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NOTES ON FOOD HABITS OF SEA BIRDS OF THE PACIFIC

By
William G. Anderson

White-capped and Hawaiian noddies (laehina and noio)

Laehina (lakie is South Seas spelling): white-capped noddy.

These birds are known throughout the Pacific, between latitudes 24 N and 24 S. The color is jet black body, with a white forehead. The noio is brownish and has less white on the forehead. Beak is about the same length as the noio, but proportionately longer for the size of the bird. Legs are shorter than in the noio, black, webbed at the innermost part.

Nests are built in vegetation at least four feet from the gound, tree or bush, or in crevices in a cliff overlooking the sea. Tree nests are carefully made of dead leaves, one laid over another till two or three inches thick at the bottom, tapering off at the edges; diameter of nest is about five inches. These nests can withstand any strong trade winds. The laehina never choose a dead tree or a coconut tree. They do not nest singly but in groups, frequently four to ten pairs on a single tree. Ideal sites are in trees six to ten feet high, spreading out to a diameter of twenty feet. On the Hawaiian Islands, the laehina often lives on rocky cliffs, nests built in rocky hollows. They seem to like dark recesses in cliff sides or caves. They may use a last year's nest, their own or another. Formerly the laehina could be found in colonies along shores of islands, but the cat and the rat, frequently from shipwrecks, have driven them to small islands in lagoons and off-shore, notably at such islands as Fanning, Washington, Palmyra, Christmas.

They feed close to home base if possible, but go off as far as five or six miles if attracted by a large school of fish. Usually they go not more than three miles from shore. When they spy food, they descend, with the beak pointed down, the wings stretched up vertically, the wings in a quick series of movements. They seem to drop like a plummet, but immediately after picking up the fish, they shift the wing motion and rise at once, all of this done with lightning speed. The food is swallowed at once. The laehina and the noio cannot get fish that require a dive of more than 3 or 4 inches. All young are well taken care of; none left to starve.

The laehina follow fishing sampans from Hawaii for food which has escaped through the ventilating holes in the bottom of the bait tank. This occurs when the roll lifts one side of the vessel and the tanks on the lifted side tend to empty into the sea. The dead fish and some of the smaller fish at the bottom of the tank are sucked out and become food for any following birds.

When temporarily satisfied with food, they sometimes find a spot to light on, away from the shore, such as an iron pipe on a reef, and remain quiet, still, some-

times on one leg, watch the surroundings, take flight if any approach is made.

South Seas natives do eat laehina, but if noio are around, the laehina is safe.

The name Hawaiian noddy is misleading. This bird is known throughout the Pacific. On Moku Manu, Christmas Island, it predominates; conditions are ideal for it, and the bird population during nesting periods reaches five to six thousand.

Noio (ngoio in Manihiki spelling), Hawaiian noddy

In nesting they prefer ground to trees or cliffs; sometimes nest under a tree, laehina nesting above them. On Christmas Island, the nesting noio has taken to the small islands (to avoid cats and rats); on Fanning and Washington Islands, where there are no isolated islets, they have taken their nests to coconut trees. Nests built of a few dried leaves, sometimes no leaves at all. When on the ground, nests are made close to a clump of grass or some bush for protection from the noon-day sun and man-of-war hawks (as do the sooty or gray-backed terns). The young scamper for shelter amongst the stumps of grass or brush when threatened by man-of-war hawks.

Found on all islands of the Hawaiian chain and throughout the Pacific.

Similar to the laehina in manner of flight.

Food habits similar to the laehina; fish or squid up to about four inches in length; food has to be on the surface or within two or three inches of surface. May be found fishing fifteen to twenty miles off-shore, occasionally twenty-five.

White tern

Lays its egg--one only--in a depression in the bark of a tree branch. Often the eggs are lost by the swaying of branches in the wind. Young have been found under trees, apparently having fallen. Parent birds search for the young, in that case, and keep it supplied with food. When stronger, it will climb back into the branches to await its "take-off" feathers.

Its food is surface fish, not more than 2 or 3 inches below surface. The adult bird swallows at once what it needs, then catches more for a young bird in the nest--if it is the season for young. Both parents feed the young. Adult birds are often seen with as many as four small fish in the beak, to take to the young. It is puzzling to know how it can hold fish already caught and catch more, losing none. The young feeds from the parent's bill, taking all that is there, one after another.

The white tern eats nehu, iao, and other sardine-type fishes; does not seem to eat squid.

(Grenville Hatch fed her captive tern 40 small fish a day; Anderson says that is about normal.)

Sooty tern

Wings longer and narrower than wings of noio, a slimmer bird altogether. Can be heard at night. Flies 1000 miles or so from nesting island. None heard after they have left--between latitudes 30 S and 30 N. Called the "wide-awake", because its call sounds like those words.

When a flock reaches an island it may hover off-shore for 2 or 3 days, making calls through night and day, other birds coming in to join the flock as it hovers. Finally, the whole flock lands. The calls of the birds during the night are signals to enable them to remain together on the way to their objective. The young keep in close touch with parent birds during flights by calling back and forth incessantly. One can distinguish the adult squawks and the squeaky cries of the young. Calls are necessary because they do not fly in close formation.

These birds never seem to be bothered about what time to start for home.

When dark overtakes them, they rise in the air to about 150 feet and leisurely head for home. If too far off-shore to make it, they keep to the air near the feeding area and resume feeding after daybreak.

When observed far off-shore with their young, it may be assumed that they have started to migrate, as the purpose of returning to the nesting ground is gone-with them!

They eat small fish and squid (but not the roe). Regurgitate food in giving it to young. Fishing motions about the same as those of the noio.

Gray-backed tern; pakalakala

Nests in small colonies, usually among rocks. This tern seems to stay near land, not migrate, like the sooty tern. I have seen a colony of gray-backs on Necker and also on Pearl and Hermes Reef when all sooty terns were gone.

Food, surface fish and squid; regurgites in feeding young. This and all other sea birds, except the blue-faced booby, feed in flocks.

Christmas Island shearwater

Found in all oceans, near or far from land. Can rest or sleep on water within easy flying distance from land: 50 to 100 miles. Comes to land to breed.

Feeds on squid and roe, never fish of any sort.

Dives to 3 or 4 feet for food. Flies low over schools of squid, dipping now and again for food; misses much of the time, possibly 90 per cent, when surface feeding; then resorts to diving. Food of the young is regurgitated squid.

Feet are completely webbed.

Flies like the albatross, which it seems similar to in many ways, except in its habit of boring in the ground to make its nest.

Blue-faced booby

Nests on the ground; lays two eggs, both of which may hatch. I have never seen more than one survive. It is immaterial whether shrubs are near nest or not.

This bird has a unique way of avoiding the man-of-war hawk. When returning to land, they fly high above the man-of-war hawk (or frigate bird), because the frigate bird almost always looks down for its prey. The booby flies home slowly. When near its nest, it glides down at a sharp angle and finishes the flight at a fast speed. The frigate bird attacks when possible, gets perhaps five percent of the home-comers (as high as fifty percent of the red-footed boobies), persisting in its attacks until the victim regurgitates the fish in its beak, which the frigate bird catches, usually the victim when it is still in the air, falling. Sometimes the fish drops too fast and is lost.

The blue-faced are not seen with other boobies fishing in a school. They fish in pairs, sometimes the juvenal with the adults--a family affair. The red-footed booby can be frantically fishing from a school, and the blue-faced be present but entirely unregarding, nonchalant, not fishing. They seem to prefer to fish as individuals. They can rest on the sea (as can the red-footed also).

They live on squid and fish, including flying fish. In feeding, they hover over the sea, about 75 to 300 feet in the air. The higher the position, the deeper the dive can be, perhaps 10 feet or more into the water from 300 feet elevation--but only 4 or 5 feet deep or less from 75 feet above the surface.

Red-footed booby

Can rest on sea, especially just after an intensive go at feeding.

Food is flying fish and squid. I have seen them pick flying fish from the air while fish is leaping. When flying fish are driven to the surface by larger

fish, sea birds converge on the school from all directions. One cannot point to a certain bird and say, "That's the one that found the school". The presence of food seems to be sensed by birds within 20 miles or more of the school. There is no doubt in my mind that this sense is transmitted to others by manner of flight of those who have located the food. Flight is fast, and low over the water, with no zigzagging, as when looking for food.

I cannot recall ever seeing any other fish but flying fish in stomachs of boobies, but there is no doubt that they also feed on squid.

Red-footed boobies' manner of flight is to hug the surface of the sea, whether flying singly or in flocks, leaving or returning to land. These boobies have saved me time and money when my ship has been caught in overcast weather or heavy rains, when sun and stars are not visible to use in navigating. They may be as much as 100 miles from land. They fly out and return to land in such direct flight that a course may be set by their directiong. They usually return to land any time from four o'clock in the afternoon on. They fly swiftly, perhaps 30 to 40 miles per hour, but more leisurely on the outward flight, at which time one can sense the fact that the bird is hunting.

The young red-foot if full of curiosity and will pick up floating twigs and leaves, only to drop them.

It is a comical sight to watch the action of these birds when in the lee of a ship where the air currents are distrubed. They sometimes have to flop in the water until the ship has passed and air currents are normal again.

Common booby (kena in Manihiki)

In the South Seas, this is sometimes called the gannet.

Much the same habits as the red-foot, except that it fishes close inshore, that is, ten to fifteen miles. It fishes alone or in pairs; dives to five or six feet for food if necessary; often found working on schools of garfish (ihe).

The young of all boobies reach into the throat of the parent, often one egg is not fertile.

These birds are expert at catching fish on the wing--any fish that is making long leaps through the air to get away from larger fish--as well as flying fish. Very seldom does it miss its quarry. After catching a fish, the bird sits on the water and seems to play with it, but actually it is going through the business of killing it before swallowing it.

From the veranda of our house at Fanning Island, in the old days, one could sit and watch these birds at work--or is it play? I have seen as many as a dozen searching for food in the strong current entering the lagoon. The current is a good 5 knots as it enters the lagoon, and the sea is crystal clear. Schools of fish are brought in by this current, and there is good hunting--or fishing--for these birds!

Albatross

Black-footed albatross

Where they go when away from land, not nesting, I do not know. During the nesting and rearing of young they may be found in flight between Hawaii and San Francisco, following ships for food. Where do they spend the rest of the year? When the migrating urge comes to this albatross, and the Laysan albatross, that is, when they want to leave the nesting area, they leave the young not yet able to fly, deserting them at a critical time. The young are therefore condemned to die, for they cannot feed themselves until they can fly.

Laysan albatross

Seen on French Frigate Shoals, Laysan, Lisiansky, Pearl and Hermes Reef, Ocean Island, Midway Island. One Black-footed albatross I saw on Johnston Island in 1929--none since.

Both albatrosses regurgitate when feeding the young, the open beak of the young lying across--at right angles--the open beak of the parent. The food regurgitated passes on to its destination without loss, goes down as through a funnel. Food is shrimps, squid, and floating roe of fish or shellfish. Only the black-footed albatross follows ships and picks up refuse cast out.

Albatrosses range far and wide for food, and have an economy of wing motion. Miles can be covered with no wing flapping. They make use of air currents created by swells. The wind rising on the rising surface of a swell carries the bird along. The course taken over a swell is always diagonal, and they can hold a swell for long distances, many times with wing tip touching the sea.

I have seen them dive three to four feet after a sinking piece of meat thrown from a ship. Most squid eaters are able to go under water a few feet, which is fortunate as squid surfaces only when viciously attacked by fish beneath the squid school.

In general, there are only two migrating sea birds, the albatross (Laysan and black-footed) and the sooty tern. Where they go I do not know.

White albatrosses have been seen in the west Pacific, when not nesting.

Editor's note: It may be added that Captain Bill Anderson was born and brought up in the Line Islands of the Pacific and has spent his life on the shores of these islands, and Hawaii and the seas between. He was captain of the yacht Lanikai which fished through the northwest chain of the Hawaiian Islands, and captain of the sampan Islander, which took a Bishop Museum expedition through southeast Polynesia in 1934. Perhaps no one living has had better opportunity to observe the sea birds of the central Pacific.

LETTER FROM UNOYO KOJIMA (excerpts), from Frankfur-am-Main

It is cool and spring is just beginning, so birds are plentiful. I felt very much at home when I saw the English sparrow and the starling. I can't understand the people, but I understood these two. Someone said they were chirping in German, but somehow I understood that aerial German.

The European blackbird is very common. It reminds me of the robin and the black mynah. It is completely black except for the yellow bill. It has a melodious song. Its behaviour is very similar to that of the robin, especially its feeding habits and its walking and hopping from place to place.

The crow here calls with softer voice. Perhaps the city noise drowns its voice! I became homesick when I saw the alae (gallinule) swimming across from the mainland to an island in the middle of a pond at Palmgarten. The tropical plants are very well represented at this place. They even had a kukui plant. The bird of paradise was blooming, but I looked and looked, but no ginger, not even a shell or torch ginger.

I am very much pleased with Frankfurt because gardens are all around the city, so bird life is plentiful too. I frequently see the red-breasted nuthatch, the chickadee, finch, and numerous warblers, but I can't identify them, for as yet I have not found a German bird book...

Last Sunday I hiked the Taunus Mountain, and there I saw a thrush, bird of prey, wren, magpie, and many beautifully colored birds... Sunday was a cold day and yet there were many picknickers.

(In a later letter) I found a wonderful German bird book by Roger Peterson. He was here for the last three or four years working on the European birds. The only drawback is that it is in German...the scientific names are in the back of the book with the descriptions. The plates are beautifully colored.

I have a very pleasant fifteen-minute walk every morning, but I allow myself 30 to 45 minutes, for the birch trees are full of finches, sparrows, and flycatchers. Every morning brings me not only the birds but also new blossoms and new life. What more can I ask? Every day is an art work, a masterpiece to make my life more meaningful.

Letters to Grenville Hatch

NOTES ON A BARRED DOVE NEST

Recently a pair of barred doves built a nest on a flat fork of a brassaia tree just outside a window of Roosevelt High School. The situation was perfect for observation. A slight (?) nest was made with fine rootlets, and two white eggs laid. The eggs were incubated for two days. Students closely observed this nest and found this bit of natural history as fascinating as the world history they were studying inside the room.

On the third day, tree trimmers arrived and cut the dead branches which hung down on a row of nearby coconut trees, thus destroying a large number os sparrows' nests. A great commotion arose, and the sparrows, evidently in a state of fury and excitement over the destruction of their own nests, vented their anger upon the doves. One by one the straws forming the doves' nest were snatched, the doves seeming helpless to protect their property. By the close of the school day, the eggs were lying upon the bare bark of the tree. The doves apparently abandoned the eggs, and the following morning one egg lay broken upon the ground; the other vanished some time during the next twenty-four hours. No further attempts at nest building in this particular spot have been made.

As related to Grenville Hatch

NOTE ON THE BLACK-BELLIED PLOVER

On April 21 and 22, a black-bellied plover was noted at Ala Moana Park, near the pavilion, by Mrs. Thomas. We are grateful for such notes always.

BIRD WALK of April 25th

Weather proved to be perfect for the objective: the final count of the migrants, as well as a check on other shore birds.

Thirteen participated in the count, five of which were visitors: Miss Gwena Lewis, of White Plains, N.Y., Mrs. Kay Gilliland, of Oakland, Calif., Miss Colette Bocage, of Belgium, Mr. Arthur Nakagami, on the staff of the Honolulu Zoo, and Mrs. Joe Pyle, of Wahiawa, all of whom we were happy to have with us.

Areas covered were the marshes of the Kaneohe Marine Air Base, Ulupau Head, Moku Manu (via Mace Norton's spyglass), Kealepua Pond (the remainder of it) and Kahana Bay. The final count was:

Boobies, Red-footed	325
Boobies, Brown	2
Cardinals, Brazilian	3
Cardinals, Kentucky	8
Doves, Barred	17
Doves, Chinese	14

Coots	19
Frigate birds	incomplete
Gallinules	2
Linnets	5
Mynahs	incomplete
Plover, Golden	224
Quail, Valley	1
Rice birds	13
Sparrows, English	incomplete
Tattlers	11
Tern, Hawaiian	4
Tern, Noddy	81
Tern, Sooty	31
Turnstone	42
Tropic Birds, Red-tailed	1
White eye	1
Turtles	2

(Editor's note: ! by some not regarded as birds, but we are sociable!)

The Moku Manu count (by long distance) and not included above was (estimated):

Frigate birds	dozens
Boobies, Red-footed	hundreds
Terns: noddy and sooty	thousands

Comments: The day was extremely warm, the visibility good. We were able to identify Molokai and Maui from Ulupau Head. The sight of the red-tailed tropic bird was the big thrill of the day, and the turtles afforded much interest. Eggs and young were found in the booby colony, however, several of the group were of the opinion that the boobies did not know how to pose. The consensus of opinion was that the plover was preparing for migration. They were in flocks and were most beautiful in coloration.

Reporter: Ruth Rockafellow

THE DARK-RUMPED PETREL, OR UAU, FROM MAUI, by Frank Richardson

Many readers may have seen a note in the newspapers about this rare petrel, but a little more accurate and detailed account may be of interest here. The Dark-rumped Petrel (Pterodroma phaeopygia sandwichensis) was thought possibly to be extinct until Baldwin and Hubbard (Condor, 51:231, 1949) found a specimen on Hawaii in 1948, and now this more recent individual has been found on Maui on October 22, 1953. The only close relative of the Uau is a second subspecies which breeds in the Galapagos Islands, off Ecuador. The Hawaiian form was known to be fairly abundant on some of the main Hawaiian Islands, as Molokai and Hawaii, up to about fifty years ago. Apparently its use as food by the Hawaiians and, especially, severe predation by the mongoose, led to its great reduction.

The Maui bird was found near Kahului, sent to the Honolulu Zoo by Joseph Medeiros (Board of Agriculture and Forestry, Maui) and kept alive, but only for three days. It was then critically examined and well prepared by George Munro, and presented to the Bishop Museum by Paul Breese, Director of the Honolulu Zoo.

The specimen is of great interest both because it is the first of its kind preserved, from Maui, and because it is a juvenal bird, as is indicated by small patches of down remaining on its belly and back. It must have been raised last summer. It is fully fledged, as indicated by its adult wingspread, and so, although

it may have been raised on Maui, it could very possibly have flown there from another of our islands. In any case, the important thing is that we now know that there must be somewhere breeding pairs of the Uau, and can hope that this unusual endemic sea bird is not doomed to extinction.

...

Since writing the above, I have received further encouraging news of the Dark-rumped Petrel, for David Woodside, Wildlife Biologist on Hawaii, has sent me the remains of two more of these birds. They were found on the slopes of Mauna Kea at an elevation of over 10,000 feet. Mr. Woodside states that one had been killed by a cat.

AUDUBON SCREEN TOURS

It is a pleasure to announce that the last of our three movies was a delightful one to see: South to Siesta Land, given by Fran William Hall. Glimpses of Mexico are most appealing and Fran Hall's selection and photography were both excellent. A goodly audience came, our hall was almost full. So much was going on in our town that night, that we did not overflow, as before, however.

It is a satisfaction to report that we ended the season on the bright side of the ledger, financially. We are encouraged to make a further effort next year, and the dates and lecturers and topics are already chosen. We shall tell the details in the early fall.

An extra dividend fell to us this season. National Audubon Society has been so generous, and so have the Halls, that we enjoyed a fourth movie, free. We used this one to advertise our program further, and announce that a Bird Sanctuary Committee exists within our society now, and it is doing valiant work. The chairman is Joseph E. King. The movie was The Four Corners, and Fran Hall talked most delightfully along with the showing--one of his earlier films. The film was enjoyed by many of us even more than the Mexican offering. Fran Hall has artistry, excellent taste and originality. Though some of us know well some parts of the area covered, where Colorado, New Mexico, Arizona, and Utah touch, his pictures were wonderfully fresh. His flair for shots of insects drew entomologists to his showings, and all of us were charmed, whether we could name the insects or not.

Fran and Tallie Hall are a fine team. It is evident that they go together everywhere, nothing daunts that lady! And Tallie must be half the team at photography too.

We have heard of good luck at taking the Hawaiian picture, in spite of most adverse weather conditions. Most of us are eager to see that also. We shall, but not next year.

Altogether, this "touring" has been a happy experience, and we look forward to more. If we can succeed in offering the program to the public schools next year, at a price they can afford, we shall be well satisfied. To achieve a modest success this year, we had the help of the Bernice P. Bishop Museum and the National Audubon Society. To both of these organizations we give our sincere thanks, bare and inadequate as the words are for the benefits received. We shall always need their help and interest, but we hope to stand on our feet financially before long, and require lessof them. We are blessed with the friendly cooperation of the Hui Manu, who this year gave one-hundred dollars to reduce the cost of the lectures to the school, and who have again given us another hundred dollars toward next year's venture, for which we are most grateful.

Chairman, Audubon Screen Tours
Committee

JUNE ACTIVITIES

FIELD TRIPS

June 13th. To Palehua lower trail. We have not taken the lower trail for a long time, and should see if the unidentified songster heard there on our last trip is still there. Perhaps this time we may be able to see and identify it. Since the summer days are long and warm, the starting time is moved up to 7:00 a.m. Meet at the Library of Hawaii.

June 27th. To Laie trail. This is a beautiful, wooded trail. Birds were fairly numerous on our scouting expedition. Leave from the Library of Hawaii at 7:00 a.m.

MEETING

June 21st, at 7:30 p.m., in the Community Board Room of the Y.W.C.A. Dr. Frank Richardson will show slides and talk about migratory birds. This program, originally planned for May, was postponed due to the conflicting date of Fran Hall's lecture, The Four Corners.

HAWAII AUDUBON SOCIETY OFFICERS: President, Miss Grace Gossard; Vice-Presidents, Mrs. Blanche A. Pedley, Miss Margaret Titcomb; Secretary, Miss Irma Botsford; Treasurer, Miss Margaret Newman