

Sand - Johnston 1964

Jan. 1 left Friendship Airport 4 pm  
via TWA 61. Arrived Los Angeles 5<sup>35</sup>  
pm. Departed for Honolulu 6<sup>30</sup> pm via  
United 95, arrived 9<sup>35</sup> pm.

Jan 2 Checked out of Hawaiian King early  
in the morning and deposited gear on  
YAG 40. Went on board 7<sup>30</sup> pm.

Jan 3 Underway on YAG 40 9<sup>30</sup> a.m.

Jan 19 Returned to Pearl Harbor 9<sup>30</sup>  
a.m. No field notes for YAG trip.

New birds - Harcourt's Storm Petrel,  
Pomarine Jaeger, White-necked petrel.

Boobies (red-foots) and Red-Tailed  
Tropic-birds most common. Feeding  
flocks of 20-100 Sooties last 2  
days out - surprising. Total no.  
of birds - ~ 500, 22 collected.

Very few sooties seen on beginning  
of trip, a somewhat greater no.  
of wedgetails throughout. Only ~  
5 frigates seen. Fairy terns ~  
3 days out of Oahu - mixed with  
sooty flocks on return trip. Albatross  
disappeared morning of third day,  
reappeared 3<sup>(?)</sup> days out on return.  
Jaegers lost after 2<sup>nd</sup> day.

Jan 24 Departed Hickam AFB, Honolulu,  
via MATS 623X to Johnston Is. 1215 pm,  
arrived on Johnston 3<sup>25</sup> pm.

R. Merriam

Sand. Johnston 1964

Jan 24 C.G. boat was already there, also Dave Bratley on weekly Johnston survey. He reported seeing a gull, an immature Western Gull probably, near one of the pads east of the runway and south of the weather house.

Dave filled me in on current studies here. Sooties are up to about 50,000; ~~When~~ they begin streaming in about 4 pm after all-day absence from ~ 2 am. Frigates nesting, one brown booby egg, one red-tailed tropic bird egg, <sup>one common nobby egg</sup> Extremely high mortality among frigate eggs. 200 sooties banded.

Jan 25 We went to Johnston I. in the afternoon to try to shoot the gull but could not get within range. Another attempt was made to capture it, perhaps while sleeping, at night but this was also unsuccessful.

One white-tailed tropic bird was seen on Johnston.

Jan 26

Took the day off for the cookout. Four ~~of~~ sooties were

Sand - Johnston 1964

observed on the small island by  
the old dock, near one frigate  
colony.

Jan 27 We went over to Johnston I.  
to straighten out getting permission  
for shooting over there. Cmdr. Cork and  
Lt. Cmdr. Bauer and Mr. Kallie (J.T.F. 8.6)  
recommend that some permanent  
notification be sent from S.I. to  
J.T.F. 8.6 on Johnston or to JTFS  
in Washington advising them of our  
needs and purposes.

Gull was still present at same  
spot on east shore.

Four tropic birds seen flying over  
the lagoon on ~~the~~<sup>our</sup> way to Johnston.  
Four also seen over Johnston - may  
have been different group.

Jan 28 Another attempt was made  
to shoot the gull. It was not  
at its usual place on the shore  
and was not seen by us until  
it suddenly flew up in front of  
us. Three shots were taken at  
it on the water, the closest at  
about 60 yards. This shot looked

Sand. Johnston 1964

as though it hit and perhaps even wounded the bird as it appeared to be unable to rise off the water. Unfortunately it drifted far out and out of sight. It possibly was sighted again drifting in toward shore but we did not have the binoculars (due to security regulations) and this object suddenly disappeared from sight. The bird is probably lost unless it drifts in to shore wounded.

Seven red-tailed Tropic birds and seven fairy Terns were seen flying over J.I.

One grayback tern was observed with an egg on the light platform between Sand + J.I. No nest.

1500 ± 200 boobies present 7:30 pm (Jusk).  
Also ~10 gray-back terns, 2-3 common noddies, 6-8 Hawaiian noddies.

Jan 29

In another check for the gull the bird was spotted 200 yards off the south point in the water. It was swimming out. Another attempt to obtain it will be made.

Kind: Titmouse

Jan 29

The grey-backed tern had moved its egg to the west side of the platform.

The red-tailed tropic bird is in very poor condition. Both eyes are closed over and it is very weak.

Four RTT, three FT seen on V. I.

Night banding of ~~ooters~~ yielded only 175 birds. Moon was up at 7:30, greatly hampering our work hereafter. No birds were observed on road or on north side of transmitter building, though there were many there Jan 24. Birds also seemed to begin sitting down in large groups only about the time the moon appeared.

Since to ~~the north~~ <sup>this</sup> there were many birds down but they were reluctant to sit again when disturbed. After the moon was up they would drop down soon after we left an area.

2200 ± 200 fobbies present 11 p.m.

Jan 30

Lt. Hayes informed us that NYN will begin installing evaporators in the pump house in about two weeks. We must

Amman  
1964

### Sander Johnston

move our gear out. He says space limitations make it possible to store only two trunks, again sniping at the expansion of the project beyond originally stated dimensions of "two people four times a year". We cannot use roof of Knitter or Signal building for observations. Freezer would be welcomed -  $1\frac{1}{2}$  size normal freezer, could be placed in pump house.

Personal - Hayes papers too, 14<sup>th</sup> District just refused binion grants here due to this limitation (prob. on Hayes recommendation)

Banded 225 Sooties 8-9<sup>30</sup> p.m.

2100  $\pm$  100 boobies present 10 p.m. Tropic bird still on egg. Dave found what appeared to be a fresh Sooty egg, perhaps noddy.

Jan 31

Three R.T. Tropicbirds over Sand. Gray-back Tern on range light was absent 6 p.m., egg not apparent.

Checked Sooty egg in AM, found it broken.

Made another attempt to capture gull on Johnston at night. Spotted it along east shore but it swam away very rapidly. Waited around and some fishermen showed up with lights and fees; bird did not

American  
1964

Sand. Johnston

come back in before dark. Anglers still at it at 9:30 so we gave up. Only temporarily however. M-boat run scheduled for 11<sup>30</sup> went instead at 10<sup>30</sup>, leaving us stranded. CG could not pick us up until 12<sup>15</sup> so we raced back, to find the fishermen still there. With sinking hopes we headed for the farthest point away on the east shore in that area and lo and behold hit the exact point where the bird was sitting. A slight motion on the shore moved me to immediate action and I hit the water only a few feet behind the creature. A rather unwelcome moonlight swim and of course to no avail. Oh well, at least we know the thing can't fly.

Feb 1

Discovered two grey-back tern eggs, one attended, and one possible sooty egg on end of old dock. All other eggs still present (except for frigate losses & additions). A second noddy appears to be preparing to lay on the east shore between the frigates and brown boobies.

Amerman  
1964

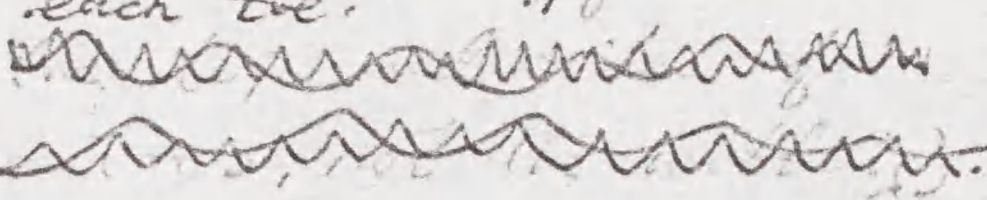
Sand- Johnston

Feb 1

Banded 400 Sooties 8:30 - 11:30.

The birds are sitting down on the road and to the west of the transmitter building again. They had not done this since Jan 24. Many more are roosting now, all over the island, and tonight they extended 1/2-way down the road from the trans. building. Also, they are now sitting down as soon as it gets dark rather than waiting for the moon, which is an advantage for us.

3-4

Dave found one Sooty with <sup>each tree</sup> feathers growing out of ~~the trees~~ 

Feb 2 Banded 500 Sooties 8:30 - 11:30 pm.

First definite Sooty egg turned up in Dave's collection bag. From coloration, one on dock and one found on north slope are also Sooty.

Tropic bird on egg is either well again or a different bird. It has no tail feathers but is white, not suffused with the delicate pink, and seems to have a different voice.





Amerman  
1964

Fand Johnston

Feb 3

Banded 600 Sooties 8:30 - 12:30.  
None begin to sit down on road and  
right in front of transmitter until  
after 9, perhaps 9<sup>30</sup>. Dave said  
one which he banded laid an egg  
nearby after being released.

Two Christmas Island Shearwaters  
turned up on the slope. One had  
a band, apparently Ashmole's (544-10503).

Also banded 6 Common Noddies and  
4 Hawaiian (3 ad., 1 imm.)

Grey-back Tern on range light  
definitely gone. Two frigates may have  
chased it off and destroyed the egg.  
A third grey-back was present on the  
end of the old dock, with an egg. The  
single Sooty egg was still (or again)  
unattended.

No Grey-backs were seen on the  
point while banding. About 50 were  
out on the dock at 1 am.

Feb 4

Sudden change in Grey-back behavior.  
Those on the dock last night remained  
at least through 11<sup>AM</sup>, some perhaps  
all day, calling a good deal of the

Rimmerman  
1964

Sand-Island

time. No new eggs yet, however.

Tropic birds also seem to be getting ready to breed. Two were found in the bunker on the east shore at 2<sup>PM</sup> and banded and tagged; one remained inside after handling. Also, the crew reported one under the last fuel tank on the left in the same spot where one nested last year.

A third brown booby seems about to lay. A second common noddy on the small island also may be preparing. A red-footed booby appears to be constructing a nest on some of the rubble leading out to the guy wire on the SE shore, about 2 feet off the ground and right at the water's edge.

Five 10'x10' plots were laid out in anticipation of sooty tern nesting. Two of them may need to be moved. They perhaps should be set up only after the birds begin nesting but this would present difficulties in mapping them. The plots are as follows: #1 in open area in shearwater - Hawaiian

Amerman  
1964

Sand- Johnston

noddy nesting area; #2 in open area  
and Tribulus east of transmitter  
building; #3 in open ground and  
Tribulus on the SE shore; #4 - Tribulus,  
behind transmitter building; #5 -  
open ground, Tribulus + Sesuvium?  
on slope.

While laying out the study plots  
three unattended sooty eggs were found.

600 Sooties banded 8:30 - 12:00.

one Christmas Island Shearwater  
on hill near Brown Boobies during  
banding.

Feb 5

We made arrangements with the Special  
Services people (through Sgt. Thomas) to  
be taken out in a small boat off  
the shore of Johnston in hopes of  
picking the gull up in the water. A Mr.  
Hunt of the Navy picked us up here  
at 5:30 PM and after some searching  
we found the gull far out in the  
vicinity of a platform off the SE corner  
of Johnston. We could not get near  
the bird as it was sitting in the  
reef area and it was low tide.  
Also many sharks (4-6') in the area -

Amerman  
1964

Sand. Johnston

could not identify.

Banded 500 Sooties 8:30 - 1:30;  
also ~~10~~ 10 Common Noddies.  
400 birds seem to be my limit. I  
was having buttl troubles on that  
last hundred.

Dave reported he caught one bird  
on an egg. He also saw 8 fairy  
terns fly over during the day.

Feb 6

Four Brown Boobies with eggs now,  
all on slope (2 new today).

~75 Grey-backs on dock, rafts and  
gun island 8-9 AM.

Banded 600 Sooties in the evening.

Feb 7

Weekly survey of Johnston produced  
the following:

Red-tailed Tropicbird	- 8
Fairy Tern	5
Golden Plover	80-100
Ruddy Turnstone	50 ± 10
Wandering Tattler	7
Sanderling	1
Western Gull	1
Franklin's Gull	1

American  
1964

Sand-Justinon

Feb 7

The Western Gull was still on the water off the SE corner.

The new accidental was on the beach just south of the weather bureau. Both of us got very good looks at the bird. It, like the Western Gull first seen two weeks ago, appeared to have just arrived. We could approach to within 50 feet and then when it flew it would do so reluctantly, moving only a few yards ahead.

It was very small, with proportionally long legs. Legs & bill black. Medium gray above except for white above bill and on sides of head. Clear <sup>bill</sup> white below. White rump, 1" black band on edge of tail, wing tips slightly darker than rest of wings & back, thin white trailing edge to wings.

We tried to get permission to attempt to shoot the bird after supper. Mr. Kalibe of NIF 8.6 says such permission must await the requested official notification of scope and procedures from

American  
1964

Sand Johnston

S.E.

We went back in the evening with lights and net hoping to get at least one of the gulls but could find no trace of either.

Feb 8

Light to heavy showers much of day, with strong gusts.

A second egg appeared in Brown Booby nest 2 (egg #3). The 3 gray-back eggs are still on the dock and the fourth, which is reddish brown rather than white, may also belong to a gray-back - at least, one was sitting right beside it. 75+ birds on dock 11 A.M.

A group of ~25 Common Noddies was present on the gun spit at the same time - first time I have seen noddies present in daytime ~~area~~ except for 2 on eggs and 1 or two others.

Dave said he saw a ♀ frigate feeding an imm.

Banded 500 Sooties 8:30-12

Location 5 mi. N. of Johnston Atoll, Pacific O.  
 Observer \_\_\_\_\_ Date 8 Feb 1964 Time \_\_\_\_\_ to \_\_\_\_\_  
 Weather \_\_\_\_\_

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000 +	Nests	Eggs	Young	
Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater								
Christmas I. Shearwater	✓							2
Audubon's Shearwater								
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	✓				1	1		
White-tailed Tropicbird								
Masked Booby	?							
Brown Booby		✓						~50
Red-footed Booby				✓				1000 - 2300 fluctuation
Great Frigatebird			✓					~200
Golden Plover		✓						~50; fluctuates
Ruddy Turnstone		✓						40±10; fluctuates
Wandering Tattler	3							
Sanderling								
Bristle-thighed Curlew								
Sooty Tern				✓				50,000
Gray-backed Tern			✓					120-
Brown-winged Tern								
Common Noddy			✓					200 - 400
Hawaiian Noddy	✓							
Blue-gray Noddy								
Fairy Tern								occ. visitors
<i>Immature</i>								
RTTB	8							
WTTB	1							occ.
GP		✓						50
RT		✓						60
WT	✓							7
S	✓							1
Slender Bill								1; 2 <sup>nd</sup> winter plumage
Franklin's								1 - imm.
FT	5							



Sand. Johnston

Feb 9 Took a day off to recuperate.

Feb 10 Sooties present around island in numbers for first time in daytime. About 200+ were wheeling around the gun island during the morning (9-10 AM). About 50 landed on the island several times for various periods. They also passed over the antenna field several times. Before this, all the birds left the island by 7-7:30 AM. Many would be seen quite far off all around the island all during the day, in flocks of 20-50 and scattered individuals and groups of 2-6. They have been returning about 3<sup>pm</sup>, hovering offshore, gathering into large flocks. About 6 pm they begin to move in closer and some begin to cross the causeway from both sides; most remain fairly far out until just before dark.

The number of noddies present on the gun island also suddenly jumped to 150+ (at 9<sup>AM</sup>). They sit in two groups, one on the bank

Amerman  
1964

Sand - Johnston

Feb 10 rocks by the frigates and boobies,  
the second and larger on the sandy  
slope facing ~~Vanderm~~ the dock.

110+ grey-back terns present at  
same time. This also represents sudden  
large increase (previous high 75-80).

Banded 600 Sooties 8:30-12; also  
14 Noddies.

Discovered new tropic-bird nest  
in depression near 4' pipe, near  
slope. One egg, brighter red than that  
in first nest. The incubating bird  
had ants all over it; possesses  
1 1/2 deck retrives (for how long...?).

At least four ~~pm~~ Christmas Island  
Shearwaters on slope by plywood sheet.  
At least two banded (514 - 78009, 10).

Two more brown boobies appear  
to be starting nests on slope. Red-  
footed booby on rubble by guy-wire  
also seems to be still trying,  
bringing vegetation to the precarious  
site to replace that washed or  
blown away.

Feb 11

Banded new tropic bird on egg (nest #2),  
plus first tropic bird from first nest,

Amerman  
1964

Sand - Johnston

Feb 11 which had replaced with its mate on the egg yesterday.

Two Christmas Island Shearwaters on the slope near the plywood, 3 pm. Both were banded but flew off before we could catch them.

250 Common Noddies on gun island, ~15 Grey-back Terns on 4 around dock. 3 pm.

Picked up 5 injured Sooties from which we took ectoparasites and measurements.

Second egg in nest #3 of Brown Boobies.

Banded 600 Sooties, 17 Common Noddies, 1 Ruddy Turnstone, <sup>1 Grey-back Tern</sup> 8:30 - 1.

Found 3 new Grey-back eggs among rocks near shore of gun island.

At least 5 Christmas Islands now on island; one unbanded, four banded; new recovery tonight: 514-78006

Feb 12

Brimon arrived on Johnston in the morning, came over to Sand on the 11<sup>30</sup> M-boat. He will stay here after all.

Made egg checks after lunch.

Found one more Grey-back egg near the others on the gun island. All four are at the edge of the sand and rocks and their coloration allows them to blend extremely well.

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1964

Sand- Johnston

Feb 12 The U.S.S. Energy arrived at J.I. at 1 P.M. to pick up fuel, halfway through the grid. We went on board and chatted with the sooney watchers (Gould, King, Ludwig, Hoeman, Whitman) for most of the afternoon. Perhaps next month arrangements can be made for them to get off long enough to come over here.

Banded 600 Sooties, 15 Common Noddies, 8 Grey-backs, 15 Red-foots, 3 Masked, 2 Christmas Island & ~~30~~ - 1.  
7

Feb 13

Second tropic-bird nest seems to have been deserted; egg unattended 6 P.M. yesterday and yet today.

Six Grey-back eggs on gun island now. Several noddies there bowing and carrying stones - ~~over~~

Banded 400 Sooties; 27 C. Noddies, 1 Red-footed Booby (S-U), 10 Grey-backs & ~~30~~ - 12.

Both gulls still on J.I., Franklin's still ~~very~~ tame, Western (3) flying again but weakly.

Other populations on J.I. -

RTTB - 8, in air

NTTB - 1 "

W. Newman  
1964

Sound - Johnston

Feb 13 Fairy Tern - 8  
Plover - 80+  
Turnstone - 60+  
Sanderling - 5  
Wandering Tattler - 7

Feb 14

Collected gear for removal to J.I. for storage and for temporary lab in home locker.

No banding for classified seasons.

Sooties arriving later and later in afternoon, begin coming in over island soon after their arrival; much threading back & forth across causeway. Roadway is last place occupied by incoming birds. ~~Small~~ Peak arrival in daylight now after 4<sup>30</sup>.

Feb 15

Noddies sitting along SE shore in daytime for first time. Binion said some Gray-backs and Sooties had alighted together on the causeway near the A-antenna.

Brown Boobies, Christmas Islands and Noddies all counting.

New RT Tropic bird nest discovered under old dock. Another bird alighted in a hollow in some grass clumps

Rosenman  
1964

Sand Johnston

Feb 15 below (5) the frigate colony. We did not disturb it but it left later and did not return.

Five Tropic birds on eggs discovered on Johnston; with 8 hovering at the same time, at least 13 there; probably 3 more nests somewhere. No tagged birds on J.I.

Banded 900 Gulls 9<sup>00</sup> - 1<sup>00</sup>. Two new Christmas Islands found on NW slope near pipes; one recovery, one unbanded.

Feb 16 Took the day off and journeyed out on the raft in the afternoon. Half way to the reef the motor quit for good. We were ignominiously towed in by the picket boat. Saw very few fish to boot, though some nice red snappers were speared.

A young male frigate (white head and breast but with inflated pouch) was making passes at every female around. Sitting on one of the stanchions, he would spread his wings, shake his head from side to side, and whistle at any frigate which passed overhead. This would begin when the approaching bird was 50 yards away and at heights of 200'. Many landed, evidently



Amman  
1954

Fjord, Alaska

Feb 16 intrigued by this behavior.

Feb 17

Possessed by some demon, I arose at 6 and went up to the bird end. Estimated 15,000 Sooties roosting, & 5000 in air. The number roosting could possibly be <sup>100 low</sup> ~~1000~~ by 5-10,000.

By 7<sup>00</sup> all but ~100 nearest the transmitter had left the road. A heavy shower from 6<sup>55</sup>-7<sup>10</sup> may have put up many birds. The last 50 left the road 7<sup>06</sup>; those on the NW side of the building left about the same time. These were the earliest departures. In the large area on the SE side of the building a large group left from along side it 7<sup>14</sup>. Another group went up 7<sup>16</sup> from the rear of the forward mass. Gradual departures from the edges to the center of the flock continued.

These birds did not fly out immediately but went N or NW over the island, then circled back and reentered this. Many of them landed again. 6000 birds were still on the NE slope only 9<sup>00</sup>, and many in the air over them. The somewhat changed Brown Boobies were nipping at many of the more careless ones. This is the first instance of



American  
1964

Sand-Island

Feb 17 Day number remaining on the island itself. Perhaps this area, among the Sooties, will represent the first nesting locality. Naturally there are no study plots there!

By mid-afternoon this group had been replaced by <sup>another</sup> or had moved to the N point, 200-300 on the ground and an equal or greater number in the air, wheeling about right on the end of the peninsula.

No birds were seen in dense clouds offshore before coming in at night. Single birds and small groups (3-6) came straight in and stayed in the air over the island from 6 PM on. <sup>(sitting after dark)</sup> Activity around the island was noticeably lower all day than it has been since I arrived.

600 Sooties banded 9-11<sup>30</sup>.

22 Gray back eggs on islet, 8 on dock.

Feb 18 Also a few Noddy eggs & at least one Sooty.

The preparations for the arrival of 17 people from S.I. and other agencies this morning turned into a fiasco when Binion suddenly noted the ETA on yesterday's message - 18 Mar 64.

The large group of Sooties was

American  
1964

Sand-Justinon

Feb 18 still on the ground & in the air on the point. Binion found at least 25 eggs there. A very small number of Noddies is mixed in with the birds on the ground. Courtship feeding was observed in pairs of Noddies, one bird would grab the tip of another's bill & shake it vigorously; the other would then open its mouth and the first would place its head inside. [Much better than giving Whitman chocolates].

Noddies seem to have spread out from the islet to the rocks along the SE shore and to the S edge of the N point. There they sit in 3 groups, one of which contained many tagged birds today. Perhaps they have been crowded off the islet by the Scotas, who seem to follow them wherever they congregate, first on the islet, then the SE shore, then the N point. Many <sup>Noddies</sup> now sit on the concrete abutments.

The same <sup>total</sup> number seems to be present in the daytime as were here before all on the islet. More come in at night and roost on wires and sit ~~all~~ along the SE & E shores and up in the grass on the E corner.

American  
1964

Sand. Johnston

Feb 18 600 Sooties, 2 C.I. Shearwaters  
banded 8<sup>30</sup> - 11<sup>30</sup>.

Feb 19

Banded 1 RITB under fuel tank. 19  
more banded on Johnston, 11 on eggs. All  
on J.I.  
were painted with fluorescent green to  
observe inter-island movement. All were  
found under bushes.

Both gulls still present on J.I.

600 Sooties, 2 Common Noddies, 1 C.I.  
Shearwater banded 8<sup>30</sup> - 12.

Feb 20

Binion reported a group of sooties  
sitting on the slope NE of the Brown Boobies,  
~ 9 AM. These disappeared or merged with  
the group on the point by afternoon.

At 2<sup>30</sup> p.m. the sooties on the point  
numbered about 2000+. Most of these  
were on the ground, only about 300 in  
the air, which represents a change from  
the more nearly equal distribution of  
the past few days.

Dave found 25+ sooty eggs on the  
islet, plus 3 C. Noddy, 18 Grey-back,  
15 Grey-back eggs on dock.

We decided to discontinue banding  
temporarily because of the difficulties

American  
1964

Sand - Johnston

Feb 20 in catching created by the  $1/2$  full moon directly overhead and also to see if they will perhaps begin nesting with the nightly disturbance stopped.

Feb 21

Made our weekly survey of Johnston. Both gulls still there in their same spots. Banded 5 more Red-tailed Tropicbirds and repainted most of the others with darker green. Total of 24 banded there now, plus at least 9 still not banded.

Others present -

White-tailed Tropic bird - 1 - Dave reports 2 were seen at times before. It seems quite possible that they may be nesting but we have been unable to discover the site if so.

Ruddy Turnstone - 6 - Marked decrease.

Golden Plover - 60 - 70

Wandering Tattler - 3

Sanderling - 6

Fairy Tern - 8 - 3 in air with 9-10 Red-tails.

Scottie's sitting down before dark on SE side of transmitter building.

Brewster  
1964

Sand Johnston

Feb 22

Sooties, Graybacks & Noddies seen from raft flying toward N point, from W - 9-10 AM - low numbers but a steady stream.

One new Tropic-bird under old pier with one banded Wednesday on Johnston.

5-6000 Sooties on N point all day.

32 Grayback eggs on islet and 19 on pier - 51. Also ~20 Sooty eggs on islet. Many of these seem to suffer early destruction.

Common Noddy egg laid Jan 18 hatched.

At least one more C.I. Shearwater on island unbanded.

Feb 23 Large numbers of Sooties (~5000) in air & on ground to SE of transmitter all day. Moved in overnight - Also large nos. along SE shore & among frigates & boobies. Many eggs. Population on point may be stabilized - noticeable decline in numbers there, a great many eggs.

Laid out a new Sooty study plot at the edge of the colony on the point. Hopefully they will continue moving inward. Ectoparasite

American  
1964

Sand- Johnston

Feb 24 study plots were staked out adjacent to the new plot and to plot #2.

Staked all 12 Brown Booby nests and the Red-foot nest with egg. Began banding and painting Brown Boobies. We are trying to number each bird with the fluorescent orange, giving pairs adjacent numbers and males even numbers. This number is painted on the breast; in order to distinguish marked birds while sitting we are also painting the neck.

Feb 28 Birion left at noon.

Mar 2 16<sup>th</sup> Progress Report. Goods from the S.I. arrived including cheesecloth, staples, headlamp, dowsels, tags and (light) orange streamers. Now have some 30,000 of the latter on hand according to S.I. sales.

Mar 3

Moved study plot 3 from SE shore to interior in same line as plot 2, on Tribulus. No eggs had been laid yet at the former location, apparently since it was on open ground. We have noticed that the sooties seem to favor

Location Sand & Johnston Islands, Pacific O.  
 Observer \_\_\_\_\_ Date Feb 28 Time \_\_\_\_\_ to \_\_\_\_\_  
 Weather \_\_\_\_\_

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000 +	Nests	Eggs	Young	
Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater								
Christmas I. Shearwater		15						Absent during day, arrive all Feb 27-28.
Audubon's Shearwater								
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	10				2	2		
White-tailed Tropicbird								
Masked Booby	5							Roosts after 4 P.M.; isolated after dark.
Brown Booby		50			16	26		
Red-footed Booby					✓	3	1	2300 ± 500
Great Frigatebird			✓					400
Golden Plover		40						
Ruddy Turnstone		20						
Wandering Tattler	1							
Sanderling								
Bristle-thighed Curlew								
Sooty Tern								20,000 during day, 50,000 each night
Gray-backed Tern			✓		✓	10		300
Brown-winged Tern								
Common Noddy			✓					700
Hawaiian Noddy		15						
Blue-gray Noddy								
Fairy Tern								
<u>Johnston</u>								
RTTB		35						
WTTB		15						possibly another on a nest
GP		100						
RT		15						
WT		55						possibly another on a nest
S		65						
P. Gull								
W. Gull								
RT		85						

areas where there is at least some  
 vegetation. This is true in the  
 ground between or by plants but  
 if they are dropped in a completely  
 open area at all these are very  
 few and they appear only after  
 the surrounding areas are  
 filled sparsely. Plot #1 had only  
 5 eggs at the same time the  
 surrounding area had hundreds.  
 The same was true of plot #2.

Mar 4 - Moved plot 5 to a patch  
 of *Taraxacum officinale*, further out  
 at bottom of slope, for same  
 reason as above.

Mar 5 - Job done during

CP - 14000

RT - 20

WT - 3

Seed 6

FT - 3

Fertilizer 200

Water 200

RTS - All including 4 chicks

As expected with the results of  
 1/10/19 about the same it had  
 almost all due to a harsh  
 situation regarding the water  
 we was forced not to use it



Mar 5 (cont'd) The eastern plume was all  
in one group on the east shore north  
of the mountain base. There may have  
been an increase in the whole  
island population may have been  
concentrated in the one area at  
low tide. The 7 numbers (2 marked  
on ground), 10 others, and 2 unmarked  
were taken too, also the 7 numbers.

Mar 7 - We observed one golden-plume  
on the island apparently in complete  
spring plumage and 2-3 more with  
a good deal of black below around  
the shore of the main island. Many  
and by themselves have been seen  
lately with the reddish-brown color  
paler on the throat.

Mar 10 - Mar 9 I began collecting  
the birds for the afternoon return  
experiment to a cove cut by  
the Star but soon about 7:30 after  
finishing our egg counts and samplings.  
We collected 4 birds (2 ♂) of 2 colors  
from an area where nesting had  
began early. I saw from along the  
road when they had begun laying  
just today. I got new nesting birds  
from the ~~area~~ area adjacent  
to the road, and a pair of 4 numbers  
and 3 grey-backs on eggs from

R. E. Ammann  
1964

Sand Johnston

Mar 10 - The N peninsula. ~~With~~ All the  
breasts were painted various  
colors and the same color sprayed  
around the egg. Data as follows:

Sooty (old) - Red -	753-74301-08	Sunrise Mar 12
" - Green -	09-16	Noon "
" (new) - Blue -	17-24	Sunrise " 13
" (New) - Orange -	25-32	Noon "
" (old) - Black -	33-40	Sunset Mar 12
" - Blue -	41-48	Midnight "
Noddy + EB - Orange -	753-25645-48	Sunrise Mar 12
	642-01070-72	

Ah, rain, blessed rain! From  
9 A.M. through the night, accompanied  
by thunder & lightning. What fiendish  
Olympian mind declares this unending  
war of harassment on the Poot  
troops? Two-minute sporadic squalls  
at first for weeks and then deluge  
as we collect birds!

Mar 11 - U.S.S. Energy arrived at Johnston  
1000. Pat & crew arrived at  
Sand 1100 via M-boat. Dave &  
I gave them the 50 ft tour,  
including fish ball (a, much to  
the annoyance of the station crew),  
sharks (75 milking around off  
east shore, possibly breeding), and  
one sooty tern depositing an egg.

1964

East Johnston

Nov 11 - night in pt. a. v. a. v. a. We  
arranged the times of return  
of the various groups of birds  
(see Nov 10) and packed them  
off with the traps - about 1330.

Pat reported that a black-footed  
albatross had followed them in  
as far as the sea buoy. He also  
told us that one of the ships crew  
had shot a marked bird,  
possibly near, probably on Feb. 26.  
He mistook the orange stripe  
across the birds breast for  
banding plumage (he had seen  
out of point that night and  
pointed that particular bird).

\* Three new birds found after  
dark - 2 adults, 1 immature.  
Two in trap in below transmission  
building on above bunker.

Nov 12 - Three new birds present again  
but at least 2 were different  
than last night birds. Banded  
too, one light and one intermediate.

At least the members of the  
crew reported seeing what must  
have been a black-footed albatross  
on the island, and near beach.  
We could not find it but there

Location Honolulu, Oahu, Hawaii  
 Observer Quailley + [unclear] Date 03-15-64 Time \_\_\_\_\_ to \_\_\_\_\_  
 Weather \_\_\_\_\_

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000 +	Nests	Eggs	Young	
<u>SAND I.</u> Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater	✓							1 counted March 2.
Christmas I. Shearwater	✓							21 total; 52 per night, in evening
Audubon's Shearwater								22-23 total; 1-10 per night
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	4				2	2		+ up to 8 which fly in evening <sup>1000-1200</sup>
White-tailed Tropicbird	3							
Masked Booby	✓							varies 2-7
Brown Booby		80			35		3	
Red-footed Booby					✓ 6	3		2000 ± 200
Great Frigatebird			✓					400
Golden Plover								
Ruddy Turnstone								up to 20
Wandering Tattler	1							
Sanderling								
Bristle-thighed Curlew								
Sooty Tern								25-100,000 daily; 2 nightly; 2 total
Gray-backed Tern								350 ± 10%
Brown-winged Tern								
Common Noddy								800 ± 25%
Hawaiian Noddy		15			6	4		
Blue-gray Noddy								
<u>J2</u> Fairy Tern	8					✓		at least one egg
Red-tailed Tropicbird					15	11	4	
Golden Plover			✓					100 ± 15%
Ruddy Turnstone	✓							30-20
Wandering Tattler	?							
Sanderling	?							
Western Gull	1							
Franklin's Gull	1							

K. E. Amerman  
1964

Sand Johnston

Mar 12 - affectionately unprintable  
descriptions suggest that species.  
Perhaps we will turn it up tomorrow  
on Johnston. If it is a blackfoot  
it may well be the one which followed  
Pat's ship in.

A golden plover was found tonight  
unable to fly but for no apparent  
reason. Dave found another in the  
same condition last night. Perhaps  
they are weakened by starvation and  
molt, or poisoned from insecticide?

Mar 13 - Three red rookies noted at 1100 -  
#s 4, 5 & 7. They were not present at  
2300 yesterday. A fourth was present  
at 1800, could not catch it. A possible  
5<sup>th</sup> may have been here 2300. These  
birds all released yesterday at sunrise;  
no sign of noddies & gray-backs released  
with them.

Mar 14 - One more red sooty, no. 2, and two  
greens, nos. 12 & 14 observed at 1000. One  
Common Noddy also had returned by that  
time. A third green (15) found at 1530.

Mar 15 - Nos. 8 (red) and 16 (green) present 0800.

Mar 16 - Nos. 6 (red) and 39 (black) " 0800.

~~Mar 16~~ Another Common Noddy had returned by  
7 P.M.

Mar 17 - Nos. 1 (red) and 42 (blue) present at  
0800. The first Gray-back had returned

Ken Ammann  
1964

Sand Johnston

Mar 17 - by 7 P.M. The first non-nesting Sooty  
~~Red-tailed~~ was first noticed at 11 P.M.  
above RFB nest #4. I could not catch  
it; it was back in the same spot an hour  
later. The second noddly was present again 7 P.M.

Mar 18 - Nos. 1 (red) and 208 (blue, new) were  
seen for the first time 0830. Nos. 10 + 13  
(green) were picked up for the first time  
also but one or both has been here  
for 2-3 days. The non-nesting Sooty  
and the Gray-back reported yesterday  
were at the same places 7 P.M. today.

Dr. Ely, Dr. Humphrey, Capt. Sudduth,  
John Bushman and the medical advisory  
group arrived on schedule this  
afternoon for a tour.

5 green, 2 blue (old), 1 red, 1 black  
present at midnight.

Mar 19 - Nos. 39 + 37 (black), 11 (green), 41<sup>?</sup>  
(blue-old) present in the morning.  
Probably the same birds that were  
seen last night. Four other greens  
& no. 42 (blue) also present.

Mar 21 - On a fishing trip outside the reef  
Dane and I saw 4-5 Red-tailed  
Tropic birds sitting on the water a  
short distance beyond the reef,  
9<sup>30</sup> - 10<sup>30</sup> AM. We also saw  
several wedgetails feeding, amongst

H. S. Freeman  
1964

Sand-Island

- Mar 21 - Sooties. One or two graybacks were seen and an occasional Common Noddy. All the activity occurred during the morning, when we were on the NW side of the reef. Very few, if any, birds were seen in the afternoon on the other side, time or location or both?
- Mar 22 - Birnie returned from the leeward trip and arrived here about 1100. Cameron Loessberg (YN 2, U.S.N.) arrived shortly after this. He will escort 300 Sooty Terns back.
- Mar 23 - Collected 16 Sooties for release at sea from the U.S.C.G. Planetree tomorrow. Nos. 1-8 numbered in red, will be released 0800. Nos. 9-16 in blue will be let loose at 1800. All from eggs by left of transmitter. Collected 300 Sooties for Loessberg from in front of the dock and on the road to the dump. Perhaps  $\frac{1}{3}$  of these were not on eggs, though they may have had mates which were.
- Mar 24 - No sign of released Sooties. Birnie and I observed some interesting things in the Sooties during the afternoon. Several birds left their eggs for short periods (less than a minute to 2-3 minutes).

K. E. Anderson  
1964

Sandwich Island

Mar 24 apparently to get water. We watched many dipping their bills in the lagoon all around the island. It was a very hot, still day. Many of the birds were noted with bills open - equivalent of gular flutter? We also observed changeovers in several pairs. In most this was accomplished with ease; the sitting bird merely moved aside when the new one nudged it beneath with its bill, generally from the side. In some cases the former incubating partner remained nearby and in some instances departed immediately. In one case, one bird gave up the egg and then returned and took it over again in less than 3 min. One pair seemed to be having difficulties. The incubating bird was very reluctant to leave and its partner repeatedly tried to get at the egg, rooting under the other bird and under its wing trying to push the other off. Perhaps changeover had already occurred.

I wonder if the very liquid materials given up by some of the birds (from bill and anus) indicate that that bird has been incubating for some time, without solid food.



K.E. Nunnemann  
1964

Sand- Johnston

Mar 24 Perhaps the water lost from the mouth might be from a bird which has just come from getting a drink.

Noted several frigates sitting on the 1<sup>st</sup> set of inner guy wires right above the transmitter, beside the antenna. We have never seen them sitting there before. Many had their wings open in the "sunbathing" posture. Many more than usual were on the other wires too - also true of Red-foots. Probably due to heat.

Observed several Sooties picking up stones and dropping them in the vicinity of the nest while incubating.

Mar 25 Another very hot, calm day. The frigates were again sitting on the low guy wire right by the antenna, in greater numbers today, 100-200 wheeling above the islands on the south side all day. Few sitting in the colony - only about 60 in the morning.

Binion suggests that the Sooties may move to shade the egg rather than to face into the wind, at least when the wind is below a certain level. Today, with no wind, they did seem to be doing this.

Very high tides again are wreaking

K. E. Amerman  
1964

Sand Johnston

Mar 25 Destruction on eggs. We did not get out to the islet today but probably the Noddies and Gray backs have suffered severe losses. All but 2 of the 6B eggs on the west side of the peninsula have been lost and today the Common Noddies there were hit hard for the first time with 18 destroyed.

We have decided to discontinue checking frigate eggs daily to see if this reduces egg losses. We have about 50 eggs now remaining, of which 64 is the lowest number. The longer they remain the greater the likelihood of their being lost. Perhaps without our interference some would have chicks by now.

The first Sooty <sup>(#3)</sup> returned from the Planetree between 1230 - 1345 - about 30 hours after release.

Mar 26 - Second Sooty (#5) back by 1412, arrived after 1100. #3 still present.

Mar 27 - No. 5 ~~present~~ 0830 arrived between 1900 yesterday and 0830 today. Neither 3 nor 5 present 0830, 5 present at 1100. No. 1 present 2300.

Rain began last night about 7, stopped by morning and then started again. Intermittent showers all day.

K. E. Amerman  
1964

Sand Johnston

Mon 28 - Sprinkles and clouds still around.  
What a beautiful relief from the  
constant heat of sunshine, heat +  
glare.

Binion + I went to Johnston in  
the afternoon, conducted a partial survey:

RTTB - 19 Ad., 8 chicks (3 new), 4 eggs  
(3 new - 5 side of runway).

BP - 20-30 seen

RT - none seen

WT - 2

FT - none seen

Franklin's Gull still present. It has  
moved east of the weather bureau  
onto a spit near the area where  
ledging continues, very scared.

Mon 29 - While making egg counts, Binion  
discovered a Bulwer's Petrel in  
a hole in the rocks on the east  
shore of the peninsula. This is  
the first record for Sand Island  
as far as we know. We banded  
the bird rather than taking it  
as a specimen. Perhaps more will  
show up.

Mon 30 - For the past several days no birds  
have been roosting on the rocks  
by the whip antenna. A few (3-6)  
frigates a/o red-foots have been  
perched on the pilings and 1-3

K.E. Ammann  
1964

Sand. Johnston

Mar 30. Blue-faced Boobies sit on the highest  
rock. Perhaps the very high tides  
have discouraged birds from sitting  
there or perhaps there has been a  
change in the population.

First of second release group (#14)  
returned 6 days after being turned loose.  
The seventh red (#2) showed up at  
the same time (2240).

Mar 31 - Two more of the second group of Sooties  
returned - #9 around 1300, #12 at 1800.

Binion found the Bulwer's we had  
banded back in the same place and  
a second bird nearby, 2230 - 2300.

April 1 - A third Bulwer's Petrel was found  
along the causeway, banded and  
released.

April 2 - Johnston survey -

BP - 150 (est.)

RT - 30-40 "

WT - 2 - 6

FT - 2 seen

RTTB - 28 ad, 7-8 chicks.

Franklin's Gull - has moved east,  
to new fledging area; very  
nervous, cannot get close  
enough for shot.

No sign of Western Gull.

K. Ammann  
1964

Sand - Johnston

April 7 - Franklin's gull collected at last!  
We discovered it sitting on the  
north peninsula in the evening.  
Binon scared with the station  
gun. The bird possibly may  
have been attracted to Sand  
by the numerous dead fish  
which have washed up from  
the dynamiting operations - it  
had never appeared here before.

April 4 - Binon and I got out to  
North (PMR) Island via the  
CG raft to investigate a  
report of "about a thousand"  
birds on eggs. We found  
about 85 grayback eggs and  
120 birds. A few Sooties were  
flying around and we found  
one possible Sooty egg (broken).  
There may have been many  
more eggs, since the report  
was received about a week  
before we could get over there,  
and they have been busy  
pushing that all week. We  
collected about 50 eggs from  
an area where they were certain  
to be destroyed.

April 5 - I got off at the island again  
while skin diving and could find

K. Howman  
1964

Sand-Parakeet

April 5 - only 14 eggs remaining, and

April 13 - about 25-30 birds.

April 14 - <sup>Heard on 13th</sup> The AF Captain from the satellite

camera reported that a few fairy terns were possibly nesting inside the H+N warehouse adjacent to the exchange. We checked on this and found that one egg had indeed been laid on one of the high rafters.

It had been removed by one of the men and placed in a "nest" outside; we collected it, as it was bad.

The man we talked to said that nesting activity began about two months ago in this area. The Captain stated that the terns spend the night and early morning in bushes behind the tennis courts, then move to bushes above the hospital in the afternoon and down next to the H+N warehouse in late afternoon.

April 16 - We have noted Common Noddies stealing food from Sooties several times recently. They fly back & forth over an area of the colony, low, and grab food being fed to a chick, sometimes grabbing the Sooty's bill, sometimes even lifting the bird up just as

H.E. Gammom  
1964

Sand - Johnston

frigates do.

We also have seen frigates harassing wedgetails as they come in at night, which is surprising since the size of the food is so different.

April 26 - While checking plots we found an albino sooty chick near plot # 3. We removed it and will try to rear it to an age that a skin can suitably be made of it.

Found a fifth Bulwer's Petrel in a deep hole on the right side of the causeway (leading east), just east of the signal building. It was making a curious drumming sound, made more resonant by the chamber, probably.

April 27 - Departed Johnston Island 10 PM via MATS N-28; arrived Hickam AFB, Honolulu, 1 AM. Dr. Ely met me there with permits for the 1000 live ticks

K.E. Amerman  
1964

Mopuna Island

May 1 - Field party consisted of L. Huber, V. Hoeman, Bob Long and K. Amerman. After a late start we set out in the 6 man (he!) rubber raft about 1700. We arrived on the bigger of the pair of islands about 1745. One - two hundred wedgetails were noted in the air around both islands on the way out. A few boobies, probably redfoots, and numerous Sooty Terns were also noted.

Upon our arrival Long proceeded to collect soil and plant samples, Huber climbed to the top to observe until dark and Hoeman and I began banding wedgetails. We worked until 1230, mainly by flashlight since only one headlamp was working. Banded a total of 740 wedgetails, using the last of our bands, and 60 Bulwer's Petrels. Huber did these, said they were found only in two small areas. Probably this represents the near total of birds on the island last night; possibly 50 pairs using the island.

The consensus on the wedgetail population was  $7500 \pm 2500$  birds. I



K. Amerman

1964

Mokulua Island

11

believe there may be 7000 pairs using the island.

The Shearwaters were very vocal all the while we were there. The main body apparently arrived after dark, as there were very few on the ground prior to this. Most of the burrows were in the soft reddish soil on the center of the landward side. Most of these were in short grass, though many were in a mixture of higher grass and lantana and some were in sand near the shore on the side between the two islands. Most of the burrows were quite short, only about 1-1 1/2' deep so that a single bird just fit in. Some were wide enough to accommodate both members of the pair, though many had very small openings.

We did not visit the other island of the pair. Coming back in the raft we noted Shearwaters flying about us more than 2/3 of the way back to shore.

H. C. Ammann  
1964

Manana Is., Oahu

May 2 L. Huber, R. Long and H. C. Ammann  
set out in the rubber raft 1645.

We encountered greater difficulty  
than we had in going to Motulua  
the day before, due to cross currents  
and 3' swells. Finally arrived  
in the churning surf 1800.

Long began collecting plants and  
soil samples in a transect across  
the crater while I made observations  
and population estimates and Huber  
began banding Sooties. All of us  
banded from 7<sup>30</sup> to 12, then Huber  
and I on through till 6 A.M. We  
departed 7 A.M.

The Sooties occupied a broad  
belt across the vegetation on the  
landward side. They extended from  
the soil- or rock- band junction  
about halfway up the slopes, in  
some cases further up than this on  
ridges. They did not occur above  
or to any extent among the tobacco  
plants. Many were also distributed  
around the crater rim, some on  
bare rock and some in grass clumps.

Noddies were found in two main  
areas - on the inside of the crater  
wall above the line of solid vegetation  
and at the base of the wall. They

K. E. Amerman  
1964

Mananae

were concentrated in the central portion of the wall, where it became highest. A few were also found in valleys between ridges on the landward (south) and SE slopes.

Wedgetail Shearwater burrows were distributed over the entire landward face up to about halfway. They became more dense in the areas occupied by tobacco plants and on the west and NW slopes, where the Sooties were absent. Very densely distributed in the crater also.

Population estimates:

Sooty Tern - 50,000 pairs (R.C. 50)

Wedgetail - 4,000 (landward slopes) R.C. 50  
20,000 (crater) (guess)

Common Noddy - 4,000 (R.C. 50)

Bulwer's Petrel - 2 banded, no others seen.

Approximately 30% of the Sooty Tern eggs had hatched. All but a very small percentage of these were less than one week old; <sup>one specimen</sup> the remainder were 10 days - 2 weeks old (scapulars  $\frac{1}{4}$ " x  $\frac{3}{4}$ " - 1" in area). The oldest chicks were located on the SW slopes.

Harry examined several Noddy eggs and found no visible embryos, indicating that they have all been laid.

K.E. Newman  
1964

Manana

500-1000

quite recently. There were perhaps ~~two~~  
eggs on the inside of the crater walls.  
We did not check the colony at the  
base of the walls on the inside, so we  
do not know if they were breeding at  
all or just roosting.

No wedgetail eggs were found. Courtship  
activities and copulation were observed.

At Sea - General Notes

May - Scattered birds outside grid. Long periods of few or no birds, then numerous flocks, inside. (13)

June - Marked contrast. Flocks down inside grid, low nos. of Sooty Terns & Wedgetails. Almost no boobies. Move into Pterodromas on last 1/2 - 1/3 of legs - many (32) more than in May. Many Bulwers.

July - Flocks, Sooties and Wedgetails still low in grid though latter more numerous than in May. Very few Bulwers. Boobies still low. Tropic birds increasing. (31)

New birds:

May - Skua, Newells, Sooty Shear

June - Blue Gray Noddy

July - Kermadec Petrel

May - Normal grid; 15 days

June - N to La Perouse (F.F.S.), down chain

July - Attempted same as June, turned before F.F.S.

July 31<sup>st</sup> • Arrived on Hawaii last night 20:30  
 via Hawaiian Airlines. Paul Woodward,  
 Cameron Kephau & I left The Hale  
 Kona Motel about 7 A.M. and drove  
 west & then north on 50 to Hanalei,  
 Waimea and Kekaha, past acres  
 of sugar cane, and then ~~west~~ continued  
 up to the Kohala region along the  
 west side of Waimea Canyon. After  
 taking in Katalau Lookout (4000'),  
 which offers a spectacular view  
 of the Katalau Valley in the coastal  
 Na Pali Cliffs as it momentarily  
 emerges from the fog-like clouds  
 and then melts away again,  
 we drove as far as possible on  
 the Mokiki road and then began  
 hiking over the ridges. No rain  
 after noon.

Birds seen:

trying to reach  
 the Akaka Swamp

Kapaemahu - 80-100<sup>+</sup> many stages  
 of molt - irregular

Creeper - 16-20 - metallic calls,  
 aptly named

Iiwi - 4-6

Amakihi - 2 - bright yellow

Akaka - 1

Elepaio - 15

White eye - 200-250

House Finch - 12<sup>+</sup> on road

Myna - 20 - Lodge area

Kaunoi

July 31, 1964

along stream, about 1/2 of trail

- Ricebird - 6 road edges
- Chinese Thrush - 3
- Hawaiian Duck - 1
- Black-cr. Night Heron - 1 (not seen till)
- California Quail - 8 feeding on mangos on road
- Spotted Dove - 24
- White-tail Tropicbird - 55+
- Waxwing Canyon - Katalan Valley
- Short-eared Owl - 2 - dusk by cane fields along 50
- Barned Dove
- House Sparrow
- Cardinal - edge area
- Jungle Fowl (C) - calling

Aug 1, 1964

Got a later start today, then went straight to Katalan lookout and drove to the road as far as possible on the Katalan-Haena road. Went into very wet area, nearly constant light rain. Vegetation quite wild, very different from yesterday's area. Just as we decided to turn back for lack of time an Amakihi passed right in front of us, so the day wasn't wasted.

While sight seeing later in day Paul identified a Barn Owl

H. Amerson  
1964

Aug 1 on the road to Poipu Beach. I  
saw it only as a light colored  
owl, different from what I saw.

Planned departure at 6:30  
pm failed by Weather Bureau  
clock at airport on Greenwich  
time - 4:30 was really 5:30,  
as we discovered at Poipu at  
6:40.



Amerman, Kenneth

1964

FIELD NOTES

August 16--Pearl and Hermes Reef

Ship arrived off Southeast Island about 1500. Raft and most of gear launched about 1730, arrived on Southeast 1800 and set up camp on the east corner. Two groups of three surveyed the island before dark.

After dark 1000 Sooty Terns landed. Five hundred each adult and immatures. Turtles (Green ?) on north shore - about a dozen. Similar number of seals. Some tagged, noted all around shore.

Retired

August 17--Up before 0800 for radio check and breakfast. Pete and I then went after boobies and frigates and getting nest counts and banding whatever possible. Paul and Alan covered the albatrosses. Thirty-nine young Laysan banded. Al Young - plants. Dick - seal skeleton.

Boat came in around 1000.

In afternoon Alan, Dick, and I banded 100 immature Sooty Terns each while Paul and Pete made unsuccessful attempt to get some Graybacks and Hawaiian Noddies. Relaxed for a while in late afternoon.

After dark 900 Wedgetails and 700 Sooty Terns banded. Wedgetails quite spooky, especially in chicks. Also worked on Boobies, Hawaiian Noddies and Graybacks.

August 18--Boat arrived 0830. Doug came in, spent day on Southeast.

We took some bands, nets, and food and set out for two small sand islands west ? of Southeast.



Amerman, Kenneth  
1964

3

Took raft across reef to meet ship off Seal. Very shallow, small waves, only one of which broke over us. Hauled gear and raft aboard and (1500) returned to Southeast. Landed again on Southeast about 1815, this time through small boat channel (shallow) from rear.

Counted dead albatross young before dark 600 - 800 and picked up recoveries. After dark banded 1000 Sooty adults, 600 Wedgetails, finishing Sooties just before dawn.

August 19--Broke camp in about one hour between 0700-0800. Boat arrived 0830. Gear stowed; underway to North Island 10 miles across lagoon; choppy and windy, soaked constantly.

Arrived at South - North Island about 1100.

Masked Booby - one with downy young

Seals

Arrived North Island 1130. Set up camp at base of long penninsula. Walked around island and then slept for a couple of hours. Woke up Cold. Paul was out banding Tropicbirds, Laysans. I surveyed island, estimating Wedgetails and Common Noddies. No Sooties present! 250-350 Frigates in air. Ten turtles were on the shore in front of the camp when I went out.

Returned to camp and ate, then slept until about 1. Went out banding Wedgetails (400) and then went after Masked Boobies. Latter were concentrated down on the penninsula. Obtained several returns.

Amerman, Kenneth  
1964

4

August 20 - Pearl and Hermes Reef - Lisianski

Returned to camp and slept for two hours. In the morning we covered the entire island thoroughly, finding 100 Common Noddy locals with difficulty. Pete banded 48 Frigate nestlings.

Broke camp and returned to ship before noon. Lagoon completely calm.

One orange-tagged Common Noddy seen and collected by Paul.

August 21--Arrived off Lisianski about 0800. Landed on the island ca 0930. Set up camp near a small grove of Casuarinas on the shore.

We split into two trios again and walked around the island. Seals very numerous - close to 150 in all.

We cut back across the center of the island. Very hit, flies quite bothersome. Wedgetail burrows all over. Found two Bonin Petrels in the tall grass.

Found the tents full of flies on our return. Went for a swim to get some relief.

Dick and I and Pete and Alan banded 400 adult Sooty Terns in the afternoon. Paul went after Tropicbirds and Boobies.

August 22--Got up at 1030. Banded Sooty Terns until dawn - 2500 total.

Paul did 100 Bonins. Slept for a couple of hours, made radio check at 0800, waited for boat to come in. Dick and I went out about 0930 to band 500 Sooty chicks a pied. Proved to be the hardest job we could have picked. They ran faster and better through the grass than adults. Finished the 1000, with Paul's help and the flies hindrance, about 1230.

Amerman, Kenneth  
1964

5

Spent the afternoon walking around, taking pictures, trying to get relief from the flies that continued to plague us. Puttered around until dark, then went after Sooties again. Finished the final 2000 bands by about 0030. Paul did 300 Wedgetails during this period. Paul and I went out again after Bonin Islands. Came back and slept for a couple of hours. Awoke with a start to find boat in (0530). Broke camp in record one half hour, back to ship for final run. Under way 0200.

Amerman, Kenneth  
1964

6

September 16 - Laysan Island

We arrived off Laysan in the USNS "Shearwater" about 7 a.m. and dropped anchor about 0.4 mile off the west shore, in line with the "best landing" site. About 500 Sooty Terns, 1/4 - 1/5 immatures, were flying about the ship, and an estimated 1000 more were visible above the west side of the island. A few Red-tailed Tropicbirds and Fairy Terns flew around briefly. A small number of Red-footed Boobies and Blue-faced Boobies flew past on their way to sea. A few hundred Frigates could be seen over the island and several immatures played king of the roost on the radar mast and boom. Common Noddies, including many immatures were also around the ship - over 100 Sooty Shearwaters were seen before leaving.

~~All~~ the gear was loaded and the raft launched at 9 a.m. We landed at first opposite the former camping areas (Casuarinas) but then decided to set up camp on the northwest corner, where there is only open sand, hoping to avoid the flies. Red-footes in Casuarinas, Laysan Finches and Fairy Terns in Scaevola. Very open grassy area behind Casuarinas contained a few (8) Christmas Islands, Wedgetails and Sooty Terns. Latter not dense at all.

Rested a while after setting up camp, then Dick, Alan Young, and I walked around the lagoon for survey while Paul, Doug, and Alan walked the outer beach. A total of \_\_\_\_\_ Common Noddies were scattered around the whole shore. Estimate 1000+ shorebirds in lagoon, primarily on west side, with Ruddy Turnstones, Golden Plover and Wandering Tattler in ratio of 100: 5: 1. Two Bristle-thighs were seen on the west side and three on the east, though the latter may have included the former.

Amerman, Kenneth  
1964

7

Maximum of 500-600 Frigates in air 2-3 times, plus many smaller groups up to 100+. The small groups probably were successive as we went around. No estimate of total. Only      Masked Boobies present. Small (on concentration (10 - 12) on east shore. Red-foots generally far into vegetation, nearer outside edge; more numerous on east side. One immature Red-tailed Tropicbird under Scaevola on east side. One Hawaiian Noddy egg, one chick about 4 feet apart in Scaevola. A total of 80+ Laysan Teal, all on east shore. Probably many more in morning glory. Apparently the lack of them on the west side is due to the greater width of unvegetated shore.

Returned to camp about 3 p.m. Shortly after this the guys from the raft came by and Bob Banner came struggling up with a surfboard of all things which he'd found in his jaunt around. Other team still not back so I went walking north along the shore. Found Fairy Terns nesting on rocks along the shore; 17 birds, 4 chicks, no eggs. Many Wedgetail burrows under same rocks.

Before going on survey Alan and I had gone in to the lagoon, finding about 40 teal. Walked back along beach. Small groups of Sooty Terns (100 or so) along edge of vegetation. One Fairy Tern egg under grass clump. Small groups of Wedgetails, up to 20 and many individuals and plus setting on beach. Dick reports two orange tagged Sooties and one Wedgetail.

Returned to camp about 6 p.m. The other team finally returned shortly thereafter. They report about five rocky areas containing Fairy Terns, large Christmas Island chicks and three Bulwer's chicks. No counts on other birds; too far from vegetated areas. Over 200 seals

Amerman, Kenneth  
1964

8

(Bob Banner, preceeding them, counted over 200, estimated another 100.

Everyone but Paul slept until midnight. He woke us up after banding boobies. Alan and Paul continued after boobies, Dick, Alan and Bob went after Wedgetails and Doug and I walked the shoreline for Fairy Terns and shorebirds. We went north at first to the rocks, then back toward the ship. The shorebirds appear to move out from the lagoon at night, as there are few on the shore during the day. We banded Ruddy Turnstones, Wandering Tattlers, Bristle-thighed Curlews, Christmas Islands, and Fairy Terns, and two Bulwer's.

Raft in about 8:30 a.m. Dick and I went after Sooty Terns about 9 while Doug tried the mist nest by the lagoon and Paul and Alan went after more boobies. Finished the 500 Sooties in about four hours. Very few non-flying young. Possibly 1/10 the population from beginning of colony to corner banded. This is perhaps 1/4 of island population. Disturbances every once in a while - birds going for drinks or going to feed? Very few birds barfing fresh squid, only after 11 a.m.

Came back to camp 1 p.m., went for swim. Tried sleeping in afternoon, got rained on. Alan and Bob hauled back two loads of fish balls. Camp now resebles antique shop. Slept again from 9 to 2:30, they went after Wedgetails as Paul and Alan returned from getting boobies. Dick and company went after 500 Sooty Terns. Wedgetails in morning glory along alagoon very scarce. Difficult to catch anywhere with moon. Finished 230 by 6 a.m., in same area where we banded Sooties. Found three Bonins, one in morning glory near palms, two in grass (one in burrow, 5 foot long).

Wrote up notes at breakfast. Dick had caught a Golden Plover during the night so we had a session of taking photos. Doug and Alan



Amerman, Kenneth  
1964

9

and Alan and I began walking west around the island surveying, collecting insects and cloaking for ticks and taking photos, about 10 a.m. Insects on the ground relatively scarce - we collected some sow bugs, beetles resembling weevils, tiny ants or termites, some spiders. Flies everywhere in vegetation, though not as bad anywhere as on Lisanski last month. No ticks could be found anywhere. Alan and Doug and Then Alan Young turned back to camp and I continued around the island. Found several (5) Tropicbird chicks under one large clump of Scaevola by the Casuarina that Paul had missed and several more groups and individuals all the way around. Usually 3 - 6 adults in air in an area. One at the southwest end was trying to fly. Groups of Fairy Terns were present on the rocks all the way around. Estimate 300+ for island. They looked minute against the rock wall with the surf crashing behind.

Frigates through Scaevola all the way around; many rusty-headed immatures on the southwest corner. Still no estimate. Saw about 150 Red-footes again but must be many more. Masked Boobies in clear areas at other end - 3, 9, 5, and occasional individuals and pairs in grass, plus one group of 5, 2 of which were painted, one open beach. Frigates seen to give way to Red-footes as you move from west to east.

Magnificent waves crashing on a rugged fringing rock wall at the opposite end of the island! Grey rocks, looks almost like a gorge coming up on it. Seals bobbing around in the waves. Brown rocks and shelves against the beautiful green water in the east side also very picturesque. Reef close to island all the way around. Beautiful green and red parrotfish.

Saw fifteen or so Curlews in the rocky area at the end; estimate at least 100 for island now. One strange shorebird, half size of curlew

Amerman, Kenneth  
1964

10

but with long thin green-grey legs, 2 inch black bill, nondescript gray resembles yellow-legs in this area also, among turnstones and plovers.

Sooty Terns much more numerous than I had thought. Stopped for a while in the area in which we had been banding. Fivehundred adults banded here, very few banded birds seen. Cannot tell if they extend the grass or are concentrated along the periphery. May be as many as 200,000 here, perhaps 500,000 in breeding height.

Caught up to Dick and returned to camp (3 p.m.). Swam briefly, then went to sleep after 5 until midnight. Went out after Wedgetails and Bonins. Paul and Alan had found a concentration of the latter in grass between tower and Casuarina. I could find only about 5, they must go underground or under vegetation as night wears on. Did 140 Wedgetails quickly and came back for more about 3 a.m. Alan, Bob, Aland I finished another 200 by 4:45, came back to camp and slept for two hours.

Fairy Tern egg on tower, popped yesterday, hatched sometime after 11 today (September 18). Dick reports one Common Noddy with orange tag. Five returns of Fairy Terns.

September 19--Upon awaking, found that the USCG ship "Basswood" was anchored off the island. Waited around camp preparing to go out around the lagoon until 9:30 or 10:00, by which time Bob Fleet appeared with Eugene Kreidler and Ron Walker on their way around the beach censusing seals. Talked briefly with them, then went up to where Doug and Alan were having a very difficult time catching adult Sooty Terns. Headed in toward lagoon, met Bob Long collecting Ipomea specimens in hopes of getting 3 varieties.

Amerman, Kenneth  
1964

11

Walked along west shore of lagoon counting shorebirds. Counted 1394 Ruddy Turnstones but this may have included many counted twice; however, probably compensated for by others on outer beach - estimate 1600. Also present - 358 Golden Plover, 132 Wandering Tattler, 8 Sanderling, 3 Bristle-thighed Curlew, one large shorebird, brown-grey, faint eye stripe, long straight bicolored bill (tip black, basal 1/3 orange), long black legs, barred grey and white tail, rump grey, slightly lighter than body. *Limosa* sp. ? (*lapponica* ?). Did not appear to be the same bird I saw yesterday at the south end in the rocks.

Cut up through the center of the vegetation on the west side to check on Sooty Tern distribution. They are not evenly distributed through the Eragrostis, occurring mainly in a continuous band through the more open grass but not to any great extent in the entirely open spaces. This strip appears lighter than the denser, taller grass when viewed from the ridge. Now estimate 60 - 75,000 Sooties, perhaps 1/3 to 2/5 of which are immatures; very few non-flying young.

Also found a flock of 750+ Golden Plover in one large open area which apparently was the terminus of the guano digger's railroad according to Ron Walker - tracks still present. Paul estimated the same Golden Plover flock at about 1000.

Stopped at the Fish and Wildlife camp and met John Beardsley of University of Hawaii, entomologist. He had just finished walking around the lagoon, sweep-netting. He reports that 180 insect species have been recorded on Laysan.

Returned to our camp briefly and then went back to the Fish and Wildlife camp with Paul and Alan Young. After a refreshing swim six of

Amerman, Kenneth  
1964

12

us set out to census the Laysan Teal, walking through the vegetation about 50 feet apart around the lagoon. We started south on the west side, finding very few. They became more numerous as we passed the palms at the southeast corner. The vegetation also became rougher, with much Scaevola, Solanum and Syperus extending into the Ipomea. About  $2/3$  of the way around we counted nearly 170 teal on the shore; it was then about 6 p.m. and it appeared that the ducks were coming out of the vegetation to feed. This seemed to be the major portion of the population so we gave up counting and relaxed in appreciation of the sight of the birds moving along the shore and in the water in the fading light, bunching up ahead of us.

Returned to camp quite tired, slept until 10:30 p.m. Doug and Alan had had to give up after doing 200 Sooties; Doug had returned to the ship in the afternoon, with fish balls, surfboard and driftwood log. Camp now looks pseudoscientific and neat again. Paul and Alan had returned from banding 200+ Bonin Island Petrels and 100 Sooty Terns. Bob Banner returned shortly from doing 200 more Sooties. I went out with 500 Sooty bands and the remainder of the Christmas Island string (29). Banded 200 Sooties, then worked off the 4's. Most of the Christmas Islands were immatures, many with traces of down about the head, and nearly all were sitting on sand just at the annex edge of the outer rim of Scaevola. Found a very few pairs, ran out of Scaevola by the rocks past the Casuarina, finished the bands on the beach. One trio among the rocks, two adults and one half downy young. A few Bulwer present there also.

Amerman, Kenneth  
1964

13

In the course of finding the Christmas Islands, ran across a small group of Brown Boobies for the first time - 13 adults, 2 immatures and 3 1/2 grown chicks on nests. Previously I had seen only one adult, one subadult, one immature, all in the air in early morning. Dick had found eight roosting on rocks on the east side. Do not know if they were from the nesting group.

Banded 200 more Sooties on the way back to camp. Everyone up, breaking camp by this time. Raft came in at 6:30 a.m., we were on the ship by seven. Raft returned to pick up Fish and Wildlife personnel since the "Basswood" had had to answer a distress call from a fishing sampan grounded on Maro Reef. Underway 8:30 a.m.

#### Laysan - Summary

Laysan is low coral and sand island 1.6 by .8 miles, long axis north to south, with a large central lagoon of salt water. The major portion of the vegetation consists of Scaevola, Eragrostis and Ipomea. There are five major associations: Nama, with Boerhaavia, Portulaca and small Scaevola, along the outer beaches; Scaevola, with Ipomea, indica Boerhaavia and Tribulus, in a rim along the ridge; open Eragrostis, with Nicotiana tabacum, Fibrystillus cymosa, Tribulus and Boerhaavia, on the upper slopes below the Scaevola; Eragrostis - Ipomea, on the lower slopes, denser; and Ipomea - Cyperus - Heliotropum nearest the lagoon

The band of vegetation is about twice as wide on the west side as on the east. The Scaevola on the east side is along the shore for the most part reduced to a few clumps and is nearly absent from the north end. The Eragrostis strip on the east is similarly much narrower.

Amerman, Kenneth  
1964

14

Some Scaevola patches extend into the Ipomea almost to the lower edge of the vegetation on the east side. Two groves of palms, one at the northwest corner and the other at the southeast corner of the lagoon and one large Casuarina constitute the only land marks. Scaevola forms a secondary line behind the rim on the west side, diminishing toward the south. On the south end the Scaevola is very dense and occupies a broad area.

A few Red-footed Boobies and one small colony of Browns are found in the outer rim of Scaevola on the west side. Tropicbirds nest in small concentrations (5-6) under higher, larger clumps on the west and south sides, and in larger groups (20+) under very large clumps on the east side. Most of the Frigates are scattered through the western Scaevola rim. Red-footed Boobies increase. Frigates decrease in Scaevola on the south and east. Masked Boobies found in grass (scattered individuals and pairs from Scaevola to Ipomea) and some concentrations in open areas in grass, around lagoon and on east beach. Wedgetails very numerous in grass, less so in Ipomea, fewest (breeding) on open beaches but large clubs scattered over beaches on north, east and south. Christmas Islands - resting under outer Scaevola rim on west, immatures just at inner edge; some in Ipomea on west side, some under rocks on west side, some under rocks on west and north beaches.

Bonin Island Petrel most common in dense Eragrostis (no Sooty Terns), many at and under edge of outer Scaevola, few in Open grass among

Amerman, Kenneth  
1964

15

sooties, many pairs.

Bulwer's Petrel - scarce, under rocks along shore, mostly immatures.

Sooty Tern - periphery and open grass up to Scaevola.

Noddy Tern - Roosting mainly in Scaevola, small flocks on beach and around lagoon (west) during day.

Hawaiian Noddy - Casuarina and Scaevola around it.

Fairy Tern - Scaevola along west side, rocky areas on beaches including rock wall at south end, few solitary nests - one in Scaevola southeast, one on rock in opening in grass, on west. One on tower, northwest.

Laysan Finch - dense grass primarily, though many around Casuarina, in Scaevola, in Ipomea around lagoon and even open beach.

Amerman, Kenneth  
1964

16

Sooty Tern - Banding

753-91401 - 600	January 16, 1964	200		
601 - 700	17	100		
701 - 900	19	200		
901 - 92100	21	200		
92101 - 200	22	100		
201 - 300	23	100		
301 - 500	24	200		
501 - 700	29	200		
701 - 800	30	200		
901 - 93300	February 1, 1964	400		
93301 - 800	2	500		
801 - 94400	3	600		
94401 - 95000	4	600		
95001 - 95800	5	800		
95801 - 96400	6	600		
96401 - 96900	8	500		
96901 - 97500	10	600		
97501 - 98100	11	600		
98101 - 98700	12	600		
98701 - 99100	13	400		
99101 - 100000	15	900		
753-70001 - 70600	17	600		
70601 - 71200	18	600		
71201 - 71800	19	600		
Eggs				
NPT. 71801 - 72400	March 6, 1964	600		
" 72401 - 72700	7	300	Plots 1 and 2	
" 72701 - 73300	8	600	Plot 1 - dock rd.	
753-73301 - 73800	9	500	Plots 1 and 2	E
73801 - 74300	10	500	" "	"
74301 - 48	10	48	Xmitter No. 2	
(to be released at sea March 12 and 13)				
74349 - 400	12	52	Xmitter - dump	E
74401 - 500	12	100	"	"
74501 - 600	14	100	Plot 1 - dock rd.	"
793-50001 - 50200(G)	12	200	Rd to dump	
753-74601 - 900	17	300	Left of Xmitter	"
74901 - 75500	20	600	" "	"
75501 - 75600	23	100	" "	"

(1 - 8 numbered with red, 9-16 with blue, for release from USCG Planetree 3/24)



Amerman, Kenneth  
1964

17

Sooty Tern

Early December - flocks of -- 100 offshore every night.

Late December - 5 to 10,000 around island at night.

December 29 - 300 to 400 roosting for first time (first large number).

January 15 - Forty to fifty thousand came in at night; two to four thousand roosting. Begin arriving 3 to 4 p.m., remaining offshore in dense clouds on both sides of the island until shortly before dark, when they begin to move in. Do not land until after dark. The birds get up off the ground about 2 a.m. Birds gone by 6 a.m. - do not know when they left.

January 24 - 31 -- No sooties roosting on road. Birds would not land in large numbers until moon was down.

February 1 -- Birds roosting on road again and landing at dark (8 to 8:10).

January 28 - February 18 -- A few scattered eggs in roosting areas, deserted immediately; probably due to our disturbance.

February 10 -- First time numbers present in immediate vicinity of the island during the day. About 200 wheeling around islet and ~50 alighting on it several times, during the morning. Those flying would occasionally drift over the main island and then return to the islet.

February 14 - Birds arriving noticeably later in afternoon, moving into immediate vicinity of island much quicker rather than hanging far offshore. Main body of birds arrives after 4:30. First eggs, on islet.

Amerman, Kenneth  
1964

18

Sooty Tern cont.

February 17 - 20,000 immature; 5000 roosting. ~600 remained on main island, for first time, during morning, on slope among Brown Boobies. Moved to outermost part of the north point by mid-afternoon, half on ground and half in air. One hundred to two hundred birds still around islet all day.

Birds no longer congregating in thick clouds offshore before coming in to roost; instead, constant trickle of small numbers from 4 to 5 p.m. on, come right in over island.

February 18 - Beginning of nesting. ~25 eggs being incubated in large group on north point.

February 20 - Another group of birds remained on slope after main body of birds departed. Apparently moved into flock on north point later in day.

2000+ present on point during day, 3/4 or better on ground.

25+ eggs on islet.

February 21 - Birds alighting in roosting areas on south side of the transmitter building before dark for first time.

February 22 - 5 - 6000 birds on point all day. Only 3 - 400 of these in air.

February 23 - 8 - 1000 birds on point. No birds roosting on road 11:30 p.m., 6 a.m. nesting morning, nor on left of transmitter building.

February 24 - Sooties everywhere! About 3000 remained on the south (right) side of the transmitter building all day, on the ground, with another 2000 in the air milling around. A few hundred also were sitting along the southeast shore, among the frigates and boobies and

Amerman, Kenneth  
1964

19

all along the slope. None on the road or left of transmitter yet. Those in the areas above the transmitter had thinned out by afternoon. Scattered eggs throughout the newly occupied throughout the newly occupied (by day) area, mostly in vegetated rather than open areas.

The number of birds on the point decreased by ~50 %/o, especially in the air. These may have become part of the group in the new area or may have gone to sea.

Birds sitting down on road and left of transmitter before dark.

February 25 - ~60 birds on islet during morning. Five eggs in Plot No. 1.

February 26 - Two eggs in Plot No. 1. Population on north point has stabilized, no longer moving inward. Many eggs there as well as around plots 1, 2 and 3 and all along above Brown Boobies.

February 27 - Population in area of Plot 1 stabilizing - very few birds in air there compared to other areas. Large concentration in air between transmitter, frigates and boobies.

February 28 - 18,000± 3,000 sitting during day. 1/4 - 1/3 ? of these eggs. 50,000 present at night. Many eggs on slope north of Brown Boobies. One new egg in plot 1; original five broken.

February 29 - Population in area of Plot No. 2. 19 eggs - B 1 plot 4 stabilizing. Many eggs between frigates and shore.

March 1 - Birds moving into area between plots 1 and 2 and road to dump. More coming into area on south shore also.

30,000± 5000 sitting by 6:30 p.m. Peal arrival 6:30 - 7:30 - five to six hundred per five minutes - 6 - 7200 1 hour (x 2 ?)

Twenty-nine eggs in plot 4. Birds sitting in plot 6. Very few birds come in to north point at night. Three new eggs plot 1.

Sooty Terns Cont.

March 2 - Three eggs in plot 1. Thirty in plot 4. Number still increasing by day in area along road to dump. Very few more birds seem to come in to the north point at night.

March 3 - Plot 1	3 and 8	=	11
2	<u>6</u>		6
3	<u>8</u>		8
4	30	<u>5</u>	35

Area B - 19

Birds have moved across road to dump, now occupying area between it and shore. Very few eggs, so far.

Pushing across slope from both sides; eggs up to nests 24 and 8.

March 5 - Birds spreading downward and outward on slope leading to penninsula. Those on penninsula may be moving inward some more. Patch of Sesuvium between plots 5 and 6 occupied during the morning, no eggs. Birds solid across slope with Brown Boobies.

First eggs in plots 5 and 6. The other plots are remaining fairly constant. No losses, 1 - 2 additions. One egg each in 5 and 6 by 1100; 7 and 2, respectively, by 7 p.m. Birds still occupying entire slope.

March 6 - Banded 600 on north penninsula on eggs. Many new eggs in all plots. Birds solid on road to dump.

March 7 - Many eggs right in road to dump, also many across it. Birds sitting and beginning to lay on open area where dump was situated. Very rapid and sudden movement into this area.

Many birds also sitting on Tribulus on North side of transmitter building. Few eggs so far. 300 banded in area of plots 1 and 2.

Amerman, Kenneth  
1964

21

March 8 - 600 banded on eggs between plot 1 and road to dock.

March 9 - Birds solid in former dump areas and to left of transmitter.

Only open areas remaining - right of transmitter, both sides of road to transmitter, innermost half of north peninsula. Egg numbers in plots seem to be steady around 50 except in No. 6.

March 10 - Eggs in two new areas - left of transmitter building to edge of road and adjacent to road between plots 1 and 2. Birds sitting to right of transmitter and a few on the road near the building.

March 11 - Birds on eggs all the way back to the dock.

March 12 - Yesterday the birds were 20 feet away from the antenna enclosure and had eggs to the edge of this line. Today they had filled in another 10 feet but no eggs had appeared yet.

March 14 - Birds and eggs right to antenna enclosure. They are advancing slightly down the north side of the causeway also.

March 18 - Egg laying seems to have definitely slowed. A few more are laid each day, especially around the transmitter building (some on the road today), but no major influxes have occurred since the birds filled in this area. A few more eggs turn up each day in the study plots; this is probably representative of the situation on most of the island now. The birds moved inward on the north peninsula only about 15 feet more, and slowly; plots No. 6, which was on the edge of the group when it appeared to have stopped and had no eggs. Now has 21. The birds may be moving outward onto the peninsula slowly now.

Amerman, Kenneth  
1964

22

March 19 - Fifty to sixty chicks on the north peninsula; on the north side of the group, when the first eggs were laid February 18. Six chicks on islet 6 p.m., ten more eggs.

March 24.- Birds have spread across north peninsula from inland. Still filling in slowly behind the others on both sides of the road. Many eggs hatching around plot No. 1.

Common Noddy - Banding

753-25501 - 504	January 14, 1964	
506 - 521	"	
523 - 525	"	
526 - 528	19	
533 - 536	"	
541 - 546	February 3	
47 - 54	4	
55 - 69	5	
70 - 83	10	
584 - 600	11	
25601 - 15	12	
16 - 42	13	
43 - 44	19	
45 - 48	March 10	Eggs; release at sea 0700 3-12
49 - 77	12	
25678 - 25700	13	
25701 - 14	"	
15 - 28	14	
29 - 43	16	
44 - 72	17	
73	29	
74 - 800	31	
25801 - 06		
07 - 12	April 8	Islet East
13 - 16	9	" , no eggs
17 - 21	"	" eggs
22 - 42	13	(22 - 25 Is.) 34 - 5A
43 - 50	20	
51 - 60	21	

Amerman, Kenneth  
1964

23

Returns

753-24708 J	February	3, 1964	
30289 J		4	
196 J		"	
147		12	
723-61999		13	
753-30142 J	March	12	
24829 J		13	
30342 J		"	
30348 J		"	
30324		14	
30156 J		16	
30232 J		"	
30127 J	April	8	islet; nesting
160 J		"	" "
198 J		9	" "

Common Noddy - Banding

753-25861 - 80 April 23, 1964 nesting

Common Noddy - Notes

January 18 - First egg, on islet.

February 1 - Population ~400, only at night.

February 8 - First time numbers present during day - ~25 on islet during morning.

February 10 - Population during day suddenly rose to 150+ on islet, in two groups. One group on rocks, other on slope around nesting bird.

February 11 - 250+ atoll on islet 3 p.m.

February 13 - Courtship behavior on islet.

February 15 - 50+ on southeast shore during day for first time.

February 17 - Four to five eggs on islet.

February 18 - Small number on north point among Sooties. Also three groups of 15 - 20 each along west shore of point and groups on concrete guy wire bases. Individuals on pilings off southeast shore. Population has declined on islet, seems to have spread out to these other locations. More present at night in grass around SE edge. Courtship feeding on N point.

Common Noddy - Notes cont.

February 20 - ~100 on islet 2:30 p.m. and ~200 on southeast shore and into center of island (a few) and ~100 on north point (all around perimeter, wires, abutments. Total 400 - 500.

February 22 - Seven eggs on islet

February 23 - 15 eggs on islet

February 24 - 20 eggs on islet

February 25 - ~250 birds on islet during morning.

February 27 - New egg, on Southeast shore. Possibly 1 to 2 others on north point.

February 28 - Estimate population 400 during day. 700 at night.

February 29 - 26 eggs on islet and one on southeast shore.

March 2 - New egg, on north shore.

March 3 - Area B - 34 eggs ;  
Southeast shore - 3  
North point - 6  
North shore 1  
Total 44

March 4 - Two more eggs on southeast shore, four more on north peninsula.

March 5 - Twenty-one new eggs on islet, total 53.

March 6 - Five new eggs on south shore, nine new on north peninsula.

March 9 - Eggs being laid in a new area as of today, on the east side of the north peninsula. Laying continues on the west side and on the south shore, with a few inland a bit, surrounded by sooties, and on the islet.

March 11 - Eggs being laid on slope leading to peninsula now.

Over 200 eggs total.



April 1 - Three new chicks on islet. A few eggs pipped along south shore.

April 7 - First chick on penninsula.

Gray-back Tern - Banding

753-25522	January 14, 1964	
29	19	
642-01050	February 11	
52 - 59	12	
60 - 69	13	
70 - 72	March 10	Eggs, north point; release at sea 0700 12 March
73	12	
74 - 76	13	
78 - 88	"	
89 - 90	14	
92 - 100	"	
642-01106 Adult - Unidentified	April 8, 1964	Islet
07 L	13	"
08 L	13	"
11 L	21	"

Gray-back Tern - Notes

January 2 - First two of the year seen.

January 18 - 35 - 40 roosting on north point at night.

January 28 - One egg on range light.

January 31 - 40+ present, roosting nightly on north point.

February 1 - Two (Possibly three) eggs on lagoon end of old dock.

Only one attended.

February 3 - Egg on rangelight gone. One new egg on dock (total three or four). Birds changed roosting site from north point to dock - about fifty at 1 a.m.

February 4 - Birds remained on dock through morning.

February 6 - Population up to ~75. Birds continue to remain through morning, leave about 12. Some have moved to the islet.

February 10 - Population 110+ today. About 15 still present 3 p.m.

Amerman, Kenneth  
1964

26

February 11 - Three new eggs, on islet.

February 12 - Fourth egg on islet. Total 8.

February 13 - Six eggs now on islet. Total 12

February 17 - 22 " " " " , eight on dock.

February 20 - 18? " " " " , fifteen on dock.

February 22 - 32 " " " " , nineteen " "

February 25 - ~30 birds on dock, 50+ on islet during morning.

February 27 - Thirty-three eggs on islet, twenty-four on dock. Many old ones missing however, perhaps due to high winds. Three eggs on north pt.

February 28 - Estimate population 300, half on dock and half on islet.

February 29 - Sixty eggs on islet, twenty-nine on dock, nine on N pt.

March 3 - First chick, from egg laid on dock Feb. 1 - thirty-one days incubation.

Eggs	Area B - 12	and 55
	Dock	28
	E point	2 (new)
	N point	21 (new nest)
		<u>118</u>

March 4 - Second chick on dock. One egg on the soil near the edge of the rocks on the north shore, by the red-foot nest. Two more on the north penninsula.

March 5 - Seventy-seven eggs on south side of islet for first time. Two eggs on east point gone, probably broken by waves. Eggs continue to be laid at three areas on the islet, and on the north shore and north penninsula dn dock. Over 150 eggs now present.

March 12 - Seventeen eggs lost, most of them in the forward area on the west shore of the islet, probably due to high wind and tid in storm of March 10.

March 14 - Sixty-nine of 155 eggs lost due to very high tides. Most

Amerman, Kenneth  
1964

27

of these were lost on the islet; all twenty-seven of those in the forward area lost, plus all of those below the frigates and half of the number on the west side. One chick on islet. Ten of twenty-five eggs on north penninsula also lost since March 9.

March \_\_\_\_ --Third chick on dock.

March 18 - Fourt and fifth chicks on dock.

March 19 - Second chick on islet, plus thirty eggs.

March 24 - Eggs continue to be lost on penninsula due to high tides.

Only seven now left on western shore. Still increasing slowly on north shore and dock.

March 26 - Only nine eggs remain on islet, two on north penninsula, due to high tides probably resulting from full moon.

#### Hawaiian Noddy - Banding

753-25505	January 14, 1964	
530 - 32	19	
537	February 3	Immature
538 - 40	"	
642-91077	March 13	
91	14	
642-01103, 04	April 1	
12, 13	" 21	E

#### Red-tailed Tropicbird - Banding

565-12025, 26	- Adult - U bunker	February 4, 1964	
27	" " nest No. 1	February 6, 1964	
28	" " " " 2	" 11	
29	" " " " 1	" "	
30	" " dock - nest No. 3	February 16, 1964	
31	" " fuel tank		19
32-50	" " Johnston		"
51-55	" " "		21
56	" " dock		22
57	" " Area A		23
58	" " Nest No. 3		25
59	" " Scaevola - D.C.		26
60-66	" " Johnston		27
67	" " Scaevola - D.C.	March	4

Amerman, Kenneth  
1964

28

565-12068	- Adult	- U	Scaevola - D. C.	March	4, 1964
69	"	"	Johnston		5
70	"	"	"		"
71	"	"	"		"
72	"	"	"		"
73	"	"	"		"
74-76	"	"	"		13
77-79	"	"	"		19
80-84	"	"	"		28
85-90	"	"	"	April	3
91-95	"	"	"		10
96-97	"	"	"		17 E

#### Red-tailed Tropicbird - Notes

January 19 - One nest with two eggs behind transmitter building.

Bird pin,

January 29 - Incubating bird seems very sickly - crawling with ants, eyes clouded over.

February 2 - New bird incubating - white, different voice.

Maximum number seen on Johnston Island - seven. Two birds banded in bunker, one reported under fuel tank.

#### Returns

565-12013	February 16, 1964	- dock
20	23	Scaevola
01	23	Scaevola
17	March 6	Scaevola - D. C.
22	14	"
23	19	"
16	April 3	Johnston
15	14	Fuel tank, E
31	17	Johnston, E.

February 8 - Eight on Johnston Island, all in air at north end of runway.

February 10 - Second nest found behind northeast slope.

February 13 - " " deserted.

February 16 - Egg in nest No. 2 broken by bird leaving nest.

February 15 - New nest, under dock. Also 5 nests with eggs found on

Amerman, Kenneth  
1964

29

Johnston Island, under vegetation near FMR radar antennas. Eight more birds in air - probably three more nests somewhere. Population at least thirteen.

February 17 - Egg in nest under dock.

February 19 - One bird under fuel tank again. Banded nineteen on Johnston, Island, 11 on eggs, three pair.

February 21 - Banded five more on Johnston. Johnston Island population at least thirty-two.

February 25 - New nest with egg in bunker - bird banded there

February 4. Three birds at nest 3 - 565-12013, 30, 58.\* \*incubating.

February 27 - Banded seven on Johnston. Two new nests with eggs. One bird painted on Sand flying over Johnston Island.

Three nests with eggs on Sand. Six birds investigating Scaevola bushes in front of D.C. shop during afternoons.

February 29 - 565-12013 on nest 3. 565-12025 on nest 4 (bunker). Head painted. Changeover on nest 1. (?)

March 3 - Nest 1 unattended 2 p.m. Many Sooties on eggs in immediate vicinity.

March 4 - Two banded, one return, all by D.C. shop. Nest 1 still unattended. No. 26 on nest 4.

March 5 - One observed sitting in a hole in the face of the southeast shore, 11 a.m. Five banded on Johnston. Four chicks - two small, dark. One half again as large, dark, fourth same size as this but light.

Amerman, Kenneth  
1964

30

March 15 - No. 26 on nest.

March 13 - Johnston - fourteen in air, on ground. Four chicks still present. Their voices are exact miniatures of their parents.

March 18 - One new nest, total down to twelve now. Four chicks doing well, growing very rapidly. Sixteen to eighteen in air, sixteen on ground.

March 19 - One bird which was incubating two eggs last week had one remaining today, with a dead chick beside it.

March 28 - Johnston - Seven flying, twelve on ground, three old chicks, three new chicks, three new eggs; banded five birds. Collected one dead chick which had hatched since the 19th. Seven active nests on south side of runway. No adults with two of old chicks. These chicks now more than 1/3 grown (hatched between February 27 and March 5). Upper back feathers and wing feathers appearing.

March 20 - 22 - New nest, under Scaevola by powerhouse. \_\_\_\_\_ incubating.

March 30 - First chick on Sand - under dock - laid 2/17 : 42 nd day.

April 3 - Johnston - Fifteen on ground, three old chicks, two new eggs, four or five small chicks. Many eggs have been broken even though well sheltered. We hope our activities have not attracted attention to the nest sites resulting in disturbance.

April 8 - Chick under dock dead. No apparent cause.

April 9 - Egg in bunker hatched.

April 10 - Johnston Island - Ten adults on ground, only three chicks present (one old, one new), four eggs. We were told that someone took the other two chicks from the PMR area. Eggs are still being lost and apparently some of the habitat is being destroyed still.

Amerman, Kenneth  
1964

31

April 14 - Two new nests, one under fuel tank and one under Scaevola at the corner of the powerhouse. Two birds also investigating a small Messerschmidia by the small antenna at the barracks end of the causeway. One bird flew out from under the Amaranthus in which the Hawaiian Noddies are nesting when I disturbed it.

April 15 - 565-12017 on nest at corner of powerhouse, 565-12015 under fuel tank, 12022 on nest in front of D.C. shop - all painted blue on head and breast. The bird under the fuel tank left and did not return.

April 16 - Egg under tank broken by early morning, no sign of either bird.

April 17 - Johnston - Thirteen adults on the ground, including a new return from Sand (565-12031) on a new egg by the transmitting building. Three chicks, one nearly fully feathered, and four new eggs plus four old. Fourteen adults flying.

April 21 - New nest, in hole in bank on south shore. Unbanded bird incubating. Both parents had left the chick in the bunker for the first time.

Red-footed Booby - Banding

737-44130	I-U	January 30, 1964
31	S-U	February 12
35	I-U	"
36	I-U	"
37	I-U	"
38	A-U	"
39	I-U	"
40	"	"
41	S-U	"
42	S-U	"
43	S-U	"
44	S - U	"

Red-footed Booby - Banding cont.

737-44145	Immature - Unknown	February 12, 1964		
46	Adult - Unknown	"		
47	Subadult - Unknown	"		
48	Immature - "d	"		
49	Subadult - "	13		
50	Adult - Unknown	25		
51	Immature - "	"		
52	Immature - "	26		
53	- Adult - "	"	Nest 2	
54	- Adult - "	"	" "	
55-58	Immature - Unknown	"		
60	" "	29		
61	" "	March 5		
65	" "	April 1		
70-76	" "	13		
77	Adult - ♀ ?	16		egg 6

Returns

737-44101	Adult - Unknown	April 3, 1964	Nest 1
125	" "	12	" 2
115	" "	17	4
103	" "	14	5
107	" "	16	8

Red-footed Booby - Notes

January - February 15 - Population fluctuates 1800 - 2300 nightly, may get as high as 3000.

February 4 - One trying to build a nest 2 feet off ground on reinforcing rods projecting from broken concrete by near guy wire, southeast shore.

February 10 - Same bird continues to try and establish nest.

February 15 - A second bird sitting daily between Frigates and Brown Boobies.

February 19 - Nest seems established on rubber at water's edge. Another site under construction on piling off southeast shore. Occupied first by white adult, then subadult or brown phase.

February 23 - First egg, in nest on hill above Frigates. Scanty nest, actually just a flattened area.



February 25 - About twenty birds sitting in vicinity of nest one (on hill) by day - many immatures.

February 26 - New nest under construction on northwest shore on broken concrete and rods.

March 2 - Nest along east shore has been washed away.

March 3 - Mate to bird A (737-44150) on nest 1 - (737-44101) - red head (2).

March 15 - Third egg (nest No. 3)

March 17 - Three new eggs, including one in nest on north shore (4).

March 20 - Eggs three and four missing.

April 21 - Egg 2 pipped. Egg 1 hatched, apparently 7 to 10 days ago.

April 16 - EGG in nest No. 8.

#### Blue-faced Booby - Banding

737-44132	- Subadult - unknown	February 12,	1964		
33	adult - male	"			
34	adult - female	"			
59	" unknown		26		
62	subadult - unknown	march	14		
63	subadult - unknown		28		
64	adult - ♀		29		
66	subadult - unknown	April	8	islet	
67	adult - female		"	"	
68	adult - ♀		9	"	; no L leg
69	subadult - unknown		"	"	

#### Recoveries

737-57103	Adult - unknown	February 13,	1964		
44300	" ♀	April	8	islet	
558-82880	subadult - unknown	April 8,	1964	"	Whale, FFS
909	" "	"	"	"	" "

#### Blue-faced Booby

February 15 - Irregular. One to four birds on rocks by whip antenna on various days, only late afternoon - early evening. One to three on islet after dark on occasion.

March 11 - No change. One on island near red-foots occasionally.  
One on islet 1 p.m. Tonight.

March 29 - High tides seem to have forced the birds onto the islet.  
Seven present there March 28, five tonight.

April 8 - Population has increased eight to ten.

April 13 - Eleven or twelve present. They appear late afternoon -  
early evening on rocks by whip antenna and guy wire bases. Then many  
shift to islet after dark.

April 4 - Fifteen counted at 1930.

Brown Booby - Banding

737-440	Age and Sex	Number	Nest number	Date
40	Adult ♀	3	2	February 24, 1964
41	" ♂	6	12	"
42	" "	2	5	"
43	" "	12	9	"
44	" "	14	10	"
45	" "	11	1	25
46	" "		6	29
47	" "	18	8	"
48	" ♀	5	12	March 3
49	" ♂	4	2	"
50	" ♂		11	"
51	" ♀		21	"
52	" ♀		22	"
53	" ♀	11	9/39	"
54	" ♂		3/20	"/26
55	" ♀		9 ?	4
56	" ♂		26	12
57	" ♂		33	"
58	" ♂		30	"
59	" ♀		6	16
60	" ♀		11	"
61	" ♀		22	"
62	" ♀		24	"
63	" ♀		16	"
64	" ♂		23	"
65	" ♂		29	"
66	" ♂		34	"

Amerman, Kenneth  
1964

35

Recoveries

Number	Sex	Nest No.	Date
737-44008	Adult ♀	5	February 24, 1964
20	" ♂	4	" "
697-69607	" ♂	7	" "
737-44015	" ♀	8	26
23	" ♀	14	29
17	" ♀	14	March 4
28	J " ♂	19	12
38	J " ♂	32	" "
31	J " ♂	35	13
33	J Sa U		14
06	J A ♀	32	16
25	Adult ♀	19	" "
12	" ♂	17	26
35	" ♂	14	
30	" "	13	
29	" "	31	
04	" "	37	
697-69606	T Adult ♀	35	
737-44026	" "	37	

Brown Booby - Banding

Number	Sex	Nest	Date	Notes
737-44067	Adult ♀	27 (Is)	March 26, 1964	
68	" ♂	16	" "	
69	" ♂	18	" "	
70	" ♂	15	" "	
71	" ♀	31	" "	
72	" ♀	36	" "	
73	" ♀	33	" "	
74	" ♀	30	" "	
75	" ♀	34	" "	
76	" ♀	26	April 13	islet
77	" ♀	27	" "	"
78	" ♀	16	14	
79	" ♀	13	" "	
80	" ♀	-	" "	
81	" ♀	38	" "	new mate of 44053, of old 9
82	" ♀	21	" "	
83	" ♀	10	" "	
84	" ♀	1	" "	= 44045
85	" ♀	29	20	
86	" ♂	25	21	
87	" ♀	15	" "	
88	" ♀	18	" "	

Brown Booby - Notes

- January 8 - Beginning of courtship and nest building.
- January 23 - First egg.
- January 29 - Second egg in same nest.
- February 1 - Second nest, with egg. No. 2 February 8.
- February 5 - Third nest with egg. No. 2 February 11.
- February 6 - Fourth nest with egg.
- February 11 - Nest five with egg.
- February 12 - Nests 6 and 7 with eggs.
- February 24 - Five banded, three returns.
- February 25 - One banded, one returns. Fourteen nests.
- February 29 - Banded two, one return.
- March 1 - Nineteen nests, thirty-three eggs.
- March 3 - Twenty-three nests, thirty-eight eggs on island. One incubating a Sooty egg. One nest on islet, on slope, with a Noddy egg.
- March 4 - Different ♀ on nest 9; bill painted.
- March 5 - Two more nests on islet; all three have eggs.
- March 10 - First chick - egg No. 1.
- March 13 - Eggs 2 and 3 hatched.
- March 15 - Thirty-five nests, sixty-three eggs, three chicks.
- March 19 - Nest 9 abandoned since March 15. The eggs were out of the nest that day, down the hill. We put them back but to no avail.
- March 25 - Nest three abandoned after the death of the single chick.

Amerman, Kenneth  
1964

37

April 11 - Both eggs were found missing in nest 33 on April 9. The male has continued to stand by the nest site so egg No. 28 from nest 13 (popped) was placed in the nest.

April 12 - Bonin found the egg 2 feet down the slope from the nest. He replaced it again but the male carefully picked it up and moved it out of the nest. The egg was again replaced and again removed. The chick was then replaced in nest 13 (after being removed from its shell) and was accepted. Thinking that the fact that the egg was a pipped one might have disturbed the bird, another was tried but it also was rejected. The nest is gradually becoming scattered and the bird will probably soon leave.

The chick from nest 1 has been sitting about 2 feet up from the nest most of the time this week and now has a semblance of a nest on the new spot.

Female No. 11 was present at the new nest 38, begun on the 8th or 9th. This bird was formerly from nest 9 and apparently has remated since the male has no painted number. Nest 9 was deserted March 12  $\pm$  4 days; relaying occurred 27  $\pm$  4 days later. W<sup>Li</sup> had found another female on nest 9, apparently incubating. Perhaps this was related to the subsequent desertion, or perhaps the male did not return, for this or some other reason.

Greater Frigatebird - Banding

737-44512	Adult ♂	March 3, 1964	Egg 49
13	" "	"	
14	" "	4	
15	" ♀	"	
18	" ♂	6	
19	" ♂	"	
20	" ♀	"	
21	" ♂	8	
22	" ♂	"	
23	" ♂	10	
24	" ♀	12	
25	" ♂	14	
26	" ♂	"	
27	" ♀	15	
28	" ♀	"	
29	" ♂	17	
30	" ♂	"	
31	" Unknown	20	
32	" ♂	22	Egg 215
33	" ♂	"	
34	" ♂	April 16	
35	" ♂	"	
36	" ♂	"	

Returns

737-44379	Adult ♂	March 3, 1964
32	" "	4
405 J	" ♀	9
80 J	" ♂	13
697-69602	" ♂	14
737-44389	" ♂	19
66	Imm. Unknown	April 16, 1964
485	Adult ♂	"

Greater Frigatebird

Nesting data - charts

March 3 - Egg No. 18, Area B, hatched. Naked chick being brooded by ♂. Egg laid January 7 - 57 days incubation. Banded two today.

March 7 - Chick was down on the rocks below the nest. From its position it is doubtful that it had been pushed or dropped there as the parent took off at our approach. It was also quite cold so it must have

Amerman, Kenneth  
1964

39

been there for some time. We replaced it in the nest.

March 9 - Chick dead by nest.

March 15 - Total of 267 eggs laid so far in area A, 58 in area B (islet), of which 97 and 6 remain, respectively.

March 31 - After not disturbing the birds in Area A for one week 14 eggs were missing or broken (2 of which we removed because they were not being incubated) and 13 new ones had been laid. Most of the losses were in older eggs; only three from 242 on. Probably many more of the old eggs will be lost or will not hatch because they already have been cracked or have gone bad due to not being incubated. Hopefully losses will remain low in the newer ones however.

April 9 - Since last check 21 eggs lost, 34 laid, 99 total present. Losses continue to be heavy; 13 of the missing eggs were higher than 242.  
(Area A)

The first week of March 42 eggs were laid (163-204) and 19 lost. Fifty-two were laid the second week (205-256), 31 the third (257-287), and the last (288-309) [March 22-31]. Losses for the same periods were 23, 30, 29, respectively (18 lost March 22-24).

April 15 - First chick in Area A - egg No. 129, laid February 17 - 55 ± 2 days incubation. We have decided to check the colony every 5 days now.

April 20 - The second chick was found in Area A (main colony) - probably egg 140, laid \_\_\_ days incubation. However, while we were checking the rest of the eggs a female swooped down and carried off the first chick, dropping at rear the water's edge, and then another or the same bird got the new chick as well. Both died, apparently from the impact; we took them as specimens. Eggs in Area A and 49 in Area B were pipped.

Hawaiian Noddy - Notes

February 15 - Population has remained constant since late December. Six to eight birds present at night only (?).

February 20 - Nine present on north point 2:30 p.m. At least one pair (?) seemed to be going through courtship. One would walk around the other, shuffling sideways at times, and opening its beak as wide as possible in a sort of jerky "yawn." This bird had black legs and feet, the other's were browner.

February 24 - Single birds and pairs sitting in Amaranthus bushes at various times during the day.

February 27 - At least fourteen birds on island. Four on north point, ten in Amaranthus between Sooty plot 1 and 2. At least six of these paired.

March 2 -- Four birds on nests in Amaranthus near Sooty Plot No. 1.

March 10 - First egg.

March 11 - Second egg. Laid between 11:45 - 1 p.m.

March 12 - Third and fourth egg. Four nests.

March 19 - Fifth egg

March 24 - Sixth egg.

April 1 - Two or three sitting in Amaranthus opposite the transmitter building.

April 8 - Seventh egg, same area. Egg No. 1 pipped.

April 9 - Egg No. 2 pipped; No. 1 still has not hatched.

April 12 - Neither egg has yet hatched. No eggs as yet beside the transmitter building.



Amerman, Kenneth  
1964

41

April 13 - Egg No. 1 hatched.

April 14 - Egg No. 2 hatched 1130. Three and 4 pipped.

April 15 - Egg No. 3 hatched before 1400.

April 16 - Egg No. 4 hatched.

Christmas Island Shearwater - Banding

514-28020, 21	- plywood ?	February 12, 1964
22	grass, N site	19
23, 24	concrete slab	18
25	" "	23
26	East beach	March 6
27, 28	Concrete slab	14
29	Slab, north beach	29
30	south of bunker	31

Christmas Island Shearwater - Notes

February 3 - First two appeared on island, or slope near brown boobies. One banded (544-10503).

February 10 - At least four present on island. Two returns 514-78009, 10.

February 11 - At least five present at night. New return 514-78006.

Two present during the day, near plywood.

February 12 - Banded two new birds - 514-78020, 21.

February 15 - At least 13 on island. Up to ten present during day.

Courtship activity.

February 18 - Two banded 514-78023, 24.

February 19 - One banded - 514-78022.

February 23 - " "

February 27 - No birds present during day, two new ones present by 11 p.m.

February 28 - All absent again during whole day. New recovery 6:30 p.m.

February 29 - Numbers 14 and 16 (new) sitting together on top of hill above Brown Boobies in mid-afternoon. One present under concrete slab 7 p.m., one flying around slope, one seen flying in from middle of causeway.

March 5 - Four under concrete slab 1100.

March 14 - Six by concrete slab, two unbanded. Have also noticed that of two pair occupying the site up to now. Two have been under the slab and two outside for the past few nights, perhaps in preparation for egg-laying.

March 25 - A pair had been present under the slab on the north shore during the day for one to two days but were discouraged by high tides.

March 29 - First eggs - one under concrete slab on east shore, one under plywood. Binion said he saw pairs sitting outside each location late last night. Banded one bird by slab on north beach; at least two more unbanded on island.

March 30 - Probably another egg under the concrete slab on the east shore, but the bird is too far back to reach.

April 12 - High tides have apparently destroyed two eggs under the concrete slab on the east shore of the peninsula.

Christmas Island Shearwater Recoveries

544-10503	February 3, 1964	514-78003	March 17, 1964
514-78009	10	11	11
10	"		
06	11		
04	13		
08	"		
13	"		
05	15		
15	"		
02	26		
16	28		
14	29		

Amerman, Kenneth  
1964

Wedgetail Shearwater- Banding

	Adult - Unknown	March 12, 1964	
615-01014, 15	" "	13	
16- 18	" "	14	
19 -23	" "	15	
24 - 26	" "	16	
27 - 35	" "	17	
36 - 47	" "	18	
48 - 58	" "	20	
59- 77	" "	24	
78 - 100	" "	29	(34-43 islet)
615-01101 - 45	" "	30	
46 - 70	" "	8	(75-80 islet)
71 - 79	" "	9	(96-99 islet)
80-200	" "	13	
01201 - 61	" "	15~	
62 - 300	" "	20	
01301 - 45	" "		

Returns and Recoveries

	Adult - Unknown (L)	March 11, 1964
565-12334	" " (d/l)	"
35	" " (L)	13
12809	" "	"
615-00790 J	" " L	14
00691	" " L	15
00878	" " L	"
00203	" " L	"
565-12358	" " L	16
12410	" "	"
92	" "	17
615-00983 J	" "	"
00761 J	" "	"
565-12369 J	" "	"
615-00579 J	" "	"
563-12782 J	" "	"
615-00568 J	" "	"
565-12711 J	" "	"
12467	" "	"
846 J	" "	"
615-00617 J	" "	"
00753 J	" "	18
366 J	" "	"
565-12462 J	" "	"
733 J	" "	"
154 J	" "	"
865 J	" "	"
969 J	" "	"
424 J	" "	"
419	" "	"
255	" "	"
615-00878 J	" "	"

Amerman, Kenneth  
1964

44

Returns and Recoveries - Shearwater'

565-12515	March 24, 1964
137	"
414 J	"
401	20
129	"
639 J	"
219	"
615-00555 J	"
301 J	"
432 J	"
673 J	"
675	"
565-12706	24
71 J	"
537 J	"
214	"
60	"
420	"
65	"
615-00549 J	"
718 J	"
25 J	"
49 J	"
103 J	"

D

Wedge-tailed Shearwater - Notes

March 11 - First birds noted on island (3). Single birds, sitting quietly on the ground. Two in Lepturus below Sooties, one on pond by bunker with Sooties.

March 12 - Three again present, two different.

March 14 - Birds arrive after dark, between 8 and 11.

March 15 - Eight returns; thirteen banded so far - total 21. The same birds are not present each night however. In most cases we have found them once.

March 16 - About 20 on the island 2300-2400. Banded nine, three returns. Two were heard calling for the first time.

Amerman, Kenneth  
1964

45

March 17 - Twenty-five to thirty present 2200-2400. Several sitting amongs Sooties but fairly near the edges of groups, along the southwest borders of the Sooty populations. A few on North side near Red-footed Booby nest 4, and many on open ground just south of bunker.

March 25 - At least ten pairs sitting at various spots on the periphery of the island - some by bunker, some by Noddies on south shore, some on north beach west of Red-foot - At midmorning. A few were in burrows. We are finding several in burrows at night now. 100+ present each night now, still not ~~a~~ the same birds each night.

One was present under the sidewalk by the transmitter building all day yesterday. Some birds arriving well before dark 7:15 - 7:30.

March 29 - 150+ nightly. Many birds we have handled are around but we can't tell now how many from each previous night are present the nest. We wandered out to the islet, found 26 returns and banded ten. Banded 35 more on the rest of the island.

Several pairs remain around nearly all morning now and a few into early afternoon. Many have returned by 7 p.m., a few around 6 - 6:30.

April 6 - At least a few birds apparently remain all day, in burrows and a few on the beach by the bunker. They may leave for an hour or so between 3 and 6 o'clock, and may be feeding just outside the reef as Dave and I noted them doing on the fishing trip. Nightly population 200+.

Amerman, Kenneth  
1963

*Not recorded*  
*Catal*

July 21--USCG LORAN Station, Sand I., Johnston I. Atoll

Left Honolulu 0700 via MATS. Arrived Johnston I. N 10:15, arrived Sand I. N 11:30. Amerson and Wilz showed us around, explained things. Birds nesting in vegetation at East end of island, all around transmitter building. Sooty Terns most abundant species present--Amerson says 200,000, though they seem to be decreasing rapidly. A few with eggs, chicks of all stages. None banded yet beyond antenna building.

Common Noddy--around perimeter of island and on sand spit especially. Many of guy wires and concrete piers in daytime; many more come in at night to guy wires, acc. to Amerson.

Frigates present, nesting, with chicks.

Red-footed Booby--with chicks

Brown Booby--with chicks, most more fully developed than Red-foots.

Hawaiian Noddy--a few, on nests 8 - 12 ' off ground in hedge-like bushes; some with eggs.

Red-tailed Tropicbird--Six adults, two chicks seen. Acc--to Amerson. chicks nearly ready to leave.

Grey-backed Tern--a few

Wedge-tailed Shearwater--many burrows, many eggs, no chicks yet.

July 23

Wandering tattler--1 in winter, 1 in breeding plumage.

Turnstone--flock of four

Amerman, Kenneth  
1963

July 24 -- Turnstone: flock of five

July 29 - RTTB chick under tank left today. Sooties extend about 60 feet less down road now than at our arrival.

Noddy Tern--I estimate 400-500 present in daytime. About twenty eggs and twenty chicks in various stages seen, all on sand spit. They are larger than Sooty Terns, with thicker legs, longer claws (?), heavier bill with concave curved lower mandible. They do not hold wings above back when alighting, but shake them --three times and quickly close. Sooty does not shake wings.

July 31--Flock of eight Turnstones on road 7 p.m. Also one plover.

August 1--Flock of ten Turnstone seen -- 10 a.m. One Bristle-thighed Curlew seen--3:30 p.m. Two plover seen 7 p.m.

August 12--Left Sand 1815, MATS from Johnston 2130. Arrived in Honolulu 0015 August 13.

BIRDS BANDED - SAND I. - 07/07/63 - 08/29/63 - 10/23/63

FRIGATE . 737-44201 -> 47299 (4)  
44301 -> 47370 (4)

BROWN BOOBY 737-44001 -> 44039

RED-FOOTED BOOBY 737-44101 -> 44126

MASKED BOOBY 737-44300, 44400

SOOTY TERN 743-72001 -> 74000

753-1001 -> 21300 -> 24700 + 59

WEDGE-TAILED SHEARWATER 565-12101 -> 12800 -> 13000

615-100001 --> 01000

Amerman, Kenneth  
1963

3

RED-TAILED TROPICBIRD 565-12001--12024

XMAS I. SHEARWATER 514-78001--78019

COMMON NODDY 753-30001--30100 (locals)

HAWAIIAN NODDY 642-01001, 01002, 01003

August 28--Sand Island, Johnston Island Atoll

Arrived here 11:15 a.m. Departed Washington D. C. 8:30 a.m.

August 26 aboard United 827. Arrived in San Francisco 10:40 a.m.

(Pacific time). departed 11:30 a.m. Arrived in Honolulu 1:30 p.m.

(Honolulu time). Departed Hickam AFB 0700 via MATS, Aug. 28.

Binion and Ken brought me up to date on activities here.

They left with me bands, pliers, batteries, gloves, lights, binoculars, microscope, knee pads, banding schedules, stationary and correspondence file.

August 29

Binion and Ken left Sand at 11 a.m. I inventoried materials, finished unpacking, and read over all correspondence and instructions.

August 30

One Golden Plover found in mist net. Finally extricated after some time, banded and tagged. Will try leaving mist net at ground level; also may try decoys.

Banded 100 Sooties - slow going. \* 1 Semi-palmated plover seen on sand spit by old dock - 4 p.m. Flew off. ~~Failed to get~~  
down close enough to net.

Shearwaters have started down, nearly all have gone by 5:30 a.m.





Amerman, Kenneth  
1963

4a

August 31

Banded 200 Sooty Terns. Semi-palmated plover still at same spot. Two fairy Terns flew over twice. One Frigate chick (F2) dead in bad condition. Shorebirds-- 5 + Golden Plover, 20 - 30 Turnstone. 2 Tattlers.

September 1

Banded 300 Sooty Terns. I estimate 5-6000, perhaps up to 10,000 at night. Between 1 and 2000 in daytime (?)

Definite change in Shearwater behavior since chicks are out. Formerly, one adult in burrow around 7 p.m. Now, none present until dusk (between 7:30 and 8 p.m.). I have not seen them enter burrows to feed chicks. Six chicks, one unhatched egg, in ten marked nests.

Semi-plover still there. Will try to collect it tomorrow.

September 2--Semi-palmated plover appears to have gone.

September 3--Banded 300 Sooties. Three Fairy Terns flew over several times in the morning. Almost succeeded in calling them down close enough to net.

Shearwaters leave around dawn, nearly all have gone by 7:30 a.m. Some are in the burrows at this time. They apparently continue to moan all night, right up to the time they leave in the morning.

One ruddy turnstone was found in the mist net this morning, in bad shape. Both wings rubbed raw. I let it go and found it dead later.

Several of the sailers reported what must have been a Bristle-thighed Curlew today. I did not see it. Other shorebirds--one flock of 13 Turnstone, 7 - 10 plover, 1-2 tattlers.

Amerman, Kenneth  
1963

5

September 4--Banded 400 Sooties. Those along east shore of island seem to feed earlier than those closer to antenna building or on north corner. When starting work around 8 a.m. everyday, none will disgorge for about first hour. Those that first do seem to give up fish much more than squid.

Fairy Terns (one to three) are regular visitors, fly over three to four times every day. Sometimes roost for short periods on antennas. Always flying toward northeast.

Some shearwaters still present as late as 9 a.m.

September 5--Banded three hundred Sooties. ✓

Shorebirds--one flock nineteen Turnstone, two tattlers, five plus golden plover. ✓

September 6--Did four hundred Sooties. Much easier to catch them in morning anywhere. Many more present then. Much easier to catch them along east shore than further inland, among patcher of bare ground. Most difficult of all on slope of north point.

One Red-tailed Tropicbird flew over yesterday, two today; first I had seen them since I returned. ✓

Shorebirds--one flock twenty Turnstone, may be more (+10 ?), 5 + plover, 1 tattler.

September 7--One Red-tailed Tropicbird flew over several times, calling--once after dark.

September 8--Made observations on numbers and breeding status.

Sooties--about 1500 present in daytime, 4-5000 at night. Very few chicks.

5a

Location SANDI, JOHNSTON IS. ATOLL, PACIFIC OCEAN  
 Observer AMERICAN Date 09-15-63 Time 1500 to 2400  
 Weather \_\_\_\_\_

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000 +	Nests	Eggs	Young	
Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater				✓	✓	?	✓	May be from 1200 - 2000
Christmas I. Shearwater	?							Last seen - 3 on Aug 31
Audubon's Shearwater								
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	✓							1-5, nearly daily visitors
White-tailed Tropicbird	?							none seen
Masked Booby	✓							2 - occ. visitor
Brown Booby		✓			✓		1	75 ± 10
Red-footed Booby			✓		✓		1	200 - 300
Great Frigatebird			✓					600+
Golden Plover	✓							5-10
Ruddy Turnstone		✓						25±
Wandering Tattler	✓							1-2
Sanderling								
Bristle-thighed Curlew	✓							occ. visitor; total of 4 records
Sooty Tern				✓				5000±
Gray-backed Tern	✓							one seen on two occasions
Brown-winged Tern								
Common Noddy					✓			1500±
Hawaiian Noddy			✓					~15
Blue-gray Noddy								
Fairy Tern	✓							1-5 daily visitors

Amerman, Kenneth  
1963

Standard Blank  
Common Sheet  
6

Boobies--counted sixty-seventy-five in daytime. Most on offshore markers. Only five adults on land, and one nestling, two immatures. Estimate two-hundred to three hundred at night, many immatures. One Red-footed Booby still on egg.

Noddies--1000 ± 3 p.m., most in puncture vine. Perhaps two to three times this at night, surplus on wires. Many chicks, some eggs.

Frigates--thirteen nestlings. F-8 and F-17 nearby ready to fly. Estimate 200 3 p.m. One hundred on sand spit by old dock, fifty on rest of sand, rest flying. four hundred (estimate) at night-- antenna guy wires filled.

Tropicbirds--one to two fly over once or twice a day.

Fiary Terns--one to five fly over several times a day.

Shearwaters--1500 (estimate). Have found no eggs--all chicks seem to have hatched before I arrived. Still hope to find some to start series.

Shorebirds--Twenty-two to thirty Turnstone, five to eight Golden Plover, one to two tattlers. Have seen no sign of banded plover--has either left or died; probably latter since it was very weak when I removed it from net.

September 9--Three hundred sooties. Extremely hard to catch in daytime-- 100/2 hours +. Even at night, w/o moon, get two to three of a flock and then have to move.

September 10--Three hundred sooties, two frigates.

Amerman, Kenneth  
1963

7

September 11--Message arrived 0800 that Chief Giragosian due today 1100.

Did one hundred Sooties 8:30 to 10:50.

Giragosian arrived --1030. Ft. Detirck wants one hundred (100 adult sooty terns, 150 shearwaters. After lunch we made up boxes and changed labels from "shearwater" to "sooty terns". Collected the terns in the afternoon, with the aid of McConnaghy and Charly Hill. All the C. G. personnel are really cooperative. They go out of their way to help us. We had enough cartons but not enough waxed inserts or dividers. We made up some more dividers and used a triple thickness of matting to replace the inserts.

We began collecting shearwaters about 8:15 p.m., again with Mac and Hill helping, as well as Cuthbert. With this gleeful crew we polished off the 150 in about one hour. The Chief and I then tied up the cartons. "secured" at 2300--

September 12--Chief Giragosian departed Sand Island at 1350, with the bird shipment of one hundred terns, 150 shearwaters. Just prior to his departure a message came in requesting an additional 150 shearwaters for Dugway P. G. He sent a message back (Capt. Reeves, Hawa Sea Fron) tht this was impossible since there are no more boxes here.

Camera arrived today, along with letter from S. I, copies of progress reports. Two trunks arrived September 11. Two ammo boxes arrived Sept. 10.

September 13--One hundred Sooty immatures. These are harder to catch than adults--t ey will not come near me. Fly away from me when put up, unlike adults. Using disgorged squid from captured adults as bait worked some.

Print

Amerman, Kenneth  
1963

8

Bristle-thighed Curlew seen--3 p.m.

September 15--Two hundred Sooty Terns, made observations on nests and counts and prepared progress report.

*see abundance*

September 16--One hundred Sooty Terns.

Bristle-thighed Curlew seen again, in puddle at this end of causeway, 1p.m.

September 17--One hundred Sooties. Five red-tailed Tropicbirds flew over, one to two around several times.

Bristle-thighed Curlew in puddle again 8 a.m.

September 18--One hundred Sooties; three frigates banded. Shorebirds--ten golden plover, seventeen trunstone.

September 19--One hundred Sooties, one hundred shearwaters, six Frigates banded. Shipping cartons and inserts arrived.

September 20--Made up boxes fro bird shipment on September 25.

September 21 through 25--Banded frigates.

September 26--collected and boxed 150 shearwaters for shipment. No ticks were seen.

September 27--Shorebirds: twelve plover, thirteen turnstone, one tattler (0930).

Bob Sundell arrived on J. I. --1230. The C124 flight on which the birds were supposed to leave was cancelled. An attempt was made to get them on the plane on which Bob came in but this failed. Bob contacted Sudduth in Honolulu --1430 and filled him in. Birds were released 1630. Three were already dead by then (18 hours after capture).

Introductions were made and Bob talked with Lt. Hayes.





124  
86

120

Location SAND I., JOHNSTON I. ATOLL, PACIFIC O.  
 Observer AMERMAN Date SEPT 30, 63 Time to  
 Weather

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000+	Nests	Eggs	Young	
Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater					✓	✓	✓	1500±; 600± unbanded
Christmas I. Shearwater	0							
Audubon's Shearwater								
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	✓							1-3 fly over almost daily
White-tailed Tropicbird								
Masked Booby								
Brown Booby		✓						75±
Red-footed Booby			✓					250±
Great Frigatebird			✓					600-1000
Golden Plover		✓						12-15
Ruddy Turnstone		✓						20-30
Wandering Tattler	✓							1-2 seen; up to 8 reported
Sanderling								
Bristle-thighed Curlew	✓							one found dead 5. 28 <sup>th</sup> ; one last seen alive Sept 17
Sooty Tern			✓					100±
Gray-backed Tern	1							
Brown-winged Tern								
Common Noddy				✓				1000-1500; still many eggs
Hawaiian Noddy	1							may be more; uncertain of ident.
Blue-gray Noddy								
Fairy Tern	✓							1-5 daily visitors

Amerman, Kenneth  
1967

9

September 28--Bob and I went on a tour of the island. Two Red-tailed Tropicbirds put on a nice display and nearly landed near the highest area, hovering about 1 foot off the ground several times.

A dead Bristle-thighed Curlew was found along the shore by the old dump. It was in very bad condition, could not be salvaged. This was reported to us by try all. He also claimed to have seen two black and white birds, different from plover or turnstone, by the signal building. He said they flew off toward Johnston.

Noddy by 4 foot pipe hatched.

Five adult Wedge-tails and several chicks have been found dead over the past few days. We wondered if some might be weakened ones we had released but this does not explain previous ones. New dog responsible?

October 1 --Sixth Progress Report submitted.

October 3--Fourteen frigate chicks color tagged.

A new species, tentatively identified as a pectoral sand piper, was spotted by Bob around 9 a.m. and collected by Don Beeson. It was stored in the freezer in the Chief's quarters with a golden plover found dead yesterday.

Shorebirds--2 p.m.: Sixteen plover, 14 turnstone, three tattlers.

Two dead immature. Sooty Terns were taken to a Mr. Chaigan of the AEC on Johnston for radioactivity content analysis.

October 4--Bristle-thighed Curlew reported to us by Winchell.

October 5--Curlew reported again, by Dougherty. Again we did not see it.

October 7--Began banding shearwaters again with newly arrived bands.

One hundred nestlings done--very time consuming.

October 8--One hundred adult shearwaters banded in area between road to dump and both shores.

October 9--Two hundred adult Shearwaters banded. Many more found in area covered last night. Second hundred done in area between road to dump and x mitter bldg. A few were found with orange tags but no metal bands.

October 10--Two hundred adult shearwaters done in area between road to dump and Xmitter bldg. Several more with tags and no bands found and rebanded. Leg sizes vary a gooddeal; some of the bands newly put on seemed as if they could slip over the foot. Five hundred adults banded in area of heaviest previous banding. Cannot estimate whether this means overlapping populations or a very large number have slipped their bands and perhaps tags as well. Total population in this area cannot be more than seven hundred to eight hundred.

Population seems to fluctuate with cycle of moon. For shearwaters, lowest at time of full moon, then increases again. May merely reflect different time of returnibg at night--may come in later at night as moon gets higher. Bob suggests may reflect behavior of food orgainism. Longer feeding time for shearwaters with higher and brighter moon?

For Sooty Terns, population had dwindled to -- ten in day, twenty-thirty at night. At time of full moon or just after suddenly they jumped back to bout one hundred at night.

October 13--Two hundred adult shearwaters banded alongleft side of causeway and Xmitter bldg. Finding an average of five to six per night (per 200) with tage and no bands.

Six frigates banded.

Location \_\_\_\_\_ Date Oct 13  
 Observer ARMAN SUNDELL Time \_\_\_\_\_ to \_\_\_\_\_  
 Weather \_\_\_\_\_

SPECIES	Abundance				Breeding			Remarks
	1-10	10-100	100-1000	1000+	Nests	Eggs	Young	
Laysan Albatross								
Black-footed Albatross								
Wedge-tailed Shearwater					✓	✓	✓	2000±
Christmas I. Shearwater								
Audubon's Shearwater								
Bonin I. Petrel								
Phoenix I. Petrel								
Bulwer's Petrel								
Sooty Petrel								
Red-tailed Tropicbird	✓							1-2
White-tailed Tropicbird								
Masked Booby								
Brown Booby		✓						50±
Red-footed Booby			✓					1 200-250
Great Frigatebird			✓					14 500-600
Golden Plover		✓						25±
Ruddy Turnstone		✓						40-50
Wandering Tattler	✓							total of 8 reported one day: 1-3 usual
Sanderling								
Bristle-thighed Curlew	✓							1 reported Oct 4+5
Sooty Tern		✓						50-100
Gray-backed Tern								
Brown-winged Tern								
Common Noddy					✓			1200-1500
Hawaiian Noddy		✓						5+
Blue-gray Noddy								
Fairy Tern		✓						1-3 over Sand
Pectoral SANDPIPER								1 Oct 3; collected

Amerman, Kenneth  
1963

12

October 14--Last two hundred adult Wedge-tail bands used, on left of transmitter building and in back of it. Estimate another five hundred to six hundred unbanded adults, 100-200 chicks. Therefore, nineteen hundred banded plus six hundred to eight hundred unbanded and 450 collected gives a total population of 3000 $\pm$  (including chicks).

October 15--A semi-palmated plover was seen by Bob on the rocks behind the landing room about 9 a.m. Holmes shot it and we prepared the skin immediately. Another individual of this species was observed by me on October 5, in addition to the one present August 30 - September 1.

Bob said that he saw at least sixteen Fairy Terns on Johnston this afternoon and is sure there are several more. This is more than I have ever seen but Binion's original estimate was about fifty.

October 17--One Red-tailed tropicbird seen in morning. Twelve frigates banded.

October 18--A pintail duck was seen swimming by the seaplane ramp, reported to us by Mc Connaghy. We observed it for a period but did not attempt to collect it. It was later reported swimming toward the other end of the island but we did not see it again.

While working in the pump house a wandering tattler (rather aptly named) wandered inside, back out and in again. It was very thin and weak and could not fly, though no wings were broken. We banded it, gave it some fresh water to drink and attempted to release it at the old dock area but it died in the hand. Band was removed and not recorded.

Amerman, Kenneth  
1963

13

October 19--Ten Frigates were banded. Also one Turnstone.

October 20--Four frigates, one Red-footed Booby, forty plus noddies banded.

October 21--Five frigates, one Red-footed Booby (immature) banded, plus  
30+ noddies.

October 22--Left Sand Island 10:15 p.m. Departed Johnston Island via  
-MATS C-118 for Honolulu 11:30 p.m. Arrived at Hickam AFB 2:30 a.m.

Went to Waikiki International Hotel again.

October 23--Called Maryanna 10 a.m. in Washington to find out about Bill's  
request for house on Kure. They had not received message. Matter still  
pending.

Searched out Fleet and Gould, met Warren King. In the afternoon  
Fleet, King, and I went out to Mokoli'i Island (Chinaman's Hat) for a  
preliminary survey. We waded a distance of 0.3 miles in water averaging  
about 4 feet deep, from Kualoa Point.

The island is about 0.10 by 0.13 miles. A large, sheer mass of  
rock in the form of a butte, probably a former volcano core, rises to a  
height of 206 feet in the center of the island. This structure gives  
the island the appearance from which it derives its name. The lower  
slopes rise to a height of about 50 feet and are covered with thick  
vegetation.

The vegetation includes large masses of Scaevola on the landward  
side, mixed with a flowering weed called leitana (?). On the seaward  
side this same weed is mixed with tall grasses and shrubs. There are  
also a few coconut palms, some prickly-pear cactus, and other types.







Fifteen Wedge-tailed Shearwaters (nestlings) were found, in burrows (except one). Fourteen of these were in the scaevola - leitana area on the landward side. The other was found on the Northeast slope.

Five White-tailed Tropicbirds were seen from shore, circling around the top of the island.

October 24 -- Mokuouia Island

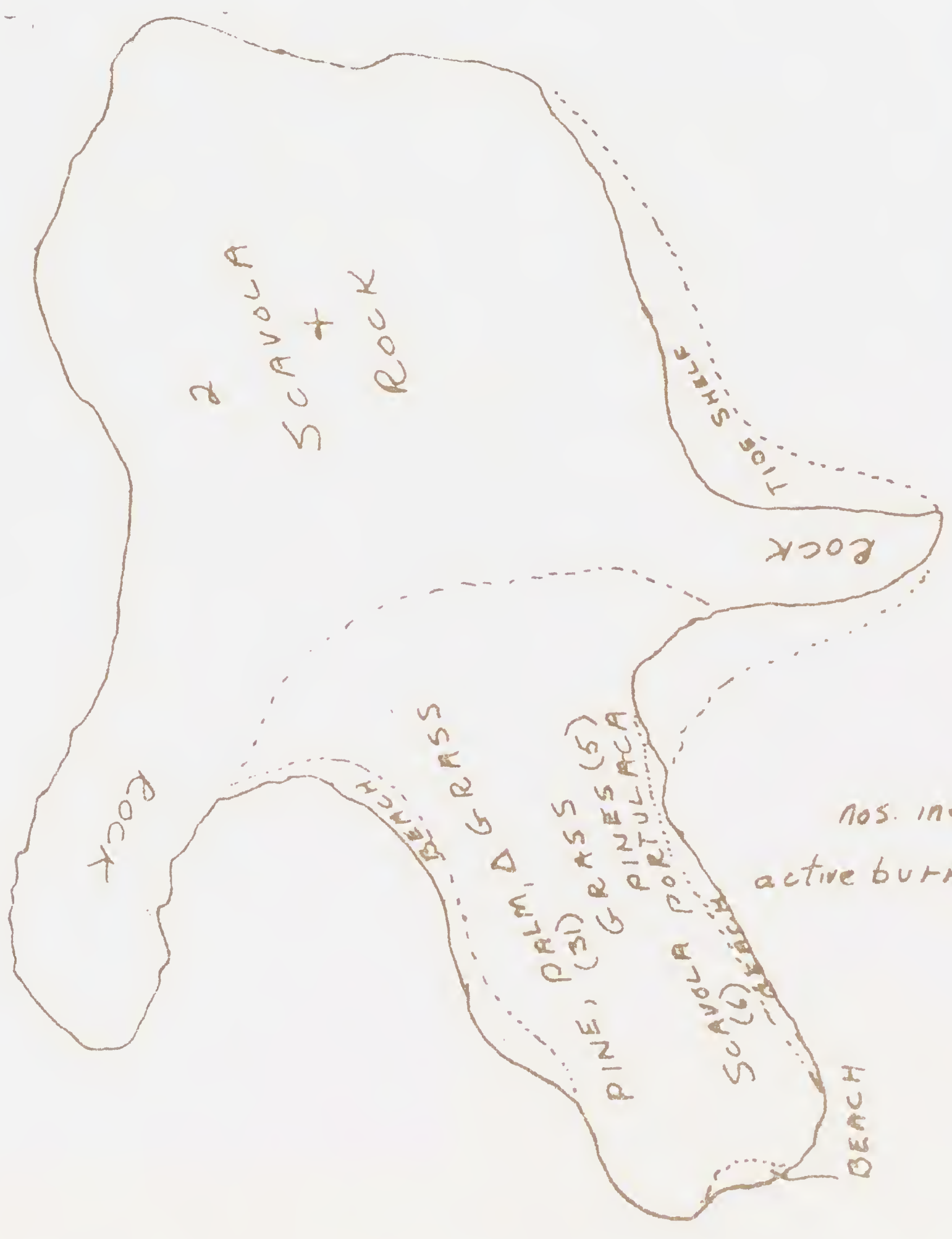
Bob Fleet and I waded to this island from Kalanai Point, arriving at 3:15 p.m. The island lies about 800 feet offshore. Water depth was about 3 feet. The island is about 1700 feet by 1000 feet. Maximum elevation equals 12 feet (est.).

This is the largest island in the area and is nearly covered with vegetation. There are four smaller islets nearby, all consisting of nearly bare rock. According to a fisherman with whom we talked, much of the vegetation on Mokuouia was planted (by himself).

The vegetation included salt pines, young palms (or palmettos?), sea grape (Messerschmidt bush?), Scaevola, Portulaca sp., and short grasses.

Forty-four nestling (six to eight weeks) Wedge-tails were found and their burrows marked for future banding. Eight birds were found in Scaevola. The remaining birds were found in burrows in the grass. Most of these were under trees (salt pine or palm). Usually one burrow was located by each tree.

Shorebirds included three plover, three turnstone, and one tattler.





Amerman, Kenneth --Oahu  
1963

19

October 25--Popoia Island

Fleet, King and myself waded to Popoia from Alala point, --1200 feet offshore.

Island is approximately 625 feet by 375 feet. Maximum elevation equals 10 feet (est.). Island is eroded volcanic rock nearly covered by vegetation. Many natural cavities in the rock are utilized as burrows.

Thick mats of *Portulaca* sp. covered about 2/5 of the island. Other main vegetation included unidentified shrubs of two types, one high and one low. No *Scaevola* was found.

This was the most heavily populated island visited so far. Seventy Wedge-tail nestlings were found in the 2/3 of the island which was investigated. There are probably about fifty to seventy more present.

A flock of thirty to forty shorebirds was also present, including plovers (10 est.), turnstone (20 to 30) and tattlers (6).

As we were leaving the island around 6 p.m. we noticed shearwaters returning for the first time.

October 26--Mt. Kaala, Oahu

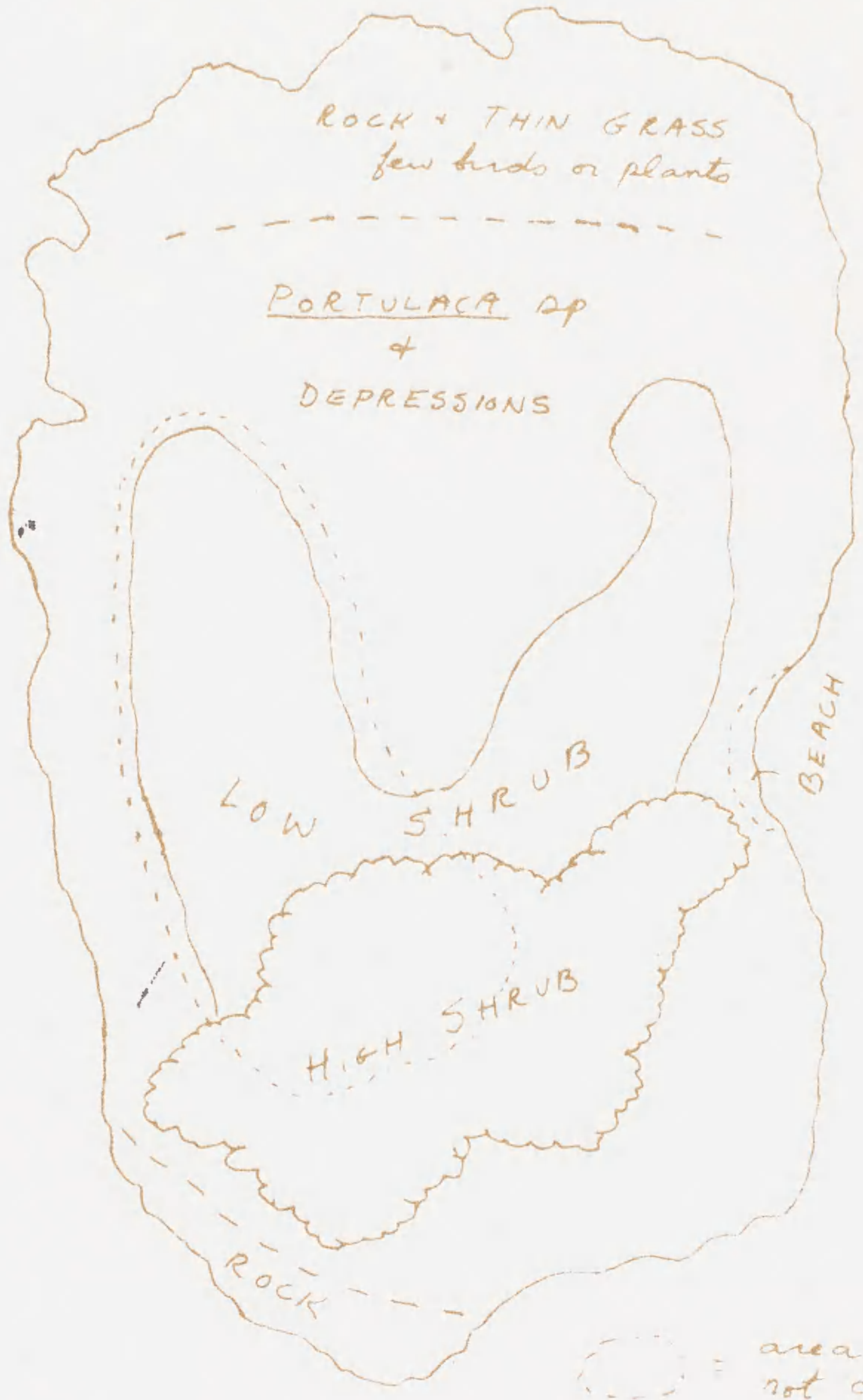
Mike Ord, president of Hawaii Audubon Society, picked up Warren King and me around 9:30 a.m. We attempted to drive up to the puamoho trail but were turned back because of Army maneuvers in the area (live fire exercises). Mike commented that the military seem invariably to choose to overrun areas where the Drepanids seem to be holding their own.

As a result, we went about 3000 feet up Mt. Kaala, 2000 feet walking. Even though this was on a new road built for a tracking station, it was very tiring. We managed to see several birds, though none were very abundant, probably due to the recent activity in building the road.

POPOIA ISLAND

20

Oct. 25, 1963





White-eyes were by far the most abundant. They were everywhere. Many more were heard than seen. This was the only bird not new to me-- I had seen it Wednesday (October 23) here at the hotel.

Leiiothrix were the next most abundant. I got a fairly good view of one. The red bill and yellow throat really stand out.

Elepaio were third in abundance. I saw several of these clearly, adults and immatures (no white on rump). They appeared almost orange--brown, nutmeg colored.

Ama kiki were fairly common. I watched one for some time but it was too distant for me to see the bill clearly. Identify by voice-- catbird-like wheeze. Many more heard than seen.

Leiiothrix sounds like titmouse with a repetitive call or like an Oriole with a second.

A few apapane were present, again more heard than seen. I caught a glimpse of one, merely a flash of red, black and white as it took off. Couldn't see the bill on this one, though I think I made it out (fairly) on one in flight silhouette.

Two Chinese thrushes were heard, not seen.

October 26--We also went to East Loch (?) of Pearl Harbor. On mud flats there we saw Hawaiian stilts (ten to fifteen), Golden Plovers, Sanderlings, Turnstones, Sharp-tailed Sandpipers, one Dowitcher, Shovellers, American Widgeon (1), both (?) teal, Muscovy duck (2?). In the reeds or cane beyond were flocks of strawberry finches (numerous), rice birds, and manakins (blue bill, black head and throat, brown body). Also present--both doves, mynahs, one coot.

Amerman, Kenneth  
1963

23

New species: Leiothrix  
Elepaio  
Amakiki  
Apapane  
Strawberry finch  
Manakin

October 29--Midway Atoll, Sand Island

Departed Honolulu (Hickam AFB) 1130 via Northwest flight N21.

Arrived at Midway Island 1530 (Midway Time) - four hours fifty minutes flight time.

Walked around the island 1800--1900. It was dark at about 1830. By far the commonest bird is the Fairy Tern. I also saw many noddies (Hawaiian ?) and Golden Plovers; one flock of twenty-one Ruddy Turnstone.

I saw what looked like shearwaters or petrels flying low over the ground after dark. Appeared to be dark on upper wings and back, white on breast and abdomen, light underwings; small in size.

October 30--Walked around the island again 0800-0900. In addition to the birds seen yesterday, I also saw five Red-tailed Tropicbirds and at least twenty frigates.

Lt. Com. Herb Keschull contacted me when I returned to the BOQ and stated that I might get to Kure today.

Departed Midway Island 1330, via U-F ?, arrived on Green Island, Kure Atoll 1400. Bill Wirtz and Jim Ludwig acquainted me with members of the crew and with their current work.

Two shearwater study areas (200 x 200) and a rat study area have been set up. Two observation platforms have been constructed for activity studies. Banding and collecting are going well. Some real strange things are turning up here - Giant Petrel (?), skylark, water thrush, Hawaiian



owl, redhead duck, unidentified duck resembling small scaup (Asiatic?), several sharptailed sandpipers, one pectoral, several unidentified uncollected passerines. Two mist nets have produced about twenty shorebirds in two days.

Saw my first Masked Booby and Bonin Island Petrel today--latter from mist net. Unident. Procellarids on Midway most probably Bonins.

October 31--Jim and Bill took me on a short tour of the study areas.

Seventy-three burrows in one corner (50 feet by 50 feet) of one plot.

We then rode around the beach on the flatbed, chauffeured by Gibson. Saw my first albatrosses, Black foots. We banded five. Also saw my first Hawaiian Monk Seals - one group of twelve, another pair and another single. Three new ones were tagged.

Shorebirds caught in mist nets are being weighed and measured.

Jim has demonstrated the preparation of both skins and skeletons.

November 1--Jim and I spent the morning and part of the afternoon plotting one shearwater-petrel study grid and counting burrows. The birds seem to favor the grass clumps or grass-puncture vine associations. They seem to avoid low puncture-vine, but a few are found beneath high clumps. A few are found beneath the clumps of another low-growing, light-green plant. Very few were found in Scaevola. 333 active burrows, 151 inactive, 82 scrapes, average density per slot = 35. Maximum 84 and minimum 8.

Later in the afternoon we rode around looking for seals and gooneys. Four new seals were tagged, new black-footed albatrosses banded, \_\_\_\_\_ new recoveries. We also missed \_\_\_\_\_ unbanded birds, making a total of \_\_\_\_\_ new birds for the day and \_\_\_\_\_ altogether on the island.

Amerman, Kenneth--Green I., Kure Atoll  
1963

At night we tried some banding but it was still too bright, even though cloudy. 38 total. One ♀ frigate upchucked three 2 1/2 inches file fish - first reef fish I have seen as food.

November 2--Saw only previously handled albatrosses on tour of island today.

November 3--I skinned a common nobby in the afternoon. Abominable amount of time to do a fair job at best. Long way to go.

Four new albatrosses.

November 4--Up early for a day of observations from north tower. Worked at this from 0800 - 1150 and 1320-1630. Jim was simultaneously observing south end of island from radar tower while Bill checked his traps.

Some general notes on activities after one day of observing--no Fairy Terns seen in afternoon: only one nobby seen in early afternoon, then several late (1540). A few frigates were seen soaring over lagoon late in morning; always several in afternoon until - 1600 when activity dropped off. Very little activity from 1300-1500 except frigates and occasional booby, then picked up past this hottest part of day. Much preening all day during molt.

Went out after dark after albatross. Got first Laysan, on west beach south of dock, plus largest number of new individuals--over forty. Also got several frigates, ten red-footed boobies.

November 5--Jim and I switched places for another day of observations.

Saw about thirty albatross along the beach all day--five just below tower. A pair seemed to be formed early in day when one marked individual replaced an unmarked one after a brief encounter. The pair engaged in bill

Amerman, Kenneth  
1963

26

rubbing, mutual preening, some bowing, neck stretching and various vocalizations during much of morning, then sat side by side rest of day. This was repeated late in afternoon when a sixth individual joined the group and a second pair was formed.

Yesterday's general observations repeated. Boobies appear to come back in between 3 and 4 p.m. One Fairy Tern observed late in afternoon. Many frigates spread wings while on perches--function?

Great success with albatrosses again--over fifty new birds after dark (inc. recoveries), plus - 20 frigates and boobies.

November 6--Another day of bird watching, this time from north tower again. Quite hot and still all day until late afternoon when wind sprang up, shifted.

Several unusual events--saw a sea turtle swim by; two seals playing or mating worked their way from north point past me. No prolonged contact but much nuzzling, rolling over, swimming side by side, etc.

About 1/2 hour before lunch an immature red-footed booby alighted on tower and remained, watching every move I made with neck stretched. Another was present when I returned after lunch and it also remained, for nearly an hour. Both were back about 4:15.

Rain prevented any banding at night.

November 7--Rain and strong wind continued all morning. Wind increased in afternoon, with occasional sprinkles.

Jim and I put in a couple of hours each in both morning and afternoon on the towers - he on the north, I on the radar tower

Amerman, Kenneth  
1963

27

Weather prevented note taking in A. M. General observations-- albatross flying in close all day; always one to four in air. Frigates-- very little activity, never more than two to three in air at once, mostly just flying around the roost area. Boobies--wind appeared to knock some from their perches, as one or two would get up just as a strong gust passed by. Shorebirds in bushes and interior areas all day, some noted flying around over the island. Much noddy activity low over the vegetation; one large feeding flock of 60+ individuals plus another 60+ scattered individuals passed by about 9:45 a.m. Hardly any on shore all day. Possibly one tropicbird seen far out over the south end, heading east.

Two seals went cavorting by, 1003.

November 8--After debating whether to put in some more time on the towers, Bill and I banded from 1030 to 1230 and from 1330 to 1700. Got 172 albatross over 100 of them new bands, rest recoveries. Laysans have suddenly appeared in numbers, and in the interior parts of the island, between the runway and beaches.

Also saw many seals up in the edges of the vegetation on the north and east sides; many untagged. Appeared very sluggish.

Occasional sprinkles, high winds.

November 9--Arose late after heavy date last night. We went out banding gooneys again, 1600-1700. Laysan's in in even greater numbers; some now in antenna field and two behind barracks. We got about forty new birds, getting nearly 100 % along the west beach and in the interior, missing

Amerman, Kenneth  
1963

28

many in the dump. This is where the largest group of black-foots seem to be congregating; about forty there today.

Nothing unusual seems to have been drifted in by the storm.

November 10--Six of us went out after noon to tag seals and, hopefully, to weigh several of different sizes. We were using a large tripod supplied by the CG, plus Bill's hoist. Weighed two on the north point. Found that we couldn't keep them strapped to the board since they taper to both ends. The first individual was quite the worse for wear by the time we got straightened around to using a heavy rope sling around the flipper area. The second went much better.

However, we found that this is not the way to weigh seals since the third animal, about 60 pounds heavier than the first two, died. Apparently the weight of the animal put sufficient force on the rope to collapse the lungs. The lung cavity was full of blood when we autopsied her.

Therefore, much to our consternation, we spent the rest of a long day skinning the animal. We saved whole organs when practicable, portions of them in other cases, preserving them in both Bonin's and buffered formalin. The carcass was placed in a wire cage and left to be cleaned in an old road off the west beach to the antenna field. The skin was salted and frozen.

We do not plan to do another seal in the near future. I don't particularly care to see another seal for a week or so.

Amerman, Kenneth  
1963

29

November 11--Cleaned up the lab in a mad rush about 9 a.m. since a plane was due and it was suspected the Western Area team might be on it (on day early). We finished with only seconds to spare, just in time to see the plane turn back to Midway, unable to land because of trouble with the landing gear. A few moments of tense drama on an island paradise.

November 12--Inspection team arrived about 1000, left about 1530. They seemed rather concerned about the rats, more than anything.

Jim went back on the plane to have his head and thumb looked at. He rather ingloriously smashed into a shutter chasing rats; this didn't satisfy his masochistic impulses so he sliced his thumb with a scalpel. We gave him enough errands to run to keep him from getting too drunk.

Spotted a small teal in the puddle by the fuel tanks and tried to take it whole without success, couldn't spot it again.

Banded one Golden Plover from net, four Bonin Petrels.

November 13--Bill and I banded albatross all day on the north half of the island, concentrating on the Laysans in the rat study area and antenna fields. We got about 150 new birds. Locations were noted in the study area.

Many of the Laysans were sitting on apparent nests and were slow to get off. Many are making the "talking to chick" noises, even those not on or near apparent nests. We saw one pair copulating in the field behind the volley ball court in the afternoon.

Found an unbanded brown booby sitting on two eggs in an old road in the northwest sector of the island.

Amerman, Kenneth  
1963

30

Saw a Hawaiian short-eared owl four times in the afternoon. First scared it up from field near end of runway, then three more times at different spots as we headed west along the north beach. We believe it is probably resident and we just do not see it often.

At night we collected twenty-six rats and removed ninety ticks from them in response to a request for three hundred by November 22. Using the fish net on them works well in open areas but not in vegetation.

Jim reported one black-foot egg on Midway; also several ducks and shorebirds.

November 14--Jim returned from Midway in the morning, reporting at least three black-foot eggs, twelve ducks. Bonin's slightly fewer than in September, tropicbirds way down, fairy terns same or even more numerous.

Bill went up in the UP to get shots of the island. Hopefully vegetation maps can be made from these.

Banded albatross in the afternoon. Found three black-foots on eggs here. Fairy terns seem to have disappeared.

November 15--Friday

Spent the day cutting and stamping marker tags ~~for~~ beach and vegetation stakes and in laying out plots (25 feet by 25 feet) for succession studies. Five of these will be in areas of sparse vegetation and will be checked monthly for growth and development. The remaining five will include all vegetation types and will be stripped of vegetation to observe the regrowth.

Saw a pair of black-foots copulating at the north corner.

Amerman, Kenneth  
1965

31

November 16--Albatross banding in afternoon. We handled about 260 birds, with the aid of Silock and Gibson. Worked south along runway--east side, and south antenna field.

November 17--Began clearing vegetation plots in afternoon. Nearly finished one in morning glory on west side of runway, south of buildings.

Completed another in grass at north end of runway and started a third, in mixed Vegetation, along the shore at the same area.

Bill and I banded seventy Laysans and got twenty-nine recoveries behind barracks and in south antenna field before dark. Jim began setting up albatross study nests.

November 18--Bill and I ran the traplines. Weighing each individual in the wind was a real chore. It took us all day. We managed to finish just in time to reset the <sup>a</sup>traps for tomorrow. 131 captures.

November 19--Second day of trapping. 139 captures.

A great many Laysan albatross now in the study area and the rest of the antenna field, most of them unbanded, which is disheartening. We have given up all hope of keeping up with them as they arrive on the island. Many are in pairs now and there is a great deal of the "talking to the chick" calling. So far we have seen very little dancing; what displays we have observed have all been short.

We discovered that most of our ticks have died, which means a great nuisance for us in catching rats and searching them all over again. We caught and killed sixty-three rats this evening and tallied over three <sup>hundred</sup> ticks from them. They had better remain alive and there had better be a plane Thursday!



Amerman, Kenneth  
1963

32

November 20--Third day of trapping. 143 captures, one of them a triple again. The weather was much more cooperative today. Very little breeze. We finished about 2:30 and then decided to put metal tags on the end stakes. Finished only the "one" end before time to reset the traps.

Took in the movie for a change--very good, too, surprisingly.

I took a walk up to the south point after supper and found the first Laysan with an egg, just behind a Scaevola clump off the runway at the south end (east side). This was the first time since Saturday I had been along the beach. Many black-foots have eggs now and the whole picture has changed. Most of the individuals remain sitting, even those not on eggs.

November 21--Bill and I finished trapping in good time, before lunch and hauled the traps back to be cleaned. Jim's thumb has been acting up again so he has elected to go to Midway with Bill to get the house over.

Just as they were getting ready word arrived that there would be no plane! The prospect of not being able to get the ticks out caused no end of muttering and rumbling. Bill fired off a message to Keschull explaining the situation, to the effect that the ticks had to get out on the Friday log flight to meet personal pickup (by Bushman, who talked to Jim on the ham gear in the morning) in Honolulu. Whether this had any effect we of course don't know, but we got a plane at 5 p.m.

November 22--Rain and high wind most of day prevented working out of doors. Of course the station was buzzing over the shocking news of the President's assassination. Fiddled around most of day discussing this and listening to news. Could not find Jim's birds from Midway in the refrigerator.

Amerman, Kenneth  
1963

33

Weather cleared up enough in late afternoon to allow me to finish cleaning the grass plot at the end of the runway. Began cleaning rat traps after supper.

November 23--Again no plane. I can imagine the dark clouds gathered around Bill's angry brow on Midway.

Spent most of the afternoon collecting plant samples. Eighteen specimens were taken, though some of the grasses may be identical. Cleaned another batch of rat traps. Most pleasant pastime - it begins to smell and look as though I am starting my own septic tank.

Found an adult ♂ frigate in perfect condition on the road by the transmitter building. Apparently hit antenna guys, resulting in broken back or neck. Skinned the thing in the evening. I am far from satisfied with the results.

November 24--Began taking pictures around beach. Caught an adult tropicbird on the east side and took it back for banding. Plane arrived shortly thereafter, bringing Jim and a Navy doctor - a female, and a commander no less, which turned a few heads, to say the least.

Bill and the house ( the whole house!) arrived on a second UF flight (unheard of!).

November 25--National day of mourning prevented us from starting work on the house. Finished taking pictures of the island, except for buildings. Unfinished business - photos of plants and study plots on west side. Also finished rat traps. The grass should flourish where I emptied the barrel!

Amerman, Kenneth  
1963

34

November 26--With W. O. Wirtz, II as head contractor, we got the framework of the house up and three-fourths of the siding on with very little frustration. Perhaps we can replace the long-suffering M and R crew and study birds on the side.

November 27--Rest of siding and roof put on in the morning. All that remains in trim, finishing touches, and frills. Not bad for three zoologists in one and a half days.

Began painting the wood trim, putting in windows and fitting door in afternoon.

November 28--Thanksgiving

Painting continued plus miscellaneous puttering around on house.

November 29--More of same

November 30--Counters put in at both ends and floor (oops! - deck) painted. Cleanup.

First volley ball game in weeks after supper.

Skinned an immature Red-foot after movie, which Jim finished. Hopefully, I can now remember how to get the wings, tail and head out myself. The rest of the bird gives me no trouble.

December 1--Jim spent the morning finishing gathering materials for departure to Midway. He found an apparently unmated Laysan on the front lawn, presented it with a black-foot egg, which it sat on briefly after he cleared a depression. Finally the bird left for good.

Jim left for Midway late in the afternoon.

Amerman, Kenneth  
1963

35

December 2--Went through half of rat area hacking out the trails in the morning. Most of the Laysan's have eggs already. Hopefully, I can find a few which do not, for study nests. Primarily only single birds present, incubating. A few pairs were seen. These apparently will lay eggs very soon or have just laid. A few pairs are still dancing and a few trios and groups of four are standing around together. Many of these birds move around and exchange groups, as well as dancing with several different birds or attempting to do so. These may prove to be the "unemployed" or unmated birds.

Started around beach in afternoon, with object of censusing all albatross on island. Wound up covering only from dock to south point, counting birds and eggs. Counts:

<u>Laysan</u>		<u>Black-foot</u>	
<u>egg</u>	<u>no eggs</u>	<u>egg</u>	<u>no egg</u>
180	127	133	37

Began moving furniture and supplies into house after dinner.

December 3--Set up twenty-five Laysan albatross study nests in rat area (area A-L). Eleven new recoveries in birds on eggs. Also finished clearing trap lines. Change over on nest No. \_\_\_ around noon.

December 4--Began catching up on albatross recoveries. Covered area from dock to south point (beach and interior). Got 115 Laysans, of which 101 were incubating, and 41 Black-foots, 36 on eggs. One Laysan and one Black-foot each had two eggs. About ten abandoned eggs seen, most, if not all, black-foots.

Amerman, Kenneth  
1965

36

December 5--Continued work on albatross recoveries, covering the west side of the runway below the barracks and the entire east side. With few exceptions unpainted birds in the southern and eastern portions of the island are now unbanded ones. This makes the record keeping somewhat easier. Totals for the day: nine black-foots, four of which were incubating, and 153 Laysans, 110 on eggs.

Roger Clapp arrived on the afternoon flight. We toured the beach from the dock to the north end of the runway before supper.

December 6--Roger and I worked all day on vegetation plots, mapping No.s 1, 2, 4, and 1/5 of No. 3. Measurements are very subjective and variable, probably non-repeatable. Much difficulty in deciding what to measure (which plants and which parts of plants), especially in areas with much young grass.

At Roger's suggestion we went through the north antenna field recording all Masked Booby bands. This is a good idea for several reasons--any new individuals in the population can be recorded; it gives an accurate picture of numbers present and of sex composition; the birds are marked for further study. Males were painted with a stripe across the head, females with a spot, and unknowns with a central stripe. This procedure should probably be repeated every three months. The results of the evening's work are as follows: two new bands (737-47001, A-U, and 47002, A-F); 101 recoveries (13 juvenile, 40 ♂, 37 ♀, 11 U). Roger remarked about the birds' reluctance to vocalize, at least in the hand, which led to the high number of unidentifiable birds.

Amerman, Kenneth  
1963

37

December 7--Slept in for once. Miserable weather spoiled the scheduled luau. It was held anyway, inside, and was still most pleasant and tasty.

Roger banded thirty-six albatross along west beach North of dock while I worked on records, etc. Eighteen recoveries.

December 8--Nasty weather continuing. Drenching showers and high winds all through day. Banded eighty-five albatross, with twenty-four new recoveries.

December 9--Banded albatross all day in southern half of island--231 Laysans, 21 Black-foots. Thirteen Black-foot recoveries, twenty-nine Laysans.

Banded Bonin Petrels in the evening, in and around shearwater Area A (north antenna field). Noticed about ten to twenty more Masked-boobies which we missed on December 6. Also, there were several unbanded Brown Boobies along the edge of the Scaevola and in a broad road or cut heading toward the west beach.

Two Red-tailed Tropicbirds observed flying around in the afternoon.

December 10--Spent the morning nailing the roof more firmly in place with eight to ten 2 by 4 foote. It had torn loose a little on Sunday with winds of only twenty to thirty knots: they reach 50 to 60 in winter.

~~Dec 10~~ Attempted to raise the north observation tower back in place without success, then tried to complete mapping vegetation plots No. 3. Rain prevented our finishing the last five foot square.

Rain at night also prevented further banding and recovery efforts on boobies and Bonin Petrels.

Amerman, Kenneth  
1963

38

Two groups of three tropicbirds were observed in early afternoon and a seventh individual was reported by one of the M and R crew.

December 11--Dr. Fisher and Dr. Pettingill arrived on log flight about 8:30. We set to work capturing two small live seals which Cr. Fisher was procuring for the Honolulu Aquarium. This task was accomplished by 10:30. One individual was taken off the south point and another at the southern end of the Scaevola on the east side of the runway. They were left in the cages by the road to the barracks until the plane returned.

While capturing the seals we observed an unusual large (yellow-legs size) shorebirds by the dump. It was long-legged and long-necked, unmarked gray except for slight white V on rump. Roger went to collect it before lunch, returned resembling a Cheshire cat. Further notes - legs gray or slight greenish gray, bill black and as long as head; weight - 180 gms. *Ruff*

Spent the rest of the day finishing records and running around like a maniac collecting gear for departure. Departed Green Island, Kure Atoll, at 5 p.m. aboard log flight with Drs. Fisher and Pettingill and seals (pew !).

The seal taken from the south point had died suddenly between 4 and 5 p.m. We transported it to Midway and Jim and I autopsied it after supper. Seemed to have blood in chest cavity, but not nearly as much as first seal we killed. Jim believed the intestine was ruptured also. Left the skin to soak and went looking for ducks on puddles in overrun. Scared up one pintail (?) and three teal-sized individuals but were unable to get them with lights alone.

Amerman, Kenneth  
1963

39

December 12--Jim and I finished the seal in the morning. Carcass left in cage in Casuarinas in overrun. Skin salted and (KJL) frozen. Kidneys were preserved in formalin.

Collected insects in the afternoon, then went to Happy Hour at the "O" club. Night off. (Not as necessary result of preceding).

December 13--Day more or less shot due to intermittent showers and preparations for my departure. Jim explained the set up on Midway, for future reference. Also worked up some skeletons.

Left Midway for Honolulu 5:30 p.m., (Midway time) arrived Honolulu 10:30 p.m. (Hawaii time).

Secured some dry ice from Air Force personnel at Hickam. United flight-kitchen freezers are not available for our use.

December 14 - 15--Left Honolulu via United flight 84, 11:55 p.m. (H. t.). Arrived San Francisco 6:30 a.m. (Pacific time), departed 9:15 a.m. for Washington, flight 808 arrived 4:35 p.m. (EST).



n. Amerman  
1964

Taongi Atoll - Marshall Islands

Oct 10. Atoll sighted about 0745. Great increase in number of birds this morning. Good numbers of Red-foots, Fairy Terns + Blue-Gray Noddies. Arrived off the ~~island~~ passage opposite Sibylla Island about 1000. Tide on its way out. We cruised around the edge of the reef for a short while looking for other passages or anchorage. Finding neither, we returned to the channel after putting one raft over with Mr. Ashton, Jim + Al. They inspected the reef at close range + took soundings. Saw several sharks. Amazingly sharp drop-off outside the reef - 135 fathoms about 100 yards out - no anchorage!

Saw my first Lesser Frigates flying over the ship and Reef Herons (A, white phase), standing on the reef, oddly enough.

We drifted for 3 hours and the raft tried the channel again about 1530, making it through with no difficulty. Other raft in water + loaded, then the first, before 1630. All aboard and started for island at 1700, landing at 1740. Camp set up before dark. Roger, Larry + George went NE while Binion, Phil, Chris (photo) + I went SW after Red-foots + Fairy Terns. Red-foots scattered, most within reach, through *Scaevola* + *Messerschmidia*. Perhaps

K. Ammann

1964

Taongi Atoll - Marshall Islands

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5 Blue-faced were found on the west side, which is littered with rocks, shell rubble, boards and yes, fish balls. About 20 Brown Boobies were banded along this same stretch. Three or four Red-tailed Tropic bird nests were found, one with egg, one with 2-3 day old chick. Numbers of Blue-faced increased sharply along the east shore, with many pairs, one immature and one egg. Red-foots also in greater concentrations, 6-7 in a tree.

Returned to camp at midnight. Banding totals - 100 Red-foots, 74 Browns + Blue-faced, 9 Fairy Terns. The other team got 216 Red-foots and about 10 Blue-faced.

Many rats and hermit crabs. Only about 5 Noddies seen or heard. Frigates scattered throughout, nests mainly along east side, with  $\frac{1}{4}$  -  $\frac{1}{2}$  grown chicks. Some Red-foots on eggs.

Oct 11. Slept badly, got up about 0745 + wrote notes. Two groups of trucks reported by the early risers. Also a few Hawaiian Noddies. Saw my first Crested Terns on rocks at the water's edge in front of camp. At last - real terns! Gray wings + back, black cap, large yellow bill.

Roger, Larry + I headed SW after breakfast (0900) to survey, collect shorebirds, etc. Larry banded Tropic birds along the way. Saw 2 Crested Terns on open

K. Amerman

1964

Sibylla I., Taongi Atoll, Marshall Is.

sand at one of the cuts. Saw 6-7 Black-naped Terns in the same area - they are indistinguishable from Fairy Terns at more than a slight distance. Call much different. Collected one on the way back.

Saw perhaps 15 Reef Herons, only 1-2 of which were solid white like the ones first seen on the reef yesterday. Two - three solid dark, ~6 white with mottled black on back & wings and 2-3 dark body and proximal  $\frac{1}{2}$ - $\frac{2}{3}$  wings, wing tips white, 1 dark body & solid white wings.

Walked to the end of Pokak, turned back in order to return to camp for 1500 radio check. No vegetation on island beyond, only large rocks & boulders. Frigates roosting on these. Reef is very close at this point, island very hazy due to spray.

Coming back along east shore, collected one Bristle-thigh. Saw one medium-sized shorebird with dark wing tips, long call. Did not view it through glasses, however I thought it had a light rump. Perhaps a godwit? Roger thought he saw another unidentified small shorebird. Harry reported ~~another~~ a Sanderling but we couldn't find it.

Returned to camp about 1330 - The other

K. Amerman

1964

Sibylla I., Taongi Atoll, Marshall Is.

group returned about 1630. They walked to the end of the next island and report clouds of terns over the one beyond - other data - 7 Crested Terns on eggs, 3 more Blue-faced Booby eggs, 7-8 Black-naped Terns, an area of shearwater burrows, many fish balls, poles, etc. from 3 wrecks, one only about 2-3 years old; Japanese survival shelter.

Ate supper and then set to moving our tent as it had collapsed several times during the afternoon in rain and wind.

Everyone very tired, to bed about 10. No banding tonight.

Oct 12. Up about 7. Phil & I walked NE along the west beach collecting plants, then cut across the island at the point of the Japanese survival shelter. Finally got to see the other two wrecks. Both headed right for the beach, only about 100 yards out. Beach littered with lumber, fish balls, shoes, odds & ends of ship life. Thoughts about the feelings of the men aboard at the moment of realization & panic & after. How do these ships run up like this?

Returned to camp around 11. Collected 10 species of plants. Scaevola & Messerschmidia from the main strand vegetation, being much denser and taller and in a wider belt

H. Amerman

1964

Taongi Atoll, Marshall Islands

on the east (ocean) side. Sida and Sporaea constitute the main part of the herbaceous ground cover, in patches <sup>to the beach</sup> between the high vegetation where it is discontinuous on the west side. These patches reach to about the middle of the island, sometimes further. Other plants include Jesourum (?) and a grass, possibly Cynodon, associated mainly with the Scaevola + Messerschmidia along the outer edges and in open areas, Lepturus, another herbaceous type, another vine and a single large tree - Pisonia?

Six of us departed camp in the rafts for Kamome about 1230, leaving Roger behind. Landed on the island about 1345. One raft went off briefly to explore the next island. We found the Sooty Terns and Wedgetails which were missing on Sibylla, in good numbers. There are large areas of grass along the west side of this island, backed by a belt of Sida + grass. The Scaevola and Messerschmidia cover the eastern third of the island, being quite open on the west and dense adjacent to the east beach.

Fairy Terns very numerous here, even more so on the next (north) island. Perhaps 1/3 of the population resting, half with eggs and half with chicks of all stages. Red-foots

K. Amerman

1964

Taongi Atoll, Marshall Islands

and Frigates also in large numbers, many nests. Most Red-foots had eggs. Found two Brown phase nesting, one with a day old chick, the only chick I saw. Frigates had eggs + young up to half grown. A few Common Noddies were scattered about. Several were immatures and I saw one  $\frac{1}{3}$  grown chick.

Began banding shortly after 2000. Larry + I did Wedgetails, the others Sooty Terns. I could do only 200 Wedgetails in 4 hours. They were very thinly distributed and I got lost several times. Larry set out about 2200 after shore birds.

I finished my last four Wedgetails in the rain. Binion, Phil + Chris had returned by this time and streaked past me to the small Scaevola bush about 100 yards from camp - the only one around. About five minutes later I managed to find the bush in the downpour, soaking wet.

Oct 13. We could hardly have suspected the siege we were about to be subjected to, from this humble beginning. It thus began the most miserable night I have ever spent, with no exaggeration. The rain continued off + on, mostly on and mostly hard, from midnight to about 0400. We had no shelter other than the

K. Smerman  
1964

Toongi Atoll, Marshall Is.

one 4' high x 5' wide Scaevola. Binion & I were in tee-shirts and Phil was little better off in a short-sleeved shirt. Phil could hardly walk because ~~of~~ his feet which had been badly cut up by sand. We made several forages for firewood and succeeded in keeping a good fire going throughout, which proved to be the one saving factor. The rain poured, the wind blew and we stood and sat and huddled and shivered, one side hot and the other icy, for four ridiculous hours. It stopped then. Until 6:30. Long enough for us to get warm. Almost.

It began again. Slowly. We departed Kamome with no misgivings shortly after 7. And it got worse. For another hour and a half we inched across the water, almost blindly in as heavy a downpour as we could get.

At 8:30 we reached camp again. Not quite as cozy as a hearth & rug. But dry, and a place to sleep we thought. Hoped. In vain. The tent floor was under 2 inches of water, cots & air mattresses and anything in the open were soaked.

One might say we gave up in disgust at that point. At any rate, we stood around shivering and attempting to dry off (which was somewhat difficult since it was raining inside

K. Amerman  
1964

Marshall Is. - Taongi to Bikar

The tents too) and Binion finally decided to abandon the effort. If it continued raining nothing could be accomplished and even if it stopped the equipment probably could not be dried out, which meant no sleep for at least three of us who had had but moments of it the night before.

Therefore, with no regrets, we departed Taongi Atoll at 1500 on the 13<sup>th</sup>; ship was underway by 1700.

Oct. 14 Arrived off Bikar Atoll 0900. Capt. Krull took the ship in to view the passage, then down past Bikar Island in hopes of finding a closer route in and perhaps an anchorage, again in vain. [After nearly 12 hours of sleep I awoke feeling miserable but by afternoon the aches & pains discovered in the soft bed had worn off and I felt quite energetic. Realized that on this trip and even the last to Laysan the first needs had become to get clean and warm, rather than to sleep.

Left the ship in very calm seas and had an easy passage into the lagoon and to Bikar Island. Camp set up near the center of the NE shore.

First coconut palms encountered here. Fosberg says they were planted by Marshallese who formerly made periodic trips here to harvest turtles and birds, always being careful not to ~~not~~ remove too many. Interesting that most



K. Amerman

1964

Bikar Atoll, Marshall Islands

"primitive" societies that live in such close contact with nature ~~know~~ are wise enough not to mistreat it.

This atoll differs from Taongi in that the islands are smaller but the vegetation is much more lush. The center is occupied by Pisonia forest 35'-40' tall. Messerschmidia occurs outside this, being 20' tall on the interior and gradually diminishing toward the shore where it becomes mixed with Scaevola.

Cocoanuts in one grove at the NW end, plus two trees at the SE end. Two breadfruit (Pandanus) near the coconut grove. Short grass occurs around the perimeter beneath Scaevola & Messerschmidia. A small succulent also occurs there, more on the SE & SW sides. Two vines, one trifoliolate and the other red-backed complete the plant species present.

Rested till dark, then went out after boobies and anything else we could get. Banded Browns, Red-foots, Frigates. Most quite high. To bed by 2200.

Oct 15. Rain during the night, continues today ~~started~~ from 0700-1130. No exploratory trip to the other islands as planned.

Walked around the island in daylight as the rain stopped. Can find no White-tail Tropicbird nests, though at least 6 have been in the air at once.

K. R. Freeman

1964

Epitaph Hill, Phoenix Island

After the rain stopped we poisoned the coral heads in front of camp and collected the fish. Many others seen at Sand Johnston, but none were seen. Ecologically absent were the blue tang and black triggerfish. A few new butterfly species appeared in the pile. About 45 species in all, generally beautiful beyond belief.

After supper we went after blood samples. Only 3 Brown Boobies were present, in contrast to the dozen or so the night before. Perhaps they have moved to one of the other islands or to the rocks along the reef. Only 8 samples obtained.

Oct 16. Another shower during

light rain in the morning

1000. We took camp

to Jabocruk, Island

at Jabocruk

has only 2

vines on it

on the island

seen

found

the low ground

to about 10

feet

at Jabocruk

the trees

K. Rasmussen  
1964

Bikar Atoll, Marshall Is.

Roger & I walked around Jabouatiki before camp was set up. Found about 20 Brown Boobies just under the edge of the forest, mainly on the east side, a Sooty Tern colony on the small inlet off the NE corner, estimate 200 adults & 500 chicks present with brief glance. A group of Crested Terns was in the center of the Sooties, apparently resting. About 15 Masked Booby nests were found on the flat area of grass & Dactyloctenium (?) on the SW end of the island, most near the edge of the trees.

After setting up camp Roger & I went over to Bruneri to survey it while the others toured our island. Found 18 Masked Boobies,

with nests, on the east side in grassy area similar to that on Jabouatiki. Nests numerous in grass. Roger went through the interior, finding a Polynesian Noddy nest (old?), several Turnstones & plovers, and one Red-tailed Tropicbird in a nest. He found a carcass of an immature frigate with a long-necked bird on its back. The carcass was of an unknown bird with the legs and wings together. Roger said frigate birds were quite in the air but he saw none in the forest by their roosts. Song bird?

Still could find no Red-footed Boobies resting. On returning to camp the other

K. Auermann  
1964

Bikar Atoll, Marshall Islands

team reported one white-tailed Tropic bird nest in a hollow in a tree inside the forest, about 6' off the ground.

Roger & I found two Wedgetail chicks near the Masked Booby resting area. First record of Wedgetails for the atoll.

After supper we all went out after boobies. Banded 62 Red-foots, 61 Browns and 57 Masked. Surprising numbers of Browns inside the forest, down quite deep; a few Masked also inside.

Finished the circuit of I-tocra by 2130. Roger, Larry, Brian, George & I then went to Bruneri for boobies. Found a huge club of about 100-150 Masked on the east side, decided to wait until after the moon went down to go after them. Went completely around the island including much of the forest and banded many Red-foots, Masked, Browns, Frigate. Saw at least 3 Red-tail Tropic on a deep within the forest and one Frigate down on an egg.

Collected one more Wedgetail from one of the nests discovered earlier in the day.

There appears to be a group of Sooty Terns just beginning nesting in the grassy area at the SW end of the island. They remained in the air, wheeling about and

K. R. Ammann

1964

Bikar Atoll, Marshall Islands.

calling until well after dark. There appeared to be perhaps 500 in the group. They grew silent about 1 A.M. and may even have left at this time, perhaps without landing. They were never observed on the ground though they may have been scared up by our lights from a distance.

Oct 17. Up about 0800. pattered around for awhile, then George & I went up to band Sooty Tern chicks. Did 600 between us from 1100-1330. Most 10-20 days old. Found 20 Crested Tern eggs and <sup>two</sup> ~~one~~ chicks. The eggs resemble Sooties' but are larger and the spots not "smeared". The chick is all white, pink feet & bill. Looked like an albino Sooty chick except for the larger, thicker bill.

Went for a short swim to wash off the Sooty Tern grime. The chicks imitate their parents' worst habits at the earliest possible age. Water actually hot, warmer than even I like it.

After dark we descended en masse on the boobies again, first trying the club on Annumi with almost no success, then bombarding the forest edge and smacking down the deserting birds with poles & nets.

Returned to home base 2100. Roger & I went up to the tern colony and banded 700 more chicks after finding it impossible

K. Raman

1964

Taboerupka I, Bikar Atoll, Marshall Is.

To get near adults because of the moon. The others continued after boobies, taking blood samples as well. Finished about 12:15. A.M.

Oct 18. Straightened up camp in the morning and packed some gear to be returned to the ship. Roger was off banding Sooty chicks again & Bill Paul & George were tracking down rats. Tom Brown & I went after blood samples from Sooty Terns. Got 10 chicks but only 4 adults, 3 of which we collected.

Roger found the sooty banding rough going, went after Fairy Terns and Tropicbirds. Collected one Fairy Tern. Larry collected 1 White-tailed Tropicbird. By climbing around in the forest he has found at least six nests.

Great dinner from the ship - fried chicken, cranberry sauce, salad, biscuits & honey and hot soup. Is it Sunday?

Worked through the fish from Bikar Island in the afternoon, wrapping them in cheesecloth to cook in ground coals. Then to writing notes.

2 I went after sea turtles and went after boobies again, starting on brown. Very little success with Brown & Blue-faced but managed to run nearly a hundred Red-foots on brownie alone. Unfortunately or fortunately we had only one last string

K. Amerman

1964

Bikar Atoll

of 7A bands, so we made a quick circuit of Gaboerubbu and returned by 10:45. Oct 19. Up at 0500, camp down by 0645. Last night's high tide was higher than any so far, forcing us to remove the raft from its high-dry position on the sand bar. Second raft came in at 0730 (after leaving ship 0600?). All gear aboard ship by 0830, underway moments later.

The ride out the channel was very enjoyable. Both sides of the passage formed a continuous waterfall about a foot high with the water pouring off the reef and the point had the appearance of an ice sheet.

Did laundry, labored in packing, stood watch from 1215 - 1830. Full day, very satisfying.

From a distance the water in these lagoons appears bright blue. Then changes to the familiar bright green as you get nearer. This was noticed in the approach to Taka Atoll.

Sighted the atoll about 1430. By the passage by 1600 and inside the lagoon by 1715. Very few birds at sea, mostly Fairy Terns, a few Noddies & Sooties. One feeding flock of Red-foots about 030.

Spent the night aboard ship.

Oct 20. Up at 0700. Roger, Phil & I went in one raft to Elak and Boken Islands, leaving the ship about 0730 and returning at 1125, while Brian, George & Larry went to Taka and Lojikon and Wogouiraka.

No vegetation exists on Boken. About 20 Black-naped Terns and an equal number of Hawaiian Noddies were roosting on the NW corner and 6 Litter Phosic were feeding on the exposed rock flats on the north (seaward) side. One dead turtle was found. It was being devoured by hermit crabs. Another turtle was crawling along the rocks of the beach side. It apparently had wounded itself on the rocks or perhaps had had an accident when on Island 3, as it was bleeding and seemingly wandering aimlessly on the island. Tom Jones, our boatman, tracked it most of the length of the island.

The shell species collected by the various hermit crabs show more variety than those previously seen. They include *Tridacna*, large shells, augers, horn shells. It would be interesting to check numbers of each.

On Elak, which looks like a harbor numerous seabirds, we found numbers of Fairy Terns and Hawaiian



H. Amman

1964

Taka Atoll, Marshall Islands

Noddies and a few Common Noddies. Our 3 estimates of Fairy Terns and Hawaiian Noddies ranged from 2000 - 3500 and 500 - 1000, respectively. Two Red-tailed Tropicbirds were seen in the air. Both noddies were nesting, with eggs + chicks. No fairy tern nests were seen and no boobies or frigates were found with the exception of 1 Brown flying past Eluk + 3 Browns roosting on Goken.

Found the first butterflies of the trip on Eluk. I thought at first there were two species but Roger says it is only sexual dimorphism. One sex is purplish with a bluish-white spots on each wing; the other is brown, red-brown + white and reminds me of the admiral group or a painted lady.

New plants here - rather low upright plant and a smaller tree. The latter is possibly *Tournefortia*.

In the afternoon we all visited Taka Island for about 5 hours. It is by far the most pleasant and picturesque island we have yet visited, now when one envisions as his summer wage when first contemplating thoughts of joining the Project. About half of it is planted to coconuts which are harvested or copra by the natives from Utaik Atoll

K. Aramian

1964

Taka Atoll, Marshall Islands

4 miles N. Many Pandanus trees are mixed in with the coconuts. Panopsis, which reminds me of agave, occurs on the two ends. Many new plants grow here, including a large tree with large round leaves of deep green and 2" whitish tubular flowers; Dimorphostella, a fern and a parasitic vine. The east beach is fringed almost exclusively by Scaevola, reminding me very much of Ruae.

There is also a large (6") gecko here, dark greenish above, yellow below, which runs about the coconut trunks.

A colony of Fairy Terns is located on the glauco, southeast corner <sup>among coconuts</sup>. We Panopsis were aware of them this morning as a large cloud of them was sailing around over land. Linton estimates 75-100,000; though only a small portion of these are nesting and I never saw more than many. They are on eggs and young up to a week old.

Other than the terns, there are very few birds on Taka Atoll. Two Fairy Terns were shot. A strange shorebird was seen but skulked the ground as usual. An Endia species was taken live this morning on ~~the beach~~ Lajiron; it is

K. Rensman

1964

Taka Atoll, Marshall Islands

either a Red-tail or Sharp-tailed - I would guess Red-tail. The other team also report a Brown Booby with red paint, which would mean it is from Bika.

We left Taka near dusk and spent the night aboard. The sooty chicks are too young to band and the adults probably cannot be got with the moon up all night and full.

Late in the afternoon some of the ship's crew came in to the island and reported a sailboat headed this way from Utiirik. We watched it move around the reef but lost it in rain and darkness. It went on by the ship into the island about 8 P.M.

Oct 21. Rain most of the day kept us aboard since we are not prepared for time here. We skinned rats in the afternoon.

Curiosity reigned all day over the activities of the natives on the island. In late afternoon they departed the island and it first appeared to be going on, but they turned around one then and laid up at the captain's invitation.

Of the few, one spoke quite passable English. Quinn elicited a good deal of information from him about the birds, though in some cases it perhaps cannot be relied on since he often misunderstood

K. R. Ammann  
1964

Taka Atoll, Marshall Islands

our questions. He reports wedgetails on Lagoon and is quite pointed after seeing one of our specimens.

Among the clamor of trading for shells and belts and headbands it was possible to garner many notes about the natives. Rudy, the English-speaking member of the group, is apparently fairly prosperous by local standards. He owns an outrigger (the one they were using), one of six at Ulink, for which he paid \$375 which he accumulated in a year. His father owns all of Wotowikku and the store on Ulink. He is interested in getting a 10 Hp outboard like ours.

The group appeared rather skrewed. They had seen our lights the night of our arrival and <sup>came over early, probably</sup> ~~had~~ had last night gathering shells for trading.

Money is earned apparently solely through copra trade, which they consider hard work. The price is <sup>about</sup> three times greater, taking about 40 tons (100 tons of copra at 400 a ton each ton). Taka Atoll is owned jointly by two groups.

Rudy was educated for 3 years at Majuro. There is an evening school on Ulink. Many of the houses have tin roofs. A

K. Amerman  
1964

Taka Atoll, Marshall Islands

trip to Bikar Atoll is planned to salvage wood from the wrecked Japanese fishing vessels for houses. The present population is about 275.

The people are fond of birds and birds' eggs. They visited Taka about a month ago and harvested a large number of eggs, and cooked up some Sooty Terns last night.

We have a promise to be shown the steamer tomorrow and possibly we may feast on fresh-caught spiny lobster.

Roger + Binion saw a bird resembling a jaeger fly past the ship this afternoon and Roger reports an orange-tagged Brown Booby!

Oct 22. Left ship around 0830 for Taka Islet, except Phil + Roger who went to Eluk to collect noddies.

Picked up rat traps, catching 8 out of 25 - first successful trapping. We took blood samples, wound up pooling all eight due to the ridiculous 2-3 drops supplied by each.

Proceeded to collect fish along the margin of the coral shelf along the island, taking advantage of the low tide. Still very precarious going - coral

K. R. R. R. R.  
1964

Taka Island, Taka Is., Pohnpei I.,

very jagged & crumbly, not isolated banks & put us up at the lagoon and water about 20' deep along the edge. Fossiliferous & the Marshallian lent a hand. We spent some time during this operation hauling killer clam shells, 18" - 30" long, off the bottom & into the raft. May have torn the raft in the process.

I collected plants until 1500. While waiting for Brown at the Sooty Tern colony I saw a turnstone with a definite red rump in the flock of 30 by the colony. George, Roger & I spent the rest of the afternoon chasing it around the beach. All of us got good looks at the bird and agree it looks like an *Alaudina* individual though we were never close enough to see a head. While hunting this bird we came across the strange sandpiper found the first day and George nearly trapped it. It is uniformly dark brown above except for a white wing stripe, uniformly light below, very contrasty, bright yellow legs, moderate bicolor bill nearly identical to *Alaudina*. Resembled *tata* in color proportions though smaller, which *tata* had wing stripes.

There appear to be five vegetation zones on Taka Island. Along the lagoon beach all scattered coconuts and pandanus,

H. A. G. S. S.

1904

Taka Atoll, Marshall Islands

with many young plants of both. This area is very open and has a ground cover consisting mainly of *Triumfetta peruviana* and a red stemmed upright herb, possibly *Stemodia*. Near the center of the island are four small huts without walls used by the natives from Ujae when they come here to harvest coconuts. This area has perhaps the most varied plant life, with scattered *Lepturus*, crabgrass, *Panicum* and *Borrichia* (stiff, narrow shaped leaves) and some ferns - *Polypodium*. South of this there occur patches of *Lepturus*, *Panicum*, *Borrichia*. Also in this zone are *Scaevola* & *Messerschmidia*, together with many seedlings, scattered along the entire stretch, and a large tree with broad round leaves and frequent tubular white flowers (*Morinda*? *Morinda*?) which occurs only near the ends.

Near to the interior lies a belt of *Scaevola* which does not reach the ends of the island. There are very few *Panicum* in this area. The ground cover is fern and *Scaevola* & *Stemodia* consisting principally of fern and *Stemodia* with some other small species, possibly including *Thunbergia* & *Scaevola*, and *Scaevola* up to 6' in height.

Toward of this zone there is mixed forest

K. Amsman

1964

Taka Atoll, Marshall Islands

of *Scaevola*, *Messerschmidia* + probably *Pisonia*.  
*Plumya*? continues to be the main ground  
cover, mixed with grasses + *Boerhavia*.  
The second species of *Boerhavia* (round-teafed)  
occurs here in small amounts.

The vegetation fronting on the ~~beach~~  
other beaches consists of the unidentified  
broadleaf, *Scaevola*, + *Messerschmidia* on  
the <sup>south</sup> ends, in that order of importance. The  
broadleaf is almost lacking on the <sup>east+north</sup> ~~ocean~~ sides.  
These plants form a dense <sup>tangle</sup> ~~cover~~ with  
<sup>few</sup> ~~little~~ or no ground plants beneath.

The northeast and southeast corners  
are occupied by *Pennisetum* scrub. This  
occurs along the margins of the  
beach rock, in front of the *Scaevola*  
+ *Messerschmidia*. The densest area  
is on the northeast corner. It is  
mixed with *Scaevola* + *Messerschmidia* +  
some *Lepturus* + *Portulaca* in the *Egret*  
colony.

Oct 28. Up at 0600 for a quick trip to Lojiron  
seeking wedgetails. We dropped Roger +  
Larry on Taka for a last chance at the  
turnstone. George + I walked the shore of  
Lojiron in search of it also, while Binion  
+ Phil sought the shearwaters. They were  
more successful than we, finding 5 chicks,  
one of which they collected.



K. B. Newman

1964

Tide to Janio

Returned to the ship by 0730, underway  
by 0830 and out of the atoll by 0930.

Arrived off Janio Island late in the  
afternoon, ate aboard and then left  
for the island prepared to spend the night.  
Set out rat traps, Binion set up his insect  
light. Roger & Larry walked the shore before  
dark looking for shorebirds. After dark  
we all walked around the edge of  
the vegetation. Saw 3 Red-foots, 2 Browns,  
a few Fairy Terns on the outside and  
many in the interior. Birds impossibly  
high. Larry found a turtle, the first  
we have seen live ashore at night.  
They are as pondorous and somehow  
magnificent in life as on film. To  
bed about 8:30 under an open tarped  
shelter over which we spread a tent  
fly. Binion, Larry, George & Phil tried  
sleeping on the beach to avoid the  
mosquitoes & rats but came scurrying  
back about 10 in the middle of a  
shower. Another barrier, we came along  
around 3 in the morning, the sleep  
causing some discomfort.

Oct 21 - Up about 6:30, collected a few  
plants we hadn't seen before. Left Janio  
7:15, underway around 8:00.

The trip to Eniwetok was uneventful. We arrived in mid-afternoon and were greeted by 6 natives from Utoja as soon as we had anchored. They tied off our stern briefly, constantly working but not speaking. We made a quick trip into Utoja Islet, on the south side of the entrance, collecting, surveying and setting traps. The natives followed us in and we found the old man could speak a tiny bit of English. The other five of the crew apparently were his sons. They seemed to enjoy watching our activities.

We returned to the ship in time for supper and spent the night aboard as there are only Fairy Terns and noddies on Utoja.

Oct 25. Quick trip in to Utoja after breakfast. Caught one rat. Several traps broken open completely - human catch or natives? Returned to ship for move to Eniwetok a mile north on the opposite side of the pass. Much variety in the vegetation here, including a few species not seen previously. The hill is rimmed with *Scaevola* & *Messerschmidia* with *Dioscorea* and *Trinervata* beneath along the lagoon side, *Polypodium* & *Stenopogon* below on the seaward side. The water is open

R. Rasmussen  
R64

Eniwetok Atoll, Marshall Islands

coconut grove with scattered Pandanus.

Sections are covered by *Casoytha* and a bean-like vine, forming dense tangles.

After another quick survey we moved again, this time three miles across the lagoon to *Eniwetok* *Aradjojaren*. Ate supper aboard and went ashore immediately after, again setting traps and collecting. On board for the night again. Between 7<sup>30</sup> + 8<sup>00</sup> P.M. a swarm of baby green turtles went past the ship heading east. We hauled in about 20, putting some in salt water, some in fresh. So many unanswerable questions - had they just hatched that night? Were they headed for the sea, as it seemed from their uniform direction of travel and great speed? If so, why travel all the way across the lagoon and into the seaward surf - do they direct themselves according to current or wind direction? How many hatched and how many made it as far as the ship? What happens if they come onto another island in their path if indeed they did come from one across the lagoon? Do those deposited on the seaward side of an island on the leeward reef go right into the ocean, travelling in the opposite direction

K. Amerman  
1964

Erikub Atoll, Marshall Islands

from there or do they cross the island?  
Finally, what happens to them now,  
where do they go + for how long? Fascinating.  
When removed from the water they continued  
their frantic scrambling, little disks  
of phenomenal energy.

Took in four movies in all this night,  
to bed at 1 A.M. - This is a field trip?  
Fred would blanch + sputter.

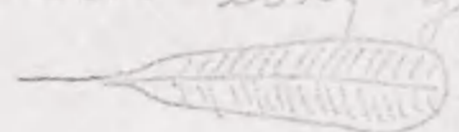
Oct 26. Binion, George + Larry went in  
to Arad's jairin again, then to Arad-  
jairik while Roger, Phil + I journeyed  
up to Jabonwan via the ship. We found  
the usual species of plants + birds in  
the usual numbers for this atoll.  
The ship returned to Arad's jairik  
after lunch where we picked up the  
other team who reported 40-50  
Brown Booby nests and about 100  
roosting Frigates on Arad's jairik.  
From the ship this island looks  
just like all the others in size,  
vegetation + shoreline. Why are these  
birds here?

We continued south, anchoring again  
off Jaldoni. We split up again. Roger,  
Phil + I visiting Jaldoni + Guro and  
the others the remaining four of the cluster.

K. Amerman  
1964

Eirikub Atoll, Marshall Islands

In all cases the story was much the same again - Noddies, primarily Hawaiian, Fairy Terns and shorebirds. Spent the night aboard.

Oct 27. Ship moved early to Eirikub. Roger, Phil & I went in to Bogengoa while the others visited Eirikub. A good wind roughed up the lagoon quite a bit, giving us a bouncy ride. Bogengoa is about  $\frac{3}{4}$  of a mile long and quite narrow. It is mostly coconut and associated plants on the western half. The eastern portion is mixed forest, very open beneath, on large brown boulders. The dominant species here differ from those of the other islets with mixed forest, which are generally smaller. I do not know the trees, but the two main ones were one with light green leaves of the shape  and orange blossoms, and one with long green leaves of a distinct *Achrasia* → type. A few *Pisonia*, *Messerschmidia*, *Morinda-buetarda* and one or two others were mixed in.

The entire sea beach is fringed almost exclusively with large *Scaevola* extending 5-10 yards in most of the way except near the middle where it becomes very sparse.

K. American  
1904

Eniwetok, Marshall Islands

in the lagoon, all of the trees are  
coconuts and pandanus except the beach  
line. In some areas the Pandanus is  
nearly killed, choked by *Casuarina*.

I found my first coconut crabs, three  
of them, gnawing on a fallen coconut  
beneath a Pandanus tree in the middle of  
the raised beach. What mean, powerful  
looking creatures! The one I collected was  
treated with great respect.

We left Rongerik about 11:00 and  
met the other party on Eniwetok. The six  
Marshallese were there as well. About  
six thatched huts of various sizes, some  
with tin roofs, remain from the 20  
or so former inhabitants. One in which  
we sought shelter from a brief, driving  
rain contained a metal bed.

Eniwetok is ~~greatly~~ planted to  
coconuts for <sup>most</sup> its mile and a half length.  
Many trees were down and there was  
a broad area of bare sand about  
4/3 the distance from the east end,  
indicating a fairly recent heavy storm.  
Coconut crabs were present here also.  
The species I had described was  
by this time. They had collected  
an unknown white goose which the  
natives claimed they had never seen.

2. ~~Samoa~~  
1954

Great Salt Lagoon Islands

Roger collected a Cassin's and Brown  
Booby on Bezenqa.

Back to the ship after lunch for  
another short ride, back to Narakai.  
We went ashore before supper and  
managed to get only four <sup>very fresh</sup> blood samples.  
Returned after supper and got the  
remaining six samples and banded  
45 individuals as well - other than  
expected. About 50 nests (55 counted)  
with eggs and chicks up to 3 weeks  
old. Only a dozen or so frigates  
present today.

The only difference observed on this  
island was a very open forest,  
mostly Pisonia, resembling that on  
Iaboukku at Bikar where Brown  
Boobies also were collected. Whether  
the natives prevent the birds from  
roosting using the open islands or  
whether their presence here is due  
solely to this slight difference in  
habitat cannot be determined. It  
does seem unlikely that the natives  
would ignore an island out of the  
dozen or more here.

K. Rosenman

1964

Central North Pacific Islands

Oct 28 Binion went in to Anadajivik early in the morning to collect ticks from Bruce, Bobby chicks. Roger's honey returned, Phil, George & I dragged fish from Taka.

The captain requested that all loose gear be stowed before we got underway for Kuvajalin. I translated this became "Get all that crap off the deck so we don't resemble a Chinese sampan!" So we spent a few happy hours shifting glass balls around (they're now hanging in clusters from the bulkheads in the hold, like grapes), lugging outworn clam shells about, merrily tossing garbage overboard (sometimes it was hard to distinguish the treasures from the latter) and generally straightening up. In the process our storage area below and the forward hold got straightened up. We found gear we hadn't seen for weeks. In confusion we didn't run across the photographs in their somewhere, curled up in an under box - we see him as when my wife.

About 2:30 we left the harbor. A promptly went ashore, was awakened for supper. Weather still



K. Rasmussen

1964

Central Atoll, Marshall Islands

overcast and raining off & on, watches  
uninterrupted and abandoned in mid-  
noon.

Oct 29.

The ship entered the lagoon at Kwajalein  
at breakfast. After what seemed like  
an intricate amount of maneuvering,  
we docked for the day at the fuel pier.  
Visitor's passes were issued by the Atoll  
security guards. Tickets for all islands  
began at 10 A.M. and at 10:01 we  
of the Smithsonian party, were on our  
way again to the PX, known locally  
as Macy's. We explored the facilities  
and returned around noon. Dave  
Purkins, the Bishop Museum entomologist,  
had come aboard by then; he arrived  
at Kwaj 3 days ago. Various other  
forays were made, the last of course  
to the local pub, the Ocean View. I  
stayed to watch the movie while Phil,  
Jim, Al and Dave also went next door  
to the Crossroads. Later I returned  
to the ship right after the movie.

About midnight (10:30) the stars  
began struggling in and it was immediately  
apparent that Jim was in a noisy,  
belligerent mood.

H. H. H. H.

1964

Hawaiian Hotel, Marshall Is.

He was raging mad, hurling curses and statements about being pushed around, <sup>being</sup> made fun of over his weight (which is prodigious) and being taken for a stupid Hawaiian and an inferior. It's easy to dismiss the whole affair on the grounds that Jim was very drunk, but that kind of violence in a person who had always struck me as so gentle and happy-go-lucky seems to counter this. His feelings must have been building all trip and probably have some justification. Most of his attack was directed against Jones and Ashton. It is easy to <sup>understandably</sup> see Jim and even unconsciously treat him as a "typical happy Hawaiian", though he can speak eloquently and think well if one takes the time to listen. Tonight he displayed a magnificent singing voice in an amazing range - a strange contrast to his mood an hour later. He usual, the innocent get caught in the middle; the Chief Engineer was nearly pushed into the water by Jim, and thrown into the boat instead. This really shook Jim, who calmed down somewhat from then on.

W. H. S. [unclear]

1954

Japanese Islands

Oct 30. Binon made various contacts in the morning and got reservations on the 12:30 flight to Rai-Namu. Phil and I accompanied him. On the trip up I had my first aerial views of a real atoll. It is really quite a sight. The ocean this day was its deep, rich blue and the lagoon had the same appearance. Between the two lay the strip of light green water dotted with darker green islets. The coral configurations stood out as a series of dark fingers and cross-bars in the light green. There were several, <sup>white</sup> circular patches of coral a little distance from some of the islets, enough to be surrounded by blue water, and the tide water conferred on them a pulsating appearance, very subtle.

Rai-Namu is actually two islands joined by a causeway. The Japanese had a railway coming to it. The causeway served as the landing ground for 4000 Japanese killed on the islands in the battle of Iwojima in 1945. Presently there was a major land perimeter on Rai-Namu, enclosed by many <sup>concrete</sup> ~~concrete~~ blocks with concrete walls.

H. American

1957

Wajalein Atoll, Marshall Is.

4-6 feet thick, still remaining. There also remain some 5" guns captured by the Japanese from the British in Singapore and transported here. Divers still bring up sealed canisters of ammunition for these guns, from a freighter sunk off shore.

All of this information was provided by Mr. Hal Hitchcock of MIT's Lincoln land group here, who gave us a tour of the island. We walked around a bit after he left. Except for the great heat and lack of breeze I found this the most pleasant island I have been on. It was very still and quiet. The whole island was criss-crossed by numerous old roads and overgrown by a great variety of vegetation (700 species - 77 species on the island), much of it familiar-looking flowering weeds probably imported to give the place a "homey" atmosphere for some maintenance. The whole place seemed to have a distinct country atmosphere which I like.

We found a variety of bird-life but nothing in large numbers and sometimes only offshore. Saw also Fairy Terns (2-3), Hawaiian Noddies (flocks up to 25-30) and Red-footed Boobies (5, 4 dark pairs), all

K. G. ...  
1954

Kauai, Hawaii, Dec.

offshore; 1 Frigate light overhead, 3 Reef Herons,  
innumerable Plovers & Turnstones, a few Wandering  
Tattlers, a few (~10) terns, most or  
all apparently White-bellied rather than the expected  
Bristle-thighed, 1 Godwit, "6 Crested  
Terns, 1 unidentified duck.

Oct 31. Halloween. If memory serves me  
this day was notable only in the contest  
between Larry & Roger to see who could  
down the most gin & tonics. Both were  
at 13, but Roger declared himself  
winner since he was on his feet after  
Larry climbed into the sack. Result -  
Larry promptly fell out of the sack (apparently).

Nov. 1 (Kauai Day - Oct 31<sup>st</sup>)

According to our calendar Tompsett  
still exists but for local citizens  
time has moved on. I don't know  
if the birds get to go out their w-treating  
again. There is enough traffic between  
here and Honolulu and enough accounting  
confusion over the airport between the  
time is being adjusted for this extra  
day now.

George and I went on a sightseeing  
cruise about the coast of L.C. Bay  
"Tartan". The trip was along the coast.

K. Amerman  
1964

Kwajalein Atoll, Marshall Is.

side of the lagoon as far as Bigej,  
with stops of an hour each at Ebeye  
and Bigej.

We looked for birds all along but  
saw nothing notable. There were many  
Hawaiian Noddies in the lagoon and fewer  
than 6 Fairy Terns outside the reef.  
A few Plovers were seen in the antenna  
field of the loran station on Ebeye and  
4 Plover and 6 Tattlers on the lagoon  
shore of Bigej.

The village on Ebeye seems very  
unpleasant just walking through, though  
perhaps the natives are better off (=happier?)  
than in former times. All the houses are  
patchwork boards, most without paint  
and most open along at least one wall  
which can't provide much shelter from  
rain though it probably serves to let  
breezes in. Most homes seemed to  
lack furniture beyond beds and all  
the household goods, boxes, piles of  
cloth, clothes, odds & ends were stacked  
better-sheltered everywhere. There are dogs,  
chickens and a few pigs wandering about.

We stopped at the loran station  
for a brief chat. The 13 crew members  
say they are enjoying themselves. The

W. Brewster

1904

Kingman Reef, Marshall Is.

island most prolific sufficient, etc., etc., etc. -  
entertainment. This is the only known  
station I have heard of where the  
guys extend for a number of years.

At Kingman Reef and I probed  
around some, but found the vegetation  
impenetrable and no sign of birds.  
There are 2-3 huts with families  
living in them. If these people go into  
the interior of the island at all we could  
find no way they could.

The rest of the S.T. party went to  
Carbon (Coring) Island for fish  
collecting. They returned with a  
fair variety, including some species  
not seen before this trip. Reported very  
hard job because of heavy currents.

Nov. 2 Roger & I went up to the runway  
in the afternoon to investigate the  
shorebirds. Though somewhat inadequately  
prepared as far as traps & equipment  
because we didn't expect much, we  
were rewarded with 5 Brown-tailed  
Sandpipers, 1 Scaup, 1 sp., 1 Scaup, 1  
1 Wren, 1 sp., 1 sp., 1 sp., 1 sp., 1 sp.,  
and 1 unknown bird. In addition we  
saw 3 other birds, one of which we saw.

1954

Kauai, Nov. 22

and one of which was a Shoveller, plus  
15-20 more Sharp-shins, 200 Ruby-throated  
and 200 Golden Plover, 25 Tattlers.

Meanwhile the rest of the group went to  
Little Bushard Island (Oahu) to poison  
more fish. They had better success there,  
picked up even more new species.

Nov. 3 George, Larry & I went to the runway  
again in the afternoon, mainly after the  
ducks missed yesterday. It turned out  
to be another remarkable day of collecting;  
we got every new species we found.  
Collected were: 1 Sharp-shin, 3 Red-tailed,  
2 Shovellers, 2 Duck sp., 1 Black-bellied  
Plover and 1 Scaup.

Nov. 4 George, Larry & I returned to the  
runway in the early morning. Birds  
were very scarce in comparison to  
previous visits - why, not? Managed  
to collect only 3 birds, 1 of which appears  
slightly different from the Sharp-shin - head  
bill medium brown color from reflexion,  
heavier structure on breast.

Major Thomas, the man in charge  
and the men of the Air Force in charge  
trucks who stopped on the last two  
occasions were very helpful.



H. Anderson  
1967

Kauai, Hawaii, Marshall Is.

Great occasion today! We traded  
movies with the LST Hawaii County. We  
finally got rid of those old clunkers and  
have something to occupy our evenings  
again.

Nov 5. George & I finally got to the laundromat  
in the morning. What with waiting for the  
machines to be checked, having our wash  
recycled by an attendant for no apparent  
reason, which necessitated our requesting  
our quarters back so the clothes might  
go through the "wash" cycle, and watching  
people dumping in the dump immediately,  
even after reading the instructions, I  
got a few chuckles and George got fed  
up in the hour and a half it took us.

George and several of the crew are  
on edge because of the delay. We were  
scheduled to leave yesterday morning but  
must wait until a new second mate  
arrives to replace Mr. Van Buren, who  
suffered a back injury at some point.  
It appears now the earliest we can  
get out is tomorrow evening.

Paul, George & I went out first before  
& after lunch. Several were being  
caught on deck, live from the ship and  
a few from the target traps along the pier.

H. Amerman

1964

Kwajalein Atoll, Marshall Is.

Meyers is a security officer interested in the local fish. He is working with a fish pond that now contains about 45 species, and has plans for aquariums and shell displays. The pond is a ditch-like affair, 3 feet deep and quite clear. If one is patient he can probably see most of the species present in it.

Nov 6. In town. After catching up on field notes yesterday I caught up on letters today. Rain nearly all day.

Binion & I took a taxi to the dump and set out rat traps after supper.

Bowling - 100 → 85 → 6? → 86 → 121 → 123 <sup>Good</sup> <sub>game</sub>

Nov. 7 - ? Reading & sleep, I guess.

Nov 8. The others went off in the raft to North Looi Island after fish, primarily, and birds. I took a taxi up to the dump, picked up the rat traps, cleaned up lab 2 (skinning). Was pleasantly surprised at not finding the expected rodent and arthropod species under the accumulated debris. Skinned a Sooty Tern - turned out better than any of my at-sea skins.

The raft returned in mid-afternoon with a packed drum of fish and 2 Common Noddies, 3 Hawaiian, 1 Fairy Tern.

K. Rasmussen  
1964

Navigation Atoll, Marshall Islands

Nov. 9 I joined Larry & Roger & Binion,  
did a Common & Hawaiian Noddy, with  
results more typical than yesterday's.  
Sooty. How I hate bloody birds!

The second male finally arrived.  
We departed Navigation Atoll about  
4 P.M. Hooyay!

Nov 10. George & I had early watch. After  
this I banded another Noddy, with  
regrettable results.

We arrived at Jaluit Atoll  
in mid-afternoon and anchored in  
the lagoon opposite the main island.

Two small craft came out to  
meet us. One carried Father Bonaventure,  
the priest for the atoll. Binion talked  
with him while we got gear ready  
for another assault.

We left in two parties about  
3<sup>30</sup>. Roger, Tom, Dave & I went  
on to ~~the~~ <sup>the</sup> ~~main~~ <sup>main</sup> ~~island~~ <sup>island</sup> for digging  
George & Larry at ~~the~~ <sup>the</sup> ~~lagoon~~ <sup>lagoon</sup>.  
Then we did the traps (land  
& sea), collected plants (24 species)  
and birds, including one completely  
new to me - all white under and on  
back and forehead, black crown  
and nape, very light grey mantle.  
From ~~the~~ <sup>the</sup> ~~island~~ <sup>island</sup>, appears to be

K. A. Cameron  
1964

Palmit Apoll, Marshall Is.

The White-bellied Tern (*Sterna striata*)  
from Australia - New Zealand.

The island differs from any we have  
yet seen. The main plants were the  
bean-like vine and a yellow composite,  
and coconut and *Persea* spp.

The seaward side contained the only  
bamboo, in good measure. Other plants  
included Pandanus, Scaevola (very little),  
breadfruit, two grasses, several vines  
and shrubs. The forest was not very  
dense but the vines growth, especially  
the bean-like vine, formed very dense  
tangles.

Returned to the ship after supper.

Nov. 11 <sup>10:00</sup> Roger's Phil went off in a small  
boat painted to resemble a shark  
to visit two islands with lagoons  
in hopes of turning up ducks + shorebirds.

The boat is all out in an old  
whaleboat (according to Red brother,  
our authentic one, built on the  
island coast) with Red, Phil, David  
and another native, for Lipson where  
the Marshall's report *Boobus* + *Fregata*.  
We arrived there about noon after  
a 2 1/2 hour run (20 miles).

H. Rosenberg  
1954

Island #10, Marshall Islands

10. This island was divided into two parts. The main (southern) portion contained a pure *Pisonia* forest with some *Messerschmidia* and the pear-shaped-leaf trees around the edge. Three mature coconut palms occurred near the edge and numerous seedlings were scattered along the south slope. Inside the forest was a large area of "birds'-nest plants", concentrated at the southern end. The other section of the island was a stand of pure *Pongia* up to 20' tall, on bare coral rock that was extremely difficult to walk on.

Hawaiian Noddies, Red-footed Boobies and Greater Frigates were the main birds. The Hawaiian Noddies were nesting in numbers (perhaps 400 nests total) in both the *Pongia* and *Pisonia*. Red-foots were confined to *Pisonia*. About 200 were on the island when we arrived.

This number rose to about 1000 after dark, the greater percentage being immatures. They nearly covered most of the trees - very dense. The natives report that boobies occur only on this island at this atoll. The same problem arises as at Eniwetok - why? Also, here, why such a large population on such a small area and what is the source of all the

H. Hume  
1954

Great Frigate, Marshall Islands

immatures?

There were about 300 Greater Frigates in the air when we arrived. It developed that they roosted only in the Pampis. This is a more striking example of the tendency encountered at Laysan for Frigates and Red-foots to be somewhat segregated.

At dusk we discovered several Lesser Frigates soaring with the Greater. Larry collected one male.

Upon our arrival a group of about 30 Sooty Terns emerged from the underbrush on the SW corner. Most of the day there were up to 6 in the air above but none returned to the ground. Three were shot and all had blood patches but no eggs or chicks could be found. They may have been just beginning the breeding cycle. The natives report a colony of a few hundred on one of the other islands at Christmas last year.

We discovered 4-5 Common Noddy nests, all with eggs, on a fallen tree and in the "Lighthouse" plant. Benson said he saw a desert crab but saw one of the eggs.

Fairy Terns, like the Hawaiian Noddies, were found in both Pampis and P. p. p.

H. Amerson

1964

Palmyra Atoll, Marshall Islands.

Several young were found.

Brown Boobies were seen overhead. They roosted only in the coconut palms.

Two Crested Tern chicks about 3/4 grown were found on the west point of sand. We panned them up so they would not become prey to sharks due to our disturbance. This resulted in our being disturbed by the angry parents much of the time, which in turn resulted in one being brought down by a stone by one of the Marshallese. The two chicks, one of which we collected, appeared to be about the same size but one had a yellow bill, and may therefore have been older.

After our preliminary survey George found a Fairy Tern and a Hawaiian Noddy in the interior completely covered up with sticky mounds from the Pisonia. We cleaned them but they could not fly so they were collected.

The natives had caught a Red-foot Scaup and asked us to shoot another so they might roast it, which we did. When we returned from collecting fish later they let us sample them. It was quite palatable though rather tough - not too fishy - reminded me of salted dry

H. Henshaw  
1964

Julian, Still, Mainland Islands

leaf.

The fish ball was relatively unsuccessful. We had waited too long so that the incoming tide was running strongest just as we put out the rotenone and it was carried away too quickly.

We waited around until dark, then went after birds for blood samples and specimens. While waiting we noticed the natives preparing sticks about two feet long, obviously to be used against the birds in some manner. Just before it got dark they went off and each climbed a tree and waited for the boobies to come in to roost. They catch the birds with the clubs, tie their head in their wings and drop them below. Abby told me that 8 men working in this manner can collect 4-500 birds in about 4 hours, which they then take back and salt. They took about 30 this time. Though it's not pretty, I feel no condemnation of the practice since it is a kind of harvest for these people. Humans are a basic part of the ecology here, in a more natural and less reprehensible way than "civilized" people who can sink the passenger pigeon millions to extinction for sport.



S. Amerman  
1964

Valuel Atoll, Marshall Islands

Because of the natives' activity we decided banding would be unsuccessful tonight and useless in the long run since the birds would probably be slaughtered in the near future anyway. We collected 10 adult Red-foots, 1 Greater Frigate and 1 Brown Booby and called it quits. We then headed back with a half-moon. ~~at about~~ Reached the ship around midnight, then spent two hours weighing + cataloguing.

Phil, Roger + Dave returned with stories of a great luau, gifts of shells and fans, and sad tales about the good birds they missed, including a New Zealand Cuckoo and a Lark.

Nov 12. Up early to go back to Enybor to retrieve rat traps so we can depart by 10. Five of the traps had disappeared, a few were spread open and the door had been chewed off one. I didn't realize we were after such big game.

Before leaving the ship we got word from Abby that the local women's club requested our presence on Valuel since most of us had missed last night's festivities. Binion, Dave, Roger and I went right in from Enybor and Phil, Larry and George joined us ashore.



H. Thompson  
1964

Journal to Mackinac

except for a few interesting shorewater-  
fretful very few birds were around  
after we left the island.

Saturday  
Nov. 13. Arrived at Mackinac Island about  
noon. While watching natives headed  
for the ship in their canoes I discovered  
George below by the boat revealed  
limb-fouled by a clam he had picked  
up on deck which promptly closed on  
his fingers - he thought it was dead.  
Ben Brown extricated him while  
everyone chuckled at the ridiculous  
but painful scene.

While Ben talked to the native  
Magistrate, Police Chief - doctor who  
had come aboard we got gear ready.  
We had never wanted to try using  
the ship's motorized whalboat since  
we were low on gas. It was lowered  
in the water to the sound of much  
creaking and squeaking. Immediately  
water began running toward the  
back. Mr. Nelson asked MacLewon  
if it was leaking and he said the  
water was surely draining from the  
bow. As the boat continued to settle  
in the water he reconsidered his  
position. When told to haul the boat

K. Amerman  
1964

Cook's Bay

back up the river and "already" and  
Rabon replied "yes, the  
----- is sinking!"

All of us went in to *Centricum*  
about 2 P.M. <sup>to get the 2 specimens in their canoe.</sup> We were greeted by  
the usual crowd. The "idiot" found  
we were coming, which explained  
the first question asked, "what is  
wrong?". Several of the men and boys  
seemed particularly concerned by our  
raft. One asked if he could feel  
our tube. Eventually taken aback, we  
said yes and he went to work  
feeling and probing the raft.

We left *Centricum* *long* *drive*, Chris  
and set out for *National* *Trail* *cross*  
the *hollow* *by* *the* *river* *which* *attempted*  
to shoot a *Centricum* *by* *the* *way*,  
thereby *losing* *all* *of* *our* *ammunition* *and* *returned* *back* *to*  
the *ship* *by* *a* *side* *above*, *and*  
*continued* *to* *remain* *on* *the* *island*  
about 4 P.M.

The island was set in two *sloped*  
*parts*; *both* *with* *high* *thin* *trees* *and* *these*  
*were* *possibly* *Pinus* *speciosa* *not*.  
*Pinus* *was* *in* *the* *east* *only*. *A* *little*  
*Scorpaenidae*, *Muraenidae*, *Labridae* *or*  
*Blenniidae*, *Scorpaenidae*, *Labridae* *and* *one* *or* *two*

H. R. ...  
1904

... ..

... ..  
... ..

Population estimates -

~~...~~

1800 ... ..

Fairy Tern

in air, dusk

Great Frigate

" " "

Lesser Frigate

Red-foot

Bonin

Birds - High

Maritime

Phalarope

Red Phalarope

We met some fishermen who were gathering bait for bait. After collecting, however, ... .. Fairy Terns, Red Phalaropes, Frigate Cove of which we could not find any ... .. we had to retreat ... .. food sampling, ... .. collecting plants we ... .. We were ... .. getting ... .. through ... .. to the ... .. morning ... .. there was a ... .. the front

H. Henshaw  
1954

Main Deck Subject Records

compartment of the raft called simply  
on the water. Since we and the gear  
were mostly in the rear we were  
quite pleased that the rear compartment  
held up. Benson & Lopez & I grabbed the  
bowline and used it to dip the front  
end out of the water for the last  
quarter mile. It's really a shame  
it was night when we reached the  
ship - another perfectly nice  
not recorded for probably. The  
few crew members aboard could not  
restrain their tears for laughing so  
hard at the sight of our "deflated landing  
raft", as it was termed.

We ate, catalogued birds and  
watched movies. Phil took a raft in  
to the water and George & Harry  
returned with the birds, including  
a godwit. Night time at sea in  
the ship will also include a colony  
of Red-tailed Tropicbirds (3), a Trinidad,  
and a psychodermis (about  
an acc-murderer in a family in which  
a young girl had drowned 5 years before),  
and "Call me Brown", a Red-tailed -  
Antarctic Erland Black tail.

H. L. Loomis  
1964

19-21st July, Tokelau Islands.

Nov 14. Arrived 9 A.M. Camin, Phil, Chris & myself set out in the repaired raft for Tokelau again. There we collected more birds, mostly noddies and Fairy Terns. I found the missing logpate from yesterday.

At noon we headed for the next island north (Tubuae) which we understood was inhabited. On the way we collected some Black-naped Terns in a feeding flock. We stopped at an unvegetated sand-coral bar where we found about 10 Sooty Terns and 60 Black-naps and 18 Black-nape nests on the rim of the highest area of the inlet. Half the clutches contained 2 eggs, half one.

We went on to Tubuae. This island was inhabited by only one family, a man, 3 women, a teenage boy and a couple more small children. It was very reminiscent of Tokelau Island though smaller, with mangrove along the shore and little or no undergrowth beneath the beautiful tall palms, most of them leaning toward the lagoon. The man could speak only a half dozen words of English. Though quite we got him to take us around the island. The lagoon was about

R. H. S. H. H.  
1964

Native Sites, Island, Islands

exclusively with *Eschscholzia*. *H. hirsutissima* formed  
the main ground cover in open areas. A  
large portion of the ground was covered  
by fallen coconuts and palm fronds.

We were lead to the northernmost  
point of the island. There the native,  
all males, proudly showed us some  
sort of a monument or shrine. It  
consisted of a 3 foot high pillar  
ringed with 3 strips of coconut leaf  
and topped with half a coconut, perhaps  
representing a human figure. At its  
base was a neatly arranged group  
of clam shells, one beside each other,  
beneath a flat rock. He uncovered  
the ceremonial shell, in which were some  
cash and unburned tobacco and  
indicated he would a cigarette, which  
he placed with these materials,  
evidently as an offering. On the  
surrounding coconut palms names  
were inscribed. There was an opening  
facing the ocean, however, and the  
native indicated something about in this  
connected with the monument or altar,  
with a successive gesture of his arm.  
The thing might have been a grave,  
in light of the names on the trees,  
in which case the native might have



H. Robinson  
1964

Marlin Bay, Gilbert Islands.

and indicating which catches were it  
or the larger ones, ranging about  
the center there. It may have been  
an altar in which sacrifices were given  
to insure good favor of the gods of  
sea and wind.

On the way back to the hut Timon  
stopped and excitedly pointed to  
a red-rumped Turnstone in a group of  
6 on the shore. He ran for the gun,  
returning shortly followed by the excited  
boy. The group sat tight, waiting in the  
small pools among the jagged coral and  
Timon got one bird, a remarkable  
good. The lowest number was from a hundred  
adjacent to the one we were given on  
Jaluit, making at least 3 records of  
Austrian Turnstones for the trip - fantastic  
luck!

At the natives home we were given  
coconut milk and fresh pictures. We  
then said goodbye and decided to  
go on to the next island north. We  
had been told that it formerly had  
many birds but these had been removed  
by cats. There were only 2 or 3 Hawaiian  
Noddies and a few Fairy Terns on it  
though it looked suitable for hundreds.  
We saw no signs of cats in our brief

H. Norman  
1964

Wakin Atoll, Tokelau Islands

stop though they must still be there. The vegetation was a pure stand of forest of thin light-colored trees, possibly *Pisonia* or *poa* wood.

After a long, rough ride back we reached the ship at 4 P.M. While standing gear up I suddenly found myself looking at the bottom of the boat. It happened so fast I'm not clear how I did it - evidently the raft swung out as I was leaning forward. Roger looked on obviously in the lab during the ensuing laughter. I suspiciously looked myself out and went up for a shower, suppressing all the way.

After eating and cataloguing Phil took the raft in and brought Larry & George and their picnic back and then all of us but Roger went in to Pukaitara, many after a short rest under a light moon. The rest of us to join the crew in the local meeting hall for another night's festivities. This village seemed the loveliest and neatest I have ever seen in the South.

When we arrived we were seated with the other crew members on mats on the general floor and presented with paper lin and a woven mat

H. American  
1964

Malam Malam, Gilbert Islands

on which was food - slices of fish,  
sort of a vegetable soup, turnip without  
taste, undercooked and unseasoned  
chicken, and a kind of candy made  
of melted tano, molasses and coconut.

The band, consisting of four guitars  
and ukuleles, was seated on one  
end of the front table. Beside them  
was a group of women and girls. Families  
and other spectators occupied the  
long sides, including many children  
behind us, and more people even stood  
outside the building. At the end  
opposite the band was a table with  
a record player. The village notables  
were seated there.

The building was a magnificent  
structure, large, high roofed with  
great supporting pillars and log beams,  
reminiscent of a cathedral and similar  
of Nagan buildings.

While we ate the band played and  
they and the girls sang, somewhat  
silly Gilbertese songs. During some  
of these girls would get up and a girl  
would get up and do a slow solo  
dance. She would sit and another  
would replace her with a different song.  
Then some of the men came out singly.

10. American  
1924

10. American  
1924

All the while the music was increasing  
in intensity and the singer's working  
hands and ankles. Finally girls lined  
out again singly and moved in front of  
the one of us selected as a partner,  
motioning him to join her.

The previous night there had been an  
auction. In order to stop the auction  
and begin dancing someone had to bid  
one pound for a bid. In order to stop  
the dance and start the auction the  
man had to stop. This night there was  
only dancing, most of the girls choosing  
the partners of the previous evening.  
The dance was the first of all the  
circumstances things to find here, emanating  
from something heard in a Micronesian  
celebration and I suppose the rhythm  
leads itself to these people's natural  
dancing inclination and ability. Not only  
note, from the function and energy  
of the dancing I could see the  
reason for the excitement to stop the  
dancing last night.

At one point the music was heard  
that we were then in turn of  
singing. This was to change several  
times at each about stop,  
always with the same result. We

H. H. H. H.  
1954

Wahine, 1954, Gilbert Islands

could not come up with a song which  
anyone knew or even that a few people  
knew well. Instead scatted notes always  
a halting, giggling, fester which would  
have made us look ridiculous if not  
insulting <sup>in comparison</sup> to the better and superbly  
long songs they air for us.

Jim, Ben and I gave a bad team  
up on a couple of Hawaiian songs  
which were beautiful, though Jim's  
powerful bass and vibrant occasional  
much laughter on the part of the natives.  
They evidently found it very strange.  
Then they also did a lot of clapping  
and pseudodancing which went over  
well though perhaps magnifying the  
ridicule. Jim and an actual girl  
called "Pia" called to her "Pia" then  
they "danced" at no point to any-  
one's amusement. The dance was  
apparently a low down and rate one  
Jim as partner. They were in the  
dance when it looked as though she  
might throw her upon the wall,  
a provocative fact, indeed. Pia was to  
dance nearly in contact with Jim  
girl after us left and she uttered to  
me with. She nearly had to open her  
mouth and the natives burst out laughing.

H. Ammann  
1964

Makin Atoll, Gilbert Islands

About 10 p.m. there was an intermission during which we were served coconut juice, from the shoots rather than from the nut. It tasted almost the same as the tiao candy. After one more dance half of us left. The rest returned after midnight, with the exception of George, Phil and Dave who spent the night at the schoolhouse.

Erinon, Phil + I bought 3 floor mats for \$5, beautiful things, 4'x8', woven with patterns using light and dark leaves.

Nov. 15

Up early and in to the island (Butari-tari) by 7:45 to pursue shorebirds found on sand flats yesterday by George and Larry, including Black-bellied Plover, Whimbrel, two species (?) of Godwit, Sharp-tails, and an unknown stilt. We stopped at the pier and picked up George, Phil, and the mat salesman who was to show us the channel to the area, since it was low tide. All the way, Larry complained vociferously and tactlessly about the waste of time and imaginary channel. It's remarkable the way he learns the topography of a new area in a day or so, especially the submerged portions.

W. H. Henshaw  
1964

Notes from Gilbert Island

We spent two hours combing the flats  
also trying the water for a crustal alga  
and standing in to the beach and collected  
only 4 *Gobiosoma*, 1 of two bird lengths but  
apparently the same species, and 1-2 centipedes.

Then we returned to the pier, picked  
up several crew members and Dave and  
headed out. The ship spent the  
afternoon a little after noon for Maiana.  
Remained at Maiana.

The at-sea net produced several  
stomach-patches for the first time. Most  
had broad white wing patches extending  
over half the tail and dusky wing bars.  
A few were solid black. <sup>aquatic birds!</sup>

Nov 16 Saw only birds as we approached  
Maiana Atoll early in the morning, most  
of them in a large flock.

As we passed the reef a small  
island passed across our bow. We  
learned later that it was the John Williams,  
English colony boat on its monthly (??)  
supply run. It was in a cove in place  
and probably used for stores.

Returned at 4 PM, set out in the  
net about 10 miles from Maiana  
(over 200 miles) with us, and  
made two stops at the small boat

H. Rimmerman  
1964

Marana Atoll, Gilbert Islands

Nov 15 passage to no avail, then motored in as far as possible and dragged the raft a long way to semi-dry ground. Larry went off along the beach after birds, Roger did the same in the opposite direction and I followed him counting starfish or something, while Binion, Phil & George + Dave headed toward the point where they thought the village was. Roger + I were met by a native who asked in halting English that we come in to the village. Roger declined and went off collecting again which aggravated me further.

The native, several dogs and I went in to the village and greeted the population. There was one old woman, quite as dark as the rest, who spoke impeccable British. It turned out her father was English and she had been educated in Sydney. I thoroughly enjoyed talking with her. I explained what we were doing (while distant shots boomed) and she in turn told me much about the small village. The only birds they knew of were Noddies and Fairy Terns. We sat in the meeting hall, a smaller version of the one at Makin. The townspeople drifted in



H. Ammann  
1954

Minoran (Hill) village

and all kept their jobs in the  
community. The building we were  
in is called a manor. The supporting  
pillars, of pandanus(?) wood, must be replaced  
once a year due to rotting and termites,  
while the thatching is good for 3-4 years.  
There were only 9 houses in the village,  
arranged in a rectangle around a  
central square in which the manor  
stood. At one end of this building  
was a piece of the Royal Family  
and the manor name Turstanak  
(pronounced sen-sau-ka) which  
was the name of that particular  
manor. The village name I could recall  
but it was different. Most of the  
houses were thatched and without  
raised platform floors.

I was served the manor drink  
and presented with several items, such  
with an explanation. Said manor,  
which could be stored indefinitely, then  
eaten as it is, boiled for about an hour,  
drilled clean, or in case and the hot  
manor worms from the manor take  
fats, with of which the manor could  
be taken when she found out. I was  
interested in all the local manor life,  
a manor and a beautiful manor which

one of the people sitting beside me -  
I was very sorry I had absolutely nothing  
to offer in return. Just before I left  
the woman wore a bundle of a half a  
coconut frond and stuffed with the  
gifts in it.

She added that the lagoon fish were  
not eaten there, that the natives were  
not allowed to trade between shells  
any longer due to the danger, even that  
there were numerous ritual fish about  
which caused painful wounds and  
to my understanding can be fatal, but  
which the natives treated with leaves  
of a particular tree which she pointed  
out growing in the lagoon.

I went back to the raft and met the  
stern and we headed back to the ship.  
The ship moved south opposite the  
second small boat pass, towing the raft.  
Lenny stayed aboard to skin while  
the rest of us continued on the largest  
raft side yet, about 5/8 mile from  
the ship to the lagoon.

Roger and I climbed onto the raft,  
quarantining it against the wind waves  
being, while the others sought out the  
marginalia. They talked instead to the  
wireless operator since the marginalia

K. R. Rasmussen  
1954

Manning Island, Tokelau Islands

was due back this evening. Because  
it was so late we requested and got  
permission to remain on the island overnight  
and to skip the ship of our plans.  
Roger and I then set out collecting  
along the east coast beach, followed  
by the crowd and din. I managed  
to persuade most of them to remain  
with us while Roger went ahead to  
shoot but this was only temporarily  
successful since more birds poured  
out up the beach. I picked up the  
birds Roger got; after a short time  
they began arriving by native runner.  
We already had a total of 11 Ruddy  
Turnstone for the night when a boy  
came up with about 10 at once.  
I wondered if Roger had for lunch  
or what if he was much collecting  
anything to 10 was his audience but  
he explained that he whole bunch  
was downed at once and he had a  
a common subject.

After collecting, we checked the  
some Hawaiian birds as returned to  
the left at dusk. The registration  
had arrived and was killed in.  
Through his interest, the school teacher,  
he asked if he could visit the village.

We agreed and Jimmie carefully explained the mechanics of the P-gauge. Jim took two shots at places on a rock apparently out of range, and seemed satisfied.

With the natives help we packed most of our gear up to the townsite but where we were to spend the night. The site was a three-part building, the center completely walled on the outside and the two wings with half walls. The interior portion was apparently the sleeping quarters and the other areas were used for eating and socializing. Large mats were placed on the floor for us to sit on and dining-room-type chairs were brought in also. They placed a Coleman lantern on a table and the village signitans sat along the end wall and we talked back and forth. Roger built up on the floor beneath the light with a fork.

The teacher told us much about the island. It is organized as a cooperative society. The native money is gold coins, which is also taken to the cooperative stores and exchanged for currency. The store produces about 100 tons a year, all

H. Newman

1964

Russian School, Gilbert Islands

of a pound. Twelve grades of school were taught and at the completion of this year students who could qualify could continue his education at Tarawa. About half a dozen children each year went to Tarawa.

During this time villagers had been sitting in, chatting in the covered walkway on the side of the room we occupied - this was part of the hours. I was asked for a guitar and received one with a missing string. He used it for about 15 minutes but could make no headway with the missing string and so gave it back to the owner who retuned it. He began to play and about 4-5 young men sang, still sitting out of sight in the walkway. The teacher then asked if we would like to hear some of the old style singing and we of course said yes and were glad we did. Two men sat facing each other, opposite, and each covered his right ear with his right hand. They sang a complex kind of song very complicated and somewhat strange to our ears but very pleasant. The purpose of singing in this fashion

U. S. ...

1964

Native Arts & Culture Exhibit

was to enable the partners to follow each other respectfully and maintain patterns which they had developed.

The song they had sung had been a love song written about 50 years before. It was all such songs composed today are written in the old language which has few uses of use for about 50 years. A nation old man sang another love song in a slightly different style.

Next, several dances were performed. The police chief, a natural fellow in a real sense, who reminded me of Jack's behavior did a solo "dance" while seated with his legs crossed by a mat. The words and motions were led up as if meant and the chief was obviously enjoying himself. Then 2 couples sat together in a square and went through a hand-drum dance which got more & more excited and mixed up as it proceeded. Finally, 12 people formed two rows of six, each of an arm extended a short dance, clicking sticks with one of the three people opposite them. This also provided everyone with much fun & laughter.

P. Augustin  
1960

Music at the school

It was led by the school chief, who  
directed musicians at the beginning of  
each lesson, always starting with the  
same phrase which sounded like  
a-ee-i-ah-nyah.

At this point there was an intermission.  
Then we were asked to help with  
an art hour in the school. Evidently  
this is the custom here, to exchange  
entertainment rather than one group  
remaining more spectators. We learned  
and learned and finally "sang" about  
a dozen songs (actually words fragments  
of them), including some Christmas  
songs. Again it seemed as though  
inexpensive efforts in return for theirs,  
but perhaps only to us.

The magistrate then spoke, saying they  
had no formal celebration prepared since  
they had no notice of our coming, but  
that they had enjoyed our presence.  
Dinner prepared in kind and we  
gave the teacher some soap, cigarettes  
and gum to be passed out. Everyone  
said goodnight and we prepared for  
what the best way we could. I was  
glad I was in the same position of  
the house when I was in the city.

4/11/1961  
1961  
Kuparuk River, Alaska  
Nov 16

since it had got quite dark in the other room, just sitting with the lights right off the coast. At that I had to know under the mat during the night.

Rogers' lack of social anxiety was only partly removed by skin scratches. We kept looking for a trap door to drop him through.

Enjoyed the authentic folk music more than

Nov 17. Was very early, so it <sup>was</sup> ~~was~~ <sup>quite</sup> ~~quite~~ <sup>early</sup> ~~early~~ <sup>in</sup> ~~in~~ <sup>the</sup> ~~the~~ <sup>morning</sup> ~~morning~~ <sup>and</sup> ~~and~~ <sup>we</sup> ~~we~~ <sup>packed</sup> ~~packed~~ <sup>our</sup> ~~our~~ <sup>gear</sup> ~~gear <sup>back</sup> ~~back~~ <sup>to</sup> ~~to~~ <sup>the</sup> ~~the~~ <sup>raft</sup> ~~raft, said our goodbyes (Tukade, pronounced ca-kah-to) and went to the ship by 8 P.M. after abandoning efforts to run down to the southern islands due to low tide. The magistrate had wanted to visit the ship, so he was up before us, taking some with him in a large outrigger which was government-owned. Sarge later related that the craft was run by local jail inhabitants as part of their sentence. For the local inhabitants of work and discipline, however, sentenced to 1-3 months in jail, during which they do work for the community, they are allowed to go home Saturday noon and return Sunday evening.~~~~



W. H. Bennett

1934

Nov 16 - 17, 1934, Palmyra Island

Nov 17 (cont.) The ship got underway at 0700 and we suddenly encountered numbers of birds - white terns in flocks of up to 100. They were not nesting as I saw the birds flying level with the water - many flaps and glides. One or two birds had broken wings but we not convinced they were terns - not flying as I saw other terns. We saw three birds <sup>to west of</sup> 5 miles from Kusaie, all moving in a westerly direction. Quinn got four shots on possible great species and it simply disappeared. The captain could be seen to fly off, however.

We arrived at Kusaie about 3 P.M. There is no lagoon. We saw more corals here than at any previous atoll - probably due to the absence of a lagoon. We quickly got ashore, were greeted and explained our purpose. Roger went off alone to plant collecting and after Quinn upon the island register in a log, was found with pictures of all but the one young. I set out in the direction of the shore, looking for New Zealand Cuckoo on the way, since the natives would surely find it. Quinn followed with me

H. P. ...

1954

Twin Peak, ...

(16)  
17)

found quite. He saw no ... but  
 I got another ... instead,  
 a ... which Larry  
 collected out of a ... In  
 contrast to the ... the ...  
 sits 1/2' away from the base of the  
 leaf, rather conspicuous. Some ...  
 and ... were also collected.  
 Only Ruddy Turnstones (300+), Golden  
 Plover (50±5), and ... (15-20) were  
 present at the point, which was  
 salt water over mud like that around  
 the lagoon at ... Not watching  
 where I was going, I went in it up  
 to my knees - pleasant!

We went on back to the raft and  
 decided to head back to the ship.  
 Brian, Larry, ... & myself went  
 in the raft carrying four ...  
 village ... who wanted  
 to see the ... They  
 ... since  
 the ... when  
 we ...  
 we were ...  
 morning ...  
 ship. ...  
 ...

H. H. H. H.  
1954

Carrie April, Biddle Island

mostly but since we were in no hurry  
I made notes of it along. Cataloguing,  
and reading filled out the evening.

Nov 18 After breakfast all of us went  
in a binon and left early to the  
nose station and low mountain island  
(Bumbe?) for collecting, the rest  
to Kuvie. The 3 boys headed north  
to Hurong while Roger & I went to  
the pond to check it out again. There  
was very little there this time so  
we went out to the end of the island  
and looked up the east shore. We  
could see Bumbe still in the distance.  
Sailing north, passing we headed  
back along the west beach, collecting  
shrimps on the way. Roger handed  
the gun to me and I found out why  
after collecting 3 shrimps. Those 12  
gauge magazines really slammed very  
loudly, probably due to not holding  
the gun right.

We went to and through the village,  
our maps give varying theory in town.  
On the way we met three and they  
were had some to do to show  
performance by the children, some white

House of the white island

and all. They continued and we went  
 on to the flopple and then we found  
 the wall was half way down the  
 track. While waiting to down the further  
 landed out a shilling to the boys who  
 had watched the night (we had about  
 to leave it early on for some time to  
 the same side, after getting it out for us  
 by following the only channel, (no one  
 having thought what exist). The other  
 finally got across and the money  
 was to be shared by all the party.

About 30 crabs were and 2 black-  
 napes were sitting off a number of  
 crabs when we went back for dinner  
 and honey. Roger picked up the gun,  
 we moved on, continued forward in  
 until I could see the crabs walking  
 around. The birds finally took off with  
 only a shot fired. The explanation  
 however was I had shot a black-nape  
 before starting my gun about 100  
 off on the last shot - I was then in  
 heavy, had got 4 sharpshooters in  
 along on his stomach after them.

I obtained in the afternoon I was  
 caught a case in to try again for  
 pigeons and could not finish work

... ... about ...  
... the ... ..  
... ..

From the middle of the afternoon  
a canoe began streaming out to the  
ship and the various natives were taken  
on board of the vessel by various crew  
members. They remained aboard in  
anticipation of the roving since last  
night's guests had been treated to them  
all night long. This, the practical  
part set, finished showing the boat  
on about 3:30 P.M. The then working  
half the enthusiastic audience and they  
departed before breakfast, much to the  
steward's relief. The chair came  
around supper time when a larger  
boat came alongside bearing 23 natives  
including one white girl who spoke  
no English. Carver continued to arrive  
after dark and at last some there  
were on board as in a real flotilla  
of the stern.

Also about ... ..  
ship arrived, carrying the 7<sup>th</sup> day  
... ..  
of their arrival was occasioned by  
our presence. Apparently as a result,  
however, ... ..

K. Amerman  
1964

Kuria-Kranuka

a church meeting that night, mistaking  
it for a party.

We got news that a message had  
been received from Tarawa saying  
we did not have permission to visit  
these islands. The usual lack of  
notification had caught up to us at  
last. We heard no more about it so  
it was evidently cleared up.

Nov 19

K. Amman  
1966

Sand. Johnston

This has been through and  
~~sent out to him~~ 9/24/66

K. Amerman  
1966

Sand - Johnston

January 17 Departed Honolulu 0800 via MATS N-23. Arrived Johnston 1100. Checked at Terminal, no one knew anything about bird shipment except that there definitely was no flight Wednesday or Thursday, lugged my gear to the boat dock by hand and arrived on Sand about 1230. Maze knew nothing of shipment. Called George Jung in N+N Shipping; he said we could put birds on flight tomorrow. We went to J.I. on 4<sup>30</sup> boat, got <sup>30</sup> cartons (albatross size?), absorbent material and unwarped cardboard bottoms; no liners. Returned to Sand on 7<sup>30</sup> boat. Began catching birds about 10 P.M. after assembling a few boxes. Catching went well so we made up the rest. Finished catching & boxing about 0100, labeled them & punched air holes and got through about 2<sup>30</sup>. We ran out of tape after doing all the bottoms, just folded the tops together. Caught a total of 58, 2 per box. The last few took us through the entire colony, all birds in air. About 20 eggs; one new chick on bunker by islet. Males were much more numerous than females.

Tried to call Dr. Ely about 2000 before beginning our labors. Honolulu operator and Pearl Harbor operator got recordings signifying non-working navy no. when they dialed 39103. So far it has not proved an auspicious start.

K. Amerman  
1966

Sand - Johnston

January 18. Up at 0715, nothing to do but watch the morning's proceedings until about 0815. Birds taken to Johnston by 0900. Warehouse people - most cooperative, gave us tape for the tops of the cartons though they might have been shipped just folded. All birds were alive yet. No banded ones had been taken.

Returned to Sand on 1100 boat. Rested until about 1400 after lunch. Then to colony to pick up guy wire casualties and autopsy. Casualties concentrated in area C, southern 1/3 of areas B + D (esp. along south shore) and western side of area E.

No Sooties examined had brood patches. Males had testes averaging about 11 for left, 6 for right; female's ovaries about 12x5, ova 2-3. Sex ratio nearly 1:1. Estimate 150<sup>+</sup> total collected; 24 autopsied; 15 bands recovered.

Frigates did not seem much disturbed by last night's raid. Males are definitely more numerous, actively courting. Entire nesting colony has shifted from hill to south shore rocks except for a few on the islet. Perhaps this was the original site and was disturbed by Coast Guard activities before we arrived.

one Red-foot beginning a nest, on the north shore site. No Browns nesting. Some Noddies with eggs on peninsula and east shore.

Saw 11 Fairy Terns on Johnston yesterday.



R. Amerman  
1966

Sand- Johnston

January 19 We collected Sooties and autopsied in the morning. Total of 65 dead or badly injured, plus 2 Common Noddies. Autopsied 13, none with brood patches, <sup>3</sup> ~~one~~ molting ~~one~~ ~~reasonably~~ one tail feather each.

Found one Blue-faced Booby on guywire base #7. With the exception of 2 imm-SA at 1900, no Browns even sitting on the hill in morning or evening.

Afternoon spent on book work. Checked the other end and collected Beclases 1900. Banded from 2030-0030, total of 400 + <sup>41 returns.</sup> first hundred checked for brood patches (0) and molt (2 w 1 outer retina).

No Graybacks resting yet. They are on the istlet and pier and a few were on the rocks above the pier after task.

Returned one Hawaiian Noddy while banding. Total of 7 Blue-faced on #7 1900.

About 150 adult frigates in resting colony, many immatures sitting around periphery.

Sooties begin to mass offshore about 1500. They form two swirls, one off north side, other off south. They do not come in over island until about 1900, funneling in from west but not flying much over the causeway except for streaming across it earlier. First birds alighting about 1915, low in area D about 1/3 the way from the road. There seem to be two groups of birds, some swirling fairly close + streaming back + forth over island; others are

R. Amerman  
1966

Sand- Johnston

January 19 far out and in greater numbers, apparently do not come in to land as early as the former group. Perhaps latter are the first arrivals, which now form a cohesive unit after perhaps having built up to a number which could trigger a new phase of behavior. There was no moon while we were out and the birds seemed to be holding rather well. Also, they are down over a large area, including area B and area D between roads shore.

January 20 Same routine as yesterday. Only 3-4 Bluefaced present on #6 guywire base in A.M. Banding 2030-0015, total 500 Sooties. We worked the east side of the Knitter building, found the birds much more edgy than on south; finished on south. Saw two Sooties standing on dead ones, either outpacking or attempting copulation.

January 21 Hourly counts on Sooties + Frigates today. Summary: Redfoots decrease sharply right around sunrise, remain fairly constant thereafter until evening inflow between 5+7, though much shifting around was noticed from about 4 P.M. Browns concentrated on hill until about 9, then drop off until 1200, then <sup>increase slightly</sup> remain steady until 1500, mainly on guywire bases + pilings; increase again between 4 + 5 P.M., coming back to the hill until 6, then moving back out to platforms + bases. Almost exclusively immatures in colony site during the day. Some bill-fencing noted in A.M.

K. Ammann  
1966

Sand. Johnston

Jan 21 (cont.) Blue-faced Booby - 4 on #6 at start, 2 most of day after; a third appeared about 1600, sat on base for a period, then moved to rocks among frigates for 1/2 hour. All active around 1600, jumping off into water & flying short distances.

Great Frigate - similar to Red-foots: decrease from sunrise to 11, then inc. to 6. ~~around sunrise~~, then constant until 4-5, increase again. Colony about constant all day. Immatures sit in two groups, at E edge of colony and between two segments of it. Witnessed two copulations (or attempts), much courtship. Sometimes, evidently when the pair bond has been established, when the partner alights beside the other they fence bills briefly and shake heads mutually. This also occurs when ♂ brings nest material. Female accepts, places, then may fly off leaving male to finish incorporating it into the nest; several males busy with nest while females gone.

Saw two adult ♀ frigates land among 7 immatures on hill 1540. One ♀ fed two chicks, the young going inside her bill to get the food; evidently not a whole fish regurgitated; both bills level, so food, if liquid, still wasn't "poured" into young.

	0800	0900	1100	1300 - 1800	1900
Grayback Tern -	175	175+	40	10+	?

Dick found first eggs today, 7 on pier + 1 on islet.

500 Sooties banded.

K. Ammann  
1966

Sand - Johnston

January 22 Sooty Tern mortality only about 1/2 what it has been previous days. Perhaps this was due to lighter winds last night, or fewer birds being present? Checked pier, one new Gray back egg (total 8).

Surveyed Johnston between 1700-1900. Found 2 new tropic bird nests with eggs plus the older one. No other birds seen flying. No Fairy Terns seen. Only 6 plover, 20 turnstone, 2 tattlers and one Sanderling seen.

Banded 100 Sooty Terns, checking for molt & brood patches. Three of mine were molting around 11-14<sup>th</sup> secondaries only. No brood patches yet anywhere on island. Worked returns after this - they were much scarcer than last night. The <sup>percent</sup> ~~number~~ already banded is remarkably low, from observation.

January 23

The first Christmas Islands appeared - a pair sitting by the large slab on the east shore at the base of the peninsula. Returned one. (1300). One present at night? on slope?

Gray backs beginning to lay on west edge of peninsula near tip - 3 eggs, one broken. Eggs on pier now total 13 + 1 on rocks by pier.

one of the two Common Noddy eggs on the peninsula hatched.

Total of 800 Sooties banded.

January 24

Total of 35 Sooties collected from guynies. Red-footed Booby nest on north shore has disappeared. Probably 100-150 Common Noddies roosting on peninsula and grass along east side - 17 banded.