

SMITHSONIAN MISCELLANEOUS COLLECTIONS  
VOLUME 107, NUMBER 15

REPORT ON COLLECTIONS OF BIRDS MADE  
BY UNITED STATES NAVAL MEDICAL  
RESEARCH UNIT NO. 2 IN THE  
PACIFIC WAR AREA

(WITH SIX PLATES)

BY

LT. ROLLIN H. BAKER, H(S), USNR  
Research Division, Bureau of Medicine and Surgery  
U. S. Navy, Washington, D. C.



(PUBLICATION 3909)

CITY OF WASHINGTON  
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# REPORT ON COLLECTIONS OF BIRDS MADE BY UNITED STATES NAVAL MEDICAL RESEARCH UNIT NO. 2 IN THE PACIFIC WAR AREA

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## INTRODUCTION

A study of animal life and associated ectoparasites in the Pacific war area was made by the Laboratories of Mammalogy and Acarology, United States Naval Medical Research Unit No. 2. In the course of this study at a number of island groups, land vertebrates were collected, examined for parasitic life, and made into museum skins for accurate identification. Approximately 1,300 specimens of birds were obtained in the period from June 1944 to December 1945, and now are deposited in the United States National Museum, Washington, D. C.

Field work was begun in May 1944, when an advance party headed by David H. Johnson and G. W. Wharton, Jr., was sent to the Southwest Pacific to study mite-borne scrub typhus (tsutsugamushi disease). During their period of duty in this area, they collected at Espiritu Santo (New Hebrides), Bougainville and Guadalcanal (Solomon Islands), Manus, Ponam, and Mussau (Bismarck Archipelago), and Samar (Philippine Islands). This party joined the rest of the field group in March 1945 at Guam, where laboratories were being established. Collections were then made at Guam and Rota (Mariana Islands), Ulithi and Truk (Caroline Islands), Palau Islands, Iwo Jima (Volcano Islands), and Okinawa (Riu Kiu Islands).

## ACKNOWLEDGMENTS

The opportunity to visit the islands and collect specimens as part of a medical research project was made possible through the interest and support of Commodore Thomas M. Rivers, M(S), USNR, then

commanding officer of United States Naval Medical Research Unit No. 2, and Capt. James J. Saperro, M(C), USN, formerly executive officer of the Unit. Thanks are owed Commander Francis N. Schwentker, M(C), USNR, also a former executive officer, especially for help in procuring collecting equipment. I am indebted to Lt. Commander David H. Johnson, H(S), USNR, then officer in charge of the Laboratory of Mammalogy, and to co-workers in the laboratory: pharmacist's mates Odis A. Muennink, L. P. McElroy, Charles O. Davison, Merle H. Markley, and Walter L. Necker, whose collections and observations have made this report possible. The help given by Lt. G. W. Wharton, Jr., H(S), USNR, and Lt. (jg) A. B. Hardcastle, H(S), USNR, and their staff of the Laboratory of Acarology is greatly appreciated. I am very grateful also to the many service people who by their interest and cooperation helped to make our field trips successful; these include Harold LeRoy Wilson, Joe T. Marshall, Jr., Charles G. Sibley, W. J. Beecher, John E. Chattin, John M. Fritts, R. K. Carver, Bernard V. Travis, George S. Mirick, E. W. Coleman, Wilfred Crabb, T. B. Murray, C. K. Dorsey, George Hensel, Louis Posekany, C. L. Harnage, Wilbur G. Downs, and many others. I wish to thank Rear Adm. H. W. Smith, M(C), USN Ret., in charge of the Research Division, Bureau of Medicine and Surgery, United States Navy, under whose direction the report was written, and Lt. Commander Mildred R. Lewis, H(W), USNR, and Yeoman Third Class Dolores Kunreuther for their help in preparing the manuscript in final form.

The writer is indebted to Dr. Alexander Wetmore, Secretary of the Smithsonian Institution, for the opportunity to work and utilize the collections at the United States National Museum. I am very grateful to Dr. Herbert Friedmann and H. G. Deignan of the Division of Birds, U. S. National Museum, for their generous help and advice in preparing this report. I wish to thank also Dr. Ernst Mayr and Dean Amadon of the American Museum of Natural History for the opportunity of examining specimens in their charge. Lastly, I wish to acknowledge the help of Stevens Tabone in the preparation of some of the maps.

#### LIST OF BIRDS

Since collections were made at a number of localities, it seems advisable to have separate lists for the different areas. The map, figure 1, shows the islands visited by field parties. Where applicable,

most of the nomenclature follows Mayr (Birds of the Southwest Pacific, 1945). A majority of the birds have been identified by comparing them with specimens at the United States National Museum.

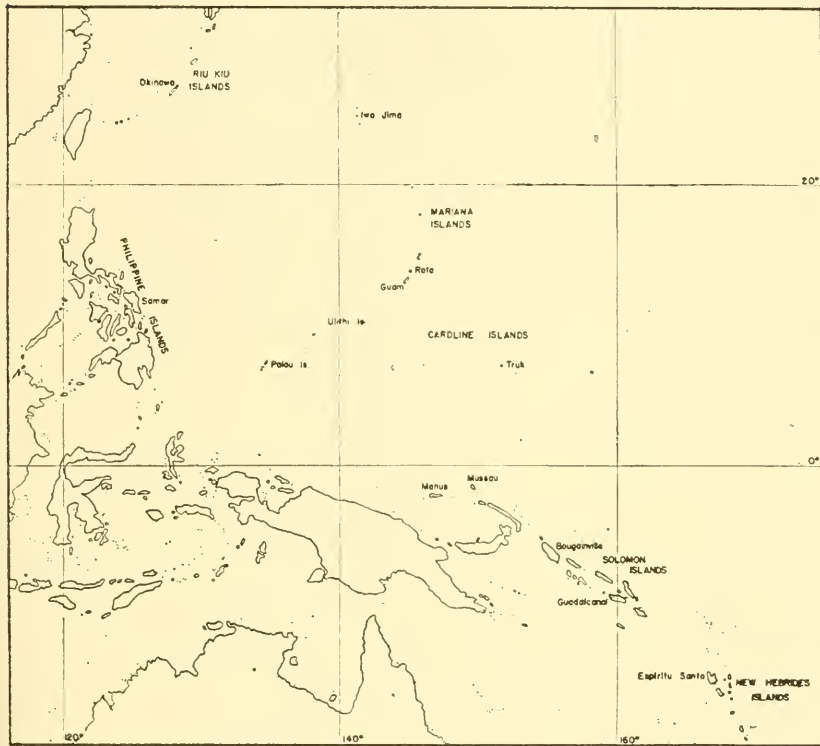


FIG. 1.—Collecting localities in the Pacific war area.

Color terms in quotation marks are those of Ridgway (Color Standards and Color Nomenclature, 1912). The specimens listed are adults unless designated as juveniles. Weights are given in grams and measurements in millimeters.

#### BIRDS COLLECTED AT ESPIRITU SANTO ISLAND, NEW HEBRIDES

The advance party consisting of Johnson, Wharton, Necker, Muenink, Fritts, and Carver spent the period from June 6 to June 20, 1944, at Espiritu Santo. Johnson and Necker stopped there again from January 25 to January 30, 1945. Birds were collected in the vicinity of Luganville, mostly in old plantation areas.

**PTILINOPUS GREYII Bonaparte**

*Ptilinopus greyii* BONAPARTE, Iconogr. Pigeons, 1857, pl. 20. (Isle of Pines and Loyalty Islands.)

Luganville: 13 km. W. by N. of—I male, June 20.

**COLUMBA VITIENSIS LEOPOLDI (Tristram)**

*Lantheaenas leopoldi* TRISTRAM, Ibis, 1879, p. 193. (Island of Vati, New Hebrides.)

Luganville: 13 km. W. by N. of—I female, June 20.

This pigeon was found in heavy jungle near a stream.

**CACOMANTIS PYRROPHANUS SCHISTACEIGULARIS Sharpe**

*Cacomantis schistaceigularis* SHARPE, Ibis, 1900, p. 338. (Espiritu Santo, New Hebrides.)

Luganville: 4 km. NE. by N. of—I unsexed (alcoholic), January 26.

Birds were observed in old plantation areas. The specimen obtained was in molt.

**CHALCITES LUCIDUS LAYARDI (Mathews)**

*Chrysococcyx layardi* MATHEWS, Austr. Av. Rec., vol. 1, 1912, p. 16. (New Caledonia.)

Luganville: 4 km. NE. by N. of—I unsexed (alcoholic), January 26.

This molting bird was shot in an old native garden.

**RHIPIDURA FULIGINOSA BRENCHELEYI Sharpe**

*Rhipidura brenchleyi* SHARPE, Cat. Birds Brit. Mus., vol. 4, 1879, p. 311. (Aneiteum, New Hebrides.)

Luganville: 4 km. NE. by N. of—I unsexed (alcoholic), January 26.

**ARTAMUS LEUCORHYNCHUS TENUIS Mayr**

*Artamus leucorhynchus tenuis* MAYR, Auk, vol. 60, 1943, p. 268. (Gaua, Banks Island.)

Luganville: 4 km. NE. by E. of—I unsexed, June 19.

**APLONIS ZELANDICUS RUFIPENNIS Layard**

*Aplonis rufipennis* LAYARD, Ibis, 1881, p. 542. (Vati, New Hebrides.)

Luganville: 4 km. NE. by N. of—I unsexed (alcoholic), January 26.



**ZOSTEROPS FLAVIFRONS BREVICAUDA** Murphy and Mathews

*Zosterops flavifrons brevicauda* MURPHY AND MATHIEWS, Amer. Mus. Novit., No. 356, 1929, p. 3. (Malo Island, New Hebrides.)

Luganville: 4 km. NE. by N. of—I unsexed (alcoholic), January 26.

BIRDS COLLECTED AT BOUGAINVILLE AND GUADALCANAL,  
SOLOMON ISLANDS

The field group consisting of Johnson, Wharton, Muennink, Necker, Fritts, and Carver arrived at Bougainville on June 27, 1944, and remained there, except for short trips, until about January 25, 1945. During this time, Japanese forces were in control of most of the island and the party was able to collect only in the vicinity of Cape Torokina on Empress Augusta Bay (see fig. 2). Specimens were taken in lowland jungles, swamps, and on beaches at Cape Torokina and as far south as the Jaba River.

Muennink collected at Guadalcanal during the period from November 11, 1944, to January 6, 1945. Johnson was at the island from November 11 to 16. Collections were made at Lunga Point and at Doma Cove as shown in figure 3.

**PODICEPS RUFICOLLIS COLLARIS** Mayr

*Podiceps ruficollis collaris* MAYR, Amer. Mus. Novit., No. 1294, 1945, p. 1. (Bougainville.)

Bougainville Island: Cape Torokina—I male, September 15.

Several dabchicks were seen in a swampy area. The specimen obtained has been compared with the type at the American Museum of Natural History.

Measurements of this specimen are: wing 106, exposed culmen 26, and tarsus 36. One set of four eggs was collected from a nest at the fresh-water swamp. The eggs are white with a greenish cast, ovate, and measure 24.6-26.4 (25.5) × 32.9-34.9 (33.8).

**NYCTICORAX CALEDONICUS MANDIBULARIS** Ogilvie-Grant

*Nycticorax mandibularis* OGILVIE-GRANT, Proc. Zool. Soc. London, 1888, p. 203. (Aola, Guadalcanar, Solomon Group.)

Bougainville Island: Cape Torokina—I male, 1 female, October 6, January 10. Guadalcanal Island: Doma Cove—I juvenile male, January 2.

Measurements of Bougainville specimens: adult male, wing 263, exposed culmen 72, tarsus 83; adult female, wing 267, exposed culmen 70, tarsus 82.

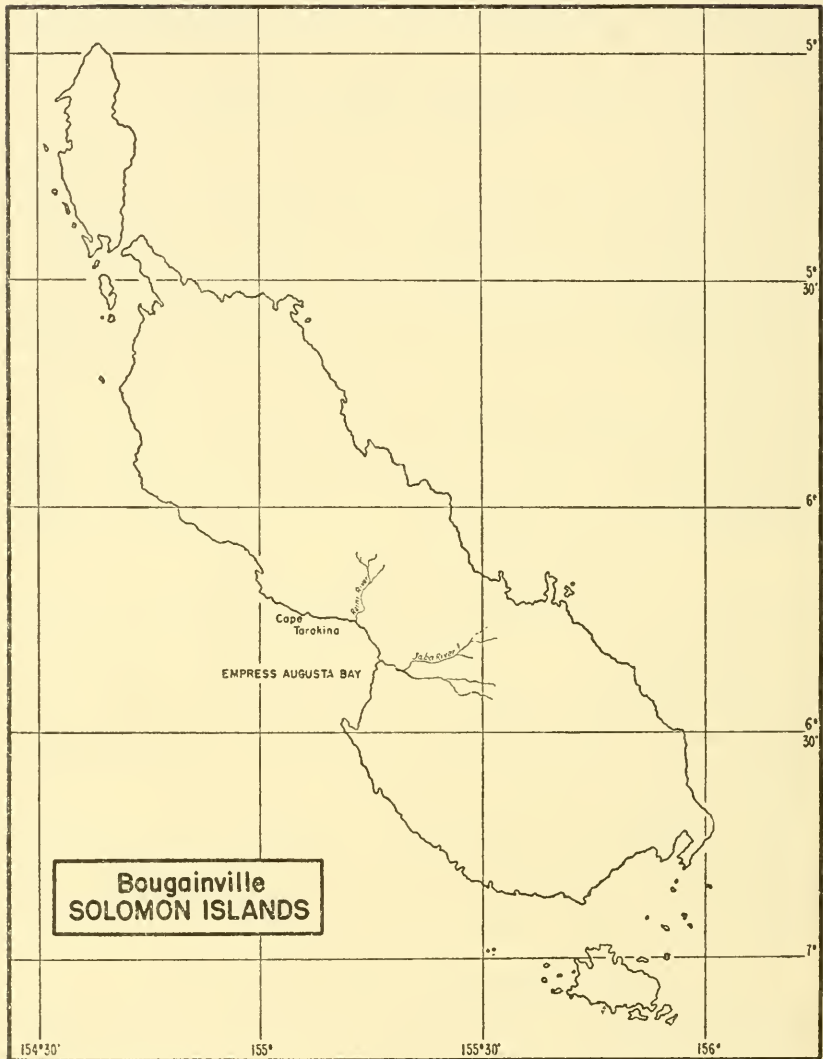


FIG. 2.—Collecting localities on Bougainville Island.

**ANAS SUPERCILIOSA PELEWENSIS** Hartlaub and Finsch

*Anas superciliosa* var. *pelewensis* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1872, p. 108. (Pelew Islands.)

Bougainville Island: Cape Torokina—I male, 2 females, January 26.

Two specimens were in molt when collected.

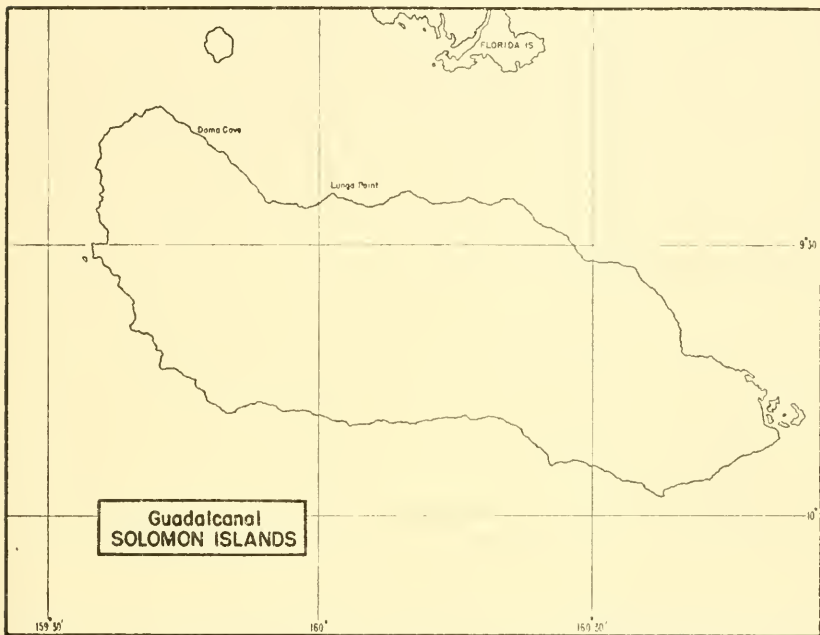


FIG. 3.—Collecting localities on Guadalcanal Island.

**AVICEDA SUBCRISTATA PROXIMA** Mayr

*Aviceda subcristata proxima* MAYR, Amer. Mus. Novit., No. 1294, 1945, p. 10. (Kieta District, Bougainville Island.)

Bougainville Island: Cape Torokina—I female, October 17.

This specimen has been compared with the type at the American Museum of Natural History. Muennink shot this hawk in thick underbrush.

**HALIASTUR INDUS GIRRENERA** (Vieillot)

*Haliaetus girrenera* VIEILLOT, Gal. Ois., vol. 1, 1822, p. 31, pl. 10. (India, Bengal, Pondichery, Coromandel, and Malabar, also New Holland according to Latham. Restricted type locality, New South Wales [the plate represents the Australian form].)

Guadalcanal Island: Doma Cove—I female, December 14.

**ACCIPITER NOVAEHOLLANDIAE BOUGAINVILLEI (Rothschild  
and Hartert)**

*Astur etorques bougainvillei* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 12, 1905, p. 250. (Bougainville Island.)

Bougainville Island: Cape Torokina—2 juvenile males, August 10, 14.

One bird was in postjuvencal molt when taken.

**ACCIPITER NOVAEHOLLANDIAE PULCHELLUS (Ramsay)**

*Astur pulchellus* RAMSAY, Journ. Linn. Soc. London, vol. 16, 1881, p. 131. (Cape Pitt, Solomon Islands, *ex* Proc. Linn. Soc. New South Wales, vol. 4, pt. 1, 1879, p. 66.)

Guadalcanal Island: Doma Cove—1 juvenile male, 1 juvenile unsexed, December 20, January 1.

**ACCIPITER ALBOGULARIS G. R. Gray**

*Accipiter albogularis* G. R. GRAY, Ann. and Mag. Nat. Hist. ser. 4, vol. 5, 1870, p. 327. ("Hada or Recherche Bay," San Cristoval.)

Guadalcanal Island: Doma Cove—1 female, 2 juvenile males, December 20, 27, January 1.

The female is in dark phase, with light coloring present only on the inner webs of wing feathers. This bird was molting body feathers.

**MEGAPODIUS FREYCINET EREMITA Hartlaub**

*Megapodius eremita* HARTLAUB, Proc. Zool. Soc. London, 1867 (1868), p. 830. (Echiquier Island = Ninigo Islands.)

Bougainville Island: Cape Torokina—2 females, July 30, October 16. Guadalcanal Island: Doma Cove—1 male, November 17; Lunga Point—1 unsexed, December 26.

**TURNIX MACULOSA SALOMONIS Mayr**

*Turnix maculosa salomonis* MAYR, Amer. Mus. Novit., No. 1007, 1938, p. 3. (Guadalcanal, Solomon Islands.)

Guadalcanal Island: Lunga Point—1 juvenile female, November 30.

This specimen has been noted by Beecher (Fieldiana, Zoology, vol. 31, 1945, p. 35). It was taken by Muemink in a grassy opening used as a recreation area by service personnel.

**POLIOLIMNAS CINEREUS LEUCOPHRYS (Gould)**

*Porzana leucophrys* GOULD, Proc. Zool. Soc. London, 1847, p. 33. (Port Essington and northern Australia.)

Bougainville Island: Cape Torokina—1 male, September 15.

This single specimen has been compared with the large series of rails in the collection of the American Museum of Natural History and appears to belong to the race *P. c. leucophrys*. It is similar to birds of this race from New Guinea and New Britain in coloring of the upper parts and in ventral coloration except that the under tail-coverts and sides are darker brown than in most of these individuals, and the occiput has a more brownish-olive tinge. The measurements of the bird are: wing 95, tail 52, exposed culmen 23.5, tarsus 36.

This bird differs from examples of the race *P. c. meeki* (Hartert), from St. Matthias Island, in being much paler below and having a longer bill. It is darker and larger than a male from Samoa of the race *P. c. tannensis* (Forster).

To my knowledge this is the first record from the Solomon Islands of this widely distributed species. It was taken by Necker at a freshwater swamp, where rails and dabchicks also were observed.

**PLUVIALIS DOMINICA FULVA (Gmelin)**

*Charadrius fulvus* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 687. (Tahiti.)

Bougainville Island: Cape Torokina—1 male, 1 female, January 10; Jaba River—1 male, 2 females, September 26, 27.

Birds taken in September were in breeding plumage. Beginning in September shore birds were seen in large numbers; they were on beaches and air strips.

**CHARADRIUS LESCHENAUThII Lesson**

*Charadrius Leschenaultii* LESSON, Dict. Sci. Nat., éd. Levrault, vol. 42, 1826, p. 36. (Pondichery, India.)

Bougainville Island: Jaba River—1 female, September 26.

The specimen is in winter plumage.

**ACTITIS HYPOLEUCOS (Linnaeus)**

*Tringa Hypoleucos* LINNAEUS, Syst. Nat., ed. 10, 1758, p. 149. (Europe, restricted type locality, Sweden.)

Bougainville Island: Cape Torokina—1 female, 1 unsexed, January 10; Jaba River—1 female, September 26. Guadalcanal Island: Doma Cove—1 female, December 10.

**HETEROSCELUS INCANUS BREVIPIES (Vieillot)**

*Totanus brevipes* VIEILLOT, Nouv. Dict. Hist. Nat., vol. 6, 1816, p. 410. (No locality given; the type is from Timor.)

Bougainville Island: Jaba River—1 juvenile male, September 26.

**CALIDRIS ACUMINATA (Horsfield)**

*Totanus acuminatus* HORSFIELD, Trans. Linn. Soc. London, vol. 13, pt. 1, 1821, p. 192. (Java.)

Bougainville Island: Cape Torokina—1 juvenile male, November 1; Reini River—1 female (skeleton), October 23.

**STERNA HIRUNDO LONGIPENNIS Nordmann**

*Sterna longipennis* NORDMANN, in Erman's Verz. Thier. Pflanz., 1835, p. 17. (Mouth of the Kutchui River, Sea of Okhotsk.)

Bougainville Island: Cape Torokina—1 male, January 10.

**ANOÛS TENUIROSTRIS MINUTUS Boie**

*Anous minutus* BOIE, Isis, 1844, col. 188. (New Holland = Raine Island, Australia, *apud* Mathews.)

Bougainville Island: Cape Torokina—1 female, January 10.  
The bird was in postjuvenile molt when taken.

**PTILINOPUS SUPERBUS SUPERBUS (Temminck)**

*Columba Superba* TEMMINCK, in Knip, Les Pigeons, 1810, les colombes, p. 75, pl. 33. ("O-Taiti," error = Halmahera.)

Guadalcanal Island: Lunga Point—1 male, 3 juvenile females, November 16, 22, 24.

**PTILINOPUS VIRIDIS LEWISII (Ramsay)**

*Ptilopus Lewisii* RAMSAY, Nature, vol. 25, January 19, 1882, p. 282. (Solomon Islands = Lango, Guadalcanar *ex* Proc. Linn. Soc. New South Wales, vol. 6, March 1882, p. 724.)

Bougainville Island: Cape Torokina—2 males, October 20, 26; Jaba River—1 male, September 26. Guadalcanal Island: Lunga Point—2 males, 1 female, 1 juvenile male, November 21, 22, December 17.

**DUCULA RUBRICERA RUFIGULA (Salvadori)**

*Carpophaga rufigula* SALVADORI, Atti R. Acad. Sci. Torino, vol. 13, 1878, p. 536. (Wanga, San Cristobal Island, Solomon Islands.)

Bougainville Island: Cape Torokina—2 males, 1 female, August 28, October 18, 27. Guadalcanal Island: Lunga Point—3 males, 1 female, November 14, 21, 22; Doma Cove—2 females, January 6.

Specimens collected in October, November, and January were molting body and wing feathers.

**DUCULA PISTRINARIA PISTRINARIA Bonaparte**

*Ducula pistrinaria* BONAPARTE, Consp. Av., vol. 2, 1855, p. 36. (St. George, Solomon Islands.)

Bougainville Island: Cape Torokina—2 males, August 23, October 27.

The birds were molting body feathers when collected.

**MACROPYOGIA MACKINLAYI AROSSI Tristram**

*Macropygia arossi* TRISTRAM, Ibis, October 1879, p. 443. (Makira Harbor, San Cristobal Island.)

Bougainville Island: Jaba River—1 female, August 30. Guadalcanal Island: Doma Cove—1 female, December 14.

**CHALCOPHAPS STEPHANI MORTONI Ramsay**

*Chalcophaps mortoni* RAMSAY, Nature, vol. 25, Jan. 19, 1882, p. 282. (Solomon Islands.) Proc. Linn. Soc. New South Wales, vol. 6, March 1882, p. 725. (Ugi, Solomon Islands.)

Guadalcanal Island: Doma Cove—1 female, December 6.

**CALOENAS NICOBARICA NICOBARICA (Linnaeus)**

*Columba nicobarica* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 164. ("insula Nicobar prope Pegu indicum" = Nicobar Islands.)

Guadalcanal Island: Doma Cove—1 male, 1 female, December 10. The two birds were shot by Muennink in a grove of large trees.

**EOS CARDINALIS (G. R. Gray)**

*Lorius cardinalis* G. R. GRAY, Gen. Birds, vol. 3, 1849, app., p. 20. (Solomon Islands, based on Voy. Pôle Sud, Atlas, Ois., pl. 24 bis, fig. 2.)

Bougainville Island: Cape Torokina—4 males, 6 females, August 28, September 11, 21, 22, October 1, 12, 18, 20, 25. Guadalcanal Island: Lunga Point—1 male, November 14.

Birds collected in September, October, and November were in molt. Wing length of males 171-176 (173), females 171-183 (176).

#### TRICHOGLOSSUS HAEMATOD MASSENA Bonaparte

*Trichoglossus massena* BONAPARTE, Rev. et Mag. Zool., ser. 2, vol. 6, 1854, p. 157. ("Ins. Polynesiae," the type agrees with specimens from New Hebrides, *vide* Hartert, Nov. Zool., vol. 32, 1925, p. 123.)

Bougainville Island: Cape Torokina—1 male, October 19. Guadalcanal Island: Lunga Point—3 males, 2 females, November 14, 15, 22, 27; Doma Cove—1 female, January 2.

These specimens appear to be *T. h. massena*, as suggested by Mayr (Birds of the Southwest Pacific, 1945, p. 230). They compare favorably with a bird of this race from the New Hebrides. Birds from the Admiralty Islands, *T. h. flavicans* Cabanis and Reichenow, have lighter upperparts than the birds from the Solomon Islands.

Wing lengths of three adult males (Guadalcanal) 126-131 (129), one male (Bougainville) 135, three adult females (Guadalcanal) 121-125 (123). Length of exposed culmen without cere of five adults 18.1-20.1 (18.9). Birds taken in November and January were in molt.

#### LORIUS CHLOROCERCUS Gould

*Lorius chlorocercus* GOULD, Proc. Zool. Soc. London, 1856, p. 137. (San Cristóbal, Solomon Islands.)

Guadalcanal Island: Doma Cove—2 males, 2 females, December 16, 17, 27.

Two of the birds were in molt when collected.

#### VINI MARGARETHAE (Tristram)

*Charmosyna margarethae* TRISTRAM, Ibis, 1879, p. 442, pl. 12. (Makira Harbor, San Cristóbal, Solomon Islands.)

Bougainville Island: Cape Torokina—1 female, October 19. Guadalcanal Island: Lunga Point—3 males, 1 female, November 15, 16, 27.

#### MICROPSITTA FINSCHII NANINA (Tristram)

*Nasiterna nanina* TRISTRAM, Ibis, 1891, p. 608. (Bugotu, Solomon Islands.)

Bougainville Island: Cape Torokina—1 male, October 8.



**CACATUA DUCROPS (Bonaparte)**

*Plyctolophus DuCrops* "Hombron et Jacquinot" BONAPARTE, Compt. Rend. Acad. Sci. Paris, vol. 30, 1850, p. 138, *cx* Voy. Pôle Sud, Atlas, Ois., pl. 26, fig. 1. (Solomon Islands.)

Bougainville Island: Cape Torokina—4 males, 1 female, August 15, September 7, 18, 20. Guadalcanal Island: Doma Cove—1 unsexed, January 4.

**LARIUS RORATUS SOLOMONENSIS (Rothschild and Hartert)**

*Eclectus pectoralis solomonensis* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 8, 1901, p. 81. (Fauro, Shortland Group.)

Bougainville Island: Cape Torokina—4 males, 2 females, August 31, October 13, 14, 20, 26. Guadalcanal Island: Doma Cove—2 males, December 12, 26; Lunga Point—1 male, 1 female, November 24.

	Wing	Tail	Exposed culmen
3 males (Guadalcanal)...	232-237 (235)	110-115 (113)	36.9-38.1 (37.2)
4 males (Bougainville)...	236-242 (239)	112-119 (116)	41.0-41.8 (41.2)

Birds from Bougainville appear larger than those from Guadalcanal, especially in length of exposed culmen. This seems to be a slight tendency toward *Larius roratus goodsoni* Hartert of the Admiralty Islands, which has a larger bill.

Seven of the birds taken in October, November, and December were molting body feathers and wing feathers.

**CACOMANTIS VARIOLOSUS ADDENDUS Rothschild and Hartert**

*Cacomantis addendus* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 8, 1901, p. 185. Kulambangra, Solomon Islands.)

Guadalcanal Island: Doma Cove—1 juvenile unsexed, January 4.

**CHALCITES LUCIDUS LUCIDUS (Gmelin)**

*Cuculus lucidus* GMELIN, Syst. Nat., vol. 1, pt. 1, 1788, p. 421. ("in nova Seelandia" = New Zealand.)

Bougainville Island: Cape Torokina—1 male, September 5.

**EUDYNAMIS SCOLOPACEA ALBERTI Rothschild and Hartert**

*Eudynamis orientalis alberti* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 14, 1907, p. 440. (Gizo, Solomon Islands.)

Guadalcanal Island: Doma Cove—1 juvenile male, December 26. The specimen was in postjuvinal molt.

**CENTROPUS MILO MILO** Gould

*Centropus milo* GOULD, Proc. Zool. Soc. London, 1856, p. 136. (Guadalcanar, Solomon Islands.)

Guadalcanal Island: Lunga Point—1 male, 1 juvenile male, November 20; Doma Cove—1 female, December 13.

Adult birds were molting wing and body feathers.

**NINOX JACQUINOTI EICHHORNI** (Hartert)

*Spiloglaux jacquinoti eichhorni* HARTERT, Amer. Mus. Novit., No. 364, 1929, p. 7. (Choiseul, Solomon Islands.)

Bougainville Island: Cape Torokina—1 female, October 26.

**COLLOCALIA VANIKORENSIS VANIKORENSIS** (Quoy and Gaimard)

*Hirundo vanikorensis* QUOY AND GAIMARD, Voy. *Astrolabe*, Zool., vol. 1, 1830, p. 206, Atlas, Ois., pl. 12, fig. 3. (île vanikoro.)

Guadalcanal Island: Doma Cove—1 female, January 1.

**HEMIPROCNE MYSTACEA WOODFORDIANA** (Hartert)

*Macropteryx mystacea woodfordiana* HARTERT, Nov. Zool., vol. 3, 1896, p. 19. (Guadalcanar.)

Bougainville Island: Cape Torokina—1 nestling (alcoholic), November 3.

**CEYX LEPIDUS PALLIDUS** Mayr

*Ceyx lepidus pallidus* MAYR, Amer. Mus. Novit., No. 820, 1935, p. 2. (Bougainville, Solomon Islands.)

Bougainville Island: Cape Torokina—1 male, August 30.

**HALCYON CHLORIS ALBERTI** Rothschild and Hartert

*Halcyon tristrami alberti* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 12, 1905, p. 256. (Kulambangra, Solomon Islands.)

Bougainville Island: Cape Torokina—1 male, 2 females, 1 juvenile female, July 28, 30, October 26, 27. Guadalcanal Island: Doma Cove—1 female, December 30.

The female from Guadalcanal has a deeper ochraceous coloring on the collar, malar stripe, and in the supra-loral region, and has more blue and less green on the upperparts than the females from Bougainville.

**HALCYON SANCTA** subsp. (Probably **SANCTA** Vigors and Horsfield.)

Bougainville Island: Cape Torokina—1 juvenile male, September 26; Jaba River—1 male, 1 juvenile female, September 17, 26.

These specimens apparently belong to the race *Halcyon s. sancta*, which Mathews (*Systema Avium Australasianarum*, pt. 1, 1927, p. 379) lists as wintering in the Solomons.

**HALCYON LEUCOPYGIA** (Verreaux)

*Cyanalcyon leucopygius* VERREAUX, Rev. et Mag. Zool., ser. 2, vol. 10, 1858, p. 305. (Solomon Islands.)

Bougainville Island: Cape Torokina—2 males, 3 females, 1 juvenile female, July 28, September 11, October 12, 17, 20, 25. Guadalcanal Island: Doma Cove—2 females, 1 juvenile male, December 12, 26, 30.

Measurements of adult females from the two islands are similar: wing 87-89, tail 61-64, bill from nostril 34-35. An egg found in the oviduct of a female taken on October 17 is white, oval, and measures 28.5 x 25.1. Birds taken in July and September were molting body feathers.

**EURYSTOMUS ORIENTALIS SOLOMONENSIS** Sharpe

*Eurystomus solomonensis* SHARPE, Proc. Zool. Soc. London, 1890, p. 552. (Solomon Islands.)

Bougainville Island: Cape Torokina—3 males, 2 females, 1 juvenile female, 1 nestling (alcoholic), July 27, August 22, 28, September 5, October 8, November 1. Guadalcanal Island: Lunga Point—1 male, 1 female, November 17; Doma Cove—1 female, 1 juvenile female, December 30, January 5.

Measurements of these specimens are within the range of those listed by Ripley (*Proc. Biol. Soc. Washington*, vol. 55, 1942, p. 174). The wing lengths of birds from Bougainville is slightly greater than those of birds from Guadalcanal. The nestling was taken on August 31. A female collected July 27 contained 4 large eggs. Molting birds were collected in July, August, and December.

**RHYTICEROS PLICATUS MENDANAE** Hartert

*Rhyticeros plicatus mendanae* HARTERT, Bull. Brit. Orn. Club, vol. 45, 1924, p. 46. (Guadalcanar, Solomon Islands.)

Guadalcanal Island: Lunga Point—1 male, 2 females, November 23; Doma Cove—1 female, December 10.

Hornbills appeared to be less common at Bougainville than at Guadalcanal. The specimens were in molt when collected.

**EDOLISOMA HOLOPOLIUM HOLOPOLIUM (Sharpe)**

*Graucalus holopolius* SHARPE, Proc. Zool. Soc. London, 1888, p. 184. (Aola, Guadalcanar, Solomon Islands.)

Bougainville Island: Cape Torokina—2 males, October 12, 27.  
Guadalcanal Island: Doma Cove—1 female, December 13.

The measurements of the wings of the two males (115, 118) are within the limits of the series studied by Mayr (Amer. Mus. Novit., No. 504, 1931, p. 17). All the specimens were in molt when collected.

**EDOLISOMA TENUIROSTRE SATURATIUS Rothschild and Hartert**

*Edolisoma erythropygium saturatius* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 9, 1902, p. 582. (Ysabel Island, Solomon Islands.)

Bougainville Island: Cape Torokina—1 juvenile male, October 28.  
One specimen in postjuvénal molt was taken.

**EDOLISOMA TENUIROSTRE ERYTHROPYGIUM Sharpe**

*Edolisoma erythropygium* SHARPE, Proc. Zool. Soc. London, 1888, p. 184. (Guadalcanar, Solomon Group.)

Guadalcanal Island: Lunga Point—2 females, November 16, 20;  
Doma Cove—2 unsexed juveniles, January 2.

**CORACINA LINEATA NIGRIFRONS (Tristram)**

*Graucalus nigrifrons* TRISTRAM, Ibis, 1892, p. 294. (Bugotu, Ysabel Island.)

Bougainville Island: Cape Torokina—1 female, October 12.

**CORACINA LINEATA SOLOMONENSIS (Ramsay)**

*Graucalus solomonensis* RAMSAY, Proc. Linn. Soc. New South Wales, vol. 4, 1879, p. 314. (Guadalcanar, Solomon Group.)

Guadalcanal Island: Lunga Point—1 male, November 14; Doma Cove—1 juvenile male, December 12.

The birds were in molt when collected.

**CORACINA PAPUENSIS PERPALLIDA Rothschild and Hartert**

*Coracina papuensis perpallida* ROTHSCHILD AND HARTERT, Nov. Zool., vol. 23, 1916, p. 290. (Bougainville Island.)

Bougainville Island: Cape Torokina—3 males, August 31, October 26, 27; Jaba River—1 male, September 26.

The birds were in molt when collected.

**CORACINA PAPUENSIS ELEGANS** (Ramsay)

*Graculus elegans* RAMSAY, Proc. Linn. Soc. New South Wales, vol. 6, 1881, p. 176. (Guadalcanar Island.)

Guadalcanal Island: Lunga Point—1 male, 1 unsexed juvenile, November 20, 27; Doma Cove—1 male, December 12.

All specimens were in molt when collected.

**CORACINA NOVAEHOLLANDIAE MELANOPS** (Latham)

*Corvus melanops* LATHAM, Index Ornith., Suppl., 1801, p. XXIV. (New Holland = Sidney, New South Wales.)

Bougainville Island: Jaba River—1 juvenile male, August 31.

**GYMNORHINA TIBICEN** subsp.

Guadalcanal Island: Lunga Point—1 juvenile female, November 30.

This juvenile specimen has been recorded by Beecher (*Fieldiana. Zoology*, vol. 3, 1945, p. 36). He considers an adult, which was collected from the same locality, to be near *Gymnorhina tibicen tibicen* (Latham). This immature may have been an imported captive bird since it has a growth on its right foot which resembles bumblefoot, a disease often found in caged birds.

**CORVUS MEEKI** Rothschild

*Corvus meeki* ROTHSCHILD, Bull. Brit. Orn. Club, vol. 15, 1904, p. 21. (Bougainville Island.)

Bougainville Island: Cape Torokina—1 female, October 16.

**RHIPIDURA COCKERELLI SEPTENTRIONALIS** Rothschild and Hartert

*Rhipidura cockerelli septentrionalis* ROTHSCHILD AND HARTERT, Bull. Brit. Orn. Club, vol. 36, 1916, p. 73. (Bougainville.)

Bougainville Island: Cape Torokina—1 male, August 31.

**RHIPIDURA COCKERELLI COCKERELLI** (Ramsay)

*Sauoloprocta cockerelli* RAMSAY, Nature, vol. 20, June 5, 1879, p. 125; Proc. Linn. Soc. New South Wales, vol. 4, pt. 1, 1879, p. 81. (Lango, Guadalcanar, Solomon Group.)

Guadalcanal Island: Doma Cove—2 males, 1 female, 1 unsexed, December 17, 20, 22.

**RHIPIDURA LEUCOPHRYS MELALEUCA** (Quoy and Gaimard)

*Muscipeta melaleuca* QUOY AND GAIMARD, Voy. *Astrolabe*, Zool., vol. 1, 1830, p. 180; Atlas, Ois., pl. 4, fig. 3. ("hâvre carteret," New Ireland.)

Bougainville Island: Cape Torokina—2 males, September 17; Jaba River—1 unsexed, September 26.

A nest containing one egg was found on September 11.

**MONARCHA CASTANEIVENTRIS ERYTHROSTICTA** (Sharpe)

*Pomarca erythrosticta* SHARPE, Proc. Zool. Soc. London, 1888, p. 185. (Fauro, Solomon Group.)

Bougainville Island: Cape Torokina—1 male, October 19.

**MONARCHA CASTANEIVENTRIS CASTANEIVENTRIS** Verreaux

*Monarcha castaneiventris* VERREAUX, Rev. et Mag. Zool., 1858, p. 304. (Île Samoa = Solomon Islands, *ex* Rothschild and Hartert, Nov. Zool., vol. 9, 1902, p. 583.)

Guadalcanal Island: Lunga Point—3 males, 1 female, November 21, 24, 27; Doma Cove—1 male, December 22.

One specimen taken in December was molting wing feathers.

**MONARCHA BARBATA BARBATA** Ramsay

*Monarcha barbata* RAMSAY, Nature, vol. 20, 1879, p. 125. ("Guadalcana" = Guadalcanal.)

Bougainville Island: Cape Torokina—1 male, October 5. Guadalcanal Island: Doma Cove—1 male, December 27.

**MYIAGRA FERROCYANEA CINEREA** (Mathews)

*Submyiagra ferrocyanea cinerea* MATHEWS, Nov. Zool., vol. 34, 1928, p. 373. (Bougainville Island.)

Bougainville Island: Cape Torokina—1 male, 1 female, September 17, October 31; Jaba River—1 female, August 31.

**MYIAGRA FERROCYANEA FERROCYANEA** Ramsay

*Myiagra ferrocyanea* RAMSAY, Nature, vol. 20, 1879, p. 125; Proc. Linn. Soc. New South Wales, vol. 4, pt. 1, 1879, p. 78. (Guadalcanar, Solomon Islands.)

Guadalcanal Island: Lunga Point—1 male, November 16; Doma Cove—2 males, December 13.

The wing length of these three males from Guadalcanal is 65-66; that of one male of *M. f. cinerea* from Bougainville is 70.

The bird taken in November was molting tail feathers.

**PACHYCEPHALA PECTORALIS BOUGAINVILLEI** Mayr

*Pachycephala pectoralis bougainvillei* MAYR, Amer. Mus. Novit., No. 522, 1932, p. 10. (Bougainville Island, Solomon Islands.)

Bougainville Island: Cape Torokina—1 male, October 29.

**PACHYCEPHALA PECTORALIS CINNAMOMEA** (Ramsay)

*Pseudorctes cinnamomeum* RAMSAY, Nature, vol. 20, 1879, p. 125. ("Guadalcanal" = Guadalcanar.)

Guadalcanal Island: Doma Cove—5 males, 1 female, 1 unsexed (male?), December 6, 12, 13, 15, 17, 20, 27.

**APLONIS CANTOROIDES** (G. R. Gray)

*Calornis cantoroides* G. R. GRAY, Proc. Zool. Soc. London, 1861 (1862), p. 431. (Mysol Island.)

Bougainville Island: Cape Torokina—2 females, 1 juvenile female, July 30, September 6, 14; Jaba River—1 male, September 26. Guadalcanal Island: Lunga Point—1 female, November 22; Doma Cove—1 juvenile male, December 10.

**APLONIS GRANDIS GRANDIS** (Salvadori)

*Lamprocorax grandis* SALVADORI, Ornith. Pap. e. Mol., vol. 2, 1881, p. 460, new name for *Lamprotornis fulvipennis* Pucheran, Voy. Pôle Sud, Zool., vol. 3, 1853, p. 81, Ysabel Island, Solomon Islands. (*nec* Swainson, Anim. Menag. 1837, p. 298.)

Bougainville Island: Cape Torokina—5 males, 4 females, September 5, 14, 16, October 21, 25, 26, November 1.

Many of the specimens collected were in molt.

**APLONIS GRANDIS MACRURUS** Mayr

*Aplonis grandis macrura* MAYR, Amer. Mus. Novit., No. 504, 1931, p. 21. (Guadalcanal Island, British Solomon Islands.)

Guadalcanal Island: Lunga Point—2 males, 2 females, November 16.

<i>Aplonis grandis grandis</i> :	Wing	Tail
5 males .....	139-147 (143)	101-109 (105)
4 females .....	132-135 (134)	93- 99 (97)
<i>Aplonis grandis macrurus</i> :		
2 males .....	141-144 (142)	106-112 (109)
2 females .....	127-133 (130)	102-103 (102.5)

The measurements of these specimens bear out the findings of Mayr (Amer. Mus. Novit., No. 504, 1931, p. 21). The character, used by Mayr, of the feathers of the throat being broader and shorter in *A. g. macrurus* as compared with *A. g. grandis* is discernible but not conspicuous. Specimens were in molt when collected.

**APLONIS METALLICUS NITIDUS (G. R. Gray)**

*Calornis nitida* G. R. GRAY, Proc. Zool. Soc. London, 1858, p. 181. (New Ireland.)

Bougainville Island: Jaba River—1 male, 1 juvenile female, August 31. Guadalcanal Island: Lunga Point—2 males, 3 juvenile males, November 14, 16, 20, 22; Doma Cove—1 juvenile female, 1 unsexed, January 5.

The adult male from Bougainville has a deep coppery sheen on the head, mantle, throat, and upper breast. Short, fine feathers cover the nostril. The juvenile from this same island had a copper sheen on the head and, to a slight extent, on the mantle. Below, the throat is finely streaked and the breast, belly, and sides more heavily streaked. The midportion of the belly is yellowish white. These two birds have a gloss different from that on birds taken at Guadalcanal, but in comparison with a large series at the American Museum of Natural History, it is evident that there is considerable variation in the coloration of these birds.

Two birds taken in January were in molt.

**MINO DUMONTII KREFFTI (Sclater)**

*Gracula krefftii* SCLATER, Proc. Zool. Soc. London, 1869, p. 120, pl. 9. (Solomon Islands.)

Bougainville Island: Cape Torokina—3 males, 3 females, July 29, August 8, September 8, October 25, 26.

Specimens collected in July, August, and September were in molt.

**MINO DUMONTII SANFORDI Hartert**

*Mino dumontii sanfordii* HARTERT, Amer. Mus. Novit., No. 364, 1929, p. 18. (Guadalcanar Island.)

Guadalcanal Island: Lunga Point—1 male, 1 female, November 17; Doma Cove—1 juvenile unsexed, December 17.

Birds taken in November were molting wing and body feathers.



**MYZOMELA LAFARGEI LAFARGEI** Pucheran

*Myzomela lafargei* PUCHERAN, Voy. Pôle Sud, Zool., vol. 3, 1853, p. 98. (Ysabel Island.)

Bougainville Island: Cape Torokina—1 male, 1 juvenile male, October 14, 26.

**MYZOMELA MELANOCEPHALA** (Ramsay)

*Cinnyris melanocephalus* RAMSAY, Nature, vol. 20, June 5, 1879, p. 125 ("Guadalcanal" = Guadalcanal.)

Guadalcanal Island: Lunga Point—2 males, November 14, 15; Doma Cove—1 male, December 15.

All specimens were in molt when collected.

**NECTARINIA JUGULARIS FLAVIGASTER** Gould

*Nectarinia flavigaster* GOULD, Proc. Zool. Soc. London, 1843, p. 104. (New Ireland.)

Guadalcanal Island: Lunga Point—1 male, 2 unsexed (female plumage), November 15, 16, 20.

**DICAEUM AENEUM BECKI** Hartert

*Dicaeum aeneum becki* HARTERT, Amer. Mus. Novit., No. 364, 1929, p. 9. (Guadalcanal.)

Guadalcanal Island: Lunga Point—1 unsexed (alcoholic), November 17; Doma Cove—1 unsexed, December 24.

**DICAEUM AENEUM AENEUM** Pucheran

*Dicaeum aeneum* PUCHERAN, Voy. Pôle Sud, Zool., vol. 3, 1853, p. 97. ("San Jorge" = St. George Island, Solomon Islands.)

Bougainville Island: Cape Torokina—4 males, 1 female, 1 juvenile male, September 11, 19, October 20, 21, 31, November 1.

**ZOSTEROPS METCALFEI EXIGUA** Murphy

*Zosterops metcalfei exigua* MURPHY, Amer. Mus. Novit., No. 365, 1929, p. 5. (Shortland Island, Solomon Group.)

Bougainville Island: Cape Torokina—3 males, 3 females, September 14, October 25, 26, 31.

One bird taken in October was in molt.

## BIRDS COLLECTED IN THE BISMARCK ARCHIPELAGO

Manus and Ponam in the Admiralty Islands were visited by Johnson from August 13 to August 24, 1944. He also collected in the St. Matthias Islands, visiting Mussau Island on August 25.

**PTILINOPUS SOLOMONENSIS JOHANNIS (Sclater)**

*Ptilopus johannis* SCLATER, Proc. Zool. Soc. London, 1877, p. 556. (Wild and D'Entrecasteaux Islands, Admiralty Islands.)

Admiralty Islands: Ponam Islet (north of Manus Island)—1 female, August 13.

This bird has been compared with specimens in the collection at the American Museum of Natural History.

**TRICHOGLOSSUS HAEMATOD FLAVICANS Cabanis and Reichenow**

*Trichoglossus flavicans* CABANIS AND REICHENOW, Sitzungsber. Ges. Naturf. Freunde Berlin, 1876, p. 73. (New Hanover.)

Admiralty Islands: Ponam Islet (north of Manus Island)—1 male, August 13.

The specimen was molting body feathers when collected.

**EDOLISOMA TENUIROSTRE ADMIRALITATIS Rothschild and Hartert**

*Edolisoma amboinense admiralitatis* ROTHSCHILD AND HARTERT, Bull. Brit. Orn. Club, vol. 33, 1914, p. 108. (Admiralty Islands.)

Admiralty Islands: Manus Island—Lörengau, 1 male, 1 unsexed, August 18, 19.

The two birds were in molt when collected.

**APLONIS METALLICUS NITIDUS (G. R. Gray)**

*Calornis nitida* G. R. GRAY, Proc. Zool. Soc. London, 1858, p. 181. (New Ireland.)

St. Matthias Islands: Mussau Island—Schadel Bay, 1 male, August 25.

**MYZOMELA NIGRITA HADES Meise**

*Myzomela nigrита hades* MEISE, Ornith. Monatsber., vol. 37, 1929, p. 84. (St. Matthias Islands.)

St. Matthias Islands: Mussau Island—Schadel Bay, 1 female, August 25.

**MYZOMELA NIGRITA PAMMELAENA** Sclater

*Myzomela pammelaena* SCLATER, Proc. Zool. Soc. London, 1877, p. 553. (Admiralty Islands.)

Admiralty Islands: Pouam Islet (north of Manus Island)—1 unsexed (alcoholic), August 13.

## BIRDS COLLECTED AT SAMAR, PHILIPPINE ISLANDS

The party of Johnson, Wharton, Muennink, Necker, Fritts, and Carver was attached to the United States Naval Station at Guiuan, Samar Island, during the period from February 28 to March 20, 1945. Guiuan is located near the end of a narrow peninsula extending from the southeastern part of the island. The region where birds were collected consists of forested country broken by outcroppings of rough coral rock. Much of the area is planted with coconut palms and contains brushy undercover.

**BUTASTUR INDICUS** (Gmelin)

*Falco indicus* GMELIN, Syst. Nat., vol. 1, pt. 1, 1788, p. 264. (Java, *ex* Latham.)

1 juvenile male, 1 female, March 5, 18.

**GALLUS GALLUS GALLUS** (Linnaeus)

*Phasianus Gallus* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 158. ("India orientali, Pouli candor etc." Restricted type locality, Island of Pulo Condor, off the mouths of the Mekong.)

1 female, March 8.

**PHAPITRERON LEUCOTIS ALBIFRONS** McGregor

*Phapitreron albifrons* MCGREGOR, Philippine Journ. Sci., vol. 2, sect. A, 1907, p. 317. (Tagbilaran, Bohol, Philippine Islands.)

1 male, March 14.

This specimen has been compared with birds from Samar and Bohol including the type of *P. samarensis* Mearns, which has been assigned to this race by Peters (Checklist Birds of the World, vol. 3, 1937, p. 24).

**CENTROPUS VIRIDIS VIRIDIS** (Scopoli)

*Calculus viridis* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 89. (Antigua, Panay, Philippine Islands, *ex* Sonnerat.)

2 males, March 7, 17.

Birds were found in brushy vegetation.

**COLLOCALIA TROGLODYTES G. R. Gray**

*Collocalia troglodytes* G. R. GRAY, Gen. Birds, vol. 1, 1845, p. [55] (nomen nudum), col. pl. XIX. (No locality = Philippine Islands.)

2 males, March 12.

Swiftlets were abundant in the vicinity of Guiuan.

**HALCYON SMYRNENSIS GULARIS (Kuhl)**

*Alcedo Gularis* KUHIL, Buffoni et Daubentoni Fig. Av. Col. Nom. Syst., 1820, p. 4. (Madagascar, *ex* Pl. Col., No. 232, error = Philippine Islands.)

1 female, March 12.

This kingfisher was apparently rare at Guiuan; only this one bird was seen.

**HALCYON CHLORIS COLLARIS (Scopoli)**

*Alcedo collaris* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 90. (No locality = Philippine Islands, *ex* Sonnerat, Voyage a la Nouvelle Guinée, 1776, p. 67, pl. 33; restricted to Manila, Island of Luzon, by Oberholser, 1919.)

6 males, 3 females, February 27, March 1, 5, 6, 9, 18.

This kingfisher was rather numerous in the vicinity of Guiuan.

**EURYSTOMUS ORIENTALIS ORIENTALIS (Linnaeus)**

*Coracias orientalis* LINNAEUS, Syst. Nat., ed. 12, vol. 1, 1766, p. 159. ("India orientali" = Java, *apud* Stresemann.)

1 male, 1 female, March 11, 12.

**ORIOULUS CHINENSIS CHINENSIS Linnaeus**

*Oriolus chinensis* LINNAEUS, Syst. Nat., ed. 12, vol. 1, 1766, p. 160. (China.)

2 males, 1 female, March 3, 5, 18.

Small groups of these birds were found in coconut groves.

**CORVUS CORONOIDES PHILIPPINUS Bonaparte**

*Corvus philippinus* BONAPARTE, Compt. Rend. Acad. Sci. Paris, vol. 37, 1853, p. 830. (Philippine Islands.)

2 males, March 2, 18.

Crows were frequently observed in the forested areas and along the air strip at Guiuan.

**MICROSCELIS GULARIS GULARIS** (Pucheran)

*Philemon gularis* PUCHERAN, in "Cuvier," Arch. Mus. d'Hist. Nat., vol. 7, 1855, p. 344, pl. 18. (China, error = Luzon.)

2 males, 2 females, March 6, 8, 14.

Birds were found in brushy undercover in the coconut groves.

**PYCNONOTUS GOIAVIER GOIAVIER** (Scopoli)

*Muscicapa goiavier* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 96. (Manila, Philippine Islands, *ex* Sonnerat.)

3 males, 1 female, March 1, 3, 14.

Birds were numerous in brushy areas.

**HYPOTHYMIS AZUREA AZUREA** (Boddaert)

*Muscicapa azurea* BODDAERT, Tabl. Pl. Enl., 1783, p. 41. (Philippine Islands, *ex* Daubenton, restricted type locality, Luzon, Peters, 1939.)

1 male, March 6.

**LANIUS CRISTATUS LUCIONENSIS** Linnaeus

*Lanius lucionensis* LINNAEUS, Syst. Nat., ed. 12, vol. 1, 1766, p. 135. (Insula Lucionensi = Luzon.)

2 juvenile males, 1 juvenile female, March 6, 14, 18.

**NECTARINIA JUGULARIS JUGULARIS** (Linnaeus)

*Certhia jugularis* LINNAEUS, Syst. Nat., ed. 12, 1766, p. 185. ("In Philippinis" = Philippine Islands.)

2 males, 1 female, March 9, 14.

Birds were found in the mangrove swamps.

## BIRDS COLLECTED AT OKINAWA, RIU KIU ISLANDS

A party from the Unit went to Okinawa with the invasion forces, landing on the island on April 13, 1945. Markley represented the Laboratory of Mammalogy and worked with Hardcastle and Posekany of the Laboratory of Acarology on field studies. Collections were made by Markley chiefly in the region of Nago (see fig. 4). Specimens were often obtained under hazardous conditions during the fighting between American and Japanese forces. Markley returned to Guam on June 15. Muennink went to Okinawa on July 15 and was joined by Johnson on August 30. Most of the birds collected by Johnson and Muennink were taken in the northern and central parts of the island. A few off-shore islets were also visited. They returned to Guam on October 2.

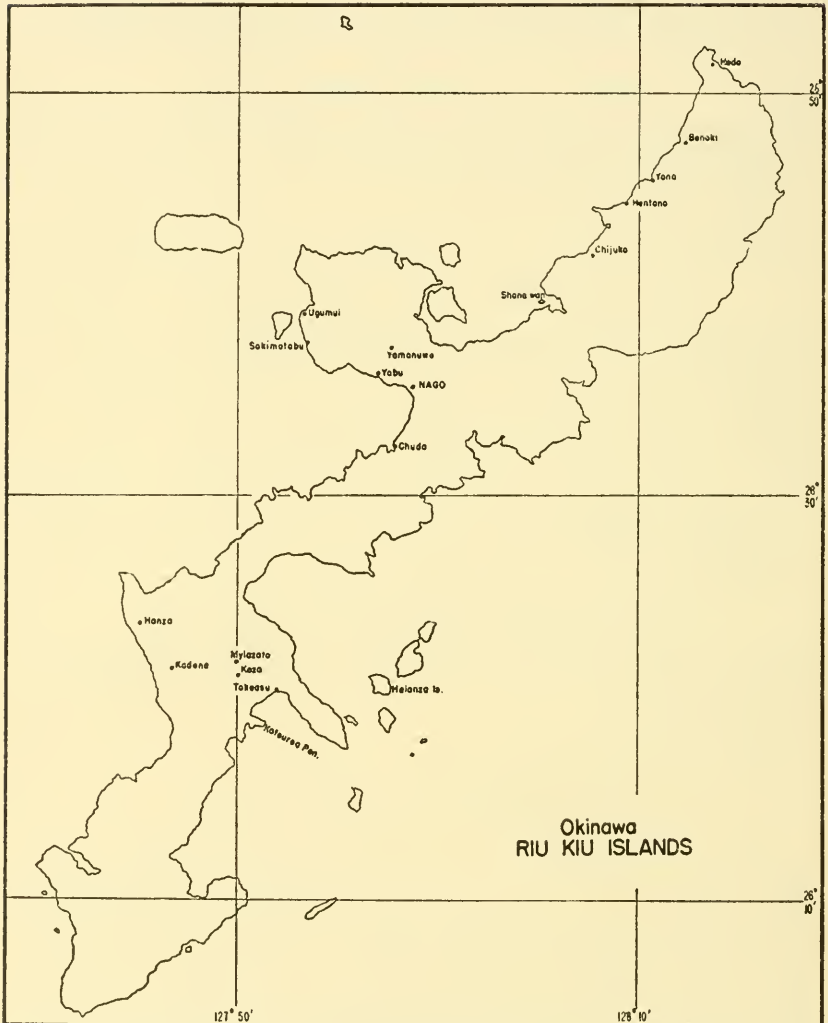


FIG. 4.—Collecting localities on Okinawa.

**BUTORIDES STRIATUS AMURENSIS** Schrenck

*Ardea (Butorides) virescens* var. *amurensis* SCHRENCK, Reise Amur Lande, vol. I, pt. 2, 1860, p. 441. (Amurland.)

Hentona—I female, September 11.

Birds were observed in trees along rocky streams.

**EGRETTA GARZETTA GARZETTA** (Linnaeus)

*Ardea Garzetta* LINNAEUS, Syst. Nat., ed. 12, vol. I, 1766, p. 237. ("Oriente," ex Brisson.)

Heianza Shima—I female, August 2.

The specimen was molting wing feathers when shot.

**DEMIGRETTA SACRA SACRA** (Gmelin)

*Ardea sacra* GMELIN, Syst. Nat., vol. I, pt. 2, 1789, p. 640. (Tahiti.)

Heianza Shima—I unsexed juvenile (gray phase), August 4;  
Benoki—I female (gray phase), September 26.

Birds in both gray and white phase were seen on beaches.

**IXOBRYCHUS SINENSIS SINENSIS** (Gmelin)

*Ardea Sinensis* GMELIN, Syst. Nat., vol. I, pt. 2, 1789, p. 642. ("Sina = China.")

Hentona—I male, 1 juvenile male, August 9, 31.

**IXOBRYCHUS CINNAMOMEUS** (Gmelin)

*Ardea cinnamomea* GMELIN, Syst. Nat., vol. I, pt. 2, 1789, p. 643. ("Sina" = China.)

Nago—I male, May 2; Kashuren-Wan—I male, June 7; Hentona—2 males, 1 juvenile male, August 17, 31, September 19.

The birds were collected in rice fields. They were more abundant than *I. s. sinensis*.

**ANAS POECILORHYNCHA ZONORHYNCHA** Swinhoe

*Anas zonorhyncha* SWINHOE, Ibis, 1866, p. 394. (Ningpo, China.)

Hentona—I male, August 13.

**TURNIX SUSCITATOR OKINAVENSIS** Phillips

*Turnix suscitator okinavensis* PHILLIPS, Auk, vol. 64, 1947, p. 126. (Okinawa, Riu Kiu Islands.)

Kashuren-Wan—I male, June 7.

The characters of this specimen agree with those used by Phillips in his recent description of the button quail from the southern and

central Riu Kiu Islands. In comparison with male birds of the subspecies *T. s. blakistoni* from Tonkin (September) and from Cochinchina (March), this male from Okinawa is paler with fewer black markings on the upper parts and breast, and has a slightly shorter wing and a slightly shorter and heavier bill.

Markley observed quail in open grasslands, in fallow fields, and at the edges of deserted villages. The specimen obtained was molting its wing feathers.

#### GALLINULA CHLOROPUS INDICA Blyth

*Gallinula chloropus* ? var. *Indicus* BLYTH, Journ. Asiatic Soc. Bengal, vol. 11, 1842, p. 887. (Calcutta.)

Nago—1 male, 1 female, May 5; Heianza Shima—1 male, August 1; Hentona—1 male, 1 female, 4 juvenile males, 2 juvenile females, August 13, 31.

Gallinules were collected in rice fields. Specimens resemble closely birds from China, Siam, and India.

#### ROSTRATULA BENGHALENSIS BENGHALENSIS (Linnaeus)

*Rallus benghalensis* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 153. (Asia.)

Takeasu—1 female, May 15.

This bird was collected by B. V. Travis in a rice paddy.

#### CHARADRIUS LESCHENAUThII Lesson

*Charadrius Leschenaultii* LESSON, Dict. Sci. Nat., éd. Levrault, vol. 42, 1826, p. 36. (Pondichery, India.)

Heianza Shima—1 male, 1 female, July 30.

#### NUMENIUS ARQUATA ORIENTALIS C. L. Brehm

*Numenius orientalis* C. L. BREHM, Handb. Naturg. Vögel Deutschl., 1831, p. 610. (East Indies.)

Heianza Shima—1 female, August 2.

#### TRINGA NEBULARIA (Gunnerus)

*Scolopax nebularia* GUNNERUS, in Leem. Beskr. Finn. Lapper, 1767, p. 251. (District of Trondhjem, Norway.)

Heianza Shima—1 male, July 31.



**ACTITIS HYPOLEUCOS (Linnaeus)**

*Tringa Hypoleucos* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 149. (Europe, restricted type locality, Sweden.)

Hentona—I male, 1 female, August 24, September 3.

**HETEROSCELUS INCANUS BREVIPES (Vieillot)**

*Totanus brevipes* VIEILLOT, Nouv. Dict. Hist. Nat., vol. 6, 1816, p. 410. (No locality given; the type is from Timor.)

Chuda—I male, 1 female, May 5; Heianza Shima—I female, July 30; Hentona—I female, 1 unsexed, September 8.

The birds collected in May and July are in nuptial plumage. The birds taken in September are in winter plumage.

**GALLINAGO MEGALA Swinhoe**

*Gallinago megala* SWINHOE, Ibis, 1861, p. 343. (Between Takoo and Peking, China.)

Hentona—I male, 3 females, August 9, 31.

Birds were collected in rice fields.

**STERNA ALBIFRONS SINENSIS Gmelin**

*Sterna sinensis* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 608. ("Sina" = China, *ex* Latham.)

Heianza Shima—I male, July 30.

**STERNA SUMATRANA SUMATRANA Raffles**

*Sterna Sumatrana* RAFFLES, Trans. Linn. Soc. London, vol. 13, pt. 2, 1822, p. 329. (Sumatra.)

Heianza Shima—I male, 1 female, July 31.

**STERNA DOUGALLII BANGSI Mathews**

*Sterna dougallii bangsi* MATHEWS, Birds of Australia, vol. 2, 1912, p. 364 (Fochow, China.)

Heianza Shima—I unsexed, July 26.

**ANOÛS STOLIDUS PILEATUS (Scopoli)**

*Sterna pileata* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 92. (No locality = Philippines, *ex* Sonnerat.)

Benoki—I juvenile female, September 17; Hentona—I juvenile female, September 17.

The noddy terns were collected on the coast following a 2-day typhoon. When taken, the specimens appeared exhausted and in poor physical condition. These were the only noddy terns seen.

**COLUMBA JANTHINA JANTHINA** Temminck

*Columba janthina* TEMMINCK, Pl. Col., livr. 86, 1830, pl. 503. (Japan.)

Hedo—1 female, September 26.

One flock of these pigeons was seen at Hedo.

**STREPTOPELIA ORIENTALIS STIMPSONI** (Stejneger)

*Turtur stimpsoni* STEJNEGER, Proc. U. S. Nat. Mus., vol. 10, 1887, p. 399. (Riu Kiu Islands, Japan.)

Nago—1 male, May 1; Yamanuwa—1 male, May 22; Chijuka—1 female, August 19; Hentona—1 female, August 31; Hedo—1 female, September 29.

**CUCULUS POLIOCEPHALUS POLIOCEPHALUS** Latham

*Cuculus poliocephalus* LATHAM, Index Orn., vol. 1, 1790, p. 214. (India.)

Hedo—1 female, September 29.

The cuckoo was observed in hilly areas.

**OTUS BAKKAMOENA PRYERI** (Gurney)

*Scops pryeri* GURNEY, Ibis, 1889, p. 302. (Okinawasima, Riu Kiu Islands.)

Hedo—1 juvenile male, August 26.

Owls were observed in pine trees near villages.

**ALCEDO ATTHIS JAPONICA** Bonaparte

*Alcedo japonica* BONAPARTE, Ateneo Italiano, No. 11, 1854, p. 320. (Japan.)

Nago—1 male, May 4; Kadena—2 unsexed juveniles, May 29; Heianza Shima—1 male, 1 female, July 31, August 1; Chijuka—1 unsexed, August 19; Hentona—1 male, August 21.

Kingfishers were common along the lower parts of streams. The birds are similar to specimens from Japan in the collection of the United States National Museum. Two birds taken in August were in molt.

**HALCYON COROMANDA BANGSI** (Oberholser)

*Entomothera coromanda bangsi* OBERHOLSER, Proc. U. S. Nat. Mus., vol. 48, 1915, p. 654. (Ishigaki Island, Riu Kiu Islands.)

Nago—1 male, May 18; Koza—1 male, June 6; Hedo—1 juvenile male, September 2; Benoki—1 juvenile male, August 22; Shana-Wan—1 male, September 13.

Birds were found in forested areas.

**SAPHEOPIPO NOGUCHII** (Seebohm)

*Picus noguchii* SEEBOHM, Ibis, 1887, p. 178. (Loo-choo Islands = Riu Kiu Islands.)

Hedo—2 females, September 2, 29.

The two birds were collected in dense forest near Hedo. They are secretive birds and appear to be rare. The female taken September 29 was in molt. Apparently one bird has been incorrectly sexed; it has the plumage of a male.

**DRYOBATES KIZUKI NIGRESCENS** (Seebohm)

*Iyngipicus kizuki nigrescens* SEEBOHM, Ibis, 1887, p. 177. (Loo-choo Islands = Riu Kiu Islands.)

Hedo—1 male, September 26.

This woodpecker was collected in a pine tree in thick forest. It was molting wing and body feathers.

**HIRUNDO TAHITICA NAMIYEI** (Stejneger)

*Chelidon namiyei* STEJNEGER, Proc. U. S. Nat. Mus., vol. 9, 1886 (1887), p. 646. (Okinawa Shima.)

Hanza—1 unsexed juvenile, June 6; Hentona—1 male, 1 juvenile male, August 18; Hedo—1 juvenile male, August 31.

**PERICROCOTUS ROSEUS TEGIMAE** Stejneger

*Pericrocotus tegimae* STEJNEGER, Proc. U. S. Nat. Mus., vol. 9, 1886 (1887), p. 648. (Okinawa Shima.)

Hedo—1 male, 1 female, September 26.

The two birds were in molt when collected.

**CORVUS CORONOIDES CONNECTENS** Stresemann

*Corvus coronoides connectens* STRESEMANN, Verh. Orn. Ges. Bayern, vol. 7, 1916, p. 281. (Miyakojima.)

Yabu—1 female, May 21; Hedo—2 juvenile males, August 31, September 26; Hentona—1 male, 2 juvenile males, May 15, August 11.

The adult male measures: wing 325, tail 220, full culmen 58.2, depth of bill at nostril 22.4; the adult female, 332, 229, 63.1, 21.7. Three of the juveniles (August and September) measure: wing 303-306, full culmen 55.1-61.6, depth of bill at nostril 20.1-22.4. The fourth juvenile male (May) measures 272, 54.6, 20.8. This latter bird might be an example of the smaller *C. c. osai* Agawa (Kuroda, Avifauna Riu Kiu Ids., 1925, p. 2), but it is not in a condition to be identified as to subspecies.

**PARUS MAJOR OKINAWAE** Hartert

*Parus major okinawae* HARTERT, Vögel Pal. Faun., vol. 1, 1905, p. 346. (Okinawa Island, Northern Riu Kiu Group.)

Yona—1 male, August 21; Chijuka—1 male, September 18.  
Birds were found singly or in pairs in marginal brushlands.

**MICROSCELIS AMAUROTIS PRYERI** (Stejneger)

*Hypsipetes pryeri* STEJNEGER, Proc. U. S. Nat. Mus., vol. 9, 1886 (1887), p. 642. (Okinawa Shima.)

Yamanuwa—1 female, May 17; Hanza—1 unsexed, June 6; Koza—1 unsexed, June 6; Hedo—2 juvenile males, 1 unsexed juvenile, August 28, 31, September 3.

The naval field party reported that these birds, especially the juveniles, were numerous during August and September.

**LUSCINIA KOMADORI NAMIYEI** (Stejneger)

*Icoturus namiyei* STEJNEGER, Proc. U. S. Nat. Mus., vol. 9, 1886 (1887), p. 644. (Okinawa Shima.)

Chijuka—2 males, 1 female, September 18; Hentona—1 female, September 20.

Birds were found in dense cover in hilly areas, usually along streams. All the specimens were in molt when collected.

**MONTICOLA SOLITARIUS MAGNUS (La Touche)**

*Petrophila solitaria magna* LA TOUCHE, Bull. Brit. Orn. Club, vol. 40, 1920, p. 97. (Japan.)

Yamanuwa—1 male, 1 female, 1 unsexed, May 15, 19; Ogumui—1 male, May 13; Sakimotobu—1 unsexed, May 13; Hentona—5 females, 7 juvenile males, 2 unsexed, August 4, 9, 20, 21, 24, 26, 27, 31, September 20.

Birds were collected in rocky areas along the coast. Two of the birds taken in August were in molt.

**CISTICOLA JUNCIDIS BRUNNICEPS (Temminck and Schlegel)**

*Salicaria (Cisticola) brunniceps* TEMMINCK AND SCHLEGEL, in Siebold's Faun. Japon., Aves, 1850, p. 134, pl. 20. (Japan.)

Nago—1 male, May 2; Myazato—1 unsexed, May 16; Kashuren-Wan—1 female, June 7; Yona—1 juvenile female, 2 unsexed juveniles, August 26; Hentona—1 juvenile female, 1 fledgling, August 18, September 19.

Birds were collected in fallow fields.

**PHYLLOSCOPUS BOREALIS XANTHODRYAS Swinhoe**

*Phylloscopus xanthodryas* SWINHOE, Proc. Zool. Soc. London, 1863, p. 296. (Amoy.)

Hedo—2 unsexed, September 26, 29.

Birds were observed in woodland areas. They were not seen in late August.

**PHYLLOSCOPUS BOREALIS BOREALIS (Blasius)**

*Phyllopncuste borealis* BLASIUS, Naumannia, 1858, p. 313. (Sea of Ochatsk.)

Hedo—1 juvenile female, September 29.

**HEMICHELIDON GRISEICTICTA GRISEICTICTA Swinhoe**

*Hemichelidon griseicticta* SWINHOE, Ibis, 1861, p. 330. (Amoy and Takoo.)

Hentona—1 male, September 25; Hedo—3 males, 1 juvenile male, 2 unsexed, September 26, 29.

These birds have been compared with the type of *H. g. pallens* (Stejneger) and with specimens of *H. g. habereri* Parrot. The wings of the adults measure 81-83.

**TERPSIPHONE ATROCAUDATA ILLEX** Bangs

*Terpsiphone illex* BANGS, Bull. Mus. Comp. Zool., vol. 36, 1901, p. 264. (Ishigaki, Southern Liu Kiu Group.)

Nago—1 male, May 15; Hedo—1 juvenile male, 1 unsexed, September 3, 26.

The adult specimen, taken by Markley in May, is in breeding plumage.

**MOTACILLA CINEREA CASPICA** (S. G. Gmelin)

*Parus Caspicus* S. G. GMELIN, Reise durch Russland, vol. 3, 1774, p. 104, pl. 20, fig. 2. (Enzeli on the Caspian Sea.)

Hedo—1 female, 1 unsexed, August 26, September 26; Yona—1 unsexed, September 3.

**ZOSTEROPS PALPEBROSA LOOCHOOENSIS** Tristram

*Zosterops simplex* var. *loochooensis* TRISTRAM, Ibis, 1889, p. 229. (Loo-choo Islands=Riu Kiu Islands.)

Kadena—2 females, May 29; Hedo—2 unsexed, September 26, 29.

Small flocks were found in brushy areas. One bird taken in September was in molt.

**PASSER MONTANUS SATURATUS** Stejneger

*Passer saturatus* STEJNEGER, Proc. U. S. Nat. Mus., vol. 8, 1885, p. 19. (Liu Kiu Islands, Japan.)

Hentona—1 female, August 17.

Birds were found in villages.

## BIRDS COLLECTED AT IWO JIMA, VOLCANO ISLANDS

Wharton visited Iwo Jima from March 27 to 31, 1945. He reported finding only five kinds of birds. The fighting during the invasion of the island destroyed or damaged much of the available habitat for land birds (pl. 1).

**PLUVIALIS DOMINICA FULVA** (Gmelin)

*Charadrius fulvus* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 687. (Tahiti.)

1 male, March 27.

Wharton reported seeing several flocks of these plovers. The specimen obtained was in prenuptial molt.

**MICROSCELIS AMAUROTIS MAGNIROSTRIS (Hartert)**

*Hypsipetes amaurotis magnirostris* HARTERT, Bull. Brit. Orn. Club, vol. 15, 1905, p. 46. (S. Dionisio, Volcano Islands.)

3 females, March 30.

One specimen had a healing wound on the tarsus when collected. Another was in molt.

**MONTICOLA SOLITARIUS MAGNUS (La Touche)**

*Petrophila solitaria magna* LA TOUCHE, Bull. Brit. Orn. Club, vol. 40, 1920, p. 97. (Japan.)

3 males, 2 females, March 29, 30.

Wharton found these birds in scrub vegetation. One specimen has a broken foot, which apparently was healing when obtained. One male was in molt when shot. The specimens are in worn plumage but to me are subspecifically indistinguishable from birds from Japan, Korea, and Okinawa.

**ZOSTEROPS PALPEBROSA ALANI Hartert**

*Zosterops palpebrosa alani* HARTERT, Bull. Brit. Orn. Club, vol. 15, 1905, p. 45. (S. Dionisio, Volcano Islands.)

2 males, March 30.

Wharton found the white-eyes in woody cover.

**BIRDS COLLECTED IN MICRONESIA**

Field parties visited some of the American-held bases in the Mariana, Caroline, and Palau Islands during the period from May to December, 1945. Owing to the similarity of the birdlife on these islands, a single report for the entire area is made.

On Guam, collections were made from January to November. Most parts of the island were visited (fig. 5) with the exception of the interior of the southern part.

On Rota, a party consisting of Johnson, Markley, Necker, Fritts, and C. A. Woodbury collected from October 17 to November 2. Localities are shown on the map, figure 6.

The writer, together with Davison, McElroy, and Joseph N. Strong, collected on Ulithi Atoll during the period from August 11 to August 23. As shown in figure 7, the islands visited included Asor, Falalop, Potangeras, Pau, Bulubul, Losiep, Mangejang, and Fassarai. Except for Asor and Falalop (pl. 2, fig. 1), which were partially cleared for service installations, most of the islands are practically undisturbed.

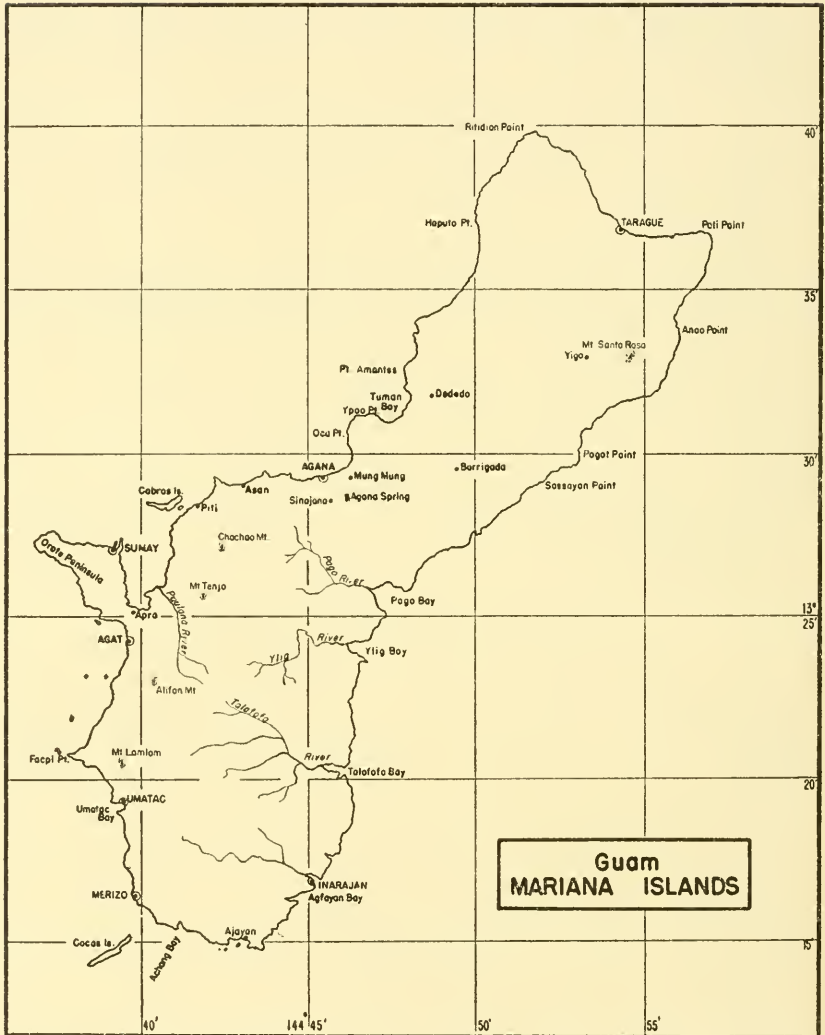


FIG. 5.—Collecting localities on Guam Island.



McElroy visited Truk Atoll from November 24 to December 18. Collections were made on Moen Island, and observations were made on Dublon, Fefan and Udot, shown by the map, figure 8. Most of the bird skins were lost in shipment; only six specimens were saved.

Davison, McElroy, Strong, and the writer collected on American-held islands in the southern Palaus from August 24 to September 24.

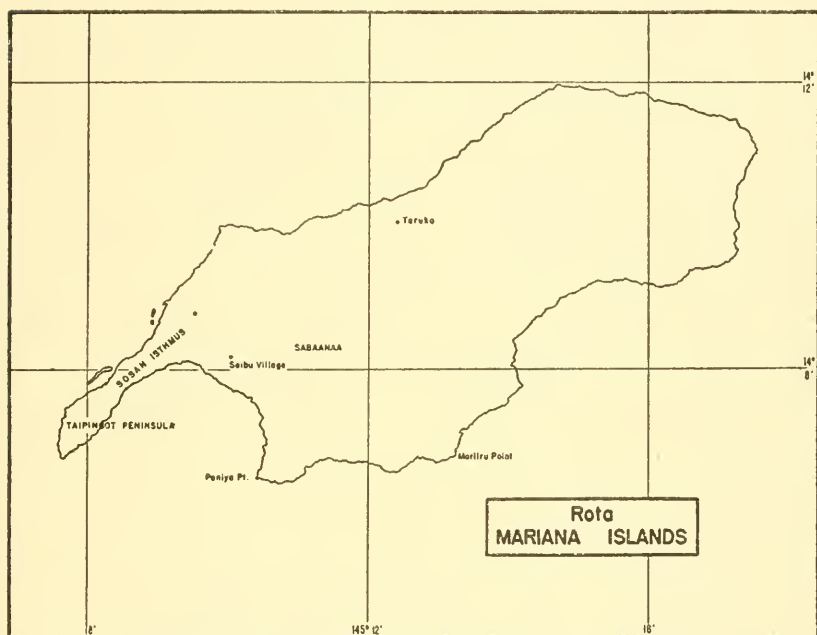


FIG. 6.—Collecting localities on Rota Island.

As shown in figure 9, the islands of Peleliu, Angaur, Ngabad, Ngesebus, Garakayo, and Kayangel were visited.

#### PUFFINUS LHERMINIERI DICHROUS Finsch and Hartlaub

*Puffinus dichrous* FINSCH AND HARTLAUB, Fauna Centralpolynesia, 1867, p. 244.  
(McKean Island, Phoenix group.)

Several shearwaters, presumably this form, were seen during a voyage from Peleliu to the Kayangel Islands of the Palau group on September 2. Most of the birds were observed a few miles offshore from the large island of Babelthuap.

**PHAËTHON LEPTURUS DOROTHEAE Mathews**

*Phaethon lepturus dorotheae* MATHEWS, Austr. Av. Rec., vol. 2, 1913, p. 7.  
(Queensland.)

Guam Island: Amantes Point—5 males, June 11, July 21. Palau Islands (Peleliu Island): 1 mi. north of Asias—1 male, August 31; Eastern Peninsula—1 male, September 6; Southeastern Peninsula—2 males, 1 female, August 29, September 1, 5.

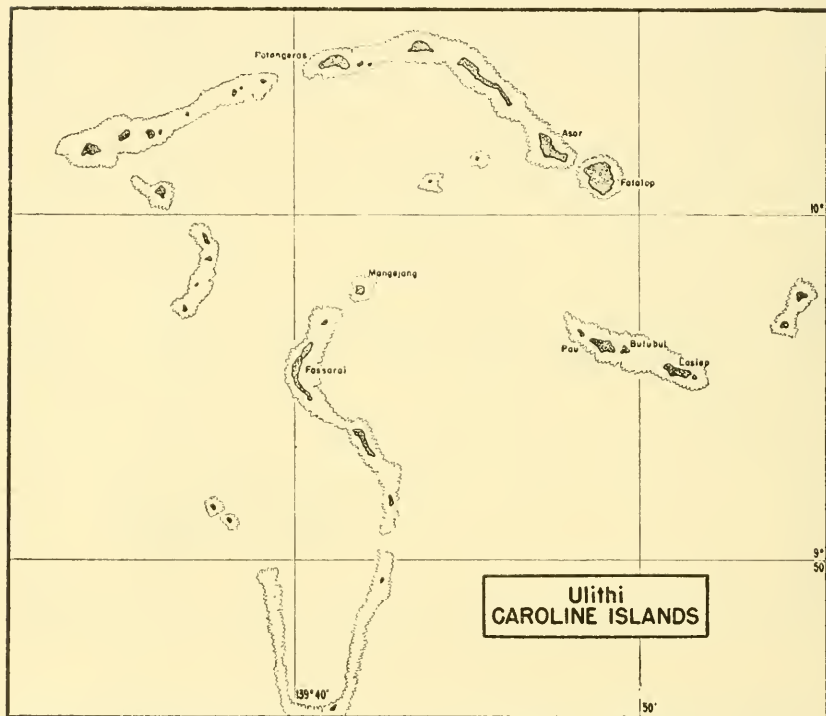


FIG. 7.—Collecting localities on Ulithi Atoll.

Tropic-birds were seen at Guam, Rota, Peleliu, and Truk. Service personnel reported their presence at Ulithi, but none was observed in August by our party.

	Wing	Tail	Exposed culmen	Tarsus
5 adult males (Guam).	256-265 (262)	101-117 (109)	44-50 (47)	20-21 (21)
4 adult males (Peleliu).	242-258 (252)	106-122 (111)	40-46 (44)	19-20 (20)
1 adult female (Peleliu).	260	118	43	20

The average measurements of the 10 adult specimens from Micronesia are within the range of measurements given by Mathews for

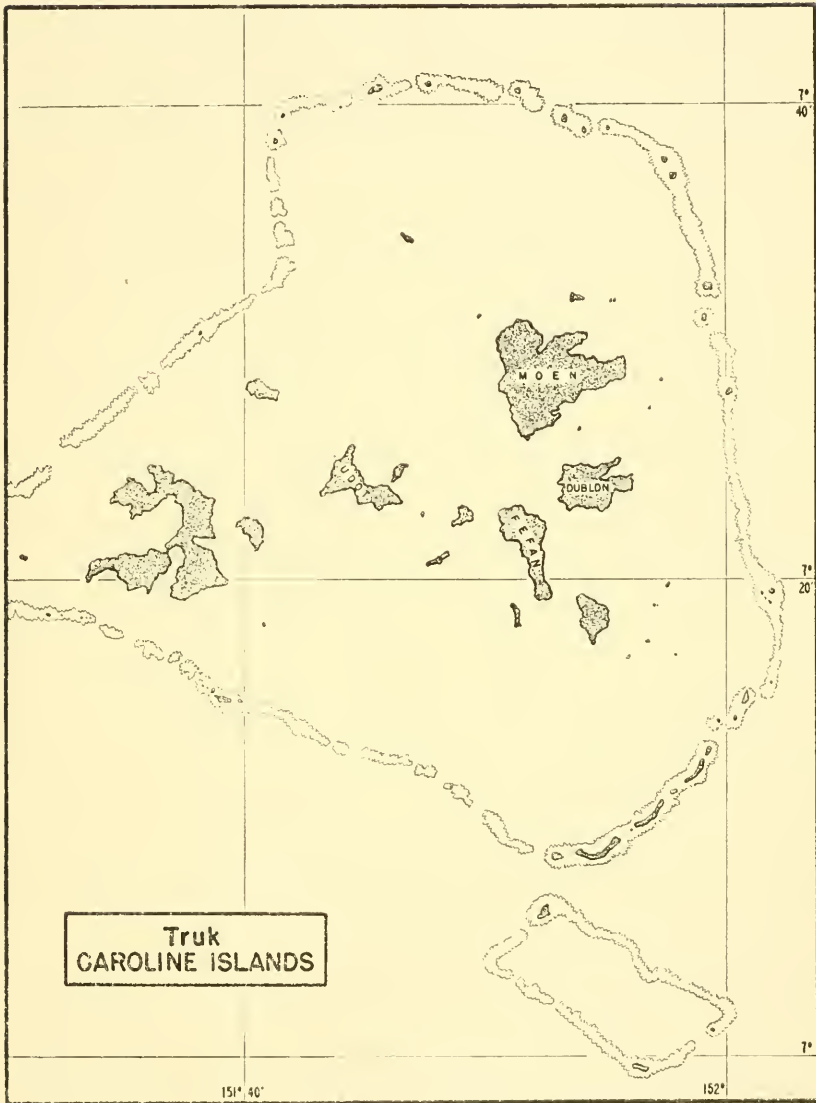


FIG. 8.—Truk Atoll, Caroline Islands.

Pacific birds (Birds of Australia, 1915, vol. 4, p. 309). In comparing the male birds from Guam and Peleliu, the former ones are larger in appearance and in wing and culmen length. These specimens are probably representatives of breeding populations, and it is quite possible that such breeding populations at different islands might show some size variations. All the birds appear to be in good physical condition. Two of the birds from Peleliu were growing the elongated

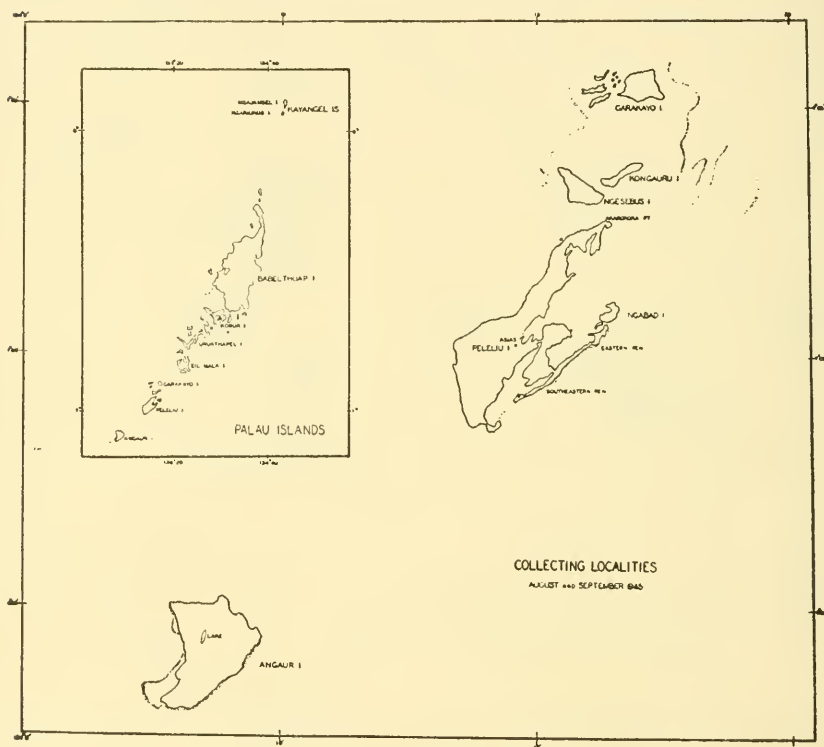


FIG. 9.—Collecting localities in the Palau Islands.

central tail plumes when collected. Weights of the five males from Guam: 267-321 (294).

At Guam, tropic-birds were seen at three localities, each of these being high, rugged, coastal cliffs: Amantes Point, Anao Point, and Orote Peninsula. Most of the birds were observed at Amantes Point, where 20 individuals were counted on May 24 flying in and out of large fissures located about 250 feet above the beach. This place was visited several times from May to July, and birds were seen on each occasion. It was not discovered whether the birds were nesting; however, four males taken on June 11 had enlarged testes.

At Peleliu, tropic-birds were more numerous than at Guam and occurred in all parts of the island, in jungle areas and at cliffs. Birds were nesting in August and September. Nests were observed in hollows of the Australian pine (*Casuarina equisetifolia*), between 20 and 30 feet from the ground. Nesting birds were easily found, since their long tail feathers could be seen extending from the hollows. One nest was observed in a dead tree in a cleared battle area; others were in trees surrounded by jungle vegetation (pl. 2, fig. 2). One male (September) had enlarged testes. Stomachs of birds collected contained small fish.

At Truk, McElroy found tropic-birds at the high cliffs on Moen Island in November and December.

#### SULA LEUCOGASTER PLOTUS (Forster)

*Pelecanus Plotus* FORSTER, Descr. Anim., ed. Licht., 1844, p. 278. (near New Caledonia.)

Rota Island: Taipingot Peninsula—1 male, 1 female, 1 juvenile female, October 24.

At Rota, 12 brown boobies were seen by Johnson at the high cliffs on Taipingot Peninsula on October 24. The juvenile female weighed 1,042 grams. The adult male was in molt. Birds were seen at Guam flying near cliffs and offshore in May, July, and November. At Truk, one bird was recorded at Ulot Island in December.

#### PHALACROCORAX MELANOLEUCOS MELANOLEUCOS (Vieillot)

*Hydrocorax melanoleucos* VIEILLOT, Nouv. Dict. Hist. Nat., vol. 8, 1817, p. 88. ("Australasie," restricted type locality, New South Wales, *vide* Mathews.)

Palau Islands (Peleliu Island): Akarakoro Point—2 females, 2 juvenile females, September 7, 16; Asias—1 juvenile female, August 27; Eastern Peninsula—1 female, September 10.

Measurements of two adult females are: wing 220 and 222, tail 153 and 157, culmen from notch of the suture between the maxilla and the quadratojugal bones 35 and 36. These measurements are within the range of those given by Amadon (Amer. Mus. Novit., No. 1175, 1942, pp. 1-2).

On islands of the southern Palaus visited by our field party, the cormorant was found in mangrove swamps (pl. 3, fig. 1). The birds were occasionally observed in groups of 10 or more individuals. They were sluggish birds and could be approached easily. Stomachs contained fish. There was no indication of breeding during August and September. Most of the birds had worn or molting plumage when collected.

**DEMIGRETTA SACRA SACRA (Gmelin)**

*Ardea sacra* Gmelin, Syst. Nat., vol. 1, pt. 2, 1789, p. 640. (Tahiti.)

Guam Island: Gray phase, Ypao Point—2 males, July 6, August 8; Oca Point—1 juvenile female, May 11; Ylig Bay—1 female, July 24; Facpi Point—2 juvenile males, July 27; Agfayan Bay—3 females, June 6, July 8; Port Ajayan—3 males, June 18, July 16; Achang Bay—1 juvenile male, 2 females, July 16, August 6, 27; no locality—1 juvenile male, September. White phase, Agfayan Bay—1 male, June 6; Port Ajayan—1 male, June 18. Mottled immatures, Port Ajayan—1 male, June 18; Achang Bay—2 males, July 16. Rota Island: Gray phase, Sosan Isthmus—1 male, 1 female, 1 juvenile male, October 18, November 2, 5. Ulithi Atoll: White phase, Potangeras Island—1 female, August 15. Palau Islands (Peleliu Island): Gray phase, Eastern Peninsula—1 female, 1 juvenile male, September 10. White phase, Akarakoro Point—1 female, September 16.

Of 29 reef herons collected in Micronesia, 21 were in gray phase, 4 in white phase and 4 were mottled juveniles. Field observations, however, showed a ratio of about 6 grays to 4 whites, which agrees with the findings of Mayr and Amadon (Amer. Mus. Novit., No. 1144, 1941, p. 8). Birds were seen as follows: Guam, about 6 grays to 4 whites; Rota, no white herons seen; Ulithi, 4 grays, 6 whites, 1 mottled; Truk, 1 gray, 2 whites, 1 mottled; Palau, equal numbers of gray and white. No adult mottled herons were collected.

Weights of four adult males from Guam (gray phase) are 590-667 (614), of two adult males from Guam (white phase) 600 and 662, of five adult females from Guam and Rota (gray phase) 477-553 (506). Birds lacking ornamental plumes, and probably all juveniles, were taken in the summer months. One specimen taken in June was in molt and most of those birds collected later in the year were also in molt. Stomachs examined contained fish and crabs.

**EGRETTA INTERMEDIA INTERMEDIA (Wagler)**

*Ardea intermedia* WAGLER, Isis, 1829, p. 659. (Java.)

Guam Island: Piti—2 males, June 13. Rota Island: Taruka—1 male, October 31. Ulithi Atoll: Potangeras Island—1 female, August 15. Palau Islands: Angaur Island—1 male, 1 female, September 21.

The egret has been reported as a winter visitor to Koror in the Palau Islands (Handlist Japanese Birds, 3rd ed., 1942, p. 203). These

records extend the range of this bird to the Carolines and Marianas. The specimens collected in Micronesia were nonbreeding birds, all of them having yellow bills tipped with black. Birds taken at Guam in June and at Angaur in September show no development of ornamental plumes, whereas birds taken at Ulithi in August and at Rota in late October have some ornamental plumes.

At Guam, the egret was first observed on February 25, when a group of 14 birds was seen in a fallow rice paddy near Piti. The flock remained in this vicinity and was observed until June 13, when the area was cleared for military use. A flock of 16 birds was seen on the beach at Agfayan Bay on July 25 and again on August 6. At Ulithi, three egrets were observed feeding in grassy, cleared areas. In the Palaus, egrets were seen on tidal flats and open grassland at Angaur and Peleliu. One flock of 15 was counted. At Rota, a group of 16 birds was found in a cultivated field on October 31. On all the islands egrets appeared to prefer grassy flats to the beaches. These observations show that egrets were present in Micronesia from February through October in 1945.

Weights of two male egrets from Guam were 445 and 463. Stomachs of birds collected at Guam, Ulithi, and Angaur contained grasshoppers, other insects, spiders, and skinks.

#### NYCTICORAX CALEDONICUS PELEWENSIS Mathews

*Nycticorax caledonicus pelewensis* MATHEWS, Bull. Brit. Orn. Club, vol. 46, 1926, p. 60. (Pelew Islands.)

Palau Islands (Peleliu Island): Akarakoro Point—2 males, 2 females, September 6, 8; Southeastern Peninsula—3 females, 1 juvenile male, 1 juvenile female, 2 male nestlings, 1 female nestling, August 29, 31, September 1, 5.

Night herons were found on tidal flats and in mangrove swamps at Peleliu, Angaur, and Garakayo Islands of the Palau group. McElroy reported seeing three birds at Truk. At Southeastern Peninsula, Peleliu, two juveniles and three nestlings in postnatal molt were collected in a grove of low, saplinglike trees. There were eight nests counted in this area, all being 15 to 20 feet from the ground.

Stomachs of the birds contained eels, fish, skinks, crabs, shrimp, and insects. One stomach of an adult contained 14 large grasshoppers and four fish, totaling about 15 cc. in volume. The nestlings had insects, skinks, and eels in their stomachs. One adult taken in September was in molt.

## IXOBRYCHUS SINENSIS BRYANI (Seale)

*Ardetta bryani* SEALE, Occ. Pap. B. P. Bishop Mus., vol. 1, No. 3, 1901, p. 27. (Guam.)

Guam Island: Pagat Point—1 female, July 10; Oca Point—1 male, August 4; Sinajana—1 unsexed, May 16; Ylig Bay—1 female, July 24; Facpi Point—1 female, July 27; Talofoyo Bay—1 female, June 14; Agfayan Bay—1 male, 2 females, June 4, 6, July 8; Port Ajayan—1 male, 1 female, June 18; Achang Bay—5 males, 6 females, 1 juvenile male, June 6, 7, 19, July 16; Umatac Bay—2 males, 1 female, 1 juvenile male, 2 juvenile females, June 18.

There seems to be very little difference between these specimens and least bitterns from China and adjacent areas. Some of the adult males from Guam, taken in June and July, are paler on the back, although this may be due to wear. Adult males from Guam have a slightly longer wing and tail than those of birds from China, Siam, Okinawa, and the Philippines. Measurements of birds from Guam, *I. s. bryani*, and from China, Siam, Okinawa, and the Philippines, *I. s. sinensis* (Gmelin), are as follows:

<i>Ixobrychus s. bryani</i> :	Wing	Tail	Full culmen	Tarsus
9 adult males (Guam)...	128-138 (134)	45-50 (47)	55-60 (57)	45-47 (46)
11 adult females (Guam).	125-134 (130)	44-49 (47)	55-59 (57)	43-47 (45)
<i>Ixobrychus s. sinensis</i> :				
11 adult males.....	119-134 (128)	41-48 (44)	56-62 (59)	43-46 (44)

Bitterns were found on tidal flats and in fresh-water marshes at Guam. At Rota, birds were less numerous. A nest containing two eggs was collected at Achang Bay, Guam, on June 6. It was located in a cane thicket near a fallow rice field. The eggs are oval, white with a greenish cast, and measure 33 by 24 and 34 by 24. A nestling was found in thick shrubbery at Oca Point on February 1. Birds taken in June, August, and September were in molt. Weights of eight adult males from Guam are 82-103 (92), of eight adult females 84-109 (95).

## IXOBRYCHUS SINENSIS MOOREI Wetmore

*Ixobrychus sinensis moorei* WETMORE, Bull. Mus. Comp. Zool., vol. 63, 1919, p. 173. (Uala, Truk Group, Middle Carolines.)

McElroy found bitterns in rice paddies at Truk. Specimens collected were lost in shipment. The species was apparently rare in the southern Palaus; our collecting party worked over these islands rather thoroughly and saw only one bird on September 13 at Peleliu.



I am following the Handlist of Japanese Birds, 3d ed., 1942, p. 205, in placing the Palau bittern with the race at Truk. As in the case of the race of the bittern at Guam, this form is not a very distinctive one.

#### **ANAS SUPERCILIOSA PELEWENSIS** Hartlaub and Finsch

*Anas superciliosa* var. *pelewensis* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1872, p. 108. (Pelew Islands.)

McElroy found ducks in rice paddies, marshes, and swamps at Truk. The ducks apparently flew to outlying islands during the day but roosted in the swamps of Moen Island at night. The 1942 Japanese Checklist, p. 206, places this bird in the race *Anas superciliosa rukensis* Kuroda (1939). I am unable to see a copy of this description at the present writing. The one specimen obtained was lost in shipment.

At Peleliu, service personnel reported seeing ducks, but our collecting party did not find any there in August and September.

#### **ANAS OUSTALETI** Salvadori

*Anas oustaleti* SALVADORI, Bull. Brit. Orn. Club, vol. 4, 1894, p. 1. (Marianne Islands.)

At Guam, *Anas oustaleti* was not observed. Ducks, which might have been of this species, were seen flying over a marsh near Agat on June 13, 1945, and others were seen at a fallow rice paddy by service personnel in August 1944. It is possible that ducks are present in inland marshes and swamps of the southern interior of Guam. In June 1923 H. G. Hornbostel (in Phillips, Natural History of Ducks, vol. 2, 1923, p. 54) reported that the ducks were found only in the Talofofu River valley. Our field parties investigated the lower parts of this valley but owing to the presence of enemy troops in the area did not venture very far from the roads. Some of this area was used as an artillery range, which might have been a disturbing influence. If the ducks are present, they are apparently rather restricted in their movements.

At Rota, two ducks, which might have been of this species, were seen by Johnson on October 30 in a cultivated field. Lt. Joe T. Marshall, Jr., collected a pair of the birds at the island of Saipan in the fall of 1945. These specimens are in the collection of the United States National Museum. Ducks were also reported at a lake on Tinian. The presence of war activities and large concentrations of service personnel on the small islands inhabited by this unique bird have undoubtedly disturbed and affected the already small numbers.

This necessitates careful conservation of the ducks to insure survival, particularly in the southern Marianas.

**PANDION HALIAETUS MELVILLENSIS Mathews**

*Pandion haliaëtus melvillensis* MATHEWS, Austr. Av. Rec., vol. 1, 1912, p. 34.  
(Melville Island, Northern Territory.)

Records of the osprey in the southern Palau Islands in 1944 and 1945 were obtained from Lt. C. K. Dorsey of the Epidemiology Unit at Peleliu. No birds were seen during the visit of our collecting party there in August and September. An osprey was observed by Lt. B. V. Travis at Agaña Bay, Guam, in December 1945. He reported that the bird was carrying a fish in its talons.

**FALCO PEREGRINUS subsp.**

Lt. Irven O. Buss reported that on November 2, 1945, as his ship approached Guam, a duck hawk alighted on the superstructure. He watched the bird catch and eat a noddy tern (*Anous stolidus*) before flying to the rugged cliffs near Facpi Point.

Hawks were seen by our field parties on several occasions in the Micronesian islands. At Guam, a small hawk resembling an accipiter was observed by Muennink darting at swiftlets on Mount Tenjo on June 8. At Peleliu, a bird thought to be a duck hawk was reported in the spring of 1945. At Angaur Island on September 21, a small hawk was seen to fly into heavy vegetation at the edge of the rugged coast line.

**MEGAPODIUS LAPÉROUSE SENEX Hartlaub**

*Megapodus senex* HARTLAUB, Proc. Zool. Soc. London, 1867 (1868), p. 830.  
(Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—2 males, August 31, September 1; Ngabad Island—1 female, September 11; Garakayo Island—2 males, 1 female, 1 male chick, 1 female chick, September 17, 18, 19.

At Peleliu, megapodes were found on the eastern side of the island where war activities had not removed the dense jungle cover. A few birds were also observed in the rapidly-growing vegetation that was beginning to cover the battle-cleared areas. At Garakayo Island, which was little disturbed by occupational activities, megapodes appeared rather numerous. The birds were located by listening for their loud screeches and cackles but were extremely wary and difficult to

approach. The native islanders consider the birds and their eggs to be choice food. One male had enlarged testes. Stomachs contained seeds and finely ground material. A number of intestinal parasites were found.

The Mariana megapode (*Megapodius lapérouse lapérouse* Gaimard) was not found by our collecting parties on Guam or Rota. Lt. Joe T. Marshall, Jr., who collected on Tinian and Saipan in 1945, did not find the bird on those islands.

#### GALLUS GALLUS GALLUS (Linnaeus)

*Phasianus Gallus* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 158. ("India orientali, Pouli candor etc." Restricted type locality, Island of Pulo Condor, off the mouths of the Mekong.)

Palau Islands (Peleliu Island): Eastern Peninsula—1 male, September 13; Ngabad Island—1 female, September 11; Garakayo Island—1 female, September 19.

Feral chickens were found at the Palaus, Ulithi Atoll, and Truk.

#### PHASIANUS TORQUATUS subsp.

On July 4, 1945, 57 ring-necked pheasants (16 cocks and 41 hens) were liberated at Guam by the United States Navy. These birds, furnished by the California Game and Fish Division, were 11 weeks old when released. Twenty-four birds were liberated at the site of CincPoa headquarters near Mount Tenjo. Thirty-three were placed near the FEA dairy farm about  $1\frac{1}{4}$  miles west of the Price School. One month after release there was still evidence that birds were present, though there were reports that some had moved as far away as 1 mile. The birds were not banded.

#### COTURNIX CHINENSIS LINEATA (Scopoli)

*Oriolus lineatus* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 87. (Luzon, Philippine Islands, ex Sonnerat.)

Guam Island: Mount Santa Rosa—1 male, June 28; Agat (1 mi. SE. of)—1 male, June 13.

The introduced quail frequented grassy uplands, cleared coconut groves and fallow fields on Guam. Birds were seen on Mount Tenjo, Mount Santa Rosa, near Umatac, and near Agat. They were found singly or in pairs, although a covey of seven birds was reported on Mount Tenjo. The two males, collected in June, had enlarged testes. Their weights are 34.5 and 35.5.

**RALLUS PHILIPPENSIS PELEWENSIS (Mayr)**

*Hypotaenidia philippensis pelewensis* MAYR, Amer. Mus. Novit., No. 609, 1933, p. 3. (Palau Islands.)

Palau Islands (Peleliu Island): Akarakoro Point—1 male, September 16; Asias—1 male, 2 females, August 27, 28; Garakayo Island—2 males, 1 female, 1 juvenile male, September 18, 19, 20.

Rails were collected both in swampy areas and well-drained uplands. Some birds were taken in the new growth of vines and other low vegetation of the battle areas. Stomachs contained insects, seeds, and small shells. Two males had enlarged testes.

**RALLUS OWSTONI (Rothschild)**

*Hypotaenidia owstoni* ROTHSCHILD, Nov. Zool., vol. 2, 1895, p. 481. (Guam.)

Guam Island: Ypao Point—1 male, 1 unsexed, June 28, July 14; Oca Point—1 male, 1 unsexed, 2 juvenile females, June 19, 20; Agaña—1 male, January 26; Pago River—1 female, July 23; Piti—2 males, May 8, September 8; Apra—1 juvenile female, June 30; Ylig Bay—1 female, July 19.

Rails frequented forested parts of Guam. The birds were rather secretive, many of the specimens being taken in rat traps. Black downy young were observed on April 1 and May 16. One nest containing three eggs was found in dense grass near Mount Santa Rosa on October 24. The eggs are white with a pinkish cast and a scattering of small spots of colors near "russet" and near "pearl blue" which are concentrated at the large ends. They measure 37.5 by 29.1, 39.1 by 28.0, and 40.7 by 29.0. A male, taken in January, had enlarged testes. Weights of two adult males were 256 and 257, of two adult females 210 and 252.

**POLIOLIMNAS CINEREUS COLLINGWOODI Mathews**

*Poliolimnas cinereus collingwoodi* MATHEWS, Bull. Brit. Orn. Club, vol. 46, 1926, p. 60. (New name for *ocularis* Ingram "preoccupied as a synonym of *cinereus* Vieillot.") (Philippine Islands, *ex* G. R. Gray.)

McElroy found birds in brackish swamps at Truk. One male examined in December had enlarged testes. Although recorded from many islands of Micronesia, birds were not found by our naval field parties at the other islands visited. Service personnel reported a small rail at Asor and Falalop Islands, Ulithi Atoll, in the early days of occupation, but the bird was apparently eliminated as a result of the naval activities.

**GALLINULA CHLOROPUS GUAMI** Hartert

*Gallinula chloropus guami* HARTERT, Nov. Zool., vol. 24, 1917, p. 268. (Guam.)

Guam Island: Achang Bay—1 male, 1 female, June 7, 18.

Ten specimens from Guam, Saipan, and Tinian in the collection of the United States National Museum have been compared with gallinules from other areas. These birds are similar to *G. c. indica* Blyth and to *G. c. lozanoi* Lletget but the upper wing-coverts are darker and near "olivaceous black," and the back, rump, and scapulars are also darker and less richly washed with olivaceous brown, though not as dark as representatives of *G. c. orientalis* Horsfield from Java. In size, the Mariana birds are similar to the former two races.

At Guam, gallinules were found in fresh-water marshes and in fallow rice paddies. Weights of the birds are: adult male 291, adult female 256. The male, collected June 7, had enlarged testes.

**GALLINULA CHLOROPUS** subsp.

Palau Islands: Angaur Island—1 unsexed adult, 2 juvenile males, September 21.

The single unsexed adult appears very distinct when compared with gallinules from adjacent areas. Its coloration is paler, the upper wing-coverts being less olivaceous brown and more slate colored, and the back, rump, and scapulars being less richly washed with olivaceous brown than specimens of *G. c. indica*, *G. c. lozanoi*, and *G. c. guami*. In size it resembles *G. c. orientalis* with wing 150 and tarsus 46, but it is also much paler than this race. The Handlist of Japanese Birds, 3d ed., 1942, p. 221, records *G. c. indica* from Babelthuap Island, Palau Islands.

The three birds were taken at fresh-water and brackish-water swamps on Angaur Island. Several birds were also observed at Peleliu Island (pl. 3, fig. 2). One of the juveniles was growing its wing feathers when collected, indicating that the birds must breed in the Palau Islands.

**PORPHYRIO PORPHYRIO PELEWENSIS** Hartlaub and Finsch

*Porphyrio melanotus* TEMM. var. *pelewensis* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1872, p. 107. (Pelew Islands.)

Palau Islands: Angaur Island—1 chick, September 21.

One chick was caught by Davison at the edge of a fresh-water lake at Angaur Island. An adult was flushed from the same area.

**SQUATAROLA SQUATAROLA (Linnaeus)**

*Tringa Squatarola* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 149. (Europe, restricted type locality Sweden, *apud* Hartert.)

Guam Island: Achang Bay—1 female, August 27.

Markley collected one specimen of this migrant. It was the only black-bellied plover seen by our collecting parties in Micronesia.

**PLUVIALIS DOMINICA FULVA (Gmelin)**

*Charadrius fulvus* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 687. (Tahiti.)

Guam Island: Pati Point—1 male, September 17; Facpi Point—1 female, September 26; Ylig Bay—2 males, 1 female, July 19, 24; Inarajan—1 male, 1 female, September 19; Agfayan Bay—2 males, July 8, 24; Achang Bay—6 males, 1 female, August 31, September 4, October 5, 8, 24. Machadgan Point (Umatac Bay)—1 female, October 23. Rota Island: Sosan Isthmus—1 male, 1 female, October 20, 26; Sabaanaa—2 males, 1 female, October 20. Ulithi Atoll: Bulubul Island—1 male, August 21; Pau Island—1 male, 1 female, August 21; Potangeras Island—1 male, August 16. Palau Islands (Peleliu Island): Akarakoro Point—5 males, 3 females, September 6, 8, 12, 16; Asias—1 female, September 13; Garakayo Island—1 female, September 20.

The golden plover was one of the most abundant migrants to pass through Micronesia during 1945. Birds were found on beaches, cleared areas, air strips, and short-grass uplands. At Guam, northbound birds were first seen on February 11. By April 1, plover in nuptial plumage were numerous. The last spring record was obtained on April 28. The first southbound birds were recorded on July 8, when three individuals were seen at Agfayan Bay. By September, plovers were again numerous. Birds in postnuptial molt were taken at Ulithi in August, at Palau in September, and at Guam as late as October 8. The five birds taken at Rota in late October were in winter plumage. McElroy saw birds at Truk in December.

Weights of seven males from Guam and Rota are 107-125 (117), of four females 109-120 (114). Stomach contents of birds examined at Ulithi and Peleliu included small shells and parts of crabs.

**CHARADRIUS MONGOLUS MONGOLUS Pallas**

*Charadrius mongolus* PALLAS, Reise Versch. Prov. Russ. Reichs, vol. 3, 1776, p. 700. (Salt lakes toward the Mongolian border = Kulussutai, probably on the Onon River, Siberia, *vide* Ridgway, 1919, p. 134.)

Guam Island: Agfayan Bay—1 male, June 7; Achang Bay—1 female, September 1. Ulithi Atoll: Losiep Island—1 female, August

22. Palau Islands (Peleliu Island): Akarakoro Point—2 males, 1 female, September 7, 8, 12.

Dotterels were observed on tidal flats. The stomach of a bird collected at Ulithi Atoll contained 1 cc. of marine worms.

#### CHARADRIUS LESCHENAULTII Lesson

*Charadrius Leschenaultii* LESSON, Dict. Sci. Nat., éd. Levrault, vol. 42, 1826, p. 36. (Pondichery, India.)

Palau Islands (Peleliu Island): Akarakoro Point—1 male, 6 females, September 6, 8, 12.

Small flocks of these shore birds were found on tidal flats at Peleliu in September.

#### NUMENIUS PHAEOPUS VARIEGATUS (Scopoli)

*Tantalus variegatus* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 92. (No locality = Luzon, *ex* Sonnerat.)

Guam Island: Piti—3 females, July 26, 27; Ylig Bay—2 females, August 2; Inarajan—2 males, September 19; Agfayan Bay—2 males, 2 females, June 4, 6, July 24, August 27; Achang Bay—4 females, August 27, September 1, October 8; Umatac Bay—1 male, September 25. Ulithi Atoll: Potangeras Island—1 female, August 17. Palau Islands (Peleliu Island): Akarakoro Point—1 male, 3 females, September 8, 12; Asias—1 male, September 14; Angaur Island—2 males, 2 females, September 21.

Whimbrels were observed on beaches, cleared areas, and grassy uplands. At Guam, birds were seen in March on their northward migration, the last record being on March 21. The birds returned to Guam from the northern breeding grounds beginning in early summer, the first record being on June 1.

Weights of two adult males from Guam are 373-435 (404), and of six adult females 295-426 (384). The great variation in these weights may be due to the effects of migration.

#### NUMENIUS MADAGASCARIENSIS (Linnaeus)

*Scolopax madagascariensis* LINNAEUS, Syst. Nat., ed. 12, vol. 1, 1766, p. 242. (Madagascar, error = Macassar, Celebes, as designated by Neumann.)

Curlews were observed on tidal flats at Guam on October 4 and at Ngesebus Island in the Palaus on September 20.

**LIMOSA LAPPONICA BAUERI** Naumann

*Limosa Baueri* NAUMANN, Naturg. Vög. Deutschl., vol. 8, 1836, p. 429. (New Holland = Victoria *apud* Mathews, Nov. Zool., vol. 18, 1912, p. 220.)

Palau Island (Peleliu Island): Akarakoro Point—1 male, September 7.

Godwits were seen in small numbers on tidal flats at Peleliu (pl. 4, fig. 1) in September and at Guam on April 26 and October 15.

**TRINGA NEBULARIA** (Gunnerus)

*Scolopax nebularia* GUNNERUS, in Leem. Beskr. Finn. Lapper, 1767, p. 251. (District of Trondhjem, Norway.)

Palau Islands (Peleliu Island): Akarakoro Point—2 females, September 14, 15; Mangrove swamp, 1½ mi. SW. Akarakoro Point—1 male, 1 female, August 28.

At Peleliu the greenshank was observed on tidal flats and in mangrove swamps.

**TRINGA GLAREOLA** Linnaeus

*Tringa Glareola* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 149. (Europe, restricted type locality, Sweden.)

Palau Islands: Angaur Island—1 male, September 21.

One specimen was collected at a fresh-water pond.

**ACTITIS HYPOLEUCOS** (Linnaeus)

*Tringa Hypoleucos* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 149. (Europe, restricted type locality, Sweden.)

Guam Island: Achang Bay—2 males, 2 females, July 16, September 20. Ulithi Atoll: Losiep Island—1 female, August 22. Palau Islands (Peleliu Island): Asias—2 males, 1 female, September 9, 14.

Single birds were found on and along beaches. Stomachs of birds collected contained crab parts and insects. Weight of one male from Guam is 67, of two females 57 and 63.

**HETEROSCELUS INCANUS BREVIPES** (Vieillot)

*Totanus brevipes* VIEILLOT, Nouv. Dict. Hist. Nat., vol. 6, 1816, p. 410. (No locality given; the type is from Timor.)

Guam Island: Piti—1 male, July 27; Ylig Bay—2 females, July 24; Inarajan—1 male, September 19; Agfayan Bay—1 male, 1 female, June 4, 6; Achang Bay—2 males, 7 females, June 6, July 16, August 6, 27, September 4, October 5, 8; Bile Bay—1 female, October 23. Palau Islands (Peleliu Island): Akarakoro Point—2 males, 5



females, September 6, 7, 8, 16. Truk Islands: Moen Island—1 male, December 13.

Most of the birds taken in summer and fall, as late as October 23, were in postnuptial molt. Birds collected in June were in winter plumage (molting) and probably did not go to the breeding grounds. Weights of three males from Guam are 90-104 (95), of six females 99-116 (104).

#### HETEROSCELUS INCANUS INCANUS (Gmelin)

*Scolopax incana* GMELIN, Syst. Nat., vol. 1, pt. 2, 1789, p. 658. (Eimeo = [Moorea of the Society Group] and Palmerston Islands.)

Guam Island: Ritidian Point—1 female, May 29; Amantes Point—1 male, 1 female, May 26; Oca Point—1 male, 2 females, May 21, 24; Facpi Point—2 males, 1 female, September 19, 26, 27; Achang Bay—2 females, September 20, October 23; no locality—1 male, 1 female, October 10. Rota Island: Sosan Isthmus—2 unsexed, October 23, 25. Ulithi Atoll: Losiep Island—2 males, August 22; Mangejang Island—1 female, August 20.

At Guam, where both species of tattlers were found, *H. i. incanus*, in nuptial plumage, was collected in late May, the last record being on May 29. It was not seen again until August 20 at Ulithi and on September 19 at Guam. The birds taken as late as October 23 were in postnuptial molt. Southward-migrating *H. i. brevipes* was collected earlier, in July. No records for *H. i. incanus* were obtained in the Palaus.

Weights of two males from Guam are 175 (May) and 109 (September), and of two females in May, 175 and 192. The male collected in September was in poor physical condition, probably owing to the effects of migration.

#### ARENARIA INTERPRES (Linnaeus)

*Tringa Interpres* LINNAEUS, Syst. Nat., ed. 10, vol. 1, 1758, p. 148. (Europe and North America, restricted type locality, Gotland, Sweden.)

Guam Island: Facpi Point—2 males, 1 female, October 19, 26; Agfayan Bay—1 female, October 11; Achang Bay—1 male, October 20; Bile Bay—1 female, October 23; no locality—1 unsexed, October 10. Rota Island: Sosan Isthmus—2 males, October 20, November 2. Palau Islands (Peleliu Island): Akarakoro Point—1 male, September 8. Truk Islands: Moen Island—1 female, December 22.

Turnstones were found at Guam in late March. They were not seen again until July 24, when a group of three were observed at Agfayan

Bay. Weights of four males from Guam and Rota are 77-79 (92), of one female from Guam 90.

**GALLINAGO MEGALA** Swinhoe

*Gallinago megala* SWINHOE, Ibis, 1861, p. 343. (Between Takoo and Peking, China.)

Palau Islands: Angaur Island—1 female, September 21.

Several snipe were found in marshy areas at a small fresh-water lake on Angaur Island.

**CROCETHIA ALBA** (Pallas)

*Trynga alba* PALLAS, in Vroeg's Cat., 1764, Adumbr., p. 7. (Coast of the North Sea.)

Ulithi Atoll: Pau Island—1 male, August 21.

A small flock of sanderlings was seen on a beach at Ulithi.

**CALIDRIS TENUIROSTRIS** (Horsfield)

*Totanus tenuirostris* HORSFIELD, Trans. Linn. Soc. London, vol. 13, pt. 1, 1821, p. 192. (Java.)

Palau Islands (Peleliu Island): Akarakoro Point—4 males, September 16.

A flock of 20 of these birds was found at a tidal flat on Peleliu Island. Stomachs contained small shells. This is apparently the first record for this species in Micronesia.

**CALIDRIS MINUTA RUFICOLLIS** (Pallas)

*Trynga ruficollis* PALLAS, Reise Versch. Prov. Russ. Reichs, vol. 3, 1776, p. 700. ("Circa lacus salsos Dauriae campestris" = Kulussutai, southern Transbaikalia, *vide* Ridgway, 1919, p. 292.)

Rota Island: Sosan Isthmus—1 female, October 20. Palau Islands (Peleliu Island): Akarakoro Point—4 males, 10 females, September 6, 8, 12, 14; Angaur Island—1 female, September 21.

This species was numerous on the beaches at Peleliu Island. One female from Rota weighed 24.5.

**CALIDRIS ACUMINATA** (Horsfield)

*Totanus acuminatus* HORSFIELD, Trans. Linn. Soc. London, vol. 13, pt. 1, 1821, p. 192. (Java.)

Guam Island: Pati Point—1 female, September 17. Palau Islands: Angaur Island—2 males, 1 female, September 21.

**CALIDRIS FERRUGINEA** (Pontoppidan)

*Tringa Ferrugineus* PONTOPPIDAN, Danske Atlas, vol. 1, 1763, p. 624. (No type locality = Denmark.)

Palau Islands (Peleliu Island): Akarakoro Point—I female, September 6.

One specimen was collected at a tidal flat on Peleliu. This is apparently the first record for this species in Micronesia.

**LIMICOLA FALCINELLUS SIBIRICA** Dresser

*Limicola sibirica* DRESSER, Proc. Zool. Soc. London, 1876, p. 674. (Siberia and China.)

Palau Islands: Angaur Island—I male, September 21.

This bird was collected at a fresh-water pond. To my knowledge this is the first time that this species has been recorded in Micronesia.

**CHLIDONIAS LEUCOPTERA** (Temminck)

*Sterna leucoptera* TEMMINCK, Man. d'Orn., 1815, p. 483. (Coasts of the Mediterranean.)

Palau Islands: Angaur Island—I female, September 21.

One of four terns seen at a small fresh-water lake at Angaur Island was shot. The specimen is in winter plumage.

**STERNA SUMATRANA SUMATRANA** Raffles

*Sterna Sumatrana* RAFFLES, Trans. Linn. Soc. London, vol. 13, pt. 2, 1822, p. 329. (Sumatra.)

Ulithi Atoll: Losiep Island—I male, August 22; Mangejang Island—I male, 1 female, 1 juvenile male, August 20; Potangeras Island—2 females, 1 juvenile female, August 15, 16.

Terns were found in small numbers at Ulithi Atoll. A single bird was seen at Peleliu Island on September 16. Stomachs of the birds collected contained small fish. Some of the specimens were in molt. The two terns collected at Okinawa have slightly longer wings than those of the Micronesian birds.

**THALASSEUS BERGII CRISTATUS** (Stephens)

*Sterna cristata* STEPHENS, in Shaw's Gen. Zool., vol. 13, pt. 1, 1826, p. 146. (China and many of the southeastern islands of Asia; restricted type locality, China.)

Ulithi Atoll: Bulubul Island—I male, August 21.

One of four crested terns seen at Bulubul Island was collected. The birds were wary and difficult to approach. Stomach contents of

the bird obtained included 2 cc. of fish. Terns were also seen at Peleliu and Ngajangel in the Palau Islands in September and at Truk Islands in November.

#### ANOÛS STOLIDUS PILEATUS (Scopoli)

*Sterna pileata* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 92. (No locality = Philippines, *ex* Sonnerat.)

Guam Island: Amantes Point—1 male, 2 females, July 21; Ypao Point—2 males, 1 juvenile male, June 29, July 6; Oca Point—1 male, 1 female, May 21, 24. Rota Island: Taipingot Peninsula—1 male, 1 female, October 24; Sosan Isthmus—1 female, October 18. Ulithi Atoll: Bulubul Island—1 juvenile male, August 21; Potangeras Island—4 males, August 15. Palau Islands (Peleliu Island): South-eastern Peninsula—1 male, 1 female, September 1; Ngabad Island—1 male, September 11.

This noddy was one of the most frequently observed oceanic birds in Micronesia. At Ulithi Atoll service personnel reported a large nesting colony in May, June, and July at Potangeras and at a smaller island nearby. Nests were observed in trees and on the ground. One nest was found by our party at Bulubul Island on August 21. A single egg, in an advanced stage of incubation, was collected from the nest, which consisted of a few rough twigs in a shallow depression in the sand above the high-tide mark. The egg is: shape ovate, gloss slight, shell smooth, color white with small irregular spots of the two colors "pale drab-gray" and "pale smoke gray" (the latter predominating), concentrated at the large end, size 36.6 by 50.1. At Truk, McElroy found noddy terns nesting on a high cliff and in adjacent coconut trees at Moen Island in December.

Weights of birds taken at Guam and Rota are: 4 adult males 187-204 (197), and 3 adult females 177-203 (189). Measurements of 10 adult males are: wing 275-291 (283), tail 159-187 (168), exposed culmen 39.8-43.5 (41.4); of 4 adult females, 266-283 (274), 154-178 (165), 38.7-40.0 (39.3). Stomachs of birds from Ulithi and Palau contained small fish and crustaceans. Two males from Palau had enlarged testes.

#### ANOÛS TENUIROSTRIS MARCUSI (Bryan)

*Micranous marculsi* BRYAN, Occ. Pap. B. P. Bishop Mus., vol. 2, 1903, p. 101. (Marcus Island.)

Ulithi Atoll: Mangejang Island—2 males, 2 females, August 20. Palau Islands (Peleliu Island): Akarakoro Point—1 juvenile male, September 12; Eastern Peninsula—1 female, September 9.

White-capped noddy terns were found at Ulithi, Palau, and Truk. They were not seen in the Marianas. Stomachs of birds collected contained small fish. Measurements of 2 adult males are: wing 222 and 228, tail 117 and 124, exposed culmen 46.1 and 46.6; of 3 adult females, 228-229 (228), 118-120 (119), 41.1-43.6 (42.6).

**GYGIS ALBA** subsp.

Guam Island: Ritidian Point—1 male, 1 female, May 29; Mount Santa Rosa—1 female, June 23; Tumon Bay—1 male, 1 female, June 8; Pagat Point—1 female, July 10; Oca Point—1 female, May 23; Agaña Swamp—1 male, 1 female, June 15; Ylig Bay—1 male, August 27; Talofofo Bay—5 males, June 14; Agfayan Bay—1 male, June 6; Port Ajayan—1 female, June 18. Rota Island: Sosan Isthmus—2 males, October 19, 25. Ulithi Atoll: Bulubul Island—1 nestling, August 21; Mangejang Island—1 male, August 20; Potangeras Island—7 males, 3 females, August 14, 15, 16. Palau Islands (Peleliu Island): Southeastern Peninsula—1 juvenile male, September 1. Truk Islands: Moen Island—1 juvenile male, December 13.

White terns collected in Micronesia have been compared with specimens from the Mariana Islands, the Hawaiian Islands, and Wake Island at the United States National Museum through the courtesy of Dr. Alexander Wetmore and with 17 birds from the Caroline Islands at the American Museum of Natural History through the courtesy of Dr. Robert Cushman Murphy. The measurements of these birds are as follows:

Males	Wing	Exposed culmen
14 adults (Hawaiians) .....	226-246 (235)	35-39 (37)
4 adults (Wake) .....	232-242 (236)	37-39 (38)
14 adults (Marianas) .....	227-242 (238)	37-40 (39)
15 adults (Carolines) .....	237-252 (246)	37-44 (42)
Females	Wing	Exposed culmen
13 adults (Hawaiians) .....	217-243 (232)	33-39 (36)
6 adults (Wake) .....	230-243 (236)	36-41 (38)
9 adults (Marianas) .....	228-240 (234)	36-40 (38)
11 adults (Carolines) .....	234-248 (242)	37-43 (41)

The latest treatment of *Gygis alba* (Peters, Checklist Birds of the World, vol. 2, 1934, p. 348-349) refers the Hawaiian birds to *G. a. rothschildi* Hartert and the Central Pacific birds to *G. a. candida* (Gmelin)—except birds from the Marquesas Islands, *G. a. microhyncha* Saunders. The Japanese checklist for 1942 (p. 219) places the birds from Wake Island in *G. a. candida*. On the basis of the

material studied, birds from the Hawaiian group (Laysan, Gardiner, Necker, Nihoa, French Frigate, Johnson Islands) have the smallest measurements, with those to the south having progressively larger measurements, with the exception of the Marquesas form. Hartert (Nov. Zool., vol. 34, 1927, p. 18) finds that in *G. a. rothschildi* the exposed culmen does not exceed 38 mm. and the wing does not exceed 245 mm. My findings agree with these; however, measurements of birds from Wake, Guam, Rota, and Saipan are almost identical with those of the Hawaiian birds with the maxima and minima very similar. Birds from the Caroline Islands (Ulithi, Truk, and Kusaie), as shown in the table, average larger in size, and there is no great amount of overlap in wing length. Whether or not the Caroline Islands birds are distinct, as supposed by Hartert when he named *G. a. kittlitzii*, can only be learned when a large series of birds from more southern localities are studied. The presence of the distinct race in the Marquesas Islands offers further evidence that other separable forms may be present. It seems apparent from this study that the Hawaiian race, *G. a. rothschildi*, is not sufficiently distinct to be separated by name from populations at Wake and in the Marianas.

At Guam, white terns were numerous and distributed in all parts of the island, especially in the coconut groves. Birds were found breeding during the spring months. A downy young first observed in a banyan tree on March 27 began to fly on April 17. Most of the birds collected in May, June, and July were in molt. One of the two birds collected at Rota in October was in molt. Weights of nine adult males from Guam are 97-119 (108), of six adult females 100-116 (108). Weights of two adult males from Rota are 115 and 124.

At Ulithi Atoll, terns were abundant. There was apparently a peak in nesting activity in April, May, and June, service personnel reporting a number of very young birds at that time. The eggs were placed in limb forks of breadfruit trees. One recently hatched downy young was collected at Bulubul Island on August 21. Six of eleven adults taken at Ulithi in August were in molt. At Truk and the Palau Islands, white terns were numerous in coconut groves. Stomachs of birds taken at Ulithi and Peleliu contained fish, insects, and marine crustaceans.

The back of a juvenile male (collected September 1) from Peleliu Island is barred with bands of near "mummy brown" and light buff. The coloring extends to the scapulars, innermost secondaries, and upper wing-coverts and to the crown and occiput, where the coloring is more mottled than barred. The feathers of the sides of the neck have some brownish edges. An adult female, taken at Guam on May 23

and examined within 1 hour after death, had feet colored "Russian blue," webs white, basal part of bill to nares "soft blue-violet," terminal part of bill black, iris black, feathers white, and skin black. These color notes were made by David H. Johnson.

**PTILINOPUS ROSEICAPILLUS (Lesson)**

*Columba roseicapilla* LESSON, *Traité d'Orn.*, livr. 6, 1831, p. 472. (îles Mariannes.)

Guam Island: Ritidian Point—1 male, August 1; Tarague—1 male, 1 female, July 18; Haputo Point—1 male, August 21; Mount Santa Rosa—1 male, July 2; Pagat Point—6 males, 1 female, 1 nestling, July 6, 10; Amantes Point—4 males, May 25, 27; Oca Point—2 females, March 8; Agaña Swamp—1 male, 1 female, June 3; Ylig Bay—1 male, 1 female, July 19; Agat—1 male, June 12; Talofof Bay—1 male, June 14. Rota Island: Sosan Isthmus—1 male, November 2; Poniya Point—1 male, October 28; Sabaanaa—1 male, October 31.

The similarity between this species and birds of the *Ptilinopus regina* group of the Australian area is striking. This has been indicated by Ripley and Birckhead (*Amer. Mus. Novit.*, No. 1192, 1942, p. 3). On the basis of its characters alone the Mariana birds would merit only subspecific separation, but owing to the great distance between the two doves and the possibility of independent origin and subsequent convergence, it may be more advisable to continue to regard the two as separate species.

Fruit doves were found in most forested areas. At Guam, the construction of installations and air strips removed some of the habitat of this bird, but the population has not been greatly affected. Weights of 14 adult males are 81-103 (90), of 4 adult females 85-99 (92), and of one nestling in postnatal molt, beginning to fly, 44. Breeding birds were taken in March and July. The birds from Rota have slightly richer coloration on the crown and back than have birds from Guam.

**PTILINOPUS PORPHYRACEUS PONAPENSIS (Finsch)**

*Ptilinopus ponapensis* FINSCH, *Proc. Zool. Soc. London*, 1877 (1878), p. 779. (Ponape, Caroline Islands.)

Truk Islands: Moen Island—1 male, December 24.

McElroy collected one breeding male at Moen Island. He found the birds at high elevations in deep woods.

**PTILINOPUS PORPHYRACEUS PELEWENSIS** Hartlaub and Finsch

*Ptilinopus pelewensis* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1868, p. 7. (Pelew Islands.)

Palau Islands (Peleliu Island): Eastern Peninsula—1 male, August 27; Southeastern Peninsula—2 males, September 1, 4; Ngabad Island—2 males, September 11; Garakayo Island—1 male, September 19.

The Palau fruit dove was found in thick forested areas on all the islands visited. A nest was observed in a jungle area at Ngabad Island on September 11. The nest was loosely constructed, about 6 feet from the ground in a low tree. The one incubated egg was white and measured 31 by 23. Three males collected had enlarged testes. Stomachs contained berries and seeds.

**DUCULA OCEANICA MONACHA** (Momiyaama)

*Globicera oceanica monacha* MOMIYAMA, Birds of Micronesia, March 1922, p. 4. (Yap, Western Caroline Islands.)

Palau Islands (Peleliu Island): Asias—1 female, August 27; Eastern Peninsula—1 male, August 28; Southeastern Peninsula—4 males, 1 female, August 29, September 4, 5; Garakayo Island—1 male, September 19.

The large pigeon was found in forests and on faces of cliffs where the war activities had not created much disturbance. British Indian troops released by the Japanese in September reported extensive use of this pigeon as food by the people on Babelthuap Island. Stomachs of birds collected contained berries, fruit parts, and green matter.

McElroy did not find any birds of this species at Truk.

**STREPTOPELIA BITORQUATA DUSUMIERI** (Temminck)

*Columba dusumieri* TEMMINCK, Pl. Col., livr. 32, 1823, pl. 188. (Vicinity of Manila, Luzon, Philippine Islands.)

Guam Island: Tarague—2 males, July 18; Pagat Point—4 males, July 6, 10; Amantes Point—1 male, 3 females, May 25, 26; Tumon Bay—1 female, June 9; Oca Point—1 female, February 7; Agaña Swamp—1 male, October 8; Piti—1 male, September 8; Pago River—2 males, 1 female, July 23, August 11; Ylig Bay—1 female, August 2; Agfayan Bay—2 females, July 7; no locality—1 female, September. Rota Island: Sosan Isthmus—2 males, October 18, November 2; Taruka—1 male, October 23; Poniya Point—1 female, October 22.



The introduced turtle dove was abundant on Guam and Rota. It appeared to prefer the open country and favored some of the clearings made by war activities. A nest found at Mount Santa Rosa, Guam, in a low bush on June 28 contained one egg and a nestling. Two eggs collected by Necker at Rota on October 31 are white and measure 29.6 by 23.0 and 30.1 by 23.0. Weights of five adult males are 130-167 (152), and of six adult females 135-159 (146). There are only very slight differences between the birds of the Marianas and those from the Philippines, from where the introduced stock originally came.

#### GALLICOLUMBA XANTHONURA XANTHONURA (Temminck)

*Columba xanthonura* "Cuv." TEMMINCK, Pl. Col., livr. 32, 1823, pl. 190. (Marianne Islands.)

Guam Island: Ritidian Point—1 male, 1 female, 1 juvenile female, June 28; Mount Santa Rosa—1 male, 2 females, June 23, 24, July 2; Haputo Point—1 male, 1 juvenile female, August 21; Pagat Point—2 males, 2 females, July 6, 10; Sassayan Point—1 male, July 6; Amantes Point—1 male, May 28; Tumon Bay—2 females, June 9, 27; Oca Point—2 males, 1 juvenile female, March 18, April 4, 17; Agaña Swamp—1 male, June 2; Sinajana—1 male, May 20; Piti—1 male, June 28; Pago River—2 males, July 23, August 11; Talofofu Bay—1 male, June 14. Rota Island: Sosan Isthmus—3 males, October 20, 26, November 1; Sabaanaa—1 male, November 2; Mariiru Point—1 female, October 22; Poniya Point—1 male, October 25.

The white-throated ground dove was not observed on the ground. It was found in forested areas, and being a strong flyer, was often seen flying high above the trees and across roads. At Guam, birds nested in the winter and spring months, beginning in late January. Nests were found in breadfruit and banyan trees 50 to 75 feet above the ground. A broken egg was found beneath a tree containing a nest on February 26. A male bird was seen on a nest at Oca Point on March 27 in the middle of the day. On April 3 the young bird from this nest at Oca Point was beginning to fly. Adults with enlarged gonads were taken in April, May, June, and July. Weights of seven adult males are 119-154 (130), of seven adult females 96-150 (118).

A bird, marked female and collected at Guam on July 2, has a light drab breast tinged with light brown and darkening toward the throat. The crown resembles that of an adult female though darker and becoming lighter and grayer on the neck and nape. The coloring of the shoulder and wing-coverts compares favorably with that of the adult

male though lighter and with a yellowish tinge. The back is bronzed olive green as in the female but with a few of the purplish feathers characteristic of the male present on the mantle. The abdomen is near "olive brown" with buffy-brown edges to the feathers. This specimen resembles somewhat the description of a juvenile male from Yap by Hartlaub and Finsch (Proc. Zool. Soc. London, 1872, p. 102), but it is unmistakably a female since it was noted to be unusual at the time and special attention was given to the accurate sexing of the bird. The presence of a second plumage for females of this race is not surprising since Amadon (Amer. Mus. Novit., No. 1237, 1943, p. 20) has described a male type plumage for females of *Gallicolumba stairi* from Polynesia.

**GALLICOLUMBA XANTHONURA KUBARYI (Finsch)**

*Phlegoenas Kubaryi* FINSCH, Journ. Orn., vol. 28, 1880, p. 292. (Ruck and Ponape, Caroline Islands.)

McElroy saw six of these birds at Moen Island. All were observed on forested slopes in tall trees. He reports that their habits are very similar to those of the birds in the Marianas.

**GALLICOLUMBA CANIFRONS (Hartlaub and Finsch)**

*Phlegoenas canifrons* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1872, p. 101. (Palau Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—1 male, 1 juvenile female, August 29, September 1; Garakayo Island—2 males, September 17, 19.

This secretive, terrestrial dove was found in jungle areas. Its call, a low moan, announced its presence, although the bird was difficult to see against the ground cover of its environment. It would fly only a few yards when disturbed. Its habits were strikingly different from those of *Gallicolumba xanthonura*, which our field parties observed at Guam, Rota, and Truk.

The female collected September 1 was in postjuvencal molt. Stomachs contained hard seeds.

**CALOENAS NICOBARICA PELEWENSIS Finsch**

*Caloenas nicobarica* var. *pelewensis* FINSCH, Journ. Mus. Godeffr., vol. 8, 1875, p. 159 (p. 27 in reprint). (Palau Islands.)

The Nicobar pigeon was observed on five occasions at Garakayo Island in the Palaus. It apparently preferred the vegetation along high coral cliffs, where it was found perched on the outer limbs of the shrubby trees.

**COLLOCALIA INEXPECTATA PELEWENSIS** Mayr

*Collocalia pelewensis* MAYR, Amer. Mus. Novit., No. 820, 1935, p. 3. (Palau Islands.)

Palau Islands (Peleliu Island): Asias—1 male, September 13; Garakayo Island—1 male, 1 female, September 18.

Swiftlets were numerous and were found at all islands visited in the southern Palaus.

**COLLOCALIA INEXPECTATA BARTSCHI** Mearns

*Collocalia bartschi* MEARNS, Proc. U. S. Nat. Mus., vol. 36, 1909, p. 476. (Guam.)

Guam Island: Amantes Point—7 males, 3 females, June 21, July 29; Oca Point—1 female, January 29; Sinajana—1 female, 2 unsexed, 6 nestlings, May 20. Rota Island: 1 unsexed, October 27.

At Guam and Rota, swiftlets were found at cliff areas, where they nested in caves. In jungle areas they were seen flying above the trees and through the more open woodland. On May 18 a large colony of birds was nesting in a rocky sink hole about 2 miles east of Agaña, Guam. About 250 nests were found on ledges in the caverns sheltered from the light. Below the nests were large piles of guano. Weights of seven adult males 6.4-7.3 (6.8), of three adult females 6.8-7.6 (7.1).

**HALCYON CINNAMOMINA PELEWENSIS** Wigglesworth

*Halcyon pelewensis* WIGGLESWORTH, Abhandl. und Ber. Zool. Mus. Dresden, 1890-91 (1891), No. 6, p. 15. (Pelew Islands.)

Palau Islands (Peleliu Island): Small island off Eastern Peninsula—1 male, September 10; Ngabad Island—1 juvenile male, 1 female, 1 juvenile female, September 11.

This kingfisher was observed in thick jungle areas and at the edge of mangrove swamps on small islands near Peleliu. The birds were very secretive, only six individuals being seen by our collecting party. These were located by their distinctive rasping call. Stomachs contained insects.

McElroy saw a kingfisher with cinnamon underparts at Bulubul Island, Ulithi Atoll, on August 21. The bird disappeared into thick vegetation when approached.

**HALCYON CINNAMOMINA CINNAMOMINA** Swainson

*Halcyon cinnamomina* SWAINSON, Zool. Illustr., vol. 2, 1821-22 (1821), text to pl. 67. (No locality = Mariana Islands.)

Guam Island: Ritidian Point—1 female, 1 juvenile female, June 28, 29; Tarague—1 female, July 18; Yigo—1 male, 2 females, May

25, 26; Dededo—1 male, June 16; Pagat Point—3 males, 2 females, 1 juvenile male, July 6, 10; Amantes Point—1 male, 1 female, May 25, June 11; Oca Point—3 males, 1 female, 1 juvenile male, 1 juvenile female, February 14, 24, March 8, August 24, 30; Agaña Swamp—1 male, 2 females, June 2, 3, 4; Agat—1 male, June 13; Talofofa Bay—2 males, 1 female, June 14; Agfayan Bay—1 male, 1 female, June 6, July 7; Port Ajayan—2 females, 1 juvenile male, June 19; Achang Bay—2 males, June 18.

There is some color variation in the large series of birds examined. A number of specimens have light-colored crowns, but this may be fading as mentioned by Hartert (Nov. Zool., vol. 5, 1898, p. 52). The feathers of the head are worn in some individuals, possibly from rubbing when the birds entered and left nest holes.

Nests were observed in hollows in trees in the period from March to July. Holes in banyan and coconut trees often 20 feet or more above the ground were used. At Oca Point, on April 3, parent birds were observed feeding a nestling. On July 8 a nest containing two eggs was found. Birds in juvenal plumage were taken in May, June, July, and August. Some of the adults taken in February, May, June, and July were in molt. Weights of 11 adult males are 56-62 (59), of 10 adult females 58-76 (66).

#### HALCYON CHLORIS ORII Takatsukasa and Yamashina

*Halcyon chloris orii* TAKATSUKASA AND YAMASHINA, Dobutsu. Zasshi, vol. 43, 1931, p. 484. (Rota Island, Mariana Islands.)

Rota Island: Sosan Isthmus—2 males, 3 females, 1 juvenile male, 1 juvenile female, October 18, 19, November 2; Poniya Point—1 female, 1 juvenile female, October 22; Taruka—1 juvenile male, 1 unsexed, October 26.

This kingfisher was observed in all parts of Rota. Weights of two adults are 84 and 85.

#### HALCYON CHLORIS TERAOKAI Kuroda

*Halcyon chloris teraokai* KURODA, Tori, vol. 1, 1915, p. 56. (Pelew Islands.)

Palau Islands (Peleliu Island): Akarakoro Point—1 female, September 6; Eastern Peninsula—1 juvenile female, August 27; South-eastern Peninsula—3 males, 7 females, 1 juvenile female, August 29, 30, 31, September 1, 5; Garakayo Island—2 males, 1 female, September 20.

This kingfisher was a conspicuous bird at all the islands visited in the southern Palaus. It preferred open woodland and cleared areas

to the thicker jungle. Its range appeared separate and distinct from that of the more restricted and secretive species, *Halcyon cinna-momina pelewensis*. Two of the birds collected were in molt. One female had enlarged gonads. Stomachs contained insects, fish, crabs, and shrimp.

#### HIRUNDO RUSTICA GUTTURALIS Scopoli

*Hirundo gutturalis* SCOPOLI, Del. Flor. et Faun. Insubr., fasc. 2, 1786, p. 96.  
(Panay, Philippine Islands, ex Sonnerat.)

Palau Islands: Angaur Island—1 male, September 21.

A few swallows were observed along beaches and inland lakes at Angaur and Ngesebus Islands. At Guam, four birds were seen flying over Agaña River on October 11. The stomach of the male collected at Angaur Island contained about 2 cc. of flies, beetles, and small grasshoppers.

#### EDOLISOMA TENUIROSTRE MONACHA (Hartlaub and Finsch)

*Campephaga monacha* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1872, p. 99. (Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—2 females, August 29, 30.

This bird appeared to be rare in the jungle areas of Peleliu Island. Only the two individuals collected were seen. Stomachs contained insects and plant parts.

#### DICRURUS MACROCERCUS HARTERTI Stuart Baker

*Dicrurus ater harterti* STUART BAKER, Nov. Zool., vol. 25, 1918, p. 299.  
(Formosa.)

Rota Island: Sosan Isthmus—1 female, 4 juvenile males, 2 juvenile females, October 18, 19, November 2.

This drongo was apparently introduced from Formosa by the Japanese South Seas Development Company (Nanyo Kohatsu Ka-bushiki Kaisha) about 1935. An illustrated booklet, printed by this organization and seen by members of our collecting party at the Rota Military Government headquarters, showed pictures of the captive birds before release and indicated that they had been brought for the purpose of controlling destructive insects. Dr. Charles Vaurie has examined these birds and compared them with a series of drongos from Formosa in the collection of the American Museum of Natural History.

The drongo appeared well adapted at Rota, where it preferred cultivated areas and the bombed village sites to thick woodlands. Birds were found in small flocks often in the large shade trees. Weights of two juvenile males are 53 and 61.

**CORVUS KUBARYI** Reichenow

*Corvus kubaryi* REICHENOW, Journ. Ornith., 1885, p. 110. (Pelew Islands, error = Guam.)

Guam Island: Ritidian Point—2 males, 4 females, 1 juvenile male, May 29, June 4, 28, 29, August 1; Tarague—1 male, 1 female, 2 juvenile females, July 12, 18; Pati Point—1 male, 1 juvenile male, 1 juvenile female, September 11; Pagat Point—1 male, 2 females, July 10; Yigo—1 female, May 25; Tumon Bay—1 juvenile male, 2 juvenile females, June 8, 9; Talofofu Bay—1 male, 1 juvenile male, September 5; Agfayan Bay—1 juvenile male, July 7; Port Ajayan—1 female, 1 unsexed juvenile, June 18. Rota Island: Sosan Isthmus—1 male, October 25; Poniya Point—1 male, 1 juvenile female, October 22, 25; Siebu Village—1 male, October 29.

Crows from Guam and Rota are very similar. Their measurements are within the range of those listed by Meinertzhagen (Nov. Zool., vol. 33, 1926, p. 75). The birds were found in jungle areas, coconut groves, and along the military roads. No evidence of breeding was found in specimens collected in the summer and early fall, and it is likely that nesting activities may be concentrated in the winter and spring months. One nest in a banyan tree was found at Ypao Point on March 8. Specimens taken from May to September were in molt. Weights of crows from Guam are: 2 adult males 237 and 270, 8 adult females 205-260 (246); from Rota: 1 adult male 256.

An adult bird taken at Pagat Point on July 10 has a freak development of the bill. The mandible and maxilla do not fit together but have grown out from each other as long projections. The bird seemed to be in good physical condition when collected and weighed 237 grams, but it must have had considerable difficulty obtaining food.

**PSAMATHIA ANNAE** Hartlaub and Finsch

*Psamathia annae* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1868, p. 5, pl. 2. (Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—1 male, 2 females, August 29, 30, September 4; Ngabad Island—1 female, September 11.

Warblers were found in jungle areas and in the new vegetation which was covering the battle-torn parts of Peleliu. This species occurred in the same environment as the large white-eye, *Rukia palauensis*, and the similarity between these two forms in the field is striking. Stomachs contained insects.

**ACROCEPHALUS LUSCINIA LUSCINIA** (Quoy and Gaimard)

*Thryothorus luscinius* QUOY AND GAIMARD, Voy. *Astrolabe*, Zool., vol. 1, 1830, p. 202, pl. 5, fig. 2. (Guam.)

Guam Island: Agaña Spring—2 males, 1 female, June 2; Piti—1 male, June 13; Agat—1 male, August 30.

At Guam, reed warblers were found in association with the extensive cane growths in fresh-water and brackish-water marshes. Birds appeared fairly numerous in some of these areas; their songs could be heard, but it was difficult to approach them. The birds seemed shy and hopped about in the cane usually close to the ground. Fire appears to be a hazard to the reed warbler. During very dry periods, its habitat might be easily destroyed by fire.

Weights of three adult males from Guam are 29-35 (33), and of one adult female 27. This bird was not found at Rota by our collecting party.

**ACROCEPHALUS LUSCINIA SYRINX** (Kittlitz)

*Sylvia Syrix* KITTLITZ, Mém. Acad. Imp. Sci. St. Petersbourg, vol. 2, 1835, p. 6, pl. 8. (Lugunor and "Ulcei," Caroline Islands.)

McElroy found reed warblers in cane swamps at Moen, Udot, and Dublon islands in the Truk Atoll. He saw birds carrying nest materials. Two adults examined in December had enlarged gonads. Specimens were lost in shipment.

**RHIPIDURA RUFIFRONS URANIAE** Oustalet

*Rhipidura uraniae* OUSTALET, Bull. Soc. Philom. Paris, ser. 7, vol. 5, 1881, p. 76. (Marianne group.)

Guam Island: Ritidian Point—3 males, 2 females, 1 unsexed, May 29, 30; Tarague—1 male, July 12; Talofof Bay—2 males, 1 female, June 14; Agfayan Bay—1 male, 1 unsexed juvenile, June 6; Port Ajayan—2 males, June 18.

Fantails were found in forested areas where there was a thick under-cover of vines and shrubs. Birds collected in May and June were in molt. Weights of nine males are 8.0-10.0 (9.0), of three females 7.3-9.6 (8.8).

**RHIPIDURA RUFIFRONS MARIAE R. H. Baker**

*Rhipidura rufifrons mariae* R. H. BAKER, Proc. Biol. Soc. Washington, vol. 59, 1946, p. 77. (Rota Island, Mariana Islands.)

Rota Island: Mariiru Point—2 males, October 22.

The naval field party reported that this bird was numerous in the forested areas at Rota. Weights of two males are 8.5 and 9.0.

**RHIPIDURA LEPIDA Hartlaub and Finsch**

*Rhipidura lepida* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1868, p. 6. (Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—2 males, 1 female, 1 juvenile male, August 29, 30, 31.

At Peleliu, fantails were found in the forested regions and in the new vegetation covering battle areas. One male had enlarged testes.

**MYIAGRA FREYCINETI Oustalet**

*Myiagra Freycineta* OUSTALET, Bull. Soc. Philom. Paris, ser. 7, vol. 5, 1881, p. 73. (Marianne Islands = Guam Island.)

Guam Island: Ritidian Point—1 male, 1 juvenile male, May 29, 30; Tarague—1 male, 1 juvenile male, July 12; Pati Point—1 female, June 4; Mount Santa Rosa—2 males, 1 female, 1 nestling, May 21, June 24; Oca Point—2 females, January 21, March 16; Agaña Swamp—1 male, 1 unsexed, June 3, 4; Pagat Point—1 unsexed, July 10; Pago River—1 female, 2 juvenile males, July 23; Piti—1 juvenile male, June 13; Agat—1 male, August 30; Talofofu Bay—2 males, 1 unsexed, June 14.

There appears to be considerable variation in the amount of cinnamon coloring on the breast of adults. This character varies from nearly white on some individuals to dark cinnamon on others. The birds were found in brushy areas on Guam. An egg found in a nest in a bamboo clump near Mount Santa Rosa on May 7 hatched on May 20 (pl. 4, fig. 2). The nest was about 6 feet from the ground. Molting birds were taken in January, May, June, and July. Weights of five adult males are 10.5-12.5 (11.9), of two adult females 11.4 and 12.0.

**MYIAGRA OCEANICA Pucheran**

*Myiagra oceanica* PUCHERAN, Voy. Pôle Sud, Zool., vol. 3, 1853, p. 77. (Hogoleu = Truk.)

Two adults with enlarged gonads were examined in December by McElroy at Moen Island.



**MYIAGRA ERYTHROPS** Hartlaub and Finsch

*Myiagra erythrops* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1868, p. 6. (Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—1 juvenile male, 1 female, August 30; Ngabad Island—1 male, 1 juvenile male, September 11; Garakayo Island—1 male, September 18.

The Palau broadbill was not abundant in the southern Palaus in 1945. It was observed most frequently on the smaller islands, Ngabad and Garakayo. It prefers the dense undergrowth of the jungles and second-growth scrub, where it is a much less conspicuous bird than the Palau fantail, *Rhipidura lepida*.

Stomachs contained fragments of insects.

**COLLURICINCLA TENEBROSA** (Hartlaub and Finsch)

*Rectes tenebrosa* HARTLAUB AND FINSCH, Proc. Zool. Soc. London, 1868, p. 6. (Pelew Islands.)

Palau Islands (Peleliu Island): Eastern Peninsula—1 male, September 6; Southeastern Peninsula—3 males, 1 female, August 29, 30; September 1; Ngabad Island—1 male, 1 female, September 11; Garakayo Island—2 females, 1 juvenile male, September 18.

This bird was found in woodland areas at all the islands visited in the southern Palaus. It appeared to prefer heavy undergrowth and was found in the scrub vegetation covering the battle areas (pl. 5, fig. 1). Many of the specimens collected were in molt. Stomachs contained seeds, plant parts, and insects.

**APLONIS OPACUS GUAMI** Momiyama

*Aplonis opaca guami* MOMIYAMA, Birds of Micronesia, 1922, p. 9. (Guam.)

Guam Island: Ritidian Point—3 males, 2 females, 1 juvenile female, May 29; Amantes Point—4 males, 2 females, 1 juvenile male, 2 juvenile females, May 25, 27; Dededo—1 female, June 16; Oca Point—4 females, 5 juvenile females, January 21, 22, February 5, March 8, 13, April 12, June 3, July 14, August 24; Pagat Point—1 female, July 6; Agaña Swamp—2 juvenile males, June 4, October 8; Sinajana—1 juvenile male, 1 unsexed, May 18, 22; Talofofo Bay—1 male, June 14; Agfayan Bay—1 female, 1 juvenile female, 1 unsexed, June 6, July 7; Port Ajayan—1 female, June 18; Achang Bay—1 juvenile female, June 6. Rota Island: Sosan Isthmus—4 males, 5 juvenile males, 1 juvenile female, October 18, 19, 26, 27, November 2; no locality—1 juvenile male, 1 unsexed juvenile, October 27.

There are only slight differences among the measurements of starlings from Guam and Rota and from Saipan and Tinian. The following measurements include those of specimens from the collections of the United States National Museum and the American Museum of Natural History. The birds from Saipan and Tinian have a slightly longer wing and a slightly thicker bill than birds from Guam and Rota.

	Wing	Tail	Full culmen	Depth of bill
21 adult males (Guam).	122-130 (127)	81-91 (87)	25-29 (27.5)	8.5- 9.5 (9.0)
4 adult males (Rota) ..	120-122 (122)	88-89 (89)	26-28 (27)	8.5- 9.0 (9.0)
12 adult males (Tinian).	126-136 (131)	81-90 (86)	24-29 (27)	9.0-10 (9.5)
4 adult males (Saipan).	130-131 (131)	81-87 (85)	26-28 (27)	10-10.5 (10)
24 adult females (Guam).	117-123 (120)	79-88 (84)	25-30 (26)	8.5- 9.5 (9.0)
7 adult females (Tinian).	123-126 (125)	82-89 (84)	24-27 (25)	9.5-10 (10)

On Guam and Rota, this starling was one of the most abundant birds observed. It was found in both jungle and open country. There was evidence of nesting at Guam during the spring and summer. Nests were found in tree hollows and in cliff holes. On June 2 a nest was examined in a cavity of a banyan tree about 12 feet from the ground. It was made of green leaves and twigs and contained two eggs, partly incubated. The eggs are pale "Niagara green" with scattered, irregular spots of color, near "russet," "Mars brown," and "pallid purple-drab," most abundant near the large ends. Measurements are 32.1 by 22.1, and 32.0 by 22.4.

Adult birds in molt were collected in most of the months from February to November at Guam. Weights of Guam birds are: 6 adult males 84-96 (87), 8 adult females 78-108 (86), 2 juvenile males 88 and 90, and 5 juvenile females 77-87 (80). Weights of Rota specimens are: 2 adult males 70 and 83, and 5 juvenile males 64-80 (76).

#### APLONIS OPACUS ANGUS Momiyama

*Aplonis opaca anga* MOMIYAMA, Birds of Micronesia, 1922, p. 6. (Toroas, Ruk Island, Middle Carolines.)

Truk Islands: Moen Island—1 juvenile male, December 13. Ulithi Atoll: Pau Island—1 juvenile female, August 21; Losiep Island—1 male, August 22; Mangejang Island—1 female, August 20; Potangeras Island—8 males, 4 females, 4 juvenile males, 3 juvenile females, August 15, 16; Fassarai Island—3 juvenile males, 2 juvenile females, August 19.

There appears to be very little difference between the birds from the southern Marianas (*A. o. guami*) and the birds from Ulithi and

Truk (*A. o. angus*). Adult birds exhibit no marked differences in color or size. The streaked underparts of juvenile birds from the Marianas and of the single juvenile from Truk are brighter, while the juveniles from Ulithi have duller underparts. The birds from Ulithi are placed in *A. o. angus* following the Handlist of Japanese Birds, 3d ed., 1942, p. 188. The relation of these birds to *A. o. kuroidai* Momiyama, from Yap, has not been ascertained, since specimens from that island are not available for examination.

Starlings were numerous at Truk Atoll. McElroy reported that the Japanese troops caught the birds for use as food. A number of very young individuals were seen in November and December. A male examined in December had enlarged testes.

At Ulithi Atoll, starlings were abundant (pl. 5, fig. 2). In August a large percent of the population had apparently just completed nesting activities, since a number of young individuals were observed being fed by adults. Most of the adults collected were in molt. Two males had enlarged testes. Stomachs contained seeds and fruit parts. The natives at Fassarai Island considered the birds to be a choice food item.

#### APLONIS OPACUS ORII (Takatsukasa and Yamashina)

*Aplonis opaca orii* TAKATSUKASA AND YAMASHINA, Dobutsu. Zasshi, vol. 43, 1931, p. 458. (Coror, Pelew Islands.)

Palau Islands (Peleliu Island): Asias—1 male, August 31; Southeastern Peninsula—3 males, 2 juvenile males, 1 juvenile female, August 28, 29, 30, September 5; Ngesebus Island—1 juvenile female, September 20; Garakayo Island—2 juvenile females, September 19.

The amount of green gloss on the feathers of these specimens does not differ markedly from that found on the Ulithi birds (*A. o. angus*). As is stated in the original description, there is some difference in the depth of the bill of these races. The bill depth (at the nostril) of the Palau birds measures between 7 and 8, with one at 8.5, while the bill depth of Ulithi specimens measures between 8 and 9. Birds from the Palaus have the lower edge of the mandible generally straighter while in the Ulithi birds this lower edge curves downward slightly adding to the depth. Juvenile specimens from the Palaus have dull underparts similar to those of juveniles from Ulithi. There is no size difference between birds of the two island groups.

Many of the adults taken in August and September were in molt. Stomachs contained seeds, fruit parts, and insects.

**MYZOMELA CARDINALIS SAFFORDI** Wetmore

*Myzomela rubratra saffordi* WETMORE, Proc. Biol. Soc. Washington vol. 30, 1917, pp. 117-118. (Guam, Marianne Islands.)

Guam Island: Ritidian Point—1 male, May 30; Tarague—1 male, July 12; Pagat Point—2 males, 1 female, 1 juvenile male, July 6, 10; Yigo—1 male, May 26; Tumon Bay—2 males, 1 female, June 8, 9; Oca Point—2 males, 1 female, January 22, June 2, 3; Agaña Swamp—2 males, 1 juvenile male, June 5, 25; Piti—1 male, 1 unsexed, June 13, 28; Ylig Bay—2 males, 1 juvenile male, July 19; Agfayan Bay—1 male, 2 females, 1 juvenile female, June 6, July 7; Port Ajayan—1 juvenile female, June 19; Achang Bay—2 males, 1 female, 1 juvenile male, June 18, 19. Rota Island: Sosan Isthmus—1 male, 1 juvenile male, October 19.

Honey-eaters were found in open woodland and in the coconut groves (pl. 6). One pair of birds was found nesting in a tall banyan tree on June 16. Many of the specimens collected in the period from May to November were in molt, although several birds with enlarged gonads were taken in June and July. Weights of birds from Guam are: 17 adult males 12.7-18.0 (15.0), and 5 adult females 10.4-15.0 (12.7).

**MYZOMELA CARDINALIS KOBAYASHII** Momiyama

*Myzomela cardinalis kobayashii* MOMIYAMA, Birds of Micronesia, 1922, p. 19. (Pelew Islands.)

Palau Islands (Peleliu Island): Southeastern Peninsula—5 males, 2 females, 2 juvenile males, 2 unsexed, August 29, 30, 31, September 1, 5.

Three males collected had enlarged testes. Stomach contents included plant parts and seeds.

**MYZOMELA CARDINALIS MAJOR** Bonaparte

*Myzomela major* BONAPARTE, Compt. Rend. Acad. Sci. Paris, vol. 38, 1854, p. 263. (Caroline Islands = Truk.)

Truk Islands: Moen Island—1 male, December 13.

McElroy found honey-eaters on all islands visited. Three males examined in December had enlarged testes.

**ZOSTEROPS CONSPICILLATA CONSPICILLATA** (Kittlitz)

*Dicaeum conspicillatum* KITTLITZ, Kupfert. Naturg. Vögel, vol. 2, 1832, p. 15, pl. 19, fig. 1. (Guam.)

Guam Island: Ritidian Point—5 males, 1 female, 2 juvenile males, 1 unsexed, May 29, 30, June 28, July 12; Tarague—1 male, 1 un-

sexed, July 12, 18; Agaña Swamp—4 males, 2 females, 3 unsexed, June 2, 3, 25, October 8; Pago River—1 male, July 23; Agat—1 male, July 26.

At Guam, the white-eye appeared restricted to certain areas on the island. Birds were taken at five localities, where they were found in small groups moving about in low trees. No evidence of nesting activity was found although three males taken in June and July had enlarged testes. It is possible that nesting may be concentrated in the winter and spring months, though Seale (Occ. Pap. B. P. Bishop Mus., vol. 1, 1901, p. 58) recorded three nests apparently found in May, June, or July. Hartert (Nov. Zool., vol. 5, 1898, p. 57) recorded several nests taken in February and March. Six specimens taken in June and July were in molt. Weights of 11 adult males are 9.5-14.0 (10.5), of 3 adult females 8.0-10.0 (9.3).

**ZOSTEROPS CONSPICILLATA ROTENSIS** Takatsukasa and Yamashina

*Zosterops semperi rotensis* TAKATSUKASA AND YAMASHINA, Dobutsu. Zasshi, vol. 43, 1931, p. 486. (Rota.)

Rota Island: Sosan Isthmus—2 males, 1 female, October 18, 20; Mariiru Point—1 juvenile male, 1 unsexed, October 22.

I am following Stresemann (Mitt. Zool., vol. 17, 1931, p. 227) in placing all the Micronesian bridled white-eyes in this one species. It is evident, however, that these races fall into rather distinct groups. *Zosterops c. conspicillata* at Guam and *Z. c. saipani* Dubois at Saipan and Tinian have a pale chin and throat, a light-colored fronto-loral band, which is very well marked in the form at Guam, and a broad white orbital ring. *Z. c. rotensis* from Rota, *Z. c. semperi* from the Palaus, *Z. c. owstoni* from Truk, and *Z. c. takatsukasai* Momiyama from Ponapé have a bright yellow chin and throat, matching the rest of the underparts, an obscure fronto-orbital band narrowly tinged with yellow, and a small white orbital ring. *Z. c. hypolais* Hartlaub and Finsch appears, from a study of the original description, to fall into another group, but no specimens are available for examination.

At Rota, white-eyes were numerous. The specimens collected were in molt.

**ZOSTEROPS CONSPICILLATA SEMPERI** Hartlaub

*Zosterops semperi* HARTLAUB, Proc. Zool. Soc. London, 1868, p. 117. (Pelew Islands.)

Palau Islands: Garakayo Island—2 males, 1 female, 1 unsexed, September 18, 19.

Bridled white-eyes were found at only one locality at Garakayo Island. Small flocks were found feeding in low trees at the edge of a cliff. One male had enlarged testes. The other birds collected were in molt.

**ZOSTEROPS CONSPICILLATA OWSTONI** Hartert

*Zosterops semperi owstoni* HARTERT, Nov. Zool., vol. 7, 1900, p. 2. (Ruk, Central Carolines.)

McElroy found these birds in upland areas at Moen and Udot Islands. Specimens collected were lost in shipment.

**ZOSTEROPS CINEREA FINSCHII** (Hartlaub)

*Tephras finschii* HARTLAUB, Proc. Zool. Soc. London, 1868, p. 6, pl. 3. (Pelew Islands.)

Palau Islands (Peleliu Island): Eastern Peninsula—2 males, 2 females, August 27; small island off Eastern Peninsula—1 male, September 10; Garakayo Island—1 male; 5 females, September 18.

Of the three species of white-eyes observed in the southern Palaus by our field party, this bird was the most numerous. It was seen in small flocks on forest edges. Most of the specimens collected were in molt. Stomachs contained small seeds.

**RUKIA PALAUENSIS** (Reichenow)

*Cleptornis palauensis* REICHENOW, Journ. Orn., 1915, p. 125. (Babelduap = Babelthuap, Palau Islands.)

Palau Islands (Peleliu Island): Eastern Peninsula—2 males, August 27, September 7; Southeastern Peninsula—3 males, 3 females, August 29, 30, September 4, 5, 6.

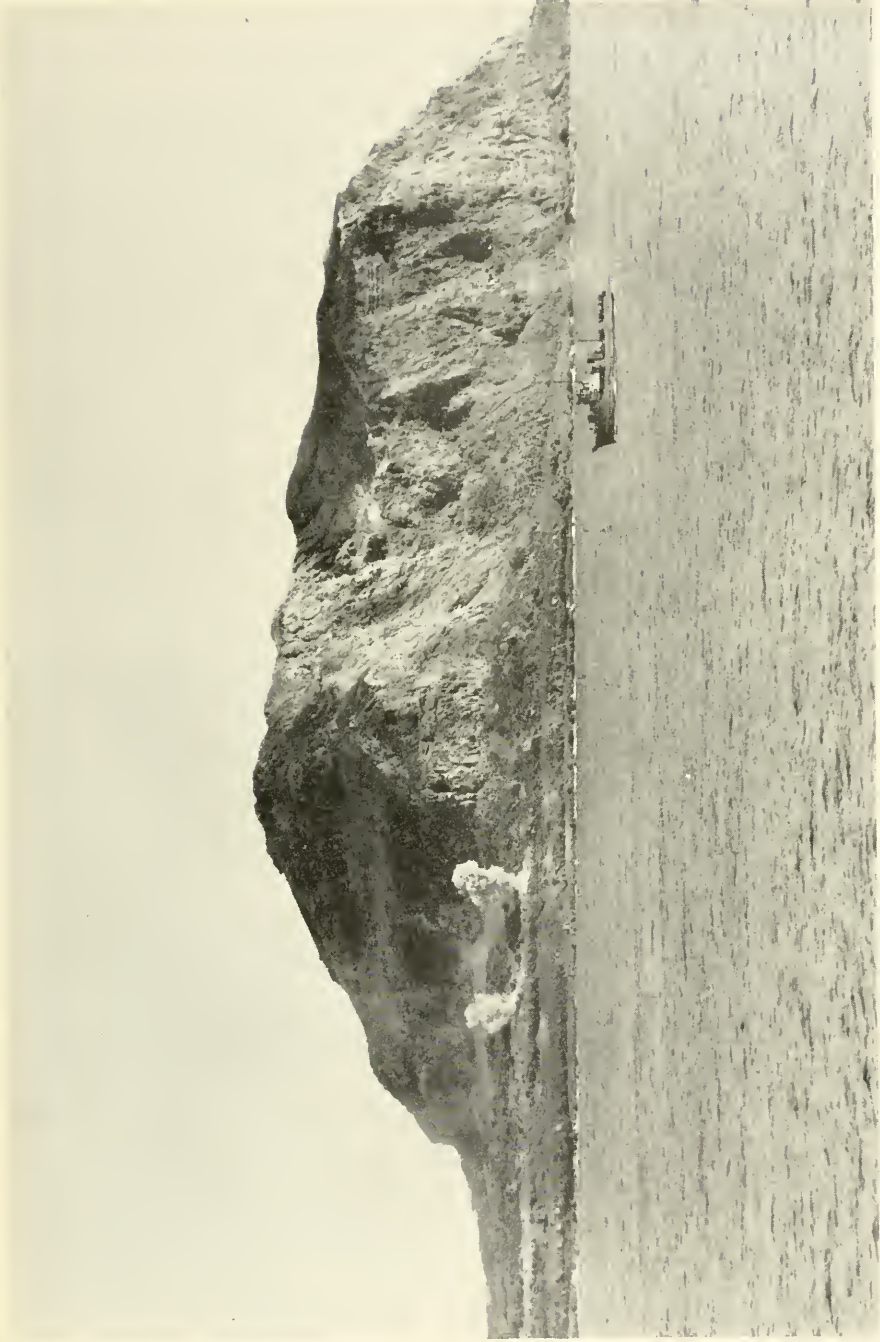
These birds were found in the undisturbed jungle areas at Peleliu. They were observed as singles and did not have the gregarious habits characteristic of the other two species of white-eyes found in the Palaus. One male had enlarged testes; some of the other specimens were in molt. Stomachs contained insects and plant parts.

**ERYTHRURA TRICHOA CLARA** Takatsukasa and Yamashina

*Erythrura trichroa clara* TAKATSUKASA AND YAMASHINA, Tori, vol. 32, 1931, p. 110. (Ruk, Central Carolines.)

Truk Islands: Moen Island—1 female, December.

McElroy found these birds at three localities on Moen Island in heavy vegetation along streams. The birds were seen in small flocks. One male examined in December had enlarged testes. No birds of this species were seen at Palau.



IWO JIMA SHOWING MOUNT SURIBACHI  
Official U. S. Navy photograph.



1. FALALOP ISLAND, ULITHI ATOLL. SHOWING THE AMOUNT OF CLEARING OF THE SMALL ISLAND FOR MILITARY INSTALLATIONS

Official U. S. Navy photograph.



2. WOODLANDS ALONG A BEACH AT PELELIU





1. MANGROVE SWAMP AT PELELIU. USED BY PHALACROCORAX  
MELANOLEUCOS AND NYCTICORAX CALEDONICUS



2. BRACKISH-WATER MARSH ON PELELIU ISLAND. USED BY  
GALLINULA CHLOROPUS



1. EXTENSIVE TIDAL FLAT AT PELELIU, USED BY MIGRATORY SHORE BIRDS



2. MYIAGRA FREYCI NETI ON NEST IN BAMBOO CLUMP, MOUNT SANTA ROSA, GUAM



1. VEGETATION COVERING DEVASTATED BATTLE AREA, PELELIU ISLAND. 1 YEAR FOLLOWING THE INVASION



2. JUNGLE VEGETATION ON POTANGERAS ISLAND, ULITHI ATOLL, USED BY *APLONIS OPACUS* AND *GYGIS ALBA*



OPEN JUNGLE. TYPICAL OF THE SOUTHERN MARIANAS  
Official U. S. Marine Corps photograph.