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**A REVIEW OF THE GENUS *COLACUS* OHAUS, 1910
(COLEOPTERA: SCARABAEIDAE: DYNASTINAE: AGAOCEPHALINI)
WITH DESCRIPTION OF A NEW SPECIES FROM PERU**

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ABSTRACT

Colacus cuchimilco Figueroa and Ratcliffe is described as a **new species** from the Puerto Viejo wetland in the Lima Department of Peru. A description, a diagnosis separating it from similar species, illustrations, and a distribution map are provided.

Keywords: taxonomy, Scarabaeoidea, South America, Neotropical

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INTRODUCTION

The Agaocephalini is a small, ill-defined tribe of Neotropical dynastines. There are 12 genera and 52 species as of 2022. Species occur from southern Mexico to Argentina (Endrödi 1970, 1985), with one genus and species in the West Indies (Ratcliffe and Cave 2015). The agaocephalines were first proposed as a taxonomic category (Agaocephalidae) by Burmeister (1847), who included in it four genera. Lacordaire (1856) continued the concept,

and Thomson (1860) and Endrödi (1985) provided synopses. Additional new species have since been added.

Adult agaocephalines are not easily characterized at the tribal level because of the high degree of variable character states among the genera. Accordingly, they may not represent a monophyletic lineage. In general, they are moderate in size and broadly suboval in shape and most tend to be somewhat flattened dorsoventrally although not actually depressed. Like members of the Dynastini,

they usually have irregularly punctate elytra (never with double rows of punctures or longitudinally raised costae), a propygidium that lacks a stridulatory area, and slender meso- and metatarsi. In some genera, species are strongly dimorphic between the sexes, where the males possess a large head and pronotal horns and some have enlarged protarsomeres, whereas the females do not have horns or enlarged tarsomeres.

The genus *Colacus* Ohaus was reviewed by Neita-Moreno (2015) who described a new species from Tucumán, Argentina, and Sobral *et al.* (2019) described an additional new species from Minas Gerais, Brazil. The new species described here is from Peru, a new country record for the genus and a considerable northward expansion for the distribution of the genus.

Species of *Colacus* are characterized by tridentate protibiae; frons with a single horn in the male or a single tubercle in the female; pronotum broadly arcuate and explanate on each lateral margin and with an often large, forward projecting, bifurcate horn in major males (reduced in minor males), female with small to obsolete double tubercles on the anterior pronotal margin; prosternal process elongate; elytra smooth; antenna with ten antennomeres, club usually subequal in length to antennomeres 2–7; and mandibles distinctly bidentate and exposed.

Little is known about the life history of these beetles. Adults are active at night and seem to be found primarily in areas of lowland and montane broadleaf forests or cerrado and caatinga habitats. The larvae probably live in decaying logs or in the soil where they feed on organic material.

MATERIAL AND METHODS

For our species delineation, we adhere to the phylogenetic species concept as outlined by Wheeler and Platnick (2000). This concept defines species as the smallest aggregation of populations diagnosable by a unique combination of character states. Not all species are equally diagnosable; some are easily recognized by examining one or a few individuals with a unique set of characters (*e.g.*, the new species described herein). Specimen label data are quoted verbatim. A forward slash (/) is used to separate lines on a label. Digital images at the University of Nebraska were taken with a Canon EOS T5i 18MP camera mounted on a Leica stereomicroscope. The image files were subsequently focus-stacked using Quickphoto (PROMICRA s.r.o., Prague, Czech Republic), and edited on a desktop computer. Adobe Photoshop was used to process and clean all images.

TAXONOMY

Superfamily Scarabaeoidea Latreille, 1802

Family Scarabaeidae Latreille, 1802

Subfamily Dynastinae MacLeay, 1819

Tribe Agaocephalini Burmeister, 1847

Genus *Colacus* Ohaus, 1910

Colacus cuchimilco Figueroa and Ratcliffe, new species

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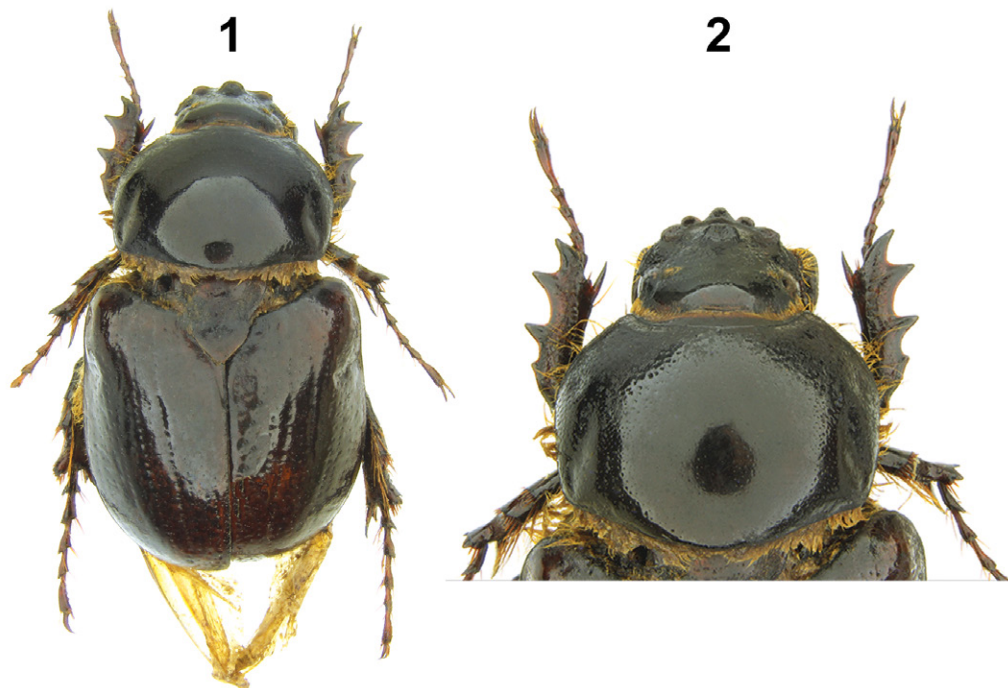
3D010EC9-9EF5-41EB-B432-0FD555BFD7B0

(Figs. 1–4)

Type Material. Holotype labeled “PERÚ: LI, Cañete, / Humedales Puerto Viejo, / 7m, 12°34'34.64"S, / 76°41'51.99"W, 21.i.2020, / M. Rodriguez leg.” and our red holotype label. Holotype deposited at the Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM).

Description of Holotype. Male (Figs. 1–2). Length 17.6 mm; width across humeri 8.7 mm. Color black, shiny. **Head:** Frons with low, transverse, rounded tubercle at center; surface rugopunctate and with small patch of about 6 short, tawny setae mesad of each eye; ocular canthus rounded, not projecting laterally, apex acute. Clypeus deflexed, subtriangular, apex subacute and reflexed; sides cariniform, carina extending to ocular canthus. Interocular width equals 6.0 transverse eye diameters. Antenna with 10 antennomeres, club distinctly longer than antennomeres 2–7. Mandibles exposed, longitudinally suboval, leaf-like. **Pronotum:** Surface evenly convex, lacking subapical fovea, moderately densely punctate; punctures small on basal half, becoming larger on apical half and sides, weakly rugose in anterior angles. Base lacking marginal bead. **Elytra:** Surface weakly punctate-striae, punctures moderate in size, shallow. **Pygidium:** Surface completely, finely scabrous, regularly convex, glabrous on disc, extreme base either side of middle with long, sparse, tawny setae. **Legs:** Protibia quadridentate, distance between teeth 2 and 4 greater than between other teeth. Metatibial apex bi-angulate, lower angle broadly triangular, upper angle narrow with blunt apex and with small clump of 5 long, stout setae. All tarsomeres similar in size. **Venter:** Thoracic and abdominal ventrites (especially on sides), coxae, and margins of all femora with long, dense, tawny setae. Last abdominal ventrite not emarginate at apex. **Parameres:** Figs. 3–4. In caudal view, the parameres are nearly lanceolate.

Etymology. The specific epithet “cuchimilco” refers to the cuchimilco, terra cotta figurines made by the Chancay people that inhabited the central coast of Peru in the current Department of Lima from about 1000 to 1470 CE. These figurines are commonly



Figs. 1–2. Holotype of *Colacus cuchimilco*, new species. 1) Dorsal view; 2) Dorsal view of head and pronotum.

encountered in archaeological sites and are symbolic for the current inhabitants of Lima. The specific epithet is treated as a noun in apposition.

Distribution. *Colacus cuchimilco* is known only from Cañete Province in the southern Lima Region of Peru (Fig. 5).

Temporal Distribution. January (1).

Diagnosis. *Colacus cuchimilco* is immediately distinguished by its completely black color in combination with a quadridentate protibia. The only other all black species is *Colacus morio* Ohaus, but it has a tridentate protibia. The only other species with a quadridentate protibia is the Brazilian *Colacus rubrofemoratus* Sobral, Morais, and Grossi, but it has distinctly reddish brown femora.

Natural History. Nothing is known of the life history of *C. cuchimilco*.

KEY TO THE SPECIES OF ADULT COLACUS
(modified from Sobral *et al.* 2019)

1. Head, pronotum, and elytra black. 2
- 1'. Head and pronotum black, elytra light reddish brown or yellowish brown..... 4
2. Cephalic tubercle emarginate. Femora ventrally dark reddish brown 4
***C. rubrofemoratus* Sobral, Morais, and Grossi**

- 2'. Cephalic tubercle entire, not emarginate. Femora ventrally black..... 3
3. Protibia tridentate. Pronotum with shallow, subapical fovea..... ***C. morio* Ohaus**
- 3'. Protibia quadridentate. Pronotum evenly convex, lacking shallow, subapical fovea
..... ***C. cuchimilco* Figueroa and Ratcliffe,
new species**
4. Clypeal apex acute. Labium slightly convex in lateral view, apex with 2 small projections (Neita-Moreno 2015: fig. 10a)
..... ***C. bicolor* Ohaus**
- 4'. Clypeal apex nearly truncate. Labium strongly convex in lateral view, apex lacking 2 small projections (Neita-Moreno 2015: fig. 29a)
..... ***C. moroni* Neita-Moreno**

***Colacus bicolor* Ohaus, 1910**

Colacus bicolor Ohaus 1910: 181 (original combination).

Colacus bicolor occurs in Catamarca and Tucumán Provinces, Argentina (Endrödi 1970; Martínez 1988; Neita-Moreno 2015). Although sympatric with *C. morio*, the light reddish brown elytra on an otherwise black body and acute clypeal apex (versus truncate) will distinguish *C. bicolor*.



3



4

Figs. 3–4. *Colacus cuchimilco*, new species, parameres. 3) Caudal view; 4) Lateral view.



Fig. 5. Location of Cañete Province in the Lima Region of Peru, the type locality for *Colacus cuchimilco*, new species.

***Colacus morio* Ohaus, 1910**

Colacus morio Ohaus 1910: 182 (original description).

Colacus endroedii Martínez 1988: 3 (synonym).

Colacus morio is known from Catamarca and Tucumán Provinces, Argentina (Neita-Moreno 2015). The completely black coloration and tridentate protibia will distinguish *C. morio*.

***Colacus moroni* Neita-Moreno, 2015**

Colacus moroni Neita-Moreno 2015: 190 (original combination).

Colacus moroni is known only from Tucumán, Argentina (Neita-Moreno 2015). Although the elytra are reddish brown in both *C. moroni* and *C. bicolor*, the truncate clypeal apex of *C. moroni* (versus acute clypeal apex in *C. bicolor*) will distinguish these two species.

***Colacus rubrofemoratus* Sobral, Morais, and Grossi, 2019**

Colacus rubrofemoratus Sobral *et al.* 2019: 159 (original combination).

The uniquely dark reddish brown color on the ventral side of the femora will distinguish the Brazilian *C. rubrofemoratus*.

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