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brown, varied with drab; a patch of orange-brown scales behind the tip of the pectoral; teeth white; iris yellow; upper and lower lip dark red; an irregular dark red patch on the side of the head, which is followed behind and below by a number of scale marks of the same color; dorsal and anal about equal in height; dorsal light brown, passing into blackish-brown posteriorly, everywhere mottled with drab and brown of different shades; a blackish spot on the first and second membrane; pectoral uniform brown: ventrals drab-brown, the outer rays bluish-drab; anal drab-brown, brownish at the margin; caudal uniform umber-brown.

The type (B. P. B. Museum No. 3366) here described was secured in the Honolulu market February 12, 1903, and is 9.5 inches in length. (Fig. 8.)

Report of a Visit to Midway Island.

WM. ALANSON BRYAN.

Introduction.

DURING the months of July and August, 1902, the writer made a voyage in the schooner *Julia E. Whalen* to the small and isolated *Marcus Island*, in the interest of the Bishop Museum, to investigate its fauna and flora.¹ On the return voyage we called at *Midway*, and I was thus afforded an opportunity to see this small and then seldom visited island. Since our call was the last one to be made prior to the taking over of the island as a cable station, it seems that a brief account of the observations made during the day and a half on shore will not be out of place, especially since the island had been visited but once before by an ornithologist. It is hoped that the notes here given may in the future prove of value in noting the change in the plant and bird life which will doubtless be effected through the influence of the colony that has since been permanently established there.

As a matter of convenience the Hawaiian group has been divided into the windward or inhabited islands and the leeward or uninhabited chain. It is to this latter division that *Midway* belongs. Beginning at *Niihau*, the most western of the heretofore

¹Bryan. Monograph of *Marcus Island*. Occ. Pa. B. P. B. Mus., vol. ii, no. 1, pp. 77-140 (1903).

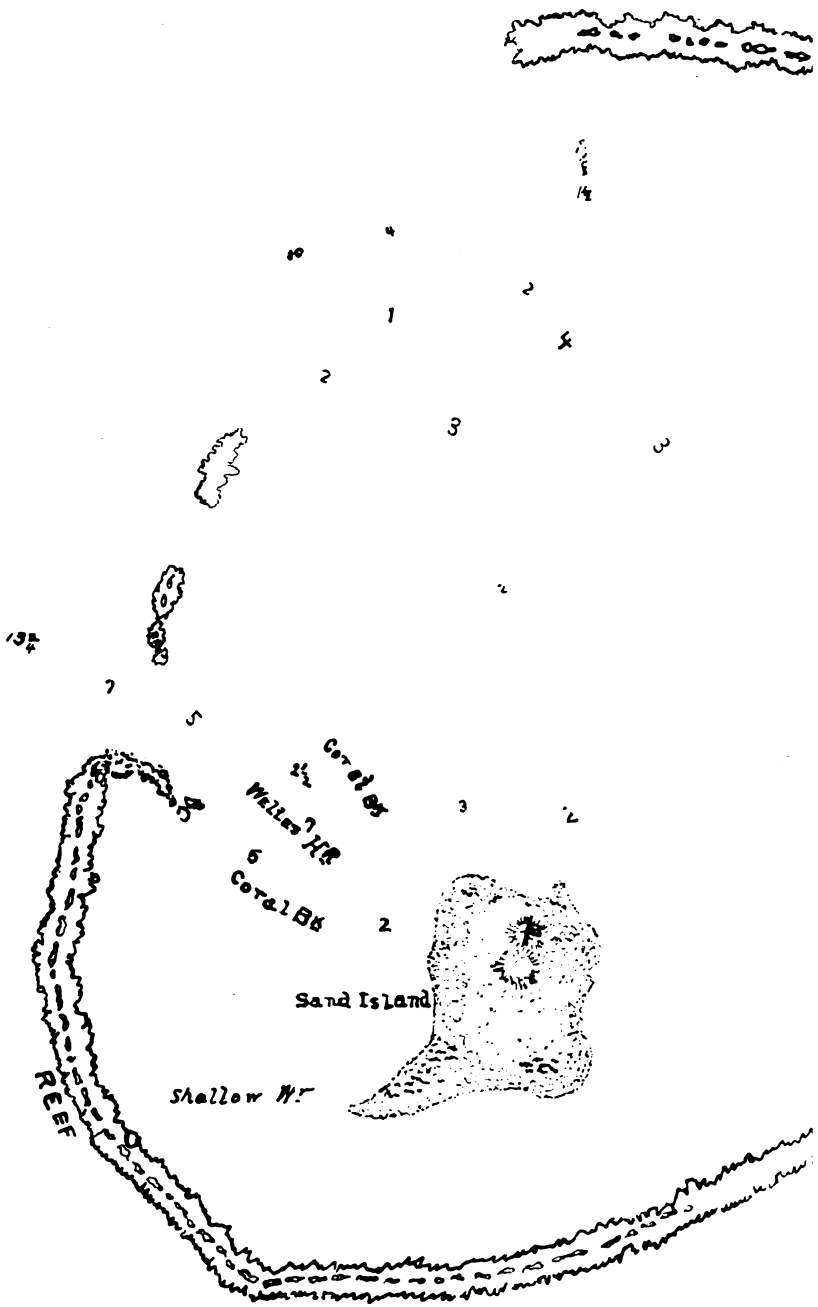
inhabited islands, and omitting a few barren rocks near it, the chain is composed, in the order mentioned, of Nihoa, Necker, French Frigates Shoal, Gardner, Laysan, Lisianski, Midway and Ocean Islands, together with various sunken rocks and reefs. Midway lies something over 1000 miles west by north from Honolulu ($28^{\circ} 12' 22''$ N., $177^{\circ} 22' 20''$ W.), and is, as its name implies, near the geographical centre of the North Pacific.

For the ornithologist, interest centres about the pelagic birds which make these low coral islands their home, no less than about the migratory species which have established themselves as regular visitors. But such stragglers as may from time to time come ashore as ocean waifs on such out of the way places should always be recorded as a fact having an important bearing on the range and distribution of the species in question.

Narrative.

The return voyage from Marcus ($24^{\circ} 14' N.$, $154^{\circ} E.$) was begun August 7. August 19 we crossed the 180° meridian and decided to stand down for Midway, since we were then less than 400 miles to the northwest of it. At 10 A. M., August 21, we sighted Sand, the larger of the two islets of the Midway group. When approaching the island from the north, as we did, or indeed from any direction, Sand is always the first island sighted. It is visible at a distance of not more than fifteen miles as a shimmering white strip along the horizon. On a nearer approach breakers can be seen on the reef surrounding it. By passing out well around the western end of the breakers our little vessel came safely to anchor in blue water off the wide, shallow opening in the northwest part of the reef. A boat was lowered and we began a row of more than four miles to shore. Landing on Sand Island we pulled our boat up on the beach in a little cove fronting on Wells Harbor, and went at once to the sailors' cabin close by. This cabin was built years ago from beach wood and wreckage, and has been rebuilt several times since to form shelter for shipwrecked crews that have gone ashore there. We found no signs of recent occupants, other than the cast-off garments of the colony of Japanese bird-poachers, to whose work of destruction I shall later refer. From the cabin we went to the high sand pile marked on the accompanying plan by a flag, in order to gather from that point of vantage the relation existing between the two islets and the surrounding reef.

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Scale = 3 Miles.

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Stretching from a point west by north from the spot where we stood, and extending from there about the southeast and north of us, could be seen the line of encircling breakers. Coral rocks awash were visible on the reef almost the whole way around. Thus, on the sides mentioned is formed an irregular coral barrier which is about six miles in its greatest diameter. To the north-west of our point of observation the reef is broken up or wanting. The entrance to the lagoon and into Wells Harbor is at the extreme south side of the open portion of the reef, and is about three-quarters of a mile in width. The remaining northern portion is very shallow, with narrow tortuous channels through the masses of submerged coral rock.

Well to the south and east of this lagoon enclosure are located the two bits of land which are designated as Sand and Eastern Island respectively. The one which served as a point of general observation is little more than a barren, blinding heap of sand, of irregular and constantly varying form, forty-three feet high; one mile and a quarter long by three-quarters broad more or less. Here and there the sand has been heaped up in piles a few feet high by the wind. On the top of most of these dunes a few hardy shrubs and grasses manage to subsist, and form the only relief for the eye in what is little else than a waste of shifting sand. Not far from the sailors' cabin referred to were a few graves, marked by three rude wooden crosses, which added the last touch to a picture of desolation such as I had never before witnessed.

To the east a mile or more, but connected with Sand Island by a narrow submerged sand spit lies Eastern Island. Its roughly formed triangular outline can be seen from so slight an elevation as that on which we stand, for it is nowhere more than twenty-five feet above sea level. Compared with the island just described it presents an interesting contrast, for it is clothed in green down to the beach, and differing thus in its flora, it differs still more in the number of birds which inhabit it. What freak of old ocean has placed these two specks of land side by side, under apparently the same conditions, and has covered the one with low shrubs, creeping plants and grasses, and has left the other an uninviting heap of sand? Eastern Island is smaller than its neighbor, being approximately one mile and one-quarter in length by half a mile wide in the broadest part. The centre is a trifle lower than the

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edges, which gives it the general form of a broad, flat platter. Although composed of coral and coral sand it differs from Sand Island in having the interior portion mixed to some extent with vegetable mould and guano. Almost the whole surface of the island is honeycombed with the burrows of the Wedge-tailed Shearwater. Near the middle; on the northwest shore, were three crude shanties, two made of wood and one of grass. These had been standing a considerable time, and had doubtless been built by the Japanese poachers during some of their early visits.

Midway was discovered by Captain Brooks, of the Gambia, in 1859, who took possession of it for the United States. At one time the Pacific Mail Steamship Company intended using it as a depot for its transpacific steamers in preference to Honolulu, which was then under foreign influence. With this plan in view it was surveyed in 1867, but it was never utilized for the purpose intended. It was again carefully surveyed by the officers and men of the U. S. Iroquois in 1900, and an elaborate map, showing several thousand soundings, has been published. The second survey was made preparatory to the establishment of a cable and naval station there, which now gives the island an importance far out of proportion to its area.

The island has been repeatedly visited by small tramp vessels, and has more than once been the haven for shipwrecked sailors. However, it was not until Mr. Henry Palmer visited it in July, 1891, that the nature of its bird life was definitely made known, although all those who visited it made frequent reference to the swarms of sea birds that inhabited it.

Limited as our stay was to but a few hours, the following can be regarded as little more than a running list of the plants and birds which we were able to secure in a short time. Doubtless both the number of plants and birds could be increased without difficulty, while a protracted stay on the island would no doubt bring to light many interesting records of rare visitors, as well as record forms of bird life which would be common enough at other seasons of the year.

On the two islets I collected, in all, eleven species of plants, securing six on Sand and ten on Eastern. With the exception of a single species, *Eragrostis cynosuroides* (Retz), all the plants secured on Sand Island were found growing on Eastern. The

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more important plants determined for Midway are: *Cenchrus calyculatus* Cav., *Boerhaavia tetrandra* Forst., a variety near *Lepidium oahuensis* Chan. I. Schl., *Capparis sandwichiana* DC., *Ipomæa insularis* Stend., *Scævola kœnigii* Vahl., *Tribulus cistoides* Linn., and *Eragrostis cynosuroides* (Retz). In addition to the above are three widely distributed beach plants, two of which are grasses that are as yet undetermined.

List of Birds.

LARIDÆ.

***Sterna fuliginosa* Gmel.—Sooty Tern.**

Under the low *Scævola* bushes on the eastern end of Sand Island was an extensive colony of Sooty Terns that were rearing their young. They were in about the same stage of development as I had found them on Marcus Island. On Eastern the colony was much larger than on Sand Island. This was doubtless due to the more abundant growth of shrubs and grass, which was thick enough to furnish some protection from the sun. Although I made diligent search, only one egg, an infertile one, was found. From what I have seen on the outlying islands I conclude that all the colonies of Sooty Terns in the North Pacific nest at or near the same time. A good series of skins was secured.

Mr. Palmer spent a week on the island (July 11 to 19) without seeing the Gray-backed Tern, *Sterna lunata* (Peale). It is a peculiar freak in distribution that this species should be met with on all the low islands except Midway, but during my sojourn I did not see a single example, although here, as at Marcus, I was especially on the lookout for it.

***Anous stolidus* (Linn.).—Noddy.**

There were but few examples of this species on either island. The few nests found were built on the ground, usually under the shrubs which grew on top of the sand mounds. The young were still in the down.

***Micranous hawaiiensis* Roths.—Hawaiian Tern.**

Only a little colony of a dozen or twenty individuals were seen on Sand Island. These were huddled together sitting on the low bushes on a sand mound. I have observed that birds of this species seldom leave the place where they have been reared, so that when

disturbed they rise and circle gracefully about for a time, but always return to the same spot. When they alight they all sit facing the wind.

On Eastern Island I found a number of colonies of different sizes distributed here and there over the island. All of the twenty birds shot had the feet black in life. A nest located in the bushes toward the centre of Eastern Island may be taken as typical of all seen; it is a rather bulky structure composed for the most part of sea moss, to which were added twigs, leaves, bits of sponge, etc. All of the material is cemented together with the droppings of the bird. The nests were always placed in colonies of a dozen or more, and the fully fledged young were usually sitting on the bushes. But a single egg, which proved to be infertile, was found close by, and as the nests contained no young it would seem that this species nests earlier than the other Terns on the island.

The Hawaiian Tern seldom goes far out to sea. It is always to be seen in small flocks sailing about over the reefs in search of surface-swimming fish, which constitute its chief food.

***Gygis alba kittlitzii* Hartert.—White Tern.**

This fearless and inquisitive bird was by no means abundant on Sand Island. The few found were sitting with their young in the bushes on the sand piles. Specimens secured were taken without difficulty by the hands. On Eastern Island the birds were more abundant. No eggs were collected, but one newly hatched young was secured. Young which were assuming the first plumage were quite common.

DIOMEDEIDÆ.

***Diomedea immutabilis* Roths.—Gooney.**

There were the carcasses of a very few birds on Sand Island which had evidently been killed several months before our visit. On Eastern Island skeletons of this species were more common, but they were by no means as plentiful as those of the following species. I should say that the Gooney was less than a third as abundant as the Black-footed Albatross, judging by the number of dead bodies of each to be seen. None of our party saw a living bird of either species.

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Diomedea nigripes Aud.—**Black-footed Albatross.**

Everywhere on Eastern Island great heaps, waist high, of dead albatrosses were found. Thousands upon thousands of both species had been killed with clubs, the wing and breast feathers stripped off to be sold as hat trimmings, or for other purposes, and the carcasses thrown in heaps to rot. After my acquaintance with the colony of bird pirates on Marcus Island it was but too apparent that a similar gang had been in full operation at Midway not many months prior to our visit, and that they had worked sad havoc among the birds there, in spite of the severe warning which had been given by Captain Niblack, of the Iroquois, to a party similarly engaged the season before. The work of exterminating the Midway colony was surely well under way, and I was convinced that unless something definite was done, and that at once, to prevent such wanton destruction, before long this colony of albatrosses, as doubtless all those on the low outlying islands, would be wiped out precisely as the one on Marcus Island had been.

On my return to Honolulu I took the matter up with the proper officials in Washington, among others addressing a letter to the Chief Executive, with the result that the subject was brought to the attention of the various cabinet officers concerned. With the cooperation of Dr. Henry Palmer, of the U. S. Biological Survey, together with the energetic services of Mr. Wm. Dutcher, President of the Audubon Societies, to whom the whole matter of bird protection for the Pacific had been presented in person by the writer, most satisfactory results have been obtained. A naval vessel will in the future make at least two patrol trips each year to the outlying islands of the Hawaiian group to break up or prevent further depredations. The officers and men stationed on Midway have strict orders to protect the bird colonies there. The fishing rights to certain of the outlying islands will only be let by the Territory, with special clauses protecting the bird colonies thereon; while the Japanese Government will in future refuse to allow predatory hunting and fishing vessels to leave Japanese ports.

PROCELLARIIDÆ.

Prifinus cuneatus (Salvin).—**Wedge-tailed Shearwater.**

This species was only occasionally met with under the bushes on the mounds on Sand Island, while on Eastern the whole interior

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of the island was honeycombed by their burrows. They were so numerous indeed that crossing the island in any direction was a difficult task by reason of one dropping, unexpectedly, hip deep in them, only to climb out of the sand to repeat the experience again and again. They were abundant birds, everywhere dodging beside their holes, or stowed away in them. Several downy young but no eggs were secured.

The absence of the Christmas Island Shearwater, *Puffinus nativitatis* Streets, was another mystery in distribution. Having found it fairly common on Marcus Island, sitting beside its half grown young under the trees, and knowing that it had been met with at French Frigates Shoal and Laysan I fully expected to find it at Midway, especially on Eastern Island where the conditions are fully as favorable for its nidification as they are on Laysan. I am at a loss to account for such a freak in distribution, except it may be that the bird has a great attachment for the locality where the young is reared, and even though it knows of and possibly visits other islands equally suited to its habits, always returns to its own island to in turn rear its young. If such is the case it would indicate the difficulty of establishing new colonies or restocking old ones by artificial means.

PHAETHONTIDÆ.

Phaethon rubricauda Bodd.—Red-tailed Tropic Bird.

A few birds of this species were met with on both islets. All had young in the down, for which they would fight most savagely when molested.

SULIDÆ.

Sula piscator (Linn.).—Red-footed Booby.

A single individual, which had evidently been left behind when its neighbors took their leave of the island, was seen asleep on the bushes on Sand Island. I captured it in my hands. It was the only example seen by any of us.

Sula cyanops (Sund.).—Blue-faced Booby.

A number of this species was seen and a specimen was collected.

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FREGATIDÆ.

Fregata aquila Linn.—**Man-o'-war Bird.**

There was quite a large colony of Man-o'-war Birds nesting on the top of the bushes on Eastern. Twenty-eight nests were counted all within a space a few rods square. The clatter of the bills of the downy young birds as one entered the colony was most interesting and curious.

SCOLOPACIDÆ.

Numenius tahitiensis (Gmel.).—**Bristle-thighed Curlew.**

The Curlew was quite common on the shore of Eastern Island, where I had little difficulty in securing a series of twelve specimens.

Arenaria interpres (Linn.).—**Turnstone.**

The Turnstone was met with on both islands at Midway.

RALLIDÆ.

Porzanula palmeri Frowh.—**Laysan Island Rail.**

A number of years ago Captain Walker, of Honolulu, carried a cage of the Laysan Rails down to Midway and liberated them on Eastern Island. They have multiplied until, at the time of our visit, they were almost as abundant there as they are on Laysan. A single immature specimen was taken, which, when compared with a large series in the Museum from Laysan, exhibits differences in coloration which would lead one unfamiliar with the circumstances of its introduction to separate it by a specific name.

August 26, 1905.

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