

1st day SIC 20

Location Honolulu → 21-17N; 157-53W
 Observer Crossin Date 07 Oct '68 Time 1500 to 1818⁵⁵
 Weather clear, wind mild Miles 33 Hours 3.0

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	845	8 dark, 1 Int. rest light
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby	1	
Red-footed Booby	164	
Great Frigatebird	2	ad ♀♀
Lesser Frigatebird sp.	6	
Golden Plover	1	
Ruddy Turnstone		
Sooty Tern		
Gray-backed Tern		
Common Noddy Tern	311	
Fairy Tern	1	
Pomarine Jaeger		
Tropic bird sp.	1	
		Shear-pet 845
		Booby 165
		Tropicbird 1
		Tern 312
		Shorebird 1
		Frigatebird 8
		Total Birds 1332
		Total Sightings Feeding 5 (1155)
		Total Flocks 12 (1252)
		Total Species 8
		Travel Flocks 7 (97)

2nd day SIC 20

Location 18-48N; 159-33 — 17-04N; 160-48W
 Observer Crossin Date 8 Oct 1968 Time 0630¹² to 1827⁵
 Weather calm, mostly clear Miles 106 Hours 2:20
 9.6

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	212	31 dark, 181 light
Sooty Shearwater / Sb	2	
Slender-billed Shearwater		
Christmas Island Shearwater	2	
Newell's Shearwater	1	
Juan Fernandez Petrel	16	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel / Tahitian	1	
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	34	
Bulwer's Petrel	2	
Leach's Storm Petrel		
Red-tailed Tropicbird	1	
White-tailed Tropicbird	3	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	2	
Ruddy Turnstone	2	
Sooty Tern	112	at least 8 imm.
Gray-backed Tern		
Common Noddy Tern	1	
Fairy Tern		
Pomarine Jaeger		
Pterodroma sp.	1	
		Shear-pet = 271
		Tropicbird = 4
		Tern = 113
		Shorebird = 4
		Total Birds 392
		Total Sightings Feeding Fl. 3 (240)
		Total Flocks 6 (294)
		Total Species 14

3rd day SEC 20

15-08N; 162-02W — 13-16N; 163-17W
 Observer Crossin Date 09 Oct 1968 Time 0539 to 1700
 Weather Partly cloudy, few squalls Miles 99 Hours 1100-1400
 sea up a bit over last two days. 9.0 hrs.

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	2	2 dark ph.
Sooty Shearwater / SB	1	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	19	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	21	
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird	4	2 ad, 1 Im, 1 ?
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	4	
Ruddy Turnstone		
Sooty Tern	26	all ad's.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	1	
Pomarine Jaeger		
White-winged Petrel	2	Shear-Pet = 48
ptero. sp.	3	Tropicbird = 4 Tern = 27 Shorebird = 4
Total Birds		83
Total Sightings Feeding Fl.		2 (25)
Total Flocks		3 (38)
Total Species		9

4th day of SEC 20

Location 11° 25' N; 164° 35' W — 09° 36' N; 166° 16' W
 Observer Crossin Date 10 Oct 1968 Time 0800 to 1750
 Weather heavy squalls most of day. Miles 71 Hours 1100-1600
 7.1

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	3	dark phase
Sooty Shearwater		
Sooty/Slender-billed Shearwater	17	
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	12	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	13	
Bulwer's Petrel	2	
WR Leach's Storm Petrel	1	
Red-tailed Tropicbird		
White-tailed Tropicbird	1	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	1	
Ruddy Turnstone		
Sooty Tern	3	ad's.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
Pterodroma sp.	5	Shear-Pet = 60
White-winged Petrel	2	Storm Pet = 1
Mottled Petrel	5	Tropicbird = 1
Shear/Pet	1	Tern = Shorebird =
Total Birds		66
Total Sightings Feeding Fl.		9
Total Flocks		2 (14)
Total Species		11

Flocks

8 Oct

Time	Hours	Location	Weather	Remarks
TF	0637	5	WT 4, NS 1	
FF	0839	12	ST 5, WT 6, BWPI	
FF	1025	207	WT 150, ST 50, JFP 5, BWPI 2	
SF	1050	6	WT 3, ST 3	
SF	1716	4	ST 31, WT 7, JFP 2, BWPI 1	
FF	1807	21	ST 15, WT 4, X-mas 1, BWPI 1	
				250
				292

Flocks

7 Oct

Time	Hours	Location	Weather	Remarks
FF	1504	6	CN 3, FT 1, WT 1, GF 1	
FF	1509	754	Fg 4, RFB 150, WT 400, CN 200	
TF	1513	6	WT 5, RFB 1	
TF	1515	7	WT	
TF	1522	16	WT 15, RFB 1	
FF	1525	19	WT 15, RFB 3, Fg 1	
TF	1543	9	WT 7, RFB 2	
TF	1557	6	WT 4, CN 2	
FF	1705	61	WT 11, CN 50	
CF	1710	43	WT 8, CN 35	
TF	1803	10	CN 7, WT 3	
FF	1817	305	WT 300, CN 5	

3rd DAY

Location 15-08'N; 162-02'W — 13-16'N; 163-18'W
 Observer Crossin Date 09 Oct 1968 Time 0539 to 1700
 Weather partly cloudy few squalls Miles 99 Hours 1100-1700
 see night birds last two days 9.0 hrs.

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	2	2 dark ph.
Sooty Shearwater / SB	1	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	19	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	21	
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird	4	2 ad, 1 Im, 1 ?
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	4	
Ruddy Turnstone		
Sooty Tern	26	all ad's.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	1	
Pomarine Jaeger		
White-winged Petrel	2	Shear-Pet - 48
ptero. sp.	3	Tropicbird - 4
		Tern - 27
		Shorebird - 4
		Total Birds 83
		Total Sightings Feeding Fl. 2 (25)
		Total Flocks 3 (38)
		Total Species 9

4th DAY

Location 11-25'N; 164-35'W — 09-36'N; 165-46'W
 Observer Crossin Date 10 Oct 1968 Time 0547 to 1450
 Weather heavy squalls most of day Miles 71 Hours 1100-1600
 7.1

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	3	dark phase
Sooty Shearwater		
Sooty/Slender-billed Shearwater	17	
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	12	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	13	
Bulwer's Petrel	2	
WR Leach's Storm Petrel	1	
Red-tailed Tropicbird		
White-tailed Tropicbird	1	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	1	
Ruddy Turnstone		
Sooty Tern	3	ad's.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
Pterodroma sp.	5	Shear-Pet = 60
White-winged Petrel	2	Storm Pet = 1
Mottled Petrel	5	Tropicbird = 1
Shear/Pet	1	Tern = 3
		Shorebird = 1
		Total Birds 66
		Total Sightings Feeding Fl. 1 (9)
		Total Flocks 2 (14)
		Total Species 11

10 out

Flocks

TF 1659 5 ST 2, WT 3

FF 1702 9 JFP 5, BWP 4

9 out

Flocks

SF 0645 13 ST 1, JFP 10, WT 1

FF 1530 8 ST 5, FT 1, WT 1, BWP 1

FF 17~~02~~³⁶ 17 ST

38

Nocturnal Obs

Location $05^{\circ}57'N; 168^{\circ}03'W$ — $05^{\circ}22'N; 168^{\circ}24'W$
 Observer Crossin Date 11 Oct 1968 Time 17⁵⁵ to 2130
 Weather clear, fairly calm Miles Hours 3.5

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	1	
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	4	1 ad, 3 Imm -
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern		
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
Sm. Ptero. sp.	1	
Total Birds	6	
Total Sightings		
Total Flocks		
Total Species	2	

Location $04^{\circ}45'N; 166^{\circ}56'W$ — $05^{\circ}57'N; 168^{\circ}03'W$
 Observer Crossin Date 11 Oct 1968 Time 05⁵⁵ to 17⁵⁸
 Weather partly cloudy, sun with scattered white caps Miles 86 Hours 11⁰⁰ - 15¹⁵ 7.8

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	6	3 light phase, 3 dark phase
Sooty Shearwater		
Slender-billed Shearwater	3	
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	2	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel/white	2	
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	15	
Bulwer's Petrel	1	
Leach's Storm Petrel	1	
Red-tailed Tropicbird		
White-tailed Tropicbird	1	
Blue-faced Booby		
Brown Booby		
Red-footed Booby	2	
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	2	
Ruddy Turnstone		
Sooty Tern	11	ad's.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
White-winged Petrel	1	
ptero. sp.	1	
Mottled Petrel	3	
Total Birds	51	
Total Sightings		
Total Flocks	1 FF 16	
Total Species	13	

Location $03^{\circ}57'N; 169^{\circ}10'W$ — $01^{\circ}58'N; 170^{\circ}37'W$
 Observer Crossin Date 12 Oct 1968 Time 0601 to 1715
 Weather Partly cloudy, sea med calm Miles Hours — 1100-1330

8.8

SPECIES	NUMBERS	REMARKS
Laysan Albatross		3 Pilot whales (<i>Globicephala</i>)
Black-footed Albatross		
Wedge-tailed Shearwater	3	2 Lk. Ph., 1 H. Ph.
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	1	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel ^{tabata}	3	Two almost certainly Ph. Is.
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	4	
Bulwer's Petrel		
WR Leach's Storm Petrel	4	almost certainly Leach's.
Red-tailed Tropicbird	4	
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	5	all Imm.
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	9	all ad's.
Gray-backed Tern		
Common Noddy Tern	1	
Fairy Tern	5	
Pomarine Jaeger		Shear-Pet = 21
Pterodroma sp	6	Storm Petrel = 4
Mottled Petrel	4	Tropicbird = 4
Long-tailed Jaeger	2	Booby = 5
		Tern = 15
		Jaeger = 2
		Total Birds 51
		Total Sightings-Feed. Fl. 1 (5)
		Total Flocks 2 (12)
		Total Species 12

Location $00^{\circ}01'S; 171^{\circ}56'W$ — $02^{\circ}07'S; 173^{\circ}03'W$
 Observer Crossin Date 13 Oct 1968 Time 0606 to 1100
 Weather Miles 54 Hours 4.9

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	6	all dark ph.
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel	1	
Bonin Island Petrel		
Black-winged Petrel	1	
Bulwer's Petrel		
WR Leach's Storm Petrel	1	
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	1	
Great Frigatebird	8	
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	2159	58 Imm.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	6	Shear-Pet = 8
Pomarine Jaeger		Storm Pet = 1
Frigate sp.	15	Booby = 1
Long-tailed Jaeger	2	Frigate = 23
		Tern = 2165
		Jaeger = 2
		Feeding Flocks = 8 (1942)
		Traveling Flocks = 7 (247)
		Total Birds 2200
		Total Sightings
		Total Flocks 15 (2189)
		Total Species 9

12 Oct

Flocks

F			
1012	♀	ST	
FF 1601	5	ST 2, RFB 2, WT 1	

Flocks

13 Oct

FF 0625	35	ST
FF 0631	8	ST 7, Fg 1
TF 0700	152	ST 150, LTJ 2
SF 0750	23	ST 22, WT 1
FF 0758	308	ST 300, WT 3, GF 2, Fg 2, RFB 1
FF 0908	176	ST 175, WT 1
FF 0921	405	ST 400, Fg 5
FF 0948	500	ST
TF 1006	10	ST
TF 1010	27	ST 21, GF 6
TF 1021	5	ST
FF 1030	103	ST 100, FT 3
TF 1041	25	ST
TF 1053	5	ST 3, FT 2
FF 1058	407	ST 400, Fg 7

Location McKean to 04° 32' S ; 173° 29' W
 Observer Crossin Date 31 Oct 1968 Time 1245 to 1700
 Weather _____ Miles 47 Hours 4.3

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater <u>5/56</u>	<u>1</u>	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	<u>1</u>	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel	<u>3</u>	
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby	<u>13</u>	
Brown Booby	<u>3</u>	
Red-footed Booby	<u>11</u>	
Great Frigatebird		
Lesser Frigatebird	<u>90</u>	
Golden Plover		
Ruddy Turnstone		
Sooty Tern	<u>521</u>	
Gray-backed Tern		
Common Noddy Tern	<u>2</u>	
Fairy Tern		
Pomarine Jaeger		
Audubon's Shear	<u>2</u>	
Blue-gray Noddy	<u>1</u>	
		<u>Shear-Pet = 57</u>
		<u>Booby = 27</u>
		<u>Frigate = 90</u>
		<u>Sooty Tern = 524</u>
		<u>Feeding Flocks = 1 (533)</u>
		<u>Travelling Flocks = 5 (70)</u>
		<u>Total Birds 648</u>
		<u>Total Sightings</u>
		<u>Total Flocks 4 (625)</u>
		<u>Total Species 11</u>

Location 06° 14' S ; 172° 19' W - 08° 02' S - 171° 00' W
 Observer Crossin Date 1 Nov 68 Time 0645 to 1045
 Weather _____ Miles 80 Hours 1130 - 1300
1630 - 1815
(7.3)

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater <u>/56</u>	<u>2</u>	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel	<u>6</u>	
Bonin Island Petrel		
Black-winged Petrel	<u>1</u>	
Bulwer's Petrel	<u>1</u>	
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird	<u>1</u>	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird	<u>1</u>	
Golden Plover		
Ruddy Turnstone		
Sooty Tern	<u>78</u>	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
White-wing Petrel	<u>1</u>	
Long-tailed Jaeger	<u>1</u>	
Large Pterod.	<u>1</u>	
		<u>Shear-Pet = 12</u>
		<u>Tropicbird = 1</u>
		<u>Frigate = 1</u>
		<u>Tern = 78</u>
		<u>Jaeger = 1</u>
		<u>Total Birds 93</u>
		<u>Total Sightings 78</u>
		<u>Total Flocks 2 (53) both Terns</u>
		<u>Total Species 7</u>

R.S. Brown
1868

Journal

(1)

McKean Island

19 Oct. Landed at 0500. Spent the whole day working gear into island etc. and the skippers gear & equipment. Got camp fairly well squared away. Out to do land work at 2000.

Surf quite bad & had a feed close calls bringing gear in. Mr. Van Horn bought the large skiff in once; nearly killed himself and that was the last I saw of the skiff.

I noted that many tufts of grass have burned spikes (only the short ground-level spikes showing) along the west side of island. Entire island is much greener than in July, but somewhere along the line a fire swept at least a portion of the island. Burn marks are not present elsewhere as along the walls etc. while dried grass & side show no evidence of burning. Will look more carefully tomorrow.

Largest Sooty Tern colony I have ever seen on McKean along the entire W side. Most birds with $\frac{1}{3}$ - $\frac{1}{2}$ grown chicks, but also many on eggs.

24 Oct. Spent night of 23 (+ ^{most} of the day) ~~at~~ aboard ship with a bleeding ulcer. Doc insisted I stay on board. Finally got back ashore early today 0830 24. Very hard rain last night - this is the third good rain we have had on the island & things are really green up

R.S. Brown
1868

Journal

(2)

McKean Island

25 Oct. Ulcer still has me pretty weak and there is a very limited amount of food here which the old doc will let me eat, so things are not too good. But I get around and just work at a slower rate than I did. I am convinced now that it is the Sooty Tern which have got me in this state. From the first day on the island, I found it impossible to walk through the colony at night with thousands upon thousands of screaming birds flying into my headlamp without stamping a few of them. Since they completely surrounded the camp, each moment in camp is under the din of all the screaming terns. I definitely was not sleeping the first nights before when started getting up. Then every trip at night in any direction (and return to camp) is a trip through that screaming mass of terns. There is no escaping them since they are nesting for hundreds & hundreds of yards in each direction from camp along the west shore. I finally reached a point (probably before I ever even came back to sublimation this trip) where sooty terns and I mix about like flame & gunpowder. The not too good eating situation here on the island, absolutely no shade (tent is like an oven from 0830 till 1800) and being in that insufferable sun all day long, plus trying to do all of Royce's bird prepared jobs have probably all contributed to finally getting me down. Christ, will I ever learn my limits? Probably not - probably good thing I have a simple thing like a bleeding ulcer to warn me - could be worse - like a heart attack!

RB Crossin
1968

Journal
McKean Island

(3)

25 Oct. night. Although this is probably common knowledge to everyone who has ever visited McKean Island, I was never aware of it. At the S-SE end of the lagoon there is a point where it appears as if a spring flows just out of the lagoon and into the lagoon. This is almost always dry + algae covered. When I passed it last night at ca. 2300 the tide was high and the sea water was flowing up out of a hole at the head of this apparent spring - a very good flow which I would imagine was about 200 gallons a minute, possibly more. At any rate the sea entry is not under ground somewhere in the center of the lagoon as I always presumed it was.

27 Oct / large feeding flock of 2500+ Sooty terns, ca. 50 frigates + few other odd things like RFB feeding between 1/2 to 3/4 mile offshore W side of island. Many times terns can be seen splashing the surface or leaping clear of the water. The terns school keeps working back + forth across the western horizon - birds following. 1630 -
1748 - flock now increased to about 4500 - 5000 sooties and several hundred frigates, spread over entire NW horizon - groups sporadically feeding - many up high circling
1810 - flock breaking up, drifting far to S.

Make the rounds at night to perform banding and returning, but the moon is up so high now and is so bright that all birds scatter like leaves in a strong wind when I approach. Most birds about the island have been disturbed so many times now that the vast majority take flight at first

RB Crossin
1968

Journal
McKean Island

(4)

27 Oct cont

Sign of the headlamp. Almost impossible to make good covets of anything now.
30 Oct. Depart island at 0900, but raft in + out most of morning taking all gear off. Spend rest of day clearing bouys about + picking them up. Spend night at anchor offshore as we have to pick up more bouys + tide gauge tomorrow.

R.S. Crossin
1968

Green Sea Turtle

①

McKean Island

22 Oct. Pete (one of the Scripps boys) saw a ♀ on the beach digging tonight. West beach down at the S end where large sandy beach is prevalent.

24 Oct. went down and dug out a turtle nest where Pete saw the animal on night of 22. The nest was a long ditch rather than a hole. The animal entered from the sea; started digging in the soft sand at the top of the beach crest - digging in a NE direction for about 12 ft. The ditch was ~~then~~ covered ~~with~~ as the animal dug forward, thus leaving a long mound with a hole at the point of termination. Tracks of the animal then led directly back to the sea. A total of about 20

digging places are along this west beach. I dug into the fresh nest and struck eggs at about 3 1/2 feet deep - these were in a pocket and more or less about in the center of the long mound. There were about 30+ eggs in the pocket. I did not dig up the entire nest (longitudinally as it kept curving in. Eggs fresh, perfectly round with a slightly coarse leathery shell - pure white - fresh.

Pete found one very recently hatched young, crawling by the tents on night of 14 Oct. This was the only one he saw that night.

The parent digging on night of 22 was about 3 1/2 ft across. 24 Oct. about 30 small turtles began scampering all about the beach in front of camp right at dusk. Several were heading in the wrong direction and these were

R.S. Crossin
1968

Green Sea Turtle

②

McKean Island

24 Oct. corrected + sent merrily on their way to sea. We could not detect where they had emerged from, but probably the original surface signs of the nest had been obliterated by people tramping through the area and to the best of our knowledge the little turtles burrowed up from near a wooden boat which was just on the top of the beach crest. All little turtles went waddling down the beach as fast as they could and of course were able to swim immediately upon touching the water. All went directly out through the surf area + on out to sea.

A day or so earlier the diving crew from Scripps had observed two adults copulating offshore in the water.

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

Summary and 1st Visit

of Wedge-tailed Shearwater

on McKean Island

Nest No.	Band Numbers of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
1	705-00501	15	? can't reach back				
2	705-00502	15	" " " "				
3	705-00503	15	" " " "				
4	705-00504	15	" " " "				
5	705-00505 (565-17064) 705-00506 (565-17159)	15	empty, fresh burrow				
6	705-00507 705-00508	15	" " " "				
7	705-00509 705-00510	15	" " " "				
8	705-00511 705-00512	15	" " " "				
9	705-00513 (595-24025) 705-00514 (595-24026)	15	" " " "				

liner Comments: all above banded & marked on Evans mound.

PEASE "N. T. PEASE"

BOORUN & PEASE

Observation 1968 Wedge-tailed Shearwater (Puffinus pacificus) ①
21-17 15^h 53^m Honolulu south to 20-14 N; 158-23 W

07 Oct. Several large feeding flocks and many singles and small groups noted from Hono. south. One flock of ca. 400 mixed with RFB, C. noddies and frigate about 10 miles S of Hono. harbour. The vast majority of birds were headed E with a few NE. All above sightings in the late afternoon; obs. began 1500.

A total of 8 dark phase noted; probably more mixed in with the large flocks.

A very intensively feeding flock noted at sunset with the majority of the estimated 300 wedgetails in a huge raft on the water, grinding around and sticking their heads beneath the surface. Total 845.

3 Oct. 18-48 N; 159-33 W — 17-04 N; 160-48 W
Dark-phase birds increased today to 31 of 212 = 15% over roughly 120 yesterday. Much smaller flocks noted today. Probably a greater percentage of juveniles still birds in today's sightings.

9 Oct. 15-08 N; 162-02 W — 13-16 N; 163-18 W
Numbers down to two birds today, both dark phase.
11-25 N; 164-35 W — 09-36 N; 165-46 W

10 Oct. Numbers down to 3 birds today, all dark phase.
07-45 N; 166-56 W — 05-57 N; 168-03 W
6 birds noted today, 3 of each color phase.

11 Oct. 03-57 N; 169-10 W — 01-58 N; 170-37 W
3 birds today 1 Lt. Ph; 2 Dk. Ph.

W.C. Brown
1968

Wedge-tailed Shearwater

(2)

McKean Island

14 Oct. Noted quite a few birds on the grass mound today on a quick examination.

Noted one dark phase bird out in the open ground on SW corner of island at 2030 tonight - bird was calling, no burrows nearby. Later another 3 pair of dark phase birds were noted by shallow - partially-dug burrows in the open ground on the SW side of island.

15 Oct. In the early evening 9 nests (= burrows) were searched, ^{on grass mound} and as many birds possibly were banded of these. The very few burrows that would be inspected were empty. Most burrows could not be investigated because of the depth and the very crumbly nature of the grass. Any attempts to work this area causes destruction of many of the burrows - this cannot be avoided.

During the night from 2230 till ca. 0130 (16) 136 birds were placed on adults about the grass mound. Most birds are restricted to the mound proper, but a few pairs are digging burrows beneath the nearby sida out to about 40 feet from the base of the mound. All birds handled were dark phase except one which was between Int. and light phase. 11 birds were taken off birds (part of those banded) to be examined for band wear.

one pair was noted digging a burrow near BFB marked nest #11 at 2010 (mid W side of island).

R.D. Crossin
1968

Wedge-tailed Shearwater

(3)

McKean Island

20 Oct. 9 dark-phase birds were noted about partially constructed burrows beneath the sida about 60 yds W of the grass mound (by RFB Nest 13) at 2025

24 Oct. From 2230 till 2400 caught, printed & released Wedge-tails. During this period 140 were handled. Of these 56 were banded on the 15th; 84 were unbanded. Using the Lincoln Index method we arrive at: Est. Pop = $\frac{199 \times 140}{56} = 498$

I would tend to believe this is a fairly accurate number for the mound area. There is probably at least another 100 birds scattered about over the west side of the island - just in casual visiting, I have recorded 18 birds in areas remote from the grass mound. Thus a reliable estimate for the island is 600 birds. Of the 140 captured last night, two were near close to light phase. These two were unbanded; one of the birds banded on 15 was about light phase. Hence of roughly 300 birds handled or seen, 170 or 3 were light phase. This is probably a good percentage for the entire population - 17%.

The birds are still digging burrows, but I must dig a few out to see if there are any eggs yet.

29 Oct. Dug out at least 20 burrows and found not a single egg in them. In most cases one or both birds were in the burrow. In most cases I had only to chip out the front of the burrow to see inside. I believe the birds will soon have eggs, but as yet do not believe any have. Much calling & moaning, calling & loony going on outside & in the burrows.

R. S. Crossin
1968

Christmas Island Shearwater
(*Puffinus nativitatus*) ①

18-48 N; 159-33 W — 17-04 N; 160-48 W

8 Oct. two noted today, both in company with
either pure wedgetails or mixed wedgetail-
Tern flocks.

McKean Island

15 Oct. Banded one ad on the guano
mound which was sitting with
wedgetails.

19 Oct. Banded one ad (BP defeathering)
by SW leggy. No other about
& no sign of burrow.

The above two records are
unique for this species during the
entire stay on the island.

R. S. Crossin
1968

Audubon's Shearwater ②

McKean Island
Egg measurements

50.2 x 33.5 fr.

46.7 x 33.2 SE

47.2 x 34.6 fr. melanistic ♀

Culmen measurements

24.2 LDy

R.S. Gosain
1968

Audubon's Shearwater
Mexican Island

24 Oct. One adult bird barped up a quantity
of ca. 3" Scomberids.

An adult ♀ on fr. egg was collected
last tonight. Bird was pure melanis-
tic - had a few flecks of small
white feathers around the head
region, otherwise was all black.

The mate was normal colored. Nest
was under a pile of *Boerhaavia*
sneeds (dead) just west of the main
wall complex on W. side. This is
the first I have ever seen personally
on this island.

This species is exceedingly
numerous in practically all sections
of the island at night. During the
day they are rarely in evidence, but
began coming in from the ocean at
near dusk. Apparently the Mexican
population is highly island oriented
and I would imagine the vast bulk
of the resident population sleeps each
night on the island - whether or not
the members are breeding.

I inadvertently hauled several
hundred of this species during the stay,
but never got a single band return.
I believe the bulk of the bands have
been worn off. They are fierce
little diggers. Since I had no
more #3 bands, I decided not
to waste time putting more aluminum
bands on.

Thus in effect I did little at
all with the species. To the best of
my recollection, I saw throughout
the stay about as many downy young
of various sizes as I saw eggs.
The total of each, I would imagine

R.S. Gosain
1968

Audubon's Shearwater
Archean Island

out about 10 of each. These I mainly
found while digging for WSP or
Bulmer's Petrels. From fairly good
recollection, however for every egg
or chick noted, about 10 nest cavities
were found empty with birds in
them. There is certainly far less
nesting now than in July. I would
imagine that a low or lull in
the nesting is occurring at this
time.

Birds, however, are everywhere.
In all types of cover and over the
whole island except watered lagoon.
I had neither the spare time nor the
desire to mess with any hundreds of
nesting with this species without
using bands and so made no
actual density counts. I believe
the July figure was considerably
low (4-5000) and think that
there can be no less than 8000
of this species present, probably consid-
erably more. Taking into consider-
ation the number of mudguts present
on the tiny grass mound - although these
are packed, granted, in one area, I
do not believe there can be any
less than 8000 Audubon's considering
their widespread presence in all types
of habitat.

R.P. Crossin
1968

Pterodroma sp.

(1)

15-08 N; 162-02 W — 13-16 N; 163-19 W

9 Oct. Today most birds seen were Black-winged Petrels (21) and Juan-Fernandez Petrel (17). Two good sightings of White-winged Petrel with their almost pure white underwing with only black leading edge, prominent black eye, sides of head and neck. One sighting of an all dark brown heavy-bodied petrel; no wing windows as in Kermadec or Herald's; possibly *S. phyllis*?

11-25 N; 164-35 W — 09-26 N; 165-46 W

10 Oct. Today was dominated by low numbers of Juan Fernandez + Black-winged Petrels and in addition a scattering of Mottled Petrel the latter some sprinkled through with Sooty / slender-bills; all going south.

07-45 N; 166-56 W — 05-57 N; 168-03 W

11 Oct. Juan Fernandez Petrels thinned down to 2, but numbers of Black-wings still fairly consistent. Only a few Mottled Petrels and one White-winged. Also only a few Sooty / slender bills.

03-57 N; 169-10 W — 01-58 N; 170-37 W

12 Oct. All Procellariids down today; 4 Black-wings, 4 Mottled; 1 Juan Fernandez 6 wind.

R.P. Crossin
1968

Bulwer's Petrel

(1)

McKean Island

16 Oct. One flying back & forth over rocky area by walls on W side of island at 1823. Found one on an egg while trying to dig out a WTCP in wall along lagoon-banded. (p. 3)

Found at least two more on eggs before the night was over banded 9 birds returned one other and hauled 10 other plus heard another 10-12 in rock walls.

The population is rather large, but I cannot even give a guess at this time - certainly hundreds.

The difficulty of working with this species is that when one digs into the nest cavity, it is usually destroyed in the undertaking. Of all the nest points I dug into tonight, only 3 could be salvaged to make (3 with eggs). Most birds appear to be setting up nests at this time.

The birds are detected (not easily because of the gad-damn like the Sooty terns are making) by listening in piles of rocks or rock walls for a "whooot, whoot, whoot, whoot...". This call varies in intensity, and appears loudest when one bird is in a possible nest site alone, other slight variations are also uttered.

The birds definitely prefer the rocks to anywhere else such as clumps of dried weeds. And they can crawl into the wildest places. Those in the rock walls are just about impossible to get to - unless one destroys the entire wall. One dead & tattered skeleton noted in the large rock wall of probably a bird caught between holes trying to worm his way into

R.D. Crossin
1968

Bulwer's Petrel

②

McKean Island

16 Oct. a nest-site.

Birds sitting on eggs definitely call. Most of the nest sites I found were detected by hearing the birds call. All three marked nests had one parent calling from ^{nest w/} eggs. The birds on eggs which call, however, do so in a softer tone than individuals calling from an empty nest site. I have no idea as to which sex (if not both) are calling.

20 Oct. Banded 12 birds tonight and found only one return in this group (it was rebanded). The other few returns have been in very good shape and so have been left on as I have no more snow bands to put on them. The return tonight was quite worn (652-46064) ad on E.

New banding 1103-07081 put on a bird on the rock wall had a feathered brood patch on 16 Oct was found tonight with a small stick. Possibly the ♂ does not get a bare brood patch??

This species is quite numerous and apparently now in a peak of nest cavity finding and egg laying, although obviously some birds have been at it for some time. Almost every concentration of rocks or wall that I have passed along the entire W side (and NW) have had Bulwers calling from them. I have not heard any on the SW, S and E sides of the island in rocky areas there.

One variation in the normal "whoot whoot" calling is that on the last two calls, a definite shortening and quickening is often heard. The staccato "whooting"

R.D. Crossin
1968

Bulwer's Petrel

③

McKean Island

20 Oct. may go on in a regular rhythm for 20+ calls or may be in a series of 4-5 or a few more. Birds call apparently just as frequently from egg as empty nest cavities and tonight one bird was definitely calling from a brood with a small chick. All nest sites so far have been in rock crevices. Very little nesting material is brought in - usually a few pieces of straw or feathers make up the only nest material. There are most likely shells and ends which are already in the nest cavities.

All that I have seen of any birds regurgitate thus far has been an orange oily substance.

Just the egg in marked nest 1 remains between 1800 tonight and 1830 17. Since the nest cavity was entirely enclosed, the only thing I can figure is that maybe there are birds which crawl around in the rocks set eggs. Certainly no curlew could have gotten it. There was no trace of shells or anything.

27 Oct. Banded 6 adults tonight. One of a pair had brood patch bare other mostly feathered. I believe maybe the ♂♂ are slow in getting their brood patches bare or maybe even some don't get them bare. Two singles and the pair were calling from empty nest cavities; two other singles were calling from on fresh eggs. All nests in rock crevices, mainly SW & just SE of camp in the broad rocky tumbled down wall areas.

RS Crossin
1968

Bulwer's Petrel

(4)

11/11
11/11
11/11
11/11
11/11

McKean Island

20 Oct.

Bulwer's Egg measurements

41.3 x 28.6

42.6 x 30.0

39.4 x 28.9

39.0 x 29.7

39.2 x 30.0

39.8 x 28.6

44.3 x 31.0

39.4 x 29.1

Summary

Banded 33 birds and recovered 3 - one of these released, thus handled 35 banded individuals. Of these 6 were known pairs & probably a few more pair at least banded unknownly.

The pairs were:

1103-07080-81

84-86

712-57260-61

62-63

71-72

79-80

some question ^{of this}

also 1103-07079

712-57277

at least 10 nests were found with fresh to slight incubated eggs and one with a small downy young. One other egg which hatched during the stay, making at least two with chicks upon departure.

Five of the known pairs were calling from empty nest cavities and practically all single banded were dug from empty nest cavities in rocks. Practically 100% of all birds were first detected by hearing them call from the nest cavities, no matter what the contacts.

RS Crossin
1968

Bulwer's Petrel

(5)

McKean Island

Oct Summary

Thus during October in combination there resulted a peak in nest finding and egg-laying. A few birds, probably in the order of 4% had already laid before mid October. (This concerns only those birds banded). If one considers all the birds I dug out which were not banded, this figure probably reduces to below 5% having already laid before mid-October.

(All along the major rock concentrations along the main W side & NW, Bulwer's were in ample abundance.)

For the most part, positive detection could not be made due to the screaming Sooty, Noddy & Blue grey noddies along much of the wall & rock pile area - hence few of the birds heard from vantage areas in these areas were actually dug out. In the still standing walls, most birds could not be dug out without tearing down the entire wall. A few times I attempted to make some sort of density figures on the birds, but this is almost impossible. It was not uncommon for 3 or 4 birds to be heard calling from a few square feet in many areas of walls or tumbled down rock areas.

A very conservative estimate of the island population would be 1000 birds - probably many more. At the end of October I estimate 5% or less had small to medium downy chicks; 26% were on eggs and 69% were either settled or impending nest sites.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Bulwer's Petrel

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	17	1103-07094	fresh egg	bird on egg at 2300 (16) and 1030 (17)
2	17	079	egg	" " " " " " " 1035 "
3	17	091	fresh egg	" " " " 2230 (16) " 1040 "
2	18	079	chick	chick is large, fills one whole hand, hard to believe that it hatched since yesterday - we call this kind of chick a <i>big chick</i>
3	19	091	egg	091 incub 0015
2	19	079	chick	1035 measurements of chicks taken
3	19	091	egg	1045
3	20	091	egg	night
1	20	—	empty	1900 egg gone between 1040 17 + 1900 20
1	26	—	broken egg	another egg laid either by original parent or other, but nest covered in + broke new egg.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Bulwer's Petrel

on

McKean Isla.

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
1	1103-07094	17	one fresh egg	39.4 x 28.9			
2	1103-07079 712-57274	17	" egg		11.0 (17)	egg hatched sometime between 2035-17 and 2400-18.	
3	1103-07091	17	" fresh egg	39.0 x 29.7			
4	682-44702	19	" fresh egg	39.2 x 30.0	02 found in empty nest rock cavity on 16, on 19th had a fresh egg.		

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of

Bulwer's Petrel

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
2	26	712-57274	SDY	captured bird & banded it tonight.
1	29	-	empty	1510
2	29	-	MDY	1450
3	29	unbanded bird on egg	egg	1450
4	29	682-47702	egg	1510

Jan
1968

Data Sheet for Marked Nests

of White-throated Storm Petrel

on

McKean Is.

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Young		Band Number of Young	
					of Culmen of Young	of Wing of Young		
1		17	1/2 sized chick	rock wall	13.1	32.0	42	1103-07082
2	1103-07089 1103-07099	17	empty	rock wall				
3		17	fully-feathered chick, slight down	Berhanna Group	16.8	44.7	148	1103-07095
4		21	Large downy young	in rock wall.	16.5	44.0	112.8	712-57267

Other Comments:

ssin
1968 Data Sheet for Marked Nests of White Throated Storm Petrel on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	12	-	1/2 chick	chick alone at 2200 (16) and 1045 on 17
2	14	089	empty	ad(089) on nest at 2200 (16) and 1050 on 17
2	19	both birds	empty	0030 089 banded at this time
1	19	chick	chick	1050 (all measurements of chicks taken)
2	19	-	empty	no birds in cavity 1055
3	20	-	empty	large feathered young gone at 1947, possibly big enough to fly.
2	21	089	empty	089 sitting alone 2225
4	27	-	young	considerable down over head & neck, stomach & rump culmen 15.9; tarsus 43.6; wing 142.0 2000.

S. Crossin
Oct. 1968 Data Sheet for Marked Nests of White Throated Storm Petrel on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	29	-	LDY	1455
2	29	-	empty	1455
3	29	-	empty	-
4	29	-	LFY	1545

R.S. Borner *Oceanodroma* sp. (1)
1968 White-rumped Storm Petrel

10 Oct. 11°-25' N; 164°-35' W — 09°-36' N; 165°-46' W
Saw first bird today, almost certainly a
Leach's.

11 Oct. 07°-45' N; 166°-58' W — 05°-57' N; 168°-03' W
Saw one bird today; almost certainly
a Leach's.

12 Oct. 03°-57' N; 169°-10' W — 01°-58' N; 170°-37' W
Numbers up to 4 today. Three were
noted in a group and shortly thereafter
a single. All almost certainly in
Leach's category.

R.S. Borner White-throated Storm Petrel (1)
1968

McKean Island

14 Oct. Noted two birds sitting between 2030
and 2100. One had a bare brood patch;
other not caught. Neither were near
nest sites, sort of sitting about in
open along W-SW side.

16 Oct. Noted one dead fully-feathered young along
small well midway of the island on
West side.

Began an evening observation at 1820 at
walls on W side.

1823: first ad noted flying over rocky
area between two or in large sections
of rock walls.

1824: second bird now in air

1827 both birds now settled in rocky area.

1828 3rd bird noted coming in and
alighting.

Couldn't find any one of the three.

1833: two more noted flying by wall
along Sesuvium along lagoon.

One disappeared before I could see it enter
nest site. Other keeps landing in one spot,
but always flying off and circling some
more before returning. Finally lost
him — 1845: now too dark to see.

17 Oct. (R) Now have three marked nests; two
with chicks and one with ad. sitting
in empty nest. Accidentally broke a
heavily incubated egg last night under
a clump of Poa. No parent attending
at 2005 (16 Oct).

The birds call from the nest cavity
in a soft, guttural "grrrr, grrrr, grrrr".

Thus far most birds have been
found about rock piles. Perhaps in
July 68 when so many were found
under clumps of Poa that there
was a population peak and birds
were perhaps forced out into the

R. D. Crossin
1968

White-throated Storm Petrel (2)

McKean Island

17 Oct. Boerhaavia; all desirable rock sites taken. Since I mainly looked under Boerhaavia at that time, it being easier than tearing rock piles apart.

Not much question that there were many more nesting birds here in July. The amount of Boerhaavia clumps I have turned over so far yielded at least 10 nest sites in July as compared to 1 now.

19 Oct. One adult calling from unmarked empty nest cavity in NW corner, in rock pile.

24 Oct. Have about given up finding many or even any more nests of this species. No question that they are at an all time low as far as numbers of breeding birds are concerned. I have yet to see or catch any adults or the large young. If the one Doug & I saw in July coming in at midday is any indication of the odd-ball times they come in to feed young, then I have little chance of catching the parents to nestling #4. The parents probably come in singly at odd times, feed the young & quickly depart. I don't have any evidence of the parents staying with the young after they are about small downy size.

27 Oct. Banded an adult in empty nest cavity just SE camp, B.P. base, just 20 ft from nest #4. Attracted to bird by hearing the typical growr, growr call.

Summary Total of 10 adults banded and 3 nestlings. Probably only saw about 10 other birds during the entire stay. At least 5 empty nests were found with birds in them, plus the 3 nestlings and one nest w/ egg - making about 9 nests. Thus about 55% of the birds on the island may be

R. D. Crossin
1968

White-throated Storm Petrel (3)

Orcadian Island

~~summary~~
yet attempting to nest. 33% have young and 11% had incubated eggs. These percentages are very crude since the entire sample is so small.

Thus both the white-throated storm petrel and Audubon's Shearwaters are at an all time nesting low. While the Bulwer's Petrels are now coming into peak of nesting. Since these three species utilize many of the same nest sites or type of nest sites - this displacement during different times probably affords all three species nesting sites which would not be available if all nested at one time. The Bulwer's and White-throats especially are competing each other during peak nesting seasons. Food availability in the nearby ocean probably also dictates this displacement.

1968¹¹

Data Sheet for Marked Nests of Red-tailed Tropicbirds on McKean Island
Sheet for Summary and 1st Visit

Nest. No.	Band Numbers of Members of Pair	Date	Contents of Nest	Measurement of Egg	Measurement of Culmen of Young (mm.)	Measurement of Wing of Young (mm.)	Band Number of Young
RTTB # 1	705-00701 NB 705-00717 NB	17 24	(NDY) Med. downy Ch.		41.0		705-00702
RTTB # 2		17	(LY) large feathered Ch.		51.9		705-00703
RTTB # 3	705-00704 NB 705-00716 NB	17	very light pigmentation one egg	64.6 x 45.3			
RTTB # 4	595-64 034 705-00710 NB	19 1100	egg Medium uniform pigmentation	68.9 x 47.1			
RTTB # 5	705-00706 NB	19 1130	large feathered young no down		56.7		705-00705
RTTB # 6		19 1145	" " "		55.2		705-00707
RTTB # 7		19 1148	" " "		57.0		705-00708
RTTB # 8		21	" " "		58.1		705-00711
RTTB # 9	705-00712 NB	21	medium downy young		34.8		705-00713
RTTB # 10	705-00714 NB	21	small downy young		33.7		705-00715

1968¹¹
Oct. 1968

Data Sheet for Marked Nests of Red-tailed Tropicbirds on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird on Nest	Contents of Nest	Other Comments - (Dates of Banding of Unmarked Birds, General Description and Location of Nest, etc)
RTTB # 1	24	705-00717	med downy	ad banded 0800
RTTB # 2				
RTTB # 3	19	704	still one egg	1117 opening facing NW, under large rock
RTTB # 4	20	710	" " "	710 incub. at 1940 - banded at that time
RTTB # 5				
RTTB # 6				
RTTB # 7				
RTTB # 8				
RTTB # 9				
RTTB # 10				

Rossin
Oct. 1968

Data Sheet, for Marked Nests
Sheet for Subsequent

of Red-tailed Tropicbirds
sits to Nest

on McKean Island

Nest No.	Date	Band Number of Bird on Nest	Contents of Nest	Other Comments - (Dates of Banding of Unmarked Birds, General Description and Location of Nest, etc)
TTTB # 1	29	-	MDY	1455
TTTB # 2	29	-	LFY	1500
TTTB # 3	26	-	empty	egg gone at 2200 (nest still empty 1545 on 29.)
TTTB # 4	29	-	SOY	1505 young just hatched.
TTTB # 5	29	-	empty	1600
TTTB # 6	29	-	Imm.	1500
TTTB # 7	29	-	empty	1500
TTTB # 8	29	-	empty	1505
TTTB # 9	29	-	SOY	1570
TTTB # 10	29	-	MDY	1450

Rossin
1968

Red-tailed Tropicbird

(1)

McKean Island

17 Oct. at 1730 a fully feathered nestling (nest as yet unmarked) was observed outside the nest cavity (under a large rock) about 4 ft and flapping vigorously. There was a session of about 1 1/2 minutes; then a session of about 20 seconds. There was no doubt that the bird was just strengthening its wings, readying for takeoff probably in a few days. When I approached, it scooted back into the nest cavity.

19 Oct. one LFY observed at NW corner (unbanded, unmarked nest).

one LFY on E side of island (unb., unbr.)

25 Oct. A few nests are still being found - noted two on SW point, one with large feathered young (705-00719) and one with large downy young (705-00720). The 2DY was noted to be up large quantities of squid.

I note that a few of the large feathered young from marked nests have gone. Apparently when they reach this stage, the flapping practice which I noted is a preliminary to departure.

I never see them flying around the island, so they must leave the vicinity, probably on the first flight and head out to sea.

29 5 birds displaying at 1518, one of them a marked nestling bird.

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests
Sheet for 1st Visit and Summary

of Blue-faced Boobies on

McKean Island

Nest #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-ment of More Heavily Incubated Egg	Measure-ment of Less Heavily Incubated Egg	Measure-ment of Culmen of Young	Measure-ment of Wing of Young	Band Number of Young
BFB# 1			15	large downy					562-70832
BFB# 2	757-63954		15	small downy					
BFB# 3	737-27413	757-65696	15	naked chick					
BFB# 4	767-40894	767-40849	15	2 eggs					
BFB# 5	767-40872	737-48300	15	large downy					767-408
BFB# 6	757-67997	737-29578	15	large downy					767-4087
BFB# 7	757-67811	767-40847	15	large downy					767-4087
BFB# 8	757-63891	737-51121	15	large downy					767-4087
BFB# 9		737-21578	15	small downy					
BFB# 10	737-26123	767-40893	15	naked chick					

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Blue-faced Boobies on

McKean Island

Nest No.	Date	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments on nest construction; banding dates, etc.)
BFB # 1				
BFB # 2				
BFB # 3	15	♀ 757-65696		♀ w naked ch. at 2025
BFB # 4	15	♂ 767-40894	still 2 eggs	♂ banded at 2020, ♀ not about
BFB # 5				
BFB # 6				
BFB # 7	15	♀ 767-40847		♀ with young, latter moved ca. 20 ft to N 2015
BFB # 8				
BFB # 9	15	♀ 737-21578		♀ with young at 2000
BFB # 10	15	♂ 737-26123		♂ brooding naked chick, ♀ standing by 2000

Other Comments:

1968 Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Date	and Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
BFB # 1	29	-	LDY	1645
BFB # 2	"	-	empty	1600
BFB # 3	"	-	LDY	1600
BFB # 4	"	-	NY	1600
BFB # 5	"	-	LDY	1600
BFB # 6	"	-	LDY	1600
BFB # 7	"	-	LDY	1600
BFB # 8	"	-	area vacant	1600
BFB # 9	"	-	" "	1600
BFB # 10	"	-	SDY	1600

Other Comments:

1968 Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Sheet for 1st Visit and Summary

Nest #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-ment of More Heavily Incubated Egg	Measure-ment of Less Heavily Incubated Egg	Measure-ment of Culmen of Young	Measure-ment of Wing of Young	Band Number of Young
BFB# 11		757-63890	15	large downy					568-70833
BFB# 12	737-29514	568-70289	20	naked young (just hatched)			16.0		
BFB# 13			20	small downy young			57.2		
BFB# 14	767-40848	737-29584	20	two naked young			23.6 18.5		
BFB# 15	757-67969	737-51178	20	2 eggs	SE 66.4 x 45.8	SE 62.5 x 43.6			
BFB# 16	737-29510	568-70255	20	Small downy young			48.2		
BFB# 17	757-89908	737-81514	20	one Egg	USE.2 72.0 x 45.6				
BFB# 18	767-40968		20	Large downy young			71.8		
BFB# 19	737-51119	757-64181	20	small downy young			42.5		
BFB# 20	757-63982	737-23575	20	one Egg	HI 61.0 x 43.4				

Other Comments:

S. Crossin
Oct. 1968

Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
Nest No.	Date		
FB # 11	15	♀ ⁷⁵⁷ 63890	♀ w young, ♂ nearby 2010
FB # 12			
FB # 13			
FB # 14	21	737-29584 ♀	2 naked young smallest of two young dead.
FB # 15			
FB # 16			
FB # 17			
FB # 18	17	767-40968	sera taken & banded 9/15 before nest marking
FB # 19			
FB # 20			

Other Comments:

S. Crossin
Oct. 1968

Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
Nest No.	Date		
FB # 11	29	-	L 13 Y 1600
FB # 12	"	-	N Y 1550
FB # 13	"	-	M 0 Y 1555
FB # 14	"	-	N Y 1555
FB # 15	"	-	2 eggs 1550 ?
FB # 16	"	-	S 0 Y 1550
FB # 17	"	-	1 Egg 1550
FB # 18	"	-	L 0 Y 1540
FB # 19	"	-	S 0 Y 1550
FB # 20	"	-	L 0 Y 1550

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests
sit and Summary

of Blue-faced Boobies on

McKean Island

Nest #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-ment of More Heavily Incubated Egg	Measure-ment of Less Heavily Incubated Egg	Measure-ment of Culmen of Young	Measure-ment of Wing of Young	Band Number of Young
					MI	SL			
BFB# 21	568-71149	737-23749	20	2 eggs	62.6 x 43.5	58.1 x 41.9			
BFB# 22	767-40993 ^{NB}	737-21515	20	Small downy young			55.0		
BFB# 23		737-22852	20	Naked young			33.3		
BFB# 24	737-49924		20	Small downy young			41.7		
BFB# 25	757-62762	757-63932	20	Small downy young			41.0		
BFB# 26	757-65392		20	Large downy young			71.1		767-40989
BFB# 27			20	Small downy young			49.5		
BFB# 28	737-23537	767-40970	20	Naked young			38.8		
BFB# 29	737-21425		20	Naked young			29.6		
BFB# 30	757-65634		20	Small downy young			53.1		

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nest

of Blue-faced Boobies on

McKean Island

Nest No.	Date	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
BFB # 21	26		broken eggs	eggs found fresh at 2125
BFB # 22				
BFB # 23	17	737-22852 ♀		sera taken ¹⁷ (before nest marking on 20)
BFB # 24				
BFB # 25	17	757-62762 ♂		sera taken ¹⁷ (before nest marking on 20)
BFB # 26	17	757-65392 ♂		sera taken ¹⁷ (before nest marking on 20)
BFB # 27				
BFB # 28	21	767-40970		sera taken ¹⁷ (before nest marking on 20)
BFB # 29				
BFB # 30	17	757-65634 ♂		sera taken ¹⁷ (before nest marking on 20)

Other Comments:

R.S. Crossin
Oct. 1968

Data Sheet for Marked Nests of Blue-faced Boobies on

McKean Island

Subsequent
VisitsBand Number
& Sex of
Bird at Nest
or with YoungContents
of
NestStatus of
NestOther Comments (Time of observation; comments of
nest construction; banding dates, etc.)

Nest No. Date

BFB # 21

29

—

—

empty

1550

BFB # 22

"

—

—

20y

1540

BFB # 23

"

—

—

50y

1540

BFB # 24

"

—

—

50y

1540

BFB # 25

"

—

—

50y

1450

BFB # 26

"

—

—

MDy

1450

BFB # 27

—

—

—

—

—

BFB # 28

29

—

—

50y

1515

BFB # 29

"

—

—

50y

1515

BFB # 30

"

—

—

MDy

1515

Other Comments:

R.S. Crossin
1968

Blue-faced Boobies

①

McKean Island

16 Oct

1100

N point of the lagoon

A club noted here in daytime which is a bit unusual in itself, contained 50 advanced immatures (heavy spotting on wings & dorsal area, especially wing) to near adults (with dense spotting only on wing), 25 adults were also with their immatures and subadult. The entire group patrolled out to a few islands in the lagoon before I could get a good look at bands or even make an estimate of how many were banded.

Complete nest count made today is believed to be 99%+ accurate with all nests, ^{except} painted.

	Total w/ side of island	rest of island	Total
1299	11	4	15
2255	21	7	29
191 11y	7	3	10
1N4	26	11	39
2N4	4	1	5
50y	19	13	34
LP4	80	48	134
LF4	20	14	34
near Ism.	16	5	21
	<u>204</u>	<u>11</u>	<u>215</u>
		106 33%	321
	(215) 67%		

R.S. Grossin
1968

Brown Booby

①

McKean Island

21 Oct. A fairly noteworthy case has occurred at Nest # 9. On the 15 Oct a ♀ ♂ band # 767-40882 (Newband) was processed at a nest (9) with one fresh egg - there being very little chalk on the egg, hence it was a strange blue. That night at 2/35 there was no bird on the nest and the egg was cold. At 12:10 on 17 the egg was gone and one parent? (not caught) was standing nearby.

at ca. 20:20 on night of 21 a ♂ ♀ (767-40883) which had been banded near nest 9 on night of 15 as a roosting bird by a flying immature was sitting on a new nest w/ 1 fresh egg 15 ft from old nest 9. The ♂ (82) was standing next to ♂ ♀ and an immature was again roosting some yards away.

The ^{new} nest was not present as far back as 21:30 on 18 when I went through checking other nests.

Hence, for whatever reason, original nest 9 with its odd egg was deserted, egg probably eaten by numerous curlews in the area. ♀ then either laid second egg or possibly dropped it; a new nest was built and she deposited a new egg sometime between 21:30 18 and 20:20 21. The ♂ had always roosted nearby and the immature which hangs with them is probably their last offspring.

24 Oct. One more nest discovered NE of the last marked nest on E-SE point. I found this nest earlier with 2 eggs, but couldn't find it the day I marked nests. Still has two eggs today.

R.S. Grossin

Blue-faced Booby

②

McKean Island

19 Oct. Passed by a large club on spit at N end of lagoon at night + made following count:

146 birds; not a painted bird was noted, but noticed about 40 birds which had variable spotting on back or rump. Club split about this time and if evenly distributed, there could have been as many as 75-80 of these if evenly distributed throughout the group. A good look at the remaining 30-40 birds showed only about one bird in 10 or 20 which was banded.

This is by far the largest club noted. A few small clubs of ca. 20-30 birds are situated on islets out in the lagoon, but cannot make out percentages of age groups. When birds are distributed about the island they invariably wind up out on one of the islets in the lagoon.

R.S. Crossin
1968Brown Booby
McKean Island

(2)

25 Oct. Two more nests with two eggs each found
one just N of nest 1eggs 55.8 x 38.9 HI
53.9 x 38.0 #L

one just NE of nest one

eggs 64.2 x 41.6 ME
61.0 x 39.8 MI

These Brown Boobies sure are secretive. I have been through that area 5 or 6 times and missed both of these nests. If the parents fly real soon, we never sees them for all the terns in the air through this area.

A new Brown Booby nest with one ^{very} fresh egg was found just NE of old marked nest #9 which went to pt about 15.

29 Oct. As near as I can figure now, there are or have been at the time of counting, 5 nests with two eggs, which were not marked. There were ^{obviously} sketches of pronounced incubation by the very soiled eggs present, and were presumably present at the beginning of the survey (15 Oct).

A. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

Summary and list of it

of Brown Booby

on McKean Island

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Number of Young
1	♀ (yellow-face) 767-40895 ♂ (blue-face) 767-40977	15	2 eggs	67.5 x 40.4 62.5 x 40.3			
2	♂ (blue-face) 767-40896	15	2 eggs	61.1 x 39.9 61.5 x 41.1			
3	♂ (blue-face) 767-21594 ♀ YF 767-40992	15	2 eggs	62.7 x 40.5 66.5 x 42.4			
4	♀ (yellow-face) 767-40897	15	2 eggs	62.2 x 43.9	15.8 ^{15.8} _{15.8}		
5	♂ (blue-face) 767-40898	15	2 eggs fresh	59.6 x 39.3 56.7 x 40.0			
6	♂ (blue-face) 767-40899 ♀ YF 757-62604	15	1 egg + 1 chick	61.1 x 40.4	32.5 (17)		
7	♂ (blue-face) 767-40800	15	2 eggs	55.6 x 38.5 52.9 x 37.0			
8	♂ (blue-face) 767-40881	15	1 egg fresh	62.6 x 41.2			
9	♂ (blue-face) 767-40882 ♀ YF 767-40883	15	1 egg fresh (chick)				
10	♂ (blue-face) 767-40884	15	2 eggs	56.6 x 38.8 56.7 x 38.7			

Other Comments:

R. S. Crossin

Oct. 1968

Date Sheet for Marked Nests

at Brown Booby

to McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Nest or Burrow	Other Contents of Information
1	15	NB 767-40875	still 2 eggs	♂ (yellow face) incubating 2045 no blue bird about
2	15	NB 767-40896	" " "	♂ (blue face) " 2070 "
4	15	NB 767-40897	" " "	♀ (yellow face) " 2100 "
5	15	NB 767-40898	" " "	♂ (blue face) " 2120 "
6	15	767-40879		♂ incubating + feeding chicks at 2125 "
7	15	80	still 2 eggs	♂ incubating egg at 2125 "
8	15	81	still 1 egg	♂ incubating egg at 2130 "
9	15		still 1 egg	incubated on egg at 2135 egg old.
10	15	84		♂ incubating at 2135, not hatched

All birds noted with bills feeding around soft parts of bill on night of 15.
 The note of each incubating bird was not at any time but it was noted a few
 notes along the rocky beach coast - there are probably notes to the incubating birds.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	17	♀ 767-40895	still 2 eggs	1240 as I watched both birds made about 15 passes over the nest & finally ♀ went in on egg & ♂ perched nearby.
2	17	♀ unmarked	still 2 eggs	1238
3	17	♀ unmarked	still 2 eggs	1235
4	17	♂ unmarked	1 egg just hatched	measurement of egg & young taken 1230
5	17	unmarked bird	still 2 eggs	1230
6	17	—	still egg & chick	1228 chick culmen measured = 32.5
7	17	—	still 2 eggs	1227
8	17	767-40881 ♂	still one egg	1215
9	17	—	empty	egg gone 1210, one parent? standing nearby
10	17	—	still 2 eggs	1203

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	18	NR 767-40974	still 2 eggs	♂♀ banded & painted green 2105
3	18	737-21594	" " "	♂♀ painted green 2110
4	18	—	1 egg	chick gone, egg cold 2115
5	18	767-40898	still 2 eggs	♂♀ incubating 2120
3	21	767-40892	"	♀ " " 2000
3	25	"	1 egg, 1 NY ^{just} hatched	♀ " " 2130
4	25		nest empty	2130
6	25		nest empty	2130
8	25		nest empty	2140
8				

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	29	—	2 eggs	1605
2	"	—	2 eggs	1605
3	"	♂ ♂	2 naked young	1605
4	"	—	empty	1610
5	"	♀ ♂	2 eggs	1610 ♂ 2 burped up 13 3-4" Scombrids + 2 4" squid.
6	"	—	empty	1615
7	"	—	2 eggs	1615
8	"	—	empty	1620
9	"	—	empty	1620 Two new nests near old one, besides the one which contained 1 egg on 17/21 all nests within 25 ft. empty.
10	"	—	1 egg	one other broken egg by nest.

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
11		15	one egg				
12	767-40977 ♂ ♀	17	one egg and ^{naked chick} just hatched	57.8 x 41.1	16.3		
13	767-40990 ♀ ♂	17	2 eggs	57.6 x 37.1 59.0 x 39.3			
14		17	1 egg (fr.?)	63.0 x 38.8			
15	767-40988 ♂ ♀	1630 17	1 egg, 1 NC ca. 1-2 days old.	64.3 x 41.1	15.6		
16	767-40999 ♂	17	2 eggs	62.3 x 40.2 58.1 x 41.5			
17	737-21507 ♂ ♀ 767-40996 ♀ ♂	19	3 eggs	62.5 x 39.7 59.3 x 39.3 60.3 x 39.0			
18	754-62603 ♀	24	2 eggs				

Other Comments: .

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby

on McKean Island

Summary and 1st visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young (mm)	Measurement of Wing of Young	Band Number of Young
1		15	Naked young		23.5		
2	747-50530 Int. Ph. G	15	5m downy young young		30.6		
3		15	one egg	57.1 x 38.5			
4	747-51411 Int. Ph.	15	one egg	60.0 x 39.6			
5	747-60235 Int. Ph.	15	one egg	61.9 x 39.0			
6	747-53112 Int. Ph.	15	one egg	57.6 x 39.0			
7	747-50206 Int. Ph.	15	one egg, fresh	59.1 x 38.9			
8	NB 747-50501 Int. Ph.	15	naked young		23.5		
9	747-50212 Int. Ph.	15	one egg	61.1 x 40.3			
10	747-57638 almost dk. Ph.	15	one egg	54.6 x 34.8			

Other Comments:

all above 10 nests built in low, dead or almost dead Sida Callaf bushes.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby

on McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	16	—	empty	chick on ground beneath nest, ^{still alive.} 2135
3	16	—	egg on ground	parent not on nest 2130
4	16	747-51411	egg	2222
5	20	747-60235	egg	inc at night
6	16	747-53112	naked chick	2140. Parent int. ph w some dark on crown was
7	16	747-50206	1 egg	2140 Int. phase
8	16	747-50501	dead chick	parent brooding dead chick
9	16	747-50212	1 egg	Int. ph. bird 2150
10	16	747-57638	1 egg	2150. parent almost dark phase, 3 lateral tail feathers on each side dark ^{shiny}

October
1968

Blue faced Booby

Pair ♂	♀	Nest Status
767-40813	737-42300	LDY
737-51131	737-49629	LDY
737-51146	757-64190	NC
587-81642	757-64441	LDY
587-83357	737-22956	LDY
587-83389	757-64439	LDY
587-81629	757-29600	LDY
557-83366	737-51050	NC
757-62228	757-64470	LDY
737-49955	757-63978	SDY
757-66763	737-51038	Near Imm.
757-62968	767-40834	LDY
757-63891	737-51121	LDY
757-64415	767-40983	LDX
767-40979	767-40980	SDY
587-81648	767-40984	SDY
757-62288	767-40986	SDY

October 1968

Brown Booby

Pair ♂	♀	Nest Status
767-40888	767-40887	Rearing by man
737-21513	737-21544	2 fresh eggs

October 1963

October 1963

White-throated Sparrow Nests

Pairs

Nest Status

1103-01047 + 1103-01048
1103-01049 + 1103-01089

Empty cavity

White-throated Sparrow Nests

Pairs

Nest Status

905-00507 + 905-00508
905-00509 + 905-00510
905-00511 + 905-00512

Empty cavity
groggling
" " " "
" " " "

Bulwer's Petrel

Pairs

682-47703 + 1103-07100
 1103-07104 + 1103-07086
 712-57260 + 712-57261
 712-57262 + 712-57263
 712-57271 + 712-57272
 712-57279 + 712-57280

Nest Status

Empty cavity
 " " "
 Calling " "
 " " "
 Empty cavity
 Calling " "

BOORUM & PEASE "NESTERS" ®

ASE "NESTERS" ®

R.S. Rossin Bristle-thighed Curlew (D)
1968

McKean Island

19 Oct. Made a count of 85 from 1530 to 1730 today in a fairly accurate count. Some I missed a few in the central part of the island.

Tried banding this species at night and in an entire tour of the island (all parts) I encountered only four. I believe the big problem is that there are so many Golden Terns of all species in every part of the island roosting that as they flush up screaming, the shorebirds also take flight and in the mess they are not even seen. There was no moon, but fairly bright starlight. All four encounters were done so in areas where no terns were screaming off first. The Curlews are fairly easily captured with the hand net if not disturbed first by other birds.

No sightings yet of any robbery by other birds. A lot of looting, their eggs look as if the Curlews may have eaten them (puncture marks in the shell). Also I have been losing many eggs from marked nests, especially the outlying Brown & Red-footed Boobies.

5 Nov 19 eggs of Gray-backed Tern just N of the large walls were all eaten or broken into, mostly with one or more crude holes ca. 1/4" wide such as a Curlew might make. All destroyed eggs were in one small area.

R.S. Rossin
1968

Golden Plover

(D)

18

McKean Island

17 Oct. While sleeping on the beach, I woke up about 0300 with the high tide coming in. My cot was only a few feet away from the high tide line and a Golden Plover came tottering along only about 2 feet from the cot. As each wave rolled up it would run along and pick up some small food items, as the water of each wave receded. Feeding much like a small peep sandpiper. The beach was fairly well illuminated by starlight, no moon. I flushed the bird long on him and he ran off up the beach. Didn't know then whether he fed at night, but then again, can't remember ever seeing them feed in the daytime.

23 Oct Plovers observed feeding intensively on the large green, smooth (not hairy) caterpillars which have become very numerous on the vegetation since the last couple of good rains. These caterpillars are about 1 1/4" long at largest size and are fairly abundant everywhere. Plovers stalk along picking them off ^{by the weeds} and swallow them with a few quick flicks first perhaps to stun or kill them. Birds are feeding in the daytime.

R.S. Bowen
1968

Fairy Tern

0

McKean Island

20 Oct. Worked all Fairy Tern nests on the high SW walls and the entire large central complex of walls. Data as follows:

	20 Oct HSW Walls	20 Oct LCC	24 Oct NW Circular wall	TOTAL
Egg	2	17	5	24
SDY		2		2
MDY	2	3	1	6
LFY		2	2	4
Imm.		2		2
Total	4	26	8	38

20 Oct

All eggs were measured as follows:

- 38.2 x 29.6
- 38.2 x 29.4
- 38.7 x 30.7
- 38.8 x 31.2
- 38.9 x 30.9
- 39.0 x 30.0
- 39.2 x 30.2
- 39.5 x 30.3
- 39.5 x 31.6
- 39.6 x 29.9
- 40.1 x 29.9
- 40.9 x 31.1
- 41.0 x 30.3
- 41.0 x 31.4
- 41.5 x 30.4
- 42.1 x 31.2
- 42.1 x 32.2
- 43.8 x 33.2
- 44.0 x 29.7

Total 19

Stage of Incubation

	20 Oct	24 Oct	Total
Fr.	4	1	5
VSI 1.		1	1
VSI 2.	1		1
SE	1	1	2
MI	4	1	5
HI	5	1	6
rotten	4		4
Total	19	5	24

Egg measurement, 24 Oct

- 40.0 x 31.0
- 39.9 x 31.1
- 38.2 x 29.2
- 40.1 x 30.4
- 40.6 x 31.3

R.S. Bowen
1968

Fairy Tern

(2)

McKean Island

20 Oct. Measurements of the culmen from exposed skin (free of down or feathers) to tip of upper mandible were taken on all chicks. The individuals were first visually placed in an age class and then measured.

SDY	MDY	LFY	Imm.
12.5 mm.	20.5 mm.	24.1 mm.	27.3 mm.
14.0 mm.	23.0 mm.	25.2 mm.	27.5 mm.
	24.1 mm.	26.3 mm.	
	24.1 mm.	24.1 mm.	
	24.3 mm.	25.4 mm.	
	24.8 mm.		
	24.2 mm.		

Hence by visual placement, there is some overlap between individuals in the middle downy young and large feathered young classes, and very close measurements in the large feathered young and immature groups. A larger sample could no doubt give a better series in which to set lower and upper limits to the various age classes. However, individual variation will probably make this criteria invalid; hence I can see no reason for maintaining some age-class method which utilizes measurements, but it will allow a field worker to utilize the same visual methods we use in that one unfamiliar with aging this species can check himself with some concrete measurements.

All young were banded 712-57244-55.

One egg was known to be laid on 18 Oct, High SW walls.

RS Crossin
1968

Fairy Tern

(3)

McKean Island

19 Oct. Some old courts which I forgot to enter in here are:

- 6 eggs
- 4 medium downy chicks
- 3 large feathered chicks

These were counted along the rocky crest on far (E-NE) side of the island. Practically nothing else nesting over there and I have little occasion to go there.

This species is distributed in low numbers all about the island, but the large concentrations are on the old rock walls on west side.

26 Oct/ 43 birds ^(adults) counted at 2220 about the NW circular wall.

27 Oct/ 44 adults were counted flying about the large "ditch" on N side of island at 1130.

RS Crossin
1968

Common Noddy

(4)

McKean Island

25 Oct Regurgitation samples from 10 $\frac{2}{3}$ sized chicks = between medium downy and large feathered young; tending more toward latter age class were collected between 1830 and 2000 and were as follows:

Chick #	wt. (gms.)	contents (unifest.)
1	51.2	100% squid
2	17.9	100% squid
3	13.6	100% squid
4	4.7	100% squid
5	10.5	100% fish (Scombridae)
6	10.0	30% squid, 70% halfbeak
7	7.3	100% squid, 90% Scombridae
8	1.5	100% halfbeak
9	5.4	100% squid
10	17.0	70% squid, 5% Triggerfish, 25% Scombridae
	9.31	

The one example of triggerfish (probably *Salarias*), the halfbeak (prob. *Hemiramphus*).

An estimated 5,000 roosting along SE-SW lagoon shoreline on mud flats, rocks & Sesuvium flats.

26 Oct/ A nest survey was done about the large central complex of walls today. Egg + chick count. The egg count is considered O.K., but for the same area the chicks count is probably low as they hide fairly well in rock crevices.

			Culmen (mm)	Chicks		
				Dark	Int.	Light
E	35	19.3%	13.9 SDy			
SDy	4	2.2	15.0 SDy	4	2	1
MDy	9	5.0	15.1 SDy	1		
LFy	127	70.7	18.2 SDy	2		
Imm.	6	3.3				
	181		23.5 LFy			
			26.1 LFy			

R. S. Grossin
1968

Common Noddy

(2)

McKean Island

26
Sort

Flotation on Eggs

Fr	9
USI 1.	6
USI 2.	5
SZ	11
MI	5
HI	2
Pipping	4
	<hr/>
	42

Egg Measurements

47.1	x	35.4
47.4	x	31.8
47.9	x	35.5
49.0	x	34.6
49.0	x	35.7
49.5	x	35.1
49.7	x	35.7
50.0	x	34.6
50.3	x	35.2
50.9	x	35.3
50.9	x	39.0
51.0	x	35.1
51.0	x	33.9
51.0	x	36.5
51.1	x	35.9
51.2	x	35.0
51.3	x	35.4
51.3	x	35.5
51.5	x	35.4
51.6	x	35.4
51.6	x	36.3
51.7	x	36.5
51.9	x	36.3
52.0	x	37.7
52.2	x	36.7
52.3	x	36.0
52.5	x	35.8
52.8	x	37.2
53.3	x	35.7
53.4	x	36.1

53.4	x	36.2
53.5	x	37.5
53.9	x	37.4
54.0	x	36.1
54.1	x	37.0
54.4	x	37.2
55.0	x	34.7
56.0	x	37.5

38

R. S. Grossin
1968

Common Noddy

(3)

McKean Island

270 An estimated 500 C. noddies
roosting on mud flats at SW end of
lagoon. Another 400 roosting on the
mud flats at N end of lagoon.

RS Brown
1968

Hawaiian Noddy

①

McKean Island

20 Oct. all nests of Hawaiian Noddies were checked today on the high SW walls + the large central complex of walls. Old nests were counted, eggs measured, flotation performed and culmen measurements of all young taken. Usual specification as to age class was made before measuring with no attention paid to measurements during the procedure.

	(20 Oct) H. SW Walls	(20 Oct) LC Complex	(20 Oct) NW circular wall	TOTAL
old nest	6	43	6	55
E	2	25	7	34
SDY		3	2	5
MDY		5	1	6
LFY	2	9	1	12
Imm.	1	-	-	1
TOTALS	5	42	11	58

Old nests are not included in the above totals, but were taken to give an idea of the maximum population possible. I believe that very few new nests are built anymore, and that pairs nesting merely place new material on an old nest.

Fr.	Flotation on Eggs		Total
	H. SW WALLS	NW circular wall	
VSI 1.	1	1	2
VSI 2	1	1	2
SI	3	1	4
MI	8	1	9
H.I	11	1	12
Piping	1	2	3
rotten	2	-	2
	<u>27</u>	<u>7</u>	<u>34</u>

RS Brown
1968

Hawaiian Noddy

②

McKean Island

20 Oct. Egg measurements as follows: (mm.)

42.5 x 29.5	
43.1 x 29.9	
43.3 x 30.3	
43.8 x 31.0	
44.0 x 29.6	
44.2 x 30.9	25 Oct 44.2 x 31.0
44.3 x 29.2	
44.6 x 31.9	
44.7 x 31.3	44.7 x 30.9
45.0 x 31.4	
45.1 x 30.0	
45.3 x 32.4	
45.6 x 31.2	
45.7 x 30.6	45.8 x 31.1
45.9 x 31.6	45.9 x 33.2
46.4 x 30.6	46.2 x 30.6
46.6 x 31.4	
46.7 x 31.3	
46.7 x 30.9	
46.9 x 31.8	
47.4 x 30.6	
47.6 x 29.4	47.6 x 32.6
47.8 x 32.6	
48.0 x 32.2	
48.4 x 31.4	48.5 x 30.9
49.5 x 30.5	
50.0 x 30.8	

R. S. Brown
1968

Gray-backed tern

(1)

McKean Island

24 Oct. A colony of ca. 8000 birds are situated on the fine coral rubble on E side of island directly opposite ramp. There are on estimated 70% heavily incubated eggs with estimated 30% on fresh eggs, primarily on the N edge. No chicks here in this particular colony.

25 Oct. Colony of ca. 2000 are on ave. slightly incubated eggs between the circular NW walls and the large central complex of walls.

Another colony of ca. 400 are on very slightly incubated stage 2 and slightly incubated eggs.

Flotation was performed on 40 eggs in the above two colonies as follows.

Fr.	1	2.5%
VSI 1.	5	12.5
VSI 2.	13	32.5
SI	18	45.0
ME	3	7.5

40

Considerable variation is encountered in a single colony indicating that all birds do not settle at one time. There is probably a steady, slow trickling in of birds in any particular colony which is why one can often find flying immatures in a colony amidst birds incubating fresh eggs. However, in fact, there are very few young about the island at this time. I have on occasion noted a few half-flying immatures and very rarely (4 or 5) small medium downy chicks - these primarily on the N end of the island and at night when looking for BB nests.

R. S. Brown
1968

Gray-backed tern

(2)

McKean Island

25 Oct. night. A club on S rocky beach crest of ca. 400 with fresh eggs + ca. 10 large flighted young to flying immatures. This is new egg laying since 3-4 days ago when I last went through this area checking Brown Booby nests.

A bit farther east on the S end is a colony of ca. 2000 birds with SD y and 5-10 eggs around the periphery which were very fresh. Also a few (ca. 5) flying immatures which shows this colony has been occupied regularly (or slightly irregularly) for some time.

An estimated 10,000 birds roosting along SE-SW shoreline of lagoon. An occasional pair has eggs at the very edge of lagoon & seaward.

27 Oct. ca. 600 adults with ca. 200 eggs of slight incubation and a handful (ca. 20-25) large flying young are situated along the rocky crest on N end of island.

R. L. Brown
1968

Sooty Tern
(*Sterna fuscata*)

8

13-48 N; 159-33 W — 1704 N; 165-48 W

8 Oct 1/2 birds noted today; at least 8 imm., these most often accompanied by parents, although none noted yesterday just south of Oahu. These are most likely Hawaiian Islands birds which have moved off to sea at termination of breeding. One imm. closely following parent; parent calling softly. Parents no doubt stay with young until late time after they leave the island.

15-08 N; 162-02 W — 13-16 N; 163-19 W

9 Oct numbers down today to 26; all seen cloudy were adults. The largest group was 17 seen just at sunset.

11-25 N; 164-35 W — 09-36 N; 165-46 W

10 Oct. only 3 birds noted today, all adults.

07-45 N; 166-56 W — 05-57 N; 168-03 W

11 Oct. A small flock of 11 adults late in afternoon may be a few outliers of large concentration peculiar to the 5°N current convergence rich feeding zone. A sudden appearance of 6 Red-footed Boobies at sunset may be another indication, but certainly number of birds were not what they have been in the past, if we did indeed go through the rich water zone.

03-57 N; 169-10 W — 01-58 N; 170-37 W

12 Oct. Noted a small traveling flock of 7 in the morning and 2 in a mixed flock in late afternoon; all adults.

R. L. Brown
1968

Makemo Island

9

24 Oct. Practically every adult in the colony leaves in the early morning & goes out to sea. For instance, at 0840 there are now only about 500-1000 adults in the entire colony. Birds start coming back in fair large numbers throughout the late afternoon and at about 5:30 PM really become a problem. Some change occurs all night long and very early, by sunset, about birds have again gone to sea. This is with a colony composed almost exclusively of young chicks, from just recently hatched to 2/3 size. Toward the two ends of the colony N & S, the chicks are smaller & a few eggs are still being incubated in these extreme ends. Hence the colony probably got underway about mid way some where and the late comers were forced to nest at the ends.

22 Oct Plot count

Two plots were set up last night; each measuring 32 x 31 feet to give roughly a 1000 sq. ft. area. At 2200-2245 counts made as follows:

PLOT #1 175 ads.
23 chicks - newly hatched to 1/3 size
4 eggs being incubated
61 remains of rotten or broken eggs (not hatched)

PLOT # 2 241 ads.
82 chicks 1/3 - 2/5 grown
57 rotten egg remains.

R. S. Crossin
1968

Sooty Tern

(3)

McKean Island

24 Oct. Plot 3 146 adults
68 $\frac{1}{3}$ grown chicks
32 rotten eggs.

25 Oct
Plot 4 227 Adults
83 $\frac{1}{2}$ sized chicks
61 rotten eggs

As can be seen in Plots 2 + 3, more chicks and or rotten eggs are present than adults to supply this number. Hence many more birds are flying before I get to the plots to count or adults which have had unsuccessful nestings; i.e., rotten eggs have left the area and no longer roost on their territories. The latter seems more likely since I take great care not to stir the birds when coming in to count, but perhaps it is impossible.

25 Oct. an estimated 20,000 roosting on the mud flats along S-SW lagoon shore.

26 Oct. In figuring the number of Sooty Terns in the breeding colony the logical figures to use are the average of the combined egg and chicks in the various plots since the parents of the chicks cannot be part of the parentage of the rotten eggs - the chicks are not large enough nor do they have wide enough eye gaps for parents of unsuccessful eggs to have retained and brought off any of the chicks present.

Since some eggs and chicks are bound to have disappeared from the plots, the numbers present now are logically the lowest figures of original layings that could have occurred. Perhaps the large numbers of birds that are roosting along the lagoon and on the rock walls are part of or most of those that have lost eggs or chicks. Breeding birds which have failed nests... P. 5

R. S. Crossin
1968

Sooty Tern

(4)

McKean Island

24 Oct. Regurgitation samples were collected between 1900-2000, as the adults have very recently come in and fed the chicks. Many adults have nothing to regurgitate, presumably because they have already given it to a chick.

		wt (gms).	Contents (estimated)
Adults:	1.	5.1	100% small fish
	2.	6.4	100% " "
	3.	23.6	100% " "
	4.	17.4	100% " "
$\frac{3}{4}$ chicks	1.	26.9	80% fish, 20% squid.
	2.	18.8	100% fish 70% flying fish
	3.	32.5	40% fish, 60% squid.
	4.	12.0	100% small fish.
	5.	16.8	100% small fish.
	6.	15.8	30% fish, 70% squid.
$\frac{1}{2}$ chicks	1.	26.4	10% fish, 90% squid.
	2.	25.4	100% squid.
	3.	27.2	100% fish
	4.	17.9	5% fish, 95% squid
	5.	36.6	100% fish
	6.	32.2	100% fish
	7.	16.3	100% fish
	8.	7.7	100% fish.
	9.	10.8	40% fish, 40% squid.
	10.	31.0	5% fish, 95% squid.

The fish were apparently general Scombridae, except where noted otherwise.

L. L. Crossin
1969

Sooty Tern
McClellan Island

(5)

26 Oct may have a tendency to stay around the breeding island same as if they were rearing young successfully. This is only an idea since there is no way of proving that roosting birds are nest failures. They are so gumpy that as soon as an approach is made, all are up in the air in wild confusion. I have not even been able to sample the lagoon roosting birds for band recoveries.

Averaging Plot samples [these plots, incidentally, were roped off to get maximum efficiency in counting the birds at night. Hence, if for some reason, one became confused in counting, it was simply a matter of starting over again, since the boundaries were stable].

Plots by averaging adults counted in plots, an average plot contains 197 adults. By figuring 2 adults per chick or rotten egg, the average plot has 236 adults. This latter figure is more logical and will be used in the final estimation. In those plots which had fewer than 2 adults per egg or chick, another reason may be that some parents would be out to sea feeding or catching food for the chicks & in fact it is probably unlikely that both parents of every chick or egg would be on the island every night.

27 Oct. an estimated 1000 sooties roosting on the dry-slightly moist mud flats along WNW side of lagoon.

BOORUM & PEASE "NGEAR" ®

McKean Island

22 Oct A count of the Lesser Frigate colony was made in late afternoon today. The colony is broken up somewhat into units now with large areas in between groups and hence counting is made considerably earlier than in July. I sorted these reports by units and allowing for confusion in the larger groups, believe count to be 80% correct.

The boundary of the colony is somewhat same as in July with an additional 3000 young in a pocket NE of the main colony. Most young are either in the large downy downy or large feathered category. An estimated 3% are medium downy young and an estimated 10% are large downy. A handful of birds are still sitting on eggs. Some of these tested were rotten, others having incubation.

Total of 22,000 young counted, allowing for broken, infertile eggs and small chicks lost, this colony must have been the 40,000+ nests estimated in July, and if Sooty Tern rate of Lesser Frigates, the colony was originally much larger than it now is. Practically all adults are gone from the colony during the daytime although many of these are merely curlewing high over head. At dusk birds began settling in great numbers, and by full dark the colony is fairly well settled.

24 Oct A small group of 39 nests situated E of the main colony was checked today. This portion undoubtedly set down considerably after the others. It contained as follows:

see foll. page.

McKean Island

24 Oct. Small colony E of main colony

rotten eggs: 8
Naked young 15
Small downy y. 16

39

A few of the naked young could not have hatched more than a day or two ago

27 Oct. Prof samples collected today, amount the following:

By 50 samples examined every one but one was composed 100% of squid. 10 very fresh squid gave the following measurements - pan only (exclusive of head + tentacles), in mm.

110	
91	an average per length of
63	67.6 mm. This is
69	considerably larger than those
47	collected by Betty or Common
76	noddy terns and I would
72	imagine the tern species are
29	not heavily preyed upon. Either
37	the Lesser Frigates feed for them, solely
82	or they are parasitizing larger
<hr/> 676	species such as the boobies.

Ten samples weighed as follows:

56.0	100% squid
79.5	"
41.7	"
46.7	"
30.3	"
59.1	45% Sooty Tern (142 mm), 55% squid
53.4	100% squid
45.9	"
41.4	"
57.0	"
<hr/> 511.0	ave 51.1 gms per bird.

Lesser Frigatebird
McKean Island

27 Oct. Interestingly enough, this species is feeding the young on almost a pure squid diet. The one sample contained a 172 mm scoulerid amounting to 45% of the sample. Great frigates, on the other hand are feeding considerably on Scombridae = more parasitizing boobies etc??

If we assume our population count is reliable, then each of 22,000 young terns + their 44,000 parents each consuming on average of 51.1 gms of squid per day equals 3,372,600 gms. = 7,529 lbs = ca. 3 3/4 tons. If the July estimate was correct and there were 85,000 birds about, and if this 40,000 old birds which presumably had nest failures are still about, then we add another 4,502 lbs (2 1/4 tons) to the total, coming up with about 6 tons of squid per day to feed that bunch of mounters. The average, in fact is probably quite low, since a brief sample probably constitutes the feeding of one parent and perhaps each parent feeds more than once per day. Thus 51.1 gms is probably quite low.

Some tern frigate chases:

- 1635 3 ad ♂ terns drive a sooty tern for about 15 seconds - chase successful tern disgorges food and all 3 swoop, one picking it up.
- 1651 one ad ♂ tern drives an ad sooty for about 8 seconds, unsuccessful.
- 1701 3 of fins ad ♂ terns drive over ad sooty for 21 seconds - unsuccessful.
- 1714 2 ad ♂ terns drive a blue gray noddy for 90 secs, successful.

Lesser Frigatebird
McKean Island

27 Oct. Frigate chases cont. The frigates are picking birds returning from the large feeding flock offshore. Cannot determine which one they pick as terns are all over. They usually descend one low over the water, ignoring those flying in high at their level. Blue faced boobies were noted to come in at great heights - well over 1500 ft and then start plowing in as they come over the beach area to drop in at the lagoon. Perhaps this high approach is something to avoid frigates. A group of 5 or six ad ♂ terns are operating along the beach and here invariably one or 3 come out of their circling and dive in for a chase.

Observing these frigates out in the feeding flock, all seemed to be working as hard as the terns over the tuna and there is no doubt that most if not all frigates in the main flock were feeding for themselves.

1743 Two ad ♂ terns driving an ad sooty, sooty regurgitates and then attempts along with the 2 frigates and about 3 other sooty terns to pick up the regurg food. I think one of the frigate was successful.

1745 3 ad ♂ terns driving an immature RFB for 35 seconds - unsuccessful - it seems the bobby was splashing in the water.

1748 Three of 4 ad ♂ terns driving a sooty tern for 12 seconds - tern dropped food and all three frigates and another sooty tern dove in for it - ? don't know if anybody got it

1813 Two L. Frig ad ♂ driving an audubon's shear and 3 common noddies right with the frigates! Shear water hit the water, frigates rising, but the 3 noddies continue to pursue the shearwater for some 20-50 yards after it takes off from the herd. I never saw anything like this! Are these birds getting some ideas from the frigates?

BOORUM & PEASE

RD Crossin
1968

Great Frigatebird

①

McKean Island

14 Oct. 68 Imm. were roosting in the concentration, nesting area on the SW side of island at 2030. Many adults were present also but these started to fly as I was about through with the immature count.

15 Oct at 0920 there were 51 immatures in the above plot (Plus 8 ad ♀ and 5 ad ♂ on nests). Thus 17, or 25% of the birds in this particular group were leaving the island to feed and were probably independent of parents.

24 Oct. An immature flew over campsite, grabbed a half-grown Sooty tern, flew off with it; another immature gave chase and succeeded in grabbing the chick off the first one in mid-air. Then after a while the second one landed and after about 15 minutes of attempting to swallow the chick, finally succeeded. For many minutes the wings of the Sooty tern chick protruded out of the frigate's mouth.

The guys here in camp have noted many occasions when the frigates (Presumably Greats, as they are the common ones about camp) have picked up Sooty terns and dropped them from some height either over land or out over the water.

Nest count made today between 1600 - 1800. At this time the birds which go out to sea are not back yet and permanent birds are pretty settled. Manner of count went as follows: all those which could fly off or fly when disturbed were considered juv. Large feathered young were those which for all practical purposes had no down but were hesitant to move.

RD Crossin
1968

Great Frigatebird
McKean Island

②

24 Oct. young were those that had considerable down on the neck region etc, but were otherwise quite feathered, rest are self explanatory. One egg was definitely fresh + one with med inc.; one naked chick just hatched.

Eggs:	2
Naked Chick	1
SDY	14
MDY	13
LDY	72
LFY	168
JUV.	247
	<hr/> 517

If the sample plot SE of camp is at all typical, whereby 25% of the juv. were noted to leave the island in the daytime, then the number of juveniles for the island would be ca. 309 birds. I will test a few more compact groups before deciding what % are leaving the island.

A naked chick + small downy was found in one nest.

27 Oct collected beef samples from 10 large feathered young today as follows:

①	72.4	100% Scombrids
②	79.3	30% squid, 80% Scombrids
③	45.3	70% squid, 30% Scombrids
④	91.5	100% squid
⑤	42.6	20% squid, 80% Scombrids
⑥	59.4	100% squid
⑦	47.0	100% squid
⑧	31.7	100% squid
⑨	65.8	30% squid, 70% Scombrids
⑩	54.7	100% squid
	<hr/> 589.7	

BOORUM & PEASE "NINE"

BOORUM & PEASE "NINE"

R. S. Crossin
1968

Lesser Frigatebird

(5)

McKean Island

- 270⁺/ 1820 Two ad ♂ terns + a sooty tern drive an audubon for 11 seconds - unsuccessful.
- 1821 Three ad ♂ terns drive an audubon for ~ 10 seconds, successful.
- 1822 3 ad ♂ frigates accompanied by 3 C. noddies drive a wedgetail for some 8 seconds - successful, but I could not determine whether a frigate or a noddie got the foodie.
- 1824 4 ad ♂ terns drive an audubon for some 15 seconds, send it splashing into the water & then they rise, about then a C. noddie chased the audubon for some 15-20 yds when it rose from the water.
- 1827 4 ad ♂ terns driving in mixed combinations 2 audubons - finally one got away - other chased until it disgorged - two C. noddies got in the fray about mid way and leaped in to get the disgorged food, but one of the frigates beat them to it - both noddies were chasing the 2nd audubon as actively as the frigates.
- 1829 2 frigates and a noddie drive an audubon, it disgorges and one of the frigates drops to get it, other frigate rises. C. noddie still continues to drive audubon for about 30 yds.
- 1831 One frigate and 3 noddies driving an audubon and it ended in a mad thrashing on the surface. Don't know what happened.
- 1833 I weary of this game and it is getting too dark to see clearly. In all the above chases concerning terns, one thing strikes clear in that a tern, either noddie or sooty, was never noted to initiate a chase. Only after one or more frigates had started the chase, would one or more terns join in, but the noddies regularly chased the prey kind after the frigates had quit.

RS Brown
1965

Great Frigatebird

(3)

McKean Island

24 Oct/ The preceding samples were collected at about 1200. Many of the animals were exceedingly fresh and thus the young are being fed throughout the day.

The percentages of fish to squid are arrived at by visual determination, which is a bit crude, but 1000% better than nothing. Attempts to separate out the fish from squid and weigh each separately largely fails because often the two components are so intermixed that large error is obtained at any rate. In testing my ability to visually estimate the percentage of each food type, I find in a few examples which were clean cut and easily separated & weighed individually that I come to within 5% of the actual percentages - thus for these for this type of determination, I feel that the results are acceptable. The extreme variation presented in the different samples does not justify any attempt at finer distinction at any rate. This probably because the birds are feeding on an opportunistic basis for the most part.

The Frigate regurgitation samples (both species) contain squid and scombrids of larger dimensions in most cases than the specimens of the same prey found in tern samples. Thus it would appear that the frigates are either parasitizing boobies or are feeding for themselves.

The frigate samples of both species were collected in open mouth plastic bags and disposed of after weighing since they could not be adequately sealed with Alabast in them.

R.D. Brown
1968

Red-footed Booby
(*Sula sula*)

①

Hondulua south to 20-41 N; 158-23 W
7 Oct. 164 recorded from 1500 until sunset 18⁰⁰.
all light phase adults, number of imm-
seen, usually in singles accompanied
by an adult.

07° 45' N; 166° 56' W — 05° 57' N; 168° 03' W

11 Oct. 6 showed up tonight right at sunset
and began circling the ship; 5 imm. and
one adult. I suspect since we are still
about 500-600 miles N of Hondulua, the
nearest island, that these birds are
winter (= non-breeding, pre-breeding) residents
of the rich feeding area of ca. 5° N.
Although very few other birds were
about to indicate this, I feel that
the presence of a number of these red-
foots indicates large buildups of feeding
birds. Nocturnal observations held
for 3 1/2 hrs. after sunset failed to
show any indications of feeding
flocks.

03° 57' N; 169° 10' W — 01° 58' N; 170° 37' W

12 Oct. Saw several (5 total) immatures through-
out the day, all singles. None paid
attention to the ship as did the 6 last
night.

R.D. Brown

Red-footed Booby

②

Mckean Island

16 Oct. Nest count made today as follows:

	Marked Nests	Non-Marked	Total
New Empty nest:	1	3	4
One egg	11	25	36
Naked young	4	12	16
Small downy young:	4	4	8
Large Downy young:		11	11
Large feathered young:		9	9
near Immature:		4	4
	20	68	88

Nest localities were as follows:

4 nests at SW edge of lagoon where
the concentrations of frigates are;
5 nests along N-SW edge of lagoon
near lesser frigate colony and the
nest in a broad belt through the
old stone wall area on the W side.

The nesting area here is more or
less dictated by the Sida filler growth
since all nests are in Sida.

The marked nest area is around
the large W wall near camp.

20 Oct 2010 123 roosting in large central
complex wall section, at least 20 of these
imm. about 200 roosted about the rest
of the Sida area about the walls on W side
and another 100 plus on the SW lagoon
corner in mixed frigate and RFB roost-
ment area. About 60 birds, mostly imm & ad,
roosted about the small nesting site on
NW corner next to lesser frigate colony.

R. S. Swain
1968

Red-footed Booby

(2)

McKean Island

26 Oct. Collected 10 samples of regurgitation from adult birds - only those which did not have anything larger than very small downy young - since we must presume feeding the young would drastically change the quantitative amount the adult would retain. Collected between 1900 - 2000.

	Wt. (gms)	Contents (visual detn.)
①	97.6	20% squid; 80% fish scombrids
②	51.0	60% squid, 40% fish scombrids
③	76.4	50% squid, 50% fish scombrids
④	92.1	15% squid; 85% fish scombrids
⑤	57.0	100% fish scombrids
⑥	50.4	25% squid, 75% fish scombrids
⑦	54.6	50% squid, 50% fish scombrids
⑧	74.4	90% squid, 10% fish scombrids
⑨	31.4	10% squid, 90% fish 80% scombrid 10% halfbeak
⑩	65.4	30% squid, 70% fish scombrids
	<u>650.2</u>	

With practically all samples so far, including Red-tails, the food has been primarily squid, scombrids & halfbeaks - all prey that could only be captured in such quantity by feeding over schooling times. Since all samples were taken at dusk or shortly thereafter, all prey was caught during the day - further proof that some aquatic predator was involved with driving the food source to the surface.

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
11	29 Oct	—	empty	1440
12	"	—	"	1445
13	"	—	"	1445
14	"	—	"	1445
15	"	—	"	1445
16	"	—	M D Y	1445
17	"	—	empty	1445
18	"	—	egg	1445
19	"	—	empty	1440
20	"	—	M D Y	1440

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
12	17	747-51102	egg	bird just captured - band # taken 1110
13	18	747-51474	naked ch.	just hatched 2350
14	18	747-57795	still empty	2355 parent on
14	20	—	empty	2025
11	20	—	empty	2025
18	20	747-50532	egg	32 banded 2025

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
11	747-51477 Int. Ph. 0 747-51434 Int. Ph. G	15	naked chick ca. 2 days old.		18.9 mm.		
12	747-65027 Int. Ph. 9 747-51102 Int. Ph. 0	15	egg	55.7 x 36.5			
13	747-56905 Int. Ph. 0 747-51474 dk. Ph. G	15	egg (just pipping)	52.2 x 40.3			
14	747-60254 Int. Ph.	15	small downy young.		36.5 mm.		
15	^{No} 747-50502 light ph. 0	15	egg.	60.2 x 39.7			
16	747-51469 Int. Ph. 0 747-56925 Int. Ph. G	15	small downy young		36.7 mm.		
17	747-57795 Int. Ph. G	15	empty, parents sitting				
18	747-51128 dk. Ph. 0 747-50532 Int. Ph. 0	15	egg	63.9 x 38.6			
19	747-60266 Int. Ph. 0	15	naked young just hatched.		15.2 mm.		
20	737-21516 Int. Ph. 0 777-25882 Int. Ph. G	15	small downy young		36.7 mm.		

Other Comments:

all above nests in dead or partially dead *Sida fallax* bushes.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
11	16	747-51477 ₁	naked chick	2206
12	16	747-65027	egg	2205
13	16	747-56905	egg naked chick	2205
14	16	747-60254	sm downy	2206
15	16	^{No} 747-50502	egg	bird banded at 2210
16	16	747-51469	sm downy y	2215
17	16	—	still empty	no parent on 2215
18	16	747-51128	egg	2216
19	16	Int. Ph. med. dk. 0 747-60266	and naked young	young dead, parent resting about 13 m. from nest.
20	16	737-21516	sm downy	2220 (This ⁷⁴⁷ is on SFB in living - somebody (me?) grabbed.)

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
8	20	—	empty	2030
9	20	—	empty	2030

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	29 Oct	—	empty	1430
2	"	—	MDY	1430
3	"	—	empty	1430
4	"	—	"	1430
5	"	—	"	1425
6	"	—	"	1430
7	"	—	"	1435
8	"	—	dead chick	1440
9	"	—	empty	1445
10	"	—	"	1440

1st day SEC 20

Location Honolulu → 21-17N; 157-53W
 Observer Crossin Date 07 Oct '68 Time 1500 to 1818⁵⁵
 Weather clear, wind mild Miles 33 Hours 3.0

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	845	8 dark, 1 Int. rest light
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel		
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby	1	
Red-footed Booby	164	
Great Frigatebird	2	ad ♀♀
Lesser Frigatebird sp.	6	
Golden Plover	1	
Ruddy Turnstone		
Sooty Tern		
Gray-backed Tern		
Common Noddy Tern	311	
Fairy Tern	1	
Pomarine Jaeger		
Tropic bird sp.	1	
		Shear-pet 845
		Booby 165
		Tropicbird 1
		Tern 312
		Shorebird 1
		Frigatebird 8
		Total Birds 1332
		Total Sightings Feeding 5 (1155)
		Total Flocks 12 (1252)
		Total Species 8
		Travel Flocks 7 (87)

2nd day SEC 20

Location 18-48N; 159-33 — 17-04N; 160-48W
 Observer Crossin Date 8 Oct 1968 Time 06⁵² to 18²⁵
 Weather calm, mostly clear Miles 106 Hours 2:20
 9.6

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	212	31 dark, 181 light
Sooty Shearwater / sb	2	
Slender-billed Shearwater		
Christmas Island Shearwater	2	
Newell's Shearwater	1	
Juan Fernandez Petrel	16	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel / fehitan	1	
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	34	
Bulwer's Petrel	2	
Leach's Storm Petrel		
Red-tailed Tropicbird	1	
White-tailed Tropicbird	3	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird		
Golden Plover	2	
Ruddy Turnstone	2	
Sooty Tern	112	at least 8 imm.
Gray-backed Tern		
Common Noddy Tern	1	
Fairy Tern		
Pomarine Jaeger		
Pterodroma sp.	1	
		Shear-pet = 271
		Tropicbird = 4
		Tern = 113
		Shorebird = 4
		Total Birds 392
		Total Sightings Feeding Fl. 3 (240)
		Total Flocks 6 (298)
		Total Species 14

Flocks

8 oct

Time	Count	Species
TF 0637	5	WT 4, NS 1
FF 0839	12	ST 5, WT 6, BWPI
FF 1025	207	WT 150, ST 50, JFP 5, BWPI 2
SF 1050	6	WT 3, ST 3
SF 1716	4	ST 3, WT 7, JFP 2, BWPI 1
FF 1807	21	ST 15, WT 4, X-mas 1, BWPI

~~257~~
252

Flocks

7 oct

Time	Count	Species
FF 1504	6	CN 3, FT 1, WT 1, GF 1
FF 1509	754	Fg 4, RFB 150, WT 400, CN 200
TF 1513	6	WT 5, RFB 1
TF 1515	7	WT
TF 1522	16	WT 15, RFB 1
FF 1525	19	WT 15, RFB 3, Fg 1
TF 1543	9	WT 7, RFB 2
TF 1557	6	WT 4, CN 2
FF 1705	61	WT 11, CN 50
CF 1710	43	WT 8, CN 35
TF 1803	10	CN 7, WT 3
FF 1817	305	WT 300, CN 5

Flocks

8 Oct

Time	Count	Species
TF 0637	5	WT 4, NS 1
FF 0839	12	ST 5, WT 6, BWPI
FF 1025	207	WT 150, ST 50, JFP 5, BWPI 2
SF 1050	6	WT 3, ST 3
SF 1716	4	ST 3, WT 7, JFP 2, BWPI 1
FF 1807	21	ST 15, WT 4, X-mas 1, BWPI 1

~~257~~

292

Flocks

1, 6F1

WT 400, CN 200

Time	Count	Species
FF 1504	6	CN 3, F
FF 1509	754	Fg 4, F
TF 1513	6	WT 5, F
TF 1515	7	WT Fg 1
TF 1522	16	WT 15
FF 1525	19	WT 15,
TF 1543	9	WT 7,
TF 1557	6	WT 4, CN 5
FF 1705	61	WT 11,
CF 1710	43	WT F, CN 5
TF 1803	10	CN 7, WT
FF 1817	305	WT 300, C

10 Oct

Flocks

TF 1659	5	ST 2, WT 3
FF 1702	9	JFP 5, BWP 4

Flocks

9 Oct

SF 0645	13	ST 2, JFP 10, WT 1
FF 1530	8	ST 5, FF 1, WT 1, BWP 1
FF 17 02 ³⁶	17	ST

38

Location $03^{\circ}57'N; 169^{\circ}10'W$ — $01^{\circ}58'N; 170^{\circ}37'W$
 Observer Crossin Date 12 Oct 1968 Time 0601 to 1715
 Weather Partly cloudy, sea med calm Miles Hours 1100-1330

8.8

Location $00^{\circ}01'S; 171^{\circ}56'W$ — $02^{\circ}01'S; 173^{\circ}03'W$
 Observer Crossin Date 13 Oct 1968 Time 0606 to 1100
 Weather Miles 54 Hours 4.9

SPECIES	NUMBERS	REMARKS
Laysan Albatross		3 Pilot whales (Globicephala)
Black-footed Albatross		
Wedge-tailed Shearwater	3	2 dk. Ph., 1 Lt. Ph.
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	1	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel ^{1 adult}	3	Two almost certainly Ph. Is.
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel	4	
Bulwer's Petrel		
^{W/C} Leach's Storm Petrel	4	almost certainly Leaches.
Red-tailed Tropicbird	4	
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	5	all Imm.
Great Frigatebird		
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	9	all ad's.
Gray-backed Tern		
Common Noddy Tern	1	
Fairy Tern	5	
Pomarine Jaeger		Shear-Pet = 21
Pterodroma sp.	6	Storm Petrel = 4
Mottled Petrel	4	Tropicbird = 4
Long-tailed Jaeger	2	Booby = 5
		Tern = 15
		Jaeger = 2
		Total Birds 51
		Total Sightings Feed. F. 1 (5)
		Total Flocks 2 (12)
		Total Species 12

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater	6	all dark ph.
Sooty Shearwater		
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel	1	
Bonin Island Petrel		
Black-winged Petrel	1	
Bulwer's Petrel		
^{W/C} Leach's Storm Petrel	1	
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby		
Brown Booby		
Red-footed Booby	1	
Great Frigatebird	8	
Lesser Frigatebird		
Golden Plover		
Ruddy Turnstone		
Sooty Tern	2159	58 Imm.
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern	6	Shear-Pet = 8
Pomarine Jaeger		Storm Pet = 1
Frigate sp.	15	Booby = 1
Long-tailed Jaeger	2	Frigate = 23
		Tern = 2165
		Jaeger = 2
		Feeding Flocks = 8 (1942)
		Traveling Flocks = 7 (247)
		Total Birds 2200
		Total Sightings
		Total Flocks 15 (2189)
		Total Species 9

12 Oct

Time	Date	Location	Observer	Weather
TF				
1012				
FF 1601				

Flocks

Flocks

13 Oct

Time	Date	Location	Observer	Weather
FF 0625				
FF 0631				
TF 0700				
SF 0750				
FF 0758				
FF 0908				
FF 0921				
FF 0948				
TF 1006				
TF 1010				
TF 1021				
FF 1030				
TF 1041				
TF 1053				
FF 1058				

Location McKean to 04° 32' S ; 173° 29' W
 Observer Crossin Date 31 Oct 1968 Time 1245 to 1700
 Weather Miles 47 Hours 4.3

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater <u>S/SB</u>	<u>1</u>	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel	<u>1</u>	
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel		
Bonin Island Petrel		
Black-winged Petrel		
Bulwer's Petrel	<u>1</u>	
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird		
Blue-faced Booby	<u>13</u>	
Brown Booby	<u>3</u>	
Red-footed Booby	<u>11</u>	
Great Frigatebird		
Lesser Frigatebird	<u>90</u>	
Golden Plover		
Ruddy Turnstone		
Sooty Tern	<u>521</u>	
Gray-backed Tern		
Common Noddy Tern	<u>2</u>	
Fairy Tern		
Pomarine Jaeger		
Audubon's Shear	<u>2</u>	
Blue-gray Noddy	<u>1</u>	
		Shear-Pet = <u>57</u>
		Booby = <u>27</u>
		Frigate = <u>90</u>
		Sooty Tern = <u>524</u>
		Feeding Flocks = <u>1 (SSS)</u>
		Traveling Flocks = <u>5 (70)</u>
		Total Birds <u>648</u>
		Total Sightings
		Total Flocks <u>4 (625)</u>
		Total Species <u>11</u>

Location 06° 14' S ; 172° 19' W - 08° 02' S - 171° 00' W
 Observer Crossin Date 1 Nov 68 Time 0645 to 1045
 Weather Miles 80 Hours 1130 - 1300
1630 - 1815
(7.3)

SPECIES	NUMBERS	REMARKS
Laysan Albatross		
Black-footed Albatross		
Wedge-tailed Shearwater		
Sooty Shearwater <u>/SB</u>	<u>2</u>	
Slender-billed Shearwater		
Christmas Island Shearwater		
Newell's Shearwater		
Juan Fernandez Petrel		
White-necked Petrel		
Kermadec Petrel		
Phoenix Island Petrel		
Mottled Petrel	<u>6</u>	
Bonin Island Petrel		
Black-winged Petrel	<u>1</u>	
Bulwer's Petrel	<u>1</u>	
Leach's Storm Petrel		
Red-tailed Tropicbird		
White-tailed Tropicbird	<u>1</u>	
Blue-faced Booby		
Brown Booby		
Red-footed Booby		
Great Frigatebird		
Lesser Frigatebird	<u>1</u>	
Golden Plover		
Ruddy Turnstone		
Sooty Tern	<u>78</u>	
Gray-backed Tern		
Common Noddy Tern		
Fairy Tern		
Pomarine Jaeger		
White-wing Petrel	<u>1</u>	
Long-tailed Jaeger	<u>1</u>	
Large Pterod.	<u>1</u>	
		Shear-Pet = <u>12</u>
		Tropicbird = <u>1</u>
		Frigate = <u>1</u>
		Tern = <u>78</u>
		Jaeger = <u>1</u>
		Total Birds <u>93</u>
		Total Sightings <u>78</u>
		Total Flocks <u>2 (7.3) with Trav.</u>
		Total Species <u>9</u>

R.S. Crossin
1968

Journal

(1)

McKean Island

19 Oct. Landed at 0800. Spent the whole day carting gear onto island inc. all the scripps, gear + equipment. Got camp fairly well organized away. But to do some work at 2000.

Surf quite bad + had a few close calls bringing gear in. Dr. Van Horn brought the large skiff in once, nearly killed himself and that was the last I saw of the skiff.

I noted that many tufts of grass have burned spikes (only the short ground - but spikes showing) along the west side of island. Unlike inland is much greener - was in July, but somewhere along the line a fire swept at least a portion of the island. Burn marks are not present elsewhere as along the walls etc where dried grass + sedge show no evidence of burning. Will look more carefully tomorrow.

Largest Sooty Tern colony I have ever seen on McKean, along the entire W side. Most birds with 1/3 - 1/2 grown chicks, but also many on eggs.

24 Oct. Spent night of 23 (+ ^{most} of the day) ~~at~~ aboard ship with a bleeding ulcer. Doc insisted I stay on board. Finally got back ashore early today 0830. Very hard rain last night - this is the third good rain we have had on the island + things are really greening up.

R.S. Crossin
1968

Journal

(2)

McKean Island

25 Oct. Ulcer still has me pretty weak and there is a very limited amount of food here which the old doc will let me eat, so things are not too good. But I get around and just work at a slower rate than I did. I am convinced now that it is the Sooty Terns which have got me in this state. From the first day on the island, I found it impossible to walk through the clay at night with thousands upon thousands of screaming birds flying into my headlamp without stomping a few of them. Since they completely surround the camp, each moment in camp is under the din of all the screaming terns. I definitely was not sleeping the first nights before when started acting up. When every trip at night in any direction (and return to camp) is a trip through that screaming mass of terns. There is no escaping them since they are on land for hundreds + hundreds of yards in each direction from camp along the west shore. I finally reached a point (probably before I even even came back to subbase this trip) where sooty terns and I mix about like flame + gunpowder. The not too good eating conditions here on the island, absolutely no shade (tent is like an oven from 0830 till 1800) and being in that insufferable sun all day long, plus trying to do all of Roy's bird pupal jobs have probably all contributed to finally getting me down. Christ, will I ever learn my limits? Probably not - probably good thing I have a simple thing like a bleeding ulcer to warn me - could be worse - like a heart attack.

RS Crossin
1968

Journal
McKean Island

(3)

25 Oct. night. Although this is probably common knowledge to everyone who has ever visited McKean Island, I was never aware of it. At the S-SE end of the lagoon there is a point where it appears as if a spring flows just out of the lagoon and into the lagoon. This is almost always dry + algae covered. When I passed it last night at ca. 2300 the tide was high and the sea water was flowing up out of a hole at the head of this apparent spring - a very good flow which I would imagine was about 200 gallons a minute, possibly more. At any rate the sea entry is not under ground somewhere in the center of the lagoon as I always presumed it was.

27 Oct / Large feeding flock of 2500+ Sooty terns, ca. 50 frigates + few other odd things like RFB feeding between 1/2 to 3/4 mile offshore W side of island. Many times terns can be seen splashing the surface or leaping clear of the water. The tern school keeps working back + forth across the western horizon - birds following. 1630 - 1748 - flock now increased to about 4500 - 5000 sooties and several hundred frigates, spread over entire NW horizon - groups periodically feeding - many up high circling. 1810 - flock breaking up, drifting far to S.

Made the rounds at night to perform banding and returning, but the moon is up so high now and is so bright that all birds scatter like leaves in a strong wind when I approach. Most birds about the island have been disturbed so many times now that the vast majority take flight at first

RS Crossin
1968

Journal
McKean Island

(4)

27 Oct cont.

Sign of the headlamp. Almost impossible to make good covers of anything now.

30 Oct. Depart island at 0900, but raft in + out most of morning taking all gear off. Spend rest of day clearing bays about + picking them up. Spend night at anchor offshore as we have to pick up more bays + tide gauge tomorrow.

R.S. Crossin
1968

Green Sea Turtle

①

McKean Island

22 Oct. Pete (one of the Scripps Boys) saw a ♀ on the beach digging tonight. West beach down at the S end where large sandy beach is prevalent.

24 Oct. went down and dug out a turtle nest where Pete saw the animal on night of 22. The nest was a long ditch rather than a hole. The animal entered from the sea, started digging in the soft sand, at the top of the beach crest - digging in a NE direction for about 12 ft. The ditch was ~~then~~ covered ~~with~~ as the animal dug forward, thus leaving a long mound with a hole at the point of termination. Tracks of the animal then led directly back to the sea. A total of about 20

digging places are along this west beach. I dug into the fresh nest and struck eggs at about 3 1/2 feet deep - there were in a pocket and more or less about in the center of the long mound. There were about 30+ eggs in the pocket. I did not dig up the entire nest (longitudinally as it kept curving in. Eggs fresh, perfectly round with a slightly concave bottom shell - pure white - fresh.

Pete found one very recently hatched young, crawling by the tents on night of 19 Oct. This was the only one he saw that night.

The parent digging on night of 22 was about 3 1/2 ft across. 29 Oct. about 30 small turtles began scampering all about the beach in front of camp right at dusk. Several were heading in the wrong direction and there were

R.S. Crossin
1968

Green Sea Turtle

②

McKean Island

29 Oct. corrected + sent merrily on their way to sea. We could not detect where they had emerged from, but probably the original surface signs of the nest had been obliterated by people tramping through the area and to the best of our knowledge the little turtles burrowed up from near a wooden boat which was just on the top of the beach crest -

All little turtles went waddling down the beach as fast as they could and of course were able to swim immediately upon touching the water. All went directly out through the surf area + on out to sea.

A day or so earlier the diving crew from Scripps had observed two adults copulating offshore in the water.

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Wedge-tailed Shearwater on McKean Island

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Culmen of Young		Measurement of Wing of Young	
				of Young	of Young	of Young	of Young
1	705-00501	15	? can't reach back				
2	705-00502	15	" " " "				
3	705-00503	15	" " " "				
4	705-00504	15	" " " "				
5	705-00505 (replaces 565-1706F) 705-00506 (replaces 565-1715F)	15	empty fresh burrow				
6	705-00507 705-00508	15	" "				
7	705-00509 705-00510	15	" "				
8	705-00511 705-00512	15	" "				
9	705-00513 (replaces 575-6405A)	15	" "				

Other Comments: all above banded & marked on Evans mound.

BOORUM & PEASE "NOISEAR"

10 Oct.

9 Oct.

8 Oct.

R. S. Crossin 1968 Wedge-tailed Shearwater (*Puffinus pacificus*)

21-17 Oct. Honolulu south to 20-14 N; 158-23 W

Several large feeding flocks and many singles and small groups noted from Hono. south. One flock of ca. 400 mixed with RFB, C. Noddies and frigate about 10 miles S of Hono. harbor. The vast majority of birds were headed E with a few NE. All above sightings in the late afternoon; obs. began 1500.

A total of 8 dark phase noted; probably more mixed in with the large flocks.

A very intensely feeding flock noted at sunset with the majority of the estimated 300 wedgetails in a huge raft on the water grooming around and sticking their heads beneath the surface. Total 845.

18-48 N; 159-33 W — 17-04 N; 160-48 W

Dark-phase birds increased today to 31 of 212 = 15% over roughly 120 yesterday. Much smaller flocks noted today. Probably a greater percentage of Johnston atoll birds in today's sightings.

15-08 N; 162-02 W — 13-16 N; 163-19 W

Numbers down to two birds today, both dark phase. 11-25 N; 164-35 W — 09-36 N; 165-46 W

Numbers down to 3 birds today, all dark phase.

07-45 N; 166-56 W — 05-57 N; 168-03 W

6 birds total today, 3 of each color phase.

03-57 N; 169-10 W — 01-58 N; 170-37 W

3 birds today 1 Lt. Ph; 2 Dk. Ph

AP Brown
1968

Wedge-tailed Shearwater

(2)

McKean Island

14 Oct. Intuit quite a few birds in the guano mound today in a quick examination.

What one dark phase bird out in the open ground on SW corner of island at 2030 tonight - bird was calling, no burrows nearby. Later another 3 pair of dark phase birds were noted by shallow - partially - dug burrows in the open ground on the SW side of island.

15 Oct. In the early evening 7 nests (= burrows) were marked ^{on guano mound} and as many birds possibly were banded of these. The very few burrows that could be inspected were empty. Most burrows could not be investigated because of the depth and the very crumbly nature of the guano. Any attempts to work this area causes destruction of many of the burrows - this cannot be avoided.

During the night from 2230 till ca. 0130 (16) 18 birds were placed on adults about the guano mound. Most birds are restricted to the mound proper, but a few pairs are digging burrows beneath the nearby Sida out to about 40 feet from the base of the mound. All birds handled were dark phase except one which was between Int. and light phase. 11 birds were taken off birds (part of those banded) to be examined for band wear.

one pair was noted digging a burrow near BFB marked nest #11 at 2010 (mid W side of island).

AP Brown
1968

Wedge-tailed Shearwater

(3)

McKean Island

20 Oct. 9 dark-phase birds were noted about partially constructed burrows beneath the Sida about 60 yds W of the guano mound (by RFB Nest 13) at 2025.

24 Oct. From 2230 till 2400 caught, painted & released Wedge-tails. During this period 140 were handled. Of these 56 were banded on the 15th; 84 were unbanded. Using the Lincoln Index method we arrive at: Est. Pop = $\frac{199 \times 140}{56} = 498$

I would tend to believe this is a fairly accurate number for the mound area; there is probably at least another 100 birds scattered about over the west side of the island - just in casual noting, I have recorded 18 birds in areas remote from the guano mound. Thus a reliable estimate for the island is 600 birds. Of the 140 captured last night, two were near close to light phase. These two were unbanded; one of the birds banded on 15 was about light phase. Hence of roughly 300 birds handled or seen, 19% or 3 were light phase. This is probably a good percentage for the entire population - 19%.

The birds are still digging burrows, but I must dig a few out to see if there are any eggs yet.

27 Oct. Dug out at least 20 burrows and found not a single egg in them. In most cases one or both birds were in the burrow. In most cases I had only to chip out the front of the burrow to see inside. I believe the birds will soon have eggs, but as yet do not believe any have. Much calling & moaning, calling & worry going on outside of the burrows.

R. B. Grossin
1968

Christmas Island Shearwater ①
(*Puffinus nativitatus*)

18-48 N; 159-33 W — 17-04 N; 160-48 W
8 Oct. two noted today, both in company with
either pure wedgetails or mixed wedgetail-
Tern flocks.

McKean Island

15 Oct. Banded one ad on the guano
mound which was sitting with
wedgetails.

19 Oct. Banded one ad (BP defeathering)
by SW lagoon. No others about
& no sign of burrow.

The above two records are
unique for this species during the
entire stay on the island.

R. B. Grossin
1968

Audubon's Shearwater ①

McKean Island
Egg measurements

50.2 x 33.5 fr.

46.7 x 33.2 SE

47.2 x 34.6 fr. melanistic ♀

Culmen measurements

24.2 LDy

R.P. Brown
1965

Audubon's Shearwater

Mexican Island

27 Oct.

One adult had banded up a quantity of ca. 3" Scolerids.

An adult ♀ on fr. egg was collected ~~last~~ tonight. Bird was pure melanistic - had a few flecks of small white feathers around the head region, otherwise was all black.

The mate was normal-colored. Nest was under a pile of *Boerhaavia* weeds (dead) just west of the main wall complex on W. side. This is the first I have ever seen personally on this island.

This species is exceptionally numerous in practically all sections of the island at night. During the day they are rarely in evidence, but began coming in from the ocean at near dusk. Apparently the Audubon population is highly island oriented and I would imagine the vast bulk of the resident population sleeps each night on the island - whether or not the members are breeding.

I inadvertently banded several hundred of this species during the stay, but never got a single band return. I believe the bulk of the bands have been worn off. They are fierce little diggers. Since I had 410 more #3 bands, I decided not to waste time putting more aluminum bands on.

Thus in effect I did little at all with the species. To the best of my recollection, I saw throughout the stay about as many downy young of various ages as I saw eggs. The total of each, I would imagine

R.P. Brown
1968

Audubon's Shearwater

Audubon Island

out

about 10 of each. There I mainly found while digging for WSP or Bulwer's Petrels. From fairly good recollection, however, for every egg or chick noted, about 10 nest cavities were found empty with birds in them. There is certainly far less nesting now than in July. I would imagine that a low or lull in the nesting is occurring at this time.

Birds, however, are everywhere. In all types of cover and over the whole island except coastal lagoons. I had neither the time nor the desire to men with any Smith's Jaws, taking with this species, without using bands and so made no actual density counts. I believe the July figure was considerably low (4-5000) and think that there can be no less than 8000 of this species present, probably considerably more. Taking into consideration the number of mudpots present on the tiny guano island - although these are packed, grouted, in one area, I do not believe there can be any less than 5000 Audubon's considering their widespread presence in all types of habitat.

R.S. Crossin
1968

Pterodroma sp.

(1)

15-08 N; 162-02 W — 13-16 N; 163-15 W

9 Oct. Today most birds seen were Black-winged Petrels (21) and Juan-Fernandez Petrels (19). Two good sightings of White-winged Petrel with their almost pure white underwing with only black leading edge, prominent black caps, sides of head and neck. One sighting of an all dark brown heavy-bodied petrel; no wing windows as in Kermadec or Herald's; possibly Murphy's?

11-25 N; 164-35 W — 09-36 N; 165-46 W

10 Oct. Today was dominated by low numbers of Juan Fernandez + Black-winged Petrels and in afternoon a scattering of Mottled Petrel the latter came sprinkled through scattered Sooty/slender-bills; all going south.

07-45 N; 166-56 W — 05-57 N; 168-03 W

11 Oct. Juan Fernandez Petrels thinned down to 2, but numbers of Black-wings still fairly consistent. Only a few Mottled Petrels and one White-winged. Also only a few Sooty/slender bills.

03-57 N; 169-10 W — 01-58 N; 170-37 W

12 Oct. All Procelleriids low today; 4 Black-wings; 4 Mottled; 1 Juan Fernandez 6 mixed.

R.S. Crossin
1968

Bulwer's Petrel

(1)

McKean Island

16 Oct.

one flying back + forth over rocky area by walls on W side of island at 1023. Found one on an egg while trying to dig out a WTSP in wall along lagoon-banded. (pos. 3)

Found at least two more on eggs before the night was over banded 9 birds returned one other and hauled 10 others plus heard another 10-12 in rock walls.

The population is rather large, but I cannot even give a guesstimate at this time - certainly hundreds.

The difficulty of working with this species is that when one digs into the nest cavity, it is usually destroyed in the undertaking. Of all the nest cavities I dug into tonight, only 3 could be salvaged to mark (3 with eggs). Most birds appear to be setting up nests at this time.

The birds are detected (not easily because of the god damn din the Sooty terns are making) by listening in piles of rocks or rock walls for a "(whooot, whooot, whooot, whooot...)". This call varies in intensity, and appears loudest when one bird is in a possible nest site alone. Other slight variations are also uttered.

The birds definitely prefer the rocks to anywhere else such as clumps of dried weeds. And they can crawl into the wildest places. Those in the rock walls are just about impossible to get to - unless one destroys the entire wall. One dead + tattered skeleton noted in the large rock wall of probably a bird caught between rocks trying to worm his way into.

BOORUM & PEASE

BOORUM & PEASE "NGIEAR" 8

R.D. Brown
1968

Bulwer's Petrel

(2)

McKean Island

16 Oct. a nest site.

Birds sitting on eggs definitely call. Most of the nest sites I found were detected by hearing the birds call. All three marked nests had one parent calling from ^{an empty} egg. The birds on egg which call, however, do so in a softer tone than individuals calling from an empty nest site. I have no idea as to which sex (if not both) are calling.

20 Oct. Banded 12 birds tonight and found only one return in this group (it was rebanded). The other few returns have been in very good shape and so have been left on as I have no more moult bands to put on them. The return tonight was quite worn (652-46064) and on E.

New banding 1103-07081 put on a bird on the rock wall had a feathered brood patch on 16 Oct was found tonight with a small chick. Possibly the ♂ does not get a bare brood patch??

The species is quite numerous and apparently now in a peak of nest activity finding and egg laying, although obviously some birds have been at it for some time. Almost every concentration of rocks or walls that I have passed along the entire W side (and NW) have had Bulwers calling from them. I have not heard any on the SW, S and E sides of the island in rocky areas there.

One variation in the normal "whoot, whoot" calling is that on the last two calls, a definite shortening and quickening is often heard. The steady "whooting"

R.D. Brown
1968

Bulwer's Petrel

(3)

McKean Island

20 Oct. may go on in a regular rhythm for 20+ calls or may be in a series of 4-5 or a few more. Birds call apparently just as frequently from egg as empty nest sites; on tonight one bird was definitely calling from a burrow with a small chick. All nest sites so far have been in rock crevices. Very little nesting material is brought in - usually a few pieces of straw or feathers make up the only nest material. There are most likely old and ends which are already in the nest cavities.

All that I have had any birds regurgitate thus far has been an orange oily substance.

Just the egg in marked nest 1 sometime between 1800 tonight and 1030 17. Since the nest cavity was entirely enclosed, the only thing I can figure is that maybe it is a crab which crawl around in the rocks set egg. Certainly no eukles could have gotten it. There was no trace of shells or anything.

27 Oct Banded 6 adults tonight. One of a pair had brood patch bare other mostly feathered. I believe maybe the ♂♂ are slow in getting their brood patches bare or maybe even some don't get them bare. Two singles and the pair were calling from empty nest cavities; two other singles were calling from on fresh eggs. All nests in rock crevices, mainly SW & just SE of camp in the broad rocky thicket down west area.

R.S. Crossin
1968

Bulwer's Petrel

(4)

McKean Island

30 Oct.

Bulwer's Egg measurements

- 41.3 x 28.6
- 42.6 x 30.0
- 39.4 x 28.9
- 39.0 x 29.7
- 39.2 x 30.0
- 39.8 x 28.6
- 44.3 x 31.0
- 39.4 x 29.1

Summary

banded 33 birds and returned
3 - one of these returned, thus banded
35 banded individuals. Of these 6
were known pairs - probably a few
more pairs at least banded unknown-
ingly.

The pairs were:

- 1103-07080-81 one junction pair
- 84-86
- 712-57260-61 also 1103-07077
- 62-63 712-57274
- 71-72
- 79-80

at least 10 nests were found with
fresh to slight incubated eggs and
one with a small downy young. One other
egg which hatched during the stay, making
at least two with chicks upon departure.

Five of the known pairs were calling
from empty nest cavities and prac-
tically all single banded were
- dug from empty nest cavities in
rocks. Practically 100% of all
birds were first detected by hearing
them call from the nest cavities,
no matter what the contacts.

R.S. Crossin
1968

Bulwer's Petrel

(5)

McKean Island

30 Oct
Summary

Thus during October in combination
there resulted a peak in nest finishing
and egg-laying. A few birds, probably
in the order of 4% had already laid
before mid October. (This concerns
only those birds banded). If one
considers all the birds I dug out
which were not banded, the figure
probably rises to below 5% having
already laid before mid-October.

All along the major rock concen-
trations along the main W side & NW,
Bulwer's were in ample abundance.

For the most part, positive detection
could not be made due to the surrounding
Sooty, Noddy & Blue grey gulls, along
much of the wall & rock 'island'
- hence few of the birds banded from vantage
areas in these areas were actually
dug out. In the still shading walls,
most birds could not be dug out without
tearing down the entire wall. A few
times I attempted to scrape some sort
of density figures on the birds, but this
is almost impossible. It was not un-
common for 3 or 4 birds to be heard
calling from a few square feet in
many areas of walls or thimble of lower
rock areas.

A very conservative estimate of
the island population would be 1000
birds - probably many more.

at the end of October I estimate 5%
or less had small to medium downy
chicks. 26% were on eggs and 69%
were either settled or impending
nest sites.

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Bulwer's Petrel

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	17	1103-07094	fresh egg	bird on egg at 2300 (16) and 1030 (17)
2	17	079	egg	" " " " " " " 1035 "
3	17	091	fresh egg	" " " " 2230 (16) " 1040 "
2	18	079	chick	chick is large, fills one whole hand, nest to believe 2400 that it hatched since yesterday - we call this kind of chick a large chick
3	19	091	egg	091 incub 0015
2	19	079	chick	1035 measurements of chick taken
3	19	091	egg	1045
3	20	091	egg	night
1	20	—	empty	1900 egg gone between 1040 17 + 1700 20
1	26	—	broken egg	another egg laid either by original parent or other, but nest covered in + broken new egg.

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Bulwer's Petrel

on

McKean Isla.

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
1	1103-07094	17	one fresh egg	39.4 x 28.9			
2	1103-07079 712-57274	17	" egg		11.0 (17)	egg hatched sometime between 2035-17 and 2400-18.	
3	1103-07091	17	" fresh egg	39.0 x 29.7			
4	682-47702	19	" fresh egg	39.2 x 30.0		one found in empty nest on 13, on 13 had a fresh egg	

Other Comments:

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of

Bulwer's Petrel

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
2	26	712-5727X	SDY	captured bird + banded it tonight.
1	29	-	empty	1510
2	29	-	MDY	1450
3	29	unbanded bird on egg	egg	1450
4	29	682-47702	egg	1510

Jan 1968

Data Sheet for Marked Nests

of *White-throated Storm Petrel*

on

McKean Is.

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
1		17	1/2 sized chick	rock wall	13.1	42	1103-07082
2	1103-07089 1103-07099	17	empty	rock wall			
3		17	Fully-feathered chick, slight down	<i>Bulwer's Storm Petrel</i>	16.8	148	1103-07095
4		21	Large downy young	in rock wall.	16.5	112.8	712-57267

Other Comments:

Crossin
1968 Data Sheet for Marked Nests of White Throated Storm Petrel on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	18	-	1/2 chick	chick alone at 2200 (16) and 1045 on 17
2	18	089	empty	ad(089) on nest at 2200 (16) and 1050 on 17
2	19	both birds	empty	0030 089 banded at this time
1	19	chick	chick	1050 (all measurements of chicks taken)
2	19	-	empty	no birds in cavity 1055
3	20	-	empty	large feathered young gone at 1947, possibly big enough to fly.
2	21	089	empty	089 sitting alone 2225
4	28	-	young	considerable down over head & neck, stomach & rump Culmen 15.9; tarsus 43.6; wing 142.0 2000.

Crossin
Oct. 1968 Data Sheet for Marked Nests of White Throated Storm Petrel on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	29	-	LDY	1455
2	29	-	empty	1455
3	29	-	empty	-
4	29	-	LFY	1545

S.S. Crossin *Oceanodroma* sp. ①
1968 White-rumped Storm Petrel

10 Oct. 110°-25' N; 164°-35' W — 09°-36' N; 165°-46' W
Saw first bird today, almost certainly a
Leach's.

11 Oct. 09°-45' N; 166°-56' W — 05°-57' N; 168°-03' W
Saw one bird today; almost certainly
a Leach's.

12 Oct. 03°-57' N; 169°-10' W — 01°-58' N; 170°-37' W
numbers up to 4 today. Three were
noted in a group and shortly thereafter
a single. All almost certainly in
Leach's category.

S.S. Crossin White-throated Storm Petrel ①
1968

McKean Island

14 Oct. Noted two birds sitting between 2030
and 2100. One had a bare brood patch;
other not caught. Neither were near
nest sites, sort of sitting about in
open along W-SW side.

16 Oct. Noted one dead fully-feathered young along
small well midway of the island on
West side.

Began an evening observation at 1820 at
walls on W side.

1823: first ad noted flying over rocky
area between two main large sections
of rock walls.

1824: second bird now in air

1827 both birds now settled in rocky area.

1828 3rd bird notes coming in and
alighting.

Couldn't find any one of the three.

1833: two more noted flying by wall
along *Scaevola* along lagoon.

One disappeared before I could see it enter
nest site. Other keeps landing in one spot,
but always flying off and circling some
more before returning. Finally lost
him - 1845: now too dark to see.

17 Oct. (Now have three marked nests; two
with chicks and one with ad. sitting
in empty nest. Accidentally broke a
heavily incubated egg last night under
a clump of *Poa*. No parent attending
at 2005 (16 Oct).

The birds call from the nest cavity
in a soft, guttural "grrrr, grrrr, grrrr".

Thus far most birds have been
found about rock piles. Perhaps in
July 68 when so many were found
under clumps of *Poa* that there
was a population peak and birds
were perhaps forced out into the

R. D. Crossin
1968

White-throated Storm Petrel (2)

McKean Island

17 Oct. Boerhaavia; all desirable rock sites taken. Since I mainly looked under Boerhaavia at that time, it being easier than tearing rock piles apart.

Not much question that there were many more nesting birds here in July. The amount of Boerhaavia clumps I have turned over so far yielded at least 10 nest sites in July as compared to 1 now.

19 Oct. one adult calling from unmarked empty nest cavity in NW corner, in rock pile.

24 Oct. Have about given up finding many or even any more nests of this species. No question that they are at an all time low as far as numbers of breeding birds are concerned. I have yet to see or catch any adults of the large young. If the one I saw + I saw in July coming in at midday is any indication of the odd-ball times they come in to feed young, then I have little chance of catching the parents to nestling #4. The parents probably come in singly. At odd times, feed the young + quickly depart. I don't have any evidence of the parents staying with the young after they are about small downy size.

27 Oct. Banded an adult in empty nest cavity just SE camp, B.P. base, just 20 ft from nest #4. Attracted to bird by hearing the typical grrrr, grrrr call.

Summary Total of 10 adults banded and 3 nestlings. Probably only saw about 10 other birds during the entire stay. At least 5 empty nests were found with birds in them, plus the 3 nestlings and one nest w/ egg - making about 9 nests. Thus about 55% of the birds on the island may be

R. D. Crossin
1968

White-throated Storm Petrel (3)

Oceania Island

get attempting to nest. 33% have young and 11% had incubated eggs. These percentages are very crude since the entire sample is so small.

Thus both the white-throated storm petrel and Audubon's Shearwater are at an all time nesting low, while the Bulwer's Petrel are now coming into peak of nesting. Since these three species utilize many of the same nest sites or types of nest sites - this displacement during different times probably affords all three species nesting sites which would not be available if all nested at one time. The Bulwer's and White-throats especially are competing each other during peak nesting seasons. Food availability in the nearby ocean probably also dictates this displacement.

1968¹¹

Data Sheet for Marked Nests of Red-tailed Tropicbirds on McKean Island
Sheet for Summary and 1st Visit

Nest. No.	Band Numbers of Members of Pair	Date	Contents of Nest	Measurement of Egg	Measurement of Culmen of Young (mm.)	Measurement of Wing of Young (mm.)	Band Number of Young
RTTB # 1	705-00701 NB 705-00717 NB	17 24	(ADY) Med-downy Ch.		41.0		705-00702
RTTB # 2		17	(LY) large feathered Ch.		51.9		705-00703
RTTB # 3	705-00704 NB 705-00716 NB	17	very light pigmentation one egg	64.6 x 45.3			
RTTB # 4	595-64034 705-00710 NB	19 1100	egg Medium uniform pigmentation	68.9 x 47.1			
RTTB # 5	705-00706 NB	19 1130	large feathered young no down		56.7		705-00705
RTTB # 6		1145 19	" " "		55.2		705-00707
RTTB # 7		1148 19	" " "		57.0		705-00708
RTTB # 8		21	" " "		58.1		705-00711
RTTB # 9	705-00712 NB	21	medium downy young		34.8		705-00713
RTTB # 10	705-00714 NB	21	small downy young		33.7		705-00715

1968¹¹
Oct. 1968

Data Sheet for Marked Nests of Red-tailed Tropicbirds on McKean Island
Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird on Nest	Contents of Nest	Other Comments - (Dates of Banding of Unmarked Birds, General Description and Location of Nest, etc)
RTTB # 1	24	705-00717	med downy	ad banded 0500
RTTB # 2				
RTTB # 3	19	704	still one egg	1117 opening facing NW, under large rock
RTTB # 4	20	710	" " "	710 incub. at 1940 - banded at that time
RTTB # 5				
RTTB # 6				
RTTB # 7				
RTTB # 8				
RTTB # 9				
RTTB # 10				

Rossin
Oct. 1968

Data Sheet, for Marked Nests
Sheet for Subsequent

of Red-tailed Tropicbirds
sits to Nest

on McKean Island

Nest No.	Date	Band Number of Bird on Nest	Contents of Nest	Other Comments - (Dates of Banding of Unmarked Birds, General Description and Location of Nest, etc)
TTTB # 1	29	-	MDY	1455
TTTB # 2	29	-	LFY	1500
TTTB # 3	26	-	empty	egg gone at 2200 (nest still empty 1545 on 29.)
TTTB # 4	29	-	SDY	1505 young just hatched.
TTTB # 5	29	-	empty	1800
TTTB # 6	29	-	Imm.	1500
TTTB # 7	29	-	empty	1500
TTTB # 8	29	-	empty	1505
TTTB # 9	29	-	SDY	1570
TTTB # 10	29	-	MDY	1450

R. Rossin
1968

Red-tailed Tropicbird

(1)

McKean Island

17 Oct. at 1730 a fully feathered nestling (nest as yet unmarked) was observed outside the nest cavity (under a large rock) about 4 ft and flapping vigorously. there was a session of about 1 1/2 minutes; then a session of about 20 seconds. there was no doubt that the bird was just strengthening its wings, readying for takeoff probably in a few days. When I approached, it scooted back into the nest cavity.

19 Oct. one LFY observed at NW corner (unbanded, unmarked nest).

one LFY far E side of island (unb, unmk)

25 Oct. A few nests are still being found - noted two on SW point, one with large feathered young (705-00719) and one ^{marked} downy young (705-00720). The 2DY was noted to be far up large granites of squid.

I note that a few of the large feathered young from marked nests have gone. apparently when they reach this stage, the flapping practice which I noted is a preliminary to departure. I never see them flying around the island so they must leave the vicinity, probably on the first flight and head out to sea.

29 5 birds displaying at 1518, one of them a marked nestling bird.

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests
sit and Summary

of Blue-faced Boobies on McKean Island

West #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-ment of More Heavily Incubated Egg	Measure-ment of Less Heavily Incubated Egg	Measure-ment of Culmen of Young	Measure-ment of Wing of Young	Band Number of Young
BFB # 1			15	large downy					562-7023
BFB # 2	757-63954		15	small downy					
BFB # 3	737-27413	757-65696	15	naked chick					
BFB # 4	767-40894	767-40849	15	2 eggs					
BFB # 5	767-40872	737-48300	15	large downy					767-408
BFB # 6	757-67997	737-29578	15	large downy					767-408
BFB # 7	757-67811	767-40847	15	large downy					767-408
BFB # 8	757-63891	737-51121	15	large downy					767-408
BFB # 9		737-21578	15	small downy					
BFB # 10	737-26123	767-40893	15	naked chick					

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Blue-faced Boobies on

McKean Island

Subsequent Visits	Band Number & Sex of Bird at Nest or with Young	Contents of Nest	Status of Nest	Other Comments (Time of observation; comments on nest construction; banding dates, etc.)
BFB # 1				
BFB # 2				
BFB # 3	15 ♀ 757-65696			♀ w naked ch. at 2025
BFB # 4	15 ♂ 767-40894	still 2 eggs		♂ banded at 2020, ♀ not about
BFB # 5				
BFB # 6				
BFB # 7	15 ♀ 767-40847			♀ with young, latter moved a. 20 ft to N 2015
BFB # 8				
BFB # 9	15 ♀ 737-21578			♀ with young at 2000
BFB # 10	15 ♂ 737-26123			♂ brooding naked chick; ♀ standing by 2000

Other Comments:

1968 Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Date	and Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
BFB # 1	29	-	LDY	1645
BFB # 2	"	-	empty	1600
BFB # 3	"	-	LDY	1600
BFB # 4	"	-	NY	1600
BFB # 5	"	-	LDY	1600
BFB # 6	"	-	LDY	1600
BFB # 7	"	-	LDY	1600
BFB # 8	"	-	area vacant	1600
BFB # 9	"	-	" "	1600
BFB # 10	"	-	SDY	1600

Other Comments:

1968 Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island
Sheet for 1st Visit and Summary

Nest #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-ment of More Heavily Incubated Egg	Measure-ment of Less Heavily Incubated Egg	Measure-ment of Culmen of Young	Measure-ment of Wing of Young	Band Number of Young
BFB# 11		757-63890	15	large downy					568-70833
BFB# 12	737-29514	568-70289	20	naked young (just hatched)			16.0		
BFB# 13			20	small downy young			57.2		
BFB# 14	767-40848	737-29584	20	two naked young			23.6 18.5		
BFB# 15	757-67969	737-51178	20	2 eggs	SE 66.4 x 45.8	SE 62.5 x 43.6			
BFB# 16	737-29510	568-70255	20	Small downy young			48.2		
BFB# 17	757-89908	737-81514	20	one Egg	USE.2 72.0 x 45.6				
BFB# 18	767-40968		20	Large downy young			71.8		
BFB# 19	737-51119	757-64181	20	small downy young			42.5		
BFB# 20	757-63982	737-23575	20	one Egg	HI 61.0 x 43.4				

Other Comments:

S. Crossin
Oct. 1968
Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
Nest No.	Date		
BFB # 11	15	♀ ⁷⁵⁷ 63890	♀ w young, ♂ nearby 2010
BFB # 12			
BFB # 13			
BFB # 14	21	737-29584 ♀	2 naked young smallest of two young dead.
BFB # 15			
BFB # 16			
BFB # 17			
BFB # 18	17	767-40968 767-40968	seva taken & banded before nest marking seva taken & banded before nest marking
BFB # 19			
BFB # 20			

Other Comments:

S. Crossin
Oct. 1968
Data Sheet for Marked Nests of Blue-faced Boobies on McKean Island

Subsequent Visits	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
Nest No.	Date		
BFB # 11	29	-	L 1 egg 1600
BFB # 12	"	-	N 4 1550
BFB # 13	"	-	M 0 4 1555
BFB # 14	"	-	N 4 1555
BFB # 15	"	-	2 eggs 1550 ?
BFB # 16	"	-	S 0 4 1550
BFB # 17	"	-	1 Egg 1550
BFB # 18	"	-	L 0 4 1540
BFB # 19	"	-	S 0 4 1550
BFB # 20	"	-	L 0 4 1550

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests
Sheet for 1st Visit and Summary

of Blue-faced Boobies on McKean Island

Nest #	Band Number of Adult Male	Band Number of Adult Female	Date	Contents of Nest of Size of Young	Measure-	Measure-	Measure-	Measure-	Band Number of Young
					ment of Heavily Incubated Egg	ment of Heavily Incubated Egg	ment of Culmen of Young	ment of Wing of Young	
BFB# 21	568-71149	737-23749	20	2 eggs	MI 62.6 x 43.5	SE 58.1 x 41.9			
BFB# 22	767-40993 ^{NB}	737-21515	20	Small downy young				55.0	
BFB# 23		737-22852	20	Naked young				33.3	
BFB# 24	737-49924		20	Small downy young				41.7	
BFB# 25	757-62762	757-63932	20	Small downy young				41.0	
BFB# 26	757-65392		20	Large downy young				71.1	767-40989
BFB# 27			20	Small downy young				49.5	
BFB# 28	737-23534	767-40970	20	Naked young				38.8	
BFB# 29	737-21425		20	Naked young				29.6	
BFB# 30	757-65634		20	Small Downy young				53.1	

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nest

of Blue-faced Boobies on McKean Island

Nest No.	Date	Band Number & Sex of Bird at Nest or with Young	Contents of Status of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
BFB # 21	26		broken eggs	eggs found fresh at 2125
BFB # 22				
BFB # 23	17	737-22852 ♀		sera taken ¹⁷ (before nest marking on 20)
BFB # 24				
BFB # 25	17	757-62762 ♂		sera taken ¹⁷ (before nest marking on 20)
BFB # 26	17	757-65392 ♂		sera taken ¹⁷ (before nest marking on 20)
BFB # 27				
BFB # 28	21	767-40970		sera taken ¹⁷ (before nest marking on 20)
BFB # 29				
BFB # 30	17	757-65634 ♂		sera taken ¹⁷ (before nest marking on 20)

Other Comments:

R.S. Crossin
Oct. 1968

Data Sheet for Marked Nests of Blue-faced Boobies on

McKean Island

Subsequent
VisitsBand Number
& Sex of
Bird at Nest
or with YoungContents
of
NestOther Comments (Time of observation; comments of
nest construction; banding dates, etc.)

Nest No.	Date	Band Number & Sex of Bird at Nest or with Young	Contents of Nest	Other Comments (Time of observation; comments of nest construction; banding dates, etc.)
BFB # 21	29	—	empty	1550
BFB # 22	"	—	L0y	1540
BFB # 23	"	—	S0y	1540
BFB # 24	"	—	S0y	1540
BFB # 25	"	—	S0y	1450
BFB # 26	"	—	M0y	1450
BFB # 27	—	—	—	—
BFB # 28	29	—	S0y	1515
BFB # 29	"	—	S0y	1515
BFB # 30	"	—	M0y	1515

Other Comments:

R.S. Crossin
1968

Blue-faced Boobies

(4)

McKean Island

16 Oct

1100

N point of the lagoon

A club notes here in daytime which is a bit unusual in itself, contained 20 advanced immatures (heavy spotting on wings & dorsal area, especially rump) to near adults (with dense spotting only on rump), 25 adults were also with these immatures and subadults. The entire group patterned out to a few islands in the lagoon before I could get a good look at bands or even make an estimate of how many were banded.

Complete nest count made today is believed to be 98%[±] accurate with all nests, ^{young} painted.

	Total w side of island	rest of island	Total
1292	11	4	15
2255c	21	7	29
1291 11y	7	3	10
1N4	26	11	39
2N4	4	1	5
S0y	19	13	34
LP4	80	48	134
LF4	20	14	34
near Is.	16	5	21
	<u>204</u>	<u>106</u>	<u>321</u>
	(215)	33%	67%

Red Crossin
1963

Brown Booby

①

McKean Island

21 Oct. a fairly noteworthy case has occurred at Nest # 9. on the 15 Oct a ♀ ♂ Band # 767-40882 (Newband) was perched at a nest (?) with one fresh egg - there being very little chalk on the egg, hence it was a strange blue. That night at 2135 there was no bird on the nest and the egg was cold. At 1210 on 17 the egg was gone and one parent? (not caught) was standing nearby.

at ca. 2020 on night of 21 a ♂ ♀ (767-40883) which had been banded near nest 9 on night of 15 as a roosting bird by a flying immature was sitting on a new nest w/ 1 fresh egg 15 ft from old nest 9. The ♂ (82) was standing next to the ♀ and an immature was again roosting some yards away.

The ^{new} nest was not present as far back as 2130 on 18 when I went through checking other nests.

Hence, for whatever reason, original nest 9 with its odd egg was deserted, egg probably eaten by numerous curlews in the area. ♀ then either laid second egg or possibly dropped it; a new nest was built and she deposited a new egg sometime between 2130 18 and 2020 21. The ♂ had always roosted nearby and the immature which hangs with them is probably their last offspring.

24 Oct. One more nest discovered NE of the last marked nest on E-SE point. I found this nest earlier with 2 eggs, but couldn't find it the day I marked nest. Still has two eggs today.

Red Crossin

Blue-faced Booby

②

McKean Island

19 Oct. Passed by a large club on spit at N end of lagoon at night & made following count:

146 birds; not a painted bird was noted, but noticed about 40 birds which had variable spotting on back or rump. Club split about this time and if evenly distributed, there could have been as many as 75-80 of these if evenly distributed throughout the group. A good look at the remaining 30-40 birds showed only about one bird in 10 or 20 which was banded.

This is by far the largest club noted. a few small clubs of ca. 20-30 birds are situated on islets out in the lagoon, but cannot make out percentages of age groups. When birds are disturbed about the island they invariably wind up out on one of the islets in the lagoon.

R.S. Crossin
1968Brown Booby
McKean Island

(2)

25 Oct. Two more nests with two eggs each found
one just N of nest 1eggs 55.8 x 38.9 HI
53.9 x 38.0 #I

one just NE of nest one

eggs 64.2 x 41.6 ME
61.0 x 39.8 MI

These Brown Boobies sure are secretive. I have been through that area 5 or 6 times and missed both of these nests. If the parents fly real soon, we never sees them for all the terns in the air through this area.

A new Brown Booby nest with one ^{very} fresh egg was found just NE of old marked nest #9 which went to rot about 15.

22 Oct. As near as I can figure now, there are or have been at the time of counting, 5 nests with two eggs which were not marked. There were invariably clutches of pronounced incubation by the very soiled eggs present, and were presumably present at the beginning of the survey (15 Oct).

R.S. Crossin

Oct. 1968

Summary and 1st . . . it

Data Sheet for Marked Nests

of

Brown Booby

on

McKean Island

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
1	♀ (yellow-face) 767-40875 ♂ (blue-face) 767-40974	15	2 eggs	62.5 x 40.4 62.5 x 40.3			
2	♂ (blue-face) 767-40896	15	2 eggs	61.1 x 39.9 61.5 x 41.1			
3	♂ (blue-face) 737-21594 ♀ 767-40992	15	2 eggs	62.7 x 40.5 66.5 x 42.4			
4	♀ (yellow-face) 767-40897	15	2 eggs	62.2 x 43.9	15.8 ^{Incubated!} 133012		
5	♂ (blue-face) 767-40898	15	2 eggs, fresh	57.6 x 39.3 56.7 x 40.0			
6	♂ (blue-face) 767-40879 ♀ 757-62604	15	new chick + 1 egg	61.1 x 40.4	39.5 (14)		
7	♂ (blue-face) 767-40880	15	2 eggs	55.0 x 38.5 52.9 x 37.0			
8	♂ (blue-face) 767-40881	15	1 egg, fresh	62.6 x 41.3			
9	♂ (blue-face) 767-40882 ♀ 767-40883	15	1 egg, fresh (chick)				
10	♂ (blue-face) 767-40884	15	2 eggs	56.6 x 38.8 56.7 x 38.7			

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	15	NB 767-40875 ♀	still 2 eggs	♀ (yellow face) incubating 2045 no other bird about.
2	15	NB 767-40896 ♂	" " "	♂ (blue-face) " 2050 "
4	15	NB 767-40897 ♂	" " "	♀ (yellow face) " 2100 "
5	15	NB 767-40898 ♂	" " "	♂ (blue-face) " 2120 "
6	15	767-40879 ♂		♂ inc. egg + brooding chicks at 2125 "
7	15	80 ♀	still 2 eggs	♂ inc egg at 2125 "
8	15	81 ♀	still 1 egg	♂ inc egg at 2130 "
9	15		still 1 egg	no bird on egg at 2135, egg cold.
10	15	84 ♀		♂ incubating at 2135, not disturbed

all birds visited with ticks feeding around soft parts of bill on night of 15.
The mate of each incubating bird does not sit by nest, but I noticed a few
sitting along the rocky beach crest & there are probably mates to the incubating birds.

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	17	♀ 767-40895	still 2 eggs	1240 as I watched both birds made about 15 passes over the nest & finally ♀ sat on egg + ♂ perched nearby.
2	17	♀ unmarked	still 2 eggs	1238
3	17	♀ unmarked	still 2 eggs	1235
4	17	♂ unmarked	1 egg just hatched	measure ment of egg + young taken 1230
5	17	unmarked bird	still 2 eggs	1230
6	17	—	still egg + chick	1228 chick culmen measured = 32.5
7	17	—	still 2 eggs	1227
8	17	767-40881 ♂	still one egg	1215
9	17	—	empty	egg gone 1210, one parent? standing nearby
10	17	—	still 2 eggs	1203

R.S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
1	18	NR 767-40974	still 2 eggs	♂ banded + painted green 2105
3	18	737-21594	" " "	♂ painted green 2110
4	18	—	1 egg	chick gone, egg cold 2115
5	18	767-40898	still 2 eggs	♂ incubating 2120
3	21	767-40992	"	♀ " 2000
3	25	"	1 egg, 1 NY ^{just} hatched	♀ " 2130
4	25		nest empty	2130
6	25		nest empty	2130
8	25		nest empty	2140
8				

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of

Brown Booby

on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Nest or Burrow	Other Comments or Information
1	29	—	2 eggs	1605
2	"	—	2 eggs	1605
3	"	♂ ♂	2 naked young	1605
4	"	—	empty	1610
5	"	♂ ♂	2 eggs	1610 ♂ 2 burped up 13 3-4" scombridae + 2 4" squid.
6	"	—	empty	1615
7	"	—	2 eggs	1615
8	"	—	empty	1620
9	"	—	empty	1620
10	"	—	1 egg	one other broken egg by nest.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of

Brown Booby

on

McKean Island

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
11		15	one egg				
12	767-40977 ♀ + ♀	17	one egg and ^{naked chick} _{just hatched}	57.8 x 41.1	16.3		
13	767-40990 ♀ ♂	17	2 eggs	57.6 x 37.1 57.0 x 39.3			
14		17	1 egg (fr.?)	63.0 x 38.8			
15	767-40988 ♀ ♂	1630 17	1 egg, 1 NC ca. 1-2 days old.	64.3 x 41.1	15.6		
16	767-40999 ♂	1708 17	2 eggs	62.3 x 40.2 58.1 x 41.5			
17	737-21507 ♀ ♀ 767-40996 ♀ ♂	19	3 eggs	62.5 x 39.2 59.3 x 39.3 30.3 x 29.0			
18	757-62603 ♀	24	2 eggs				

Other Comments:

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Summary and 1st visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young (mm)	Measurement of Wing of Young	Band Number of Young
1		15	Naked young		23.5		
2	747-50530 Int. Ph. G	15	5m downy young		30.6		
3		15	one egg	57.1 x 38.5			
4	747-51411 Int. Ph.	15	one egg	60.0 x 39.6			
5	747-60235 Int. Ph.	15	one egg	61.9 x 39.0			
6	747-53112 Int. Ph.	15	one egg	59.5 x 39.0			
7	747-50206 Int. Ph.	15	one egg fresh	59.1 x 38.9			
8	NB 747-50501 Int. Ph.	15	naked young		23.5		
9	747-50212 Int. Ph.	15	one egg	61.1 x 40.3			
10	747-57638 almost dr. Ph.	15	one egg	54.6 x 34.8			

Other Comments:

all above 10 nests built in low, dead or almost dead Sida Callaf bushes.

R. S. Crossin
Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Nest or Burrow	Status of Nest or Burrow	Other Comments or Information
1	16	—	empty		chick on ground beneath nest, ^{still alive} 2135
3	16	—	egg on ground		Parent not on nest 2130
4	16	747-51411	egg		2222
5	20	747-60235	egg		inc at night
6	16	747-53112	naked chick		2140. Parent int. ph w more dark on crown. weak
7	16	747-50206	1 egg		2140 Int. phase
8	16	747-50501	dead chick		parent brooding; dead chick
9	16	747-50212	1 egg		Int. ph. bird 2150
10	16	747-57638	1 egg		2150. Parent almost dark phase & lateral tail feathers on each side dark staining

October
1968

October 1968

Blue-faced Booby

Brown Booby

Pair	♂	♀	Nest Status
721-40872	757-43300		LDY
737-5441	731-49629		LDY
731-51140	757-24190		NC
757-81642	757-64411		LDY
587-83357	731-22956		LDY
581-83384	757-64139		LFY
581-83629	757-34600		LDY
887-83366	737-51050		NC
451-62228	757-64470		LDY
731-49955	757-63978		SDY
757-66163	737-51038		Near Imm.
757-63968	767-40834		LDY
757-63891	737-51121		LDY
757-64415	767-40983		LDX
767-40979	767-40980		SDY
587-81648	767-40984		SDY
757-62288	767-40986		SDY

Pair	♂	♀	Nest Status
767-40886	767-40887		Rearing by imm
737-21543	731-21544		2 fresh eggs

October 1960

October 1960

White-throated Sparrows

Bridge Park Stream

Pairs

Nest Status

1103-01097 + 1103-01098
1103-01099 + 1103-01099

Empty cavity

Pairs

Nest Status

705-00509 + 705-00508
705-00509 + 705-00510
705-00511 + 705-00512

Empty cavity
Digging
" " " "
" " " "

Bulwer's Petrel

Pairs

682-47703	+	1103-07100
1103-07084	+	1103-07086
712-57260	+	712-57261
712-57262	+	712-57263
712-57271	+	712-57272
712-57279	+	712-57280

Nest Status

Empty cavity
" "
Calling " "
" "
Empty cavity
Calling " "

BOORUM & PEASE "TENNANT" ©

ASE "NEIBART" ©

R.S. Rossin Bristle-thighed Curlew (D)
1868

McKean Island

19 Oct. Made a count of 85 from 1530 to 1730 today in a fairly accurate count. Sure I missed a few in the central part of the island.

Tried banding this species at night and in an entire tour of the island (all parts) I encountered only four. I believe the big problem is that there are so many goddam terns of all species in every part of the island roosting that as they flush up screaming, the shorebirds also take flight and in the mess they are not even seen. There was no moon, but fairly bright starlight. All four encountered were done so in areas where no terns were screaming off first. The Curlews are fairly easily captured with the hand net if not disturbed first by other birds.

No sightings yet of any robbery by other birds. A lot of loose tern egg looks as if the Curlews may have eaten them. Puncture marks in the shell. Also I have been losing many eggs from marked nests, especially the outgoing Brown & Red-footed Boobies.

27 Oct 19 eggs of Gray-backed Tern just N of the large walls were all eaten or broken into, mostly with one or more crude holes ca. 1/4" wide such as a Curlew might make. All destroyed eggs were in one small area.

R.S. Rossin
1868

Golden Plover

(D)

18

McKean Island

17 Oct. While sleeping on the beach, I woke up about 0300 with the high tide coming in. My cot was only a few feet away from the high tide line and a Golden Plover came strolling along only about 2 feet from the cot. As each wave rolled up it would run along and pick up some small food items as the water of each wave receded. Feeding much like a small peep mudpiper. The beach was fairly well illuminated by starlight, no moon. I flicked the bed lamp on him and he ran off up the beach. Didn't know that Curlews fed at night, but then again, can't remember ever seeing them feed in the daytime.

23 Oct Plover observed feeding intensively on the large green, smooth (not hairy) caterpillars which have become very numerous on the vegetation since the last couple of good rains. These caterpillars are about 1 1/4" long at largest size and are fairly abundant everywhere. Plover stalks along picking them off ^{with its beak} and swallows them with a few quick flicks first perhaps to stun or kill them. Birds are feeding in the daytime.

R.S. Borin
1968

Fairy Tern

0

McKean Island

20 Oct. Worked all Fairy Tern nests on the high SW walls and the entire large central complex of walls. Data as follows:

	20 Oct HSW Walls	20 Oct LCC	24 Oct NW Circular wall	TOTAL
Egg	2	17	5	24
SDY		2		2
MDY	2	3	1	6
LFY		2	2	4
Imm.		2		2
Total	4	26	8	38

20 Oct

All eggs were measured as follows:

- 38.2 x 29.6
- 38.2 x 29.4
- 38.7 x 30.7
- 38.8 x 31.2
- 38.9 x 30.9
- 39.0 x 30.0
- 39.2 x 30.2
- 39.5 x 30.3
- 39.5 x 31.6
- 39.6 x 29.9
- 40.1 x 29.9
- 40.9 x 31.1
- 41.0 x 30.3
- 41.0 x 31.4
- 41.5 x 30.4
- 42.1 x 31.2
- 42.1 x 32.2
- 43.8 x 33.2
- 44.0 x 29.7

Total 19

Stage of Incubation

	20 Oct	24 Oct	Total
Fr.	4	1	5
VSI 1.		1	1
VSI 2.	1		1
SE	1	1	2
MI	4	1	5
HI	5	1	6
rotten	4		4
Total	19	5	24

Egg measurements, 24 Oct

- 40.0 x 31.0
- 39.9 x 31.1
- 38.2 x 29.2
- 40.1 x 30.4
- 40.6 x 31.3

R.S. Borin
1968

Fairy Tern

(2)

McKean Island

20 Oct. Measurements of the culmen from exposed skin (free of down or feathers) to tip of upper mandible were taken on all chicks. The individuals were first visually placed in an age class and then measured.

SDY	MDY	LFY	Imm.
	20.5 mm.	24.1 mm.	27.3 mm.
12.5 mm.	23.0 mm.	25.2 mm.	27.5 mm.
14.0 mm.	24.1 mm.	26.3 mm.	
	24.1 mm.	24.1 mm.	
	24.3 mm.	25.4 mm.	
	24.8 mm.		
	24.2 mm.		

Hence by visual placement, there is some overlap between individuals in the middle downy young and large feathered young classes, and very close measurements in the large feathered young and immature groups. A larger sample could no doubt give a better series in which to set lower and upper limits to the various age classes. However, individual variation will probably make this criteria invalid; hence I can see no reason for maintaining some age-class method which utilizes measurements, but it will allow a field worker to utilize the same visual methods we use in that one unfamiliar with aging this species can check himself with some concrete measurements.

All young were banded 712-57244-55.

One egg was known to be laid on 18 Oct, High SW walls.

RS Crossin
1968

Fairy Tern

(3)

McKean Island

19 Oct. Some old courts which I forgot to enter in here are:

- 6 eggs
- 4 medium Downy Chicks
- 3 Large feathered Chicks

These were counted along the rocky crest on far (E-NE) side of the island. Practically nothing else nesting over there and I have little occasion to go there.

This species is distributed in low numbers all about the island, but the large concentrations are on the old rock walls on west side.

26 Oct/ 43 birds (adults) counted at 2220 about the NW circular wall.

27 Oct/ 44 adults were counted flying about the large "ditch" on N side of island at 1130.

RS Crossin
1968

Common Noddy

(1)

McKean Island

25 Oct Regurgitation samples from 10 2/3 sized chicks = between medium Downy and large feathered young; tending more toward latter age class were collected between 1830 and 2000 and were as follows:

①	wt. (gms.)	contents (various)
①	5.2	100% squid
②	17.9	100% squid
③	13.6	100% squid
④	4.7	100% squid
⑤	10.5	100% fish (scorpaenid)
⑥	10.0	30% squid, 70% halfbeak
⑦	7.3	100% squid, 90% scorpaenid
⑧	1.5	100% halfbeak
⑨	5.4	100% squid
⑩	17.0	70% squid, 5% Triggerfish, 25% scorpaenid
	9.31	

The one example of triggerfish (probably *Belustius*), the halfbeak (fish *Hemiramphus*).

An estimated 5,000 roosting along SE-SW lagoon shoreline on mud flats, rocks & *Sesuvium* flats.

26 Oct/ A nest survey was done about the large central complex of walls today. Egg + chick count. The egg count is considered O.K., but for the same area the chick count is probably low as they hide fairly well in rock crevices.

	E	SDY	MOY	LFY	Imm.	Culmen (mm)		Chicks		
						Dark	Int.	Light		
	35	19390	13.9	SDY	4	2	1			
	4	2.2	15.0	SDY	1					
	9	5.0	15.1	SDY	2					
	127	70.7	18.2	SDY						
	6	3.3								
	181		23.5	LFY						
			26.1	LFY						

R.S. Crossin
1968

Common Noddy

(2)

McKean Island

26
Fort

F/Station on Eggs

Fr	9
USE 1.	6
USE 2.	5
SE	11
ME	5
HI	2
Pippins	4
	<hr/>
	42

Egg Measurements

47.1	x	35.4
47.4	x	31.8
47.9	x	35.5
49.0	x	34.6
49.0	x	35.7
49.5	x	35.1
49.7	x	35.7
50.0	x	34.6
50.3	x	35.2
50.9	x	35.3
50.9	x	39.0
51.0	x	35.1
51.0	x	33.9
51.0	x	36.5
51.1	x	35.9
51.2	x	35.6
51.3	x	35.4
51.3	x	35.5
51.5	x	35.4
51.6	x	35.4
51.6	x	36.3
51.7	x	36.5
51.9	x	36.3
52.0	x	37.7
52.2	x	36.7
52.3	x	36.0
52.5	x	35.8
52.8	x	37.2
53.3	x	35.7
53.4	x	36.1

53.4	x	36.2
53.5	x	37.5
53.9	x	37.4
54.0	x	36.1
54.1	x	37.0
54.4	x	37.2
55.0	x	34.7
56.0	x	37.5

~~38~~

R.S. Crossin
1968

Common Noddy

(3)

McKean Island

270ft An estimated 500 C. Noddies
roosting on mud flats at NW end of
lagoon. Another 400 roosting on the
mud flats at N end of lagoon.

R.S. Bosman
1968

Hawaiian Noddy

(1)

McKean Island

20 Oct. all nests of Hawaiian Noddies were checked today on the high SW walls + the large central complex of walls. Old nests were counted, eggs measured, flotation performed and culmen measurements of all young taken. Minimal specification as to age class was made before measuring with no attention paid to measurements during the procedure.

	(10 Oct) H.S.W Walls	(20 Oct) LC Complex	(25 Oct) NW Circular wall	TOTAL
old nest	6	43	6	55
E	2	25	7	34
SDY		3	2	5
MDY		5	1	6
LFY	2	9	1	12
Imm.	1	-	-	1
TOTALS	5	42	11	58

Old nests are not included in the above totals, but were taken to give an idea of the maximum population possible. I believe that very few new nests are built anymore, and that pairs nesting merely place new material on an old nest.

Fr.	Flotation on Eggs		Total
	HSW WALLS	NW Circular wall	
VSI 1.	1	1	2
VSI 2	1	1	2
SI	3	1	4
MI	8	1	9
H.I	11	1	12
Piping	1	2	3
rotten	2	-	2
	<u>27</u>	<u>7</u>	<u>34</u>

R.S. Bosman
1968

Hawaiian Noddy

(2)

McKean Island

20 Oct. Egg measurements as follows: (mm.)

42.5 x 29.5	
43.1 x 29.9	
43.3 x 30.3	
43.8 x 31.0	
44.0 x 29.6	25 Oct
44.2 x 30.7	44.2 x 31.0
44.3 x 29.2	
44.6 x 31.9	
44.7 x 31.3	44.7 x 30.9
45.0 x 31.4	
45.1 x 30.0	
45.3 x 32.4	
45.6 x 31.2	
45.7 x 30.6	45.8 x 31.1
45.9 x 31.6	45.9 x 33.2
46.4 x 30.6	46.2 x 30.6
46.6 x 31.4	
46.7 x 31.3	
46.7 x 30.9	
46.9 x 31.8	
47.4 x 30.6	
47.6 x 29.4	47.6 x 32.0
47.8 x 32.6	
48.0 x 32.2	
48.4 x 31.4	48.5 x 30.9
49.5 x 30.5	
50.0 x 30.8	

CORUM & PEASE "INSE"

R.S. Crossin
1968

Hawaiian Noddy

(3)

Mckean Island

20 Oct. Culmen measurements of different age classes. (mm.)

<u>SDY</u>	<u>MDY</u>	<u>LFY</u>
12.4	17.9	23.1
12.5	17.5	24.6
15.8	22.5	25.5
14.7	24.4	27.4
11.0	24.7	29.0
		24.3

Individual variation in bill length probably accounts for the overlap in categories MDY and LFY.

24 Oct this row with a complete count of all nesting areas of this species we have a total of 58 active nests plus an additional 55 old nests. If new nests are not constructed (or very few at best), when a maximum population is breeding, one hundred and 13 active nests would be present accounting for 226 adults.

At the present time the distribution is:

High SW walls	8.6 %	of breeding population.
Large Central Comp.	72.4 %	" " "
NW circular	19.0 %	" " "
	<u>100.0</u>	

Plus at the time of the survey, the breakdown for breeding was:

Eggs	—	58.6 %	of breeding population.
SDY		8.6	" " " "
MDY		10.4	" " " "
LFY		20.7	
Imm.		1.7	
		<u>100.0 %</u>	

CORUM & PEASE "INSEAR" (B)

R.S. Crossin
1968

Blue-gray Noddy

(1)

Mckean Island

<u>Egg measurements</u>	<u>Culmen Measurements</u>
40.6 x 25.7	17.5 LFY
	17.6 LFY
	15.4 MDY

24 Oct Eggs are very difficult to find of this species and are certainly not very abundant at this time. I have noted about 5 large chicks, 4 medium chicks and about 4 or five eggs. Only a very few birds are nesting at this time. Many, however, continue to roost practically in all areas except where the Sooty tern colony is dense. Largest congregations, however, are roosting along the Sesuvium along the lagoon.

25 Oct night. An estimated 200 birds roost along SE-SW lagoon shoreline on Sesuvium flats.

DOUGLASS & PEASE "13"

R.S. Crossin
1968Hawaiian Noddy

③

McKean Island

20 Oct. Culmen measurements of different age classes. (mm.)

<u>SDY</u>	<u>MDY</u>	<u>LFY</u>
12.4	17.9	23.1
12.5	17.5	24.6
15.8	22.5	25.5
14.7	24.4	27.4
11.0	24.7	29.0
		24.3

Individual variation in bill length probably accounts for the overlap in categories MDY and LFY.

24 Oct This now with a complete count of all nesting areas of this species we have a total of 58 active nests plus an additional 55 old nests. If new nests are not constructed (or very few at best), when a maximum population is breeding, one hundred and 13 active nests would be present accounting for 226 adults.

At the present time the distribution is:

High SW walls	8.6 %	of breeding population.
Large Central lagoon	72.4 %	" " "
NW circular	19.0 %	" " "
	<u>100.0</u>	

Plus at the time of the survey, the breakdown for breeding was:

Eggs	—	58.6 %	of breeding population.
SDY		8.6	" " " "
MDY		10.4	" " " "
LFY		20.7	
Imm.		1.7	
		<u>100.0 %</u>	

R.S. Crossin
1968Blue-gray Noddy

①

McKean Island

<u>Egg measurements</u>	<u>Culmen Measurements</u>
40.6 x 25.7	17.5 LFY
	17.6 LFY
	15.4 MDY

24 Oct Eggs are very difficult to find of this species and are certainly not very abundant at this time. I have noted about 5 large chicks, 4 medium chicks and about 4 or five eggs. Only a very few birds are nesting at this time. Many, however, continue to roost practically in all areas except where the Sooty tern colony is dense. Largest congregations, however, are roosting along the Sesuvium along the lagoon.

25 Oct night. An estimated 2000 birds roost along SE-SW lagoon shoreline on Sesuvium flats.

DOUGLASS & PEASE "NO. 13"

R.S. Brown
1968

Gray-backed tern

(1)

McKean Island

24 Oct. A colony of ca. 8000 birds are situated on the fine coral rubble on E side of island directly opposite ramp. There are on estimate 70% heavily incubated eggs with estimated 30% on fresh eggs, primarily on the N edge. No chicks here in this particular colony.

25 Oct. Colony of ca. 2000 are on ave. slightly incubated eggs between the circular NW walls and the large central complex of walls. Another colony of ca. 400 are on very slightly incubated stage 2 and slightly incubated eggs.

Flotation was performed on 40 eggs in the above two colonies as follows.

Fr.	1	2.5%
VSI 1.	5	12.5
VSI 2.	13	32.5
SI	18	45.0
ME	3	7.5

40

Considerable variation is encountered in a single colony indicating that all birds do not settle at one time. There is probably a steady, slow trickling in of birds in any particular colony which is why one can often find flying immatures in a colony amidst birds incubating fresh eggs. However, in fact, there are very few young about the island at this time. I have on occasion noted a few half-flying immatures and very rarely (4 or 5) small medium downy chicks - these primarily on the N end of the island and at night when looking for BB nests.

R.S. Brown
1968

Gray-backed tern

(2)

McKean Island

25 Oct. night. A chick on S rocky beach crest of ca. 400 with fresh eggs + ca. 10 large flighted young to flying immatures. This is new egg laying since 3-4 days ago when I last went through this area checking Brown Booby nest.

A bit farther east on the S end is a colony of ca. 2000 birds with SDY and 5-10 eggs around the periphery which were very fresh. Also a few (ca. 5) flying immatures which shows this colony has been occupied regularly (or slightly irregularly) for some time.

An estimated 10,000 birds roosting along SE-SW shoreline of lagoon. An occasional pair has eggs at the very edge of lagoon & seaward.

27 Oct. ca. 600 adults with ca. 200 eggs of slight incubation and a handful (ca. 20-25) large flying young are situated along the rocky crest on N end of island.

R. L. Gurney
1968

Sooty Tern
(*Sterna fuscata*)

8

18-48 N ; 159-33 W — 17-04 N ; 168-43 W

8 Oct 112 birds noted today; at least 8 imm., these most often accompanied by parents, although some noted yesterday just south of Oahu, these are most likely Hawaiian Islands birds which leave around off to sea at termination of breeding. One imm. closely following parent; parent calling softly. Parents no doubt stay with young considerable time after they leave the island.

15-08 N ; 162-02 W — 13-16 N ; 163-17 W

9 Oct numbers down today to 26; all seen clearly were adults. The largest group was 17 seen just at sunset.

11-25 N ; 164-35 W — 09-36 N ; 165-46 W

10 Oct. only 3 birds noted today, all adults.

07°-45' N ; 166°-56' W — 05°-57' N ; 168°-03' W

11 Oct. A small flock of 4 adults late in afternoon may be a few outliers of large concentration peculiar to the 5° N current convergence rich feeding zone. A sudden appearance of 6 Red-footed Boobies, at sunset may be another indication, but certainly number of birds were not what they have been in the past, if we did indeed go through the rich water zone.

03°-57' N ; 169°-10' W — 01°-58' N ; 170°-37' W

12 Oct. noted a small traveling flock of 7 in the morning and 2 in a mixed flock in late afternoon; all adults.

R. L. Gurney
1968

Makau Island

9

24 Oct. Practically every adult in the colony leaves in the early morning & goes out to sea. For instance, at 0840 there are now only about 800-1000 adults in the entire colony. Birds start coming back in in larger numbers throughout the late afternoon and at 10:30 they really become a huddle. Some exchange occurs all night long and very early, by sunset, most birds have again gone to sea. This is with a colony composed almost exclusively of young chicks, from just recently hatched to 2/3 size. Toward the two ends of the colony N & S, the chicks are smaller & a few eggs are still being incubated in these extreme ends. Hence the colony probably got under way about mid way some where and the Vets. comers were forced to nest at the ends.

22 Oct Plot count

Two plots were set up last night; each measuring 32 x 31 feet to give roughly a 1000 sq. ft. area. At 2200, 2245 counts made as follows:

PLOT #1

175 ads.

23 chicks - newly hatched to 1/3 size

4 eggs being incubated

61 remains of rotten or broken eggs (not hatched)

PLOT # 2

241 ads.

82 chicks 1/3 - 2/3 grown

57 rotten egg remains

R.S. Crossin
1968

Sooty Tern

(3)

McKean Island

24 Oct. Plot 3 146 adults
68 $\frac{1}{3}$ grown chicks
32 rotten eggs.

25 Oct
Plot 4 227 Adults
83 $\frac{1}{2}$ sized chicks
61 rotten eggs

As can be seen in Plots 2 + 3, more chicks and or rotten eggs are present than adults to supply this number. Hence many more birds are flying before I get to the plots to count, or adults which have had unsuccessful nestings; i.e., rotten eggs have left the area and no longer roost on their territories. The latter seems more likely since I take great care not to stir the birds when coming in to count, but perhaps it is impossible.

25 Oct. an estimated 20,000 roosting on the mud flats along S-SW lagoon shore.

26 Oct. In figuring the number of Sooty Terns in the breeding colony, the logical figure to measure is the average of the combined eggs and chicks in the various plots since the parents of the chicks cannot be part of the parents of the rotten eggs - the chicks are not large enough nor do they have wide enough age gaps for parents of unsuccessful eggs to have retained and brought off any of the chicks present. Since some eggs and chicks are bound to have disappeared from the plots, the numbers present now are logically the lowest figures of original laying that could have occurred. Perhaps the large numbers of birds that are roosting along the lagoon and on the rock walls are part of or most of those that have lost eggs or chicks. Breeding birds which have failed nests... P. 5

R.S. Crossin
1968

Sooty Tern

(4)

McKean Island

24 Oct. Regurgitation samples were collected between 1900-2000, as the adults have very recently come in and fed the chicks. Many adults have nothing to regurgitate, presumably because they have already given it to a chick.

	wt (gms).	Contents (estimated)
Adults: 1.	5.1	100% Small fish
2.	6.4	100% " "
3.	23.6	100% " "
4.	17.4	100% " "
$\frac{3}{4}$ chicks 1.	26.9	80% fish, 20% squid
2.	18.8	100% fish 70% flying fish
3.	32.5	40% fish, 60% squid
4.	12.0	100% small fish
5.	16.8	100% small fish
6.	15.8	30% fish, 70% squid
$\frac{1}{2}$ chicks 1.	26.4	10% fish, 90% squid
2.	25.4	100% squid
3.	27.2	100% fish
4.	17.9	5% fish, 95% squid
5.	36.6	100% fish
6.	32.2	100% fish
7.	16.3	100% fish
8.	7.7	100% fish
9.	10.8	40% fish, 40% squid
10.	31.0	5% fish, 95% squid

The fish were apparently general Scombridae, except where noted otherwise.

L. L. Crossin
1968Sooty Tern
McClellan Island

(5)

26 Oct. may have a tendency to stay around the breeding island same as if they were rearing young successfully. This is only an idea since there is no way of proving that roosting birds are nest failures. They are so jumpy that as soon as an approach is made, all are up in the air in wild confusion. I have not even been able to sample the lagoon roosting birds for band recoveries.

Averaging Plot samples [these plots, incidentally, were roped off to get maximum efficiency in counting the birds at night. Hence, if for some reason, one became confused in counting, it was simply a matter of starting over again, since the boundaries were stable].

Plots by averaging adults counted in plots, an average plot contains 197 adults. By figuring 2 adults per chick or rotten egg, the average plot has 236 skulls. This latter figure is more logical and will be used in the final estimation. In those plots which had fewer than 2 adults per egg or chicks, another reason may be that some parents would be out to sea feeding or catching food for the chicks & in fact it is probably unlikely that both parents of every chick or egg would be on the island every night.

27 Oct. an estimated 1000 sooties roosting on the dry-slightly moist mud flats along WNW side of lagoon.

R.D. Crossin
1968

Lesser Frigatebird

(1)

McKean Island

22 Oct. A count of the Lesser Frigate colony was made in late afternoon today. The colony is broken up somewhat into units now with bare areas in between groups and hence counting is made considerably easier than in July. I counted these separate segments and allowing for confusion in the larger groups, I believe count to be 50% correct.

The boundary of the colony is essentially same as in July with an additional 5000 young in a pocket NE of the main colony. Most young are either in the large-bird downy or large feathered category. An estimated 3% are medium downy young and an estimated 10% are large downy. A handful of birds are still sitting on eggs. Some of these tested were rotten, others heavy incubation.

Total of 22,000 young counted, allowing for broken, infertile eggs and small chicks loss, this colony must likely have been the 40,000+ nests estimated in July. and if Sooty Tern rate of success is any way similar to Lesser Frigates, the colony was originally much larger than it now is. Practically all adults are gone from the colony during the daytime although many of these are merely cowering high over head. At dusk birds began settling in great numbers, and by full dark the colony is fairly well settled.

24 Oct. A small group of 39 nests situated E of the main colony was checked today. This portion undoubtedly set down considerably after the others. It contained as follows:

see foll. page.

R.D. Crossin
1968

Lesser Frigatebird

(2)

McKean Island

24 Oct. small colony E of main colony

rotten eggs: 8
Naked young 15
Small downy y. 16
39

A few of the naked young could not have hatched more than a day or two ago

27 Oct. Perf samples collected today reveal the following:

By 50 samples examined, every one but one was composed 100% of squid. 10 very fresh squid gave the following measurements - per only (exclusion of head + tentacles), in mm

110	
91	an average per length of
63	67.6 mm. This is
69	considerably longer than the
47	burped up by Sooty, or Common
76	Noddy terns and I would
72	imagine the Tern species are
29	not heavily preyed upon. It
37	the Lesser Frigate feed for them, or
82	or they are parasitizing larger
616	species such as the boobies.

Ten samples weighed as follows:

56.0	100% squid
79.5	"
41.7	"
46.7	"
30.3	"
59.1	45% Sooty (182 mm), 55% squid
53.4	100% squid
45.9	"
41.4	"
57.0	"
511.0	ave 51.1 gms per burf.

1963

Lesser Frigatebirds

Western Island

27 Oct. Interestingly enough, this species is feeding the young on almost a pure squid diet. The one sample contained a 172 mm scumbed anovovating to 45% of the sample. Great frigates, on the other hand are feeding considerably on Eucyprids = more parasitizing boobies etc??

If one assumes our population count is reliable, then each of 22,000 young hawks + their 44,000 parents each consuming an average of 51.1 gms of squid per day would 3,372,600 gms. = 7,429 lbs ± ca. 3 3/4 tons.

If the July estimate was correct and there were 85,000 birds about, and if this 40,000 old birds which presumably had nest failures are still about, then we add another 4,502 lbs (2 1/4 tons) to the toll, coming up with about

6 tons of squid per day to feed that bunch of monsters. The average, in fact is probably quite low, since a half sample probably constitutes the feeding of one parent and perhaps each parent feeds more than once per day. Thus 51.1 gms is probably quite low.

Some Lesser frigate chase:

- 1625 3 ad ♂ hawks drive a sooty tern for about 15 seconds - chase successful tern disgorged food and all 3 swooped, one picking it up.
- 1651 one ad ♂ hawk drive an ad sooty for about 8 seconds, unsuccessful.
- 1701 3 of fine ad ♂ hawks drive an ad sooty for 21 seconds - unsuccessful.
- 1714 2 ad ♂ hawks drive a blue grey noddy for 9 seconds, successful.

1963

Lesser Frigatebirds

McKean Island

27 Oct. Frigate chase cont.

The frigates are picking birds returning from the large feeding flock offshore. Cannot determine which one they pick as terns are all over. They usually descend one low over the water, ignoring those flying in high at their level. Blue faced boobies were noted to come in at great heights - well over 1500 ft and then start plowing in as they come over the beach area to drop in at the lagoon. Perhaps this high approach is something to avoid frigates.

Two groups of 5 or six ad ♂ hawks are operating along the beach area here - invariably one or 3 come out of their circling and dive in for a chase.

Observing these frigates out in the feeding flock, all seemed to be working as hard as the terns over the terns and there is no doubt that most if not all frigates in the main flock were fishing for themselves.

1743 Two ad ♂ hawks driving an ad sooty, sooty regurgitates and then attempts along with the 2 frigates and about 3 other sooty terns to pick up the regurgitated food. I think one of the frigates was successful.

1745 3 ad ♂ hawks driving an immature RFB for 35 seconds - unsuccessful - it seems the sooty was splashing in the water.

1748 Three of 4 ad ♂ hawks driving a sooty tern for 12 seconds - tern dropped food and all three frigates and another sooty tern dove in for it - ? don't know if anybody got it

1813 Two L. Frig ad ♂ driving an audubon's shear and 3 common noddies right with the frigates! Shear water hits the water, frigates rise up, but the 3 noddies continue to pursue the shearwater for some 20-30 yards after it takes off from the water. I never saw anything like this! Are these birds getting some ideas from the frigates?

BOORUM & PEARSE PHOTOGRAPHY

W. B. Crossin
1968

Great Frigatebird

(1)

McKean Island

14 Oct. 68 Imm. were roosting in the conventional nesting area on the SW side of island at 2030. Many adults were present also but these started to fly as I was about through with the immature count.

15 Oct at 0920 there were 51 immatures in the above plot (plus 8 ad ♀ and 5 ad ♂ on nests). Thus 17, or 25% of the birds in this particular group were leaving the island to feed and were probably independent of parents.

24 Oct. An immature flew over campsite, grabbed a half-grown Sooty tern, fled off with it, another immature gave chase and succeeded in grabbing the chick off the first one in mid-air. Then after a while the second one landed and after about 15 minutes of attempting to swallow the chick, finally succeeded. For many minutes the wings of the Sooty tern chick protruded out of the frigate's mouth.

The guys here in camp have noted many occasions when the frigates (particularly Greats, as they are the common ones about camp) have picked up Sooty terns and dropped them from some height either over land or out over the water.

Nest count made today between 1600 - 1800. At this time the birds which go out to sea are out back yet and permanent birds are pretty settled. Manner of count went as follows: all those which could fly off or fly when disturbed were considered juv. Large feathered young were those which for all practical purposes had no down but were hesitant to move.

W. B. Crossin
1968

Great Frigatebird
McKean Island

(3)

off Oct. young were those that had considerable down on the neck region etc, but were otherwise quite feathered, rest are self explanatory. One egg was definitely fresh & one with med inc.; one noted which just hatched.

Eggs:	2
Naked Chick	1
SDY	14
MDY	13
LDY	72
LFY	168
JUV.	247
	<hr/> 517

If the sample plot SE of camp is as well typical, whereby 25% of the juv. were noted to leave the island in the day time, then the number of juveniles for the island would be ca. 309 birds. I will test a few more sample groups before deciding what % are leaving the island.

A naked chick & small downy was found in one nest.

27 Oct/ collected bird samples from 10 large feathered young taken as follows:

①	72.4	100% Scaubirds
②	79.3	50% squid, 80% Scaubirds
③	45.3	70% squid, 30% Scaubirds
④	91.5	100% squid
⑤	42.6	20% squid, 80% Scaubirds
⑥	59.4	100% squid
⑦	47.0	100% squid
⑧	31.7	100% squid
⑨	65.8	30% squid, 70% Scaubird
⑩	54.7	100% squid
	<hr/> 589.7	

R. S. Brown
1968

Lesser Frigatebird

(5)

McKean Island

- 270^t/ 1820 Two ad ♂ terns + a sooty tern drive an audubon for 11 seconds - unsuccessful.
- 1821 Three ad ♂ terns drive an audubon for ~ 16 seconds, successful.
- 1822 3 ad ♂ Frigates accompanied by 3 C. noddies drive a Wedge tail for some 8 seconds - successful, but I could not determine whether a frigate or a noddie got the goodie.
- 1824 4 ad ♂ terns drive an audubon for some 15 seconds, send it splashing into the water + then they rise, about then a noddie chased the audubon for some 15-20 yds when it rose from the water.
- 1827 4 ad ♂ terns driving in mixed combinations 2 audubons - finally one got away - other chased until it disgorged - two C. noddies got in the fray about mid way and leaped in to get the dropped food, but one of the frigates beat them to it - both noddies were chasing the 2nd audubon as actively as the frigates.
- 1829 2 frigates and a noddie drive an audubon, it disgorges and one of the frigates drops to eat it, other frigate rises. C. noddie still continues to drive audubon for about 20 yds.
- 1831 One frigate and 3 noddies driving an audubon and it ended in a mad thrashing on the surface. Don't know what happened.
- 1833 I weary of this game and it is getting too dark to see clearly. In all the above chases concerning terns, one thing strikes clear in that a tern, either noddie or sooty, was never noted to initiate a chase. Only after one or more frigates had started the chase, would one or more terns join in, but the noddies regularly chased the prey bird after the frigates had quit.

RS Brown
1965

Great Frigatebird

(3)

Mckean Island

27 Oct/ The preceding samples were collected at about 1200. Many of the animals were exceedingly fresh and thus the young are being fed throughout the day.

The percentages of fish to squid are arrived at by visual determination, which is a bit crude, but 1000 is better than nothing. Attempts to separate out the fish from squid and weigh each separately largely fails because often

the two components are so intermixed that large error is obtained at any rate. In testing my ability to visually estimate the percentage of each food type, I find in a few examples which were clean cut and easily separated & weighed individually that I come to within

5% of the actual percentages - thus for this type of determination, I feel that the results are acceptable. The extreme variation presented in the different samples does not justify any attempt at finer distinction at any rate. This probably because the birds are feeding on an opportunistic basis for the most part.

The Frigate regurgitation samples (both species) contain squid and salmon-birds of larger dimensions in most cases than the specimens of the same prey found in tern samples. Thus it would appear that the frigates are either parasitizing boobies or are feeding for themselves.

The frigate samples of both species were collected in open mouth plastic bags and disposed of after weighing since they could not be adequately sealed with alcohol in them.

R.D. Crossin
1968

Red-footed Booby
(*Sula sula*)

①

Hondulua south to 20-41 N ; 158-23 W
7 Oct. 164 recorded from 1500 until sunset 1878.
All light phase adults, number of immi-
seen, usually in singles accompanied
by an adult.

07° 45' N ; 166° 56' W — 05° 57' N ; 168° 03' W
11 Oct. 6 showed up tonight right at sunset
and began circling the ship; 5 imm. and
one adult. I suspect since we are still
about 500-600 miles N of Hondulua, the
nearest island, that these birds are
winter (= non-breeding, pre-breeding) residents
of the rich feeding area of ca. 5° N.
Although very few other birds were
about to indicate this, I feel that
the presence of a number of these red-
foots indicates large numbers of feeding
birds. Nocturnal observations held
for 3 1/2 hrs. after sunset failed to
show any indications of feeding
flocks.

03° 57' N ; 169° 10' W — 01° 58' N ; 170° 37' W
12 Oct. Saw several (5 total) immatures through-
out the day, all singles. Some paid
attention to the ship as did the 6 last
night.

R.D. Crossin

Red-footed Booby

②

McKean Island
16 Oct. Nest count made today as follows:

	Marked Nests	Non-marked	Total
New Empty Nest:	1	3	4
One egg	11	25	36
Naked young	4	12	16
Small downy young:	4	4	8
Large downy young:		11	11
Large feathered young:		9	9
near Immature:		4	4
	20	68	88

Nest localities were as follows:
4 nests at SW edge of lagoon where
the concentration of frigates are;
5 nests along N-SW edge of lagoon
near lower frigate colony and the
rest in a broad belt through the
old stone wall area on the W side.
The nesting area here is more or
less dictated by the Sida filler growth
since all nests are in Sida.
The marked nest area is around
the large W wall near camp.

20 Oct 2020 123 roosting in large central
complex wall section, at least 20 of these
imm. about 200 roosted about the rest
of the Sida area about the walls on W side
and another 100 plus on the SW lagoon
corner in mixed frigate and RFB roost-
nest area. About 60 birds, mostly imm. & ad.
roosted about the small nesting site on
NW corner next to lower frigate colony.

BOORUM & PEASE "NOLEAR" ②

E "NOLEAR" ②

R. S. Brown
1968

Red-footed Booby
McKean Island

(2)

26 Oct. Collected 10 samples of regurgitation from adult birds - only those which did not have anything larger than very small downy young - since we must presume feeding the young would drastically change the quantitative amount the adult would retain. Collected between 1900 - 2000.

	Wt. (gms)	Contents (visual det.)
①	97.6	20% squid; 80% fish scombrids
②	51.0	60% squid, 40% fish scombrids
③	76.4	50% squid, 50% fish scombrids
④	92.1	15% squid, 85% fish scombrids
⑤	57.0	100% fish scombrids
⑥	50.4	25% squid, 75% fish scombrids
⑦	54.6	50% squid, 50% fish scombrids
⑧	74.4	90% squid, 10% fish scombrids
⑨	31.4	10% squid, 90% fish 80% scombrid 10% halfbeak
⑩	65.4	30% squid, 70% fish scombrids
	<hr/> 650.2	

With practically all samples so far, including Red-tails, the food has been primarily squid, scombrids & halfbeaks - all prey that could only be captured in such quantity by feeding over schooling tuna. Since all samples were taken at dusk or shortly thereafter, all prey was caught during the day - further proof that some aquatic predator was involved with driving the food source to the surface.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
11	29 Oct	—	empty	1440
12	"	—	"	1445
13	"	—	"	1445
14	"	—	"	1445
15	"	—	"	1445
16	"	—	M D Y	1445
17	"	—	empty	1445
18	"	—	egg	1445
19	"	—	empty	1440
20	"	—	M D Y	1440

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on

McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
12	17	747-51102	egg	bird just captured - band # taken 1110
13	18	747-51474	hatched ch.	just hatched 2350
14	18	747-57795	still empty	2355 parent on
14	20	—	empty	2025
11	20	—	empty	2025
18	20	747-50532	egg	32 banded 2025

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Summary and 1st Visit

Nest No.	Band Numbers of Members of Pair	Date	Contents of Nest or Burrow	Measurement of Egg	Measurement of Culmen of Young	Measurement of Wing of Young	Band Number of Young
11	747-51477 Int. Ph. 0 747-51434 Int. Ph. G	15	naked chick ca. 2 days old.		18.9 mm.		
12	747-65027 Int. Ph. 0 747-51102 Int. Ph. 0	15	egg	55.7 x 36.5			
13	747-56905 Int. Ph. 0 747-51474 dk Ph. G	15	egg (just ripping)	52.2 x 40.3			
14	747-60254 Int. Ph.	15	small downy young.		36.5 mm.		
15	^{NO} 747-50502 light Ph. 0	15	egg.	60.2 x 39.7			
16	747-51469 Int. Ph. 0 747-56925 Int. Ph. 0 747-57775 Int. Ph. G	15	small downy young		36.7 mm.		
17		15	empty, parent sitting				
18	747-51128 dk. Ph. 0 747-50532 Int. Ph. G	15	egg	63.9 x 38.6			
19	747-60266 Int. Ph. 0 E	15	naked young just hatched		15.8 mm.		
20	737-21516 Int. Ph. 0 747-25882 Int. Ph. G	15	small downy young		36.7 mm.		

Other Comments:

all above nests in dark or partially dead side fallen bushes.

R. S. Crossin

Oct. 1968

Data Sheet for Marked Nests

of Red-footed Booby on McKean Island

Sheet for Subsequent Visits to Nest

Nest No.	Date	Band Number of Bird at Nest	Contents of Status of Nest or Burrow	Other Comments or Information
11	16	747-51477	naked chick	2200
12	16	747-65027	egg	2205
13	16	747-56905	naked chick	2205
14	16	747-60254	sm downy	2206
15	16	^{NO} 747-50502	egg	bird banded at 2210
16	16	747-51469	sm downy y	2215
17	16	—	still empty	no parent on 2215
18	16	747-51128	egg	2216
19	16	Int. Ph. much dark 747-60266	dark naked young	young dark, parent moving about 15 m. from nest.
20	16	737-21516	sm downy	2220 (This ff is on SFB in hatching - same day (no?) banded.)

Robert Pyle

November 29, 1968

Jack Zickafoose

Reimbursement of the Honolulu station expenses

The financial report for the period ending November 20, 1968 has been received and found to be in good order. Reimbursement of \$1,894.71 has been sent to Bank of Hawaii for deposit to the station account.

Best regards from SI, Washington.

MAH/mp

Encl.

CC: Jane Church / MNH W601
Fiscal Div. SI

Fiscal-669
 Revised 2-68

SMITHSONIAN SATELLITE TRACKING STATION
 CUMULATIVE DISBURSEMENT REPORT

Station HONOLULU Reimbursement-Period Ending 11/20/68 Date Paid 12/2/68 Amount \$1,894.71 Check No 15006
 Schedule No _____

Total Foreign Currency _____ Conversion to U.S. Dollars _____ Conversion Rate _____

FY 69

7611 - 33011

Object Class Expenses	Expenditures In Foreign Currency	Conversion To U. S. Dollars	Cumulative Totals From Prior Months	Cumulative Totals To Date
(4110) Personnel Compensation.....				
(4120) Personnel Benefits.....				
(4210) Travel.....		\$ 219.80	- 0 -	\$ 219.80
(4220) Transportation of Things.....		34.81		34.81
(4231) Real Property Rental.....		467.35		467.35
(4233) Communications.....		115.43		115.43
(4234) Postage.....				
(4235) Utilities.....				
(4240) Printing & Reproduction.....				
(4250) Other Services.....		285.05		285.05
(4256) Personal Service Contracts.....				
(4260) Supplies & Materials.....		364.65		364.65
(4310) Equipment.....		407.62		407.62
(4318) Books.....				
(4320) Land & Structures.....				
Cumulative Totals to Date.....		\$ 1,894.71	- 0 -	\$ 1,894.71