No. 127

May 28, 1969

WILLIAM J. HOE
828 - 10th Ave.
Honolulu 16, Hawaii

ATOLL RESEARCH BULLETIN

No. 127 ***Ornithology of the Marshall and Gilbert Islands***

by A. Binion Amerson, Jr.

Issued by
THE SMITHSONIAN INSTITUTION
Washington, D.C., U.S.A.

ATOLL RESEARCH BULLETIN

No. 127

ORNITHOLOGY OF THE MARSHALL AND GILBERT ISLANDS

by A. Binion Amerson, Jr.

Issued by

THE SMITHSONIAN INSTITUTION

Washington, D.C., U. S. A.

May 28, 1969

ACKNOWLEDGEMENT

The Atoll Research Bulletin is issued by the Smithsonian Institution as a part of its Tropical Biology Program. It is supported cooperatively by the Oceanography, Ecology, and Systematics Programs and by the Smithsonian Press. The Press handles production and distribution. The editing is done by the Tropical Biology staff in the Museum of Natural History.

The Bulletin was founded and the first 117 numbers issued by the Pacific Science Board, National Academy of Sciences, with financial support from the Office of Naval Research. Its pages were largely devoted to reports resulting from the Pacific Science Board's Coral Atoll Program.

The sole responsibility for all statements made by authors of papers in the Atoll Research Bulletin rests with them, and statements made in the Bulletin do not necessarily represent the views of the Smithsonian nor those of the editors of the Bulletin.

Editors

F. R. Fosberg
M.-H. Sachet

Smithsonian Institution
Washington, D.C. 20560

D. R. Stoddart

Department of Geography
University of Cambridge
Downing Place
Cambridge, England

ORNITHOLOGY OF THE MARSHALL AND GILBERT ISLANDS[1]

by A. Binion Amerson, Jr.[2]

ABSTRACT

The avifauna of the Marshall and Gilbert Islands and the surrounding ocean consists of 79 species, of which 37 are seabirds and 42 are land and fresh-water birds. Of these 79 species, 20 are recorded here for the first time. One species, a procellarid, is recorded here as a new breeding record for the area. In addition, many species are new records for the 50 atolls and islands located within the area. Collected bird specimens from the Marshall-Gilbert area now total 1,133 (44 species), of which 585 (43 species) were collected by the Pacific Ocean Biological Survey Program. The average number of bird species per island is 13 in the Marshall-Gilbert area. A higher number of species exists in the extreme northern Marshalls than elsewhere in the area; the number decreases southward to the southern Marshalls; an increase occurs in the extreme southern Marshalls and further increases in the Gilberts. This north-south variation may be traced to a number of environmental factors.

1/ Paper Number 43, Pacific Ocean Biological Survey Program, Smithsonian Institution, Washington, D.C.

2/ Pacific Ocean Biological Survey Program, Smithsonian Institution, Washington, D.C.

CONTENTS

Page

Abstract i

Figures iii

Tables iv

Atoll Maps vi

Introduction 1

Acknowledgements 1

Ornithological Explorations 5

Atoll Summaries 9

Marshall Islands

Radak Chain 11

Ralik Chain 113

Gilbert Islands 207

Avifaunal Distribution 287

Seabirds 288

Land and Fresh-Water Birds 305

Influencing Factors 318

Appendix A 335

Appendix B 338

Literature Cited 341

FIGURES

		Page
1.	Marshall and Gilbert Islands	2
2.	Marshall Islands	3
3.	Gilbert Islands	4
4.	POBSP Itineraries: Marshall and Gilbert Islands - 1964, 1966, 1967	8
5.	Vegetation Zones in the Marshall and Gilbert Islands	321
6.	Average Number of Bird Species Per Zone: North to South Distribution	322
7.	Average Number of Bird Species per Zone: West to East Distribution	322
8.	Variation of Rainfall with Latitude in the Marshall-Gilbert Area	328

TABLES

		Page
1.	Bird specimens collected by POBSP on Taongi Atoll	15
2.	Bird specimens collected by POBSP on Bikar Atoll	29
3.	Bird specimens collected from Bikar Atoll in the Yamashina Collection	30
4.	Bird specimens collected by POBSP from Taka Atoll	45
5.	Bird specimens collected from Mejit Atoll	56
6.	Bird specimens collected from Ailuk Atoll	60
7.	Bird specimens collected by POBSP from Jemo Island	65
8.	Bird specimens collected from Likiep Atoll	72
9.	Bird specimens collected from Wotje Atoll	77
10.	Bird specimens collected by POBSP from Erikub Atoll	80
11.	Bird Population Estimates for Islands of Erikub Atoll October 24-28, 1964	84
12.	Bird specimens collected from Maloelap Atoll	92
13.	Bird specimens collected from Aur Atoll	96
14.	Bird specimens collected from Majuro Atoll	100
15.	Bird specimens collected from Arno Atoll	104
16.	Bird specimens collected from Mili Atoll	108
17.	Bird specimens collected from Eniwetok Atoll	117
18.	Bird specimens collected from Bikini Atoll	125
19.	Bird specimens collected from Rongerik Atoll	130
20.	Bird specimens collected from Rongelap Atoll	134
21.	Bird specimens collected by POBSP from Ailinginae Atoll	138
22.	Bird specimens collected by POBSP from Kwajalein Atoll	152
23.	Bird specimens collected from Namu Atoll	170

Page

24. Bird specimens collected by POBSP from Jabwot Island 174

25. Bird specimens collected from Ailinglapalap Atoll 180

26. Bird specimens collected by POBSP from Jaluit Atoll 186

27. Bird specimens collected by other expeditions from Jaluit Atoll 187

28. Bird specimens collected from Namorik Atoll 203

29. Bird specimens collected from Ebon Atoll 206

30. Bird specimens collected by POBSP from Makin Atoll 213

31. Bird specimens collected by other expeditions from Makin Atoll 215

32. Bird specimens collected from Tarawa Atoll 235

33. Bird specimens collected by POBSP from Maiana Atoll 238

34. Bird specimens collected by POBSP from Kuria Atoll 249

35. Bird specimens collected by POBSP from Aranuka Atoll 259

36. Bird specimens collected from Onotoa Atoll 280

37. Seabird occurrence in the Marshall and Gilbert Islands . . . 289

38. Land and fresh-water bird occurrence in the Marshall and Gilbert Islands 291

39. At-sea feeding habitat classification of seabirds that breed in the Marshall and Gilbert Islands 292

40. Avifaunal components of each atoll in the Marshall-Gilbert area, arranged from north to south 319

41. People-land relationship in the Marshall-Gilbert area 324

ATOLL MAPS

Acknowledgement is made to the United States Naval Hydrographic Office (H.O.) and to the United States Army Map Service (A.M.S.) for the atoll maps used in this paper. Island names are those used by the U.S. Board of Geographic Names.

Marshall Islands — Page

Radak Chain (From North to South)

Taongi Atoll (H.O. 6024) 12

Bikar Atoll (H.O. 6024) 26

Utirik Atoll (H.O. 6023) 40

Taka Atoll (H.O. 6023) 42

Mejit Island (A.M.S. series W861, sheet 8352) . . . 54

Ailuk Atoll (H.O. 6022) 58

Jemo Island (A.M.S. series W861, sheet 8152) 62

Likiep Atoll (H.O. 6020) 70

Wotje Atoll (H.O. 6019) 74

Erikub Atoll (H.O. 6017) 78

Maloelap Atoll (H.O. 6014) 90

Aur Atoll (H.O. 6014) 94

Majuro Atoll (H.O. 2007) 98

Arno Atoll (H.O. 6004) 102

Mili Atoll (A.M.S. series W861) 106

Knox Atoll (A.M.S. series W861) 110

Ralik Chain (From North to South)

Eniwetok Atoll (H.O. 6033) 114

Ujelang Atoll (H.O. 6035) 120

Bikini Atoll (H.O. 6032) 122

Page

Rongerik Atoll (H.O. 6026) 128

Rongelap Atoll (H.O. 6029) 132

Ailinginae Atoll (H.O. 6026) 136

Wotho Atoll (H.O. 5429) 144

Ujae Atoll (H.O. 5429) 146

Lae Atoll (H.O. 6026) 148

Kwajalein Atoll (H.O. 5429) 150

Lib Island (H.O. 5429) 166

Namu Atoll (H.O. 6013) 168

Jabwot Island (A.M.S. series W861) 172

Ailinglapalap Atoll (H.O. 6011) 178

Jaluit Atoll (H.O. 6007) 182

Kili Island (A.M.S. series W861) 200

Namorik Atoll (A.M.S. series W861, sheet 7831) . . . 202

Ebon Atoll (H.O. 5429) 204

Gilbert Islands (From North to South)

Little Makin Atoll (A.M.S. series X843) 208

Makin Atoll (H.O. 37) 210

Marakei Atoll (H.O. 122) 224

Abaiang Atoll (H.O. 0119) 228

Tarawa Atoll (H.O. 0123, Field Charts 34, 35, 36). . 232

Maiana Atoll (H.O. 122) 236

Abemama Atoll (H.O. 122) 244

Kuria Atoll (H.O. 122) 246

Aranuka Atoll (H.O. 122) 256

Page

Nonouti Atoll (H.O. 0119) 266

Tabiteuea Atoll (H.O. 0119) 270

Beru Island (H.O. 0119) 274

Nikunau Island (H.O. 0119) 276

Onotoa Atoll (H.O. 0119) 278

Tamana Island (H.O. 0119) 282

Arorae Island (H.O. 0119) 284

INTRODUCTION

In an area of some 600,000 square miles in the Western Pacific Ocean just west of the 180° meridian, lie the Marshall Islands and Gilbert Islands. Here some 50 atolls and reef islands are scattered north and south of the equator (Figure 1).

The Marshall Islands stretch from Taongi Atoll in the north (14°37'N) to Ebon Atoll in the south (04°37'N), and from Knox Atoll in the east (172°09'E) to Ujelang Atoll in the west (160°55'E). The Marshall Islands are divided into two groups, the eastern Radak Chain and the western Ralik Chain (Figure 2), and include 29 atolls and five reef islands.

Located just 200 miles southeast of the Marshall Islands are the Gilbert Islands which stretch from Little Makin Atoll in the north (30°17'N), across the equator to Arorae Island in the south (2°38'S) and east (176°49'E), and to Makin Atoll in the west (172°48'E). The Gilbert Islands comprise a single chain (Figure 3) and include 11 atolls and five reef islands.

Thus the Marshall and Gilbert Islands form an almost continuous chain of atolls running in a northwest-southeast direction. Various island groups surround the Marshall and Gilbert Islands: to the north lies Wake Island; to the northeast lie the Hawaiian Islands and Johnston Atoll; to the east and southeast lie Howland Island, Baker Island, the Phoenix Islands and the Tokelau Islands; to the south lie the Ellice Islands; to the west lie Ocean Island, Nauru Island, and the Caroline Islands; and to the northwest lie the Marianas Islands.

The Pacific Ocean Biological Survey Program (hereafter referred to as POBSP) of the Smithsonian Institution, Washington, D.C., is presently conducting an ecological survey in the Central Pacific Ocean, with particular emphasis on the avifauna. As part of this program, a two-month field trip to the Marshall and Gilbert Islands was made in October-November of 1964. Later studies were undertaken in June 1966 and in April-May 1967. This paper presents a summary of all known bird records from the two island groups.

ACKNOWLEDGEMENTS

Acknowledgement is made to the U.S. Navy, the U.S. Coast Guard, and the U.S. Military Sea Transport Service, who provided ship transportation for the POBSP field teams.

Special acknowledgement for cooperation and assistance is extended

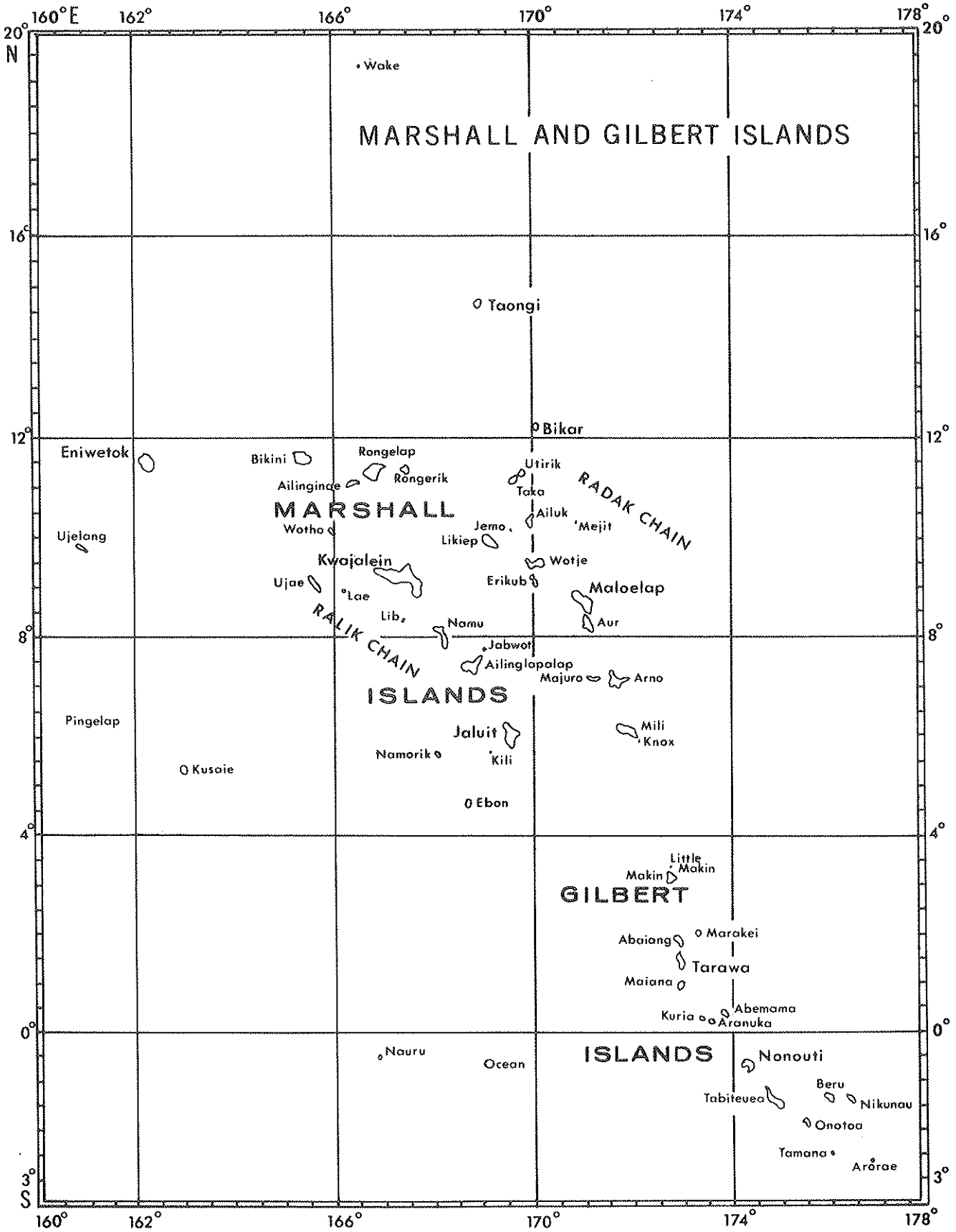


FIGURE 1. Marshall and Gilbert Islands Area Map.

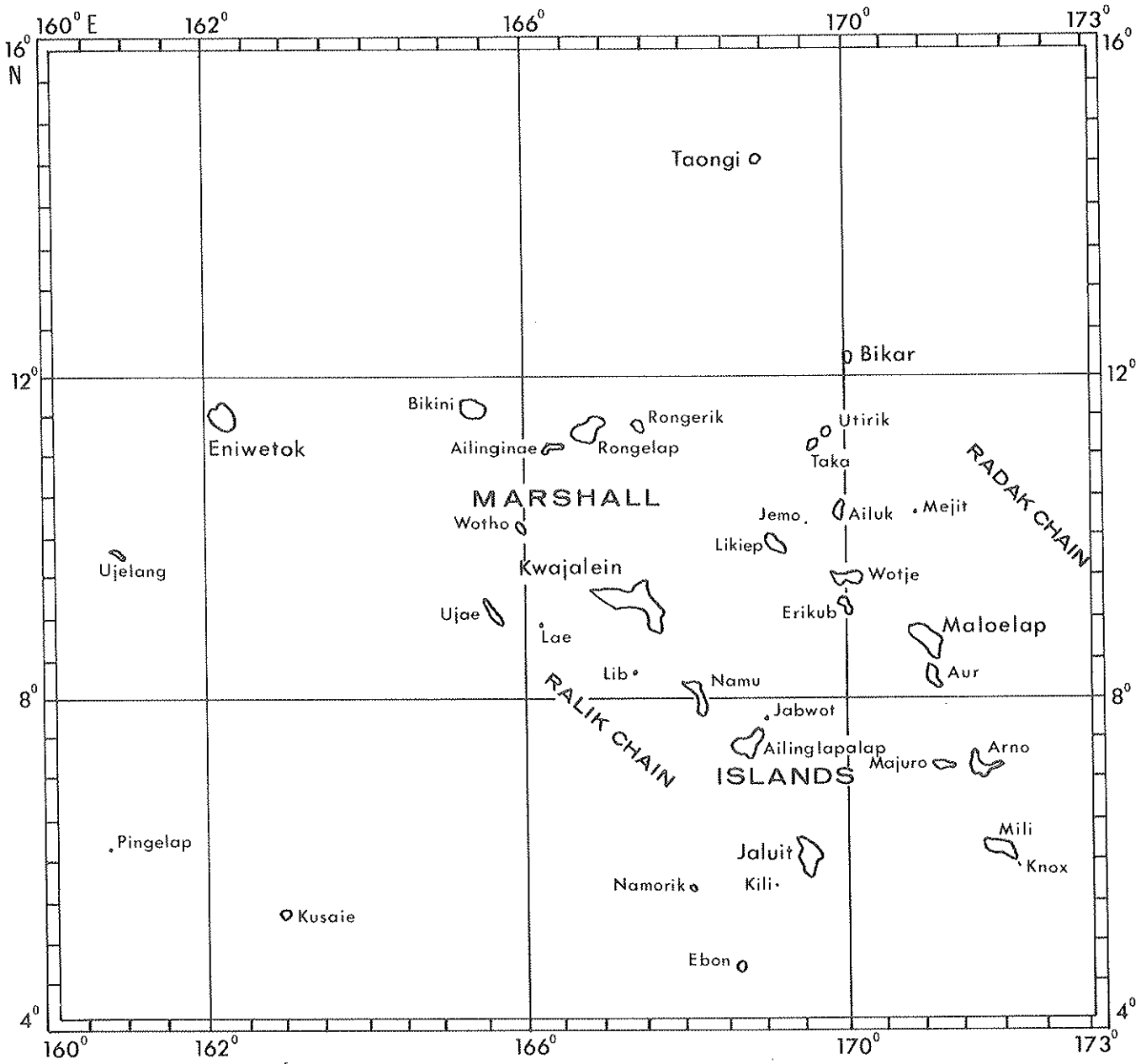


FIGURE 2. The Marshall Islands.

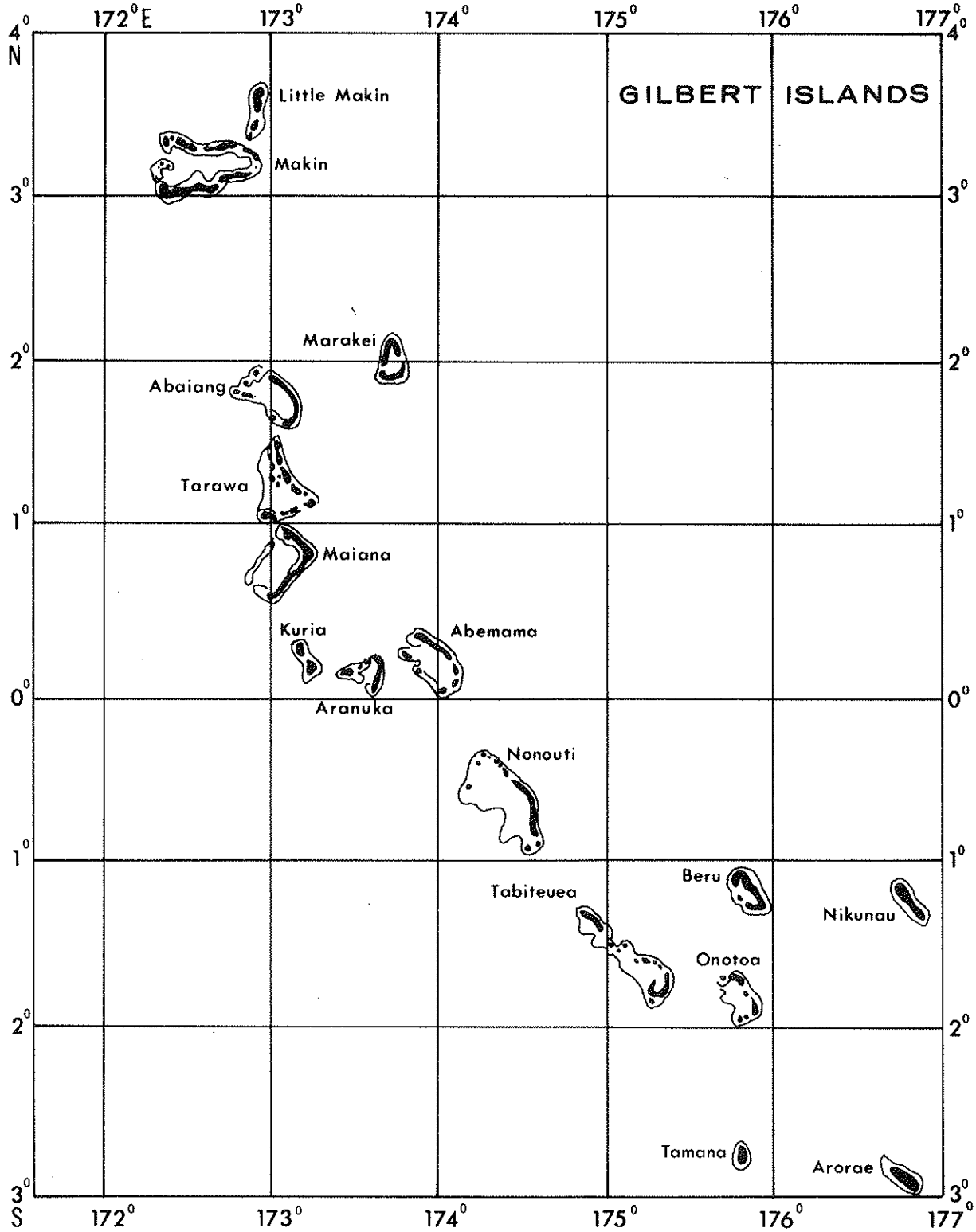


FIGURE 3. The Gilbert Islands.

to M.W. Goding, High Commissioner, Trust Territory of the Pacific Islands, U.S. Department of the Interior, and to the British Embassy, Washington, D.C., who, respectively, allowed the POBSP field team to visit the Marshall and Gilbert Islands. Special thanks are extended to R.J. McKay, representative, U.S. Trust Territory of the Pacific Islands, Kwajalein Atoll, for assistance on Kwajalein; to Colonel M.J. Small, Executive Officer, U.S. Army, Kwajalein Atoll, for assistance and transportation on Kwajalein; and to Major M.R. Thayer, Security Officer, U.S. Army, Kwajalein Atoll, for allowing field personnel to use firearms for collecting specimens on Kwajalein. Sincere thanks are extended to the many Marshallese and Gilbertese who assisted and guided the field teams on the various inhabited atolls. Acknowledgement is also extended to F.R. Fosberg, M-H. Sachet, and S.H. Riesenberg, Smithsonian Institution, Washington, D.C., for supplying information helpful in planning for the three trips. I wish also to thank George E. Watson whose critical comments concerning the manuscript were invaluable.

I am deeply indebted to many past and present personnel of the POBSP who contributed to this manuscript. Kenneth E. Amerman, Roger B. Clapp, Lawrence N. Huber, Dayle N. Husted, Philip N. Lehner, and George S. Wislocki devoted many long hours in gathering field data. Anne Keenan Poulson patiently drafted the many maps. Roger B. Clapp, Charles A. Ely, Patrick J. Gould, and Max C. Thompson provided assistance in identifying the unusual species collected by the field teams. Jan G. Reese and Robert A. Sundell cataloged most of the collected specimens into the USNM collection. I wish especially to thank Mae H. Esterline who edited the manuscript and who attended to all the details of producing the final copy. Helen H. Quinn typed the preliminary and final copies. Finally, I wish to thank Philip S. Humphrey whose patient guidance and insistent urging enabled me to complete this manuscript.

ORNITHOLOGICAL EXPLORATIONS

Historical Review

The first explorers to visit the Marshall and Gilbert Islands were people who probably came from Malaysia between 1000 and 1300 A.D. The first Europeans to visit these two island groups were Spaniards. Loyasa voyaged to the Marshall Islands in 1526 and Saavdera in 1529; Grijalva and Alvarado visited the Gilbert Islands in 1537. These early visitors made no significant bird observations. Chamisso (1821), as naturalist with the Russian expedition on the RURICK, under the command of Otto von Kotzebue, made detailed observations in the Marshall Islands in 1817 and 1818. Otto Finsch (1880a, 1880b) made ornithological observations in the Marshall and Gilbert Islands in 1879 and 1880. Wiglesworth (1893) summarized the ornithological work that had been done in the Gilbert Islands, adding only one species to the 19 recorded by Finsch.

Germany gained control of the Marshalls in 1885, and in 1899 Brondeis,

travelling on the German ship KAISERLAND, recorded birds from many of the atolls. The U.S. Fish Commission ship, ALBATROSS, visited the Marshall and Gilbert Islands in 1899 and 1900. Birds collected by this expedition were reported on by Townsend and Wetmore (1919). They listed six species from the Gilberts and five species from the Marshalls. The Gilbert Islands became a British protectorate in 1892 and a colony in 1915.

After World War I the Japanese gained control of Micronesia, which included the Marshall Islands but not the Gilbert Islands. Subsequently, Japanese ornithologists began investigating the avifauna of the area. Momiyama (1922) and the Ornithological Society of Japan (1932,1942) prepared lists of birds from Micronesia showing 29 species from the Marshalls.

United States forces occupied the Marshalls early in 1944, and after the Japanese surrender in 1945 the islands were under U.S. military control. In 1947 they became a United Nations Trust Territory under the administration of the United States. During World War II one ornithological report was made by servicemen stationed in the Marshall Islands (Gleize and Genelly, 1945), and the U.S. Navy Department (1943) published a handbook of the Marshall Islands which listed some of the animal life. The Laboratory of Mammalogy, U.S. Naval Medical Research Unit No. 2, collected animal specimens throughout Micronesia; none, however, were collected from the Marshall or Gilbert Islands (Baker, 1948). Birds were collected before and after the Bikini tests by J.P.E. Morrison (U.S. National Museum) and M.A. Traylor (Chicago Natural History Museum). Baker (1951) published the most comprehensive study to date on the avifauna of Micronesia. He included 39 species from the Marshall Islands, but none from the Gilberts.

In 1950, the SIM (Scientific Investigations in Micronesia) Project of the Pacific Science Board, National Research Council, conducted a survey of Arno Atoll, Marshall Islands. Subsequently, Marshall (1951) published an account of the vertebrate ecology of the atoll, listing 13 bird species. A similar study was conducted at Onotoa Atoll, Gilbert Islands. Moul (1954) reported on the land animals, listing 15 bird species. Various other reports have been published as a result of the U.S. Geological Survey and the Pacific Science Board's Micronesian investigation. Many have contained notes on birds (Fosberg, 1955, 1956; Wiens, 1957; Gressitt in Blumenstock, 1961). Fosberg (1966) published a detailed summary of his ornithological observations made in the Northern Marshalls (including Wake) during 1951, 1952, 1953, 1956, 1961, and 1963. He recorded 27 bird species from the 15 islands in the Northern Marshalls; he did not collect any specimens. Bryan (1965) listed 40 species of birds likely to be seen in the Marshalls; no distribution records were given.

Child (1960) published notes and observations on birds of the Gilbert Islands, listing 29 bird species. Morris (1963) listed 19 species of birds from the Gilberts, five of which had not been listed by Child. Bourne (1963) comments on Morris' paper and summarizes the literature from the Gilberts, but omits mention of Moul (1954) and Townsend and Wetmore (1919).

Pacific Ocean Biological Survey Program Explorations

The Marshall Islands and Gilbert Islands were visited by field personnel of the POBSP in October-November 1964, in June 1966, and again in April-May 1967, for the purpose of conducting a biological survey, with emphasis on the avifauna, on selected reef islands and atolls.

The POBSP personnel participating in the 1964 survey included: Kenneth E. Amerman, A. Binion Amerson, Jr. (biologist in charge), Roger B. Clapp, Lawrence N. Huber, Philip N. Lehner, and George S. Wislocki. This survey party left Honolulu, Oahu, Hawaii, aboard a U.S. naval vessel on 1 October and visited 11 atolls (Figure 4) as follows: Taongi (10-13 October), Bikar (14-19 October), Taka (19-23 October), Jemo (23-24 October), Erikub 24-28 October), Kwajalein(29 October - 9 November), and Jaluit (10-12 November) in the Marshall Islands; Makin 13-15 November), Maiana (16-17 November), Kuria (17-19 November), and Aranuka (19 November) in the Gilbert Islands. The ship arrived back in Honolulu on 27 November.

The 1966 survey was conducted by Dayle N. Husted, travelling aboard a U.S. Coast Guard vessel which departed Honolulu, Hawaii, on 2 June and visited Majuro Atoll (10-12 June), Kwajalein Atoll (13-14 June), and Eniwetok Atoll (21-22 June) in the Marshall Islands (Figure 4).

The 1967 survey was made by A. Binion Amerson, Jr., travelling aboard a U.S. naval vessel which departed Honolulu, Hawaii, on 17 April. Seven atolls were visited in the Marshall Islands (Figure 4) as follows: Taongi (29 April), Ailinginae (1 May), Jabwot (3 May), Erikub (4 May), Jemo (5 May), Taka (6 May), and Bikar (7 May). The ship returned to Hawaii 15 May.

Although since World War II there has been a sharp increase in the ornithological knowledge of the Marshall and Gilbert Islands, in many instances museum specimens are not available to substantiate sight records. Prior to the first POBSP survey in October-November 1964, 540 specimens of 21 bird species were known to exist. They are in the collection of the: U.S. National Museum, Washington, D.C. (USNM): Harvard Museum of Comparative Zoology, Cambridge (MCZ): University of Kansas Museum of Natural History, Lawrence (KMNH): University of Utah Zoology Museum, Salt Lake City (UUZM); University of Arizona Zoology Museum, Phoenix (UAZM); British Museum of Natural History, London (BMNH), and the Yamashina Institute of Zoology and Ornithology Museum, Tokyo (YIZM). Since 1964, 8 additional specimens have been collected and are in the collection of the Bowling Green (Ohio) State University Biology Museum.

In 1964 POBSP collected 445 specimens of 42 bird species. No specimens were collected by the POBSP in 1966. In 1967, 140 specimens of 21 species were collected by POBSP personnel, making a total POBSP collection of 585 specimens of 43 species. All the specimens are in the U.S. National Museum. Many of these are new records for the Marshall and Gilbert Islands.

348-415 O-69—2

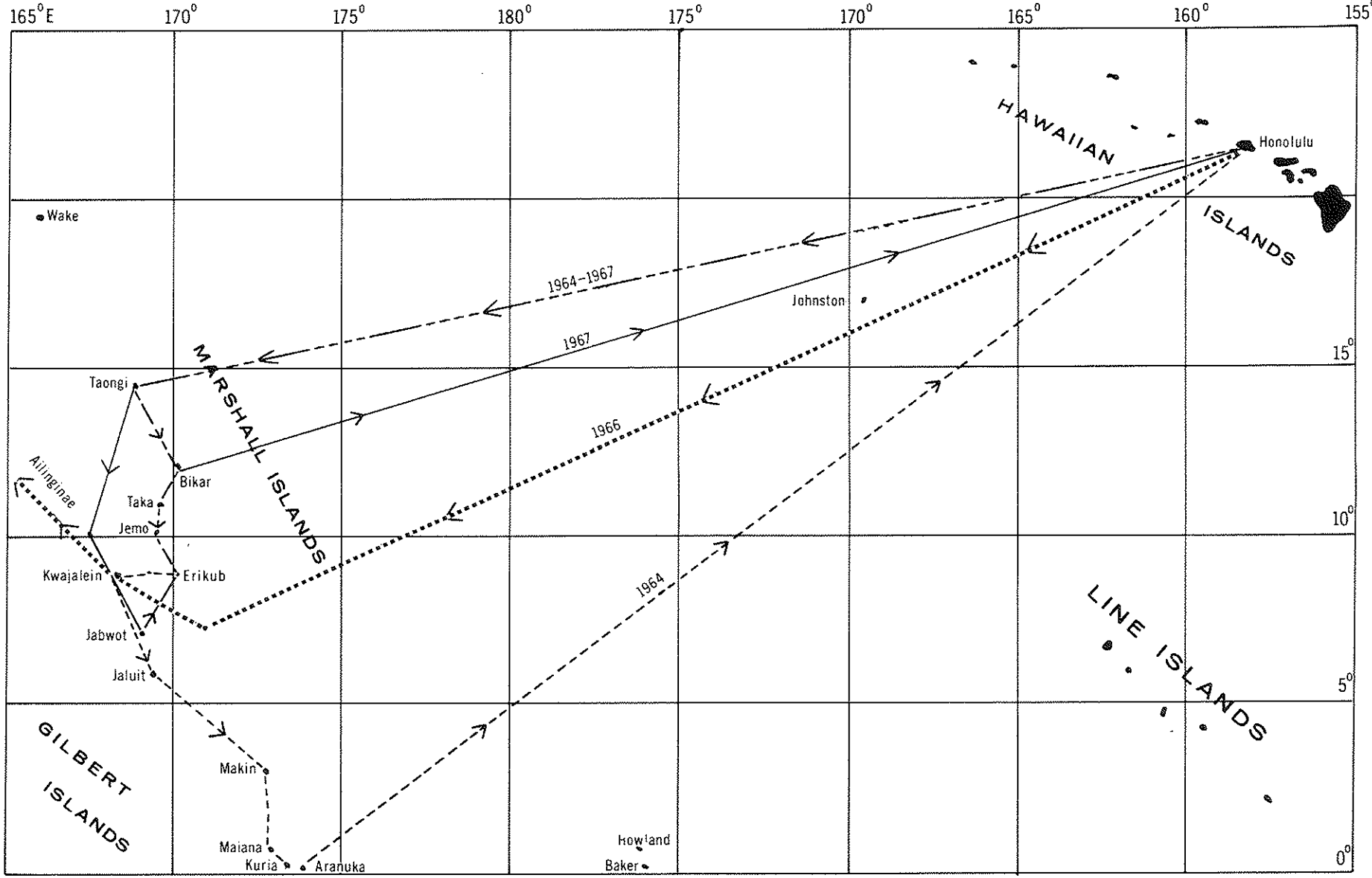


FIGURE 4 POBSP Itineraries: Marshall and Gilbert Islands- 1964, 1966, 1967.

ATOLL SUMMARIES

The following atoll summaries provide a brief description for each of the 50 atolls in the Marshall and Gilbert Islands. Each description includes a map, and gives location, shape and size, soil, vegetation, climate, and human population. The summaries also include a list of scientific visits.

The primary function of the atoll summaries is to provide background for an avifauna discussion for each of the 50 atolls. Each avifauna section includes a brief summary of the species recorded. An avifauna checklist for each atoll provides a listing of all known records, giving status and source of each record. Specimens collected by the POBSP and other collectors are listed for each atoll; museum numbers and collection data for each specimen are given. An annotated species account, listing habitat, numbers, status, and specimen records, is given only for atolls visited by the POBSP field teams during 1964 and 1967. To conserve space, all negative data have been omitted from the annotated species accounts.

All atolls are listed north to south for both the Marshall and Gilbert Islands, with those in the Marshalls divided into the Radak and Ralik chains. All island names used are official names adopted by the U.S. Board of Geographic Names.

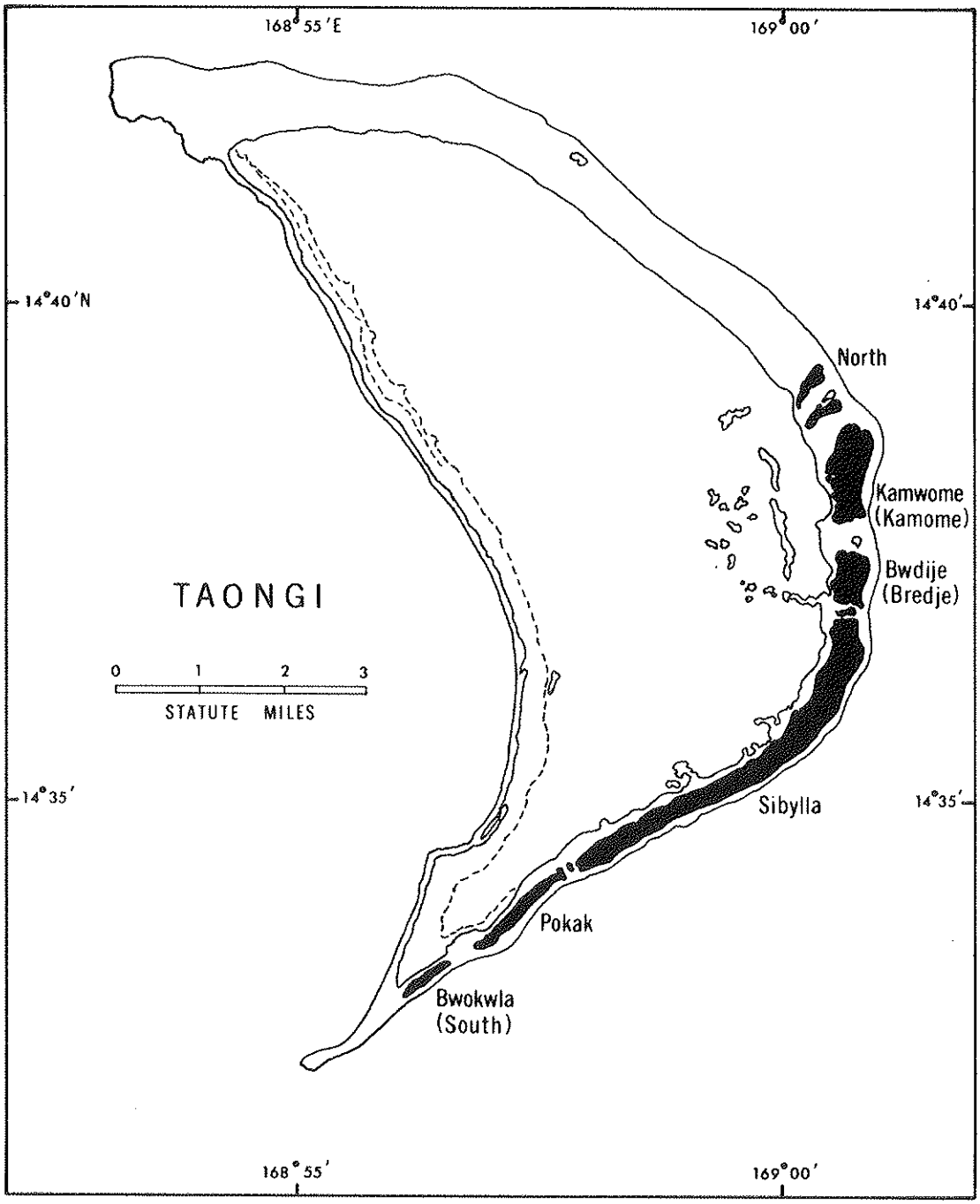
Several sources were used in assembling the common and scientific names of the birds occurring in the Marshall and Gilbert Islands. The names used in the American Ornithologists' Union's Checklist of North American Birds, 1957, 5th edition, were followed for species occurring in North America. In the interest of consistency, seabird names agree with those which appear in Watson's Smithsonian Identification Manual: Seabirds of the Tropical Atlantic Ocean, and King's Smithsonian Identification Manual: Seabirds of the Tropical Pacific Ocean. Alexander's Birds of the Ocean, Mayr's Birds of the Southwest Pacific, Baker's Avifauna of Micronesia, and the Ornithological Society of Japan's A Hand-list of Japanese Birds, 1958, 4th and revised edition, were used in several instances.

Taxonomic order follows that of Peter's Checklist of the Birds of the World, volumes I, II, and III, with the exception of the Procellariiformes, which follow Alexander, et al. (1965), the Anserformes, which follow Delacour (1954,1959), and the Charadriiformes, which follow Bock (1958).

For descriptions and illustrations of the 79 species of birds that are herein recorded, the reader is referred to the ornithological sources cited abcve.

M A R S H A L L I S L A N D S

R A D A K C H A I N


168° 55' E
169° 00'
14° 40' N
14° 40'
North
Kamwome
(Kamome)
Bwdije
(Bredje)
TAONGI
0 1 2 3
STATUTE MILES
14° 35'
14° 35'
Sibylla
Pokak
Bwokwla
(South)
168° 55'
169° 00'

TAONGI ATOLL

Location: 14°37' N x 168°58' E.

Shape and Size: Crescent shaped; Tip to tip - 11 miles; Convex (east or windward) side - 21 miles; Concave (west) side - 14 miles; Widest point - 5+ miles; Total lagoon area - 41.30 square miles; Total dry land area - 1.45 square miles; Number of islands - 13; Height - 12+ feet (Fosberg, 1956).

Soil: Beach (ocean side) - solid coral rock, cobblestone, huge boulders, some sandy area; Beach (lagoon side) - mostly sand, some stony and coral rock areas, scattered boulders.

Vegetation: Nine species; primary species - Messerschmidia, 10 - 15 feet high; secondary species - Scaevola, 3-6 feet high (Fosberg, 1956). Pokak, Sibylla, and Breje Islands - very thick vegetation, some sparse grassy areas; Kamome Island - sparse vegetation, large grassy areas.

Climate: Generally dry, about 40-50 inches of rainfall yearly; Mean air temperature-82° F; Wind - prevailing from east to northeast (Fosberg, 1956).

Human Population: Past - not inhabited, but occasionally visited by Marshallese who regarded it as a bird refuge and carefully regulated the harvesting of eggs and young birds (Fosberg, 1957); Present - not inhabited, but evidence remains of survivors of shipwrecks in 1964.

Scientific Visits: Northern Marshall Islands Expedition - 25 November 1951 (examined only from ship), 25 March 1952 (examined only from ship), 20-27 July 1952; POBSP - 10-13 October 1964, 29 April 1967.

Avifauna: Twenty-six bird species are presently known from Taongi Atoll. These include 19 seabirds, 5 shorebirds, 1 duck, and 1 heron. Twelve of these species are known breeders, six others are possible breeders, six are migrants, one is an at-sea visitor, and one is an accidental.

Taongi Atoll is the only known breeding ground in the Marshall and Gilbert Islands of Puffinus nativitatus. The same is probably true for Bulweria bulwerii. Although of accidental status, Puffinus assimilis is known in the Marshall and Gilbert Islands only from Taongi Atoll.

Twenty-six species are listed in the following checklist, which was derived from various sources: (1) POBSP, (a) 1964, (b) 1967 ; (2) Fosberg, (a) 1955, (b) 1966; (3) A.O.U. Checklist, 1957; (4) Peters, 1931; and (5) Mayr, 1945. These sources are referred to on the checklist by corresponding numbers and letters. The six species marked by a single asterisk are new species records for Taongi Atoll; the single species marked by double asterisks is a new atoll breeding record.

Taongi Atoll Avifauna Checklist

	Species	Status	Source
1)	Diomedea nigripes (offshore only)	Visitor (at sea)	2b, 3, 4, 5
2)	Bulweria bulwerii*	Resident breeder ?	1b
3)	Puffinus pacificus	Resident breeder	1ab, 2b
4)	Puffinus nativitatus*	Resident breeder**	1ab
5)	Puffinus assimilis*	Accidental	1a
6)	Phaethon rubricauda	Resident breeder	1ab, 2b
7)	Phaethon lepturus	Resident breeder ?	1b, 2b
8)	Sula dactylatra	Resident breeder	1ab, 2ab
9)	Sula sula	Resident breeder	1ab, 2b
10)	Sula leucogaster	Resident breeder ?	1ab, 2b
11)	Fregata minor	Resident breeder	1ab, 2b
12)	Egretta sacra	Resident breeder ?	1ab, 2b
13)	Anas acuta*	Migrant	1a
14)	Pluvialis dominica	Migrant	1ab, 2b
15)	Numenius tahitiensis	Migrant	1ab, 2b
16)	Heteroscelus incanum	Migrant	1ab, 2b
17)	Arenaria interpres	Migrant	1a, 2b
18)	Crocethia alba*	Migrant	1a
19)	Sterna sumatrana*	Resident Breeder ?	1a
20)	Sterna lunata	Resident Breeder ?	1b, 2b
21)	Sterna fuscata	Resident breeder	1ab, 2b
22)	Thalasseus bergii	Resident breeder	1ab, 2b
23)	Procelsterna cerulea	Resident breeder	1ab, 2b
24)	Anous stolidus	Resident breeder	1ab, 2b
25)	Anous tenuirostris	Resident breeder	1ab, 2b
26)	Gygis alba	Resident breeder	1ab, 2b

POBSP personnel have collected 53 specimens of 17 species (Table 1). Of these 17 species, 4 are specimen records of species not previously known from the atoll; the other 13 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from Taongi Atoll.

Species Account

1) Diomedea nigripes — Black-footed Albatross

Habitat -- November 1951 and March 1952 - observed offshore only (Fosberg, 1966).

Numbers -- November 1951, March 1952 - one seen offshore on both occasions. None seen on land during subsequent visits (Fosberg, 1966).

TABLE 1. Bird specimens collected by POBSP on Taongi Atoll

Species	Museum	Sex	Age	Location	Date	Status	Collector
Bulweria bulwerii	USNM 543452	♂	A	Lagoon	4-29-67	Skin	Amerson
Puffinus pacificus	" 543463	♂	A	Sibylla	"	"	"
" "	" 543058	♀	A	"	"	"	"
" "	" 543059	♀	A	"	"	"	"
" "	" 543464	♀	A	"	"	"	"
Puffinus nativitatus	" 494821	?	A	Kamome	10-12-64	"	"
" "	" 543461	♀	A	Sibylla	4-29-67	"	"
" "	" 543462	♂	A	"	"	"	"
Puffinus assimilis	" 494142	?	A	Breje	10-11-64	Skel.	"
Phaethon rubricauda	" 543055	♂	A	Sibylla	4-29-67	Skin	"
" "	" 543056	♂	A	"	"	"	"
Sula dactylatra	" 543057	♀	SA	"	"	"	"
Sula sula	" 543053	?	A	"	"	"	"
" "	" 543054	♀	A	"	"	"	"
" "	" 543348	♂	A	"	"	"	"
" "	" 543349	♂	I	"	"	"	"
Fregata minor	" 543385	♂	A	"	"	"	"
" "	" 543385	♂	A	"	"	"	"
" "	" 543376	♀	A	"	"	"	"
" "	" 543377	♀	A	"	"	"	"
" "	" 543378	♂	I	"	"	"	"
Egretta sacra	" 494853	♀	A	Kamome	10-12-64	"	-
Pluvialis dominica	" 494744	♀?	A?	Sibylla	"	"	Huber
" "	" 543386	♀	A	"	4-29-67	"	Amerson
Numenius tahitiensis	" 502901	?	A?	"	10-11-64	Alcoh.	-
Heteroscelus incanum	" 502902	?	A?	"	10-12-64	"	Amerson
" "	" 494890	♀	-	"	"	Skin	-
" "	" 494891	?	-	"	"	"	Clapp
" "	" 494892	♀	-	"	"	"	"
" "	" 494893	♂	-	"	"	"	"
" "	" 494894	♂	-	"	"	"	"
" "	" 494889	♂	-	"	"	"	Lehner
Sterna sumatrana	" 494584	♂	A	"	10-11-64	"	"
" "	" 494585	♂	A	"	"	"	"
" "	" 494586	♀	A	"	"	"	"
" "	" 494587	♂	A	"	"	"	Huber
Sterna fuscata	" 494691	-	-	Kamome	10-12-64	"	Amerson
" "	" 494692	♀	-	"	"	"	"
" "	" 494693	♀	-	"	"	"	"
" "	" 494694	♀	-	"	"	"	"

TABLE 1. Bird specimens collected by POBSP on Taongi Atoll

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sterna fuscata	USNM 494695	♂	-	Kamome	10-12-64	Skin	Amerson
" "	" 393696	♀	-	"	"	"	"
" "	" 494697	♂	-	"	"	"	"
" "	" 494698	♀	-	"	"	"	"
" "	" 494699	♀	-	"	"	"	"
" "	" 494700	♀	-	"	"	"	"
" "	" 543389	♀	A	Sibylla	4-29-67	"	"
Thalasseus bergii	" 543429	♀	A	"	"	"	"
" "	" 543430	♂	A	"	"	"	"
" "	" 543431	♀	A	"	"	"	"
Anous stolidus	" 543410	♂	A	"	"	"	"
Gygis alba	" 543448	♀	A	"	"	"	"
" "	" 543218	?	-	"	"	"	"

Status -- At-sea visitor. No valid breeding record exists, although Mayr (1945) lists the Marshall Islands as a breeding ground, and A.O.U. checklist (1957) lists Taongi as a breeding locality. Neither gives source of information. Peters (1931) lists the Marshall Islands as part of the range of this species.

Specimen Records -- None.

2) Bulweria bulwerii Bulwer's Petrel

Habitat -- April 1967 - POBSP personnel observed Bulwer's Petrel at sea just off the east shore flying away from the atoll at dawn. None could be found on Sibylla Island during the day, although a thorough search was made over all portions visited. Many were observed late in the evening flying eastward over the lagoon toward the islands.

Numbers -- April 1967 - offshore 50±.

Status -- Resident breeder? April 1967 - probably breeding, one specimen collected over the lagoon was in breeding condition and had bare brood patches. If this species breeds on Taongi, it is a new breeding record for the Marshall Islands.

Specimen Records -- Other - none; POBSP - one (Table 1). This specimen represents a new specimen record for the Marshall Islands.

3) Puffinus pacificus Wedge-tailed Shearwater

Habitat -- July 1952 - saw this species "a short distance inland from the lagoon shore of Sibylla, Breje, Kamome, and North Islands." Burrows were placed in soft sandy soil on top of which bunch grass normally grew (Fosberg, 1966). POBSP personnel found this species on Kamome Island in 1964 and on Sibylla Island in 1967. Burrows were found on Sibylla in 1964 but were unoccupied.

Numbers -- July 1952 - tens of thousands (Fosberg, 1966); October 1964 - Kamome 2000+, Sibylla ?; April 1967 - Sibylla 10,000; number banded 489.

Status -- Resident breeder. July 1952 - "eggs to nearly grown young in various stages of feathering out, up to those almost ready to fly." (Fosberg, 1966); October 1964 - large young, some feathering, present; April 1967 - pairing, courtship, burrows being dug, no eggs.

Specimen Records -- Other - none; POBSP - four (Table 1). This collection represents a new specimen record for Taongi Atoll.

4) Puffinus nativitatus Christmas Shearwater

Habitat -- October 1964 - Kamome, seaward beach area sitting among

low Scaevola bushes; April 1967 - in shallow burrows under large coral rocks located on the interior portion of Sibylla.

Numbers -- October 1964 - Kamome one seen; April 1967 - Sibylla 100's seen.

Status -- Resident breeder. October 1964 - no evidence of breeding; April 1967 - on eggs. This is the first breeding record for this species in the Marshall Islands.

Specimen Records -- Others - none; POBSP - three (Table 1). These specimens represent the first record of this species in the Marshall Islands. [Baker (1951) lists two specimens from Ailuk Atoll; however, this record is considered to be incorrect, see discussion under Ailuk Atoll].

5) Puffinus assimilis — Little Shearwater

One found dead (mummy) on 11 October 1964 at Breje Island, high up on seaward sandy beach, apparently deposited there by extreme high tide.

Specimen Records -- Other - none; POBSP - one (Table 1). This specimen represents the only record of this species in Micronesia. It is considered to be an accidental.

6) Phaethon rubricauda — Red-tailed Tropicbird

Habitat -- July 1952 - flying over all islets but nesting only on Sibylla, Breje, Kamome, and North; eggs laid on ground or sand in open brush (Fosberg, 1966); October 1964 - on all islands in the atoll, with nests usually under Scaevola or Messerschmidia bushes; April 1967 - on Sibylla, nests associated with above plant species.

Numbers -- July 1952 - fairly common (Fosberg, 1966); October 1964 - Sibylla 400, Kamome 25, Breje 100+; April 1967 - Sibylla 100±; number banded 36.

Status -- Resident breeder. July 1952 - eggs to almost grown young (Fosberg, 1966); October 1964 - eggs to very large young; courtship behavior also observed; April 1967 - eggs only, courtship behavior observed.

Specimen Records -- Other - none; POBSP - two (Table 1). This is a new specimen record for Taongi Atoll.

7) Phaethon lepturus — White-tailed Tropicbird

Habitat -- July 1952 - observed flying over the seaward side of Sibylla (Fosberg, 1966); April 1967 - observed flying over Sibylla.

Numbers -- July 1952 - one observed flying (Fosberg, 1966); October 1964 - none observed; April 1967 - Sibylla two.

Status -- Resident breeder? July 1952 - no evidence of breeding; April 1967 - courtship behavior observed.

Specimen records -- None.

8) Sula dactylatra Blue-faced Booby

Habitat -- March 1952 - observed flying and fishing in small numbers offshore (Fosberg, 1966); July 1952 - "almost anywhere on the atoll except South Islet, always sitting on the ground or flying" (Fosberg, 1955); October 1964 - found around perimeter of Sibylla, Breje, and Kamome, nests placed on upper sand beaches, and scattered on the ground among Scaevola and Messerschmidia bushes; April 1967 - found around outer beaches of Sibylla.

Numbers -- July 1952 - no population estimate given; October 1964 - Sibylla 400, Kamome 50; April 1967 - Sibylla 2-300; number banded 106.

Status -- Resident breeder. July 1952 - young present (Fosberg, 1966); October 1964 - pairs forming, few with eggs, no young seen; April 1967 - eggs to large downy young present.

Specimen records -- Other - none; POBSP - one (Table 1). This specimen is the first of this species to be collected from Taongi Atoll.

9) Sula sula Red-footed Booby

Habitat -- March 1952 - fishing offshore, July 1952 - roosting in trees on all parts of the islet where Tournefortia or Pisonia trees occur (Fosberg, 1966); October 1964 - roosting and nesting primarily in Scaevola and Messerschmidia bushes on all islands; April 1967 - roosting and nesting on Sibylla as above.

Numbers -- July 1952 - large numbers (Fosberg, 1966); October 1964 - Sibylla 3,000, Breje 1,000, Kamome 500; April 1967 - Sibylla 2,000; number banded 335.

Status -- Resident breeder. July 1952 - one egg, very few young seen (Fosberg, 1966); October 1964 - 600± nests, many with fresh eggs, no young, some nest building; April 1967 - downy young present.

Specimen Records -- Other - none; POBSP - four (Table 1). These specimens represent a new record for Taongi Atoll.

10) Sula leucogaster — Brown Booby

Habitat -- March 1952 - offshore, July 1952 - flying over seaward beaches and reefs during day, when sitting, usually on the ground or on rocks (Fosberg, 1966); October 1964 - roosting and resting on seaward (windward) side of Sibylla, nests placed on ground between scattered Scaevola and Messerschmidia bushes; April 1967 - adults and immatures flying about Sibylla.

Numbers -- March 1952 - large numbers offshore, July 1952 - many seen, but hard to estimate numbers (Fosberg, 1966); October 1964 - Sibylla 150; April 1967 - Sibylla 50; number banded 24.

Status -- Resident breeder? July 1952 - possibly prenuptial period (Fosberg, 1966); October 1964 - pairs forming, no nests observed; April 1967 - possibly breeding, did not visit all of Sibylla.

Specimen Records -- None.

11) Fregata minor — Great Frigatebird

Habitat -- July 1952 - nests in Tournefortia trees, scattered over all islands except South Island (Fosberg, 1966); October 1964 - roosts and nests on all islands except South and Pokak, in Messerschmidia and Scaevola, 4-10 feet up; April 1967 - roosting and nesting in Messerschmidia and Scaevola on Sibylla.

Numbers -- November 1951 - as many as 25 at a time flying offshore, March 1952 - 8-10 followed ship; July 1952 - enormous population nesting (Fosberg, 1966); October 1964 - Sibylla 4,000-5,000, Breje 2,000, Kamome 300; April 1957 - Sibylla - 3,000; number banded 1.

Status -- Resident breeder. July 1952 - eggs and young in all stages of development (Fosberg, 1966); October 1964 - courtship observed, eggs to nearly flying young; April 1967 - courtship, eggs to large young.

Specimen Records -- Other - none; POBSP - five (Table 1). This represents a new specimen record for the atoll.

12) Egretta sacra — Reef Heron

Habitat -- Common along entire exposed reef at low tide; found frequently along lagoon side of island.

Numbers -- July 1952 - 3 blue, 1 mottled, and 4 white seen (Fosberg, 1966); October 1964 - Sibylla 25-30, Kamome 4 (these were blue, white, and mottled); April 1967 - Sibylla 5.

Status -- Resident breeder? No evidence of breeding; however, there is a possibility that it breeds on the atoll.

Specimen Records -- Other - none; POBSP - one (Table 1). Although Fosberg observed this species in July 1952 at Taongi Atoll, this specimen represents the first museum specimen record from the atoll.

13) Anas acuta — Pintail Duck

Habitat -- October 1964 - flying over Sibylla.

Number -- 11 October 1964 - Three very large, brown female or winter-plumage birds, probably Anas acuta.

Status -- Migrant.

Specimen Records -- None. This sight record is a new bird record for Taongi Atoll.

14) Pluvialis dominica — Golden Plover

Habitat -- July 1952 - Observed "on any open space" (Fosberg, 1966); October 1964 - on all islands in the atoll, especially along the lagoon side; April 1967 - observed on the beaches of Sibylla.

Numbers -- July 1952 "seen now and then, one to three at a time" (Fosberg, 1966); October 1964 - Sibylla Island 200, Kamome Island 300; April 1967 - Sibylla 12; number banded 76.

Status -- Migrant.

Specimen Record -- Other - none; POBSP - two (Table 1). This constitutes a new specimen record for Taongi.

15) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- July 1952 - "mostly on Sibylla, Breje, and Kamome Islets," seen on the beach and lagoon shore (Fosberg, 1966); October 1964 - Discovered on sandy and rocky seaward and lagoon beaches of all islands; April 1967 - observed on rocky portion at north end of Sibylla.

Numbers -- July 1952 - "were seen more commonly than on any of the atolls visited [in the northern Marshall Islands]," 2-15 seen at a time (Fosberg, 1966); October 1964 - common on all islands, Sibylla 50, Kamome 10; April 1967 - Sibylla 1; number banded 11.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 1). This represents a new specimen record for Taongi Atoll.

16) Heteroscelus incanum Wandering Tattler

Habitat -- July 1952 - passages and reef flats (Fosberg, 1966); October 1964 - usually observed on seaward beaches, but occasionally on lagoon beaches; April 1967 - lagoon beaches of Sibylla.

Numbers -- July 1952 - "...commonly seen, as many as 4 at a time" (Fosberg, 1966); October 1964 - very common, Sibylla 150, Kamome 100; April 1967 - Sibylla 3; number banded 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - seven (Table 1). This is a new specimen record for the atoll.

17) Arenaria interpres Ruddy Turnstone

Habitat -- July 1952 - along seaward beaches sometimes in association with tattlers and plover (Fosberg, 1966); October 1964 - on seaward and lagoon beaches usually in company of other shorebirds.

Numbers -- July 1952 - "a few seen . . . usually in twos or threes" (Fosberg, 1966); October 1964 - Sibylla 250, Kamome 200.
Status -- Migrant.

Specimen Records - none.

18) Crocethia alba Sanderling

Habitat -- 11 October 1964 - Beach of Sibylla.

Numbers -- 11 October 1964 - Sibylla 1.

Status -- Migrant.

Specimen Records -- none. This sight record, however, constitutes a new bird species record for the atoll.

19) Sterna sumatrana Black-naped Tern

Habitat -- October 1964 - frequented islets between Breje and Sibylla and between Sibylla and Pokak; April 1967 - not seen on Sibylla.

Numbers -- October 1964 - Sibylla 25.

Status -- Resident breeder? October 1964 - no nests found; however, adult behavior indicated that nests might be present.

Specimen Record -- Other - none; POBSP - four (Table 1). These Black-naped Terns represent a new atoll species and specimen record.

20) Sterna lunata Gray-backed Tern

Habitat -- July 1952 - North Island only, "flushed with some reluctance from their resting places on the ground in the interior of this barren rocky islet" (Fosberg, 1966); April 1967 - observed flying over lagoon side of Sibylla.

Numbers -- July 1952 - small numbers seen on North Island (Fosberg, 1966); April 1967 - Sibylla two observed.

Status -- Resident breeder? Not breeding at time of visits, but there is a good chance this species does breed on Taongi Atoll, since it nests on Wake Island, 300 miles to the north.

Specimen Records -- None.

21) Sterna fuscata Sooty Tern

Habitat -- July 1952 - only on Kamome, rookeries (one to several acres in size) more commonly in the open part of the island, but also in sparse Tournefortia scrub (Fosberg, 1966); October 1964 - Kamome, concentrated on the northwest side, nests among the bunchgrass next to the lagoon beach and underneath the 3-4 foot high Sida which adjoins the bunchgrass; observed flying over all other islands; April 1967 - observed flying over Sibylla, probably on Kamome.

Numbers -- November 1951 - one pair flying around the ship near Taongi Atoll, July 1952 - most abundant bird on Taongi (Fosberg, 1966); October 1964 - Kamome, 15-20,000; April 1967 - 100's flying over Sibylla; number banded 2,091.

Status -- Resident breeder. July 1952 - few eggs, many young in all stages of development (Fosberg, 1966); October 1964 - eggs to large young; April 1967 - Sibylla, adults and immatures flying to and from Kamome.

Specimen Records -- Other - none; POBSP - 11 (Table 1). These Sooty Tern specimens represent the first museum specimens from Taongi Atoll.

22) Thalasseus bergii Crested Tern

Habitat -- July 1952 - patrolling the shallow water, diving for small fish (Fosberg, 1966); October 1964 - frequently seen on, or flying over, lagoon beaches and exposed reefs, nests placed high up on sandy lagoon beach at north end of Sibylla near bunches of Sesuvium; April 1967 - same as in 1964.

Numbers -- July 1952 - commoner than elsewhere, one to six could be seen at any time of the day (Fosberg, 1966); October 1964 - Sibylla 25-30; April 1967 - Sibylla 125.

348-415 O-69—3

Status -- Resident breeder. July 1952 - not breeding (Fosberg, 1966); October 1964 - Sibylla, seven nest scrapes, each containing an egg, were observed; April 1967 - Sibylla, 51 nests (49 with one egg, 2 with small young) in a single colony.

Specimen Records -- Other - none; POBSP - three (Table 1). This constitutes a new specimen record for the atoll.

23) Procelsterna cerulea Blue-gray Noddy

Habitat -- July 1952 - seaward side of Sibylla, Breje, and Pokak, all over North and Kamome, prefers open, unvegetated gravel ridges (Fosberg, 1966); October 1964 - observed only on sparsely vegetated islets between Breje and Sibylla; April 1967 - observed flying offshore on east side of atoll only.

Numbers -- July 1952 - "Small numbers are to be seen almost anywhere" (Fosberg, 1966); October 1964 - Sibylla (north end) 10; April 1967 - a few offshore.

Status -- Resident breeder. July 1952 - "One bird was flushed from a small empty nest, merely a slight accumulation of grass stems and feathers in a slight depression sheltered by two rocks on the boulder ridge on the seaward beach of Breje" (Fosberg, 1966); October 1964 - no nests observed, but adult behavior suggested nesting; April 1967 - no evidence of breeding.

Specimen Records -- None.

24) Anous stolidus Brown Noddy

Habitat -- July 1952 - on all islands; nests most commonly on Kamome in shrubs, on grass tufts, rocks, and on the ground; tends to sit in groups on exposed sandbars and rubble flats in the lagoon (Fosberg, 1966); October 1964 - frequents beaches of all islands; nests only on Kamome, mostly on the ground but also on rocks; April 1967 - observed on beaches and flying above Sibylla.

Numbers -- July 1952 - "common but by no means abundant" (Fosberg, 1966); October 1964 - Sibylla 100, Kamome 200, Breje present; April 1967 - Sibylla 50.

Status -- Resident breeder. July 1952 - nests with eggs (Fosberg, 1966); October 1964 - Kamome, nests with eggs and half-grown young; April 1967 - Sibylla, no evidence of breeding.

Specimen Record -- Other - none; POBSP-one (Table 1). This is a new specimen record for the atoll.

25) Anous tenuirostris Black Noddy

Habitat -- July 1952 - seen occasionally fishing in the lagoon or just outside, nests in Pisonia trees on Kamome (Fosberg, 1966); October 1964 - frequents beaches of all islands, roosts and nests mainly in Messerschmidia; April 1967 - Sibylla, observed on beaches, nests in Messerschmidia.

Numbers -- July 1952 - seen occasionally; less plentiful than the Brown Noddy (Fosberg, 1966); October 1964 - Sibylla 25, Kamome 100; April 1967 - Sibylla 50.

Status -- Resident breeder. July 1952 - small groups of nests present on Kamome, "but it was not noted whether there were eggs" (Fosberg, 1966); October 1964 - few nests present with eggs and small young; April 1967 - Sibylla, few nests with eggs.

Specimen Records -- None.

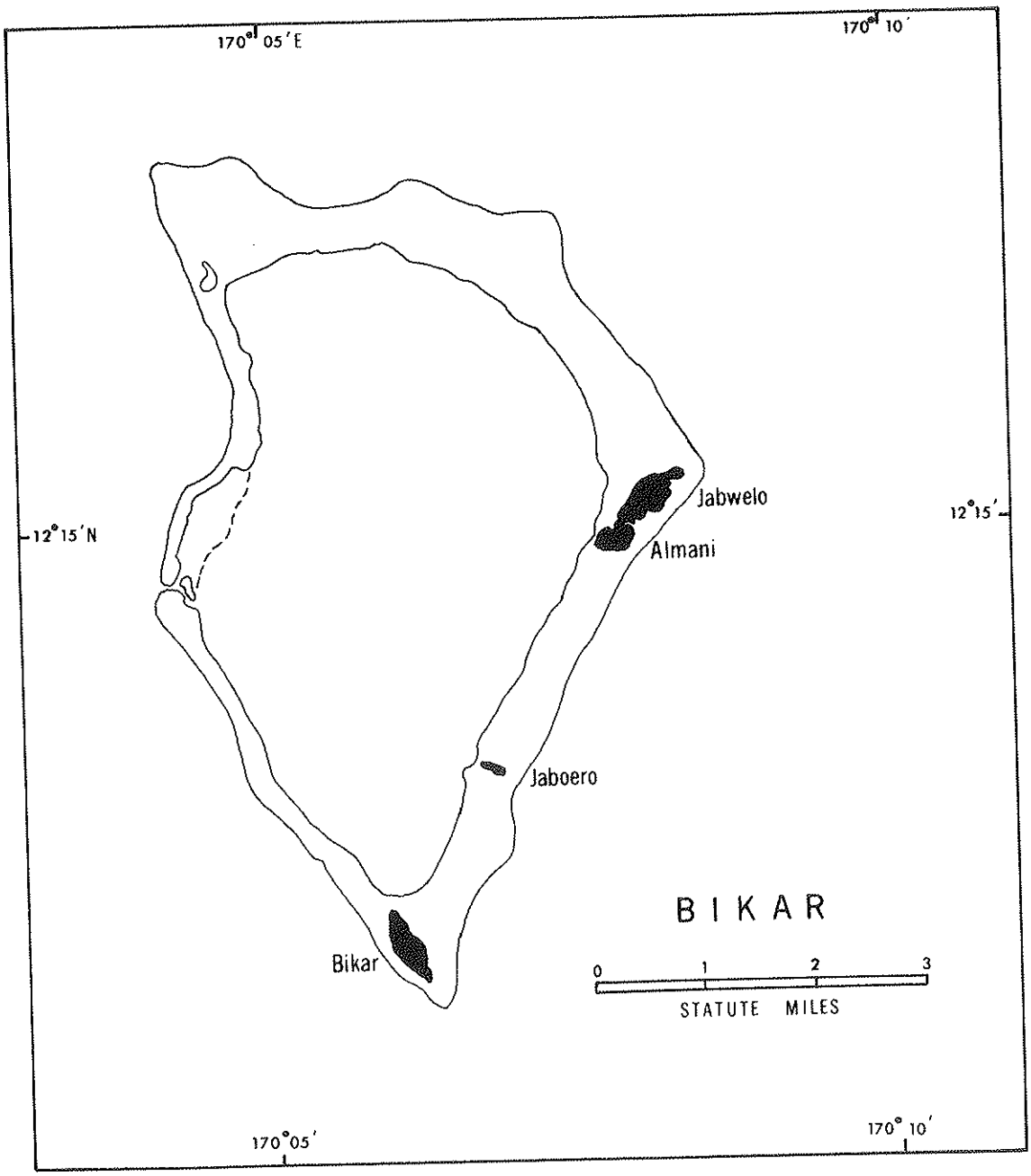
26) Gygis alba White Tern

Habitat -- November 1951 and March 1952 - flew around the ship, July 1952 - seen on all islets, over the lagoon, and surrounding ocean, nests in Tournefortia and Pisonia trees and on boulders (Fosberg, 1966); October 1964 - on all islands, roosts and nests in most bushes and trees; April 1967 - roosting and nesting in Messerschmidia bushes on Sibylla.

Numbers -- July 1952 - "home of great numbers" (Fosberg, 1966); October 1964 - Sibylla 200, Kamome 200+, North 200+; April 1967 - Sibylla 500; number banded 16.

Status -- Resident breeder. July 1952 - eggs present on Kamome and South (Fosberg, 1966); October 1964 - few eggs and young on Sibylla; many with eggs and chicks (all stages) on Kamome; April 1967 - few small chicks on Sibylla Island.

Specimen Records -- Other - none; POBSP - two (Table 1). This constitutes a new specimen record for Taongi Atoll.


170° 05' E
170° 10'
12° 15' N
12° 15'
Jabwelo
Almani
Jaboero
Bikar
BIKAR
0 1 2 3
STATUTE MILES
170° 05'
170° 10'

BIKAR ATOLL

Location: 12°15' N x 170°06' E.

Shape and Size: Diamond-shaped; Tip to tip (north-south) - 8 miles; Widest point (east-west) - 5 miles; Total lagoon area - 21.82 square miles; Total dry land area - 0.20 square miles; Number of islands - 6; Height - 15± feet (Fosberg, 1956).

Soil: Beach (ocean side) - mostly coral rock, some sand; Beach (lagoon side) - mostly sand, some rocky and cobble-stone areas.

Vegetation: Nine species, three principal islands densely wooded with Pisonia trees, with a fringe of Messerschmidia around the outside (Fosberg, 1955, 1956).

Climate: Moderately dry, about 40-50 inches of rainfall yearly; Mean air temperature - 82° F; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - not inhabited, but occasionally visited by Marshallese who regarded it as a bird refuge (Fosberg, 1957); Present - not inhabited, but evidence of 1964 shipwreck (NoHo Maru No. 11) in the north fork of the reef passage.

Scientific Visits: Japanese visit (S. Kawakami) 30 January and 10 July 1932; Northern Marshall Islands Expedition - 26 November 1951 (examined only from ship), 24 March 1952 (examined only from ship), 6-12 August 1952; POBSP - 14-19 October 1964, 7 May 1967.

Avifauna: Twenty-three bird species are presently known from Bikar Atoll. These include 17 seabirds, 5 shorebirds, and 1 heron. Thirteen of these species are known breeders, three others are possible breeders, five are migrants, one is a visitor, and another is an accidental.

Bikar Atoll is the only known locality in the Marshall and Gilbert Islands from which Sterna anaetheta has been recorded.

Twenty-three species are listed in the following checklist, which was derived from various sources: (1) POBSP, (a) 1964, (b) 1967; (2) Fosberg, (a) 1955, (b) 1966; (3) Finsch, 1880d; (4) Yamashina, 1940; (5) Handlist Japanese Birds, 1958; (6) Baker, 1951; and (7) YIZM collection. These sources are referred to in the checklist by corresponding numbers and letters. The four species marked by a single asterisk are new species records for Bikar Atoll; the two species marked by a double asterisk are new atoll breeding records.

Bikar Atoll Avifauna Checklist

	Species	Status	Source
1)	Puffinus pacificus*	Resident breeder**	1a
2)	Puffinus nativitatus*	Visitor ?	1b
3)	Phaethon rubricauda	Resident breeder	1ab, 2b, 3
4)	Phaethon lepturus	Resident breeder	1ab, 2ab, 3
5)	Sula dactylatra	Resident breeder	1ab, 2b, 3
6)	Sula sula	Resident breeder	1ab, 2b, 3, 7
7)	Sula leucogaster	Resident breeder	1ab, 2b, 3
8)	Fregata minor	Resident breeder	1ab, 2b, 3, 4, 5, 7
9)	Egretta sacra*	Resident breeder ?	1ab
10)	Pluvialis dominica	Migrant	1ab, 2b
11)	Numenius tahitiensis	Migrant	1ab, 2b
12)	Heteroscelus incanum	Migrant	1ab, 2b
13)	Arenaria interpres	Migrant	1ab, 2b
14)	Crocethia alba*	Migrant	1a
15)	Sterna sumatrana	Resident breeder ?	1ab, 2b
16)	Sterna lunata	Resident breeder ?	2b
17)	Sterna anaetheta	Accidental	4, 6, 7
18)	Sterna fuscata	Resident breeder	1ab, 2b
19)	Thalasseus bergii	Resident breeder**	1ab, 2b
20)	Procelsterna cerulea	Resident breeder	1ab, 2b, 7
21)	Anous stolidus	Resident breeder	1ab, 2b
22)	Anous tenuirostris	Resident Breeder	1ab, 2b
23)	Gygis alba	Resident Breeder	1ab, 2b

POBSP personnel have collected 48 specimens of 16 species (Table 2). Of these 16 species, 1 is a specimen record of a species not previously known from Bikar Atoll, and 12 represent the first specimen confirmation of species previously known only from sight records. Thirteen specimens of four species collected at Bikar Atoll (Table 3) are located at the Yamashina Institute of Zoology and Ornithology Museum in Tokyo, Japan. Combined museum collections total 61 specimens of 17 species.

Species Accounts

1) Puffinus pacificus — Wedge-tailed Shearwater

Habitat -- October 1964 - Almani only, nesting in bunch-grass area on east side of island.

Numbers -- October 1964 - Almani, 6 seen.

Status -- Resident breeder. October 1964 - 2 nests each with a nearly fledged chick. This represents a new breeding record.

TABLE 2. Bird specimens collected by POBSP on Bikar Atoll

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus pacificus	USNM 494819	♂		Almani	10-17-64	Skin	Huber
Phaethon rubricauda	" 543460	♂	A	Bikar I	5 -7-67	"	Amerson
" "	" 543459	♂	A	Almani	"	"	"
Phaethon lepturus	" 494864	♂		"	10-18-64	"	Huber
Sula dactylatra	" 543345	♀	A	"	5-7-67	"	Amerson
" "	" 543346	♂	A	"	"	"	"
Sula sula	" 497990	♂		"	10-17-64	Skel.	"
" "	" 497991	?	I	"	"	"	Huber
" "	" 543466	♂	A	Bikar I	5-7-67	Skin	Amerson
" "	" 543467	♂	A	"	"	"	"
" "	" 543468	♂	A	Jabwelo	"	"	"
" "	" 543469	♂	A	Almani	"	"	"
" "	" 543353	♂	I	"	"	"	"
Sula leucogaster	" 543465	♂	A	Bikar I	"	"	"
Fregata minor	" 543381	♂	A	"	"	"	"
" "	" 543382	♀	A	Almani	"	"	"
Numenius tahitiensis	" 543456	♀	-	Bikar I	"	"	"
Heteroscelus incanum	" 495891	♀	-	"	10-15-64	"	Huber
Arenaria interpres	" 494758	♂	-	"	"	"	"
" "	" 495912	♀	-	"	"	"	"
" "	" 495913	♀	-	"	"	"	"
" "	" 495914	♀	-	"	"	"	"
" "	" 495915	♀	-	"	"	"	"
Sterna fuscata	" 494701	♀	-	Jabwelo	10-18-65	"	Amerson & Amerman
" "	" 494702	♀	-	"	"	"	"
" "	" 494703	♂	-	"	"	"	"
" "	" 494704	♀	-	"	"	"	Huber
" "	" 494705	♂	-	"	"	"	"
" "	" 494706	♂	-	"	"	"	"
" "	" 543497	?	Nest	Almani	5-7-67	"	Amerson
" "	" 543488	♀	A	"	"	"	"
" "	" 543489	?	A	"	"	"	"
" "	" 543490	♂	A	"	"	"	"
" "	" 543491	♂	A	Jabwelo	"	"	"
" "	" 543492	♂	A	"	"	"	"
" "	" 543493	♂	A	"	"	"	"
" "	" 543495	♀	A	Almani	"	"	"
Thalasseus bergii	" 494729	♀	A	Bikar I	10-15-64	"	Huber
" "	" 494730	♂	Chick	Jabwelo	10-17-64	"	Amerson
" "	" 543454	♀	A	Bikar I	5-7-67	"	"

TABLE 2. Bird specimens collected by POBSP on Bikar Atoll (cont'd)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Procelsterna cerulea	USNM 494741	♀	A	Almani	10-17-64	Skin	Huber
" "	" 494742	♀	A	"	"	"	"
" "	" 543453	♂	A	"	5-7-67	"	Amerson
Anous stolidus	" 543478	♂	A	Jabwelo	"	"	"
" "	" 543479	♂	A	Almani	"	"	"
Anous tenuirostris	" 543447	♂	A	"	"	"	"
Gygis alba	" 494610	♂	-	Bikar I	10-15-64	"	"
" "	" 543451	♂	A	Almani	5-7-67	"	"

TABLE 3. Bird specimens collected from Bikar Atoll in the Yamashina Collection

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sula sula	YIZM	♀	Juv	Bikar	07-10-32	Skin	S. Kawakami
" "	"	♀	"	"	"	"	"
" "	"	♀	"	"	"	"	"
Fregata minor	"	♀	A	"	"	"	"
Sterna anaetheta	"	♀	Juv	"	01-30-32	"	"
Procelsterna cerulea	"	♂	-	"	07-10-32	"	"
" "	"	♂	-	"	"	"	"
" "	"	♂	-	"	"	"	"
" "	"	♂	-	"	"	"	"
" "	"	♂	-	"	"	"	"
" "	"	♀	-	"	"	"	"
" "	"	♀	-	"	"	"	"
" "	"	♀	-	"	"	"	"

Specimen Records -- Other - none; POBSP - one (Table 2). This is a new bird species and specimen record for Bikar Atoll.

2) Puffinus nativitatus Christmas Shearwater

Habitat -- May 1967 - observed flying low over seaward rocky beach of Bikar Island, not seen on the other islands.

Numbers -- May 1967 - Bikar Island 1.

Status -- Visitor? May 1967 - No evidence of breeding (all islands were searched for nests) although it may breed here.

Specimen Records -- None. This sighting constitutes a new species sight record from the atoll.

3) Phaethon rubricauda Red-tailed Tropicbird

Habitat -- August 1952 - flying over the north end of Bikar Island (Fosberg, 1966); October 1964 - flying over and nesting on all three main islands in the atoll, nests placed under Scaevola and Messerschmidia bushes around the edges of each island(some inland, however); May 1967 - flying over and nesting under Scaevola and Messerschmidia on all three main islands.

Numbers -- August 1952 - small groups of several to a dozen birds over Bikar Island (Fosberg, 1966); October 1964 - Bikar 25, Jabwelo and Almani 100; May 1967 - Bikar 25, Almani 35, Jabwelo 50; number banded - 26.

Status -- Resident breeder. 1880 - see under Phaethon lepturus; August 1952 - no nesting observed (Fosberg, 1966); October 1964 - Bikar one nest with an egg seen, Jabwelo and Almani 22 nests (all with some eggs except for three with downy chicks);May 1967 - eggs to fledglings on all islands visited.

Specimen Records -- Other - none; POBSP - two (Table 2). This is a new specimen record for the atoll.

4) Phaethon lepturus White-tailed Tropicbird

Habitat -- August 1952 - flying round and round in openings in dense Pisonia forest of Bikar Island, nest found about 7 meters high in a hole in a large Pisonia tree (Fosberg, 1955, 1966); October 1964 - flying (displaying) over all three vegetated islands; nests 3 to 20 feet high in holes of Pisonia trees on Jabwelo Island; May 1967 - flying over Jabwelo.

Numbers -- August 1952 - 3 or 4 were seen at a time on Bikar Island (Fosberg, 1966); October 1964 - Bikar 10, Jabwelo and Almani 30-40; May 1967 - Jabwelo one seen; number banded - 6.

Status -- Resident breeder. 1880 - "...Tropicbirds, I was assured, breed in great numbers on Bigar [Bikar], on uninhabited and nearly barren islands, the northernmost of the Ratak chain..." (Finsch, 1880); August 1952 - nest present on Bikar Island but status unknown (Fosberg, 1966); October 1964 - six nests (one with an egg and another with a small chick) found on Jabwelo and Almani, probably also nests on Bikar; May 1967 - no nests seen, but possibly nesting on Jabwelo.

Specimen Records -- Other - none; POBSP - one (Table 2). This specimen, caught at its nest site, represents the only White-tailed Tropicbird collected from Bikar Atoll.

5) Sula dactylatra Blue-faced Booby

Habitat -- March 1952 - seen fishing with other boobies, noddies, and White Terns, August 1952 - nesting on the ground, especially on Jaliklik (Jabwelo) (Fosberg, 1966); October 1964 - Bikar, flying over, Almani, few nests and a large club roosting on east (seaward) side, Jabwelo nesting on south grassy area; May 1967 - Bikar, roosting, Almani and Jabwelo, nesting on open ground.

Numbers -- March 1952 - a few seen, August 1952 - small numbers were nesting (Fosberg, 1966); October 1964 - Bikar 2, Jabwelo and Almani 300; May 1967 - Bikar 2, Almani 20, Jabwelo 50, lagoon 2; number banded 106.

Status -- Resident breeder. 1880 - "... and Boobies (Sula [sp.?]), I was assured, breed in great numbers on Bigar [Bikar] ..." (Finsch, 1880d); August 1952 - small numbers nesting, quite a few young in all stages of development (Fosberg, 1955, 1966); October 1964 - 32 nests (all with eggs except one with a chick) only on Jabwelo and Almani; May 1967 - eggs to fledglings on Jabwelo and Almani.

Specimen Records -- Other - none; POBSP - two (Table 2). This constitutes a new specimen record for the atoll.

6) Sula sula Red-footed Booby

Habitat -- November 1951 - several seen flying, March 1952 - seen near the atoll fishing with other species of boobies, noddies, and White Terns, also roosting in trees, August 1952 - seen at almost any time of day roosting in Pisonia trees, or flying about when disturbed, nests high in Pisonia trees (Fosberg, 1966); October 1964 - flying above and roosting on Bikar, Jabwelo, and Almani, nests in tops of Pisonia trees on Bikar; May 1967 - roosting and nesting in tops of Pisonia trees on Bikar, Jabwelo, and Almani.

Numbers -- March 1952 - considerable numbers near the atoll, August 1952 - large numbers were seen (Fosberg, 1966); October 1964 -

Bikar 200, Jabwelo and Almani 1000+;May 1967 - Bikar 200, Almani 300, Jabwelo 500, lagoon 20; number banded 376.

Status -- Resident breeder. 1880 - see under Sula dactylatra; August 1952 - "a few nests were spotted...with old birds sitting on them, or with almost mature young " (Fosberg, 1966); October 1964 - few nests on Bikar Island; May 1967 - half-grown young to fledglings on Bikar, Almani, and Jabwelo.

Specimen Records -- Other - three (Table 3); POBSP - six (Table 2).

7) Sula leucogaster Brown Booby

Habitat -- March 1952 - flying along seaward beaches and fishing in company with other boobies, noddies, and White Terns, August 1952 - "... seen flying and resting on trees on low branches and shrubs, as well as on the ground." "One bird was frightened off a nest about 4 meters up in a Pisonia tree, but identification was not certain, and it may well have been a dark phase of the Red-footed Booby." (Fosberg, 1966); October 1964 - roosting around the edges of the three vegetated islands; May 1967 - nesting on the ground under and near the higher vegetation on Bikar, Jabwelo, and Almani.

Numbers -- March 1952 - seen commonly, August 1952 - many were seen (Fosberg, 1966); August 1964 - Bikar 10, Jabwelo and Almani 200; May 1967 - Bikar 100, Almani 200, Jabwelo 300, lagoon 30; number banded 178.

Status -- Resident breeder. 1880 - see under Sula dactylatra; August 1952 - none were seen nesting (Fosberg, 1966); October 1964 - one old nest seen, courtship behavior observed; May 1967 - half-grown young to fledglings present on Bikar, Almani, and Jabwelo.

Specimen Records -- Other - none; POBSP - one (Table 2). This collection represents a new specimen record for Bikar Atoll.

8) Fregata minor Great Frigatebird

Habitat -- March 1952 - roosting in trees, August 1952 - roosting in trees and flying over the atoll (Fosberg, 1966); October 1964 - occurs on Bikar, Jabwelo, and Almani, roosting in tops of Pisonia trees; May 1967 - roosts and nests in tops of Pisonia trees at Bikar, Jabwelo, and Almani.

Numbers-- 1880 - "Frigate-birds ..., I was assured, breed in great numbers on Bigar [Bikar] ..." (Finsch, 1880d);[Baker (1951), Yamashina (1940), and Hand-list Japanese Birds (4th ed., 1958) list this species as occurring on Bikar Atoll;] November 1951 - 6

frigatebirds (Fosberg, 1966), March 1952 - many roosting, great swarms scared up by ship's whistle (Fosberg, 1966); August 1952 - seen in large numbers (Fosberg, 1966); October 1964 - Bikar 200, Jabwelo and Almani 750; May 1967 - Bikar 100, Almani 100, Jabwelo 100, lagoon 25; number banded 11.

Status -- Resident breeder. 1880 - breeding (Finsch, 1880); August 1952 - "a few immature ones were seen in Pisonia trees" (Fosberg, 1966); October 1964 - not nesting, courtship behavior observed; May 1967 - half-grown young to fledglings on Bikar, Jabwelo, and Almani.

Specimen Records -- Other - one (Table 3); POBSP - two (Table 2).

9) Egretta sacra — Reef Heron

Habitat -- October 1964 - along exposed reef at low tide, lagoon beach area, one observed roosting in palm tree; May 1967 - on beach rock at Bikar and Jabwelo.

Numbers -- October 1964 - uncommon; Bikar 4, Jaboero 1, Jabwelo and Almani 1; May 1967 - Bikar 1, Jabwelo 1.

Status -- Resident breeder? No evidence of breeding; however, there is a possibility that it breeds here.

Specimen Records -- None. These sightings constitute a new bird species record for Bikar Atoll.

10) Pluvialis dominica — Golden Plover

Habitat -- August 1952 - "... commonly seen on all islets, especially around the edges, on beaches and reef flats ..." (Fosberg, 1966); October 1964 - seen on all islands, on beaches, and occasionally inland; May 1967 - observed on beaches of Bikar, Jabwelo, and Almani.

Numbers -- August 1952 - "single individuals, and rarely, small flocks of up to 7 birds ..." (Fosberg, 1966); October 1964 - Bikar 25, Jaboero 10, Jabwelo and Almani 20; May 1967 - Bikar 1, Almani 1, Jabwelo 3; number banded 1.

Status -- Migrant.

Specimen Records -- None.

11) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- August 1952 - on rock flats and ground beaches (Fosberg, 1966); October 1964 - on sandy and rocky beaches and tidal flats; May 1967 - on all beach areas.

Numbers -- August 1952 - "single individuals, two or three at a time, were commonly seen ..." (Fosberg, 1966); October 1964 - Bikar 10, Jaboero 1, Jabwelo and Almani 5; May 1967 - Bikar 2, Almani 2, Jabwelo 3; number banded 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 2). This constitutes a new specimen record from Bikar Atoll.

12) Heteroscelus incanum Wandering Tattler

Habitat -- August 1952 - "... seen on beaches and reef flats, especially on seaward side of islets" (Fosberg, 1966); October 1964 - sandy and rocky seaward beaches; May 1967 - on seaward beaches of Bikar and Jabwelo.

Numbers -- August 1952 - "... 1 to 3 or rarely 4 ... were occasionally seen ..." (Fosberg, 1966); October 1964 - Bikar 5, Jaboero 5, Jabwelo and Almani 5; May 1967 - Bikar 1, Jabwelo 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 2). This is a new specimen record from Bikar Atoll.

13) Arenaria interpres Ruddy Turnstone

Habitat -- August 1952 - on beaches, reef flats, and rock flats (Fosberg, 1966); October 1964 - seen on sandy and rocky beaches and occasionally in the center of the Pisonia forest; May 1967 - on beaches.

Numbers-- August 1952 - "single individuals, pairs, and small flocks of up to half a dozen were occasionally seen ..." (Fosberg, 1966); October 1964 - Bikar 30, Jaboero 25, Jabwelo and Almani 50; May 1967 - Bikar 5, Almani 10, Jabwelo, 10, flying over lagoon 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - five (Table 2). These five specimens are the first Ruddy Turnstones to be collected from Bikar Atoll and constitute a new specimen record.

14) Crocethia alba Sanderling

Habitat -- October 1964 - Jaboero, seen with flock of Ruddy Turnstones and Golden Plovers on rocky beach.

Numbers -- 16 October 1964 - one seen at Jaboero.

Status -- Migrant.

Specimen Records -- None. This sight record is a new species record for Bikar Atoll.

15) Sterna sumatrana Black-naped Tern

Habitat -- August 1952 - "... seen flying over or resting on open gravel bars and beach rock, especially between Alnemi[Almani] and Jaliklik [Jabwelo] Islets." (Fosberg, 1966); October 1964 - frequents sandy and rocky beach areas of Jaboero, Almani, and Jabwelo; May 1967 - on rocky portion of Bikar and flying over the lagoon.

Numbers -- August 1952 - "... small groups of 3 to 10 ... between Almeni [Almani] and Jaliklik [Jabwelo] Islets" (Fosberg, 1966); October 1964 - Jaboero 4, Jabwelo and Almani 15-20; May 1967 - Bikar 3, lagoon 4.

Status -- Resident breeder? August 1952 - not listed as breeding (Fosberg, 1966); October 1964 and May 1967 - no evidence of breeding. This species probably does, however, breed in small numbers at Bikar Atoll.

Specimen Records -- None.

16) Sterna lunata Gray-backed Tern

Habitat -- August 1952 - flying over north end of Bikar Island (Fosberg, 1966).

Numbers -- August 1952 - one bird seen (Fosberg, 1966).

Status -- Resident breeder? Not recorded as breeding from Bikar Atoll.

Specimen Records -- None.

17) Sterna anaethetas Brown-winged Tern

Habitat -- July 1932 - on Bikar (Yamashina, 1940; Baker, 1951).

Numbers -- July 1932 - one collected.

Status -- Accidental. July 1932 - Unknown. The collected specimen was listed by Yamashina (pers. corresp., 1966) as a juvenal bird. It is not known whether the specimen is a hatchling or young bird in juvenal plumage. If the latter is true, this species was probably not breeding on Bikar Atoll.

Specimen Records -- Other - one (Table 3); POBSP - none. This is the only known record for this species in the Marshall and Gilbert Islands.

18) Sterna fuscata Sooty Tern

Habitat -- August 1942 - "... flying almost anywhere on Bikar Atoll, nesting on Jaboero (a small gravel bar sparsely covered with Portulaca lutea) nesting on rock flats seaward of Almeni [Almani] and Jaliklik [Jabwelo] Islets and on the northeast extension of Jaliklik [Jabwelo] (Fosberg, 1966); October 1964 - concentrated around Jabwelo; active nesting area northeast of main island on rock flat, old nesting area south portion on grassy open area; May 1967 - flying over Bikar, active nesting colonies on grassy south portion of Jabwelo and on open, rocky, east portion of Almani.

Numbers -- August 1952 - seen commonly flying almost anywhere, thousands of pairs on Jaboero, small rookery on Almani and Jabwelo (Fosberg, 1966); October 1964 - Jabwelo 5000+ adults, 2500+ nestlings; May 1967 - Almani 12,000 adults, 5,000 nestlings, Jabwelo 25,000 adults, 10,000 nestlings; number banded 1400.

Status -- Resident breeder. August 1952 - Jaboero rookery of thousands of pairs, hundreds of eggs, thousands of newly hatched chicks (quite a few dead), rock flats seaward of Almani and Jabwelo scattered with eggs and shells, northeast extension of Jabwelo was small rookery with many young birds with wings feathered out (Fosberg, 1966); October 1964 - 5,000 adults, 2,500 chicks (mostly 10-20 days old), no fresh eggs and many broken eggs on northeast section of Jabwelo; many dead (skeletons only) chicks on grassy open area of south Jabwelo (adults circling over the latter area from 1300 to 0100 hours may be a different breeding population than those on northeast portion); May 1967 - almost fledged young to fledglings on both Almani and Jabwelo.

Specimen Records -- Other - none; POBSP - 14 (Table 2). These specimens represent a new specimen record from Bikar Atoll.

19) Thalasseus bergii Crested Tern

Habitat -- August 1952 - "... seen occasionally flying over reef flats ..." (Fosberg, 1966); October 1964 - flying over and roosting on exposed reef, seaward and lagoon beach areas; nesting only on coral rock in center of Sooty Tern colony on northeast section of Jabwelo; May 1967 -roosting and nesting on the south rocky area of Bikar, flying over and roosting on the rocky seaward portions of Almani and Jabwelo.

Numbers -- August 1952 - "... pairs or single birds were seen occasionally ..." (Fosberg, 1966); October 1964 - Bikar 25, Jaboero 1, Jabwelo and Almani 50; May 1967 - Bikar 17, Almani 2, Jabwelo 4, flying over lagoon 2.

Status -- Resident breeder. August 1952 - not listed as breeding by Fosberg (1966); October 1964 - 20 eggs and 2 small chicks in an oval area, nesting density about 1 nest/2 square feet. Nest description - slight scooped depression (diameter about 6 inches, depth about .5 to 1.5 inches) in the coarse rubbly coral and sand; May 1967 - Bikar 7 nests with eggs. This is a new breeding record for Bikar Atoll.

Specimen Records -- Other - none; POBSP - three (Table 2). Although Crested Terns have been observed from Bikar Atoll earlier, these three specimens represent the first collected specimen records from the atoll.

20) Procelsterna cerulea Blue-gray Noddy

Habitat -- July 1932 - Bikar (Yamashina, 1940 and Baker, 1951); August 1952 - flitting over gravel bars and flats on Jabwelo, nest (a few grass culms in a very slight depression) on a gravel bar between Almani and Jabwelo (Fosberg, 1966); October 1964 - only around coral rock and sand area connecting Jabwelo and Almani; May 1967 - observed flying around rocky and open grass areas on the seaward side of Almani and Jabwelo.

Numbers -- July 1932 - Bikar 8 (Yamashina, *pers. corresp.*, 1966); August 1952 - Jabwelo 3 solitary individuals seen (Fosberg, 1966); October 1964 - Jabwelo and Almani 20, absent on other islands; May 1967 - Bikar 0, Jabwelo 4, Almani 2; number banded 1.

Status -- Resident breeder. August 1952 - Almani and Jabwelo one nest with an egg on gravel bar; October 1964 - no evidence of nesting; May 1967 - collected specimen had bare brood patch.

Specimen Records -- Other - eight (Table 3); POBSP - three (Table 2).

21) Anous stolidus Brown Noddy

Habitat -- August 1952 - nests in crotches of Pisonia trees Jabwelo (Fosberg, 1966); October 1964 - in Pisonia forest on Jabwelo; May 1967 - nests placed in crotches of Pisonia and Messerschmidia on all three major islands.

Numbers -- March 1942 - "... some noddies were seen flying, probably this species", August 1952 - Jabwelo four seen (Fosberg, 1966); October 1964 - not common, Jabwelo three seen; May 1967 - very common, Bikar 200, Almani 200, Jabwelo 300, flying over lagoon 5.

Status -- Resident breeder. August 1952 - two nests (Fosberg, 1966); October 1964 - no evidence of breeding; May 1967 - nests with eggs all three major islands.

Specimen Records -- Other - none; POBSP - two (Table 2). This represents a new specimen record for Bikar Atoll.

22) Anous tenuirostris Black Noddy

Habitat -- August 1952 - Almani and Jabwelo, nests in Pisonia trees, infrequent outside the forest (Fosberg, 1966); October 1964 - on all three major vegetated islands, nesting in Pisonia trees, occasionally seen over lagoon; May 1967 - on Bikar, Almani, and Jabwelo, roosts and nests in tops of Pisonia, also over lagoon.

Numbers -- August 1952 - "... not plentiful, ... single bird and three nests ... on Almeni [Almani] Islet, ... small colony of a couple of dozen nests and a few birds ... on Jaliklik [Jabwelo] Islet, ... very few birds ... outside the forest, ... none ... on Bikar Islet" (Fosberg, 1966); October 1964 - Bikar 20, Jabwelo and Almani 40; May 1967 - Bikar 100, Almani 100, Jabwelo 200, flying over lagoon 10.

Status -- Resident breeder. August 1952 - Almani three nests, Jabwelo 24 nests (Fosberg, 1966); October 1964 - less than 10 active nests with eggs and young, many old nests present on all three major vegetated islands; May 1967 - nests with eggs on Bikar, Almani, and Jabwelo.

Specimen Records -- Other - none; POBSP - one (Table 2). This constitutes a new specimen record for the atoll.

23) Gygis alba White Tern

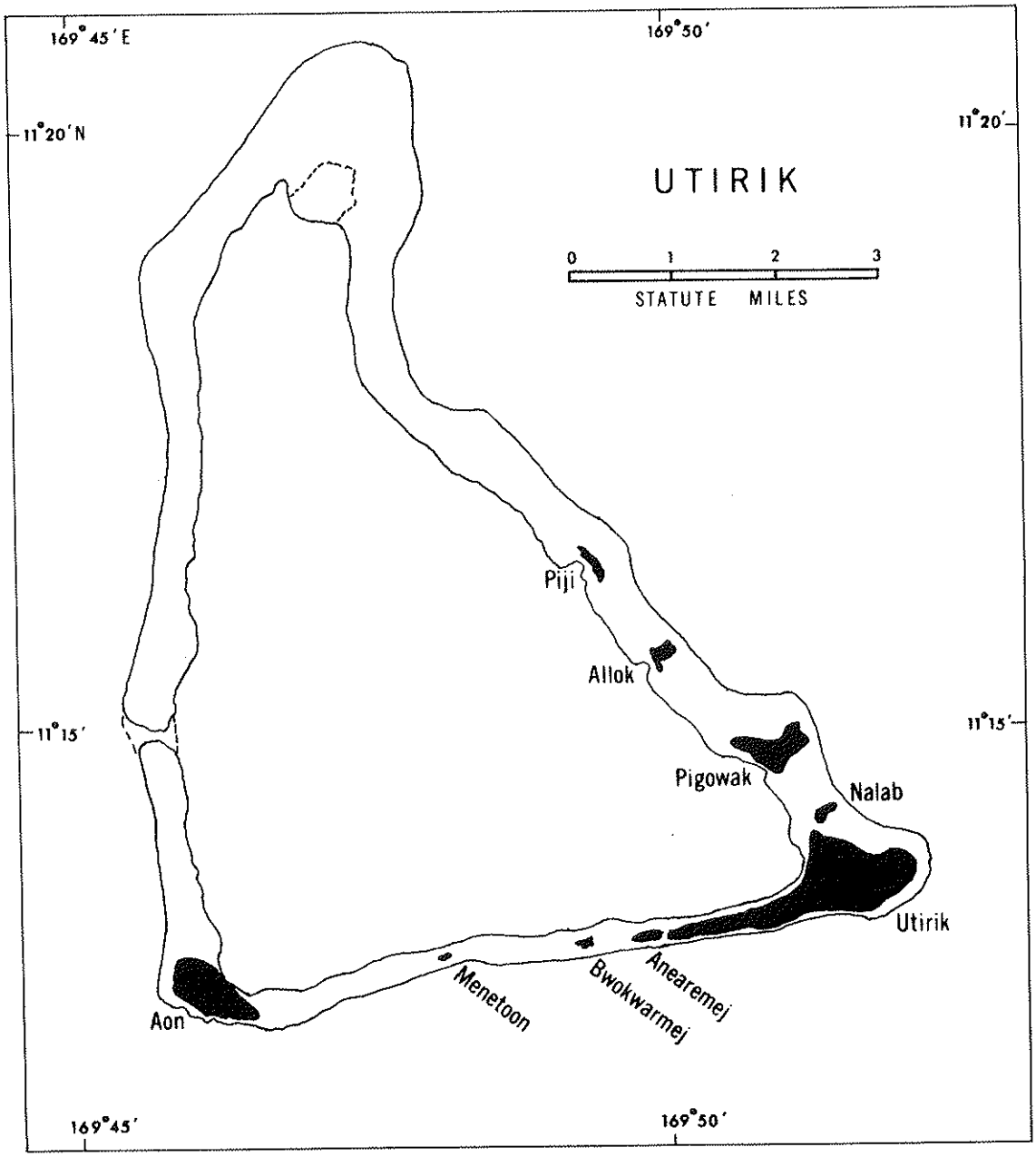
Habitat -- November 1951 - "... flying over all three islets ...", 24 March 1952 - "... flying over the north, east, and south sides ...", August 1952 - flying everywhere, especially over Pisonia trees on Almani Island, nests in the trees (Fosberg, 1966); October 1964 - flying over all islands and lagoon and surrounding ocean, roosting and nesting in Pisonia trees; May 1967 - flying about all islands and lagoon, roosting and nesting in Pisonia and Messerschmidia.

Numbers -- November 1951 - very common over all three islets, March 1952 - present, August 1952 - generally common, hundreds on Almani (Fosberg, 1966); October 1964 - Bikar 200, Jabwelo and Almani 300; May 1967 - Bikar 200, Almani 200, Jabwelo 300, over lagoon 4.

Status -- Resident breeder. August 1952 - few downy young present (Fosberg, 1966); October 1964 - nesting only on Jabwelo and Almani, a few eggs and downy chicks present; May 1967 - specimen collected had a bare brood patch.

Specimen Record -- Other - none; POBSP - two (Table 2). This is a new specimen record from Bikar Atoll.

348-415 O-69—4


169°45'E
169°50'
11°20'N
11°20'
UTIRIK
0 1 2 3
STATUTE MILES
Piji
Allok
11°15'
11°15'
Pigowak
Nalab
Utirik
Aon
Menetoon
Bwokwarmej
Anearemej
169°45'
169°50'

UTIRIK ATOLL

Location: 11°15' N x 169°48'E.

Shape and Size: Irregular triangle-shaped; North tip to south base - 9 miles; Width of base - 8 miles; Total lagoon area - 35.68 square miles; Total dry land area - 1.04 square miles; Number of islands - 8; Height - ? feet (Fosberg, 1956; Wiens, 1957).

Soil: Beach (ocean side) - mostly boulder ridges and cobblestone areas; Beach (lagoon side) - mostly sand areas; Interior - mostly sandy soil (Wiens, 1957).

Vegetation: Forty-nine species; Utirik Island mostly planted with *Cocos*; Other islands contain *Cocos* and scrub growth (Fosberg, 1956; Wiens, 1957).

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature-82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - not permanently inhabited (Findlay, 1886); 166 in 1948 (Freeman, 1951); Present - inhabited, 219 in 1964 (U.S. Department of State, 1965).

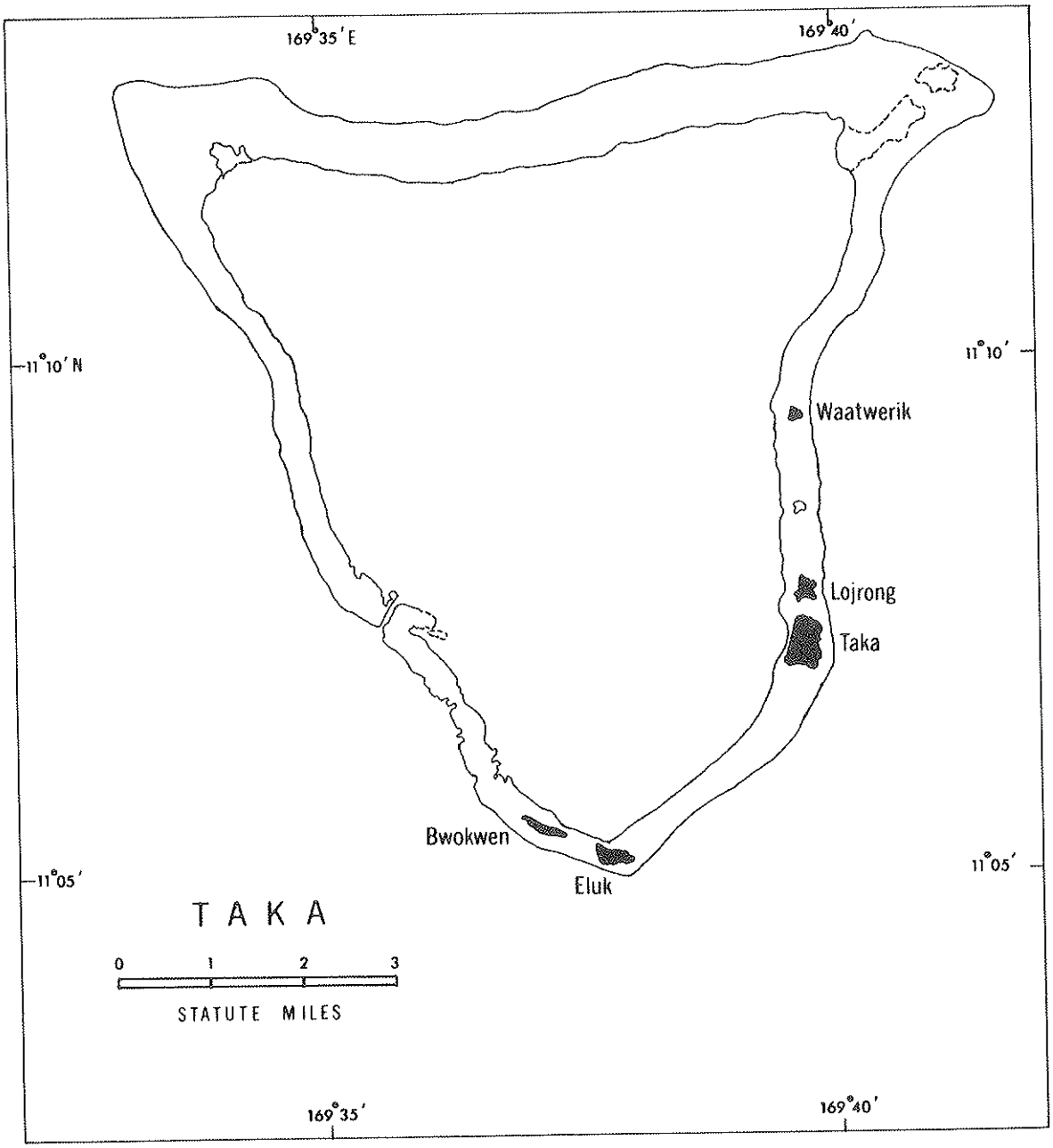
Scientific Visits: Northern Marshall Islands Expedition - 23 Nov-4 Dec. 1951; U.S. Navy - 13 February 1956; Pacific Science Board - summer 1956.

Avifauna: Ten bird species are known from Utirk Atoll. These include three seabird species, five shorebird species, and two domestic species (duck and fowl). Only one species is known to breed on the atoll, while four species are potential breeders; five species are migrants. No museum specimens are known from the atoll.

Ten species are listed in the following checklist, which was derived from two sources: (1) Fosberg, 1966; and (2) Kramer, 1938. These sources are referred to in the checklist by corresponding numbers.

Utirik Atoll Avifauna Checklist

	Species	Status	Sources
1)	*Phaethon lepturus*	Resident breeder ?	1
2)	*Cairina moschata*	Introduced breeder ?	1
3)	*Gallus gallus*	Introduced breeder ?	1, 2
4)	*Pluvialis dominica*	Migrant	1
5)	*Numenius phaeopus*	Migrant	1
6)	*Numenius tahitiensis*	Migrant	1
7)	*Heteroscelus incanum*	Migrant	1
8)	*Arenaria interpres*	Migrant	1
9)	*Thalasseus bergii*	Resident breeder ?	1
10)	*Gygis alba*	Breeder, November-December (eggs)	1


169°35' E
169°40'
11°10' N
11°10'
Waatwerik
Lojrong
Taka
Bwokwen
Eluk
11°05'
11°05'
TAKA
0 1 2 3
STATUTE MILES
169°35'
169°40'

TAKA ATOLL

Location: 11°21' N x 169°38' E.

Shape and Size: Triangle-shaped; Length - 9 miles (north to south); Width - 9 miles (east to west); Total lagoon area - 51.71 square miles; Total dry land - 0.21 square miles; Number of islands - 6; Height 15+ feet.

Soil: Beach (ocean side) - coral rock, some sand; Beach (lagoon side) - mostly sand, some rocky areas; Interior soil - black peat over sand; Bwokwen Island - sand and rock only (see Fosberg, 1954, 1955, and 1956).

Vegetation: Twenty-three species; Taka (largest island) - 1/3 coconut trees, 2/3 scrubby forest, Eluk, Lojrong, and Waatwerik Islands - scrubby forest; Bwokwen Island - no vegetation (Fosberg, 1955, 1956).

Climate: Moderately dry, 60-70 inches of rainfall yearly; Mean air temperature-82° F; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - not inhabited; Present - not inhabited; due to closeness of Utirik (6 miles) humans periodically visit the atoll to harvest copra (Taka Island only), to fish, and to gather birds and their eggs 3 times a year (Utirik native, personal communication, October 1964).

Scientific Visits: Northern Marshall Islands Expedition - 5-9 December 1951; POBSP- 19-23 October 1964, 6 May 1967.

Avifauna: Nineteen bird species are presently known from Taka Atoll. These include 12 seabirds, 6 shorebirds, and 1 heron. Nine of these species are known breeders, three others are possible breeders, five are migrants, and two are classed as vagrants.

Taka Atoll is the only known locale in the Marshall and Gilbert Islands of the migrant Erolia melanotus, and the accidentals Actitis macularia and Stercorarius sp.

Nineteen species are listed in the following checklist which was derived from several sources: (1) POBSP, (a) 1964, (b) 1967); and (2) Fosberg, (a) 1955, (b) 1966. The sources are referred to in the checklist by corresponding numbers and letters. The thirteen species marked by a single asterisk are new species records for Taka Atoll; the five species marked by double asterisks are new atoll breeding records.

Taka Atoll Avifauna Checklist

	Species	Status	Source
1)	Puffinus pacificus*	Resident breeder**	lab
2)	Phaethon rubricauda*	Resident breeder**	lab
3)	Sula sula*	Resident breeder**	lab
4)	Sula leucogaster*	Resident breeder?	lab
5)	Fregata minor*	Resident breeder?	lab
6)	Egretta sacra*	Resident breeder?	lab
7)	Pluvialis dominica	Migrant	lab
8)	Numenius tahitiensis	Migrant	lab, 2b
9)	Actitis macularia*	Vagrant	1a
10)	Heteroscelus incanum*	Migrant	lab
11)	Arenaria interpres	Migrant	lab, 2b
12)	Erolia melanotos*	Migrant	1a
13)	Stercorarius sp.*	Vagrant	1a
14)	Sterna sumatrana*	Resident breeder **	lab
15)	Sterna fuscata	Resident breeder	lab, 2ab
16)	Thalasseus bergii*	Resident breeder**	lab
17)	Anous stolidus	Resident breeder	lab, 2ab
18)	Anous tenuirostris	Resident breeder	lab, 2ab
19)	Gygis alba	Resident breeder	lab, 2b

POBSP personnel have collected 61 specimens of 15 species (Table 4). Ten of these 15 species are specimen records of species not previously known from Taka Atoll; the other 5 represent the first specimen confirmation of species known previously only from sight records. No other specimens are known from Taka Atoll.

Species Accounts

1) Puffinus pacificus — Wedge-tailed Shearwater

Habitat -- October 1964 - nest burrows located in grassy (Lepturus) area on southeast side of Lojrong, burrows 2-3 feet deep in sandy soil; May 1967 - burrows on Lojrong, same location as in 1964.

Numbers -- October 1964 - Lojrong 5 large young (area not observed at night so adult population status unknown, however, one chick regurgitated squid indicating adults were still feeding it - estimated adult population 10-12); May 1967 - Lojrong none observed during day, presence of active burrows suggests at least 24 adults are present nocturnally.

Status -- Resident breeder. October 1964 - 5 young almost fledged, another burrow was empty suggesting that a 6th chick had already fledged; May 1967 - 12 active burrows found, no eggs or young present. This is a new breeding record for Taka Atoll.

TABLE 4. Bird specimens collected by POBSP from Taka Atoll

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus pacificus	USNM 494820	?	N	Lojrong	10-23-64	Skin	Amerson
Sula sula	" 498367	?	?	Taka I.	10-20-64	Skull	"
Sula leucogaster	" 543356	♂	A	Eluk	5-6-67	Skin	"
Fregata minor	" 498368	?	?	Taka I.	10-20-64	Skull	"
Pluvialis dominica	" 494745	♀	-	"	"	Skin	Huber
Arenaria interpres	" 494759	?	-	"	"	"	Clapp
" "	" 494760	?	-	"	"	"	"
Actitis macularia	" 495038	♂	-	"	10-22-64	"	Wislocki
Heteroscelus incanum	" 494895	♂	-	"	"	"	Clapp
" "	" 543402	♂	A	Eluk	5-6-67	"	Amerson
Erolia melanotos	" 494814	♂	-	Lojrong	10-20-64	"	Huber
Sterna sumatrana	" 494588	♂	-	Bwokwen	10-22-64	"	Lehner
" "	" 494589	♂	-	"	"	"	"
" "	" 494590	♂	-	"	"	"	"
" "	" 543220	♂	A	"	5-6-67	"	Amerson
Sterna fuscata	" 494707	♀	-	Taka I.	10-20-64	"	Amerman
" "	" 494708	♀	-	"	10-22-64	"	Huber
" "	" 494709	♂	-	"	"	"	"
" "	" 494710	♀	-	"	"	"	"
" "	" 494711	♀	-	"	"	"	"
" "	" 494712	♂	-	"	"	"	"
" "	" 494713	♂	-	"	"	"	"
" "	" 494714	♂	-	"	"	"	"
" "	" 494715	♀	-	"	"	"	"
" "	" 494716	♀	-	"	"	"	"
" "	" 496241	♂	-	"	"	"	"
" "	" 543396	♂	A	Lojrong	5-6-67	"	Amerson
" "	" 543397	♂	A	"	"	"	"
" "	" 543398	♀	A	"	"	"	"
" "	" 543399	♂	A	"	"	"	"
" "	" 543400	♂	A	"	"	"	"
" "	" 543486	?	A	"	"	"	"
" "	" 543487	♀	A	"	"	"	"
Thalasseus bergii	" 543433	♀	A	"	"	"	"
" "	" 543434	♀	A	"	"	"	"
" "	" 543435	♂	A	"	"	"	"
Anous stolidus	" 494654	♀	-	Eluk	10-22-64	"	Lehner
" "	" 494655	♀	-	Taka I.	10-23-64	"	Huber
" "	" 502903	-	-	Eluk	10-22-64	Alc.	Lehner
" "	" Lost	-	A	Lojrong	5-6-67	Skin	Amerson
Anous tenuirostris	" 494533	♂	-	Eluk	10-22-64	"	Lehner
" "	" 494534	♂	-	"	"	"	"
" "	" 494535	♂	-	"	"	"	"
" "	" 494536	♀	-	"	"	"	"
" "	" 494537	♂	-	"	"	"	"
" "	" 494538	-	-	"	"	"	"
" "	" 543446	♂	A	Eluk	5-6-67	"	Amerson
Gygis alba	" 494612	♀	-	Taka I.	10-20-64	"	Huber

TABLE 4. Bird specimens collected by POBSP from Taka Atoll (cont'd)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Gygis alba	USNM 494613	♂	-	Taka I.	10-20-64	Skin	Huber
" "	" 494614	♂	-	"	"	"	"
" "	" 494615	♂	-	"	"	"	"
" "	" 494616	♂	-	"	"	"	"
" "	" 494617	♂	-	"	"	"	Wislocki
" "	" 494618	♂	-	"	"	"	"
" "	" 494619	♀	-	"	"	"	"
" "	" 494620	♂	-	"	"	"	Wislocki and Lehner
" "	" 494621	♀	-	"	"	"	"
" "	" 494622	♀	-	Bwokwen	10-22-64	"	Lehner
" "	" 543407	♂	A	Taka I	5-6-67	"	Amerson
" "	" 543224	♂	A	Bwokwen	"	"	"
" "	" 543223	♀	A	Eluk	"	"	"

Specimen Records -- Other - none; POBSP - one (Table 4). This is a new species and specimen record for the atoll.

2) Phaethon rubricauda Red-tailed Tropicbird

Habitat -- October 1964 - flying over Taka, Eluk, and Waatwerik; May 1967 - flying above and nesting under Scaevola and Messerschmidia at Eluk.

Numbers -- October 1964 Taka 5, Eluk 3, Lojron 0, Waatwerik 2; May 1967 - Eluk 25, Taka 0, Lojrong 0, Bwokwen 0.

Status -- Resident breeder. October 1964 - no nests found, however, three birds were observed in courtship flight above Eluk; May 1967 - nests containing eggs to fledglings present, also in flight courtship behavior. This is a new breeding record.

Specimen Records -- None. This observation represents a new species sight record for Taka Atoll.

3) Sula sula Red-footed Booby

Habitat -- October 1964 - skeletal parts found around old fire pit near old native huts on Taka, old nest in low Messerschmidia bush on Lojrong; May 1967 - subadults roosting in Messerschmidia and flying over Eluk, also flying over lagoon.

Numbers -- October 1964 - no live individuals observed, 8 skulls recovered, one kept, from fire pit on Taka, visiting natives apparently have driven this species from the atoll; May 1967 - Eluk 25 (some recently killed by natives), lagoon 4.

Status -- Resident breeder. October 1964 - one old nest which appeared to be a Red-footed Booby nest was found on Lojrong; May 1967 - no evidence of breeding. If the 1964 nest observation is valid, this is a new breeding record for the atoll.

Specimen Records -- Other - none; POBSP - one (Table 4). This represents a new species and specimen record from Taka Atoll.

4) Sula leucogaster Brown Booby

Habitat -- October 1964, flying over Taka and Eluk, skeletal parts found around old fire pit Taka, roosting on Bwokwen; May 1967 - flying above Eluk and the lagoon.

Numbers -- December 1951 - present (Fosberg, 1966); October 1964 - Taka 1, plus 7 skulls, Eluk 2, Bwoken 3, an immature Brown Booby was seen over the lagoon on 21 October (at dusk) bearing an orange plastic streamer on its left leg which indicated it was banded by POBSP personnel at Sand Island, Johnston Atoll; May 1967 - Eluk 2, lagoon 2.

Status -- Resident breeder? No evidence of breeding.

Specimen Records -- Other - none; POBSP - one (Table 4). This is a new specimen record for Taka Atoll.

5) Fregata minor — Great Frigatebird

Habitat -- October 1964 - skeletal parts found around old fire pit near old native huts on Taka; May 1967 - observed flying above Eluk and the lagoon.

Numbers -- October 1964 - no live individuals observed, one skull recovered from fire pit on Taka, visiting natives have apparently driven this species from the Atoll; May 1967 - Eluk 2, lagoon 12, other islands 0.

Status -- Resident breeder? No evidence of breeding.

Specimen Records -- Other - none; POBSP - one (Table 4). This constitutes a new species and specimen record from the atoll.

6) Egretta sacra — Reef Heron

Habitat -- October 1964 - seen on exposed reef and rocky beach of Taka and Waatwerik; May 1967 - on rocky seaward beach of Taka.

Numbers -- October 1964 - Taka 1, Waatwerik 2, May 1967 - Taka 1.

Status -- Resident breeder? No evidence of breeding.

Specimen Records -- None. This is a new species sight record for Taka Atoll.

7) Pluvialis dominica — Golden Plover

Habitat -- October 1964 - seen on sandy and rocky beach areas on all islands; May 1967 - rocky seaward beach of Taka.

Numbers -- October 1964 - Taka 10-20, Eluk 5-10, Lojrong 5-10, Waatwerik 5, Bwokwen 6; May 1967 - Taka 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 4). This is a new species and specimen record for the atoll.

8) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- 7 December 1951 - seen on Taka (Fosberg, 1966); October 1964- observed on rocky seaward beaches of Taka and Waatwerik; May 1967 - on rocky seaward beach of Taka.

Numbers -- 7 December 1951 - one seen on Taka (Fosberg, 1966); October 1964 - Taka 4, Waatwerik 2; May 1967 - Taka 1.

Status -- Migrant.

Specimen Records -- None.

9) Actitis macularia Spotted Sandpiper

Habitat -- October 1964 - on rocky seaward side of Taka Island, in association with flock of Ruddy Turnstones.

Numbers -- October 1964 - one seen on Taka Island.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - one (Table 4). This is a new species and specimen record for all of Micronesia.

10) Heteroscelus incanum Wandering Tattler

Habitat -- October 1964 - seen on sandy lagoon (occasionally on seaward) beaches of Taka, Bwokwen, and Waatwerik; May 1967 - on rocky seaward beaches of Eluk, Taka, and Lojrong.

Numbers -- October 1964 - Taka 6, Bwokwen 1, Waatwerik 1; May 1967 - Eluk 1, Taka 1, Lojrong 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 4). This represents a new bird species and specimen record for the atoll.

11) Arenaria interpres Ruddy Turnstone

Habitat -- 9 December 1951 - west end of Waatwerik (Fosberg, 1966); October 1964 - rocky and sandy beaches of Taka, Bwokwen, and Waatwerik; May 1967 - sandy and rocky beaches of Eluk, Taka, and Lojrong.

Numbers -- 9 December 1951 - small flock seen (Fosberg, 1966); October 1964 - Taka 150-200, Bwokwen 10, Waatwerik 5; May 1967 - Eluk 3, Taka 5, Lojrong 1.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 4). These specimens represent a new specimen record from Taka Atoll.

12) Erolia melanotos Pectoral Sandpiper

Habitat -- 20 October 1964 - found in grassy (Lepturus) area on southeastern side of Lojrong.

Numbers -- 20 October 1964 - one found with a broken leg (caught alive but starving, soon died) on Lojrong.

Status - Migrant.

Specimen Records -- Other - none; POBSP - one (Table 4). This is a new species and specimen record for the Marshall Islands.

13) Stercorarius sp. Jaeger species

Habitat -- 21 October 1964 - observed flying over ship anchored in lagoon.

Numbers -- 21 October 1964 - one seen.

Status -- Accidental.

Specimen Records -- None. This observation represents a new species sight record for all of Micronesia.

14) Sterna sumatrana Black-naped Tern

Habitat -- October 1964 - sandy and rocky reef flat areas of Taka, Eluk, Lojrong, and Bwokwen; nesting on sandy area of Bwokwen; May 1967 - roosting and flying above sandy areas of Bwokwen and Eluk and the lagoon.

Numbers -- October 1964 - Taka 12, Lojrong 5-10, Eluk 5-10, Bwokwen 5-10; May 1967 - Bwokwen 12, Eluk 1, lagoon 5.

Status -- Resident breeder. October 1964 - one nest (with one egg) on bare sand of Bwokwen; May 1967 - no evidence of breeding on islands visited. The 1964 data constitute a new breeding record.

Specimen Records - Other - none; POBSP - three (Table 4). This collection constitutes a new species and specimen record for the atoll.

15) Sterna fuscata Sooty Tern

Habitat -- December 1951 - flying around Taka Island, nesting on the seaward side of Eluk, between the first two rows of Tournefortia bushes on absolutely bare gravel and sand (Fosberg, 1955, 1956); October 1964 - flying over all islands, actively nesting at southeast seaward corner of Taka Island on bare sand and gravel between low scrub plants; old nesting site (with broken egg shells) at southeast corner of Lojrong in grassy (Lepturus) area; May 1967 - few flying over Bwokwen, small colony on rocky-grassy area located on the lagoon side of Eluk (pile of freshly killed adults and young on lagoon beach), few flying over 1964 colony site at Taka, large colony over entire south and west portions of Lojrong.

Numbers -- December 1951 - few flying over Taka Island, thousands on Eluk (Fosberg, 1955, 1966); October 1964 - Lojrong skeletons and old egg shells, Eluk 1,000+ flying over, Taka 50-60,000 in nesting colony; May 1967 - Bwokwen few flying, Eluk 3,000 adults and 1,000 nestlings, Taka 25 flying, Lojrong 50,000 adults and 20,000 nestlings, lagoon few.

Status -- Resident breeder. December 1951 - Eluk hard to avoid stepping on the numerous scattered eggs (Fosberg, 1955, 1966); October 1964 - 8-10,000 nests with eggs or 1-2 week old chicks. (Note: The eggs were scattered and not close together as in most Sooty Tern colonies, suggesting that eggs had been collected for food by the Utirik natives. This was verified by Andy Moor, a Utirik Atoll inhabitant who, along with three others, visited Taka Atoll on 20-23 October and told us that eggs had been gathered about a month earlier. The four ate some Sooty Terns, their eggs and young, during their three-day stay on the atoll.) May 1967 - half-grown young to fledglings present.

Specimen Records -- Other - none; POBSP - 18 (Table 4). These Sooty Tern specimens represent the first specimen records for this species from Taka Atoll.

16) Thalasseus bergii Crested Tern

Habitat -- October 1964 - nesting on bare sand-gravel area in center of Sooty Tern colony at southeast section of Taka Island; observed flying over Bwokwen; May 1967 - flying over sandy and rocky areas of Bwokwen, Taka, and Lojrong; nests placed on the rocky southeast area of Lojrong.

Numbers -- October 1964 - Taka 30, Bwokwen 1; May 1967 - Bwokwen 2, Eluk 3, Taka 2, Lojrong 50± adults and one nestling, lagoon 4.

Status -- Resident breeder. October 1964 - 10 nests (with 1 egg each) seen on Taka; May 1967 - Lojrong one small nestling, possibly eggs present, but not found. This is a new breeding record.

Specimen Records -- Other - none; POBSP - three (Table 4). This represents a new species and specimen record for Taka Atoll.

17) Anous stolidus Brown Noddy

Habitat -- 8-9 December 1951 - "... Watwerok Islet [should be Eluk (Fosberg, pers. corres. 1966)] ... nesting on open pebble flats on the east end of the islet and in trees generally" (Fosberg, 1955, 1966); October 1964 - observed in forests and on sandy and rocky beaches on all islands except Lojrong, one skull found around cooking site near native hut on west side of Taka Island; May 1967 - flying over Bwokwen, roosting and nesting in Cocos and Pandanus at Eluk, Taka, and Lojrong.

Numbers -- 8-9 December 1951 - many seen on Eluk (Fosberg, 1966); October 1964 - Taka 50, Waatwerik 15, Eluk 100, Bwokwen 10; May 1967 - Bwokwen few, Eluk 500, Taka 50, Lojrong 200, lagoon 30.

Status -- Resident breeder. 8-9 December 1951 - nesting on Eluk (Fosberg, 1955, 1966); October 1964 - one nest with one egg found on Eluk; May 1967 - nests with eggs to fledglings.

Specimen Records -- Other - none; POBSP - four (Table 4). These represent the first specimens of this species to be collected from Taka Atoll.

18) Anous tenuirostris Black Noddy

Habitat -- 7-8 December 1951 - nesting in trees on Eluk (Fosberg, 1966); October 1964 - present on all islands, nests of dead leaves in forked branches of Messerschmidia bushes found on Eluk, Lojrong, and Waatwerik; May 1967 - flying over all islands and lagoon, roosting and nesting in Messerschmidia at Eluk, Taka, and Lojrong.

Numbers -- 7-8 December 1951 - common Eluk (Fosberg, 1955, 1966); October 1964 - Taka 75-100, Eluk 500, Bwokwen 40, Lojrong 200, and Waatwerik 200; May 1967 - Bwokwen few, Eluk 500, Taka 50, Lojrong 200, lagoon 25.

Status -- Resident breeder. 7-8 December 1951 - nesting in trees on Eluk (Fosberg, 1955, 1966); October 1964 - nests with eggs or up to half-grown chicks on Eluk 200±, Lojrong, and Waatwerik; May 1967 - nests (with one egg) on Eluk, Taka, and Lojrong.

Specimen Records -- Other - none; POBSP - seven (Table 4). These represent the first Anous tenuirostris specimens to be collected from Taka Atoll.

19) Gygis alba White Tern

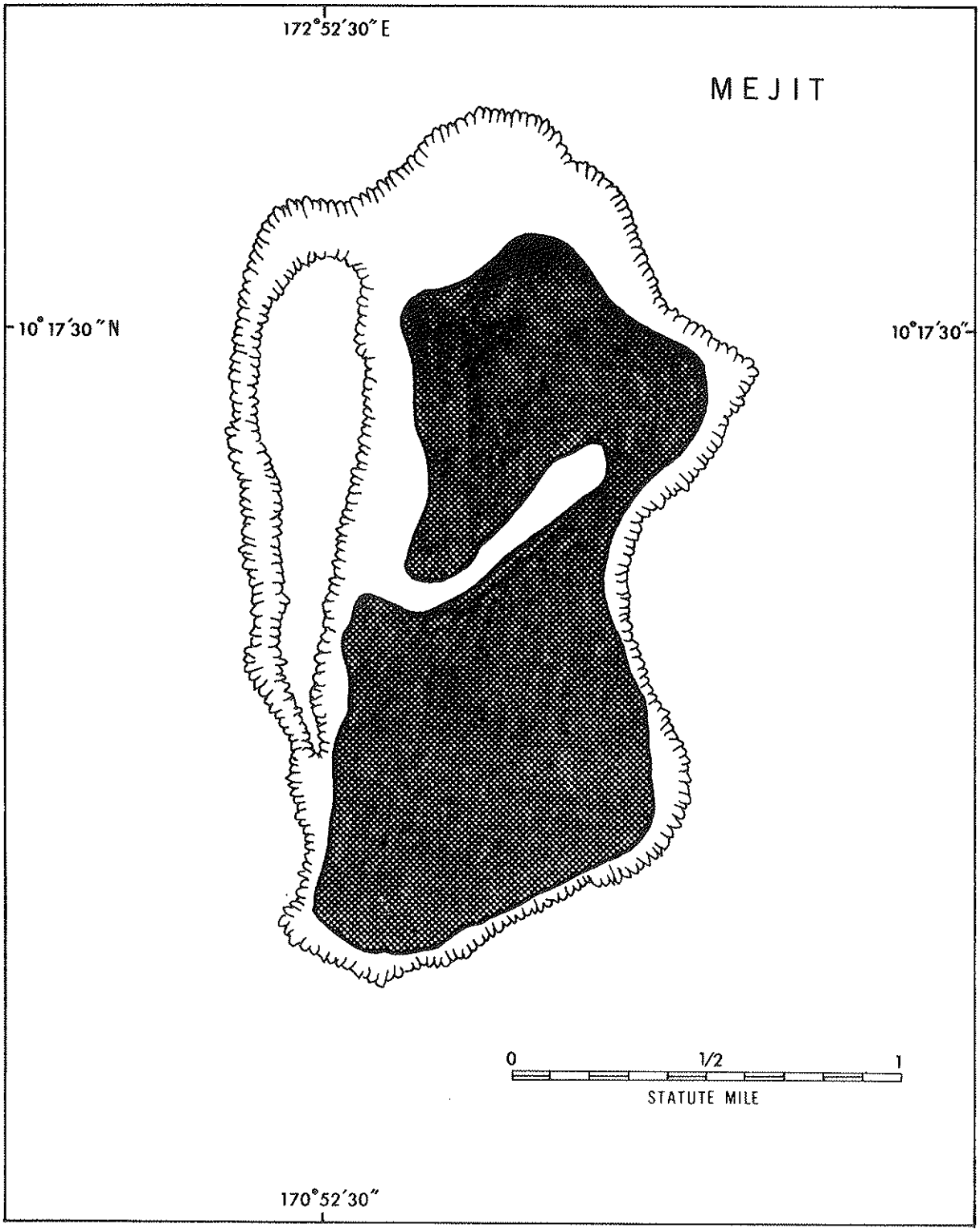
Habitat -- 7-8 December 1951 - nesting in bushes and trees (eggs laid on bare branches wherever a knothole or slight irregularity occurs) on Lojrongand Eluk (Fosberg, 1966); October 1964 - observed flying over and roosting in forests on all islands except Bwokwen, nesting in Messerschmidia and Pisonia on Lojrong and Waatwerik; May 1967 - flying above Bwokwen, as well as roosting in Pisonia and tall Messerschmidia at Eluk, Taka, and Lojrong.

Numbers -- 7-8 December 1951 - very abundant on Lojrong and Eluk (Fosberg, 1966); October 1964 - Taka 500, Eluk 200, Lojrong 200 Waatwerik 200; May 1967 - Bwokwen few, Eluk 500, Taka 50, Lojrong 200, lagoon 25.

Status -- Resident breeder. 7-8 December 1951 - nests with eggs or young in various stages on Lojrong and Eluk (Fosberg, 1966); October

1964 - few nests with eggs or up to half-grown young on Lojrong and Waatwerik; May 1967 - no nests observed, but collected specimens had bare brood patches.

Specimen Records -- Other - none; POBSP - 14 (Table 4). These White Tern specimens are the first to be collected from Taka Atoll.


172°52′30″ E
MEJIT
10°17′30″ N
10°17′30″
0
1/2
1
STATUTE MILE
170°52′30″

MEJIT ISLAND

Location: 10°17' N x 170°54' E.

Shape and Size: Oval-shaped; Tip to tip (north-south) - 1.75 miles; Width - 0.75 miles; One land-locked salt lake with a marshy fringe present; Total dry land area - 1.32 square miles; Number of islands - 1; Height - 15-20 feet (Fosberg, 1956; Wiens, 1957; U.S. Navy, 1964).

Soil: Beach (leeward southwest side) - fine sand (Wiens, 1957).

Vegetation: Seventeen species; Vegetation, including trees, is low; Numerous Cocos and Pandanus, undergrowth not dense (Wiens, 1957).

Climate: Moderately wet, about 70 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 50 in 1800's (Findlay, 1886); 299 in 1948 (Freeman, 1951); Present - inhabited, 329 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese visit (H. Orii) September 1931; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Five bird species are known from Mejit Island. These 5 include 2 seabirds, 2 shorebirds, and 1 domestic fowl. Two of these 5 species are possible breeders.

Mejit Island possesses the only known record for Diomedea immutabilis in the Marshall Islands.

The following checklist presents the known bird species from Mejit Island, as well as their status and record source. The sources include: (1) POBSP band recovery; (2) Baker, 1951; (3) Hand-list of Japanese Birds (a) 1932, (b) 1942, (c) 1958; (4) Yale Cross-Cultural Survey, 1943; (5) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters. The two species marked with an asterisk are new records for the island, and are based on POBSP band return records.

Mejit Island Aviafauna Checklist

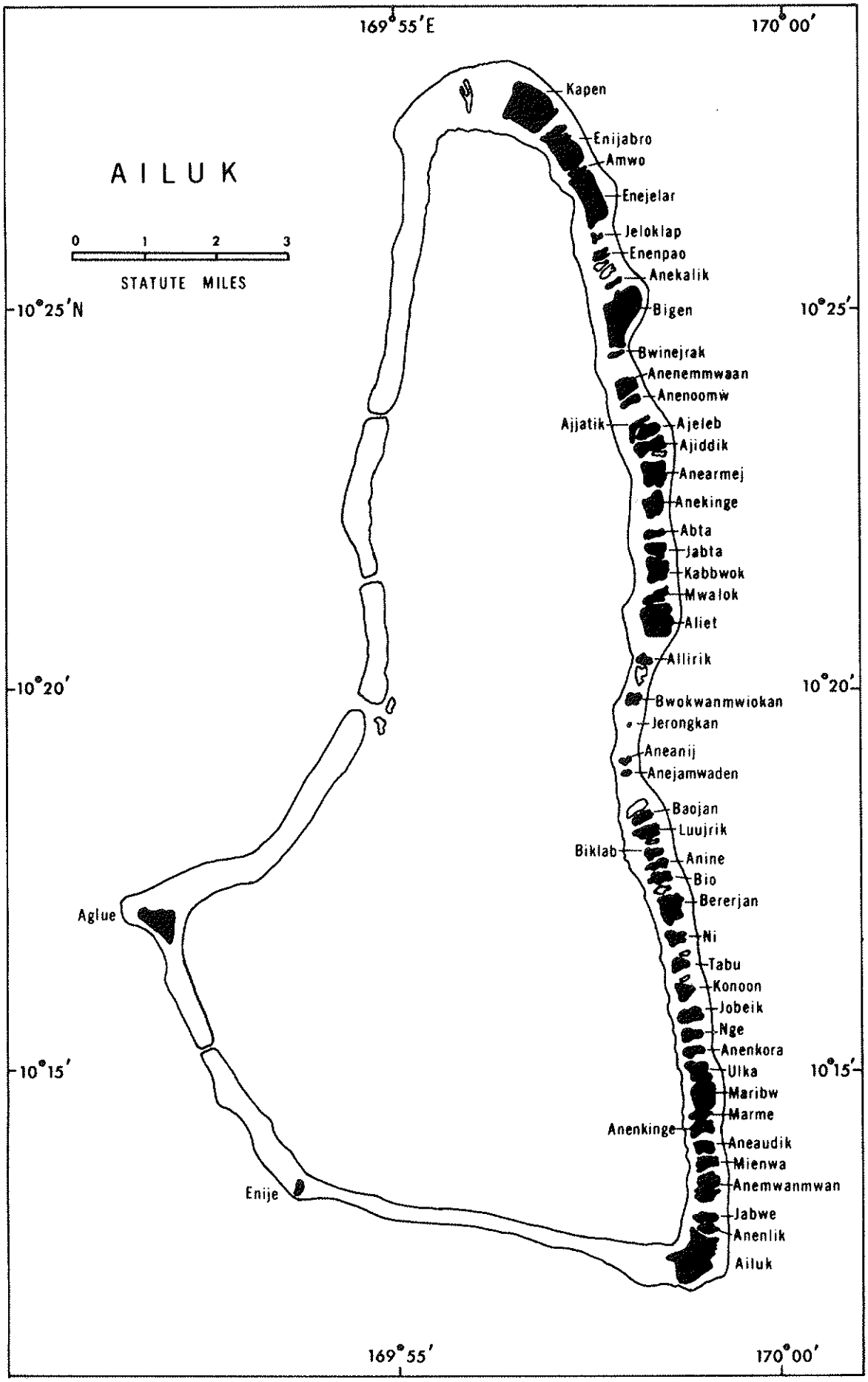
Species	Status	Source
1) Diomedea immutabilis*	Accidental	1
2) Gallus gallus	Introduced breeder?	4
3) Heteroscelus incanum	Migrant	5
4) Arenaria interpres*	Migrant	1
5) Gygis alba	Resident breeder ?	2, 3abc

348-415 O-69—5

Bird specimens collected from Mejit Island include four specimens of two species. These birds are deposited in the Yamashina Institute of Zoology and Ornithology Museum in Tokyo,Japan.

TABLE 5. Bird specimens collected from Mejit Island

Species	Museum	Sex	Age	Location	Date	Status	Collector
Heteroscelus incanum	YIZM	♂	I	Mejit I.	09-19-31	Lost	H. Orii
" "	YIZM	♂	A	"	"	Skin	"
" "	YIZM	♂	A	"	"	Lost	"
Gygis alba	YIZM	♂	A	"	"	Skin	"


169°55'E
170°00'
AILUK
0 1 2 3
STATUTE MILES
10°25'N
10°25'
10°20'
10°20'
10°15'
10°15'
169°55'
170°00'
Kapen
Enijabro
Amwo
Enejelar
Jeloklap
Enenpao
Anekalik
Bigen
Bwinejrak
Anenemmwaan
Anenoomw
Ajjatik
Ajeleb
Ajiddik
Anearmej
Anekinge
Abta
Jabta
Kabbwok
Mwalok
Aliet
Allirik
Bwokwanmwiokan
Jerongkan
Aneanij
Anejamwaden
Baojan
Luujrik
Biklab
Anine
Bio
Bererjan
Aglue
Ni
Tabu
Konoon
Jobeik
Nge
Anenkora
Ulka
Maribw
Marme
Anenkinge
Aneaudik
Mienwa
Anemwanmwan
Jabwe
Anenlik
Ailuk
Enije

AILUK ATOLL

Location: 10°20' N x 169°56' E.

Shape and Size: Elongated triangle-shaped; Tip to tip (north-south) - 20 miles; Widest point (east-west, near southern base) - 5 to 8 miles; Total lagoon area - 89.62 square miles; Total dry land area - 2.19 square miles; Number of islands - 57; Height - up to 20 feet (Fosberg, 1956; U.S. Navy, 1964).

Soil: Beach (ocean side) - blackened coral rock; Beach (lagoon side) - mostly sandy; Inland - sandy (Fosberg, 1956).

Vegetation: Fifty-five species; Ailuk Island planted with Cocos and Artocarpus; Smaller islands mostly planted with Cocos, but broad strips of natural vegetation left on seaward side as a windbreak (Fosberg, 1956).

Climate: Moderately wet, about 70 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past- inhabited, 120 in 1800's (Findlay, 1886); 319 in 1948 (Freeman, 1951); Present - inhabited, 410 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese visit (H. Orii) 17-18 September 1931;Northern Marshall Islands Expedition - 24-31 December 1951; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Thirteen species of birds are known from Ailuk Atoll. Of these 13, 7 are seabirds, 4 are shorebirds, 1 is a heron, and 1 is a domestic fowl. One species is known to breed on Ailuk, while 8 other species are potential breeders. The 4 shorebirds are migrants.

A checklist of the birds known to occur on Ailuk Atoll follows. Sources for this list include: (1) Fosberg, 1966; (2) Baker, 1951; (3) Handlist of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (4) Yale Cross-Cultural Survey, 1943; and (5) YIZM collection. The sources are referred to in the checklist by the corresponding numbers and letters.

Ailuk Atoll Avifauna Checklist

Species	Status	Source
1) *Fregata minor*	Resident breeder ?, few	1
2) *Egretta sacra*	Resident breeder ?	1, 2, 3b, 5
3) *Gallus gallus*	Introduced breeder ?	1, 4
4) *Pluvialis dominica*	Migrant	1
5) *Numenius tahitiensis*	Migrant	1, 2, 3b, 5

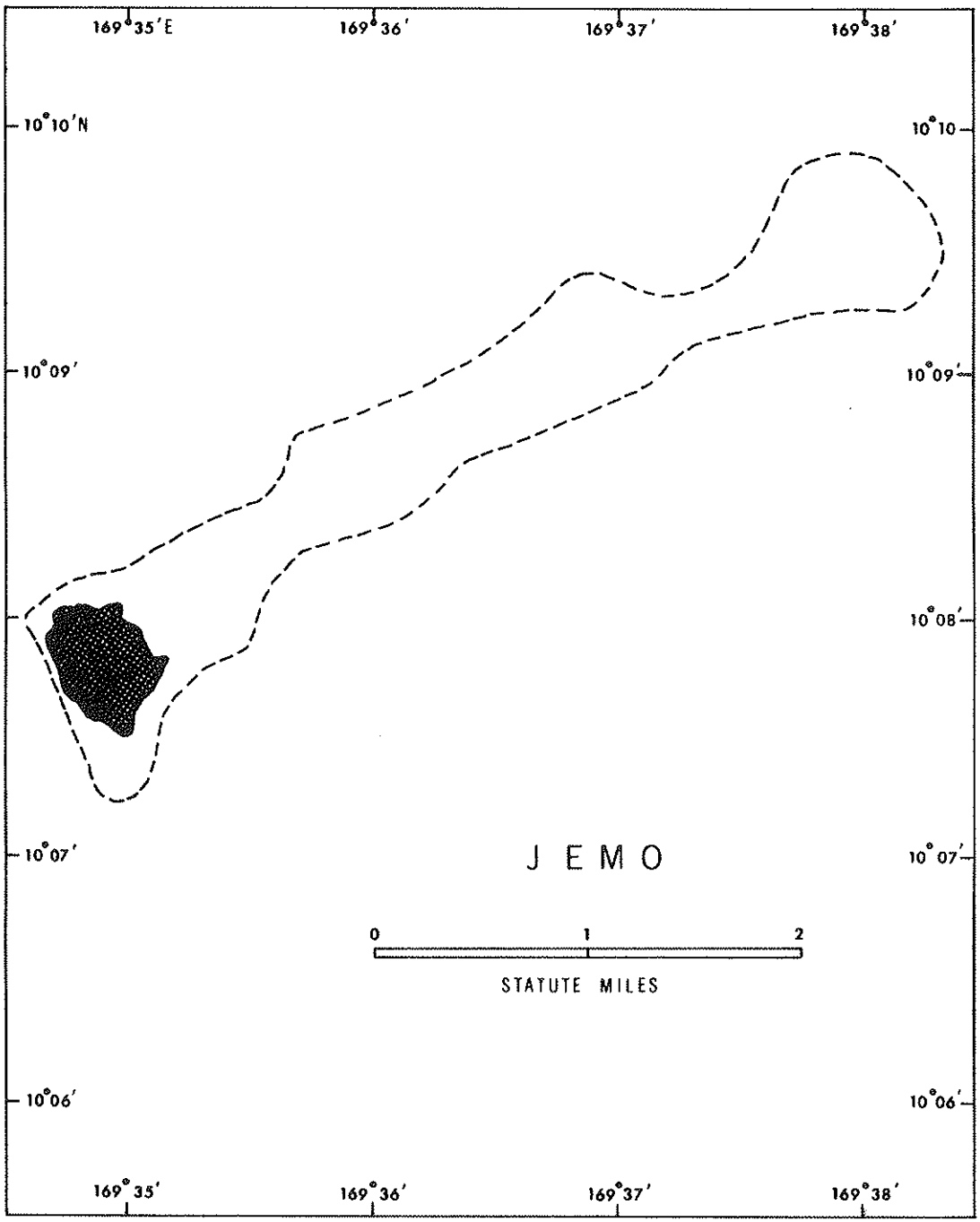
Species	Status	Source
6) Heteroscelus incanum	Migrant	2, 3b, 5
7) Arenaria interpres	Migrant	1
8) Sterna sumatrana	Resident breeder ?; 10	1
9) Sterna fuscata	Resident breeder ?; 1	1
10) Thalasseus bergii	Resident breeder ?; ?	2, 3ab, 5
11) Anous stolidus	Resident breeder ?; few	1
12) Anous tenuirostris	Resident breeder ?; 100+	1, 2, 3ab, 5
13) Gygis abla	Resident breeder, December; few	1

Four additional species, Puffinus pacificus, Puffinus nativitatus, Pterodroma hypoleuca, and Phaethon rubricauda, have been listed from Ailuk Atoll by various authors, including Fisher (1946) and Baker (1951). This was because of confusion as to the exact location of "Krusenstern Island" which Salvin (1888) listed as the type locality for Puffinus cuneatus and Oestrelata hypoleuca. I agree with Murphy (1951) and Ely and Amerson (in prep.), who suggest that the "Krusenstern" listed by Salvin is not Ailuk but one of the islands of the Leeward Hawaiian Chain.

Bird specimens collected from Ailuk Atoll include 13 specimens of 5 species which are located in the Yamashina Institute of Zoology and Ornithology Museum in Tokyo, Japan.

TABLE 6. Bird specimens collected at Ailuk Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	YIZM	♀	A	Ailuk I.	09-17-31	Skin	H. Orii
" "	YIZM	♀	-	"	"	Lost	"
Numenius tahitiensis	YIZM	♂	A	"	"	Skin	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♀	-	"	"	"	"
Heteroscelus incanum	YIZM	♂	A	"	"	"	"
"	YIZM	♀	A	"	"	Lost	"
Thalasseus bergii	YIZM	♂	A	"	"	Skin	"
" "	YIZM	♂	A	"	09-18-31	"	"
Anous tenuirostris	YIZM	♂	A	"	09-17-31	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♂	A	"	09-18-31	"	"


169°35'E
169°36'
169°37'
169°38'
10°10'N
10°10'
10°09'
10°09'
10°08'
10°07'
10°07'
JEMO
0
1
2
STATUTE MILES
10°06'
10°06'
169°35'
169°36'
169°37'
169°38'

JEMO ISLAND

Location: 10°07' N x 169°33' E.

Shape and Size: Oval-shaped island about half a mile long (from northwest to southeast) situated at the southwest corner of a submerged reef (about 4.75 miles long) running from northeast to southwest; Total land area-0.07 square miles; Total area covered by land and reef 1.46 square miles (Fosberg, 1956); Height - 30 feet.

Soil: Beaches - sandy and rocky portions, some cobblestone sections; Inland - sandy and rocky portions, surface under Pisonia trees covered by a thick layer of a peat-like material, over a layer of cemented sand (Fosberg, 1954, 1955, 1966).

Vegetation: Total species 34; Strip of tall Pisonia forest on west portion, coconut plantation on eastern half and most of west half, undergrowth is very dense in places (Fosberg, 1966).

Climate: Moderately wet, 70-80 inches of rainfall annually; Mean annual temperature-82° F.; Wind prevalent from northeast (Fosberg, 1956).

Human Population: Past - uninhabited, bird and turtle sanctuary (pre-European times) visited once yearly to harvest limited number of animals and their eggs; cleared and planted to coconuts by Likiep inhabitants around 1900; uninhabited in 1951 although a frame house was present for use during copra harvesting; Present - uninhabited in 1964 and 1967, old frame house and associated copra shed deteriorating.

Scientific Visits: Northern Marshall Islands Expedition, 18-22 December 1951; POBSP - 23-24 October 1964 and 5 May 1967.

Avifauna: Fourteen bird species are known from Jemo Island. These include 8 seabirds, 4 shorebirds, 1 heron, and 1 introduced domestic fowl. Five of these species are known breeders, 5 others are possible breeders, and 4 are migrants.

Fourteen species are listed in the following checklist, which was derived from various sources: (1) POBSP, (a) 1964, (b) 1967; and (2) Fosberg, 1966. These sources are referred to in the checklist by corresponding numbers and letters. The six species marked by a single asterisk are new species records for Jemo Island; the four species marked by double asterisks are new island breeding records.

Jemo Island Avifauna Checklist

Species	Status	Source
1) *Phaethon lepturus**	Resident breeder ?	1b
2) *Sula sula*	Resident breeder	lab, 2
3) *Sula leucogaster*	Resident breeder**	
4) *Fregata minor*	Resident breeder ?	lab, 2
5) *Egretta sacra**	Resident breeder ?	lab
6) *Gallus gallus*	Introduced breeder ? now absent	2
7) *Pluvialis dominica*	Migrant	lab, 2
8) *Numenius tahitiensis**	Migrant	lab
9) *Heteroscelus incanum**	Migrant	lab
10) *Arenaria interpres**	Migrant	lab
11) *Sterna fuscata**	Resident breeder ?	1b
12) *Anous stolidus*	Resident breeder**	lab, 2
13) *Anous tenuirostris*	Resident breeder**	lab, 2
14) *Gygis alba*	Resident breeder**	lab 2

POBSP personnel have collected 30 specimens of 9 species (Table 7). Of these 9 species, 4 are specimen records of species not previously known from Jemo Island; the other 5 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from Jemo Island.

Species Accounts

1) *Phaethon lepturus* White-tailed Tropicbird

Habitat -- May 1967 - flying about the island, just above the trees.

Numbers -- May 1967 - 3.

Status -- Resident breeder? May 1967 - in-flight courtship behavior observed, possibly nesting in holes of the high *Pisonia* trees.

Specimen Records --Other-none; POBSP-one(Table 7). This collection represents a new species and specimen record from Jemo Island.

2) *Sula sula* Red-footed Booby

Habitat -- December 1951 - nesting in *Pisonia* trees (Fosberg, 1966); October 1964 - roosting and nesting in very high (75'-100') *Pisonia* trees; May 1967 - roosting and nesting in high *Pisonia*, some roosting in large *Messerschmidia*.

Numbers -- December 1951 - nesting in numbers (Fosberg, 1966); October 1964 - estimated population 1,000; May 1967 - 2,000.

TABLE 7. Bird specimens collected by POBSP from Jemo Island.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Phaethon lepturus	USNM 543050	♂	A	Jemo	5-5-67	Skin	Amerson
Sula sula	" 543060	♀	N	"	"	"	"
" "	" 543350	♂	A	"	"	"	"
" "	" 543351	♂	A	"	"	"	"
" "	" 543352	♂	A	"	"	"	"
" "	" 543052	♀	A	"	"	"	"
" "	" 543051	♀	A	"	"	"	"
Fregata minor	" 543380	♀	SA	"	"	"	"
Egretta sacra	" 494854	♀	-	"	10-24-64	"	Huber
Heteroscelus incanum	" 543401	♀	A	"	5-5-67	"	Amerson
Arenaria interpres	" 543438	♂	A	"	"	"	"
" "	" 543439	♂	A	"	"	"	"
Anous stolidus	" 543416	♀	A	"	"	"	"
" "	" 543476	♂	A	"	"	Wing/Skull	"
" "	" 543477	♂	A	"	"	Skin	"
" "	" 543475	♂	SA	"	"	"	"
Anous tenuirostris	" 543496	♂	A?	"	"	"	"
" "	" 543443	♂	A	"	"	"	"
" "	" 543444	?	SA	"	"	Wing/Skull	"
" "	" 543445	♂	SA	"	"	Skin	"
" "	" 543408	♀	A	"	"	"	"
Gygis alba	" 494623	♂	-	"	10-24-64	"	Huber
" "	" 494624	-	-	"	"	"	Wislocki
" "	" 494624	♂	-	"	"	"	Huber
" "	" 494626	♂	-	"	"	"	"
" "	" 494627	♀	-	"	"	"	"
" "	" 543221	?	A	"	5-5-67	"	Amerson
" "	" 543449	♀	A	"	"	"	"
" "	" 543450	♂	A	"	"	"	"
" "	" 543222	?	A	"	"	"	"

Status -- Resident breeder. December 1951 - nesting in numbers (Fosberg, 1966); October 1964 - approximately 200 nests (too high to observe whether eggs or chicks were present, but adults were on the nests); May 1967 - many large downy nestlings present (nests too high to determine if eggs or small young were present).

Specimen Records -- Other - none; POBSP - six (Table 7). This is a new specimen record for the island.

3) Sula leucogaster Brown Booby

Habitat -- 20 December 1951 - seen flying (Fosberg, 1966); October 1964 - roosting at night in coconut trees on west side of island; May 1967 - roosting and nesting on the ground at the edge of the vegetated portion on the northeast (windward) side.

Numbers -- 20 December 1951 - one seen (Fosberg, 1966); October 1964 - three observed; May 1967 - four seen during day.

Status -- Resident breeder. October 1964 - not breeding; May 1967 - one large downy nestling present. This is a new breeding record for Jemo.

Specimen Records -- None.

4) Fregata minor Great Frigatebird

Habitat -- 18 December 1951 - seen flying (Fosberg, 1966); October 1964 - flying over island and roosting in tops of tall Pisonia trees; May 1967 - adults and first-year birds roosting in tops of Pisonia trees.

Numbers -- 18 December 1951 - at least 15 (Fosberg, 1966); October 1964 - 10-20 observed; May 1967 - 10 seen.

Status -- Resident breeder? None breeding; however, there is a possibility that this species nests on Jemo Island.

Specimen Records -- Other - none; POBSP - one (Table 7). This collection represents a new specimen record from Jemo.

5) Egretta sacra Reef Heron

Habitat -- October 1964 - on rocky beach on east side of island; May 1967 - on rocky and sandy beach.

Numbers -- October 1964 - one observed and collected; May 1967 - one present.

Status -- Resident breeder? No evidence of breeding although they may breed here.

Specimen Records - Other - none; POBSP - one (Table 7). This is a new species and specimen record for Jemo Island.

6) Gallus gallus — Domestic Chicken

Habitat -- December 1951 - present (Fosberg, 1966).

Numbers -- December 1951 - present (Fosberg, 1966).

Status -- Introduced breeder? It is possible that this species bred in the past at Jemo Island.

Specimen Records -- None.

7) Pluvialis dominica — Golden Plover

Habitat -- December 1951 - present (Fosberg, 1966); October 1964 - observed on sandy and rocky beaches; May 1967 - on sandy beach.

Numbers -- December 1951 - "... only 2 were seen, possibly 2 sightings of the same individual" (Fosberg, 1966); October 1964 - estimated population 50; May 1967 - 2 observed; number banded 4.

Status -- Migrant.

Specimen Records -- None.

8) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- October 1964 - observed along sandy beaches; May 1967 - present on sandy and rocky beach areas.

Numbers -- October 1964 - 2 observed; May 1967 - 2.

Status -- Migrant.

Specimen Records -- None. This observation represents a new bird species record for the island.

9) Heteroscelus incanum — Wandering Tattler

Habitat -- October 1964 - observed along rocky beach areas; May 1967 - on sandy beach.

Numbers -- October 1964 - 8; May 1967 - 3.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 1 (Table 7). This is a new species and specimen record for Jemo Island.

10) Arenaria interpres — Ruddy Turnstone

Habitat -- October 1964 - observed along sandy and rocky beaches; May 1967 - present on sand beach.

Numbers -- October 1964 - estimated population 60; May 1967 - 6.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 2 (Table 7). These specimens constitute a new species and specimen record for Jemo Island.

11) Sterna fuscata — Sooty Tern

Habitat -- May 1967 - observed flying over the island about noontime headed in a northerly direction.

Numbers -- May 1967 - 2.

Status -- Resident breeder? May 1967 - not breeding.

Specimen Records -- None. This observation represents a new species sight record from Jemo Island.

12) Anous stolidus — Brown Noddy

Habitat -- December 1951 - present (Fosberg, 1966); October 1964 - roosting on sandy beaches and on upper branches of high Pisonia trees; May 1967 - flying about, roosting in tops of Pisonia and Messerschmidia, nests placed at bases of palm fronds.

Numbers -- December 1951 - quite common (Fosberg, 1966); October 1964 - 25-50 present; May 1967 - 1,000 estimated.

Status -- Resident breeder. December 1951-not seen nesting(Fosberg,1966); 23-24 October 1964 - no nests observed; 5 May 1967 - many nests with young observed. This consititutes a new breeding record for Jemo.

Specimen Records -- Other - none; POBSP - 4 (Table 7). This collection represents a new specimen record for the island.

13) Anous tenuirostris — Black Noddy

Habitat -- December 1951 - present (Fosberg, 1966); October 1964 - roosting and nesting in tops of high Pisonia trees; May 1967 - flying about, roosting and nesting in tops of Pisonia and Messerschmidia.

Numbers -- December 1951 - several were seen (Fosberg, 1966); October 1964 - estimated population 150-250; May 1967 - 2,000 estimated.

Status -- Resident breeder. October 1964 - several nests were seen but due to excessive heights their contents could not be determined; May 1967 - many nests with young present. This is a new breeding record.

Specimen Records -- Other - none; POBSP - 5 (Table 7). This is a new specimen record for Jemo.

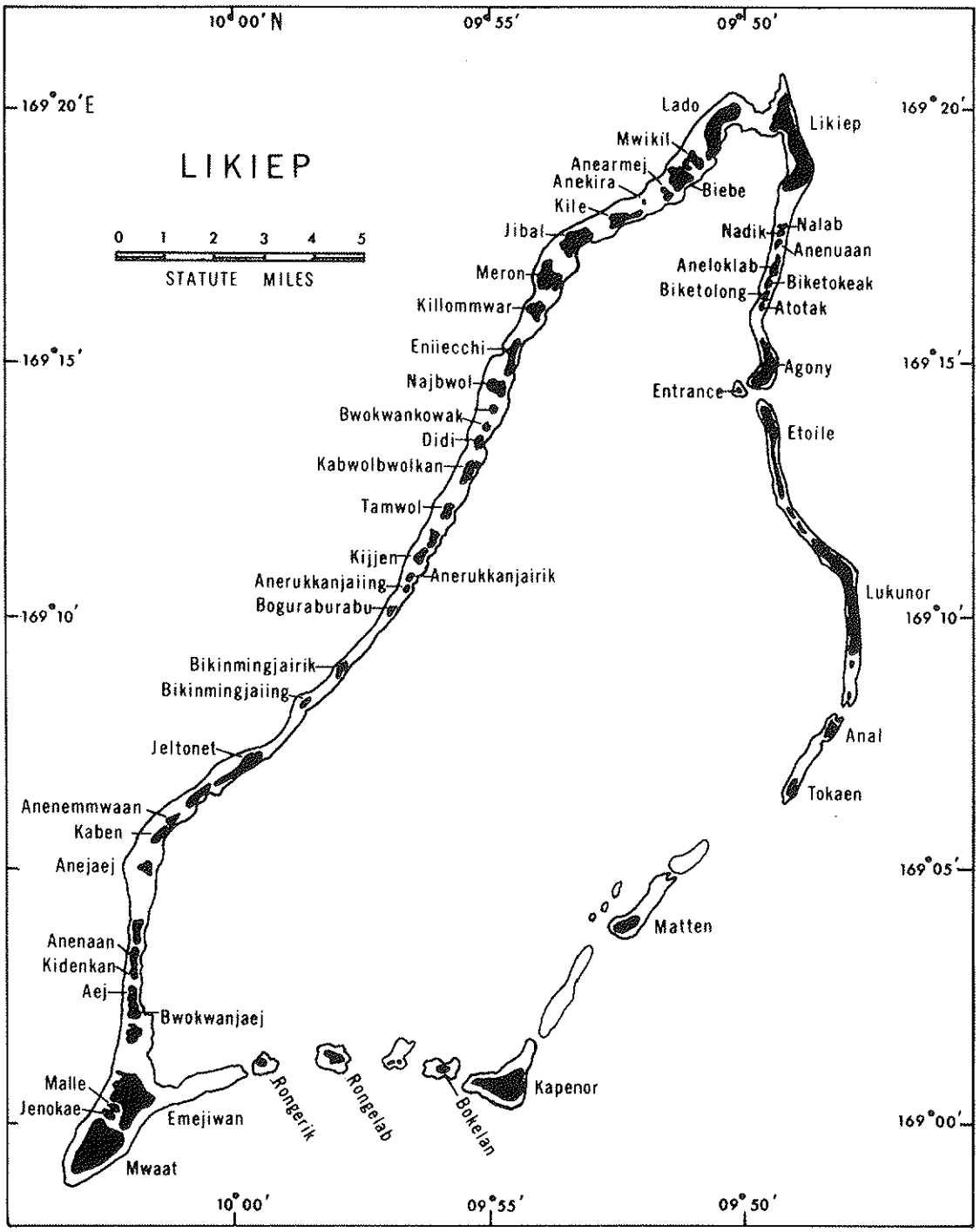
14) Gygis alba White Tern

Habitat -- 18-19 December 1951 - present (Fosberg, 1966); October 1964 - roosting and nesting on low to high vegetation (Messerschmidia, Scaevola, and Pisonia); May 1967 - flying about, roosting in same vegetation as in 1964.

Numbers -- 18-19 December 1951 - occasional (Fosberg, 1966); October 1964 - 500-750 estimated; May 1967 - 500 estimated.

Status -- Resident breeder. 18-19 December 1951 - not seen nesting (Fosberg, 1966); October 1964 - several nests (each with an egg) were seen; May 1967 - no nests observed, but specimens collected had bare brood patches. This is a new breeding record.

Specimen Records -- Other - none; POBSP - 9 (Table 7). This collection represents a new specimen record for the island.


LIKIEP
0 1 2 3 4 5
STATUTE MILES
10° 00' N
09° 55'
09° 50'
169° 20' E
169° 20'
169° 15'
169° 15'
169° 10'
169° 10'
169° 05'
169° 00'
10° 00'
09° 55'
09° 50'
Lado
Likiep
Mwikil
Anearmej
Anekira
Biebe
Kile
Jibal
Nadik
Nalab
Anenuaan
Aneloklab
Biketokeak
Biketolong
Atotak
Meron
Killommwar
Eniiecchi
Najbwol
Agony
Entrance
Bwokwankowak
Didi
Etoile
Kabwolbwolkan
Tamwol
Kijjen
Anerukkanjairik
Anerukkanjaiing
Boguraburabu
Lukunor
Bikinmingjairik
Bikinmingjaiing
Anal
Jeltonet
Tokaen
Anenemmwaan
Kaben
Anejaej
Matten
Anenaan
Kidenkan
Aej
Bwokwanjaej
Malle
Jenokae
Emejiwan
Mwaat
Rongerik
Rongelab
Bokelan
Kapenor

LIKIEP ATOLL

Location: 09°53' N x 169°09'E.

Shape and Size: Irregular trapezoid-shaped; Tip to tip (northwest-southeast) - 20 miles; Widest point (northeast-southwest) - 11 miles; Total lagoon area - 180.08 square miles, Total dry land area - 3.63 square miles; Number of islands-112; Height - 6 feet (Fosberg, 1956; U.S. Navy, 1964).

Soil: No available data (see Fosberg, 1956).

Vegetation: Eighty-one species; Most larger islands planted with Cocos (Fosberg, 1955, 1956).

Climate: Moderately wet, about 70 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 300 in 1800's (Findlay, 1886); 568 in 1948 (Freeman, 1951); Present - inhabited, 546 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese visit (H. Orii) 16, 21 September 1931; Northern Marshall Islands Expedition - 11-18 December 1951; U.S. Navy (F. R. Fosberg) - 4-14 February 1956; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Eleven bird species are known from Likiep Atoll. These include 5 seabirds, 3 shorebirds, 1 heron, 1 cuckoo, and 1 domestic fowl. Seven species are potential breeders, but none of these are known to breed. The 3 shorebirds and 1 cuckoo are migrants.

A checklist of the birds known to occur on Likiep Atoll follows. Source material for this list includes: (1) Fosberg, 1966; (2) Baker, 1951; (3) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (4) POBSP band data; (5) Yale Cross-Cultural Survey, 1943; and (6) YIZM collection. These sources are referred to in the checklist by corresponding numbers and letters. The one species marked with an asterisk is a new bird record for Likiep Atoll, and was the result of a POBSP banded bird being picked up on the atoll by a native and the band sent to Washington.

348-415 O-69—6

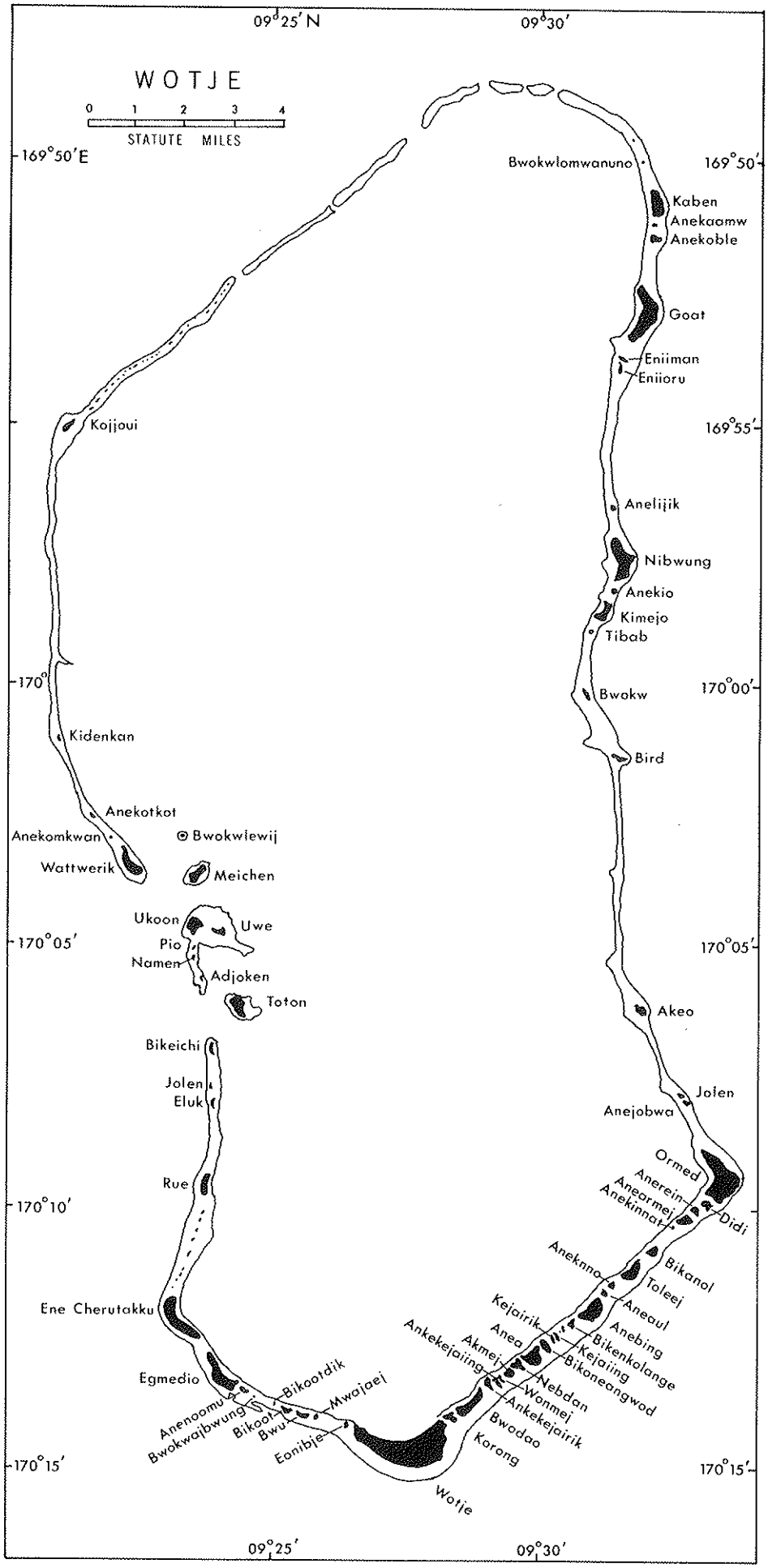
Likiep Atoll Avifauna Checklist

Species	Status	Source
1) Sula sula	Resident breeder ?	2, 3ab, 4, 6
2) Sula leucogaster*	Resident breeder ?	4
3) Fregata minor	Resident breeder ?	2, 3ab, 6
4) Egretta sacra	Resident breeder ?	1, 2, 3b, 6
5) Gallus gallus	Introduced breeder ?	1, 5
6) Pluvialis dominica	Migrant	1, 2, 3ab, 6
7) Heteroscelus incanum	Migrant	2, 3b, 6
8) Arenaria interpres	Migrant	1, 2, 3ab, 6
9) Anous stolidus	Resident breeder ?; few	1
10) Gygis alba	Resident breeder ?; few	1, 2, 3ab, 6
11) Urodynamis taitensis	Migrant	1

Bird specimens collected from Likiep Atoll include 13 specimens of 7 species, all of which are in the Yamashina Institute of Zoology and Ornithology Museum, Tokyo, Japan.

TABLE 8. Bird specimens collected from Likiep Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sula sula	YIZM	♂	Juv	Likiep I	09-21-31	Skin	H. Orii
Fregata minor	YIZM	♂	Juv	Rikieb (sic)	"	Lost	"
Egretta sacra	YIZM	♂	Juv	Likiep I	09-16-31	Skin	"
" "	YIZM	♀	A	"	"	Lost	"
" "	YIZM	♀	A	"	09-21-31	Skin	"
Pluvialis dominica	YIZM	♂	A	"	09-16-31	"	"
Heteroscelus incanum	YIZM	♂	A	"	"	Lost	"
" "	YIZM	♂	A	"	"	Skin	"
" "	YIZM	♂	A	"	09-21-31	"	"
" "	YIZM	♂	A	"	"	"	"
Arenaria interpres	YIZM	♂	A	"	09-16-31	Lost	"
" "	YIZM	♀	A	"	"	Skin	"
Gygis alba	YIZM	♂	A	Rikieb (sic)	"	"	"


WOTJE
0 1 2 3 4
STATUTE MILES
09°25′N
09°30′
169°50′E
169°50′
169°55′
170°
170°00′
170°05′
170°05′
170°10′
170°15′
170°15′
09°25′
09°30′
Bwokwłomwanuno
Kaben
Anekaamw
Anekoble
Goat
Eniiman
Eniioru
Kojjoui
Anelijik
Nibwung
Anekio
Kimejo
Tibab
Bwokw
Kidenkan
Bird
Anekotkot
Anekomkwan
Bwokwiewij
Wattwerik
Meichen
Ukoon
Uwe
Pio
Namen
Adjoken
Toton
Akeo
Bikeichi
Jolen
Eluk
Jolen
Anejobwa
Ormed
Anerein
Anearmej
Anekinnat
Didi
Rue
Anekano
Bikanol
Toleej
Aneaul
Anebing
Bikenkolange
Kejaing
Bikoneangwod
Kejairik
Anea
Akmej
Ankekejaiing
Nebdan
Wonmej
Ankekejairik
Bwodao
Karong
Ene Cherutakku
Egmedio
Anenoomu
Bwokwajbwung
Bikoot
Bwu
Bikootdik
Mwajaei
Eonibje
Wotje

WOTJE ATOLL

Location: 09°27' N x 170°02' E.

Shape and Size: Irregular rectangle-shaped; Tip to tip (east-west) - 26 miles; Width (north-south) - 6 to 12 miles; Total lagoon area - 298.63 square miles; Total dry land area - 3.34 square miles; Number of islands - 72; Height - 30 feet (Fosberg, 1956; U.S. Navy, 1964).

Soil: No available data.

Vegetation: Three known species; Some replanting of Cocos since World War II, but many islands grassy or with low scrub (Fosberg, 1956; U.S. Navy, 1964).

Climate: Moderately wet, about 70-80 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 300 in 1800's (Findlay, 1886); 328 in 1948 (Freeman, 1951); Present - inhabited, 498 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese expedition (H. Orii) - 15, 18, 22, 23 September 1931.

Avifauna: Twelve bird species occur on Wotje Atoll. Four of these are seabirds, 4 are shorebirds, while 1 each includes a heron, a cuckoo, a pigeon, and a domestic fowl. No birds are known to breed on Wotje Atoll; however, 7 species are potential breeders. The 4 shorebird species and the cuckoo are migrants.

A checklist of the bird species recorded on Wotje Atoll follows. Source material for this list includes: (1) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (2) Baker, 1951; (3) Yale Cross-Cultural Survey, 1943; (4) Mathews, 1933; (5) Peters, 1937; (6) Mayr, 1945; (7) Bogert, 1937; (8) YIZM collection; and (9) POBSP band return data. These sources are referred to in the checklist by the corresponding numbers and letters. The one species marked by a single asterisk is a new species record for Wotje Atoll.

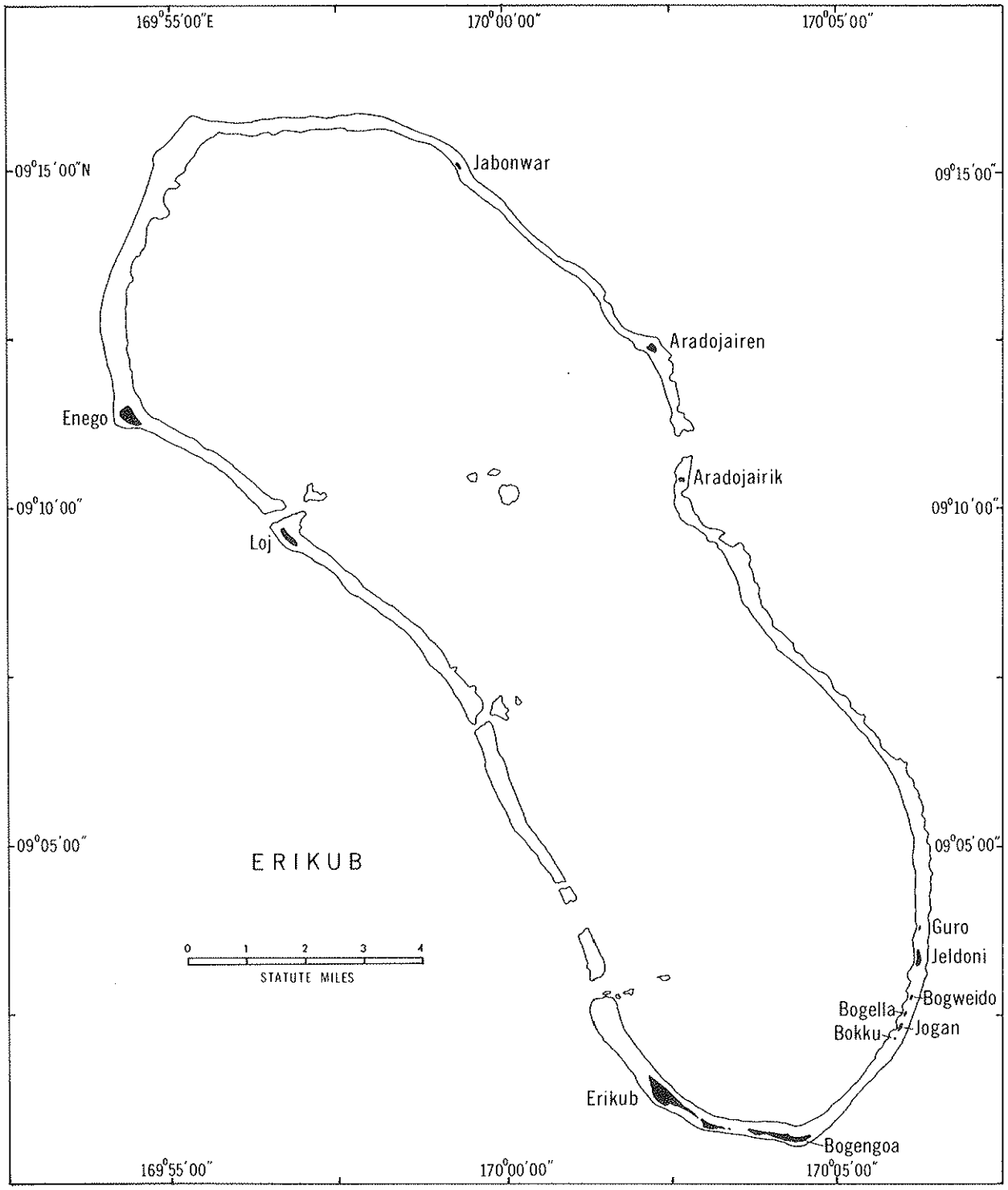
Wotje Atoll Avifauna Checklist

Species	Status	Source
1) *Fregata minor**	Resident breeder ?	9
2) *Egretta sacra*	Resident breeder ?	1b, 2, 8
3) *Gallus gallus*	Introduced breeder ?	3
4) *Numenius phaeopus*	Migrant	lab, 2, 8
5) *Numenius tahitiensis*	Migrant	lab, 2, 8
6) *Heteroscelus incanum*	Migrant	1b, 2, 8
7) *Arenaria interpres*	Migrant	lab, 2, 8
8) *Anous stolidus*	Resident breeder ?	lab, 2, 8
9) *Anous tenuirostris*	Resident breeder ?	lab, 2, 8
10) *Gygis alba*	Resident breeder ?	lab, 2, 8
11) *Ducula oceanica ratakensis*	Resident breeder ?	lab, 2, 4, 5, 6, 8
12) *Urodynamis taitensis*	Migrant	lab, 2, 7, 8

Bird specimens collected from Wotje Atoll include 32 specimens of 10 species, all of which are located in the Yamashina collection in Tokyo, Japan.

TABLE 9. Bird specimens collected from Wotje Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	YIZM	♀	-	Wozzie(sic)	09-22-31	Skin	H. Orii
Numenius phaeopus	YIZM	♂	-	"	09-18-31	"	"
"	YIZM	♂	-	"	09-22-31	"	"
"	YIZM	♂	-	"	09-15-31	"	"
"	YIZM	♀	-	"	"	"	"
Numenius tahitiensis	YIZM	♂	-	"	"	"	"
"	YIZM	♂	-	"	"	"	"
"	YIZM	♂	-	"	"	"	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♀	-	"	"	"	"
"	YIZM	♀	-	"	"	"	"
"	YIZM	♀	-	"	"	"	"
"	YIZM	♀	-	"	"	"	"
Heteroscelus incanum	YIZM	♀	A	"	"	"	"
Arenaria interpres	YIZM	♂	I	"	"	"	"
Anous stolidus	YIZM	♂	A	"	09-22-31	-	-
"	YIZM	♂	A	"	"	-	-
"	YIZM	♂	A	"	"	-	-
Anous tenuirostris	YIZM	♂	A	"	09-15-31	Skin	H. Orii
"	YIZM	♂	A	"	"	"	"
"	YIZM	♂	A	"	"	"	"
Gygis alba	YIZM	♂	A	"	09-23-31	"	"
"	YIZM	♂	A	"	"	"	"
Ducula oceanica ratakensis	YIZM	♂	A	"	09-22-31	"	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♂	A	"	"	Lost	"
"	YIZM	♂	*Juv*	"	"	Skin	"
"	YIZM	♀	-	"	"	"	"
"	YIZM	♀	-	"	09-23-31	Lost	"
"	YIZM	♀	A	"	"	"	"
"	YIZM	♀	A	"	"	Skin	"
Urodynamis taitensis	YIZM	♂	A	"	"	Lost	"


169°55'00"E
170°00'00"
170°05'00"
09°15'00"N
09°15'00"
09°10'00"
09°10'00"
09°05'00"
09°05'00"
Jabonwar
Aradojairen
Enego
Aradojairik
Loj
ERIKUB
0 1 2 3 4
STATUTE MILES
Guro
Jeldoni
Bogweido
Bogella
Bokku
Jogan
Erikub
Bogengoa
169°55'00"
170°00'00"
170°05'00"

ERIKUB ATOLL

Location: 09°08' N x 170°02' E.

Shape and Size: Narrow oblong shaped (oriented in a northwest-southeast direction); Length - 17 miles; Width - 5 miles; Lagoon size - 116.34 square miles; Total land area - 0.35 square miles; Number of islands - 14 (Freeman, 1951); Height - 20+ feet.

Soil: Beaches (ocean side) - mainly coral rock, some cobblestone, some sandy area; Beach (lagoon side) - mainly sandy, occasional coral rock outcrops; Inland - mostly sand mixed with rock, some humus areas.

Vegetation: Twenty-two species; Lagoon beach area - Scaevola and Messerschmidia; Seaward beach area - Cocos and Pisonia; Inland area - Cocos, Pisonia, Pandanus with thick undergrowth. Most of Erikub Island planted to coconut trees.

Climate: Moderately wet, 70-80 inches of rainfall annually; Mean annual temperature - 82° F.; Wind - prevalent from the northeast (Fosberg, 1956).

Human Population: Past - Some Wotje natives in semipermanent residence, not permanently inhabited, periodic visits by islanders for fishing and harvesting nuts from the planted coconut trees (Fosberg, 1956); Present - 1964, uninhabited but visited periodically for copra and fish, several well-kept unoccupied native huts on Erikub Island used during copra harvesting times, 1967, uninhabited, huts deteriorating.

Scientific Visits: POBSP - 24-28 October 1964, 4 May 1967.

Avifauna: Eighteen species of birds are presently known from Erikub Atoll. These include 11 seabirds, 5 shorebirds, 1 heron, and 1 duck. Six of these species are known breeders, 6 others are possible breeders, 5 are migrants, and 1 is an accidental.

Erikub Atoll is the only known locality in the Marshall and Gilbert Islands from which Chen hyperborea has been recorded.

Eighteen species are listed in the following checklist which was derived solely from POBSP data collected in 1964 (1a) and 1967 (1b). These sources are referred to in the checklist by corresponding numbers and letters. All 18 species are new species records for Erikub Atoll; these are marked by a single asterisk. The six species marked by double asterisks are new atoll breeding records.

Erikub Atoll Avifauna Checklist

Species	Status	Source
1) Phaethon rubricauda*	Resident breeder ?	la
2) Phaethon lepturus*	Resident breeder**	lab
3) Sula sula*	Resident breeder ?	la
4) Sula leucogaster*	Resident breeder**	lab
5) Fregata minor*	Resident breeder ?	lab
6) Fregata ariel*	Resident breeder ?	lb
7) Egretta sacra*	Resident breeder ?	lab
8) Chen hyperborea*	Accidental	la
9) Pluvialis dominica*	Migrant	lab
10) Numenius tahitiensis*	Migrant	lab
11) Heteroscelus incanum*	Migrant	lab
12) Arenaria interpres*	Migrant	lab
13) Crocethia alba*	Migrant	la
14) Sterna sumatrana*	Resident breeder**	lab
15) Thalasseus bergii*	Resident breeder ?	lab
16) Anous stolidus*	Resident breeder**	lab
17) Anous tenuirostris*	Resident breeder**	lab
18) Gygis alba*	Resident breeder**	lab

POBSP personnel have collected 62 specimens of 14 species (Table 10). All of these species are specimen records of species not previously known from Erikub Atoll. No other specimens are known from the atoll.

TABLE 10. Bird specimens collected by POBSP from Erikub Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Phaethon lepturus	USNM 494865	♀	-	Aradojairen	10-25-65	Skin	Huber
Sula leucogaster	" 494916	♀	-	Bogengoa	10-27-64	"	Lehner
" "	" 494917	♀	-	Aradojairik	"	"	Amerman
" "	" 494918	♀	-	"	"	"	"
" "	" 494919	♀	-	"	"	"	Huber
" "	" 494920	-	-	"	"	"	"
" "	" 494921	♂	-	"	"	"	Amerson
" "	" 494922	♂	-	"	"	"	"
" "	" 494923	♂	-	"	"	"	"
" "	" 494924	♂	-	"	"	"	"
" "	" 496247	♂	-	"	10-26-64	"	Clapp
Fregata minor	" 496246	♀	-	"	"	"	Huber
Egretta sacra	" 494855	♀	-	Enego	10-25-64	"	"
" "	" 494856	♂	-	Bogweido	10-26-64	"	"
" "	" 543458	♂	A	Bogengoa	5-4-67	"	Amerson
Chen hyperborea	" 494851	♂	-	Erikub	10-27-64	"	Huber

TABLE 10. Bird specimens collected by POBSP from Erikub (cont.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	USNM 494746	♀	-	Loj	10-24-64	Skin	Huber
Numenius tahitiensis	" 494824	♂	-	"	"	"	"
Heteroscelus incanum	" 494896	♂	-	Aradojairen	10-25-64	"	"
" "	" 494897	♂	-	"	"	"	"
" "	" 543500	♀	A	Bogengoa	5-4-67	"	Amerson
" "	" 543501	♂	A	Erikub I	"	"	"
Arenaria interpres	" 494761	-	-	Loj	10-24-64	"	Huber
" "	" 494762	?	-	"	"	"	"
" "	" 543428	♀	A	Bogengoa	05-04-67	"	Amerson
Crocethia alba	" 494794	♀	-	"	10-27-64	"	Lehner
Sterna sumatrana	" 494591	♂	-	Enego	10-25-64	"	Huber
" "	" 494592	♀	-	Aradojairik	10-26-64	"	"
" "	" 494593	♂	-	"	"	"	"
" "	" 494594	♂	-	"	"	"	"
" "	" 494595	♀	-	"	"	"	"
" "	" 494596	♀	chick	"	10-27-64	"	Amerman
" "	" 494597	♂	"	"	"	"	"
Anous stolidus	" 494656	♂	"	Loj	10-25-64	"	Huber
" "	" 494657	♀	-	Enego	"	"	"
" "	" 494658	♂	-	Jabonwar	10-26-64	"	Clapp
" "	" 494659	♂	-	Aradojairen	"	"	Huber
" "	" 494660	♀	-	"	"	"	"
" "	" 494661	♂	-	"	"	"	"
" "	" 494662	♂	-	Bogengoa	10-27-64	"	Lehner
" "	" 543414	?	SA	Erikub I	5-4-67	"	Amerson
" "	" 543415	?	I	Bogengoa	"	"	"
" "	" 543473	♂	A	Erikub I	"	"	"
" "	" 543474	♀	A	Bogengoa	"	"	"
Anous tenuirostris	" 494539	♂	-	Loj	10-24-64	"	Huber
" "	" 494540	♀	-	"	10-25-64	"	"
" "	" 494541	-	-	"	"	"	"
" "	" 494542	♀	-	"	"	"	Wislocki
" "	" 494543	♀	-	"	"	"	Huber
" "	" 494544	♂	-	Enego	"	"	Clapp
" "	" 494545	♀	-	"	"	"	Huber
" "	" 494546	♂	-	"	"	"	Lehner
" "	" 543499	♂	A	Bogengoa	5-4-67	"	Amerson
" "	" 543440	♀	A	"	"	"	"
" "	" 543441	♀	A	"	"	"	"
" "	" 543442	♀	A	Erikub I	"	"	"
" "	" 543495	♂	A	"	"	"	"
Gygis alba	" 494628	♀	-	Loj	10-24-64	"	Clapp
" "	" 494629	♀	-	"	"	"	Wislocki
" "	" 494630	♂	-	"	"	"	Huber
" "	" 494631	♀	-	Aradojairik	10-27-64	"	"
" "	" 543498	♀	A	Bogengoa	5-4-67	"	Amerson

Species Accounts

1) Phaethon rubricauda — Red-tailed Tropicbird

Habitat -- 27 October 1964 - flying over Erikub Island.

Numbers -- 27 October 1964 - one observed on Erikub; May 1967 - Erikub and Bogengoa none observed.

Status -- Resident breeder? Possible breeder but no breeding activity observed.

Specimen Records -- None. This is a new species sight record for Erikub Atoll.

2) Phaethon lepturus — White-tailed Tropicbird

Habitat -- October 1964 - observed flying over Enego, Aradojairen, and Bogengoa, reported nesting in a tree on Enego by a visiting native; May 1967 - observed flying above Bogengoa.

Numbers -- October 1964 - Enego 4, Aradojairen 1, Bogengoa 1; May 1967 - Bogengoa 2.

Status -- Resident breeder. October 1964 - no nest observed, but one half-grown chick was seen which visiting natives said came from Enego (they had collected it to eat); May 1967 - in-flight courtship behavior observed. This is a new breeding record for the atoll.

Specimen Records -- Other - none; POBSP - one (Table 10). This is a new species and specimen record from Erikub Atoll.

3. Sula sula — Red-footed Booby

Habitat -- October 1964 - seen offshore (at sea) of Erikub Island on 26 October, attempting to roost in Pisonia tree on Aradojairik on 27 October.

Numbers -- October 1964 - Erikub 1, Aradojairik 1.

Status -- Resident breeder? Possible breeder but no evidence of breeding.

Specimen Records -- None. This is a new sight record for Erikub Atoll.

4. Sula leucogaster — Brown Booby

Habitat -- October 1964 - flying offshore of Loj, roosting (daytime) on Bogengoa, nesting and roosting on windward (east) side of

Aradojairik - nests, built of sticks and leaves, placed on open ground (coral rock and humus) under Pisonia and Cocos trees; May 1967 - adults and immatures observed flying over the lagoon on southwest side.

Numbers -- October 1964 - Loj 1, Bogengoa 1, Aradojairik 200; May 1967 - over lagoon 10; number banded 46.

Status -- Resident breeder. October 1964 - Aradojairik Island, approximately 75 nests (about 1/2 with eggs, 1/4 with chicks, and 1/4 prelaying). This is a new breeding record.

Specimen Records -- Other - none; POBSP - 10 (Table 10). This is a new species and specimen record for the atoll.

5) Fregata minor — Great Frigatebird

Habitat -- October 1964 - flying over Erikub, Loj, Enego, Aradojairen, and Bogella, roosting in Pisonia trees on Aradojairik; May 1967 - adults and immatures flying above the lagoon and Erikub and Bogengoa.

Numbers -- October 1964 - one on all the above islands except Aradojairik which had 75 (Table 11); May 1967 - Erikub 2, Bogengoa 4, above lagoon 5.

Status -- Resident breeder? Possible breeder but no evidence of breeding.

Specimen Records -- Other - none; POBSP - 1 (Table 10). This is a new species and specimen record for Erikub Atoll.

6) Fregata ariel — Lesser Frigatebird

Habitat -- May 1967 - flying above Erikub and Bogengoa, males only.

Numbers -- May 1967 - Erikub 1, Bogengoa 2.

Status -- Resident breeder? May 1967 - possible breeder but no evidence of breeding.

Specimen Records -- None. All attempts to collect a specimen failed. This observation constitutes a new species sight record for Erikub Atoll.

7) Egretta sacra — Reef Heron

Habitat -- October 1964 - present on all islands except Aradojairen, Jabonwar, Bogella, and Bokku - seen mainly on exposed coral rock on seaward sides of each island, occasionally found on lagoon beaches; May 1967 - rocky seaward beach of Erikub and Bogengoa.

Table 11. Bird Population Estimates for Islands of Erikub Atoll
October 24-28, 1964 (asterisks indicate nesting).

Species	Erikub	Loj	Enego	Aradojairen	Jabonwar	Aradojairik	Guro	Jeldoni	Bogella	Jogan	Bogweido	Bokku	Bogengoa
White-tailed Tropicbird	-	-	2*	-	-	-	-	-	-	-	-	-	-
Red-tailed Tropicbird	1	-	-	-	-	-	-	-	-	-	-	-	-
Brown Booby	-	1	-	-	-	200*	-	-	-	-	-	-	1
Red-footed Booby	1	-	-	-	-	-	-	-	-	-	-	-	-
Great Frigatebird	1	1	1	1	-	75	-	-	1	-	-	-	-
Reef Heron	4	1	1	-	-	1	1	1	-	1	1	-	1
Snow Goose	1	-	-	-	-	-	-	-	-	-	-	-	-
Golden Plover	5	20-30	60-70	15-20	1	14	4	8	5	5	5	-	10
Ruddy Turnstone	20	25-35	75	10-20	10-12	10	5	4	10	10	10	-	15
Bristle-thighed Curlew	3	15-20	40-50	1	1	-	3	8	-	3	-	-	10
Wandering Tattler	25	2	-	3	-	1	3	6	2	2	2	2	20
Sanderling	-	-	-	-	-	-	-	-	-	-	-	-	-
Black-naped Tern	-	-	2	-	2	25*	2	-	-	-	-	4	3
Crested Tern	-	1	-	3	2	2	-	-	-	-	-	-	-
Brown Noddy	30	5-10	100	25-50	5-10	-	-	-	-	-	-	-	75-100
Black Noddy	20*	25-50	150-250*	100-200*	100-150*	20-40	45-50*	30	50-75*	50-75*	50-75*	-	400*
White Tern	200*	300-500*	400-500*	300-400*	250*	200*	30-35*	100	10	100-150*	100-150*	1	2000*

Numbers -- October 1964 - usually one on each island, except four on Erikub (Table 11); May 1967 - Erikub 2, Bogengoa 5.

Status -- Resident breeder? No evidence of breeding, however, there is a possibility that this species breeds on Erikub Atoll.

Specimen Records -- Other - none; POBSP - 3 (Table 10). This collection constitutes a new species and specimen record for Erikub Atoll.

8) Chen hyperborea Snow Goose

Habitat -- 27 October 1964 - sitting on seaward beach of Erikub Island.

Number -- 27 October 1964 - one seen and collected on Erikub Island.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - 1 (Table 10). This is a new species and specimen record for all of Micronesia.

9) Pluvialis dominica Golden Plover

Habitat -- October 1964 - observed on sandy and rocky beaches of all islands except Bokku; May 1967 - recorded on sandy lagoon beaches and rocky seaward beaches of Erikub and Bogengoa.

Numbers -- October 1964 - total observed 177, range 1-70 per island (Table 11 for numbers found on each island); May 1967 - Erikub 5, Bogengoa 10.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 1 (Table 10). This specimen represents a new species and specimen record for Erikub Atoll.

10) Numenius tahitiensis Bristle-thighed Curlew

Habitat -- October 1964 - present on sandy and rocky beaches of all islands except Aradojairik, Bogella, Bogweido, and Bokku; May 1967 - on rocky seaward beaches of Erikub and Bogengoa.

Numbers -- October 1964 - total population 84-99, range 1-50 per island (see Table 11 for population from each island); May 1967 - Erikub 2, Bogengoa 4.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 1 (Table 10). This is a new species and specimen record for Erikub Atoll.

11) Heteroscelus incanum — Wandering Tattler

Habitat -- October 1964 - present on seaward beaches of all islands except Enego and Jabonwar; May 1967 - on rocky beaches of Erikub and Bogengoa.

Numbers -- October 1964 - total population 63-68, range 1-25 per island (see Table 11 for population estimate from each island); May 1967 - Erikub 3, Bogengoa 5.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 4 (Table 10). These specimens represent a new species and specimen record for Erikub Atoll.

12) Arenaria interpres — Ruddy Turnstone

Habitat -- October 1964 - present on sandy and rocky beaches of all islands except Bokku; May 1967 - on sand and coral rock beaches of Erikub and Bogengoa.

Numbers -- October 1964 - total population 204-226, range 4-75 per island (Table 11 for population of each island); May 1967 - Erikub 6, Bogengoa 8.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 3 (Table 10). This Ruddy Turnstone collection represents a new species and specimen record for Erikub Atoll.

13) Crocethia alba — Sanderling

Habitat -- 27 October 1964 - sandy beach of Bogengoa.

Numbers -- 27 October 1964 - only one seen during entire visit to Erikub Atoll.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 1 (Table 10). This is a new species and specimen record for Erikub Atoll.

14) Sterna sumatrana — Black-naped Tern

Habitat -- October 1964 - roosting on sandy beach of Enego, Jabonwar, Aradojairik, Guro, Bakku, and Bogengoa; nesting on bare coarse pebbles of upper beach (next to vegetation, west side) on Aradojairik; May 1967 - adults observed flying above the southwest portion of the lagoon.

Numbers -- October 1964 - Enego 2, Jabonwar 2, Guro 2, Bogengoa 4, Aradojairik 25; May 1967 - lagoon 10.

Status -- Resident breeder. October 1964 - Aradojairik 4 nests (2 with eggs, 2 with half-grown chicks), Guro 2 adults appeared to have a nest but none could be found. This is a new breeding record for Erikub Atoll.

Specimen Record -- Other - none; POBSP - 7 (Table 10). These Black-naped Terns represent a new species and specimen record for Erikub Atoll.

15) Thalasseus bergii Crested Tern

Habitat -- October 1964 - roosting on and flying over sand bars of Loj, Aradojairen, Jabonwar, Aradojairik; May 1967 - adults observed on sand and rocky beaches of Erikub and Bogengoa, also flying over the lagoon.

Numbers -- October 1964 - Loj 1, Aradojairen 3, Jabonwar 2, and Aradojairik 2; May 1967 - Erikub 2, Bogengoa 3, lagoon 5.

Status -- Resident breeder? May possibly breed but no breeding activity observed.

Specimen Records -- None. This observation constitutes a new species sight record for Erikub Atoll.

16) Anous stolidus Brown Noddy

Habitat -- October 1964 - roosting in Pisonia trees and on the beaches of Erikub, Bogengoa, Loj, Enego, Aradojairen, and Jabonwar; May 1967 - roosting and nesting in Cocos trees on Erikub and Bogengoa, also flying above the lagoon.

Numbers -- October 1964 - total population 240-300, range 10-100 per island (see Table 11 for estimates for each island); May 1967 - Erikub 200, Bogengoa 300, lagoon 100.

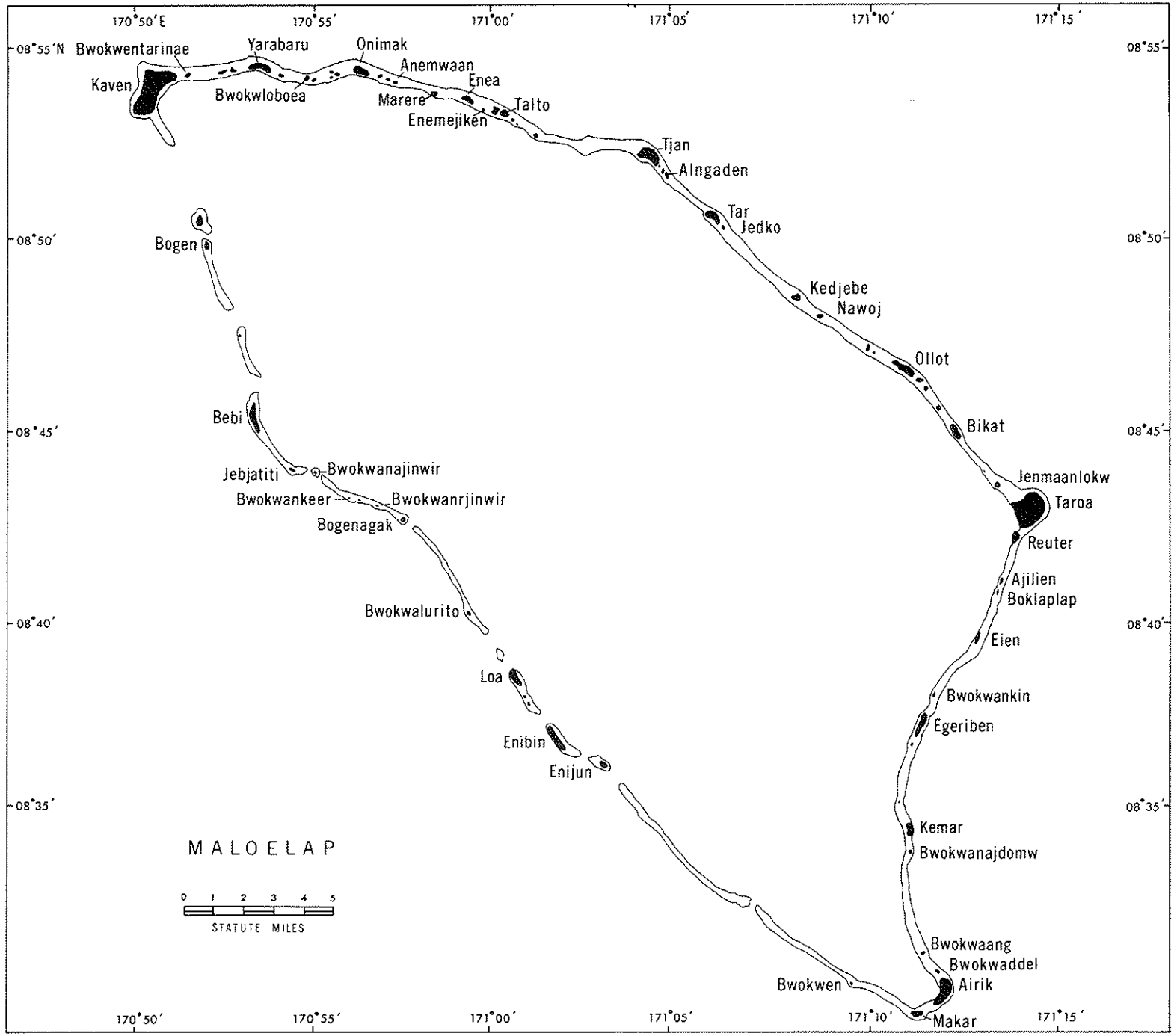
Status -- Resident breeder. October 1964 - not breeding; May 1967 - eggs to fledglings present. This is a new breeding record for the atoll.

Specimen Records -- Others - none; POBSP - 11 (Table 10). This is a new species and specimen record for Erikub Atoll.

17) Anous tenuirostris Black Noddy

Habitat - October 1964 - roosting and flying over all islands except Bokku; nesting in tops of Pisonia trees on Erikub, Enego, Aradojairen, Jabonwar, Guro, Bogella, Jogan, Bogweido, and Bogengoa; May 1967 - roosting and nesting in tops of Pisonia trees at Erikub and Bogengoa, also flying over lagoon.

348-415 O-69—7


170°50'E
170°55'
171°00'
171°05'
171°10'
171°15'
08°55'N
08°50'
08°45'
08°40'
08°35'
Bwokwentarinae
Yarabaru
Onimak
Anemwaan
Enea
Taito
Kaven
Bwokwloboea
Marere
Enemejiken
Tjan
Alngaden
Tar
Jedko
Kedjebe
Nawoj
Ollot
Bikat
Jenmaanlokw
Taroa
Reuter
Ajilien
Boklaplap
Eien
Bwokwankin
Egeriben
Kemar
Bwokwanajdomw
Bwokwaang
Bwokwaddel
Airik
Makar
Bwokwen
Bogen
Bebi
Jebjatiti
Bwokwanajinwir
Bwokwankeer
Bwokwanrjinwir
Bogenagak
Bwokwalurito
Loa
Enibin
Enijun
MALOELAP
0 1 2 3 4 5
STATUTE MILES

MALOELAP ATOLL

Location: 08°45' N x 171°03' E.

Shape and Size: Elongated triangle-shaped; Tip (pointed northwest) to base (southeast side) - 32 miles; Widest point (near base) - 16 miles; Total lagoon area - 388.48 square miles; Total dry land area - 3.81 square miles; Number of islands - 89; Height - 10 to 15 feet (Fosberg, 1956; U.S. Navy, 1964).

Soil: No available data. Said to be most fertile of all the Marshall Islands (Fosberg, 1956).

Vegetation: Eleven known species; more luxuriantly vegetated than most Marshall Islands; abundant Cocos, Artocarpus, and Pandanus (Wiens, 1957; Fosberg, 1956).

Climate: Moderately wet to wet, about 100 inches of rainfall yearly; Mean air temperature - 82° F., Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 1,000 in mid 1800's (Findlay, 1886); 457 in 1948 (Freeman, 1951); Present - inhabited, 636 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese visit (H. Orii) 13-14 September 1931; Pacific Science Board (H. J. Wiens) summer 1956.

Avifauna: Five species of birds are known from Maloelap Atoll. These 5 species include 1 seabird, 2 shorebirds, a heron, and a domestic fowl. No birds are known to breed on the atoll; however, 3 species are potential breeders.

A checklist of the bird species recorded on Maloelap Atoll follows. The source material for this list includes: (1) Baker, 1951; (2) Hand-list of Japanese birds, (a) 1932, (b) 1942, (c) 1958; (3) Yale Cross-Cultural Survey, 1943; and (4) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters.

Maloelap Atoll Avifauna Checklist

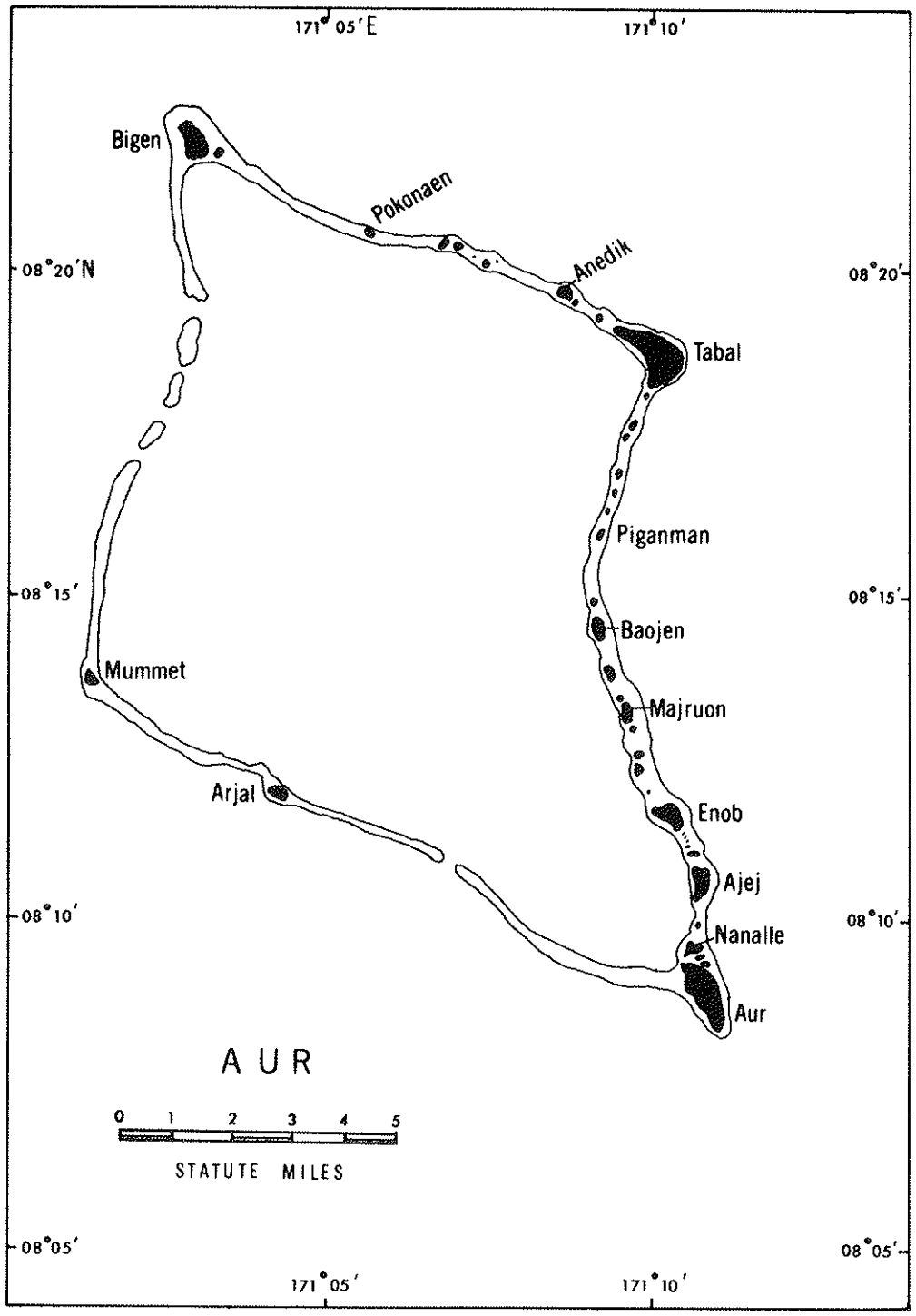
Species	Status	Source
1) Egretta sacra	Resident breeder ?	1, 2b, 4
2) Gallus gallus	Introduced breeder ?	3
3) Numenius tahitiensis	Migrant	1, 2b, 4
4) Heteroscelus incanum	Migrant	1, 2b
5) Thalasseus bergii	Resident breeder ?	1, 2ab, 4

Bird specimens collected from Maloelap Atoll include 12 specimens of three species, all of which are located in the Yamashina collection in Tokyo, Japan.

TABLE 12. Bird specimens collected from Maloelap Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	YIZM	♂	Juv	Maloelap I*	09-14-31	Skin	H. Orii
Numenius tahitiensis	YIZM	♂	-	"	"	"	"
" "	YIZM	♂	-	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	-	"	09-13-31	"	"
" "	YIZM	♀	-	"	09-14-31	"	"
" "	YIZM	♀	-	"	"	"	"
" "	YIZM	♀	-	"	"	"	"
" "	YIZM	♀	-	"	"	"	"
Thalasseus bergii	YIZM	♂	-	"	09-13-31	"	"
" "	YIZM	♂	Juv	"	"	"	"
" "	YIZM	♀	-	"	"	"	"

*Probably Kaven Island


171° 05′ E
171° 10′
Bigen
Pokonaen
Anedik
08° 20′ N
08° 20′
Tabal
Piganman
08° 15′
08° 15′
Baojen
Mummet
Majruon
Arjal
Enob
Ajej
08° 10′
08° 10′
Nanalle
Aur
AUR
0 1 2 3 4 5
STATUTE MILES
08° 05′
08° 05′
171° 05′
171° 10′

AUR ATOLL

Location: 08°16' N x 171°06' E.

Shape and Size: Roughly diamond-shaped; Tip to tip (northwest-southeast) - 15 miles; Widest point (northeast-southwest) - 9 miles; Total lagoon area - 92.58 square miles; Total dry land area - 2.17 square miles; Number of islands-42; Height - 8 feet (Freeman, 1951; U.S. Navy, 1964).

Soil: No available data.

Vegetation: One species known; Cocos common, most islands are wooded (Findlay, 1886; U.S. Navy, 1964).

Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 1,000 in mid 1800's (Findlay, 1886); 418 in 1948 (Freeman, 1951); Present - inhabited, 372 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese Expedition (H. J. Orii and S. Kawakami) 13, 25, 26 September 1931, 6 January 1933.

Avifauna: Seven species of birds have been recorded from Aur Atoll. These include 5 seabirds, 1 cuckoo, and 1 domestic fowl. None are known to breed but 6 species are potential breeders. One species, the cuckoo, is migratory.

The known bird species from Aur Atoll are included in the following checklist. Source material for this list includes: (1) Baker, 1951; (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (3) Yale Cross-Cultural Survey, 1943; (4) Bogert, 1937; and (5) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters.

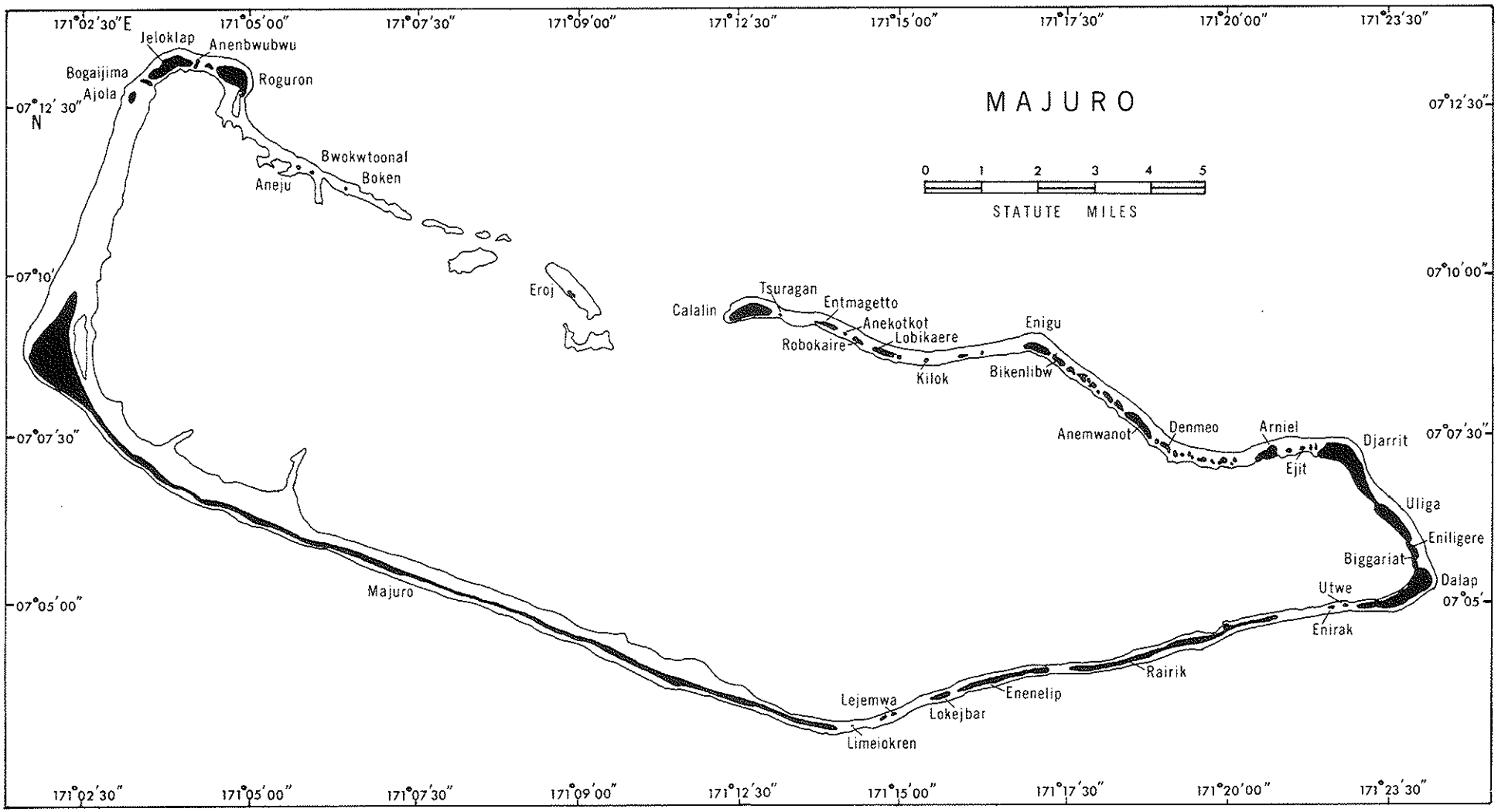
Aur Atoll Avifauna Checklist

Species	Status	Source
1) *Gallus gallus*	Introduced breeder ?	3
2) *Sterna sumatrana*	Resident breeder ?	1, 2ab, 5
3) *Thalasseus bergii*	Resident breeder ?	1, 2ab, 5
4) *Anous stolidus*	Resident breeder ?	1, 2ab, 5
5) *Anous tenuirostris*	Resident breeder ?	1, 2ab, 5
6) *Gygis alba*	Resident breeder ?	1, 2ab, 5
7) *Urodynamis taitensis*	Migrant	1, 2ab, 4, 5

Bird specimens collected from Aur Atoll include 18 specimens of 6 species, all in the Yamashina collection.

TABLE 13. Bird specimens collected from Aur Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sterna sumatrana	YIZM	♂	A	Aur I	09-26-31	Skin	H. Orii
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	A	"	"	"	"
" "	YIZM	♀	A	"	"	"	"
" "	YIZM	♀	A	"	"	"	"
Thalasseus bergii	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	Juv	"	"	"	"
Anous stolidus	YIZM	♂	Juv	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
Anous tenuirostris	YIZM	♂	A	"	09-25-31	"	"
Gygis alba	YIZM	-	N	"	09-26-31	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	A	"	09-13-31	"	"
" "	YIZM	♀	A	"	09-26-31	"	"
Urodynamis taitensis	YIZM	♀	A	Aur I	09-25-31	"	"
" "	YIZM	♀	A	"	01-06-33	"	S. Kawakami


MAJURO
171°02'30"E
171°05'00"
171°07'30"
171°09'00"
171°12'30"
171°15'00"
171°17'30"
171°20'00"
171°23'30"
07°12'30" N
07°10'
07°07'30"
07°05'00"
0 1 2 3 4 5
STATUTE MILES
Jeloklap
Anenbwubwu
Bogaijima
Ajola
Roguron
Bwokwtoonal
Aneju
Boken
Eroj
Calalin
Tsuragan
Entmagetto
Anekotkot
Lobikaere
Robokaire
Kilok
Enigu
Bikenlibw
Anemwanot
Denmeo
Arniel
Djarrit
Ejit
Uliga
Eniligere
Biggariat
Dalap
Utwe
Enirak
Majuro
Rairik
Enenelip
Lokejbar
Lejemwa
Limeiokren

MAJURO ATOLL

Location: 07°09' N x 171°12' E.

Shape and Size: Irregular rectangle-shaped; Tip to tip (east-west) - 30 miles; Widest point (north-south) - 10 miles; Total lagoon area - 113.92 square miles; Total dry land area - 3.54 square miles; Number of islands - 57; Height - 8-10+ feet (Doran, 1959; U.S. Navy, 1964).

Soil: No available data.

Vegetation: Nine species known; most islands with moderate to heavy cover of Cocos. Other vegetation includes: Scaevola, Messerschmidia, Wedelia, Ipomea, Pandanus, and Artocarpus (Doran, 1959; U.S. Navy, 1964).

Climate: Very wet, about 140 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east and southeast (Fosberg, 1956; U.S. Navy, 1964).

Human Population: Past - inhabited, 1,500 to 3,000 in mid 1800's(Findlay, 1886), 1,473 in 1948 (Freeman, 1951); Present - inhabited, 4,612 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese Expedition (H. Orii) 12,27 September 1931; POBSP - 10-12 June 1966.

Avifauna: Fifteen bird species are known from Majuro Atoll. Of these 15, 7 are seabirds, 5 are shorebirds, 1 is a heron, 1 is a domestic fowl, and 1 is a parrot. None of the bird species are known to breed on Majuro Atoll; however, 9 are considered to be potential breeders.

Dayle Husted, of the POBSP visited Majuro Atoll on 10 and 11 June 1966 while aboard the U.S. Coast Guard Cutter Basswood. Due to lack of time (arrived 0800 on the 10th, departed 1300 on the 11th) and no means of travel, only the main island and one nearby small island were surveyed. Bird observations were limited to a few sight observations; no birds were nesting. Thus, the normal annotated species accounts will not be given.

The following checklist presents the known bird species from Majuro Atoll. The sources for this checklist include: (1) POBSP band recovery; (2) POBSP field data, 1966; (3) Baker, 1951; (4) Hand-list of Japanese Birds, (a) 1932, (b) 1942, and (c) 1958; (5) Yale Cross-Cultural Survey, 1943; (6) MCZ collection; and (7) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters. The seven species marked with an asterisk are new species sight records for Majuro Atoll.

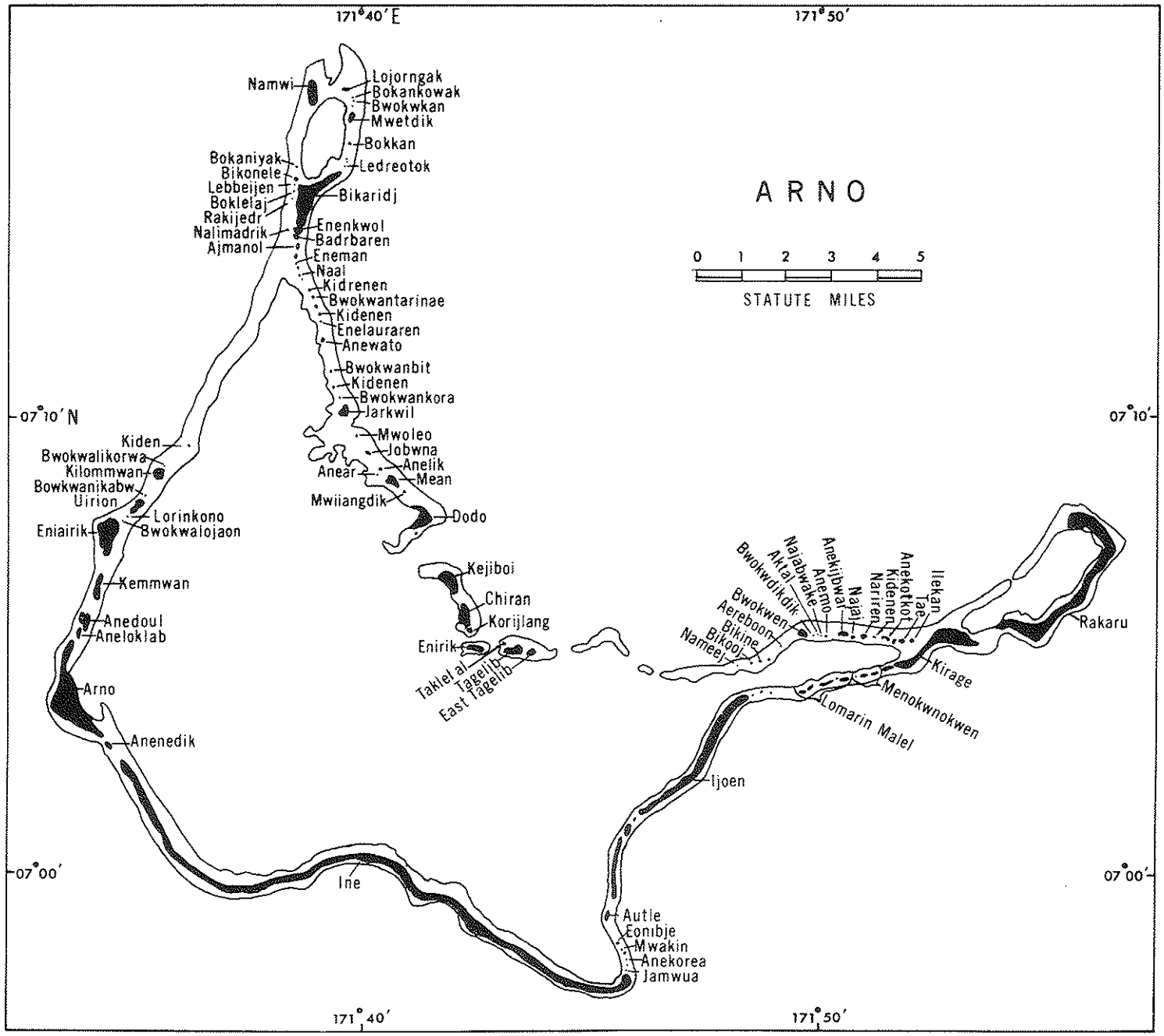
Majuro Atoll Avifauna Checklist

Species	Status	Source
1) *Sula sula**	Resident breeder ?	2
2) *Sula leucogaster**	Resident breeder ?	1, 2
3) *Egretta sacra*	Resident breeder ?	3, 4ab, 7
4) *Gallus gallus*	Introduced breeder ?	5
5) *Pluvialis dominica*	Migrant	3, 4abc, 7
6) *Charadrius mongolus*	Migrant	3, 4ab, 7
7) *Numenius tahitiensis*	Migrant	4ab
8) *Heteroscelus incanum*	Migrant	4bc, 7
9) *Arenaria interpres*	Migrant	1, 3, 4abc, 7
10) *Sterna sumatrana*	Resident breeder ?	2, 4abc, 6, 7
11) *Thalasseus bergii**	Resident breeder ?	2
12) *Anous stolidus**	Resident breeder ?	2
13) *Anous tenuirostris**	Resident breeder ?	2
14) *Gygis alba**	Resident breeder ?	2
15) *Parrot**	Introduced ?	2

Bird specimens taken at Majuro Atoll include 14 specimens of 6 species. All of the specimens, but one, are located in the Yamashina Institute for Zoology and Ornithology Museum, Tokyo, Japan.

TABLE 14. Bird specimens collected from Majuro Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	YIZM	♂	A	Majuro I	09-12-31	Lost	H. Ori
" "	YIZM	♂	A	"	"	Skin	"
" "	YIZM	♂	A	"	09-27-31	"	"
" "	YIZM	♂	A	"	"	Lost	"
Pluvialis dominica	YIZM	♀	A	"	09-12-31	Skin	"
" "	YIZM	♂	A	"	"	"	"
Charadrius mongolus	YIZM	♀	-	"	09-27-31	"	"
Heteroscelus incanum	YIZM	♀	A	"	"	Lost	"
" "	YIZM	♀	A	"	"	Skin	"
" "	YIZM	♀	A	"	"	Lost	"
Arenaria interpres	YIZM	♀	-	"	09-12-31	Skin	"
Sterna sumatrana	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	A	"	"	"	"
" "	MCZ 264056	♀	-	Majuro	??	"	-


171°40′E
171°50′
ARNO
0 1 2 3 4 5
STATUTE MILES
07°10′N
07°10′
07°00′
07°00′
171°40′
171°50′
Namwi
Lojorngak
Bokankowak
Bwokwkan
Mwetdik
Bokkan
Ledreotok
Bokaniyak
Bikonele
Lebbeijen
Boklelaj
Rakijedr
Nalimadrik
Ajmanol
Bikaridj
Enenkwol
Badrbaren
Eneman
Naai
Kidrenen
Bwokwantarinae
Kidenen
Enelauraren
Anewato
Bwokwanbit
Kidenen
Bwokwankora
Jarkwil
Mwoleo
Jobwna
Anelik
Anear
Mean
Mwiiangdik
Dodo
Kiden
Bwokwalikorwa
Kilommwan
Bowkwanikabw
Uirion
Lorinkono
Eniairik
Bwokwalojaon
Kemmwan
Anedoul
Aneloklab
Arno
Anenedik
Ine
Kejiboi
Chiran
Korijlang
Enirik
Taklel al
Tagelib
East Tagelib
Najabwake
Aktal
Bwokwdikdik
Anekijbwal
Anemo
Najaj
Bwokwen
Aereboon
Bikine
Bikool
Nameej
Narriren
Kidenen
Anekotkot
Tae
Ilekan
Rakaru
Kirage
Menokwnokwen
Lomarin Malel
Ijoen
Autle
Eonibje
Mwakin
Anekorea
Jamwua

ARNO ATOLL

Location: 07°05' N x 171°41' E.

Size and Shape: Irregular rectangle-shaped; Tip to tip (northwest-southeast) - 21 miles; Widest point (northeast-southwest) - 6-15 miles; Total lagoon area - 130.77 square miles; Total dry land area - 5.00 square miles; Number of islands-133; Height - 6 to 8 feet (Freeman, 1951; U.S. Navy, 1964).

Soil: Beach (ocean side) - mainly cobblestone; Beach (lagoon side) - mainly sandy; Interior - stony, loamy sand, some dark soil (Stone, 1951).

Vegetation: 126 species; Many Cocos trees and dense vegetation on most islands, some mangrove swamp (Anderson, 1951).

Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature-82° F., Wind - prevailing from east (Cox, 1951 ; Fosberg, 1956; U.S. Navy 1964).

Human Population: Past - inhabited, 3,000 in 1882 (Findlay, 1886), 1,071 in 1948 (Freeman, 1951); Present - inhabited, 1,301 in 1964 (U.S. Department of State, 1965).

Scientific Visits: Japanese Expeditions - September 1931, April 1933; Townsend-January 1900; SIM Project, Pacific Science Board - 8 June-12 September 1950; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Fifteen bird species have been recorded from Arno Atoll. These 15 species include 6 seabirds, 5 shorebirds, 1 heron, 1 domestic fowl, a pigeon, and a cuckoo. Five of the species are known breeders on the atoll, while 3 species are potential breeders. The type locality for Ducula oceanica ratakensis is Arno Atoll.

The following checklist presents those bird species known to occur at Arno Atoll. The sources used to compile this list include: (1) Marshall, (a) 1951, (b) 1957; (2) Yamashina, (a) 1932, (b) 1940; (3) POBSP band recovery; (4) Finsch, (a) 1880d,(b) 1884; (5) Townsend and Wetmore, 1919; (6) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (7) Yale Cross-Cultural Survey, 1943; (8) Takatsukasa and Yamashina, 1932;(9) Wiglesworth, 1891; (10) Momiyama, 1922; (11) Matthews, 1933; (12) Amadon, 1943; (13) Mayr, 1945; and (14) Baker, 1951. These sources are referred to in the checklist by the corresponding numbers and letters.

Arno Atoll Avifauna Checklist

Species	Status	Source
1) Puffinus tenuirostris	Accidental	2b, 6b, 14
2) Egretta sacra	Resident breeder, July	1ab, 6ab, 14

348-415 O-69—8

Species	Status	Source
3) Gallus gallus	Introduced breeder ?	1a, 7
4) Pluvialis dominica	Migrant	1a, 5, 6ab, 14
5) Numenius tahitiensis	Migrant	1a, 4a, 14
6) Limosa lapponica	Migrant	1a, 6b, 14
7) Heteroscelus incanum	Migrant	1a, 4b, 6b, 14
8) Arenaria interpres	Migrant	1a, 3
9) Sterna sumatrana	Resident breeder, spring (?), Sep., few	1a, 2a, 5, 6ab, 14
10) Thalasseus bergii	Resident breeder, spring (?); few	1a
11) Anous stolidus	Resident breeder (?) Many	1a, 14
12) Anous tenuirostirs	Resident breeder, spring; Many	1a, 14
13) Gygis alba	Resident breeder (?);few	1a, 14
14) Ducula oceanica ratakensis	Resident breeder, July;	1ab, 4a, 6ab, 8, 9, 10, 11, 12, 13, 14
15) Urodynamis taitensis	Migrant, summer; few	1a

Bird specimens collected at Arno Atoll includes 35 specimens of 12 species. These are located in three museums, Yamashina Institute for Zoology and Ornithology Museum, U. S. National Museum, and Museum of Comparative Zoology at Harvard. Some of J. T. Marshall's specimens have not been located.

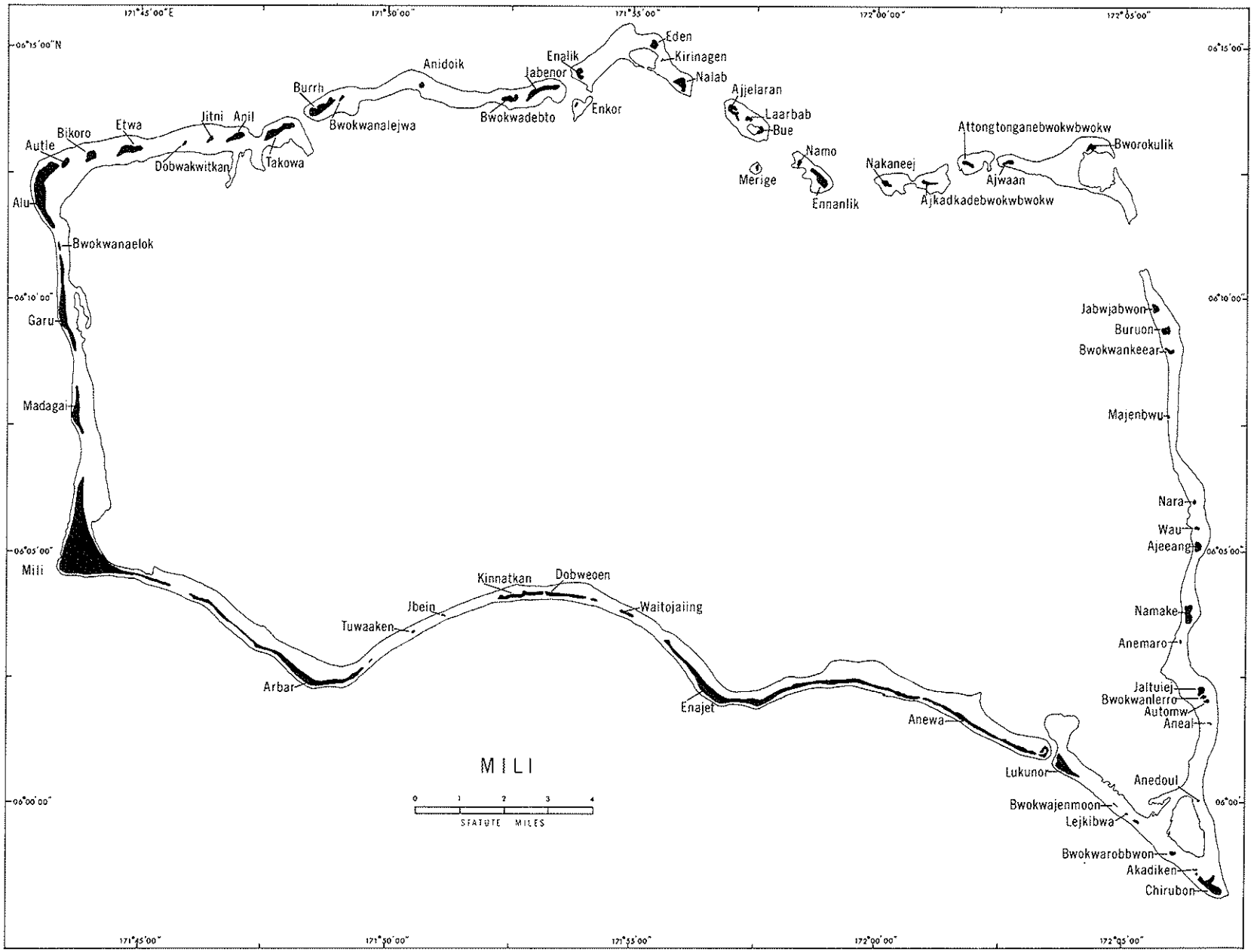
TABLE 15. Bird specimens collected from Arno Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus tenuirostris	YIZM	♀	A	Ine	04-21-33	Skin	S. Kawakami
Egretta sacra	MCZ	♂	A	Arno I	09-28-31	"	-
" "	YIZM	♂	A	"	"	Lost	H. Orii
" "	YIZM	♂	Juv	"	"	"	"
" "	YIZM	♀	A	"	"	"	"
" "	YIZM	♀	A	"	"	Skin	"
" "	?	♀	A	"	07-17-50		J.Marshall,Jr
Pluvialis dominica	USNM 212230	♀	-	-	01-25-00	"	C.Townsend
" "	USNM 212231	♂	-	-	"	"	"
" "	MCZ 81923	♀	-	Arno	"	"	"
" "	?			"			J.Marshall,Jr
Heteroscelus incanum	YIZM	♀	A	"	09-28-31	Skin	H. Orii
Arenaria interpres	?						J.Marshall,Jr
Sterna sumatrana	USNM 212143	♂	Juv	-	01-26-00	"	C.Townsend
" "	USNM 455153	♀	-	Autle	07-19-50	"	J.Marshall,Jr
" "	?						"
Thalasseus bergii	?						"
Anous stolidus	?						"

TABLE 15. Bird specimens collected from Arno Atoll (cont.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	USNM 455152	♂	-	Autle	07-19-50	Skin	J.Marshall,Jr
" "	?						"
" "	?						"
" "	?						"
" "	?						"
" "	?						"
" "	?						"
Gygis alba	?						"
Ducula oceanica ratakensis	YIZM	♂	A	Arno	09-11-31	Skin	H. Orii
" "	YIZM	♂	-	"	09-28-31	"	"
" "	YIZM	*♂	A	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	A	"	09-11-31	Lost	"
" "	YIZM	♀	-	"	09-28-31	Skin	"
" "	USNM 425202	♀	A	Ine	07-04-50	"	J.Marshall,Jr
" "	USNM 425203	♂	A	"	"	"	"
Urodynamis taitensis	USNM 455151	♂	-	"	06-29-50	"	"

* denotes type specimen


171°45'00"E
171°50'00"
171°55'00"
172°00'00"
172°05'00"
06°15'00"N
06°10'00"
06°05'00"
06°00'00"
Eden
Kirinagen
Englik
Nalab
Jabenor
Anidoik
Burrh
Bwokwanalejwa
Bwokwadebto
Enkor
Ajjelaran
Laarbab
Bue
Attongtonganebwokwbwokw
Bworokulik
Namo
Merige
Ennanlik
Nakaneej
Ajwaan
Ajkadkadebwokwbwokw
Jitni
Anil
Etwa
Bikoro
Autle
Dobwakwitkan
Takowa
Alu
Bwokwanaelok
Garu
Madagai
Mili
Jabwjabwon
Buruon
Bwokwankeear
Majenbwu
Nara
Wau
Ajeeang
Namake
Anemaro
Jaltuiej
Bwokwanlerro
Automw
Aneal
Kinnatkan
Dobweoen
Jbein
Tuwaaken
Waitojaiing
Arbar
Enajet
Anewa
Lukunor
Anedoul
Bwokwajenmoon
Lejkibwa
Bwokwarobbwon
Akadiken
Chirubon
MILI
0 1 2 3 4
STATUTE MILES

MILI ATOLL

Location: 06°08' N x 171°55' E.

Size and Shape: Irregular rectangle-shaped; Tip to tip (east-west) - 23 miles; Widest point (north-south) - 13 miles; Total lagoon area - 294.70 square miles; Total dry land - 6.15 square miles; Number of islands - 102; Height - 5 to 13 feet (Freeman, 1951; U.S. Navy, 1964).

Soil: No available data.

Vegetation: Four species known; most islands covered with Cocos and other trees, including Artocarpus, Carica, Ipomoea, and Musa (U.S. Navy, 1964).

Climate: Very wet, about 120-160 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east (Fosberg, 1956; U.S. Navy, 1964).

Human Population: Past - inhabited, 700 in 1881 (Findlay, 1886); 270 in 1948 (Freeman, 1951); Present - inhabited, 602 in 1964 (U.S. Department of State, 1965).

Scientific Visits: W. H. Hatheway - September 1952; U.S. Peace Corps (M. J. Trevor) - 1966-1968.

Avifauna: Twenty-two bird species have been recorded from Mili Atoll. These include 14 seabird species, 5 shorebird species, 1 heron, 1 cuckoo, and 1 domestic fowl. Four of the species are known to breed on the atoll, although 7 other species are potential breeders.

The following checklist presents the known bird species from Mili Atoll. This checklist was compiled from the following sources: (1) Baker, 1951; (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (3) Finsch, (a) 1880c, (b) 1884 , (c) 1893; (4) Yale Cross-cultural Survey, 1943; (5) Wiglesworth, 1891; (6) YIZM collection; and (7) Michael N. Trevor, pers. corresp., April 1968. These sources are referred to in the checklist by corresponding numbers and letters. Those 14 species marked by a single asterisk are new species records for Mili Atoll; the 4 species marked by double asterisks are new breeding records.

Mili Atoll Avifauna Checklist

Species	Status	Source
1) Pterodroma externa*	Accidental	7
2) Puffinus nativitatus*	Accidental	7
3) Phaethon rubricauda*	Visitor (possible breeder)	7
4) Sula sula* *	Resident breeder, winter, spring	7
5) Sula leucogaster* *	Resident breeder, winter spring	7

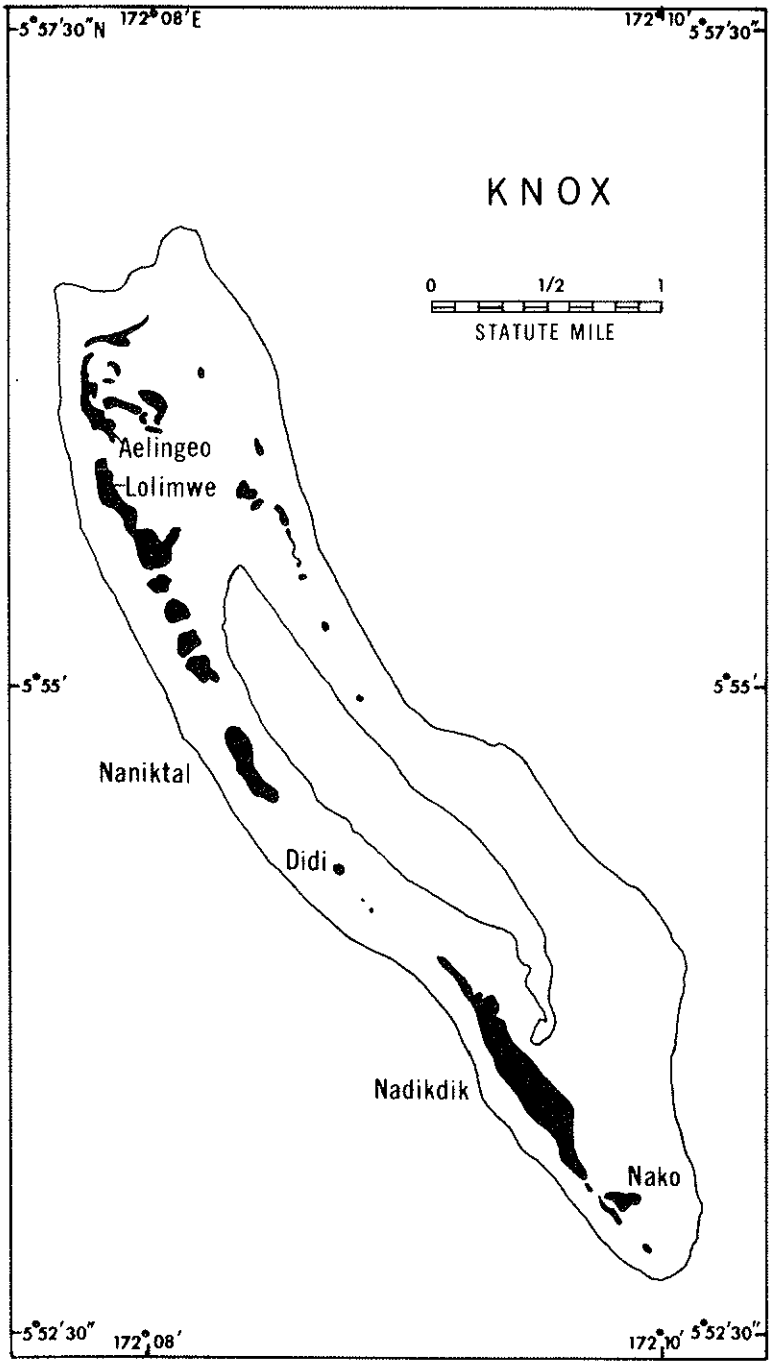
Species	Status	Source
6) Fregata minor**	Resident breeder, winter spring	7
7) Fregata ariel*	Visitor (March 28, 1968 ♂)	7
8) Egretta sacra**	Resident breeder	7
9) Gallus gallus	Introduced breeder ?	3c, 4
10) Pluvialis dominica	Migrant	1, 2ab, 3b, 6
11) Numenius phaeopus*	Migrant	7
12) Numenius tahitiensis*	Migrant	7
13) Heteroscelus incanum	Migrant	1,2ab, 3a, 5, 6
14) Arenaria interpres	Migrant	1, 2ab, 6
15) Sterna sumatrana*	Resident breeder ? common (spring)	7
16) Sterna lunata*	Visitor++	7
17) Sterna fuscata*	Visitor+	7
18) Thalasseus bergii	Resident breeder ?	1, 2ab, 5
19) Anous stolidus	Resident breeder ?	1, 2ab, 5
20) Anous tenuirostris	Resident breeder ?	1, 2ab, 5
21) Gygis alba	Resident breeder ?	1, 2ab, 5
22) Urodynamis taitensis*	Migrant	7

+occasional at night.
++one night record 29 March 1968.

Bird specimens collected from Mili Atoll include 15 specimens of 7 species. These are all located in the Yamashina Institute of Zoology and Ornithology Museum in Tokyo, Japan.

TABLE 16. Bird specimens collected from Mili Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	YIZM	♂	Juv	Mili I	09-10-31	Skin	H. Orii
" "	YIZM	♂	"	"	"	"	"
	YIZM	♀	"	"	"	"	"
Heteroscelus incanum	YIZM	♂	A	"	"	Lost	"
" "	YIZM	♀	A	"	"	"	"
	YIZM	♀	-	"	"	Skin	"
Arenaria interpres	YIZM	♀	A	"	"	"	"
" "	YIZM	♀	-	"	"	Lost	"
Thalasseus bergii	YIZM	♂	-	"	"	Skin	"
" "	YIZM	♂	-	"	"	"	"
Anous stolidus	YIZM	♂	A	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
Anous tenuirostris	YIZM	♀	A	"	"	"	"
Gygis alba	YIZM	♂	A	"	"	"	"
" "	YIZM	♀	A	"	"	"	"


5°57'30"N
172°08'E
172°10'
5°57'30"
KNOX
0
1/2
1
STATUTE MILE
Aelingeo
Lolimwe
5°55'
5°55'
Naniktal
Didi
Nadikdik
Nako
5°52'30"
172°08'
172°10'
5°52'30"

KNOX ATOLL

Location: 05°55' N x 172°09' E.

Shape and Size: Irregular cigar-shaped; Tip to tip (north-south) - 4 miles; Widest point - 0.75 mile; Total lagoon area - 1.32 square miles; Total dry land area - 0.38 square miles; Number of islands - 10; Height - 49 feet (Freeman, 1951; U.S. Navy, 1964).

Soil: No available data.

Vegetation: One species known; eastern islands covered with sparse vegetation; western islands covered with Cocos and dense vegetation (U.S. Navy, 1964).

Climate: Very wet, about 160 inches of rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from east (Fosberg, 1956; U.S. Navy, 1964).

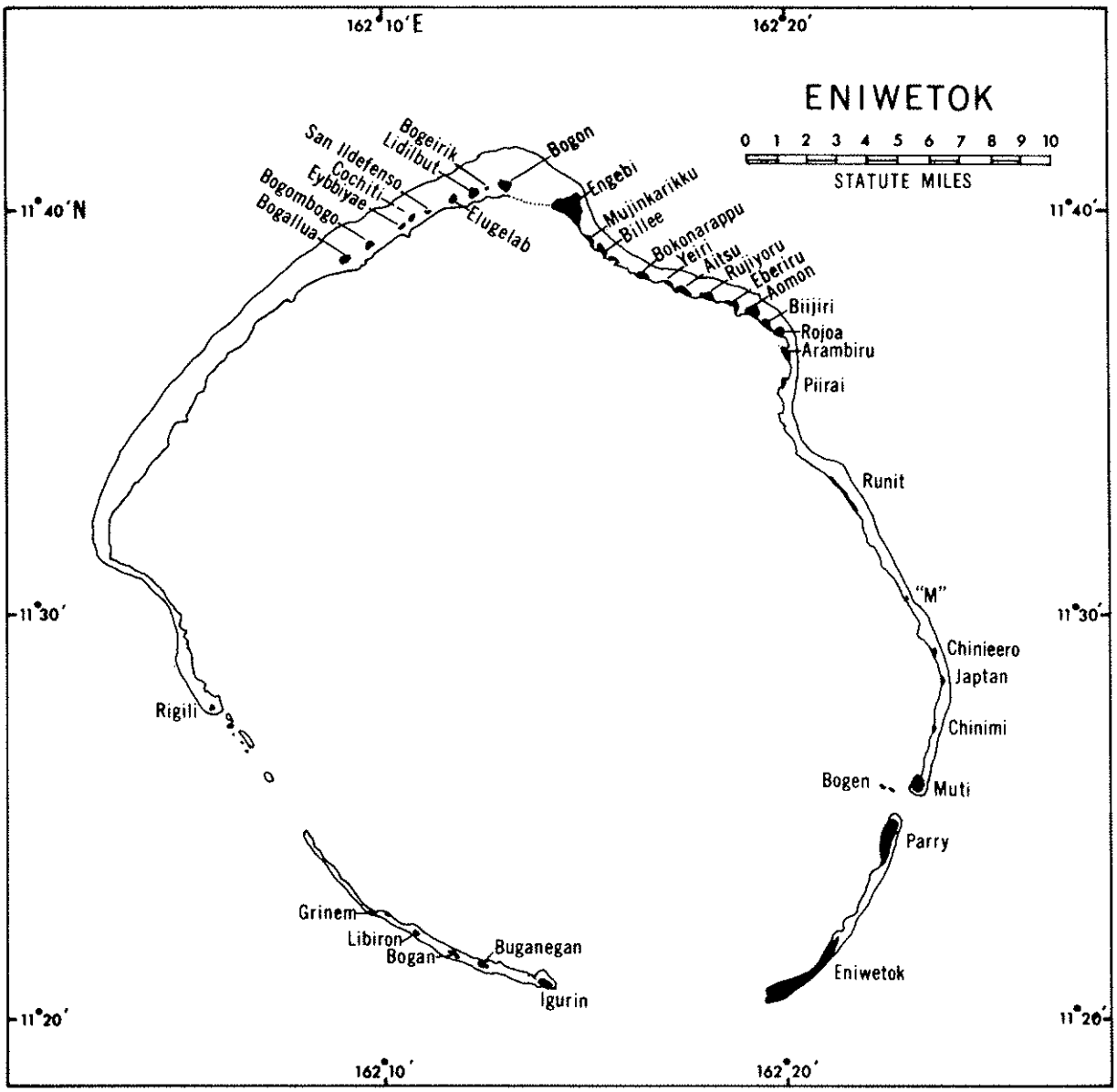
Human Population: Past - probably occasionally inhabited; Present - not inhabited, but occasionally visited by residents of Mili Atoll for harvesting copra.

Scientific Visits: None.

Avifauna: Only the Sooty Tern, Sterna fuscata (a sight record by Michael Trevor, pers. corresp., April 1968), has been recorded from Knox Atoll. Due to the closeness of Knox Atoll to Mili Atoll (2.1 nautical miles), 19 other species (breeders, migrants, and visitors) recorded on Mili Atoll probably also occur on Knox Atoll.

M A R S H A L L I S L A N D S

R A L I K C H A I N


ENIWETOK
0 1 2 3 4 5 6 7 8 9 10
STATUTE MILES
162°10′E
162°20′
11°40′N
11°40′
11°30′
11°30′
11°20′
11°20′
Bogeirik
Lidilbut
Bogon
San Ildefenso
Cochiti
Eybbiyae
Engebi
Mujimkarikku
Billee
Bogombogo
Bogallua
Elugelab
Bokonarappu
Yeiri
Aitsu
Rujiyoru
Eberiru
Aomon
Biijiri
Rojoa
Arambiru
Piirai
Runit
"M"
Chinieero
Japtan
Chinimi
Rigili
Bogen
Muti
Parry
Grinem
Libiron
Bogan
Buganegan
Igurin
Eniwetok

ENIWETOK ATOLL

Location: 11°30' N x 162°15' E.

Shape and Size: Irregular oval-shaped; Tip to tip (northwest-southeast) - 25 miles; Width - 20 miles; Total lagoon area - 395.34 square miles; Total dry land area - 2.47 square miles; Number of islands - 43; Height - 13 feet (Fosberg, 1956; Doran, 1959).

Soil: Beach (outer) - coral rock or gravel; Beach (inner) - coral sand; Interior - mostly sandy (Woodbury, 1962).

Vegetation: Ninety-five species; larger islands, varies from bare sand to dense jungle; smaller islands, Scaevola and Messerschmidia (Fosberg, 1956; Doran, 1959; Woodbury, 1962).

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature - 82° F.; Winds - prevailing from east to west (Fosberg, 1956).

Human Population: Past - inhabited, 30-40 in 1800's (Findlay, 1886); natives moved in 1947 for atomic tests, used by test personnel after 1947; Present - no natives inhabit the atoll, only military and civilian personnel.

Scientific Visits: Atomic Energy Commission (J.P.E. Morrison) 22 May - 7 June 1946; (A.B. Joseph) August 1964; University of Utah (A.M. Woodbury) February-May 1962; Bowling Green State University - 1964 to 1967; POBSP - 21 - 22 June 1966.

Avifauna: Thirty-two bird species are known from Eniwetok Atoll. These include 17 seabirds, 12 shorebirds, 1 heron, 1 domestic fowl, and 1 cuckoo. Fifteen species are potential breeders; however, only 9 species are known breeders.

Dayle Husted, of the POBSP, visited Eniwetok Atoll on 21 (arrived 0700) and 22 (departed 1000) June 1966 while aboard the U.S. Coast Guard Cutter Basswood. Observations were limited to the lagoon area. Brown Noddies, Black Noddies, White Terns, four Crested Terns, and a few light-phase Wedge-tailed Shearwaters were seen during the day. Two Golden Plovers flew across the lagoon just before sunset on the 21st. After dark, several Black-naped Terns, two of which were seen, were heard over the lagoon. Since these POBSP data are few, the normal annotated species accounts will be omitted.

The following checklist presents the recorded bird species from Eniwetok Atoll. This list was compiled from: (1) POBSP field data, 1966; (2) Woodbury, 1962; (3) Pearson and Knudsen, 1967; (4) Carpenter, Jackson, and Fall, in prep.; (5) Baker, 1951; (6) Arnold Joseph, pers. corresp., September 1964; (7) Gleize and Genelly, 1945; (8) Richardson, unpublished Ms; (9) Yale Cross-Cultural Survey, 1943, (10) USNM collection; (11) UUZM collection; and (12) BGSU collection. These sources are referred to in the checklist by the corresponding numbers and letters.

Eniwetok Atoll Avifauna Checklist

Species	Status	Source
1) Puffinus pacificus	Accidental ?	1, 2, 3, 4, 11, 12
2) Puffinus griseus	Accidental	3
3) Puffinus tenuirostris	Accidental	3
4) Phaethon rubricauda	Resident breeder, March,April, July-September; few	2, 3, 4
5) Phaethon lepturus	Resident breeder, April; few	2, 3, 4, 12
6) Sula sula	Resident breeder ?; few	5, 10
7) Sula leucogaster	Resident breeder ?; few to 300	2, 3, 4, 5, 10, 12
8) Fregata minor	Resident breeder ?; few to 300	2, 3, 4
9) Egretta sacra	Resident breeder, June, July; common	2, 3, 4, 5, 6, 7,10,11
10) Gallus gallus	Introduced breeder ?	9
11) Pluvialis dominica	Migrant	1, 2, 3, 4, 10, 11, 12
12) Squatarola squatarola	Migrant	3, 5, 7
13) Charadrius dubius	Migrant	3, 5, 7
14) Numenius phaeopus	Migrant	2, 3
15) Numenius tahitiensis	Migrant	2, 3, 4, 6, 12
16) Limosa lapponica	Migrant	3, 4, 12
17) Heteroscelus brevipes	Migrant	3, 4, 10
18) Heteroscelus incanum	Migrant	2, 3, 4, 10, 11
19) Arenaria interpres	Migrant	2, 3, 4, 6, 10, 11, 12
20) Crocethia alba	Migrant	2, 3
21) Erolia acuminata	Migrant	2, 3, 11
22) Tryngites subruficollis	Accidental	3
23) Sterna paradisaea	Accidental	2
24) Sterna sumatrana	Resident breeder, March-May; 300	1, 2, 3, 4, 10, 11, 12
25) Sterna lunata	Resident breeder ?; few	2, 11
26) Sterna fuscata	Resident breeder, March-May; July-Sept;few to 16,000+	2, 3, 4, 8, 10, 12
27) Thalasseus bergii	Resident breeder, March ?	1, 2, 3, 4, 12
28) Procelsterna cerulea	Resident breeder ?	2, 3,
29) Anous stolidus	Resident breeder, Feb-May, summer; 1,000's	1, 2, 3, 4, 10, 11, 12
30) Anous tenuirostris	Resident breeder, Feb.-May summer; 1,000's	1, 2, 3, 4, 10, 11, 12
31) Gygis alba	Resident breeder, Feb.-May; 1,000's	1, 2, 3, 4, 5, 6, 10, 11, 12
32) Urodynamis taitensis	Migrant	2

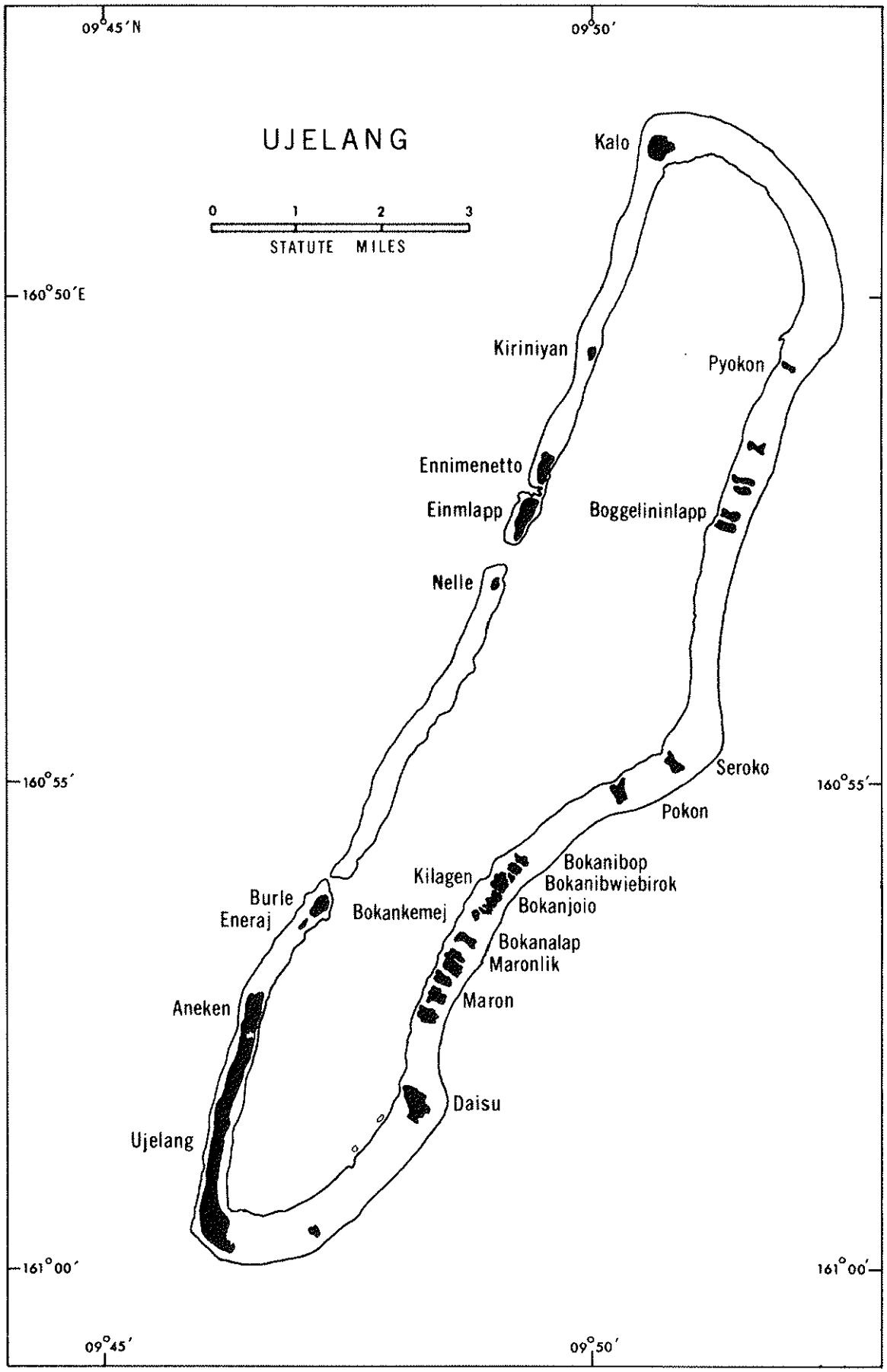
Bird specimens collected at Eniwetok Atoll include 57 specimens of 21 species as listed in Table 17. These are located in four museums.

TABLE 17. Bird specimens collected from Eniwetok Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus pacificus	UUZM 19922	♂	A	Chinimi	05-03-62	Skin	J. Bushman
" "	MLC 289						
" "	MLC 290						
Phaethon lepturus	MLC 195			Igurin	-64	Skin	
Sula sula	USNM 346997	?	?	Rigili	05-26-46	Skel.	J. Morrison
Sula leucogaster	BGSU 1151					Skin	
Fregata minor	UUZM 19794	♂	A	Parry	05-15-62	"	J.B.Bushman
Egretta sacra	USNM 388813	♂	A	Mui	05-28-46	"	J.Morrison
" "	UUZM 19792	♂	A	Japtan	05-09-62	"	J.B.Bushman'
" "	UUZM 19793	♂	A	Parry	04-28-62	"	"
Pluvialis dominica	USNM 388804	♂	I	Grinem	05-29-46	"	J.Morrison
" "	UUZM 19785	♂	A	Engebi	05-20-62	"	J.B.Bushman
" "	MLC 194						
" "	MLC 196						
Numenius tahitiensis	BGSU 1153						
Limosa lapponica	BGSU 1154						
Heteroscelus brevipes	USNM 388802	♂	A	Igurin	05-22-46	Skin	J.Morrison
Heteroscelus incanum	USNM 388803	♀	A	Rigili	05-25-46	"	"
" "	UUZM 19784	♀	A	Eniwetok I	05-17-62	"	J.B.Bushman
Arenaria interpres	USNM 388785	♀	A	Lidilbut	06-01-46	"	J.Morrison
" "	USNM 388786	♂	A	"	06--1-46	"	"
" "	USNM 388787	♂	A	"	"	"	"
" "	UUZM 19786	♂	A	Parry	05-15-62	"	J.B.Bushman
" "	BGSU 1152						
Erolia acuminata	UUZM 19795	♀	A	Eniwetok	05-16-62	Skin	J.B.Bushman
Tryngites subruficollis	USNM 487491	♀	A	"	04-06-65	"	J.W.Knudsen
Sterna sumatrana	USNM 388762	♀	A	Rigili	05-26-46	"	J.Morrison
" "	USNM 388764	♂	A	"	05-25-46	"	"
" "	USNM 388763	♀	A	Rujiyoru	06-02-46	"	"
" "	USNM 388765	♂	A	"	"	"	"
" "	USNM 388766	♂	A	"	"	"	"
" "	UUZM 19921	♀	A	Mujinkarikku	05-20-62	"	J.B.Bushman
" "	MLC 193						
" "	MLC 288						
Sterna lunata	UUZM 19791	♀	A	Eniwetok I	03-08-62	Skin	J.B.Bushman
Sterna fuscata	USNM 388754	♂	A	Grinem	05-29-46	"	J.Morrison
" "	MLC 196						
" "	MLC 286						
" "	MLC 287						
Thalasseus bergii	BGSU 1158						
Anous stolidus	USNM 388769	♀	A	Buganegan	05-26-46	Skin	J.Morrison
" "	USNM 388767	♂	I	Igurin	06-05-46	"	"
" "	USNM 388768	♀	A	"	05-22- 6	"	"
" "	USNM 388770	♂	I	"	"	"	"
" "	UUZM 19788	♂	A	Japtan	05-18-62	"	J.B.Bushman
" "	BGSU 1155						

TABLE 17. Bird specimens collected from Eniwetok Atoll (contd)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	USNM 388794	♀	I?	Buganegan	05-28-46	Skin	J.Morrison
" "	USNM 388795	♂	A	"	"	"	"
" "	USNM 388796	♂	A	"	"	"	"
" "	UUZM 19787	♂	A	Japtan	05-18-62	"	J.B.Bushman
" "	UUZM 19789	♂	A	"	"	"	"
" "	BGSU 1156						
Gygis alba	USNM 388746	♂	A	Igurin	06-06-46	Skin	J.Morrison
" "	USNM 388749	♀	A	"	"	"	"
" "	USNM 388748	♀	A	Rigili	05-26-46	"	"
" "	UUZM 19790	♂	A	Uriah (sic)	05-15-62	"	J.B.Bushman
" "	BGSU 1157						


09°45′N
09°50′
UJELANG
0 1 2 3
STATUTE MILES
160°50′E
160°55′
161°00′
09°45′
09°50′
Kalo
Kiriniyan
Pyokon
Ennimenetto
Einmlapp
Boggelininlapp
Nelle
Seroko
Pokon
Kilagen
Bokanibop
Bokanibwiebirok
Bokanjoio
Burle
Eneraj
Bokankemej
Bokanalap
Maronlik
Aneken
Maron
Daisu
Ujelang

UJELANG ATOLL

Location: 09°49' N x 160°55' E.

Shape and Size: Long narrow elliptical-shaped; Tip to tip (northwest-southeast) - 14 miles; Width - 2 to 3.5 miles; Total lagoon area - 36.32 square miles; Total dry land area - 0.62 square miles; Number of islands - 35; Height - ? feet (Fosberg, 1956).

Soil: Rocky and sandy.

Vegetation: Forty-six species; larger islands, mostly Cocos; smaller islands, dry with grassy and wooded areas (Fosberg, 1956).

Climate: Moderately wet, about 70-100 inches of rainfall yearly; Mean air temperature - 82° F.; Winds - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 1,000 in 1800's (Findlay, 1886); 142 in 1948 (Freeman, 1951); Present - inhabited, 312 in 1964 (U.S. Department of State, 1965).

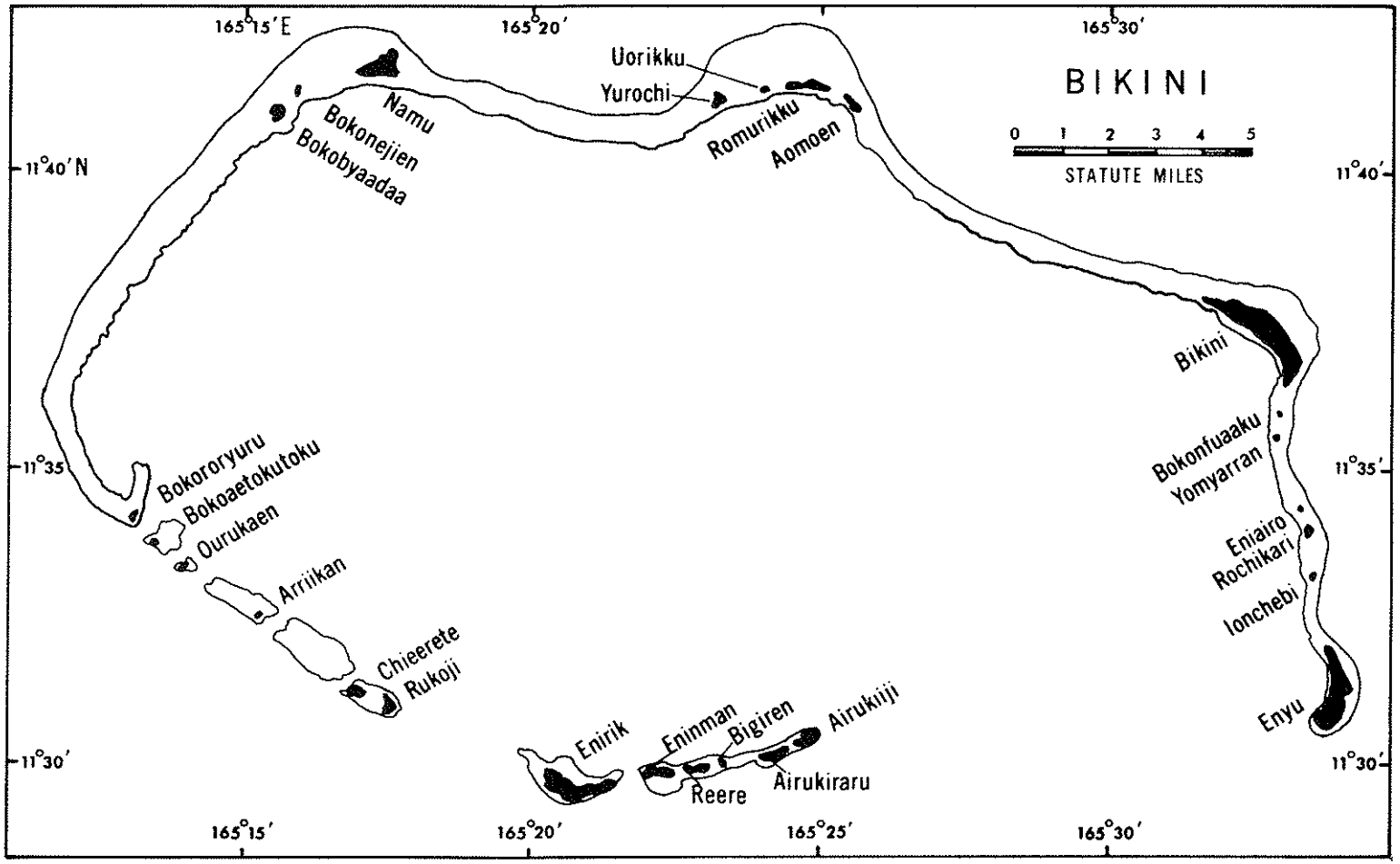
Scientific Visits: U.S. Geological Survey Expedition (F. R. Fosberg) - 3-8 February 1952.

Avifauna: Fourteen species of birds are known from Ujelang Atoll. Of these species, 7 are seabirds, 4 are shorebirds, 1 is a heron, 1 is a domestic fowl, and 1 a domestic duck. Three species are known to breed on the atoll, however, 10 species are potential breeders. No museum specimens exist from the atoll.

Fosberg (1966) observed the following species from Ujelang Atoll:

1)	*Fregata minor*#	Resident breeder ?
2)	*Egretta sacra*	Resident breeder ?
3)	*Cairina moschata*	Introduced breeder ?
4)	*Gallus gallus*	Introduced breeder ?
5)	*Pluvialis dominica*	Migrant
6)	*Numenius tahitiensis*	Migrant
7)	*Heteroscelus incanum*	Migrant
8)	*Arenaria interpres*	Migrant
9)	*Sterna sumatrana*	Resident breeder ?
10)	*Sterna fuscata*	Resident breeder, February (eggs)
11)	*Thalasseus bergii*	Resident breeder ?
12)	*Anous stolidus*	Resident breeder, February (eggs to young)
13)	*Anous tenuirostris*	Resident breeder, February eggs to large young)
14)	*Gygis alba*	Resident breeder ?

also known from a POBSP band recovery record.


BIKINI
0 1 2 3 4 5
STATUTE MILES
165°15'E
165°20'
165°30'
11°40'N
11°40'
11°35'
11°30'
Uorikku
Yurochi
Namu
Bokonejien
Bokobyaadaa
Romurikku
Aomoen
Bikini
Bokonfuaaku
Yomyarran
Eniairo
Rochikari
Ionchebi
Enyu
Bokororyuru
Bokoaetokutoku
Ourukaen
Arriikan
Chieerete
Rukoji
Enirik
Eninman
Bigiren
Airukiiji
Reere
Airukiraru
165°15'
165°20'
165°25'
165°30'

BIKINI ATOLL

Location: 11°35' N x 165°23' E.

Shape and Size: Irregular ellipse-shaped; Tip to tip (east-west) - 26 miles; Width - 15 miles; Total lagoon area - 266.97 square miles; Total dry land area - 2.82 square miles; Number of islands - 29; Height - 10-19 feet (Fosberg, 1956; Doran, 1959).

Soil: Larger islands - sand, generally fine grained, horizontally bedded, some gravel interior; Small islands, mostly beach rock (Doran, 1959).

Vegetation: Species number unknown; large islands with Cocos; small islands wooded, few Cocos. Radioactive tests reduced much vegetation, but vegetation has returned (Fosberg, 1956; Doran, 1959).

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature - 82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 30 in 1800's (Findlay, 1886); 160+ before 1946, all natives removed in 1946 for atomic tests, up to 3,000 personnel for tests (Freeman, 1951); Present - No natives inhabit the atoll.

Scientific Visits: Japanese visit (S. Kawakami) 3 January 1933; Atomic Energy Commission - February-August 1946, July-August 1947, (A. B. Joseph) August 1964.

Avifauna: Seventeen bird species are known from Bikini Atoll. These include 10 seabirds, 4 shorebirds, 1 heron, 1 rail, and 1 cuckoo. Five species are known breeders on Bikini Atoll, while 6 other species are potential breeders.

The following checklist records the known bird species from Bikini Atoll, as well as presents the status and source for each species and record. The sources from which this list was compiled include: (1) Baker, 1951; (2) Arnold Joseph, pers. corresp., September 1964; (3) Traylor, pers. corresp., September 1965; (4) Mayr, 1945; (5) Yamashina, 1940; (6) Hand-list of Japanese Birds, 1942; (7) USNM collection; (8) CNHM collection; and (9) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters. The three species marked with an asterisk are heretofore unpublished specimen records for Bikini Atoll.

Bikini Atoll Avifauna Checklist

Species	Status	Source
1) *Puffinus pacificus**	Resident breeder ?	7
2) *Sula sula*	Resident breeder, May	1, 2, 3, 7, 8
3) *Sula leucogaster**	Resident breeder ?	7
4) *Fregata minor*	Resident breeder ?	1, 2, 7
5) *Egretta sacra*	Resident breeder ?	1, 2, 7
6) *Pollolimnas cinereus micronesiae*	Accidental	1, 4, 5, 6, 9
7) *Pluvialis dominica*	Migrant	1, 7
8) *Numenius tahitiensis*	Migrant	1, 2, 7
9) *Heteroscelus incanum*	Migrant	1, 7
10) *Arenaria interpres*	Migrant	1, 2, 7
11) *Sterna sumatrana*	Resident breeder ?	1, 2, 7
12) *Sterna fuscata**	Resident breeder ?	7
13) *Thalasseus bergii*	Resident breeder, August	1, 2, 7
14) *Anous stolidus*	Resident breeder, March	1, 2, 3, 7, 8
15) *Anous tenuirostris*	Resident breeder, July	1, 2, 3, 7, 8
16) *Gygis alba*	Resident breeder, March	1, 2, 3, 7, 8
17) *Urodynamis taitensis*	Migrant	1, 7

Bird specimens collected at Bikini Atoll include 126 specimens of 17 species, as listed in Table 18.

TABLE 18. Bird specimens collected from Bikini Atoll.

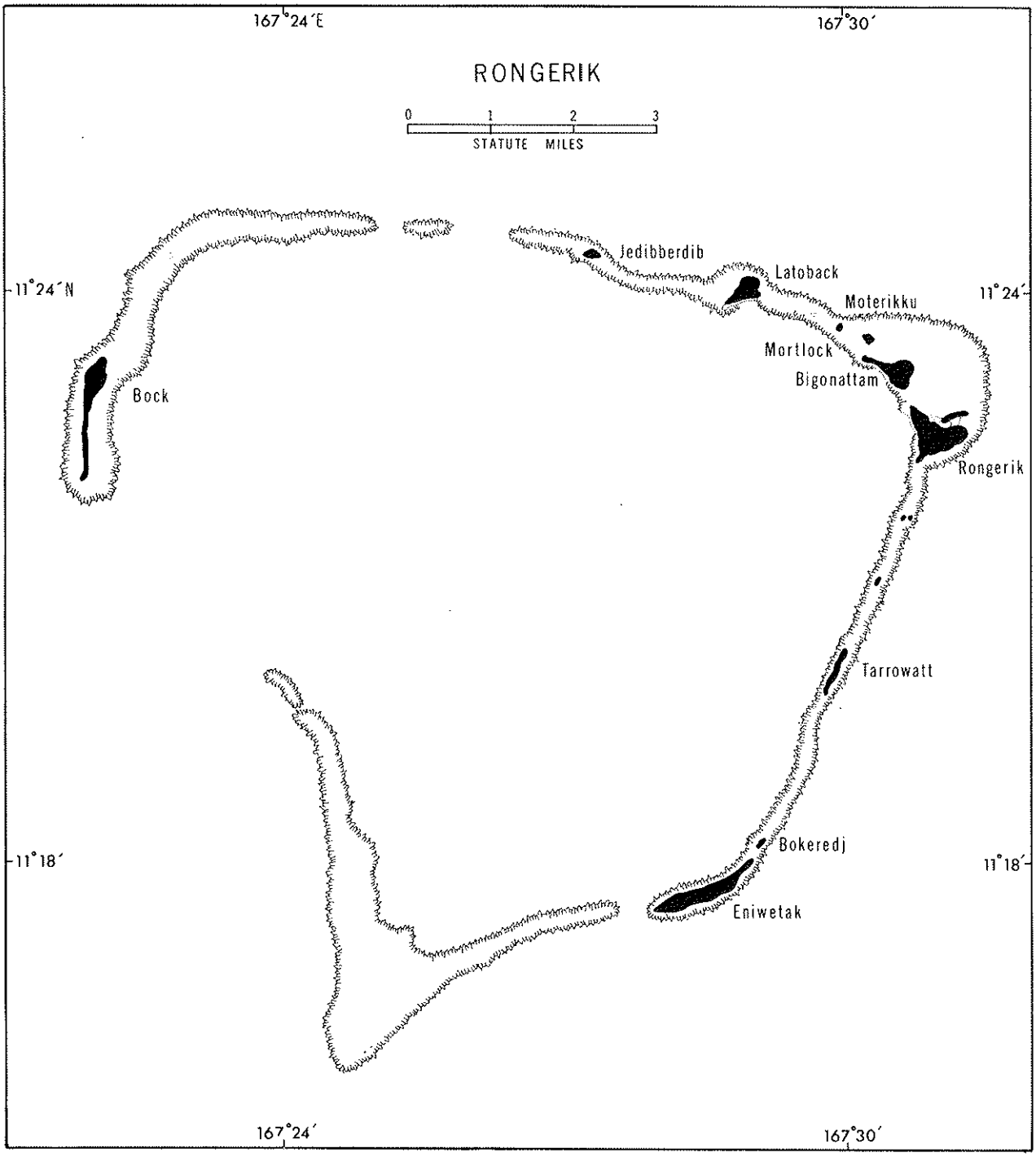
Species	Museum	Age	Sex	Location	Date	Status	Collector
Puffinus pacificus	USNM 347274	?	?	Bikini I	08-03-47	Skel.	Morrison
Sula sula	USNM 386637	♂	SA	Ourukaen	05-01-46	Skin	"
" "	USNM 386638	♀	A	"	05-02-46	"	"
" "	USNM 386639	♀	A	"	"	"	"
" "	USNM 386640	♀	A	"	"	"	"
" "	USNM 386641	♀	SA	"	05-01-46	"	"
" "	USNM 386643	♀	I	"	05-02-46	"	"
" "	USNM 386644	♀	I	"	"	"	"
" "	USNM 386645	♂	A	"	"	"	"
" "	USNM 386646	♂	N	"	05-03-46	"	"
" "	USNM 388728	♀	N	"	07-08-46	"	"
" "	USNM 388811	♀	I	"	"	"	"
" "	USNM 386642	♀	I	*Bokororyuru	04-28-46	"	"
" "	USNM 399718	♀	A	*"	07-29-46	"	"
" "	USNM 399719	♀	A	*"	"	"	"
" "	USNM 399720	♂	A	*"	"	"	"
" "	CNHM 153256	♂	A	--	06-14-46	"	Traylor
" "	CNHM 153257	♂?	A	--	05-25-46	"	"
" "	CNHM 153258	♀	I	--	"	"	"
" "	CNHM 153259	♀?	I	--	06-14-46	"	"
" "	CNHM 153260	♂	A	--	05-25-46	"	"
" "	CNHM 153261	♂	I	--	"	"	"
" "	CNHM 153262	♂	I	--	"	"	"
" "	CNHM 153263	♀	I	--	"	"	"
" "	CNHM 153264	♂	A	--	"	"	"
" "	CNHM 153265	♀	I	--	"	"	"
" "	CNHM 153266	♀	A	--	"	"	"
" "	CNHM 153267	♀	N	--	"	"	"
Sula leucogaster	USNM 399721	♂	A	*Bokororyuru	07-24-47	"	Morrison
" "	USNM 399722	♀	A	*"	07-29-47	"	"
" "	USNM 399723	♂	I	*"	07-24-47	"	"
" "	USNM 399724	♀	I	*"	"	"	"
Fregata minor	USNM 386627	♀	I	Bikini I	03-11-46	"	"
" "	USNM 386625	♀	I	Bokororyuru	04-29-46	"	"
" "	USNM 386628	♂	I	"	"	"	"
" "	USNM 386634	♀	SA	Yurochi	03-22-46	"	"
" "	USNM 386626	♀	I	Namu	03-29-46	"	"
" "	USNM 386629	♀	I	"	03-30-46	"	"
" "	USNM 386630	♀	I	"	04-13-46	"	"
" "	USNM 386631	♀	SA	"	03-30-46	"	"
" "	USNM 386632	♂	A	Ourukaen	05-03-46	"	"
" "	USNM 386633	♂	A	Arriikan	05-14-46	"	"
Egretta sacra	USNM 386635	♂	A	Namu	04-02-46	"	"
" "	USNM 386636	♀	A	"	03-29-46	"	"
Poliolimnas cinereus micronesiae	YIOM 27726	?	A	Bikini I	01-03-33	alc.	Kawakami

TABLE 18. Bird specimens collected from Bikini Atoll (contd.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	USNM 386677	♀	A	Bikini I	03-04-46	Skin	Morrison
" "	USNM 386678	♂	A	"	03-07-46	"	"
" "	USNM 386679	♂	A	"	03-04-46	"	"
" "	USNM 386680	♂	A	"	05-03-46	"	"
Numenius tahitiensis	USNM 386670	♀	A	"	03-14-46	"	"
" "	USNM 386671	♂	A	"	03-10-46	"	"
" "	USNM 386672	♂	A	Namu	04-02-46	"	"
" "	USNM 386673	♀	A	Bokoaetokutoku	04-30-46	"	"
Heteroscelus incanum	USNM 386681	♀	?	Bokonfuaaku	02-28-46	"	"
" "	USNM 386682	♀	?	Bokororyuru	04-28-46	"	"
" "	USNM 386683	♀	?	Bikini I	02-26-46	"	"
Arenaria interpres	USNM 386674	♀	?	"	03-04-46	"	"
" "	USNM 386675	♂	?	"	"	"	"
" "	USNM 386676	♀	?	"	02-26-46	"	"
" "	USNM 399743	♂	?	Namu	08-07-47	"	"
" "	USNM 399744	♂	?	"	"	"	"
Sterna sumatrana	USNM 386660	♂	A	Bokororyuru	04-30-46	"	"
" "	USNM 386661	♂	A	"	"	"	"
" "	USNM 386662	♂	A	Bikini I	03-26-46	"	"
" "	USNM 386663	♀	A	"	"	"	"
" "	USNM 399737	♂	I	Namu	08-07-47	"	"
Sterna fuscata	USNM 388755	♀	A	Bikini I	07-08-46	"	"
" "	USNM 399732	♂	A	Reere	07-18-47	"	"
" "	USNM 399733	♀	A	"	"	"	"
Thalasseus bergii	USNM 386647	♂	A	Bikini I	03-12-46	"	"
" "	USNM 386648	♀	A	"	"	"	"
" "	USNM 396649	♂	I	"	03-11-46	"	"
" "	USNM 386650	♂	A	"	03-04-46	"	"
" "	USNM 399730	♂	N	"	08-26-47	"	"
" "	USNM 388729	♀	N	Bokobyaadaa	08-19-46	"	"
" "	USNM 388730	♂	N	"	"	"	"
" "	USNM 388731	♂	N	"	"	"	"
" "	USNM 388732	♀	N	"	"	"	"
" "	USNM 388734	♀	N	"	"	"	"
" "	USNM 388744	♂	A	"	"	"	"
" "	USNM 388745	♀	I	"	"	"	"
" "	USNM 399729	♂	A	Eninman	07-18-47	"	"
Anous stolidus	USNM 386651	♀	A	Bokonfuaaku	02-28-46	"	"
" "	USNM 386652	♂	A	"	"	"	"
" "	USNM 40730	-	-	Chieerete	03-19-46	Eggs	"
" "	USNM 346998	?	N	"	"	Alc.	"
" "	USNM 386654	♀	N	"	"	Skin	"
" "	USNM 386655	♂	N	"	"	"	"
" "	USNM 388775	♂	A	Airukiraru	07-07-46	"	"

TABLE 18. Bird specimens collected from Bikini Atoll (contd.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous stolidus	USNM 388776	♀	A	Romurikku	08-05-46	Skin	Morrison
" "	CNHM 153290	♂	-	--	05-26-46	"	Traylor
" "	CNHM 153291	♂	-	--	"	"	"
" "	CNHM 153292	♀	-	--	"	"	"
" "	CNHM 153293	♀	-	--	"	"	"
" "	CNHM 153294	♀	-	--	"	"	"
" "	CNHM 153295	♂	I	--	"	"	"
" "	CNHM 153296	♂	-	--	"	"	"
" "	CNHM 153297	♀	-	--	"	"	"
" "	CNHM 153298	♂	-	--	03-11-46	"	"
" "	CNHM 153299	♀	N	--	04-06-46	"	"
Anous tenuirostris	USNM 386656	♂	A	Arriikan	05-14-46	"	Morrison
" "	USNM 386659	♂	A	"	"	"	"
" "	USNM 386657	♀	A	Ourukaen	05-02-46	"	"
" "	USNM 386658	♂	A	"	"	"	"
" "	USNM 388792	♀?	N	"	07-08-46	"	"
" "	USNM 388791	♂	A	Airukiraru	07-07-47	"	"
" "	USNM 388793	♂	A	Yurochi	07-13-46	"	"
" "	CNHM 153306	♀	-	--	05-26-46	"	Traylor
" "	CNHM 153307	♀	-	--	"	"	"
" "	CNHM 153308	♀	-	--	"	"	"
" "	CNHM 153309	♀	-	--	"	"	"
" "	CNHM 153310	♀	-	--	"	"	"
" "	CNHM 153311	♀	-	--	"	"	"
Gygis alba	USNM 386664	♂	N	Ionchebi	03-16-46	"	Morrison
" "	USNM 396669	♀	A	"	"	"	"
" "	USNM 386665	♂	I	Chieerete	03-19-46	"	"
" "	USNM 386666	♂	A	Bikini I	02-27-46	"	"
" "	USNM 386668	♀	A	"	"	"	"
" "	USNM 386667	♀	A	Romurikku	03-02-46	"	"
" "	USNM 388751	♀	A	Airukiraru	07-06-46	"	"
" "	USNM 388753	♂?	I	Ourukaen	08-12-46	"	"
" "	USNM 399736	♀	A	Eninman	07-19-46	"	"
" "	USNM 40728	-	-	Yurochi	03-22-46	2 eggs	"
" "	CNHM 153312	♀	-	--	03-11-46	Skin	Traylor
Urodynamis taitensis	USNM 386684	♀	A	Ourukaen	05-01-46	"	Morrison
" "	USNM 399741	♂	A	Namu	08-06-47	"	"


RONGERIK
0 1 2 3
STATUTE MILES
167°24′E
167°30′
11°24′N
11°24′
11°18′
11°18′
167°24′
167°30′
Jedibberdib
Latoback
Moterikku
Mortlock
Bigonattam
Rongerik
Bock
Tarrowatt
Bokeredj
Eniwetak

RONGERIK ATOLL

Location: 11°21' N x 167°26' E.

Shape and Size: Irregular triangular-shaped; Tip to base (northeast to southwest) - 36 miles; Width (southwest base) - 20 miles; Total lagoon area - 70.36 square miles; Total dry land area - 0.81 square miles; Number of islands - 16; Height - 28 feet (Fosberg, 1956).

Soil. No available data.

Vegetation: Number of species unknown; large islands, *Pisonia* and *Cordia* forests common, a few planted *Cocos*; small islands, scrub or low woodland (Fosberg, 1956, 1966).

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature - 82 F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, few (mostly nonpermanent) in 1800's, (Findlay, 1886); none in 1948 (Freeman, 1951); Present - uninhabited in 1964 (U.S. Department of State, 1965).

Scientific Visits: Atomic Energy Commission, May-July 1946, August 1947; U.S. Navy (F. R. Fosberg) - 11 February 1956.

Avifauna: Twelve bird species are known from Rongerik Atoll. Of these 12, 8 are seabirds and 4 are shorebirds. Two are known breeders, while 6 other species are considered to be potential breeders.

The following checklist records the known bird species from Rongerik Atoll. This list was compiled from the following sources: (1) Fosberg, 1966; (2) Traylor, pers. corresp., September 1965; (3) USNM collection; and (4) CNHM collection. These sources are referred to in the checklist by the corresponding numbers and letters. The three species marked with an asterisk are hereunto unpublished species records from Rongerik Atoll.

Rongerik Atoll Avifauna Checklist

Species	Status	Source
1) *Puffinus pacificus**	Resident breeder ?	3
2) *Fregata minor*	Resident breeder ?	4
3) *Pluvialis dominica*	Migrant	2, 3, 4
4) *Numenius tahitiensis*	Migrant	1, 2, 3, 4
5) *Heteroscelus incanum*	Migrant	1
6) *Arenaria interpres**	Migrant	3
7) *Sterna sumatrana*	Resident breeder ?	2, 4
8) *Sterna fuscata**	Resident breeder ?	3
9) *Thalasseus bergii*	Resident breeder ?	2, 4
10) *Anous stolidus*	Resident breeder, March; few	1,2,3,4
11) *Anous tenuirostris*	Resident breeder ?	2, 3, 4
12) *Gygis alba*	Resident breeder, March, February, few	1, 2, 3, 4

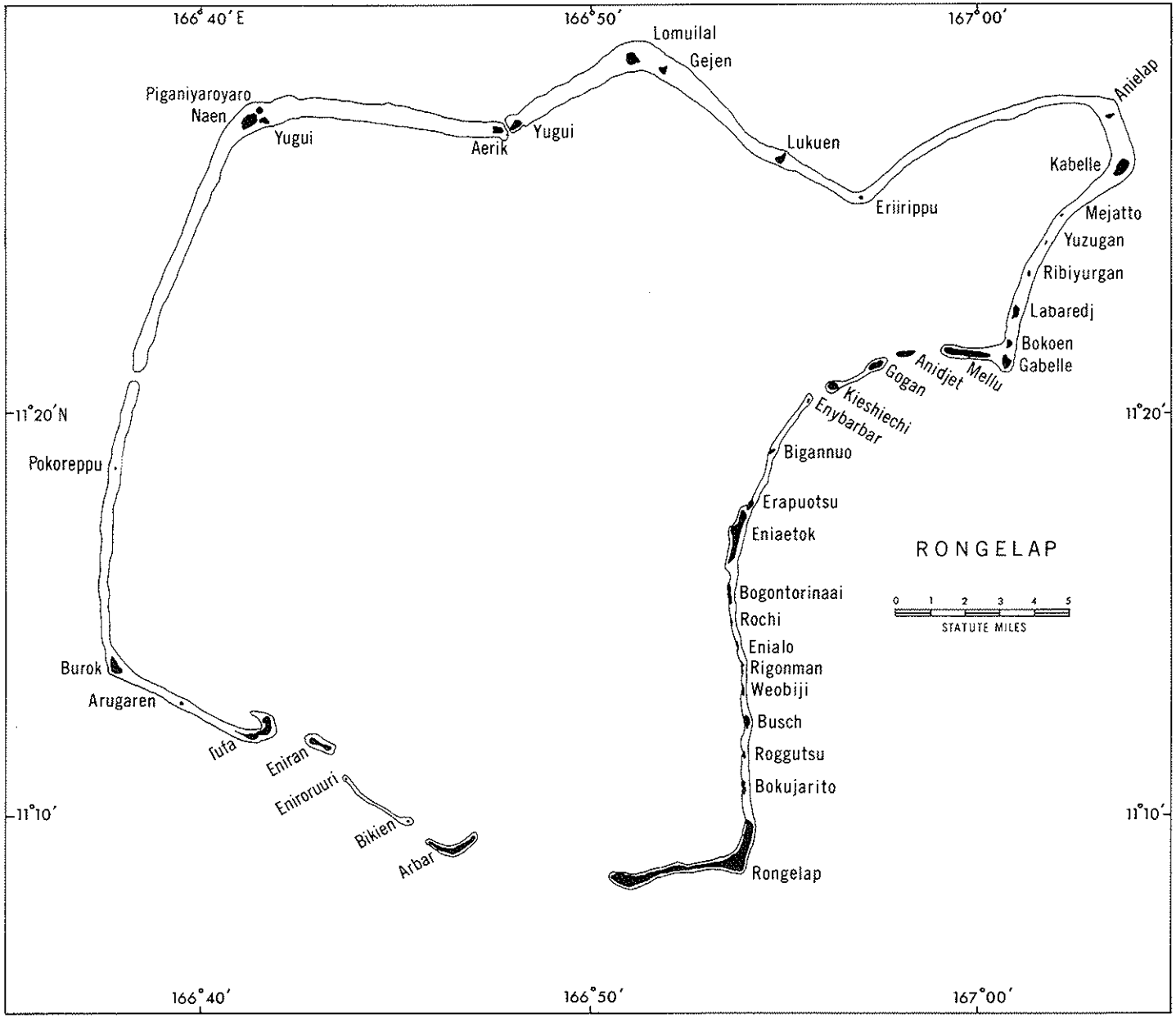
Bird specimens collected from Rongerik Atoll are listed in Table 19. These include 55 specimens of 11 species.

TABLE 19. Bird specimens collected from Rongerik Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus pacificus	USNM 347273	?	?	Latoback	08-15-47	Skel.	J.P.E.Morrison
Fregata minor	CNHM 153269	♀	I	--	06-03-46	Skin	M.A.Traylor,Jr.
" "	CNHM 153322	♀	A	--	06-04-46	"	"
" "	CNHM 153323	♂	I	--	06-03-46	"	"
" "	CNHM 153324	♀	A	--	05-14-46	"	"
" "	CNHM 153325	♀	I	--	06-04-46	"	"
" "	CNHM 153326	♀	A	--	06-03-46	"	"
" "	CNHM 153327	♀	A	--	05-14-46	"	"
Pluvialis dominica	USNM 399745	♂	?	Latoback	08-16-47	"	J.P.E.Morrison
" "	USNM 399746	♂	I	Bigonattam	08-22-47	"	"
" "	CNHM						
" "	CNHM						
Numenius tahitiensis	USNM 399738	♂	A	Bigonattam	08-21-47	Skin	J.P.E.Morrison
" "	USNM 399739	♂	A	"	08-22-47	"	"
" "	USNM 399740	♂	A	Mortlock	08-21-47	"	"
" "	CNHM 153274	♂	A	--	05-31-46	"	M.A.Traylor,Jr.
" "	CNHM						
" "	CNHM						
Arenaria interpres	USNM 388782	♀	?	Latoback	06-28-46	Skin	J.P.E.Morrison
" "	USNM 388783	♂	?	"	"	"	"
" "	USNM 388784	♂	I?	"	"	"	"
" "	USNM 399742	♀	?	Bigonattam	08-22-47	"	"
Sterna sumatrana	CNHM 153277	♀	?	--	05-12-46	"	M.A.Traylor, Jr.
" "	CNHM 153278	♂	?	--	"	"	"
" "	CNHM 153280	♂	?	--	05-31-46	"	"
" "	CNHM 153281	♂	?	--	05-12-46	"	"
" "	CNHM 153328	♂	N	--	07-19-46	"	"
" "	CNHM 153329	♀	N	--	"	"	"
Sterna fuscata	USNM 399731	♀	A	Latoback	08-15-47	"	J.P.E.Morrison
Thalasseus bergii	CNHM 153289	♂	?	--	05-12-46	"	M.A.Traylor,Jr.
Anous stolidus	USNM 388777	♀	A	Bock	06-27-46	"	J.P.E.Morrison
" "	USNM 388778	♀	I	"	"	"	"
" "	USNM 388779	♂	A	"	"	"	"
" "	USNM 388780	♀	A	"	"	"	"
" "	USNM 399726	♂	A	Latoback	08-16-47	"	"
" "	CNHM 153300	♀	I	--	05-12-46	"	M.A.Traylor,Jr.
" "	CNHM 153301	♀	?	--	"	"	"
" "	CNHM 153330	♂	N	--	07-19-46	"	"
" "	CNHM 153331	♀	N	--	"	"	"
Anous tenuirostris	USNM 388788	♂	A	Bock	06-27-46	"	J.P.E.Morrison
" "	USNM 388789	♀	A	"	"	"	"
" "	USNM 388790	♀	A	"	"	"	"
" "	USNM 399727	♂	A	"	08-19-47	"	"
" "	USNM 399728	♀	A	"	"	"	"

TABLE 19. Bird specimens collected from Rongerik Atoll (contd.).

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	CNHM 153302	♀	-	--	05-13-46	Skin	M.A.Traylor,Jr.
" "	CNHM 153303	♀	-	--	"	"	"
" "	CNHM 153304	♀	N	--	"	"	"
" "	CNHM 153305	♀	N	--	"	"	"
" "	CNHM 153332	♂	N	--	07-23-46	"	"
Gygis alba	USNM 388747	♀	A	Latoback	06-28-46	"	J.P.E.Morrison
" "	USNM 399734	♂	A	off Bock	08-13-47	"	"
" "	USNM 399735	♀	A	Mortlock	08-21-47	"	"
" "	CNHM 153319	♀	-	--	05-12-46	"	M.A.Traylor,Jr.
" "	CNHM 153320	♀	-	--	"	"	"
" "	CNHM 153321	♂	-	--	"	"	"


166° 40′ E
166°50′
167°00′
Lomuilal
Gejen
Piganiyaroyaro
Naen
Yugui
Aerik
Yugui
Lukuen
Anielap
Kabelle
Eriirippu
Mejatto
Yuzugan
Ribiyurgan
Labaredj
Bokoen
Gabelle
Anidjet
Mellu
Gogan
Kieshiechi
Enybarbar
Bigannuo
Erapuotsu
Eniaetok
RONGELAP
0 1 2 3 4 5
STATUTE MILES
Bogontorinaai
Rochi
Enialo
Rigonman
Weobiji
Busch
Roggutsu
Bokujarito
Rongelap
11°20′N
11°20′
Pokoreppu
Burok
Arugaren
Iufa
Eniran
Eniroruuri
Bikien
Arbar
11°10′
11°10′
166°40′
166°50′
167°00′

RONGELAP ATOLL

Location: 11°20' N x 166°50' E.

Shape and Size: Irregular diamond-shaped; Tip to tip (northeast-southwest) - 30 miles; Widest point (northwest-southeast) - 23 miles; Total lagoon area - 426.44 square miles; Total dry land area - 2.46 square miles; Number of islands - 58; Height - ? feet. (Fosberg, 1956).

Soil: Not especially fertile (Fosberg, 1956).

Vegetation: Species number unknown; large islands, some Cocos, but much native brush and woodland; small islands, scrub-covered (Fosberg, 1956).

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature - 82° F., Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 120 in 1800's (Findlay, 1886); 95 in 1948 (Freeman, 1951); Present - inhabited, 228 in 1964 (U.S. Department of State, 1965).

Scientific Visits: C. H. Townsend - 18 January 1900; Atomic Energy Commission - May, June, July, August 1946, (A. B. Joseph), August 1964; U.S. Navy (F. R. Fosberg) - 7-9, 15 February 1956.

Avifauna: Fourteen bird species are known from Rongelap Atoll. Of these 14, 8 are seabirds, 4 are shorebirds, 1 is a heron, and 1 is a domestic fowl. Although 10 species are potential breeders, only 3 are known breeders.

The following checklist presents the recorded bird species from Rongelap Atoll. This list was compiled from the following sources: (1) Fosberg, 1966; (2) Traylor, pers. corresp., September 1965; (3) Hand-list of Japanese Birds (a) 1932, (b) 1942, (c) 1958; (4) Townsend and Wetmore, 1919; (5) Baker, 1951; (6) Momiyama, 1922; (7) Arnold Joseph, pers. corresp., September 1964; (8) USNM collection; (9) CNHM collection; (10) MCZ collection; and (11) Yale Cross-Cultural Survey, 1932. These sources are referred to in the checklist by the corresponding numbers and letters. The one species marked by an asterisk is hereunto an unpublished species record from this atoll.

Rongelap Atoll Avifauna Checklist

Species	Status	Source
1) *Puffinus pacificus*	Resident breeder ?	2, 9
2) *Sula sula**	Resident breeder ?	8
3) *Fregata minor*	Resident breeder ?	2, 8, 9?
4) *Egretta sacra*	Resident breeder ?	2, 7, 9

Species	Status	Source
5) Gallus gallus	Introduced breeder ?	1, 11
6) Pluvialis dominica	Migrant	1, 4, 5, 8, 10
7) Numenius tahitiensis	Migrant	1, 3b, 4, 5, 7, 8
8) Heteroscelus incanum	Migrant	1, 3b, 4, 5, 7, 8,
9) Arenaria interpres	Migrant	1, 2, 3, 4ab, 5, 6, 7, 8, 9
10) Sterna sumatrana	Resident breeder ?	2, 8, 9
11) Thalasseus bergii	Resident breeder ?	2, 8, 9
12) Anous stolidus	Resident breeder; February; few	1, 8
13) Anous tenuirostris	Resident breeder, February; few	1, 7, 8
14) Gygis alba	Resident breeder, May ?	1, 2, 7, 8, 9,

Bird specimens collected at Rongelap include 63 specimens of 12 species.

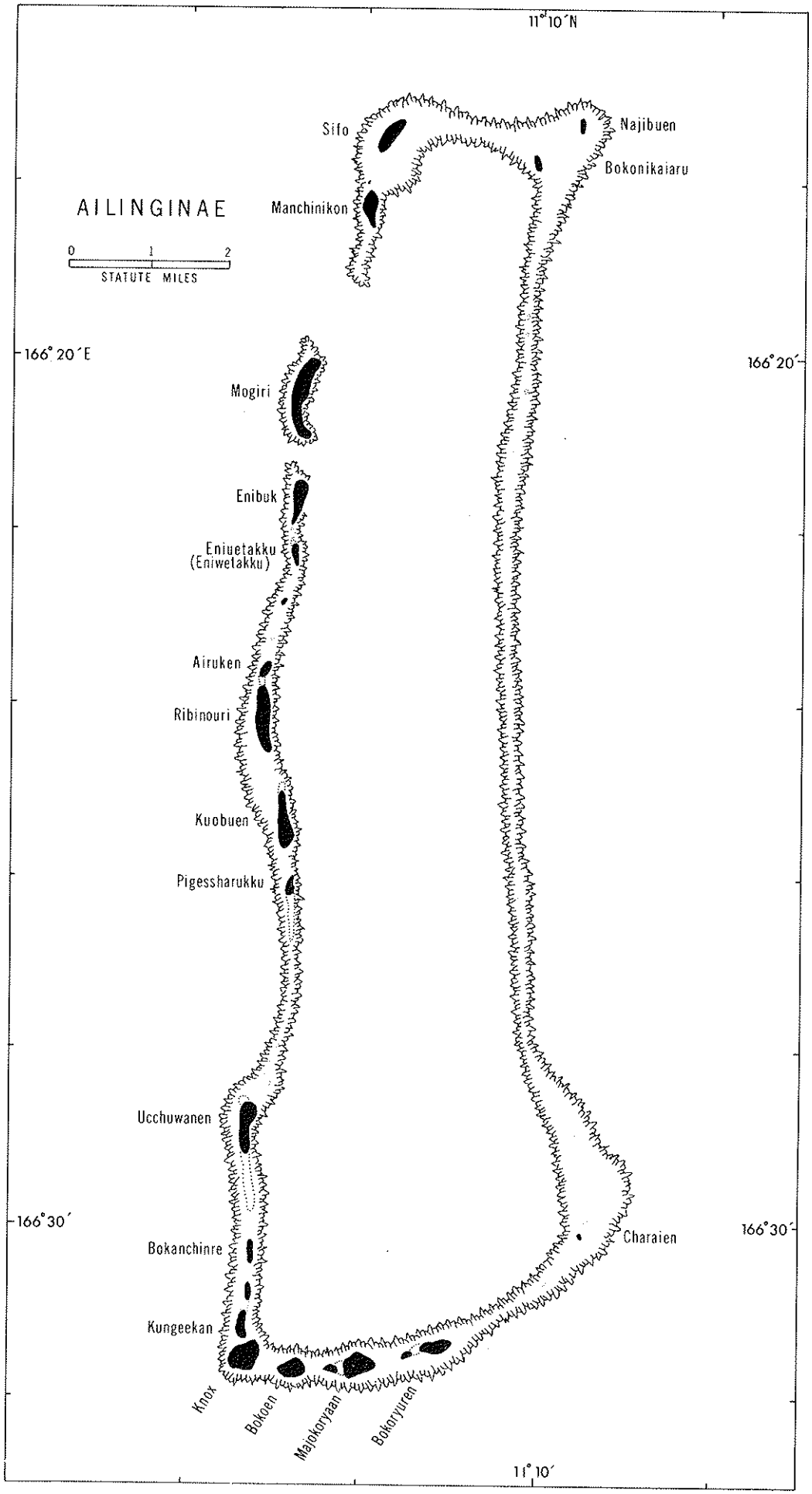
TABLE 20. Bird specimens collected from Rongelap Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Puffinus pacificus	CNHM 153456	♀	A	--	06-05-46	Skin	M.A.Traylor,Jr.
Sula sula	USNM 346996	?	?	Naen	07-30-46	Skel.	J.P.E.Morrison
Fregata minor	USNM 388812	♀?	I	"	"	Skin	"
" "	USNM 346995	?	?	"	"	Skel.	"
Egretta sacra	CNHM 153270	♂	A	--	05-18-46	Skin	"
Pluvialis dominica	MCZ 81921	♂	?	--	01-18-00	"	C.H.Townsend
" "	USNM 212228	♂	?	Rongelap I	"	"	"
" "	USNM 212229	♀	?	"	"	"	"
" "	USNM 388805	♀	?	"	06-21-46	"	J.P.E.Morrison
" "	USNM 388806	♀	?	"	"	"	"
" "	USNM 388807	♀	?	Burok	07-24-46	"	"
" "	USNM 388808	♀	?	?	"	"	"
Numenius tahitiensis	USNM 212201	♀	?	Rongelap I	01-18-00	"	C.H.Townsend
" "	USNM 212202	♂	?	"	"	"	"
" "	USNM 212203	♂	?	"	"	"	"
" "	USNM 212204	♀	?	"	"	"	"
" "	USNM 388809	♂	?	Lomuilal	08-01-46	"	J.P.E.Morrison
" "	USNM 388810	♂	?	"	"	"	"
Arenaria interpres	USNM 212214	♂	?	Rongelap I	01-18-00	"	C.H.Townsend
" "	USNM 212215	?	?	"	"	"	"
" "	USNM 388781	♀	?	Arbar	06-16-46	"	J.P.E.Morrison
" "	CNHM	♀	?				
Sterna sumatrana	CNHM 153279	♂	?	--	06-28-46	Skin	M.A.Traylor,Jr.
" "	CNHM 153282	♂	?	--	"	"	"
" "	CNHM 153283	♂	?	--	"	"	"
" "	CNHM 153284	♂	?	--	"	"	"
" "	USNM 388756	?	I	Lomuilal	08-01-46	"	J.P.E.Morrison
" "	USNM 388757	♀	I	Erapuotsu	07-20-46	"	"
" "	USNM 388760	♀	A	"	"	"	"
" "	USNM 388758	♂	A	Kabelle	06-20-46	"	"

TABLE 20. Bird specimens collected from Rongelap Atoll (contd.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sterna sumatrana	USNM 388759	♀	A	Burok	07-24-46	Skin	J.P.E.Morrison
" "	USNM 388761	♂	A	Arbar	06-16-46	"	"
Thalasseus bergii	USNM 388733	♂?	N	Yugui	07-31-46	"	"
" "	USNM 388735	♂	A	"	"	"	"
" "	USNM 388736	♀	A	"	"	"	"
" "	USNM 388737	♂	A	"	"	"	"
" "	USNM 388738	♀	A	"	"	"	"
" "	USNM 388741	♂	A	"	"	"	"
" "	USNM 388742	♀	A	"	"	"	"
" "	USNM 388739	♀	A	Eniaetok	07-20-46	"	"
" "	USNM 388740	♀	A	Kabelle	"	"	"
" "	CNHM 153285	♂	?	--	06-18-46	"	M.A.Traylor,Jr.
" "	CNHM 153286	♀	?	--	05-19-46	"	"
" "	CNHM 153287	♂	I	--	"	"	"
" "	CNHM	♂	-	--	--	-	--
Anous stolidus	USNM 388771	♀	A	Mellu	06-19-46	Skin	J.P.E.Morrison
" "	USNM 388772	♂	A	Enybarbar	06-18-46	"	"
" "	USNM 388773	?	I	Naen	07-31-46	"	"
" "	USNM 388774	♂	A	Burok	07-24-46	"	"
Anous tenuirostris	USNM 388797	♂	A	Arbar	06-16-46	"	"
" "	USNM 388798	♂	A	Piganiyaro-yaro	07-30-46	"	"
" "	USNM 388799	♀	A	"	"	"	"
" "	USNM 388800	?	N	"	"	"	"
" "	USNM 388801	?	N	"	"	"	"
Gygis alba	USNM 388750	♀	A	Naen	07-31-46	"	"
" "	USNM 388752	♂	A	Enybarbar	06-18-46	"	"
" "	CNHM 153313	♂?	N	--	06-28-46	"	M.A.Traylor,Jr.
" "	CNHM 153314	♀	N	--	"	"	"
" "	CNHM 153315	♀	N	--	"	"	"
" "	CNHM 153316	♀	-	--	"	"	"
" "	CNHM 153317	♀	-	--	"	"	"
" "	CNHM 153318	♀	-	--	"	"	"
" "	CNHM	♀	-	--	--	"	"

348-415 O-69—10


11°10´N
AILINGINAE
0 1 2
STATUTE MILES
Sifo
Najibuen
Bokonikaiaru
Manchinikon
166°20´E
166°20´
Mogiri
Enibuk
Eniuetakku
(Eniwetakku)
Airuken
Ribinouri
Kuobuen
Pigessharukku
Ucchuwanen
166°30´
166°30´
Charaien
Bokanchinre
Kungeekan
Knox
Bokoen
Majokoryaan
Bokoryuren
11°10´

AILINGINAE ATOLL

Location: 11°08' N x 166°24' E.

Shape and Size: Narrow oblong-shaped; Tip to tip (east-west) - 15 miles; Width - 4 miles; Total lagoon area - 58.76 square miles, Total dry land area - 1.29 square miles; Number of islands - 25; Height - 10 feet(Fosberg, 1956).

Soil: Beach (seaward) - mostly beach rock, some cobblestone areas; Beach (lagoon) - mostly sand, some exposed rock and cobblestone areas; Interior - mostly sand, very little humus.

Vegetation: Species number unknown; larger islands, planted with Cocos, some Pemphis and low scrub on seaward side; smaller islands, low dense scrub, Pandanus, few Cocos.

Climate: Moderate rainfall, about 60-70 inches yearly; Mean air temperature - 82° F.; Winds - prevailing from east to north (Fosberg, 1956).

Human Population: Past - uninhabited; Present - uninhabited, evidence in 1967 of occasional visitors to gather copra.

Scientific Visits: U.S. Navy (F. R. Fosberg) - 10 February 1956; POBSP - 1 May 1967.

Avifauna: Fourteen bird species are known from Ailinginae Atoll. Nine of these species are seabirds, 4 are shorebirds, and 1 is a heron. Four species are known breeders, 6 others are potential breeders, while 4 are migrants.

The 14 species known from Ailinginae Atoll are included in the following checklist. The source material from which this list was compiled includes: (1) Fosberg, 1966; and (2) POBSP 1967 data. These sources are referred to in the checklist by the corresponding number. The nine species marked with a single asterisk are new species records for Ailinginae Atoll; the four species marked with double asterisks are new breeding records.

Ailinginae Atoll Avifauna Checklist

Species	Status	Source
1) Sula sula*	Resident breeder ?	2
2) Sula leucogaster*	Resident breeder ?	2
3) Fregata minor*	Resident breeder ?	2
4) Egretta sacra*	Resident breeder ?	2
5) Pluvialis dominica*	Migrant	2
6) Numenius tahitiensis	Migrant	1, 2
7) Heteroscelus incanum *	Migrant	2
8) Arenaria interpres	Migrant	1, 2
9) Sterna sumatrana*	Resident breeder ?	2
10) Sterna fuscata*	Resident breeder**	2

Species	Status	Source
11) Thalasseus bergii*	Resident breeder**	2
12) Anous stolidus	Resident breeder**	1, 2
13) Anous tenuirostris	Resident breeder**	1, 2
14) Gygis alba	Resident breeder ?	1, 2

Twenty-seven specimens of 10 bird species have been collected by POBSP personnel from Ailinginae Atoll (Table 21). These include six species whose specimens are the first to be collected from the atoll, and four whose specimens confirm a previous sight record. No other specimens have been collected from the atoll.

TABLE 21. Bird specimens collected by POBSP from Ailinginae Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sula leucogaster	USNM 543355	?	SA	Airuken	5-1-67	Skin	Amerson
Fregata minor	" 543379	♀	A	"	"	"	"
Egretta sacra	" 543457	?	A	Eniuetakku	"	"	"
Numenius tahitiensis	" 498369	♂	A	Enibuk	"	Skel.	"
Arenaria interpres	" 543426	♂	A	"	"	Skin	"
" "	" 543427	?	A	"	"	"	"
Sterna sumatrana	" 543219	?	-	"	"	"	"
Sterna fuscata	" 543480	♂	A	Airuken	"	"	"
" "	" 543481	♂	A	"	"	"	"
" "	" 543482	♂	A	"	"	"	"
" "	" 543483	♀	I	"	"	"	"
" "	" 543484	♂	I	"	"	"	"
" "	" 543485	♀	I	"	"	"	"
" "	" 543390	♂	A	"	"	"	"
" "	" 543391	♂	A	"	"	"	"
" "	" 543392	♂	A	"	"	"	"
" "	" 543393	♂	A	"	"	"	"
" "	" 543394	♂	A	"	"	"	"
" "	" 543395	♂	I	"	"	"	"
Thalasseus bergii	" 543432	♂	A	"	"	"	"
Anous stolidus	" 543470	♀	A	Manchinikon	"	"	"
" "	" 543471	♂	A	"	"	"	"
" "	" 543472	♂	A	Enibuk	"	"	"
" "	" 543411	♀	A	Airuken	"	"	"
Gygis alba	" 543406	♂	A	"	"	"	"
" "	" 543405	♂	A	Manchinikon	"	"	"
" "	" 543404	♂	A	"	"	"	"

Species Accounts

1) Sula sula — Red-footed Booby

Habitat -- May 1967 - flying over the southwest portion of the lagoon.

Numbers -- May 1967 - one adult observed over the lagoon, none seen on the islands visited.

Status -- Resident breeder? -- May 1967 - no evidence of breeding on islands visited.

Specimen Records -- None. This observation is a new species sight record for the atoll.

2) Sula leucogaster — Brown Booby

Habitat -- May 1967 - roosting on rocky seaward beach of Ribinouri-Airuken, also flying over the lagoon.

Numbers -- May 1967 - Ribinouri-Airuken 3, lagoon 25.

Status -- Resident breeder? May 1967 - no evidence of breeding at Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken; probable breeder since adults, subadults, and immatures were observed.

Specimen Records -- Other - none; POBSP - 1 (Table 21). This collection represents a new species and specimen record for the atoll.

3) Fregata minor — Great Frigatebird

Habitat -- May 1967 - adults and subadults flying above Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken and the lagoon.

Numbers -- May 1967 - Manchinikon 2, Enibuk 3, Eniwetakku 1, Ribinouri-Airuken 3, lagoon 6.

Status -- Resident breeder? -- May 1967 - no evidence of breeding on islands listed above but this species possibly breeds at Ailinginae Atoll.

Specimen Records -- Other - none; POBSP - 1 (Table 21). This is a new species and specimen record for the atoll.

4) Egretta sacra — Reef Heron

Habitat -- May 1967 - present on sandy and rocky seaward beaches of Enibuk and Ribinouri-Airuken.

Numbers -- May 1967 - Enibuk 1, Ribinouri-Airuken 2.

Status -- Resident breeder? -- May 1967 - no evidence of breeding. This species possibly, however, nests on the atoll.

Specimen Records -- Other - none; POBSP - 1 (Table 21). This represents a new species and specimen record for Ailinginae Atoll.

5) Pluvialis dominica — Golden Plover

Habitat -- May 1967 - on sandy and rocky beach areas of Enibuk, Eniwetakku, and Ribinouri-Airuken.

Numbers -- May 1967 - Enibuk 2, Eniwetakku 3, Ribinouri-Airuken 5.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for the atoll.

6) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- February 1956 - present on Sifo (Fosberg, 1966); May 1967 - on rocky seaward areas of Enibuk, Eniwetakku, and Ribinouri-Airuken.

Numbers -- February 1956 - Sifo 2; May 1967 - Enibuk 2, Eniwetakku 3, Ribinouri-Airuken 2.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 1 (Table 21). This represents a new specimen record for Ailinginae Atoll.

7) Heteroscelus incanum — Wandering Tattler

Habitat -- May 1967 - on rocky beaches of Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken.

Numbers -- May 1967 - Manchinikon 2, Enibuk 1, Eniwetakku 1, Ribinouri-Airuken 2.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for the atoll.

8) Arenaria interpres — Ruddy Turnstone

Habitat -- February 1956 - present on Sifo (Fosberg, 1966); May 1967 - on sandy and rocky beach areas of Enibuk, Eniwetakku, and Ribinouri-Airuken.

Numbers -- February 1956 - Sifo a few (Fosberg, 1966); May 1967 - Enibuk 5, Eniwetakku 4, Ribinouri-Airuken 6.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - 2 (Table 21). This is a new specimen record for the atoll.

9) Sterna sumatrana Black-naped Tern

Habitat -- May 1967 - on the rocky and sandy beach areas of Enibuk, Eniwetakku, and Ribinouri-Airuken; also flying over the lagoon.

Numbers -- May 1967 - Enibuk 6, Eniwetakku 3, Ribinouri-Airuken 5, lagoon 10.

Status -- Resident breeder? May 1967 - no nests observed on above islands.

Specimen Record -- Other - none; POBSP - 1 (Table 21). This is a new species and specimen record for the atoll.

10) Sterna fuscata Sooty Tern

Habitat -- May 1967 - colony on rocky western tip of Ribinouri-Airuken.

Numbers -- May 1967 - Ribinouri-Airuken 5,000 adults, 2,000 young.

Status -- Resident breeder. May 1967 - Ribinouri-Airuken 2,000 most young almost fledged, a few already flying, some dead (possibly killed by rats). This is a new breeding record for Ailinginae Atoll.

Specimen Records -- Other - none; POBSP - 12 (Table 21). This collection constitutes a new species and specimen record for the atoll.

11) Thalasseus bergii Crested Tern

Habitat -- May 1967 - flying over and roosting on rocky seaward areas of Enibuk, Eniwetakku, and Ribinouri-Airuken, flying over the lagoon; almost-fledged young on rocky seaward area of Ribinouri-Airuken.

Numbers -- May 1967 - Enibuk 2, Eniwetakku 2, Ribinouri-Airuken 25 adults and 9 young, lagoon 5.

Status -- Resident breeder. May 1967 - Ribinouri-Airuken 9 almost-fledged young present. This is a new breeding record for Ailinginae Atoll.

Specimen Records -- Other - none; POBSP - 1 (Table 21). This collection represents a new species and specimen record for the atoll.

12) Anous stolidus — Brown Noddy

Habitat -- February 1956 - present on Sifo (Fosberg, 1966); May 1967 - roosting and nesting in Pandanus on Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken, also flying over lagoon.

Numbers -- February 1967 - Sifo a few present; May 1967 - Manchinikon 100, Enibuk 50, Eniwetakku 100, Ribinouri-Airuken 200, lagoon few.

Status -- Resident breeder. May 1967 - nests with eggs on Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken. This is a new breeding record for the atoll.

Specimen Records -- Other - none; POBSP - 4 (Table 21). This is a new specimen record for the atoll.

13) Anous tenuirostris — Black Noddy

Habitat -- February 1956 - present on Sifo (Fosberg, 1966); May 1967 - flying above, roosting and nesting in Pisonia at Manchinikon, Enibuk, Eniwetakku, Ribinouri-Airuken, also over lagoon.

Numbers -- February 1956 - Sifo several; May 1967 - Manchinikon 25, Enibuk 10, Eniwetakku 10, Ribinouri-Airuken 50, and lagoon few.

Status -- Resident breeder. May 1967 - old nests observed at Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken. This is a new breeding record.

Specimen Records -- None.

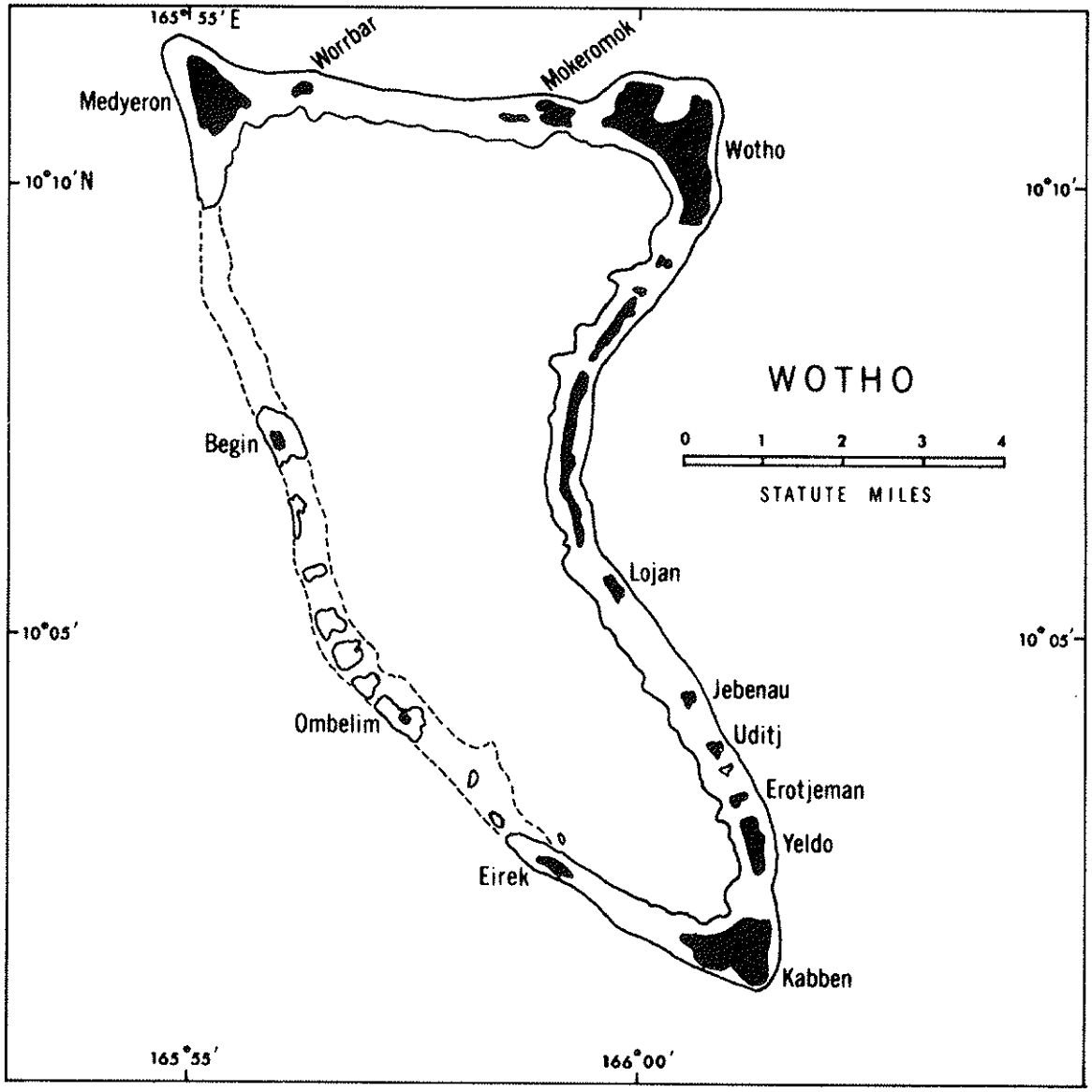
14) Gygis alba — White Tern

Habitat -- February 1956 - present on Sifo (Fosberg, 1966); May 1967 - flying above and roosting in Pisonia and Cocos at Manchinikon, Enibuk, Eniwetakku, and Ribinouri-Airuken, also flying over lagoon.

Numbers -- February 1956 - Sifo 100's; May 1967 - Manchinikon 100, Enibuk 100, Eniwetakku 50, Ribinouri-Airuken 100, lagoon few.

Status -- Resident breeder? May 1967 - no eggs or young observed on Manchinikon, Enibuk, Eniwetakku, or Ribinouri-Airuken. Specimens collected had bare brood patches.

Specimen Records-- Other - none; POBSP - 3 (Table 21). This collection constitutes a new specimen record for Ailinginae Atoll.


165° 55' E
Worrbar
Mokeromok
Medyeron
Wotho
10°10' N
10°10'
WOTHO
0 1 2 3 4
STATUTE MILES
Begin
Lojan
10°05'
10° 05'
Jebenau
Uditj
Ombelim
Erotjeman
Yeldo
Eirek
Kabben
165°55'
166°00'

WOTHO ATOLL

Location: 10°06' N x 165°59' E.

Shape and Size: Irregular triangular-shaped; base to tip (north-southeast) - 19 miles; Width (north base) - 9 miles; Total lagoon area - 45.84 square miles; Total dry land area - 1.60 square miles; Number of islands - 15; Height - ? feet (Fosberg, 1956).

Soil: No available data.

Vegetation: Forty species; larger islands with some original forests, large areas of planted Cocos; smaller islands with scrub cover and small trees (Fosberg, 1956).

Climate: Moderately wet, about 70-100 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from east to north (Fosberg, 1956).

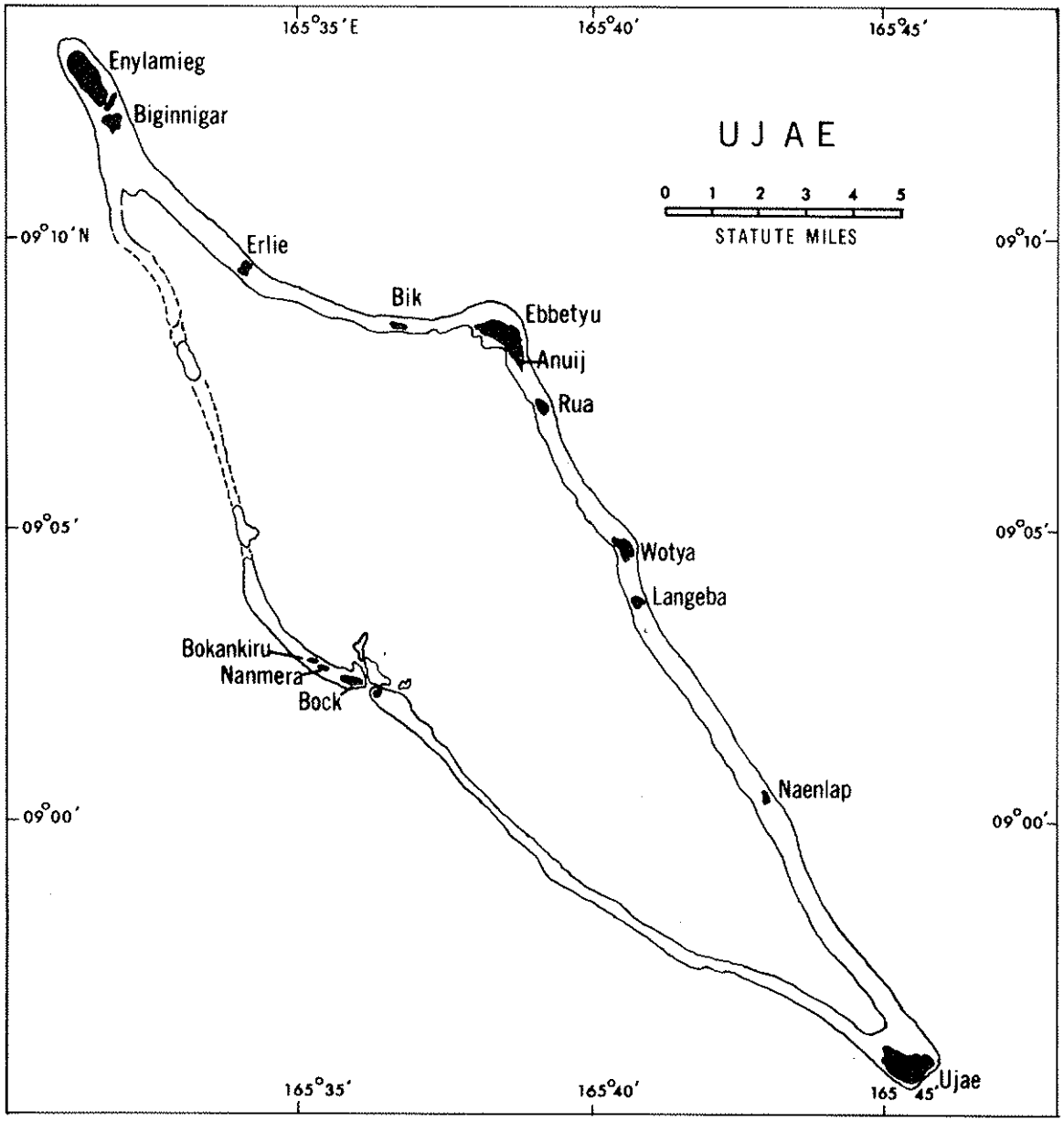
Human Population: Past - inhabited, 40 in 1800's (Findlay, 1886); 31 in 1948 (Freeman, 1951); Present - inhabited, 54 in 1964 (U.S. Department of State, 1965).

Scientific Visits: U.S. Geological Survey Expedition (F. R. Fosberg) - 12-16 February, 18-22 March 1952.

Avifauna: Fifteen bird species are known from Wotho Atoll. These include 7 seabird species, 5 shorebord species, 1 heron, 1 domestic duck, and 1 domestic fowl. Only three species of the 10 potential breeders are known to breed on the atoll. No museum specimens are known.

Fosberg (1966) observed the following species from Wotho Atoll:

1)	Sula leucogaster	Resident breeder ?
2)	Fregata minor	Resident breeder ?
3)	Egretta sacra	Resident breeder ?
4)	Cairina moschata	Introduced breeder ?
5)	Gallus gallus	Introduced breeder ?
6)	Pluvialis dominica	Migrant
7)	Numenius phaeopus	Migrant
8)	Numenius tahitiensis	Migrant
9)	Heteroscelus incanum	Migrant
10)	Arenaria interpres	Migrant
11)	Sterna sumatrana	Resident breeder ?
12)	Thalasseus bergii	Resident breeder ?
13)	Anous stolidus	Resident breeder, February (downy young)
14)	Anous tenuirostris	Resident breeder, February-March
15)	Gygis alba	Resident breeder, February (eggs)


165°35'E
165°40'
165°45'
UJAE
0 1 2 3 4 5
STATUTE MILES
09°10'N
09°10'
09°05'
09°05'
09°00'
09°00'
Enylamieg
Biginnigar
Erlie
Bik
Ebbetyu
Anuij
Rua
Wotya
Langeba
Bokankiru
Nanmera
Bock
Naenlap
Ujae
165°35'
165°40'
165°45'

UJAE ATOLL

Location: 09°05' N x 165°40' E.

Shape and Size: Elongated diamond-shaped; Tip to tip (northwest-southeast) - 27 miles; Widest Point - 8 miles; Total lagoon area - 83.51 square miles; Total dry land area - 0.62 square miles; Number of islands - 15; Height - ? feet (Fosberg, 1956).

Soil: No available data.

Vegetation: Sixty-one species; large islands planted with Cocos, smaller islands original scrub and patches of forest (Fosberg, 1956).

Climate: Moderately wet, about 70-100 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from east to north (Fosberg, 1956).

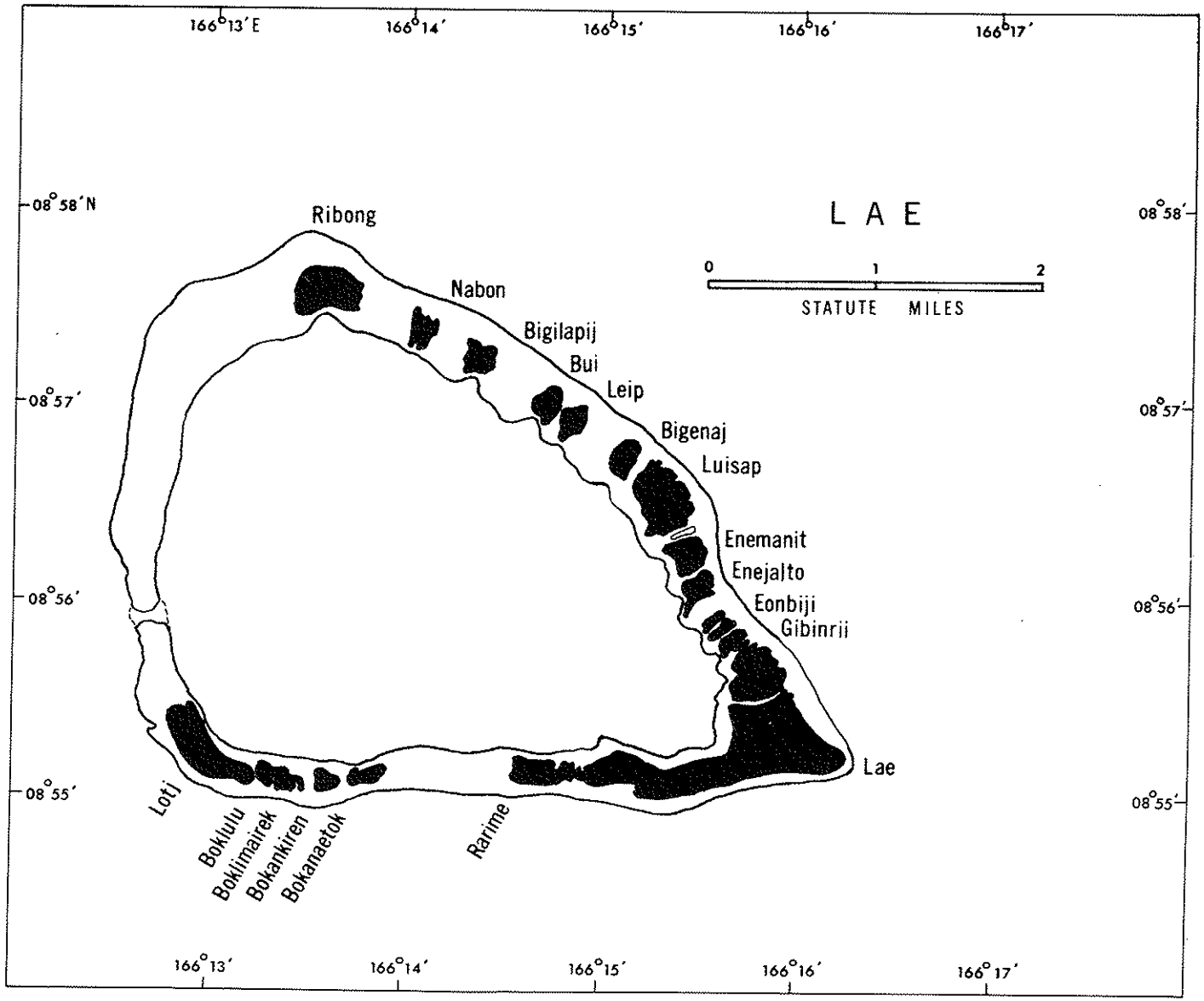
Human Population: Past - inhabited, 300 in 1800's (Findlay, 1886): 244 in 1948 (Freeman, 1951); Present - inhabited, 230 in 1964 (U.S. Department of State, 1965).

Scientific Visits: U.S. Geological Survey Expedition (F. R. Fosberg) - 16-23 February, 2-13 March 1952.

Avifauna: Fourteen bird species are known from Ujae Atoll. These species include 8 seabirds, 5 shorebirds, and 1 heron. Although 9 species are potential breeders, only 4 are known breeders. No museum specimens have been collected from the atoll.

Fosberg (1966) listed the following species which he observed on the atoll:

1)	Sula sula	Resident breeder ?
2)	Sula leucogaster	Resident breeder ?
3)	Fregata minor	Resident breeder ?
4)	Egretta sacra	Resident breeder ?
5)	Pluvialis dominica	Migrant
6)	Numenius phaeopus	Migrant
7)	Numenius tahitiensis	Migrant
8)	Heteroscelus incanum	Migrant
9)	Arenaria interpres	Migrant
10)	Sterna sumatrana	Resident breeder, February-March (eggs)
11)	Thalasseus bergii	Resident breeder ?
12)	Anous stolidus	Resident breeder, February-March (eggs)
13)	Anous tenuirostris	Resident breeder, February (young)
14)	Gygis alba	Resident breeder, February (eggs to large young)


166°13′E
166°14′
166°15′
166°16′
166°17′
08°58′N
08°57′
08°56′
08°55′
LAE
0
1
2
STATUTE MILES
Ribong
Nabon
Bigilapij
Bui
Leip
Bigenaj
Luisap
Enemanit
Enejalto
Eonbiji
Gibinrii
Lae
Lotj
Boklulu
Boklimairek
Bokankiren
Bokanaetok
Rarime

LAE ATOLL

Location: 08°56' N x 166°14' E.

Shape and Size: Irregular triangle-shaped; Base to tip (west-southeast) - 5 miles; Width (west base) - 3.5 miles; Total lagoon area - 10.08 square miles; Total dry land area - 0.60 square miles; Number of islands - 15; Height - 8 feet (Fosberg, 1956).

Soil: Beach (seaward) - mostly rocky, but some sandy areas; Beach (lagoon) - mostly sandy (Fosberg, 1956).

Vegetation: Sixty-three species; most islands planted with Cocos, some thick wooded areas and some sparse tall scrub (Fosberg, 1956).

Climate: Moderately wet, about 70-100 inches of rainfall yearly; Mean air temperature - 82° F., Winds - prevailing from east to north (Fosberg, 1956).

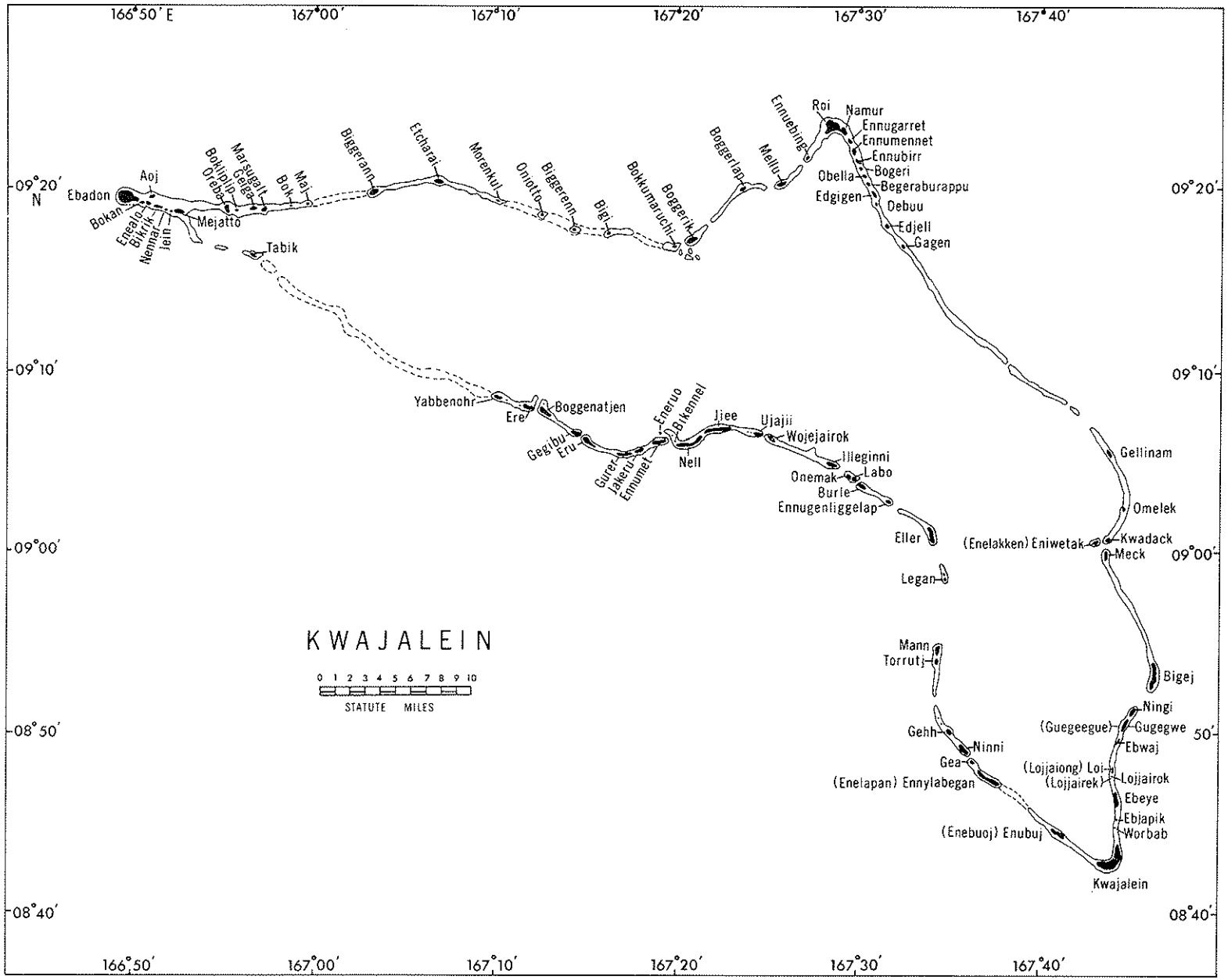
Human Population: Past - inhabited, 250 in 1800's (Findlay, 1886); 138 in 1948 (Freeman, 1951); Present - inhabited 143 in 1964 (U.S. Department of State, 1965).

Scientific Visits: U.S. Geological Survey Expedition (F. R. Fosberg) - 6-10 January 1952.

Avifauna: Ten bird species have been recorded from Lae Atoll. Of these species, 4 are seabirds, 4 are shorebirds, 1 is a heron, and 1 is a domestic fowl. Potential breeders include 6 species, but only 1 is known to breed. No museum specimens are known from the atoll.

Fosberg (1966) observed the following species from Lae Atoll:

1)	Egretta sacra	Resident breeder ?
2)	Gallus gallus	Introduced breeder ?
3)	Pluvialis dominica	Migrant
4)	Numenius phaeopus	Migrant
5)	Heteroscelus incanum	Migrant
6)	Arenaria interpres	Migrant
7)	Thalasseus bergii	Resident breeder ?
8)	Anous stolidus	Resident breeder, January
9)	Anous tenuirostris	Resident breeder ?
10)	Gygis alba	Resident breeder ?



KWAJALEIN
0 1 2 3 4 5 6 7 8 9 10
STATUTE MILES
166°50′ E
167°00′
167°10′
167°20′
167°30′
167°40′
09°20′ N
09°10′
09°00′
08°50′
08°40′
Ebadon
Aoj
Bokan
Enealo
Bikrik
Nennar
Jein
Mejatto
Oreba
Bokliplip
Marsugalt
Geiga
Bok
Maj
Biggerann
Etcharai
Morenkul
Oniotto
Biggerenn
Bigi
Bokkumaruchi
Boggerik
Boggerlap
Mellu
Ennuebing
Roi
Namur
Ennugarret
Ennumennet
Ennubirr
Obella
Bogeri
Begeraburappu
Edgigen
Debuu
Edjell
Gagen
Tabik
Yabbenohr
Ere
Boggenatjen
Gegibu
Eru
Gurer
Jakeru
Ennumet
Eneruo
Bikennel
Nell
Jjee
Ujajii
Wojejairok
Illeginni
Onemak
Labo
Burle
Ennugenliggelap
Eller
Legan
Gellinam
Omelek
(Enelakken) Eniwetak
Kwadack
Meck
Bigej
Mann
Torrutj
Gehh
Ninni
Gea
(Enelapan) Ennylabegan
(Enebuoj) Enubuj
Kwajalein
Ningi
(Guegeegue)
Gugegwe
Ebwaj
(Lojjaiong) Loi
(Lojjairek)
Lojjairok
Ebeye
Ebjapik
Worbab

KWAJALEIN ATOLL

Location: 09°05' N x 167°20' E.

Shape and Size: An irregular-shaped crescent (running from southeast to northwest); Tip to tip - 75 miles, reef length 195 miles; Total lagoon area - 901.73 square miles; Total land area - 5.63 square miles; Number of islands - 92 (Fosberg, 1956).

Soil: Beach - sandy with coral rock outcrops; Inland - sand to humus (may vary from island to island).

Vegetation: Species present - 77; Composition varies from island to island, Cocos, Pisonia, and Messerschmidia prominent.

Climate: Moderately wet, average annual rainfall 96 inches; Mean annual temperature - 82° F.; Wind, prevalent from northeast (Fosberg, 1956).

Human Population: Past - inhabited, 200 in 1800's (Findlay, 1886); 1,043 in 1948 (Freeman, 1951); Present - inhabited, 2,663 natives in 1964 plus U.S. military personnel (U.S. Department of State, 1965).

Scientific Visits: Herbert Wallace - 1944; Northern Marshall Islands Expedition - 15-28 January, 29 February, 15 March 1952, 2-12 February 1956, and several brief stops on other dates (Fosberg, 1966); Charles F. Yocom - 20-30 July 1960; POBSP - 29 October to 9 November 1964, 13-19 June 1966.

Avifauna: Thirty species of birds are now known from Kwajalein Atoll. These include 10 seabirds, 11 shorebirds, 6 ducks, 1 heron, and 2 landbirds. Of these 30 species, 4 are known breeders, 9 are possible breeders, 9 are regular migrants, 1 is a common visitor, and 7 are accidentals.

Kwajalein Atoll is the only locality in the Marshall and Gilbert Islands from which Anas platyrhynchos, Anas strepera, Aythya fuligula, Capella hardwickii, Acridotheres tristis, and Passer domesticus have been recorded.

Thirty species are listed in the following checklist, which was derived from various sources: (1) POBSP, (a) 1964, (b) 1966, (c) band return data; (2) Fosberg, 1966; (3) Baker, 1951; (4) Yocom, 1964; and (5) Marshall, 1957. These sources are referred to in the checklist by the corresponding numbers and letters. The seven species marked by a single asterisk are new species records for Kwajalein Atoll.

348-415 O-69—11

Kwajalein Atoll Avifauna Checklist

	Species	Status	Source
1)	Sula sula*	Resident breeder ?	1a
2)	Sula leucogaster	Resident breeder ?	1b, 2b
3)	Fregata minor	Resident breeder ?	1a, 2b, 3
4)	Egretta sacra	Resident breeder ?	1a, 2b, 3, 4,
5)	Anas platyrhynchos	Accidental	4
6)	Anas crecca	Accidental	4
7)	Anas strepera	Accidental	4
8)	Anas acuta	Common visitor	1a, 4
9)	Anas clypeata	Accidental	1a, 4
10)	Aythya fuligula*	Accidental	1a
11)	Pluvialis dominica	Migrant	1ab, 2b
12)	Squatarola squatarola*	Accidental	1a
13)	Numenius phaeopus	Migrant	1a, 2b
14)	Numenius tahitiensis*	Migrant	1a
15)	Limosa lapponica	Migrant	1a, 2b
16)	Heteroscelus brevipes	Migrant	1a, 4
17)	Heteroscelus incanum	Migrant	1ab, 2b, 4
18)	Arenaria interpres	Migrant	1abc, 2b, 4
19)	Capella hardwickii*	Accidental	1a
20)	Crocethia alba*	Migrant	1a
21)	Erolia acuminata*	Migrant	1ab
22)	Sterna sumatrana	Resident breeder ?	1ab, 2b
23)	Sterna lunata	Resident breeder ?	4
24)	Sterna fuscata	Resident breeder ?	1c, 2b, 4
25)	Thalasseus bergii	Resident breeder ?	1ab, 2b
26)	Anous stolidus	Resident breeder	1ab, 2b, 3
27)	Anous tenuirostris	Resident breeder	1ab, 2b
28)	Gygis alba	Resident breeder	1ab, 2b, 3, 4
29)	Passer domesticus*	Resident breeder ?	1a
30)	Acridotheres tristis	Resident breeder, now absent	2ab, 5

POBSP personnel have collected 58 specimens of 16 species (Table 22). Of these 16 species, 5 are species not previously known from Kwajalein Atoll; the other 11 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from Kwajalein Atoll.

TABLE 22. Bird specimens collected by POBSP from Kwajalein Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anas acuta	USNM 494843	♂	-	Kwajalein I	11-02-64	Skin	Clapp
" "	USNM 494844	♀	-	"	"	"	"
" "	USNM 494845	♀	-	"	11-03-64	"	Huber
" "	USNM 494846	♀	-	"	"	"	"
" "	USNM 494847	♂	-	"	11-09-64	"	"
" "	USNM 494848	♀	-	"	"	"	"

TABLE 22. Bird specimens collected by POBSP from Kwajalein Atoll (cont.)

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anas clypeata	USNM 494849	♂	-	Kwajalein I	11-03-64	Skin	Huber
" "	USNM 494850	?	-	"	"	"	"
Aythya fuligula	USNM 494852	♀	-	"	11-02-64	"	Clapp
Pluvialis dominica	USNM 494747	♂	-	Roi-Namur	11-04-64	"	"
" "	USNM 494748	♀	=	Kwajalein I	11-09-64	"	Huber
" "	USNM 494749	♂	-	"	"	"	"
" "	USNM 494751	♀	-	"	"	"	"
" "	USNM 494752	♂	-	"	"	"	"
Squatarola squatarola	USNM 494822	♀	-	"	11-03-64	"	"
Numenius phaeopus	USNM 494837	♂	-	"	11-02-64	"	Clapp
" "	USNM 494838	♂	-	"	11-03-64	"	Huber
" "	USNM 494839	♀	-	"	"	"	"
" "	USNM 494840	♀	-	"	"	"	"
Limosa lapponica	USNM 494830	♂	-	Roi-Namur	11-04-64	"	Clapp
Heteroscelus incanum	USNM 494898	?	-	"	"	"	"
" "	USNM 494914	?	-	"	"	"	"
" "	USNM 494915	♂	-	"	"	"	"
Heteroscelus brevipes	USNM 494899	♀	Imm	"	"	"	"
" "	USNM 494912	♀	A	"	"	"	"
" "	USNM 494913	♀	-	"	"	"	"
Arenaria interpres	USNM 494763	♀	-	"	"	"	"
" "	USNM 494764	♀	-	"	"	"	"
" "	USNM 494765	♀	-	"	"	"	"
" "	USNM 494766	♂	-	"	"	"	"
" "	USNM 494767	♀	-	"	"	"	"
" "	USNM 494768	♀	-	"	"	"	"
" "	USNM 494769	?	-	"	"	"	"
" "	USNM 494770	♀	-	"	"	"	"
" "	USNM 494771	♀	-	"	"	"	"
" "	USNM 494772	♀	-	"	"	"	"
" "	USNM 494773	♀	-	"	"	"	"
" "	USNM 494774	♂	-	"	"	"	"
Capella (Gallinago) hardwickii	USNM 494842	♂	-	Kwajalein I	11-03-64	"	Wislocki
Crocethia alba	USNM 494795	♀	-	"	11-02-64	"	Clapp
" "	USNM 494796	♂	-	"	11-03-64	"	Huber
Erolia acuminata	USNM 494797	♀	-	"	11-02-64	"	Clapp
" "	USNM 494798	♀	-	"	"	"	"
" "	USNM 494799	♀	-	"	"	"	"
" "	USNM 494800	♂	-	"	"	"	"
" "	USNM 494801	?	-	"	"	"	"
" "	USNM 494802	?	-	"	"	"	"
" "	USNM 494803	♀	-	"	11-04-64	"	Huber
" "	USNM 494804	♀	-	"	"	"	"
" "	USNM 494805	♀	-	"	"	"	"
Anous stolidus	USNM 494663	♂	-	Loi	11-08-64	"	Clapp
" "	USNM 494664	♂	-	"	"	"	"
" "	USNM 494665	♀	-	"	"	"	"

TABLE 22. Bird specimens collected by POBSP from Kwajalein (cont.).

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	USNM 494547	♀	-	Ebeye (lagoon)	11-08-64	Skin	Amerson
" "	USNM 494548	♀	-	"	"	"	"
" "	USNM 494549	♀	-	N. Loi	"	"	Clapp
" "	USNM 494550	♂	-	"	"	"	"
Gygis alba	USNM 494632	♀	-	"	"	"	"

Species Accounts

1. Sula sula — Red-footed Booby

Habitat -- October-November 1964 - seen flying offshore of Roi-Namur on 30 October. This species possibly roosts on some of the many uninhabited islands in the atoll.

Numbers -- October-November 1964 - five observed (four of which were immature or dark-phase birds) offshore of Roi-Namur on 30 October.

Status -- Resident breeder? Breeding not observed. This species may nest on some of the many isolated islands in the atoll.

Specimen Records -- None. This is a new species sight record for Kwajalein Atoll.

2) Sula leucogaster — Brown Booby

Habitat -- 23 January 1952 - seen flying with frigatebirds (Fosberg, 1966); June 1966 - observed sitting on buoys inside the lagoon (14 June) and flying (feeding) outside the atoll (15 June).

Numbers -- 23 January 1952 - one seen (Fosberg, 1966); June 1966 - adults sitting on buoys, four feeding outside the atoll.

Status -- Resident breeder? Not known to breed, however, may breed on some of the many islands that have not been visited by ornithologists.

Specimen Records -- None.

3) Fregata minor — Great Frigatebird

Habitat -- 7 May 1944 - observed at Loi by Wallace (Baker, 1951); 19, 23 January 1952 and 2 February 1956 - soaring over Kwajalein Island (Fosberg, 1966); October-November 1964 - flying over Roi-Namur on 30 October, flying over Kwajalein Island on 9 November. This species probably roosts on some of the nonfrequented islands in the atoll.

Numbers -- 7 May 1944 - two seen at Loi (Baker, 1951); 19 January 1952 - one, 23 January 1952 - many dozens, and 2 February 1956 - two seen over Kwajalein Island (Fosberg, 1966); 29 October 1964 - one over Roi-Namur; 9 November 1964 - one over Kwajalein Island.

Status -- Resident breeder? October-November 1964 - not observed breeding; may breed on unvisited islands.

Specimen Records -- None.

4) Egretta sacra — Reef Heron

Habitat -- 1944-1945 - present (Baker, 1951); January, March, August 1952 - present on Lojjaiong, Lojjairek, Enebuoj, Ebeye, Kwajalein, and Enelakken (Fosberg, 1966); 25-27 July 1960 - three color phases present (Yocom, 1964); October-November 1964 - seen on sandy and rocky beaches of Roi-Namur and Loi.

Numbers -- 1944-1945 - "Wallace (field notes) found white herons more numerous than gray ones ..." (Baker, 1951); 15 January 1952 - Lojjaiong and Lojjairek 1 blue, 2 mottled, 2 white, 19 January 1952 - Enebuoj 1 mottled, 1 white, 26 January 1952 - Ebeye 1 white with wing tips dark, 1 white, 27 January 1952 - Kwajalein 1 blue, 1 white, 15 March 1952 - Kwajalein 1 blue, 3 August 1952 - Enelakken 1 blue, 1 mottled, 1 white (Fosberg, 1966); 25-27 July 1960 - "about 12 ... of the three color phases, white, white and black (mottled), and dark gray" (Yocom, 1964); October-November 1964 - Roi-Namur observed 4 various color-phased birds, Loi 1 seen.

Status -- Resident breeder? October-November 1964 - Breeding not observed, but may nest on the many isolated islands in the atoll.

Specimen Records -- None.

5) Anas platyrhynchos — Mallard

Habitat -- Winter of 1959-1960 - W. W. Fennell observed Mallards at Kwajalein Island which arrived in September 1959 and remained until the last of February 1960 (Yocom, 1964).

Numbers -- Winter of 1959-1960 - "... two flocks ... consisting of about 12 birds each ..." (Yocom, 1964).

Status -- Accidental.

Specimen Records -- None.

6) Anas crecca — Common or Green-winged Teal

Habitat -- September 1959-February 1960 - W. W. Fennell observed Common or Green-winged Teal on Kwajalein (Yocom, 1964).

Numbers -- September 1959-February 1960 - "... about 75 teal in one flock" (Yocom, 1964).

Status -- Accidental.

Specimen Records -- None.

7) Anas strepera Gadwall

Habitat -- September 1959-February 1960 - W. W. Fennell saw Gadwalls at Kwajalein (Yocom, 1964).

Numbers -- September 1959-February 1960 - "... considered ... the most numerous species present ..." (Yocom, 1964).

Status -- Accidental.

Specimen Records -- None.

8) Anas acuta Pintail

Habitat -- September 1959-February 1960 - W. W. Fennell observed Pintails on Kwajalein (Yocom, 1964); October-November 1964 - Kwajalein Island on fresh water "ponds" at edges (run-off areas) of runways, Roi-Namur in cleared areas in dense vegetation on Namur.

Numbers -- September 1959-February 1960 - several seen (Yocom, 1964); October-November 1964 - Kwajalein Island six seen and collected. Roi-Namur one seen (?).

Status -- Common visitor.

Specimen Records -- Other - none; POBSP - six (Table 22). Although Pintails have previously been observed from Kwajalein Atoll, these are the first specimen records from the atoll.

9) Anas clypeata Shoveler

Habitat -- September 1959-February 1960 - W. W. Fennell saw Shovelers on Kwajalein (Yocom, 1964); October-November 1964 - observed on fresh water drainage "ponds" on edge of runway at Kwajalein Island.

Numbers -- September 1959-February 1960 - Shovelers were seen (at least one shot) on Kwajalein (Yocom, 1964); October-November 1964 - two seen and collected on Kwajalein Island.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - two (Table 22). This collection is a first specimen record for this species from Kwajalein Atoll.

10) Aythya fuligula — Tufted Duck

Habitat -- October-November 1964 - observed on fresh-water drainage areas ("ponds") at edges of runways on Kwajalein Island.

Numbers -- October-November 1964 - one seen and collected on Kwajalein Island.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - one (Table 22). This is a new species and specimen record for Micronesia.

11) Pluvialis dominica — Golden Plover

Habitat -- 15 January 1952 - Kwajalein Island on lagoon debris flat, 19 January 1952 - outer reef flat and inner beach, 23 January 1952 and 29 February 1952, 3 August 1952, 12 February 1956, and 10 October 1960 - resting on the asphalt of the airstrips (Fosberg, 1966); October-November 1964 - common on the runways and grassy lawns of Kwajalein Island and Roi-Namur, present on the beaches of the above two islands and Loi, Bigej, and Ebeye; June 1966 - on the greens of the golf course and on the shoreline of Kwajalein Island.

Numbers -- Kwajalein Island: 15 January 1952 - 12 seen on lagoon flat, 19 January 1952 - a number on outer reef flat and inner beach, 23 January, 29 February, and 3 August 1952 - seen in numbers on the airstrip (5 together in August), 12 February 1956 - seen, 10 October 1960 - common generally on the island and a number on the airstrip (Fosberg, 1966); October-November 1964 - Kwajalein 200, Roi-Namur 200, Loi 10, Bigej 4, Ebeye 3-6; June 1966 - Kwajalein 16.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - five (Table 22). Although Golden Plovers are already known from Kwajalein Atoll, these are the first specimen records for this species from the atoll.

12) Squatarola squatarola — Black-bellied Plover

Habitat -- 3 November 1964 - on runway of Kwajalein Island.

Numbers -- 3 November 1964 - one seen and collected on Kwajalein Island.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - one (Table 22). This is a new species and specimen record from Kwajalein Atoll. There is only one other record (a sighting) for this species from the Marshall Islands (see Eniwetok Atoll).

13) Numenius phaeopus Whimbrel

Habitat -- 19 October 1950 - "... curlews, Whimbrels judging from their notes, were seen on the Kwajalein airstrip in the sun at 3:15 p.m. ..." (Fosberg, 1966); October-November 1964 - observed on runways and surrounding open areas of Kwajalein and Roi-Namur.

Numbers -- 19 October 1960 - two observed (Fosberg, 1966); October-November 1964 - Kwajalein 8; Roi-Namur 8.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - four (Table 22). These specimens represent the first specimen records from the atoll.

14) Numenius tahitiensis Bristle-thighed Curlew

Habitat -- October-November 1964 - observed only on runways and sandy beach areas of Roi-Namur.

Numbers -- October-November 1964 - Roi-Namur four seen.

Status -- Migrant.

Specimen Records -- None. This observation is a new sight record for Kwajalein Atoll.

15) Limosa lapponica Bar-tailed Godwit

Habitat -- 2 February 1956 - seen on weedy ground at southwest end of Kwajalein Island, also flew over the sea, circled around, and finally landed on the airstrip (Fosberg, 1966); 4 November 1964 - on taxi strip next to runway on Roi-Namur.

Numbers -- 2 February 1956 - one tentatively identified as this species seen on Kwajalein Island (Fosberg, 1966); 4 November 1964 - one seen and collected on Roi-Namur.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 22). This is a new specimen record for Kwajalein Atoll.

16) Heteroscelus brevipes Polynesian Tattler

Habitat -- 4 November 1964 - on runways and taxi strips at Roi-Namur.

Numbers -- 4 November 1964 - three collected. Possibly some of those identified as H. incanum in the field were H. brevipes, for it is extremely difficult to distinguish the two species in their summer plumage without specimens.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - three (Table 22). These Polynesian Tattlers represent a new specimen record for Kwajalein Atoll. Yocom (1964) stated that the three Wandering Tattlers he observed at Kwajalein Atoll in 1960 could have been H. brevipes.

17) Heteroscelus incanum — Wandering Tattler

Habitat -- 15, 19 January 1952 and 2 February 1956, outer reef flat and beach area (Fosberg, 1966); 25-27 July 1960, on Kwajalein and Guegeegue (Yocom, 1964); October-November 1964, on runways and outer beach areas of Loi and Bigej; 17 June 1966, observed around the shoreline of Kwajalein Island.

Numbers -- 15 January 1952 - "...several were seen...", 19 January 1952 - "...8 were seen at once, and others before and after...", 2 February 1956 - "...two were seen..." (Fosberg, 1966); 25-27 July 1960 - "...3 Wandering (?) Tattlers (Heteroscelus incanum) on Kwajalein, and 1 on Guegeegue Island..." (Yocom, 1964); October-November 1964 - Kwajalein 1520, Roi-Namur 25, Loi 5-10, Bigej 6; 17 June 1966 - Kwajalein 2.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - three (Table 22). This is a new specimen record from Kwajalein Atoll; it was previously known only from a sight record.

18) Arenaria interpres — Ruddy Turnstone

Habitat -- July 1960 - "...on the runway at Kwajalein and ... on another island in the atoll..." (Yocom, 1964); 19 October 1960 - on the airstrip at Kwajalein Island (Fosberg, 1966); October-November 1964 - present on the runways, lawns, and beaches of Kwajalein and Roi-Namur, also on the beaches of Loi; June 1966 - around the shore line of Kwajalein (17 June), also seen flying over the lagoon (14 June).

Numbers -- July 1960 - Kwajalein 30 and a flock on another island (Yocom, 1964); 19 October 1964 - a considerable flock on Kwajalein Island (Fosberg, 1966); October - November 1964 - Kwajalein 200-300, Roi-Namur 200, Loi 25; 13-19 June 1966 - four flying over lagoon, about 30 on Kwajalein.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - twelve (Table 22). Although Ruddy Turnstones have previously been observed from Kwajalein Island, this series of skins is the first of the species to be collected from the atoll.

19) Capella (Gallinago) hardwickii Latham's Snipe

Habitat -- 3 November 1964 - grassy area between the runway and taxiway on Kwajalein.

Number -- 3 November 1964 - 1 seen and collected.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - one (Table 22). This is a new species and specimen record for all of Micronesia.

20) Crocethia alba Sanderling

Habitat -- October-November 1964 - Kwajalein Island on runway (2-3 November), Roi-Namur on runway taxi strip area (4 November).

Numbers -- October-November 1964 - Kwajalein Island 1 seen 2 and 3 November and collected; Roi-Namur 2 observed (4 November).

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 22). This is a new species and specimen record for Kwajalein Atoll.

21) Erolia acuminata Sharp-tailed Sandpiper

Habitat -- October-November 1964 - around fresh water "pond" area between the runway and taxi strip on Kwajalein.

Numbers -- October-November 1964 - Kwajalein 25, none seen on other islands. One unidentified Erolia sighted on 17 June 1966 at Kwajalein Island probably was of this species.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - nine (Table 22). These observations and collections constitute a new species and specimen record for Kwajalein Atoll.

22) Sterna sumatrana Black-naped Tern

Habitat -- 5 February 1956 - seen flying over the lagoon side of Ebeye (Fosberg, 1966); October-November 1964 - seen flying off eastern tip of Enebuoj; June 1966 - seen flying inside and outside the lagoon, but usually fairly close to islands.

Numbers -- 5 February 1956 - Ebeye 2 (Fosberg, 1966); October-November 1964 - Enebuoj (lagoon area) 3; June 1966 - 15+ feeding outside the lagoon (northern end of atoll) on 15 June, several seen inside the lagoon on 14 and 16 June.

Status -- Resident breeder? No breeding records known. This species probably breeds at Kwajalein Atoll, but due to the large number of islands and the size of the atoll, their nests have not been discovered.

Specimen Records -- None.

23) Sterna lunata — Gray-backed Tern

Habitat -- 25-27 July 1960 - "...along the beach at Kwajalein." (Yocom, 1964).

Numbers -- 25-27 July 1960 - "...2 Sooty Terns...or Gray-backed Terns...at Kwajalein." (Yocom, 1964).

Status -- Resident breeder? There is no record of this species breeding at Kwajalein Atoll, however, there is a possibility that it could breed within the atoll.

Specimen Records -- None.

24) Sterna fuscata — Sooty Tern

Habitat -- 23 January 1952 - observed on Eniwetak (Fosberg, 1966); 25-27 July 1960 - along the beach at Kwajalein (Yocom, 1964).

Numbers -- 23 January 1952 - "Ted Arnow saw one Sooty Tern on Eniwetak Islet..." (Fosberg, 1966); 25-27 July 1960 - "2 Sooty Terns (Sterna fuscata) or Gray-backed Terns (Sterna lunata)... at Kwajalein /Island/." (Yocom, 1964).

Status -- Resident breeder? This species is not known to breed at Kwajalein, however, there is a possibility it may breed on one of the many unvisited islands in the atoll.

Specimen Records -- None.

25) Thalasseus bergii — Crested Tern

Habitat -- 29 February 1952 - observed fishing in the lagoon near the pier (and sewer mouth) on Kwajalein Island (Fosberg, 1966); October-November 1964 - flying over the lagoon side (around the piers) of Kwajalein Island, roosting and flying over the rocky seaward side of Roi-Namur; June 1966 - seen inside the lagoon on 14 June.

Numbers -- 29 February 1952 - Kwajalein Island 6 (Fosberg, 1966); October-November 1964 - Kwajalein 4, Roi-Namur 6; June 1966 - present inside the lagoon on 14 June.

Status -- Resident breeder? No breeding records are known from Kwajalein Atoll, however, it probably breeds on some of the little-visited islands in the atoll.

Specimen Records -- None.

26) Anous stolidus Brown Noddy

Habitat -- May 1944 - in flock with Gygis alba at Kwajalein going to sea at daybreak and returning by 1600 (Baker, 1951); 1952 - Lojjaiong and Lojjairok - present 15 January, Enebuoj - especially on and over the outer reef flat 19 January, Eniwetak - present 23 January, near Enelapkan on 3 August (Fosberg, 1966); October-November 1964 - Loi flying over and roosting in Pisonia trees; June 1966 - observed flying over many islands inside lagoon (14 June), seen feeding outside the atoll just before sunset and returning after sunset to the north part of the atoll (15 June), observed in the lagoon (16 June).

Numbers -- May 1944 - Wallace observed 40± at Kwajalein (Baker, 1951); 1952 - Lojjaiong and Lojjairok quite plentiful 15 January, Enebuoj many were seen 19 January, Eniwetak few were seen 23 January, one seen near Enelapkan on 3 August (Fosberg, 1966); October-November 1964 - Loi 20, none seen on other islands visited; June 1966 - quite a few seen over the islands and in the lagoon, 2,500 seen feeding outside the lagoon just before sunset and returning to the islands after sunset on 15 June.

Status -- Resident breeder? 15 January 1952 - Lojjaiong and Lojjairok "...one or two were obviously gathering nesting material." (Fosberg, 1966); October-November 1964 - no breeding observed but few islands visited. This species probably breeds on all suitably vegetated islands at Kwajalein Atoll.

Specimen Records -- Other - none; POBSP - three (Table 22). This collection is the first specimen record for this species from Kwajalein Atoll.

27) Anous tenuirostris Black Noddy

Habitat -- 1952 - Lojjaiong-flying over lagoon area, Eniwetak-seen nesting high in the Pisonia grandis trees 23 January, Kwajalein - flock fishing in the lagoon 27 January-1 February (Fosberg, 1966); October-November 1964 - Kwajalein - flying over seaward beaches and occasionally over the island proper, Roi-Namur - flying over and roosting in Cocos and Pisonia trees and on beaches, Loi flying and roosting in Pisonia trees, lagoon proper, small flocks fishing; June 1966 - over most islands, on 15 June seen feeding outside the lagoon at the north part of the atoll.

Numbers -- 1952 - Lojjaiong 4 seen on 15 January, Eniwetak hundreds seen nesting on 23 January, Kwajalein flock of 2-3 dozen in lagoon from 27 January to 1 February (Fosberg, 1966); October-November 1964 - Kwajalein 10, Roi-Namur 25, Loi 10, Ebeye lagoon 5; June 1966 - quite a few seen over the various islands, 300 observed feeding outside the northern end of the atoll just before sunset on 15 June.

Status -- Resident breeder. 23 January 1952 - hundreds were seen nesting on Eniwetak; October-November 1964 - no breeding activity observed, but all islands not visited; June 1966 - no breeding observed, but few islands visited.

Specimen Records -- Other - none; POBSP - four (Table 22). These skins represent a new specimen record for Kwajalein Atoll.

28) Gygis alba White Tern

Habitat -- May 1944 - in a flock with Anous stolidus (Baker, 1951); 1952 - Lojjaiong - flying over the island 15 January, Enebuoj - nesting 19 January (Fosberg, 1966); 25-27 July 1960 - one seen in the atoll (Yocom, 1964); October-November 1964 - Roi-Namur - flying over and roosting on the tall vegetation, Loi - roosting in Pisonia trees; June 1966 - observed over many islands, feeding outside the northern part of the atoll just before sunset 15 June.

Numbers -- May 1944 - present (Baker, 1951); 15 January 1952 - Lojjaiong - a number were seen flying over, 19 January 1952 - Enebuoj - several flew over, Eniwetak-large numbers present (Fosberg, 1966); 25-27 July 1960 - one seen (Yocom, 1964); October-November 1964 - Roi-Namur 10, Loi 30; July 1966 - quite a few over most islands, 40+ seen outside the northern part of the atoll on 15 June.

Status -- Resident breeder. 19 January 1952 - Eniwetak several young ones present (Fosberg, 1966); October-November 1964 - no evidence of breeding observed, however, all islands not visited; July 1966 - no breeding but few islands visited.

Specimen Records - Other - none; POBSP - one (Table 22). Although White Terns have previously been recorded from Kwajalein Atoll, this is the first specimen record for this species from the atoll.

29) Passer domesticus House Sparrow

Habitat -- October-November 1964 - Kwajalein Island, flying in and around the fuel depot-fueling dock and nursery area.

Numbers -- October-November 1964 - 3 seen at one time but possibly more present, not present on other islands visited.

Status -- Resident breeder? October-November 1964 - no breeding activity observed, but conditions are favorable for this species to breed on Kwajalein Island and some of the other islands in the atoll.

Specimen Records -- None. Due to the area involved, firearms could not be used to collect specimens of this species. Mist

nets were tried, but were unsuccessful in obtaining specimens. This is a new species record for Micronesia (not listed in Baker, 1951). This species is known, however, from Wake Atoll some 600 miles north of Kwajalein Atoll (Marshall, 1957).

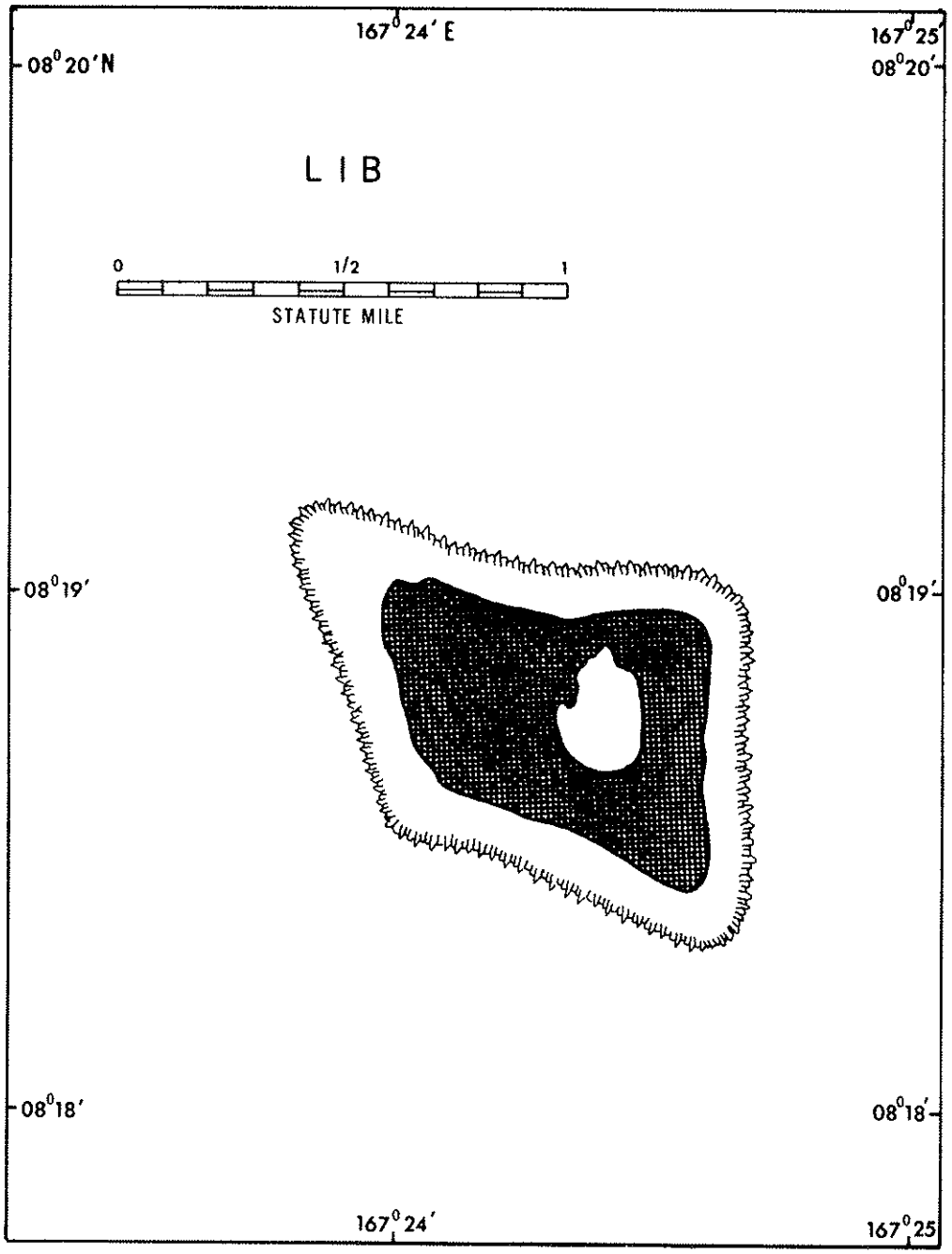
30) Acridotheres tristis — Indian Mynah

Habitat -- 11 June 1950 - Kwajalein Island perched on main airport building (Marshall, 1957); 1952 - Kwajalein Island around the military establishment (Fosberg, 1956, 1966); July 1956 - Kwajalein Island in gardens around the nursery eating papayas (Marshall, 1957).

Numbers -- 11 June 1950 - Kwajalein Island 1 (Marshall, 1957); 1952 - Kwajalein Island, introduced and fairly common, several pairs established and very much at home (Fosberg, 1956,1966); July 1956 - Kwajalein Island 6 (Marshall, 1957); 1956,1958, 1960 - not seen (Fosberg, 1966); October-November 1964, July 1966 - none observed.

Status -- Resident breeder, now absent. 1952 - "...pairs were established and very much at home on Kwajalein Islet..." (Fosberg,1966).

Specimen Records -- None.


167°24′ E
167°25′
08°20′N
08°20′
L I B
0
1/2
1
STATUTE MILE
08°19′
08°19′
08°18′
08°18′
167°24′
167°25

LIB ISLAND

Location: 08°19' N x 167°25' E.

Shape and Size: Triangle-shaped; Tip to tip (east-west) - 0.75 miles; Width - 0.50 miles; No lagoon, but a fresh water pond is located in the center of the island; Total dry land area 0.36 square miles; Number of islands - 1; Height ? feet (Fosberg, 1956).

Soil: Unknown, but said to be fertile (Findlay, 1886).

Vegetation: Only Cocos and Pandanus known.

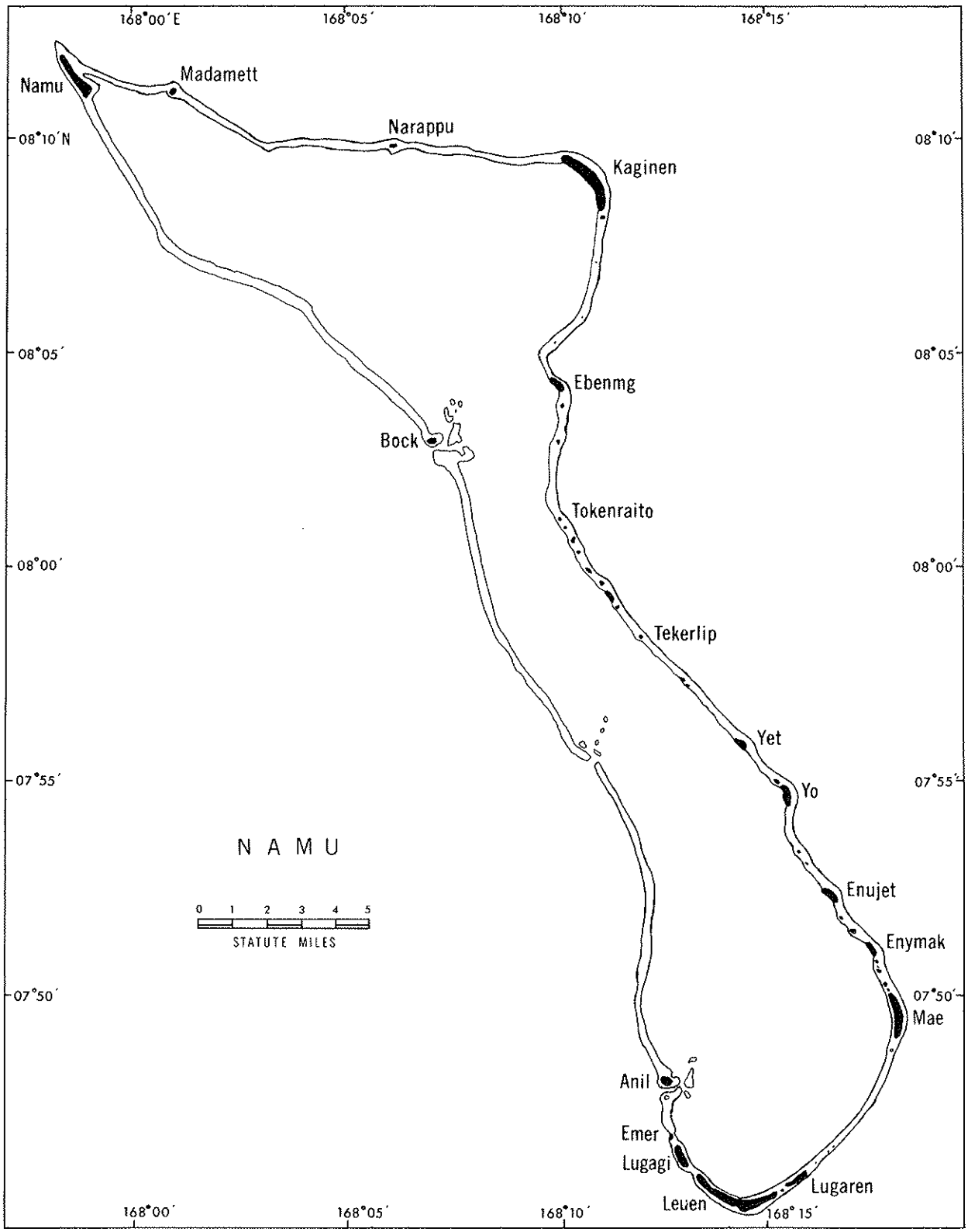
Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature - 82°F; Winds - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 23 in 1800's (Findlay, 1886); 84 in 1948 (Freeman, 1951); Present - inhabited, 190 in 1963 (U.S. Department of State, 1965).

Scientific Visits: None.

Avifauna: No bird records exist for Lib Island.

348-415 O-69—12


168°00' E
168°05'
168°10'
168°15'
Namu
Madamett
Narappu
Kaginen
08°10' N
08°10'
08°05'
08°05'
Ebenmg
Bock
Tokenraito
08°00'
08°00'
Tekerlip
Yet
Yo
07°55'
07°55'
N A M U
0 1 2 3 4 5
STATUTE MILES
Enujet
Enymak
07°50'
07°50'
Mae
Anil
Emer
Lugagi
Lugaren
Leuen
168°00'
168°05'
168°10'
168°15'

NAMU ATOLL

Location: 08°00' N x 168°10' E.

Shape and Size: Irregular dumbbell-shaped; Tip to tip (northwest-southeast) - 32 miles; Width (northeast-southwest) - 2 to 7 miles; Total lagoon area - 153.53 square miles; Total dry land area - 2.42 square miles; Number of islands - 51; Height - 11 feet (Fosberg, 1956).

Soil: Beach (lagoon) - mostly sandy with some exposed rock; Interior - sand, some black with humus.

Vegetation: Eighteen known species; most islands planted with Cocos and large breadfruit trees (Wiens, 1957).

Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature - 82° F.; Winds - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, 150 in 1800's (Findlay, 1886); 341 in 1948 (Freeman, 1951); Present - inhabited, 684 in 1963 (U. S. Dept. of State, 1965)

Scientific Visits: Japanese expedition - 19 October 1931; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Six bird species have been recorded from Namu Atoll. All 6 of these are seabirds. One species is definitely known to breed, while the other 5 are potential breeders.

POBSP personnel passed within one mile of the east tip of Namu Atoll during the afternoon of 2 May 1967, while travelling from Ailinginae Atoll to Jabwot Island. Red-footed Booby, Brown Noddy, Black Noddy, and White Tern were observed flying to the atoll.

The 6 species known from Namu Atoll are included in the following checklist. The source material from which this list was compiled includes: (1) Baker, 1951; (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (3) Yamashina, 1932; (4) POBSP band recovery; (5) YIZM collection; and (6) POBSP data (offshore). These sources are referred to in the checklist by corresponding numbers and letters. The 3 species marked with an asterisk are new species records for Namu Atoll.

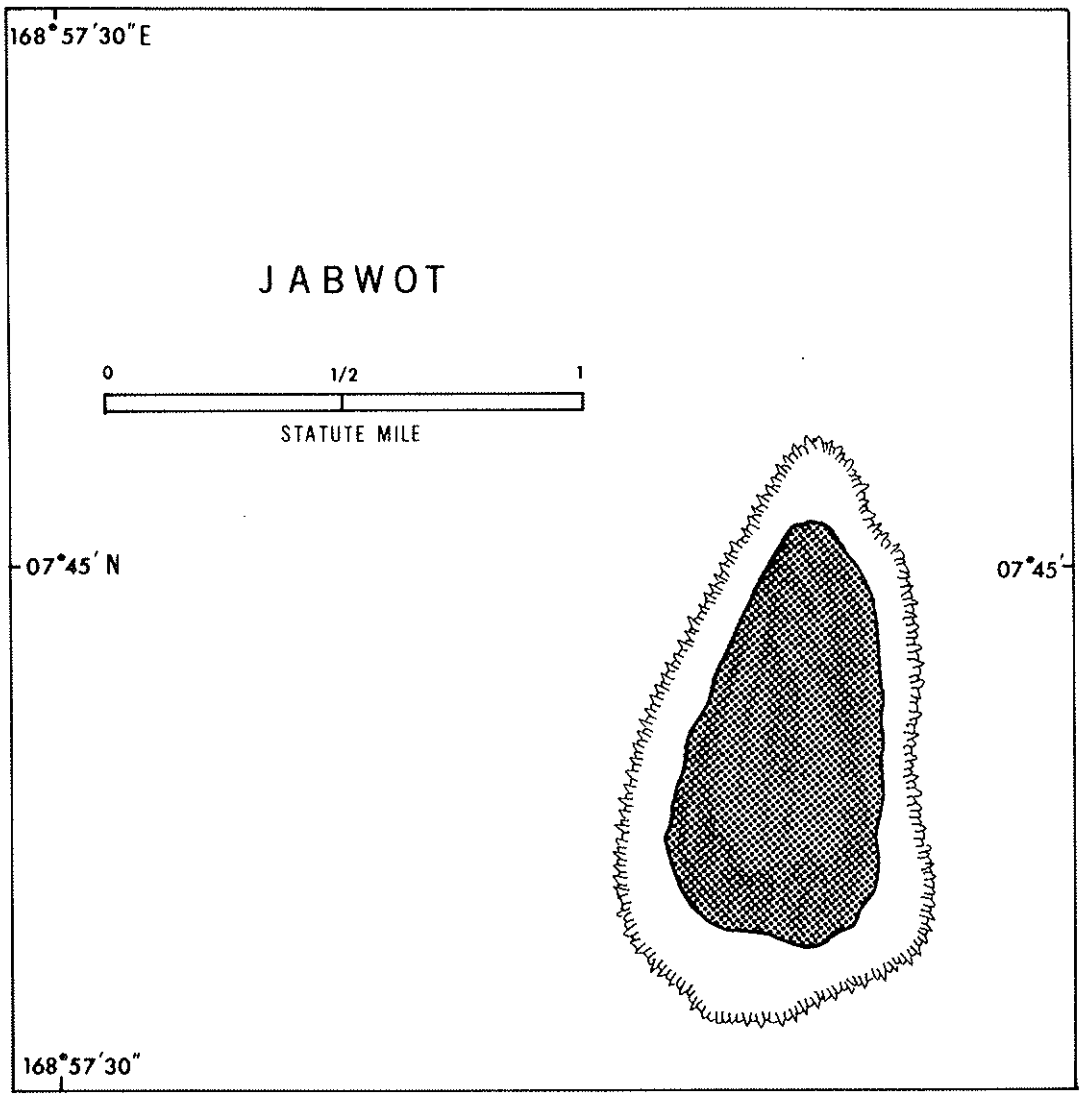
NAMU ATOLL AVIFAUNA CHECKLIST

Species	Status	Source
1) Sula sula*	Resident breeder ?	4, 6
2) Fregata minor	Resident breeder ?	1, 2ab, 5
3) Sterna sumatrana	Resident breeder ?	1, 2ab, 5
4) Anous stolidus*	Resident breeder ?	6
5) Anous tenuirostris	Resident breeder, November	1, 3, 6
6) Gygis alba*	Resident breeder ?	6

Bird specimens collected from Namu Atoll include seven specimens of two species.

Table 23. Bird Specimens collected from Namu Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Fregata minor	YIZM	♂	A	Namu I	10-19-31	Skin	H. Orii
" "	YIZM	♂	A	"	"	Lost	"
	YIZM	♀	Juv	"	"	Skin	"
Sterna sumatrana	YIZM	♂	Juv	"	"	"	"
" "	YIZM	♂	A	"	"	"	"
" "	YIZM	♂	I	"	"	-	-
" "	MCZ	♂	-	"	"	Skin	-


168°57′30″E
JABWOT
0
1/2
1
STATUTE MILE
07°45′N
07°45′
168°57′30″

JABWOT ISLAND

Location: 07°47' N x 168°59' E.

Shape and Size: Oval; Tip to tip (northwest-southeast) - 0.75 miles; Width - 0.25 mile; No lagoon; Total dry land area - 0.22 square miles; Number of islands - 1; Height - 30± feet (Fosberg, 1956).

Soil: Beach (windward or northeast) - mostly solid rock, some sand in spots; Beach (leeward or southwest) - sandy with cobblestone areas toward each end; Interior - sandy on beach crest, dark humus in wooded areas.

Vegetation: Number of species unknown; many tall Cocos throughout the island, some Pandanus and Artocarpus around village; some scattered Pisonia and fern; heavy undergrowth in places.

Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from east to north (Fosberg, 1956).

Human Population: Past - inhabited, few in 1800's (Findlay, 1886); none in 1948 (Freeman, 1951); Present - inhabited, 92 in 1963 (U. S. Dept. of State, 1965); 90+ in 1967 (POBSP).

Scientific Visits: POBSP - 3 May 1967.

Avifauna: Nine bird species are known from Jabwot Island. These include 3 seabirds, 4 shorebirds, 1 heron, and 1 domestic fowl. One of these species is a known breeder, 4 others are possible breeders, and 4 are migrants.

Nine species are listed in the following checklist, which was derived solely from data collected by POBSP personnel in 1967 as indicated under sources by the number 1. All nine species are new species records for Jabwot Island; these are marked by a single asterisk. The single species marked by double asterisks is a new island breeding record.

Jabwot Island Avifauna Checklist

Species	Status	Source
1) *Fregata minor**	Resident breeder ?	1
2) *Egretta sacra**	Resident breeder ?	1
3) *Gallus gallus* *	Introduced breeder**	1
4) *Pluvialis dominica**	Migrant	1
5) *Numenius tahitiensis**	Migrant	1
6) *Heteroscelus incanum**	Migrant	1
7) *Arenaria interpres**	Migrant	1
8) *Anous stolidus* *	Resident breeder ?	1
9) *Gygis alba**	Resident breeder ?	1

POBSP personnel have collected four specimens of three species (Table 24). All three of these species are specimen records of species not previously known from Jabwot Island. No other specimens are known from this island.

Table 24. Bird specimens collected by POBSP from Jabwot Island.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	USNM 543387	♀	A	Jawbot	5-3-67	Skin	Amerson
Numenius tahitiensis	" 543455	♀	-	"	"	"	"
Anous stolidus	" 543412	♀	A	"	"	"	"
" "	" 543413	♂	A	"	"	"	"

Species Accounts

1) Fregata minor — Great Frigatebird

Habitat -- May 1967 - flying high above the island.

Numbers -- May 1967 - one adult female seen.

Status -- Resident breeder? May 1967 - No evidence of breeding, but may possibly breed on Jabwot Island.

Specimen Records -- None. This observation is a new species sight record for Jabwot Island.

2) Egretta sacra — Reef Heron

Habitat -- May 1967 - on the rocky north beach.

Numbers -- May 1967 - one observed.

Status -- Resident breeder? May 1967 - no evidence of breeding. This species may, however, breed on the undisturbed portions of the island.

Specimen Records -- None. This observation represents a new species sight record for the island.

3) Gallus gallus — Domestic Chicken

Habitat -- May 1967 - present around the main village, around most other occupied houses, as well as scattered throughout the thick vegetated portions of the island.

Numbers -- May 1967 - 50 estimated.

Status -- Introduced breeder. May 1967 - breeding, small chicks present. This is a new breeding record for the island.

Specimen Records -- None. This observation constitutes a new species sight record for Jabwot.

4) Pluvialis dominica — Golden Plover

Habitat -- May 1967 - on the sandy portion of the northeast beach.

Numbers -- May 1967 - two seen.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 24). This represents a new species and specimen record for Jabwot Island.

5) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- May 1967 - on sandy beach areas.

Numbers -- May 1967 - two seen.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 24). This represents a new species and specimen record for Jabwot Island.

6) Heteroscelus incanum — Wandering Tattler

Habitat -- May 1967 - on rocky and sandy beach areas.

Numbers -- May 1967 - two observed.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for the island.

7) Arenaria interpres — Ruddy Turnstone

Habitat -- May 1967 - observed on sandy and rocky beach areas.

Numbers -- May 1967 - six recorded.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for the island.

8) Anous stolidus — Brown Noddy

Habitat -- May 1967 - flying above the island; occasional flights to and from the ocean, especially on the windward (north side); roosting and possibly nesting in the coconut palm groves.

Numbers -- May 1967 - 25 adults estimated.

Status -- Resident breeder? May 1967 - no nests seen, but probably nests in palm trees.

Scientific Records -- Other - none. POBSP - two (Table 24). This constitutes a new species and specimen record for Jabwot Island.

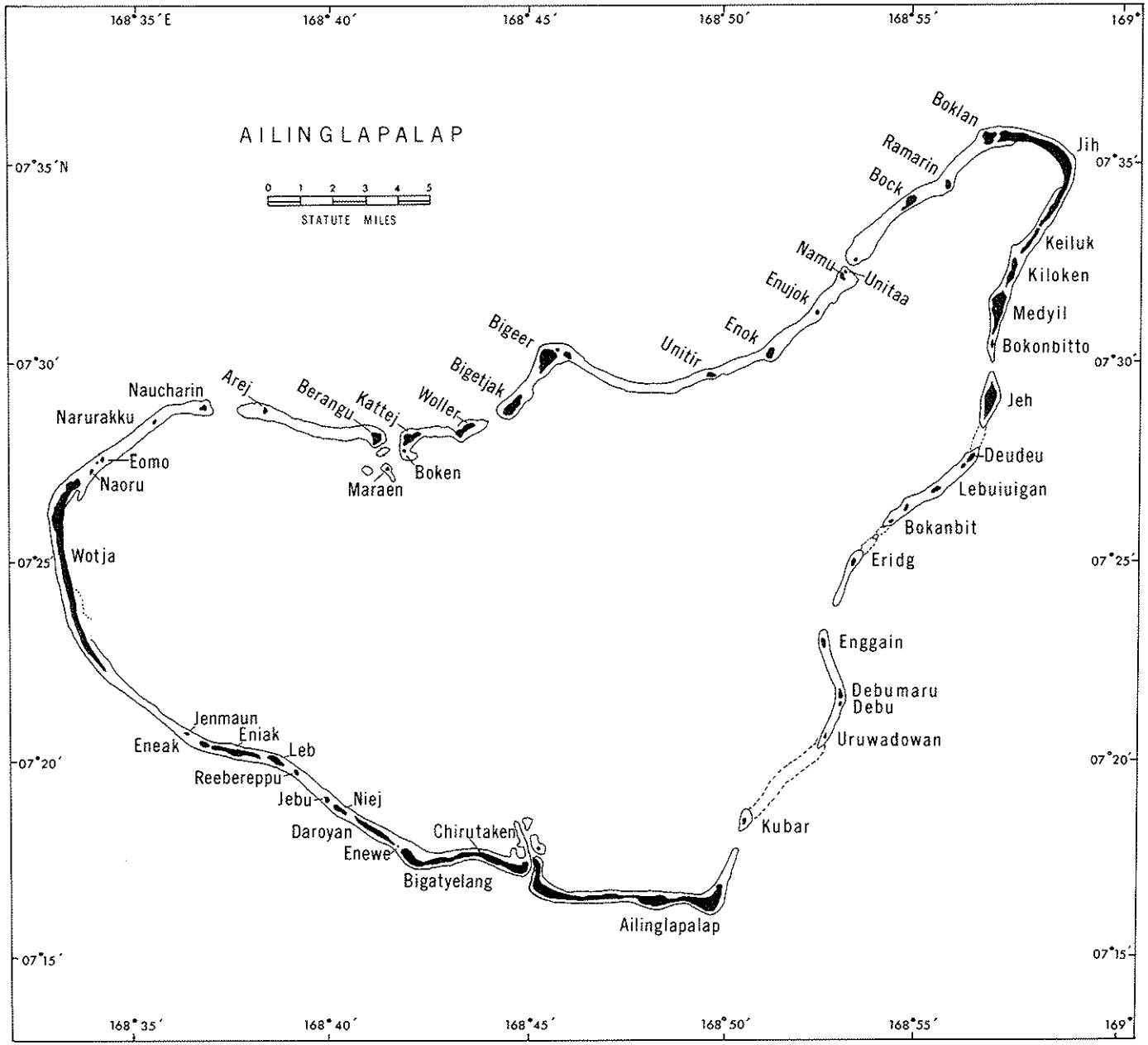
9) Gygis alba — White Tern

Habitat -- May 1967 - flying above the island, as well as to and from the ocean.

Numbers -- May 1967 - 50 estimated.

Status -- Resident breeder? May 1967 - No nests observed, however, this species probably nests on Jabwot Island.

Specimen Records -- None. This observation represents a new species sight record for the island.


AILINGLAPALAP
0 1 2 3 4 5
STATUTE MILES
168°35′E
168°40′
168°45′
168°50′
168°55′
169°
07°35′N
07°30′
07°25′
07°20′
07°15′
Boklan
Ramarin
Bock
Jih
Keiluk
Kiloken
Medyil
Bokonbitto
Namu
Unitaa
Enujok
Enok
Unitir
Bigeer
Bigetjak
Woller
Kattej
Berangu
Arej
Naucharin
Narurakku
Eomo
Naoru
Maraen
Boken
Jeh
Deudeu
Lebuiuigan
Bokanbit
Eridg
Wotja
Enggain
Debumaru
Debu
Uruwadowan
Kubar
Jenmaun
Eniak
Eneak
Leb
Reebereppu
Jebu
Niej
Daroyan
Enewe
Chirutaken
Bigatyelang
Ailinglapalap

AILINGLAPALAP ATOLL

Location: 07°23' N x 168°46' E.

Shape and Size: Irregular triangle-shaped; Tip (northeast) to base (southwest) - 27 miles; Width (southwest base) - 19 miles; Total lagoon area - 289.69 square miles; Total dry land area - 5.67 square miles; Number of islands - 52; Height - 5 to 25 feet (Fosberg, 1956).

Soil: Beach (Wotja, windward lagoon side) - stratified beachrock; Interior - sandy soil (Wiens, 1957).

Vegetation: Twenty-nine known species; Wotja, relatively luxuriant vegetation, Cocos and other food-type plants; Mangrove swamp on longest island (Wiens, 1957).

Climate: Wet, about 100-120 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from north and east (Fosberg, 1956; U.S. Navy, 1964).

Human Population: Past - inhabited (Findlay, 1886); 705 in 1948 (Freeman, 1951); Present - inhabited, 1,183 in 1963 (U.S. Dept. of State, 1965).

Scientific Visits: Japanese expedition - 18, 21, 24 October 1931; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Four species of birds are known from Ailinglapalap Atoll. These species include a seabird, a shorebird, a pigeon, and a cuckoo. The seabird and pigeon species are potential breeders, but neither are known to breed on the atoll.

An annotated checklist of the four bird species from Ailinglapalap follows. The source material for this list includes: (1) Baker, 1951); (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (3) Peters, 1937; (4) Amadon, 1943; (5) Mayr, 1945; (6) POBSP band recovery; and (7) YIZM collection. These sources are referred to in the checklist by the corresponding numbers and letters. The species marked with an asterisk is a new record for the atoll.

AILINGLAPALAP ATOLL AVIFAUNA CHECKLIST

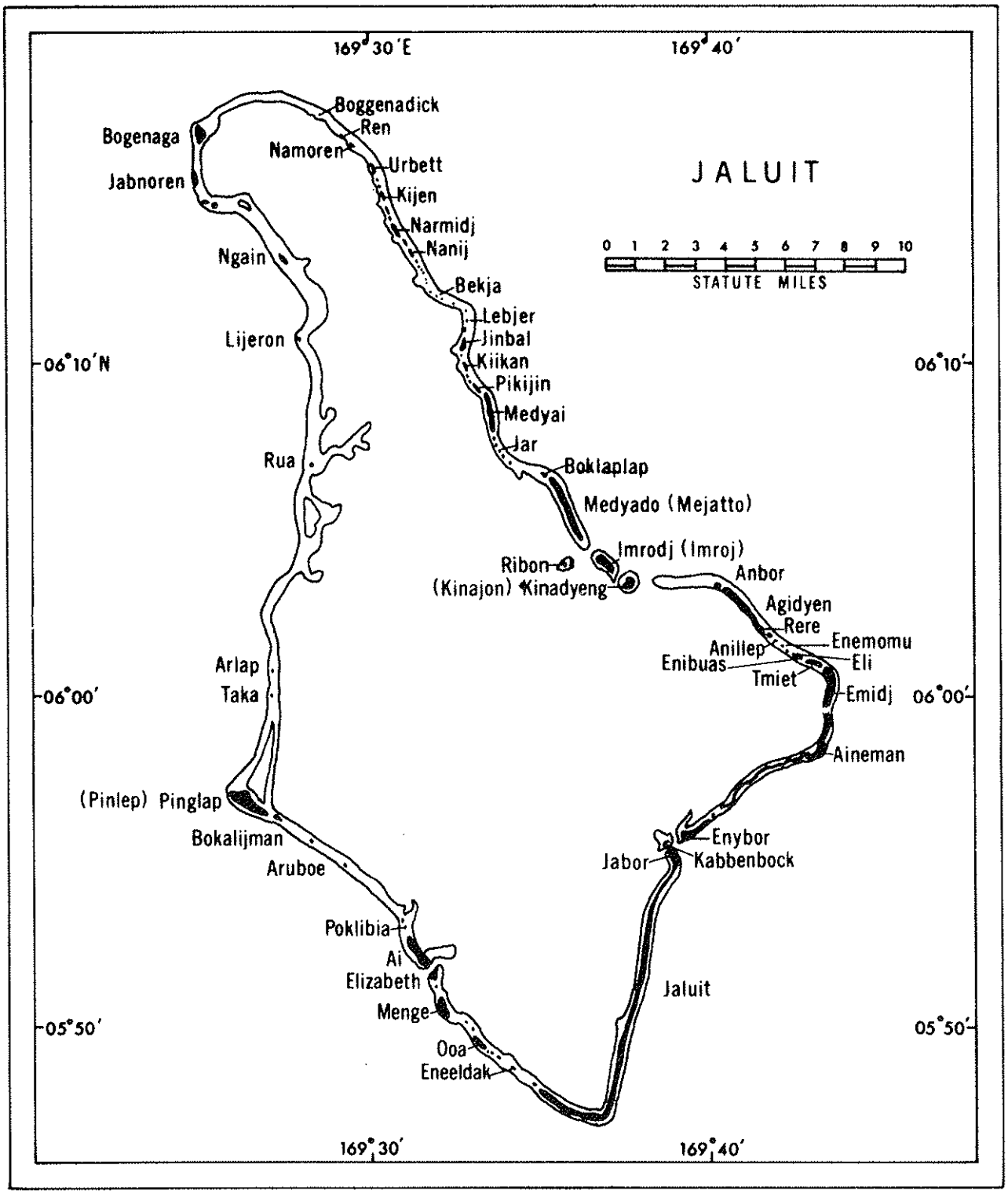
Species	Status	Source
1) *Arenaria interpres**	Migrant	6
2) *Anous tenuirostris*	Resident breeder ?	1, 2ab, 7
3) *Ducula oceanica*	Resident breeder ?	1, 2ab, 3, 4, 5, 7
4) *Urodynamis taitensis*	Migrant	1, 2ab, 7

Bird specimens collected on Ailinglapalap Atoll include 16 specimens of 3 species. These specimens are all in the YIZM collection

Table 25. Specimens collected from Ailinglapalap Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	YIZM	♂	N	Iringlove *	10-21-31	Skin	H. Orii
"	YIZM	♂	Juv	"	10-24-31	"	"
"	YIZM	♂	Juv	"	"	"	"
"	YIZM	♂	Juv	"	"	"	"
"	YIZM	♀	Juv	"	"	"	"
"	YIZM	♂	A	"	"	"	"
Ducula oceanica oceanica	YIZM	♂	A	"	10-18-31	"	"
"	YIZM	♂	A	"	"	Lost	"
"	YIZM	♂	Juv	"	"	"	"
"	YIZM	♂	A	"	10-24-31	Skin	"
"	YIZM	♂	A	"	"	Lost	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♂	A	"	"	Skin	"
"	YIZM	♂	A	"	"	"	"
"	YIZM	♂	A	"	"	"	"
Urodynamis taitensis	YIZM	♂	A	"	"	"	"

*Probably Ailinglapalap Island


JALUIT
169° 30' E
169° 40'
06° 10' N
06° 10'
06° 00'
06° 00'
05° 50'
05° 50'
169° 30'
169° 40'
0 1 2 3 4 5 6 7 8 9 10
STATUTE MILES
Boggenadick
Ren
Bogenaga
Namoren
Urbett
Jabnoren
Kijen
Narmidj
Nanij
Ngain
Bekja
Lebjer
Jinbal
Lijeron
Kiikan
Pikijin
Medyai
Jar
Rua
Boklaplap
Medyado (Mejatto)
Imrodj (Imroj)
Ribon
(Kinajon) Kinadyeng
Anbor
Agidyen
Rere
Enemomu
Anillep
Eli
Enibuas
Tmiet
Emidj
Arlap
Taka
Aineman
(Pinlep) Pinglap
Enybor
Bokalijman
Jabor
Kabbenbock
Aruboe
Poklibia
Ai
Elizabeth
Jaluit
Menge
Ooa
Eneeldak

JALUIT ATOLL

Location: 06°00' N x 169°35' E.

Shape and Size: Irregular diamond-shaped; North to south - 30 miles; East to west - 15 miles; Total lagoon area -266.31 square miles; Total dry land area - 4.38 square miles; Number of islands - 84; Height 15-20 feet (Fosberg in Blumenstock, 1961).

Soil: Principal soils include five types: (1) Shioya Series, (2) Arno Atoll Series, (3) Jemo Series, (4) mangrove peat, and (5) stony and very stony complex (Fosberg in Blumenstock, 1961); Beaches - sandy, rocky, or cobblestone areas.

Vegetation: Seventy-seven species; primary genera: Cocos, Pandanus, Pisonia, Sonneratia; large number of exotics present (Fosberg in Blumenstock, 1961).

Climate: Very wet, between 170-190 inches of rainfall annually; Air temperature ranges 68° F. to 94° F.; Northeast tradewinds; Typhoon OPHELIA hit Jaluit Atoll on 7 January 1958 inflicting severe damage (Blumenstock, 1958, 1961).

Human Population: Past - inhabited, headquarters of German and Japanese administrations in the Marshalls; Total population - 950 in 1949 (Mackenzie in Blumenstock, 1961);present-inhabited, 1,127 in 1964(U.S. Dept. of State,1965).

Scientific Visits: Otto Finsch - 21 August-15 November 1879; Japanese Expedition - September-November 1931 and 3 January 1933; Pacific Science Board - 24 April-2 May 1958 and 20-29 October 1960; POBSP-10-21 November 1964.

Avifauna: Thirty-three bird species are known from Jaluit Atoll. These include 13 seabirds, 11 shorebirds, 5 ducks, 1 heron, 1 domestic fowl, 1 pigeon, and 1 cuckoo. Eleven of these species are known breeders , 4 others are possible breeders, 9 are migrants,6 are accidentals, and 3 are common visitors.

Another species, Sula dactylatra, was listed by Baker (1951) from Jaluit Atoll. He undoubtedly based this listing upon Finsch (1880a), who observed "... one Booby (Sula cyanops)" on 13 August 1879 while on a trip from Honolulu, Hawaii, to Jaluit Atoll. Since his ship left Honolulu on 29 July, passed Mili Atoll on 16 August, and arrived at Jaluit on 21 August, the sighting of the Blue-faced Booby on 13 August was east of Mili Atoll and at least 350 miles away from Jaluit Atoll. Therefore, this listing should not be considered valid.

Jaluit Atoll is the only locality in the Marshall and Gilbert Islands from which Anas penelope, Aythya valisineria, Charadrius semipalmatus, Charadrius mongolus and Sterna hirundo nigripennis have been recorded.

348-415 O-69—13

Thirty-three species are listed in the following checklist, which was derived from various sources: (1) POBSP, 1964; (2) Gressitt in Blumenstock, 1961; (3) YIZM collection; (4) Baker, 1951; (5) Finsch, (a) 1880a, (b) 1880b, (c) 1880c, (d) 1880d, (e) 1884; (6) Wiens, 1957; (7) Momiyama, 1922; (8) Reichenow, 1901; (9) Schnee, 1901; (10) Phillips, 1923; (11) Wiglesworth, 1891; (12) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (13) Townsend and Wetmore, 1919; (14) Bent, 1929; (15) Kuroda, 1934; (16) Takataukasa and Yamashina, 1932; (17) Peters, 1937; (18) Amadon, 1943; (19) Mayr, 1945; and (20) Bogert, 1937. These sources are referred to in the checklist by the corresponding numbers and letters. The six species marked by a single asterisk are new species records for Jaluit Atoll; the three species marked by double asterisks are new atoll breeding records.

Jaluit Atoll Avifauna Checklist

Species	Status	Source
1) *Puffinus pacificus*	Resident breeder ?	2
2) *Phaethon lepturus*	Resident breeder**	1, 2
3) *Sula sula**	Resident breeder**	1
4) *Sula leucogaster*	Resident breeder**	1, 2
5) *Fregata minor*	Resident breeder ?	1, 2
6) *Fregata ariel**	Resident breeder ?	1
7) *Egretta sacra*	Resident breeder ?	1,2,3,4,5be,6,7
8) *Anas crecca*	Accidental	4, 8, 9, 10
9) *Anas penelope*	Visitor	4,5ae,7,10,11,12b
10) *Anas acuta*	Visitor	4, 8, 9, 10
11) *Aythya valisineria*	Visitor	4, 8, 9
12) *Anatidae* sp*	Accidental ?	1
13) *Gallus gallus**	Introduced breeder	1
14) *Pluvialis dominica*	Migrant	1, 2, 4, 5be
15) *Charadrius semipalmatus*	Migrant	4, 5c, 7, 11
16) *Charadrius mongolus*	Accidental	3, 4, 12abc
17) *Charadriinae* sp.*	Accidental	1
18) *Numenius phaeopus*	Migrant	1,2,3,4,12abc
19) *Numenius tahitiensis*	Migrant	1,4,5ae,7,12abc,14
20) *Totanus melanoleucus*	Vagrant	4, 12b, 15
21) *Heteroscelus incanum*	Migrant	1,2,3,4,5be,7,12abc
22) *Arenaria interpres*	Migrant	1,2,3,4,5be,7,12abc
23) *Crocethia alba*	Migrant	5bce, 7, 11, 12abc
24) *Erolia acuminata*	Migrant	3, 4, 12abc
25) *Sterna hirundo nigripennis**	Accidental	1
26) *Sterna sumatrana*	Resident breeder	1,2,3,4,5bd,7,11,12abc
27) *Sterna fuscata*	Resident breeder	1, 6
28) *Thalasseus bergii*	Resident breeder	1,2,3,4,5ce,12abc
29) *Anous stolidus*	Resident breeder	1,2,3,4,5e,12abc
30) *Anous tenuirostris*	Resident breeder	1,2,3,4,5be,6,7,12abc
31) *Gygis alba*	Resident breeder	1,2,3,4,5b, 6, 12abc
32) *Ducula oceanica*	Resident breeder	2,3,4,5bce,7,12ab,16, 17,18,19
33) *Urodynamis taitensis*	Migrant	2,3,4,5bcde,7,11,12ab, 20

POBSP personnel have collected 42 specimens of 13 species (Table 26). Of these 13 species, 3 are specimen records of species not previously known from the atoll, and 3 represent the first specimen confirmation of species previously known only from sight records. Forty-four specimens of 13 species collected at Jaluit Atoll are located in the Yamashina Institute of Zoology and Ornithology Museum, Tokyo, Japan (Table 27).

Table 26. Bird specimens collected by POBSP from Jaluit Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sula sula	USNM 494869	♀	--	Lijeron	11-11-64	Skin	Huber
"	" 494870	♂	-	"	"	"	"
"	" 494871	♂	-	"	"	"	"
"	" 494872	♀	-	"	"	"	"
"	" 494879	♀	-	"	"	"	"
"	" 494880	♂	-	"	"	"	"
"	" 494881	♂	-	"	"	"	"
"	" 494882	♂	-	"	"	"	"
"	" 494883	♂	-	"	"	"	"
"	" 494884	♂	-	"	"	"	"
Sula leucogaster	" 494925	♂	-	"	"	"	Amerman
Fregata minor	" 494876	♂	-	"	"	"	"
Fregata ariel	" 494873	♂	-	"	"	"	Huber
Egretta sacra	" 494857	♀	-	Enybor	10-10-64	"	Clapp
"	" 494858	♂	-	"	"	"	"
"	" 494859	♂	-	Kabbenbock	"	"	Wislocki
Pluvialis dominica	" 494753	♀	-	Jaliut I	11-11-64	"	Lehner
"	" 502904	-	A	"	"	Alco.	"
Sterna hirundo nigripennis	" 494473	?	A	Enybor	11-10-64	Skin	Clapp
Sterna sumatrana	" 494598	?	Imm	"	11-12-64	"	Amerson
"	" 494599	?	Imm	"	"	"	"
"	" 494600	♂	A	"	"	"	"
Sterna fuscata	" 494717	♀	-	Lijeron	11-11-64	"	"
"	" 494718	♀	-	"	"	"	"
"	" 494719	♂	-	"	"	"	"
Thalasseus bergii	" 494731	♀	A	Kabbenbock	11-10-64	"	Wislocki
"	" 494732	♀	A	Lijeron	11-11-64	"	native
"	" 494733	♂	nest.	"	"	"	Wislocki
Anous stolidus	" 494666	♂	-	Enybor	11-10-64	"	Clapp
"	" 494667	♂	-	"	"	"	"
"	" 494668	♂	-	"	"	"	"
"	" 494669	♂	-	Jaluit I	11-11-64	"	Lehner
"	" 494670	♀	-	Enybor	11-12-64	"	Amerson
Anous tenuirostris	" 494551	♂	A	Lijeron	11-11-64	"	Wislocki
"	" 494552	♂	Imm	"	"	"	Amerman
"	" 494553	♂	Imm	"	"	"	Huber
"	" 494554	?	Imm	"	"	"	"
"	" 494555	♂	-	Enybor	11-12-64	"	Amerson
Gygis alba	" 494633	♀	-	"	11-10-64	"	Clapp
"	" 494634	♂	-	Jaluit I	11-11-64	"	Lehner
"	" 494635	♂	-	Lijeron	"	"	Wislocki
"	" 494636	♀	-	"	"	"	"

Table 27. Bird specimens collected by other expeditions from Jaluit Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	YIZM	♂	-	Jabole*	10-4-31	Skin	H. Orii
"	"	♂	-	Jaluit I	10-9-31	Lost	"
"	"	♂	Juv	"	10-10-31	Skin	"
"	"	♀	-	Jabole*	10-4-31	"	"
"	"	♀	-	"	11-1-31	Lost	"
"	"	♀	-	Jaluit I	"	"	"
Charadrius mongolus	"	♂	-	"	10-9-31	"	"
"	"	♀	-	"	"	Skin	"
Numenius phaeopus	"	♂	-	"	10-10-31	"	"
"	"	♂	-	"	10-12-31	"	"
Totanus melanoleucus	"	♂	A	"	05-12-32	"	"
Heteroscelus incanum	"	♂	-	"	11-2-31	Lost	"
"	"	♂	-	"	"	"	"
"	"	♀	I	"	11-4-31	"	"
"	"	♂	I	"	"	Skin	"
Arenaria interpres	"	♂	-	"	10-2-32	Lost	"
"	USNM 212216	♂	-	"	01-10-00	Skin	Townsend
Erolia acuminata	YIZM	♂	-	"	10-30-31	"	H. Orii
"	"	♂	-	"	10-31-31	Lost	"
Sterna sumatrana	"	♂	A	"	10-12-31	Skin	"
"	"	♂	Juv	"	"	"	"
"	"	♂	Juv	"	"	"	"
"	"	♀	Juv	"	"	"	"
"	"	♀	Juv	"	"	"	"
Thalasseus bergii	"	♀	A	"	10-9-31	"	"
Anous stolidus	"	♂	A	"	11-4-31	-	-
"	"	♂	A	"	11-1-31	Skin	H. Orii
Anous tenuirostris	"	♂	A	"	10-4-31	"	"
"	"	♂	A	"	"	"	"
"	"	♂	A	"	10-9-31	"	"
"	"	♂	-	"	"	"	"
"	"	♂	A	"	11-1-31	"	"
"	"	♀	A	"	09-4-31	"	"
"	"	-	-	"	11-1-31	"	"
"	"	-	-	"	"	"	"
Gygis alba	"	♀	A	"	10-10-31	"	"
"	"	♀	Juv	"	11-2-31	"	"
"	"	♂	A	"	10-10-31	"	"
"	"	♂	A	"	11-2-31	"	"
Ducula oceanica oceanica	"	♂	A	"	10-10-31	Lost	"
"	"	♂	Juv	"	10-30-31	"	"
"	"	♂	A	"	10-9-31	Skin	"
"	"	♂	-	"	"	"	"
"	"	♀	-	"	"	Lost	"
"	"	♀	A	"	"	Skin	"
Urodynamis taitensis	"	♀	A	"	01-3-33	"	S. Kawakami

*Probably Jaluit or Jabor

Species Account

1) Puffinus pacificus — Wedge-tailed Shearwater

Habitat--April-May 1958-observed on Jabor Islet (Gressitt in Blumenstock, 1961). [Note: Dr. F. R. Fosberg (personal communication, November 1966) thought that this species was seen offshore].

Numbers -- April - May 1958 - present on Jabor Islet (Gressitt in Blumenstock, 1961).

Status -- Resident breeder? April - May 1958, not breeding (Gressitt in Blumenstock, 1961).

Specimen Records -- None.

2) Phaethon lepturus — White-tailed Tropicbird

Habitat -- April - May 1958 - present on Pinlep (Gressitt in Blumenstock, 1961); November 1964 - not seen on the atoll by POBSP personnel; natives said they were present on some of the islands and nested in tree holes of Pisonia trees.

Numbers -- April - May 1958 - present (Gressitt in Blumenstock, 1961); November 1964 - few present.

Status -- Resident breeder. April - May 1958 - no breeding data (Gressitt in Blumenstock,1961); November 1964 - one reported by a native as nesting. This is a new breeding record.

Specimen Records -- None.

3) Sula sula — Red-footed Booby

Habitat -- November 1964 - Lijeron, roosting and nesting in tall Pisonia trees (roosting population arrived just prior to sunset).

Numbers -- November 1964 - Lijeron, approximately 1,500 roosting (majority subadult).

Status -- Resident breeder. November 1964 - five nests with eggs in tops of tall Pisonia trees on Lijeron. This is a new breeding record.

Specimen Records -- Other - none; POBSP - ten (Table 26). This is a new species and specimen record.

4) Sula leucogaster — Brown Booby

Habitat -- Baker (1951) lists the range of this species as "... Marshall Islands - Jaluit ..." and based this on Finsch's (1880a)

observation of "... a Sula (uniform brown; certainly S. fusca)" on 31 July 1879 and "one Sula fusca" on 15 August. [Note: These sightings were made by Finsch (1880a) while on a ship which left Honolulu, Hawaii, on 29 July, passed Mili Atoll on 16 August, and arrived at Jaluit Atoll on 21 August. Thus the first sighting was made just after leaving Honolulu and the second sighting was made near Mili Atoll, 350 miles east of Jaluit.] The listing by Baker should be considered invalid; April - May 1958 - seen on Lijeron (Gressitt in Blumenstock, 1961); November 1964-Lijeron in palm trees at night, Jaluit Island 4 or 5 immatures being raised as pets.

Numbers -- April - May 1958 - Lijeron large numbers seen (Gressitt in Blumenstock); November 1964, Lijeron 15 adults seen, Jaluit Island 4 or 5 present.

Status -- Resident breeder. November 1964 - no active nests seen, however, 4 or 5 flying immatures were being kept on Jaluit Island as pets by several natives. These had been raised from 20 nestlings brought from another island in the atoll. Although the pet Brown Boobies are fed by their owners, they also feed at sea by themselves and return home afterwards. This is considered a new breeding record.

Specimen Records -- Other - none; POBSP - one (Table 26). This is a new specimen record for Jaluit Atoll.

5) Fregata minor Great Frigatebird

Habitat -- April - May 1958 - present on Imrodj and Lijeron (Gressitt in Blumenstock, 1961); November 1964 - Lijeron, (diurnal) flying over island and (nocturnal) roosting in Pemphis trees on north end of island.

Numbers -- April - May 1958 - Lijeron present in large numbers (Gressitt in Blumenstock, 1961); November 1964 - Lijeron estimated population 50+.

Status -- Resident breeder? November 1964 - Lijeron no evidence of breeding, but this species may breed on Jaluit Atoll during another part of the year.

Specimen Records-- Other - none; POBSP - one (Table 26). This is a new specimen record for Jaluit Atoll.

6) Fregata ariel Lesser Frigatebird

Habitat -- November 1964 - Lijeron flying overhead at dusk with Fregata minor and probably roosts with F. minor in Pemphis trees.

Numbers -- November 1964 - Lijeron 3 or 4.

Status -- Resident breeder? November 1964 - no evidence of breeding, however, there is a possibility this species could breed on Jaluit Atoll.

Specimen Records -- Other - none; POBSP - one (Table 26). This is a new species and specimen record for the Marshall Islands.

7) Egretta sacra — Reef Heron

Habitat -- September 1879 - along the beach (Finsch, 1880b); 1955 - 1956 - Enybor Island flying overhead (Wiens, 1957); November 1964 - on sandy and rocky beaches of Enybor, Kabbenbock, Jaluit, Majurirek (Elizabeth), and Lijeron.

Numbers -- September 1879 - a few examples (Finsch, 1880b), present (Momiyama, 1922; Baker, 1951; Gressitt in Blumenstock, 1961); November 1964 - Enybor Island 6, Kabbenbock 4-6, Jaluit 2-3, Elizabeth few, Lijeron 2.

Status -- Resident breeder? Finsch (1884) lists this species under breeding birds but does not give details; November 1964 - not observed breeding, although it is a possibility.

Specimen Records -- Other - six (Table 27); Finsch (1884) reported a young male from Jaluit collected in September 1879 (1880b), but its present deposition is unknown; POBSP - three (Table 26).

8) Anas crecca — Green-winged Teal

Habitat -- 1899 present in the atoll (Reichenow, 1901; Schnee, 1901; Phillips, 1923; Baker, 1951).

Numbers -- 1899 present (Reichenow, 1901).

Status -- Accidental.

Specimen Records -- None. The only other locality record for this species in the Marshall Islands is Kwajalein Atoll (Yocom, 1964).

9) Anas penelope — European Widgeon

Habitat -- 26 October 1879 - caught by hand (Finsch, 1880a ; also Finsch, 1884; Wiglesworth, 1891; Kuroda in Momiyama, 1922; Phillips, 1923; Hand-list Japanese Birds, 1942; Baker, 1951).

Numbers -- 26 October 1879 - one present "... in full winter dress ... so exhausted ... merely a skeleton covered by feathers ..." (Finsch, 1880a, 1884).

Status -- Visitor.

Specimen Records -- Other - Finsch's specimen deposition not known. Baker (1951) questions this record. I do not agree with Baker. Although it is not clear in Finsch's 1880 papers as to the exact locality of this record in the Marshall Islands, Finsch (1884) lists Jaluit as the locality for a female specimen. No other record exists for this species in the Marshalls; however, it has been recorded in Western Micronesia (Baker, 1951); POBSP - none.

10) Anas acuta — Pintail

Habitat -- 1899 - present (Reichenow, 1901; Schnee, 1901; Phillips, 1923; Baker, 1951).

Numbers -- 1899 - present (Reichenow, 1901).

Status -- Common visitor.

Specimen Records -- None.

11) Aythya valisineria — Canvas b ack

Habitat -- 1899 present (Reichenow, 1901; Schnee, 1901; Baker, 1951); November 1964 - not present.

Numbers -- 1899 - present (Reichenow, 1901).

Status -- Uncommon visitor.

Specimen Records -- None. These sightings are the only records for this species from Micronesia.

12) Anatidae sp. — Duck species

Habitat -- 11 November 1964 - Elizabeth Island central lagoon (a small two-acre stagnant area next to a village).

Numbers -- 11 November 1964 -Elizabeth Island one unidentified duck seen, a native revealed that four unknown ducks had been shot on 10 November.

Status -- Accidental.

Specimen Records -- None.

13) Gallus gallus — Domestic Chicken

Habitat -- November 1964 - Jaluit Island present in and around the villages, Kabbenbock present and probably occurs on all inhabited islands in the atoll.

Numbers -- November 1964 - Jaluit and Kabbenbock no estimate made but probably many are raised to feed the population.

Status -- Resident breeder. November 1964 - breeds both within and outside the villages.

Specimen Records -- None. Although chickens were probably introduced to Jaluit Atoll very early, no mention of their occurrence is found in the literature.

14) Pluvialis dominica Golden Plover

Habitat -- August-September 1879, May 1880 (?) - present (Finsch, 1880b, 1884, and Baker, 1951); April-May 1958 - present on Imroj, Ribon, Jabor, and Pinlep (Gressitt in Blumenstock, 1961); November 1964 - observed on the beaches of Jaluit, Enybor, Kabbenbock, Elizabeth, and Lijeron.

Numbers -- November 1964 - Enybor Island 5-7, Kabbenbock 6-10, Jaluit and Elizabeth few, Lijeron 25.

Status -- Migrant.

Specimen Records -- Other - Gressitt (in Blumenstock, 1961) erroneously stated that this species had not been recorded at Jaluit Atoll prior to 1958; Finsch (1880b) observed and collected it in 1879, and 20 May 1880 (Finsch, 1884) collected a male beginning its summer plummage and beginning to molt, specimen deposition unknown; POBSP - two (Table 26).

15) Charadrius semipalmatus Semipalmated Plover

Habitat -- October 1879 - Finsch (1880c) reported "At the end of October ... I met ... with a bird which seems to be Charadrius hiaticula [synonym of C. semipalmatus], although I could not state this as certain."

Numbers -- October 1879 - one seen (Finsch, 1880c).

Status -- Uncommon migrant.

Specimen Records -- None. Wiglesworth (1891), Kuroda (in Momiyama, 1922), and Baker (1951), report this species from Jaluit Atoll on the basis of Finsch's (1880c) observation. The actual locality at which Finsch made his observation may not be Jaluit Atoll, since he states that during the latter part of September, October, and early November he was on a trip to the eastern chain of the Marshall Islands. Therefore, both the species identification and the locality is questioned. Baker (1951) states that "other than this observation, there is no history of the species in Micronesia." This statement is still valid.

16) Charadrius mongolus — Mongolian Plover

Habitat -- 9 October 1931 - present on Jaluit Island (YIZM collection; Hand-list of Japanese Birds, 1932, 1942, 1958; Baker, 1951). Note: Baker erroneously listed Oustalet (1896) as a source for this record.

Numbers -- 9 October 1931 - two collected.

Status -- Vagrant.

Specimen Records -- Other - two (Table 27); POBSP - none.

17) Charadriinae sp. — Plover species

Habitat -- 11 November 1964 - Jaluit Island on edge of an inland fresh-water pool.

Numbers -- 11 November 1964 - Jaluit Island one bird resembling a Golden Plover but larger and with a grayer head was observed in company of a Golden Plover by Clapp and Lehner.

Status -- Migrant.

Specimen Records -- None.

18) Numenius phaeopus — Whimbrel

Habitat -- April-May 1958 - present on Jabor (Gressitt in Blumenstock, 1961); 10 November 1964 - observed on Kabbenbock beach.

Numbers -- April-May 1958 - present; 10 November 1964 - Kabbenbock one.

Status -- Migrant.

Specimen Records -- Other records - two (Table 27); POBSP - none. Note: Baker (1951) lists this species as being recorded on Jaluit Atoll, referring to Oustalet (1896) and Hand-list Japanese Birds (1932, 1942, and 1958). Oustalet (1896) does not list this species from Jaluit Atoll but refers to another kind of curlew, N. tahitiensis, taken by Finsch (1880a)at Jaluit Atoll.

19) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- August-September 1879 and 13 April 1884 - present (Finsch, 1880a; also Kuroda in Momiyama, 1922; Bent, 1929; Hand-list Japanese Birds, 1932, 1942, 1958; and Baker, 1951); November 1964 - present on sandy and rocky beaches of Enybor, Jaluit, and Lijeron.

Numbers -- 5 September 1879 - a pair observed; 13 April 1880 - 1; November 1964 - present.

Status -- Migrant.

Specimen Records -- Other - Finsch (1884) reported a female from Jaluit collected on 21 October 1879 but present deposition unknown; POBSP - none.

20) Totanus melanoleucus — Greater Yellowlegs

Habitat -- Not known.

Numbers -- One collected on 12 May 1932 on Jaluit Atoll (Kuroda, 1934; Hand-list Japanese Birds, 1942; Baker, 1951).

Status -- Accidental.

Specimen Records -- Other - one (Table 27); POBSP - none.

21) Heteroscelus incanum — Wandering Tattler

Habitat -- August-September 1879, January and June 1880 - along the beaches (Finsch 1880b and 1884; Kuroda in Momiyama, 1922; Hand-list Japanese Birds, 1932, 1942, 1958; Baker, 1951); April-May 1958 - present on Kinajon, Jabor, Pinlep, and Majurirek (Elizabeth) (Gressitt in Blumenstock, 1961); November 1964 - present mainly on seaward beaches of Enybor, Kabbenbock, Jaluit, Elizabeth, and Lijeron.

Numbers -- August-September 1879 - in small numbers (Finsch, 1880b); 11 January and 13 June 1880 - one collected (Finsch, 1884); November 1964 - Enybor 7-8, Kabbenbock 16, Jaluit few, Elizabeth few, Lijeron 3.

Status -- Migrant.

Specimen Records -- Other - four (Table 27); Finsch (1884) reported taking from Jaluit a female in full winter plumage on 11 January 1880 and a male in full winter plumage (without a trace of molt) on 13 June 1880; however, the present specimen deposition is unknown; POBSP - none.

22) Arenaria interpres — Ruddy Turnstone

Habitat -- August-September 1879 - present (Finsch 1880b; also Finsch, 1884; Kuroda in Momiyama, 1922; Hand-list Japanese Birds, 1932, 1942, 1958; and Baker, 1951); 10 January 1900 - present (Townsend and Wetmore, 1919); April-May 1958 - present on Jabor, Pinlep, and Lijeron (Gressitt in Blumenstock, 1961); November 1964 - on beaches of Enybor, Kabbenbock, Jaluit, Elizabeth, and Lijeron.

Numbers -- November 1964 - Enybor 10, Kabbenbøck 35-40, Jaluit few, Elizabeth few, Lijeron 30.

Status -- Migrant. Finsch (1880b) noted that all the turnstones were in their summer plumage.

Specimen Records -- Other - two (Table 27). Finsch (1884) reported two Ruddy Turnstones collected at Jaluit (a male in full summer plumage but in molt collected 12 September 1879, and a female in summer plumage collected 29 August 1879), specimen deposition unknown. POBSP - none.

23) Crocethia alba — Sanderling

Habitat -- 25 October 1879 - present at Jaluit (Finsch, 1880b, 1884).

Numbers -- 25 October 1879 - one specimen received by Finsch (1880c, 1884). [Also listed by Wiglesworth (1891), Kuroda in Momiyama (1922), and Hand-list Japanese Birds (1932, 1942, 1958].

Status -- Migrant.

Specimen Records -- Other - present location unknown of male in full winter plumage, collected Jaluit Atoll, 25 October 1879 (Finsch, 1884); POBSP - none.

24) Erolia acuminata — Sharp-tailed Sandpiper

Habitat -- 30 October 1931 - Jaluit Island (Yamashina collection).

Numbers - 30 October 1931 - present (Hand-list Japanese Birds, 1932, 1942, 1958; and Baker, 1951).

Status -- Migrant.

Specimen Records -- Other - two (Table 27); POBSP - none.

25) Sterna hirundo nigripennis — Common Tern

Habitat -- 10 November 1964 - Enybor roosting on a sandbar in the lagoon in company with several S. sumatrana.

Numbers -- 10 November 1964 - Enybor one seen and collected.

Status -- Accidental.

Specimen Records -- Other - none; POBSP - one (Table 26). This is a new species and specimen record for the Marshall Islands.

26) Sterna sumatrana Black-naped Tern

Habitat -- August-October 1879 - present (Finsch 1880b, c; Wiglesworth, 1891; Kuroda in Momiyama, 1922; Hand-list Japanese Birds 1932, 1942, 1958; Baker, 1951); November 1964 - Enybor and Kabbenbock present on sandy beaches, sandbars, and surrounding lagoon areas, not seen on other islands.

Numbers -- August-October 1879 - present (Finsch 1880b, c); April-May 1958 - undoubtedly not present since Gressitt (in Blumenstock, 1961) did not list this species; November 1964 - Enybor 15, Kabbenbock approximately 5-7.

Status -- Resident breeder. Early October 1879, "... procured specimens ... in the first plumage ... not then able to fly ..." (Finsch, 1880d); November 1964 - no evidence of breeding, however, flying young were present.

Specimen Records -- Other - five (Table 27); POBSP - three (Table 26).

27) Sterna fuscata Sooty Tern

Habitat -- April 1958, "... a small uninhabited islet on the northwestern reef of the atoll [possibly Lijeron], where the islanders gathered eggs and captured about 20 Sooty Terns to take home for eating" (Wiens, 1962); November 1964 - Lijeron a group emerged from the low underbrush (Messerschmidia) on the southwest corner of the island, circled the island; none returned to the ground.

Numbers -- April 1958 - present but population unknown (Wiens, 1962); November 1964 - Lijeron 25-30.

Status -- Resident breeder. April 1958 - eggs present (Wiens, 1962); November 1964 - Lijeron no eggs or chicks could be found, however, the three collected specimens had brood patches. The natives reported that a colony of a few hundred Sooty Terns nested on one of the other isolated islands during Christmastime 1963.

Specimen Records -- Other - none; POBSP - three (Table 26). These are new specimen records for Jaluit Atoll.

28) Thalasseus bergii Crested Tern

Habitat -- 1879-1880 - present (Finsch, 1884; Hand-list Japanese Birds, 1932, 1942, 1958; Baker, 1951); April-May 1958 - present on Lijeron (Gressitt in Blumenstock, 1961); November 1964 - present on sandy beaches, sandbars, beach rock outcrops, and surrounding lagoon areas of Enybor, Kabbenbock, Jaluit, and Lijeron (nesting on sandy peninsula).

Numbers -- November 1964 - Enybor 2, Kabbenbock 2-3, Jaluit 1, Lijeron 6.

Status -- Resident breeder. 1879-1880 - young female present (Finsch, 1884), "... beginning of January [1880] they were in full nuptial dress ... and at this time ... got fresh-laid eggs from this [Jaluit] lagoon, but was not able ... to find the breeding grounds ..." (Finsch, 1880c); November 1964 - Lijeron two chicks, about three-fourths grown, present on west sandbar.

Specimen Records -- Other - one (Table 27). Finsch (1884) reported two specimens from Jaluit, an old female in full plumage and a young female, however, it is not known where they are deposited; POBSP - three (Table 26).

29) Anous stolidus — Brown Noddy

Habitat -- 1879-1880 - present on Jaluit (Finsch, 1884); Hand-list Japanese Birds, 1932, 1942, 1958; Baker, 1951); present on Majurirek, Ribon, Kinajon, Mejatto, Pinlep, and Lijeron (Gressitt in Blumenstock, 1961); November 1964 - present on Enybor, Kabbenbock, Jaluit, Majurirek (Elizabeth), and Lijeron (nesting on low-growing plants and very low limbs of Messerschmidia trees).

Numbers -- November 1964 - Enybor 20, Kabbenbock 8, Jaluit and Elizabeth a few, and Lijeron 25.

Status -- Resident breeder. 1879-1880 - nests at Jaluit (Finsch, 1884); November 1964 - Lijeron five nests, all with eggs, on fallen trees, in a low plant and on low limbs (large) of Messerschmidia trees.

Specimen Records -- Other - two (Table 27). Finsch (1884) reported an old male, a downy young, and three non-flying nestlings, but present deposition unknown; POBSP - five (Table 26).

30) Anous tenuirostris — Black Noddy

Habitat -- August-September 1879 - present along the beaches (Finsch, 1880b and 1884; Oustalet, 1896; Kuroda in Momiyama, 1922; Hand-list Japanese Birds, 1932, 1942; Baker, 1951); Summer 1956 - "... white-capped grey noddy ... flew overhead." (Wiens, 1957); April-May 1958 - present on Mejatto, Ribon, Jabor, Kinaijon, Majurirek, and Lijeron in nests of Pisonia leaves on twigs (Gressitt in Blumenstock, 1961); November 1964 - present on Enybor, Kabbenbock, and Lijeron (nesting in Pisonia, Pemphis, and Messerschmidia).

Numbers -- August-September 1879 - observed in small numbers (Finsch, 1880b); April-May 1958 - large numbers on Lijeron (Gressitt in

Blumenstock, 1961); November 1964 - Enybor 1, Kabbenbock 2, Lijeron 1,000 estimated.

Status -- Resident breeder. April-May 1958 - abundant nests, eggs, and young birds on Lijeron (Gressitt in Blumenstock); November 1964 - Lijeron approximately 400 nests with eggs and young, no nests seen on other islands visited.

Specimen Records -- Other - eight (Table 27). Finsch (1884) reported 5 specimens (4 male and 1 female) from Jaluit taken in 1879 or 1880, present disposition unknown; POBSP - five (Table 26).

31) Gygis alba White Tern

Habitat -- August-September 1879 - along the beach (Finsch, 1880b; Hand-list Japanese Birds, 1932, 1942, 1958; Baker, 1951); Summer 1956 - flying overhead (Wiens, 1957); April-May 1958 - present on Mejatto, Ribon, Jabor, Majurirek, Pinlep, and Lijeron (Gressitt in Blumenstock, 1961); November 1964 - present on Enybor, Kabbenbock, Jaluit, Elizabeth, and Lijeron (nesting on branches of Messerschmidia and Pisonia).

Numbers -- August-September 1899 - a few examples present (Finsch, 1880b); November 1964 - Enybor 10, Kabbenbock 10, Jaluit and Elizabeth a few present, Lijeron 1,000 estimated.

Status -- Resident breeder. April-May 1958 - one egg seen (Gressitt in Blumenstock, 1961); November 1964 - small number of eggs and young (all ages) were found.

Specimen Records -- Other - four (Table 27); POBSP - four (Table 26).

32) Ducula oceanica Micronesian Pigeon

Habitat -- August-September 1879 - present (Finsch, 1880b, c, and 1884; Kuroda in Momiyama, 1922; Takatsukasa and Yamashina, 1932; Hand-list Japanese Birds, 1932, 1942; Peters, 1937; Amadon, 1943; Mayr, 1945; Baker, 1951); April-May 1958 - present on Kinajon (Gressitt in Blumenstock, 1961).

Numbers -- August-September 1879 - one seen and collected (Finsch, 1880b, c, and 1884); April-May 1958 - no estimate given (Gressitt in Blumenstock, 1961).

Status -- Resident breeder. August-September 1879 - "... got ... a young carpophaga which had just left the nest, apparently D. oceanica" (Finsch, 1880b).

Specimen Records -- Other - six (Table 27); Finsch (1884) reported a young female, in first plumage from Jaluit but its present deposition is unknown; POBSP - none.

33) Urodynamis taitensis New Zealand Cuckoo

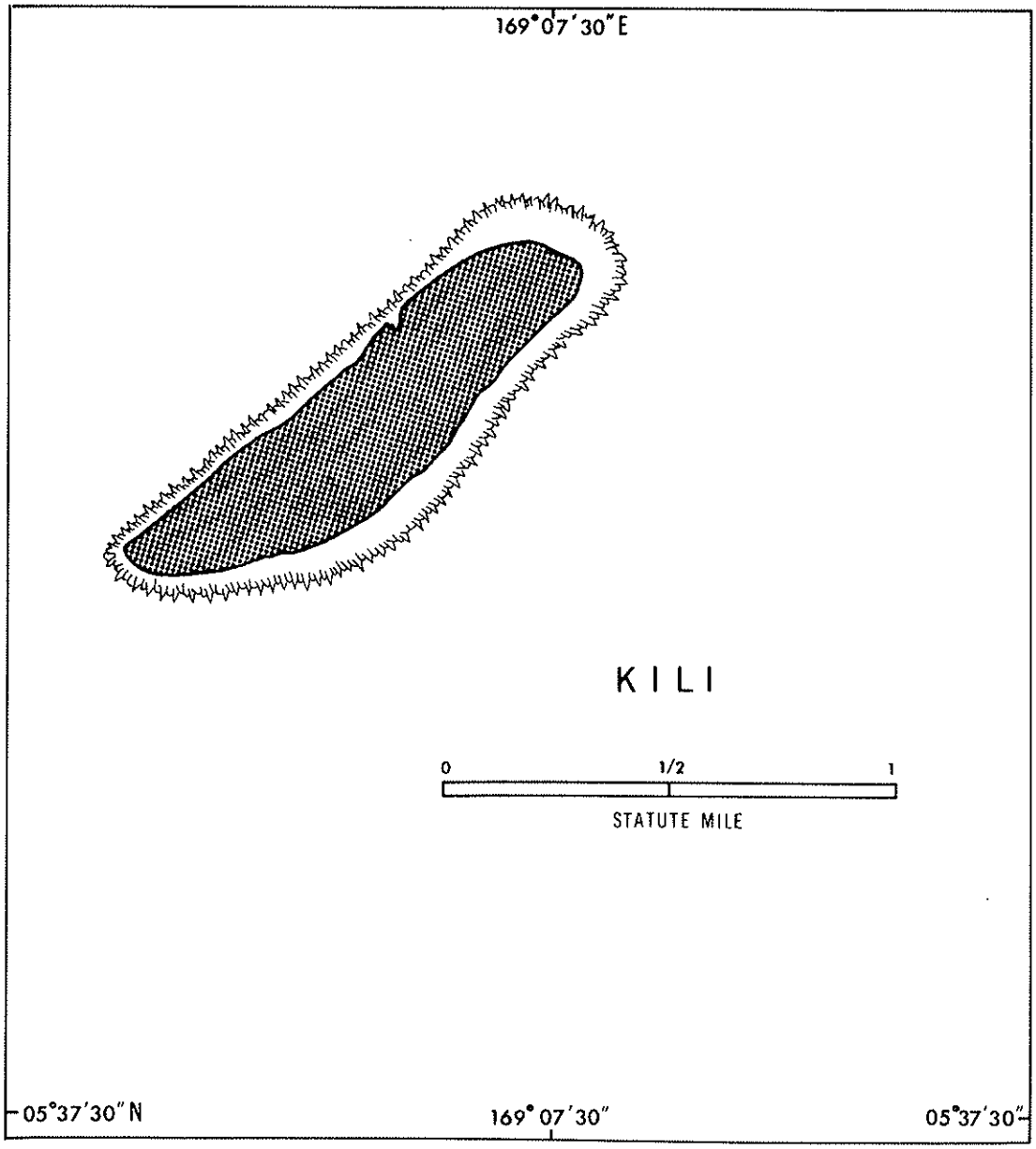
Habitat -- 21 October, 5 September 1879 and 13 April 1880 - present "... stomach contained wing-coverts of beetles, remains of caterpillars, and a few seeds" (Finsch, 1880b; Finsch, 1884, 1900; Wiglesworth, 1891; Kuroda in Momiyama, 1922; Hand-list Japanese Birds, 1932, 1942; Bogert, 1937; Baker, 1951); April-May 1958 - present on Jabor and Lijeron (Gressitt in Blumenstock, 1961); November 1964 - observed in vegetation near inland pond on Elizabeth.

Numbers -- 21 October 1879 - one collected, no others seen, one pair observed on 5 September 1879, and one individual seen on 13 April 1880 (Finsch 1880b, c, and 1884); April-May 1958 - no population estimate given (Gressitt in Blumenstock, 1961); November 1964 - one observed on Elizabeth, probably very few on the atoll.

Status -- Migrant. Finsch (1884) noted that a female he collected at Jaluit had a brood patch similar to one reported by Buller in New Zealand. He and Wiglesworth (1893) suggested that this species possibly bred in the Marshall Islands.

Specimen Records -- Other - one (Table 27). Finsch (1880b and 1884) reported a female collected at Jaluit on 21 October 1879 but the present disposition of this specimen is unknown; POBSP - none.

348-415 O-69—14


169°07'30"E
KILI
0
1/2
1
STATUTE MILE
05°37'30"N
169°07'30"
05°37'30"

KILI ISLAND

Location: 05°39' N x 169°04' E.

Shape and Size: Oval-shaped; Tip to tip (northeast-southwest) - 1 mile; Widest point (southeast-northwest) - 0.33 mile; No lagoon but a brackish pond and a freshwater swamp are present; Total dry land area - 0.36 square mile; Number of islands - 1; Height ? feet (Fosberg, 1956).

Soil: Beach - mostly high boulders and rocky, except for sandy area in southwest and northern sectors.

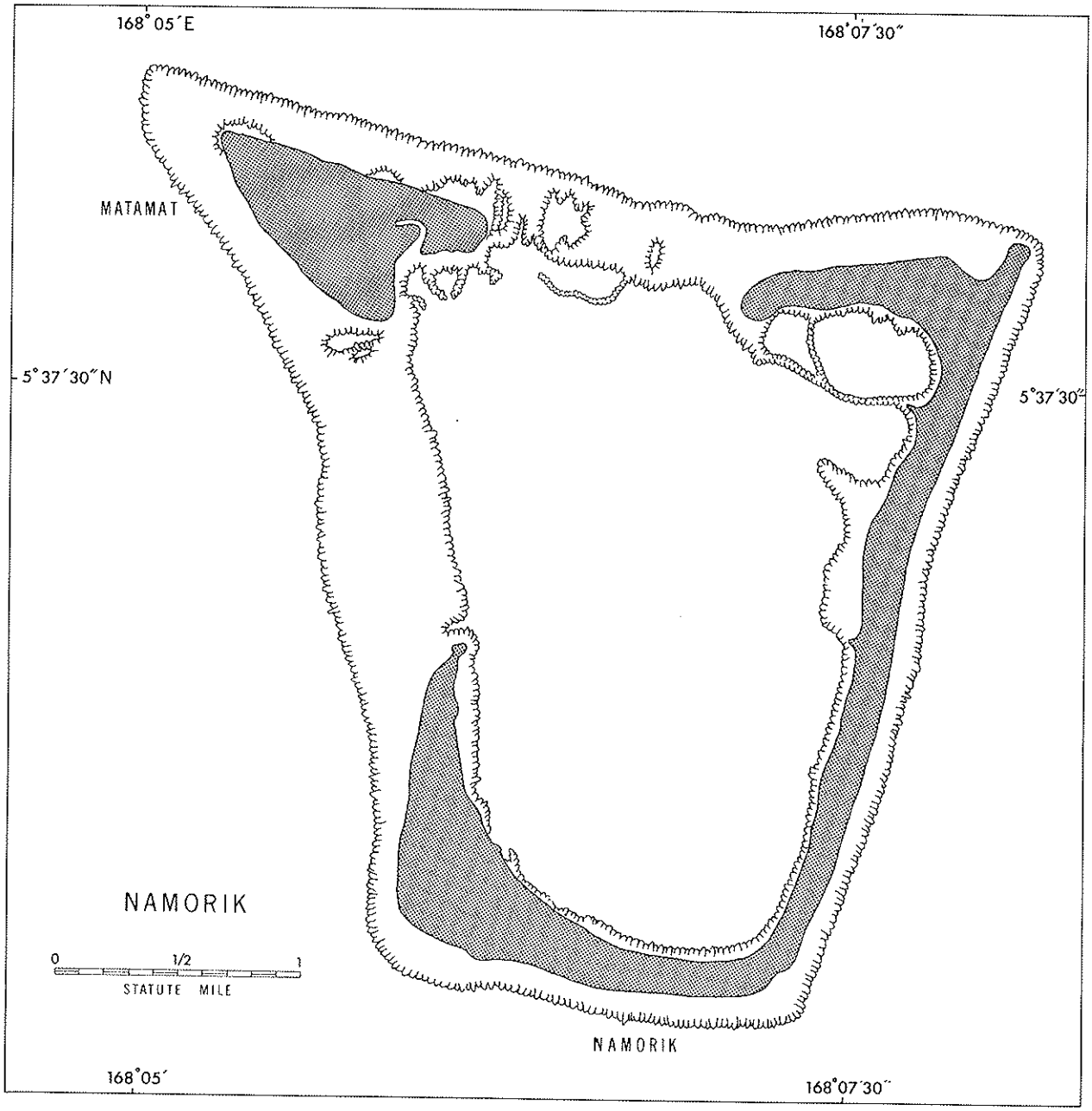
Vegetation: Eleven known species; high vegetation, numerous Cocos, Pandanus, and Artocarpus (Wiens, 1957).

Climate: Very wet, about 120-160 inches rainfall yearly; Mean air temperature-82° F.; Wind - prevailing from north, east, and southeast (Fosberg, 1956).

Human Population: Past - uninhabited; in 1948 settled by 184 relocated Bikini inhabitants. Present - inhabited, 287 in 1964 (U.S. Dept. of State, 1965).

Scientific Visits: W. H, Hatheway - September 1952; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: No bird records exist for Kili Island.


168°05′E
168°07′30″
MATAMAT
5°37′30″N
5°37′30″
NAMORIK
0
1/2
1
STATUTE MILE
NAMORIK
168°05′
168°07′30″

NAMORIK ATOLL

Location: 05°36' N x 168°07' E.

Shape and Size: Irregular rectangle-shaped; Tip to tip (north to south) - 3.75 miles; Width (east-west) - widest 3.50 miles; Total lagoon area - 3.25 square miles. Total dry land area - 1.07 square miles; Number of islands - 2; Height - 10 feet (Fosberg, 1956).

Soil: No available data.

Vegetation: Five known species; both islands wooded.

Climate: Very wet, about 120-160 inches of rainfall yearly; Mean air temperature - 82° F.; Winds - prevailing from north, east, and south-east (Fosberg, 1956; U.S. Navy, 1964).

Human Population: Past - inhabited, 300 in 1800's (Findlay, 1886); 461 in 1948 (Freeman, 1951); Present - inhabited, 534 in 1964 (U. S. Dept. of State, 1965).

Scientific Visits: None.

Avifauna: Three bird species are known from Namorik Atoll. Two of these species are seabirds, and the other is a domestic fowl. All three species are potential breeders, but none have, so far, been recorded as breeding.

The three species are included in the following checklist. This list was compiled from source material, which included: (1) Baker, 1951; (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942; (3) Yale Cross-Cultural Survey, 1932; and (4) YIZM collection. These sources are referred to in the checklist by corresponding numbers and letters.

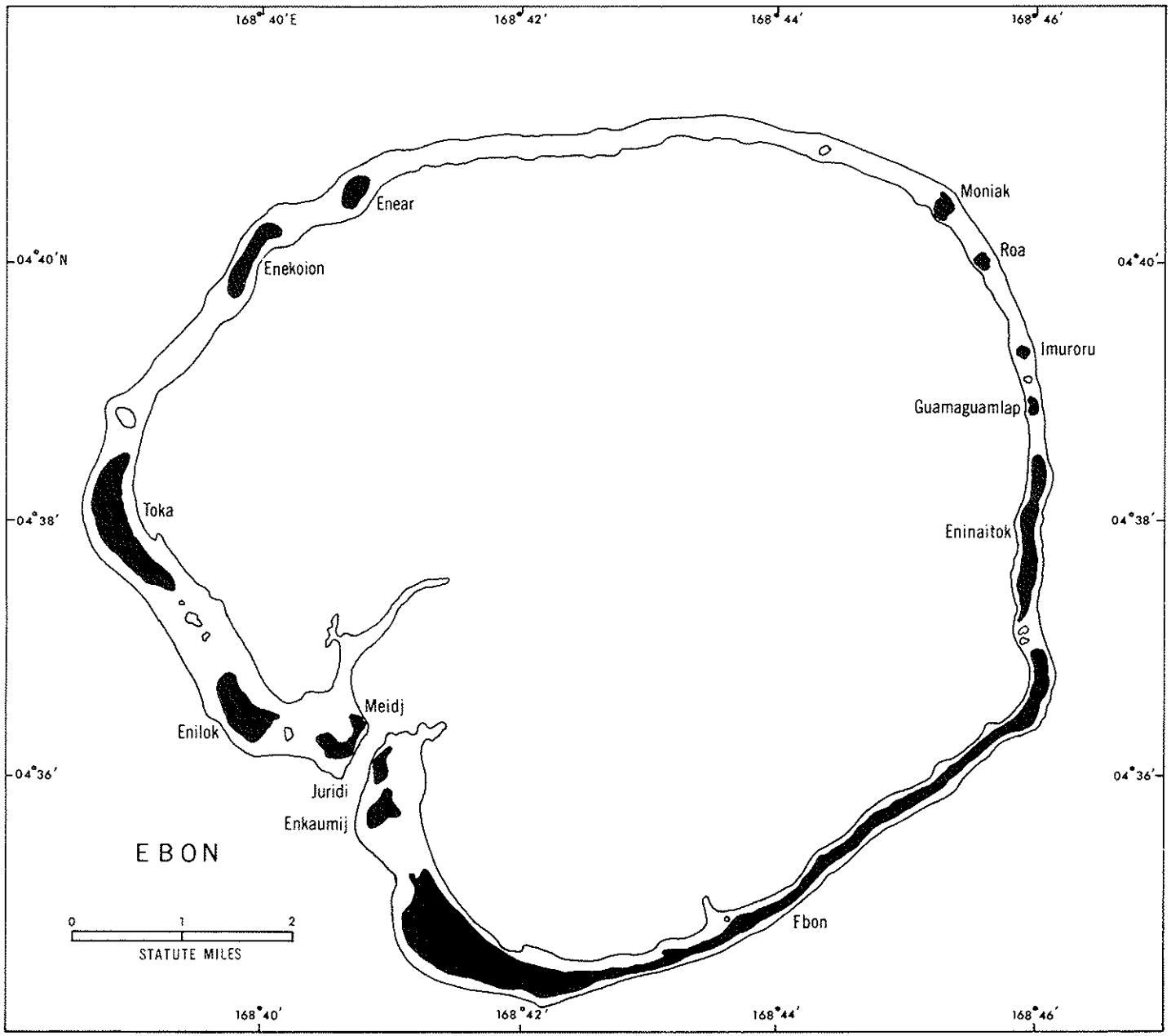
Namorik Atoll Avifauna Checklist

Species	Status	Source
1) *Phaethon lepturus*	Resident breeder ?	1, 2b
2) *Gallus gallus*	Introduced breeder ?	3
3) *Anous tenuirostris*	Resident breeder ?	1, 2a, 4

Bird specimens from Namorik Atoll include only one specimen, which is located in the Yamashina collection in Tokyo, Japan.

Table 28. Bird specimens collected from Namorik Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	YIZM	-	-	Namorik I	10-17-31	Skin	H. Orii


168° 40'E
168° 42'
168° 44'
168° 46'
04°40'N
04°38'
04°36'
Moniak
Enear
Roa
Enekoion
Imuroru
Guamaguamlap
Toka
Eninaitok
Meidj
Enilok
Juridi
Enkaumij
EBON
Fbon
0
1
2
STATUTE MILES

EBON ATOLL

Location: 04°38' N x 168°43' E.

Shape and Size: Irregular oval-shaped; Diameter - (north-south) 8 miles, (east-west) 7 miles; Total lagoon area - 40.09 square miles; Total dry land area-2.22 square miles;Number of islands-22;Height-3 feet (Fosberg,1956).

Soil: Beach (ocean side of Ebon Island) - firm sand to gravelly sand; Beach (lagoon side of Ebon Island) - generally rocky to gravelly, with extensive rock flats exposed at low tide; Interior - sandy to black humus (Wiens, 1957). Presence of about 50 to 100 thousand tons of phosphatic rock (Hatheway, 1957).

Vegetation: Twenty known species; main island one of richest in Marshall Islands, jungle-like dense central area, many Cocos (Wiens, 1957).

Climate: Very wet, about 120-160 inches of rainfall yearly; Mean air temperature - 82° F.; Wind - prevailing from north, east and southeast (Fosberg, 1956, U. S. Navy, 1964).

Human Population: Past - inhabited, 1,200 in 1800's (Findlay, 1886), 747 in 1948 (Freeman, 1951);Present - inhabited, 953 in 1963 (U.S. Dept. of State, 1965).

Scientific Visits: W. H. Hatheway - September 1952; Pacific Science Board (H. J. Wiens) - summer 1956.

Avifauna: Three bird species are known from Ebon Atoll. These include a seabird species, a domestic fowl, and a dove, the latter possibly extinct. No birds are known to breed on the atoll; however, 2 species are potential breeders.

A checklist, including status and source, of the bird species from Ebon Atoll follows. The source material for the list includes: (1) Baker, 1951; (2) Hand-list of Japanese Birds, (a) 1932, (b) 1942, (c) 1958; (3) Yale Cross-cultural Survey, 1932; (4) Hager, 1886; (5) Peters and Griscom, 1928; (6) Peters, 1937; (7) Ripley and Birckhead, 1942; and (8) YIZM collection. These sources are referred to in the checklist by corresponding numbers and letters.

Ebon Atoll Avifauna Checklist

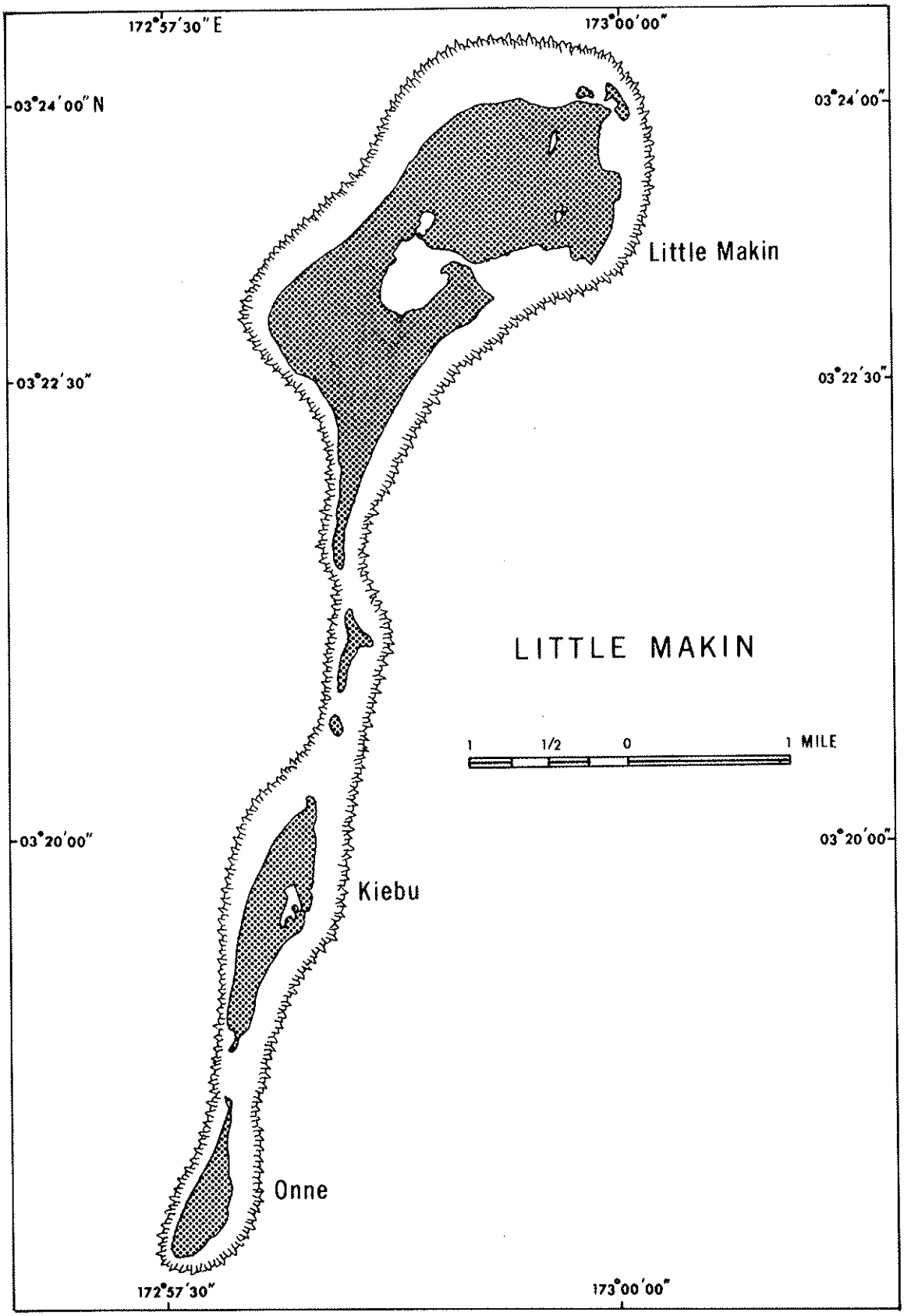
Species	Status	Source
1) Gallus gallus	Introduced breeder ?	3, 4
2) Anous tenuirostris	Resident breeder ?	1, 2ab
3) Ptilinopus porphyraceus hernsheimi	Extinct ?	1, 2ab, 5, 6, 7

Bird specimens collected from Ebon Atoll includes 3 specimens of 2 species.

Table 29. Bird specimens collected from Ebon Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anous tenuirostris	YIZM	♂	A	Ebon I	10-16-31	Skin	H. Orii
" "	"	♂	A	"	"	"	"
Ptilinopus porphyraceus	MCZ	?	A	"	late 1859	"	B. G. Snow

G I L B E R T I S L A N D S


172°57'30" E
173°00'00"
03°24'00" N
03°24'00"
03°22'30"
03°22'30"
03°20'00"
03°20'00"
Little Makin
LITTLE MAKIN
1 1/2 0 1 MILE
Kiebu
Onne
172°57'30"
173°00'00"

LITTLE MAKIN ATOLL

Location: 03°17' N x 172°58' E.

Shape and Size: String of four islands situated north-south about seven miles long; Total land area - 2.80 square miles; No lagoon (Agassiz, 1903; Mason in Freeman, 1951).

Soil: Mainly coral and organic matter (see Catala, 1957 for detailed analysis).

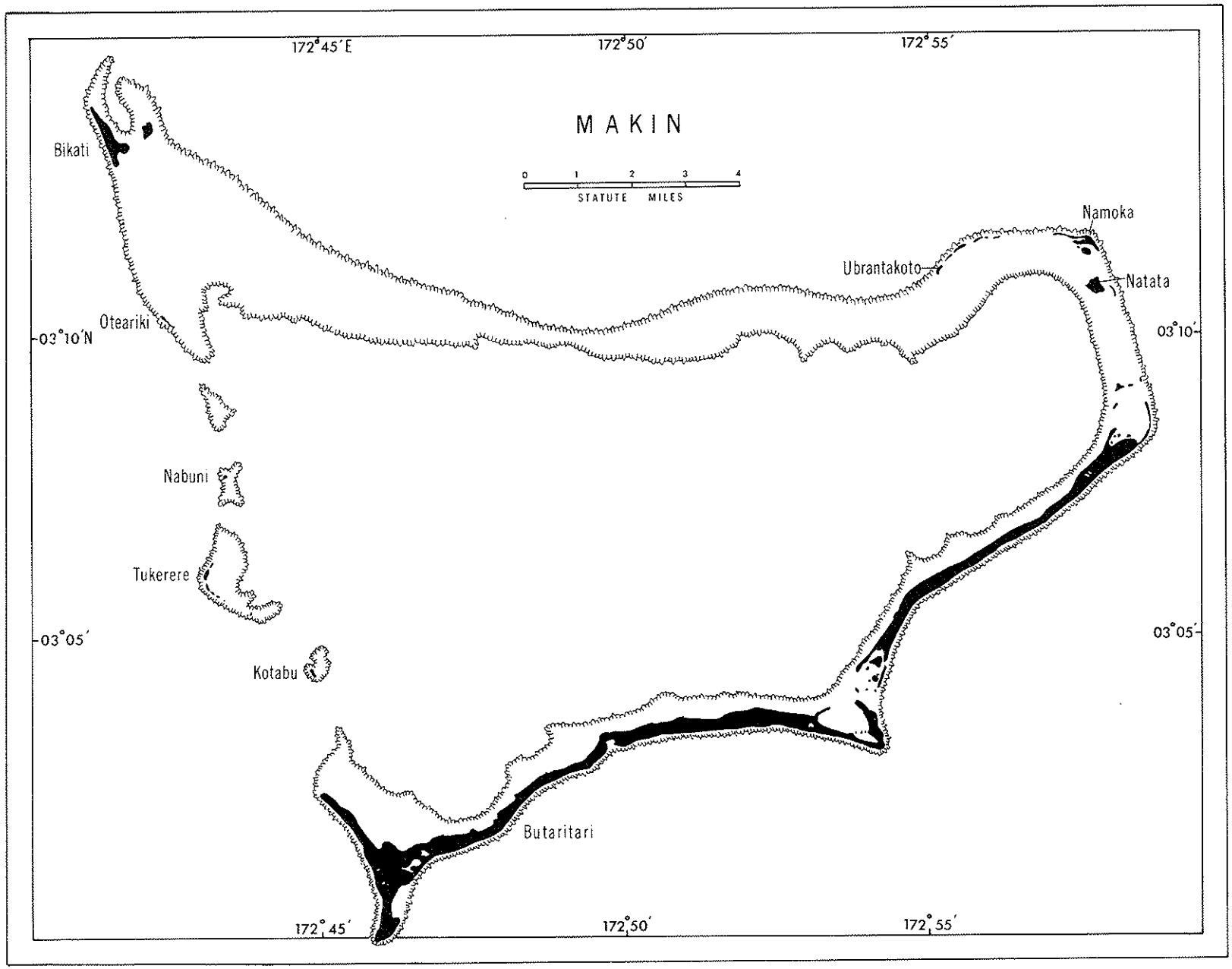
Vegetation: Mainly Cocos, four other plant species listed (Catala, 1957).

Climate: Wet, rainfall averages 100.23 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 908 (Catala, 1957).

Scientific Visits: O. Finsch (1880d) - November-December 1879; "Albatross" Tropical Pacific Expedition - 1900 (Agassiz, 1903); L. A. Catala (Catala, 1957) - 6 March to 30 August 1951. [Note: Child (1960) did not visit little Makin (Child, personal communication, August 1965)].

Avifauna: No birds have been recorded from Little Makin Atoll. Due to the closeness (2 miles) of Little Makin to Makin Atoll, most of the bird species found on the latter possibly occur on the former.


MAKIN
172°45′E
172°50′
172°55′
Bikati
Namoka
Ubrantakoto
Natata
Otearikl
03°10′N
03°10′
Nabuni
Tukerere
03°05′
03°05′
Kotabu
Butaritari
172°45′
172°50′
172°55′
0 1 2 3 4
STATUTE MILES

MAKIN ATOLL

Location: 03°07' N x 172°48' E.

Shape and Size: An irregular-shaped triangle; north side - 21 miles; west side - 18 miles; Total lagoon area - 74 square miles; Total dry land area - 4.5 square miles; Number of islands - 11+ (Mason in Freeman, 1951).

Soil: Outer beach - mostly rocky but some sandy area; Inner beach - mostly sandy but some rocky area, large salt-flat area on Butaritari Island; Inland soil - shallow layer of peat over sandy coral fragment material (Catala, 1957).

Vegetation: Most islands planted in Cocos, some Pisonia.

Climate: Very wet, average rainfall 121.50 inches yearly; Air temperature averages 83-84° F., Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 2,510 (Catala, 1957).

Scientific Visits: O. Finsch (1880d, 1884) - 6 December 1879; J. G. Bremer (North, 1894, 1896) - 22-23 June 1894; U.S. Fish Commission Expedition (Townsend and Wetmore, 1919) - 6 January 1900; South Pacific Commission Scientific Expedition (Catala, 1957) - 6 March-30 August 1951; R. O. Morris - 26 November-11 December 1962, 11 July-20 August 1963 (visitation date to Makin unknown); POBSP - 13-15 November 1964. [Note: Child (personal communication, August 1965) did not visit Makin while Education Officer at Tarawa between February 1953 and February 1956 (Child, 1960).]

Avifauna: Twenty-four bird species are known from Makin Atoll. These include 11 seabirds, 8 shorebirds, 2 ducks, 1 heron, 1 landbird, and 1 domestic fowl. Four of these species are known breeders, 8 others are possible breeders, 10 are migrants, and 2 are vagrants.

Makin Atoll is the only locality in the Marshall and Gilbert Islands from which a Himantopus species is known.

Twenty-four species are listed in the following checklist, which was derived from various sources: (1) POBSP, (a) 1964, (b) band return; (2) Morris, 1963; (3) Finsch, (a) 1880d, (b) 1884; (4) North, (a) 1894, (b) 1896; (5) AOU Checklist, 1957; (6) Catala, 1957; and (7) Townsend and Wetmore, 1919. These sources are referred to in the checklist by their corresponding numbers and letters. The 11 species marked by a single asterisk are new species records for Makin Atoll; the four species marked by double asterisks are new atoll breeding records.

Makin Atoll Avifauna Checklist

Species	Status	Source
1) *Sula dactylatra*	Visitor	1b
2) *Sula sula**	Resident breeder ?	1a
3) *Sula leucogaster*	Resident breeder ?	1a, 2
4) *Fregata minor**	Resident breeder ?	1a
5) *Fregata ariel**	Resident breeder ?	1a
6) *Egretta sacra*	Resident breeder ?	1a, 2, 3a
7) *Anas clypeata*	Migrant	4a, 5
8) *Anatidae* sp.	Migrant	1a
9) *Gallus gallus*	Introduced breeder ?	1a, 6
10) *Pluvialis dominica*	Migrant	1a, 7
11) *Numenius phaeopus**	Migrant	1a
12) *Numenius tahitiensis*	Migrant	1a, 7
13) *Limosa lapponica**	Migrant	1a
14) *Heteroscelus incanum*	Migrant	1a, 3b, 7
15) *Arenaria interpres*	Migrant	1a, 7
16) *Erolia accuminata*	Migrant	1a, 7
17) *Himantopus* sp.*	Accidental	1a
18) *Sterna sumatrana**	Resident breeder**	1a
19) *Sterna fuscata**	Resident breeder ?	1a
20) *Thalasseus bergii**	Resident breeder ?	1a
21) *Anous stolidus*	Resident breeder**	1a, 3b
22) *Anous tenuirostris**	Resident breeder**	1a
23) *Gygis alba**	Resident breeder**	1a
24) *Urodynamis taitensis*	Migrant	1a, 3, 4ab

POBSP personnel have collected 70 specimens of 15 species (Table 30). Of these 15 species, 7 are specimen records of species not previously known from Makin Atoll; 2 represent the first specimen confirmation of species previously known only from sight records; the other 6 are specimens of species from the atoll already represented in museum collections. Seventeen other specimens of 7 species are known from Makin; these are located in two museums (Table 31). In all, 87 specimens of 17 species are known from Makin Atoll.

..e 30. Bird specimens collected by POBSP from Makin Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sula leucogaster	USNM 494887	♀	Imm	Kotabu	11-13-64	Skin	Amerson
" "	" 494888	?	A	Lagoon 3 mi. N. Butaritari	11-14-64	"	"
Fregata minor	" 494877	♀	Imm	Kotabu	11-13-64	"	"
Fregata ariel	" 494874	♂	A	"	"	"	"
" "	" 494875	♂	A	"	"	"	"
Egretta sacra	" 494860	♂?		"	"	"	"
" "	" 494861	♂		"	"	"	Clapp
	" 494862	♂		"	"	"	Lehner
Pluvialis dominica	" 494720	♂		Butaritari	11-14-64	"	Huber
" "	" 494721	♂		"	"	"	"
" "	" 494754	♂		Kotabu	11-13-64	"	Clapp
" "	" 494755	♀		Butaritari	"	"	Huber
	" 494756	♂		"	"	"	"
Numenius tahitiensis	" 494825	♂		"	11-14-64	"	"
" "	" 494826	♀		"	11-15-64	"	Amerson
	" 494827	♀		"	"	"	Huber
Limosa lapponica	" 494831	♂		"	11-13-64	"	"
" "	" 494832	♂		"	11-15-64	"	Clapp
" "	" 494833	♂		"	"	"	Huber
" "	" 494834	♀		"	"	"	Clapp
	" 494835	♀		"	"	"	"
Heteroscelus incanum	" 494900	♀		Kotabu	11-14-64	"	Lehner
" "	" 494901	♂		Butaritari	"	"	Huber
" "	" 494902	♂		"	"	"	"
" "	" 494903	♀		"	"	"	Wislocki
" "	" 494904	♂		"	"	"	"
" "	" 494905	♀		"	"	"	Huber
	" 494906	♂		"	"	"	"
Arenaria interpres	" 494755	♀	Imm	Tukerere	"	"	Amerson
" "	" 494766	♀		Butaritari	"	"	Huber
	" 494777	♀		"	"	"	"
Erolia acuminata	" 494806	♂		"	11-13-64	"	"
" "	" 494807	♂		"	11-14-64	"	"
" "	" 494808	♂		"	"	"	Wislocki
	" 494809	♀		"	"	"	Huber
Sterna sumatrana	" 494601	?		Lagoon 1 mi. E.of Tukerere	"	"	Amerson
" "	" 494602	♂		"	"	"	"
" "	" 494603	♀		Sandbar 1/2 mi. SE Tukerere	"	"	Lehner
" "	" 494604	♀		"	"	"	Amerson
" "	" 495883	♂		"	"	"	"
" "	" 495884	♂		"	"	"	"
	" 495885	♂		"	"	"	"

Table 30 (cont.). Bird specimens collected by POBSP from Makin Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Thalasseus bergii	USNM 494734	?		Kotabu	11-13-64	Skin	Amerson
" "	" 494735	♀		"	"	"	"
" "	" 494736	?	Imm	"	"	"	"
" "	" 494737	♂		"	"	"	"
Anous stolidus	" 494671	♂?	Nest.	"	11-14-64	"	"
" "	" 494672	♀		"	"	"	"
" "	" 494673	♀		"	"	"	"
" "	" 494674	♂		"	"	"	"
Anous tenuirostris	" 494556	♂		"	11-13-64	"	"
" "	" 494557	♂		"	"	"	"
" "	" 494558	♀		"	"	"	"
" "	" 494559	♀		"	"	"	Lehner
" "	" 494560	♀		"	"	"	"
" "	" 494561	♂		"	"	"	"
" "	" 494562	♂		"	"	"	"
" "	" 494563	♀		"	"	"	"
" "	" 494564	♂		"	"	"	"
" "	" 494565	♂		"	"	"	"
" "	" 494566	♀		"	"	"	"
" "	" 494567	♀		"	11-14-64	"	Amerson
Gygis alba	" 494637	♀		"	11-13-64	"	Lehner
" "	" 494638	♂		"	"	"	"
" "	" 494639	♀		"	"	"	"
" "	" 494640	♂		"	11-14-64	"	"
" "	" 494641	♀		"	"	"	"
" "	" 494642	--		"	"	"	"
" "	" 494643	♂		"	"	"	"
" "	" 494644	♂		"	"	"	"

Table 31. Bird specimens collected by other expeditions from Makin Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Anas clypeata	Aus.M. 07956	♀		Big Makin*	06-22-94	-	Bremer
" "	" 07957	♂		"	06-23-94	-	"
Pluvialis dominica	MCZ 81925	♀		Taritari *	01-06-00	Skin	Townsend
" "	USNM 212226	♀		"	"	"	"
" "	" 212227	♀		"	"	"	"
	" 212197	♂		"	"	"	"
Numenius tahitiensis	" 212198	♀		"	"	"	"
" "	" 212199	♂		"	"	"	"
" "	" 212200	♀		"	"	"	"
	" 212185	♀		"	"	"	"
Heteroscelus incanum	" 212209	♀		"	"	"	"
Arenaria interpres	" 212210	♂		"	"	"	"
" "	" 212182	♀		"	"	"	"
Erolia accuminata	" 212183	♂		"	"	"	"
" "	" 212184	♂		"	"	"	"
Urodynamis taitensis	Aus.M. 07958	♀		Butaritari	06-01-94	"	Swayne
" "	" 07959	♂		"	"	"	"

*Probably Butaritari Island

348-415 O-69—15

Species Accounts

1) Sula dactylatra — Blue-faced Booby

See Banded Bird Recaptures, Appendix A.

2) Sula sula — Red-footed Booby

Habitat -- 13 November 1964 - Kotabu - one light-phase adult approached the island at dusk apparently to roost.

Numbers -- 13 November 1964 - Kotabu - 1.

Status -- Resident breeder? No evidence of breeding on islands visited; however, this species may possibly breed on the atoll.

Specimen Records -- None. This is a new species sight record for Makin Atoll.

3) Sula leucogaster — Brown Booby

Habitat -- November-December 1962 and July-August 1963 - perched on beacons and poles in the lagoon (Morris, 1963); November 1964 - perched on poles in the lagoon and observed returning to Kotabu Island at dusk to roost.

Numbers -- November-December 1962 and July-August 1963 - "... never seen in any number ..." (Morris, 1963); November 1964 - Kotabu 2, lagoon 1.

Status -- Resident breeder? No breeding observed. It is possible, however, that this species breeds on some of the isolated islands in Makin Atoll.

Specimen Records -- Other - none; POBSP - two (Table 30). These represent new specimen records for Makin Atoll.

4) Fregata minor — Great Frigatebird

Habitat -- 13 November 1964 - Kotabu - over island during daytime and roosting there at night; not seen on or over other islands in the atoll.

Numbers -- 13 November 1964 - Kotabu 60 estimated.

Status -- Resident breeder? No evidence of breeding on islands visited; however, this species possibly nests on the atoll if conditions are favorable.

Specimen Records -- Other - none; POBSP - one (Table 30). This collection represents a new species and specimen record for Makin Atoll.

5) Fregata ariel — Lesser Frigatebird

Habitat -- 13 November 1964 - arrived on Kotabu to roost at dusk with Fregata minor.

Numbers -- 13 November 1964 - Kotabu 5-10 estimated; none seen on the other islands visited.

Status -- Resident breeder? Breeding not observed; however, breeding may occur.

Specimen Records -- Other - none; POBSP - two (Table 30). These represent a new species and specimen record for Makin Atoll.

6) Egretta sacra — Reef Heron

Habitat -- December 1879 - along the shores (Finsch, 1880d); November-December 1962, July August 1963-present (Morris, 1963); November 1964 - common, shores of Butaritari, Kotabu, and Nabuni, and on a sandbar between Kotabu and Tukerere.

Numbers -- December 1879 - "... saw uniformly white birds going always in pairs ... also ... pairs, undoubtedly male and female, of which one was white the other slate-coloured, or both of the latter colour or mixed with white." (Finsch, 1880d); November 1964 - Butaritari 50± (about 50-50 ratio between white- and dark-phase individuals), Kotabu 6, Nabuni Island 1, sandbar between Kotatu and Tukerere 1.

Status -- Resident breeder? Breeding not observed; however, this species probably breeds on Makin Atoll.

Specimen Records -- Other - none; POBSP - three (Table 30). Although this species has been observed at Makin Atoll previously, these are the first specimens to be collected from the atoll.

7) Anas clypeata — Shoveler

Habitat -- June 1884 - present (North, 1894); also A.O.U. Checklist (1957).

Numbers -- June 1884 - 2 seen and collected (North, 1894).

Status -- Migrant; North (1894) notes that "previously this species had never been seen on the island, and the natives expressed an opinion that they had been probably blown there by one of the westerm gales ..."

Specimen Records -- Other - two (Table 31); POBSP - none.

8) Anatidae sp. Duck species

Habitat -- November 1964 - Butaritari mud flats.

Numbers -- November 1964 - Butaritari 4.

Status -- Migrant.

Specimen Records -- None.

9) Gallus gallus Domestic Chicken

Habitat -- 1951 - present throughout the Gilbert Islands (Catala, 1957); November 1964 - present in and around the main village on Butaritari.

Numbers -- November 1964 - population not known; however, there must be a large number to keep the natives supplied with food.

Status -- Introduced breeder? Probably breeds in and around village.

Specimen Records -- None.

10) Pluvialis dominica Golden Plover

Habitat -- January 1900 - present (Townsend and Wetmore, 1919); November 1964 - present on the sandy and rocky beaches of Butaritari (mainly on the mud-flats), Kotabu, Tukerere, and Nabuni.

Numbers -- January 1900 - three specimens collected November 1964 - Butaritari 200-300, Kotabu 6-8, Tukerere 5, Nabuni 4.

Status -- Migrant.

Specimen Records -- Other - three (Table 31); POBSP - five (Table 30).

11) Numenius phaeopus Whimbrel

Habitat -- November 1964 - present on the mud flats of Butaritari, not seen on the other islands visited.

Numbers -- November 1964 - Butaritari 30 estimated.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for Makin Atoll.

12) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- January 1900 -present (Townsend and Wetmore, 1919); November 1964- present on sandy and rocky beaches of Butaritari (mainly on the mud-flats) Kotabu, and Tukerere.

Numbers -- January 1900 -four collected; November 1964 - Butaritari 25, Kotabu 1, Tukerere 1.

Status -- Migrant.

Specimen Records -- Other - four (Table 31); POBSP - three (Table 30).

13) Limosa lapponica — Bar-tailed Godwit

Habitat -- November 1964- present only on the mud-flats of Butaritari, not observed on the other islands visited.

Numbers -- November 1964 -Butaritari 120 estimated.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - five (Table 30). This collection represents a new species and specimen record for Makin Atoll.

14) Heteroscelus incanum — Wandering Tattler

Habitat -- December 1879- present on Butaritari (Finsch, 1884); January 1900- present (Townsend and Wetmore, 1919); November 1964- present on sandy and rocky beaches of Butaritari (mainly on the mud-flats), Kotabu, and Nabuni.

Numbers -- December 1879- 1 collected (Finsch, 1884); 6 January 1900- 1 collected; November 1964- Butaritari 300, Kotabu 6, Nabuni 2.

Status -- Migrant.

Specimen Records -- Other - two: one present location unknown, ♂ in winter plumage, Butaritari 6 December 1879, collector Finsch (Finsch, 1884); second (Table 31); POBSP - seven (Table 30).

15) Arenaria interpres — Ruddy Turnstone

Habitat -- January 1900 -present (Townsend and Wetmore, 1919); November 1964 -present on sandy and rocky beaches of Butaritari (mainly on the mud flats), Kotabu, and Tukerere.

Numbers -- January 1900 - 2 collected; November 1964 - Butaritari 500-600, Kotabu 10, Tukerere 25.

Status -- Migrant.

Specimen Records -- Other - two (Table 31); POBSP - three (Table 30). USNM #494775 had USFW Band #652-49186 and was banded by POBSP at East Killing Ground, St. George, Pribilof Islands, Alaska, 31 August 1964. Another specimen, field #30302, 96 grans, Butaritari Island, 14 November 1964, collector Huber, was lost in transit.

16) Erolia acuminata — Sharp-tailed Sandpiper

Habitat -- January 1900- present (Townsend and Wetmore, 1919); November 1964- present only on the mud-flats of Butaritari, not present on other islands visited.

Numbers -- January 1900- 3 collected; November 1964- Butaritari 25.

Status -- Migrant.

Specimen Records -- Other - three (Table 31); POBSP - four (Table 30). Another specimen probably this species, field #30307, 64 grams, Butaritari Island, 14 November 1964, collector Wislocki, was lost in transit.

17) Himantopus sp. — Stilt species

Habitat -- November 1964 - Butaritari mud-flats.

Numbers -- November 1964- Butaritari 1.

Status -- Accidental.

Specimen Records -- None. This observation represents a new species sight record for the Marshall and Gilbert Islands.

18) Sterna sumatrana — Black-naped Tern

Habitat -- November 1964- observed flying over and feeding in the lagoon, nests on ground (no nest material used) on sandbar between Kotabu and Tukerere Islands.

Numbers -- November 1964 - in lagoon, on sandbar between Kotabu and Tukerere Island, 60 estimated.

Status -- Resident breeder. November 1964 - nesting on sandbar. This is a new breeding record for Makin Atoll.

Specimen Records -- Other - none; POBSP - seven (Table 30). This collection represents a new species and specimen record for Makin Atoll.

19) Sterna fuscata — Sooty Tern

Habitat -- November 1964 - heard flying over lagoon at night.

Numbers -- November 1964 - 1 heard.

Status -- Resident breeder? November 1964 - not breeding. This species may possibly breed at Makin Atoll.

Specimen Records -- None. This is a new record for Makin Atoll.

20) Thalasseus bergii Crested Tern

Habitat -- November 1964 - flying over adjacent lagoon areas and nesting on rocks and poles at Butaritari (also over mud-flats), Kotabu, and Nabuni, and the sandbar between Kotabu and Tukerere.

Numbers -- November 1964 - Butaritari few present, Kotabu 10, Nabuni 2, sandbar 12.

Status -- Resident breeder? November 1964 - no breeding observed; however, this species may breed on some of the isolated islands and sandbars not visited.

Specimen Records -- Other - none; POBSP - four (Table 30). This collection represents a new species and specimen record for Makin Atoll.

21) Anous stolidus Brown Noddy

Habitat -- December 1879 - present (Finsch, 1884); November 1964- Butaritari present in the vegetated areas (mainly in Cocos), Kotabu flying over the island and nesting on rocks and low vegetation.

Numbers -- December 1879 - 1 collected; November 1964 - Butaritari few present, Kotabu 25.

Status -- Resident breeder. November 1964 - Kotabu several nests with eggs and chicks present; the three adults collected had bare brood patches. This species probably breeds on the other islands in the atoll as well. This is a new breeding record for the atoll.

Specimen Records -- Other - one: whereabouts unknown, female, Butaritari, December 1879 (Finsch, 1884); POBSP - four (Table 30).

22) Anous tenuirostris Black Noddy

Habitat -- November 1964- Butaritarí present and nesting in vegetated Cocos areas, Kotabu present and nesting in vegetated (Pisonia and and Pemphis) areas, Nabuni present in tall vegetation (Pisonia).

Numbers -- November 1964 - Butaritari 100 estimated, Kotabu 4,000+, Nabuni Island 4.

Status -- Resident breeder. November 1964-Butaritari few nests observed, Kotabu estimated 1800 nests with eggs and chicks, (200+ in one Pisonia tree), brood patches present on the 12 birds collected. This is a new atoll breeding record.

Specimen Records-- Other - none; POBSP - twelve (Table 30). This collection represents a new species and specimen record for Makin Atoll.

23) Gygis alba White Tern

Habitat -- November 1964 - present in vegetation (Cocos, Pisonia, Scaevola) of Butaritari, Kotabu, Tukerere, and Nabuni.

Numbers -- November 1964 - Butaritari few, Kotabu 200, Tukerere few, Nabuni 3.

Status -- Resident breeder. November 1964 Kotabu few eggs present. This is a new breeding record for the atoll.

Specimen Records -- Other - none; POBSP eight (Table 30). This collection represents a new species and specimen record for Makin Atoll.

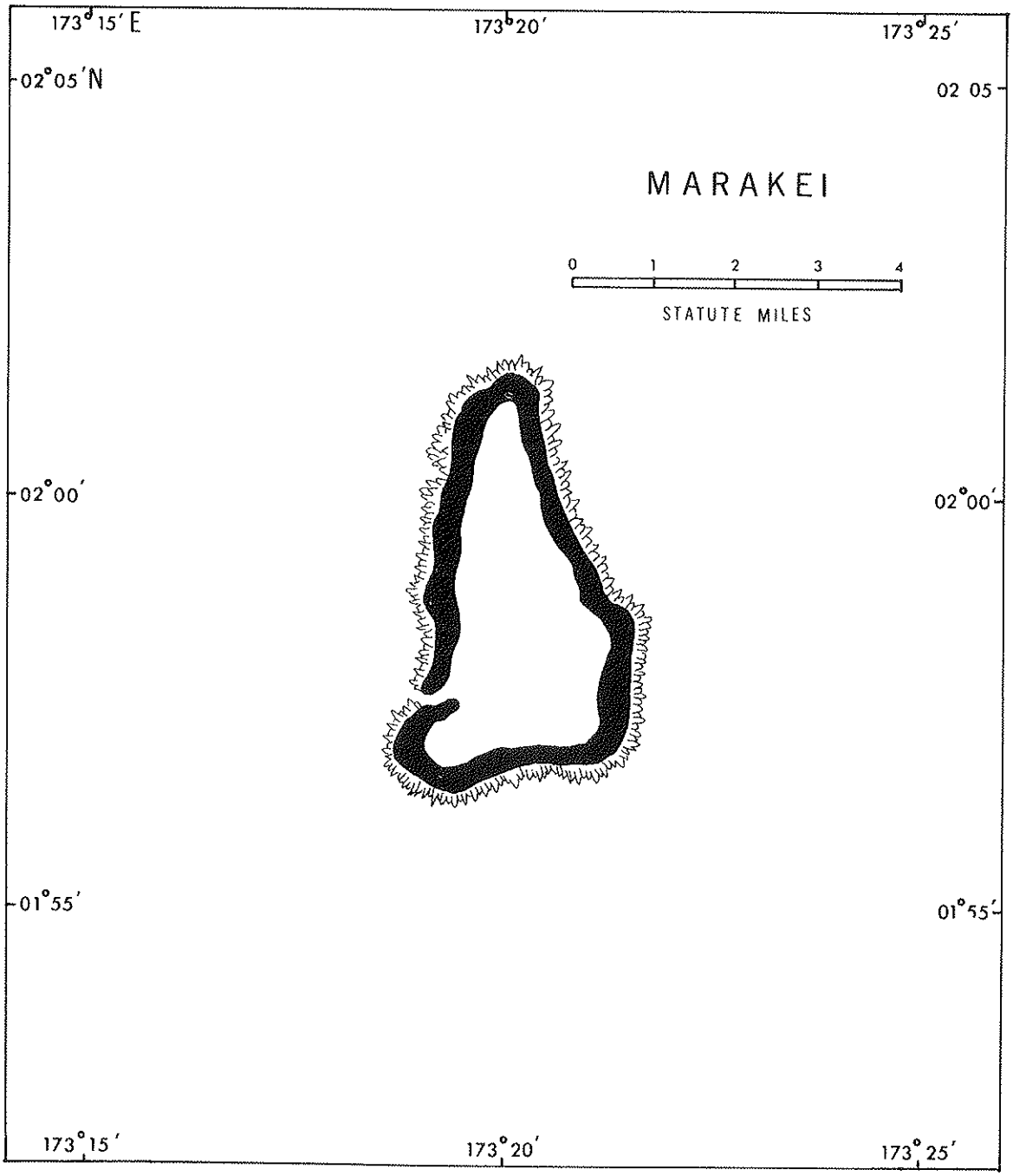
24) Urodynamis taitensis New Zealand Cuckoo

Habitat -- 6 December 1879 - present (Finsch, 1880d); June 1894 - present (North, 1894 and 1896); November 1964 - present in the vegetation near the village on Butaritari.

Numbers -- 6 December 1879 - 2 observed on Butaritari (Finsch, 1880d); 1 June 1894 - 2 collected (North, 1894 and 1896); November 1964 - Butaritari 1 observed.

Status -- Migrant.

Specimen Records -- Other - two (Table 31); POBSP - none.


173°15′E
173°20′
173°25′
02°05′N
02 05
MARAKEI
0 1 2 3 4
STATUTE MILES
02°00′
02°00′
01°55′
01°55′
173°15′
173°20′
173°25′

MARAKEI ATOLL

Location: 01°48' N x 173°20' E.

Shape and Size: Triangular; East coast - five miles long; West coast - five miles long; South coast-three miles long; Number of islands - one (continuous land rim except for a passageway on the west coast); Total land area - 3.94 square miles; Total lagoon area - 7.57 square miles (Mason in Freeman, 1951).

Soil: Beach - rocky (eastern) and sandy (western) with some rock boulders (Agassiz, 1903).

Vegetation: Mainly Cocos (Agassiz, 1903); five species listed by Catala (1957).

Climate: Moderately wet, rainfall averages 71.17 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,536 (Catala, 1957).

Scientific Visits: Otto Finsch (1884) - December 1879; "Albatross" Tropical Pacific Expedition - 1899;February 1953 to February 1957 - various dates by Peter Child (1960).

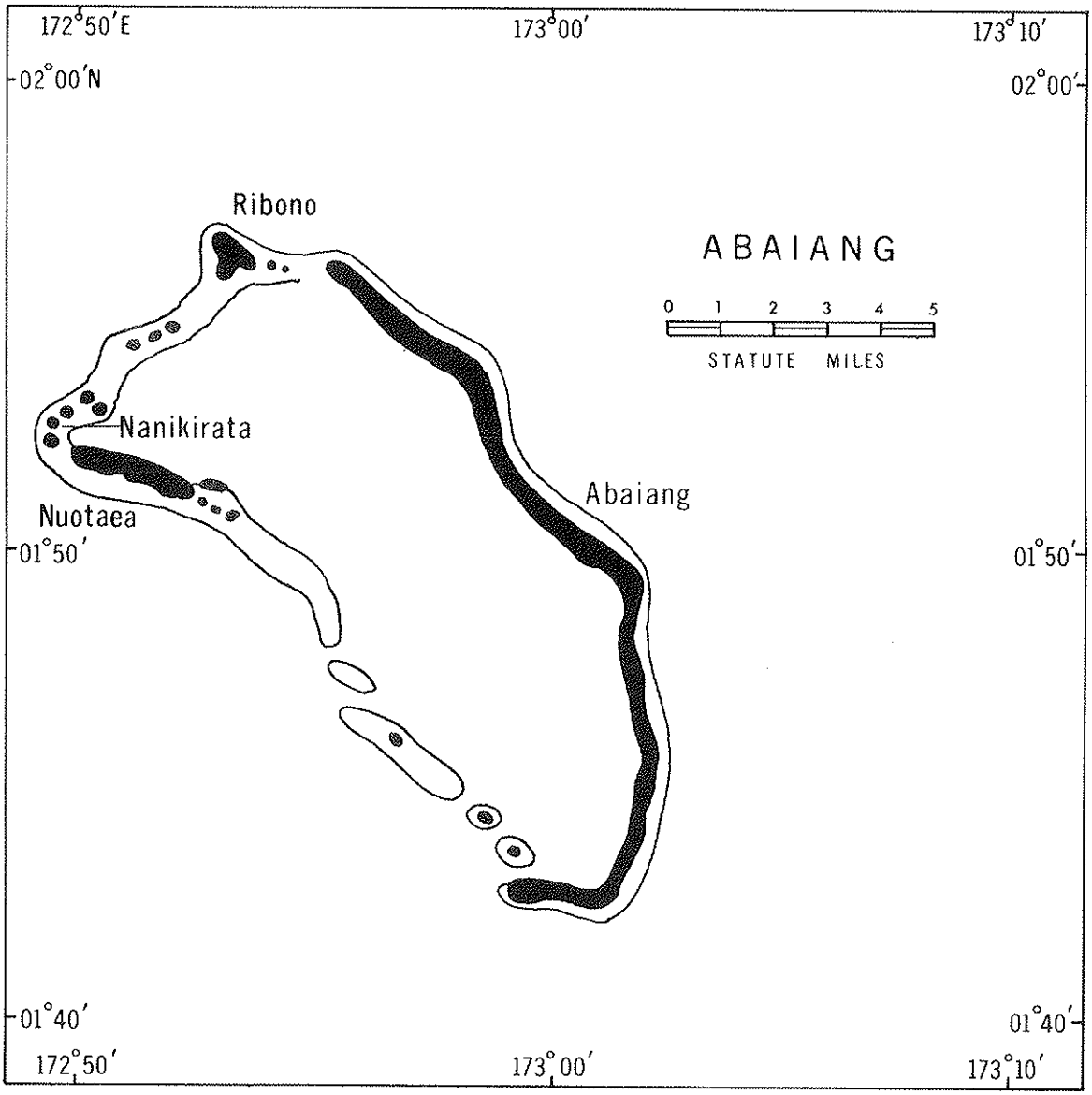
Avifauna: Eleven species of birds are known from Marakei Atoll. [Note: Another species (Ducula oceanica) was listed by Wiglesworth (1891), but he subsequently (1893) corrected his error.] These include 4 seabirds, 5 shorebirds, 1 heron, and 1 domestic fowl. One species has been recorded as breeding; 5 additional species are potential breeders.

The 11 known species of birds from Marakei Atoll are listed in the following checklist. The source material includes: (1) Wiglesworth, 1893; (2) Child 1960; and (3) Finsch, 1884. These sources are indicated in the checklist by their corresponding numbers.

Marakei Atoll Avifauna Checklist

	Species	Status	Source
1)	Egretta sacra	Resident breeder ?	1, 2
2)	Gallus gallus	Introduced breeder ?	2
3)	Pluvialis dominica	Migrant	2
4)	Numenius tahitiensis	Migrant	2
5)	Limosa lapponica	Migrant	2
6)	Heteroscelus incanum	Migrant	2
7)	Arenaria interpres	Migrant	2
8)	Thalasseus bergii	Resident breeder ?	2
9)	Anous stolidus	Resident breeder, December (eggs, young)	2, 3,
10)	Anous tenuirostris	Resident breeder ?	2
11)	Gygis alba	Resident breeder ?	2

One bird specimen is known from Marakei Atoll, but its present deposition is unknown. Finsch (1884) listed an adult male, Anous stolidus, with a nest, presumably collected 4 December 1879.


172°50′E
173°00′
173°10′
02°00′N
02°00′
Ribono
ABAIANG
0 1 2 3 4 5
STATUTE MILES
Nanikirata
Abaiang
Nuotaea
01°50′
01°50′
01°40′
01°40′
172°50′
173°00′
173°10′

ABAIANG ATOLL

Location: 01°41' N x 172°58' E.

Shape and Size: An irregular oval atoll; Length - 16 miles; Width - about 8 miles; Number of islands - 4 plus several islets (principal land rim on eastern face); Total land area - 11.05 square miles; Total lagoon area - 89.78 square miles (Agassiz, 1903; Mason in Freeman, 1951).

Soil: Beach (ocean) - rocky and coarse sandy areas; Beach (lagoon) - fine sand with some rocky areas (Agassiz, 1903).

Vegetation: Primary cover - Cocos; Catala (1957) lists 13 species.

Climate: Moderately wet, rainfall averages 73.58 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 2,467 (Catala, 1957).

Scientific Visits: Andrew Garrett (Greenway, 1952) - September-October 1859; Otto Finsch (1880d) - November-December 1879; "Albatross" Tropical Pacific Expedition -1900; Child (personal communication, August 1965) did not visit Abaiang during February 1953 to February 1956 as his 1960 paper implies.

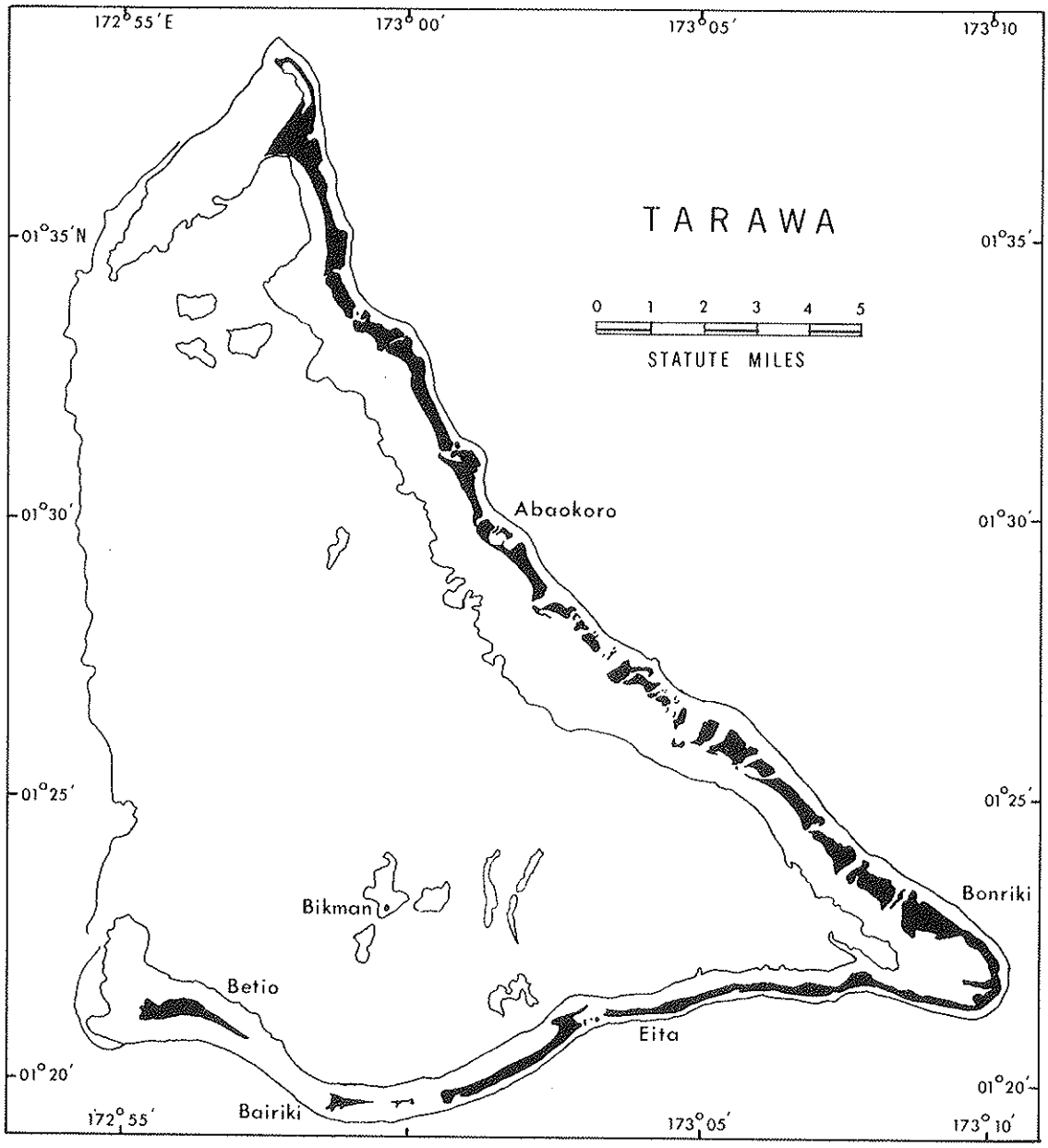
Avifauna: Two bird species have been recorded as occurring on Abaiang Atoll. Child (1960) reported that "... a possible nesting site [of Sula sula exists] at Bakatonotoro (Abaiang) ...", but he (Child, personal communication, August 1965) did not visit Abaiang Atoll. Although Finsch (1880d) visited Abaiang Atoll, he did not list any bird species specifically from the atoll.

Greenway (1952) reported that Andrew Garrett collected one or two specimens of every bird at Abaiang during his 1859 visit. Nothing is known of the present whereabouts of these specimens (see also next paragraph). Greenway further reported that Garrett obtained a tail feather of what he thought was (although he never saw it) a species of hawk. Four species of hawks occur as visitors to the Western Pacific (Marianas, Carolines, Palaus), however, none have been taken from either the Marshalls or the Gilberts. Since he did not see this "hawk," the feather that he found is more likely from the New Zealand Cuckoo, Urodynamis taitensis, which commonly occurs in the Gilberts. Both this cuckoo and a great many hawks have barred tails; thus Garrett could have easily confused the two.

A specimen of an immature, female flightless rail, Tricholimnas sylvestris (= conditicus), was supposedly collected by Andrew Garrett from Abaiang in 1859. It was described as a new species (MCZ #21943)

by Peters and Griscom (1928); however, Greenway (1952) presented evidence that I. conditicus should be a synonym of T. sylvestris, which is known from Lord Howe Island. He presented further evidence that the "I. conditicus" specimen was not collected at Abaiang. I agree with Greenway's conclusions that this rail was probably collected at Lord Howe Island and not at Abaiang.

348-415 O-69—16.


172°55'E
173°00'
173°05'
173°10
TARAWA
0 1 2 3 4 5
STATUTE MILES
01°35'N
01°35'
01°30'
01°30'
01°25'
01°25'
01°20'
01°20'
Abaokoro
Bonriki
Bikman
Betio
Eita
Bairiki
172°55'
173°05'
173°10'

TARAWA ATOLL

Location: 01°25' N x 173°00' E.

Shape and Size: An isosceles triangle, east-west base 17 miles, southeast-northwest face 21 miles, west face 20 miles; Number of islands - 9 large and many small islets (on east and south faces only); Total land area - 7.73 square miles; Total lagoon area - 132.67 square miles (Agassiz, 1903; Mason in Freeman, 1951; and Doran, 1959).

Soil: Beach (ocean) - rocky and sandy area; Beach (lagoon) - sandy but some rocky areas, tidal flats in many areas (Agassiz, 1903; see also Catala, 1957).

Vegetation: Mostly Cocos, but 103 species listed by Catala (1957) (see also Doran, 1959).

Climate: Moderately wet, rainfall averages 64.02 inches annually; Air temperature averages 83 - 85° F., Wind - prevailing from east (Sachet, 1957; Doran, 1959).

Human Population: 1950 - 3,790 (Catala, 1957); 1956 - 4,851 (U.S. Navy, 1966).

Scientific Visits: Otto Finsch (1880d, 1884)- November-December 1879; 1900 "Albatross" Tropical Pacific Expedition; Peter Child (1960; personal communication, August 1965)- May 1953 to January 1956; R. O. Morris (1963)- 12 July 1963.

Avifauna: Nineteen species of birds are known from Tarawa Atoll. Six of these species are seabirds, 8 are shorebirds, 2 are ducks, 1 is a heron, 1 a cuckoo, and 1 a domestic fowl. Of these, 8 species are potential breeders, however, only 4 species are known to breed.

The following list presents the known bird species from Tarawa Atoll which have been recorded by (1) Finsch, (a) 1880d, (b) 1884; (2) Wiglesworth, 1893; (3) Townsend and Wetmore, 1919; (4) Child, 1960; (5) Morris, 1963; and (6) POBSP, band return. These sources are indicated in the checklist by corresponding numbers and letters. The one species marked by an asterisk is a new island species record.

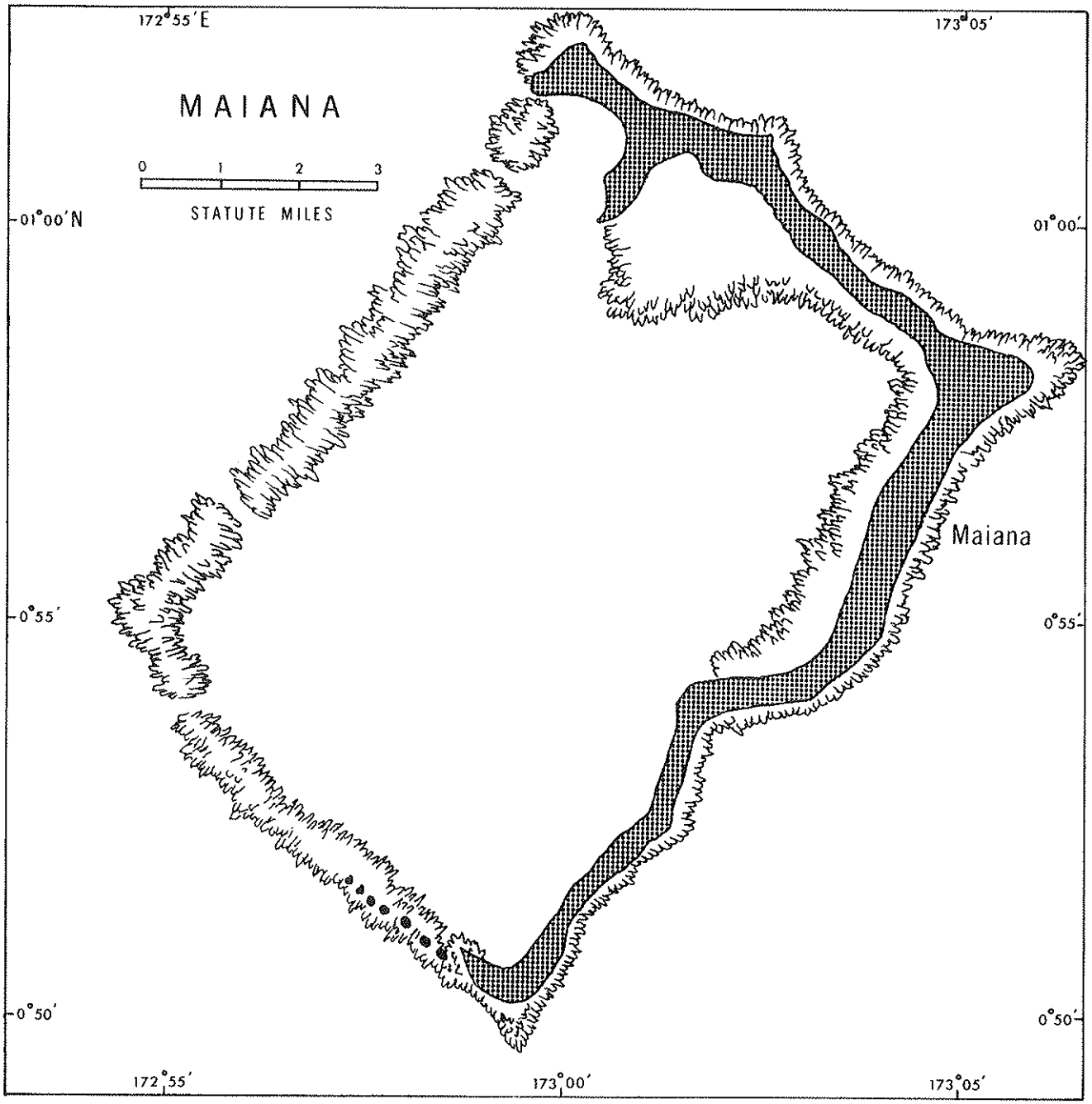
Tarawa Atoll Avifauna Checklist

	Species	Status	Source
1)	*Fregata ariel**	Resident breeder ?	1b
2)	*Egretta sacra*	Resident breeder November to June	1a,3, 4, 5, 6
3)	*Anas platyrhynchos*	Accidental	5
4)	*Anas clypeata*	Migrant	5
5)	*Gallus gallus*	Introduced breeder ?	5
6)	*Pluvialis dominica*	Migrant	3, 5
7)	*Numenius tahitiensis*	Migrant	1a,5
8)	*Limosa lapponica*	Migrant	1a,5
9)	*Heteroscelus brevipes*	Migrant	5
10)	*Heteroscelus incanum*	Migrant	4, 5, 6
11)	*Arenaria interpres*	Migrant	2, 4, 5
12)	*Crocethia alba*	Migrant	5
13)	*Erolia acuminata*	Migrant	5
14)	*Sterna sumatrana*	Resident breeder, January to September	5, 6
15)	*Thalasseus bergii*	Resident breeder, May (immature)	1a,5, 6
16)	*Anous stolidus*	Resident breeder, December (eggs to young)	1a,5, 6
17)	*Anous tenuirostris*	Resident breeder ?	5, 6
18)	*Gygis alba*	Resident breeder ?	5, 6
19)	*Urodynamis taitensis*	Migrant	5

Twelve specimens of 4 species have been collected from Tarawa Atoll. Finsch (1884) collected a male *Arenaria interpres* in winter plumage from Tarawa Atoll on 12 December 1879; its present deposition is unknown. Townsend, aboard the "Albatross," collected 11 specimens at Tarawa Atoll on 3 January 1900 (Townsend and Wetmore, 1919). Townsend's specimens are listed in Table 32.

Table 32. Bird specimens collected from Tarawa Atoll.

Species	Museum	Age	Sex	Status	Collector
Egretta sacra	USNM 212178	A	♂	Skin	Townsend
" "	" 212179	A	♂	"	"
Pluvialis dominica	" 212223	A	♂	"	"
" "	" 212224	A	♂	"	"
" "	" 212225	A	♂	"	"
" "	MCZ 81924	A	♂	"	"
Arenaria interpres	USNM 212211	A	♀	"	"
" "	" 212212	A	♂	"	"
" "	" 212213	A	♂	"	"
Heteroscelus incanum	" 212186	A	♀	"	"
" "	" 212187	A	♂	"	"


MAIANA
0 1 2 3
STATUTE MILES
172°55'E
173°05'
01°00'N
01°00'
0°55'
0°55'
0°50'
0°50'
172°55'
173°00'
173°05'
Maiana

MAIANA ATOLL

Location: 00°55' N. x 173°00' E.

Shape and Size: Rectangular-shaped; northeast and southwest sides - 7 miles; northwest and southeast sides - 11 miles; Number of islands - 8 (one main island - 1/2 to 2 miles wide); Total land area - 10.39 square miles; Total lagoon area - 38 square miles (Mason in Freeman, 1951).

Soil: Beach (ocean) - rocky with some sandy area; Beach (Lagoon) - sandy, extensive sand flats at northwest corner of Maiana Island at low tide; Inland - organic material mixed with sand over coral fragments; No inland ponds; Water in well about 10' below ground surface.

Vegetation: Primary species - Cocos; Pandanus also present.

Climate: Moderately dry, rainfall averages 57.32 inches yearly. Air temperature averages 83-84°F;Wind- prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,238 (Catala, 1957).

Scientific Visits: Peter Child (1960) - February 1953 to February 1956; POBSP - 16-17 November 1964.

Avifauna: Fifteen bird species are known from Maiana Atoll. These include 7 seabirds, 6 shorebirds, 1 heron, and 1 domesticated fowl. Only 1 species is a known breeder, eight others are possible breeders, and 6 are migrants.

Fifteen species are listed in the following checklist, which was derived from: (1) POBSP, (a) 1964, (b) band return; and (2) Child, 1960. These sources are indicated in the checklist by their corresponding numbers and letters. The four species marked by a single asterisk are new species records for Maiana Atoll; the single species marked by double asterisks is a new atoll breeding record.

Maiana Atoll Avifauna Checklist

	Species	Status	Source
1)	Fregata minor*	Resident breeder ?	1a
2)	Fregata ariel*	Resident breeder ?	1b
3)	Egretta sacra	Resident breeder ?	1a, 2
4)	Gallus gallus	Introduced breeder ?	1a, 2
5)	Pluvialis dominica	Migrant	1a, 2
6)	Numenius phaeopus*	Migrant	1a
7)	Numenius tahitiensis	Migrant	1a, 2
8)	Limosa lapponica	Migrant	1a, 2

	Species	Status	Source
9)	Heteroscelus incanum	Migrant	1a, 2
10)	Arenaria interpres	Migrant	1a, 2
11)	Sterna sumatrana*	Resident breeder ?	1a
12)	Thalasseus bergii	Resident breeder ?	1a, 2
13)	Anous stolidus	Resident breeder**	1a, 2
14)	Anous tenuirostris	Resident breeder ?	1a, 2
15)	Gygis alba	Resident breeder ?	1a, 2

POBSP personnel have collected 38 specimens of 8 species (Table 33). Of these 8 species, 2 are specimen records of species not previously known from Maiana Atoll; the other 6 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from Maiana Atoll.

Table 33. Bird specimens collected by POBSP from Maiana Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	USMN 494722	♂	-	Maiana I.	11-16-64	Skin	Clapp
" "	" 494723	?	-	"	"	"	"
" "	" 494724	♂	-	"	"	"	"
Numenius phaeopus	" 494841	♀	-	"	"	"	"
Limosa lapponica	" 494836	?	-	"	"	"	"
" "	" 543436	♀	-	"	"	"	"
Heteroscelus incanum	" 494907	♂	-	"	"	"	"
" "	" 494908	♀	-	"	"	"	"
Arenaria interpres	" 494778	♂	-	"	"	"	Huber
" "	" 494779	♂	-	"	"	"	"
" "	" 494780		-	"	"	"	Clapp
" "	" 494781	♂	-	"	"	"	"
" "	" 494782	♀	-	"	"	"	"
" "	" 494783	♀	-	"	"	"	"
" "	" 494784	♀	-	"	"	"	"
" "	" 494785	♀	-	"	"	"	"
" "	" 494786	♀	-	"	"	"	"
" "	" 494787	♂	-	"	"	"	"
" "	" 502905	-		"	"	Alc.	"
" "	" 502906	-	-	"	"	"	"
" "	" 502907	-	-	"	"	"	"
" "	" 502908	-	-	"	"	"	"
" "	" 502909	-	-	"	"	"	"
" "	" 502910	-	-	"	"	"	"
" "	" 502911	-	-	"	"	"	"
" "	" 502912	-	-	"	"	"	"
" "	" 502913	-	-	"	"	"	"
" "	" 502914	-	-	"	"	"	"
" "	" 502915	-	-	"	"	"	"

Table 33 (cont.). Bird specimens collected by POBSP from Maiana Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Sterna sumatrana	USMN 494605	♀	-	Maiana I.	11-16-64	Skin	Clapp
" "	" 494606	♂	-	"	11-17-64	"	"
Anous stolidus	" 494675	♀	-	"	"	"	Amerson
Anous tenuirostris	" 494568	♂	-	"	"	"	Clapp
" "	" 494569	♂	-	"	"	"	Amerson
" "	" 494570	♂	-	"	"	"	Clapp
" "	" 494571	♂	-	"	"	"	"
" "	" 494572	♀	-	"	"	"	"
" "	" 494573	♀	-	"	"	"	"

Species Accounts

1) Fregata minor — Great Frigatebird

Habitat -- November 1964 - flying over island.

Numbers -- November 1964 - 2 observed.

Status -- Resident breeder? November 1964 - no breeding observed. It is doubtful that this species breeds at Maiana Atoll due to the lack of suitable breeding sites. The small island at the south end of the atoll might be suitable, however.

Specimen Records -- None. This observation represents a new species sight record for Maiana Atoll.

2) Fregata ariel — Lesser Frigatebird

See Banded Bird Recaptures, Appendix A.

3) Egretta sacra — Reef Heron

Habitat -- February 1953 to February 1956 - "... on all islands of the Gilbert [Islands] ..." (Child, 1960); November 1964 - on rocky beaches and exposed reef areas.

Numbers -- November 1964 - Maiana Island 6 or 7 seen.

Status -- Resident breeder? February 1953 to February 1956 - "The nesting season [over the entire Gilbert-Ellice Group] lasts from November to June." (Child, 1960); November 1964 - no breeding activity observed.

Specimen Records -- None.

4) Gallus gallus — Domestic Chicken

Habitat -- February 1953 to February 1956 - "... common on all islands where there are native villages ..." (Child, 1960); November 1964 - present in and around the villages.

Numbers -- February 1953 to February 1956 - see under Habitat; November 1964 - no estimate made but chickens were very frequently seen.

Status -- Introduced breeder? November 1964 - breeding not observed but this species probably nests in and around the villages.

Specimen Records -- None.

5) Pluvialis dominica — Golden Plover

Habitat -- February 1953 to February 1956 - "... on tidal flats or near the water's edge on the beach; [also] in open grassy areas or among the coconut clearings ..." (Child, 1960); November 1964 - on the mud flats, sandy beaches, and grassy areas around the villages.

Numbers -- February 1953 to February 1956 - "... although a few may be seen all the year round the greatest numbers are present from October to April." (Child, 1960); November 1964 - Maiana Island 100's present.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - three (Table 33). Although Child reported Golden Plover from Maiana Atoll, this is a new specimen record for the atoll.

6) Numenius phaeopus — Whimbrel

Habitat -- November 1964 - on rocky ocean beach of Maiana Island.

Numbers -- November 1964 - Maiana Island, 1 seen and collected.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 33). This is a new species and specimen record for Maiana Atoll.

7) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- February 1953 to February 1956 - Gilbert Islands, tidal mud flats or on the reef at low tide, occasionally seen inland (Child, 1960); November 1964 - present on tidal flats, exposed reef areas, and ocean beaches.

Numbers -- February 1953 to February 1956 - "occasional birds may be seen on all [Gilbert] islands at any time of the year but are most common from about late August to April ..." (Child, 1960); November 1964 - Maiana Island 12.

Status -- Migrant.

Specimen Records -- None.

8) Limosa lapponica — Bar-tailed Godwit

Habitat -- February 1953 to February 1956 - "... seen chiefly on tidal mud flats, singly or in small groups; at high tide larger flocks of up to 50 birds may be found gathered on a dry spit or islet." [Note: Child uses this as a habitat description for this species in the entire Gilbert Islands] (Child, 1960); November 1964 - present on the tidal flats.

Numbers -- February 1953 to February 1956 - see under Habitat (Child, 1960); November 1964 - Maiana Island 2 observed and collected.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 33). This collection constitutes a new specimen record for Maiana Atoll.

9) Heteroscelus incanum — Wandering Tattler

Habitat -- February 1953 to February 1956 - "... generally feeds alone on the edge of the tide or on mud flats ... often wades out into shallow water ... at high tide larger groups rest together among the rocks or in the shade of mangrove bushes." [Note: Habitat description is for all of the Gilbert Islands.] (Child, 1960); November 1964 - Maiana Island on tidal flats and sandy and rocky ocean beaches.

Numbers -- February 1953 to February 1956 - "... well-known on all [Gilbert] islands ..." (Child, 1960); November 1964 - Maiana Island 59+ estimated.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 33). This collection represents a new specimen record for Maiana Atoll.

10) Arenaria interpres — Ruddy Turnstone

Habitat -- February 1953 to February 1956 - present (Child, 1960); November 1964 - present on tidal flats and sandy beaches of Maiana Island.

Numbers -- February 1953 to February 1956 - "... is the commonest of the Arctic visitors ... usually being seen in groups of 10 to 100 or more ..." (Child, 1960); November 1964 - Maiana Island 100's observed.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - twenty-one (Table 33). Although Ruddy Turnstones have previously been observed at Maiana Atoll, this collection represents a new specimen record from the atoll.

11) Sterna sumatrana Black-naped Tern

Habitat -- November 1964 - over lagoon and tidal flats (especially at north end of the atoll) at Maiana Island.

Numbers -- November 1964 - Maiana Island 6, lagoon 1.

Status -- Resident breeder? November 1964 - no nests observed, however, adults were observed with well-fledged young.

Specimen Records -- Other - none; POBSP - two (Table 33). This is a new species and specimen record for Maiana Atoll.

12) Thalasseus bergii Crested Tern

Habitat -- February 1953 to February 1956 - "... are said to nest in small colonies on sand or gravel bars ..." (Child, 1960) [Note: This is Child's habitat description for this species in the Gilbert Islands]; November 1964- present over lagoon and roosting on exposed reef and sand flats at low tide.

Numbers -- February 1953 to February 1956 - "... appears to be present in small numbers on most islands [in the Gilbert Islands]." (Child, 1960); November 1964 - Maiana Island (northern end) 15+.

Status -- Resident breeder? February 1953 to February 1956 - Child (1960) reports that "[in the Gilbert Islands] it is said that one egg is laid between December and February."; November 1964 - not breeding, but both adults and flying immatures present suggesting that this species breeds on Maiana Atoll.

Specimen Records-- None.

13) Anous stolidus Brown Noddy

Habitat -- November 1964 - roosting and nesting in Cocos trees on Maiana Island.

Numbers -- February 1953 to February 1956 - "... fairly common on all islands of the Colony." (Child, 1960); November 1964 - Maiana Island 100's present.

Status -- Resident breeder. November 1964 - few adults seen on nests at base of palm fronds on the northern end of Maiana, said by natives to nest commonly on island at south end of the atoll. This is a new breeding record.

Specimen Records -- Other - none; POBSP - one (Table 33). This is a new specimen record for Maiana Atoll.

14) Anous tenuirostris Black Noddy

Habitat -- November 1964 - Maiana Island (especially the northern end) roosting in Cocos trees.

Numbers -- February 1953 to February 1956 - "... listed in large numbers on all islands visited ..." (Child, 1960); November 1964 - Maiana Island 100's present.

Status -- Resident breeder? November 1964 - no nests observed, however, three of six adults collected had brood patches present suggesting they were nesting somewhere on the atoll. The natives said they nested in trees on a small island at the south end of the atoll but this could not be verified.

Specimen Records -- Other - none; POBSP - six (Table 33). This collection represents a new specimen record for Maiana Atoll.

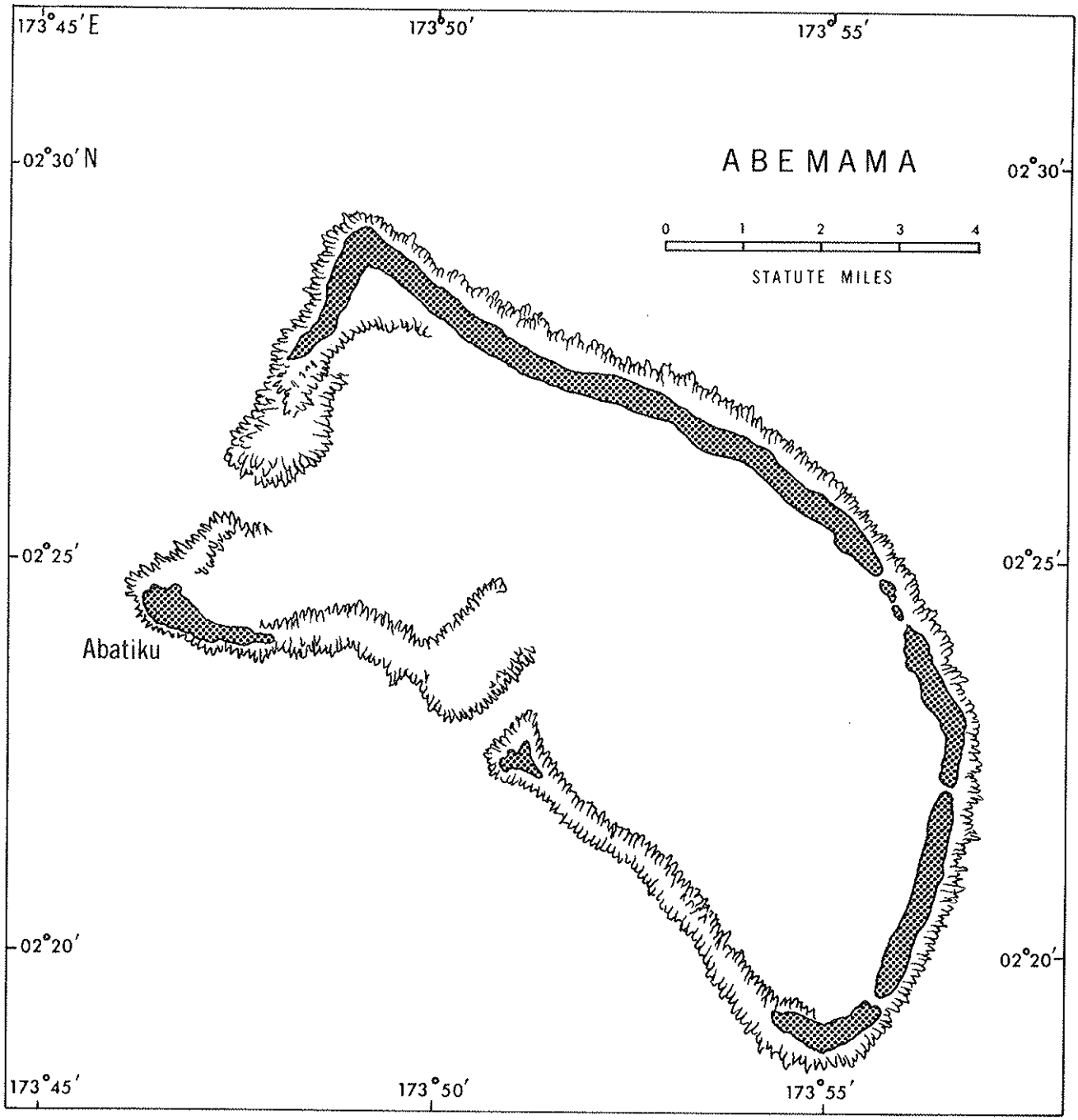
15) Gygis alba White Tern

Habitat -- November 1964 - flying about Maiana Island.

Numbers -- February 1953 to February 1956 - "... fairly common on all islands ..." (Child, 1960); November 1964 - Maiana Island few observed.

Status -- Resident breeder? November 1964 - no breeding activity observed, however, this species probably nests on Maiana Atoll.

Specimen Records -- None.


173°45′E
173°50′
173°55′
02°30′N
02°30′
ABEMAMA
0 1 2 3 4
STATUTE MILES
02°25′
02°25′
Abatiku
02°20′
02°20′
173°45′
173°50′
173°55′

ABEMAMA ATOLL

Location: 00°21' N x 173°51' E.

Shape and Size: An irregular triangle; Eastern coast - convex, 14 miles long; Northwestern coast - straight, 6 miles long; Southwestern coast - slightly concave, 11 miles; Number islands - 8 (eastern coast almost continuous strip one-half mile wide); Height - 6 to 12 feet; Total land area - 6.57 square miles; Total lagoon area - 51.12 square miles (H. O. Chart 0122; Mason in Freeman, 1951; Doran, 1959).

Soil: Beaches - sandy and rocky (see Agassiz, 1903 for description).

Vegetation: Mainly Cocos, Pandanus, and Pisonia (Agassiz, 1903). Fourteen species listed by Catala (1957).

Climate: Moderately dry, rainfall averages 53.04 inches annually; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,498 (Catala, 1957).

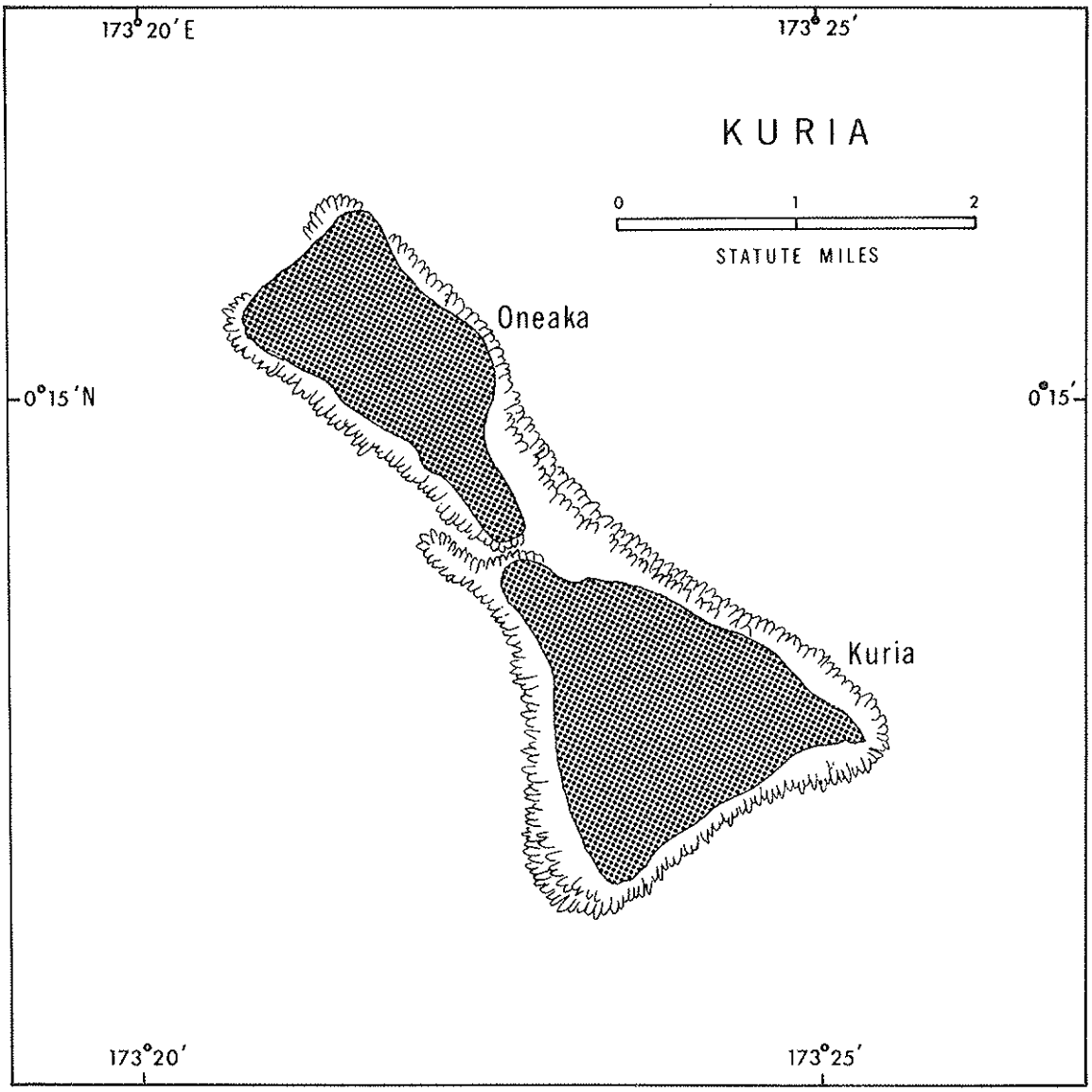
Scientific Visits: "Albatross" Tropical Pacific Expedition - 1899; Peter Child (1960) - February 1953 to February 1956.

Avifauna: Thirteen species of birds are presently known from Abemama Atoll. These include 4 seabird species, 5 shorebird species, 1 heron, 2 doves, and 1 domestic fowl. Eight species are potential breeders, however, only 1 (an introduced species) is known to breed. No bird specimens are known from the atoll.

The 13 known species of birds recorded from Abemama Atoll by Child (1960) are presented in the following checklist.

Abemama Atoll Avifauna Checklist

	Species	Status
1)	Egretta sacra	Resident breeder?
2)	Gallus gallus	Introduced breeder ?
3)	Pluvialis dominica	Migrant
4)	Numenius tahitiensis	Migrant
5)	Limosa lapponica	Migrant
6)	Heteroscelus incanum	Migrant
7)	Arenaria interpres	Migrant
8)	Thalasseus bergii	Resident breeder ?
9)	Anous stolidus	Resident breeder ?
10)	Anous tenuirostris	Resident breeder ?
11)	Gygis alba	Resident breeder
12)	Gallicolumba erythroptera (Ground Dove)	Introduced breeder
13)	Gallicolumba stairii (Friendly Ground Dove)	Introduced breeder ?


173° 20' E
173° 25'
KURIA
0
1
2
STATUTE MILES
Oneaka
0° 15' N
0° 15'
Kuria
173° 20'
173° 25'

KURIA ATOLL

Location: 00°14' N x 173°25' E.

Shape and Size: Dumbbell-shaped pair of islands (each island forming an end): Total length - 4 miles; Number of islands - 2; Oneaka Island (northern) - length 2 miles, widest point 1-1/2 miles; Kuria Island (southern) - length 2 miles, widest point 2 miles; Total land area - 4.98 square miles; No lagoon; however, extensive shallow area extends west and northwest of the islands (H.O. Chart 0122; Mason in Freeman, 1951).

Soil: Beach (windward side) - rocky but some sandy areas; Beach (leeward side) - mostly sandy, some rocky areas; Inland - organic matter mixed with sand over coral gravel; Inland lagoons present on both Oneaka and Kuria Islands.

Vegetation: Primary species - Cocos, scattered Pisonia, Pemphis, and Pandanus; vegetation in uninhabited areas dense.

Climate: Moderately dry, average rainfall 48.37 inches yearly; Air temperature averages 83-84°F;Wind- prevailing from east (Sachet, 1957).

Human Population: 1950 - 530 (Catala, 1957).

Scientific Visits: Peter Child (1960) - February 1953 to February 1956 - various dates; POBSP - 17-19 November 1964.

Avifauna: Seventeen species of birds are presently known from Kuria Atoll. These include 7 seabirds, 7 shorebirds, 1 heron, 1 pigeon, and 1 domesticated fowl. Five of these species are known breeders, 5 others are possible breeders, and 7 are migrants.

Seventeen species are listed in the following checklist which was derived from: (1) POBSP, 1964; (2) Child, 1960 ; (3) Richardson and Fisher, 1950; and (4) Ashmole, 1963. These sources are referred to in the checklist by their corresponding numbers. The five species marked by a single asterisk are new species records for Kuria Atoll; the three species marked by double asterisks are new atoll breeding records.

348-415 O-69—17

Kuria Atoll Avifauna Checklist

	Species	Status	Source
1)	Fregata minor*	Resident breeder ?	1
2)	Egretta sacra	Resident breeder ?	1, 2
3)	Gallus gallus	Introduced breeder ?	1, 2
4)	Pluvialis dominica	Migrant	1, 2
5)	Numenius phaeopus*	Migrant	1
6)	Numenius tahitiensis	Migrant	1, 2
7)	Limosa lapponica	Migrant	1, 2
8)	Heteroscelus incanum	Migrant	1, 2
9)	Arenaria interpres	Migrant	1, 2
10)	Erolia acuminata*	Migrant	1
11)	Sterna sumatrana*	Resident breeder ?	1
12)	Sterna fuscata	Resident breeder	1, 2, 3, 4
13)	Thalasseus bergii	Resident breeder	1, 2
14)	Anous stolidus	Resident breeder**	1, 2
15)	Anous tenuirostris	Resident breeder**	1, 2
16)	Gygis alba	Resident breeder**	1, 2
17)	Ducula oceanica*	Resident breeder ?	1

POBSP personnel have collected 36 specimens of 10 species (Table 34). Of these 10 species, 3 are specimen records of species not previously known from the atoll; the other 7 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from Kuria Atoll.

Table 34. Bird specimens collected by POBSP from Kuria Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	USMN 494863	♀	-	Kuria I.	11-18-64	Skin	Huber
Pluvialis dominica	" 494725	♀	-	"	"	"	Amerman
" "	" 494726	♂	-	"	"	"	"
Numenius tahitiensis	" 494828	♂	-	"	"	"	Clapp
Arenaria interpres	" 494788	♀	-	"	"	"	Amerman
" "	" 494789	♂	-	"	"	"	Clapp
Erolia acuminata	" 494810	♀	-	Oneaka	"	"	Huber
" "	" 494811	♀	-	"	"	"	"
" "	" 494812	♂	-	"	"	"	"
" "	" 494813	♂	-	"	"	"	"
Sterna sumatrana	" 494607	♀	Imm	"	"	"	"
" "	" 494608	-	A	"	"	"	Amerman
Anous stolidus	" 494676	♂	-	"	11-17-64	"	Amerson
" "	" 494677	♂	-	"	"	"	"
" "	" 494678	♀	-	"	"	"	Clapp
" "	" 494679	♀	-	"	"	"	"
" "	" 494680	♀	-	"	"	"	Huber
" "	" 494681	♀	-	"	"	"	Amerson
" "	" 494682	♂	-	"	"	"	Huber
" "	" 494673	♂	-	"	11-18-64	"	"
Anous tenuirostris	" 494574	♂	-	Kuria I.	11-17-64	"	Clapp
" "	" 494575	♀	-	"	"	"	"
" "	" 494576	♀	-	"	"	"	"
" "	" 494577	♂	-	"	"	"	Amerson
" "	" 494578	♂	-	"	"	"	Clapp
" "	" 494579	♂	-	"	11-18-64	"	"
" "	" 494580	♀	-	"	"	"	"
" "	" 494581	♀	-	Oneaka	"	"	Huber
" "	" 494582	♀	-	"	"	"	"
Gygis alba	" 494645	♀	-	Kuria I.	11-17-64	"	"
" "	" 494646	♂	-	"	"	"	"
" "	" 494647	♀	-	"	"	"	Clapp
" "	" 502916	-	A	"	"	Alc.	"
" "	" 502917	-	-	"	"	"	"
Ducula oceanica	" 494815	?	-	"	"	Skin	Huber
" "	" 494816	♀	-	"	11-18-64	Skin and skeleton	Amerson

Species Accounts

1) Fregata minor — Great Frigatebird

Habitat -- November 1964 - Oneaka observed just offshore.

Numbers -- November 1964 - Oneaka 1.

Status -- Resident breeder? May, but probably doesn't breed on the atoll.

Specimen Records -- None. This observation is a new species sight record for Kuria Atoll.

2) Egretta sacra — Reef Heron

Habitat -- November 1964 - exposed reef (at low tide, sandbars and inland pond areas).

Numbers -- February 1953 to February 1956 - "... is a familiar sight on all islands of the Gilbert [Islands] ..." (Child, 1960); November 1964 - Oneaka 5, Kuria 5-6.

Status -- Resident breeder? November 1964 - no nests observed, however, a collected female had a large ovum and a very enlarged oviduct indicating that she was nesting.

Specimen Records -- Other - none; POBSP - one (Table 34). This collection represents a new specimen record from Kuria Atoll.

3) Gallus gallus — Domestic Chicken

Habitat -- November 1964 - present in and around the villages on both Oneaka and Kuria.

Numbers -- February 1953 to February 1956 - "... common on all [Gilbert] islands where there are native villages ..." (Child, 1960); November 1964 - estimate not made but chickens were frequently observed.

Status -- Introduced breeder? November 1964 - breeding not observed, but this species probably nests in and around the villages.

Specimen Records -- None.

4) Pluvialis dominica — Golden Plover

Habitat -- November 1964 - Kuria and Oneaka on ocean beaches, inland grassy or open areas, and around inland pond areas.

Numbers -- February 1953 to February 1956 - "... although a few may be seen [in the Gilbert Islands] all the year round the greatest numbers are present from October to April" (Child, 1960); November 1964 - Kuria 25 estimated, Oneaka 25 estimated.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 34). This collection constitutes a new specimen record for Kuria Atoll.

5) Numenius phaeopus — Whimbrel

Habitat -- 18 November 1964 -- Oneaka on exposed reef at low tide and inland pond areas.

Numbers -- 18 November 1964 - Oneaka 1.

Status -- Migrant.

Specimen Records -- None. This observation is a new species sight record for Kuria Atoll.

6) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- November 1964 - Oneaka and Kuria present on ocean beach, exposed reef at low tide, and inland pond areas.

Numbers -- February 1953 to February 1956 - "occasional birds may be seen on all [Gilbert] islands at any time of the year but are most common from about late August to April ..." (Child, 1960); November 1964 - Kuria 3, Oneaka 3.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 34). This is a new specimen record for Kuria Atoll.

7) Limosa lapponica — Bar-tailed Godwit

Habitat -- 19 November 1964 - Kuria observed on exposed reef at low tide.

Numbers -- February 1953 to February 1956 - Child (1960) does not mention Kuria Atoll specifically but says of L. lapponica - "fairly common in the Gilbert and Ellice groups"; 19 November 1964 - Kuria 1.

Status -- Migrant.

Specimen Records -- None.

8) Heteroscelus incanum — Wandering Tattler

Habitat -- November 1964 - Kuria and Oneaka present on ocean beaches and inland pond areas.

Numbers -- February 1953 to February 1956 - "... well-known on all [Gilbert] islands ..." (Child, 1960); November 1964 - Kuria 15, Oneaka 10.

Status -- Migrant.

Specimen Records - None.

9) Arenaria interpres — Ruddy Turnstone

Habitat -- November 1964 - present on sandy beaches of Kuria and Oneaka.

Numbers -- February 1953 to February 1956 - "... is the commonest of the Arctic visitors [to the Gilbert Islands] ... usually being seen in groups of 10 to 100 or more ..." (Child, 1960); November 1964 - Kuria 40, Oneaka 30.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - two (Table 34). Although Ruddy Turnstone have previously been observed at Kuria Atoll, these two are the first specimens to be collected.

10) Erolia acuminata — Sharp-tailed Sandpiper

Habitat -- 18 November 1964 - Oneaka around inland pond areas.

Numbers -- 18 November 1964 - Oneaka 6 observed, 4 of which were collected, Kuria none.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - four (Table 34). This collection is a new species and specimen record for Kuria Atoll.

11) Sterna sumatrana — Black-naped Tern

Habitat -- November 1964 - sandbar at southern tip of Oneaka, ocean beaches of Kuria.

Numbers -- November 1964 - Kuria 5 observed, Oneaka 6.

Status -- Resident breeder? November 1964 - breeding not observed, but one of two birds collected was an immature suggesting that this species may breed on Kuria Atoll.

Specimen Records -- Other - none; POBSP - two (Table 34). This collection represents a new species and specimen record for Kuria Atoll.

12) Sterna fuscata — Sooty Tern

Habitat -- November 1964 - Kuria flying over south portion at dusk (17th), flying north over west beach at 0930 (18th).

Numbers -- Date unknown - "... small colony ... at ... Oneke (Kuria)." (Child, 1960). November 1964 - Kuria 3 flying over late in the afternoon.

Status -- Resident breeder. August (at least before 1949) - "... terns arrive and lay eggs only in August ..." (Richardson and Fisher, 1950, also Ashmole, 1963). Date unknown - Child (1960) implies breeding at Kuria; November 1964 - no breeding observed.

Specimen Records -- None.

13) Thalasseus bergii — Crested Tern

Habitat -- February 1953 to February 1956 - presence on sand or gravel bars implied (Child, 1960); November 1964 - Kuria and Oneaka on sandbars and exposed reef rocks.

Numbers -- February 1953 to February 1956 - presence in small numbers implied (Child, 1960); November 1964 - Kuria 5-10, Oneaka 22.

Status -- Resident breeder. February 1953 to February 1956 - breeding implied (Child, 1960); November 1964 - no breeding activity observed, but both adults and flying immatures were present, suggesting that this species nests on Kuria Atoll.

Specimen Records - None.

14) Anous stolidus — Brown Noddy

Habitat -- November 1964 - roosting and nesting in frond bases of Cocos trees on both Kuria and Oneaka.

Numbers -- February 1953 to February 1956 - presence ("... fairly common on all islands of the Colony.") implied (Child, 1960); November 1964 - Kuria Island 300-400, Oneaka 400.

Status -- Resident breeder. November 1964 - many adults and young seen on nests at bases of palm fronds on both Kuria and Oneaka Islands; 5 out of 8 adults collected possessed brood patches. This is a new breeding record for Kuria Atoll.

Specimen Records -- Other - none, POBSP - eight (Table 34). This collection represents a new specimen record for Kuria Atoll.

15) Anous tenuirostris — Black Noddy

Habitat -- November 1964 - Kuria and Oneaka roosting and nesting in Cocos and Pisonia trees, more prominent in uninhabited areas but present in villages.

Numbers -- February 1953 to February 1956 - presence in large numbers implied (Child, 1960); November 1964 - Kuria 700+, Oneaka 500+.

Status -- Resident breeder. November 1964 - few active nests seen on both Kuria and Oneaka; 5 of 9 adults collected possessed brood patches. This is a new breeding record for the atoll.

Specimen Records -- Other - none, POBSP - nine (Table 34). This collection represents a new specimen record for Kuria Atoll.

16) Gygis alba — White Tern

Habitat -- November 1964 - Kuria and Oneaka flying over islands, roosting and nesting in Cocos, especially on the tops of the broken off trees.

Numbers -- February 1953 to February 1956 - presence ("... fairly common on all islands ...") indicated (Child, 1960); November 1964 - Kuria 300+, Oneaka 200+.

Status -- Resident breeder. November 1964 - many nests observed on Kuria and Oneaka; all five adults collected had brood patches. This is a new breeding record for the atoll.

Specimen Records -- Other - none, POBSP - five (Table 34). These Gygis alba represent a new specimen record for Kuria Atoll.

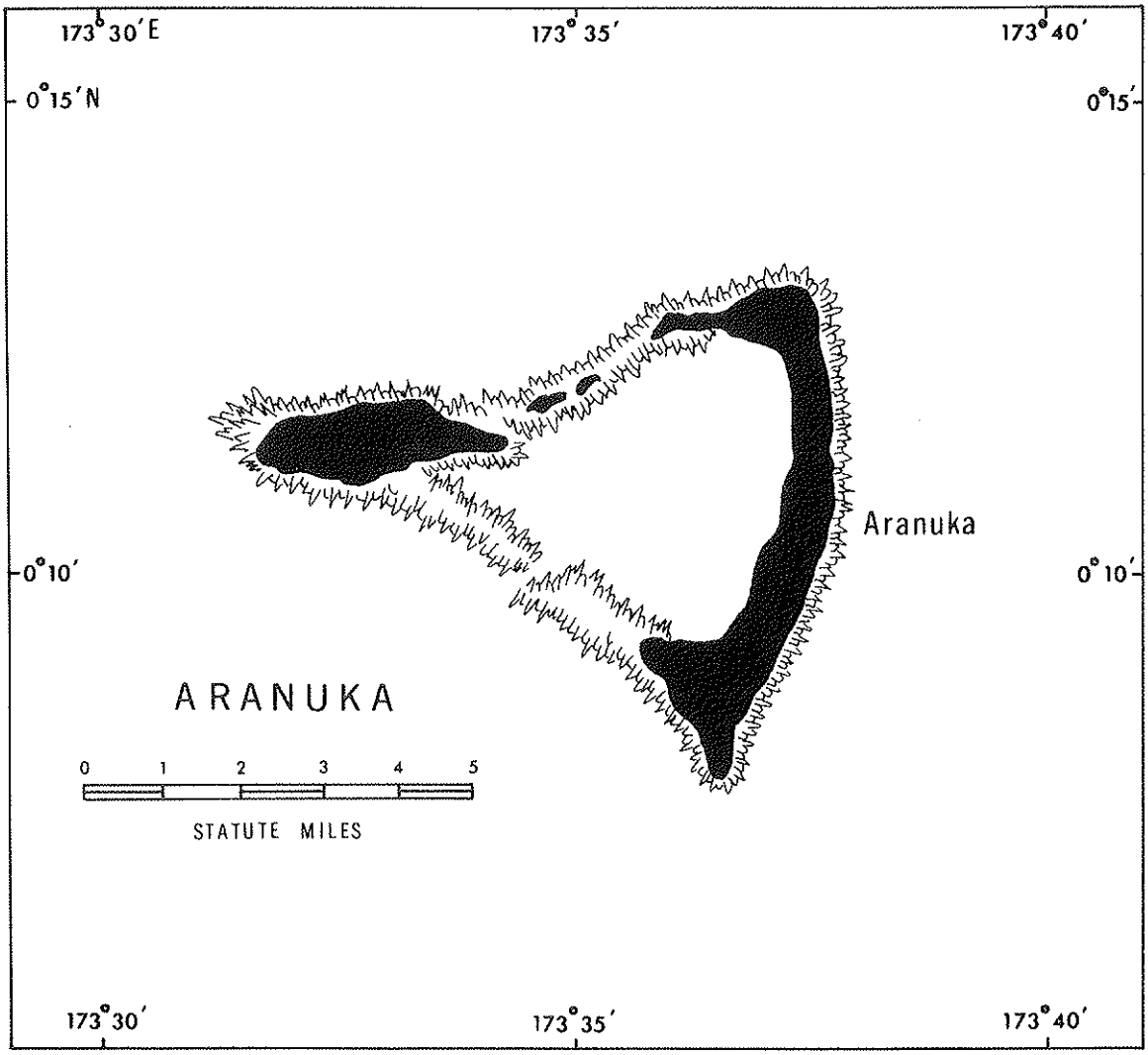
17) Ducula oceanica — Micronesian Pigeon

Habitat -- November 1964 - Kuria observed flying through and roosting in Cocos groves.

Numbers -- November 1964 - Kuria 2 of 4 seen were collected, Oneaka none observed.

Status -- Resident breeder? No breeding activity observed, but natives reported that this species nests on the island.

Specimen Records -- Other - none. POBSP - two (Table 34). This is a new species and specimen record for Kuria Atoll.


173°30′E
173°35′
173°40′
0°15′N
0°15′
0°10′
0°10′
Aranuka
ARANUKA
0 1 2 3 4 5
STATUTE MILES
173°30′
173°35′
173°40′

ARANUKA ATOLL

Location: 00°11' N x 173°36' E.

Shape and Size: Triangular-shaped, east side - 6 miles, northwest side - 7 miles, southwest side - 7 miles; Number of islands - 4 (2 main ones); Total land area - 5.97 square miles; Total lagoon area - 7.5 square miles (H.O. Chart 0122; Mason in Freeman, 1951).

Soil: Beach (ocean side) - rocky with some sandy area; Beach (lagoon side) - mostly sandy, extensive mud flat on northwest side of Aranuka Island at low tide; Inland - organic material mixed with sand over coral fragments; no inland ponds.

Vegetation: Primary species - Cocos; others include Pisonia, Pandanus, and Rhizophora.

Climate: Moderately dry, rainfall averages 48.37 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 223 (Catala, 1957).

Scientific Visits: Peter Child (1960) - February 1953 to February 1956 various dates; POBSP - 19 November 1964.

Avifauna: Fourteen bird species are presently known from Aranuka Atoll. These include 6 seabirds, 5 shorebirds, 1 heron, 1 pigeon, and 1 domesticated fowl. Only one of these species is known to breed on the atoll, 8 others are possible breeders, and 5 are migrants.

Fourteen species are listed in the following checklist, which was derived from: (1) POBSP, 1964; (2) Child, 1960. These sources are referred to in the checklist by their corresponding numbers. The three species marked by a single asterisk are new species records for Aranuka Atoll; the single species marked by double asterisks is a new atoll breeding record.

Aranuka Atoll Avifauna Checklist

	Species	Status	Source
1)	Egretta sacra	Resident breeder ?	1, 2
2)	Gallus gallus	Introduced breeder ?	1, 2
3)	Pluvialis dominica	Migrant	1, 2
4)	Numenius tahitiensis	Migrant	1, 2
5)	Limosa lapponica	Migrant	1, 2
6)	Heteroscelus incanum	Migrant	1, 2
7)	Arenaria interpres	Migrant	1, 2
8)	Sterna sumatrana*	Resident breeder ?	1
9)	Sterna fuscata*	Resident breeder ?	1
10)	Thalasseus bergii	Resident breeder ?	1, 2
11)	Anous stolidus	Resident breeder**	1, 2
12)	Anous tenuirostris	Resident breeder ?	1, 2
13)	Gygis alba	Resident breeder ?	1, 2
14)	Ducula oceanica*	Resident breeder ?	1

POBSP personnel have collected 30 specimens of 10 species (Table 35). Of these 10 species, 2 are specimen records of species not previously known from Aranuka Atoll; the other 8 represent the first specimen confirmation of species previously known only from sight records. No other specimens are known from the atoll.

Table 35. Bird specimens collected by POBSP from Aranuka Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Pluvialis dominica	USMN 494727	♂	-	Aranuka I	11-19-64	Skin	Huber
" "	" 494728	♀	-	"	"	"	"
Numenius tahitiensis	" 494829	♀	-	"	"	"	Amerson
Heteroscelus incanum	" 494909	♂	-	"	"	"	Huber
" "	" 494910	♂	-	"	"	"	Amerson
" "	" 494911	♂	-	"	"	"	"
Arenaria interpres	" 494790	?	-	"	"	"	"
" "	" 494791	♂	-	"	"	"	"
" "	" 494792	?	-	"	"	"	Huber
" "	" 494793	♀	-	"	"	"	"
Sterna sumatrana	" 494609	♀	-	"	"	"	Amerson
Thalasseus bergii	" 494738	♂	-	lagoon	"	"	Huber
" "	" 494739	♂	-	"	"	"	Amerson
" "	" 494740	♀	-	"	"	"	Huber
Anous stolidus	" 494684	♀	-	Aranuka I	"	"	Amerson
" "	" 494685	♀	-	"	"	"	"
" "	" 494686	♀	-	"	"	"	"
" "	" 494687	♀?	-	"	"	"	"
" "	" 494688	♀	-	"	"	"	Huber
" "	" 494689	♂	-	"	"	"	"
" "	" 494690	♂	-	"	"	"	"
Anous tenuirostris	" 494583	♀	-	"	"	"	Amerson
Gygis alba	" 494648	♂	-	"	"	"	Huber
" "	" 494649	♀	-	"	"	"	"
" "	" 494650	-	-	"	"	"	"
" "	" 494651	♂	-	"	"	"	Amerson
" "	" 494652	-	-	"	"	"	"
" "	" 494653	♀	-	"	"	"	"
Ducula oceanica	" 494817	♂	-	"	"	"	"
" "	" 494818	♀	-	"	"	"	"

Species Accounts

1) Egretta sacra — Reef Heron

Habitat -- November 1964 - Aranuka Island present on mud flats at northwest end of island.

Numbers -- February 1953 to February 1956 - "... a familiar sight on all islands of the Gilbert [Islands] ..." (Child, 1960); November 1964 - Aranuka 10.

Status -- Resident breeder? No breeding activity observed, however, this species probably breeds on Aranuka Atoll.

Specimen Records -- None.

2) Gallus gallus — Domestic Chicken

Habitat -- November 1964 - Aranuka Island in and around the main village, also scattered throughout the island.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island estimate not made but chickens were commonly observed.

Status -- Introduced breeder? No breeding observed, but this species probably nests on the island.

Specimen Records -- None.

3) Pluvialis dominica — Golden Plover

Habitat -- November 1964 - Aranuka Island present on ocean and lagoon beaches, on mud flats, and in open grassy areas around the main village.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 100 estimated.

Status -- Migrant.

Specimen Records -- Other - none, POBSP - two (Table 35). Another specimen (field #30423), 106 grams, Aranuka Island, 19 November 1964, collector Huber, lost in transit. This collection represents a new specimen record for Aranuka Atoll.

4) Numenius tahitiensis — Bristle-thighed Curlew

Habitat -- November 1964 - Aranuka Island present on mud flats.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 4.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - one (Table 35). This is the first Numenius tahitiensis to be collected from Aranuka Atoll.

5) Limosa lapponica — Bar-tailed Godwit

Habitat -- November 1964 - Aranuka Island on mud flats.

Numbers -- February 1953 to February 1956 - presence possible (Child, 1960); November 1964 - Aranuka Island 8.

Status -- Migrant.

Specimen Records -- None.

6) Heteroscelus incanum — Wandering Tattler

Habitat -- November 1964 - Aranuka Island present along lagoon beach and on mud flats.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 10.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - three (Table 35). These are the first Wandering Tattlers to be collected from Aranuka Atoll.

7) Arenaria interpres — Ruddy Turnstone

Habitat -- November 1964 - Aranuka Island on ocean and lagoon beaches, and on mud flats.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 100 estimated.

Status -- Migrant.

Specimen Records -- Other - none; POBSP - four (Table 35). These are the first specimens of Ruddy Turnstones to be collected from Aranuka Atoll.

8) Sterna sumatrana — Black-naped Tern

Habitat -- November 1964 - roosting on poles and feeding in lagoon.

Numbers -- November 1964 - 4 over lagoon, none observed on Aranuka Island. [Note: Morris (1963) observed a Black-naped Tern flying seaward at about 30 feet, three miles north of Aranuka Atoll on 15 July 1963.]

Status -- Resident breeder? November 1964 - breeding not observed, however, this species probably nests on the atoll since the one adult collected had brood patches present suggesting an active nest nearby.

Specimen Records -- Other - none; POBSP - one (Table 35). This represents a new species and specimen record for Aranuka Atoll.

9) Sterna fuscata — Sooty Tern

Habitat -- November 1964 - observed in company with a feeding flock of Crested Terns inside of the lagoon near boat passageway through reef.

Numbers -- November 1964 - 2.

Status -- Resident breeder? No breeding activity observed on Aranuka Island.

Specimen Records -- None. This is a new species sight record for Aranuka Atoll.

10) Thalasseus bergii — Crested Tern

Habitat -- November 1964 - flying over, feeding in, and roosting on, exposed reef of the lagoon.

Numbers -- February 1953 to February 1956 - presence in small numbers implied (Child, 1960); November 1964 - 25+ over lagoon.

Status -- Resident breeder? No breeding activity observed on Aranuka Island; however, this species could have been nesting on the northern islets of the atoll which were not visited. The three collected adults had no brood patches.

Specimen Records -- Other - none; POBSP - three (Table 35). These represent a new specimen record for Aranuka Atoll.

11) Anous stolidus — Brown Noddy

Habitat -- November 1964 - Aranuka Island, present over most of island, roosting and nesting at frond bases of Cocos trees.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 400+ estimated.

Status -- Resident breeder. November 1964 - Aranuka Island, nests

with chicks observed in Cocos trees. Five of 7 adults collected had brood patches present. This is a new breeding record for the atoll.

Specimen Records -- Other - none ; POBSP - seven (Table 35). These are the first Anous stolidus specimens to be collected from Aranuka Atoll.

12) Anous tenuirostris Black Noddy

Habitat -- November 1964 - Aranuka Island few flying over and roosting in Cocos trees.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island few seen.

Status -- Resident breeder? Aranuka Island no breeding activity observed but this species could (and probably does) nest on the atoll. The collected specimen had feathered brood patches.

Specimen Records - Other - none ; POBSP - one (Table 35). This is the first Black Noddy to be collected from Aranuka Atoll.

13) Gygis alba White Tern

Habitat -- November 1964 - Aranuka Island present throughout island, roosts in Cocos trees.

Numbers -- February 1953 to February 1956 - presence implied (Child, 1960); November 1964 - Aranuka Island 100's present. [Note: Morris (1963) observed White Terns three miles north of Aranuka Atoll on 15 July 1963.]

Status -- Resident breeder? Aranuka Island - no nests observed, however, 5 of 7 adults collected had brood patches, suggesting they were nesting on the atoll.

Specimen Records -- Other - none ; POBSP - six (Table 35). These are the first White Tern specimens to be collected from Aranuka Atoll.

14) Ducula oceanica Micronesian Pigeon

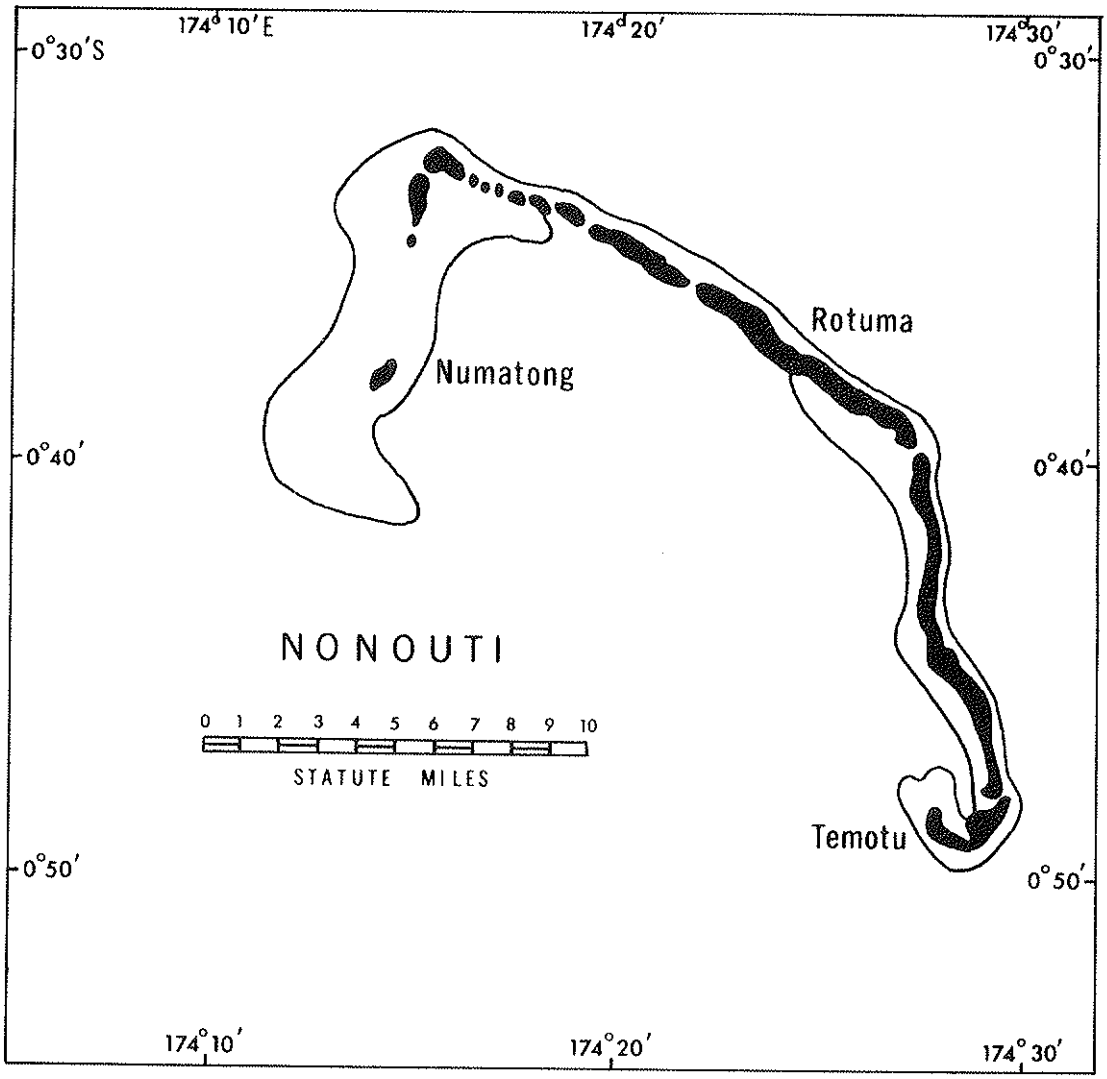
Habitat -- November 1964 - Aranuka Island roosting in Cocos trees and flying about the north end of the island, none seen on the south end of the island.

Numbers -- November 1964 - Aranuka Island 8 seen, of which 2 were collected.

Status -- Resident breeder? Aranuka Island no breeding activity observed, however natives reported this species does nest on the atoll.

348-415 O-69—18

Specimen Records -- Other - none, POBSP - two (Table 35). This collection represents a new species and specimen record for Aranuka Atoll.


174° 10' E
174° 20'
174° 30'
0° 30' S
0° 30'
Numatong
Rotuma
0° 40'
0° 40'
NONOUTI
0 1 2 3 4 5 6 7 8 9 10
STATUTE MILES
Temotu
0° 50'
0° 50'
174° 10'
174° 20'
174° 30'

NONOUTI ATOLL

Location: 00°40' S x 174°21' E.

Shape and Size: An irregular oval; Length - about 25 miles; Width - 10 miles; Number of islands - 12 (almost a continuous land rim on northeast face, very little land on southwest face); Total land area - 9.83 square miles; Total lagoon area - 143.00 square miles (Mason in Freeman, 1951).

Soil: No data available.

Vegetation: No species listed (Catala, 1957).

Climate: Moderately dry, rainfall averages 43.18 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 2,549 (Catala, 1957).

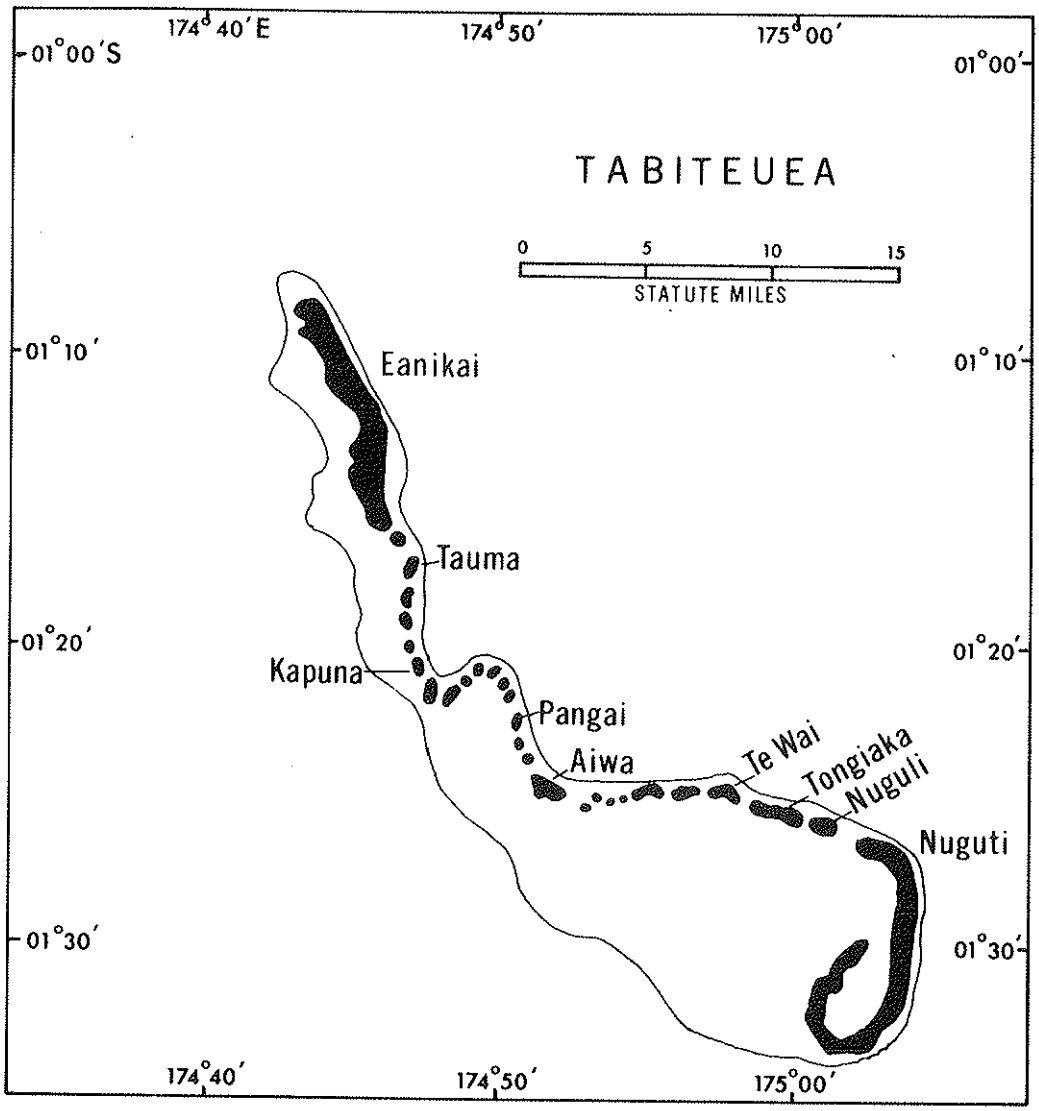
Scientific Visits: Peter Child (1960)- February 1953 to February 1956, various dates; Knell (Morris, 1963) - 7 and 17 August 1963.

Avifauna: Seventeen bird species are known from Nonouti Atoll. These include 9 seabird species, 5 shorebird species, 1 heron, 1 dove, and 1 domestic fowl. Twelve of these species are potential breeders, but only 4 species are known breeders. No museum specimens are known from the atoll.

The following checklist includes those bird species known from Nonouti Atoll. Source material includes: (1) Child, 1960; and (2) Morris, 1963. These sources are referred to in the checklist by their corresponding numbers.

Nonouti Atoll Avifauna Checklist

	Species	Status	Source
1)	*Sula leucogaster*	Resident breeder ?	1, 2
2)	*Fregata ariel*	Resident breeder, August	1, 2
3)	*Egretta sacra*	Resident breeder ?	1, 2
4)	*Gallus gallus*	Introduced breeder ?	1
5)	*Pluvialis dominica*	Migrant	1
6)	*Numenius tahitiensis*	Migrant	1
7)	*Limosa lapponica*	Migrant	1
8)	*Heteroscelus incanum*	Migrant	1, 2
9)	*Arenaria interpres*	Migrant	1, 2
10)	*Sterna sumatrana*	Resident breeder ?	2
11)	*Sterna fuscata*	Resident breeder, May (eggs)	1
12)	*Sterna lunata*	Resident breeder ?	2
13)	*Thalasseus bergii*	Resident breeder ?	1
14)	*Anous stolidus*	Resident breeder ?	1, 2
15)	*Anous tenuirostris*	Resident breeder, August (eggs)	1, 2
16)	*Gygis alba*	Resident breeder ?	1, 2
17)	*Gallicolumba erythroptera* (Ground Dove)	Introduced breeder, June (eggs)	1


TABITEUEA
174°40'E
174°50'
175°00'
01°00'S
01°00'
01°10'
01°20'
01°30'
0 5 10 15
STATUTE MILES
Eanikai
Tauma
Kapuna
Pangai
Aiwa
Te Wai
Tongiaka
Nuguli
Nuguti

TABITEUEA ATOLL

Location: 01°20' S x 174°50' E.

Shape and Size: An irregular shape - concave eastern face 30 miles long, convex western face 30 miles long, rounded southern portion 6 miles wide, pointed northern end; Number of islands - 2 main islands plus numerous small islets (land rim only on the eastern and southern faces); Total land area - 19.00 square miles; Total lagoon area - 141.00 square miles (Agassiz, 1903; Mason in Freeman, 1951).

Soil: Beach (ocean) - mostly conglomerate beach rock; Beach (lagoon) - mostly fine coral sand (Agassiz, 1903).

Vegetation: Mostly Cocos, Pandanus (Agassiz, 1903); four species listed by Catala (1957).

Climate: Moderately dry; rainfall averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 4,239 (Catala, 1957).

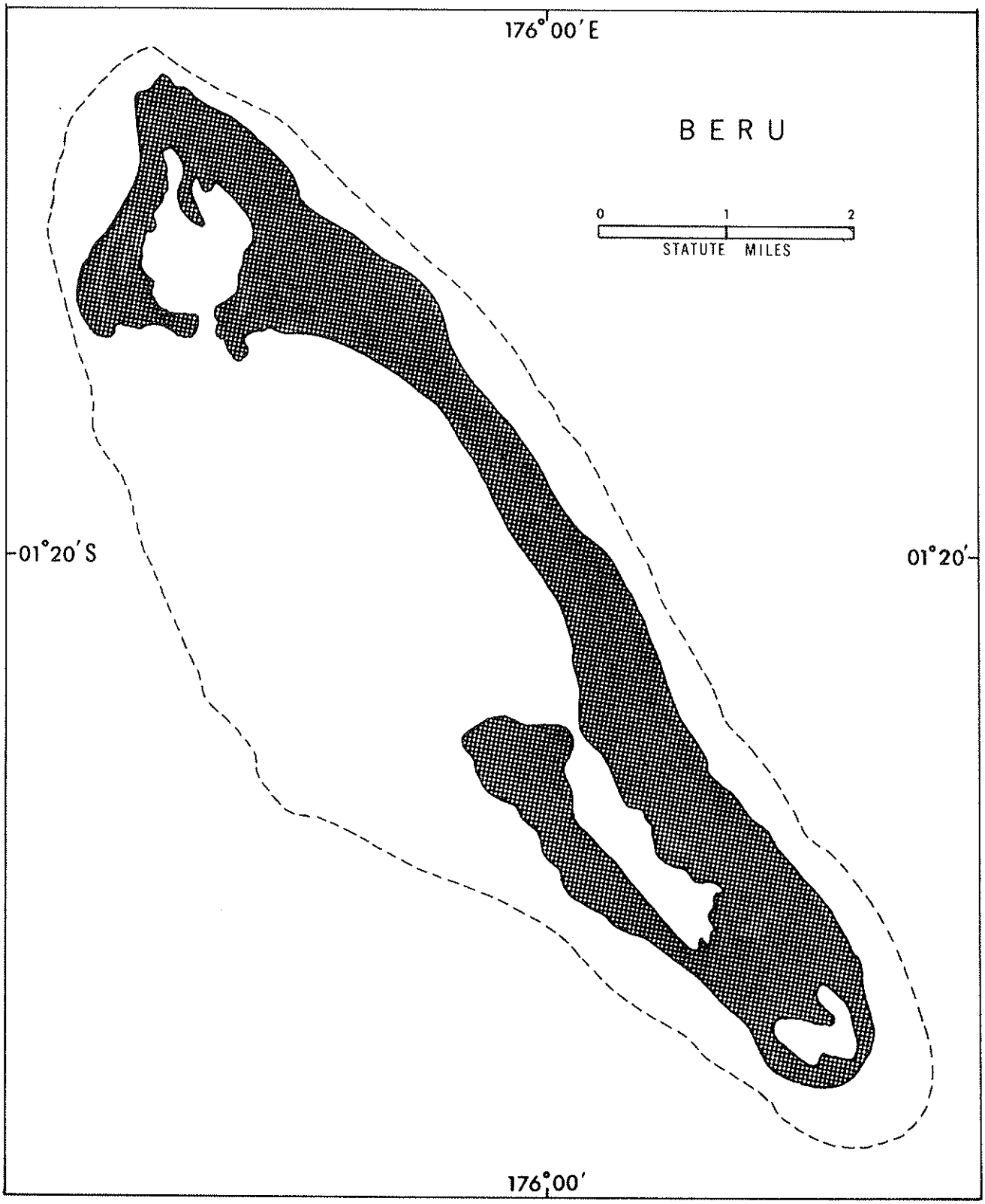
Scientific Visits: "Albatross" Tropical Pacific Expedition - 1900; Peter Child (1960; personal communication, August 1964)- May 1953 to January 1956, various dates.

Avifauna: Sixteen species of birds are known from Tabiteuea Atoll. [Note: Morris (1963) also saw another species which was either a cormorant or a duck.] Of these species, 9 are seabirds, 5 are shorebirds, 1 is a heron, and 1 is a domestic fowl. Potential breeders include 10 of the species, however, only 1 species is known to breed. No museum specimens are known from the atoll.

The known species from Tabiteuea Atoll are included in the following checklist. Source material includes: (1) Child, 1960; and (2) Morris, 1963. These species are referred to in the checklist by their corresponding numbers.

Tabiteuea Atoll Avifauna Checklist

	Species	Status	Source
1)	*Nesofregetta albigularis*	Resident breeder ?	2
2)	*Sula sula*	Resident breeder ?	1
3)	*Sula leucogaster*	Resident breeder ?	2
4)	*Fregata ariel*	Resident breeder ?	2
5)	*Egretta sacra*	Resident breeder ?	1, 2
6)	Anatidae sp. (?)	Accidental	2
7)	*Gallus gallus*	Introduced breeder ?	1
8)	*Pluvialis dominica*	Migrant	1
9)	*Numenius tahitiensis* or *phaeopus*	Migrant	1, 2
10)	*Limosa lapponica*	Migrant	1
11)	*Heteroscelus incanum*	Migrant	1
12)	*Arenaria interpres*	Migrant	1
13)	*Sterna lunata*	Resident breeder ?	2
14)	*Thalasseus bergii*	Resident breeder ?	1
15)	*Anous stolidus*	Resident breeder ?	1, 2
16)	*Anous tenuirostris*	Resident breeder, February to October	1, 2
17)	*Gygis alba*	Resident breeder ?	1, 2


176°00'E
BERU
0
1
2
STATUTE MILES
01°20'S
01°20'
176°00'

BERU ISLAND

Location: 01°20' S x 176°00' E.

Shape and Size: Oval island; Length - 10 miles; Width - 4 miles; Total land area - 8.15 square miles; Total lagoon area - 15.00 square miles (H.O. chart 0119; Mason in Freeman, 1951).

Soil: No data available.

Vegetation: Probably mainly Cocos; six plant species listed by Catala (1957).

Climate: Moderately dry; rainfall averages 45.29 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 2,167 (Catala, 1957).

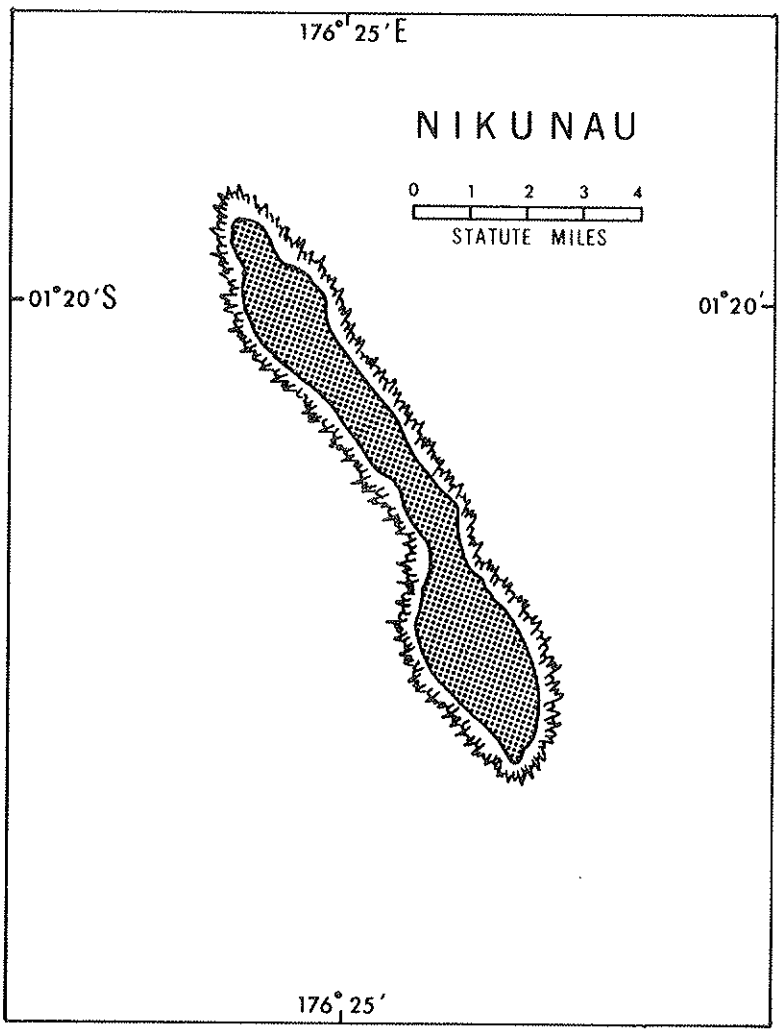
Scientific Visits: Peter Child (1960; personal communication, August 1965) - May 1953 to January 1956, various dates.

Avifauna: Eleven species of birds are known from Beru Island, including 4 seabird species, 5 shorebird species, 1 heron, and 1 domestic fowl. Six of these species are potential breeders, but no breeding birds have been reported from the island. No museum specimens are known from the island.

Child (1960) implied that the bird species included in the following checklist were present on Beru Island.

Beru Island Avifauna Checklist

	Species	Status
1)	Egretta sacra	Resident breeder ?
2)	Gallus gallus	Introduced breeder ?
3)	Pluvialis dominica	Migrant
4)	Numenius tahitiensis	Migrant
5)	Limosa lapponica	Migrant
6)	Heteroscelus incanum	Migrant
7)	Arenaria interpres	Migrant
8)	Thalasseus bergii	Resident breeder ?
9)	Anous stolidus	Resident breeder ?
10)	Anous tenuirostris	Resident breeder ?
11)	Gygis alba	Resident breeder ?


176° 25' E
NIKUNAU
0 1 2 3 4
STATUTE MILES
01° 20' S
01° 20'
176° 25'

NIKUNAU ISLAND

Location: 01°23' S x 176°26' E.

Shape and Size: Narrow elongated island, about 9 miles long, 2 miles wide; Total land area - 7.00 square miles; No lagoon (H.O. Chart 0119 ; Mason in Freeman, 1951).

Soil: No data available.

Vegetation: Probably mainly Cocos; eleven species listed by Catala (1957).

Climate: Moderately dry, rainfall averages 42.10 inches yearly; Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,913 (Catala, 1957).

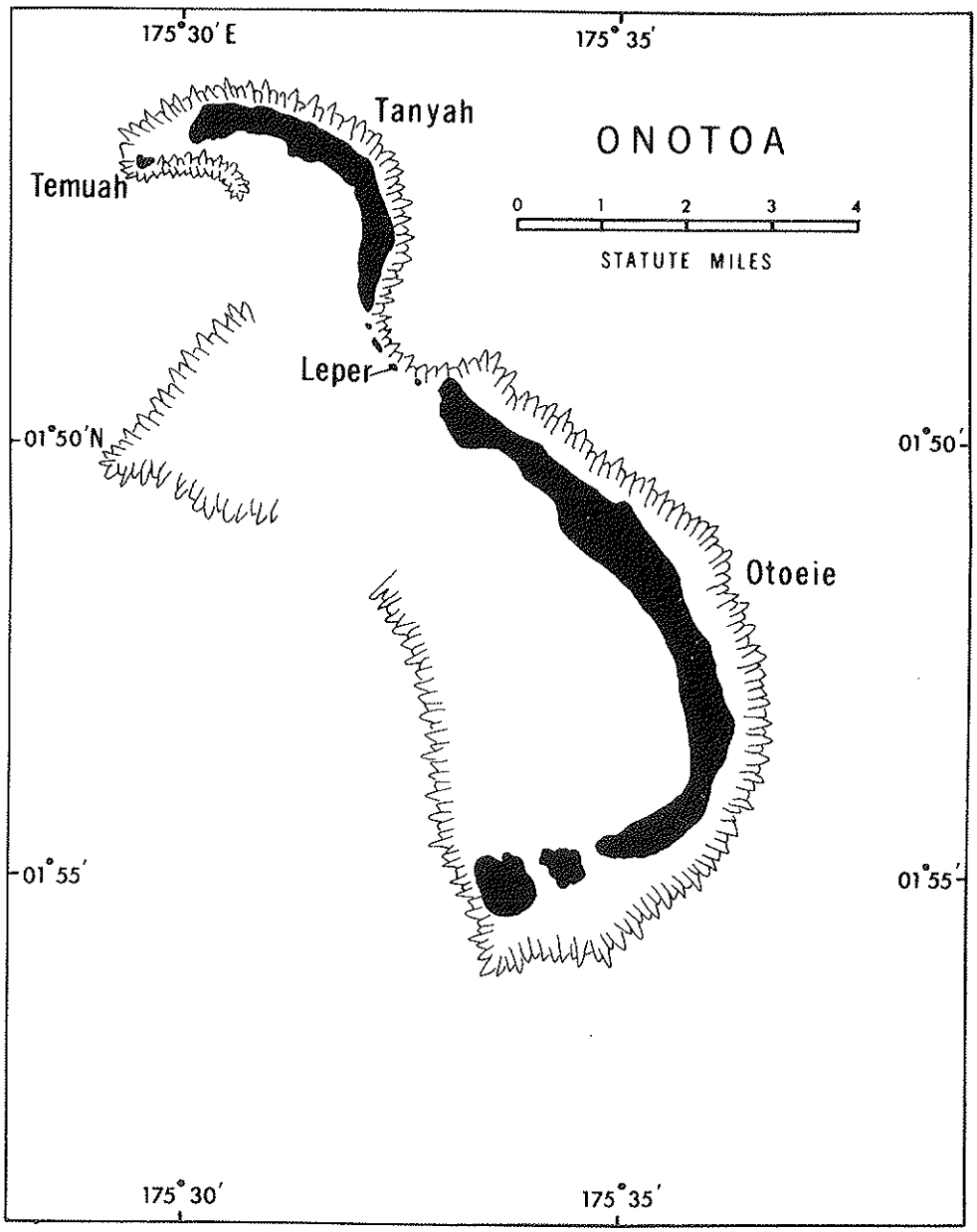
Scientific Visits: Peter Child (1960; personal communications, August 1965)- May 1953 to January 1956, various dates.

Avifauna: Twelve bird species are known from Nikunau Atoll. These include 5 seabird species, 5 shorebird species, 1 heron, and 1 domestic fowl. No breeding birds have been reported from the atoll, however, seven of these species are potential breeders. No museum specimens exist from Nikunau Atoll.

The following checklist of 12 bird species was taken from (1) POBSP band data and(2) Child (1960). Child implied that the species included in the following checklist were present on Nikunau Atoll. The species marked with an asterisk is a new island record.

Nikunau Island Avifauna Checklist

	Species	Status	Source
1)	Sula dactylatra*	Resident breeder ?	1
2)	Egretta sacra	Resident breeder ?	2
3)	Gallus gallus	Introduced breeder ?	2
4)	Pluvialis dominica	Migrant	2
5)	Numenius tahitiensis	Migrant	2
6)	Limosa lapponica	Migrant	2
7)	Heteroscelus incanum	Migrant	2
8)	Arenaria interpres	Migrant	2
9)	Thalasseus bergii	Resident breeder ?	2
10)	Anous stolidus	Resident breeder ?	2
11)	Anous tenuirostris	Resident breeder ?	2
12)	Gygis alba	Resident breeder ?	2


175°30' E
175° 35'
Tanyah
ONOTOA
Temuah
0 1 2 3 4
STATUTE MILES
Leper
01°50'N
01°50'
Otoeie
01°55'
01°55'
175° 30'
175° 35'

ONOTOA ATOLL

Location: 01°52' S x 175°34' E.

Shape and Size: Irregular-shaped;Tip to tip (north-south) - 11 miles; Width - 5 miles; Number of islands - 30, 4 small (all on east side); Total land area - 5.21 square miles; Lagoon area - 21.00 square miles (Mason in Freeman, 1951; Cloud, 1952; Moul, 1957).

Soil: Land surface mostly unconsolidated sand (lagoonward) and gravel (seaward); Humus layer up to 10 inches; Beaches - sandy, rocky, and gravelly (Cloud, 1952).

Vegetation: Primary species-Cocos nucifera; Total flowering plant species - 60 (Moul, 1957).

Climate: Relatively dry, rainfall averages 45.83 inches yearly (some drought years); Air temperature averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,694 (Catala, 1957).

Scientific Visits: "Albatross" Tropical Pacific Expedition - 1899; Pacific Science Board field team - August 1951; Peter Child (1960) - February 1953 to February 1956, various dates.

Avifauna: Nineteen species of birds are presently known from Onotoa Atoll. These include 10 seabird species, 6 shorebird species, 1 heron, 1 cuckoo, and 1 domestic fowl. Twelve species are potential breeders; however, only 9 species are known to breed.

The 19 known species of birds from Onotoa Atoll are included in the following checklist. Source material includes (1) Moul, 1954; (2)Child,1960. These sources are indicated in the checklist by their corresponding numbers.

Onotoa Atoll Avifauna Checklist

Species	Status	Source
1) Phaethon rubricauda	Resident breeder ?	1
2) Sula sula	Resident breeder August (young)	2
3) Fregata minor	Resident breeder ?	2
4) Fregata ariel	Resident breeder (date?)	1, 2
5) Egretta sacra	Resident breeder (summer)	1, 2
6) Gallus gallus	Introduced breeder	1, 2
7) Pluvialis dominica	Migrant	1, 2
8) Numenius phaeopus	Migrant	1

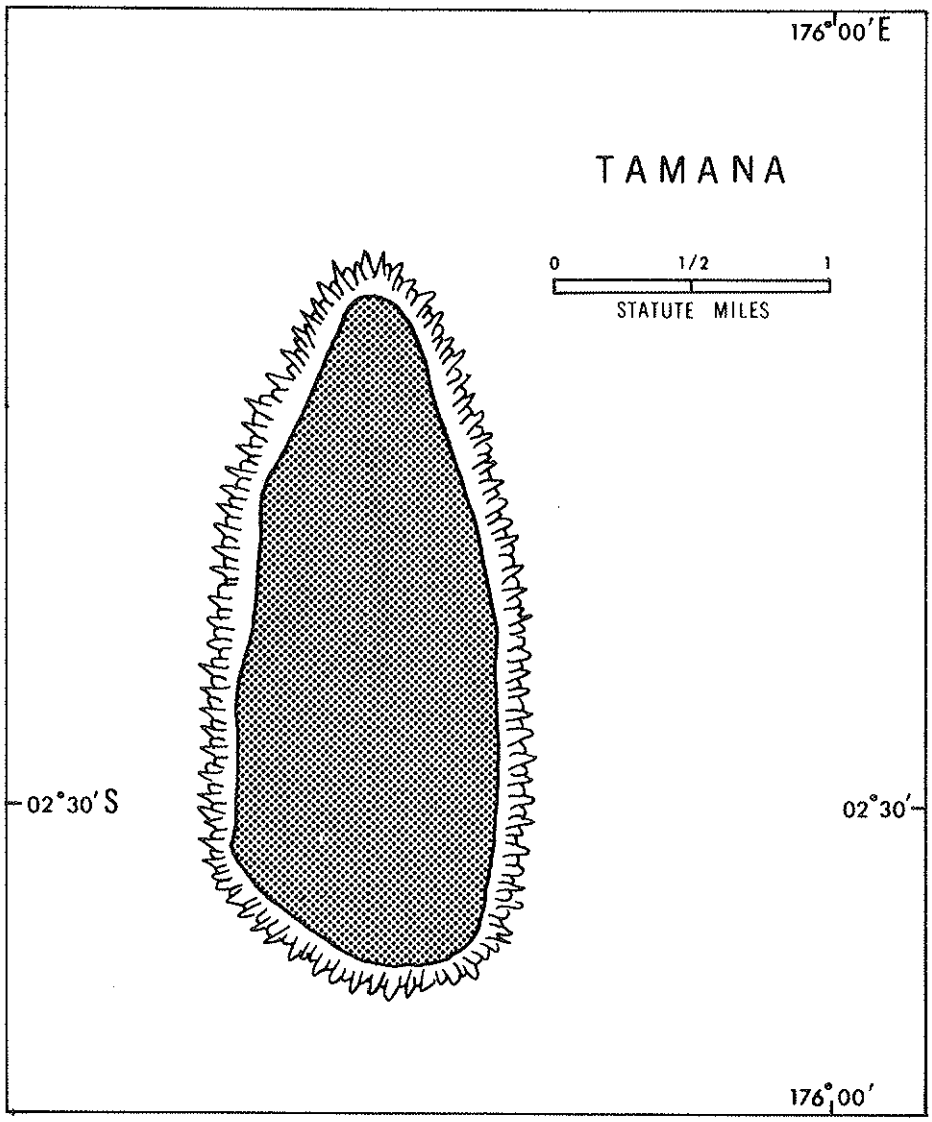
348-415 O-69—19

	Species	Status	Source
9)	Numenius tahitiensis	Migrant	2
10)	Limosa lapponica	Migrant	2
11)	Heteroscelus incanum	Migrant	1,2
12)	Arenaria interpres	Migrant	1,2
13)	Sterna sumatrana	Resident breeder, January to September	1,2
14)	Sterna fuscata	Resident breeder ?	1
15)	Thalasseus bergii	Resident breeder, July August (immatures)	1,2
16)	Anous stolidus	Resident breeder, summer	1,2
17)	Anous tenuirostris	Resident breeder, summer	1,2
18)	Gygis alba	Resident breeder, summer (young)	1,2
19)	Urodynamis taitensis	Migrant	1

Ten bird specimens have been collected from Onotoa Atoll. These skins were collected and prepared by E.T. Moul and are all deposited in the U.S. National Museum, Washington, D.C. These specimens include eight species and are shown in Table 36.

Table 36. Bird specimens collected from Onotoa Atoll.

Species	Museum	Sex	Age	Location	Date	Status	Collector
Egretta sacra	USNM 437212	♂		Onotoa A.	08-12-51	Skin	Moul
" "	" 437213	-		"	07-13-51	"	"
Pluvialis dominica	" 437220	♂		"	08-19-51	"	"
Heteroscelus incanum	" 437221	-	Imm	"	"	"	"
Arenaria interpres	" 437219	-		"	"	"	"
Sterna sumatrana	" 437217	♂	Imm	"	08-16-51	"	"
Thalasseus bergii	" 437214	♂		"	08-19-51	"	"
Anous stolidus	" 437215	-	Imm	"	07-14-51	"	"
Gygis alba	" 437216	-		"	07-05-51	"	"
" "	" 437218	-		"	07-16-51	"	"


176°00'E
TAMANA
0
1/2
1
STATUTE MILES
02°30'S
02°30'
176°00'

TAMANA ISLAND

Location: 02°29' S x 175°59' E.

Shape and Size: An oval island, about 2-1/2 miles long, 1 mile wide; Total land area - 2.00 square miles; No lagoon (H.O. Chart 0119; Mason in Freeman, 1951).

Soil: No data available.

Vegetation: Presence of four plant species implied (Catala, 1957).

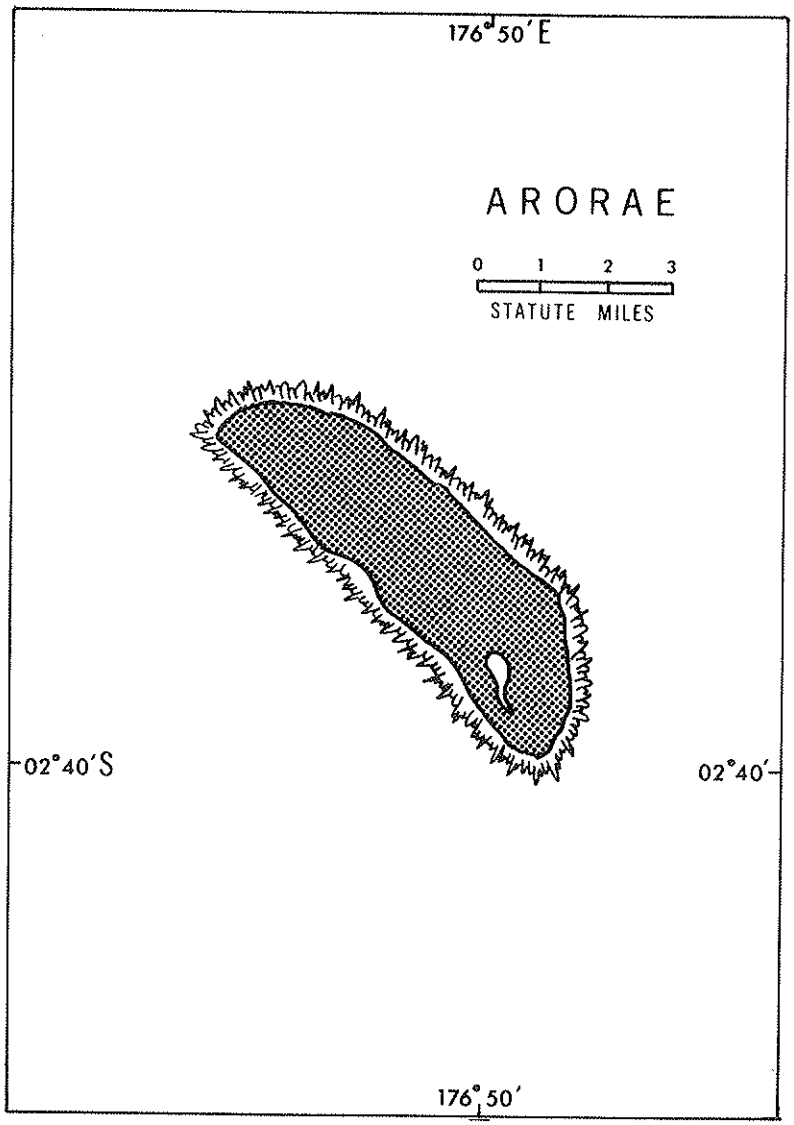
Climate: Moderately dry - rainfall averages 50.39 inches yearly; Air temperature - averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,092 (Catala, 1957).

Scientific Visits: None known. [Note: Child (1960) did not visit Tamana Island (Child, personal communication, August 1965)].

Avifauna: One bird species, a seabird, is known from Tamana Island. This species, Fregata ariel, was recorded from POBSP band return data. This is a new species record for Tamana Island.

Species likely to be found include: Egretta sacra, Gallus gallus, Pluvialis dominica, Numenius tahitiensis, Heteroscelus incanum, Arenaria interpres, Sterna sumatrana, Thalasseus bergii, Anous stolidus, Anous tenuirostris, Gygis alba, Ducula oceanica, and Urodynamis taitensis.


176°50′E
ARORAE
0 1 2 3
STATUTE MILES
02°40′S
02°40′
176°50′

ARORAE ISLAND

Location: 02°38' x 176°49'E.

Shape and Size: An oval island about 6 miles long, 1/2 mile wide; Total land area - 5.00 square miles; No lagoon, but a small brackish pond exists in the southern part of the island (Agassiz, 1903; Mason in Freeman, 1951).

Soil: Beaches - steep rock shingle, conglomerate beach rock and sand (Agassiz, 1903).

Vegetation: Probably mainly Cocos; five plant species listed by Catala (1957).

Climate: Moderately dry - rainfall averages 52.30 inches yearly; Air temperature - averages 83-84° F.; Wind - prevailing from east (Sachet, 1957).

Human Population: 1950 - 1,576 (Catala, 1957).

Scientific Visits: "Albatross" Tropical Pacific Expedition - 1900; Peter Child (1960; personal communication, August 1965) - May 1953 to January 1956, various dates.

Avifauna: Twelve bird species are known from Arorae Island. These include 5 seabird species, 5 shorebird species, 1 heron, and 1 domestic fowl. Seven of these species are potential breeders, however, no breeding birds are known from the island. No museum specimens have been collected from the island.

The 12 species in the following checklist were taken from (1) POBSP band returns, and (2) Child (1960). Child implied that bird species were present on Arorae Island. The one species marked by an asterisk is a new record for the island.

Arorae Island Avifauna Checklist

	Species	Status	Source
1)	Fregata minor	Resident breeder ?	1, 2
2)	Fregata ariel*	Resident breeder ?	1
3)	Egretta sacra	Resident breeder ?	2
4)	Gallus gallus	Introduced breeder ?	2
5)	Pluvialis dominica	Migrant	2
6)	Numenius tahitiensis	Migrant	2
7)	Limosa lapponica	Migrant	2
8)	Heteroscelus incanum	Migrant	2
9)	Arenaria interpres	Migrant	2
10)	Thalasseus bergii	Resident breeder ?	2
11)	Anous stolidus	Resident breeder ?	2
12)	Anous tenuirostris	Resident breeder ?	2

AVIFAUNAL DISTRIBUTION

AVIFAUNAL DISTRIBUTION

GENERAL

Seventy-nine species of birds have thus far been recorded from the 50 atolls which make up the Marshall and Gilbert Islands and from the ocean surrounding them. Of these 79 species, 37 are seabirds (Table 37) and 42 are land and fresh-water birds (Table 38).

Seventy bird species have been recorded from the Marshall Islands; 43 species have been recorded from the Gilberts. Thirty-five species are found in both island groups; 35 are known solely from the Marshalls; 9 are known solely from the Gilberts.

SEABIRDS

Thirty-one seabird species have been recorded from the Marshall Islands; 25 have been recorded from the Gilberts (Table 37). Nineteen seabird species are recorded from both island groups; 12 are known solely from the Marshalls; 6 are known solely from the Gilberts.

Seven seabird species are resident breeders on both island groups; in addition, three species that are resident breeders in the Marshall Islands are possible breeders in the Gilbert Islands. Seven others (including two in question) are resident breeders solely on the Marshall Islands, while only two (including one in question) are resident breeders solely on the Gilbert Islands.

The resident, including probable and possible, breeding seabirds in the Marshall and Gilbert Islands all regularly occur at sea within their respective areas. Some are more common than others, mainly due to species feeding habitat preference (also interaction of surface water zonation and abundance of food). The three major feeding habitat categories, for Marshall-Gilbert seabirds, are coastal (beaches, reefs, lagoons), offshore (near islands or atolls), and pelagic. Some species may overlap or their range may vary at different times during the year. Table 39 shows which Marshall-Gilbert breeding species generally occur in the three feeding habitats.

Seven seabird species (Table 37) are known to migrate annually through the Marshall-Gilbert area from breeding grounds elsewhere in the Pacific. These migrant species are usually entirely pelagic and pass through the area quickly. Occasionally, due to storms, injuries, or sickness, individuals may occur on the islands; these are then considered accidental to the island avifauna.

One seabird species (Table 37) is a vagrant in the Marshall-Gilbert area. Such birds are so classified because they are away from their normal migration routes. If these stop on an island, they are also known as accidentals to the island avifauna.

Table 37. Seabird occurrence in the Marshall and Gilbert Islands.

Species	Marshall Islands	Marshall At Sea	Gilbert Islands	Gilbert At Sea
1) Black-footed Albatross	-	Visitor	-	-
2) Laysan Albatross	Accidental	&	-	-
3) Phoenix Petrel	-	-	-	Visitor
4) Kermadec Petrel	-	Migrant	-	#
5) White-necked Petrel	Accidental	#	-	#
6) Black-winged Petrel	-	#	-	Migrant
7) Bulwer's Petrel	Resident breeder ?	Uncommon	-	Visitor
8) Pale-footed Shearwater	-	Migrant	-	+
9) Wedge-tailed Shearwater	Resident breeder	Uncommon	-	-
10) Sooty Shearwater	Accidental	Migrant	-	Migrant
11) Slender-billed Shearwater	Accidental	Migrant	-	Migrant
12) Christmas Shearwater	Resident breeder	Uncommon		Visitor
13) Little Shearwater	Accidental	-	-	-
14) Audubon's Shearwater	-	-	-	Visitor
15) Leach's Storm Petrel	-	Migrant	-	Migrant
16) White-throated Storm Petrel	-	-	Resident breeder ?	+
17) Red-billed Tropicbird	-	-	-	Vagrant
18) Red-tailed Tropicbird	Resident breeder	Common	Resident breeder ?	Uncommon
19) White-tailed Tropicbird	Resident breeder	Uncommon	-	Visitor
20) Blue-faced Booby	Resident breeder	Uncommon	Visitor	Visitor
21) Red-footed Booby	Resident breeder	Common	Resident breeder	+
22) Brown Booby	Resident breeder	Uncommon	Resident breeder ?	Uncommon
23) Great Frigatebird	Resident breeder	Uncommon	Resident breeder ?	Uncommon
24) Lesser Frigatebird	Visitor	&	Resident breeder	Common
25) Great Skua	-	#	-	Migrant
26) Jaeger	Accidental	#	-	-
27) Common Tern	Accidental	*	-	-

Table 37 (cont.). Seabird occurrence in the Marshall and Gilbert Islands.

Species	Marshall Islands	Marshall At Sea	Gilbert Islands	Gilbert At Sea
28) Arctic Tern	Accidental	*	-	-
29) Black-naped Tern	Resident breeder	Rare	Resident breeder	Rare
30) Gray-backed Tern	Resident breeder ?	+	Visitor	Uncommon
31) Sooty Tern	Resident breeder	Common	Resident breeder	Uncommon
32) Brown-winged Tern	Accidental	*	-	-
33) Crested Tern	Resident breeder	Rare	Resident breeder	Rare
34) Blue-gray Noddy	Resident breeder	Uncommon	-	-
35) Brown Noddy	Resident breeder	Common	Resident breeder	Common
36) Black Noddy	Resident breeder	Common	Resident breeder	Common
37) White Tern	Resident breeder	Common	Resident breeder	Common

- none recorded.
* none recorded, but probably vagrant in the area.
# none recorded, but probably migrant in the area.
& none recorded, but probably a visitor in the area.
+ none recorded, but probably occurs.

Table 38. Land and fresh-water bird occurrence in the Marshall and Gilbert Islands.

	Species	Marshall Islands	Gilbert Islands
1)	Reef Heron	Resident breeder	Resident breeder
2)	Snow Goose	Accidental	-
3)	Mallard	Accidental	Accidental
4)	Common Teal	Accidental	-
5)	Gadwall	Accidental	-
6)	European Widgeon	Accidental	-
7)	Pintail	Uncommon Migrant	-
8)	Northern Shoveler	Uncommon Migrant	Migrant
9)	Canvasback	Accidental	-
10)	Tufted Duck	Accidental	-
11)	Muscovy Duck	Introduced breeder	-
12)	Duck sp.	Accidental	Accidental
13)	Domestic Chicken	Introduced breeder	Introduced breeder
14)	White-browed Rail	Accidental	-
15)	Golden Plover	Common Migrant	Common Migrant
16)	Black-bellied Plover	Uncommon Migrant	-
17)	Semipalmated Plover	Uncommon Migrant	-
18)	Ring-necked Plover	Uncommon Migrant	-
19)	Mongolian Plover	Uncommon Migrant	-
20)	Plover sp.	Accidental	-
21)	Whimbrel	Common Migrant	Common Migrant
22)	Bristle-thighed Curlew	Common Migrant	Common Migrant
23)	Bar-tailed Godwit	Common Migrant	Common Migrant
24)	Greater Yellowlegs	Accidental	-
25)	Spotted Sandpiper	Accidental	-
26)	Polynesian Tattler	Uncommon Migrant	Uncommon Migrant
27)	Wandering Tattler	Common Migrant	Common Migrant
28)	Ruddy Turnstone	Common Migrant	Common Migrant
29)	Japanese Snipe	Accidental	-
30)	Sanderling	Common Migrant	Uncommon Migrant
31)	Pectoral Sandpiper	Uncommon Migrant	-
32)	Sharp-tailed Sandpiper	Common Migrant	Common Migrant
33)	Buff-breasted Sandpiper	Accidental	-
34)	Stilt sp.	-	Accidental
35)	Ground Dove	-	Introduced breeder
36)	Friendly Ground Dove	-	Introduced, breeder?
37)	Crimson-crowned Fruit Dove	Extinct breeder	-
38)	Micronesian Pigeon	Resident breeder	Resident breeder ?
39)	Parrot sp.	Probably introduced	-
40)	Long-tailed New Zealand Cuckoo	Common Migrant	Common Migrant
41)	House Sparrow	Probably introduced, possible breeder	-
42)	Indian Myna	Introduced breeder	-

Table 39. At-sea feeding habitat classification of seabirds that breed in the Marshall and Gilbert Islands.

Species	Coastal	Offshore	Pelagic
Bulwer's Petrel		x	x
Wedge-tailed Shearwater		x	x
Christmas Shearwater		x	x
White-throated Storm Petrel		x	x
Red-tailed Tropicbird			x
White-tailed Tropicbird			x
Blue-faced Booby		x	x
Red-footed Booby		x	x
Brown Booby		x	
Great Frigatebird		x	x
Lesser Frigatebird		x	x
Black-naped Tern	x		
Gray-backed Tern		x	x
Sooty Tern		x	x
Crested Tern	x		
Blue-gray Noddy	x	x	
Brown Noddy		x	
Black Noddy	x	x	
White Tern		x	x

Three seabird species (Table 37) are visitors to the Marshall-Gilbert area from nearby island groups. Some, which breed in the Marshalls, are visitors to the Gilberts, and vice versa.

DIOMEDEIDAE — Albatrosses

Albatrosses are the largest seabirds found in the Marshall-Gilbert area. In general, they have long, slender wings supporting rather stout bodies, short tails, and large, hooked bills. Two species, both visitors from the North Pacific, occur only in the Marshall Islands, where they are known from a few records. No albatrosses have been recorded below 10° N in the Marshall-Gilbert area.

Diomedia nigripes — Black-footed Albatross

Status -- At-sea visitor in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Breeding: no valid breeding records. Other: Marshalls - offshore Taongi (Fosberg, 1966). At-sea: Marshalls - found occasionally above 10° N.

Pacific Distribution -- Breeds in the Leeward Hawaiians and the Izu Group. Found above 10° N in the entire North Pacific during the nonbreeding season.

Diomedea immutabilis — Laysan Albatross

Status -- Accidental on islands in the northern Marshalls, probably at-sea visitor.

Marshall-Gilbert Distribution Records -- Marshalls - Mejit (10°17' N).

Pacific Distribution -- Breeds in the Leeward Hawaiians. Found at sea normally south to 15° N in the central Pacific during breeding season, north of 35° N during nonbreeding season.

PROCELLARIIDAE — Gadfly Petrels, Shearwaters

Gadfly Petrels are small to medium-sized seabirds, which, superficially, resemble shearwaters but their wings are broader, tails usually longer and wedge-shaped, and bills shorter and heavier. The paired tubular nostrils are very prominent. Five gadfly petrels are known from the Marshall-Gilbert area. One of these species is a probable breeder in the northern Marshalls; one species (and possibly two others) migrate from South Pacific breeding areas through the Marshalls. No gadfly petrels breed in the Gilbert Islands; one species (and possibly two others) annually migrate through the Gilberts from the South Pacific; one species visits the Gilberts from the Marshalls, and another visits from the nearby Phoenix Islands.

Shearwaters are small to medium-sized seabirds, with long narrow

wings, heavy bodies, and short tails. Their long, thin, hooked bills have paired tubular external nostrils. Seven shearwater species are known from the Marshall-Gilbert area. Two of these species breed in the northern Marshall Islands; three others migrate from the extreme South Pacific through the Marshalls to the temperate and arctic regions of the North Pacific during their nonbreeding seasons; an additional species, which also breeds in the far South Pacific but does not migrate through the area, is accidental to the Marshalls. No shearwaters breed in the Gilbert Islands; two species annually migrate through the Gilberts from the South Pacific; one species visits the Gilberts from the Marshalls, while another visits from the nearby Phoenix Islands.

Pterodroma alba — Phoenix Petrel

Status -- At-sea visitor in the Gilbert Islands.

Marshall-Gilbert Distribution Records -- At-sea: Gilberts - Finsch (1880) reported one individual, possibly of this species (Bourne in Morris, 1963).

Pacific Distribution -- Breeds on scattered island groups throughout the southern tropical Pacific.

Pterodroma neglecta — Kermadec Petrel

Status -- At-sea migrant through the eastern Marshall Islands; possible at-sea migrant in the Gilberts.

Marshall-Gilbert Distribution Records -- At-sea: Marshalls - one seen between Bikar and Taka October 1964.

Pacific Distribution -- Breeds on many island groups of the southern tropical Pacific; found at sea across the South Pacific, including the subtropical region, ranges into the north-central Pacific during nonbreeding season.

Pterodroma externa — White-necked Petrel

Status -- Accidental on islands in the Marshalls; probable at-sea migrant in Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Mili. Note: Reported in error as a migrant October-November 1964 by King (1967:112).

Pacific Distribution -- Two races occur: Pterodroma externa cervicalis breeds on the Kermadec Islands; P. e. externa breeds in the Juan Fernandez Islands. Both forms winter in the central Pacific.

Pterodroma hypoleuca nigripennis — Black-winged Petrel

Status -- At-sea migrant through the Marshall (?) and Gilbert Islands.

Marshall-Gilbert Distribution Records -- At-sea: Gilberts - individuals, possibly of this species, present between Tabiteuea and Nonouti July 1963, and south of Tabiteuea August 1963 (Morris, 1963); one seen between Makin and Maiana and two others between Maiana and Kuria November 1964.

Pacific Distribution -- Breeds in the Kermadec and Three Kings Islands; migrates to the north-central Pacific (up to 25° N latitude) during the nonbreeding season.

Bulweria bulwerii — Bulwer's Petrel

Status -- Probably a resident breeder in the extreme northern Marshalls.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - probably breeds at Taongi. At-sea: Marshalls - one observed south of Jaluit at 07° N x 169° E on 2 November 1960 (Bruyns, 1964); common above 11° N during April 1967, one individual observed [listed as Sooty ? Storm Petrel by King (1967:112)] between Makin and Maiana and between Maiana and Kuria November 1964.

Pacific Distribution -- Breeds on the Hawaiian, Marquesas, Phoenix, Bonin, Volcanic, and probably Marshall Islands.

Puffinus carneipes — Pale-footed Shearwater

Status -- Uncommon at-sea migrant in the Marshalls.

Marshall-Gilbert Distribution Records -- At-sea: Marshalls - 3 flying south at 07° N x 171° E (at Jaluit) on 2 November 1960 (Bruyns, 1964).

Pacific Distribution -- Breeds on islands in Australia-New Zealand area; migrates north through the western Pacific past Japan into the north Pacific and south through the eastern, central, and south-central Pacific.

Puffinus pacificus — Wedge-tailed Shearwater

Status -- Resident breeder in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka. Other: Marshalls - Eniwetok, Bikini, Rongerik, Rongelap, Jaluit (?). At-sea: Marshalls - 13 near Jaluit 2 November 1960 (Bruyns, 1964); common around Taongi and Bikar during October 1964 and April 1967; between Kwajalein and Jaluit October 1964.

Pacific Distribution -- Breeds over most of the tropical Pacific, common at-sea species.

Remarks -- Light-phase birds are predominate in the three colonies of the northern Marshalls. Of 489 adults banded October 1964 at Taongi, 93 percent were light phase. All individuals observed in the small colonies at Bikar and Taka were also light phase.

348-415 O-69—20

Puffinus griseus — Sooty Shearwater

Status -- Accidental island visitor, common at-sea migrant in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Eniwetok. At-sea: Marshalls - two individuals seen near Majuro June 1966; seen migrating northward through the area April 1967; Gilberts - numerous between Maiana and Kuria migrating southward November 1964.

Pacific Distribution -- Breeds on islands of New Zealand and Australia, as well as along southern coast of South America; migrates through the tropical Pacific during the nonbreeding season.

Remarks -- At sea this species may be confused with the Slender-billed Shearwater.

Puffinus tenuirostris — Slender-billed Shearwater

Status -- Accidental on islands in the Marshalls, common at-sea migrant in the Marshall-Gilbert Area.

Marshall-Gilbert Distribution Records -- Marshalls - Arno, Eniwetok. At-sea: Marshalls - one individual seen near Majuro June 1966; seen migrating northward through the area April 1967; Gilberts - migrating southward between Maiana and Kuria November 1964.

Pacific Distribution -- Breeds on islands near and along the coast of Australia; migrates through the tropical Pacific during nonbreeding season.

Remarks -- At sea this species may be confused with the Sooty Shearwater.

Puffinus nativitatus — Christmas Shearwater

Status -- Resident breeder in extreme northern Marshalls; visitor to Gilberts.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi. Other: Marshalls - Bikar, Mili. At-sea: Marshalls - one seen near Taka October 1964, present between Taka and Bikar as well as east of Taongi and Bikar during April 1967; Gilberts - reported by Finsch in 1880; one seen off Nonouti July 1963 (Morris, 1963).

Pacific Distribution -- Breeds on the Marshall, Hawaiian, Line, Phoenix, Henderson, Ducie, Tuamotu, and Austral Islands. Bred formerly on Bonin, Marcus, and Wake Islands.

Puffinus assimilis — Little Shearwater

Status -- Accidental in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi.

Pacific Distribution -- Breeds in the Austral and Kermadec Islands, as well as on the islands around New Zealand and Australia; normally occurs at sea north to 26° S; one record from Midway Atoll in the Leeward Hawaiian Islands (Clapp and Woodward, 1968).

Puffinus lherminieri — Audubon's Shearwater

Status -- At-sea visitor in the Gilbert Islands.

Marshall-Gilbert Distribution Records -- At-sea: Gilberts - Finsch (1880) reported one individual apparently of this species (Bourne in Morris, 1963).

Pacific Distribution -- Breeds on most tropical Pacific island groups, excluding the Hawaiian, Marshall, Gilbert, and Ellice Islands. Usually ranges within 100 miles of breeding islands.

HYDROBATIDAE — Storm Petrels

Storm petrels are small seabirds which superficially resemble the small gadfly petrels. They are, however, smaller, have longer legs, and their nostrils are united into one tube. Two storm petrels are known from the Gilbert Islands area. One of these species is a possible breeder in the Gilberts; the other species is a migrant to the Gilbert area from the far North Pacific. One storm petrel, a migrant from the North Pacific, is known from the Marshall Islands.

Oceanodroma leucorhoa — Leach's Storm Petrel

Status -- At-sea migrant through the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- At-sea: Marshalls - storm petrels, possibly of this species, seen offshore Eniwetok May 1962 (Woodbury, 1962). Gilberts - 12 birds, possibly of this species, seen between Makin and Maiana November 1964.

Pacific Distribution -- Breeds along the Asian and North American continents south to the tropics and north to the Aleutian Islands; migrates to the tropical central Pacific south to 15° S. latitude.

Nesofregetta albigularis — White-throated Storm Petrel

Status -- Possible resident breeder in the southern Gilberts.

Marshall-Gilbert Distribution Records -- Gilberts - Tabiteuea.

Pacific Distribution -- Breeds in the Marquesas, Line, Phoenix, Fiji, and New Hebrides Islands.

PHAETHONTIDAE — Tropicbirds

Tropicbirds are medium-sized seabirds (almost all white) with extremely long, narrow central tail feathers (immatures have shorter or no central tail feathers), stout bodies, long narrow wings, and a stout pointed bill. All three species of tropicbirds have been recorded from the Marshall-Gilbert area. Two of these breed in the Marshalls. Three species are known in the Gilberts; two are possible breeders (although one of these has been recorded only at sea); one species is a vagrant from the eastern Pacific.

Phaethon aethereus — Red-billed Tropicbird

Status -- Old sighting doubtful; if correct, a vagrant to the Gilbert Islands area.

Marshall-Gilbert Distribution Records -- At-sea: Gilberts - Finsch's (1880) early records probably are erroneous identifications of the Red-tailed Tropicbird.

Pacific Distribution -- Breeds on islands off the coast of Central and South America; a rare straggler in the central and western Pacific. Only two specimen records (both Leeward Hawaiian Islands) for islands west of its breeding range.

Phaethon rubricauda — Red-tailed Tropicbird

Status -- Resident breeder in the northern Marshalls; possible resident breeder in the Gilberts; occurs at sea within its breeding area.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, Eniwetok. Other: Marshalls - Erikub, Mili; Gilberts - Onotoa. At-sea: Marshalls - occurs near breeding islands, no recent sighting elsewhere; Gilberts - Finsch's (1880) records of the Red-billed Tropicbird probably should refer to this species; no recent records.

Pacific Distribution -- Breeds throughout the low islands of the tropical Pacific.

Phaethon lepturus — White-tailed Tropicbird

Status -- Resident breeder in the Marshall Islands; known only from at-sea in the Gilberts area.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Bikar, Erikub, Eniwetok, Jaluit. Other: Marshalls - Taongi, Utirik, Jemo, Namorik. At-sea: Marshalls - one just north of, and one south of, Jaluit November 1964; Gilberts - one 30 miles west of Tarawa July 1963 (Morris, 1963), one just south of Makin November 1964.

Pacific Distribution -- Breeds on most island groups in the tropical Pacific where tree-holes or cliffs are available.

SULIDAE — Boobies

Boobies are fairly large seabirds whose heavy tapering bodies are supported by long pointed wings and tails. They have long muscular necks with large pointed bills. Three species of boobies breed in the Marshall Islands. One of these species also breeds in the Gilbert Islands, another is a possible breeder, while the other is only a visitor.

Sula dactylatra — Blue-faced Booby

Status -- Resident breeder in extreme northern Marshalls; visitor to the Gilberts.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar. Other: Gilberts - Makin, Nikunau. At-sea: Marshalls - occurs near breeding islands; Gilberts - one seen 8 miles east of Tarawa December 1962 (Morris, 1963).

Pacific Distribution -- Breeds on most tropical Pacific island groups, except for those in the extreme southwest and northwest.

Sula sula — Red-footed Booby

Status -- Resident breeder in the Marshalls and southern Gilberts.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, Jemo, Erikub, Mili, Bikini, Jaluit; Gilberts - Onotoa. Other: Marshalls - Likiep, Majuro, Eniwetok, Rongelap, Ailinginae, Ujae, Kwajalein, Namu; Gilberts - Makin, Abaiang, Tabiteuea. At-sea: Marshalls - several 20 miles east of Eniwetok 7 January 1945 (Baker, 1951); common throughout the area, especially near breeding colonies, October-November 1964, June 1966, and April 1967.

Pacific Distribution -- Breeds in or visits most tropical Pacific island groups.

Sula leucogaster — Brown Booby

Status -- Resident breeder in the Marshalls; possible breeder in the Gilberts.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Bikar, Jemo, Likiep, Erikub, Mili, Eniwetok, Jaluit. Other: Marshalls - Taongi, Taka, Majuro, Bikini, Ailinginae, Wotho, Ujae, Kwajalein; Gilberts - Makin, Nonouti, Tabiteuea. At-sea: Marshalls - few 20 miles east of Eniwetok 7 January 1945 (Baker, 1951); one at 07° N x 166° E on 1 November 1960 (Bruyns, 1964); present in small numbers between Bikar and Jemo and south of Jaluit October-November 1964; near Majuro and Kwajalein June 1966; Gilberts - throughout the area November-December 1962, July-August 1963 (Morris, 1963), two seen between Makin and Maiana November 1964.

Pacific Distribution -- Breeds in or visits most island groups in the tropical Pacific.

FREGATIDAE — Frigatebirds

Frigatebirds are large but lightweight seabirds, with deeply forked tails, whose long-angled wings support medium-sized bodies. Their long slender bills are greatly hooked. Two species occur in the Marshall and Gilbert Islands. One breeds in the Marshalls, while the other is a visitor from the Gilberts or the Phoenix Islands. One species breeds and the other is a possible breeder in the Gilbert Islands.

Fregata minor — Great Frigatebird

Status -- Resident breeder in the Marshalls; possible breeder in the Gilberts.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Mili. Other: Marshalls - Taka, Ailuk, Jemo, Likiep, Erikub, Eniwetok, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Ujae, Kwajalein, Namu, Jabwot, Jaluit; Gilberts - Makin, Maiana, Kuria, Onotoa, Arorae. At-sea: Marshalls - present between Kwajalein and Jaluit November 1964, near all islands visited April 1967; Gilberts - present north of Makin and between Maiana and Kuria November 1964.

Pacific Distribution -- Breeds in or visits most island groups in the tropical Pacific.

Fregata ariel — Lesser Frigatebird

Status -- Resident breeder in the Gilberts, regular visitor to the Marshalls.

Marshall-Gilbert Distribution Records -- Breeding: Gilberts - Nonouti, Onotoa. Other: Marshalls - Erikub, Mili, Jaluit; Gilberts - Makin, Tarawa, Maiana, Tabiteuea, Tamana, Arorae. At-sea: Gilberts - very common (Morris, 1963).

Pacific Distribution -- Breeds in most south and south-central Pacific island groups; migrates through the Marshall-Gilbert area to the western Pacific.

STERCORARIIDAE — Skuas and Jaegers

Skuas and jaegers are quite large, heavy-set birds with a slightly hooked bill and narrow angled wings. Adult jaegers possess slightly elongated central tail feathers; immatures lack these. Skuas are larger than jaegers and have very heavy bodies. Two species occur in the area: one in the Gilberts and one (possibly both) in the Marshalls. Both are migrants from Arctic or Antarctic areas.

Catharacta skua — Great Skua

Status -- Uncommon at-sea migrant in the Marshall (?) and Gilbert Islands.

Marshall-Gilbert Distribution Records -- At-sea: Finsch (1880d) reported a skua in the Gilberts (Bourne in Morris, 1963), no recent records.

Pacific Distribution -- Breeds on Antarctica, in the New Zealand area, and on the southern tip of South America; migrates into the central, north, and far western Pacific.

Stercorarius sp. — Jaeger

An unidentified Stercorarius species was observed by POBSP personnel October 1964 at Taka Atoll, Marshall Islands. It is considered to be an accidental in the Marshalls and a migrant in the area. This jaeger could be one of three species: Stercorarius pomarinus, which breeds in the Arctic regions of Asia and North America, and is a migrant to Japan and throughout the central Pacific; S. parasiticus, which is an uncommon migrant in the tropical western Pacific, is not known from the central Pacific, but is a common migrant along the continental coasts; S. longicaudus, which is an Arctic breeder and migrates through the tropical Pacific.

LARIDAE — Gulls, Terns, and Noddies

Gulls are medium- or large-sized seabirds whose moderately long wings support stocky bodies. These normally coastal birds have rounded tails and robust pointed bills. Most tend to follow ships. No gulls have been recorded from the Marshall and Gilbert Islands.

Terns and noddies are small and slim, are similar to gulls, and possess long, slender, pointed wings. These normally offshore and pelagic birds usually have forked tails and slender pointed bills. Eleven terns and noddies have been recorded from the Marshall-Gilbert area. Seven (possibly eight) species are resident breeders in the Marshall Islands; three other species are accidentals. Six species are resident breeders in the Gilbert Islands; one species is a visitor from the Marshalls.

Sterna hirundo nigripennis — Common Tern

Status -- Accidental on islands and a possible vagrant to the Marshall area.

Marshall-Gilbert Distribution Records -- Marshall - Jaluit.

Pacific Distribution -- Breeds in western Asia, away from the Pacific, migrates along the Asiatic coast, has been recorded near Marcus, Palau, Bismarck, Solomon, Fiji, and Hawaiian Islands.

Sterna paradisaea — Arctic Tern

Status -- Accidental in the northern Marshall Islands and a possible vagrant to the area.

Marshall-Gilbert Distribution Records -- Marshalls - Eniwetok.

Pacific Distribution -- Breeds in the Arctic, migrates to the South Pacific during nonbreeding season.

Sterna sumatrana — Black-naped Tern

Status -- Resident breeder in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taka, Erikub, Arno, Eniwetok, Ujae, Jaluit; Gilberts - Makin, Tarawa, Onotoa. Other: Marshalls - Taongi, Bikar, Ailuk, Aur, Majuro, Mili, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Kwajalein, Namu; Gilberts - Maiana, Kuria, Aranuka, Nonouti. At-sea: Marshalls - very close to atolls, one seen between Taka and Jemo October 1964; Gilberts - one 3 miles north of Aranuka July 1963 (Morris, 1963) close to atolls November 1964.

Pacific Distribution -- Breeds on almost all island groups in the tropical western and southwestern Pacific; absent or vagrant east of 180° longitude in the central Pacific.

Sterna lunata — Gray-backed Tern

Status - Possible resident breeder in the northern Marshall Islands; probably a regular visitor in the southern Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Bikar, Mili, Eniwetok, Kwajalein; Gilberts - Nonouti, Tabiteuea. At-sea: Marshalls - none, probably occurs close to atolls; Gilberts - off northern end of Nonouti December 1962 (Morris, 1963).

Pacific Distribution -- Breeds throughout the central Pacific, as well as on Wake, Tuamotu, and Fiji; migrant or vagrant throughout rest of tropical Pacific.

Sterna fuscata — Sooty Tern

Status -- Resident breeder in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, Eniwetok, Ujalong, Ailinginae, Jaluit; Gilberts - Kuria, Nonouti. Other: Marshalls - Ailuk, Jemo, Mili, Knox, Bikini, Rongerik, Kwajalein; Gilberts - Makin, Aranuka, Onotoa. At-sea: Marshalls - occurred near and between breeding atolls October-November 1964, June 1966, and April 1967; Gilberts - 20 seen between Makin and Maiana November 1964.

Pacific Distribution -- Breeds on most island groups in the tropical Pacific.

Sterna anaetheta — Brown-winged Tern

Status -- Accidental on islands and probably an at-sea vagrant in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Bikar.

Pacific Distribution -- Breeds in the Bismarck Archipelago, Solomon Islands, Formosa, Philippines, Australia, and on the Pacific coast of Central and South America; vagrant in most island groups of the western and central Pacific.

Thalasseus bergii — Crested Tern

Status -- Resident breeder throughout the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, Arno, Eniwetok, Bikini, Ailinginae, Jaluit; Gilberts - Tarawa, Kuria, Onotoa. Other: Marshalls - Utirik, Ailuk, Erikub, Maloelap, Aur, Majuro, Mili, Ujelang, Rongerik, Rongelap, Wotho, Ujae, Lae, Kwajalein; Gilberts - Makin, Marakei, Maiana, Abemama, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Arorae. At-sea: none, probably occurs only near atolls.

Pacific Distribution -- Breeds throughout the western and southwestern tropical Pacific, as well as on Society, Tuamotu, and Line Islands; absent from the Phoenix and Hawaiian Islands.

Procelsterna cerulea — Blue-gray Noddy

Status -- Resident breeder in the extreme northern Marshalls; not recorded from the Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar. Other: Marshalls - Eniwetok. At-sea: Marshalls - occurred within 10 miles of Taongi and Bikar October 1964 and April 1967, between Bikar and Taka October 1964.

Pacific Distribution -- Breeds on most island groups of the central and southern Pacific.

Anous stolidus — Brown Noddy

Status -- Resident breeder throughout the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, *Jemo*, Erikub, Eniwetok, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Ujae, Lae, Kwajalein, Jaluit; Gilberts - Makin, Marakei, Tarawa, Maiana, Kuria, Aranuka, Onotoa. Other: Marshalls - Ailuk, Likiep,

Wotje, Aur, Majuro, Arno, Mili, Namu, Jabwot; Gilberts - Abemama, Nonouti, Tabiteuea, Beru, Nikunau, Arorae. At-sea: Marshalls - one off Kili at 169° E on 2 November 1960 (Bruyns, 1964); very common species around each atoll and throughout the area October-November 1964, June 1966, April 1967; Gilberts - common up to 50 miles from land throughout area November-December 1962 and July-August 1963 (Morris, 1963), seen around atolls and throughout area visited November 1964.

Pacific Distribution -- Breeds, with the exception of the Kermadec Islands, throughout the tropical Pacific.

Anous tenuirostris — Black Noddy

Status -- Resident breeder throughout the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Taka, Jemo, Erikub, Arno, Eniwetok, Ujelang, Bikini, Rongelap, Ailinginae, Wotho, Ujae, Kwajalein, Namu, Jaluit; Gilberts - Makin, Kuria, Nonouti, Tabiteuea, Onotoa. Other: Marshalls - Ailuk, Wotje, Aur, Majuro, Mili, Rongerik, Lae, Ailinglapalap, Namorik, Ebon; Gilberts - Marakei, Tarawa, Maiana, Abemama, Aranuka, Beru, Nikunau, Arorae. At-sea: Marshalls - most common species throughout area October-November 1964, common June 1966, second most prominent species in area visited April 1967; Gilberts - most common bird throughout the island group November-December 1962 and July-August 1963 (Morris, 1963), most common throughout northern area November 1964.

Pacific Distribution -- Breeds in most tropical Pacific island groups, except those in the northwest and southeast sectors.

Gygis alba — White Tern

Status -- Resident breeder throughout the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Taongi, Bikar, Utirik, Taka, Ailuk, Jemo, Erikub, Eniwetok, Bikini, Rongerik, Rongelap, Wotho, Ujae, Kwajalein, Jaluit; Gilberts - Makin, Kuria, Onotoa. Other: Marshalls - Mejit, Likiep, Wotje, Aur, Majuro, Arno, Mili, Ujelang, Ailinginae, Lae, Namu, Jabwot; Gilberts - Marakei, Tarawa, Maiana, Abemama, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau. At-sea: Marshalls - two singles observed off Mili at 172° E on 2 November 1960 (Bruyns, 1964), second most common species throughout the area October-November 1964, very common June 1966, most common species throughout the northern and central area April 1967; Gilberts - common within 10 miles of most atolls during November-December 1962 and July-August 1963 (Morris, 1963), most common species in northern area November 1964.

Pacific Distribution -- Breeds on most island groups of the tropical Pacific.

LAND AND FRESH-WATER BIRDS

Thirty-nine land and fresh water bird species have been recorded in the Marshall Islands, while 19 have been recorded in the Gilbert Islands (Table 38). Twenty-three are known solely from the Marshalls and three are known solely from the Gilberts. Sixteen landbird species are recorded from both island groups.

Two land and fresh water bird species (one introduced) are resident breeders on both island groups (Table 38); one species, a resident breeder in the Marshalls is a probable breeder in the Gilberts. One extinct and two introduced breeders (plus one introduced possible breeder) are found solely in the Marshalls; one introduced breeder (plus one possible breeder) are found solely in the Gilberts. Of seven introduced landbird species only one does not breed in the Marshalls or Gilberts.

Seventeen land and fresh-water bird species (Table 38) are known to migrate annually to or through the Marshall-Gilbert area from distant breeding grounds. These birds, unlike seabird migrants, are attracted to the various atolls and sometimes use them as "stepping-stones" in crossing the Pacific. Sixteen (all shorebirds) of these migrants breed in the Northern Hemisphere, while one (a cuckoo) breeds in the Southern Hemisphere.

Fifteen landbird species found in the Marshall-Gilbert area are vagrants to the area, since they are away from their normal migration routes, and are considered accidentals to island avifauna (Table 38). Most of these are known from only a few records.

ARDEIDAE — Herons

Herons are large wading birds with long necks, long legs, and long spear-like bills. One heron species is a resident breeder throughout the Marshalls and Gilberts.

Egretta sacra — Reef Heron

Status -- Resident breeder in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Arno, Mili, Eniwetok, Jaluit; Gilberts - Tarawa, Nonouti, Onotoa. Other: Marshalls - Taongi, Bikar, Taka, Ailuk, Jemo, Likiep, Wotje, Erikub, Maloelap, Majuro, Ujelang, Bikini, Rongelap, Ailinginae, Wotho, Ujae, Lae, Kwajalein, Jabwot; Gilberts - Makin, Marakei, Maiana, Abemama, Kuria, Aranuka, Tabiteuea, Beru, Nikunau, Arorae.

Pacific Distribution -- Occurs along the Asian coast from Japan south to Malaysia and on most islands in the southwest Pacific. Breeds throughout its range (Mayr, 1945; Baker, 1951).

Remarks -- Three color phases exist: white, blackish-gray, and mottled.

ANATIDAE — Geese and Ducks

Geese and ducks are large waterfowl with heavy bodies, long necks, and webbed feet. Their bills are thick at the base. One goose species, an accidental, has been collected in the Marshall Islands; none are known from the Gilberts. Ten duck species are known from the Marshalls; three are known from the Gilberts (Table 38). Of the 10 duck species in the area, one is an introduced breeder, two are migrants, and seven are accidentals. Of the nine migrants, six breed in both the Old and New World, two breed in the Old World, and one is a New World breeder; one is unknown.

Chen hyperborea — Snow Goose

Status -- Accidental in the Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Erikub.

Pacific Distribution -- Breeds in the arctic circumpolar region; winters along eastern coast of North America to the northern coast of the Gulf of Mexico and the valleys of California; in western Pacific to Korea and Japan. One record in Hawaii (AOU, 1957; Udvardy, 1961) and one in the Marshalls.

Anas platyrhynchos — Mallard

Status -- Accidental in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Kwajalein; Gilberts - Tarawa.

Pacific Distribution -- Breeds in the northern section of the Northern Hemisphere; winters south to Central America, Africa, and southern Asia; migrates regularly to Hawaii; introduced in New Zealand (AOU, 1957); also frequents Bonin and Volcano Islands (Yamashina, 1948; Baker, 1951). Known from the Marshalls and Gilberts.

Anas crecca — Common Teal

Status -- Accidental in the Marshall Islands.

Marshall-Gilbert Distribution Records: Marshalls - Kwajalein, Jaluit.

Pacific Distribution -- Breeds across Eurasia and North America; winters south to Africa, southeastern Asia, and Central America. Known from the Philippines, Japan, the Marianas, Marshalls, Hawaiian, and Line Islands

(Baker, 1951; AOU, 1957; Clapp and Sibley, 1967). Two races exist: (1) A. c. crecca, the European Teal of Europe and Asia, and (2) A. c. carolinensis, the Green-winged Teal of North America.

Anas strepera — Gadwall

Status -- Accidental in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Kwajalein.

Pacific Distribution -- Breeds in northern North America and Eurasia; winters south to Central America, Africa, and southeast Asia. Known from Hawaii (AOU, 1957; Bryan, 1958) and the Marshalls.

Anas penelope — European Widgeon

Status -- Accidental to the Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Jaluit.

Pacific Distribution -- Breeds in Iceland and northern Eurasia; winters south to Africa, southern Asia, the Philippines, and the southern part of North America. Known from the Marianas, Caroline, Marshall, Hawaiian, and Line Islands (AOU, 1957; Clapp and Sibley, 1967 ; Clapp and Woodward, 1968).

Anas acuta — Pintail

Status -- Uncommon migrant in the Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Kwajalein, Jaluit.

Pacific Distribution -- Breeds in the northern section of the Northern Hemisphere; winters to South America, Africa, and southeast Asia. Known from the Philippine, Marianas, Palau, Marshall, and Hawaiian Islands (Baker, 1951; AOU, 1957).

Anas clypeata — Northern Shoveler

Status -- Uncommon migrant in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Kwajalein; Gilberts - Makin, Tarawa.

Pacific Distribution -- Breeds in northern North America and Eurasia; winters south to Central America, southern Europe, and southern Asia. Known from the Philippine, Marianas, Caroline, Marshall, Gilbert, Hawaiian, Line, and Phoenix Islands (AOU, 1957; Clapp and Sibley, 1967; Clapp and Woodward, 1968).

Aythya valisineria — Canvasback

Status -- Accidental to the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Jaluit.

Pacific Distribution -- Breeds in northern North America; winters south to Central America. Known from Japan and the Marshalls (Baker, 1951; AOU, 1957).

Aythya fuligula — Tufted Duck

Status -- Accidental in the Marshalls.

Marshall-Gilbert Distribution Records: Marshalls - Kwajalein.

Pacific Distribution -- Breeds in Iceland and Eurasia; winters south into Africa and southeast Asia and the Philippines. Known from the Aleutian, Marianas, Palau, Caroline, and Hawaiian Islands (Baker, 1951; AOU, 1957; Clapp and Woodward, 1968), and the Marshalls.

Cairina moschata — Muscovy Duck

Status -- Introduced breeder in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Utirik-Ujelang, Wotho. Other: none, but species possibly occurs on most inhabited atolls.

Pacific Distribution -- Wild: Mexico and South America; Domestic: All over the world (Delacour, 1959).

Anatidae sp. — Duck species

An unidentified duck species was observed by POBSP personnel during November 1964 at Jaluit Atoll, Marshall Islands. Another was seen at Makin Atoll, Gilbert Islands. Morris (1963) reported a pair of cormorants in flight over the lagoon at Tabiteuea, Gilbert Islands; he further indicated that these could have been ducks (sp.?); they were in poor light and no details could be seen.

PHASIANIDAE — Fowls

There is only one representative of this family in the Marshall-Gilbert area, this being the domestic fowl or chicken. Chickens were introduced into most islands by sea-going Micronesians. In recent times they have probably interbred with other subsequently introduced breeds.

Gallus gallus — Domestic Chicken

Status -- Introduced breeder in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Jabwot; Gilberts: Onotoa. Other: Marshalls - Utirik, Mejit, Ailuk, Jemo, Likiep, Wotje, Maloelap, Aur, Majuro, Arno, Mili, Eniwetok, Ujelang, Rongelap, Wotho, Lae, Jaluit, Namorik, Ebon; Gilberts: Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Arorae.

Pacific Distribution -- Native to Southeast Asia and Malaysia. Feral fowl from introduced stock are found on most western, southwestern, and south Pacific islands. In the north central Pacific, feral fowl are found only on the main Hawaiian Islands (Mayr, 1945; Baker, 1951; Bryan, 1958).

RALLIDAE — Rails

Rails are compact, chicken-like marsh birds with short, rounded wings and short tails. One rail, an accidental species from the western Pacific, has been recorded from the northern Marshalls.

A species of rail was described from the Gilberts. This record is now considered to be in error (see further discussion under Abaiang Atoll).

Poliolimnas cinereus micronesiae — White-browed Rail

Status -- Accidental in the northern Marshalls; no recent records.

Marshall-Gilbert Distribution Records: Marshalls - Bikini.

Pacific Distribution -- Occurs in the Marianas and Caroline Islands. Other races are found in the Philippines and Celebes P. c. collingwoodi, and in the Volcano Islands P. c. brevipes (Baker, 1951).

CHARADRIIDAE — Plovers

Plovers are compactly built wading birds, with thick necks, moderately short bills, and large eyes. Six species of plovers have been recorded from the Marshall Islands; one species has been recorded from the Gilberts. Of the six species known from the area, five are migrants and one is an accidental (Table 38). Two species are arctic circumpolar breeders, one species is an arctic North American breeder, two species are arctic Old World breeders; the breeding locality of one species is unknown (probably Old World).

Pluvialis dominica — Golden Plover

Status -- Common migrant to the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records: Marshalls - Taongi, Bikar, Utirik, Taka, Ailuk, Jemo, Likiep, Erikub, Majuro, Arno, Mili, Eniwetok, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Ujae, Lae, Kwajalein, Jabwot, Jaluit; Gilberts - Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Onotoa, Arorae. At sea: Marshalls - five between Bikar and Taka, one between Jemo and Erikub in October 1964.

Pacific Distribution -- Breeds in northern Siberia and Alaska; winters throughout the Pacific south to Australia, New Zealand, and the Tuamotu Islands (AOU, 1957).

Squatarola squatarola — Black-bellied Plover

Status -- Uncommon migrant in the northern Marshalls.

Marshall-Gilbert Distribution Records: Marshalls - Eniwetok, Kwajalein.

Pacific Distribution -- Circumpolar breeder in the Northern Hemisphere; migrates along the Pacific coasts of North America and Asia. Recorded from many central, southwestern, and western Pacific island groups (Mayr, 1945; Baker, 1951; AOU, 1957).

Charadrius semipalmatus — Semipalmated Plover

Status -- Uncommon migrant in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Jaluit.

Pacific Distribution -- Breeds in high latitudes of North America; winters south to Chile (AOU, 1957). Recorded from central and south-central Pacific (POBSP data), and as far west as the Marshall Islands (Baker, 1951).

Charadrius dubius — Ring-necked Plover

Status -- Uncommon migrant in the northern Marshalls.

Marshall-Gilbert Distribution Records: Marshalls - Eniwetok.

Pacific Distribution -- Breeds in northern Europe and Asia; winters from Africa east to the western and southwestern Pacific (Baker, 1951).

Charadrius mongolus — Mongolian Plover

Status -- Uncommon migrant in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Majuro, Jaluit.

Pacific Distribution -- Breeds in northeastern Siberia and the Bering Sea area; winters south to Malaysia and Australia and as far east as the Marshall Islands (Mayr, 1945; Baker, 1951).

Charadriinae sp. Plover species

An unidentified sandpiper species was observed by POBSP personnel during November 1964 at Jaluit Atoll, Marshall Islands (see Jaluit Atoll Avifauna Checklist for description). This species is considered to be an accidental in the Marshalls.

SCOLOPACIDAE Sandpipers, et cetera

The family Scolopacidae contains a varied group of small- to medium-sized wading birds. In general, they have long slender legs. Their bills are more slender than those of the plovers. Thirteen species have been recorded from the area, all were found in the Marshall Islands; eight species have been recorded from the Gilbert Islands. Of the 13 species, nine are migrants and four are accidentals (Table 38). Five species are arctic circumpolar breeders, five species are North American breeders, and three species are Asian breeders.

Numenius phaeopus Whimbrel

Status -- Common migrant in the Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls -Utirik, Wotje, Mili, Eniwetok, Wotho, Ujae, Lae, Kwajalein, Jaluit; Gilberts - Makin, Maiana, Kuria, Onotoa (see Note under Numenius tahitiensis).

Pacific Distribution -- Breeds in eastern Siberia; winters in Europe, Asia, Africa, and throughout the western and southwestern Pacific eastward to the Marshall and Gilbert Islands (Baker, 1951; AOU, 1957).

Numenius tahitiensis Bristle-thighed Curlew

Status -- Common migrant in the Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Bikar, Utirik, Taka, Ailuk, Jemo, Wotje, Erikub, Maloelap, Majuro, Arno, Mili, Eniwetok, Ujalang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Ujae, Kwajalein, Jabwot, Jaluit; Gilberts - Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Beru, Nikunau, Onotoa, Arorae. Note: A Numenius species, either a curlew or Whimbrel, was seen on Tabiteuea, Gilbert Islands, by Morris (1963).

Pacific Distribution -- Breeds in western Alaska; winters in the central and southern Pacific westward to the Carolines and Marianas (Baker, 1951; AOU, 1957).

348-415 O-69 —21

Limosa lapponica — Bar-tailed Godwit

Status -- Common migrant in the Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Arno, Eniwetok, Kwajalein; Gilberts - Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Onotoa, Arorae.

Pacific Distribution -- Limosa lapponica baueri breeds in Siberia and northern Alaska; migrates southward through the western and southwestern Pacific, and eastward occasionally to the central Pacific (Baker, 1951; AOU, 1957). Limosa l. lapponica breeds in northern Europe; winters in southern Europe and Africa.

Totanus melanoleucus — Greater Yellowlegs

Status -- Accidental in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Jaluit.

Pacific Distribution -- Breeds in northern North America; winters southward to South America (AOU, 1957). Recorded from the Hawaiian Islands (Clapp and Woodward, 1968), and as far west as the Marshalls (Baker, 1951).

Actitis macularia — Spotted Sandpiper

Status -- Accidental in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Taka.

Pacific Distribution -- Breeds in northern North America; winters south to central South America (AOU, 1957). Known from the Marshalls.

Heteroscelus brevipes — Polynesian Tattler

Status -- Uncommon migrant in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Eniwetok, Kwajalein; Gilberts - Tarawa.

Pacific Distribution -- Breeds in eastern Siberia; winters throughout the western Pacific south to Australia (Baker, 1951; AOU, 1957), one recorded from the Leeward Hawaiian Islands (Clapp and Woodward, 1968).

Heteroscelus incanum — Wandering Tattler

Status -- Common migrant in the Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Bikar, Utirik, Taka, Mejit, Ailuk, Jemo, Likiep, Wotje, Erikub, Maloelap, Majuro, Arno, Mili, Eniwetok, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae,

Wotho, Ujae, Lae, Kwajalein, Jabwot, Jaluit; Gilberts - Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Onotoa, Arorae.

Pacific Distribution -- Breeds in Alaska and northeast Canada; winters southward to South America and throughout most of the Pacific (Baker, 1951; AOU, 1957).

Arenaria interpres — Ruddy Turnstone

Status -- Common migrant in the Marshalls and Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Bikar, Utirik, Taka, Mejit, Ailuk, Jemo, Likiep, Wotje, Erikub, Majuro, Arno, Mili, Eniwetok, Ujelang, Bikini, Rongerik, Rongelap, Ailinginae, Wotho, Ujae, Lae, Kwajalein, Lib, Jabwot, Ailinglapalap, Jaluit; Gilberts - Makin, Marakei, Tarawa, Maiana, Abemama, Kuria, Aranuka, Nonouti, Tabiteuea, Beru, Nikunau, Onotoa, Arorae. At-sea: Marshalls - four between Taka and Jemo in October 1964.

Pacific Distribution -- Circumpolar breeder in the Northern Hemisphere; circumtropical winter range. Found widely in the Pacific as far south as Australia (AOU, 1957).

Capella hardwickii — Japanese Snipe

Status -- Accidental in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Kwajalein.

Pacific Distribution -- Breeds in the Kurile Islands and Japan; winters in the area of Australia and New Zealand (Peters, 1934; Yamashina, 1961).

Crocethia alba — Sanderling

Status -- Common migrant in the Marshalls, uncommon in the Gilberts.

Marshall-Gilbert Distribution Records -- Marshalls - Taongi, Bikar, Erikub, Eniwetok, Kwajalein, Jaluit; Gilberts - Tarawa.

Pacific Distribution -- Circumpolar breeder in the Northern Hemisphere; winters to the Southern Hemisphere. Found widely in the Pacific (AOU, 1957) as far south as the Line, Phoenix, Gilbert (POBSP data), and Marianas Islands (Baker, 1951).

Erolia melanotos — Pectoral Sandpiper

Status -- Uncommon migrant in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Taka.

Pacific Distribution -- Breeds in the Arctic regions of northeastern Siberia and North America; winters to South America. Reported occasionally throughout the Pacific as far south as New Zealand, Australia, and the Caroline Islands (Baker, 1951; AOU, 1957).

Erolia acuminata — Sharp-tailed Sandpiper

Status -- Common migrant in the Marshall and Gilbert Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Eniwetok, Kwajalein, Jaluit; Gilberts - Makin, Tarawa, Kuria.

Pacific Distribution -- Breeds in northern Siberia; winters along western coast of North America and coast of eastern Asia. Recorded frequently from the western and central Pacific and as far south as Australia, Tasmania, and the Tonga Islands (Baker, 1951; AOU, 1957; Clapp and Woodward, 1968).

Tryngites subruficollis — Buff-breasted Sandpiper

Status -- Accidental in the northern Marshalls.

Marshall-Gilbert Distribution Records -- Marshalls - Eniwetok.

Pacific Distribution -- Breeds locally in northwestern North America; winters in central Argentina. Recorded (as casual) in the Kurile Islands, Japan (AOU, 1957), and the Marshalls (Pearson and Knudsen, 1967).

RECURVIROSTRIDAE — Stilts

Stilts are medium-sized, slender wading birds, with very long legs and long slender bills. One stilt (species unknown) has been recorded from the Gilbert Islands. It is an accidental to the area; its breeding ground is unknown.

Himantopus sp. — Stilt species

An unidentified stilt species was observed by POBSP personnel during November 1964 at Makin Atoll, Gilbert Islands. It is considered to be an accidental in the Gilberts.

COLUMBIDAE — Pigeons and Doves

Pigeons and Doves are small, usually plump, fast-flying landbirds, with pointed wings, pointed or rounded tails, and small heads. Pigeons are larger than doves. One pigeon species is a resident breeder in the Marshall Islands and is a probable breeder in the Gilbert Islands. One dove species, now an extinct breeder, was known from the Marshalls. Two dove species, both introduced, occur in the Gilberts - one is a breeder, the other is a possible breeder.

Gallicolumba erythroptera* Ground Dove

Status -- Introduced breeder in the Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Gilberts - Abemama, Nonouti.

Pacific Distribution -- Native to the Society and Tuamotu Islands (Baker, 1951).

*Remarks -- I am using the species designation given by Child (1960), who says this species was reported to have been introduced into the Gilberts from Nauru about 1940. Pearson (1962) did not find any doves at Nauru in 1961.

Gallicolumba stairi* Friendly Ground Dove

Status -- Introduced, possible breeder in the Gilbert Islands.

Marshall-Gilbert Distribution Records -- Gilberts - Abemama.

Pacific Distribution -- Present only at Fiji, Tonga, and Samoa Islands (Peters, 1934).

*Remarks -- I am using the species designation given by Child (1960) who says this species was probably introduced from Fiji.

Ptilinopus porphyraceus hernsheimi* Crimson-crowned Fruit Dove

Status -- Extinct breeder in the Marshall Islands.

Marshall-Gilbert Distribution Records -- Marshalls - Ebon.

Pacific Distribution -- Present only at Kusaie in the Caroline Islands (Ripley and Birckhead, 1942; Baker, 1951).

*Remarks -- This species was described as Ptilinopus marshallianus by Peters and Griscom (1928) from a single adult specimen, sex unknown, collected by the Rev. B. G. Snow in the latter part of 1859.

Ducula oceanica Micronesian Pigeon

Status -- Resident breeder in the southern Marshall Islands, probable breeder in the Gilbert Islands.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Arno, Jaluit. Other: Marshalls - Wotje, Ailinglapalap; Gilberts - Kuria, Aranuka.

Pacific Distribution -- Occurs throughout Micronesia. Five subspecies exist: (1) Ducula oceanica ratakensis is known from the Radak Chain of

the Marshalls; (2) D. o. oceanica is known from Kusaie in the Carolines, the Ralik Chain of the Marshalls, and the Gilberts; (3) D. o. townsendi is known from Ponape in the Carolines; (4) D. o. teraokai is known from Truk, Lukunor, and Nukuoro in the Carolines; and (5) D. o. monacha is known from the Palaus and Yap in the Carolines (Mayr, 1940; Amadon, 1943; Baker, 1951).

PSITTACIDAE — Parrots

Parrots form a large group of birds. Despite their great size variation, they all have a short, stout, strongly hooked bill, a short neck, compact body, and strong, rounded wings. Most have brightly colored plumage. One record of a parrot, probably introduced, exists for the Marshall Islands.

Psittacidae sp. — Parrot species

An unidentified parrot, probably introduced, was observed by POBSP personnel during June 1966 at Majuro Atoll, Marshall Islands.

CUCULIDAE — Cuckoos

Cuckoos are slender, long-tailed landbirds possessing secretive habits. One cuckoo species migrates into both the Marshall and Gilbert Islands from the southwest Pacific.

Urodynamis taitensis — Long-tailed New Zealand Cuckoo

Status -- Regular migrant throughout the Gilberts and in the Marshalls up to 12° N latitude.

Marshall-Gilbert Distribution Records -- Marshalls - Likiep, Wotje, Aur, Arno, Mili, Eniwetok, Bikini, Ailinglapalap, Jaluit; Gilberts - Makin, Abaiang, Tarawa, Onotoa.

Pacific Distribution -- Breeds in New Zealand and nearby islands; winters throughout Polynesia, Melanesia, and Micronesia (Mayr, 1945; Baker, 1951).

PLOCEIDAE — Weaver Finches

The Ploceidae are a varied group of small birds with thick bills, of which the House Sparrow is the best known. One specimen, probably introduced, and a possible breeder, occurs in the Marshall Islands.

Passer domesticus — House Sparrow

Status -- Probably introduced, and a possible breeder in the Marshalls; known from only one atoll.

Marshall-Gilbert Distribution Records -- Marshalls - Kwajalein.

Pacific Distribution -- Native to Eurasia and north Africa. Introduced almost worldwide, including Australia, New Zealand, Hawaii (main islands, Kure, and Midway), and Wake (AOU, 1957; Clapp and Woodward, 1968).

STURNIDAE — Mynas

The Sturnidae are a varied family; most are like "blackbirds" in appearance. They are stocky, blackish-brown birds with short tails and sharp bills. They are very gregarious. One species, probably an introduced breeder, now absent, is known from the Marshall Islands.

Acridotheres tristis — Indian Myna

Status -- Probably an introduced breeder in the Marshall Islands, now absent; known from only one atoll.

Marshall-Gilbert Distribution Records -- Breeding: Marshalls - Kwajalein.

Pacific Distribution -- Introduced throughout the southwest Pacific, including Fiji, New Caledonia, New Hebrides, and Solomon Islands (Mayr, 1945) and the Marshalls (Fosberg, 1966).

INFLUENCING FACTORS

The average number of bird species found on the 34 islands in the Marshalls is 13.1 per island (Table 40). This figure is very close to the average number of species found on the 16 islands in the Gilberts, which is 12.7 per island (Table 40). From this, one might conclude that avifaunal distribution throughout the Marshall-Gilbert area was uniform.

This is not the case; there is a north to south variation (see N-S Zone, Table 40) in the average total number of bird species per atoll. Using nine, two-degree, north-south zones (Fig. 5, see zone discussion under Vegetation Section) we find that the highest number of species is found in the northernmost zone (Zone 1), where an average of 26 bird species per atoll is found (Fig. 6). In Zone 2, the average is 23 bird species per atoll; in Zone 3 and 4 the average decreases, respectively, from 17 and 14, to a low of 8 bird species per atoll in Zone 5. An increase occurs in Zones 6 and 7 (10 and 12 bird species per atoll, respectively), and further increases to 13 bird species per atoll in both Zones 8 and 9.

The average number of possible breeding species per atoll for each zone also follows a similar pattern: Zone 1 is again highest with 18, Zone 6 is low with 5, and Zone 9 has 8. The average number of migrants per atoll for Zones 1 through 4 and 7 through 9 is 5 or 6 species; two center zones (Zones 5 and 6) average only 3 species. The average number of accidentals and visitors is very low for each zone, but it is highest (2 species) in Zones 1 and 2.

From west to east in the Marshall-Gilbert area (see W-E Zone, Table 40) there is less variation in the average number of bird species per atoll than from north to south. Four west-east zones, each four degrees wide (except for the westernmost which is 5 degrees wide), were used for comparison (Fig. 7). Zone A, the westernmost zone, is highest in: 1) the average total species, 2) the average possible breeding species, and 3) the average migrant species. Zones B, C, and D are similar to one another in these three categories. The average number of visitors and accidentals is very low for each zone, but is highest in Zones A, B, and C (1 species each).

Zone A includes only atolls in north-south Zones 3 and 4, thus the average number of species (in all four categories) is similar for these zones. Similarly, Zone D includes only atolls in north-south Zone 9, thus the average number of species (in all four categories) is identical for these two zones. Zones B and C contain a cross-section of atolls from Zones 1 through 8, thus the species average for Zones B and C is similar to the overall species average for the Marshall-Gilbert area.

The lack of uniformity in species distribution may be traced to a number of environmental factors, among them, topography, climate, vegetation, man and other animals, the surrounding oceans, and food resources.

Table 40. Avifaunal components of each atoll in the Marshall-Gilbert area, arranged from north to south.

Atoll	Possible Breeders	Migrants	Visitors and Accidentals	Total	N-S Zone	W-E Zone
Taongi	18	6	2	26	1	B
Bikar	16	5	2	23	2	C
Bikini	11	5	1	17	3	A
Eniwetok	15	12	5	32	3	A
Rongerik	8	4	0	12	3	B
Rongelap	10	4	0	14	3	B
Utirik	5	5	0	10	3	B
Taka	12	5	2	19	3	B
Ailinginae	10	4	0	14	3	B
Ailuk	9	4	0	13	4	B
Mejit	2	2	1	5	4	C
Wotho	10	5	0	15	4	A
Jemo	10	4	0	14	4	B
Likiep	7	4	0	11	4	B
Ujelang	10	4	0	14	4	A
Wotje	6	5	0	11	4	C
Erikub	12	5	1	18	4	C
Kwajalein	13	11	7	31	4	B
Ujae	9	5	0	14	4	A
Lae	6	4	0	10	4	B
Maloelap	3	2	0	5	4	C
Lib	0	1	0	1	5	B
Aur	6	1	0	7	5	C
Namu	6	0	0	6	5	B
Jabwot	5	4	0	9	5	B
Ailinglapalap	2	2	0	4	5	B
Majuro	9	5	1	15	5	C
Arno	8	6	1	15	5	C
Mili	14	6	2	22	6	C
Knox	1	0	0	1	6	C
Jaluit	15	9	9	33	6	B
Kili	0	0	0	0	6	B
Namorik	3	0	0	3	6	B
Ebon	3	0	0	3	6	B
Marshall Average	274 8.1	139 4.1	34 1.0	447 13.1		

Table 40 (cont.). Avifaunal components of each atoll in the Marshall-Gilbert areas, arranged from north to south

Atoll	Possible Breeders	Migrants	Visitors and Accidentals	Total	N-S Zone	W-E Zone
Little Makin	0	0	0	0	7	C
Makin	12	10	1	23	7	C
Marakei	6	5	0	11	8	C
Abaiang	1	1	0	2	8	C
Tarawa	7	11	1	19	8	C
Maiana	8	7	0	15	8	C
Abemama	8	5	0	13	8	C
Kuria	10	7	0	17	8	C
Aranuka	9	5	0	14	8	C
Nonouti	12	5	0	17	9	D
Tabiteuea	11	5	1	17	9	D
Beru	6	5	0	11	9	D
Nikunau	6	5	1	12	9	D
Onotoa	12	7	0	19	9	D
Tamana	1	0	0	1	9	D
Arorae	7	5	0	12	9	D
Gilbert Average	116 7.3	83 5.2	4 0.3	203 12.7		

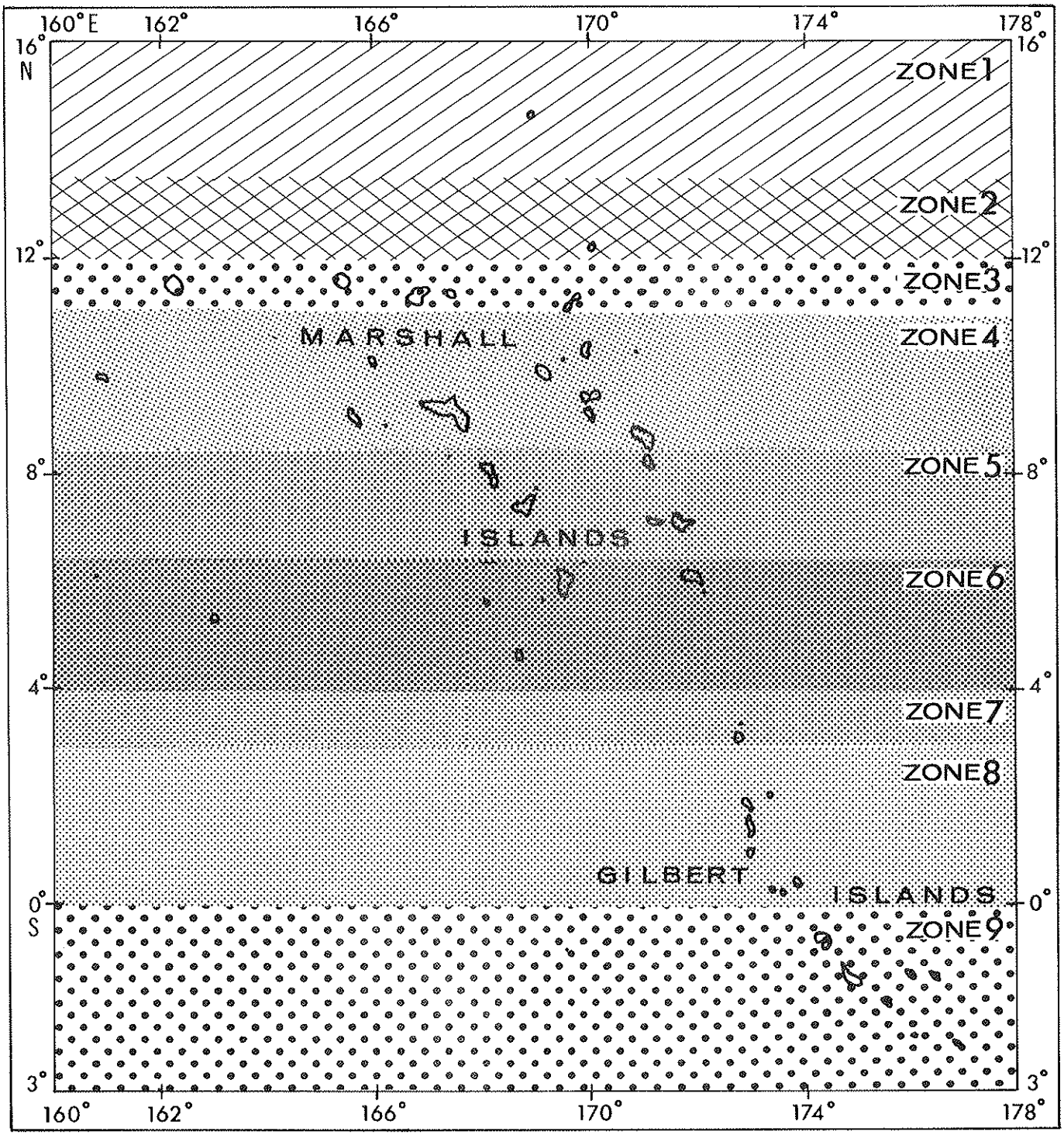


FIGURE 5 Vegetation Zones in the Marshall and Gilbert Islands.
Zones with similar shading have comparable vegetation.

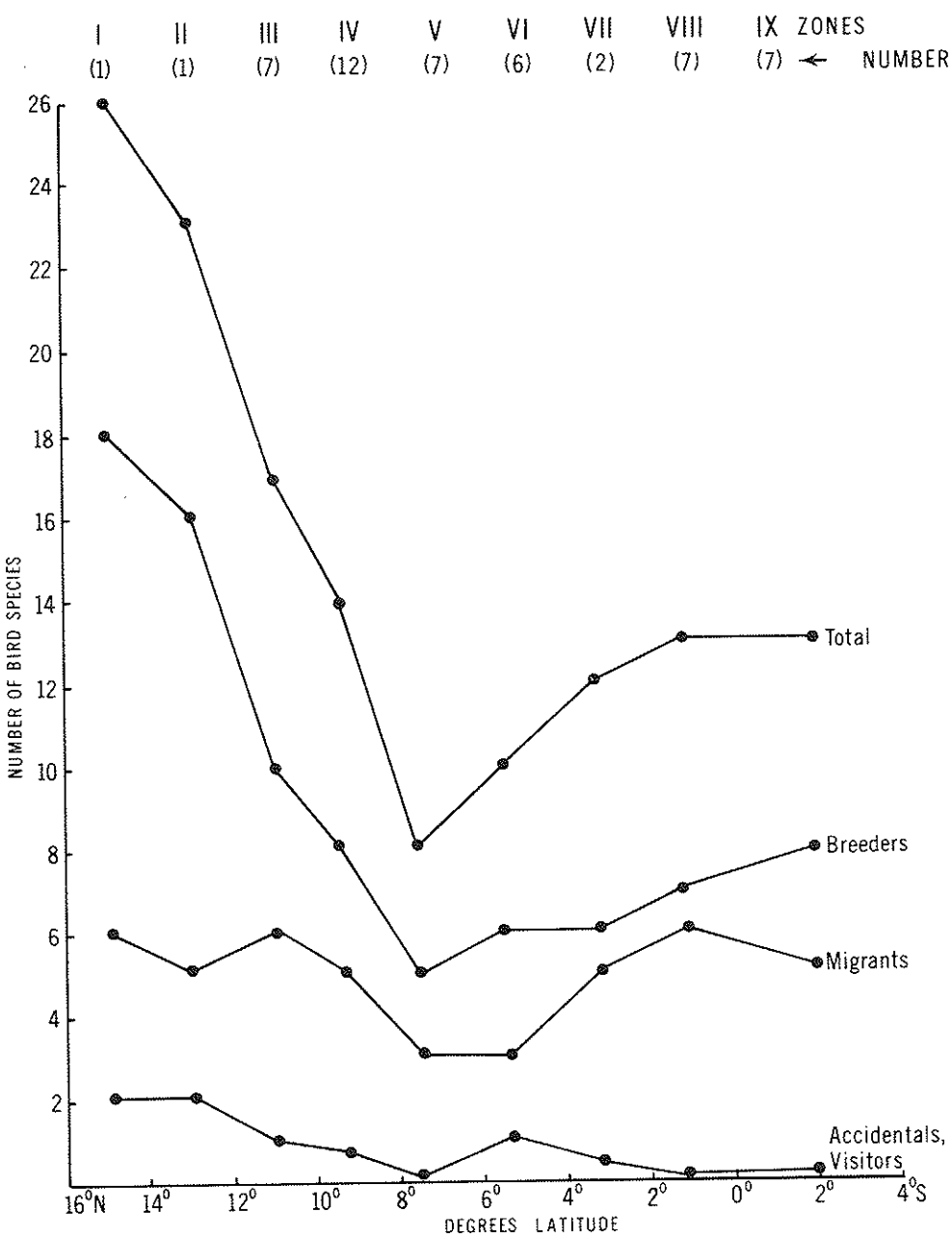


FIGURE 6. North to South Distribution.

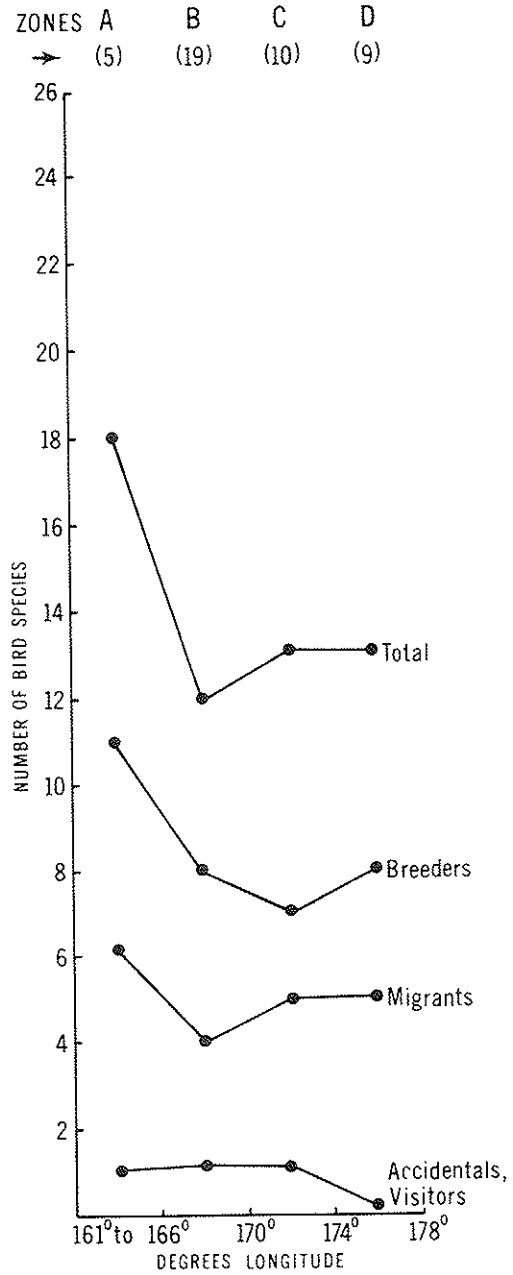


FIGURE 7. West to East Distribution.

Average Number Of Bird Species Per Zone

Topography

The 50 islands comprising the Marshalls and Gilberts are all remnants of former volcanoes or volcanic peaks. All of these volcanic peaks have been completely destroyed and are marked only by low coral rock islands protected by reefs formed by coral growth. Some of these coral exposures possess a lagoon formed by the reef; these are known as coral atolls. Other coral exposures lack lagoons, and are known as coral islands (Baker, 1951; Wiens, 1962). The Marshalls and Gilberts contain 41 coral atolls and 9 coral islands.

All 50 islands and atolls are very low, averaging from 5 to 20 feet in height; a few attain a height of slightly more than 25 feet (U. S. Navy, 1964). The main composition of the elevated portions of all the islands is coral debris and sand; in some areas compact coral rock outcroppings are found (Woodford, 1895; Fosberg, 1956). In general, the eastward, or weather side, of each island rises steeply, whereas the westward, or lee side, slopes gradually (U. S. Navy, 1964).

Although there are only 16 islands in the Gilberts as compared with 34 in the Marshalls, total land area in the Gilberts (114.12 square miles) is much greater than in the Marshalls (70.09 square miles). The land area data for each island are presented in Table 41. In general, the land area increases from north to south. An average Northern Marshall Island (Maloelap and north) has 1.73 square miles of land, while an average Southern Marshall Island (Lib and south) has 2.36 square miles of land. An average Northern Gilbert Island (Aranuka and north) has 6.43 square miles of land, while an average Southern Gilbert Island has 8.02 square miles of land.

Available fresh water throughout the Marshall-Gilbert area varies with the size of the island and the amount of rainfall. Fresh water occurs under the larger islands as a shallow, lens-shaped body floating on the denser sea water. Friction with the porous coral sand retards diffusion of the fresh water into the salt water and helps create this reservoir. It is renewed by rainfall. During dry spells, or in areas where rainfall is low, the fresh water may become brackish (Fosberg, 1956).

Since topographic features are similar throughout the Marshalls and Gilberts, they do not determine bird-species distribution within the area; there may, however, be local topographic variations that influence species distribution on islands and within atolls.

Climate

The climate of the entire Marshall-Gilbert area is marine and tropical in character. The mean annual temperature in the Marshalls is 82° F. and the mean monthly temperature does not vary beyond 2° F. annually. Daily temperature variation is much greater than the annual range (Fosberg,

Table 41. People-land relationship in the Marshall-Gilbert area.

Atoll	N-S Zone	Population 1964	Zone Total	Land/ Sq./Mi.	Zone Total	People Sq/Mi.	Zone Average
Taongi	1	0		1.45		0	
Bikar	2	0	0	0.20	1.45	0	0
			0		0.20		0
Bikini	3	?		2.82		?	
Eniwetok	3	?		2.47		?	
Rongerik	3	0		0.81		0	
Rongelap	3	228		2.46		92.7	
Utirik	3	219		1.04		210.6	
Taka	3	0		0.21		0	
Ailinginae	3	0		1.29		0	
			447		11.10		40.3
Ailuk	4	410		2.19		187.2	
Mejit	4	329		1.32		249.2	
Wotho	4	54		1.60		33.8	
Jemo	4	0		0.07		0	
Likiep	4	546		3.63		150.4	
Ujelang	4	312		0.62		503.2	
Wotje	4	498		3.34		149.1	
Erikub	4	0		0.35		0	
Kwajalein	4	2,663		5.63		473.0	
Ujae	4	230		0.62		371.0	
Lae	4	143		0.60		238.3	
Maloelap	4	636		3.81		166.9	
			5,821		23.78		244.8
Lib	5	190		0.36		527.8	
Aur	5	372		2.17		171.4	
Namu	5	684		2.42		282.6	
Jalwot	5	92		0.22		418.2	
Ailinglapalap	5	1,183		5.67		208.6	
Majuro	5	4,612		3.54		1302.8	
Arno	5	1,301		5.00		260.2	
			8,434		19.38		435.19
Mili	6	602		6.15		97.9	
Knox	6	0		?		0	
Jaluit	6	1,127		4.38		257.3	
Kili	6	287		0.36		797.2	
Namorik	6	534		1.07		499.1	
Ebon	6	953		2.22		429.3	
			3,503		14.18		247.03
Marshalls Total		18,205		70.09			
Marshalls Average		758.5		2.58		259.7	

Table 41 (cont.). People-land relationship in the Marshall-Gilbert area.

Atoll	N-S Zone	Population 1964	Zone Total	Land/ Sq./Mi.	Zone Total	People Sq./Mi.	Zone Average
Little Makin	7	908		2.80		324.3	
Makin	7	2,510		4.50		557.8	
			3,418		7.30		468.2
Marakei	8	1,536		3.94		398.8	
Abaiang	8	2,467		11.06		223.1	
Tarawa	8	3,790		7.73		490.3	
Maiana	8	1,238		10.39		119.2	
Abemama	8	1,498		6.57		228.0	
Kuria	8	430		4.98		86.3	
Aranuka	8	223		5.97		37.35	
			11,182		50.64		220.8
Nonouti	9	2,549		9.82		259.6	
Tabiteuea	9	4,239		19.00		223.1	
Beru	9	2,167		8.15		265.9	
Nikunau	9	1,694		7.00		242.0	
Onotou	9	1,913		5.21		367.2	
Tamana	9	1,092		2.00		546.0	
Arorae	9	1,576		5.00		315.2	
			15,230		56.18		271.1
Gilberts Total		29,830		114.12			
Gilberts Average		1,864.4		7.13		261.4	

1956; Wiens, 1962). Mean maximum temperatures of 88° F. to 90° F. (September-October) usually occur between 1300 and 1400 hours; temperatures of over 100° F. have been recorded. Mean minimum temperatures of 76° F. (September-October) usually occur between 0500 and 0600 hours (Fosberg, 1956; Wiens, 1962). The mean annual temperature throughout the Gilberts is also in the low 80's (84° F. at Makin and 83° F. at Abaiang), with only a slight decrease from north to south (Sachet, 1957).

In the Northern Marshalls the Northeast Trade Winds blow mainly from the east and northeast throughout the year. They are usually constant (18 knots) from December to March and are generally lighter and more variable during the rest of the year. In the Southern Marshalls the Northeast Trade Winds predominate from December to April. They blow with moderate velocity from the east and northeast. During the rest of the year east to southeast winds increase in frequency, becoming predominate in the fall months. Gales are infrequent, but tend to occur in the summer and fall. Calms are rare throughout the entire Marshall area (U. S. Navy, 1962).

There is also some variation in the trade winds between the Northern and Southern Gilberts. In the Northern Gilberts (above 2° N), the islands are influenced by the Northeast Trades between November and March. Apparently the borderline of the Northeast and Southeast Trade Winds is along the 2° N line. In the Northern Gilberts the trades blow from east to just a little southeast, while in the Southern Gilberts the trades blow east-southeast. The Southeast Trade Winds (average 12 knots) predominate during March to November. A westerly season occurs from November to March characterized by an occasional gale (winds up to 50 m.p.h.) lasting from two days to a week. Calms occur quite often in June and July (U. S. Navy, 1952, 1962).

Typhoons are rare in the Marshalls and Gilberts. Only one is known to have crossed the Gilberts, the typhoon of 1927. In the Marshalls only four have been reported since 1900, those of 1905, 1951, 1958 (U. S. Navy, 1952, 1962; Wiens, 1962; Sachet, 1957), and 1967.

Relative humidity is high throughout the Marshalls during all months. At Ujelang, for example, the mean relative humidity is 82 percent; it is somewhat lower during winter and early spring. The relative humidity is higher at night and in early morning than during the day (Fosberg, 1956; U. S. Navy, 1962).

Very little is known about the relative humidity in the Gilberts (Sachet, 1957), but it is undoubtedly very similar to the Marshalls. A known example is Tarawa where the average annual relative humidity is 77 percent (U. S. Navy, 1962).

The sky in both the Marshalls and Gilberts is usually characterized by partial cloudiness throughout most of the year. Clear days are rare and all-cloudy days are uncommon. At Jaluit the average annual cloud cover is slightly over 6/10, while at Majuro it is almost 8/10 (Fosberg, 1956; Sachet, 1957; U. S. Navy, 1962).

Rainfall increases from the Northern to the Southern Marshalls. It decreases from the Northern to Southern Gilberts, with a slight upswing in the southernmost islands (Figure 8). Thus, for example, Wake at 19°17' N and north of the Marshalls, has an average annual rainfall of 37 inches; Eniwetok, at 11°21' N, has an average annual rainfall of 51 inches; Kwajalein, at 08°41' N, has an average annual rainfall of 95 inches; and Jaluit, at 05°55' N, has an average annual rainfall of 159 inches (Fosberg, 1956).

In the Gilberts, Makin, at 03°37' N, has an average annual rainfall of 122 inches; Tarawa, at 01°25' N, has an average annual rainfall of 64 inches; Tabiteuea, at 01°20' S, has an average annual rainfall of 41 inches; and Arorae, at 02°38' S, has an average annual rainfall of 52 inches (Sachet, 1957). Catala (1957) recognizes three rainfall zones in the Gilberts, but he considers rainfall from only one island in each group. He indicates that the rainfall decreases from north to south (North 119", Center 78", and South 43.3") and does not note the slight increase in the southernmost islands.

In the Northern Marshalls, the heaviest precipitation occurs from September through November, while in the Southern Marshalls it is heavy during all months (U. S. Navy, 1962). In the Gilberts the wettest months are from December to August (Sachet, 1957).

The climate affects bird species distribution in the Marshall-Gilbert area, both directly and indirectly. The dry conditions found in the Northern Marshalls are very favorable for most seabird breeding colonies. The very wet conditions of the Southern Marshalls and Northern Gilberts have a deleterious effect upon the breeding of some species since an overabundance of rain can disrupt or destroy an entire colony of ground-nesters, especially during the egg or small chick stage. As a result, Wedge-tailed Shearwaters, Blue-faced Boobies, and Sooty Terns either do not nest, or nest only in small numbers, in this wet area. Since heavy rain usually does not affect tree-nesters, one species, the Brown Noddy, is a ground-nester in the Northern Marshalls and a tree-nester in the Southern Marshalls and Gilberts.

Indirectly, rainfall affects birds by influencing vegetation growth and distribution, and human distribution.

Vegetation

In general, the number of plant species on an atoll varies directly with the amount of rainfall, but, as Wiens (1962) pointed out, this correlation is not always consistent. He suggested that other factors, such as nearness to larger land masses, and the common practice of introductions by man, play a role. Marshall-Gilbert vegetation is an example of such a complex distribution pattern.

Taylor (1950) pointed out that the Southern Marshalls contained species different from those of the Northern Marshalls. Fosberg (1956)

348-415 O-69—22

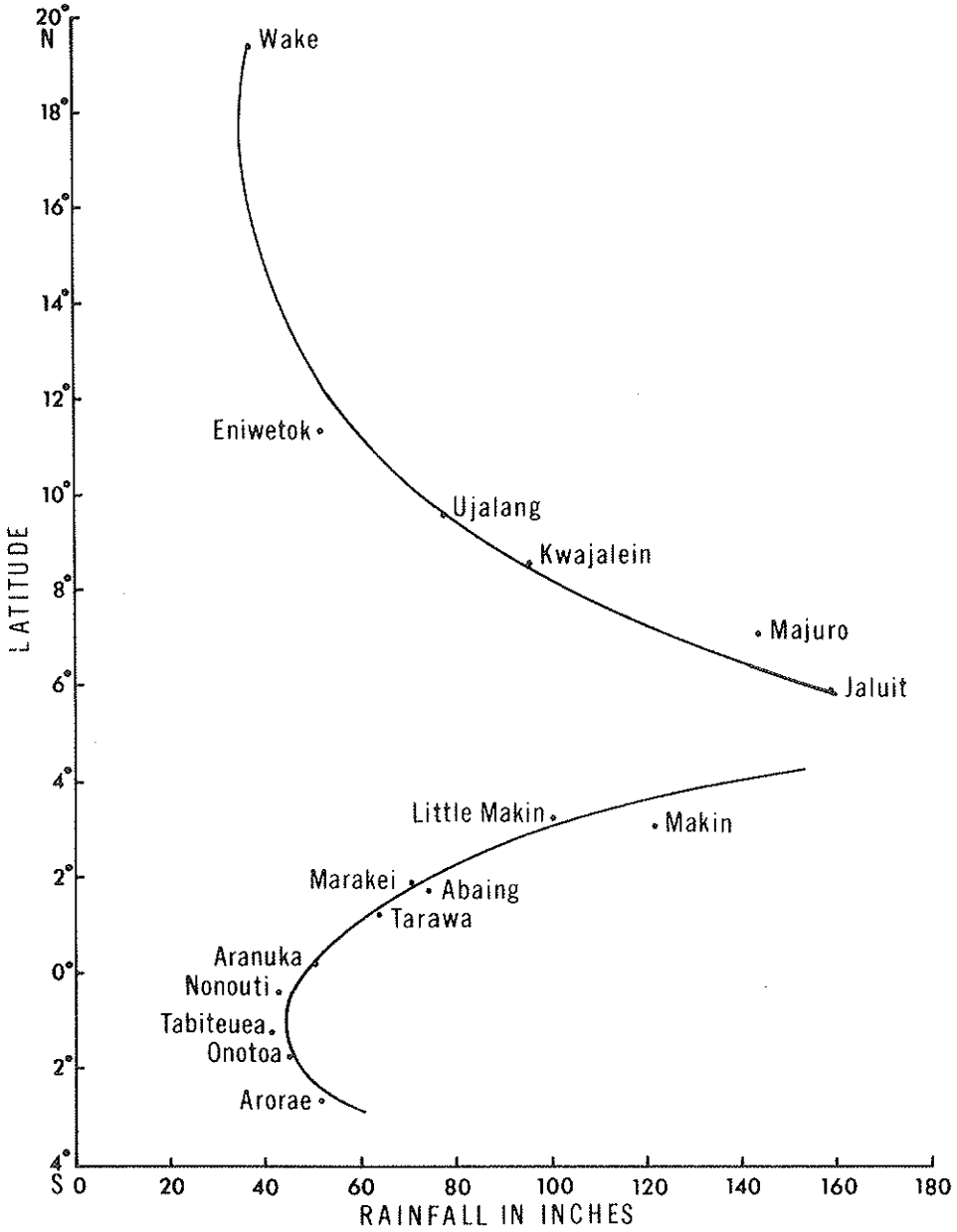


FIGURE 8. Variation of Rainfall with Latitude in the Marshall and Gilbert Area.

recognized four vegetation zones in the Northern Marshalls, each running in an east-west belt, and arranged from north to south corresponding to increasing degrees of wetness (Figure 5, Zone 1-4).

The northernmost belt (Zone 1), containing only Taongi (and Wake north of the Marshalls), is so arid that coconut does not thrive well. One small tree was seen in April 1967. The plant species are few and the island appears very bare. Low scrub forest makes up most of the cover; much open ground, composed of loose stones and sand covered with grass and scattered morning-glories, can be found.

The second belt (Zone 2), consisting also of one atoll, Bikar, is slightly wetter and will support coconut trees, but during dry periods normal nuts will not develop. As in Zone 1, the number of plant species is very low, but here the dominant vegetation is a pure Pisonia forest composed of large trees whose crowns form a complete canopy.

The third belt (Zone 3) consists of 7 atolls, from Eniwetok in the west to Utirik in the east, between 12° N and 11° N. This zone has a more diverse vegetation and a larger number of plants, including, in addition to those of Zones 1 and 2, Cordia forest, Pemphis forest, and mixed forest. Coconuts have been planted on the larger islands, but their growth is sparse and they usually produce rather small nuts. During the dry season the general aspect of the atolls in Zone 3 is quite drab.

The fourth belt (Zone 4) consists of 12 atolls, from Ujelang in the west to Maloelap in the east, between 11° N and 08°30' N. Zone 4 is characterized by a much more luxuriant appearance and a greater diversity of species than Zones 1, 2, and 3. Of particular note are the pure forests of Ochrosia and the occurrence of many introduced plants. Coconut plantations are extensive throughout Zone 4; breadfruit trees often predominate in the neighborhood of native villages.

In the Southern Marshalls Wiens (1962) distinguished between two additional zones (Figure 5, Zone 5-6). Zone 5 includes 7 atolls, all lying between 08°30' N and 06°30' N. It is characterized by moderately heavy rainfall; the vegetation is extremely luxuriant (more so than in Zone 4). Coconut trees are thick, very tall, and produce excellent copra. Breadfruit trees are also very tall. Undercover vegetation is very thick.

The southernmost vegetation belt in the Marshalls, Zone 6, comprises 6 atolls, situated between 06°30' N and 04° N. Zone 6 is characterized by very heavy rainfall and extremely luxuriant vegetation. This zone, because of heavy rainfall and numerous plant introductions by man, especially on Jaluit, probably contains the largest number of plant species in the Marshalls, even though many plants at Jaluit were destroyed by the January 1958 typhoon.

Catala (1957) divided the Gilberts into three rainfall zones. Wiens (1962) suggested that these would presumably be reflected in the vegetation, but pointed out that Catala divided the coconut palm into only two

zones - a northern zone (Zones 1 and 2) and a southern zone (Zone 3). Wiens declined further comment on Gilbert vegetation zones due to insufficient data. POBSP vegetation data obtained during the November 1964 visit to four of the northern Gilberts, and vegetation studies by Luomala (1953), Moul (1957), and Catala (1957) substantiate the idea of vegetation zones (Figure 5, Zones 7-9) coinciding with the three rainfall zones.

The two northernmost Gilbert Islands (Zone 7), between 04° N and 03° N, are characterized by an extremely luxuriant flora, comparable to that of Zone 5 in the Marshalls. Both zones have moderately heavy rainfall. The coconut trees in Zone 7 are generally very thick and tall, and copra production is high. Other trees are also very high; the undercover vegetation is very thick.

The eighth vegetation belt (Zone 8) in the Marshall-Gilbert area, consisting of 7 Gilbert atolls, is located between 03° N and 0°, and is characterized by a very luxuriant appearance. Zone 8 is comparable to Zone 4 of the Marshalls. The extensive coconut plantations are not quite as thick and tall as in the more northern Gilberts (Zone 7). Even though Zone 8 is drier than Zone 7, it has more recorded plant species. This is mainly due to the number recorded at Tarawa which has had many foreign plant introductions and more botanical studies. In general, this zone also has sparse undercover vegetation, but on some atolls and in some spots (especially around inland ponds, taro pits, etc.) this undergrowth is very thick.

The southernmost vegetation belt (Zone 9) in the Marshall-Gilbert area consists of the 7 islands located in the Southern Gilberts between 0° and 03° S. This zone is characterized by having most of the land covered with medium-sized coconut trees. The coconut groves range from dense, to thin, irregular and scattered trees. Undercover growth is thicker in the sparse groves. This zone probably compares similarly to Zone 3 of the Marshalls.

Vegetation, both in number of species and in amount, greatly affects the bird distribution in the Marshall-Gilbert area. The few plant species and low, scattered, scrub forest of the Northern Marshalls is very favorable for both ground- and tree-nesting bird species. As the plant species increase in number and amount from north to south, the number of bird species decreases. The high number of plant species coupled with luxuriant growth in the Southern Marshalls and Northern Gilberts is favorable only for the tree-nesting bird species.

Ocean Currents

The ocean current system in the region of the Marshall and Gilbert Islands consists primarily of the westward moving North and South Equatorial Currents, and the Equatorial Countercurrent that sets eastward between them. The North Equatorial Current (generally above 9° N) is usually weaker than the South Equatorial Current (generally below 4° N) It averages about 0.4 knots (with flow up to 2 knots). The South

Equatorial Current may reach a velocity of 3 to 4 knots. Eastward sets may occur in both Equatorial Currents. (U.S. Navy, 1962, 1964).

The eastward-flowing Equatorial Countercurrent lies north of the Equator generally between 4° N and 9° N, most commonly between 5° N and 8° N. Current flow ranges between 0.4 knots and 2 knots per hour. The boundaries between this 300-mile wide Countercurrent and the North and South Equatorial Currents are well defined; however, at times water from either equatorial current may pass into the countercurrent (U.S. Navy, 1962, 1964). A spiral circulation of water occurs along these boundaries. Convergence at the southern boundary of the Equatorial Countercurrent and divergence at its northern boundary result in sinking and upwelling, respectively. This continual turnover of water, and the nutrients thus carried, creates narrow but well-defined zones of increased productivity (King, 1967; see also Reid, 1962, and Roden, 1963).

The ocean currents in the Marshall-Gilbert area indirectly affect seabird distribution. Oceanic upwellings increase the concentration of nutrients which in turn influence the food of many seabirds. This is discussed further under the Food Section.

Food

The amount of food available to seabirds in the Marshall-Gilbert area, as elsewhere, is related in an indirect way to the concentration of nutrient salts dissolved in the water. These salts are not distributed evenly, but are concentrated in some areas due to sea water circulation such as at the boundaries of the Equatorial Countercurrent. The nutrient salts are taken up by microscopic planktonic animals which are in turn eaten by larger invertebrates and fish. Birds are attracted to such areas because of the abundance of the latter. They feed on the small fish or squid which have been driven to the surface by still larger fish (King, 1967); therefore, large flocks of seabirds, particularly terns and noddies, are frequently seen above schools of tuna.

Very little is known about the food preferences of seabirds in the Marshall-Gilberts. Food samples were taken from most birds collected during the 1964 and 1967 POBSP Marshall-Gilbert visits. These samples have not, as yet, been analyzed.

Further at-sea data are needed throughout the Marshall-Gilbert area to discover if the boundaries of the Equatorial Countercurrent are a major feeding ground for area seabirds.

The food preference of area land and fresh-water birds is entirely different from that of seabirds. Most eat insects, crustaceans, and small lizards; a few eat seeds, grain, and fruit. All of these food elements are found throughout the Marshall-Gilbert area.

Predation

Man

The 1964 population of the Marshall Islands was 18,204 people (U. S. State Department, 1965), while the most recent (1950) population count of the Gilbert Islands showed 29,830 people (Catala, 1957). An average of 759 people (260 per square mile) live on each of the Marshall Islands; an average of 1,864 people (261 people per square mile) live on each of the Gilbert Islands (Table 41).

Although the average number of people per square mile is similar in both island groups, there is an increase from Zone 1 to Zone 5 (0; 0; 40; 245; 435 people per square mile, respectively), a decrease in Zone 6 (247 people per square mile), and a high of 468 people per square mile in Zone 7. There is a decrease in Zone 8 (221 people per square mile) and a slight increase in Zone 9 (271 people per square mile). The distribution of people follows a pattern similar to that of rainfall and vegetation. The location of major ports (Kwajalein, Majuro, Makin, and Tarawa) has a bearing on the number of people per zone.

Man has greatly affected the bird distribution throughout the Marshall-Gilbert area. Man has established himself in the more economically favorable regions of the area, namely those zones that have sufficient rainfall to produce a good coconut crop. Man has planted more and more coconut trees in these zones. As man's numbers have increased, original vegetation has gradually been reduced. This in turn has reduced the available niches in which the different bird species nest. Some species have adapted to nesting in coconut trees (White Tern, Brown Noddy, White-tailed Tropicbird); others, mainly ground-nesters, have been driven to small islets within the atoll or completely away to other atolls.

Many Marshallese and Gilbertese, even today, eat wild birds and their eggs. Early Marshallese knew that the northernmost of the Marshall Islands - Taongi and Bikar - were the breeding grounds for thousands of seabirds. Instead of visiting these islands year-round, they set them aside as bird sanctuaries and only visited them two or three times a year for gathering eggs, birds, and turtles. Other islands such as Jemo were also considered as bird sanctuaries. Even small islands within atolls (such as Eniwetak at Kwajalein) were regarded as bird sanctuaries (Fosberg, 1957). Taongi and Bikar, today, are infrequently visited by the Marshallese for egg and bird collecting. Islands within Taka and Jaluit Atolls are also still considered to be bird sanctuaries. It is hoped that all of these will remain as such.

Other Animals

Mammals -- Six species of mammals, besides man, occur in the Marshall-Gilbert area. These are pigs, dogs, cats, and three rodents. The first

three are recent introductions and occur on most islands where man is found. On some islands feral dogs and cats exist. Two of the rodents, Mus musculus, the House Mouse, and Rattus rattus, the Roof Rat, also are recent introductions and occur on islands inhabited by man, especially those with major ports. One rodent, Rattus exulans, occurs throughout the Marshall and Gilbert area. It was probably brought to the area as a stowaway aboard the canoes and vessels of early man.

Although all six of these mammals are potential predators of birds, only the feral cats and the two rat species are important in this respect. Feral cats, especially when present in high numbers, can reduce or destroy entire bird populations (Humphrey, 1965). Both rat species eat bird eggs and young. Rattus exulans has been known to kill adult albatrosses elsewhere in the Pacific (Kepler, 1967). Since Rattus exulans exists throughout the Marshall-Gilbert area, it possibly affects the distribution of some bird species, especially those which occur in small numbers.

Birds -- No birds of prey are known to occur in the Marshall-Gilbert area. Fosberg (1967), however, reported finding what was possibly an owl pellet at Jemo Island in December 1951. The Great Frigatebird, especially the adult female and subadult, are known to prey on the young of other birds such as the Sooty Terns and Brown Noddies. This predaceous activity has not, as yet, been observed in the Marshall-Gilbert area.

Reptiles -- Eight species of lizards, including skinks and geckoes, occur in the Marshall-Gilberts. Very few have been collected, thus, the species involved and distribution of each is unknown. Marshall (1956), Woodbury (1962), and Moul (1954) reported lizards from, respectively, Arno Atoll (6 species), Eniwetok Atoll (5 species), and Onotoa Atoll (2 species). POBSP personnel collected lizards from the area in 1964 and 1967.

An unidentified blind snake has been reported from Eniwetok Atoll (Woodbury, 1962). No snakes occur elsewhere in the Marshall-Gilberts.

Of the 9 reptile species that occur in the Marshall-Gilberts only the Monitor Lizard, Varanus indicus, is known to prey on birds and their eggs. This very large lizard is present only at Eniwetok, where it was introduced by the Japanese (Fosberg, 1956; Woodbury, 1962). Some birds probably eat the smaller lizards. Golden Plover, for example, have been known to eat lizards on other Central Pacific islands (Clapp, 1967).

Two turtle species, the Green Sea Turtle, Chelonia mydas, and the Hawkbill, C. imbricate, occur in the Marshall-Gilbert area. Green Sea Turtles are very numerous in the northernmost Marshalls, especially at Bikar (Fosberg, 1956). During egg laying, adult sea turtles may destroy the nests of ground or low-nesting birds. This has not been observed in the Marshall-Gilberts, but has been observed in the Leeward Hawaiian Islands (POBSP unpublished data).

Invertebrates -- Of the many invertebrates that occur throughout the Marshall-Gilbert area, crabs are the only group that may be considered bird predators. Two hermit crabs, the common Soldier Crab (Coenobita rugosa) and the Coconut Crab (Birgus latro) will eat both bird eggs and young birds.

Appendix A. Bird Banding and Movement within the Marshall-Gilbert area.

Over 2,000,000 birds have now been banded, using U.S. Fish and Wildlife bands, in the Central Pacific by POBSP personnel. Birds, totaling 6,874, of 16 species have been banded in the Marshall-Gilbert area. In 1964, POBSP personnel banded 5,353 birds of 13 species within this area. In addition, 1,523 bands (obtained from the POBSP) were placed on 5 species of birds at Eniwetok Atoll by Bowling Green State University personnel during 1965 and 1967. Data for these bands are listed below.

Species	Taongi	Bikar	Eniwetok	Jemo	Erikub	Makin	Total
Wedge-tailed Shearwater	499	-	-	-	-	-	499
Red-tailed Tropicbird	36	35	-	-	-	-	71
White-tailed Tropicbird	-	6	-	-	-	-	6
Blue-faced Booby	106	106	-	-	-	-	212
Red-footed Booby	335	376	-	-	-	-	711
Brown Booby	24	167	-	-	46	-	237
Great Frigatebird	1	10	-	-	-	-	11
Golden Plover	76	1	-	5	-	1	83
Bristle-thighed Curlew	11	1	-	-	-	-	12
Wandering Tattler	1	-	-	-	-	-	1
Black-naped Tern	-	-	1	-	-	-	1
Sooty Tern	2091	1400	1171	-	-	-	4662
Blue-gray Noddy	-	1	-	-	-	-	1
Brown Noddy	-	-	314	-	-	-	314
Black Noddy	-	-	12	-	-	-	12
White Tern	16	-	25	-	-	-	41
TOTAL	3196	2103	1523	5	46	1	6874

Very little is known of bird movements within the Marshall-Gilbert area. Woodbury (1963) marked 151 birds of 4 species with colored plastic strips on 4 May 1963. Three of these (2 Brown Noddies, 1 Sooty Tern) later were observed at Jaluit Atoll. Another, an adult Brown Noddy, appeared at Johnston Atoll in the late summer of 1963. This same individual or another was captured and banded (USF&W #753-26101) at Johnston Atoll on 10 June 1964 (first seen unbanded 11 August 1963); this bird was sitting on an egg when banded at Johnston.

Thirty-nine banded birds of eight species are now known to have moved to or within the Marshall-Gilbert area. Data for these are listed below.

Band No.	Location of banding	Age	Sex	Date of banding	Location of recovery	Date of recovery
Laysan Albatross						
737-96545	Kure	A	U	03-26-65	Mejit	06-early-65
Blue-faced Booby						
737-23929	Birnie	A	U	02-22-64	Nikunau	10-?-64
757-65528	Phoenix	I	U	11-03-64	Makin	02-09-66
568-71340	Howland	L	U	07-22-64	Makin	10-05-64
Red-footed Booby						
727-86501	Howland	I	U	10-19-63	Jaluit	12-29-64
747-54951	Enderbury	A	U	11-19-63	Jaluit	04-05-65
747-55040	Wake	I	U	01-05-65	Likiep	07-31-65
757-25658	Laysan	I	U	08-09-65	Namu	04-08-66
Brown Booby						
737-45292	Kure	I	U	10-04-63	Majuro	04-17-64
737-80545	Bikar	A	M	10-14-64	Likiep	07-31-65
737-80678	Bikar	A	M	10-17-64	Likiep	07-31-65
Great Frigatebird						
737-44881	Johnston	A	M	08-19-65	Wotje	04-01-67
737-49162	Enderbury	N	U	11-18-63	Arorae	10-08-64
Lesser Frigatebird						
747-58262	Howland	N	U	10-11-64	Tarawa	04-05-65
747-58298	Howland	N	U	10-11-64	Maiana	08-17-65
747-63125	Phoenix	N	U	11-04-64	Tamaroa	04-13-65
747-63560	Phoenix	N	U	11-06-64	Arorae	06-15-65
Ruddy Turnstone						
652-48214	St. George*	I	U	08-21-64	Majuro	09-26-64
652-48520	"	A	U	08-22-64	Mejit	09-15-64
652-48706	"	A	U	08-22-64	Arno	05-30-65
652-48906	"	I	U	08-24-64	Majuro	10-03-64
652-49049	"	I	U	08-26-64	Jaluit	11-01-64
652-49186	"	I	U	08-31-64	Makin	11-14-64
652-49262	"	I	U	08-27-64	Majuro	10-16-64
652-49559	"	A	U	09-02-64	Ailinglapalap	09-18-64
712-05074	"	A	U	08-10-65	Kwajalein	01-19-66
712-05256	"	A	U	08-11-65	Jaluit	09-10-66
712-06168	"	A	U	08-21-65	Kwajalein	05-?-66
712-06518	"	A	U	08-23-65	Majuro	10-04-66
712-07274	"	A	U	08-26-65	Arno	10-18-65
712-07926	"	A	U	09-24-65	Majuro	10-04-66
722-13867	"	I	U	08-18-66	Majuro	11-19-66
722-15253	"	I	U	08-23-66	Majuro	09-28-66
722-15899	"	A	U	08-25-66	Jaluit	10-01-66

*Alaska

Band No.	Location of banding	Age	Sex	Date of banding	Location of recovery	Date of recovery
722-16382	St. George	I	U	08-30-66	Jaluit	12-01-66
722-17067	"	A	U	09-01-66	Mili	06-?-66
722-17562	"	I	U	09-04-66	Majuro	09-28-66
1103-03434	"	A	U	08-26-67	Lib	09-26-67
Sooty Tern						
903-34664	Laysan	A	U	06-12-66	Kwajalein	06-21-67

Appendix B. Native names of common birds found in the Marshall and Gilbert Islands.

Scientific	English	Gilbertese*	Marshallese**
Diomedea nigripes	Black-footed Albatross	---	Le [l^{y}eiy]
Diomedea immutabilis	Laysan Albatross	---	Le [l^{y}eiy]
Pterodroma alba	Phoenix Petrel	Tangiuoua	---
Puffinus pacificus	Wedge-tailed Shearwater	Korobaro	?
Puffinus griseus	Sooty Shearwater	?	Mentil [m^{y}an^{y}teil^{y}]
Puffinus tenuirostris	Slender-billed Shearwater	?	Mentil [m^{y}an^{y}teil^{y}]
Puffinus nativitatus	Christmas Shearwater	Tinebu	?
Puffinus lherminieri	Audubon's Shearwater	Nna	---
Nesofregatta albigularis	White-throated Storm Petrel	Bwebwe-ni-marawa	---
Phaethon rubricauda	Red-tailed Tropicbird	Taake	Lokwäjik [l^{y}awqayjik]
Phaethon lepturus	White-tailed Tropicbird	Ngutu	Jibkorej [jipkewrej] Jikorej [jiykewrej]
Sula dactylatra	Blue-faced Booby	Mouakena	Lellap [l^{y}eil^{y}l^{y}ap]
Sula sula	Red-footed Booby	Kota	Nana [n^{y}ahn^{y}ah]
Sula leucogaster	Brown Booby	Kibui	Kalo [kahlew] Tol [tal^{w}] (E)
Fregata minor	Great Frigatebird	Eitei	Ak [hak] Torlöh [tewerl^{y}eig]
Fregata ariel	Lesser Frigatebird	Eitei	Ak [hak]

Appendix B. Native names of common birds found in the Marshall and Gilbert Islands (cont.).

Scientific	English	Gilbertese*	Marshallese**
Egretta sacra	Reef Heron	Kaai	Kabaj [kahbaj]
Anas platyrhynchos	Mallard	Tiriwenei	Roḥanbat [rag^{w}an^{y}pat]
Anas clypeata	Northern Shoveler	Tiriwenei	Roḥanbat [rag^{w}an^{y}pat]
Pluvialis dominica	Golden Plover (breeding plumage) (nonbreeding plumage)	Kun	Kolej [qel^{y}yej] Lakeke [lakeiykeiy]
Numenius phaeopus	Whimbrel	?	Kowak [kewwak]
Numenius tahitiensis	Bristle-thighed Curlew	Kewe	Kökkök [kekkek]
Limosa lapponica	Bar-tailed Godwit	Kaka	?
Heteroscelus incanum	Wandering Tattler	Kiriri	Kidrid [kidid]
Arenaria interpres	Ruddy Turnstone (breeding plumage) (nonbreeding plumage)	Kitiba	Kötköt [ketket] (general term) Aerär [hayerayar] (W) Ula [wil^{y}ah] (E) Nakdrid [n^{y}akdid] (W) Na [n^{y}ah] (E)
Crocethia alba	Sanderling	?	Kwöl [qel^{y}]
Sterna sumatrana	Black-naped Tern	Kiakia	Kear [keyyar] Kear-drik [keyyar-dik]
Sterna lunata	Gray-backed Tern	Tarangongo	?
Sterna fuscata	Sooty Tern	Keeu (Kereekere)	Memej [m^{y}m^{y}eij] (E) O [wewew] (W)

Appendix B. Native names of common birds found in the Marshall and Gilbert Islands (cont.).

Scientific	English	Gilbertese*	Marshallese**
Thalasseus bergii	Crested Tern	Karakara (Kabiniwa)	Kear [keyyar] Kear-lab [keyyar-lap] (W) Kear-mwit [keyyar-meit] (E)
Procelsterna cerulea	Blue-gray Noddy	---	Lä̈un Bikar [l^{y}awin^{y} pikahar]
Anous stolidus	Brown Noddy	Lo, Io	Bijwak [peijwak]
Anous tenuirostris	Black Noddy	Mangkiri	Jekad [jekad]
Gygis alba	White Tern	Matawa	Mejo [m^{y}ajaw] Jui [jiwiy] (NW)
Gallicolumba erythroptera	Ground Dove	Bitin	---
Ducula oceanica	Micronesian Pigeon	Rube	Mule [mil^{w}eiy]
Urodynamis taitensis	New Zealand Cuckoo	Kabenei	Udel [wideij]
Asio flammeus (?)	Short-eared Owl	---	Lijemao [l^{y}ijeiymahwew]

* Adapted from Child (1960)

** Traditional spelling given first, followed by phonemicization in brackets. Phonemicization follows in general that used in Bender (in press). Abbreviations E, W, NW in parenthesis indicate variants: eastern, western, northwestern.

LITERATURE CITED

Agassiz, A. 1903. The coral reefs of the tropical Pacific. Mem. Mus. Comp. Zool. 28:1-410, plus 2 vol. plates.

Alexander, W. B. 1928. Birds of the Ocean. G. P. Putnam's Sons, New York.

Alexander, W. B. et al. 1965. The families and genera of the petrels and their names. Ibis 107:401-405.

Amadon, D. 1943. Notes on some non-passerine genera, 3. Amer. Mus. Novit. 1237:1-22.

American Ornithologists' Union. 1957. Checklist of North American birds. 5th ed. Lord Baltimore Press, Baltimore.

Anderson, D. 1951. The plants of Arno Atoll, Marshall Islands. Atoll Res. Bull. 7:1-4, i-vii.

Ashmole, N. P. 1963. The biology of the Wideawake or Sooty Tern Sterna fuscata on Ascension Island. Ibis 103b:297-364.

Baker, R. H. 1948. Report on a collection of birds made by U.S. Naval Medical Research Unit No. 2 in the Pacific war area. Smithsonian Misc. Coll. 107(15):1-74.

Baker, R. H. 1951. The avifauna of Micronesia, its origin, evolution, and distribution. Univ. of Kansas Pub., Mus. of Nat. Hist. 3:1-359.

Bender, B. W. (in press). Spoken Marshallese: an intensive course with gramatical notes and glossary. Univ. Hawaii Press, Honolulu.

Bent, A. C. 1929. Life histories of North American shore birds (part 2). U.S. Nat. Mus. Bull. 146:1-412, i-ix.

Blumenstock, D. I. 1958. Typhoon effects at Jaluit Atoll in the Marshall Islands. Nature 4645:1267-1269.

Blumenstock, D. I. (ed.), 1961. A Report on typhoon effects upon Jaluit. Atoll Res. Bull. 75:1-105.

Bock, W. J. 1958. A generic review of the plovers (Chardriinae, Aves). Bull. Mus. Comp. Zool. 118:27-97.

Bogert, C. 1937. Birds collected during the Whitney South Sea Expedition. xxxiv. The distribution and the migration of the Long-tailed Cuckoo (Urodynamis taitensis, Sparrman). Amer. Mus. Novit. 993:1-12.

Bourne, W. R. P. in R. O. Morris. 1963. The birds of the Gilbert Islands. Sea Swallow 16:79-83.

Bruyns, W. F. J. 1964. Birds seen during west to east Trans-Pacific Crossing along Equatorial Counter-current around Latitude 7° N. in the autumn of 1960. Sea Swallow 17:57-66.

Bryan, E. H., Jr. 1958. Check list and summary of Hawaiian birds. Books about Hawaii, Honolulu.

----- 1965. Birds of the Marshalls. The Marshalls and the Pacific, No. 6. Hourglass Special, Kwajalein (mimeographed), 2pp.

Catala, R. L. A. 1957. Report on the Gilbert Islands: Some Aspects of Human Ecology. Atoll Res. Bull. 59:1-187.

Chamisso, A. von. in von Kotzebue. 1821. A voyage of discovery into the South Sea and Bering Straits. 3 vols. Longman et al., London 2:351-433; 3:1-318.

Child, P. 1960. Birds of the Gilbert and Ellice Islands colony. Atoll Res. Bull. 74:1-38.

Clapp, R. B. and F. C. Sibley. 1967. New distributional records of birds from the Phoenix and Line Islands. Ibis 109:122-125.

Clapp, R. B. and G. M. Tilger. 1967. Predation on Snake-eyed Skink, Ablepharus boutini, by two Pacific Shorebirds. Herpetologica 23(1): 75.

Clapp, R. B. and P. W. Woodward. 1968. New records of birds from the Hawaiian Leeward Islands. U.S. Nat. Mus. 124(3640):39.

Cloud, P. E., Jr. 1952. Preliminary report on the geology and marine environments of Onotoa Atoll, Gilbert Islands. Scientific Investigation in Micronesia Rept. 12:1-73. Washington (mimeographed).

Cox, D. C. 1951a. The hydrology of Arno Atoll. Scientific Investigation in Micronesia Rept. 9:1-29. Washington (mimeographed).

----- 1951b. The Hydrology of Arno Atoll, Marshall Islands. Atoll Res. Bull. 8:1-29.

Cross-cultural Survey. Institute of Human Relations, Yale Univ. 1943. Food and water supply in the Marshall Islands. Strategic Bull. of Oceania 5:1-24. Washington (mimeographed).

Delacour, J. 1954. The Waterfowl of the World. Vol. 1. Country Life Ltd., London.

----- 1959. The Waterfowl of the World. Vol. 3. Country Life Ltd., London.

Doran, E., Jr. 1959. Pacific Missile Range, Point Mugu, Calif. Miscellaneous Publication No. PMR-MP-59-30. Handbook of Selected Pacific Islands. Pp. 1-64.

Findlay, A. G. 1886. A directory for the navigation of the North Pacific Ocean, with descriptions of its coasts, islands, etc., from Panama to Behring Strait and Japan; its winds, currents, and passages. 3rd ed. Richard Holmes Laurie, London.

Finsch, O. 1880a. Beobachtungen uber die Vogel der Inseln Ponape (Carolinen). Journ. f. Ornith. 28:283-295.

----- 1880b. Beobachtungen uber die Vogel der Inseln Kuschai (Carolinen). Journ. f. Ornith. 28:296-310.

----- 1880c. Ornithological letters from the Pacific. No. II. Taluit (Bonham) Island. Ibis 4th ser., 4:218-220.

----- 1880d. Ornithological letters from the Pacific. No. III. Taluit (Bonham) Island. Ibis 4th ser., 4:329-333.

----- 1884. Uber Vogel der Sudsee. Auf Grund eigener beobachtungen and Sammlungen. Mitt. Ornith. Ver. Wien, V. Micronesia: 46-56.

----- 1893a. Ueber die Monasaralle von Kuschai (Kittlitzia Monasa [Kittlitz] and die bisher mit ihr verweschselten Arten). Mitth. Ornith. Ver. Wien, "Die Schwalbe." 17:1-5.

----- 1893b. Einiges uber Sudsee-Rallen. Anzeigeblatt Ornith. Monats. des. Deut. Ver. z. Schutze der Vogelwelt. 18:457-463.

Fisher, H. I. 1946. The type localities of Puffinus pacificus cuneatus Salvin and Pterodroma leucoptera hypoleuca (Salvin). Auk 63:587-588.

Fosberg, F. R. 1954. Soils of the Northern Marshall Atolls with special reference to the Jemo Series. Soil Sci. 78(2):99-107.

----- 1955. Northern Marshall Islands Expedition, 1951-1952. Atoll Res. Bull. 38:1-37, 39:1-22.

----- 1956. Military geography of the northern Marshall Islands. (Mimeo. report, U.S. Army Chief of Engineers, Washington, D.C.).

----- 1957. Lonely Pokak. Living Wilderness 62:1-4.

----- 1966. Marshall Islands land biota II: birds. Atoll Res. Bull. 114:1-35.

Fosberg, F. R. in Blumenstock. 1961. A Report on typhoon effects upon Jaluit. Atoll Res. Bull. 75:1-103.

Gleize, D. A. and D. Genelly. 1945. With the colors. Bull. Mass. Audubon Soc. 29:221-222.

Greenway, J. C., Jr. 1952. Tricholimnas conditicus is probably a synonym of Tricholimnas sylvestris. Breviora 5:1-4.

348-415 O-69—23

Gressitt, J. L. in Blumenstock. 1961. A Report on typhoon effects upon Jaluit. Atoll Res. Bull. 75:69-73.

Hager, C. 1885. Die Marshall-Inseln in Erd-und Volkerkunde, Handel, und Mission, mit einen Anhang: Die Gilbert-Inseln, Leipzig.

Hatheway, Wm. H. 1957. Agricultural notes on the Southern Marshall Islands, 1952. Atoll Res. Bull. 55:1-9.

Humphrey, P. S. 1965. Smithsonian Year. Smithsonian Press, Washington, D. C.

Kenady, R. M., Jr. 1962. The soils of Rongelap Atoll, Marshall Islands. MS thesis, Univ. of Washington, Seattle.

Kepler, C. B. 1967. Polynesian Rat predation upon nesting Laysan Albatross and other Pacific seabirds. Auk 84(3):426-430.

King, W. B. 1967. Preliminary Smithsonian identification manual. Seabirds of the Tropical Pacific Ocean. Smithsonian Institution Press, Washington, D.C.

Kramer, A. and H. Nevermann. 1938. Ralik-Ratak (Marshall-Inseln) in G. Thilenius, Erg. Suds. Exp. II B 11:1-304.

Kuroda, N. in Momiyama. 1922. Birds in Micronesia. A list of the birds of the Micronesian Group. Ornith. Soc. Japan 1:31-78.

Kuroda, O. 1934. On the Ookiashishigi (new name) (Greater Yellowshank) Dobutsugaku Zasshi 46(549).

Luomala, K. 1953. Ethnobotany of the Gilbert Islands. Bishop Mus. Bull. 213:1-129.

Mackenzie, J. B. in Blumenstock. 1961. Population and economy of Jaluit. Atoll Res. Bull. 75:81-88.

Marshall, C. 1956. Long term meteorological variation and their effects on land uses in small South Pacific Islands. Proc. 8th Pac. Sci. Cong. 2A:1129-1135.

Marshall, J. T., Jr. 1951. Vertebrate ecology of Arno Atoll, Marshall Islands. Atoll Res. Bull. 3:1-38.

----- 1955. Rats of Arno Atoll, Marshall Islands. J. Mammal. 36:259-263.

----- 1957. Atolls visited during the first year of the Pacific Islands Rat Ecology Project. Atoll Res. Bull. 56:1-11.

Mason, L. in Freeman, O. T. 1951. Geography of the Pacific. John Wiley, New York.

Mathews, G. M. 1933. Additions and corrections to the 'Systema Avium Australasianarum', III. Ibis 13th ser. 2:132-161.

Mayr, E. 1940. Speciation phenomena in birds. Amer. Nat. 74:249-278, 7 figs.

----- 1945. Birds of the Southwest Pacific. MacMillan Co., New York.

Momiyama, T. 1922. Birds of Micronesia. The Ornith. Soc. Japan 1:1-24.

Morris, R. O. 1963. The birds of the Gilbert Islands. Sea Swallow 16:79-83.

Moul, E. T. 1954. Preliminary report of the land animals at Onotoa Atoll, Gilbert Islands. Atoll Res. Bull. 28:1-28.

----- 1957. Preliminary Report on the Flora of Onotoa Atoll, Gilbert Islands. Atoll Res. Bull. 57:1-48

Murphy, R. C. 1951. The populations of the Wedge-tailed Shearwater (Puffinus pacificus). Amer. Mus. Novit. 1512:1-21.

North, A. J. 1894. Oological Notes. [Cuculidae, Meliphagidae]. T. c. pp. 39-42.

----- 1896. On the Habits of a Cuckoo in the Gilbert Islands. Proc. Zoo. Soc. London 1896:934-935.

Ornithological Society of Japan. 1932. A hand-list of Japanese birds. Revised. Yamashina Inst. for Ornith. and Zool., Tokyo.

----- 1942. A hand-list of Japanese birds. 3rd ed. revised. Yamashina Inst. for Ornith. and Zool., Tokyo.

----- 1958. A hand-list of Japanese birds. 4th ed. revised. Yamashina Inst. for Ornith. and Zool., Tokyo.

Oustalet, M. E. 1896. Les mammiferes et les oiseaux des iles Mariannes. Nouvelles Archives Mus. d'Hist. Nat. (Paris) 8:25-74.

Pearson, A. J. 1962. Field notes of the birds of Ocean Island and Nauru during 1961. Ibis 104:421-424.

Pearson, D. L. and J. W. Knudsen. 1967. Avifauna records from Eniwetok Atoll, Marshall Islands. Condor 69:201-203.

Peters, J. L. 1931. Check-list of birds of the World. Vol. I. Harvard Univ. Press, Cambridge, Mass.

----- 1934. Check-list of birds of the World. Vol. II. Harvard Univ. Press, Cambridge, Mass.

Peters, J. L. 1937. Check-list of birds of the World. Vol. III. Harvard Univ. Press, Cambridge, Mass.

Peters, J. L. and L. Griscom. 1928. A new rail and a new dove from Micronesia. Proc. New England Zool. Club 10:99-106.

Phillips, J. C. 1923. A natural history of the ducks. Houghton Mifflin Co., Boston and New York.

Reichenow, A. 1901. Eine auffallende Vogelzustrasse vom nordwestlichen Nordamerika nach Polynesien. Ornith. Monatsber. 9:17-18.

Reid, J. L., Jr. 1962. On circulation, phosphate-phosphorus content, and zooplankton volumes in the upper part of the Pacific Ocean. Limn. and Ocean. 7:287-306.

Richardson, F. and H. L. Fisher. 1950. Birds of Moku Manu and Manana Islands off Oahu, Hawaii. Auk 67:285-306.

Ripley, S. D. and H. Birckhead. 1942. On the fruit-pigeons of the Ptilinopous purpuratus group. Amer. Mus. Novit. 1192:1-14.

Roden, G. I. 1963. On sea level temperature and salinity variations in the Central Tropical Pacific and on Pacific Ocean Islands. J. Geophysical Res. 68:455-472.

Sachet, M-H. 1957. Climate and Meteorology of the Gilbert Islands. Atoll Res. Bull. 60:1-4 + Tables A-E.

Salvin, O. 1888. Critical notes on the Procellariidae. Ibis, 3d ser. 6:351-360.

Schnee, P. von. 1901. Eine auffallende Vogelzustrasse vom nordwestlichen Nordamerika nach Polynesien. Ornith. Monatsber 9:131-132.

Sibley, F. C. and R. B. Clapp. 1967. Distribution and dispersal of Central Pacific Lesser Frigatebirds. Ibis 109:328-337.

Stone, L. E., Jr. 1951. The soils and agriculture of Arno Atoll, Marshall Islands, Atoll Res. Bulls. 5,6.

Takatsukasa S. and Y. Yamashina. 1932. Second report on birds of the South Sea. Dobutsu. Zasshi 44:221-226.

Taylor, W. R. 1950. Plants of Bikini and other northern Marshall Islands. Univ. Mich. Press, Ann Arbor.

Townsend, C. H. and A. Wetmore. 1919. Reports of the scientific results of the expedition to the Tropical Pacific in charge of Alexander Agassiz on the U.S. Fish Commission Steamer "Albatross" from August 1899 to March 1900, Commander Jefferson F. Moser, U.S.N., commanding. XXI. The Birds. Bull. Mus. Comp. Zool. 63:151-225.

Udvardy, M. D. F. 1961a. Continental migrants and shore birds on Oahu, during 1958-1959. Elepaio 21:47-50.

----- 1961b. Additions to the check list of Hawaiian birds. Elepaio 21:83-90.

U.S. Department of the Navy. 1943. Handbook of the Marshall Islands. Military Govt. Handbook. OPNAV 50E-1:1-113.

----- 1952. Sailing directions for the Pacific Islands Vol. III. The south-central groups. U.S. Naval Oceanographic Office, Washington, D. C. H. O. Pub. No. 80, 6th ed.

----- 1964. Sailing directions for the Pacific Islands Vol. I. Western groups, including the Solomon Islands. U.S. Naval Oceanographic Office, Washington, D.C. H.O. Pub. No. 82, 2nd ed.

----- 1966. Sailing directions for the Pacific Islands. Vol. III. Change 9. The south-central groups. U.S. Naval Oceanographic Office, Washington, D.C. H.O. Pub. No. 80, 6th ed.

U.S. Department of State. 1965. Trust Territory of the Pacific Islands. 18th Annual Report to the United Nations on the Administration of the Trust Territory of the Pacific Islands. July 1, 1964 to June 30, 1965.

Watson, G. E., III. 1966. Seabirds of the Tropical Atlantic Ocean, Smithsonian Institution, Washington, D. C.

Wiglesworth, L. W. 1891a. Aves Polynesiae. A catalogue of the birds of the Polynesian subregion. Abhandl. und Ber. Zool. Mus. Dresden 6:vi, 1-92.

----- 1891b. On the Polynesian members of the genus Ptilopus. Ibis 6th ser. 3:566:584.

----- 1893. Remarks on the birds of the Gilbert Islands. Ibis 6th ser. 5:210-215.

Wiens, H. J. 1957. Field Notes on Atolls Visited in the Marshalls. Atoll Res. Bull. 54:1-23.

----- 1962. Atoll environment and Ecology. Yale Univ. Press, New Haven.

Woodbury, A. N. 1962. A review of the ecology of Eniwetok Atoll, Pacific Ocean. Univ. of Utah Biol. Series 1-137.

Woodford, C. M. 1895. The Gilbert Islands. Geog. Jour. 6:325-350.

Yamashina, Y. 1932a. On a collection of birds' eggs from Micronesia. Tori 7:393-413.

Yamashina, Y. 1932b. On the distribution of the birds in Micronesia. Bull. Biogeogr. Soc. Japan 3:139-148, pls. 8-12.

----- 1940. Some additions to the "List of the birds of Micronesia." Tori 10:673-679.

----- 1948. Notes on the Marianas Mallard. Pacific Science 2:121-124.

----- 1961. Birds in Japan. A Field Guide. Tokyo News Service, Ltd., Tokyo.

Yocom, C. F. 1964. Waterfowl wintering in the Marshall Islands, southwest Pacific Ocean. Auk 81:441-442.

U.S. GOVERNMENT PRINTING OFFICE : 1969 O—348-415