego County, California. He was standing on the south side of the flood control channel, viewing the flats through a 15-25× spotting scope, when he noted an unusual tern about 50 yards away. It flew with steady, rowing wingbeats, rising and falling a bit on every stroke, as it headed into the stiff breeze coming off the ocean. After a rainy morning, the sun was out, though winds were still gusting to 20 miles per hour. The lighting was excellent as the bird passed, flying west, but became less so as the tern continued down the channel and out over the ocean. Webster recognized it as an immature-plumaged Sooty Tern *Sterna fuscata*. He wrote the following description (slightly edited to produce full sentences):

The bird was a medium-sized tern, appearing larger than a Forster's Tern *S. forsteri* and a little bit smaller than an Elegant Tern *S. elegans*, although there were no other terns in same field of view (though five other species of terns were seen immediately before and after the sighting). The wings were slim and sharply angled but did not appear especially long. The overall color was a dark blackish brown, apparently more brown than blackish, although it seemed to be close to an even mix. The color appeared to be uniform, with the exception of a most noticeable white area on the vent and undertail covert region. The white was clear, and while not sharply demarcated from the rest of the underparts, merged rapidly into the dark of the belly and

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breast, giving the bird a pattern not unlike that of a breeding-plumaged Black Tern *Chlidonias niger*. The flight feathers were dark and contrasted with some pale whitish on the underwing coverts. There was no such contrast on the upper surface of the wing. The upperparts appeared darker than the dusky portions of the underparts. There was faint buff spotting on the upperwing coverts and on the back; I looked for this character in the field and it was not very prominent (e.g., young Heermann's Gulls *Larus heermanni* show much more conspicuous spotting on this date). The tail was fairly long and gave the impression of being deeply notched. The bill was long, slender, and dark.

I have no prior experience with this plumage of Sooty Tern and have only seen a few adults of this species before. I had a mental image of the field guide pictures and was expecting a dark bird with upperpart edgings. I was surprised by the white undertail covert area.

The record was unanimously accepted by the California Bird Records Committee (CBRC) after two circulations (Morlan 1985). It constitutes the first record for California.

When the CBRC evaluated this record, the available literature on the Sooty Tern's plumage sequences was deficient or misleading, prompting concern among Committee members over the plumage as described. One source (Harrison 1983) incorrectly pictured juvenal birds with white outer tail feathers, though showing the white crissum and underwing coverts described. Other sources (e.g., Alexander 1928, Ridgway 1919) failed to describe the whitish underwing coverts and the extent of white undertail coverts, though Witherby et al. (1944) did. Available photos (e.g., Farrand 1983) of juvenal birds showed white spots or barring on the back much more extensive than Webster described. However, wear reduces the spotting significantly (Oberholser 1974), and in the end the CBRC members considered Webster's description acceptable. Since the review, photos that show the extent of white on the underparts and underwings well have been published (e.g., Harrison 1987), confirming the analysis of the Committee. A previously unpublished photo of this plumage appears as Figure 1; this bird also lacked any spotting or barring on the upperparts (Roberson pers. obs.).

Beyond the identification itself, the Committee discussed the propriety of accepting a first state record based on a rather brief sighting by a single observer. Perhaps it is this point that prompted Phillips (1986) and Unitt (1984) to doubt the record. However, the Committee considered this issue along with all other facts and, on this rare occasion, accepted such a record (see Trochet et al. 1988 for another example and fuller discussion of this topic).

One relevant factor was the recent passage of tropical depression Olivia, which had passed over the Sooty Tern's pelagic range as a hurricane on its way north. During mid-September 1982, Hurricane Olivia developed in the tropical eastern Pacific Ocean and began moving north off the western coast of Mexico. By Tuesday, 21 September 1982, it was churning due south of Baja California, with sustained winds of 140 miles per hour. By mid-day on Wednesday, it was heading northwest but losing intensity. On Thursday it was downgraded to a tropical depression, whirling 700 miles south of Los Angeles. By mid-day on Saturday, 25 September, Olivia was about 240 miles southwest of southern California and heading towards the coast. It was largely dissipated as it moved over land on Sunday, 26 September, bringing

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showers and gusty winds (all per satellite photos and weather notes in the *Los Angeles Times*; see Figure 2). Webster and most Committee members attributed the bird's presence to the storm.

DISTRIBUTIONAL SUMMARY

The Sooty Tern has a wide distribution in the tropics, nesting on islands in all tropical oceans. Its nesting cycle encompasses the entire year, with different colonies nesting in different seasons according to latitude and local conditions (Murphy 1936). In the eastern Pacific, the Sooty Tern nests in Hawaii and on islands off western Mexico, including Clipperton, the Tres Marias, and the Revillagigedos (A.O.U. 1983; see Figure 2). Recently a colony of about 250 birds was found nesting on the Alijos Rocks, some 160 miles west of southwestern Baja California ($24^{\circ}57' N$, $115^{\circ}45' W$) and approximately 500 miles due south of San Diego (Pitman 1985).

The Sooty Tern generally avoids inshore waters except to visit its breeding islands (Diamond 1978, Au and Pitman 1986). Most vagrants onshore have been found after the passage of tropical storms. Hurricane Olivia passed over or near the Alijos Rocks, crossing the northeastern pelagic range of the Sooty Tern in the eastern Pacific (Gould 1974, Pitman 1986; see Figure 2).

Away from the breeding islands, Sooty Terns are extremely pelagic (Ashmole and Ashmole 1967, Diamond 1978). They forage by following schools of skipjack *Katsuwonus pelamis* and other species of tuna, being near-obligate commensals (Au and Pitman 1986). As they cannot rest long



Figure 1. Subadult Sooty Tern in the eastern tropical Pacific ($6^{\circ}12' N$, $113^{\circ}30' W$), 11 August 1989. Note white crissum and underwings.

Photo by Don Roberson

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on the water (Gould 1974), their adaptations include a continuous agile flight, constant vocalizations, and the ability to recognize distant foraging flocks and detect surfacing fish (Au and Pitman 1986). These foraging flocks include a substantial percentage of subadult birds in the late summer and fall (Roberson pers. obs.; see Figure 1).

In the northwestern Pacific, typhoons regularly carry Sooty Terns beyond their normal range. Gould (1974) listed 28 instances from 1966 to 1968 of banded birds being driven out of their normal range by typhoons, including a bird banded on 11 May 1965 on Johnston Island (south of the Hawaiian Islands) that was dropped by typhoon Trix over eastern Honshu, Japan, on 18 September 1965. This bird was at a latitude of $37^{\circ} 40' N$ and some 3000 miles from its natal island.

In eastern North America the Sooty Tern nests on islands in the Gulf of Mexico from Texas to Louisiana, on the Dry Tortugas and other inlets off southern Florida, and has nested as far north as South Carolina (Wilkinson 1987, 1988) and North Carolina (Fussell et al. 1981). It follows the Gulf Stream north regularly to at least North Carolina (Lee and Booth 1979), and storms push it farther. Records, often associated with hurricanes, exist for every northeastern state (DeSante and Pyle 1986). Northernmost examples include three on Hog Island, Maine, after a hurricane in September 1954, and five scattered over that state after a hurricane in September 1960

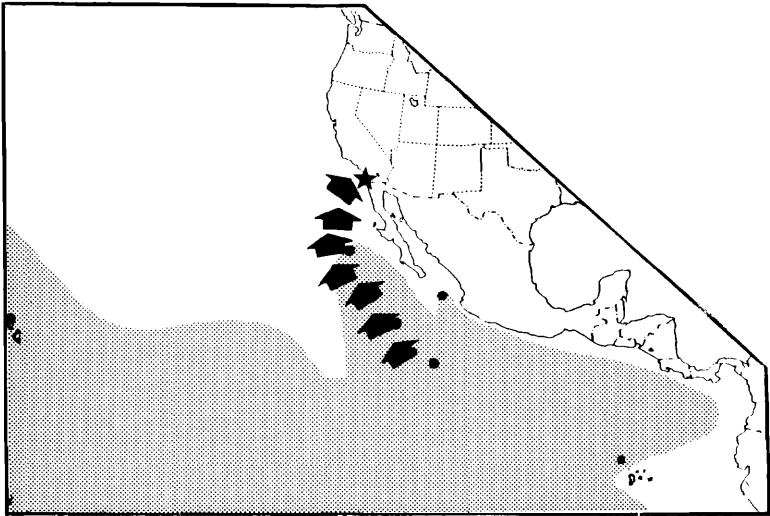


Figure 2. Breeding range of the Sooty Tern in the eastern Pacific (dots indicate colonies), approximate pelagic range (shaded; after Pitman 1986), and location of California sighting (star). Approximate 1300 positions (south to north) of Hurricane Olivia from 20 to 26 September 1982 are shown by arrows, indicating path of movement (based on satellite photos published in the *Los Angeles Times*).

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(Vickery 1978). One was picked up dead on 28 August 1924 at Wolfville, Nova Scotia, after the passage of a hurricane, and a sight record of one at Three Fathom Harbor, Nova Scotia, on 21 October 1968, was attributed to Hurricane Gladys (Godfrey 1986). Inland records exist for Texas (after Hurricane Allen in August 1980, Arnold 1984), Arkansas, Wisconsin, Tennessee, West Virginia, Vermont, and Ontario (DeSante and Pyle 1986).

SUBSPECIES

Cramp (1985) pointed out that geographic variation in this species is slight and that the validity of some of the six currently recognized subspecies is questionable. According to Blake (1977), *S. f. crissalis* of the Pacific coast of Central America and Mexico differs from the nominate *fuscata* of the Atlantic and Caribbean by the "more decidedly grayish" underparts of the adult. We presume the San Diego bird to have been *crissalis* or, possibly, the central Pacific *oahuensis*.

IDENTIFICATION SUMMARY

The Sooty Tern normally takes 1 to 2 years to acquire adult plumage. Juvenal birds are all dark with buff or golden barring or spotting on the mantle. These markings are lost with the acquisition of the first basic plumage, which is dark with whitish patches on the underwings and white undertail coverts (Figure 1). Some birds have extensively white bellies (Roberson pers. obs.). The exact sequence to adult plumage is not well known. However, 30% of 3-year-old birds and 5% of 5-year-old birds retain some dark speckling below (Urban et al. 1986).

The Sooty Tern in juvenal or subadult plumage might be confused with the Black Tern *Chlidonias niger*. The Black Tern is much smaller than the Sooty Tern, and it flies very differently, more like a butterfly or nighthawk *Chordeiles*, depending on the wind (Connor 1988). The flight of the Sooty Tern is strong and purposeful, but buoyant. Flint and Nagy (1984) found that high winds had little effect on characteristics of this species' flight. At least one previous report of the Sooty Tern from California (Moss Landing) was based on a misidentified Black Tern in winter plumage. Another claimed Sooty Tern photographed in Mississippi (Jackson et al. 1978) was likewise a Black Tern in winter plumage (Clapp et al. 1983). A heavily oiled tern resembling the immature Sooty Tern is also a possibility. However, oiled terns should not have the distinct spotting and barring on the upperparts shown by juvenal Sooty Terns, nor the distinct white crissum of older birds.

The immature Sooty Tern is very different from the immatures of the other tropical terns of similar size. The immatures of both the Bridled *Sterna anaethetus* and Gray-backed *Sterna lunata* terns have white underparts. Young Sooty Terns are more likely to be confused with noddy terns *Anous*, the young of which lack the distinctive white caps of the adults (Pratt et al. 1987). The longer wedge-shaped tail of noddy terns, white crissum and underwings of the subadult Sooty Tern, and different behavior should prevent confusion. Rauzon (1985) published a photograph of a leucistic Sooty Tern from Hawaii that had white feathers mixed with black on its

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crown, nape, and back. This individual probably would not be confused with any other species, but such abnormal patterns of pigmentation might cause confusion.

The adult Sooty Tern is most likely to be confused with the adult Bridled Tern. The recent discovery of breeding Bridled Terns at San Blas, Mexico (S.N.G. Howell fide P. Pyle), extends that species' known breeding range far to the north, making the Bridled Tern a possibility for storm-driven dispersal to California. Duncan and Havard (1980) and most field guides claim that the adult Bridled Tern has a complete white collar. Harris (1988), however, noted that the white extends only part way up the side of the neck and not entirely across the nape. He also noted that the position of the eye in relation to the "bridle" is not easy to see and suggested the larger white area extending higher onto the forehead of the Sooty Tern versus the thin bar of white on the forehead of the Bridled Tern as a field mark. The black lore stripe also meets the bill higher on the Bridled, further squeezing the white into a thin strip (see Figure 3). This gives the Sooty Tern a "happy" or "relaxed" expression in contrast to the "frowning squint" of the Bridled (Connor 1988).

The solid black back of the Sooty Tern does not contrast with its black cap as does the gray-brown mantle of the Bridled Tern. However, in bright sunlight, Sooty Terns may look washed out, thus resembling Bridled Terns. Under these conditions, Harris (1988) found the pattern of the underwings to be helpful. The Bridled has the outer primaries largely white from below, while on the Sooty Tern all the remiges appear dark gray below. The paler undertail discussed by Lithner (1983) may be useful in the Atlantic, but the differences may not apply to Pacific populations (Harris 1988).

In the central Pacific, the Gray-backed Tern may be confused with Bridled or Sooty terns. It resembles a small Bridled Tern with a much more delicate flight, recalling that of the Arctic Tern *S. paradisaea*.



Figure 3. Head patterns of adult Sooty and Bridled terns (after Harris 1988).

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