

## New records of bark beetles for the Hawaiian Islands (Coleoptera: Curculionidae: Scolytinae)

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Surveys conducted for the U.S. Department of Agriculture (USDA) relating to the presence/absence in the Hawaiian Islands of target pestiferous bark beetles were conducted from October–November 2016 on Maui and Moloka'i using prescribed lures and traps. The collections resulted in negative results for the target species but identifications of specimens in the by-catch resulted in three new state records listed below. Collections were made by all three of us. Determinations were made by one of us (KTA) and verified by A. Tishechkin at USDA (now California Department of Food and Agriculture). All specimens listed below are vouchered in Bishop Museum.

### **Coleoptera: Curculionidae**

#### ***Hypothenemus brunneus* Hopkins**

#### **New state record**

This bark beetle has a wide range in southern North America and throughout Central America to Panama. In the U.S. it was previously known from Florida, Texas, and Alabama; and has also been recorded from the islands in the Caribbean as well as the Galápagos Islands in the Pacific. The discovery in our surveys marks the first record of this species in the Hawaiian Islands. Its status as a potential pest in Hawai'i has not been determined. Although the coffee berry boring beetle [*Hypothenemus hampei* (Ferrari)] is a member of this genus and is a serious pest of coffee, many members of the genus *Hypothenemus* are benign and bore primarily into dead and dying branches (Johnson *et al.* 2016). Study should be conducted on this species in Hawai'i to determine its potential impact, if any, on native vegetation and commercial crops.

*Material examined.* HAWAIIAN ISLANDS: **Moloka'i**: 1 spm, Kaunakakai, Wastewater Treatment Plant, N21.09070°, W157.02605°, 26 Oct–28 Nov 2016, Platypus lure/Lindgren funnel, C.T. Imada, N.L. Evenhuis; 3 spms, Kaunakakai, Koheo Wetland, N21.08512°, W157.01341°, 26 Oct–28 Nov 2016, Manuka Oil/Lindgren funnel, C.T. Imada, N.L. Evenhuis; 2 spms, Ho'olehua, Mahana Gardens, N21.14390°, W157.13089°, 27 Oct–29 Nov 2016, Manuka Oil/Lindgren funnel, C.T. Imada, N.L. Evenhuis; 1 spm, Ho'olehua, Mahana Gardens, N21.14358°, W157.13168°, 27 Oct–29 Nov 2016, Manuka Oil/Lindgren funnel, C.T. Imada, N.L. Evenhuis; 2 spms, Ho'olehua, Mahana Gardens, N21.14322°, W157.13036°, 27 Oct–29 Nov 2016, ETOH/Alpha-Pinene/Lindgren funnel, C.T. Imada, N.L. Evenhuis; 1 spm, Ho'olehua, Mahana Gardens, N21.143770°, W157.13155°, 27 Oct–29 Nov 2016, ETOH/Alpha-Pinene/Lindgren funnel, C.T. Imada, N.L. Evenhuis.



*Pityophthorus* sp. from Maui. BPBM 17-NLH-002. Spcm 0016.

***Cyrtogenius brevior* Eggers**

**New state record**

This bark beetle is found primarily in tropical countries of the Indo-Malayan Region from Myanmar eastward, with records from the Andaman Islands, Indonesia, Malaysia (Peninsular, Sarawak), Myanmar, Papua New Guinea, Philippines, Solomon Islands, and Thailand; as well as islands in the Pacific (American Samoa, Federated States of Micronesia, Fiji, Marianas Islands, Samoa) (Beaver 1976; Wood & Bright 1992; Bright & Skidmore 1997, 2002). The finding in our surveys marks the first record of this species in the Hawaiian Islands and, aside from occasional interceptions at ports of entry, possibly the first established record from the United States. The tree hosts are primarily varied angiosperms and the species has been recorded making galleries in mango, figs, and pines (Beaver 1976).

*Material examined:* HAWAIIAN ISLANDS: **Maui:** 3 spms, Olinda, N20°49.327', W156°17.784', 14 Oct–15 Nov 2016, ETOH/Alpha-Pinene/Lindgren funnel, K.T. Arakaki, C.T. Imada, N.L. Evenhuis.

***Pityophthorus* sp.**

**New state record**

(Fig. 1)

This bark beetle genus occurs primarily in North and Central America, but also Europe, Asia, and Africa, comprising more than 370 species. Expertise in identifying the collected specimens below the genus level was unavailable, yet the finding here marks the first

record of the genus for the Hawaiian Islands. The beetles breed in twigs, seedlings, boles, and pith and have a variety of hardwood and conifer hosts (Arnett *et al.* 2002). They are primarily secondary bark beetles and restricted to partly living shaded or branches and small diameter twigs. Except for *P. juglandis* Blackman on walnuts in the U.S., species may not be considered of economic importance (Smith & Hulcr 2015).

*Material examined:* HAWAIIAN ISLANDS: **Maui:** 2 spms, Poli Poli, Kula Forest Reserve, N20°42.75', W156°18.453', 13 Oct–14 Nov 2016, ETOH/Alpha-Pinene/Lindgren funnel, K.T. Arakaki, C.T. Imada, Y. Ishibashi, N.L. Evenhuis.

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#### LITERATURE CITED

- Arnett, R.H., Jr., Thomas, M.C., Skelley, P.E. & Frank, J.H.** (eds.). 2002. *American beetles. Volume II: Polyphaga: Scarabaeoidea through Curculionoidea*. CRC Press, Boca Raton, Florida.
- Beaver, R.A.** 1976. The biology of Samoan bark and ambrosia beetles (Coleoptera: Scolytidae and Platypodidae). *Bulletin of Entomological Research* **65**: 531–548.
- Bright, D.E. & Skidmore, R.E.** 1997. *A catalog of Scolytidae and Platypodidae (Coleoptera), supplement 1 (1990–1994)*. NRC Research Press, Ottawa.
- Bright, D.E. & Skidmore, R.E.** 2002. *A catalog of Scolytidae and Platypodidae (Coleoptera), supplement 2 (1995–1999)*. NRC Research Press, Ottawa.
- Johnson, A.J., Kendra, P.E. Skelton, J. & Hulcr, J.** 2016. Species diversity, phenology, and temporal flight patterns of *Hypothenemus* pygmy borers (Coleoptera: Curculionidae: Scolytinae) in South Florida. *Environmental Entomology* **45**(3): 627–632.
- Smith, S.M. & Hulcr, J.** 2015. *Scolytus* and other economically important bark and ambrosia beetles, pp. 495–531. *In:* Vega, F.E. & Hofstetter, R.W. (eds.) *Bark beetles. Biology and ecology of native and invasive species*. Elsevier/Academic Press, London. 640 pp.
- Wood, S.L. & Bright, D.E.** 1992. A catalog of Scolytidae and Platypodidae (Coleoptera). *Great Basin Naturalist Memoirs* **13**: 1–1553.