

TRIP REPORTS TO THE HAWAIIAN ISLANDS NATIONAL  
WILDLIFE REFUGE

March 1961- Woodside and Kramer  
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assembled by George H. Balazs

A Report on a Survey Trip  
to  
The Hawaiian Islands National Wildlife Refuge

March, 1961

by  
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and

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INTRODUCTION

The following is a report on a trip to the Hawaiian Islands National Wildlife Refuge made by David H. Woodside and Raymond J. Kramer, Biologists of the Division of Fish and Game of the State of Hawaii. Transportation was furnished by the U. S. Coast Guard aboard the Cutter "Planetree", John A. Corso, Commanding.

#### Purpose of the Trip

The trip herein reported was to include the following activities as time and conditions would permit.

1. General familiarization survey of all of the islands of the Refuge.
2. Posting of Fish and Wildlife Service signs on all islands visited.
3. Examination of islands for signs of trespassing and other disturbances.
4. Establishment of experimental photographic stations on the various islands to aid in recording changes occurring in the vegetation and ecology of the islands.
5. Observation and counts of the seals, teal (on Laysan) and other wildlife.
6. Examination of Lisianski Island to determine its suitability as Laysan teal habitat.

#### Itinerary

March 1 - Departed Sand Island, Honolulu Harbor, aboard the buoy tender "Planetree" at 8:00 A.M.

March 2 - Arrived off Nihoa Island 10:30 A.M.

Departed Nihoa 2:30 P.M.

March 3 - Arrived at French Frigate Shoal 2:30 P.M. Anchored one mile south of Tern Island.

Visited Tern Island 3:00 to 4:30 P.M.

March 4 - Visited East Island 12:00 Noon to 2:00 P.M.

Paused off La Perouse Pinacle

- March 5 - Visited Tern Island 1:00 to 5:00 P.M.  
Departed French Frigate Shoal 10:00 P.M.
- March 7 - Arrived Laysan Island 10:00 A.M.  
Went ashore 1:00 P.M. Spent night on island
- March 8 - Returned to ship 4:00 P.M.  
Departed Laysan 6:00 P.M.
- March 9 - Arrived Lisianski Island 11:00 A.M.  
Visited Lisianski 1:30 to 5:00 p.m.
- March 10 - Visited Lisianski 8:00 A.M. to 3:00 P.M.  
Departed Lisianski 6:00 P.M.
- March 12 - Arrived off Pearl and Hermes Reef 7:00 A.M.  
Visited Southeast Island 7:00 to 9:00 A.M.  
Departed Pearl and Hermes Reef 9:00 A.M.  
Arrived Midway Islands 6:00 P.M.
- March 15 - Departed Midway Islands 3:00 P.M. via Navy Aircraft.  
Arrived Barber's Point N. A. S. Oahu 10:00 P.M.

#### Abstract

General conditions found on the various islands are discussed in this report. Notes on the monk seal and birds are recorded with comments. An evaluation of Lisianski island as Laysan teal habitat is given. Conditions on East island, French Frigate Shoal, are described and illustrated with photographs of the abandoned facilities there. An account of two unauthorized expeditions to the refuge by the U. S. Navy is given.

### Conclusions

The conclusions of this report are:

- (1) The population of teal on Laysan remains at a high level.
- (2) Lisianski is unsuited for the establishment of Laysan teal.
- (3) The monk seal population appears to be high although suffering from shark predation.
- (4) The abandoned Loran Station at French Frigate Shoal serves no real purpose and is an "attractive nuisance."
- (5) The public in general and the Navy in particular are not fully aware of the refuge status of various islands.

### Recommendations

The recommendations are:

- (1) That Laysan teal not be introduced to Lisianski.
- (2) That East Island, French Frigate Shoal, be completely cleared of the abandoned structures there.
- (3) That suitable vegetation be planted on East Island.
- (4) That additional inspection-patrol trips be made to the refuge.
- (5) That publicity be given the refuge and the Navy informed as to its status.

Activities and Observations



### Nihoa Island

A landing was not attempted at Nihoa due to heavy seas. Waves were breaking steadily in Adam's Bay, the recommended landing, and to launch a small boat from our heavily rolling ship would have been hazardous.

As the ship cruised in the lee of the island, several species of sea birds were noted over the water and island. Sooty, grey-backed, Necker island and fairy terns were abundant. Frigate birds, Red-footed and Blue-faced Boobies were seen on the island.

? 8m  
Procelsterna  
Cerulea

No evidence of fire or other disturbance was noted on the island and the groves of Fritchardia palms appeared to be as described by previous visitors.

### French Frigate Shoal

Anchored in the lagoon upon our arrival was Navy LST #758 "Duval County," Lt. Francis L. Roach, commanding. A detailed report of our interview with Lt. Roach and the project involved will be given later in this report under "Operation HIRAN."

### Tern Island

During our five and one-half hours ashore on Tern Island during March 3 and 5, several observations were made. It was noted that a new military group had landed equipment on the island. A truck, some radio vans and antennas, which apparently are only periodically used, were located on the east end of the island. A truck had apparently been used to lay a few wires to this installation from the main Coast Guard station and in so doing, had run through the small remaining bird habitat on the island. Several shearwater and petrel burrows were caved in and nesting sites of the albatrosses were disturbed.

Several expended 12 ga. shotgun shells were found along the south end of the island. The C. O. of the Loran station, Lt. Holtsman, was again reminded that

shooting of any type of birds was illegal and must be stopped. It seems that the guardsmen have skeet shooting equipment but occasionally someone "goes hunting."

Generally the personnel on Tern Island appear to be very cooperative regarding bird preservation as they have little else to do except to observe them and they occasionally make pets of them.

The two dogs which are kept as pets by the Coast Guardsmen appear to be more or less trained to ignore the birds. However, it seems that they are still digging out the petrels on occasion and chasing the albatrosses.

There are very few birds left on Tern Island. Most of the burrows are empty--only one of some 20 examined contained a pair of Bonin Island petrels. No Wedgetails were seen; but it was a little early in the year for this species to be abundant on land during the day. Only about 10 young and 30 adult Laysan albatrosses were on the island. The Coast Guardsmen reported that 23 or 25 young had hatched.

Only one Mockingbird was seen this trip whereas two had been present before. ✓ Other birds noted were: Ruddy turnstone--approximately 50, Plover--approximately 10. Three sooty terns, a white booby and a frigate bird were seen flying over the island.

The vegetation appeared extremely dry for what one would expect at this time of the year.

Two refuge signs were put up on the island: One at the main entrance to the Loran Station, the other next to a dolphin at the small boat pier.

Photo stations were established which show the remaining habitat. No marker stakes were used since the runway, poles, and other structures should be sufficient to locate the stations.

East Island

On March 4 the motor launch of the Loran Station was used to visit East Island. An easy landing was made on the Northern shore and two hours were spent there. Fourteen or fifteen seals were lying on the beach at the time of our visit. A tabulation of all seal counts is included in the appendix of this report.

Two refuge signs were posted on the island - one at the North beach, the other on the South shore. Photo Stations were established; but unfortunately, the photos were all out of focus and useless.

The central part of the island which contains the abandoned Loran Station is littered with dilapidated quonset huts, tanks, wires, lumber, and other trash. (See Figs. 1, 2, and 3 in appendix.) Past use of these buildings by fishermen was evidenced in the form of many abandoned fish nets and an unusually large number of "clorox" bottles. The latter most certainly indicate illegal fishing activity.

There were two colonies of sooty terns on the island at the time of our visit. One, of maximum population density, was located in the area between the southeast shore and the antenna poles. These birds were with eggs (no young seen) while the second colony located between the buildings was somewhat less dense and most without eggs, indicating that these birds had arrived a little later in the season. The sooty terns on this island probably derive some protection from the wind from the abandoned structures which have taken the place of whatever vegetation was originally present. No estimate was made of the number of sooties, but there were certainly several thousands present.

There were approximately 150 red-footed boobies on the island. These birds used the buildings and other rubble as nesting sites. There is no bushy type vegetation on the island and this species of booby is forced to use these artificial sites as they apparently never nest directly on the ground.

The Laysan Albatrosses were with a few young. Their numbers on the island are undoubtedly being reduced by the presence of the buildings, poles, guy wires, etc.

It may be argued that the abandoned Loran station, i. e., the quonsets, tanks, other structures, and rubble, serve as nesting places for the boobies and may provide some shelter for some of the sooty terns. While this may be, it is still felt that all islands of the refuge should be left in a more or less "natural" condition and that the structures are not only displeasing to the eye, are "attractive nuisances" to passing fishermen, but that more and better nesting and breeding areas for several bird species could be developed by the proper planting of Naupaka (Scaevola frutescens) on this island.

One dead newly hatched sea turtle was found on the island. With the apparent decline of this amphibian all efforts possible should be made to protect these animals in their breeding areas. ! 84

Although it was not possible to land on Trig, Whale or Skate islands, we were able to see them on the horizon with binoculars. It appears that they have some sort of high vegetation, probably Scaevola, on them.

#### La Percuse Pinnacle

From the launch which passed close by the pinnacle, Brown boobies, Frigate birds, and a few Red-tailed Tropic Birds were seen on or near the rock.

### Laysan Island

On March 7, we arrived at Laysan. Although the sea was quite rough, an easy landing was made at the usual landing beach, opposite the ironwood tree, at 1:00 P.M. A crude shelter was erected out of the bits of roofing remaining from the Guano Co. buildings and five-gallon cans left by recent expeditions. Several showers occurred during our stay ashore but did not hamper our activities. We left Laysan at 4:00 P.M. on the 8th.

There appeared to have been a severe storm during the past winter season from the condition of the lagoon and the vegetation around the lagoon. Large waves had washed completely over the low portions of the southeast end of the island, carrying numerous glass fishing floats into the lagoon and central part of the island. The storm appeared to have been mostly from the southwest as the vegetation at the north end of the lagoon was in some places covered with sand and large shrubs were knocked down or beaten back as far as twenty yards from the northeast edge of the lagoon.

Photographic stations were established at various points on the island. These photos as well as those of the stations on Tern Island, Lisianski, and Pearl and Hermes are presented in a separate report.

The coconut trees which were planted by Richard Warner in 1958 have become established at two places. There is one grove of seven trees near the southeast edge of the lagoon and another grove of some 13 trees in the northwest part of the island, which have reached a height of about 13 feet. The growth of these trees should not hamper any of the nesting birds and may provide additional nesting sites for the fairy terns. They will certainly provide welcome relief to members of future expeditions from the hot sun and when in fruit, refreshing additions to their rations.

There is a growing pile of trash accumulating at the camp site near the ironwood tree composed of cans, papers, plastic film, bottles, etc., left by visitors. The next extended expedition should remove this; and future visitors should be encouraged to take their trash back to the ship for disposal at sea. There was evidence that someone had camped on Laysan within a year or so.

While conducting a count of the seals on the beach, six turtles were noted. All were of 40 lbs. or more in weight but no evidence of egg laying could be found.

#### Seal Observations

Immediately upon landing on the island, a complete circuit of the island was made to count the seals on the beach. The count was made between 1:15 and 2:30 P.M. and a total of 229 seals were seen. (See appendix for tabulation.) Three seals were noted with U. S. F. & W. S. tags on their rear flippers. It was possible to read the numbers on only two of these: Nos. MS 77 and MS 64. The tags were in good condition but as the number appears on only one side of the tag, it is next to impossible to record the number unless it happens to be "up" when the seal is at rest. Once the animal is awakened and heads for the water, the movement and sand prevent accurate reading.

On March 8, one pup was found newly born on the beach with the umbilicus still attached.

#### Laysan Teal

Four hundred and thirty-seven (437) adult teal were counted on a circuit of the lagoon over a period of a day and a half. Figure 4, a crude map of Laysan, shows the approximate locations of the areas where these birds were counted. On this map, area A had 70 teal, accuracy considered to be about 90%; area B contained 124 teal, accuracy estimated to be 50%; area C contained 212

teal, 90% accuracy. In area D, 16 teal were noted while 14 were noted in area E. This count was made in essentially the same areas and manner as a count made by Kramer in 1959. On the basis of these counts, it is estimated that there are between 600 and 700 adult teal on Laysan.

No young, immature or flightless adults were seen and no nests were found. Much pairing activity was observed and it was apparent that a breeding season was approaching.

In 1959, eleven banded birds were seen in one flock in the center of area B and several more banded teal were seen in area C. This year, only one banded teal was noted--however, as time was limited, most of the birds were flushed and no attempt made to determine the presence of bands.

Although teal are to be found in all areas of the island, it appears that the home range of each pair usually contains a strip of lagoon shore. However, there is little or no fighting or other evidence of territorial defence to be seen in this species on Laysan and one wonders if special requirements could limit reproduction and total population size.

#### Laysan Finch

The finch was very abundant and seems to be present in greater numbers than in 1959. No nests were found but many exceptionally bright males were seen.

#### Laysan Albatross

There was a great loss of nests along the lagoon shore due to high water or wind-swept waves which occurred during the incubation period as evidenced by the number of eggs rotting there. Also there seemed to be an unusually large number of unoccupied birds performing their "dance" in pairs or small groups.

The young are now about a foot tall and seem to be suffering a continuing mortality. Several young "Laysans" were noted to be the host to large ticks. These ticks seem to concentrate on the bare areas of the chick and to get into

the ears, completely filling and swelling the ear opening. It was obvious that a few of those examined would die from this cause. The tick superficially resembles the common dog tick and gets to be 5 or 6 mm long. A few were collected for identification but unfortunately they were lost.

#### Black-footed Albatross

There also was a heavy loss of "Black-foot" nests and a considerable mortality to the nestlings. The population seems lower than it was in 1957 but no time was available for adequate counts. The establishment of several permanent index plots in the main albatross colonies would prove of great value in estimating population status and fluctuations.

#### Other Sea Birds

The following is a list of the sea birds of Laysan with brief notes as to breeding status. Admittedly, these notes are very incomplete in that time was not available to search in all areas for eggs and or young.

Tristram's petrel - None seen. One dead, week-old chick was found near the stone pile off the south end of the lagoon. Examination of nearby burrows and vegetation failed to reveal any live birds. We have never seen a live bird of the species on Laysan. Two dead immatures were found in 1957. A search at night also was unfruitful. It can only be assumed that this is perhaps the rarest nesting species on the island.

Sooty  
Storm  
Petrel

Bulwer's petrel - None seen. This is apparently too early in the year for this species.

Bonin Island petrel - very abundant. Pairs in burrows all day--few eggs. Many came in at dark. Seen digging burrows and mating on the surface at night.

Christmas Island shearwater - in pairs, all day--few with eggs. Not many more came in at night. Several seen mating.



Wedgetailed Shearwater - few in burrows all day - not many came in at dark. No eggs, very little moaning. It appears that this species has not started its main breeding season as yet.

Red-footed booby - few on the bushes with the frigates. Some with eggs, no young. It is probably too early for this species also.

Brown booby - Not common--only about 20 seen. Some with eggs.

Blue-faced booby - usual number--few with eggs. Mostly in pairs.

Frigate bird - Very numerous. Almost all available bushes with nests. Males on eggs or with pouches inflated. No young chicks seen. Many year-old birds.

Red-tailed tropic bird - Only a few flying about. None seen on the island.

Sooty Tern - Very numerous in the air but apparently just arriving. Few on the ground--no eggs.

Grey-backed tern - Colonies sparse and light. Few with eggs. Obviously also just starting to lay.

Noddy tern - Very few--no eggs noted. Only 4 or 5 immatures seen.

Hawaiian tern - Usual number. Nesting in the ironwood tree and a few other bushes, with eggs, newly hatched to 2/3 grown chicks. Suffering the usual finch predation to their eggs.

Fairy tern - With eggs or small chicks. Only one flying immature seen.

#### Migratory birds

Bristle-thighed Curlew - Estimate: between 75 and 100 individuals present.

Golden Plover - Feeding in the lagoon and over the entire island--estimate: some 300 on island. It would be practical to capture plover and turnstones for banding by blinding them at night with a strong flashlight.

Turnstone - 500 to 700 on island. Feeding in the shallow parts of the lagoon.

Wandering Tattler - About 150, mostly in the lagoon, few on outer beaches.

Sanderling - only about 30 estimated. Other small sandpiper type birds may have been seen but not identified.

Shoveler duck - one pair was seen on the north shore of the lagoon.

#### Lisianski Island

We arrived off Lisianski March 9, with a fair west wind blowing. The "Coast Pilot" warns against attempting landing except during summer calms, and then to land only on the west beach. However, we found a good lee to the east of Neva Shoal and were able to approach to within two miles or so of the island. Easy landings were made near the southeast end on two consecutive days while the cutter cruised offshore. The only danger to small boats is in the extensive shoal water to the east of the island and there are several coral head areas that must be avoided.

We spent a total of ten and a half hours ashore on Lisianski. Immediately upon landing the first day, a shoreline count of the seals and turtles was made. One hundred and seventy-two (172) seals and eleven (11) turtles were counted. Several of the turtles were fairly small which indicates some reproduction, but no sign of eggs or laying was noted. One large turtle was seen, which had one front flipper recently amputated probably by a shark.

Refuge signs were posted on the east and west beaches. Photographic stations were established at various points and the island was examined for its potentiality as Laysan teal habitat. Seabird conditions were noted.

#### Seal Observations

One dead black pup seal was found at the landing site which was assumed to have been stillborn and the skeleton of an adult was found on the north shore of the island. One large single female was noted on the west shore which was in an extremely emaciated condition. The animal was apparently very old and incapable of feeding properly or perhaps, had just returned from a long journey at sea.

An attempt was made to note its tooth condition but this was not possible.

One young seal was found with its left front flipper severed and very large, deep, crescentric scars on its underside. On examination of these scars, they were definitely shown to have been made by a large shark as each characteristic tooth mark could be seen in the thick subcutaneous fat of the animal. The teeth had penetrated only slightly into the flesh and it was felt that the seal would recover. However, the wound bled considerably when the animal entered the water and surely would attract more sharks. Examination of other seals and the scars that are so common on them, indicated that most of these scars were made by sharks. The teeth of even the largest bull seals are too short and blunt to inflict such wounds.

#### Lisianski as Potential teal Habitat

This island is, in our opinion, definitely not suited for the transplantation of the Laysan teal. The primary vegetative cover is tall bunch grass (Stenotaphrum secundatum) which covers the interior portion of the island. There is an almost complete ring of Scaevola around the island with a few small patches throughout the interior. There are only minor stands of Beach Morning-glory, Tribulus, and Portulaca, and these appear to be generally crowded out or unable to compete with the bunch grass, due to the disturbance caused by shearwaters and petrels in their burrowing activities.

We noted that Portulaca has the same propensity for drawing flies as the morning-glory does on Laysan. However, there are comparatively few flies present on Lisianski and since insect life comprises a large portion of the food of the teal, it is doubtful if there would be sufficient food available for even a small number of teal.

There are no ponds, lagoon or water seeps on the island. Whether such standing water is a necessary part of teal habitat is not known; however,

judging from the concentration of the population on Laysan around the lagoon, it seems obvious that the lagoon edges with its saline flats and vegetation are preferred.

Cyperus laevigatus was not noted on Lisianski. On Laysan this plant appears to provide important nesting cover.

#### Bird observations

Time did not permit a thorough examination of the island for seabirds; however, the following observations were made:

Laysan Albatross - The solid stand of bunch grass which covers the interior seems to provide only marginal nesting habitat for this species. The upper beaches and openings are preferred.

Black-footed Albatross - The "black-foots" on Lisianski appeared to be almost entirely restricted to the beaches and the small open sand areas. These and the "Laysans" were mostly with young about one foot high.

Wedge-tailed Shearwater - The interior bunch grass area is literally honeycombed with the burrows of this species and the Bonin island petrel. The ground surface is extremely uneven due to the loose nature of the sand and constant digging activities of the birds.

Terns - Sooty terns were present in large numbers over the central part of the island but were not nesting as yet, while the few grey-backed terns seen were usually on eggs. The ironwood trees are used as nesting sites for Hawaiian and Fairy terns.

Boobies - Several brown boobies were seen preparing nests in the interior of the island, while the blue-faced boobies seemed to prefer the edge of the vegetation above the beach. Red-footed boobies were nesting on the Scaevola but were comparatively rare.

Red-tailed Tropic bird - Many red-tails were flying over the Scaevola on the west side of the island and several were noted on the ground under the bushes. No eggs or young were seen.

Migratory birds - A flock of 100 or more turnstones and a few plover were seen circling the island but in general, shore birds were relatively scarce. Bristle-thighed Curlew were common in the interior grass land.

#### Pearl and Hermes Reef

On March 12, we arrived off Pearl and Hermes Reef at dawn. We were able to make an easy landing on Southeast Island and spent an hour and a half ashore. Two refuge signs were posted and photographic stations were established and several interesting observations were made.

#### Visitation and disturbance

Deep tracks on the beach landing point and over the length and breadth of the island were examined and it was established that some sort of amphibious tractor had been ashore within the last year or so. Near these tracks, in the center of the island, Foxtail grass (Setaria sp.) was found to have become established in small patches; usually not more than a foot or two across. It was assumed that the tractor must have come from Midway or some place where foxtail grows and seeds were brought in by it. In the time available, several plants were pulled up and the roots exposed to the sun. Establishment of such grasses on these small islands could have a drastic effect upon the ecology. Foxtail competes rather successfully with other strand zone plants in Hawaii and could conceivably crowd out such plants as Tribulus and Portulaca.

Other signs of visitation to the island were: a steel observation tower, about fifteen feet high; several 55 gallon drums, some apparently full of fuel; the shells of four or five turtles which were killed and some hollow tile blocks lying about. A later inquiry on Midway, revealed that an aircraft had indeed landed on Southeast island sometime last year on a project known as "LOEAC." It is not known what this project involved.

No permit for this operation was issued by the Division of Fish and Game in Honolulu and the landing was apparently in violation of the regulations covering the refuge.

#### Biological Conditions

From the short character of the vegetation, it would appear that, during high seas, waves wash over a good portion of the island. Such waves probably prevent the scant Scaevola from reaching a height of more than six inches or a foot.

There are two small pools of brackish water near the center of the eastern part of the island. From the depth of these, it seems likely that they dry up during summer dry periods.

All of the elements of Laysan teal habitat are present on Southeast Island except, perhaps, protection in the form of bushes. However, the island is much too small to be considered for the introduction of teal.

A shoreline count of the monk seal was made and 12 animals were noted. No pups were seen.

Four large green turtles were seen. Two males were alternately copulating with a female in the shallow water immediately offshore. No signs of eggs was found.

Albatrosses - Both species were with young. The Black-footed being much more abundant than the Laysan.

Boobies - All three species present but not abundant. All were with eggs or small young. The red-footed booby is definitely restricted due to lack of elevated nesting sites. Some nests were but a few inches off the ground on the Scaevola.

Petrels - Wedgetailed and Christmas Island shearwaters were noted but no Bonin Island petrels were seen. However, it is most likely they are present in small numbers. No Bulver's petrels were seen but the remains of several were found which had been eaten by something. The wings were attached to the bare sternum and clavicle in a manner typical of those that are eaten by rats on Popoia and Mokulus islands off Oahu. No evidence of rats was found however, and it may be that large carnivorous ants also leave the carcass in this condition. It is possible that these remains were actually of Tristram's petrel rather than Bulver's but not likely.

Frigate bird - Nesting on the low vegetation with the Red-footed booby. Not abundant. Undoubtedly limited by lack of bushy vegetation.

Terns - The sooty and grey-backed terns are apparently just arriving. No sooties were seen on the ground. The grey-backed terns were on the ground but not with eggs.

Shore birds - Plover, sanderling, turnstone, tattler were present in small numbers and one curlew was seen.

Operation HIRAH



HIRAN Phase I

As mentioned earlier, U. S. Navy LST-758 (Duval County) was anchored at French Frigate Shoals when we arrived there on March 3. On her cargo deck was a navy helicopter. We met the Captain of this vessel, Lt. Francis L. Roach, on Tern Island. The ship was there to pick up some dynamite which was delivered by air while we were there.

We were informed that the ship was engaged in a project known as HIRAN phase I; and that they were visiting all of the islands of the Chain. The dynamite was to be used to blast a helicopter landing spot on Gardner Pinnacle. (See attached news clipping.) Before coming to French Frigate, the party had spent approximately five days each on Kaula, Nihoa, and Necker islands. HIRAN is apparently a surveying project, which is plotting the exact locations of the islands. Phase I, it seems, is using conventional instruments to plot them astronomically, while Phase II, which was scheduled for June, would employ electronic equipment. Accompanying the group was a fellow from the Coast and Geodetic Survey whose mission, he said, was to lay out survey markers and triangulation points.

When questioned as to whether a permit had been issued for this party to land on the islands of the refuge, we were assured that there was one on file with the Navy in Pearl Harbor. To our knowledge, no such permit was issued by our office; and it was assumed that, perhaps the permit had been issued directly from the Fish and Wildlife Service. Lt. Roach referred us to a Commander Wagner, COM Hawaiian Sea Frontier, Honolulu.

We were able to learn that during the course of the work on each island powder was used, and that "several or several hundred" birds on each island were killed. They also stated that they had de-dudded Necker Island and that birds were killed at that time. We were assured that such damage was not extensive or permanently irreparable.

Upon returning to Honolulu, a further check into the records revealed that there had been no permit issued by the Department of Agriculture and Conservation for the above activities, nor had the Navy informed the Department of the trip. Further checking with the 14<sup>th</sup> Naval District Office, revealed that a permit had been obtained from the State Department of Lands. Apparently, the Department of Lands erroneously assumed that they had jurisdiction over these islands. They have since been notified of their error and have subsequently withdrawn the permit.

The Navy and Land Department assured us that in the future all such requests for permits would be made to the Department of Agriculture and Conservation.

#### HIRAN Phase II

As mentioned before, this phase of the operation was scheduled for June of this year. It appeared to present an excellent opportunity for someone from our division to visit Nihoa and Necker as transportation also would have been available via LST and helicopter.

Photographic stations could be established; signs posted and general conditions noted. The personnel could disembark at French Frigate shoals and fly back to Honolulu via Navy or Coast Guard plane.

However, it appears that HIRAN Phase II started earlier than planned and is now at sea.

Conclusions and Recommendations

### Conclusions

From the observations made during this trip, it can be concluded that:

#### Laysan teal population

The population of teal on Laysan is high and may be near the saturation point. No evidence of reproduction was found; but behavior of the birds indicated an approaching breeding season. Examination of Lisianski island showed that it lacks suitable teal habitat.

#### Hawaiian Monk Seal

Counts on the beaches of the islands visited totaled 433 seals. Only 43 of these were small black pups. The numerous scars on the animals indicate considerable predation by sharks, particularly on Lisianski. However, the population appears to remain high.

#### Sea Birds

As this trip was made before the peak breeding seasons for most of the birds except the Albatrosses, population numbers could not be evaluated. No signs of unnatural disturbance were found. The presence of large ticks on the Albatross chicks on Laysan was interesting as previous visitors have apparently failed to record them.

#### East Island, French Frigate Shoals

The abandoned Loran station on this island, composed of several quonset huts, wooden and steel tanks, poles and other structures, does provide a small colony of red-footed boobies with nesting sites. However, the structures undoubtedly cause a disturbance to the Albatrosses and other birds. Also, the presence of this station is an invitation to trespassers from the Loran station on Tern Island and passing fishermen.

### Naval Activities

Evidence of landing and disturbance was found on Southeast Island of Pearl and Hermes reef. It was determined that this was an amphibious operation from Midway which occupied the island without permit. Also, during March and April, landings were made on all of the islands of the refuge by Navy personnel. This latter operation, known as HIRAN, landed by helicopter and camped for a few days on each island except French Frigate Shoals. No permit was issued to this party. It was learned that another vessel repeated the HIRAN visits later.

### Photographic stations

Experimental photo stations were established on all islands visited. Four foot redwood stakes were used and proved unsatisfactory. Due to the low nature of these islands and vegetation, better results would be obtained if the pictures could be taken from an elevated position. The results of this experiment are covered in a separate report.

### Recommendations

It is recommended that:

1. No attempts be made to establish Laysan teal on Lisianski island.
2. The abandoned Loran station be removed completely from East island, French Frigate shoals and that Scaevola be planted along the windward beaches to aid in stabilizing the sand and to provide nesting sites for birds.
3. Future parties attempt to study the tick-albatross relationship and its affects on the survival of young.
4. Nihoa and Necker islands be visited at the earliest opportunity.
5. Southeast island (Pearl and Hermes) should be carefully examined for further evidence of rat damage.

6. An annual trip be made to all of the islands of the refuge and periodically all of the various islets of French Frigate shoals and Pearl and Hermes reef should also be examined. This could be accomplished by using an outboard skiff.
7. The photographic stations be re-established with permanent markers.
8. Increased publicity be given to the Refuge to make its protected status known.
9. The Navy be contacted periodically to learn their plans for operations in the area and to seek their cooperation in obtaining proper permits.

APPENDIX

East Island, French Frigate Shoals  
March 3, 1961



Table I. Monk Seals Observed in Beaches - March, 1961

<u>Island</u>	<u>Adults</u>	<u>Yearlings</u>	<u>Pups</u>	<u>Undetermined</u>	<u>Total</u>
Shark*				4	4
East	13	1	1		15
Laysan	168	38	23		229
Lisianski	117	36	19		172
SE Is. P & H				12	12
Kure**				35+	35+
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	298	75	43	51+	467

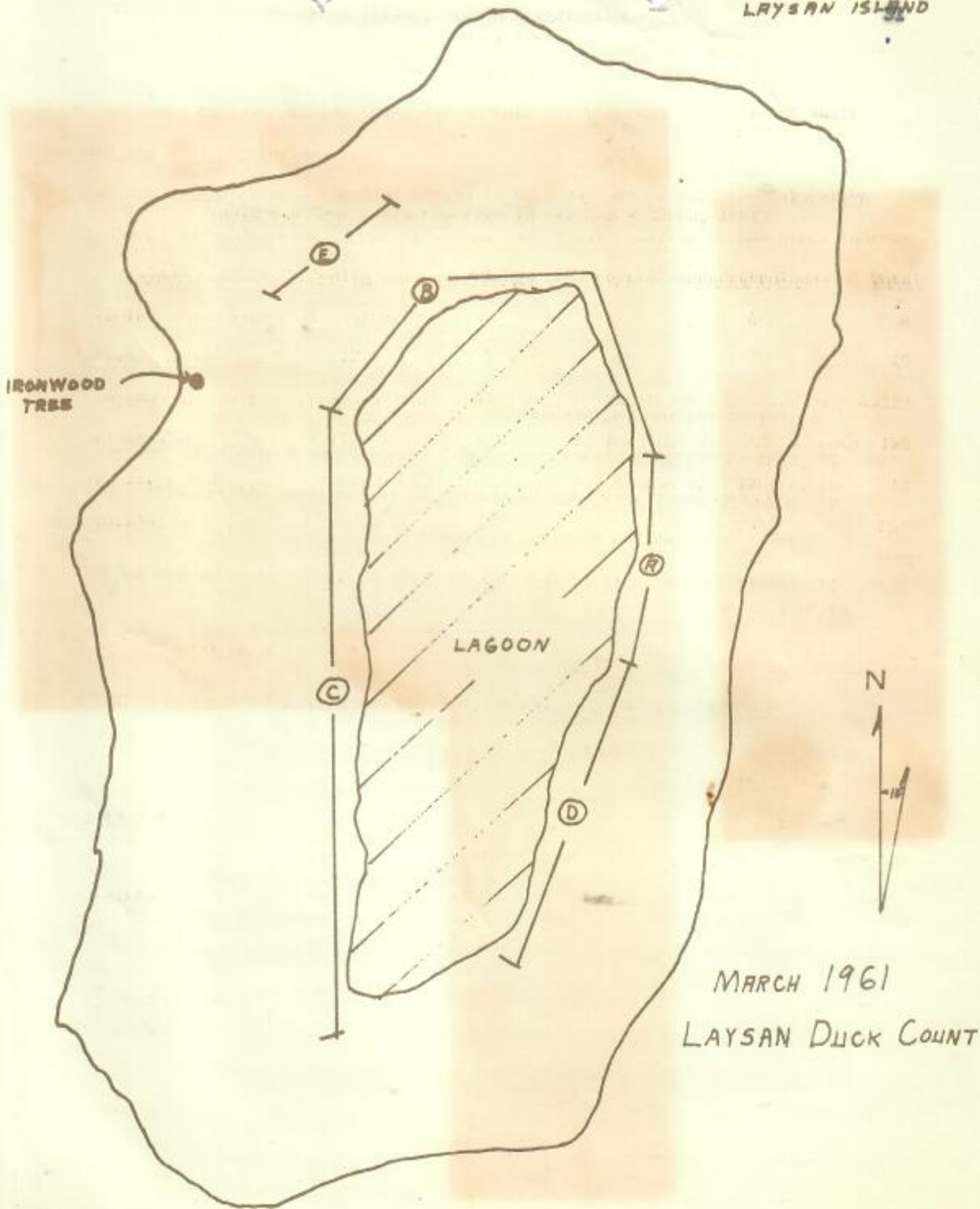
\* Count incomplete

\*\* Counted March 12 by Naval officer

Table II. Sex Ratios of Seals on Laysan and  
Lisianski islands, March, 1961

<u>Island</u>	<u>Adults</u>		<u>Yearlings</u>	
	Male	Female	Male	Female
Laysan	15	21	5	6
Lisianski	11	20	7	7
	<hr/>	<hr/>	<hr/>	<hr/>
Totals	26	41	12	13

FIGURE #4  
LAYSAN ISLAND



MARCH 1961  
LAYSAN DUCK COUNT



Navy hydrographic survey crews required the use of a helicopter to get ashore on Gardner Pinnacle, which is about half way between Oahu and Midway Islands.—Navy Photo.

## Navy Team Maps Remote Mid-Pacific

A Navy hydrographic survey team has invaded some of the most remote and barren land areas in the mid-Pacific area during a survey of such little known areas as Lisianski Island, Nihoa Island, the Pearl and Hermes Reefs and Gardner Pinnacle.

Working from the Pacific Fleet tank landing ship Duval County, the survey team recently completed a three-month odyssey from Oahu to Kure Island, charting every reef, pinnacle and island along the route.

At some of the locations the survey crew found it impossible to make a boat landing with survey equipment, so a helicopter was used to ferry men and equipment ashore.

In one location, however, this also proved impossible until the Duval County's men could build a makeshift landing pad.

This was on Gardner Pinnacle, halfway between Oahu and Midway Islands.

The work crew was lowered from a hovering helicopter and within hours had carved an improvised landing area on the barren 200 by 75 yard volcanic pinnacle.

At Necker Island, crews encountered live bombs believed dropped by training planes during World War II. These had to be cleared away before the survey could be made.

The Duval County has completed the trip that started January 23 from Pearl Harbor and is enroute to San Diego, California.

She is commanded by Lieutenant Francis L. Roach.

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