

depth of seven or eight, the number of pieces and the work were considerable. During the building each board, before it was permanently fastened, was placed upon its lower neighbor edge to edge, between the two being a strip of pandanus leaf well covered with charcoal. In this manner the points needing to be reduced were blackened as a guide to the rasp. Such fine work was not suitable for the shell adzes of the islanders.

For many years the natives have generally used steel rasps, when obtainable, in place of their less durable ones of ray-skin. The effectiveness of the latter while it is new is quite as great as of those brought by the white man. However, the tubercles ordinarily could be used but a week at most, being often rendered useless by but one day's hard work. The native name is Tapāugu. In other island groups there were also in use, for reducing purposes, shark-skin rasps, pumice and mushroom coral (*Fungia*), some employing all methods while others knew of but one or two.

FIELD NOTES ON THE BIRDS OF OAHU, H. I.

By Alvin Seale, Collector for the Museum. November 12, 1899 to March 20, 1900.

OWING to the bubonic plague quarantine these observations, since January 3, have been restricted to the immediate vicinity of Honolulu. The difficulty of collecting in these islands, with their dense tropical jungles and knife-like mountain ridges, has been mentioned by all former collectors, and I can only add, that while I have collected in difficult places before, including the boggy tundra of Siberia, the high mountains of Alaska, the Tamerack swamps of Michigan, and the Everglades of Florida, I have found nothing that could discourage an Ornithologist so much as one of these islands. The different species of land birds found on Oahu are few in number. Mr. Wilson, in "Aves Hawaiienses," gives but five existing forms, as follows:

ORDER PASSERES.

Vestiaria coccinea.

Himatione sanguinea.

FAMILY **Drepanidæ.**

Oreomyza maculata.

Chlorodrepanis chloris.

ORDER PASSERES.

Chasiempis gayi.

FAMILY **Muscicapidæ.**

ORDER LONGIPENNES.

FAMILY **Laridæ.**75. **Sterna fuliginosa**, Gmel. Ewaewa.

Sooty Tern.

Off the east coast of Oahu two large volcanic rocks, covering perhaps 300 square feet, arise abruptly from the water to the height of 200 feet; these rocks are about a half-mile distant from the shore, directly off Mokapu point. Owing to the coral reef, Heeia, six miles distant, is the nearest accessible point by boat. These rocks are called Moku Manu (Bird Island). I resolved at once to visit them. On January 3, taking two expert native boatmen from Heeia, I started down the coast. Long before the rocks were reached I could see multitudes of birds hovering in the air above the rocks and looking exactly like a swarm of bees. When about a quarter of a mile away I began to hear the noise and gabble. As we got nearer the big Frigate Bird (*F. aquila*) could be seen sailing about and soaring up to wonderful heights, surrounding these birds like clouds, but not arising to such great heights, were Sooty Terns (*Sterna fuliginosa*), which by thousands were the most abundant bird on the rocks. Flying among these birds were many Noddy (*Anous stolidus*), very conspicuous by their dark color.

One big Albatross (probably *Diomedea chinensis*) took flight as we were quite near the rocks; unfortunately our shot (No. 8) proved too small and the distance a little too great, as this very desirable bird merely shook his feathers to rid them of the shot and swept serenely past us, turning his head to give the boat a very sagacious look as he took his leave. Sooty Terns by the thousands were sitting about all over the rocks and flying around our boat in swarms, so near one could hit them with an oar. The din raised by their cry and the noise of their wings was so great one had to shout at the top of the voice to be heard two or three feet distant. The rocks were honey-combed with burrows and must be an ideal nesting place. I looked in vain for a landing; owing to the direction of the waves there seemed to be no lee shore; on the south side one could land on a calm day, but the sea was too high, and so the attempt to land was given up, to my great disappointment.

A good series of Sooty Terns and Noddy was obtained. One of the specimens, a male *Sterna fuliginosa*, was in full breeding plumage, the delicate bluish flush covering the entire under sur-

face excepting the neck, which with the forehead is pure white; top of head and lores, jet black; wings, mandible, top of neck, all sooty black. This specimen's measurements* were as follows: Length, 18.25; wing, 11.87; tail, 5.19; the two outer feathers, 8.25; culmen, 1.81; its depth at nostril, .37; tarsus, .93; mid-toe and claw, 1.19. Palmer found this tern nesting on Laysan and French Frigates Shoals.

79. **Anous stolidus**, Linn. Noddy.

All the birds of this species shot at Moku Manu on January 4 were in dull winter plumage of uniform sooty brown; top of head hoary gray merging gradually into sooty brown on the hind neck; lores, bill, feet, wings and tail black. The reproductive organs were very minute, in strong contrast to the organs of the Sooty Terns taken on the same day. Length, 17.5; wing, 10.5; tail, 6.19; culmen, 1.64; its depth at nostrils, .37; mid-toe and claw, 1.60.

One specimen, an immature male taken at Moku Manu January 4, gives the following measurements: Length, 17.5; wing, 11.6; tail, 5.63; tarsus, 1; culmen, 1.39; its depth at nostrils, .43; mid-toe and claw, 1.46. This specimen, while exceeding the largest measurements of the adult shows unmistakable signs of immaturity in the dark line along the upper wing-coverts, a general lighter color to the plumage and a soft bill. This specimen has the gray coloring of the head confined to the forehead; superciliary stripe almost pure white; lores, black; abdomen with a decided grayish cast; faint fleckings of gray appear on the under wing-coverts; bill, black, shorter and stouter than in mature birds, with a prominent keel; wings, black; feet and tarsus a blackish brown. The mantle has less plumbous, and the wing-coverts are much lighter than in the mature bird.

Anous hawaiiensis, Rothsch. Noio.

Hawaiian Tern.

December 23, while shooting near a shallow pond on the east coast of the island, four of these graceful terns came flying past and I secured three. These have the upper part of the head, top and sides of neck, lavender gray, much lighter on the head and merging into sooty black on the upper mantle. Lores, throat,

*The measurements in the following paper are all in inches, and together with the color markings were taken from specimens in the flesh.

under neck, under surface of body, mantle and wings, sooty black ; feet and tarsus yellowish brown ; webbs, yellow ; iris, dark brown.

The "light ashy green" on the hind neck and upper part of the interscapular region, which Mr. Rothschild speaks of in "Avifauna of Laysan," is presumably characteristic of summer plumage, as these winter specimens fail to show such coloring.

Length, 13 ; wing, 9 ; tarsus, .88 ; its depth at nostrils, .25 ; culmen, 1.53 ; mid-toe and claw, 1.34.

ORDER STEGANOPODES.

FAMILY **Phaethontidæ.**

113. **Phaethon lepturus**, Lacép. & Daud. Haakoae.

Red-billed Tropic Bird.

Three times I have observed these birds sailing about the ridges of Waiolani mountain above Honolulu, at about 1000 feet elevation. Few birds can excel the grace and ease of this bird's flight among the cliffs of the mountains. This species occurs on all the islands.

ORDER ANSERES.

FAMILY **Anatidæ.**

143. **Dafila acuta**, Linn. Pintail.

December 23, I accepted the courteous invitation of the Honolulu Gun Club to accompany them on a shoot over their preserves in the vicinity of Waimanalo. Decoys were spread in the early dawn and twenty ducks were secured. I am told this was an unusually small bag for the club, being but three ducks to the man. A large number of plover were taken, however, to make up the deficiency. Sixteen of these ducks were of the above species. The remaining four were the native Hawaiian duck.

Anas wyvilliana, Sclater.

This duck is fairly common on the island among the tule swamps and ponds near the coast. Length, 18.50 ; wing, 9.67 ; tail, 2.37 ; tarsus, 1.46 ; culmen, 2.12 ; its depth at nostrils, .61 ; mid-toe and claw, 1.81.

ORDER HERODIONES.

FAMILY **Ardeidæ.**

Nycticorax griseus, Wigg. Auku.

Black-crowned Night Heron.

These are common about the marshes in the vicinity of Kahuku. During the day they usually hide in dense clumps of trees

near the coast or up the narrow cañons. One was taken at Kahuku December 31, and two were shot in the vicinity of Waimanalo December 23. Length, 25; wing, 12.57; bill, 3.19; tarsus, 3; mid-toe and claw, 3.57. This bird is found on all the islands.

ORDER PALUDICOLÆ.

FAMILY Rallidæ.

Gallinula sandvicensis, Street. Alae.

Mud Hen.

These birds are common in the tule swamps, kalo patches and fish ponds all over the island. The specimens taken show a decidedly red tarsus.

ORDER LIMICOLÆ.

FAMILY Scolopacidæ.

248. **Calidris arenaria**, Linn. Hunakai.

Sanderling.

The Sanderling is by no means an uncommon bird here during the winter months. On December 21 six were observed during one afternoon along the sandy northern shore of the island, in the vicinity of Kahuku. It is interesting to watch these little birds following the retreating wave down the sandy beach, and their active scramble for the freshly uncovered Crustacea. I have frequently seen them running along the beach with the end of the bill held firmly in the sand, literally plowing out their food. The specimens taken were all in very light winter plumage. No doubt this bird occurs on all the islands of the group, although it has only been reported from Kauai and Niihau.

259. **Heteractitis incanus**, Stejn. Ulili.

Wandering Tatler.

This bird could teach an "Ancient Mariner" many things of the sea. Its knowledge and judgment of the waves is nothing short of wonderful. They know perfectly well the rhythm of the sea, and just how many big heavy waves will come pounding over their rocks before there is a lull; this they show by running far down on the rocks after the third wave, knowing that the fourth will be smaller and not large enough to knock them from their new feeding ground. They also know perfectly well if the incoming wave is going to break or merely swell past them, their judgment in this matter being better than my own, although I

have spent much time by the sea. When heavy seas were running I have been perfectly astonished at the rapidity with which they followed up the retreating waves, gathering up the dainty bits of food cast up, and judging with perfect accuracy how far they could follow down the rocks in safety before the next wave came on. They are a wary bird and difficult to approach. One has to advance when they are busy feeding, and "freeze"—*i. e.*, be perfectly motionless—when they are looking until they fancy one is a rock, their power to discriminate their enemies being less than that of the native land birds. When alarmed they fly up with a cry like U-l-ī-l-ī, uttered in a voice clear as a bell.

During the winter months these birds can usually be found singly or in pairs along any rocky portion of this coast, being about as common here as they are on the west coast of the United States or Alaska. Three specimens were taken in the vicinity of Waimanalo December 23, and one at Heeia January 3. These were all in winter plumage and showed no signs of the barred breast markings. The nasal groove was two-thirds as long as the culmen. Length, 12; wing, 7.56; tail, 2.87; tarsus, 1.50; mid-toe and claw, 1.33; culmen, 1.63; nasal groove, 1.10.

ORDER LIMICOLÆ.

FAMILY Charadriidæ.

272a. **Charadrius fulvus**, Gmel. Kolea.

Pacific Golden Plover.

During the past four months, November–March, the Pacific Golden Plover has been very abundant, especially in the rocky pastures, along the seashore, and in the inland valleys, to an elevation of 200 feet. On December 21 a walk of three miles, in the vicinity of Kahuku, resulted in seeing 205 of these birds by actual count; they were scattered about singly or in groups of three or four. These birds have a clear whistled note which changes to an entirely different and rapid alarm cry as they take to their wings. I have frequently decoyed them by throwing my hat in the air. About nightfall the plovers come in bands to feed by the shallow ponds and sloughs near the shore, a habit that results in the destruction of hundreds of birds by Still Hunters.

December 21 eleven specimens were shot along the northern shore of the island in the vicinity of Kahuku. Nine of these were males in characteristic winter plumage, showing no black on the

ventral surface; the slight dark streakings on the neck merge into indistinct light brownish mottlings on the breast. It is remarkable, in contrast to this, how bright the plumage on the dorsal surface remains during the entire year. The average measurement of the nine male specimens was as follows: Length, 9.98; bill, .91; wing, 6.48; tail, 2.34; tarsus, 1.72; mid-toe and claw, 1.25; culmen, .85. The plover is found on all the islands during the winter months. I am told it leaves the islands about May 1, and returns sometime in August.

ORDER LIMICOLÆ.

FAMILY **Aphrizidæ.**

283. **Arenaria interpres**, Linn. Akeke.

Turnstone.

In regard to the Turnstone, I have the following entry in my notebook: "Nov. 22.—Two *Arenaria interpres* were shot near a small pond in the vicinity of Kahuku; these were males in winter plumage." "December 21.—Turnstones are common in the rocky pastures near the northern shore of the island. They are usually seen in small flocks of three or four, frequently consorting with the Golden Plover (*C. fulvus*)."

These birds are quite wary and usually fly before one is within range. Twenty of these birds were counted during one hour spent in the field. All the specimens taken on this island fall short on the wing measurements. Of six specimens the longest wing was 5.61, while the average was 5.50. Length, 9; wing, 5.50; tail, 2.31; tarsus, 1; culmen, .86; mid-toe and claw, 1.19. Found on all the islands.

ORDER RAPTORES.

FAMILY **Bubonidæ.**

367. **Asio accipitrinus**, Pall. Pueo.

Short-eared Owl.

In the vicinity of Honolulu this owl is quite abundant. My first specimen was shot November 23 at an elevation of 1000 feet. This was a male in characteristic plumage, with a very dusky frontal patch. Another specimen was taken in Kalihi valley, elevation of 200 feet. This was an adult male in the most beautiful plumage; the upper surface is much lighter than in the November specimen; the under tail-coverts are pure white merging into a very pale buffy white on upper abdomen;

dusky frontal patch conspicuous. Another, a female in very dark plumage, was taken March 15. The ovary of this bird contained twenty-one small eggs, ranging from the size of No. 6 shot up to the size of a large pea.

These owls come out about sunset and fly around near the ground, uttering every little while their cry of P-we-o from which they get their native name. I have frequently watched three or four hawking about in Kalihi valley at sunset; they sail quietly along, just skimming the tops of the low guava bushes and grass, alighting occasionally to pick up a stray insect. The stomachs of the three taken, however, were entirely destitute of food, perhaps owing to their being taken early in the evening. I have decoyed these birds within range by sailing my hat in the air. The Pueo is found on all the islands. Length, 14; wing, 12.5; tail, 5.75; tarsus, 1.62; culmen, .68; its depth at nostril, .62; mid-toe and claw, 2.

Chasiempis gayi, Wilson. Elepaio.

Oahu Fly-catcher.

This is the most common native land bird to be found on the island. One will usually see at least three or four during a day's hunt in the mountains. On March 14, a particularly favorable day, I observed eighteen by actual count. This Fly-catcher, unlike all the other birds of the island, does not regard man as its greatest enemy; a condition resulting, no doubt, from years of worship by the natives, for this bird was the god of the canoemen and gave judgment on all the timber used in boat-building. Its usual haunt is the densely wooded cañons at an elevation of from 800 to 1300 feet. It is a most active and interesting little bird and can easily be called quite near by a slight kissing sound made with the lips to the back of one's hand—a very good imitation of one of their calls. Their usual call, however, is a loud, clear whistled El'-ep-aío, from which it gets its native name. Another common note is a slight variation of the above, sounding like a whistled Tōo-weé-oo; still another frequently heard is a sharp Wheet', whtó. When approaching one it scolds in words sounding like Chrr, chrr. In all I have counted seven different calls or notes from this bird. They have a habit, when excited, of spreading their tail and flipping it up to almost right angles with their body. They are not at all afraid, as I have had them approach within twenty inches of my face.

The Elepaio is always keenly alert for insects, and occasionally takes them on the wing with an audible snap of the bill. In the large series of these birds taken all had their stomachs perfectly gorged with insects and larvæ. I have frequently timed them to see how many insects they really would destroy in five minutes. One feeding almost within reach of me in that length of time caught first, a leaf-hopper; second, a small moth; third, another leaf-hopper; and fourth, a caterpillar that required three or four gulps to swallow, it was so large. The strange thing is they seem to be always feeding, so the rapidity of their digestive power is remarkable. To birds other than their own tribe the Elepaio is a pugnacious little body, and I have seen them chase the larger Apapane (*H. sanguinea*) away from a particularly good feeding ground. By February 1 the mating season had arrived for these birds, and I observed them sporting with their mates. As yet I have been unable to find their nests. On March 14, however, I shot a female with an egg, now in the Bishop Museum, that was almost ready for exclusion.

This bird shows the most remarkable range of variations in its plumage, so that a very large series is required to gain any adequate idea of the age and seasonal variations. Not wishing to kill more than was absolutely necessary, the number of these birds taken was confined to six to ten each month, nothing near a duplicate has yet been found. For example, I have before me a male taken January 3: bill, entirely black; feet and tarsus, dark with bluish cast; eye, dark hazel; general color above, tawny ochraceous, brightest on upper tail-coverts and sides of neck; top of head very little brighter than mantle; the feathers of the mantle are broadly tipped with brighter ochraceous which gives the mantle an indistinctly mottled appearance; the rufous of the upper tail-coverts extends as a band entirely around the anal region of the body, although not so bright on the under tail-coverts; wing-coverts tipped with bright rufous and without any trace of white; throat, breast and flanks, tawny ochraceous; belly and tips of tail feathers, except the two middle ones, white; testes enlarged, .29X.19. This was a bird that would evidently breed the coming season. Length, 5.16; wing, 2.63; tail, 2.25; tarsus, .93; culmen, .50; depth at nostrils, .19; mid-toe and claw, .62. A male taken March 15, with plumage exactly the same shade of color, with possibly a shade less of rufous on flanks and breast, has

the immature yellowish under mandible with only the under part at tip dark. Length, 5.50; wing, 2.56; tail, 2.25; tarsus, .87; mid-toe and claw, .56; testes, minute.

The approach to maturity in these birds, as shown by our large series, is as follows: First, the ear-coverts become dusky; next, the under mandible becomes black with only a narrow line of yellowish along the cutting edge. At this period the buffy white of the mid-breast has changed to pure white, and a buffy white patch about one and one-half the length of the culmen appears under the chin. The dusky area about the ear-coverts has increased in size so they extend from a line with the pupil of the eye to half-way down the neck. Fleckings of dusky appear in the rufous on each side of under neck. The tips of the greater and middle wing-coverts show white in the centre surrounded with the bright rufous. Buffy white appears on the lores, the coloring on the head becomes less ochraceous. Thus the changes go on until we have the well known adult plumage, with the pure white tail-coverts; white tips to the wing-coverts; black on throat, preceded by the restricted white area about as long as the culmen. The pattern of this white patch varies in each individual, but in fully mature specimens a narrow band of white extends entirely around the forehead at the base of the upper mandible, widening out over the lores—which are entirely white, but with black bases to the feathers—and joins broadly with the white of the throat. At the base of the lower mandible is a small patch of black; on the lower neck the white gradually disappears as tips to the feathers of the neck and fore breast; the mantle is brownish with rufous cast and has indistinct white tips to the feathers of the lower part. Our series shows no difference between the male and female. Confined to Oahu island. Length, 5.50; wing spread, 7.75; wing, 2.51; tail, 2.18; tarsus, .83; culmen, .54; mid-toe and claw, .56.

***Vestiaria coccinea*, Forster. Iiwi.**

This beautiful bird, once so common on the island, is now very scarce. During the entire four months I have been collecting only two have been secured. Another has recently been presented to the Museum through the courtesy of Dr. Huddy of Honolulu. However, these birds are probably more abundant in the Waianae mountains, which I have not been able to explore because of the

quarantine. On February 27, while collecting in the large ohia forest of Waiolani mountain, at an elevation of 1300 feet, I saw an Iiwi enter a fresh-built nest in an ohia tree (*Metrosideros polymorpha*). I secured the old bird and the nest; unfortunately, however, there were no eggs, the nest not being quite complete. The bird is a female in beautiful summer plumage. General color, a bright vermilion; wings and tail, black; inner two feathers of secondaries, white; feet, light vermilion; bill, vermilion, darker at tip; eye, hazel. The stomach contained the remains of insects and ohia stamens. Length, 6; wing, 2.87; tail, 2; tarsus, 1.12; culmen, .97. The nest was placed about 40 feet from the ground, and was well secured in the crotch of three small branches, at the end of a big limb standing straight up for 12 feet without any lower branches. The nest was completely hidden by leaves and the yellow ohia blooms; the exterior was composed of club moss and small twigs; the inside was of moss, fern pulu, and hair-like fibres from leaves; outside it was 5-7 in diameter; inside, 3.5-2; depth, 2.

Himatione sanguinea, Gmel. Apapane.

While the Apapane is by no means abundant it is still not uncommon in the mountains of Oahu. They are found in the ohia forests at an elevation of 1000 feet. These birds begin to pair about the middle of February, and I frequently saw them sporting as they flew across the cañon. They may be easily decoyed by giving their call of Cheep in a soft whistle. On February 27 three of these birds alighted on an ohia tree quite near me, and one which proved to be a male spread out his wings like a strutting turkey cock and danced gracefully to the great satisfaction of the spectators. These birds when flying make a drumming noise with their wings which sounds like the tapping of a woodpecker in the distance.

On March 3, at an elevation of 1200 feet on Waiolani mountain, I heard an Apapane singing from an ohia tree. There were two, a male and female; I gave the call, a faint cheep, cheep, and the female flew into the tree under which I was standing and was taken. The male continued to sing, his notes being a sweet whistled Hop-o-lee, ch-ch-ch, lee-lee, cha-lee, cha-lee, cha-lee, liquid and beautiful, with frequent changes in the arrangement and abbreviations of the above sounds. They usually, as in this case, continue moving rapidly about from one branch to another,

taking good care to keep themselves well screened behind thick bunches of leaves, for they are a suspicious and wary bird. After watching this bird for some time I hardened my heart and added him to the collection in the Museum. I have found five nests of this species, but as yet no eggs. The nests are usually in the ohia trees. A fresh nest taken February 23 measures 5×5 in diameter on the outside, and 2.25×2 on the inside; depth, 1.10. This nest was found in an ohia tree about 20 feet from the ground; elevation, 1300 feet. The outside of the nest was of moss interwoven with small Ieie roots, with a foundation of small twigs; the inside was of fine hair-like dried fibres of leaves which looked almost like horse-hair. With a good microscope I carefully examined the stomach contents of ten Apapane; remains of insects and larvæ together with bits of stamens and pollen from the ohia were found in all.

The Apapane is a bright crimson in color, brighter on the head; slightly gray shading into white on lower belly, and under tail-coverts white; tails and wings, black. Our series of twenty specimens will not corroborate Mr. Wilson's statement in the "*Aves Hawaiienses*" that "the females differ from the males in having the general crimson of the plumage of a distinctly lighter shade, while the crimson on the outer edge of the secondaries is of the same shade as the rest of the plumage, whereas in the males it is of much lighter tint." In the birds before me all the fully adult specimens, both male and female, have the edging of the secondaries the same color as the mantle; while in the immature of both sexes the edging of the secondaries has a yellowish color; they probably do not lose this sign of immaturity until the second year, as I have taken birds that were nesting which still showed a faint trace of orange-yellowish on their secondaries. In general color the difference in the sexes is so slight as to often be unappreciable.

A young female just beginning to assume the first indication of red was taken February 27. The general color of this bird was grayish tinged with dirty ochraceous; belly and under tail-coverts, white; a slight trace of crimson appearing on head and mantle; edgings on the outer webs of the secondaries and wing-coverts, reddish buff; base of lower mandible, yellowish; a slight white marking near the end of the outer webs of the second, third and fourth primaries as in adult birds. This specimen measured as follows: Length, 5; spread of wing, 7; wing, 2.53; tail,

1.77; tarsus, .83; culmen, .61; its depth at base, .19. This bird is found on all the islands.

ORDER PASSERES.

FAMILY **Drepanidæ.**

Chlorodrepanis chloris, Cab. Amakihi.

Although these birds are not rare I have only secured three. They are so small and their color matches so well the green of the foliage as to make it almost impossible to distinguish them. Their faint little note, sounding like ss ss hissed in a subdued tone, seems to come from almost anywhere and is a poor guide to their location. They are found on the wooded mountain ridges and in the cañons at an elevation of about 1100 feet. An immature male (No. 1335) was taken January 30 on Waiolani mountain at an elevation of 1087 feet. This bird was busily engaged in looking for small insects among the branches of a koa tree. Its stomach contained five small larvæ and the remains of two adult flies. On February 21 I shot another (No. 1343) while feeding on small insects which I saw it picking from the leaves and branches of an ohia bush at an elevation of 1049 feet. This bird was accompanied by another which I thought to be its mate, for it soon returned to the same bush and was taken (No. 1344). These two specimens, a male and female, were in very immature plumage and their organs showed no signs of development; so instead of being mated they may have been merely members of the same brood.

All of these specimens have the well curved horn-colored bill, with light yellowish on the base of the lower mandible. The feet and tarsus are dark with a raw umber tint. All have the greater and middle wing-coverts tipped with whitish, surrounded with a faint trace of olive green; primaries and secondaries dark with greenish edge to outer webs, which merges into light gray towards the tips; secondaries with more or less white on upper part of inner web; tail, dark with greenish outer edge to all the feathers except the two outer feathers, which show a faint edging of grayish; lores, grayish; back, tinged with olive green. In No. 1335, evidently an older bird, the coloring is brighter on the sides of head above the ear-coverts; there is also a bright yellow superciliary stripe; under parts, buffy white streaked with yellowish on throat and breast; lower abdomen and under tail-coverts, white. Following are the measurements of the three specimens: No. 1335. ♂ Length, 4.5; spread of wing, 7.75; wing, 2.56; culmen, .62; its depth at nos-

tril, .19; tarsus, .75; mid-toe and claw, .68. No. 1343. ♂ Length, 4.5; spread of wing, 6.5; wing, 2.50; tail, 1.50; culmen, .56; its depth at nostril, .19; mid-toe and claw, .63. No. 1344. ♀ Length, 4.75; spread of wing, 6.5; wing, 2.43; tail, 1.50; culmen, .56; its depth at nostril, .19; mid-toe and claw, .75. Confined to Oahu island.

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[Those marked with an asterisk were obtained by exchange.]

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