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A new species of *Tomarus* Erichson, 1847 (Coleoptera: Scarabaeidae: Dynastinae: Pentodontini), with a key to the species in Colombia

MARGARITA M. LÓPEZ-GARCÍA¹, HÉCTOR J. GASCA-ÁLVAREZ² & GERMÁN AMAT-GARCÍA¹

¹Grupo de Investigación Insectos de Colombia, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia. E-mail: margaralopezg@gmail.com, gdamatg@unal.edu.co

²Programa de Doctorado en Biodiversidad y Sistemática. Red de Interacciones Multitróficas Instituto de Ecología, INECOL, Xalapa, México. E-mail: hector.gasca@posgrado.inecol.edu.mx

Abstract

A new *Tomarus* Erichson, 1847 (Coleoptera: Scarabaeidae: Dynastinae: Pentodontini) species is described from western Colombia. The new species is compared with *Tomarus laevicollis* (Bates, 1888) from Central America. An identification key is also provided to the species occurring in the country.

Key words: taxonomy, scarab beetles, pentodontines, morphology, South America

Introduction

Tomarus Erichson, 1847 (Coleoptera: Scarabaeidae: Dynastinae: Pentodontini) is the most diverse and widespread New World genus of Pentodontini (Endrödi 1985). Twenty-nine species have been described to date, 12 of which are restricted to South America. Nine species occur in Venezuela (Escalona & Joly 2006), while six species were thought to occur in Colombia (Endrödi 1985). Recently, *T. similis* Endrödi, 1968 was recorded by Neita-Moreno (2011) and Otavo *et al.* (2013) in Chocó and Amazonas, respectively. Nevertheless, due to the lack of a taxonomic revision, it is highly probably that the richness of the genus is being underestimated in Colombia.

Species of *Tomarus* can be differentiated from other pentodontines by having an attenuate clypeus narrowed at the apex and with two small teeth on the anterior margin; frontoclypeal region with two tubercles or a transverse carina, interrupted or not; tibiae usually tridentate and pronotal tubercle and fovea present or not. Their coloration varies from black to piceous, rarely reddish brown. Body length ranges from 13–30 mm.

Although very little is known about the natural history of the genus, the adults are thought to have nocturnal habits (Ratcliffe 2003). At least four species of *Tomarus* are considered as agricultural pests of crops, *e.g.*, *Helianthus annuus* Linnaeus (Asteraceae) (sunflower) and *Colocasia esculenta* (Linnaeus) Schott (Araceae) (Andreazze & Fonseca 1998, Escalona & Joly 2006, Piedrahíta *et al.* 2007). However, specific data about host plants could be erroneous due to the morphological homogeneity of *Tomarus* species, which makes identification problematic and leading to confusion. Therefore, in this genus considerable reliance must be placed on the shape of the male parameres for making correct identifications in most cases (Ratcliffe 2003).

We describe herein a new species of *Tomarus* from Colombia, including a comparison with *T. laevicollis* (Bates, 1888), which is the most similar species in external morphology and shape of the parameres. We also include a taxonomic key to the species occurring in this country.

Drawings were made with the aid of a camera lucida and stereomicroscope, and measurements were obtained using an ocular micrometer. Specimens examined were provided by the following collections:

CIUQ—Colección de Insectos de la Universidad del Quindío, Armenia, Colombia.

ICN-MHN—Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia.

Tomarus colombianus López-García & Gasca-Álvarez, new species

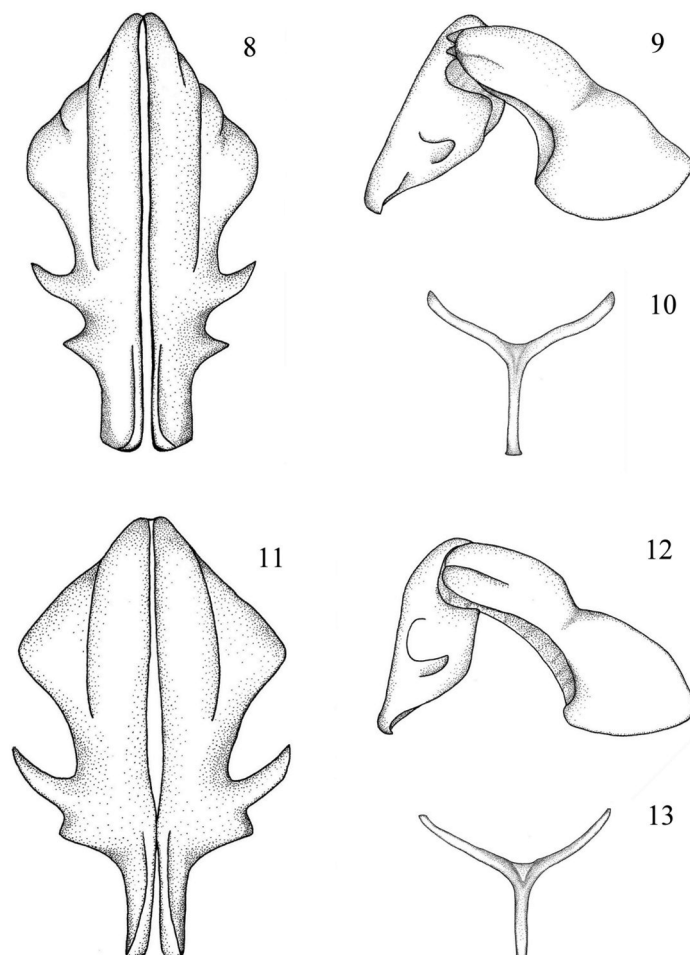
Type material. Holotype male at CIUQ labeled “COLOMBIA: Dep. Valle del Cauca / Buenaventura / La Bocana / 16.iv.2004 / Light trap / 5 m altitude/Serna F. Coll / CIUQ 1505”. Allotype female at CIUQ labeled “COLOMBIA: Dep. Valle del Cauca / Buenaventura / La Bocana / 15.iv.2004 / Light trap / 2 m altitude / Rivas L. Coll / CIUQ 1504”. One paratype male at CIUQ labeled “COLOMBIA: Dep. Valle del Cauca / Buenaventura / La Bocana / 17.iv.2004 / Hand collecting / 5 m altitude / Serna F. Coll / ICN-MHN”. One paratype female at ICN-MHN labeled “COLOMBIA: Dep. Valle del Cauca/Buenaventura / La Bocana / iv.2004 / Light trap / 2 m altitude / Mendoza L. Coll / CIUQ 1507”. One paratype female at ICN-MHN labeled “COLOMBIA: Dep. Huila / Neiva / 5.iii.1974 / Bagos A. I. Coll / ICN-MHN”.



FIGURES 1–7. (1–4) *Tomarus colombianus* new species. Holotype: 1) habitus in dorsal view, 2) habitus in lateral view, 3) head in dorsal view, 4) protibia. (5–7) *Tomarus laevicollis*, male: 5) habitus in dorsal view; 6) habitus in lateral view; 7) head in dorsal view.

Description. Holotype (Figs. 1–4). Male. Length 19.1 mm; humeral width 9.5 mm. Color dark reddish brown, venter light reddish, except by sternites. **Head:** Frons coarsely rugose and grooved. Frontoclypeal region with two triangular to transverse tubercles separated by about 7.5 tubercle diameters (Fig. 3). Clypeus subtriangular, narrowed; apex with 2 triangular teeth separated by less than a tooth diameter. Mandibles with 2 teeth and a basal lobe, dorsal surface concave. Antenna with 10 antennomeres, club subequal in length to antennomeres 2–7. **Pronotum:** Surface nearly smooth with punctures over apical and lateral margins. Apical margin with a small tubercle not visible in lateral view; pronotal fovea very shallow, rugopunctate and about a half as wide as distance between eyes. **Scutellum:** Shape triangular; with deep punctures shaping 2 parallel lines that converge at the

middle. **Elytra:** Sutural stria present and complete. Elytral punctures dense and strong, punctures mainly ocellate, 3 pairs of distinct double rows. **Pygidium:** Shape slightly convex, nearly flat in lateral view. Basal third deeply rugopunctate and with scattered, round punctures. **Legs:** Protibia tridentate with an additional small basal tooth (Fig. 4). Protarsi simple, not enlarged. Apex of metatibia with small crenulation and 9 spinules. **Venter:** Prosternal process long, thick, apex transversely oval to rounded, and bordered with long yellow setae. **Parameres:** Base broad, apex nearly truncate; with two lateral projections, basal projection long and upwardly arched, apical projection shorter and acute (Fig. 8–9). **Spiculum gastrale:** Shape symmetric with basal part straight and as long as lateral branches (Fig. 10).



FIGURES 8–13. (8–10) *Tomarus colombianus* new species: 8) parameres in frontal view, 9) parameres in lateral view, 10) spiculum gastrale. (11–13) *Tomarus laevicollis*: 11) parameres in frontal view, 12) parameres in lateral view, 13) spiculum gastrale.

Allotype. Female. Length 19.5 mm, humeral width 9.5 mm. As holotype except as follows: **Legs:** Protibia with fourth basal tooth too inconspicuous to be seen, possibly worn by use. Apex of metatibia with 11 spinules.

Variation. Male (1 paratype). Length 18.0 mm; humeral width 8.5 mm. Females (2 paratypes). Length 20.0–21.0 mm; humeral width 10.2–10.5 mm. Apex of metatibia with 11 spinules.

Etymology. The specific epithet refers to its distribution in Colombia.

Distribution. The species is known from Bazan Bocana, which is a coastal town in Buenaventura Municipality (Department of Valle del Cauca in the southwest of Colombia) located at 0–7 m; and Neiva Municipality (Department of Huila, between the central and eastern Andes of Colombia) at about 425 m elevation (Fig. 14).

Temporal distribution. March (1), April (4).

Diagnosis. The new species is externally similar to *T. laevicollis* (Figs. 5–7). Both species have the protibia with a small fourth tooth (Fig. 3), and the parameres and spiculum gastrale are somewhat similar (Figs. 10, 13). However, they can be separated by differences in elytral punctuation (the new species has the first interval strongly

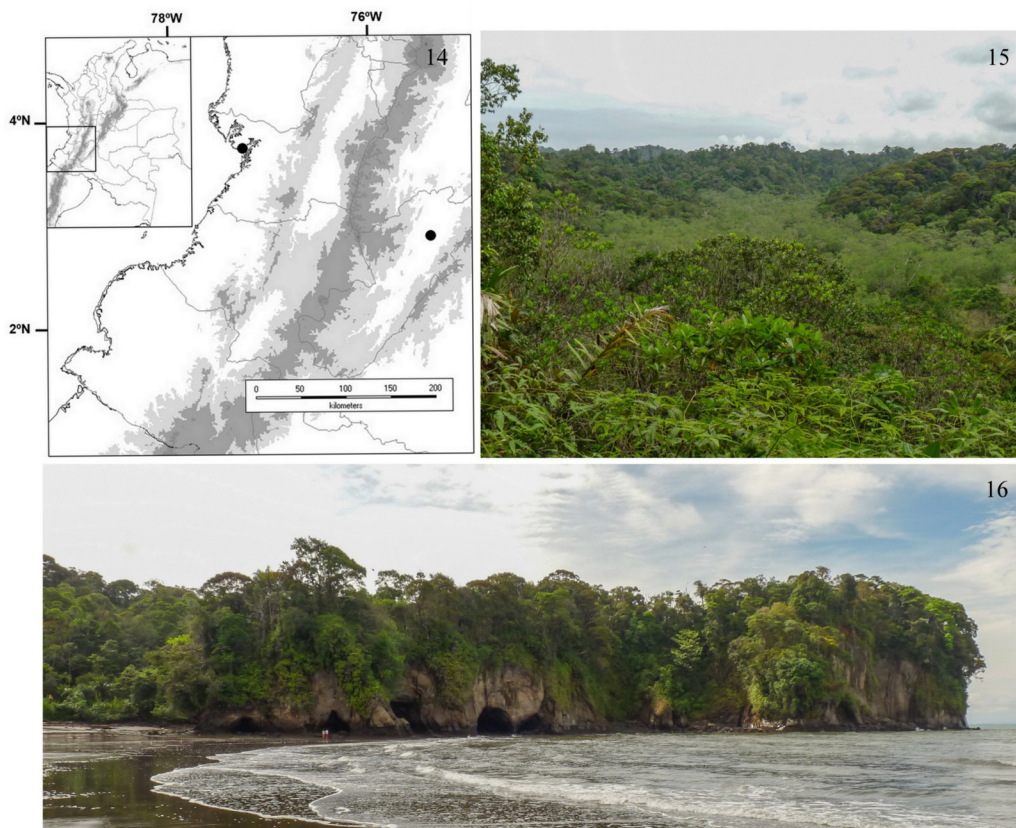
punctate and the sutural stria complete whereas in *T. laevicollis* that interval is not punctate and sutural stria is incomplete); and the shape of the pronotal tubercle, which is not visible in lateral view in *T. colombianus* whereas it is prominent in *T. laevicollis*. These and other differential characters are summarized in Table 1. *Tomarus colombianus* also resembles *T. maternus* (Prell, 1937) by having the pronotal tubercle and fovea inconspicuous, and scutellum with convergent lines of punctures. However, *T. maternus* differs in having: clypeal tooth separated by more than a tooth diameter, protibia without a basal fourth tooth, apex of the metatibia with 14–17 spinules and parameres shorter and without acute lateral projections.

Natural history. Specimens were collected by hand and at light traps. The area where most individuals were collected is a tropical humid forest. Mangrove swamp, secondary forest and Guandal forest are predominant in this coast region (Figs. 15–16).

Remarks. *Tomarus colombianus* is known only from Colombia, whereas *T. laevicollis*, is a Central American species with a wide geographical distribution from Mexico, Guatemala, El Salvador, Honduras, and Costa Rica (Ratcliffe *et al.* 2013).

TABLE 1. Differential characters between *Tomarus colombianus* and *T. laevicollis*.

	<i>Tomarus colombianus</i>	<i>Tomarus laevicollis</i>
Frontal tubercles	Slightly triangular to transverse (Fig. 3)	Conical (Fig. 7)
Pronotal tubercle	Small, not visible in lateral view (Fig. 2)	Large, prominent, visible in lateral view (Fig. 6)
Scutellum	With lateral, parallel lines of punctures	Without punctures
Elytral punctures	Strong, sutural stria complete	First interval smooth, sutural stria incomplete, present only on apical fourth
Prosternal process	Apex transversely oval to rounded	Apex subquadrate to longitudinally oval
Parameres	Broad at apex; lateral projections further apart (Figs. 8–9)	Slender at apex; lateral projections closer together (Figs. 11–12)



FIGURES 14–16 Distribution records and habitat of *Tomarus colombianus* new species, 14) Records in Colombia, 15) Mangrove, humid forest and Guandal, seen from above, 16) Pacific coast of Colombia.

Key to the species of adult *Tomarus* of Colombia

- 1 Pronotum without apical fovea or tubercle, pronotal punctuation dense and deep. Head without frontal tubercles, instead with a frontoclypeal ridge interrupted at the middle. Color light to dark reddish brown. Small size (12.5–16.0 mm) *Tomarus fossor* (Latreille, 1813)
- Pronotum with apical fovea and tubercle, occasionally inconspicuous. Head with frontal tubercles. Coloration black to dark brown. Species longer than 16 mm 2
- 2 Clypeus trapezoidal, with anterior margin nearly truncate; apical teeth small, widely separated (about 3 times tooth width). Frontal tubercles transverse. Males with enlarged protarsi 3
- Clypeus triangular, narrowed towards apex; apical teeth prominent, reflexed, separated by a distance no larger than twice the width of one tooth. Frontal tubercles conical or transverse. Males with protarsi simple 4
- 3 Externally similar to the next species. Pronotal fovea shallow and inconspicuous, maximum width less than a half of the interocular distance. Parameres wide, basal third widened, apical third strongly contracted and apex dilated *Tomarus ebenus* (De Geer, 1774)
- Externally similar to the preceding species. Pronotal fovea deep and triangular, maximum width about a half of the interocular distance. Parameres slender and long, apical third not strongly contracted, sides nearly parallel *Tomarus similis* (Endrödi, 1968)
- 4 Protibia with 3 long teeth and with a small basal tooth suggestive of a fourth tooth 5
- Protibia tridentate, without basal small tooth 6
- 5 Pronotum nearly smooth, with only a few punctures near lateral and anterior margins; pronotal fovea shallow; pronotal tubercle small, not visible in lateral view. Parameres as in Fig. 8–9. *Tomarus colombianus* López-García & Gasca-Álvarez, new species
- Pronotum with dense and deep punctuation; pronotal fovea deep, nearly round; pronotal tubercle prominent. *Tomarus gyas* Erichson, 1848 (in part)
- 6 Pronotum with fovea and tubercle inconspicuous. 7
- Pronotum with a large transversely oval fovea and a prominent tubercle *Tomarus bituberculatus* (Palisot de Beauvois, 1811)
- 7 Pronotal punctures dense and deep. Scutellum smooth or with a few sparse punctures. Apex of metatibia with 22–24 spinules *Tomarus gyas* Erichson, 1848 (in part)
- Pronotal punctuation sparse and small, pronotum nearly smooth. Scutellum with 2 lines of punctures parallel to margins. Apex of metatibia with 14–17 spinules *Tomarus maternus* (Prell, 1937)

Clave para las especies de *Tomarus* adultos de Colombia

- 1 Pronoto sin fovea ni tubérculo apical, puntuación pronotal densa y profunda. Cabeza sin tubérculos frontales, con carina frontoclipeal interrumpida en el centro. Coloración marrón rojizo claro a oscuro. Tamaño pequeño (12.5–16.0 mm) *Tomarus fossor* (Latreille, 1813)
- Pronoto con fovea y tubérculo apical, ocasionalmente inconspicuos. Cabeza con tubérculos frontales. Coloración negra a marrón oscura. Especies de mayor tamaño (> 16 mm) 2
- 2 Clípeo trapezoidal, con margen anterior casi truncado; dientes apicales pequeños, ampliamente separados (casi 3 veces la amplitud de un diente). Tubérculos frontales transversos. Machos con protarsos dilatados 3
- Clípeo triangular, estrechado hacia el ápice; dientes apicales prominentes y separados por una distancia no mayor a dos veces el diámetro de uno de ellos. Tubérculos frontales cónicos o transversos. Machos con protarsos simples 4
- 3 Externamente similar a la siguiente especie. Fovea pronotal superficial y ligeramente redondeada, su máxima amplitud abarca menos de la mitad de la distancia interocular. Parámetros anchos, tercio basal ensanchado, tercio apical fuertemente contraído y ápice dilatado. *Tomarus ebenus* (De Geer, 1774)
- Externamente similar a la especie anterior. Fovea pronotal profunda y triangular, su máxima amplitud abarca cerca de la mitad de la distancia interocular. Parámetros delgados y largos, tercio apical no fuertemente contraído, lados casi paralelos *Tomarus similis* (Endrödi, 1968)
- 4 Protibia con tres dientes largos y un pequeño diente basal sugiriendo un cuarto diente 5
- Protibia tridentada, sin diente basal adicional. 6
- 5 Pronoto casi liso, solo con pocas puntuaciones sobre los márgenes anteriores y laterales; fovea pronotal poco profunda; tubérculo pronotal pequeño, no visible en vista lateral. Parámetros como en la Fig. 8–9. *Tomarus colombianus* López-García & Gasca-Álvarez, especie nueva
- Pronoto con puntuaciones densas y profundas; fovea pronotal profunda, casi circular; tubérculo pronotal prominente. *Tomarus gyas* Erichson, 1848 (en parte)
6. Pronoto con fovea y tubérculo inconspicuos. 7
- Pronoto con una fovea grande, transversalmente oval; tubérculo pronotal prominente *Tomarus bituberculatus* (Palisot de Beauvois, 1811)
7. Puntuación pronotal densa y profunda. Escutelo liso o con unas pocas puntuaciones dispersas. Ápice de la metatibia con 22 a 24 espínulas. *Tomarus gyas* Erichson, 1848 (en parte)
- Puntuación pronotal escasa y pequeña, pronoto casi liso. Escutelo con dos líneas laterales de puntuaciones profundas. Ápice de la metatibia con 14 a 17 espínulas. *Tomarus maternus* (Prell, 1937)

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