

ELATERIDAE OF THE MARQUESAS, WITH A
NEW SPECIES FROM FIJI*

By

R. H. VAN ZWALUWENBURG
HAWAIIAN SUGAR PLANTERS' ASSOCIATION

The collection of beetles of the family Elateridae taken by the Pacific Entomological Survey in the Marquesas and in Society Islands is a small but very interesting one. It throws some light on the possible position of Fairmaire's *Oophorus instabilis* from Tahiti,³⁰ variously assigned to *Heteroderes* and *Drasterius*, which in the writer's opinion is probably a member of a new Pacific genus related to *Melanoxanthus*.

So far as the writer knows, specific references to elaterid species from the Marquesas are limited to the four papers listed in the footnotes. Le Guillou³¹ described *Monocrepidius chazali*, which has since been synonymized with *Simodactylus cinnamomeus* (Boisduval). Fairmaire³⁰ and Candèze³² again recorded this species. In 1927 Blair³³ listed the following elaterids from the Marquesas: *Adelocera modesta* (Boisduval); *Simodactylus cinnamomeus* (Boisduval); *Drasterius instabilis* (Fairmaire), recorded with some doubt; and *Psephus aenescens* Blair. Thus three species and a doubtful fourth have until now been recorded from the Marquesas. The first two are in the collection under consideration; *Propsephus aenescens* (Blair) was not found by the Survey collectors. The third species in Blair's list may prove to belong to the new genus *Pacificola*, of which fourteen species are here described.

ADELOCERINAE

1. *Lacon modestus* (Boisduval).

Agrypnus modestus Boisduval: Voy. Astrolabe, Col., p. 108, 1835.

Eight specimens. Eïao: near middle of island, altitude 1200 feet, September 28, 1929, under stone, Adamson; near middle of island, east side, altitude 1650 feet, September 28, 1929, under bark, Adamson; above Vaituha, altitude 1200 feet, October 3, 1929, at light, Adamson; altitude 1600 feet, April 24, 1931, from dead *Cordia subcordata*, LeBronnec and H. Tau-raa.

³⁰ Fairmaire, Léon, Essai sur les coléoptères de la Polynésie: Rev. et Mag. Zool., ser. 2, vol. 1, pp. 21, 22, 1849.

³¹ Le Guillou, E. J. F., Description de vingt Insectes Coléoptères recueillis pendant le voyage autour du monde de l'Astrolabe et la Zélée: Rev. Zool., vol. 7, p. 220, 1844. (Not seen.)

³² Candèze, E. C. A., Monographie des Élatérides, vol. 2, p. 171, 1859.

³³ Blair, K. G., The Heteromera and some other families of Coleoptera from Polynesia collected on the St. George Expedition, 1925: Ann. Mag. Nat. Hist., ser. 9, vol. 20, pp. 171-173, 1927.

* Pacific Entomological Survey Publication I, article 13.

Uahuka: Haane [Hane] Valley, altitude 15 feet, March 13, 1931, LeBronnec and H. Tauraa.

Mohotani: north part, altitude 500 feet, February 4, 1931, from dead wood of *Pisonia* species, 3 specimens, LeBronnec and H. Tauraa.

This species is widely distributed in the tropics of the Old World.

PACHYDERINAE

2. *Simodactylus cinnamomeus* (Boisduval).

Aeolus cinnamomeus Boisduval: Faun. Océanie, Col., p. 106, 1835.

Fairly common in the Marquesas. Eiao: middle of island, east side, altitude 1665 feet, September 28, 1929, on *Hibiscus tiliaceus*, 5 specimens, Adamson; altitude 50 feet, April 17, 1931, at light, LeBronnec and H. Tauraa.

Hivaoa: Aimoa, altitude 1665 feet, March 7, 1929, Mumford and Adamson; Atuona, May 7, 1929, at light, Mumford and Adamson; Atuona, May 27, 1929, Mumford and Adamson; Mount Ootua, summit, altitude 3032 feet, February 13, 1930, on *Hibiscus tiliaceus*, Mumford and Adamson; Mount Temetiu, slope north of summit, altitude 2750 feet, December 29, 1930, H. Tauraa.

Nukuhiva: Taiohae village, November 26, 1929, Mumford and Adamson; Teuanui, Tovii [Toovii], altitude 2000 feet, October 27, 1929, at light, Mumford and Adamson.

Uahuka: altitude 30 feet, February 23, 1931, 3 specimens, LeBronnec and H. Tauraa; Hitikau, altitude 2900 feet, March 3, 1931, LeBronnec and H. Tauraa.

Uapou: Teoatea, Hakahetau Valley, altitude 2000 feet, at light, LeBronnec; Teavanui, Paaumea [Paumea] Valley, altitude 2700 feet, beating on *Freycinetia*, November 27, 1931, LeBronnec; Kohepu Summit, altitude 3200 feet, November 28, 1931, on *Metrosideros collina*, LeBronnec.

Larvae which agree perfectly with larvae of *Simodactylus cinnamomeus* from the Hawaiian islands were collected by the Survey on the following islands of the Marquesas:

Eiao: near middle of island, altitude 1450 feet, October 1, 1929, under bark of *Pisonia* species, 3 specimens, Adamson; near middle east side of island, altitude 1665 feet, September 28, 1929, in surface soil, 7 specimens, Adamson.

Tahuata: Amatea, altitude 2500 feet, July 7, 1930, from dead trunk of *fei* (*Musa* species), LeBronnec and H. Tauraa.

Mohotani: altitude 500 feet, February 2, 1931, 2 specimens, LeBronnec and H. Tauraa.

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2000 feet, October 25, 1929, from rotting stems of banana, 3 specimens, Mumford and Adamson.

Adults of this species were taken by the Survey in the Society Islands: Moorea, Faaroa Valley, altitude 1000 feet, 3 miles from sea, December 4, 1928, banana leaves, 2 specimens, Adamson; Tahiti, Hitiaa, November 10, 1928, at light, Adamson. A specimen from Tahiti, altitude 200 feet, September, 1925, is in the F. L. Washburn collection.

Widely distributed in the Pacific as far north as the Hawaiian islands.

CONODERINAE

3. *Conoderus pallipes* (Eschscholtz).

Monocrepidius pallipes Eschscholtz: Thon's Ent. Archiv., vol. 2, pt. 1, p. 31, 1829.

This species apparently is absent from the Marquesas. The Pacific Entomological Survey specimens are all from Society Islands. Tahiti: Paea, seashore, August 29, 1928, *Hibiscus tiliaceus*, 7 specimens, Adamson; Mataiea, sea level, December 20, 1929, 2 specimens, Adamson.

The specimens in the F. L. Washburn collection are also from Society Islands: Tahiti, 3 specimens; Moorea, 4 specimens; Raiatea, 1 specimen.

Blair³⁴ records the species from Austral Islands (Rurutu), New Hebrides, Ellice Islands, and Gilbert Islands. I have seen specimens from Solomon Islands and Samoa. In the Bernice P. Bishop Museum collections are specimens from Palmyra, Washington, and Fanning islands. In Fiji, according to Veitch,³⁵ *pallipes* ". . . feeds voraciously on the white grubs of *Rhopaea vestita* and it is undoubtedly one of the most important factors holding that pest in check." *C. pallipes* is not found in the Hawaiian islands.

ELATERINAE

PACIFICOLA new genus

Small to medium-sized insects of obscure coloration, covered with fine, usually tawny, pubescence; often with variable testaceous patterns on the elytra; apparently confined to island groups in the south Pacific.

Mouth parts inclined downward. Front margined; regularly convex or slightly flattened anteriorly. Fronto-clypeal region wider than high. Mandibles bifid. Maxillary palpi with elongate, subovoid terminal joint.

Antennae short, usually not attaining the tips of the posterior angles of the prothorax; feebly serrate; longitudinally carinate on outer face of all but the basal and last one or two joints. Joint 1 thicker than the others (fig.

³⁴ Blair, K. G., The Heteromera and some other families of Coleoptera from Polynesia collected on the St. George Expedition, 1925: Ann. Mag. Nat. Hist., ser. 9, vol. 20, p. 171, 1927.

³⁵ Veitch, Robert, Notes on the more important insects in sugar cane plantations in Fiji: Bull. Ent. Research, vol. 10, p. 34, 1919.

40, e); joint 2 short; joint 3 intermediate in length between 2 and 4; joint 4 about as long as, or longer than, 2 and 3 together; joints 5 to 10 subequal in length; joint 11 slightly longer than joint 10.

Prothorax usually slightly longer than broad, occasionally broader than long; anteriorly narrowed from rear third or from tips of the posterior angles. Posterior margin widely emarginate, so that the posterior angles are wide at the base. Posterior angles acute but not elongate; dorsally uncarinate, or incompletely so, or without carina. Punctuation of pronotum (fig. 41) simple or nearly umbilicate, never double. No basal sulci. Lateral carina bent downward anteriorly to meet the lower third of the eye.

Prosternal sutures vaguely double, slightly concave, more or less excavate anteriorly. Prosternal epipleura more or less opaque; upon this background a widely-spaced, shallow, irregular punctuation. Prosternal lobe moderately developed. Mucro nearly straight; channeled behind the coxae.

Mesosternal cavity with sides subparallel, declivous, not prominent.

Scutellum moderately declivous, sometimes slightly convex.

Elytra about twice as long as head and thorax; narrowed to apex, which is rounded or faintly truncate. Striae punctate; intervals conspicuously so, being almost pustulate toward the base of the elytra.

Posterior coxae gradually widened inwardly; the hind margin rounded more or less sharply at its widest point.

Tarsi simple. Hind tarsi about as long as tibiae, sometimes slightly shorter. Joints 1 to 4 decreasing in length (fig. 40, d). The 1st joint of the hind tarsi is about as long as the three following together, and is always distinctly longer than 2 and 3 together. The 5th tarsal joint is relatively robust and short, being in all but one species (*grandis*) about as long as joint 3. Joints 3 to 5 with dense, erect pubescence on the under side. Claws simple.

The type of the genus is *Pacificola obscura*, new species. Thirteen species from the Marquesas and one from Fiji are described. The type material is in Bernice P. Bishop Museum, with the exception of the type of *P. vitiensis*, new species, which is in the type collection of the Hawaiian Entomological Society.

Despite considerable variation in color, all the specimens have the anterior part of the front, and the anterior margin and posterior angles of the prothorax, in some degree lighter than the rest of the head and prothorax. The species have much the *facies* of *Melanoxanthus*, but may be separated by the shorter 5th tarsal joint, and by the erect pubescence on the last three tarsal joints. These characters, and the absence of double punctuation on the pronotum, the non-acute terminal palpal joint, and the simple tarsi, make it distinct from *Heteroderes*, *Drasterius*, or *Aeolus*.

In Samoa the genus is represented by *P. compta* (Van Zwaluwenburg). This species, described as a *Melanoxanthus*,³⁶ appears, upon examination of the paratype from the island of Tutuila in Bernice P. Bishop Museum, to belong in the new genus. The holotype in the British Museum (Natural History), from the island of Upolu, has not been reexamined. Fairmaire's description³⁷ of *Oophorus instabilis* from Tahiti (400 meters, on *Metrosideros* blossoms), recognized with doubt by Blair,³⁸ presents a group of characters applicable in their entirety to *Pacificola*. Thus there seems strong likelihood that the new genus exists in Society Islands, as well as in the Marquesas, Samoa, and Fiji.

Although the Pacific Entomological Survey collection is small and several species are represented by single specimens, there appears to be a very pronounced island endemicity; no species is known to occur on more than a single island.

Key to the Species

1. Posterior angles of pronotum strongly unicarinate for their entire length..... 2
Posterior angles of pronotum with carina feeble, incomplete or entirely absent 10
2. Prothorax attaining its greatest width before the posterior margin; (posterior angles parallel or nearly so)..... 3
Prothorax attaining its greatest width across the tips of the posterior angles; (posterior angles plainly divergent)..... 8
3. Hind margin of posterior coxal plate straight mediad of widest point; the tooth obtuse and straight sided..... **insularis**
Hind margin of coxal plate sometimes finely but always distinctly emarginate mediad of its widest point; the tooth rounded..... 4
4. Lateral carina of prothorax in side view upturned posteriorly; posterior angle upturned at tip..... **obscura**
Lateral carina in side view posteriorly horizontal or even depressed; posterior angle nearly horizontal..... 5
5. Punctuation of pronotal disc very fine..... 6
Punctuation of pronotal disc coarse under high magnification..... 7
6. Prothorax (median measurements) distinctly wider than long..... **contracta**
Prothorax about as long as wide..... **silvestris**
7. Emargination mediad of widest point on hind margin of posterior coxal plate fairly deep, making the tooth prominent..... **vitiensis**
Emargination mediad of widest point of hind coxal plate distinct but slight; tooth less prominent than in *vitiensis*..... paratype of **compta**
8. Punctuation of pronotal disc simple and close-set..... **mumfordi**
Punctuation of disc shallow, flat, proportionally more widely spaced..... 9
9. Scutellum decidedly convex posteriorly; antennal joints 2 and 3 subequal.... **convexa**
Scutellum flat; antennal joint 3 obviously longer than 2..... **bella**

³⁶ Van Zwaluwenburg, R. H., Elateridae: Insects of Samoa, pt. 4, Coleoptera, fasc. 2, p. 123, London, 1928.

³⁷ Fairmaire, Léon, Essai sur les coléoptères de la Polynésie: Rev. et Mag. Zool. ser. 2, vol. 1, p. 22, 1849.

³⁸ Blair, K. G., The Heteromera and some other families of Coleoptera from Polynesia collected on the St. George Expedition: Ann. Mag. Nat. Hist., ser. 9, vol. 20, p. 172, 1927.

- | | |
|--|-----------------|
| 10. Prothorax widest across tips of posterior angles; the angles distinctly divergent | 11 |
| Prothorax almost, if not quite, as wide before posterior margin, as across tips of posterior angles; the angles subparallel..... | 13 |
| 11. Punctuation of pronotal disc simple; insect 3.5 mm. long..... | nana |
| Punctuation of disc rather wide, shallow, subumbilicate; larger insects..... | 12 |
| 12. 4th antennal joint longer than 2 and 3 together; insect 7 mm. long..... | grandis |
| 4th antennal joint not longer than 2 and 3 together; insect not over 5 mm. long..... | montana |
| 13. Pronotal epipleura strongly concave longitudinally on anterior portion..... | adamsoni |
| Pronotal epipleura nearly flat, only slightly concave anteriorly..... | 14 |
| 14. Posterior angles of prothorax feebly but distinctly unicarinate..... | fasciata |
| Posterior angles without trace of carina..... | remota |

4. *Pacificola insularis*, new species.

Length, 5.0 mm. Blackish, with front of head reddish and the anterior margin and posterior angles of pronotum, basal third of elytra, and area on posterior third attaining lateral margins posteriorly, testaceous; suture more or less black. Antennae brown with four basal joints somewhat lighter. Legs yellowish; under side of body irregularly fuscous to rufous. Pubescence yellowish, recumbent, and fine.

Front regularly convex; anterior margin broadly rounded. Antennae not attaining the tips of posterior angles. Joint 4 as long as 2 and 3 together.

Pronotum slightly longer than wide; its widest point about three-quarters back from the anterior margin, the posterior angles converging slightly backward. Posterior angles distinctly unicarinate. Punctuation of disc simple, fine, and close-set. Median basal canalication well marked but short.

Elytra slightly narrower than prothorax, sides subparallel to about middle, thence conjointly narrowed to apex; each very finely mucronate at sutural angle.

Joint 5 of hind tarsi about twice as long as broad, its length about equal to that of joint 3. Hind margin of posterior coxal plate (fig. 40, *a*) almost straight mediad of widest point, making the projection nearly rectangular.

Uahuka: Haane [Hane] Valley, altitude 150 feet, March 9, 1931, holotype female, LeBronnec and H. Tauraa.

5. *Pacificola obscura*, new species (pl. 4, *B*).

Length, 4.25 mm. to 4.75 mm. Blackish with elytra sometimes slightly lighter. Front of head, anterior margin and posterior angles of pronotum rufous to yellowish. Under side of body dark reddish; legs reddish with tarsi lighter. Antennae dark brown with 4 basal joints lighter.

Front regularly convex; margin broadly rounded. Antennae (fig. 42, *e*) not attaining tips of hind angles of prothorax; joint 4 about as long as 2 and 3 together.

Prothorax slightly longer than wide; greatest width before posterior margin. Posterior angles converging slightly to apex, strongly unicarinate. The tips of the posterior angles in lateral aspect (fig. 40, *g*) are distinctly, though sometimes only slightly, upturned. Punctuation on disc simple, close-set, moderately coarse. Median basal canalication varies in depth and strength; usually well marked.

Elytra slightly narrower than prothorax. Tips finely mucronate at sutural angle. Striae rather feebly impressed; punctures linear; intervals flat, somewhat rugose toward base.

Joint 5 of hind tarsi (fig. 40, *d*) only slightly longer than joint 3. The hind margin of the posterior coxal plate (fig. 40, *b*) has, just mediad of its widest point, a slight but unmistakable undulation, making the posterior projection of the plate well defined.

Uahuka: Penau Ridge, altitude 2000 feet, March 4, 1931, at light, holotype female, LeBronnec and H. Tauraa. Paratypes, all from Uahuka, as follows: Penau Ridge, altitude 2000 feet, March 4, 1931, at light, LeBronnec and H. Tauraa; Haane [Hane] Valley, altitude 150 feet, March 9, 1931, 5 females, LeBronnec and H. Tauraa; Teivipuhipuhi, Vaikivi Valley, altitude 1250 feet, March 6, 1931, on *Metrosideros collina*, 1 probable female, LeBronnec and H. Tauraa.

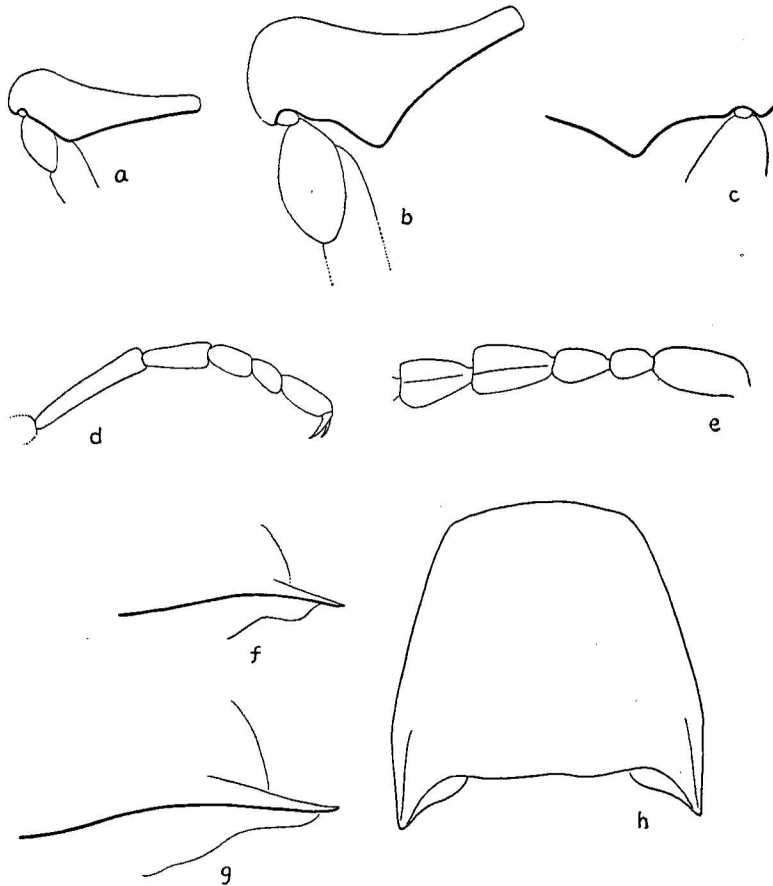


FIGURE 40. Species of *Pacificola*. *a-c*, hind coxal plate: *a*, *P. insularis*; *b*, *P. obscura*; *c*, outline of portion of hind margin, *P. vitiensis*. *d, e*, *P. obscura*: *d*, hind tarsus (pubescence omitted); *e*, lateral view of five basal joints of antenna. *f-h*, prothorax: *f*, lateral view of posterior portion, *P. contracta*; *g*, lateral view of portion of prothorax, *P. obscura*; *h*, outline of dorsal aspect (setation omitted), X about 23, *P. contracta*.

6. *Pacificola contracta*, new species.

Length, 5.9 mm. Blackish with anterior part of front, anterior margin, and posterior angles of prothorax, reddish. Pubescence tawny. Scutellum black. Elytra black with a reddish area on intervals 2, 3, and 4 extending back from the base for about one-third the length of the elytra, where it is interrupted by a blackish suffusion. Back of this on the posterior half is another reddish area which quickly widens to include the lateral margins and extends to the apex of the elytra. Antennae reddish brown with basal joints slightly lighter. Body beneath blackish with reddish suffusions on prosternum and on margins of the abdominal segments. Legs brown.

Front convex above, slightly excavate behind frontal margin; margin broadly rounded. Antennae not attaining tips of posterior angles of the prothorax. Joint 4 as long as 2 and 3 together; joint 3 plainly longer than joint 2.

Prothorax distinctly broader than long (fig. 40, *h*); greatest width before the posterior margin; pubescence recumbent. Posterior angles converging backward with no undulation of the lateral margins. Posterior angles strongly unicarinate; in side view (fig. 40, *f*) the lateral margin posteriorly depressed. Punctuation of disc simple, fine, and close-set. Basal median canaliculation feeble.

Elytra slightly narrower than prothorax; sides subparallel to about middle, thence conjointly narrowed to apex. Apex rounded, not mucronate. Striae rather weakly impressed, punctures linear; intervals flat, rugose toward base.

Joint 5 of hind tarsi about as long as joint 3.

Projection on hind margin of posterior coxal plate robust and prominent, the plate three times wider at its widest point than at its outer margin.

Fatuhiva: Tepapaohivapu, altitude 2150 feet, August 25, 1930, holotype female (?), LeBronnec.

Close to *P. silvestris* but more robust, and with the hind coxal projection more prominent; the comparatively wider prothorax will further distinguish it.

7. *Pacificola silvestris*, new species.

Length, 5.0 mm. Blackish with anterior part of front, and anterior margin and posterior angles of prothorax, testaceous; scutellum blackish. Elytra blackish, with vague yellowish area along median basal third, and another on posterior third, these areas not attaining either the suture or the lateral margins. Antennae blackish with four basal joints reddish. Body beneath blackish with under side of hind angles of prothorax yellowish, and the tibiae and tarsi reddish brown.

Front convex, anteriorly flattened; margin broadly rounded. Antennae not attaining tips of posterior angles of prothorax. Joint 4 as long as 2 and 3 together.

Prothorax about as long as wide (median measurements); greatest width at about its posterior third; posterior angles undulate and slightly incurved, their tips excurved. Posterior angles strongly unicarinate. Side margin in lateral aspect horizontal posteriorly. Punctuation of disc (fig. 41, *c*) very fine, fairly widely spaced. Pubescence semi-erect on prothorax. Basal median canaliculation shallow and vague.

Elytra slightly narrower than prothorax. Sides subparallel to about middle, thence conjointly narrowed to apex. Apex subtruncate and finely mucronate at sutural angle. Striae moderately well impressed, punctures linear; intervals flat, rugose on basal half.

Hind margin of rear coxal plate emarginate mediad of its widest point; the projection well defined and rounded. Joint 5 of hind tarsi about as long as 3.

Fatuhiva: Ahuava, altitude 1800 feet, August 19, 1930, beating on *Glochidion ramiflorum*, holotype female, LeBronnec.

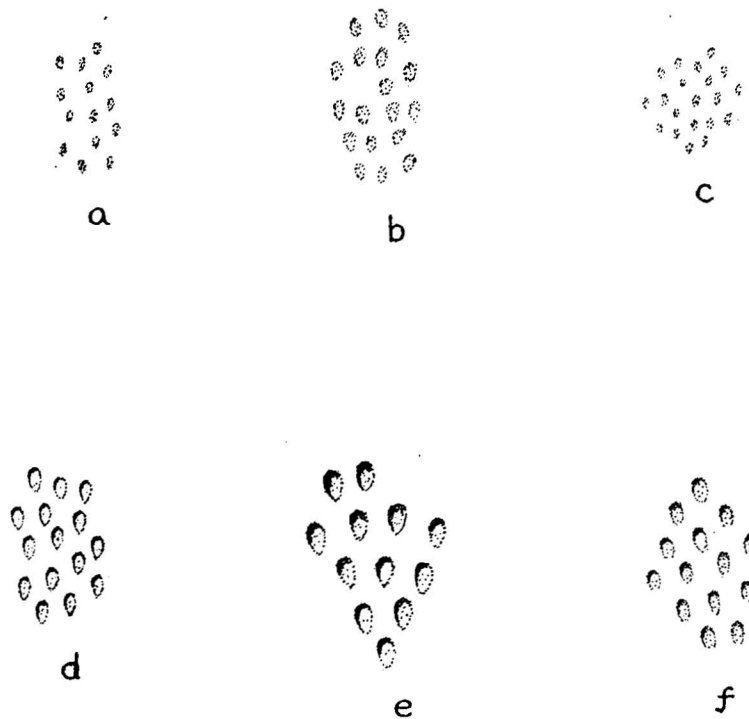


FIGURE 41. Species of *Pacificola*, punctation of disc of pronotum (setation omitted), \times about 80: a, *P. nana*, b, *P. convexa*, c, *P. silvestris*, d, *P. mumfordi*, e, *P. vitiensis*, f, *P. grandis*.

8. *Pacificola vitiensis*, new species.

Length, 4.5 mm. Head and thorax dark brown, with front of head vaguely, anterior margin and posterior angles of prothorax definitely, yellowish brown; elytra yellowish brown, with scutellum, sutural margin, and vague area along sides, dark brown. Antennae dark brown with four basal joints somewhat lighter. Body beneath dark reddish brown; tibiae and tarsi lighter brown.

Front almost flat, rather coarsely punctured; front broadly rounded. Antennae not attaining posterior angles of prothorax; joint 4 as long as 2 and 3 together.

Pronotum slightly longer than wide; its greatest width before the posterior margin, the posterior angles being parallel. The posterior angles are strongly uncarinate. In side view the lateral margin of the pronotum is horizontal, not upturned posteriorly. Punctuation on disc (fig. 41, e) coarse, wide, and fairly deep. Posterior median canalication brief, but well impressed.

Elytra as wide as pronotum; subparallel to about middle, thence conjointly narrowed to apex. Apex subtruncate with suggestion of mucro at sutural angle. Striae fairly well impressed; punctures linear; intervals almost flat, rugose toward base.

Indentation of hind margin of rear coxal plate (fig. 40, c) mediad of widest point well marked, with the result that the posterior angle of the plate is fairly prominent. Joint 5 of hind tarsi slightly longer than 3, shorter than 3 and 4 together.

Fiji: Viti Levu, Lami district, altitude 300 and 800 feet, 1920, in native forest, holotype (probably a female), C. E. Pemberton. The holotype is in the collection of the Hawaiian Entomological Society.

P. vitiensis and *P. compta* are closely allied, and have much the same *facies*. The surface of the pronotal epipleura in both is less opaque than among the Marquesan species. In *vitiensis* the pronotal punctation is somewhat coarser, the basal median furrow on the pronotum much more apparent, the fifth joint of the hind tarsus relatively longer, and, above all, the projection of the hind margin of the rear coxal plate much more prominent, than in *compta* (paratype).

9. *Pacificola mumfordi*, new species (pl. 4, C).

Length, 6.0 mm. to 6.25 mm. Light brown to castaneous with darker suffused areas on vertex of head and on pronotum. Body beneath somewhat, and irregularly, darker; legs yellowish.

Front convex; anterior margin broadly rounded. Antennae not attaining tips of posterior angles of thorax. Joint 4 of antennae as long as 2 and 3 together.

Prothorax longer than wide; widest across tips of posterior angles. Hind angles strongly uncarinate. Punctation of pronotum (fig. 41, *d*) simple, close-set, fairly deep and regular, even on disc. Median basal canaliculation well defined.

Elytra at base as wide as prothorax, slightly narrowed to about middle, thence more sharply to apex, which is subtruncate and finely mucronate at sutural angles. Strial punctures well impressed; intervals flat, rugose toward base.

Joint 5 of hind tarsi slightly longer than joint 3.

Nukuhiva: Tauamaka, altitude 2900 feet, November 10, 1929, on *Metrosideros collina*, holotype female, Mumford and Adamson; Tapuaooa, altitude about 2600 feet, May 30, 1931, paratype female, LeBrons and H. Tauraa. Another specimen, a female, which lacks head and thorax, may belong to this species; it was taken at Ooumu, Nukuhiva, altitude 3700 feet, October 13, 1929, Mumford and Adamson.

10. *Pacificola convexa*, new species.

Length, 3.75 mm. Head and prothorax black, with anterior margin of front, and anterior margin and posterior angles of prothorax, reddish brown. Scutellum dark brown. Elytra yellowish brown with lateral blackish suffusion arising near the humeri extending to posterior two-thirds, and widening at about the middle to interval 5. Vague blackish markings on posterior third of elytra from about interval 8 to interval 3, not attaining the apex. Antennae blackish with 3 basal joints lighter. Under side more or less concolorous with that portion of the dorsum immediately above it. Legs yellowish brown.

Front convex, rather acutely rounded on the margin. Antennae not attaining tips of posterior angles of the prothorax; joints 2 and 3 subequal, together about as long as joint 4.

Pronotum with posterior angles strongly uncarinate, the carinae extending forward only slightly beyond the base of the angles. Pronotum about as long as wide (median measurements); uniformly narrowed from tips of diverging posterior angles to the

anterior third, thence more strongly. Punctuation of pronotum (fig. 41, *b*) fairly coarse; subumbilicate even on disc. Median basal canaliculation finely, deeply marked.

Scutellum convex on basal half. Elytra as wide as prothorax. Tips separately rounded and finely mucronate at sutural angles. Striae punctate-striate; intervals flat, somewhat rugose toward base.

Posterior coxal plate obtusely rounded at widest point.

Nukuhiva: Ooumu summit, altitude 3890 feet, July 20, 1931, on *Cyrtandra* species, holotype female, LeBronnec and H. Tauraa.

11. *Pacificola bella*, new species.

Length, 4.75 mm. Generally blackish with anterior part of front, the anterior margin of the pronotum, rufous, and the following areas flavous: (1) posterior angles of pronotum, (2) an irregular area on the basal third of each elytron, attaining neither the suture nor the lateral margins, and (3) a vaguer area on the distal third attaining neither the suture, lateral margins, nor tips of the elytra. Scutellum black. Antennae blackish with 3 basal joints paler. Under side of body blackish except for prosternal lobe and posterior angles of prosternum, which are brownish; abdomen blackish to rufous. Legs testaceous.

Front convex, rather more acutely rounded on margin than in the other members of the genus. Antennae not attaining tips of posterior angles of prothorax; joint 3 plainly longer than 2; together equal to joint 4.

Pronotum with posterior angles distinctly carinate, with a faint suggestion of a second carina mediad of the principal one. Slightly longer than wide; greatest width across tips of posterior angles which diverge toward the rear. Punctuation coarse; subumbilicate even on disc. Median basal canaliculation well marked.

Scutellum flat or nearly so. Elytra as wide as prothorax. Their tips slightly divergent and finely mucronate at sutural angle. Striae strongly punctate-striate; intervals flat, rugose toward base.

Posterior coxal plates obtusely rounded at widest point. Joint 5 of hind tarsi about as long as joint 3.

Tahuata: Haoipa, summit, altitude 2700 feet, July 9, 1930, beaten from *Metrosideros collina*, holotype female, LeBronnec and H. Tauraa.

12. *Pacificola nana*, new species (pl. 4, *A*).

Female, 3.5 mm. long; probable male, 3.3 mm. long.

Blackish with yellowish areas as follows: front of head, anterior margin and hind angles of prothorax, and base of elytra. The coloration of the elytra varies. In one specimen (female) a vaguely defined stripe runs from the base along the 4th elytral interval for about half the length of the wind-covers. Antennae blackish with the 3 basal joints yellowish. Under side of body generally blackish with front and rear of prosternum, posterior angles of the pronotal epipleura, and tip of abdomen, testaceous to rufous. Legs testaceous with femora fuscous.

Front convex, flattened anteriorly; anterior margin broadly rounded. Antennae of female not attaining tips of posterior angles of prothorax; of male, barely exceeding tips. Joint 4 as long as 2 and 3 together.

Prothorax slightly longer than wide; widest across tips of posterior angles. Punctuation of pronotum (fig. 41, *a*) circular, simple, extremely fine and light. Posterior angles not carinate. Basal median canaliculation shallow.

Elytra (behind the humeri) slightly wider than prothorax, subparallel to about middle (female), thence conjointly narrowed to apex; in the male the elytra about as wide as prothorax, narrowed from shoulders to apex. Apex rounded; finely mucronate at tips of sutural angles. Striae fine, punctures linear; intervals flat, granulate for almost their entire length.

Joint 5 of hind tarsi stout, about as long as joint 3.

Hivaoa: Matauuna, altitude 3700 feet, March 4, 1930, miscellaneous beating, holotype female, Mumford and Adamson; Matauuna, altitude 3700 feet, March 3, 1930, allotype (probable male), Mumford and Adamson.

13. *Pacificola grandis*, new species.

Length, 7.2 mm. Blackish with front of head, anterior margin and posterior angles of prothorax, yellowish brown. Elytra castaneous with base yellowish brown. Scutellum and sutural margins dark brown. Antennae blackish with 3 basal joints reddish. Body beneath dark reddish brown; tibiae and tarsi somewhat lighter.

Front regularly convex; rather acutely rounded. Antennae nearly reaching to tips of posterior angles of prothorax. Joint 4 longer than 2 and 3 together.

Prothorax longer than wide; widest across tips of diverging posterior angles. The angles are strongly uncarinate anteriorly only, the carina absent on the posterior half. Punctuation of pronotum (fig. 41, f) close, subumbilicate, fairly shallow, and regular. Median basal canaliculation faint.

Elytra about as wide as posterior angles of prothorax; subparallel to beyond middle, thence conjointly narrowed to apex. Sutural angles slightly divergent, finely mucronate. Striae moderately impressed, punctures linear; intervals flat, pustulate toward base.

Projection on hind margin of posterior coxal plate prominent. Joint 5 of hind tarsi about as long as 3 and 4 together.

Hivaoa: Matauuna, altitude 3700 feet, March 4, 1930, on *Vaccinium*, holotype female (?), Mumford and Adamson.

The relative length of joint 5 of the hind tarsi is in this species greater than usual in *Pacificola*; however, joint 1 is as long as joints 2, 3, and 4 together, and joints 3 to 5 are characteristically pubescent beneath.

14. *Pacificola montana*, new species (pl. 4, D).

Length, 4.2 mm. to 5.0 mm. Blackish with anterior part of front, and anterior margin and posterior angles of prothorax, brownish. Scutellum black. The elytra have the following pattern: lateral margins and the interval on either side of the suture, black to blackish; basal half yellowish brown on intervals 2 to 5, interrupted by an irregular black fascia; behind this another brown area on basal half on intervals 2 to 7, widening posteriorly to include interval 8; apex of elytra cloudy. The typical pattern varies in area and intensity among the specimens at hand. Antennae blackish with 3 basal joints brownish. Body beneath blackish with prosternal sutures and margins of abdominal segments in part, reddish. Legs brownish, especially tibiae and tarsi.

Front regularly convex; margin broadly to subacutely rounded. Antennae not attaining (female), or slightly exceeding (male), tips of posterior angles of prothorax. Joint 4 as long as 2 and 3 together.

Prothorax slightly longer than wide; greatest width across tips of posterior angles. Posterior angles faintly carinate anteriorly only, or not at all. Punctuation of disc shallow, more or less umbilicate. Basal median canaliculation short but well defined.

Elytra slightly wider than prothorax (posterior angles excepted), subparallel to about middle (female), or narrowed from base to apex (male). Apex subtruncate; finely mucronate at sutural angles. Striae moderately well impressed, punctures linear; intervals flat, pustulate toward base.

Joint 5 of hind tarsi about equal to joint 3.

Hivaoa: Mt. Temetiu, slope north of summit, altitude 3900 feet, December 30, 1930, beating on *Weinmannia* species, holotype female, H. Tauraa; Matauuna, altitude 3700 feet, March 4, 1930, on *Vaccinium*, 2 paratype females, Mumford and Adamson; Matauuna, altitude 3700 feet, March 3, 1930, 1 paratype female, Mumford and Adamson; Mt. Temetiu, slope north of summit, altitude 3800 feet, December 27, 1930, beating on *Weinmannia* species, 1 probable female, H. Tauraa; Matauuna, altitude 3700 feet, February 24, 1930, miscellaneous beating, allotype male, Mumford and Adamson; Mt. Temetiu, slope north of summit, altitude 3,860 feet, December 27, 1930, on *Weinmannia* species, 1 probable male, H. Tauraa.

15. *Pacificola adamsoni*, new species.

Length, 5.0 mm. Yellowish brown, with head blackish on vertex; a dusky suffusion on middle of pronotum; scutellum blackish; a dark brown line on intervals 5 and 6 of elytra, extending nearly halfway back from the base, then crossing obliquely to outer-posterior fifth of the elytra. Under side of prothorax yellowish brown, the rest of the most interval and continuing back to tip; just before the middle a transverse dusky band connects the marking on intervals 5 and 6, with a vague, irregular sutural marking which extends forward from that point to the scutellum; another dusky area on the posterior fifth of the elytra. Under side of prothorax yellowish brown, the rest of the prosternum and the abdomen darker; legs yellowish brown. Antennae dark with 4 basal joints lighter.

Front convex, flattened anteriorly; margin broadly rounded. Antennae not attaining tips of posterior angles of prothorax. Joint 4 as long as 2 and 3 together. In the type both antennae are broken, each having but 9 joints.

Prothorax considerably longer than wide; greatest width before the posterior margin. Posterior angles directed straight back; strongly unicarinate anteriorly, but the carina extremely vague on posterior third. Punctuation simple, fine, and close-set on disc. Median basal canaliculation vague. The shallow impressions on the posterior margin, within the posterior angles, wider than in the rest of the genus. Pronotal epipleura very concave longitudinally, giving the effect of a wider channel on the outer half or third, roughly parallel with the outer margin.

Elytra at base as wide as prothorax; strongly narrowed posteriorly to apex; tips finely mucronate at sutural angle. Striae well impressed; intervals flat, pustulate, especially toward base. Pubescence on elytra rather coarse. Elytra very convex in cross section with the sides almost perpendicular. The abdomen is likewise strongly convex transversely.

Joint 5 of hind tarsi about as long as joint 3.

Hivaoa: Kopaafaa, altitude 2800 feet, February 25, 1930, on *Weinmannia* species, holotype female, Mumford and Adamson.

P. adamsoni is more slender than *P. remota*, and has the punctuation on the pronotum finer and closer than in that species.

16. *Pacificola fasciata*, new species.

Length, 4.0 mm. Brownish black with anterior part of front, and anterior margin and posterior angles of prothorax, yellowish brown. Antennae dark brown. Scutellum black. Elytra yellowish brown with blackish sutural stripe and lateral marking which widens inward at about the middle to the 4th interval, and rearward vaguely approaches the suture. A vague blackish stripe from widest part of lateral band runs backward parallel with the suture. Under side of body dark reddish brown.

Front regularly convex; anterior margin broadly rounded. Antennae almost attaining tips of posterior angles. Joint 3 longer than 2, together as long as joint 4.

Prothorax about as long as wide; only very slightly wider across tips of posterior angles than before posterior margin. The posterior angles almost parallel; finely but distinctly uncarinate. Punctuation on disc more or less umbilicate. Basal median canalization faint. Pronotal epipleura nearly flat, not conspicuously channeled.

Elytra as wide as prothorax; slightly widened from base to beyond middle, thence narrowed to apex. Apex subtruncate, faintly mucronate at sutural angle. Striae well marked; punctures linear; intervals rather coarsely punctured, flat, more or less granulate toward base.

Uapou: Kohepu summit, altitude 3300 feet, November 27, 1931, beating on *Weinmannia* species, holotype female, LeBronnec.

This is not satisfactorily separated by key from *P. remota* but is so conspicuously more robust there seems little doubt as to its validity.

17. *Pacificola remota*, new species.

Length, 4.0 mm. Blackish with anterior part of front, anterior margin and hind angles of prothorax, and a vague basal and a post-median area on each elytron, yellowish brown. Sutural line nearly black, and this, together with the brownish areas which separate the lighter spots, produces a fairly well defined cruciform pattern on the elytra. Under side of body irregularly reddish brown, with legs somewhat lighter.

Front regularly convex; anterior margin broadly rounded. Antennae about attaining tips of posterior angles of prothorax. Joint 4 as long as 2 and 3 together; joint 3 longer than joint 2.

Prothorax slightly longer than wide; almost as wide before its posterior margin as across the tips of the hind angles. Posterior angles almost parallel; no trace of carina. Punctuation of disc, subumbilicate. Basal median canalization faint. Pronotal epipleura nearly flat, not conspicuously channeled.

Elytra as wide as prothorax; subparallel to about middle, thence conjointly narrowed to apex. Finely mucronate at tips of sutural angle. Striae well marked; punctures linear; intervals flat, more or less rugose toward base.

Joint 5 of hind tarsi as long as joint 3.

Fatuhiva: Tahuna, altitude 2050 feet, September 3, 1930, on *Metrosideros collina*, holotype female, LeBronnec.

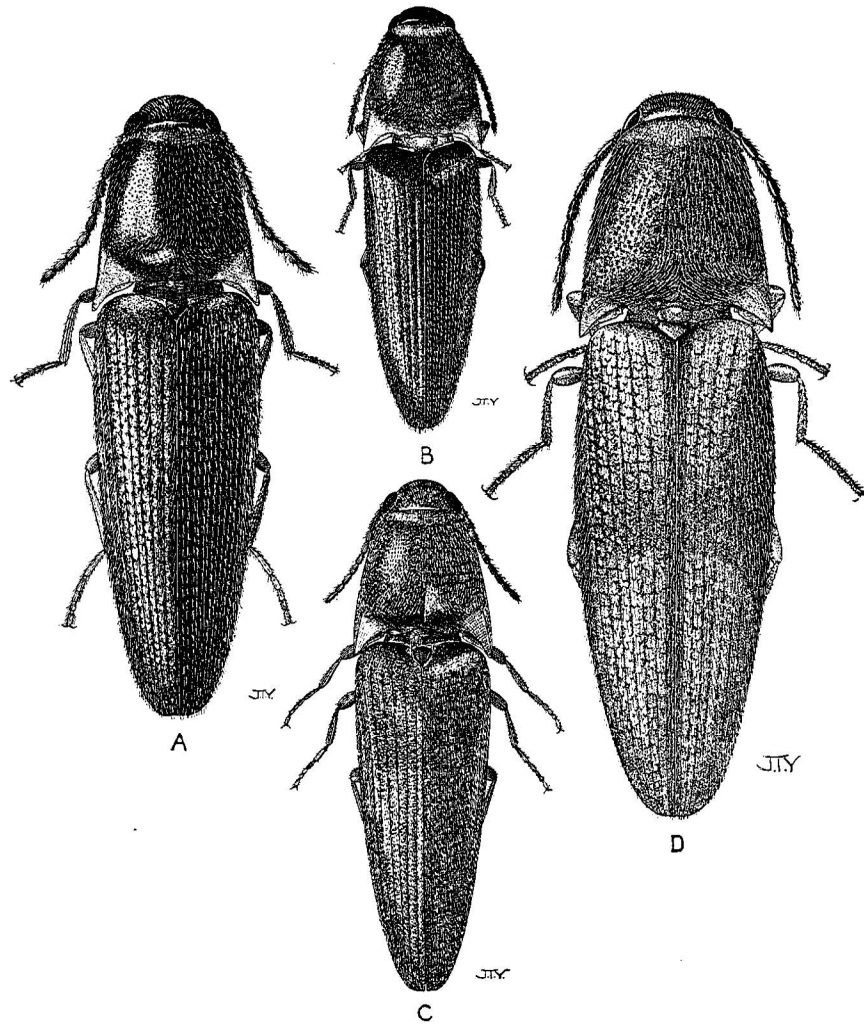
This species is conspicuously more slender than *P. fasciata*, although the type of each is a female.

Insect collections have been made with reasonable thoroughness in the Marquesan, Samoan, and Hawaiian archipelagoes; the Fiji Islands, although

not yet so well known entomologically as the foregoing, have received much more attention than most other island groups in Polynesia and Melanesia. The following table, based upon our present knowledge of the Pacific Elateridae, reveals an extremely high percentage of endemic species in the Marquesas, Fiji, and Hawaii.

ISLANDS	Approximate area in square miles	GENERA			SPECIES	
		Common to other regions	Total	Endemic	Not Endemic	Total
Marquesas Islands	500	4	4	14	2	16
Society Islands	700	6	6	3	3	6
Samoa	2,600	7	9	6	9	15
Hawaii	6,600	6	9	44	6	50
Fiji	7,500	9	10	14	3	17

Although *Pacificola* with 13 species in the Marquesas is doubtless indigenous there, no elaterid genus is known to be endemic in that group. On the other hand, Samoa has 2 genera, Fiji 1, and Hawaii 3, which are not known to exist elsewhere.



DORSAL VIEWS OF FEMALES, SPECIES OF *PACIFICOLA*: A, *P. NANA*, \times ABOUT 22; B, *P. OBSCURA*, \times ABOUT 12; C, *P. MUMFORDI*, \times ABOUT 11; D, *P. MONTANA*, \times ABOUT 19.