

## THE BIRDS OF SWAIN'S ISLAND SOUTH-CENTRAL PACIFIC

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In 1966 and 1967, during the course of field work in the south-central Pacific, field parties of the Smithsonian Institution's Pacific Ocean Biological Survey Program stopped seven times at Swain's Island to deliver supplies to the inhabitants. On six of these visits, five in 1966 (18 and 24 February, 3 August, 5 October and 30 November) and one in 1967 (13 April) field parties went ashore and made brief surveys of the island fauna.

Swain's Island lies at latitude  $11^{\circ}03' \text{ S.}$  and longitude  $171^{\circ}05' \text{ W.}$ , about 165 miles north-northeast of the Samoan Islands and about 100 miles south of the Tokelau Islands. It is about  $1\frac{1}{4}$  miles long in an east-west direction and about 1 mile wide. The island is a densely forested coral atoll. Most of the upper story of the forest is composed of coconut palms (*Cocos* sp.) but there are also

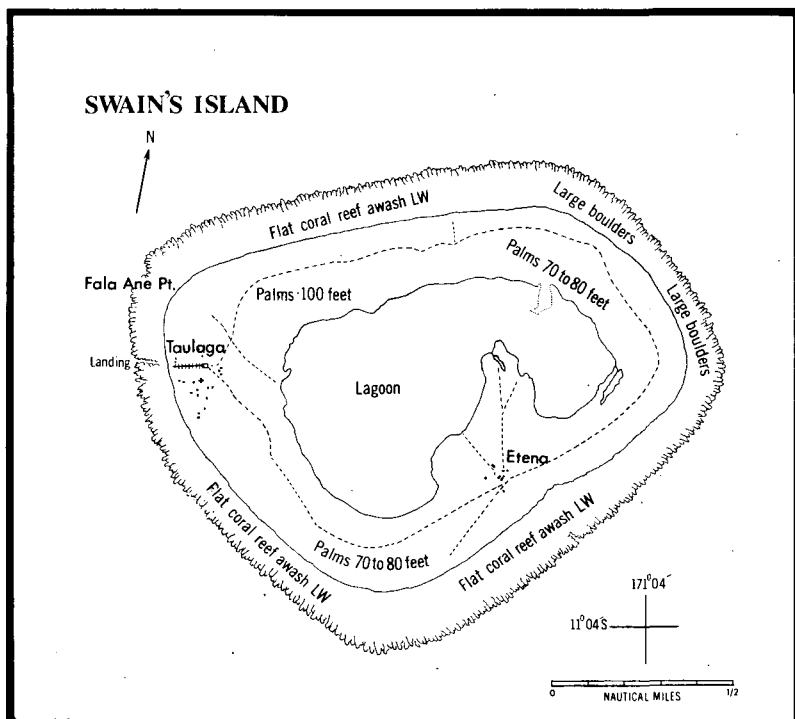


FIGURE 1 — MAP OF SWAIN'S ISLAND (Adapted from U.S. Coast and Geodetic Survey Map No. 4191).

many stands of *Pisonia grandis*. Occasional screw-pines (*Pandanus* sp.) grow in more open areas of the under-story and many ferns and epiphytes are present. In the drier coral rubble of the beach *Tournefortia argentea* and *Scaevola taccada* are the dominant plant species. Through this forest, a track with side trails to facilitate copra-harvesting, circles the island. (See Figure 1.)

The central lagoon is shallow and only a few areas are more than five feet deep. (See Figure 2). There are floating mats of vegetation along the west edge of the lagoon. About 200 yards from the west shore, behind the native village, is a small circular islet about 20 feet in diameter. On the northeast side of the lagoon a small grassy spit extends about 100 yards into the lagoon. Small areas of mud-flat bordering this spit are particularly favoured for foraging by transient shorebirds and Reef Herons (*Demigretta sacra*). At least four species of lizards are common to abundant: the Polynesian Gecko (*Gehyra oceanica*), the Mourning Gecko (*Lepidodactylus lugubris*), the Azure-tailed Skink (*Emoia cyanura*), and the Black Skink (*Emoia nigra*). Polynesian Rats (*Rattus exulans*) are plentiful and are particularly numerous in and on the piles of coconut husks left after copra-harvesting operations.

The island is currently owned by Wallace Hutchinson Jennings, a great-grandson of Eli Hutchinson Jennings who settled on the island in October 1856 (E. H. Bryan, Jr., *pers. comm.*). The native population, now composed of about 200 individuals from Samoa, Fiji, and the Gilbert Islands, varies in size and origin (since most are on the island to harvest copra for only short periods of time). They have introduced four species of domestic mammals (cats, dogs, pigs, and a single horse) and domestic fowl. Native informants state that cats and dogs are semi-feral and feed in part on rats and birds. POBSP collections and observations of the mammals of Swain's Island (made in February 1966), were summarised by Kirkpatrick (1966).

Previous knowledge of the avifauna of Swain's Island is scanty. The U.S. Exploring Expedition's ship *Peacock* surveyed the island from offshore from 1 through 4 February 1841. Titian Ramsay Peale, one of the naturalists on the expedition, merely noted that "scarcely any morning birds [terns?] were seen" and that "birds are fewer than they are even where inhabited by man" (Peale in Poesch, 1961). Charles Wilkes in his narrative of the expedition (1845) stated that "Pigeons, similar to those seen at the Samoan Group, were observed." It should be noted, however, that Wilkes, himself, did not see the island and obtained his bird information second hand. No pigeons have been seen by any of the POBSP survey parties.

Two young Hawaiian-Americans, Killarney Opiopio and Abraham Piianaia, kept long diaries of their experiences on the island 24 January through 28 February, 1963 (Opiopio, 1936; Piianaia, 1936). These diaries contained references to the birds of the island, but few of the descriptions are sufficiently detailed to allow accurate identification to species.

The frequency with which "gogo" (also referred to variously as "boobies" or "sootie terns") were mentioned indicates that these were the most abundant birds on the island. These "gogo" were apparently Brown Noddies (*Anous stolidus*) or Black Noddies (*Anous*

*tenuirostris*) judging from descriptions of the birds' habits and from Donaghho's remark that the natives of Swain's Island called noddies "logo" (Donaghho, 1952). This name "logo" or "gogo" is strikingly similar to "ngongo," the name that the Ellice Islanders use for the Brown Noddy (Child, 1960) and may well refer to the same bird.



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FIGURE 2 — The Lagoon on Swain's Island, showing heavy peripheral vegetation — 3 August, 1966

The Hawaiian-Americans also make two references to white birds, one of which is further identified as a "love bird" or "akaiki." These observations probably refer to the White Tern (*Gygis alba*) or possibly to the Black-naped Tern (*Sterna sumatrana*) which is called "akaiki" by the Ellice Islanders and "kiakia" by the Gilbertese (Child, *op. cit.*).

I have been unable to identify a bird referred to as "vasavosa."

George C. Munro, one of the pioneers of Hawaiian ornithology, visited Swain's Island for a few hours 30 July 1938, but he apparently kept no notes of his bird observations (Bryan, *pers. comm.*). I found only one published comment on this visit — a remark that Brown Noddies "had well-grown young in the tops of high coconut trees . . ." (Munro, 1944). Walter Donaghho, one of Munro's assistants, later published his own journal, therein recording the occurrence of four species: Golden Plover (*Pluvialis dominica*), Noddy Terns (*Anous* sp.), Fairy Terns, and the New Zealand Cuckoo (*Eudynamis taitensis*). He noted, as had Peale before him, that birds were not very common and further observed that White Terns were more abundant than noddies.

#### ACKNOWLEDGMENTS

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#### SPECIES ACCOUNTS

##### WHITE-TAILED TROPICBIRD (*Phaethon lepturus*)

White-tailed Tropicbirds were seen on three of the six surveys of Swain's Island but were not common. A single tropicbird was seen flying over the island in October and four were seen overhead in November. Two of the four November birds flushed from a tall *Pisonia* tree but no nest was found. It seems likely that a few of these tropicbirds nest on Swain's Island since there is an abundance of nest sites present.

*Specimen:* 13 April 1967, f., USNM 497812, ovary 15 mm., wt. 263 grams.

##### RED-TAILED TROPICBIRD (*Phaethon rubricauda*)

A Red-tailed Tropicbird seen flying over the southeast beach on 30 November was collected. It was in adult plumage except for the lower back which retained a small amount of black speckling from the immature plumage. Natives stated that they occasionally saw this species flying over the island but that they had never seen them land.

*Specimen:* 30 November 1966, f., USNM 497208, ovary 10 x 17 mm., lg. ovum 3 mm., wt. 815 grams.

##### RED-FOOTED BOOBY (*Sula sula*)

Red-footed Boobies were seen on only one of the island surveys. On 5 October about 20 were seen feeding off the northwest corner of the island. One immature bird was collected as it flew over the forest near the Jennings' residence.

On 4 February 1936, Piianaia watched the natives capture a booby that was roosting in a coconut tree. Natives had told him that boobies were occasional visitors to the island but did not breed there.

*Specimen:* 5 October 1966, ?, USNM 496647, wt. 834 grams.

#### FRIGATEBIRD SP.? (*Fregata* sp.?)

On 3 August, two frigatebirds, one an immature, circled the south-east end of the island. Both birds were about one-half mile beyond the reef and specific identification could not be made.

#### REEF HERON (*Demigretta sacra*)

On 3 August POBSP personnel saw four dark-plumaged Reef Herons. Three foraged along the edge of a small grassy spit on the northeast side of the lagoon and the fourth flew from a perch in a coconut tree about 300 yards to the west of the spit. The herons exhibited a strong attachment to the spit area and returned to it repeatedly despite continued disturbance by the observers.

#### GOLDEN PLOVER (*Pluvialis dominica*)

Golden Plovers were seen on all visits and were present in July, 1938, as well (Donaghho, 1952). They seemed to exhibit little preference for any particular habitat on the island. Birds inhabited not only the outer beaches and the lagoon but also frequently foraged on paths through heavily forested areas.

Estimated numbers present varied from about 50 birds in February to about 100 in August. Estimates on the other three visits (October, November, and April) were respectively 90, 100, and 90 birds. The high August count included at least 45 birds seen in one flock near the edge of the lagoon while simultaneously perhaps 40 more were seen on the outer beaches and in the interior of the island. Some of these August plovers were in full breeding plumage and may have been early migrants from the breeding grounds. Certainly, the number seen is very large for a "summering-over" population [as compared with summer populations on islands of similar size in the nearby Phoenix group (unpub. POBSP data)].

*Specimens:* 18 February 1966, f., USNM 496683, ovary 10 x 5 mm., wt. 126 grams; 5 October 1966, m., USNM 496684, left testis 2 x 1.5 mm., wt. 121 grams.\*

#### RUDDY TURNSTONE (*Arenaria interpres*)

Ruddy Turnstones were present on all POBSP surveys except the one made in August 1966. An estimated 60 turnstones were present in February and 43 were counted in April. Nearly as many were present in November (about 30 birds). Only two turnstones were seen on the October visit but the beach was not surveyed during this visit and more could have been present.

Both feeding and loafing turnstones were found primarily on the beaches and only seldom foraging along the lagoon. None were reported from forested areas. The largest concentrations were seen on the east and southeast beaches where they readily associated with plovers. On 13 April a flock of 35 turnstones in nuptial plumage, the largest concentration seen, was found on the east beach.

\* A number of specimens collected were lost between collection and deposition in the USNM collections. These lost specimens were 5 Golden Plovers, 3 Wandering Tattlers, and a Sanderling.

*Specimens:* 30 November 1966 (m., f.) USNM 496924, m. left testis 4 x 1 mm., wt., 97 grams; USNM 496925, f., ovary 3 x 4 mm., wt. 100 grams; 13 April 1967, (m., f.) USNM 497544, m., left testis 4 x 2 mm., wt. 99.6 grams; USNM 497543, f., ovary 6 mm., wt. 96.9 grams.

#### BRISTLE-THIGHED CURLEW (*Numenius tahitiensis*)

A single individual was seen 5 October on the west shore of the lagoon directly behind the native village.

#### WANDERING TATTLER (*Tringa incana*)

The number present on Swain's Island varied little from survey to survey. On visits when more complete counts were made, numbers varied from a low of about 20 birds in August to a high of 34 birds in April. In both February and November an estimated 30 tattlers were present.

Most of the tattlers were observed along the outer beaches where they seemed to exhibit a preference for rocky outcroppings. Less than 10 of all tattlers seen on the six surveys were found foraging around the central lagoon. Most tattlers foraged in pairs or trios that did not associate with other species of shorebird present on the island. On 5 October, however, three tattlers were seen foraging with two turnstones and 20 plovers on the edge of the lagoon.

#### SANDERLING (*Crocethia alba*)

Three Sanderlings were seen on Swain's Island by POBSP personnel. One was collected on the beach on 18 February and two others were collected along the southeast beach on 30 November. Only two of the three Sanderlings were subsequently preserved as specimens.

*Specimens:* 18 February 1966, m., USNM 496787, left testis 2 x 1 mm., wt. 49 grams; 30 November 1966, m., USNM 497229, left testis 3 x 1 mm., wt. 39 grams.

#### BLACK-NAPED TERN (*Sterna sumatrana*)

On 27 April a Black-naped Tern was seen in a flock of Brown Noddies roosting on the northeast beach. It was well observed, and all salient field characters were noted. An attempt was made to collect the bird but it flew out to sea at the shot and was not seen again.

#### SOOTY TERN (*Sterna fuscata*)

Three Sooty Terns flew near the POBSP support vessel just as it left Swain's Island on 24 February. We found no evidence that this species ever roosts or breeds on the island.

#### BROWN NODDY (*Anous stolidus*)

An estimated 1,500 to 3,000 birds were present on Swain's Island on five visits (February, October, November, and April) but only about 40 birds were seen in August, 25 of them in a feeding flock offshore. When these noddies were numerous they were usually evenly distributed throughout the forest with perhaps slightly greater densities being encountered on the north side of the island.

Three of the five February specimens (USNM 496391 - 496393) had bare brood patches and moderately enlarged gonads. Two birds with bare brood patches (USNM 496392 - 496393) had one or both of the 2nd primaries present as pinfeathers and the two

birds lacking brood patches were both a little more than half-way through the primary moult.

In April many young birds could be heard calling from nests in the coconut palms. Many noddies seen flying over the island were in moult as evidenced by missing remiges and rectrices.

The two October specimens and all five November specimens had moderately to much enlarged gonads and bare, or partially bare, brood patches. One female collected in November had an almost fully developed egg in the oviduct. Three of the fall specimens, two from October and one from November (USNM 497243), were in primary moult. The two October specimens were just completing moult of the outermost primary and the November specimen had begun to replace the innermost primary.

Gonadal and molt data from collected birds indicate that at least some were breeding from October through April. The low August numbers suggest that summer may be a non-breeding period or a period of much reduced breeding on this island. Munro (1944), however, found them breeding in July 1938.

*Specimens:* 18 February 1966 (3m., 2f.) USNM 496389, m., left testis 3 x 1 mm., wt. 190 grams; USNM 496390, m., left testis 3 x 1 mm., wt. 193 grams; USNM 496393, m., left testis 8 x 4 mm., wt. 193 grams; USNM 496391, f., ovary 8 x 3 mm., lg. ovum, 1 mm., wt. 157 grams; USNM 496392, f., ovary 10 x 7 mm., lg. ovum 2 mm., wt. 164 grams; 5 October 1966 (m., f.) USNM 497238, m., left testis 6 x 3 mm., wt. 195 grams; USNM 497237, f., ovary 13 x 7 mm., lg. ovum 2 mm., wt. 181 grams; 30 November 1966 (2 m., 3 f.) USNM 497242, m., left testis 6 x 3 mm., wt. 182 grams; USNM 497243, m., left testis 11 x 4 mm., wt. 180 grams; USNM 497239, f., ovary 20 x 10 mm., lg. ovum 8 mm., wt. 189 grams; USNM 497240, f., ovary 10 x 5 mm., lg. ovum 3 mm., wt. 189 grams; USNM 497241, f., egg in oviduct, wt. 209 grams; 13 April 1967, m., USNM 497627, left testis 6 mm., wt. 186 grams.

#### BLACK NODDY (*Anous tenuirostris*)

The number occurring on Swain's Island varied considerably from survey to survey. An estimated 200 birds were present in February; only about 25 birds were seen in August, and none were observed in October. At least 350 to 400 Black Noddies were observed in November and April and more may have been present at these times.

No nests were found in February but the single specimen taken had slightly enlarged gonads indicating that the bird may have been breeding. In August one was seen sitting on a nest in a coconut palm. An active colony was found in November on the east-northeast corner of the island. It contained about 125 nests about 75 feet up in two large *Pisonia* trees. Although the nests' contents could not be investigated, several birds were sitting on the nests. Three of the five specimens collected during the November survey had bare brood patches. This colony was still active in April. At this time one medium-sized nestling was collected and, from the ground, large chicks could be seen in the nests. A number of flying immatures also were seen in the colony.

Unlike the Brown Noddies which seemed to be evenly distributed over the entire island, the Black Noddies were primarily seen in the vicinity of their nests or roosts.

*Specimens:* 18 February 1966, m., USNM 496388, left testis 6.5 x 4 mm., wt. 110 grams; 30 November 1966 (3 m., 2 f.) USNM 497257, m., left testis 4 x 3 mm., wt. 98 grams; USNM 497258, m., left testis 5 x 3 mm., wt. 105 grams; USNM 497259, m., left testis 7 x 3 mm., wt. 116 grams; USNM 497256, f., ovary 10 x 4 mm., wt. 96 grams; USNM 497260, ovary 6 x 3 mm., wt. 102 grams; 13 April 1967 (4 m., f.?) USNM 497662, m., left testis 6 x 4 mm., wt. 102 grams; USNM 497663, m., testes "minute," wt. 111 grams; USNM 497664, m., left testis 6 mm., wt. 101 grams; USNM 497665, m., testes "minute," wt. 108 grams; USNM 497666, f., ovary 12 x 7 mm., lg. ovum 1 mm., wt. 103 grams; USNM 497667, ? (nestling), wt. 73 grams.

#### WHITE TERN (*Gygis alba*)

Numbers present on Swain's Island, like the numbers of noddies, varied considerably from survey to survey. An estimated 500 to 1,000 White Terns were present in October and November and an even larger number, perhaps as many as 3,000 terns, was present in February. In April an estimated 350 terns were present but in August not more than 40 individual terns were seen.

In November POBSP personnel found three White Tern nests containing eggs — one egg was 30 feet up on a dead palm stub; the other two eggs about 20 feet up on horizontal branches of *Pandanus* trees. All four specimens collected in November had bare brood patches.

In February, on the other hand, no nests were found and only 2 of 5 specimens taken had bare brood patches. POBSP personnel collected a recently fledged young in April. An adult collected then (but not kept as a specimen) had fresh plumage and a heavily vascularized brood patch. In August an intensive search for nests was fruitless. Only one White Tern seen during that survey behaved as if it were nesting.

The pattern of change in numerical abundance and observations of nest contents and of breeding indicators in specimens suggest that White Terns on Swain's Island breed primarily from September or October through February.

*Specimens:* 18 February 1966 (3 m., 2 f.) USNM 496396, left testis 6 x 4 mm., wt. 108 grams; USNM 496397, left testis 6 x 3 mm., wt. 106 grams; USNM 496398, left testis 6 x 4 mm., wt. 130 grams; USNM 496399, ovary 13 x 9 mm., lg. ovum 6 mm., wt. 109 grams; USNM 496400, ovary 9 x 7 mm., lg. ovum 2 mm., wt. 105 grams; 30 November 1966 (3 m., f.) USNM 497268, m., left testis 7 x 3 mm., wt. 113 grams; USNM 497269, m., left testis 6 x 3 mm., wt. 112 grams; USNM 497271, m., left testis 6 x 3 mm., wt. 106 grams; USNM 497270, ovary 17 x 8 mm., lg. ovum 5 mm., wt. 109 grams; 13 April 1967 (f. nestling) USNM 497610, ovary 2 mm., wt. 82 grams.

#### NEW ZEALAND CUCKOO (*Eudynamis taitensis*)

Cuckoos were present on each of the six surveys and Donaghoo (1952) saw a single cuckoo there on 30 July 1938. Differences in their abundance from visit to visit were difficult to assess since the cuckoos were extremely wary and difficult to observe. They



were seen throughout the heavily forested parts of the island but were seen somewhat more frequently in more open areas of lower growth. One cuckoo, observed at ground level, was feeding on young Azure-tailed Skinks. Estimates varied from about 10 in November to 30 in April and 50 in February, August, and October. Not less than 10 individuals were seen on the February surveys; 5 to 10 individuals in August; about 15 in October; one in November; and 8 to 10 in April. The only decided decrease in the population occurred in late November when most of the birds that wintered on the island presumably would have been arriving back at the breeding grounds in New Zealand (Bogert, 1937).

Five specimens were collected, four adult males and an immature male.

*Specimens:* 24 February 1966 (2 m) m., USNM 496725, testis 5 x 3 mm., wt. 161 grams; 13 April 1967, m., USNM 497789, testis 2 mm., wt. 123 grams; 3 August 1966 (3 m.) m., USNM 543144, testis 4 x 2 mm., wt. 119 grams; imm. m. USNM 543145, testis 1.5 x .5 mm., wt. 118 grams; m. USNM 543146, testis 3 x 2 mm., wt. 224 grams.

### SUMMARY

On six surveys of Swain's Island in 1966 and 1967, field workers of the Smithsonian Institution's Pacific Ocean Biological Survey Program recorded 16 species of birds: 9 central Pacific seabirds, 5 Arctic shorebird migrants, and 2 migrants from the southwest Pacific. Three species of seabirds (Brown Noddy, Black Noddy, and White Tern) breed on the island and a fourth (White-tailed Tropicbird) probably does so. The other species of seabirds recorded from the island (Sooty Tern, Black-naped Tern, Frigatebird sp., Red-tailed Tropicbird, and Red-footed Booby) probably occur on the island only as visitants.

Three of the shorebirds (Golden Plover, Ruddy Turnstone, and Wandering Tattler) are common and regular migrants to the island; the other two species (Bristle-thighed Curlew, Sanderling) occur much less frequently and in much smaller numbers.

One of the two migrants from the southwest Pacific, the Reef Heron, is apparently of irregular or uncommon occurrence while the other, the New Zealand Cuckoo, is present in small to moderate numbers throughout much of the year.

### REFERENCES CITED

- BOGERT, C., 1937: The distribution and the migration of the Long-tailed Cuckoo (*Urodynamis taitensis* Sparralan). Amer. Mus. Novit. 933: 1-12.
- CHILD, P., 1960: Birds of the Gilbert and Ellice Islands Colony. Atoll Research Bulletin 74: 1-38.
- DONAGHJO, W., 1952: Journal of the 1938 Line Islands expedition. The Elepaio 13: 22-25, 34-36, 32-33, 43-50, 60-62, 66-69.
- KIRKPATRICK, R. D., 1966: Mammals of the Tokelau Islands. Jour. of Mammalogy 47: 701-704.
- MUNRO, G. C., 1944: Birds of Hawaii, 189 pp. Tongg Publ. Co., Honolulu.
- OPIOPIO, K., 1936: Diary on Swain's Island. 56 pp. [Ms. in the files of the Pacific Science Information Centre, Bernice P. Bishop Museum, Honolulu.]
- PIIANAIA, A., 1936: Diary on Swain's Island. 55 pp. [Ms. in the files of the Pacific Science Information Centre, Bernice P. Bishop Museum, Honolulu.]
- POESCH, J., 1961: Titian Ramsay Peale 1799-1885 and his journals of the Wilkes Expedition. Mem. Amer. Phil. Soc. Phila. vol. 52: 1-214.
- WILKES, C., 1845: Narrative of the United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842. Vol. 5. Lea C. Blanchard, Philadelphia.