

Preliminary Report
Laysan Island
October - 1966

Biological Survey by Pacific Program Personnel:

Kenneth Balcomb (Biologist-in-Charge), Patrick Gould,
Brian Harrington, Jim Lewis.

Survey Period:

20 - 23 October, 1966

Support Vessel:

ATF 111, "TAWAKONI"

Schedule:

Party landed on Laysan Island	1945	20 October
Recapture selected species	2200-0330	20/21 October
General Biological Survey	0930-1500	21 October
Party return to Support Vessel	1530	21 October
Party Return to Laysan Island	1915	21 October
Blood Sampling Selected Species	2300-0600	21/22 October
Unable to get off island on 22 October Due to Hazardous Surf conditions.		
Band and Recapture Selected Species	0300-0730	23 October
Party return to Support Vessel	1210	23 October

Methods:

The field party landed on the island at night with the aid of the support vessel's powerful searchlight. After establishing a campsite next to the F. & W.S. sign, the party began the night's work of recapturing as many banded birds as possible, and attempting to determine the ratio of banded to unbanded birds. On 21 October, Gould and Balcomb walked around the perimeter of the island, while Lewis and Harrington surveyed the interior. A shorebird, turtle, seal, and nest count was accomplished at this time.

The party returned to the support vessel in the afternoon of 21 October for the evening meal, and for ice and blood supplies.

Several bird species were blood sampled during the night of 21/22 October, and many additional recaptures were made. Banding was done only within the requirements of the blood activities and to finish partial strings.

The wind came on moderately strong from the north during the early morning so that by the time daylight came and we were to go out to the ship to process the sera samples, a very considerable swell was coming in diagonally across the channel entrance creating very hazardous surf conditions. The surf was breaking quite gently on the beach, but outside the channel entrance there were breaking rollers for several hundred yards, making it impossible to get through without getting hit.

During the day of 22 October, Harrington and Balcomb spent several hours at the north end of the lagoon observing and photographing shore birds and Laysan teal. Harrington wrote the shorebird portion of this report.

Banding and recapturing of Boobies and local Frigatebirds was the order of the night for Gould, Lewis and Balcomb on 22/23 October. Harrington worked on Common and Hawaiian Noddies. Very bright moonlight delayed these activities till the early morning hours.

By noon of 23 October, the swell had come down enough that it was reasonably safe to depart the island.

ANNOTATED LIST

BIRD

Wedge-tailed Shearwater (<u>Puffinus pasificus</u>)	Population Estimate	-200,000	Rel. Class D
	Number banded	-100	
	Number recaptured	-1	
	Specimens collected	-See Text	

Wedge-tailed Shearwaters were not generally as dense as they were on Lisianski, but there was more area occupied by them. They were present on most of the island, but the highest densities seemed to be on the west side of the island in the Eragostris areas. Large groups of 30-75+ birds were occasionally encountered in open areas around the lagoon, on the north beach, and between the lagoon and the outside beach on the southwest side of the island. The population figure is for adult birds only, and is only a little better than a guess.

Since Bonin Island Petrels were relatively much less abundant on Laysan than on Lisianski, the problem of figuring the approximate number of Wedge-tail burrows was reduced somewhat. It appeared that there were approximately 1/5 to 1/3 as many chicks as there were adult birds. All the young birds that were seen were in the early feathering stage.

Banding and recapture of Wedge-tails was not emphasized due to limited time available for activities on the island. Adult Wedge-tails that were bled were banded and released. One bird died as a result of blood sampling. An additional nine birds were collected for NASO-parasite studies, but the specimens spoiled when we were unable to get them to the ship due to the surf conditions.

Christmas Island Shearwater (<u>Puffinus nativitatis</u>)	Estimated Population	-50	Rel. B
	Number banded	-0	
	Number recaptured	-0	
	Specimens Collected	-0	

This species was present on the island in the form of fully fledged chicks under the Scaevola around the island. One fully fledged local was seen in the rocky area at the southwest beach. The population figure is essentially a guess and should only be used to indicate that the species was not very numerous.

Bonin Island Petrel (<u>Pterodroma hypoleuca hypoleuca</u>)	Estimated population	-20,000	Rel. D
	Number banded	-0	
	Number recaptured	-0	
	Specimens collected	-0	

Bonin Island Petrels were seen occasionally during the daylight hours, and were more often observed at night. But they appeared to be

no where nearly as abundant, relatively or absolutely, as they were on Lisianski Island. The area of highest density for this species was between the lagoon and the Scaevola on the west side of the island.

Mutual preening and courtship was observed for this species, and many birds were actively digging burrows. No eggs or young were seen.

Banding and recapture of Bonin Island Petrels was not emphasized due to limited time available for activities on the island.

Red-tailed Tropicbird (<u>Phaethon rubricauda</u>)	Estimated population	-50 Rel. D
	Number banded	-0
	Number recaptured	-0
	Specimens collected	-0

During the course of the survey on 21 October, a few adult Tropicbirds were noted in the air over the island particularly on the west side. The population figure is for adult birds only, and should be used only to indicate that this species was not very abundant.

There were several fully fledged chicks within several hundred yards of the campsite. No nests with eggs or small chicks were seen.

No Red-tailed Tropicbirds were banded, recaptured, or collected during the course of our stay on the island.

Blue-faced Booby (<u>Sula dactylatra</u>)	Estimated population	-250 Rel. B
	Number banded	-35
	Number recaptured	-78
	Inter-Island	-5
	Specimens collected	-0

Blue-faced Boobies were primarily around the central lagoon on the east side. Occasionally birds were encountered in open areas around the island. The large beach areas of the island were not surveyed at night, so the population figure could be considerably in error if there were any large clubs of birds roosting there at night. Very few birds were seen during the day either in the interior, or on the outside beaches.

Almost all of the birds seen or handled were adults. All the young birds were either able to fly or almost able to fly. Four of the recaptured adult birds were banded with number eight bands on the left leg, indicating that they may have been banded as chicks. They were not on the banding list.

One adult male recaptured was banded on Sand/Johnston in February, 1964. Seventy-three of the recaptures were Laysan returns.

One Blue-faced Booby died after being blood sampled.

Brown Booby (<u>Sula leucogaster</u>)	Population Estimate	-100 Rel. C
	Number Banded	-0

Number recaptured	-0
Number Specimens Coll.	-0

Brown Boobies were observed along the interior edge of the Scaevola on the west side of the island. Most of the birds seen were with locals or flying immatures (included in estimate), though one bird was seen incubating two eggs. No clubs of Brown Boobies were observed at night but many areas where they might be were not covered. No banding or recaptures were made on this species.

Red-footed Booby (<u>Sula sula</u>)	Population Estimate	-2,500 Rel. C
	Number banded	-120
	Number recaptured	-134
	Number Specimens Coll.	-0

There were approximately 2,500 Red-footed Boobies roosting in the Scaevola around the island. A few birds roosted in the coconut trees at either end of the lagoon. Approximately 10% of the birds were either banded or recaptured. Fifteen percent of the birds seen or captured were previously banded. Efforts were concentrated in the Scaevola area on the east side of the island, where most of the Red-foots seemed to be.

Immatures and sub-adults were observed but only a few locals were seen. As on Lisianski, the ratio of adult birds to non-adult birds was on the order of 15:1. No nests or eggs were seen.

One-hundred and eighteen birds were recaptured as Laysan returns; eight as inter-island from Sand/Johnston; six from French Frigate Shoals; one from Eastern-Midway; and one sub-adult banded in June, 1966 from Wake Island. In addition to recaptures, one-hundred and twenty birds were newly banded by the party. Sera samples were taken from this species with no casualties other than multiple scratches suffered by POBSP personnel (mainly Gould).

Great Frigatebird (<u>Fregata minor</u>)	Population Estimate	-1,500 Rel. C
	Number banded	-145
	Number recaptured Inter- Island	-1
	Specimens Collected	-0

Frigatebirds were about equally abundant on Laysan and Lisianski. Although no count was made of the local chicks or immatures roosting about the island on the Scaevola, the population figure is considered reliable $\pm 25\%$ by virtue of the fact that the 145 "local" birds we banded represented about one-third of the members of that A66 class. During the day at any one time, about one-hundred Frigatebird adults

could be seen in the air over the island. Many adults were encountered at night roosting in the Scaevola. Adults and non-adults are both included in the population estimate.

No nests with eggs or downy young were observed. It appears that the Great Frigatebirds are in the late breeding stage where the young are beginning to fly.

Besides the 145 "local" Great Frigatebirds that were banded during our stay, one sub-adult bird was recaptured that was banded on Kure in May, 1966. Sera Samples were taken for this species without casualty.

Sooty Tern (<u>Sterna fuscata</u>)	Population Estimate	-100 Rel. C
	Number banded	-0
	Number Recaptured	-0
	Number specimens Coll.	-0

Sooty Terns were very scarce on the island during the survey period. Immature birds were occasionally seen flying with adults during the day, or more frequently on the ground at night. They were nowhere in any groups, and many of the immatures were crippled or emaciated to the point that they were unable to fly.

No effort was made to band or recapture the meager representatives of this species on the island.

Common Noddy Tern (<u>Anous stolidus</u>)	Population Estimate	-800± Rel. E
	Number banded	-35
	Number captured	-0
	Number specimens Coll.	-0

As to how many birds of this species were present on the island, both Common and White-capped Noddies were present day and night roosting on the Scaevola around the island. Common Noddies were mostly present singly or in very small groups fairly evenly dispersed throughout the Scaevola areas. The population figure is essentially a guess as the entire area was not covered, and there was no nocturnal count taken. Two hundred and sixty birds were counted along the shoreline during the diurnal survey of 21 October, 1966.

There were no chicks or eggs observed for this species, but there were many flying immatures. Thirty-five birds of this species were banded on 22 October.

White-capped Noddy (<u>Anous minutus</u>)	Population Estimate	-4,000 Rel. C
	Number banded	-101

Recaptured	-7
Inter-Island	-3
Specimens Collected	-0

There was less disagreement on the numbers of this species of Noddy, but even so estimates ranged from 1,000-10,000. Harrington, who worked with this species, felt that there were about 3,000. As the others also saw large groups of 100-200 birds in areas where Harrington did not work, the estimate was boosted a little. These birds were roosting day and night in groups of 50-250 on the Scaevola or on the Casuarina tree.

All of the immature birds were able to fly well, and there were no eggs or small chicks. One-hundred and one birds were newly banded, and seven previously banded birds were recaptured. Of these, two were from French Frigate Shoals and one was not in the band listing.

Fairy Tern (<u>Gygis alba</u>)	Population estimate	-100 Rel. D
	Number banded	-0
	Number recaptured	-3
	Specimens collected	-0

Thirty-three Fairy Terns were counted during the day on 21 October. These birds were relatively infrequently encountered, as their favorite roosting areas--the seaward edge of the Scaevola and the rocky area at the southwest corner of the island, were not the areas in which we were working. A few birds were roosting in the Casuarina tree and in the coconut trees at either end of the island.

Several birds were seen with eggs, and a few fully fledged young were seen at the southwest end of the island. The three birds that were recaptured were all Laysan returns.

Sooty Storm Petrel (<u>Oceanodroma markhami</u>)	Population Estimate	-1,500 Rel. E
	Number banded	-0
	Number recaptured	-0
	Specimens collected	-3

The first night on the island this species was noted to be present in small numbers in the ipomea area west of the lagoon on the north end of the island. Several were heard calling (sounds like Gray-backed Tern) and others were seen ~~on the~~ ground. In the subsequent nights numbers were noted to increase considerably and many birds were observed on the ground courting.

Three specimens were caught by hand and collected as skin specimens. The gonads were enlarged in all three, and they appeared to be in breeding condition.

Laysan Albatross	Population estimate	-0
(<u>Diomedes immutabilis</u>)	Number banded	-0
	Number recaptured	-0
	Number recovered	-1

A band was recovered from a dead local Laysan Albatross that was banded in June, 1966. The only birds of this species or of Black-footed Albatross present were the abundant rotting carcasses of the years local birds.

Laysan Finch	Population Estimate	Same as June 1966
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This species was not as commonly seen as it was in June, probably due to a change in food habits during this time of year. In June, they were omnipresent in the Eragostris areas, pounding on Sooty Tern eggs as the field personnel flushed the birds off of the eggs. During this visit they were more commonly seen around the Scaevola areas and around the lagoon picking up seeds (?) from the ground. Many birds were observed to be banded.

No nests were observed during our stay on the island.

Laysan Teal	Population estimate	-450
	Number banded	-0
	Recaptured	-2

Laysan Teal appeared to be remarkably abundant around the lagoon during this visit. The best time to observe them was in the early morning around sunrise. Around this time on 23 October, Lewis and Balcomb observed 54 Laysan Teal within 50 yards at the southeast end of the lagoon. A flock of 13 flew about the island circling the lagoon for about fifteen minutes before disappearing over the north end. Gould saw 83 Laysan Teal in the small lagoon area at the north end of the island, a short time later.

Two banded birds were recaptured, one of which was banded by POBSP. Other banded birds were observed but not captured.

Pintail Duck	Population count	-19
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A flock of nineteen pintails was seen during the survey of 21 October on the pond on the north end of the lagoon. They were flushed and not seen on the water of the lagoon on 23 October.

Shoveler Duck	Population count	-3
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Three Shoveler Ducks were seen in the north pond on 22 October.

Three Snoveler Ducks were seen on the water of the lagoon the following day and were presumed to be the same group of birds.

The Following Shorebird Account is by Brian Harrington:

Shorebirds general:

Laysan Island appears to offer excellent shorebird habitat. Probably over 1,500 birds were present with feeding activity concentrated on the northern end of the lagoon.

All of the shorebirds collected (3) were fat, thus further suggesting excellent feeding conditions.

It is unfortunate that more of the unusual species were not collected, but due to weather and surf conditions it was impossible.

Golden Plover	Population Estimate	-600 Rel. B
(<u>Pluvialis dominica</u>)	Population count	-477

This species was very abundant on Laysan. A large majority were most commonly seen feeding on the west shore of the lagoon with particularly large concentrations on the north half. In addition a few scattered birds were noted feeding in the upland areas.

The abundance of this species is indicated by the fact that there were more Golden Plovers than Ruddy Turnstones. This is the reverse of the usual situation on most islands.

All birds were in immature or "winter" plumage.

Ruddy Turnstone	Population Estimate	-550 Rel. B
(<u>Arenaria interpres</u>)	Number banded	-1
	Number recaptured	-1

Although very abundant, this species was less common than Golden Plover on Laysan. Feeding areas were concentrated on the northern half of the lagoon and scattered individuals were noted foraging over upland portions of the island.

One banded bird (Laysan September 1964) was recaptured in the Scaevola on the western shore. It is interesting to note that the band number was consecutive to that of a Fairy Tern recaptured less than fifty feet away. One bird was newly banded while on the island.

No breeding plumage birds were noted. No green-streamers or color-marked birds were seen.

Wandering Tattler (<u>Heteroscelus incanum</u>)	Population estimate	-150 Rel. A
	Population census	-151
	Number banded	-0
	Number recaptured	-0
	Specimens collected	-0

The population of this species is very large on Laysan. One group of over fifty birds was seen feeding on the Northwest portion of the lagoon, and another sighting of over 75 birds roosting on the southwest shore (of the beach) was noted. The large population probably reflects ideal or near ideal feeding conditions in the lagoon.

Only a few birds were noted to be in near breeding plumage while the remainder were in immature or post-nuptial plumage.

Bristle-thighed Curlew (<u>Numenius tahitiensis</u>)	Population estimate	-50 Rel. B
	Population census	-41
	Number banded	-0
	Number recaptured	-0

Bristle-thighed Curlew were most commonly observed feeding in the lagoon area. This species was often seen in flocks of from three to fifteen birds. Individuals were also infrequently seen feeding on the upland areas.

Greater Yellowlegs (<u>Totanus melanoleucus</u>)	Population census	-2
	Number Specimens Coll.	-0

Two individuals of this species were observed, one of which was collected. Both were associated with the feeding Tattlers probably by reason of similar feeding habits.

Lesser Yellowlegs (<u>Totanus flavipes</u>)	Population census	-1
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One bird of this species was carefully observed in association with the feeding tattlers. Although field identification may be considered difficult, the individual was seen with, and compared to, Greater Yellowlegs. In addition it was frequently heard calling both when foraging and flying.

Erolia species.

Population Estimate

-30 incl. C

Many individuals of this species were observed. It is believed by the writer (Harrington) that all birds seen were Sharp-tailed Sandpipers, although there was some disagreement among observers.

Feeding was apparently restricted to the water's edge, primarily in the northern section. (Balcomb's note--when the general biological survey was undertaken on 21 October, the weather was fine and the far greater majority of the shorebirds were foraging at the north end of the lagoon and in two small separate ponds north of the lagoon. However, by 22/23 October the wind had come up from the north and was blowing 15-25 knots across the island. A result of this was observed early in the morning of the 23rd, when Balcomb and Lewis saw large patches of foam and a thick soup of brine shrimp piled up on the southern shores of the lagoon. Many shorebirds of several species were observed to be feeding in that area at that time.)

Marbled Godwit
(Limosa sp?)

Population census

-2

Number specimens coll.

-1

Two individuals of this species were well observed, one of which was collected. Feeding was observed only in the north half of the lagoon, and the individual collected had heavy fat.

Bar-tailed Godwit
(Limosa lapponica)

Population census

-1

One bird was poorly observed on 21 October, but there was little doubt as to the reliability of the identification. It was in winter plumage and hence distinct from the Marbled Godwit.

Sanderling
(Groenlandia alba)

Population census

-2

Two birds in winter plumage were frequently seen on the north end of the lagoon.

Less Phalarope
(Phalaropus fulicarius)

Population census

-1

One individual was noted on several occasions both roosting and feeding in famed Phalarope fashion

NOTE: Population Number Reliability Class is as Follows:
Actual Count - A
± 10% - B
± 25% - C
± 50% - D
Essentially a guess - E

REPTILES:

Skinks-

Skinks were very numerous on Laysan. They were not captured or collected for identification or ectoparasite study because they were swifter than the members of the field party.

Green Sea Turtle	Count	-2
	Number tagged	-0
	Number recaptured	-0

The two large female Sea Turtles that were seen were both hauled out only a few feet from the waterline. Contrary to the condition on Lisianski, no small turtles were seen either on the beach or in the reef protected waters around the island.

MAMMALS:

Hawaiian Monk Seal (<u>Monachus schauinslandi</u>)	Population census	-120
	Number tagged	-0
	Number recaptured	-0

A complete population census was made of all the seals on the island on 21 October, 1946. There is some possibility that the census figure is inaccurate as some animals were observed to move ahead of us, but the sex and age ratios should still be representative. Animals were tallied in eight categories as follows: adult males 36, adult females 17, adult unknown sex 11, immature males 20, immature females 10, immature unknown sex 5, pup males 16, pup females 15.

As on Lisianski, the figures seem to indicate the expected happening. That is, apparently the females which gave birth this year and raised pups have left the island to recuperate. The early pups are probably immature size, or some may have left the island. Probably most of the same immatures have left the island.

There is one very noticeable curiosity, however, that is, "what in the hell happened to the disparity atwixt the male and female pups of 1 year?" In June there was more than a 3:1 ratio of male to female pups in the 54 non-newborn category. In October the ratio for the 50 animals in the immature and pup combined category is almost exactly 1:1. What sort of sampling error could cause this? What sort of natural checks could there be?

No animals were tagged, and no tags were observed during the survey.

CONCLUSION:

Weather and surf conditions were very good at the beginning of our stay on the island, but began to deteriorate somewhat the second night. It was noon of the third day before conditions improved enough to get the specimens and ourselves finally off the island. The captain and crew of the support vessel were most co-operative and efficient in helping us toward the aims of the survey.

Due to limited time available on the island, the following aims were emphasized in the survey:

1. Briefly survey the vertebrate species and ascertain the breeding status for each. Two species of reptiles, twenty-eight species of birds and one species of mammal were observed on the island.
2. Recapture as many banded birds as feasible, with emphasis on Boobies and Frigates.
3. Band as many birds as feasible, with emphasis on known age Boobies and Frigates.
4. Collect sera samples.