



<http://doi.org/10.11646/zootaxa.4189.1.13>

<http://zoobank.org/urn:lsid:zoobank.org:pub:C4127D39-3AF2-4D84-8696-947B5EDF0C70>

A new species of *Cactopinus* Schwarz from central Mexico (Coleoptera: Curculionidae: Scolytinae)

THOMAS H. ATKINSON

University of Texas Insect Collection, 3001 Lake Austin Blvd., Suite 1.314 Austin, Texas 78703, USA.

E-mail: thatkinson.austin@gmail.com

Abstract

A new species in the genus *Cactopinus* Schwarz is described from central Mexico bringing the total of known species to 22.

Key words: Mexico, *Escontria*, *Polaskia*, epistomal horns

Introduction

All species of the genus *Cactopinus* Schwarz, 1899 are found in Mexico and the southwestern United States, from Oaxaca northwards to Southern California, Nevada, Arizona and Utah. All are found in deserts, semi-arid scrublands and seasonally dry tropical forests (Wood, 1982; Atkinson, 2010). While individual species are very host specific and limited to hosts in a single genus, a variety of unrelated hosts are used by different species in the genus. The largest number of species use columnar cacti in the subtribe Stenocereinae as hosts. Other species utilize pinyon pines (2 species), leaves of species of *Agave* and *Yucca* (2 species); Anacardiaceae (2 species) and *Bursera* (1 species) (Wood, 1982; Atkinson, 2010).

Taxonomically the genus *Cactopinus* has been treated as an isolated group with tribal or even subfamilial rank because of the unique epistomal horns of the males (Wood, 1982). Recently Jordal & Kaidel (2016) have shown that the genus belongs within the Micracidini with *Phloeocleptus* Wood, 1956 as its closest relative.

During recent fieldwork in southern Puebla and north central Oaxaca a remarkable new species was found in arborescent cacti in the genera *Escontria* and *Polaskia* from which this genus has not been previously reported.

Collections Cited

Specimens cited are deposited in the following collections:

- | | |
|------|---|
| CNIN | he Coleccion Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México, México, D.F. |
| CEAM | Entomología y Acaralogía, Colegio de Postgraduados, Montecillo, Esdtado de México. |
| TAMU | Entomology Collection, Texas A&M University, College Station, Texas. |
| UTIC | University of Texas Insect Collection, Integrative Biology, Austin, Texas. |

Cactopinus rhattbutleri Atkinson, sp. n.

Male: (Figs. 1–2). Color black, length 1.87 mm (1.8–2.05), width 0.85 mm (0.8–1.0), length/width 2.19 (1.9–2.4) (n=11).

Head: Dense fringe of downwards projecting, fimbriate setae along entire width of epistomal margin, covering

base of mandibles; similar, smaller brushes at base of mandibles at genal margin. Epistoma raised for its entire width, with a single, small tubercle at each end, rising gradually in middle to base of horns. Horns joined at base, parallel throughout their length along interior margins, broadened distally; anterior surface shining, deeply, coarsely punctured, with yellowish setae arising from punctures; apex of horns digitate, impunctate; punctures on external margins of horns with raised lateral elevations; the most distal of these with a prominent lateral process, giving the horn a forked appearance; a large brush of yellow setae arising from this cleft, length of setae exceeding the apex, similar in size and color to those of epistomal brush. Frons concave in profile, shallowly concave in medial area between eyes, margins of concavity gradual, not acute; frontal surface above horns coarsely punctured, largely without setae; surface shining. Antennal club approximately twice as long as wide; basal half corneous, 2 straight sutures evident on distal half, lined with yellow setae.

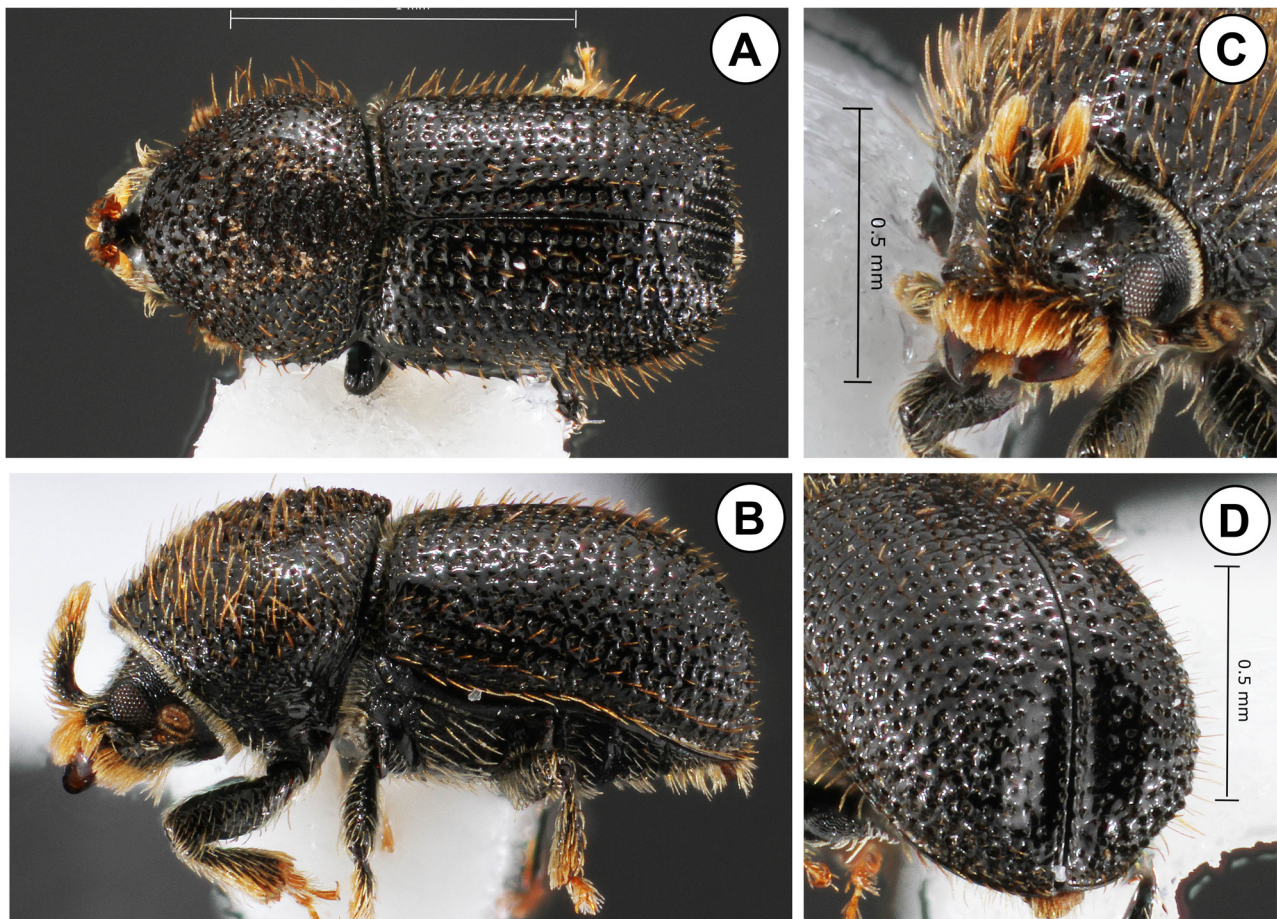


FIGURE 1. *Cactopinus rhettbutleri*, n. sp. male holotype. A. Dorsal view; B. Lateral view; C. frontal view with epistomal horns; D. Declivity.

Pronotum: Asperities concentrated behind middle; summit acute, slightly projected posteriorly beyond base; asperities on anterior slope sparse, separated, tooth-like. Postero-lateral portions of pronotum smooth, shining, with widely spaced, deep punctures; this area with a clear demarcation from densely placed, confused asperities on summit. Acute setae associated with punctures throughout; those in antero-lateral areas and along lateral margins of raised summit twice as long as others, as long as antennal scape.

Elytra: Striae deeply punctured but not impressed, punctures separated by less than their diameter. Interstriae twice as wide as striae with clearly marked, uniseriate punctures that are smaller than those of the striae; surface smooth and shining; vestiture of erect golden interstitial setae, their length less than that of the interstitial width. Declivity steep; striae 1 impressed with sutural interstria elevated, interstria 2 slightly widened with a small number of widely spaced granules; interstria 3 elevated, highest in middle, but not higher than the sutural interstria; all declivital interstriae (reduced in 2) with small uniseriate granules associated with interstitial punctures; striae punctures not granulate.

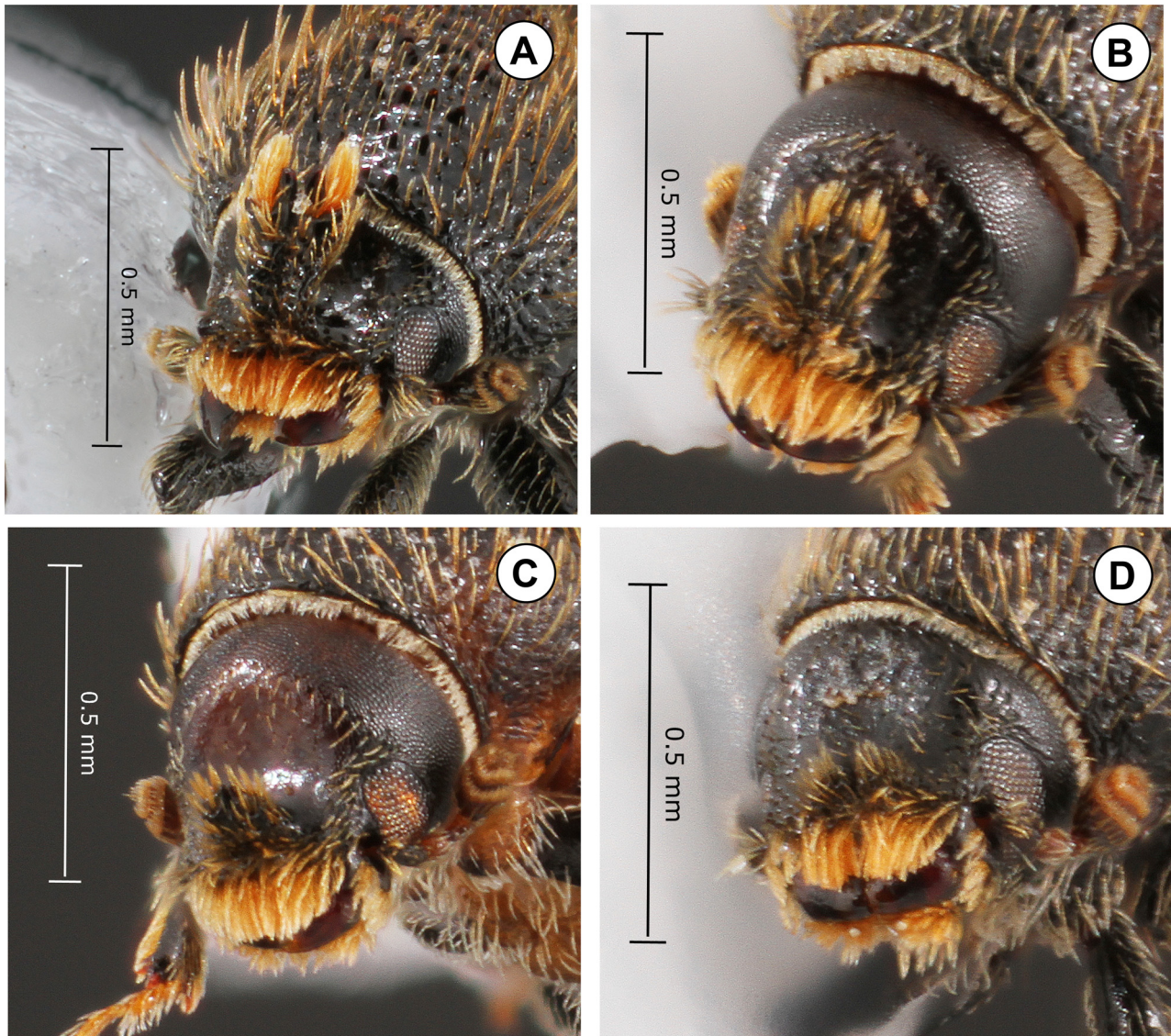


FIGURE 2. *Cactopinus rhattbutleri*, n. sp. Variations in male epistomal horns.

Female: (Fig. 3). Length 1.90 mm (1.8–2.05), width 0.86 mm (0.9–0.95), length/width 2.13 (2.1–2.3) (n=11). Frons weakly concave between eyes; surface densely pubescent with setae uniform in length throughout, about 2/3 length of antennal scape, becoming shorter at vertex; brush of marginal setae along epistoma similar to that of male; epistoma without any trace of lateral elevation. Pronotum and elytra similar to that of male.

Type material. Holotype: male. Oaxaca, 7 km S Totolapan, road to Santa María Zoquitlán (16.6231 N; 96.3261 W), 982 m, 24-VII-2014, *Polaskia* sp., T.H. Atkinson & A. Burgos S., THA-1064 (Deposited in the Colección Nacional de Insectos (CNIN), Instituto de Biología, Universidad Nacional Autónoma de México).

Allotype: female: same data (CNIN).

Paratypes: **Oaxaca:** 7 km S Totolapan, road to Santa María Zoquitlán (16.6231 N; 96.3261 W), 982 m, 24-VII-2014, *Polaskia* sp., T.H. Atkinson & A. Burgos S., THA-1064 (UTIC, 6); 2 km N Totolapan (16.68644 N; 96.32061 W), 1,004 m, 1-VII-2009, *Escontria chiotilla*, T.H. Atkinson, THA-893 (TAMU, 2; UTIC, 3); 5 km S Totolapan, road to Santa María Zoquitlán (16.6515 N; 96.3156 W), 700 m, 24-VII-2014, *Polaskia* sp., T.H. Atkinson & A. Burgos S., THA-1060 (TAMU, 2); Santiago Dominguillo (17.6337 N; 96.9141 W), 870 m, 2-VII-2009, *Escontria chiotilla*, T.H. Atkinson, THA-896 (UTIC, 3); Nejapa (16.6096 N; 96.0134 W), 659 m, 23-VIII-2014, T.H. Atkinson & A. Burgos S., THA-1058 (CEAM, 5). **Puebla:** Coxcatlán (18.2446 N; 97.156 W), 1070 m; 19-I-2012, *Escontria chiotilla*, T.H. Atkinson, THA-979 (CNIN, 2; CEAM, 2; TAMU, 7; UTIC, 6).

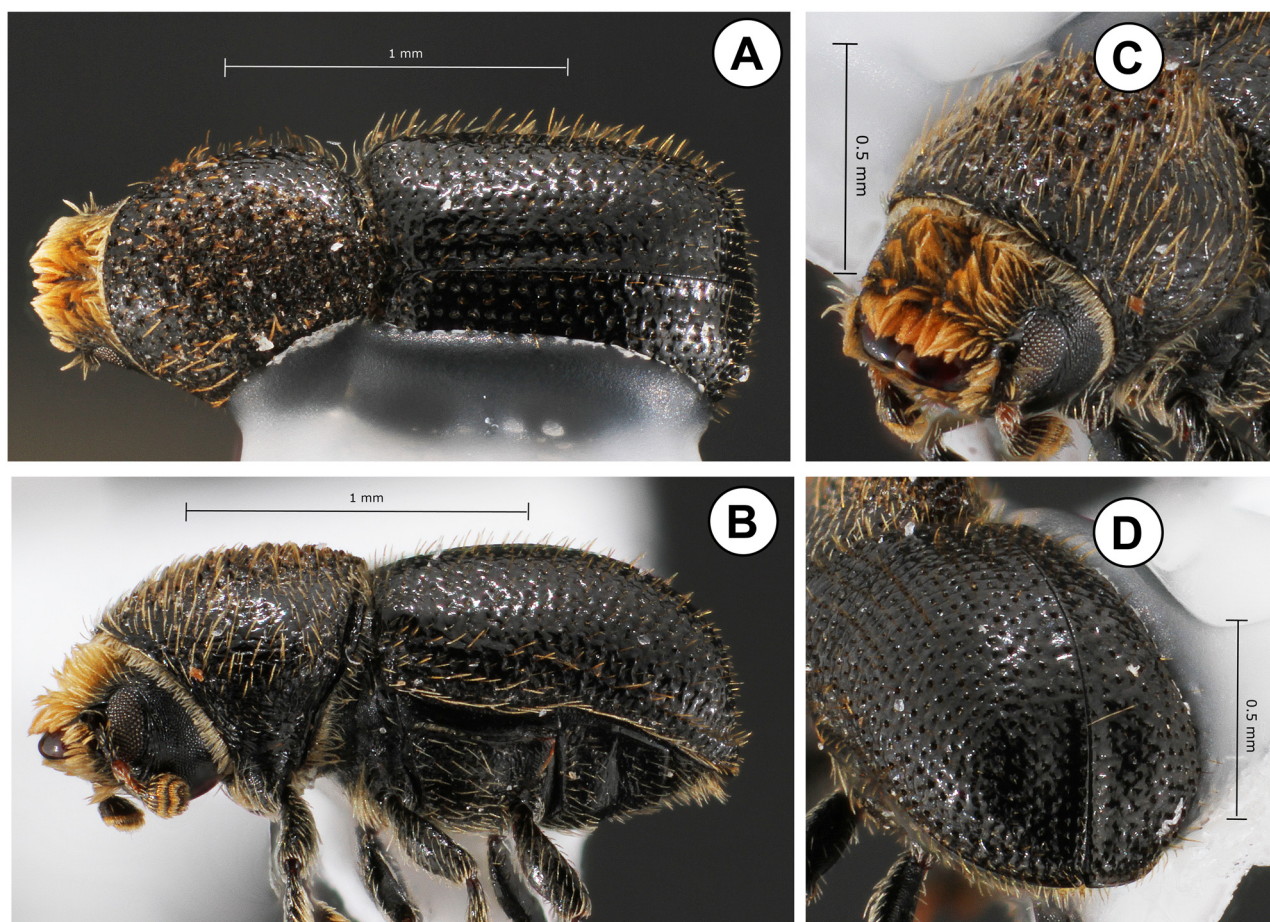


FIGURE 3. *Cactopinus rhattbutleri*, n. sp. Female paratype. A. Dorsal view; B. Lateral view; C. frontal view; D. Declivity.

Notes. As previously discussed (Atkinson, 2010) the male epistomal horns are not segmented. In most species, especially those with the longest horns, there are deep punctures along most of the length of the horn that appear to confer some flexibility by allowing it to bend. In *C. rhattbutleri* the margins of the subapical punctures are raised into projections. This may be seen in several punctures but is always most prominent in those closest to the apex of the horns.

In some males from the Coxcatlán population the epistomal horns are much reduced in size (Fig. 2 B,C,D). In intermediate cases the distal digitate extension is absent or much reduced but the margins of the subapical punctures are still expanded laterally and the more distal punctures on the lateral margins still have a lateral process arising from them and show the bifid, or forked apex. In other species of *Cactopinus* for which large numbers of specimens from multiple collections are available, there appears to be considerable variation in the length of male horns. This needs to be studied and possibly descriptions and keys will have to be modified.

Biology. This species has been collected in the dried ribs of its hosts, multiply branched arborescent cacti. As is the case with most other cactus-breeding *Cactopinus* species, successful breeding occurs in portions of stems that have dried out to a hard, leathery consistency without the black discoloration associated with decay. Under these conditions the dried tissue is dark yellowish brown and tacky to the touch. This situation most commonly occurs in erect, dead stems still attached to the host. Galleries are initiated at the areoles (clumps of spines that are found along the ridges of the ribs). Species of *Polaskia* are restricted to the states of Oaxaca and Puebla, roughly within the area where this species was collected. *Escontria chiotilla* has a broader distribution which includes the Balsas depression of the states of Guerrero and Michoacán.

The majority of the species of *Cactopinus* that breed in columnar or arborescent cacti use hosts in the subtribe Stenocereinae (Gibson et al. 1986). Other reported hosts in this subtribe include *Stenocereus* and *Myrtillocactus*. The *Escontria* and *Polaskia* also belong to this group and are most closely related to *Myrtillocactus*.

Etymology. This species is named in honor of Rhett Butler for his work in conservation and environmental education.

Diagnosis. This species is most readily distinguished by the unique, laterally expanded epistomal horns in the male that appear to be apically forked. The wide variation in horn length documented here for *C. rhettbutleri* means that some specimens can not be reliably identified at this point. The subapical branching that is typical of this species is visible even in males with reduced horns (Fig. 2B,C) but not in extreme cases (Fig. 2D).

Examination of long series of other species has also shown wide intraspecific variation in male horn length (unpublished) that effectively means that single male specimens of other species may also present problems in identification. At this point females cannot be reliably identified although this could be accomplished with further study. Based on the abundance of characters present in the known species it should be possible to write new keys that will accommodate both females and males with reduced horns. This is beyond the scope of the current paper.

Cactopinus rhettbutleri will key out to couplet 11 in the latest generic key (Atkinson, 2010). Modified couplets are shown below.

- 11(8) Frons curved in lateral profile, but flat longitudinally; pronotal asperities blunt, weakly developed; declivity with relatively few, small granules on interstriae. 1.2–1.4 mm. Puebla..... *cactophthorus* Wood
- Frons weakly to prominently concave in central area between eyes; pronotal asperities sharply elevated, chisel shaped declivity with prominent granules on interstriae 2 and higher. 12
- 12(11) Horns reaching or exceeding upper level of frons, apical portions digitate; interstria 1 on declivity not impressed, interstriae 3 not prominently elevated. 13
- Horns not reaching upper level of frons, apical portion not digitate, interstria 1 on declivity strongly impressed, interstriae 3 prominently elevated. 13a
- 13(12) Male horns not expanded distally, digitate apical portions of horns divaricate; 1.5–1.6 mm. In *Neobuxbaumia*. Morelos, Puebla *burjosi* Wood
- Male horns expanded distally, prominent lateral process below digitate apex giving forked appearance. In *Escontria*, *Polaskia*. Oaxaca, Puebla *rhettbutleri* Atkinson
- 13(13a) Frons with prominent concavity in middle of frons; outer sides of horns parallel, inner sides angled making obvious “V” shape; antennal sutures straight. 1.6–1.9 mm. In *Stenocereus*. Oaxaca, Querétaro *niger* Wood
- Frons shallowly concave, concavity not well defined; inner sides of horns not strongly angled; antennal sutures bisinuate. 1.4–1.7 mm. In *Stenocereus* spp. Jalisco. *setosus* Wood

Acknowledgements

Silvia Salas of the Sociedad para el Estudio de Recursos Bióticos de Oaxaca (SERBO) provided valuable logistical support for field work in Oaxaca. I would like to thank Alex Wild, University of Texas Insect Collection, for his help with microphotography and general support.

References

- Atkinson, T.H. (2010) New species and records of *Cactopinus* Schwarz with a key to species (Coleoptera: Curculionidae: Scolytinae). *ZooKeys*, 56, 17–33.
<http://dx.doi.org/10.3897/zookeys.56.515>
- Gibson, A.C., Spencer, K.C., Bajaj, R. & McLaughlin, T.L. (1978) The ever –changing landscape of cactus systematics. *Annals of the Missouri Botanical Garden*, 73 (3), 532–555.
- Jordal, B.J. & Kaidel, J. (2016) Phylogenetic analysis of Micracidini bark beetles (Coleoptera: Curculionidae) demonstrates a single trans-Atlantic disjunction and inclusion of *Cactopinus* in the New World clade. *The Canadian Entomologist*. [Published online: 29 August 2016.]
<http://dx.doi.org/10.4039/tce.2016.31>
- Wood, S.L. (1982) The bark and ambrosia beetles of North and Central America (Coleoptera: Scolytidae), a taxonomic monograph. *Great Basin Naturalist Memoirs*, 6, 1–1356.