

## ***Conoderus posticus* (Eschscholtz) (Coleoptera: Elateridae), a new state record for Hawai‘i, and a key to local species<sup>1</sup>**

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The Hawaiian Islands have 65 species of Elateridae (Coleoptera) reported, of which 45 are native and endemic (Nishida 2002). An additional eight species are reported as quarantine interceptions or were intentional or other introductions and not known to be established. However, 13 species are confirmed as adventive and are, or were, established. These latter species include four species of *Conoderus* Eschscholtz, three from southern Pacific regions and one from Neotropical areas. *Heteroderes flavicans* (Candèze) from Australia was generically transferred by Calder (1996), but was historically treated as a *Conoderus* for Hawai‘i records. Here, we report a fifth species of *Conoderus*, *C. posticus* (Eschscholtz) as new to Hawai‘i and established on O‘ahu. This is the fourth species of click beetle adventive to Hawai‘i from the Americas, with *Aeolus livens* (LeConte) (Johnson & Lin 1998), *Chalcolepidius erythroloma* Candèze (Johnson 2001), and *Conoderus amplicollis* (Gyllenhal) (Beardsley 1977).

The specimens reported below are deposited at the University of Hawaii at Mānoa Insect Museum (UHIM), the Bernice P. Bishop Museum (BPBM), and the senior author’s collection (PJJC), as indicated.

### **Coleoptera: Elateridae**

#### ***Conoderus posticus* (Eschscholtz)**

#### **New state record**

(Fig. 1)

This click beetle has a wide distribution through South America east of the Andes, from northern Argentina and through the Lesser Antilles to the Turks and Caicos Islands of the Lucayan Archipelago. It was originally described (Eschscholtz 1822) from Santa Catharina, Brasil, then transferred to *Monocrepidius* Eschscholtz (1829). Schenkling (1925) and Blackwelder (1844) recorded it from most of its known range.

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1. Contribution No. 2017-004 to the Hawaii Biological Survey.

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*Material Examined:* The three specimens examined are female. HAWAIIAN ISLANDS: **O‘ahu:** Wai‘anae Mtns, Honouliuli Forest Reserve, ‘Ēkahanui, 600 m, N21.4396°, W158.0929°, 30 Apr 2015, C. Ogura-Yamada & P. Krushelnycky, litter / coll.# SP100, spec/lot# COSP3114 (1, BPBM); N. Wai‘anae Mtns, Kahanahāiki Valley, 650 m, N21.5375°, W158.1935°, 2 May 2015, C. Ogura-Yamada & P. Krushelnycky, pitfall / coll.# SP134, spec/lot# COSP3508 (1, UHIM); N. Wai‘anae Mtns, Kahanahāiki Valley, 650 m, N21.5375°, W58.1935°, 2 May 2015, C. Ogura-Yamada & P. Krushelnycky, pitfall / coll.# SP135, spec/lot# COSP7029 (1, PJJC). The two collection sites are in mesic montane forests supporting a mixture of native and alien vegetation, with annual rainfall averaging from 1210–1384 mm per year (Giambelluca *et al.* 2013)

As females, these specimens exhibit the slight sexual dimorphism found in most species of *Conoderus*. Aside from the genital structures, these dimorphic traits include a slightly narrower pronotum (Fig. 1) in dorsal aspect than typical males that have a wider pronotum anterad and with broadly arcuate lateral margins.

The fact that the three recovered specimens to date are from two widely separated localities indicates that an established population is present on O‘ahu and that *C. posticus* should be considered newly recognized as introduced to Hawai‘i.

KEY TO THE *CONODERUS* AND *HETERODERES* OF HAWAI‘I

[*Heteroderes flavicans* is included due to its historical assignment to *Conoderus*]

1. Pronotum with hind angles bearing two strong divergent dorsal carinae ..... 2
- . Pronotum with hind angles bearing a single strong dorsal carina ..... 5
  
2. Legs pale yellow, contrasting to dark, infusate to black integument of body ..... 3
- . Legs concolorous to or slightly paler than body integument ..... 4
  
3. Pronotum depressed discally; punctures large, coarse, often confluent, interspaces densely microreticulate and dull in sheen. Elytral intervals flat .....  
     ..... *Conoderus amplicollis* (Gyllenhal)
- . Pronotum shallowly convex; punctures moderate in size, distinctly separate, interspaces shining. Elytral intervals shallowly convex, at least basally .....  
     ..... *Conoderus exsul* (Sharp)
  
4. Pronotum short, broadly arcuate at lateral margins; disc shallowly convex, densely punctured, integument dull in sheen; hind angle apices reflexed. Elytra pubescence evenly distributed ..... *Heteroderes flavicans* (Candèze)
- . Pronotum distinctly longer than wide, strongly convex, punctures evenly spaced, interspaces shining; hind angle apices straight. Elytral pubescence denser, appearing vittate, on alternating intervals .... *Conoderus eveillard* (LeGuillou)
  
5. Elytra concolorous, except occasional pale highlights along basal margins. Pronotum finely, densely, often instinctively punctured .... *Conoderus pallipes* (Eschscholtz)
- . Elytra maculate at midlength or more extensively. Pronotum moderately punctured with shallow, discrete punctures, interspace areas shining .....  
     ..... *Conoderus posticus* (Eschscholtz)



**Fig. 1.** *Conoderus posticus* from Kahanahāiki Valley, dorsal aspect.

## ACKNOWLEDGMENTS

We thank the Oahu Army Natural Resources Program for funding and logistical support, and the Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife for permits and land access.

## LITERATURE CITED

- Beardsley, J.W.** 1977. *Conoderus amplicollis* (Gyllenhal). *Proceedings of the Hawaiian Entomological Society* **22**(3)[1975]: 393–394.
- Blackwelder, R.E.** 1944. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America, Part 2. *Bulletin of the United States National Museum Bulletin* **185**: 189–341.
- Calder, A.A.** 1996. Click beetles: *Genera of the Australian Elateridae (Coleoptera)*. Monographs on Invertebrate Taxonomy, vol. 2. CSIRO Publishing, Collingwood, Victoria. 432 pp.
- Eschscholtz, F.** 1822. *Entomographien*. Erste Liererung. G. Reimer, Berlin. 128 + iii pp.
- Eschscholtz, F.** 1829. Elaterites, Eintheilung derselben in Gattungen. *Entomologisches Archiv* **2**(1): 31–35.
- Giambelluca, T.W., Chen, Q., Frazier, A.G., Price, J.P., Chen, Y.-L., Chu, P.-S., Eischeid, J.K. & Delparte, D.M.** 2013. Online Rainfall Atlas of Hawai'i. *Bulletin of the American Meteorological Society* **94**: 313–316.
- Johnson, P.J.** 2001. A new species of *Cryptalaus* from Fiji, with taxonomic and distributional notes and a key to the Hemirhipini of eastern Melanesia and Polynesia (Coleoptera: Elateridae). *Proceedings of the Hawaiian Entomological Society* **35**: 1–12.
- Johnson, P.J. & Lin X.** 1998. *Aeolus livens* (LeConte): a correction for Hawaiian *Aeolus mellillus* (Say) (Coleoptera: Elateridae). *Bishop Museum Occasional Papers* **56**: 24–25.
- Nishida, G.M. (ed.)** 2002. Hawaiian Terrestrial Arthropod Checklist, Fourth edition. *Bishop Museum Technical Report* **22**, 313 pp.
- Schenkling, S.** 1925. Elateridae I, pp. 1–263. *Coleopterorum Catalogus auspiciis et auxilio W. Junk*. Pars 80. W. Junk, Berlin.