

A New Tern (*Sterna*) Breeding Record for Hawaii¹

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ABSTRACT: Recent observations of terns, either the Old World Little Tern (*Sterna albifrons*) or the New World Least Tern (*Sterna antillarum*), at Pearl and Hermes Reef in the Northwestern Hawaiian Islands have documented that one of these species bred there in 1988 and possibly also in the several preceding years. Two small *Sterna* terns were first observed at Pearl and Hermes in 1984, and the numbers subsequently observed there gradually increased until five birds were recorded in 1988. In 1988 a nest containing three eggs was found, and at least one egg produced a nestling. No small *Sterna* terns were seen during a 2-week visit to the atoll in 1989 or a 2-day visit in 1990. No specimens were collected, and photographs taken do not permit specific identification of the birds. We favor *S. albifrons sinensis* because there are now specimen records of Asiatic Little Terns from French Frigate Shoals and Midway Atoll and a sight record from Laysan Island, and because a review of prevailing wind systems in the Pacific and other vagrant bird records from the Northwestern Hawaiian Islands suggest that such birds are more likely to arrive from the west than from the east.

EXAMINATION OF RECORDS of vagrants from the Hawaiian Islands (Clapp, in litt.) suggests that birds from the Northwestern Hawaiian Islands, particularly the more westerly ones, are more likely to be of Asiatic than of North American origin. Least Terns (*Sterna antillarum*) and Little Terns (*S. albifrons*) have been considered conspecific in the past, but Massey (1976) and the American Ornithologists' Union (1983) considered them different species. We report breeding observations of small terns, probably Little Terns, from the Northwestern Hawaiian Islands.

During the summers of 1984 to 1987, 1989, and 1990, Conant conducted research on Pearl and Hermes Reef, an atoll in the Northwestern Hawaiian Islands (Figure 1), and Hiruki and Choy spent 6 weeks there in 1988. Although our research focused on the Laysan

Finch (*Telespiza cantans*) and the Hawaiian Monk Seal (*Monachus schauinslandi*), we also made incidental observations of seabirds and shorebirds. The dates of the field camps at Pearl and Hermes were 3 July to 5 August 1984, 18 June to 19 July 1985, 10 to 27 August 1986, 3 to 29 August 1987, 16 May to 4 July 1988, 13 to 28 July 1989, and 7 and 9 June 1990. Other biologists studying seabirds and Hawaiian Monk Seals have provided their records of small tern sightings made during those years. We cannot be sure the birds recorded at Pearl and Hermes were the same individuals (or species) from year to year, but we have made that assumption for the sake of argument. These terns were distinctive, being much smaller than the other terns and noddies present and with different plumage, soft-part colors, and vocalizations.

Conant had three references in the field to aid with identification: King (1967), Harrison (1983), and National Geographic Society (1983). The first two considered the Least and Little Terns conspecific; the latter treated only the Least Tern. Hiruki and Choy, whose experience in bird identification is limited, did not have field guides available. However, they photographed the birds and discussed

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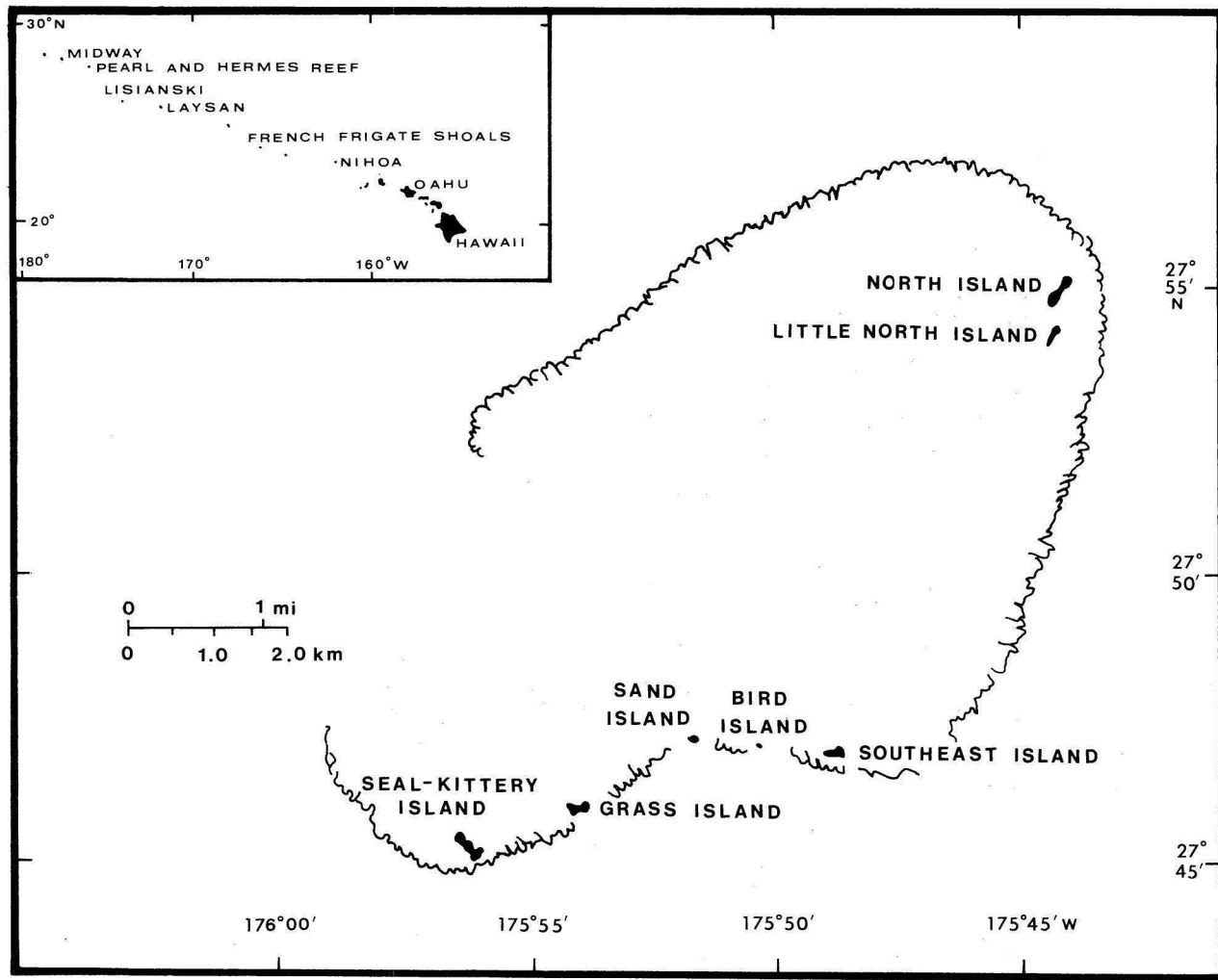


FIGURE 1. Map of Pearl and Hermes Reef, Northwestern Hawaiian Islands, with an inset map of the Hawaiian Archipelago.

identification during radio contacts with other ornithologists.

RESULTS

1984 Observations

On 23 July 1984, once at 1600 hr and once at 1700 hr, Conant observed two small terns flying over Little North Island of Pearl and Hermes (Figure 1). Conant described the birds in her field notes as having black caps, white foreheads, white underparts, and yellow bills. The wings were very narrow, with dark leading edges (i.e., outer primaries), particularly in the dorsal aspect. The birds were gray on the back and on the back of the wings, the rump and dorsal tail were white, and the tail was deeply forked. The call was a short, high-pitched "creep." The birds were smaller than Black Noddies (*Anous minutus*), which were present in good numbers at Pearl and Hermes. No photographs were taken in 1984.

Two similar terns were seen flying over Little North Island on several occasions during 1984. These sightings were at 0935 hr and between 1700 and 1800 hr on 24 July. In the afternoon Conant saw the birds well in flight and on the ground with 10 × 40 binoculars from 30 to 40 m distance. One bird landed briefly among a group of Black Noddies. Both R. Morrow (who was at Pearl and Hermes Reef with Conant in 1984) and Conant recall seeing similar birds over Southeast Island two, possibly three, times after the first sighting at Little North, but did not record the dates or times.

Little North Island, where Morrow and Conant saw the birds the longest, is an unvegetated sandbar, ranging in width from about 10 or 12 m to 1 or 2 m. The narrowest part of the island is awash at high tide. The island is ca. 200 m long, but its size and shape change constantly. In 1987 most of the island was awash at high tide, leaving an area of roughly half-moon shape, about 20 m long and 12 m wide.

1985 Observations

During 1985, Conant, Morrow, T. Johanos-Kam, and R. Watson saw small *Sterna* terns

on 17 occasions (13 different days) over a 4-week period. Of these observations, 11 were made at North and Little North islands, one at Southeast Island, and one at Seal-Kittery Island. On 13 July, just 5 days before leaving the atoll, Conant observed three birds; previous observations that year had involved only one or two individuals or an unrecorded number. The following day she saw a tern carrying a small fish offshore of North Island.

On 16 July 1985 Conant observed three terns intermittently for 2 hr. She photographed the birds and confirmed that two of the birds had the field marks characteristic of breeding adult Little/Least Terns (i.e., yellow, black-tipped bills; yellow legs; white forehead; black cap and nape; dark outer primaries; white rump and white or light gray tail). The third bird was immature, but not juvenal, plumage: crown dark but not solid, dark shoulder bar, dark feet, and a mostly dark bill showing some light at the base; the primaries were darker than those of the adults, except that the outer primaries were dark gray rather than black as in the adult. An adult bird fed a small fish to the immature bird on two occasions and offered a fish on a third occasion.

Using the descriptions and plate in Harrison (1983), Conant concluded that the immature bird resembled the description of "juvenal" birds of both Least and Little Terns except that the illustration shows immature birds with yellowish legs, whereas the individual observed had dark legs. Whether this color difference is due to geographic (i.e., racial) difference or age is impossible to say. That the immature bird was being fed by one or both adults shows it was a young bird, but does not permit a more precise age estimate. That none of the field notes makes any mention of brown in the plumage suggests that the immature birds were in first alternate plumage.

1986 Observations

On 4 June 1986, T. Ohashi and T. Gerrodette saw two small "light gray" terns, both with a "black cap, yellow bill." Ohashi called them a "pair" in his field notes because they were so close together (Ohashi, pers. comm.) on the ground and after taking off. The

birds were first seen on a small sand spit between North and Little North islands, from which they flew as Ohashi and Gerrodette approached.

On 12 August 1986, R. Fleischer and Conant observed four small terns on North Island. They were only able to see two of the birds clearly. One had the field marks of a breeding adult, most notably the yellow, dark-tipped bill and yellow legs. The second bird appeared in a transitional plumage between a juvenile and a nonbreeding adult: trace of a shoulder bar; bill light at base, but dark otherwise; legs dark; a dark, but not solid, crown; and light forehead (Little Tern description in Harrison 1983).

The following day Fleischer and Conant saw all four birds relatively well. They confirmed that two were in breeding adult plumage, with yellow, dark-tipped bills and yellow legs. The other two birds were judged to be immatures: both had predominantly dark bills (one bird with a light bill base). They could see dark legs on the bird with the light bill base. Neither of the immatures had the dark primaries characteristic of adults.

Fleischer and Conant saw four birds again on 17, 18, and 19 August at North Island. On 17 August, while photographing the birds (Figure 2), Conant saw an adult tern with a fish in its bill land onshore, followed shortly by the landing of an immature. The two birds approached one another as though an exchange of the fish might take place, but both birds were suddenly startled and flew up before any interaction was observed. The extreme wariness of these birds made it difficult to observe or photograph them. In one of the 1986 photographs the rump and dorsal tail surface appear white rather than pale gray.

1987 Observations

During the 1987 field season at Pearl and Hermes, Conant observed small terns only once, on 22 August, at Little North Island. However, the birds were observed 15 times between 15 and 22 August at North and Little North islands by B. Becker and R. Westlake. On 22 August Conant saw four terns, two in breeding plumage. A third bird had a mostly

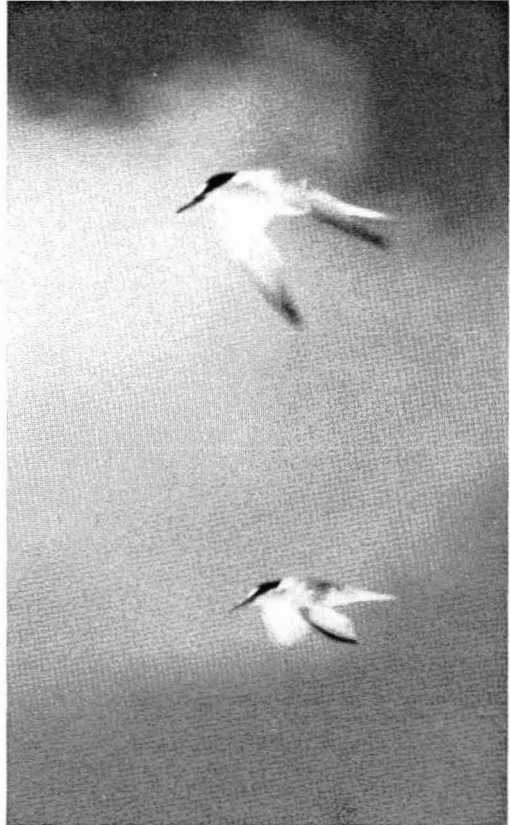


FIGURE 2. Two probable Little Terns in flight at North Island, Pearl and Hermes Reef, August 1986. Photograph by S. Conant.

yellowish bill and light, but not bright, yellow legs and dark leading edges on its wings. This latter bird appeared to be a nonbreeding adult, but its forehead and dorsal surface could not be clearly seen. The fourth bird was not seen well.

1988 Observations

During 1988, Hiruki and Choy saw two small terns at a sand spit off of North Island on 18 and 20 May. On 10 June, they discovered a nest, "a shallow depression in the sand ... the eggs are smaller than White Tern eggs." The eggs "were pale cream, speckled with brown." On 27 June Hiruki saw a small chick (Figure 3) in the vicinity of the nest scrape. The chick "was much smaller than



FIGURE 3. Presumed Little Tern chick, North Island, Pearl and Hermes Reef, late June 1988. Photograph by L. Hiruki.

the tern chicks that we were accustomed to seeing in the Northwestern Hawaiian Islands." On 30 June, Hiruki and Choy saw the chick again, but it fled from them as they approached (on 27 June, it had just crouched when approached). On 2 July, K. McDermond, C. Rowland, and Hiruki went to the nest site, and, though they did not see a chick, saw an adult bird with a small fish in its bill. They saw four birds (not including the chick) on this occasion. Photographs of the chick were badly underexposed.

Vocalizations

B. Massey (1976), who compared vocalizations of Least and European Little Terns, lent Conant copies of her recordings of Little and Least Terns on file at the Florida Museum of Natural History Bioacoustics Archives

and Laboratory. Conant listened to these recordings and compared them with her recollections and written descriptions of the terns' vocalizations. Although Conant thought Massey's recordings of European Little Terns (*S. albifrons*) sounded most like what she recalled the Pearl and Hermes birds sounded like, this conclusion is tentative.

DISCUSSION

Numerous photographs of the terns at Pearl and Hermes Reef (including the chick) were taken, and most of the slides were examined by Clapp, who recently reviewed sight records of small *Sterna* specimens and a specimen record of the Little Tern in Hawaii (Clapp 1989). However, none permitted positive identification. A review of the records of migrant and vagrant birds recorded from the Northwestern Hawaiian Islands prompts us to suggest that the birds at Pearl and Hermes were Little Terns, *Sterna albifrons*, probably the subspecies *sinensis* or *pusilla*. Reports of Least or Little Terns from the Hawaiian Islands have appeared from time to time in 'Elepaio or in *American Birds* since 1953. Most reports before 1983 are of "Least Terns." After Pyle (1984) noted that either species was possible, sightings have indicated doubt as to which species was seen. One of these sightings (Pyle 1980) involved an adult feeding a young bird at French Frigate Shoals.

On the side of *S. a. sinensis* is the identification of the specimen discussed in Clapp (1989). Furthermore, Clapp has determined a second specimen (BPBM 178089) to be a Little Tern. The bird, a male with small testes (2×6 mm), was obtained on Sand Island of Midway Atoll on 15 August 1989. The bird has a white forehead and is well into winter plumage, which accounts for the grayish wash on the tail feathers and for the pale gray rump. The shaft of the outermost primary is white, that of the second is horn, and those farther in are a grayish white.

The following measurements (in mm) were obtained from the specimen: culmen (unworn), 31.6; bill depth (at base [proximal edge] of nostril), 6.3; bill width, 4.5; tarsus, 16.6; and wing (slightly worn), 173. The bill

measurements are within the range of overlap between the species and are closer to those of *S. albifrons*, but are not in themselves diagnostically so. The tarsus, on the other hand, is longer (by 0.4 mm) than any of those of 91 *S. antillarum* Clapp measured, but is quite typical of *S. albifrons*.

Further, none of the *S. antillarum* at the U.S. National Museum of Natural History have an outer primary shaft as light as those in the Midway bird (although in some the shaft becomes lighter toward the tip). The horn-colored shaft of the second primary (from the outside) is usually the darkest of any primary in *S. antillarum*, virtually concolor with the black primary, although it, like the shaft of the first primary, may pale a little toward the tip. Gray primaries, in both *S. albifrons* and *S. antillarum*, are lighter, horn to grayish or whitish. The color of the shafts of the inner primaries is not diagnostic. It is the color of the shafts of the black primaries that is important.

Thus, although the Midway bird has some shafts darker than those of other *S. albifrons* in the U.S. National Museum of Natural History collection, there is no overlap in this character with those of the *S. antillarum* in that collection. This bird is thus the second *S. albifrons* to be taken in U.S. waters, and we feel the identification strengthens the hypothesis that the birds breeding in the Northwestern Hawaiian Islands are *S. albifrons*.

During the summer of 1989, J. Marks (pers. comm.) observed a Little Tern on Laysan Island. At the time he saw the bird, Marks had Clapp's (1989) note on the first specimen record of the Little Tern in Hawaii, which included photos and detailed notes on the differences between this species and the Least Tern, *S. antillarum*. Marks was able to see the distinctive white primary shafts on the dorsal surface of the wing of the perched bird. A recent record of attempted breeding by this species on Saipan is the first record of *S. albifrons* breeding in the tropical Pacific (Reichel et al. 1989).

Sibley and Clapp (1967) found that maps of monthly air currents showed it would be likely that returning migrant birds would be swept to the Northwestern Hawaiian Islands by

winds moving up the coast of Asia and east toward the Northwestern Hawaiian Islands. The regular occurrence of the Short-tailed Albatross (*Diomedea albatrus*) at Midway (Harrison 1990:110) and the somewhat less frequent occurrence of that species at both Laysan and French Frigate Shoals (e.g., Hasegawa and DeGange 1982) may be another faunistic example of the same phenomenon. Two species of *Calidris* of primarily Palearctic origin have been reported in Hawaii: a specimen record of the Long-toed Stint, *C. subminuta* (Clapp 1968), and the Little Stint, *C. minuta* (Pyle et al. 1988).

Because *S. albifrons sinensis* breeds along the coast of Asia and north to Japan, it seems more likely to occur in the Northwestern Hawaiian Islands than *S. antillarum*. The Northwestern Hawaiian Islands also have records for Slaty-backed Gulls (*Larus schistisagus*) (Clapp and Woodward 1968) and Common Gulls (*Larus canus*) (Clapp and Blom, in prep.), and Barn Swallows of the Oriental race (*Hirundo rustica gutturalis*) have also occurred there (Clapp and Woodward 1968). There are other records of birds of Palearctic origin (e.g., pipits [*Anthus* sp.]: Clapp and Woodward 1968, Pyle 1984; Steller's Sea Eagle [*Haliaeetus pelagicus*]: Balazs 1978).

Thus we find the evidence circumstantial but compelling that the new breeding tern present at Pearl and Hermes Reef in 1984 through 1988 was the Little Tern (*Sterna albifrons sinensis*).

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Bioacoustics Archives and Laboratory made Barbara Massey's tape recordings of terns available to us.

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