

Alan Anderson
1964

Howland, Baker, McKean

Catalog

Oct. 9, Howland Island, Pacific Ocean

No.1	♂	<u>Sterna fuscata</u> skel L 9x4, R 6x4	181.4 g
No.2	♀	<u>Heteroscoelus incanus</u> ♀ ovary 7m, ova granular, heavy fat. Iris brown, bill dk greenish brown, legs yel. Field No. 40443	93.3 g
No.3	♀	<u>Fregata ariel</u> skel; nesting, ovum 3 mm. moderate fat	86.2 g
No.4	♀	<u>Fregata ariel</u> skel; nesting; ovum 4 mm. moderate fat	83.3 g

Oct. 11

No.5	♀	<u>Fregata ariel</u> nesting; ova 1 mm. Iris brown, eye-ring red, throat reddish, bill blue, ft. red-orange Light fat. Field No. 40452	83.4 g
No.6	♀	<u>Sterna fuscata</u> skel. nesting; ovum 8mm. Iris brown, bill black, feet and legs black. Field No. 40466	19.7 g
No.7	♀	<u>Sterna fuscata</u> skel; nesting; ovum 5mm. Iris brown, bill feet legs black. Field No. 40459	20.3 g
No.8	♀	<u>Sterna fuscata</u> skel; nesting; ovum 2mm. Iris brown, bill legs feet black. Field No. 40461	14.4 g

Oct. 13

No.9	♂	<u>Anous stolidus</u> R 9x5, L 8x4, Iris brown, bill black, legs black w/olive tinge. Field No. 40476	20.3 g
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Howland Island, Pacific Ocean

Oct. 13

No.13	5 ghekkos
No.14	3 skinks

Baker Island, Pacific Ocean

Oct. 14

No.10	16 skinks.
No.11	5 ghekkos

Howland Island

Oct. 11

No.12	♀	<u>Sterna fuscata</u> ♀ ovum 5 mm., heavy fat, Iris brown, bill black, feet and legs black. Field No. 40460	18.0 g
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Howland IslandOctober 11 (cont)

No.15 ♀ Sterna fuscata largest ovum 1mm.
Iris brown, bill feet and legs
black. Light fat. Field No.
40463 14.8 g

Oct. 9

No.16 imm. Sterna fuscata - bill brown-black,
legs and feet dk brown. Field No.
40433 143.8 g

No.17 imm. Sterna fuscata - bill brown-black, legs
and feet dk brown, Field No. 40434 15.1 g

No.18 imm. Sterna fuscata sex?, bill brown-black, legs
and feet dk brown. Field No. 40439 171.7 g

McKean IslandOct. 18

No.19 Sterna fuscata - largest ovum 2mm.
bill black, iris brown, feet and
legs black. Field No. 40491 134.6 g

No.20 ♀ Sterna fuscata - largest ovum 1 mm.,
bill black, iris brown, feet and
legs black. Field No. 40489 15.8 g

No.21 ♀ Sterna fuscata - largest ovum 2 mm.,
bill black, iris brown, feet and
legs black. Field No. 40482 13.4 g

No.22 ♂ Sterna fuscata R 3x2; L 3x2, bill
black, iris brown, feet and legs
black. Field No. 40488 17.4 g

No.23 ♂ Sterna fuscata - R 3x2, L 7x2 - bill
black, iris brown, feet and legs
black. Field No. 40483 14.5 g

No.24 ♂ Sterna fuscata L 9x5, R 5x4, bill
black, iris brown, feet and legs
black. Field No. 40484 15.2 g

No.25 ♀ Sterna fuscata largest ovum 2 mm.
bill black, iris brown, feet and
legs black. Field No. 40486 145.7 g

No.26 ♀ Puffinus l'herminieri largest ovum
2 mm., iris brown, bill black w/bluish
toward base and on lower mandible, feet
and legs pale blue w/black on outer toe
Field No. 40494 17.5 g

No.27 ♂ Anous stolidus - R 2x2, L 2x2, skel.
iris brown, bill black, feet and legs
dark brown. Field No. 40493 15.4 g

No.28 ♀ Sterna fuscata largest ovum 2 mm.
skel iris brown, bill black, legs
and feet black. 40495 = Field No.

A. Anderson
1964

McKean I.

Oct. 20

- No. 29 ♀ Sterna lunata largest ovum 3 mm. skel
iris brown, bill, feet and legs black. Field
No. 40503 11.2 g
- No. 30 ♀ Sterna lunata largest ovum 2 mm. skel. iris
brown, bill, feet and legs black. Field No.
40505. 11.8 g

Oct. 21

- No. 31 ♀ Gygis alba largest ovum, 1.5 mm., iris brown;
bill - front 3/5 black rear 2/5 blue, feet and
legs pale blue. Field No. 40514 103.5 g
- No. 32 Procelsterna cerulea ? iris brown, bill
black, feet and legs black webbing flesh
colored. Field No. 40509 4.8 g
- No. 33 ♀ Procelsterna cerulea - largest ovum 1.5 mm.,
iris brown, bill black, feet and legs black
webbing flesh-colored, Field No. 40513 45.5 g
- No. 34 1 Gekko (sp.A)
- No. 35 10 Gekkos (sp.B)
- No. 36 7 Gekkos
- No. 37 2 Skinks
- No. 38 6 Hatching Skinks
- No. 39 1 Gekko

Sydney Island

Oct. 24

- No. 40 ♀ Heterocoelus incannum ova miniscule, ovary 10 mm., iris
brown, bill dark olive, feet and legs yellow. Field No.
40540 99.2 g
- No. 41 ♀ Pluvialis dominica ova miniscule, ovary 10 mm., iris
brown, black bill, feet and legs dark grey. Field No. 40542
40542 106 g
- No. 42 9 Gekkos.
- No. 43 7 Gekkos.
- No. 44 5 skinks

Phoenix Island

Nov. 5

- No. 45 ♀ Puffinus pacificus, (dark phase) largest ovum 3 mm., skel
legs and feet bluish, white with outer edge black, bill dark,
iris brown.
Field No. 40580 325 g
- No. 46 ♂ Puffinus pacificus (dark phase) L 14x11, R 12x10 skel
legs and feet bluish white with outer dark edge, bill dark,
iris brown.
Field No. 40582 336 g

A. Anderson
1964

Phoenix Island

Nov. 5.

- No. 47 Puffinus pacificus (dark phase) legs and feet bluish white with outer edge dark, bill dark, iris brown.
Field No. 40587 308 g
- No. 48 Puffinus pacificus (dark phase) legs and feet bluish white with outer edge dark, bill dark, iris brown.
Field No. 40585 305 g
- No. 49 Puffinus pacificus (dark phase)
- No. 50 ♀ Puffinus nativitatis largest ovum 3 mm., legs and feet and bill black, iris brown.
Field No. 40576 272 g

Nov. 7

- No. 51 Sula dactylatra alc.
Iris yellow, bill yellow feet and legs blue.
Field No. 40604 1780 g
- No. 52 Sula dactylatra alc.
Iris yellow, bill yellow, legs blue, feet blue-green.
Field No. 40605 1711.5 g
- No. 53 Sula dactylatra alc.
Iris yellow, bill yellow, feet and legs blue
Field No. 40606 1454.9 g
- No. 54 ♂ Fregata minor alc.
Iris brown, bill blue-white, throat patch orange, feet brown, eye-ring black.
Field No. 40407 909.9 g
- No. 55 ♂ Fregata minor alc.
Iris brown, bill brown and white, eye-ring black, throat orange, feet brown.
Field No. 40608 840.1 g
- No. 56 ♀ Fregata minor alc.
Iris brown, eye-ring red, bill blue-white, feet pink.
Field No. 40609 1333.3 g
- No. 57 ♀ Fregata minor alc.
Iris brown, eye-ring red, bill blue-white, feet pink.
Field No. 40610 1170.0 g

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Nov. 12

- No. 58 14 Gekkos.
No. 59 21 Skinks.
No. 60 ♂ Sterna fuscata L 7x5, R 5x3, iris brown, feet bill and legs black.
Field No. 40566 182 g

Nov. 3 (cont.)

- No. 61 ♀ Sterna fuscata largest ovum 2 mm., Iris brown,
bill, legs and feet black.
Field No. 40570 146.8 g
- No. 62 ♂ Sterna fuscata - L 5x3, R 3x2, Iris brown, bill,
legs and feet black.
Field No. 40570 179 g
- No. 63 ♀ Sterna fuscata largest ovum 3 mm., Iris brown,
bill, feet and legs black
Field No. 40563 163 g
- No. 64 ♀ Sterna fuscata largest ovum 1.5 mm., Iris brown,
bill, feet and legs black.
Field No. 40565 151.4 g

Nov. 5

- No. 65 ♂ Sterna lunata ♂ L 6x3, R 5x3, Iris brown, bill,
feet and legs black
Field No. 40589 118.5 g
- No. 66 ♀ Sterna lunata largest ovum 1.5 mm.
Iris brown, bill, legs and feet black
Field No. 40590 106.5 g
- No. 67 ♂ sterna lunata L 5x3, R 4x2.5.
Iris borwn, bill, black, feet, legs black.
Field Ho. 40591 119.5 g
- No. 68 ♂ Sterna lunata L. 5x25, R 2x2, Iris brown,
feet, legs and bill black.
Field No. 40588 127 g

Nov. 3

- No. 69 ♀ Sterna fuscata largest ovum 2 mm., Iris brown,
bill, feet and legs black,
Field No. 40567 153 g

Birnie Island

Nov. 9

- No. 70 ♀ Anous minutus ovary 10 mm., ova minute Skel.
Iris brown, bill black, feet and legs dark.
Field No. 40630 93.9 g
- No. 71 ♂ Anous minutus L 2x2, R 1x1 mm. Skel
Iris brown, bill black, feet and legs black.
Field No. 40627 100 g
- No. 72 ♀ Anous minutus ova minute, ovary 9 mm., Iris
brown, bill, feet and legs black.
Field No. 40629 91.6 g

Phoenix Island

A. Anderson

1964

Nov. 6

- No. 73 ♂ Nesofregatta albiguleris L 7x7, R 4x4, Iris dark skel.
brown, bill, feet and legs black.
Field No. 40601 70.5 g
- No. 74 ♂ Nesofregatta albiguleris L 7x5, R 6x4, Iris brown skel.
bill, feet and legs black.
Field No. 40602 66 g

Jarvis IslandNovember 16

- No. 75 ♀ Fregata minor ovary 12 mm. Skel.
Iris brown, eye-ring pink with light blue lower
lid, bill bluish-gray, gular pouch purplish, feet
and legs pink.
Field No. 40642 1172 g
- No. 76 ♀ Fregata minor ovary 13 mm. Iris brown, eye-ring
pink, bill bluish-gray, gular pouch bluish purple
feet pink.
Field No. 40644 1152.9 g

Christmas Atoll - Motu UpuaNov. 21

- No. 77 ♂ Pterodroma alba L 5x3, R 5x2 Skel.stom.saved.
Iris brown, bill black, feet and legs flesh to first
joint of foot, then black to tip.
Field No. 40673 266 g
- No. 78 ♂ Pterodroma alba L 4x3, R 4x2 Skel stomach saved
Iris brown, bill black, feet and legs flesh colored
to first joint of foot, than black to tip.
Field No. 40671 235.8 g
- No. 79 ♂ Pterodroma alba L 4x3, R 4x2 Skel, stomach saved
Iris brown, bill black, feet and legs flesh-colored to first
joint of foot, then black to tip.
Field No. 40670 230.7 g
- No. 80 ♀ Nesofregatta albigularis largest ovum 3 mm. Skel.,
stomach saved. Iris brown, bill black, legs and feet
black w/some white between toes.
Field No. 40674 60.4 g
- No. 81 2 Gekkos

Christmas - Cook IslandNovember 22

- No. 82 ♀ Anous minutus Largest ovum 1 mm. Stomach saved
Iris brown, bill black, feet and legs mahogany
Field No. 40678 95 g
- No. 83 ♂ Anous minutus L 2.5x1, R 1.5x1 Stomach saved
Iris brown, bill black, feet and legs russet
Field No. 40677 106.5 g

A. Anderson
1964

Christmas - Cook Island

November 22

- No. 84 ♂ Gygis alba testes <1 mm. Stomach saved
Iris brown, bill blue-black, feet and legs blue
w/flesh-colored webbing
Field No. 40689 98.8 g
- No. 85 ♂ Procelsterna cerulea testes 1.5 mm.x0.5 mm. Stomach saved
Iris brown, bill black, feet and legs dark w/lighter
webbing.
Field No. 40682 55.5 g
- No. 86 ♀ Procelsterna cerulea largest ovum 2 mm. Stomach saved
Iris brown, bill black, feet and legs dark gray w/pink
webbing.
Field No. 40683 51 g

London Village, Christmas Island

November 23

- No. 87 9 Gekkos

Cook Island, Christmas Island

23 November

- No. 88 3 Gekkos

- No. 89 1 Skink

Palmyra

November 27

- No. 90 ♀ Duck ovary 13 mm., ova minute - Iris brown, rear 2/3 of bill
black, front 1/3 black, gular pouch black, feet and legs light
brown, webbing black.
Field No. 40696 706.7 g

Washington I.

November 26

- No. 91 1 Gekko, 11 Skinks

Palmyra Island

November 28

- No. 92 2 Gekkos.

50
A Anderson
1964

ATF, At Sea

5 October 1964

Passage of Sooty Shearwaters continued with over 500 birds seen in flocks up to 150. All were bearing from SSE to SSW, consistent with September At Sea observations.

4 Golden Plovers were seen, 2 circling the ship until dark. One landed and was caught. Molt to winter plumage had been completed and the bird had practically no fat. The other was in the process of molting and had two broken primaries.

One probable Phoenix Island Petrel was observed.

Four unidentified Shear - Pets were observed, having whitish rump and throat, translucent gray trailing edges of the wings (? 1/2 the wing area), brown on side of head, grey breast, dark grey or brown above. Flight and silhouette were both similar to Sooty Shearwater, and the observations may have been the result of peculiar lighting conditions (bright overcast light all day) or a color variation of the Sooty. The bird was lighter over-all.

Another unidentified bird resembled a Wedgetail on top and in flight, but had solid dark underwings to go with the light breast.

6 October 1964

Poor observing weather all day, with heavy clouds and frequent showers. Searched all day, as on 5 October, for unverified reef at depth of 3 fathom, somewhere near 173°25'W 8°17'N, with several alerts but no luck.

Sooty Shearwaters continued, but due to our reduced speed of 10 kn. (cut to 5 kn temporarily when the fathometer malfunctioned) and poor visibility we did not approach our total of nearly 900 yesterday. A flock of 60 was the largest.

Another Golden Plover in winter plumage circled the ship for an hour this morning. As of 2000, the one caught last night is in good health.

Dark phase wedgetails are now more prevalent than light phase; in one flock the ratio was 9:1. Yesterday and the day before almost as wedgetails of any kind were seen - before that, light phase prevailed. From here S the darks should almost exclusively prevail.

During a flat calm period in the afternoon before a storm, we observed several doz. floating invertebrates that resemble Physalia, the Portuguese Man-O'-War. They are less than 2" in length and oblong in shape. A sail-like projection is mounted on the main mass of the animal at an angle of about 30° to the axis of the body. They are translucent and colorless. (Velella?)

No. of look type petrels observed was considerably lower than yesterday.

7 October 1964

Continued searching for sunken reef until 1400 when we resumed speed SSW for Howland Is.

Numbers of birds observed fell off considerably, mainly due to decline

56
A. Anderson
1964

in numbers of Sooty Shearwaters. Two Harcourt's (or Leach's) Petrels sighted. A Ruddy Turnstone was netted by a member of the crew after it had flown around the ship for several hours at times flying alongside at the same speed as the ship for up to 10 minutes. We plan to release it on Howland. Golden Plover captured yesterday still alive.

Several more of the as yet unidentified "collared Petrels" were seen, one at very close range. Hope to collect several specimens, as light conditions at sea may be biasing our estimates of color patterns, etc.

8 October 1964

Last day before Howland. Extremely bright overcast most of the day; poor observing conditions.

9 October 1964

Party got up early to assemble gear on deck for landing on Howland. Released Turnstone which landed on ship two days before.

First boat left LIPANat 9:10, set up tents; two more boatloads came in with remainder of gear. After squaring away gear and a short rest we spread out and covered the island, counting Blue-faced Booby nests and eggs and nestlings. They were scattered all over the island with concentration within 100' of the beach, especially at the N and S ends. The middle areas were relatively barren. Nestlings and some immatures were banded.

A large concentration of Sooty Terns was located on a SE corner - there were two main groups, one with independent young and one with eggs. None if the young are ready for flight, but almost all were locals.

Red-footed boobies were localized in a small area of dead Cordia trees on the S central part of the island. Eggs, chicks, and immatures were present in about equal numbers; less than 100 adults were observed.

Lesser Frigates colonized in a large colony with great numbers of nestlings. They were thick in a band about 100' wide x 1000' long, packed every few feet. Several thousand adults hovered above them.

Toward the middle of the afternoon we counted the lesser frigate nests in the Cordia trees, counted, banded, and marked the red-foots in the same area.

10 October 1964

Most noteworthy observation was 12 Common Noddies sitting on the bank along the beach; 9 in one group, 2 and 1 in other spots. One was collected, with several shorebirds. The curlews were all but one in a single flock; turnstones were most often in groups of 3-7, plovers most often from 5-15, tattlers 1-3. The brown boobies were almost all in one club. About 25 black-tipped sharks were seen near shore in 3-4 feet of water, cruising about and apparently feeding. Many 2' gray moray eels hid or swam slowly near shore. Three kinds of sea cucumber were near shore - one was sooner and about 2-3" x 10-14"; another, the most common, was 1' x 6" and black with algal covering; the third is long and snakelike (to 5') and dark purple or black.

58
A. Anderson
1964

HOWLAND I.

10 October 1964, (cont.)

After dark three of us banded sooties and the others, sooty terns. Practically all the nesting birds on the island have been banded already, while about 2/10 of those roosting in clubs along the beach have bands. We found three major clubs of several hundred birds each, working one successfully and totalling over 350 banded blu-faced in several hours. A few brown boobies were caught with several returns. One noddy was banded.

Later observed morays, fishes, crabs, cowries, cucumbers etc. in action at 2 AM along a rock projection on the E side of Howland.

11 October 1964

Bounded up at and went banding lesser frigate chicks in the large colony on S end of island. We did 500 and collected 10 adults, five for skins and five for skeletons. Spent most of the day preparing these. Ship's captain and crew came in after lunch to get sunburned and kindly brought us some lucky lager, ice cold.

Another gray-back tern nest with two eggs has been found toward center of island in Tribulus.

At five went after immature sooty terns and did 600 while seven adults were collected and blood samples were taken from adult and nestling frigates, blue-faced boobies and sooty terns.

Observed the mysterious sooty behavior in which they fly out into the breakers, dip down, and take up water in their bill. It is uncertain whether they simply swallow it or take it back to the young; they seem to make for shore night after doing this. About 10 terns were doing this in any given hundred yds. One adult blue-faced sooty was collected. Turned in at 8.

12 October

Up at 2 AM. We again split the party in half for banding boobies and sooty terns. 3100 sooties were banded by daybreak. At first light in the east, about 5:30 AM, the birds became imperceptibly more restless and flew more readily when about to be banded. By 5:50 AM most of those incubating were no longer sitting on their eggs but standing beside them and quite restless. Lines of 3-8 birds formed randomly in the nesting colony as birds stood side by side ready to take off. By 6 AM the birds were taking off in considerable numbers and were extremely difficult to catch. They flew about over the colony, not taking off to fish at once; the majority were still circling half an hour later.

At 0615 made an activity study from the top of the lighthouse to find about 2,000 lesser frigates stacked up over the SW corner of the island to nearly 1,000 ft. and another 4,000 hovering within 100 of the resting colony at the S end. Most of the sooties in sight flew directly over the colony (est. 40,000 nests), but some were leaving the island westward and a few doz./minute trickled off in other directions.

At 7:15 AM most of us went banding lesser frigate chicks, totalling 900 by 9:30. Three birds were found to have decurved or laterally twisted bills,

56
A. Anderson

1964

the probable result of either an injury when young. The nests themselves are usually about 10" in diameter and are composed of dead Tribulus twigs and guano. May be as close together as 1 ft; most about 16" apart.

Spent most of the day making skins and skeletons of sooties and lesser frigates and one r-t tropic bird. At 6 PM an expedition went to the tern colony again, successfully employing a 8' x 8' framed net held 1' off the ground, as a holding pen to place immatures caught in a hand net. One or two men caught at a half run, dumping them into the hand net until full, when the load was placed in the net for the rest to band. Completed 900 in less than an hour. Went to sleep temporarily at 9 PM.

13 October, 1964 - Howland Island to Baker Island

All went out banding at 2 AM, half of the party catching greater frigates, red-footed boobies (both nesting and roosting in the dead Cordia trees near the center of the island) and blue-faced boobies. One nesting Hawaiian Noddy was found in the trees - the first record for Howland Island. The other half banded sooty terns (adults) in the nesting colony. The sooties repeated their behavior of 12 Oct. by becoming suddenly unbandable at 6 AM.

Followed up by rounding of the young lesser frigates at 2,000. Found another gray-back tern nest on the way back to camp: 2 eggs.

Lest island at 8 AM by rubber raft; ship departed 0900. Rearranged, cleaned, and replenished gear and had a hot meal and shower. Hove to off island shortly after 1300 and with two raft loads were abeach again. Baker Island quite bare of birds compared with Howland; only 5 Sooty terns were sighted until we were within a mile of the island. There, a school of several hundred 20 lb. tuna was feeding vigorously, presumably on squid, as a large school of squid was seen near the island later.

Three of us hiked around the interior of the island country; blue-faced sooty nests and banding and spraying adults. 23 nests were found. Shorebird counts were made: curlews, ruddy turnstones, golden plovers and wandering tattlers were seen in about half the numbers observed on Howland. One curlew was seen to carry a mouse by the tail; when approached it took off and carried the mouse, wobbling slightly, all the way across the island. Mice (Mus musculus) were quite plentiful, living under boards, in holes at the base of Tribulus and Sida plants, and around the old buildings amid machinery. Skinks were as plentiful as on Howland; same species.

A small colony of nesting common noddies had eggs and young on a small oblong island in the middle of a guano filled lagoon of stagnant seepage water. This served to isolate them from the cats that kept all bird populations down before they were exterminated on the last ATF trip. Several new species of plants appear on Baker that were not on Howland: Mimosa, Triumphette, Ipomea, Euphorbia, Sida. The Sida is dry almost everywhere.

Almost no boobies were on the island during the day except nesters but at dark the clubs on the S side of the island had begun to form and swell. Noddies also came in moderate numbers to the colony on the NE corner. Very few boobies (23) nested on the N edge of the island; some were scattered around the interior.

A. Anderson
1964

13 October (cont.)

Activity studies were run every hour.

14 October - Baker Island

Set out at 3 AM for the large club of boobies observed forming in the evening. A party took 40 blood samples from the common noddies, and another took 20 samples from scattered boobies not in the club. Long and I managed about 110 bands before the birds had scattered. The club when we first dipped into it held 400-500 birds; about 100 took off immediately and the rest were semi-workable. Over half a dozen Howland boobies turned up with fresh paint from several days previous. After the club split up for the night it formed scattered groups of 3-7 along the S beach which we worked, banding about a score more. Returned to camp about dawn.

Skinned birds after breakfast and then went banding common noddy chicks in a guano-laden stagnant lagoon fed by oceanic seepage. The colony was on a tiny island (100 yds x 4 yds) in the middle of the lagoon, protecting the nesting birds from the cats which lived here until the last (June - July) ATF trip. The cats seem to have feasted largely on frigates, as many empty oil drums held their skeletons. Presumably the cats had dragged them there to eat. Noddies were in all stages of nesting from egg to flying fledglings. All age young were banded.

After lunch miscellaneous collection of skinks, gekkos, mice and crabs was done. Skinks were very abundant everywhere, and gekkos lived especially on the sides of the lighthouse. Mice could be seen at night every fifty feet. Hermit crabs were more numerous than on Howland; many hundreds could be found in the shade of a barrel or metal wall during the day. Land crabs were more widespread but less abundant.

More skinning after dinner.

Baker Island - October 15

Up at 1 AM to hit the blue-footed booby club again. All six of us (including the botanist) went for them but after we had made one round of bands the entire club took off when our backs were turned. After that we all spread out and picked up what stray we could find. In all, we banded the majority of birds in the club, judging by estimated size of the club as 400. I went to the surf-coral side (E) of the island after this to look for cowries and other nocturnal littoral species but the coast was quite sterile except for the thousands of rock crabs and two gray morays.

Toward midmorning most of us went back to the E side with fish poison and nets. We found hundreds of big-eyes (red squirrel fish), many jacks, surgeon fish, one red snapper, angel fish - about 35 species altogether. Crabs were extremely numerous (not killed).

McKean Island - Oct. 18

Landed McKean 0900 on beach rock at low tide with fairly calm surf situation. No beach landing available. Pitched camp and set out to circle the island with all manner of booby bands and greater frigate bands.

A. Anderson
1964

Oct 18 (cont.)

Birds were found roughly as indicated on the diagram. Nearly a thousand greater frigate nestlings were spread along the W side, 2-4 ft. apart. Red-footed boobies were in the same general area, nesting in dead Sida bushes. Fairy terns, common noddies, and a few Hawaiian noddies roosted and nested on the rock walls of the guano factory remains and on the many gray coral rocks scattered around the W and N side. Gray-sached terns nested thickly on the E side, laying their eggs usually on patches of 1/2" pebbles between larger rocks. Blue-faced boobies nested mostly at the rim of the lagoon on the N, W, and E sides; 200 nestlings were banded and about 40 more were present. A very large colony of lesser frigate nestlings (15-20,000) spread in a narrow band from half-way down the E shore toward the S. Evidence of nesting failure several months ago (corpses and skeletons) remained near the N end of the E side. 5 brown boobies were seen and one nestling was banded. Several ~~Anderson's~~ Shearwaters were found under rocks. Over a dozen nesting L-T Tropicbirds were banded, one return.

Audubon's (CPH)

In the afternoon I banded great frigate chicks - 400 were banded in all. We then took blood samples of adult and immature sooty terns, Anderson's shearwaters. Common noddies, great frigate nestlings, and blue-faced boobies, partly done after dark. After sunset tow of us worked on the blue-faced along the W shore where about 200 pairs were nesting. There was one club of several hundred on the E side of the lagoon but the moon was almost full all night and it was impossible to work the club. The nesters were difficult but much more reluctant to fly. Work ceased shortly after midnight.

October 19

Two banders and photographer went out to the ship in the 8 AM ? to fuge blood samples. The rest of us skinned etc.; a plover, a tattler, and a 'sharp-tailed sandpiper had been collected in the lagoon, as well as a number of sooties and Anderson's which did not survive the blood sampling. Just before low tide we poisoned the reef waters as on Baker. A big difference was the absence of Big-eye dominance; also, all stages of eels (5 or 6 species) abounded here. Several hundred ? - very abundant - were collected, as well as shorefish, coral fish, surgeon fish, a puffer, octopus, ? fish, mullet, 2 flounder types, and thirty of forty others. The tide friendly - ~~xxx~~ like brought in most of the small fish killed and we made a special collection just of those.

In the afternoon we sanded fairy terns, made a shorbird count, and banded lesser frigate nestlings. 21 golden plovers, 86 bristle-thighed curlews, 17 wandering tattlers, and 119 ruddy turnstones were seen. The plovers were scattered in groups up to 4; the curlews sat mainly in the lagoon in groups, of 8-14 with some large flocks on the shore; tattlers were scattered around the shore; and turnstones were both on the shore and in lagoon in numbers from 10-20 one small club of 10 brown boobies perch on the rock crest at the top of the beach.

After dark, I worked blue-faced boobies again while others banded Audobon's shearwater, sooty tern, and a few gray-sached and blue-gray-noddy terns. quit at midnight.

Oct. 20

Early in the morning everyone worked lesser frigate nestlings, bringing

A. Anderson
1964

Oct 20 (cont.)

the total banded to 2,000. Came back and skinned birds, made skeletons. In the afternoon we used the holding net again on immature sooty terns, banding 900. At night most banded adult sooty terns in the dead Sida near camp. (1500) Others banded Audubon's shearwater and miscellaneous terns.

Oct. 21

Began the day by banding 500 immature sooty terns in the Lepturus near the lagoon. Made more skins and skeletons in the heat of the day. Netted Sooty terns in the afternoon, and finished another 1000 frigate nestlings late in the afternoon. 2000 adults after dark.

3 instances of ♀ frigates chasing sooty terns were observed; one chasing fairy tern; one chasing wedgetail; four chasing another frigate. Over 150 dark phase wedgetails were sitting around the guano pile near camp at 2200; no light phase. A wh-th storm petrel, accidentally netted by the alert photographer, was collected; also a dk phase wedgetail with a white head and other whitish bits.

Oct. 22 McKean Island to Gardner Island

Depart McKean 0800 for 6 hr. leg to Gardner; arrived Gardner 1400. Landed at the deserted village and made camp in one of the coconut-frond huts, ideally suited to the climate: no walls. Two men went out after plants, one after miscellany; two took the rubber raft and went all the way to the inland end of the lagoon. The village bore many trees of its recent inhabitants: journals, record books, travel notices, etc. The coconut plantation extends roughly halfway down the west side of the island. The dry weather, causing the death of great patches of coconut trees, has severely limited human visibility on the island and forced British authorities to abandon their 23 yr attempt at establishing a transplanted group of Gilbertese.

I saw two cats, and several others were seen later in the evening. Several dead dogs were found around the village, just a month or less gone. No rats were seen. Gekkos, skinks, and insects were collected data in the evening.

Got up at six and Paul, Bob, and I were taken down to the E end of the lagoon. Woodward and Long collected plants all the way back to camp, one on each side of the lagoon, while I made a bird census along the N side back toward the W side. Several large great frigate colonies in high Pisonia trees were mixed with nesting red-footed boobies. Fairy terns roosted at the outskirts of these colonies. 8 white-tailed tropic birds were seen; also, 4 red-tailed tropic birds, many Hawaiian and common noddies. 17 wandering tattlers, 28 golden plovers, 13 ruddy turnstones, and eight turtle tracks. The lagoon shore was teeming with small fish, including many 1-foot black-tipped sharks. The entire ocean beach crest was fronted with a six-foot stand of Scaevola.

After noon we skinned some of the birds that had been collected, and slit the fish that had been poisoned on the lagoon side over a coral head. More skinks and gekkos were hunted. The ship picked us up at 1600 and we sailed for Sydney.

A. Anderson
1964

Oct. 24 - Sydney Island

Landed Sydney 0900 and took accommodations in a spacious building in excellent repair. Named it the Sydney Hilton as it surely must have been a hotel for visiting Gilbertese coconut specialists, etc.

More coconut trees here than on Gardner, and more widespread; the occupants of the island however, had left for the same reason three years ago: drought killed too many trees. There was a small village $1/3$ mi. W of our hotel (see sketch) now abandoned to quite abundant Polynesian rats and a few stray dogs and cats. The stone floors of the huts hid many $1\ 1/2$ " scorpions as well as numerous beetles, spiders, and roaches. Skinks and gekkos could also be found occasionally, especially around a cement cistern at the center of the village. A different species of gekko was common at the base of the leaves of Mirinda, a lush green bush with 1" white fruits growing to about 10'.

Hermit and other crabs appeared less plentiful here than on most of the islands visited so far.

The lagoon itself is a disgusting affair, sporting 3-5' deep mud, guano, salt and plant material around its edges. It contains many small islands which are probably the results of dead coral heads. The lagoon water drops off sharply at all the points I had the honor to experience to about 20-30 ft. The water is highly saline and stinging to the taste.

Several dozen common noddies and a few gray-backed terns nest on the islets in the lagoon, almost all on the one blacked in on the sketch. In the late afternoon I was chosen to swim out to this place with Nos. 2 and 3 bands. I found 14 noddy chicks and 3 eggs, and 2 gray-back chicks. Paul went out the next morning to get three Berlese samples and, being free from the pressure of coming darkness, found 2 more noddy chicks and a gray-back nest. Evidently this is the only place ground-nesters find safe under the pressure of cat predation.

A whale skull about three ft. long was collected at the E end of the island; also a whole porpoise carcass in fairly good shape was brought home.

Several birds were collected around the lagoon: a gray-backed tern, a common noddy, two golden plover, two wandering tattlers, a sharp-tailed sandpiper, a fairy tern. We caught a tattler and a ruddy turnstone in mist nets set at the edge of the lagoon and sanded them.

Much successful botanizing was done.

Oct. 25

Four white-tailed tropicbirds were seen, and several more fairy terns.

Nov. 3

Arrived Phoenix Island 1630, embarking 2 boatloads. Upon landing the second boat chose to turn sideways, freeing itself of the large majority of its passengers but no damage was done. The field party had assigned two new members, Captain Holway and his assistant, who take over the entomological

A. Anderson
1964

duties of Darwin Lee.

After dark three of us circled the island, working Blue-faced boobies while others blood-sampled birds and rabbits, of which there is a considerable population on the island.

4 November

Boat run made back to the ship as Dick took the blood samples to be centrifuged. The rest of us circled the island counting all booby and great frigate nests and banding blue-faced booby nestlings and all red-foots available. Red-foots have about 20 nests in two Sida patches; blue-faced are nesting mainly at the border between Lepturus and the lagoon all the way around, mainly on N, W, and S sides.

17 Brown boobies were seen roosting on the beach crest on E side; 1 immature was found but no nests.

Sooty terns are present in fairly large numbers, at the end of their breeding cycle, concentrated in the dry Lepturus of the W side, Sida of W and N. Gray-backed terns also are at the last stage of nesting; with many flying young; the colonies are in rocky areas of the NW section. Fairy terns perch on the rocky beach area and inland rocky areas; few seem to be nesting and no eggs were seen. Blue-gray noddies are the most widespread, roosting in random small groups all over the island. Full immature were seen, but none younger.

Great frigates have built about 200 nests, most with large young, mainly on NW corner, near camp. Lesser frigates have a large nesting colony of more than 5000 birds just N E of camp near the edge of the lagoon.

Wedgetails are quite abundant, mainly on the W stretch. Many are nesting. Audubon's shearwaters are abundant and scattered. Christmas Island Shearwater are nesting in moderate numbers in scattered small colonies. Several white-throated storm petrels have been seen; no Phoenix Island Petrels though I heard one last night which was hiding effectively.

Rabbits number probably between 200-400 and are seen commonly only at night; rest under rocks during the daytime.

Vegetation is low and dry, mainly Lepturus with scattered Boerhavia, Sida, and Portulaca; excellent nesting conditions for ground-nesters.

Slept for a few hours in the afternoon and then Paul and I banded lesser frigates until dark, when I did Blue-faced boobies and others did sooties.

5 November

Banded lesser frigates in the morning on our way to a total of 2180 done in the three days. Returned to camp and skeletonized and alcoholized wedge-tails. Afternoon a shorebird count was made, discovering only moderate numbers of four common species. They were evenly dispersed between the shore and the lagoon. The shoreline was largely rocky and not as suited for shorebird feeding as islands such as Howland and McKean.

I again worked Blue-faced boobies, catching almost all the nesting and roosting birds that I had missed the night before on the W side - Several small clubs of 10-100 sat on the E side of the lagoon edge and were unprofitably

A. Anderson
1964

5 November, (cont.)

WORKED. Birds were in all stages of nesting, involving some 200-300 pairs.

Noddies (com) were roosting in large groups (several hundred to a thousand) in the dry lagoon basin and took off en masse upon approaching them. No nesting birds were found.

6 November

In the morning we finished off the allotted lesser frigate bands, reaching 2000. At about 11 Paul and I went S while Fred and Dick went N around the rims for fairy terns. We worked them until they were too skittish late in the afternoon, totalling about 200 banded and several dozen returns. I found one egg, while untwisting my ankle, and several immatures.

At the end of the afternoon Doug and I finished an odd 180 bands on the lesser frigate nestlings.

At night we attacked wedgetails, banding 600. Paul had done 500 the night before; also, each did a hundred Christmas Island shearwaters, which were paired with chicks along the rock ridge of the E shore and the Sesuvium area of the E lagoon shore. The nestlings were mostly downy - few had lost all but a few down feathers. After that everyone did 500 Sooty Terns to round off the banding total for the island at over 16,000.

7 November - Phoenix - Birnie Island

Departed the island 0800 with few regrets and spent the morning rearranging and packing for the coming island which was only about 60 miles away. Got done just before the boats were to pull away and arrived at 1400.

Pitched camp as usual on the leeward side (W) and used the remainder of the daylight to survey the island, counting booby nests: Blue-faced were scattered all over the island in all stages of nesting, and about a dozen browns were spread around the N end, also at all stages. A club began to form just N of the lagoon and later contained over five hundred blue-faced. Common noddies roosted about the lagoon. Sooty Terns flew over the island but were never observed to land, night or day. Several dozen blue-gray noddies flew about but did not seem to be nesting. Fairy terns were quite abundant, several hundred. Some lesser frigates flew over but never were seen to land.

After a few hours sleep to let the moon go down we hit the boobies. I had forgotten the flashlight batteries and there was considerable comment upon this but we managed to collect enough lights so everyone could work. Three of us banded the club and nesters while the other two birdmen took block samples of boobies, noddies, and Polynesian rats, which were very abundant, living under rock, and at the base of the predominant plant Portulaca.

8 November

Actually, what we were doing last night goes in this day because it was after midnight. Worked thru till daylight when we slept for a few hours. In

A. H. Anderson
1964

Birnie

8 November (cont.)

midmorning Paul and I banded Fairy terns (86) around the S rim and interior and got some returns. Also found several common noddy nestlings which we banded around the lagoon.

After noon we all took fish poison to the N W coast and came up with a relatively small number of specimens. Most of the species had been caught at the other fish-collecting islands - surgeon fish, wrasses, a few eels, butterfly fish, blennies, killer whales, etc.

Paul, Dick and I made a futile and circuitous circuit of the island looking for more common noddy chicks finding two (2). Ate and slept till noonset.

9 November Birnie - - Enderbury

Arose at 1 AM to send the whole force out equipped with bands for boobies, common noddies, Hawaiian noddies, and fairy terns. Fred and Dick did several hundred common noddies and Hawaiians from large roosting clubs on the N interior. Common noddies could be picked up fairly often while one walked between roosting boobies and I almost finished a string on them at odd moments; they became impossible to catch when the first light of dawn came without nets and great guile. We caught most of the boobies by dawn and trooped back for the chore of dissmantling and packing gear. Skinned a few odd birds and finished a few odd bands at the last minute and left at 0800.

Barely had time to repack gear as Enderbury was only 37 miles away. Landed at 13:30 and moved into the headquarters for Enderbury guided Tours, Ltd. (very ltd.). Moved off soon (after shovelling several thousand hermit crabs out of the shacks) to scout the S half of the island: Banded blue-faced booby nestlings and counted nests, banded R-t tropicbirds, banded and counted brown booby nestlings and nests, counted greater frigate nestlings in the Messerschmidia and scattered in loose groups on Sida and Lepturus, banded and counted red-foot nestlings and nests in Cordia and Messerschmidia, and gimped "home". Slept while the sooty club formed a hundred yards from our shacks.

10 November

All up at one to do the usual: band blue-faced and get blood samples from everything available. Took 20 blue-faced samples, 20 red-foots, and some sooty terns. Worked the club for about half an hour, getting many returns from Phoenix several from Birnie, several from Howland and 2 from Baker. Then we tried to work the roosting sooty terns by the lagoon but they all flew. Dick, Doug and I walked over to the SE red-foot colony to get the samples in a hurry before we were caught by dawn. Then we took 10 lesser and ten greater frigates to total 100 samples. The ship was meant to be in at 0800 and we all feared that our work would be wasted when the ship crawled nonchallantly on the horizon. They came in at 0900.

At 7:30 all but Dick set out northward for our survey of the other half of the island. We spread out four across, counting and banding; Doug and I hit the tropic birds near the edge nesting under large flat coral rocks, banding about 20 and getting several returns. We stopped at the several acres of Messerschmidia to band all the red-foot nestlings (over a hundred) and count

all the gr. frigate nestlings. Then we moved on until we came to a stand of dead Cordia around the W end of a 20' guano pile: there red-foots were nesting in smaller numbers - 40 or so; also Hawaiian noddies had 16 eggs and 4 nestling which I banded. We saw three fairy terns in the area, so far the only ones seen on the island.

We went on to the N beach crest, finding only occasional blue-faced nests. Paul and I found three turtle skeletons and one newly-hatched corpse which had been dead for a short time. Walked the long hot walk back to camp, seeing one Baker bird, and collapsed for the afternoon. Later, toward sundown, we banded 500 lesser frigate nestlings in the colony near camp.

11 November

Went out at 1 AM again after blue-faced boobies. Paul, Dick and I worked them until dawn. They were far more nervous than the birds on Birnie for instance, and so it was slow progress. Fred, Doug and Bob worked red-footed boobies in the Cordia, taking color notes. At dawn I walked back along the beach crest looking for shearwaters but had no luck. We had all observed a Christmas Island shearwater, a record for the island, the previous dusk and it had flown directly toward the S rock area, as have the other shearwaters (unidentified) that have been seen.

At 7:00 we left with the guided Tour for the other lesser frigate nestlings near the N Messerschmidia patch. Banded 500 of them and then did 500 greater frigate nestlings in the nearby bushes. After finishing our bands Paul and I started out in opposite directions with binoculars for a shore survey. We each covered about 4 mi. of the 8 mi. circumference. This path, not covered by Enderbury Tours, is about 2 1/2 mi. of broken coral rock and 5 1/2 mi. of sand with rocks. An interesting difference in our counts was that I, on the S end, counted 120 golden plovers while Paul on the N saw only 2, though there seemed little difference in the respective natures of the coastline. I also saw 2 fairy terns, 28 bristle-thighed curlews, 148 Ruddy-turnstones, 23 wandering tattlers, and one unidentified dark mottled brown bird with light eye stripe, dark bill and legs, a light brown cap, and mid-way in size - between a plover and a turnstone. No call heard and nothing marked about flight or walk. Banded a red-tailed tropicbird nestling and a gray-backed tern nestling and the way back.

In the afternoon several boobies and frigates were collected; also gekkos and skinks from the buildings and wall of our habitations, getting a good series of both. After dark Paul and I had to catch 13 sooty terns to finish off a string. This was harder than it sound as all the sooties are in the air in between-breeding season's restlessness. Out of a flock of about five hundred a diving crashing attack by us both yielded three birds, and it went like that for the whole 13.

12 November

Up shortly after midnight again to band boobies, this time toward the N end. We stopped at the lesser frigate colony to band adults; Dick and I left the others there to work red-foots and Hawaiian noddies in the Cordia by the guano pile until it became too light to catch anymore,

Packed up the gear and turned the shacks back over to the hermit crabs for another three months. Ship's boat came in at 0800 and we left for the first time with both boats almost dry.

Sailed for mail shop at Canton Is., then headed for Jarvis. Packed and arranged equipment in the afternoon.

13 November

Skinned birds from breakfast to dinner then went to bed.

14 November

Also. (Made two skeletons of white-throated storm petrel).

15 November

LIPAN arrived Jarvis 1000 and after a delay to patch 6" rip in rubber raft landed three smooth trips. Set up shop in spacious house, after driving out the cats and young tropicbirds. Nearby was refreshment stand selling guano jelly and outhouse featuring plain guano.

Paul, Doug and I made circumferential tour of entire island (about 9 mi.) banding and counting nestlings and nests as usual. Large nos. of tropicbirds (nestlings) were under rocks along the W beach and crest. Birds in general had decreased greatly from last ATF trip (March), apparently due to cat predation. Island very dry, nos. of cats down also, plants down. Fred and Dick went cat hunting all afternoon and were only able to exterminate 12. The entomologists saw 8 and we saw 3. They are very strong and fast, capable of killing frigate birds and running the length of the island.

The entire E and N shores of the island were shadowed by a band of hovering sooty terns perhaps 100 yds wide on the average. At one point of the Central N section a large flock had settled to the ground but all took off when approached. They are apparently beginning their nesting cycle but may be unbandable during our stay.

Red-footed boobies were nesting in two places: near camp and near the lighthouse. Almost all the birds on the island were in these two places.

Both greater and lesser frigates were roosting in small numbers near camp.

Few other birds were seen, except for brown boobies which roosted (only 3 nests found) on the middle W shore. Paul and I saw two fairy terns.

Items of special interest:

- 1) Paul saw Sanderling; doug saw golden plover
- 2) I saw probable Howland bird (worn red paint)
- 3) I saw mouse; Fred caught one
- 4) I found one blue-faced booby incubating from eggs; one red-foot sitting on empty nest with four eggs and one shell scattered around it.

Upon returning to camp observed 5 major booby clubs forming. One near camp, one at the opposite extreme of the island, the other three in the middle. Sooty terns still in the air.

16 November

Party rolled out after midnight to work during the darkest possible hours - moonset was at about 3:30. Some of us worked boobies, which were quite jumpy.

There are four or five large clubs, one of which we were able to work successfully after moonset. The other men tried for blood samples of cats and boobies. The cat population is down a great deal since March when over 200 were exterminated. Only a dozen were caught last night. They live in holes in 5' furrows of guano near the lighthouse and feed mainly on sooty terns, sometimes on frigates. Several use a wrecked Japanese fishing vessel as hideout.

Bird catching became very difficult at first light and we returned to camp before setting out to finish banding the blue-faced and red-foot nestlings on the S shore. After finishing that we went after cats - Paul and I each ran down two and Fred shot three. Though the population is very low it will be difficult to eliminate since there are many hiding places that can only be discovered by chance.

Returned to camp and rested until dark when island-wide booby banding expedition No. 2 was launched. Most of us banded until dawn, which should not be done too often in one lifetime.

17 November

Paul and I staggered in around 6:30 AM from banding and found the others back. Slept till past 11. Some greater frigates were collected which we skeletonized in the afternoon. Ships crew came in to explore our tantalizing island - they could resist no longer.

Yesterday Paul reported seeing a sanderling and a Christmas Island shearwater ~ both possible records for the island.

After dark everyone went booby banding which is rapidly losing its appeal.

18 November

The sun came up early this morning and remained up for the remainder of the day. While it was doing this Paul and I skeletonized blue-faced boobies. Also in the morning we poisoned the reef on the SW curve of the island. In this area the reef is quite old with tunnels, deep pools, and large hollows. It has more algal growth than that of the other islands visited, and noticeably fewer crabs than most. The crabs were a different species, about 1/3 the size of those found on Baker.

The fish were typical - lsurgeons, Abudefdufs, butterfly fish big-eyes, ? , etc. Found several new species. The surf was rough and fish did not wash in as well as at McKean for instance; lost many specimens in the great foamy, and almost several collectors.

Skinned and skeletonized. Crew came in with beer. Good.

After dark all after boobies and cats again. Clubs impossible and single birds difficult without a booby-snatching stick. Brings total to a paltry 1400 due to full moon all night at this point.

19 November

Went out to E L LIPAN with the 8 o'clock boat run to run Berlese samples. Enjoyed a good lunch for a change. The other made a shorebird count. Did odd things in the afternoon and went out for boobies right after dark. The full

moon was by now allowing us almost an hour's darkness before rising. Banded until late.

20 November

Embarked Jarvis 0800 and spent 24 hrs on the ship. Sorted and wrapped fish and prepared gear. Horrid movie.

21 November

Ship was aptly greeted at daybreak by several Christmas Island shearwaters. Arrived at Christmas 0820 and rode in luxury aboard the launch, towing our battered raft behind. Spent some time sitting around while landing permission etc. were established with the commissions. Fred and Paul set out on a long range survey of the main island via Sand Rova and bicycle while Doug, Dick, Bob, photographer and I arranged to hit the three major lagoon islands with the raft.

Puttered off for Motu Upua around noon and landed far from capsite due to low tide - flats of powdered dead coral stretch for half a mile E and S from the island and a rise in tide of about a foot covers it all.

After arranging camp I made a shorebird count while the others surveyed the interior. Found moderate numbers of wandering tattlers and golden plovers and curlews, a few turnstones, and as unusual birds. Saw three crested terns, one sitting on the flats. Many black-tipped sharks less than 2 ft. cruised about the flats and morays waited in tiny pools for the tide to rise. The area was rich in sea cucumbers, and pelecypod life was apparently flourishing and diverse from the shells washed up on shore. Many ? especially.

Tropicbirds were nesting at the base of a high percentage of Scaevola bushes - found one egg and banded some nestlings. Christmas Island shearwaters were also in all stages of nesting and often in the same areas as tropicbirds. Phoenix island petrels were not nesting ~~and often in the same areas~~, with one or two exceptions. Fairy terns and blue-gray noddies were present in moderate numbers and there were about 150 red-footed boobies and less than 100 greater frigates. Neither were nesting.

Began blood sampling in the afternoon and continued until one am with time while the moon had not risen spent banding. Sampled 35 Phoenix Island, 35 Christmas Island, 20 red-footed boobies, 10 greater frigates. Banded Phoenix Is. Pet. and Christmas Is. Shearwaters.

22 November

Alarm rang at 6:45 and we moved off shortly afterward, back to base camp near Loudon. The commissioner had awarded us two rooms in the officer's quarters and the use of shower etc. We had a conference with the others who had returned by Land Rover and handed over Bob Long who wanted to collect plants on the main island as the smaller islets had been done quite thoroughly.

Six Shearwaters and Petrels had not survived blood sampling and one white-throated storm petrel had been collected and Doug and I skeletonized these under rather luxurious circumstances, on the porch of the officer's quarters. We finished in early afternoon and then had to wait for Dick to be brought back in from the ship where he had been running the blood samples. Due to poor transport agreements we waited in mid-channel off Loudon until 1600

we intercepted the ? and proceeded to Cook Island.

On Cook there were noticeably less Phoenix Island Petrels and Christmas Island Shearwaters than on Motu Upua, but more blue-gray noddies and fairy terns. Red-tailed tropicbirds were nesting heavily on the N side. A cloud of sooty terns hung over the S central part but were impossible to catch. Nested terns were flying over the island, usually in pairs. Hawaiian noddies were present in moderate numbers. Strangely, fairy terns were nesting here but not on Motu Upua. Some red-foots roosted in Messerschmidia - <100. The same shorebirds were present as at Upua with the exception of 3 sanderling, two of which were collected.

After setting up camp I took a shorebird count while the others surveyed the island. After dark Dick and I banded fairy terns while Doug collected some Haw. nods, blue-gray nod., and fairy terns. On the way we worked along the beach grabbing 25 crested terns and banding them. Collected a few skink and gekkos from an abandoned tent and also some fish amongst a school of mullet which we had never collected before.

23 November

Doug and I set off for the N end of the island to band red-tailed tropicbirds. Saw three Sanderlings on the way and called Dick with the bun and collected two. Red-tails were nesting in nearly all the Messerschmidia and Scaveola bushes and we quickly finished a string of 100. Dick collected shorebirds.

Broke camp at 1130 and chugged back to Loudon where we picked up more gasoline and drinking water. Left immediately for Motu Tabu, over an hour's trip against the waves to the middle of the lagoon. Everything was wet when we arrived; set camp and Dick and I skinned birds we had collected while Doug surveyed.

Phoenix Island petrel and Christmas Is. shearwaters were more abundant than on Upua. Phoenix were nesting very sparsely, Christmas nesting. Common and Hawaiian noddies were both abundant, as were blue-gray noddies and fairy terns. Wedgetails were nesting in small numbers.

24 November

Got to bed at 2, up at quarter to seven and off with one cylinder still asleep due to the damp night. Rendezvous'd with IPAN's whale boat and embarked Loudon at 030. Sailed for Washington 0900.

25 November

Arrived Washington early with unusually cloudy skies despite presence of the dry season. Took limited gear ashore. Washington is part of a large firm which runs coconut plantation throughout the Pacific, owned by Australia. This one had an Australian manager, Mr. Kruz, who had been there nine years and had no plans for leaving. Less than 100 Gilbertese work the plantation, signing up to come to Washington for a number of months and then return to their native Gilbert islands. We were all treated to huge can of Victoria Bitters in the manager's pleasant open-air-house. Then all set off for the freshwater lake in the interior via a dirt road and paths backed for coconut harvesting. On the way down to the lake we saw several Washington Land Warblers and many Scarlet-breasted Lorikeets?. Fairy terns and Hawaiian Noddies were abundant in the coconut trees and red-footed boobies roosted in high Pisonia. Land

crabs were very common among the coconut husks with carapace up to 5" across. Two species of skinks raced along the path and along tree trunks. A dark-colored gekko was found occasionally in dense foliage.

The entire island is heavily forested with coconuts, Pisonia, lush Scaevola, and others except for the area N of the lake which becomes a mire during the rainy season and even during the dry season is soft and wet. The area is covered with freshwater bulrushes, hiding dozens of golden plover and an occasional tattler.

We set up mist nets in this marsh with hopes of banding shorebirds. We swept across toward the lake spread out to scare up unusual birds. Found nothing but some dragon flies and more golden plover (plumage very gray). Saw more lorikeets around the lake edge. I tasted the water and there was no trace of salt.-- pure rainwater. Two species of mosquito fish live there in large numbers.

We scanned the lake with telescope and highpowered binoculars for ducks but saw only the common local species of palm frond and coconut ducks. Looked for ducks for a short time around lake's edge and in local puddles with no luck. Caught no shorebirds. Banded one fairy tern that Capt. Holway caught in his insect net. Previously only 2 birds had been banded on Washington so we were well on our way to breaking the old record. Fred hid the record before lunch and on the way back to the village it was smashed as a third fairy tern was captured. I collected assorted lizards on the way back.

Went sightseeing around the little village after lunch. I was a little amused to discover that the local inhabs. keep frigate birds tied to a perch not only as pets but even as status symbols ! At several locations in the village there are frigates parking lots where as many as 70 birds are set in neat rows. In addition to this nearly every hut has one of these grotesqueries sitting out front, fat and ugly. The beasts are not only disagreeable; they are detrimental to the village because the men spend large amounts of ? catching fish for them while he could be supporting his family or working on his property. Small wonder that many of the frigates are not tied up - it is a lazy bird and extremely greedy and would not dream of forsaking an abundant and steady income.

26 November

Having spent the night on the ship for some reason we charged in again through the breakers. The island has formidable 10 ft. surf breaking all around but merci dien these are narrow channels blasted in three or four places and when one of these breakers rolls into the channel it sinks and loses all fearsomeness.

Dick and I took nets and cameras and walked back to the marsh again to catch even more fairy terns. He got some good shots of the Lorikeet with his 400 mm lens. As we entered the marsh the curious fairy terns saw us and flew from their high roosting places to investigate it close range. We did nearly forty before they lost interest and resumed their hiding places in the forest.

I hiked across to the lake to have another look for ducks; there was no official sighting of a duck as yet on the island. However, along the trail Dick and I saw a female duck rise out of the canal used for transportation of coconuts. It was typically light brown, of average size, with blue scapulars and can only be tentatively identified as a female shoveler. We saw it for only an instant, and could not find it again. On the way back we saw several White-tailed Tropicbirds and Doug collected one along the beach.

Brought in the mist nets having caught no shorebirds.

The entomologists found plenty of mosquitoes to collect.

On the way back to the ship we saw a Phoenix Is. Petrel, a record for the island.

27 November

Arrived Palmyra early, circled the island to the leeward anchorage, and set off in the black rubber rubber raft for the final island. Just before we reached landing point we sighted the rest of the shore party and gear bobbing up and down in the heavy swell. Doug and I were set ashore on the first island to the right of the lagoon - entrance and were to work our way banding and wading between islands to point X across from camp, where Fred would pick us up with raft. Paul and Dick were let off on the other side and were to work their way down to camp.

The entire island was lushly vegetated especially with Scaevola and Messerschmidia. We counted 61 Hawaiian Noddy nests in two adjoining Pisonia trees. Fairy terns were occasionally roosting. On the second islet there were more nesting boobies and less noddies. The shoal waters were thick with mullet and other school fish and with black-tipped sharks, small.

After half-an hour's wading we reach the third shore. The main section of the SW part of the island. Here were the boobies. Most were nesting in Messerschmidia, some in Pisonia but we had to climb after almost all of them and it was slow going. I worked one side while Doug worked the other. As I was stretching out along a thin ? about 15' up to grab a furious nestling from its home of piled sticks I heard a snap and down we went. I hit the water before I could move a finger, fortunately landing atop the bird. Both of us survived.

By 2 PM Doug and I were exhausted and began looking for each other. By the time we had succeeded we had stirred up so many birds that Fred and Dick located us and came over the the boat. Fred took off to check the few ponds nearby to look for ducks and was able to collect three European widgeons.

We skinned and scraped these and prepared to go booby banding at the E end of the island. Took the raft at 1700 and chugged down to the causeway. We pulled the raft over it after unloading everything and drove the rest of the way to the highest Pisonia trees on the island. Here the Red-footed Boobies were very thick - on the first trip 3000 were banded in this spot. Fred, Doug, Dick and Bob took blood samples for several hours while Paul and I banded nestling until dark and then adults, knocking them out of trees with 8' bamboo poles and then snatching them out of the water before either catcher or caught were drowned. Banded to 1000 and then chugged back by starlight and ?.

28 November

Set off in the morning with more Booby bands, this time intending to finish off two strings each on nestlings. Fred collected another duck for another record, this time a female shoveler. We wandered all over the island, finally returning to where we had been banding the previous night. Then wading across a half mile of lagoon to get to an island we saw a gull. This caused a slight change of plans, i.e., Paul trudged about 2 mi. back to the raft which was parked on the causeway to get the shotgun. I was parked in the middle of the lagoon in the midday sun to watch the ? gull.

Paul got back about an hour later and I pointed to the gull and he shot it. We walked to meet Fred and it was a Laughing Gull but we had the last laugh. Fred had lost his ? in deep water so I went to look for Doug and found him in half an hour and we two walked all the way around the old jeep trail rather than wade back through the lagoon. We got back after four and found Dick back from blood running on the ship.

That evening we banded more boobies, then looked for coconut crabs. Found four each about a foot long and one of them crushed a hard bamboo pole. Then we waded out to one of the islands to finish up some brown booby bands that we had been doing simultaneously in the morning with the red-foots. Along the shores of the island 5 - foot sea-cucumbers stretched out, feeding their brown length on plankton, sifting through their tentacles. Smaller, thicker black sea cucumbers were spread more widely over the entire lagoon. These grow to 14" x 3". Black-tipped sharks up to three feet occasionally ran up against our legs and several nips were felt. They run at you hard and once jumped 2 feet out of the water as one banged back and forth between my ankles.

Dick met us with the boat a quarter of a mile out in the lagoon.

29 November

We all left in the raft to look for some more ducks and to bank 15 fairy terns if possible: leftover string blues. Paul and I struggled on and on and at last had...14 when we were called by bwana and returned to camp. Found the last near camp. Packed up and prepared to leave but the boats were several hours late and we passed the time by feeding old C-rations to the surgeon fish and sharks.