



Observations of Birds on Kwajalein Atoll 1978 - 1983

by William L. Schipper

I spent my free time birding while working as a computer operator on the island of Roi-Namur in Kwajalein Atoll, (09° 05'N, 167° 20'E) in the Ralik Chain of the Marshall Islands from 3 February 1978 to 20 April 1983. Along with identifying the previously recorded resident and migrant species of the atoll, observations of several previously unrecorded vagrants or migrants were made, including Cattle Egret (*Bubulcus ibis*), Canada Goose (*Branta canadensis*), Wood Sandpiper (*Tringa glareola*), Black-tailed Godwit (*Limosa limosa*), Ruff (*Philomachus pugnax*), Oriental Pratincole (*Glareola maldivarum*), Fork-tailed Swift (*Apus pacificus*), and Sacred Kingfisher (*Halcyon sancta*). This paper covers all the species observed during my stay, detailing the new records for the atoll which are indicated by an asterisk (*). Those species which are new records for Micronesia are indicated by a plus sign (+).

The majority of observations were made from the island of Roi-Namur, located at the northern tip of the atoll, where I lived and worked. Name and order of the species follow those of the sixth A. O. U. checklist (1983), except where species are not included, in which case King *et al* (1975) and Slater (1970) are followed. Most species were documented by photographs; each of these has symbol "(P)" following the scientific name. Those species for which I do not have photographs have the symbol "(NP)" following the scientific name. I intend to donate my photographs to VIREO (Visual Resources for Ornithology) at the Academy of Natural Sciences in Philadelphia, Pennsylvania after I have finished labeling them. There are sight-only records of six species. Four of these are familiar to me from previous field experience. No specimens were collected due to lack of material for the preparation of study skins. Field guides and papers at my disposal included King *et al* (1975), Mayr (1945), Peterson (1980), Peterson *et al* (1979), Robbins *et al* (1966), Slater (1970 and 1976), Amerson (1969), Baker (1951), Bryan (1965), Gibson (1978), and Owen (1977). For identification of plants I referred to Perry and Hay (1982) and Whistler (1980). I follow Bryan (1971) for the spelling of island names in Kwajalein Atoll.

Species Accounts

Wedge-tailed Shearwater (*Puffinus pacificus*) (P). Despite many hours spent scanning the ocean for shearwaters, I saw none until 10 May 1980 when I saw and photographed an individual of this species off the island of Boggerik. This bird's identity was confirmed by Peter B. Pyle. I saw several birds from the eastern, ocean-side end of Roi-Namur during 24-30 May 1981, and scattered individuals subsequently.



Cattle Egret. Roi-Namur Island, Kwajalein Atoll. May 1980.

Photo by W.L. Schipper

*Sooty Shearwater (*Puffinus griseus*) (P). I first noted this species as a carcass along the roadside on Roi-Namur on 20 November 1979. This bird had a dark gray dorsal surface, a lighter gray ventral surface with the exception of the wing linings which were white. This individual was photographed, and its identity was confirmed by John Engbring. On 22-23 May 1981 I observed more than 200 Sooty Shearwaters passing northward by the eastern, ocean-side end of Roi-Namur during the hour preceding sunset. I also observed birds from 24-30 May 1981, as well as scattered individuals off-and-on until 1983. On 25 May 1981 I came across a weakened bird along the beach which I picked up and released a few minutes later. A few days later I found the partial skeletal remains of a shearwater on the same beach which may have been the same bird.

*White-tailed Tropicbird (*Phaethon lepturus*) (NP). I briefly observed an adult bird over the island of Ennubirr in the northeast chain of Kwajalein Atoll on 25 May 1981 for approximately 5 minutes.

Brown Booby (*Sula leucogaster*) (P). Relatively uncommon around Roi-Namur. Sometimes a month would pass without an observation. The maximum number that I observed in a single day was 20. On two occasions over a three-year period, four colleagues traveled by small boat to what they thought was the island of Oniotto in northwestern Kwajalein to photograph birds. Their photos showed Brown Boobies, Red-footed Boobies (*Sula sula*), and Great Frigatebirds (*Fregata minor*) on nests and downy chicks of all three species. I was unable to travel to Oniotto by boat, but flew past in February 1980 and counted approximately 20 Brown Boobies, 30 Red-footed Boobies, and 30 Great Frigatebirds.

Red-footed Booby (*Sula sula*) (P). This was the most common booby in the atoll, with some individuals seen almost every day from Roi-Namur. On 10 October 1980 I counted 310 from one point along the western beach of Roi-Namur in 45 minutes. Commonly seen were "strings" of 3-12 birds which would follow the edge of the reef. These strings consisted of juveniles and adults of three morphs: white-tailed brown, brown, and white. These groups usually consisted of two to three juveniles for every white morph, one white-tailed brown morph for every six white morphs, and the brown morph was rarely seen.

Great Frigatebird (*Fregata minor*) (P). Commonly observed from Roi-Namur, the northwestern, and the northeastern chains of islands. The majority of the birds were females; I saw only five males and one juvenile (first stage). Kleptoparasitism was evident as the birds attacked boobies and, on one occasion, another Great Frigatebird.

*Cattle Egret (*Bubulcus ibis*) (P). I first saw a Cattle Egret along a row of Coconut Palms (*Cocos nucifera*) at the lagoon side of the south end of Roi-Namur on 27 April 1980; it was in breeding plumage with green legs. On 8 May 1980 I saw supposedly the same bird a second time and photographed it extensively from as close as 10 m. I last saw the bird on 10 May 1980. I saw another individual near the Caribou Lounge on the island of Kwajalein on 24 October 1981. This bird was in fall plumage and may have been the same individual as the one seen in 1980.

Pacific Reef Heron (*Egretta sacra*) (P). Common resident throughout the atoll, where I observed birds of all color phases. The white phase is the most common, the mottled phase second, and the blue phase least common. Mottled birds are randomly blotched with large patches of dark gray-blue and white on the breast, back, and wings, with no two birds appearing identical. I saw two instances of a white phase bird feeding two adult-sized, mottled phase birds after the adult was induced to regurgitate food by begging behavior. Blue phase birds are a slate gray-blue color with a purple sheen visible on the wings in good light, and the bill is much darker than the bills of the white and mottled phases. All three



Mongolian Plover (foreground). Roi-Namur Island, Kwajalein Atoll. October 1981.

Photo by W.L. Schipper

phases have green legs; the upper surface of the feet are green and the underside is yellow. Only one individual had the white throat mentioned in Mayr (1978), and Slater (1970). I was unable to locate a reef heron nest but did observe a pair in breeding plumage, one blue phase and one mottled phase bird, shortly before I left. On one occasion I observed three groups of three of each color phase in a 5-minute period on Roi-Namur.

+*Canada Goose (*Branta canadensis leucopareia*) (P). Following a period of heavy winds and heavy seas on 26 November 1979, two collared and leg-banded Canada Geese showed up on Roi-Namur. One bird died a few days later, and the second bird was observed in a weakened condition on 3 December 1979 and was last seen on 6 December, its fate unknown. I was informed by P.F. Springer of the U.S. Fish and Wildlife Service that both geese were captive-reared birds released on Agattu Island in the Aleutian Islands on 9 August 1979. A fuller account of these recoveries will appear in a separate article.

Green-winged Teal (*Anas crecca*) (P). Three different female-plumaged birds of unknown subspecies were recorded. The first was observed and photographed in November 1978 in the artificial freshwater pond near the Roi-Namur Marina. The second was found dead in an almost empty cement duck pond next to the Roi-Namur Pig Farm on 31 October 1979. The third was observed on Roi-Namur on 1 January 1980.

Northern Pintail (*Anas acuta*) (P). I first observed females on the islands of Roi-Namur and Kwajalein in November 1978. Birds in female plumage were again observed in March 1979, October 1980, and October 1981. The greatest number observed at one time was three. This species is probably a regular migrant to the Marshalls.

Northern Shoveler (*Anas clypeata*) (NP). One individual in female plumage was observed for 20 minutes in the water catchment on Roi-Namur next to the apron between the Community Center and the Dyess Field terminal building on 2 November 1980.

Black-bellied Plover (*Pluvialis squatarola*) (NP). One individual in fall plumage was observed for approximately 5 minutes on the beach next to the Jackaroo Club on Roi-Namur on 15 November 1981. Note was made of its white and black mottled plumage, and black axillaries when it flew.

Lesser Golden-Plover (*Pluvialis dominica fulva*) (P). Common-to-abundant migrant on most islands which have open space. Some individuals are present all year. Breeding plumaged individuals have been observed as early as April, with the majority



Aleutian Canada Goose. Roi-Namur Island, Kwajalein Atoll. December 1979.

Photo by W.L. Schipper

observed in May. No arrival and departure dates were recorded. A banded bird killed by a cat was found by Mr. G. Aby on 29 October 1981. The band had Cyrillic lettering, and one word resembled MOSKVA. No information as to the bird's origin was received by Mr. Aby prior to my departure.

Mongolian Plover (*Charadrius mongolus*) (P). An individual in winter plumage was observed on the beach of the tidal pond near the Motor Pool on 10 October 1981 on Roi-Namur. Presumably the same individual was photographed 12 October 1981 at the same location. Identification was confirmed by J.P. Myers (R. Cardillo pers. comm.). I also observed a bird on Roi-Namur on four occasions in October 1982, once in November 1982, and twice in December 1982. I presume that the bird seen in 1982 was a single individual. This species is possibly present every year in the atoll.

*Greater Yellowlegs (*Tringa melanoleuca*) (NP). One individual was observed for 5 minutes near a puddle behind the water storage tanks on Roi-Namur on 21 October 1978. Note was made of its long, dark, slightly upturned bill, white eye stripe, yellow legs and feet, and the fact that it was larger than the nearby Lesser Golden-Plovers. Shortly afterward the bird flew and it was not seen again. This species is a vagrant to the atoll.

*Wood Sandpiper (*Tringa glareola*) (P). An individual was observed for 20 minutes in the roadside grass opposite the former Japanese Command Post on Roi-Namur on 16 October 1982, following about 10 days of steady, heavy southwest winds. The bird seemed to be in good condition as it hunted insects in the grass. It allowed me to approach to within 10 m before it would "teeter" from the tail, somewhat reminiscent of the Wandering Tattler (*Heteroscelus incanus*). Identification from photographs was confirmed by J.P. Myers (R. Cardillo, pers. comm.). This is the first published record of this species in Kwajalein Atoll and the second record for the Marshall Islands (Hailman 1979).

Wandering Tattler (*Heteroscelus incanus*) (P). Common migrant, found throughout the atoll. It is most common in late fall and winter. Birds in both breeding and winter plumage can be found at various times of the year. Distinguished from the similar Gray-tailed Tattler (*Heteroscelus brevipes*) in spring by its overall darker gray plumage and heavier ventral barring. In fall the Wandering Tattler can be distinguished by its somewhat larger size, interrupted trans-bill stripe (Gibson 1978), and by its distinctive call.

Gray-tailed Tattler (*Heteroscelus brevipes*) (P). Uncommon migrant on Roi-Namur; may be more common on other islands in



Black-tailed Godwit. Roi-Namur Island, Kwajalein Atoll. September 1978.

Photo by W.L. Schipper

the atoll. It is best distinguished from the Wandering Tattler (*H. incanus*) by its call "ter-wee, ter-wee" or a series of three to four "ter-wee's" given in flight when the bird is alarmed (Slater 1970).

Whimbrel (*Numenius phaeopus variegatus*) (P). Common migrant to the atoll. This subspecies differs from the Whimbrels of eastern North America (*N. p. hudsonicus*) in having a white patch on the rump and lower back. R.L. Pyle and R.J. Shallenberger confirmed subspecific identification. These birds are very vocal, emitting a loud raucous call when disturbed. Another call is heard when one Whimbrel threatens another. The second call resembles that of a Willet (*Catoptrophorus semipalmatus*).

Bristle-thighed Curlew (*Numenius tahitiensis*) (NP). I have observed this migrant from Roi-Namur (once) to the island of Debuu, with the majority of sightings on the island of Ennumennet. This bird seems to prefer to feed on islands with little or no human habitation, and where a silty ooze collects on the ocean side between the beach and the reef. I distinguished the Bristle-thighed Curlew from the similar Whimbrel by its cinnamon colored abdomen, rust colored rump and tail, and by its call, a whistled "wheeo-it."

*Black-tailed Godwit (*Limosa limosa*) (P). Two in partial breeding plumage were found near the Dyess Field terminal building on Roi-Namur by G. Ross on 4 September 1978. I later photographed and observed them by the Jackaroo Club, and near the now defunct Army Optical Site. Both birds remained on the island for a few days, allowing me to approach to within 3 m. Photos were identified by R.L. Pyle and R.J. Shallenberger. An individual of this vagrant species was again seen on Roi-Namur on 25 August 1982. This bird was joined by five other birds on 14 September 1982, two of which were last seen 20 October 1982. Field marks that distinguish this species from the similar Hudsonian Godwit (*Limosa haemastica*) include a broad white wing stripe, and white axillaries and wing linings. These are the first records for the Marshall Islands.

Bar-tailed Godwit (*Limosa lapponica*) (P). Fall migrant which was observed almost every year on the islands of Roi-Namur and Kwajalein. Anywhere from one to three birds were present on Roi-Namur from November to April, and once in June. Photos were identified by R.L. Pyle and R.J. Shallenberger.



Wood Sandpiper. Roi-Namur Island, Kwajalein Atoll. October 1982.

Photo by W.L. Schipper

Ruddy Turnstone (*Arenaria interpres*) (P). This common migrant is found in all plumages and in large numbers almost all year on most of the islands of Kwajalein Atoll. It is the most numerous migrant and is present on golf courses and lawns as well as beaches and reefs.

Sanderling (*Calidris alba*) (P). This regular migrant has been observed in small numbers on the islands of Roi-Namur and Ennumennet. Sanderlings were usually found probing the sand at the water's edge at low tide, and on rocks at high tide.

Pectoral Sandpiper (*Calidris melanotos*) (P). An individual was observed on Roi-Namur during October 1982 both with and without the similar Sharp-tailed Sandpiper (*C. acuminata*). I distinguished the Pectoral Sandpiper from the Sharp-tailed Sandpiper by its larger size, prominent streaked breast which forms an abrupt border with the white belly, and its lack of a prominent chestnut cap.

Sharp-tailed Snadpiper (*Calidris acuminata*) (P). This species is a regular fall migrant arriving in October. The Sharp-tailed Sandpiper is distinguished from the Pectoral Sandpiper by its chestnut cap, and cinnamon-buff breast that does not form a border where it meets the belly.

*Ruff (*Philomachus pugnax*) (P). I saw a Ruff first on the golf course across from the basketball courts on Roi-Namur on 23 September 1979. The bird remained through October 1979. I found another bird on Roi-Namur in October and November 1980, and another on 11 January 1981. An adult bird in fall plumage was found at the dump on Roi-Namur on 23 September 1982, and was seen on the golf course on several occasions until 1 December 1982. This species was first reported from the Marshalls at Enewetak Atoll in 1978 (Hailman 1979). My sightings indicate the species may be a rare but regular visitor.

*Oriental Pratincole (*Glareola maldivarum*) (P). This vagrant was first observed on the southwest lagoon side of the runway on Roi-Namur on 16 October 1982, following 10 days of steady, heavy southwest winds. I observed what was presumably the same bird on five occasions in October 1982. The bird was last seen on 7 November 1982. The bird had smoky-gray to black tern-like wings that extended past the tail when folded, a white rump, a black swallow-like tail which was edged with white; and rufous underwing coverts. This bird had the habit of leaping into the air after insects and also hawking for insects aerially, much like a nighthawk (*Chordeiles*). The bird would also return to the same spot of land after chasing an insect, which enabled me to approach to within camera range.



Ruff. Roi-Namur Island, Kwajalein Atoll. September 1979.

Photo by W. L. Schipper



Oriental Pratincole. Roi-Namur Island, Kwajalein Atoll. October 1982.

Photo by W. L. Schipper

Crested Tern (*Sterna bergii*) (P). This resident of the atoll is found mostly in the northern islands. I observed individuals in breeding, non-breeding, and juvenile plumage, from the islands of Roi-Namur to Gagan in the east to Nell in the west.

Black-naped Tern (*Sterna sumatrana*) (P). This is a common resident throughout the atoll. On 26 August 1979 I located six nests with one or two eggs or downy young each, 5 m from the east side of the helipad on the island of Gagan, 13 km south of Roi-Namur. The nests, on the ground amongst grasses and Beach Burr (*Triumfetta procumbens*), consisted of 9 cm circles of gray coral pebbles, each 3-6 mm in size. The eggs were oblong, roughly triangular in profile, gray spotted with tan and black flecks, and approximately 3.8 cm in length. Downy young were approximately 5 cm in length. The head and back were grayish-white speckled with black; the eye, black; the bill, legs and feet, orange-red; and the neck, breast, and abdomen white.

*Little Tern (*Sterna albifrons*) (NP). One individual was observed for 10 minutes in poor light just before sundown on the southeast end of Roi-Namur on 26 July 1981. The bird was smaller than the nearby Black-naped Terns. It had a white forehead, black crown and yellow bill. The wings and back were gray as in the Common Tern (*Sterna hirundo*). The tail was white, square and slightly forked; and the underparts white. The white tail distinguishes this species from the very similar Least Tern (*S. antillarum*) which has a gray rump and central part of the tail (*vide* H.D. Pratt). The bird flew with constant, rapid wingbeats, and would hover and then dive into small waves coming over the reef.

Sooty Tern (*Sterna fuscata*) (NP). A total of five individuals in adult plumage were observed. The first bird was observed near Marita Shoals in the lagoon to the east of Gehh Island. The other four birds were seen in different years from the SCUBA Shack near the Roi-Namur Marina, and also over the reef opposite the southwest end of Roi-Namur. One dead bird in juvenile plumage was found behind a building on the western side of Roi-Namur, its cause of death unknown. The specimen was not retained. This species breeds elsewhere in the Marshall Islands (Baker 1951), and is probably a transient through Kwajalein Atoll.

Brown Noddy (*Anous stolidus*) (P). A resident breeder in the atoll, this species nests on the islands of Obella, Edgigen, Debuu, Edjell, and Gagan and possibly other islands. Brown Noddies are outnumbered by Black Noddies (*Anous minutus*) in the atoll.

Black Noddy (*Anous minutus*) (P). This common resident breeder in the atoll nests on the same islands as the Brown Noddy. Nesting of both species has been observed in *Pisonia* trees (*Pisonia grandis*). Both species of noddies can be found throughout the atoll.

White Tern (*Gygis alba*) (P). This common resident of the atoll I observed nesting on the islands of Roi-Namur, Ennumennet, Obella, Edgigen, Debuu, Edjell, and Gagan. The White Tern lays an egg on a flat area of a branch of such trees as *Pandanus* (*Pandanus tectorius*), *Pisonia*, and Breadfruit (*Atrocarpus altilis*) trees.

+*Fork-tailed Swift (*Apus pacificus*) (P). I initially observed three birds on a heavily overcast day over the southwest end of Roi-Namur on 31 October 1982. On 1 November 1982 I observed and photographed two birds in excellent light for a period of approximately one half-hour. Two birds were again observed on 2 November, and one bird was last seen on 7 November 1982. My photographs are the first documentation of this species in Micronesia. The bird was mostly dark gray-blue with a prominent white rump and gray face and throat. The tail was deeply forked, the wings long and narrow. Flight consisted of rapid wingbeats interspersed with glides. This species breeds from eastern Siberia, Kamchatka and the Commander Islands south to northern India, the Malay Peninsula and southern China, and winters from the Himalayas and Malay Peninsula south to New Guinea, Australia, and New Zealand. In migration this bird ranges casually (primarily in summer and fall) to the Pribilof (St. George, St. Paul) and western Aleutian (Agattu, Shemya) Islands. It is listed as accidental in the Seychelles (A.O.U. checklist 1983), and on an oil rig in the North Sea (British Birds 1983).

+*Sacred Kingfisher (*Halcyon sancta*) (P). I saw one individual first on Roi-Namur across the road from the chicken farm on 5 April 1981 in the early evening. I observed and photographed presumably the same bird on several occasions in April, June, July, and August 1981. On 11 July 1981 I saw two individuals together in a Beach Heliotrope tree (*Messerschmidia argentea*) in the chicken farm on Roi-Namur. The first bird observed had a rusty colored patch in front of, and slightly above the eye, a black bill, black line through the eye, turquoise-green head, white throat, cream-colored breast, rusty sides, black legs and feet, olive-green back, and white nuchal collar. The first bird's rapid, direct flight and its propensity for perching deep within the branches of a Beach Heliotrope along the beach made it difficult to photograph. The second bird was observed only on 11 July 1981. They were silent during my observations. This species migrates north to the Solomon Islands from Australia during the Austral winter (Mayr 1945). The birds I saw were probably migratory overshoots. This species is distinguished from the two other kingfisher species which occur in Micronesia, the Collared (*H. chloris*) and Micronesian (*H. cinnamomina*) kingfishers, by the white underparts of the former in Micronesia and Melanesia, and the latter being sedentary and unlikely to wander (fide H.D. Pratt). Photographs were identified by J. Engbring.

Eurasian Tree Sparrow (*Passer montanus*) (P). This introduced species is a common resident on the island of Kwajalein at the southern tip of the atoll. I found it from the Kwajalein Nursery north to the Pacific Bachelors Quarters (P.B.Q.), and Pacific Dining Room (P.D.R.) area. The sparrow is most common around the Island Memorial Chapel-Richardson Theater area. Although I searched for evidence of nesting, I found no nests. However, I did note the presence of many juvenile birds with adults each time I traveled to Kwajalein. On several occasions I noted birds "diving"

into the dead thatch-like leaves of the *Pandanus* trees along Ocean Road next to Dally Field. The birds' nests may be located in these trees.

ACKNOWLEDGEMENTS

First, I am most grateful to my former employer, RCA International Service Company. I offer special thanks to a number of individuals who assisted: Drs. Robert L. Pyle with the Bishop Museum in Honolulu and Robert J. Shallenberger (USFWS) for identification of photos, for information on references, and for Dr. Pyle's review of this manuscript; Robert Cardillo and Dr. J.P. Myers at the Academy of Natural Sciences in Philadelphia for identification of photos and granting access to VIREO's slide files; Peter B. Pyle and John Engbring (USFWS Honolulu) for identification of photos, providing me with references, and for Mr. Engbring's generous help on the rough drafts of this manuscript; Dr. H.D. Pratt, Research Associate, Louisiana State University Museum of Zoology, Baton Rouge, LA, for reviewing this manuscript, offering many helpful hints, and for the identification of the Little Tern; Marie Morin for supplying guidelines for this manuscript; Paul F. Springer of the USFWS Aleutian Canada Goose Recovery Team, Arcata, CA, for information about the Aleutian Canada Geese; and James B. Caskey of Kwajalein for providing references and guidance. Lastly, I would like to thank the Roi Rats, especially Guy L. Ross, Charlie Felton, and Barry Harless, for putting up with the island's only birder for 5 years.

LITERATURE CITED

- American Ornithologist's Union. 1983. Checklist of North American Birds. Sixth ed. Univ. Kansas, Lawrence, Kansas. 877pp.
- Amerson, A.B. Jr. 1969. Ornithology of the Marshall and Gilbert Islands. Atoll Res. Bull. 127:151-164.
- Baker, R.H. 1951. The avifauna of Micronesia, its origin, evolution, and distribution. Univ. Kansas, Lawrence, Kansas. 359pp.
- British Ornithologist's Union. 1983. Report on rare birds in 1982. British Birds 76(11):503-504.
- Bryan, E.H. Jr. 1965. Birds of the Marshalls. Kwajalein Hourglass. Kwajalein Atoll, Marshall Islands. 2pp.
- _____. 1971. Guide to place names in the Trust Territory of the Pacific Islands (the Marshall, Caroline, and Mariana Is.). Bernice P. Bishop Museum, Honolulu, Hawaii.
- Gibson, D.D. 1978. Separation of tattlers and snipe. 'Elepaio 39(1):8.
- Hailman, J.P. 1979. Notes on birds of Enewetak Atoll, Marshall Islands. 'Elepaio 40(6):87-90.
- Hawaii Audubon Society. 1967. Hawaii's birds. Hawaii Audubon Society, Honolulu, Hawaii. 88pp.
- King, B., M. Woodcock and E.C. Dickinson. 1975. A field guide to the birds of South-East Asia. Collins & Sons, London. 480pp.
- Mayr, E. 1945. Birds of the Southwest Pacific. Reprinted in 1978 by Charles E. Tuttle Co., Rutland Vermont and Tokyo. XXV + 316 pp.
- Owen, R.P. 1977. A checklist of the birds of Micronesia. Micronesica 13(1):65-81.
- Perry, F. and R. Hay. 1982. A field guide to tropical and subtropical plants. Van Nostrand Reinhold Company, New York, New York. 136pp.

Peterson, R.T. 1980. A field guide to the birds East of the Rockies. Fourth ed. Houghton Mifflin Company, Boston, Massachusetts. 384pp.

_____, G. Mountfort and P.A.D. Hollom. 1979. A field guide to the birds of Britain and Europe. Third ed. Wm. Collins & Sons Ltd., London. xxxv + 344pp.

Robbins, C.S., B. Bruun, H.S. Zim and A. Singer. 1966. A guide to field identification—birds of North America. Western Publishing Co. (Golden Press), New York, New York. 340pp.

Slater, P. 1970. A field guide to Australian birds. Vol 1, non-passerines. Rigby Ltd., Sydney. xxxii + 428pp.

_____. 1976. A field guide to Australian birds. Vol 2, passerines. Rigby Ltd., Sydney. xv + 309pp.

Whistler, W.A. 1980. Coastal flowers of the tropical Pacific. Oriental Publishing Company, Honolulu, Hawaii. 83pp.

13 Robin Road
Moorestown, NJ 08057

Leucistic Wing Patches in Dark-rumped Petrel and Audubon's Shearwater

by Floyd E. Hayes and William S. Baker

Leucism in varying degrees has been reported in several species of Procellariids (see Terres 1980), but apparently not in the Dark-rumped Petrel (*Pterodroma phaeopygia*) or Audubon's Shearwater (*Puffinus lherminieri*).

During the summer of 1984 we spent 60.8 hours at sea censusing seabirds in the Galapagos Archipelago, and counted 569 Dark-rumped Petrels and 3,095 Audubon's Shearwaters. On 15 July 1984 we saw an Audubon's Shearwater with an approximately 5x5 cm white patch near the center of the dorsal surface of the left wing. The bird flew past our ship about 1 km east of Volcan Darwin on Isla Isabela. On 17 July 1984 we saw a Dark-rumped Petrel with an approximately 3x5 cm white patch near the center of the dorsal surface of the right wing as the bird flew past our ship halfway between Isla Isabela and Isla Santiago. Both birds were viewed from approximately 15 meters in good light.

The white wing patches of these birds resembled those of several species of Procellariids, perhaps indicating similarity in genetic control, but may also represent a systemic failure to produce eumelanin. Our quantitative data suggests that leucistic feathers may occur in less than 0.05% of the population of these two species.

ACKNOWLEDGEMENTS

For their comments which helped improve this note we thank R.C. Banks, J.P. Hailman, W.K. Hayes, and M.J. Rauzon.

LITERATURE CITED

Terres, J.K. 1980. The Audubon Society encyclopedia of North American birds. Alfred A. Knopf, New York.

Department of Biology
Loma Linda University
Riverside, CA 92515

Red-Tailed Tropicbirds on Manana Island

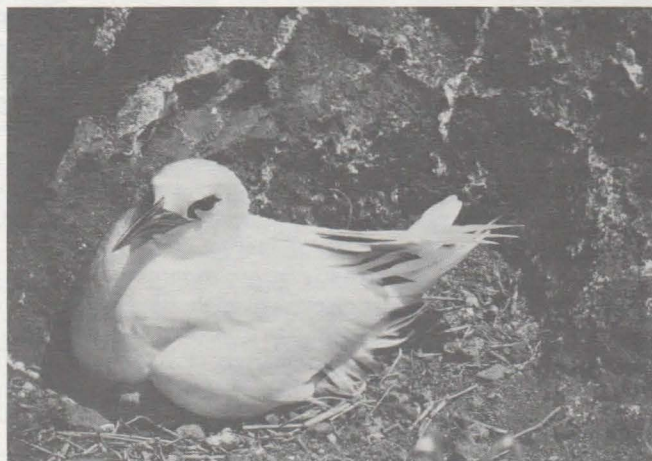
by Jack Swenson

Red-tailed Tropicbirds (*Phaethon rubricauda rothschildi*) are pelagic seabirds common to the Hawaiian Islands. Though they breed in large numbers in the Northwest Hawaiian Islands east to Kaula Island near Niihau, they have only recently extended their breeding range farther eastward in the main islands.

In August of 1967 Hawaiian Audubon Society members on a field trip discovered a single nest of this species on Manana Island off windward Oahu. The nest, located in a cavity high on the cliffs along the northwest side of the island, contained an adult bird with a "medium-sized downy chick" (Whitten and Editor 1967). Though Red-tailed Tropicbirds had been sighted around Manana in prior years (Richardson and Fisher 1950; Dave Woodside pers. comm.) this was the first documentation of this species breeding east of Kaula in the main Hawaiian Islands (Whitten and Editor 1967).

In 1968 a single tropicbird chick was seen in a nest on Manana in August, but it disappeared before fledging (Kaigler 1968). No nests were found the following year despite regular field work on the island and the presence of up to seven adult tropicbirds (Shallenberger 1970). There were no further reports of tropicbirds nesting on Manana until the mid-seventies when Shallenberger (1974) saw two birds in a suspected nest site, though it was inaccessible and could not be confirmed. In 1976 a bird was observed nesting on the north side of the island (Burke 1976). During the following six years an occasional nest was found on Manana, though no more than two were ever discovered in any year (Hirai 1978; Pyle 1979; Ted Pettit pers. comm.). Seasonal field trips to the island, organized by Hawaiian Audubon Society, have yielded much information regarding nesting activity as well as a notable increase in tropicbird sightings around Manana in recent decades.

During the summers of 1983, '84, and '85, while involved in a study of Wedge-tailed Shearwaters on Manana, I was able to search intermittently for Red-tailed Tropicbird nests. Only two nests were located in 1983. In 1984 there was a dramatic increase in the numbers of tropicbirds nesting on Manana, and a total of ten active nests were found. In 1985 I located eleven nests, and of these a greater percentage successfully fledged young than in the previous year.



Red-tailed tropicbird on nest. Manana Island, Oahu.

Photo by Jack Swenson

During these three years tropicbirds nested along the south (facing Sea Life Park) slope of the island, except for one site located on the east side (facing Makapuu Point). The more traditional sites along the northwest cliff were not occupied in these years. The south side of the island was searched by Ted Pettit (pers. comm.) from 1978 to 1981, but there were no nests found in this area during that time.

Red-tailed Tropicbirds use a variety of types of nest sites depending on the available habitat on any specific island. On the low-lying northwest Hawaiian Islands they typically nest on flat ground beneath vegetation for shade (Fleet 1974). On Manana, as on numerous other Pacific islands including Nihoa, Necker, and Kaula, these birds nest in rock cavities or under large boulders for shade, sometimes in fairly steep terrain. (Stewart Fefer and Robert Shallenberger pers. comm.; also Hindwood, Keith, and Serventy 1963). On Manana nest sites range in altitude from about two feet above the beach, to just below the summit at over three hundred feet. There is also considerable variation in the depth of the cavity used. Most of the nest cavities are from one to two feet deep. At the extremes, there was one pair that nested with virtually no cover from the sun, but their chick died shortly after hatching. Another pair successfully reared a chick in an eight to ten foot deep cavity, about two feet in diameter, in a cliff face. As long as there was sufficient shade provided, there did not seem to be any effect of nest site locality or dimensions upon breeding success.

Of the two known nests in 1983, one successfully fledged a single young between 22 June and 9 July. The other nest had an egg laid in it on 8 August, but within three days the site had been abandoned and the egg broken. In addition to the two nests that year, there was also a great amount of tropicbird activity around the island. This was most noticeable in August during which time there were regularly from two to eight adult Red-tailed Tropicbirds engaged in courtship flight over the south shore of the island. Their activity centered around the latter nest site, mentioned above. The loss of that egg may have been the result of intraspecific aggression between these courting birds as has been noted frequently in this species (Pettit 1983).

Of the tropicbirds that were confirmed to have laid an egg on Manana in 1983 or 1984 there was 50% success in rearing chicks to fledging each year. There was a noticeable difference in the timing of egg laying between the successful pairs and those which failed. The earlier nesters, which hatched chicks by the first of June or earlier, all successfully fledged young. All of the unsuccessful pairs laid at much later dates, as these birds were still incubating as of the first of July (except the pair noted previously which did not lay until August of 1983). Data is insufficient to indicate whether this difference is an age-related phenomenon, or due to climatic or other factors such as food availability.

In 1985, of eleven known nests, at least eight pairs successfully fledged young (as of this writing, one nest still contains a medium-sized chick, one pair is still incubating, and one other egg laid on 23 June has apparently been abandoned). Throughout the summer months there were many more birds frequenting the island than in either of the two previous years. Birds were engaged in courtship flight around the island daily throughout the season, often four to eight birds at a time, with a maximum count of twelve birds on several occasions. These birds, involved in courtship displays, were never seen to land at an active nest site, but rather, they would regularly land and temporarily occupy what appeared to be prospective nest sites. Fleet (1974) noted similarly courting birds



Red-tailed Tropicbird and chick. Manana Island, Oahu.

Photo by Jack Swenson

during the breeding season on Kure and contended that these were nonbreeders, probably young birds. If this is the case on Manana, the increased number of courting birds around the island in August of 1983 may have led to the rise in numbers of nesting birds the following year.

Five Red-tailed Tropicbird chicks were successfully reared on Manana in 1984, and at least eight young fledged in 1985. The most known to fledge from this island in any previous year were two, so this is indeed a dramatic increase in their breeding success there. Coupled with this increase in breeding effort, there continue to be growing numbers of tropicbirds frequenting the island throughout the breeding season, an encouraging indication that this wonderful trend will continue.

ACKNOWLEDGMENTS

I would not have been able to gather this incidental information were it not for the funding of a separate project by the U.S. Department of Interior Minerals Management Service in contract with Nero and Associates, performed under the direction of D.M. Fry and C.R. Grau of the University of California at Davis. Ted Pettit, Stewart Fefer, Robert Pyle, and Rob Shallenberger, added helpful comments on this paper. I am also grateful to the Hawaii State Department of Land and Natural Resources for granting entrance permits to Manana Island.

LITERATURE CITED

- Fleet, R.R. 1974. The Red-tailed Tropicbird on Kure Atoll. Ornithol. Monograph No. 16. 64 pp.
- Hindwood, K.A., Keith, K., and Serventy, D.L. 1963. Birds of the Southwest Coral Sea. Aust. Div. of Wildlife Research, Technical Paper No. 3. 44 pp.
- Hirai, L.T. 1978. August Field Trip: Manana Island. *Elepaio* 39 (4): 42-43.
- Kaigler, C.G. 1968. Field Trip to Manana, 8 September 1968. *Elepaio* 29(4): 35.
- Pettit, T.N. 1983. Fighting Behavior in Red-tailed Tropicbirds. *Elepaio* 43(10): 82-83.
- Pyle, R.L. 1979. Hawaii Bird Observations. *Elepaio* 40(1): 13-16.
- Richardson, F., and Fisher, H.I. 1950. Birds of Moku Manu and Manana Islands Off Oahu, Hawaii. *Auk* 67(3):285-308.
- Shallenberger, R. 1970. Manana Field Notes: April-August 1969. *Elepaio* 30(7): 61-64.

Shallenberger, R. 1974. Manana Island Field Trip. *Elepaio* 35(4): 43-44.

Whitten, H., and Editor 1967. Field Trip to Manana Island. And Editor's note. *Elepaio* 28(4):34.

18 Ridge Road
Concord, NH 03301

AUGUST MEETING REPORT

The speaker for the 19 August general meeting of Hawaii Audubon Society was Dr. Fern Duvall, who has been at Pohakuloa since June of 1984. Dr. Duvall has a Ph.D. in Zoology from Berlin, and talked on the "Endangered 'Alala" (Hawaiian Crow).

Hawaii's 'Alala is an endangered species that ranks with the Whooping Crane and California Condor in the scarcity of its numbers and its slide toward extinction. Its vanishing habitat is the wet ohia rain forests of the Big Island. Currently, it is in the captive breeding program at Pohakuloa.

The 'Alala is described as a large, black *Corvus*, 46-66 cm. (18-25 inches) long; the female is smaller than the male, weighing about one pound to the male's 20 ounces. A slide was shown of the male adult 'Alala to point out its very heavy, sturdy feet and heavy, stout bill. Dr. Duvall said it may be related to other Pacific Island crows, but study needs to be done on this relationship, as there are 40 species of *Corvus*.

The 'Alala is a very territorial bird, which, once mated, defends its territory strongly. In 56-60 days the chicks (no more than 2 in a brood) are fledged, but remain with the parents for one year, or until the next brood; thus, it has a longer than usual period of dependence on the parents. Duvall noted that one young bird of the second year had been seen with its parents.

The 'Alala is now found only on the island of Hawaii; south and north of Kona and the west side of Hawaii were its habitat in 1890. Its normal range was from 1,000 to 8,000 ft. elevation. The species was observed as greatly reduced in 1910, and by the 1940s was gone from lower elevations. Another marked decline was noted in the 1950s, where it was also declining at its highest elevation. As of the 1970s, only 40 remained. As of 1985, fewer than ten wild birds remain.

What has caused this? Shooting and habitat destruction, introduction of disease by exotic birds (possibly bird malaria or bird pox, but these are not confirmed) were the principle causes of decline. Dr. Duvall showed slides of Hawaiian Crows thought to be infected with bird pox. There were also in-

teresting slides of baby birds, native ohia forests, and a tape recording of the bird's call, a kind of haunting, wild, wailing sound. Most calling is done at dawn or evening, but not during daylight. Females do most of this calling at complete darkness. The calls vary as the hour progresses toward light of day.

The final section of his presentation showed slides of the captive breeding station at Pohakuloa, where there are nine 'Alala, ranging in age from 2 years up to 12 years. In captivity, they may live to 25 years, and can continue to breed. However, mating and breeding activities at Pohakuloa are hampered by military activities, and other man-made disturbances. The hope is to move the facility to a better elevation with more equable temperature. At the present location, the temperature ranges from below freezing to 80 or more degrees.

There are other problems in captive breeding: stress may be shown by the male pulling out feathers of his mate, and a female may pull out her own feathers and devour them. There is also difficulty in getting them to mate; stress activities occur mainly during the mating season.

The final slide showed a hopeful picture of a field of numerous birds, ravens and jackdaws.

Betty L. Johnson

THREE PLANTS PROPOSED FOR ENDANGERED CLASSIFICATION

Three species of plants were proposed by the U.S. Fish and Wildlife Service in the *Federal Register* on July 16, 1985, for listing as endangered species (see Endangered Species Technical Bulletin, Vol. 10. No. 8). The plants are: *Scaevola coriacea*, a strand nau-paka with remnant populations on Maui and off-shore islets; *Hibiscadelphus distans*, a hibiscus relative known only from a population of ten trees on Kauai; and *Abutilon menziesii*, another hibiscus relative with dwindling populations on Maui and Lanai. If the listing proposal becomes final, all three plants will receive protection under Section 7 of the Endangered Species Act from any adverse effects of federal actions. Other protection includes possible federal aid to state conservation programs, development of recovery programs, and restrictions on trafficking in listed species.

GRENVILLE HATCH

Miss Grenville Hatch, Charter Member and Honorary Life Member of Hawaii Audubon Society, passed away peacefully in her sleep 29 September, 1984 in La Jolla, California. Grenville, a gentle and effective lady, was devoted to the Society and to the principles of protecting and preserving Hawaii's native wildlife.

Long a pillar of strength in the Society, she provided leadership and served in many capacities during its first twenty years. As teacher and librarian at Roosevelt High School in Honolulu, she encouraged an appreciation for Hawaii's unique plant and bird life among staff members and students, and introduced many to the Audubon Society.

Following the Pearl Harbor attack in December 1941, it was largely through her efforts that the Society survived that first year. Although there were few active members still able to participate, meetings were held regularly, the *'Elepaio* got published monthly, and field trips continued, albeit with gas masks hung over shoulders along with binoculars. It wasn't long before young servicemen interested in ornithology joined the ranks. Dean Amadon and Howard Cogswell were among these.

In 1945 Grenville was elected the Society's second President, and served again as President in 1947 and 1953. When not President, she was always active on the Board of Directors and at times as *'Elepaio* editor. In 1954 the Society published the first field card checklist of Hawaii's birds, with the following dedication printed in the *'Elepaio*:

THE SOCIETY'S NEW FIELD CHECK CARD--
Since its founding 15 years ago, the Hawaii Audubon Society has been very fortunate in having the loyal support and leadership of Miss Grenville Hatch. As a charter member and elected officer of the Society, and as leader and chief recorder on field trips, hers has been the guiding voice during Hawaii's most turbulent and eventful period. In appreciation of her devoted service, and because her knowledge of Oahu birds and her determination to keep field records were unmatched in the Society, this check card is most gratefully dedicated to Grenville. Although she is now in southern California, the best wishes of the Society go to her, and with them the hope that she may soon come back and use this card in the manner in which she would have so enjoyed doing in times past.

Grenville was then travelling for a year on the mainland, enjoying birding in many places including Washington state, California, Texas, Florida, and finally as Hawaii Audubon's delegate to the Audubon Camp of Connecticut. Shortly afterward, she visited Japan and Australia. During this period, she sent numerous articles and letters to the *'Elepaio* with glowing descriptions of her birding experiences.

In 1949, Grenville had compiled a little pamphlet titled "Hawaiian Birds" which was published in mimeograph form by the Department of Public Instruction "upon an experimental basis" to acquaint school children with the birds and their nests, eggs, and food habits. Ten years later, in 1959, Hawaii Audubon Society published its first guide book, under the same title, and again almost completely written and compiled by Grenville Hatch. This attractive booklet, illustrating most of the common birds, was the forerunner of the Society's current guide book, "HAWAII'S BIRDS", long a classic after seven editions over 18 years.

In 1962, Grenville moved from Hawaii to Casa Manana, a retirement home in La Jolla, California. There she continued her interest in Hawaii and in birds, although she felt frustrated during her last years that gradual loss of eyesight and hearing was preventing her from enjoying the birds as she had in the past.

Thus, we record the passing of Grenville Hatch with a great sense of loss among those who knew her, and with renewed appreciation for her accomplishments and contributions to the Society over more than two decades.

NOMINATING COMMITTEE FORMED

The Hawaii Audubon Society's Nominating Committee has been named. They are: Suzan Harada (948-8191), Steve Montgomery (941-4974), and Marie Morin (533-7530).

Anyone who wants to recommend him or herself, or someone else, as an officer or director for the 1986 Board of Directors should write the Committee c/o HAS, P.O. Box 22832, Honolulu, Hawaii 96822, or call any one of the members of the Committee listed above. The Committee appreciates any input from the general membership of HAS.

VOLUNTEERS NEEDED FOR REFUGE PROGRAMS

In April, 1985, James Campbell National Wildlife Refuge (NWR) was adopted by the Hawaii Audubon Society (HAS). One of the goals of this Adopt-A-Refuge program is to promote education and interpretation on the refuge. HAS is proposing to help the refuge staff by occasionally taking over the responsibility of leading group tours to the Kii Unit of James Campbell NWR. This refuge is located on the north shore of Oahu near the village of Kahuku.

Tours are primarily requested by school classes; however, other organizations occasionally request a field trip. Group tours are given on weekdays and weekends. Those wishing to be part of this docent program will be required to learn the following information and present it during a refuge tour:

- Goals and objectives of the refuge
- James Campbell NWR history
- The Kii Unit management program
- Endangered waterbird program
- Flora and fauna of the refuge
- General ecology of the Kii Unit
- Research studies being conducted on the Kii Unit

A one-day training session will be held on Saturday, November 9. A group of at least ten docents are needed to conduct the training session. Docents will be asked to volunteer for at least three tours a year. For more information, contact Phillip Bruner (HAS Adopt-A-Refuge Chairman) at 293-3820 (office) or 293-1022 (home) or Jim Krakowski (Wetlands Refuge Manager) at 546-5608.

ALOHA TO NEW MEMBERS

We welcome the following new members and encourage them to join in our activities.

Local Members and Subscribers:

Barbara Adams-Pederson, Hanover, NH;
Wilma Anderson, Dallas, TX; John Beatty,
Cindy Alberts Carson, Pasadena, CA; Deborah
M. Cotter, Alameda, CA; Dollyann Daily,
Memphis, TN; Arthur L. Edwards, Livermore,
CA; Bob Figy, Berkeley, CA; Robert Fleisher,
Honolulu, HI; Louis A. Johnson, Makawao, HI;
Robertta Kakazu, Lihue, HI; Allen Kirk, Tulsa,

OK; Woodrow Lackey, Honolulu, HI; Joan B.
Lare, Columbia, SC; Gerry Luard, Kaneohe, HI;
Francis Maher, Philadelphia, PA; Christy
Martin, Littleton, CO; Betty Nesvold, Hono-
lulu, HI; Robert L. Norton, St. Thomas, USVI;
Katherine Rothschild, Kaneohe, HI; John
Schooley, Berkeley, CA; Donald S. Simonds,
Kihei, HI; Julie Terrell, Makaha, HI;
Florence T. Tokuda, Honolulu, HI; Steven P.
Viola, New York, NY; Diane Wild, Pasadena,
CA; Joyce A. Wolf, Lawrence, KS; Dan
Yashima, Honolulu, HI.

Susan Schenck

BISHOP MUSEUM NEEDS YOUR HELP

The Bishop Museum Association has recently undertaken an energetic drive to increase membership, as part of an effort to encourage public use and support of the Museum. Much has been said recently in the media about insufficient funding of the Museum, which relies almost entirely on private donations and income from membership dues, admissions, sales, contracts, and investments (the Museum is not funded by the Bishop Estate).

Here is a chance for interested HAS members to help out. Membership to the Bishop Museum Association also includes numerous benefits at the Museum including an admission pass, discounts at the Museum shop, and free subscription to the Museum's monthly newsletter. Categories of membership cost between \$15 and \$35. For more information, contact the Bishop Museum Association at: P.O. Box 19000-A, Honolulu, Hawaii 96817 or call 847-3511.

HELP WITH 'ELEPAIO

The November issue of the 'Elepaio will be pasted-up 19 October (Sat.) beginning at 12 noon at 1415 Victoria St. #1515. If you want to help, call Marie at 533-7530 for the entry phone number and directions. No experience necessary! We train!

AUDUBON TV SERIES FOR CHILDREN

A new television series for children ages 7-11 is being launched by National Audubon Society and the Young Naturalist Foundation. Called OWL/TV, it will blend entertainment with humor to engender a reverence for nature and an interest in science.

In order to incorporate OWL/TV into the regular programming of our local public broadcasting station the community needs to let the management know of its interest in watching this series. You should write or call:

Programming Manager
KHET & KMEB
2350 Dole Street
Honolulu, HI 96822
Phone: (808) 955-7878

The first program is scheduled to be available 3 November 1985. Mahalo.

PUBLICATIONS OF THE SOCIETY

HAWAII'S BIRDS by the Society (1984). This is the best field guide to our birds, and includes colored illustrations of all native and well-established nonnative species..... \$4.95 plus postage: 85¢ (surface mail) or \$1.03 (air). Hawaii residents only: add 20¢ for tax.

FIELD CHECKLIST OF BIRDS OF HAWAII by R. L. Pyle (1976). A pocket-size field card listing 125 species found in Hawaii with space for notes of field trips. (Postpaid).....\$.25
(ten or more, 10¢ per copy)

GUIDE TO HAWAIIAN BIRDING by members of the Society and edited by C. J. Ralph (1977). Where to go and some idea of what you are likely to see. For the islands of Kauai, Oahu, Lanai, Molokai, Maui and Hawaii (Postpaid).....\$1.50

CHECKLIST OF THE BIRDS OF HAWAII by R. L. Pyle (1983). An authoritative compilation of all species naturally occurring in Hawaii as well as those introduced by man which are currently established as viable populations. Gives each species' status. (Postpaid).....\$2.00

OCTOBER PROGRAM:

WILDLIFE ON THE PRIBILOFS

The guest speaker for the Monday 21 October general meeting will be Stewart Fefer. He will present a slide show on his recent visit to Alaska, focusing on his experiences on the Pribilof Islands. His talk will be on the wildlife and natural history of this beautiful and wild place.

Stewart is a U.S. Fish and Wildlife Service Biologist with the Honolulu area office.

The meeting will be held at the McCully-Moiliili Library on S. King St., Honolulu, at 7:30 pm. The public is welcome to attend this free talk, as well as all the Audubon members, of course!

'ELEPAIO BY AIRMAIL

Members and subscribers wishing to have the 'Elepaio sent by airmail to addresses outside Hawaii may now obtain this service by remitting the additional amount needed to cover airmail postage costs. These amounts for 12 monthly issues are:

U.S. and territories and Canada.....\$4.50
Central America, Caribbean.....\$12.50
S. America, Europe, Africa, Pacific
and Asia.....\$14.50

BACK ISSUES OF 'ELEPAIO

Current prices for back issues of 'Elepaio are listed below. Actual postage charges for shipping will also be added on to these prices.

Vol. 41, No. 1 (July 1980) to present:

50¢ per issue, \$5.00 per volume

Vol. 1 through 40 (1939 to 1979):

\$1.00 per issue, \$10.00 per volume
(5 or more volumes: \$8.00 per volume)

Vol. 1 through 43 (complete set: 1939 to June '83)

\$350.00 for the complete set

OCTOBER FIELD TRIP: WAIPIO WATERBIRDS

The field trip on Sunday AFTERNOON October 13 will visit Waipio Peninsula on Oahu to look for migrant shorebirds and study Hawaii's endangered endemic waterbirds.

NOTE THAT THIS WILL BE AN AFTERNOON TRIP, meeting on Punchbowl Street by 1:00 p.m., and finishing around 5:00 p.m. The ponds where the birds are gathering this year are in better light for viewing in the afternoon, and bird numbers often increase toward the end of the day.

Wear shoes appropriate for walking on dusty dirt roads, possibly mud. If gates are locked, there will be considerable walking. Bring binoculars, a spotting scope if you have one, HAWAII'S BIRDS, a sun hat if desired, and some cool water if convenient.

Participants should gather by 1:00 p.m. on Punchbowl Street between King and Beretania Streets beside the Hawaii State Library, where directions and carpooling will be available. The alternate meeting place will be near the gate across Waipio Pt. Access Road, makai of the entrance to Ted Makalena Public Golf Course, at 1:45 p.m. Leader will be Bob Pyle, 262-4046.

COAST WEEK PAU HANA PREVIEW

Sea Grant Extension is organizing various coastal/marine-oriented events for Coast Week 1985. One of the events we would like help with publicizing is the Pau Hana Preview of 1986 Legislation. This is an opportunity to meet with/talk to legislators and agency officials on your favorite marine/coastal issues. There will be beer and pupus, and it is free and open to anyone who is interested in these issues. It will be held on Friday, October 11 from 5:00 pm to 7:00 pm on the Falls of Clyde.

This event is being sponsored by Sea Grant, Greenpeace, Sierra Club, Hawai'i Chapter, League of Women Voters, and Hawai'i Maritime Center.

For more information, call Chris Woolaway at 548-5433.

HELP HAWAII AUDUBON AT BISHOP MUSEUM FESTIVAL

Volunteers are needed to help at the booth to be sponsored jointly by Hawaii Audubon Society and the Zoology Department of the Bishop Museum, at the Bishop Museum Festival Saturday and Sunday October 19 and 20. Exhibits at the booth will highlight how the Society's birdwatching and conservation activities and the Museum's scientific collections and research programs, interact and support each other.

Audubon members are needed to work in pairs for shifts of 3 hours or so on each day. They will answer questions from the visiting public and sell Society publications. This is an excellent opportunity to visit the Festival, an annual fair of long standing and one of the premier community events of the year.

Please call Bob Pyle or Thane Pratt at 847-3511(Museum) or 262-4046(Bob's home) to find out more, and volunteer to help on this fun project which benefits both the Society and the Museum.

HAS POSTCARD AVAILABLE AGAIN

The high quality color postcard, shown below, that depicts a Hawaiian Monk Seal and Green Sea Turtle sleeping in the Hawaiian Islands National Wildlife Refuge can now be purchased from the Society in lots of 50 for \$6.00 postpaid. Please mail your check to:

Hawaii Audubon Society
Attn: Marjorie Ziegler
P.O.Box 22832
Honolulu, Hawaii 96822



HAWAII AUDUBON SOCIETY

BOARD OF DIRECTORS

President	Sheila Conant	948-8241
1st V.P.	Phillip Bruner	293-3820
2nd V.P.	Peter Stine	395-2191
Treasurer	Mary Engilis	
Rec. Secy.	Keith Fukumoto	395-1106
Cor. Secy.	Suzan Harada	845-6704
Directors	David Boynton	335-5008
	George Campbell	941-1356
	Carl Christensen	847-3511
	Carl McIntosh	262-4337
	Ray Tabata	948-8191
	Rick Warshauer	967-7476

COMMITTEES

Adopt-A-Refuge	Phillip Bruner(Chair)	293-3820
Conservation	Carl Christensen(Chr)	373-3437
	David Boynton	335-5008
	Wayne Gagné	941-5659
	Libby Powell	988-4956
Education	Suzan Harada(Chair)	845-6704
	Ray Tabata	948-8191
	David Boynton	335-5008
Field Trips	Andrew Engilis(Chair)	
	Peter Donaldson	456-5662
	Suzan Harada	845-6704
	Robert Pyle	262-4046
Finance	Audrey Newman(Chair)	732-7572
	Mary Engilis	
	Norris Henthorne	
	Marie Morin	533-7530
	Michael Ord	
	Robert Pyle	262-4046
Grants	Sheila Conant(Chair)	988-3960
	Robert Kinsey	
	Clifford Smith	
	C. Causey Whittow	
Mail Distrb.	Leilani Pyle	
Membership	Robert Pyle(Chair)	262-4046
	Susan Schenck	488-4974
Programs	Peter Stine(Chair)	395-2191
Publicity	Vacant	
Special Pubs.	Sheila Conant(Chair)	948-8241
	Phillip Bruner	293-3820
	George Campbell	941-1356
	Norris Henthorne	
	Robert Pyle	262-4046
Sales	Martha McDaniel(Chair)	235-6636

'ELEPAIO

Editors	Marie Morin, Peter Galloway	
	(Send articles to Marie Morin,	
	1415 Victoria St. #1515,	
	Honolulu, Hawaii 96822)	
Production	Lee Bauer, Robert Pyle, Susan	
	Schenck, Joel Simasko, Jill	
	Sondeen, and Irene Judd	

ISLAND REPRESENTATIVES

Maui	Mary Evanson	572-9724
Lanai	Peter Connally	565-6242
Kauai	Winona Sears	822-3045

IF NOT A MEMBER, PLEASE JOIN US

JOINT MEMBERSHIP

(National and Hawaii Audubon Societies)

Individual.....	\$ 30.00
Family.....	38.00
Sustaining.....	50.00
Supporting.....	100.00
Contributing.....	250.00
Donor.....	500.00
Life (single payment).....	1500.00
Dual Life (single payment).....	2000.00

Special rates for full-time students and Senior Citizens (65 years of age or older) are available. Please write for application form.

LOCAL MEMBERSHIP

(Hawaii Audubon Society only)

Regular.....	\$ 6.00
Junior (18 and under).....	3.00
Subscriber (non-Hawaii residents)....	6.00
Life (payable in three equal annual installments).....	150.00

All Local Memberships and Subscriptions are for a calendar year January through December. New Local Members and late-renewing members who send in dues through September may obtain all previous issues of 'Elepaio in that calendar year, upon request and reimbursement to the Society for mailing costs. Dues received after September are applied to membership extended through the following calendar year, but do not include previous issues of 'Elepaio in the current year.

CALENDAR OF EVENTS

- Oct. 13 (Sun.) Field trip to Waipio Peninsula. **Note afternoon trip.** See page 12 or call leader Bob Pyle at 262-4046.
- Oct. 15 (Tues.) Board meeting at home of Peter Stine, 6770 Hawaii Kai Drive, #207, phone 395-2191.
- Oct. 21 (Mon.) General meeting at 7:30pm. at McCully-Moiliili Library, 2211 S. King St., Honolulu with Stewart Fefer on **Wildlife on the Pribilofs.**

TABLE OF CONTENTS

Vol. 46, No. 4, October 1985

Observations of Birds on Kwajalein Atoll 1978-1983	
William L. Schipper.....	27
Leucistic Wing Patches in Dark-rumped Petrel and Audubon's Shearwater	
Floyd E. Hayes and William S. Baker.....	32
Red-Tailed Tropicbirds on Manana Island	
Jack Swenson.....	32
August Meeting Report	
Betty L. Johnson.....	34
Grenville Hatch.....	35

Reprinting of material from the *'Elepaio* is permitted if credited to " *'Elepaio*, the journal of the Hawaii Audubon Society".

By-laws available by request.

HAWAII AUDUBON SOCIETY
P.O. Box 22832
HONOLULU, HAWAII 96822

Non-Profit Organization
U.S. POSTAGE
PAID
Honolulu, Hawaii
Permit No. 1156

ADDRESS CORRECTION REQUESTED



MR DAN A DAVIS
3218 MELEMELE PL
HONOLULU HI 96822

F50
SEP86