First Endemic Click Beetle From Nihoa Island (Coleoptera: Elateridae)[1]

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The Hawaiian genus *Itodacnus* Sharp (1885) contains 11 species including the 1 described herein, and it is one of 3 endemic genera of click beetles from the Hawaiian Islands. The occurrence of the new species on Nihoa Island (26°6'N, 161°58'W) was not unexpected, as 2 species are found on Necker Island, a similar but much smaller high island which lies 270 km beyond, marking the NW limit of *Itodacnus* (Van Zwaluwenburg 1926, Samuelson & Van Zwaluwenburg 1966, Beardsley 1966). The bulk of the species reside in the opposite direction, on the newer and larger high islands of the SE end of the chain. These latter species were treated by Sharp (1908) in *Fauna Hawaiiensis*, covering all the known species at the time.

Methods

Measurements: body length and breadth are rounded to the nearest 0.05 mm; all others are rounded to the nearest 0.01 mm. Specimens are deposited in Bishop Museum (BPBM).

Itodacnus nihoae Samuelson & Johnson, **new species** Figs. 1, 2a–e

Male (holotype). Body form moderately elongate, attenuate posteriorly, narrowly elliptical in lateral outline, widest across pronotal hind angles, moderately convex. Integument with punctures moderately dense, umbilicate; each puncture bearing an adpressed to suberect, moderately long, aureorufous seta; ventral punctures mixed simple and umbilicate, each with a short seta. Dorsum and antenna largely rufotestaceous, with some fuscous staining on pronotal disc anteriorly and submedially extending to past middle; anterior margin of frons, extreme lateral margin of pronotum and basal margin of elytron fuscous. Body length 13.9 mm, breadth 4.0 mm. **Head** with frons broadly and shallowly concave, becoming flattened anteriorly; punctures moderately dense, with densest area on median of upper frons. Eye large, ocular index = 64. Supra-antennal ridge obtusely carinate, shallowly arcuate, confluent with truncate frontoclypeal margin. **Antenna** nearly half length of body (39:82), exceeding apex of pronotal hind angle by 2.5 segments; segment 1 fusiform anteriorly, flattened posteriorly; segment 2 short, subquadrate; segment 3 elongate, subcylindrical; segments 4–7 narrowly serrate; segments 8–10 subserrate; last narrowly rounded apically; relative length/breadth of segments (1/100ths of mm) are: 52/28 : 26/20 : 44/20 : 72/26 : 72/28 : 72/26 : 70/26 : 70/24 : 68/22 : 66/22 : 72/20. Maxillary and labial palpi with last segment narrowly securiform. **Pronotum** moderately convex, deplanate posterolaterally; slightly broader at apices of posterior angles than along mesal length (100:93); median longitudinal impression obsolete on disc, shallow posteriorly; basal incisures obsolescent; punctation coarse, commonly about 1 x as large as interspaces with flat, shining interspaces at central disc but punctures becoming closer with convex interspaces anterolaterally where they are commonly 2 x as large as interspaces; occasional small punctures also occur on discal interspaces. Hind angles subparallel, dorsally tectiform, with carina evanescent; apex broadly rounded in dorsal aspect, obliquely subtruncate in ventrolateral aspect. **Scutellum** about 1.3 x as long as broad, attenuate posteriorly; finely punctured. **Elytron** about 5 x as long as broad; side rather evenly convex; striae finely sulcate and punctured, intervals shallowly convex and with 3–4 poorly defined series of minute and setiferous punctures. **Ventral surfaces**: Hypomeron with large and sparse umbilicate punctures, mesal margin slightly thickened, flat and impunctate; posterior margin thickened around coxal cavity, with post-coxal tubercle, broad emargination, and angular notch near hind angle. Pronotosternal sutures closed anteriorly, shallowly arcuate towards median. Prosternum

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with large and sparse umbilicate punctures becoming smaller posteriorly; anterior lobe short, margin with a strong and feebly sinuate bead; intercoxal process arcuately depressed below plane and posterior of coxae, narrowly rounded apically. Mesosternum with median fossa constricted at midlength; lateral margins broad, shallowly inclined medially; elevated posteriorly. Mesepisternum acuminate at coxal cavity; elytral locking flange flattened, broadly rounded apically. Metasternum sparsely, simply punctured; median line briefly engraved anteriorly. Metacoxal plate with posterior margin acutely angled. Abdominal punctures simple, elongate, becoming rounded and denser apically from basal 1/3 of sternite 5, the latter with apex broadly rounded. **Legs** elongate, segments finely punctured; femur narrowly fusiform, flattened ventrally; tibia narrow, spinose apically. Tarsus slightly longer than tibia, excluding pretarsal claws; each segment with a dense brush of setae ventrally, apices spinose; segments 1 and 2 with ventrolateral rows of spines. **Aedeagus** with penis broad apically and sinuate at apex; parameres shallowly sinuate at midlength and slightly expanded subapically.

Female. Unknown.

Type material. Holotype male (BPBM 14,746), HAWAIIAN IS (NW): Nihoa I: Devil's Slide, 28.vi.1990 (J. S. Strazanac).

Habitat. Nihoa is the largest and highest island of the Northwestern Hawaiian Islands, with a land area of 63 ha and elevation of 273 m (Palmer 1927). Annual rainfall is about 8–12 cm. Twenty-five species of vascular plants are recorded from Nihoa, including the endemic palm, *Pritchardia remota* (Kuntze) Becc., the only tree found on the island (Christophersen & Caum 1931, Clapp *et al.* 1977). *Chenopodium oahuense* (Meyen) Aellen is probably the commonest plant on the island. Its distribution includes Necker where it may be a possible host or a microhabitat indicator for *Itodacnus paradoxus*; this plant may also be important to *I. nihoae*.

Remarks. The new species resembles *I. gracilis* Sharp (Oahu I, Hawaii I) in having the metacoxal lamina with an acute posterior angle, slender antenna in male with more than 2 segments exceeding the pronotal posterior angle apex, aedeagus with parameres nearly as long as penis, and body length >12 mm; it differs from *I. gracilis* in having a more robust body, with the sides more convex in outline, pronotum more strongly convex, posterior angles of prothorax stouter, and dorsal carina of the posterior angle obsolescent.

Contrasting the new species with its congeners from Necker I (see also key below), it more closely resembles *I. novicornis* Van Zwaluwenburg than *I. paradoxus* Samuelson & Van Zwaluwenburg in size, build, antennal length, and sculpture. However, *I. novicornis* and *I. paradoxus* have the aedeagal parameres proportionally much shorter and with deep lateral incisures, while those of the new species are elongate and without incisures.

The following key is provisional and designed to help determine only the described species, as most of the species of the main islands remain poorly delimited.

Key to described species of *Itodacnus*

1. Antennal segment 3 short, 0.43–0.48 x as long as segment 4; segments 2 and 3 sparsely punctate, segments 4–11 densely microrugose throughout..... **2**
— Antennal segment 3 longer, 0.55–0.69 x as long as segment 4; segments 4–11 sparsely punctate along lateral median line..... **3**
2. Metacoxal plate with posterior angle obtuse; pronotal puncture diameter 1.5–2 x as large as interspaces; body length 11.2–16.7 mm ... (Necker I) ..... ***novicornis*** Van Zwaluwenburg
— Metacoxal plate with posterior angle acute; pronotal puncture diameter 3–4 x as large as interspaces; body length 9.7–11.8 mm ... (Necker I) ..... ***paradoxus*** Samuelson & Van Zwaluwenburg

3. Pronotal surface dulled from conspicuous microsculpture; pronotum subquadrate; pronotal hind angle with dorsal carina evanescent; elytra depressed **4**
— Pronotal surface shining: pronotum trapezoidal anteriorly; pronotal hind angle with carina distinct; elytra convex **5**
4. Frontoclypeal margin with arcuate carina extending from supra-antennal ridge; body length 8.35–9.5 mm ... (Kauai I) ..... ***sordidus*** Sharp
— Frontoclypeal margin without carina, supra-antennal ridge not extending onto frons; body length 6–8 mm ... (Oahu I) ..... ***chloroticus*** Sharp
5. Pronotum subparallel in basal 2/3, gradually narrowing at anterior angles **6**
— Pronotum trapezoidal, narrowing from basal 1/3 ..... **8**
6. Metacoxal plate with posterior margin obtuse **7**
— Metacoxal plate with posterior margin acute; body length ca. 11.5–12 mm ... (Kauai I)..... ***kauaiensis*** Sharp
7. Abdominal sternites with punctures small, round; body length 7.75–9.9 mm ... (Hawaii I) ..... ***blackburnianus*** Sharp
— Abdominal sternites with punctures larger, elongate; body length 9–10.15 mm ... (Molokai I) .....***collaris*** Sharp
8. Pronotal punctures coarse and dense sublaterally, punctures larger than interstices; body length 13.9 mm ... (Nihoa I)..... ***nihoae***, n.sp.
— Pronotal punctures moderate sublaterally, smaller than interstices **9**
9. Posterior pronotal angles divergent; frons moderately deeply concave; body length 12–14.9 mm ... (Maui I)..... ***coruscus*** (Karsch)
— Posterior pronotal angles subparallel; frons flattened to shallowly concave.... **10**
10. Apex of pronotal hind angle narrowly and evenly rounded; body length ca. 10.65–15.5 mm ... (Oahu I, Hawaii I) ..... ***gracilis*** Sharp
— Apex of pronotal hind angle broadly rounded and subdenticulate; body length ca. 15–17 mm ... (Kauai I) ..... ***major*** Sharp

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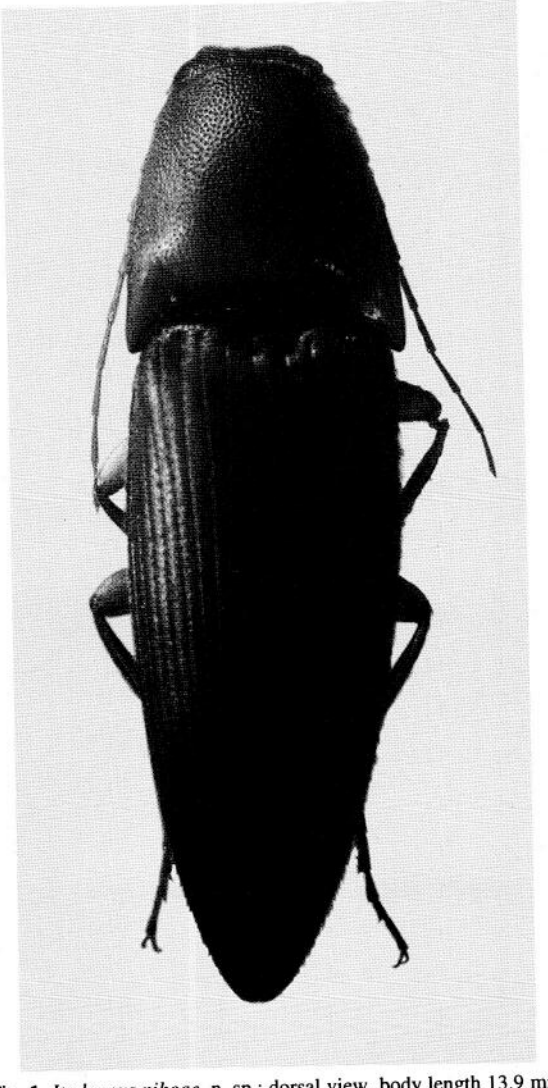

Fig. 1. *Itodacnus nihoae*, n. sp.: dorsal view, body length 13.9 mm.

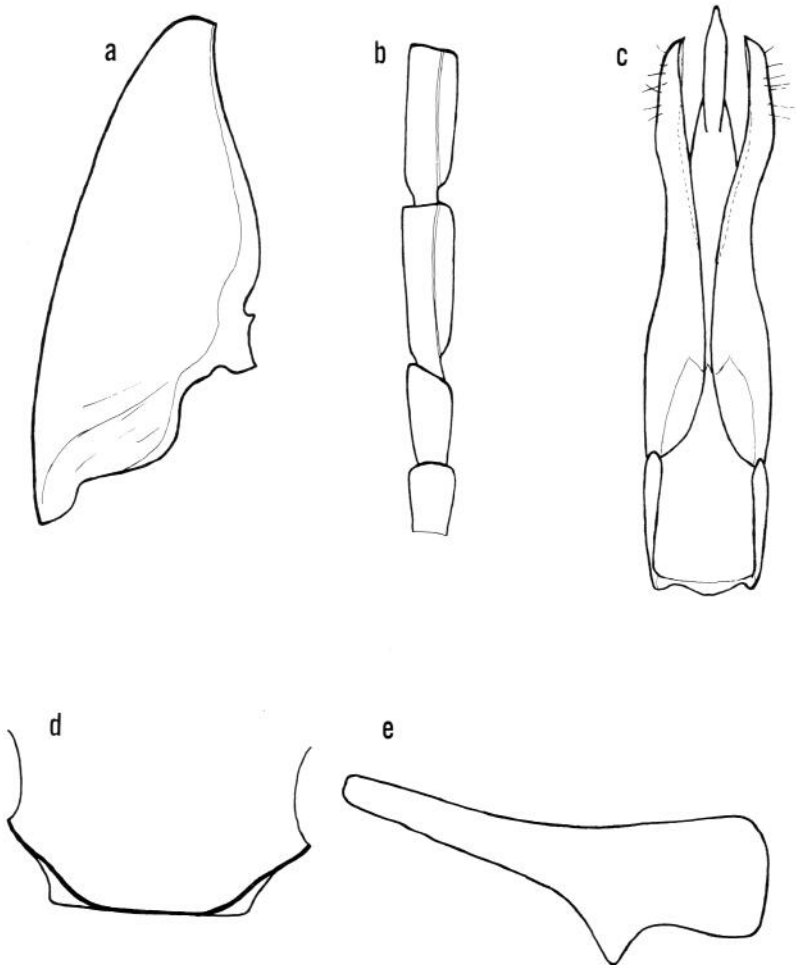

Fig. **2**. *Itodacnus nihoae*, n. sp.: **a**, hypomeron (right), apex up, length 4.3 mm; **b**, antenna, segments 2–5; **c**, aedeagus, dorsal view, apex up, length 2.8 mm; **d**, fore margin of frons, apex down, breadth 1.5 mm; **e**, metacoxal lamina (right), length 2.15 mm.