

**A new state record for an introduced broad-nosed weevil (Curculionidae: Entiminae: Trachyploeini) on Haleakalā, with a discussion of the species of *Cathormiocerus* in North America<sup>1</sup>**

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A weevil not previously encountered in Hawai'i from the subfamily Entiminae, broad-nosed weevils, was collected by James Mar on Maui in Haleakalā National Park in a park house near the headquarters (2160 m elev.). The specimens were determined to be *Cathormiocerus curvipes* (Wollaston, 1854) and the determination was confirmed by Roman Borovec. *Cathormiocerus curvipes* is a Palearctic tramp species originally described from Madeira Island off the coast of Portugal and its native range includes Portugal, Spain, France, Italy and Algeria. *Cathormiocerus curvipes* was first collected in North America in 1971 in North Plains, Oregon (Borovec 1994). More than half of *Cathormiocerus* species are fully parthenogenic or are geographically parthenogenic (Borovec 2009). Voucher specimens have been placed in the University of Hawai'i Insect Museum (UHIM).

**Coleoptera**

**Curculionidae**

***Cathormiocerus curvipes* (Wollaston)**

**New state record**

*Material examined.* Hawaiian Islands: **Maui:** Haleakalā NP, near headquarters, 2160 m, 1–31 Mar 2013, coll. James Mar in park house (UHIM).

Specimens were first collected in March of 2013 around and in park houses near the headquarters of Haleakalā National Park on Maui. Larvae feed in and around roots of grasses, herbs, shrubs and trees. Adults feed on foliage, primarily at night. Twelve specimens were originally collected and five were examined by C. Ewing.

Since the collection of these 12 specimens, numerous additional individuals have been observed inside several nearby office buildings, and on the lower exterior foundation of a park house (J. Mar, pers. comm.). Vegetation surrounding these buildings is composed of various introduced grasses and herbs, although native shrubland is typically only 5 to 10 m distant. Little is known about specific host plants for individual species of Trachyploeini though all are assumed to be generalists on herbaceous plants and shrubs and are associated with steppe habitats, xeric grasslands and stony and sandy places. The larvae feed on and around roots and the adults feed on foliage, most commonly at night (Borovec 2009). Wollaston (1854) noted that *C. curvipes* was associated

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with grasslands on Madeira Is. and Brown (1965) reported that *Cathormiocerus aristatus* Gyllenhal, 1827 is often found on buildings surrounded by lawns.

*Cathormiocerus* is closely related to the genus *Trachyphloeus* and the placement of species between these genera has been problematic. The tribe Trachyphloeini was recently revised and the three North American species traditionally placed in *Trachyphloeus* were transferred to *Cathormiocerus* and *Romualdius* (Borovec 2009). The three species formerly placed in *Trachyphloeus* and *C. curvipes* are all introduced to North America from the Palearctic region. Species in these genera are known to invade houses (Brown 1965) which has no doubt facilitated their introduction through human transport. In North America all these four species are fully parthenogenic, with only one of the four having males in the southern portion of its native European range (Brown 1965). The genus *Cathormiocerus* has 49 parthenogenic, 39 amphigonic and 2 geographically parthenogenic species (Borovec 2009). All species in the tribe Trachyphloeini are apterous with the elytra fused, a condition often correlated with the evolution of parthenogenic species (White 1973; Borovec 2009).

*Cathormiocerus curvipes* was until recently considered the only member of the genus present in North America. In Arnett *et al.* (2002) it is stated that "This genus (*Cathormiocerus*) is questionably distinct from *Trachyphloeus*. We can find no characters to reliably distinguish these two genera." Borovec (2009) revised the tribe Trachyphloeini, transferring two of the three species of *Trachyphloeus* known to occur in North America to the genus *Cathormiocerus* and designating a new genus, *Romualdius*, for species that include the third. "*Trachyphloeus*" *aristatus* and "*Trachyphloeus*" *spinosus* (= *asperatus*) (Goeze, 1777) were transferred to *Cathormiocerus* and "*Trachyphloeus*" *bifoveolatus* (Beck, 1817) was placed in *Romualdius*. Some authors use *C. asperatus* (Boheman, 1843) rather than *C. spinosus*. They argue the name *C. spinosus* cannot be assigned to any species because the type, in the Paris Museum, is poorly prepared and cannot be recognized (Sleeper 1955; Borovec 1994).

Specimens will key to *Cathormiocerus* or *Trachyphloeus* using Arnett *et al.* (2002), but some of the couplets are difficult to interpret. The following is a discussion of the couplet path (couplet numbers in parentheses) that leads to 7 of the 8 genera from the tribe Trachyphloeini present in the North American fauna (the 8th, *Pseudocneorhinus*, diverges at couplet 63).

- (1) Body length less than 6.5 mm.
- (2) Mandible with scar. *Clarification*: very small and difficult to see except under high magnification (80–100 ×).
- (3) Mandible with scar and not prognathous.
- (6) Dorsal surface not dirt encrusted.
- (7) Scales not whitish or opalescent tarsal claws free. *Clarification*: males of *Cathormiocerus*, when present, will have the pro and meso claws connate.
- (8) Side of prothorax with anterior margin straight.
- (44) Lacking postocular vibrissae.
- (55) Antennal scrobe dorsal or dorsolateral, indefinite caudad of antennal insertion; scape in repose not situated in scrobe, usually passing over eye. *Clarification*: the scrobe is dorsolateral, with a thin strip visible from above, it also is definite posterior (caudad) of antennal insertion, especially the dorsal margin. Where an antenna lies in repose on a

mounted specimen cannot always be determined. The form of the scrobe will only allow the scape to pass over the eye.

(56) Corbel open, humeral angle rounded.

(61) Funicule with seven articles, tarsal claws free.

(63) Tarsal claws free.

(84) Antenna with scape with vestiture of fine setae and round flat scales, body size small, 2.3–4.5 mm.

(85) Epistoma very small, indistinct. *Clarification*: the tip of the rostrum does have a very narrow epistoma than is wider than half the anterior margin and is set off by a very fine but distinct carina. Specimens of *Cathormiocerus curvipes* will key to either *Trachyphloeus* if the epistoma is interpreted as large or to *Cathormiocerus* if interpreted as small.

*Cathormiocerus curvipes* can be distinguished from the three American species formerly placed in *Trachyphloeus*, *Romualdius bifoveolatus*, *Cathormiocerus spinosus* (= *asperatus*), and *Cathormiocerus aristatus* using the following characters based on Brown (1965) and Borovec (2009): *Romualdius bifoveolatus* and *C. aristatus* both have the second abdominal ventrite shorter than three and four combined. Both *C. curvipes* and *C. spinosus* have the second abdominal ventrite longer than the third and fourth combined but in *C. curvipes* the appressed scales of the elytra form a variegated pattern while in *C. spinosus* they are homogeneous in color.

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