

**Changes in the Avifauna of Fanning Island, Central Pacific, between 1924 and 1963.**—During late June through late August of 1963 I participated in the Fanning Island Expedition. Fanning Island is a coral atoll, one of the several Line Islands, located in the central equatorial Pacific (4° N and 159° W). My observations on the avifauna may be compared with those of Kirby (Condor, 27:185, 1925). The only other recent data available on the birds of the Line Islands are those of King (Pac. Sci., 9:42, 1955), King and Pyle (Condor, 59:27, 1957), and Gallagher (Ibis, 102:489, 1960). Further information on the topography and biota of Fanning Island is found in Bakus (Allan Hancock Fd. Publ. Occ. Pap. No. 27, 1964).

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## ANNOTATED LIST OF SPECIES

*Phaëthon rubricauda*. Red-tailed Tropicbird. Uncommon. Observed at Rapa Passage by Bakus on 8 August and at Lake Napanaiaroa by Newman (personal communication) on 14 August. Kirby (*op. cit.*) did not record this species from Fanning Island.

*Phaëthon lepturus*. White-tailed Tropicbird. Common at Lake Napanaiaroa and seen occasionally in other regions.

*Sula dactylatra*. Blue-faced Booby. No members of this species were observed at Fanning Island although they were common at Christmas Island in late August. Four decades ago they were uncommon on Fanning Island (Kirby, *op. cit.*:192).

*Sula sula*. Red-footed Booby. Abundant on the atoll and offshore. At Green Trees there was a nesting rookery perhaps one-fourth-mile in diameter. Numerous birds were observed in *Pisonia* about 80 feet above ground. At Lake Napanaiaroa nests were found in *Messerschmitia* (= *Tournefortia*) as low as 15 feet above ground on 21 July. There was one thickly downed nestling per nest (constructed of tangled twigs), and these ranged from one-third to one-half adult size. The highest nests were in proximity to numerous resting Red-footed and Brown Boobies. Many nests were found 15 to 20 feet above ground in *Messerschmitia* near Rapa Passage on 8 August; one nestling per nest and from one-third to one-half adult size. The nests consisted of 30 to 40 twigs that measured from 12 to 24 inches long and one-fourth inch thick. Another rookery was observed at Tefare Turaina in trees (*Pisonia*). Kirby (*op. cit.*: 190) reported that this was the most abundant bird on Fanning Island.

*Sula leucogaster*. Brown Booby. This species was first observed about 50 miles due north of Fanning Island as we approached by ship. They were common to abundant (Rapa, Tefare Turaina) on the island and were often observed either flying or in the crowns of tall *Pisonia* near nesting or resting Red-footed Boobies.

*Fregata minor*. Great Frigatebird. First observed about 30 miles due north of the atoll. Commonly seen soaring overhead in many parts of the island and offshore. Twice observed swooping down in English Harbor Channel attempting to catch Rae or Lae (*Scomberoides*) that were jumping clear of the water. Frigatebirds that caught fish were pursued by other frigatebirds. They often harassed boobies with fish. On each of two occasions on a freshwater lake east of Napari a bird was observed attempting to obtain either fishes (*Tilapia*) or water by flying low over the lake and dipping its bill. Near Rapa Passage they were commonly observed resting in *Messerschmitia*.

*Pluvialis dominica*. American Golden Plover. Common to abundant at Lake Napanaiaroa from late June to August. Observed on the outer shore between North Cape and North Passage on 30 June, swampy region SW of North Cape on 28 July and Fils Field (landing strip), small swamp beyond Harry Bridge, and "salt-bush" gravel flat near Tefare Turaina on 13 August.

*Numenius tahitiensis*. Bristle-thighed Curlew. Found on edge of the lagoon and common on the sandflats of embayments (Lake Napanaiaroa, near Tefare Turaina) from 22 June to 13 August.

On 7 July 13 birds were observed feeding voraciously on fiddler crabs (*Uca annulipes*) near the edge of Lake Napanaiaroa.

*Heteroscelus incanum*. Wandering Tattler. Moderately common inhabitant of embayments, swampy areas, and the outer reef flat from 30 June to 13 August.

*Arenaria interpres*. Ruddy Turnstone. This bird was moderately common in embayments (e.g., Lake Napanaiaroa) during low tide between 25 June and 13 August; six were observed on the outer reef flat near North Passage on 11 July.

*Sterna sumatrana*. Black-naped Tern. One bird was observed on 12 July about one-half mile NE of Napari. It spent 40 minutes resting in the concavity of a broken coconut palm, about 15 feet above ground. Kirby (*op. cit.*) did not record this species from Fanning Island.

*Procelsterna cerulea*. Blue-gray Noddy. Observed once near North Passage and occasionally at Lake Napanaiaroa. A few birds were seen offshore from a ship between English Harbor Channel and North Passage.

*Anoüs stolidus*. Noddy Tern. Abundant in coconut palms in most parts of the island; also observed nesting in the tops of *Pisonia*. It was not uncommon to see groups of up to 40 noddies resting on sandflats in embayments (Napanaiaroa, Rapa, near Tefare Turaina), a behaviorism also noted by Kirby (*op. cit.*: 187). Abundant offshore.

*Anoüs minutus*. White-capped Noddy. Kirby (*op. cit.*: 188) declared that this species was not abundant four decades ago. I observed these dark noddies on only a few occasions (Napia, Green Trees).

*Gygis alba*. Fairy Tern. Common to abundant in coconut palms and abundant offshore. The birds display their curiosity by occasionally flying within arms' reach of the observer. A few times they held fish fry in their bills while fluttering overhead. They rest and presumably roost in coconut palms and in the concavities of broken palm trees.

*Vini kuhlii*. Lorakeet. Introduced prior to 1798, it is now common to abundant, especially in coconut palms. The birds nearly always traveled individually or in pairs when flying. This species is endemic to the Tubuai Islands, south Pacific (Peters, Checklist of Birds of the World, 1937, v. 3:156).

*Conopoderas aequinoctialis*. Kokikokiko. Despite every effort to locate this only endemic species, an Old World warbler, it was neither observed nor heard. Not Tong Ting Hai (personal communication), Phil Palmer (personal communication), or any other person contacted could recall having heard or seen a small warbler on the atoll. It may now be extinct on Fanning Island although it is still common on Christmas Island (King, *op. cit.*:47). Child (Atoll Res. Bull. No. 74, p. 24, 1960) stated that the Gilbertese on Christmas Island call the bird "Bokikokiko," whereas Gallagher (*op. cit.*:501) emphasized that only certain Gilbertese used this form of the vernacular name.

#### DISCUSSION

Captain Edmund Fanning (Voyages and Discoveries in the South Seas, 1798-1832, p. 159, 1924) stated upon landing on the south shore of the present English Harbor, Fanning Island, on 11 June 1798: "At the barren spots, the birds, boobies, knoddies, and the like, were quietly sitting on their nests, so fearless and gentle as to be easily taken by the hand, . . ." Kirby (*op. cit.*:186) concluded that of all the Line Islands he had visited, the avifauna of Fanning Island has been most affected by the presence of man. Birds were formerly much more abundant there. The situation today differs from that of 1924 in that ground nesters are found only in the most remote uninhabited regions of the atoll (e.g., SE of Rapa Passage, one mile SE of North Passage; Jeff MacDonald and Tong Ting Hai, personal communication), although the populations, with few exceptions, apparently have not undergone marked changes. Birds in proximity to human activities often nest in the crowns of large *Pisonia* and the smaller tree *Messerschmitia*. Feral pigs, which at one time roamed about the island, are now thought to be extinct. Land crabs (*Cardisoma* and *Gecarcinus*) are extremely abundant and from my observations will kill and attempt to devour nestling boobies that fall to the ground. It is conceivable that these crabs may be responsible in part for the paucity of ground nesters on the atoll. Whether or not the crabs were less abundant in former years is un-

known. Gallagher (*op. cit.*:493) concluded that it is doubtful that land crabs cause much harm to birds on Christmas Island.

Kirby (*op. cit.*:196) stated that around November several species of migratory ducks ordinarily arrive on Fanning Island, but these were not observed directly by him. Migratory ducks were relatively abundant on Fanning Island during October through December and March through May in the several years prior to 1959 (Keith MacCredden, personal communication). Tong Ting Hai (personal communication) recalls observing numerous ducks, presumably exhausted from migration, falling on the grounds of the populated Fanning Island Cable and Wireless station, unable to resume flight. Since 1959 only a few ducks have been observed. Certain ducks tend to congregate on the freshwater lakes about 0.5 mile east of Napari (Tong Ting Hai, personal communication). On 24 July 1963 I surveyed a series of lakes between Napari and Napanaiaroa, comprising a total length of about one mile, and found no ducks.

Kirby (*op. cit.*:196) remarked that Bristle-thighed Curlews were mercilessly hunted with shot-guns on the flats of Fanning Island. Shorebirds are now common to abundant on the atoll but are wary of humans. Perhaps this is because they have been hunted during the past several years. During the day dragonflies, ants, and houseflies (around dwellings) are the dominant insects, butterflies and beetles seldom being seen. Hutchinson (Bull. Amer. Mus. Nat. Hist., 96:1, 1950) gave a thorough account of guano deposits on oceanic islands, including Fanning Island, where guano was very rich and taken commercially from 1877 to 1879.—GERALD J. BAKUS, *Allan Hancock Foundation, University of Southern California, Los Angeles, California, 4 May 1966.*

**Winter Breeding of the Western Grebe.**—Nesting records of the Western Grebe, *Aechmophorus occidentalis*, in southern California are rare. Grinnell and Miller (Pacific Coast Avifauna no. 27:39, 1944) report only two records here. One nesting occurred at the Salton Sea, Imperial County, and one at Mystic (= San Jacinto) Lake, Riverside County. Nokes (Condor 19:24, 1917) found the nest at Mystic Lake on 13 May 1916. This nest contained three eggs "far advanced in incubation."

Crouch (Audubon Field Notes 10:409, 1956) reports two additional nestings. One immature flightless Western Grebe was found dead at the Salton Sea on 13 June 1956. Nests were observed at Sweetwater Lake, San Diego County, on 5 May 1956. Nine nests were counted on 17 May, but all were apparently unsuccessful.

On the morning of 25 February 1966, with an ornithology class from San Diego State College, I saw a downy gray Western Grebe on the back of a swimming adult at the south end of Sweetwater Lake, San Diego County. The other pair member swam nearby, and when the youngster got off once to swim, the adult brought its bill near the immature bird but did not feed it. The small size of the immature bird indicated an age of two weeks or less. Gerald Collier and I saw the Water Glide and Nodding courtship of another pair of these grebes. About 20 other Western Grebes were on the lake.

Palmer (Handbook of North American Birds, p. 102, 1962) and others give egg records from May into July. Incubation lasts "about 23 days" according to Bent (Life Histories of North American Diving Birds, p. 5, 1919). The nesting of the pair I saw must then have started in late January, making this the first winter nesting of the Western Grebe yet reported, only the second nesting record for San Diego County, and one of the few nesting records in Southern California.—DARRELL T. LEE, *Department of Zoology, San Diego State College, San Diego, California, 10 March 1966.*

**An Unusual Nesting of a Goshawk in Southern New Mexico.**—Nesting records for the Goshawk (*Accipiter gentilis*) in the southwestern United States are extremely rare. Historically, as much of an authority on nests and eggs as Bendire (Life Histories of North American Birds, pp. 196–199, 1892) thought that the breeding range extended south in the western United States only to about latitude 38° in California and, inland, possibly south to Colorado. More recently, Marshall (Pacific Coast Avifauna No. 32, 69, 1957) mentions only one brood observed during his three-year study of breeding birds of southeastern Arizona, southwestern New Mexico and adjacent México.