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A new Brazilian species of the genus *Philothalpus* Kraatz (Coleoptera: Staphylinidae)

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Abstract

A new species of the genus *Philothalpus* (Coleoptera: Staphylinidae: Staphylinini: Philothalpina), *Philothalpus precious* Klemann-Junior, Barroso, Pereira & Asenjo, **sp. nov.**, is described from Amazonas state, northern Brazil. Major diagnostic features are illustrated and the species is included in the key to *Philothalpus* species.

Key words: Brazil, Amazon, New species, Philothalpina, Taxonomy

Resumo

Uma nova espécie do gênero *Philothalpus* (Coleoptera: Staphylinidae: Staphylinini: Philothalpina), *Philothalpus precious* Klemann-Junior, Barroso, Pereira & Asenjo, **sp. nov.**, é descrita para o estado do Amazonas, norte do Brasil. As principais características de diagnóstico são ilustradas e a espécie incluída em uma chave de identificação das espécies de *Philothalpus*.

Palavras-chave: Brasil, Amazônia, Nova espécie, Philothalpina, Taxonomia

Introduction

Philothalpus is a genus of Central and South American beetles that inhabit the leaf litter of tropical forests from sea level to 1,600 m a.s.l (Chatzimanolis & Ashe 2005; Asenjo *et al*. 2019). The taxon was revised by Chatzimanolis & Ashe (2005) who described 17 new species and redescribed four species. Since the publication of this review, six more species have been described (Asenjo & Ribeiro-Costa 2009; Hoyos-Benjumea & López-García 2019; Irmler 2019; Chatzimanolis 2020). From 27 known species, six occur in Brazil (*P. antennaria*, *P. bicolor*, *P. brasiliensis, P. mundus*, *P. nitidus*, and *P. pecki*), in the Amazon region (Asenjo *et al*. 2013). In this article, we describe a new species of *Philothalpus* from the Brazilian Amazon Rainforest, thus increasing the number of known species of *Philothalpus* to twenty eight.

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Material and methods

The captured specimens were mounted on entomological pins. Some selected individuals were relaxed in warm soapy water and then, apical abdominal segments containing the aedeagus were dissected from the abdomen. The apical abdominal segments were cleared using 10% KOH, and the aedeagus was removed from the inside of the abdomen. The dissections and characters study were carried out under a stereoscopic microscope. The photographs were taken using a Leica DFC500 digital camera attached to a Leica M205C stereomicroscope, connected to a computer with the Leica Application Suite LAS V3.6 software, which includes an Auto-Montage module (Syncroscopy software).

Measures of relative width of the gula and relative size and density of punctures on the head, pronotum and elytra follows Chatzimanolis & Ashe (2005). The adopted terminology for the descriptions follows Chatzimanolis & Ashe (2005) and Naomi (1989). All measurements are in millimeters and they are based on the holotype. For the type label data, quotation marks (“”) separate different labels, and a vertical bar (|) separates different lines within a label. Text within square brackets [ ] is explanatory and it is not included in the original labels.

Measurement abbreviations:

BL body length (from margin of prolongation of head to posterior margin of tergite VIII)
EL elytral length (maximum)
EW elytral width (maximum)
HL head length (from anterior margin of prolongation of head to posterior margin of head disc)
HW head width (maximum, including eyes)
IO interocular distance (minimum)
OL eye length in dorsal view (maximum)
OW eye width in dorsal view (maximum)
PL pronotum length (maximum)
PW pronotum width (maximum)

All specimens are deposited in the following collections (curators in parenthesis):

CEMT—Setor de Entomologia da Colecão Zoológica da Universidade Federal de Mato Grosso, Departamento de Biologia e Zoologia, Cuiabá, Mato Grosso, Brazil (Fernando Vaz-de-Mello);
INPA—Instituto Nacional de Pesquisas da Amazônia, Manaus, Amazonas, Brasil (José Albertino Rafael);
MPEG—Museu Paraense Emilio Goeldi, Belém, Pará, Brazil (Orlando Tobias Silveira);
MZUSP—Museu de Zoologia da USP (Sônia Aparecida Casari);
UEA—Coleção entomológica do Centro de Estudos Superiores de Itacoatiara, Universidade do Estado do Amazonas, Itacoatiara, Amazonas, Brasil (Louri Kleman-Junior).

Results

Taxonomy

Subfamily Staphylininae Latreille, 1802

Tribe Staphylinini Latreille, 1802

Subtribe Philothalpina Chatzimanolis & Brunke *in* Chani-Posse *et al*. 2018

Genus *Philothalpus* Kraatz, 1857

Philothalpus precious **Klemann-Junior, Barroso, Pereira & Asenjo, sp. nov.**
https://zoobank.org/urn:lsid:zoobank.org:act:A863B678-47DC-47B0-A4D0-8DD9B264882E
(Figs. 1A–D, 2A–C)

Type material (16♂♂, 13♀♀). **Holotype: BRAZIL:** ♂, labeled: "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe - I. voo frango [flight interception trap baited with rotten chicken] | 28.iv[April]-01.v[May].2022 T2/A1 [trap code] | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]", "HOLOTYPE [red label] | *Philothalpus* | *precious* sp. nov. | Desig. Klemann-Junior *et al.* 2024" (INPA). **Paratypes (15♂♂, 13♀♀)**, labeled: "Brasil: AM [Amazonas state], Silves | Faz. [farm] Itapiranga - I.v. p+b+f [flight interception trap baited with rotten fish, fermented banana and dog feces] | 14-22.xi[November].2015, T1/A2 [trap code] | 2°42'15,87"S/58°31'54,11"W | R.S.Moura | CESIT - UEA [left sideline]" (1♀ UEA); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe | 18-25.x[October].2018 V[dry season]09/10[abbreviated logging year]T1A2 [trap code] | 2°45'14,79"S/58°29'54, 52"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♂ UEA); "Brasil: AM [Amazonas state], Itapiranga | Faz. [farm] Caribe | 18-25.x[October].2018 V[dry season]09/10[abbreviated logging year]T2A4 [trap code] | 2°44'31,4 1"S/58°30'48,04"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (2♂♂ INPA); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Saracá | 18-25.x[October].2018 V[dry season]05/06[abbreviated logging year]T5A3 [trap code] | 2°45'27,17"S/58°29'12,55"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♂ CEMT, 1♀ UEA); "Brasil: AM [Amazonas state], Itapiranga | Faz. [farm] Itapiranga | 03-10.v[May].2019 I[rainy season]14/15[abbreviated logging year]T3A1 [trap code] | 2°39'47,36"S/58°28'21,01"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♂ MZUSP, 1♀ MZUSP); "Brasil: AM [Amazonas state], Itapiranga | Faz. [farm] Itapiranga | 03-10.v[May].2019 I[rainy season]14/15[abbreviated logging year]T3A2 [trap code] | 2°39'47,36"S/58°28'21,01"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♂ MPEG); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Saracá | 05-12.v[May].2019 I[rainy season]04/05[abbreviated logging year]T2A3 [trap code] | 2°50'21,72"S/58°35'37,25"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (2♂♂ CEMT); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Saracá | 05-12.v[May].2019 I[rainy season]05/06[abbreviated logging year]T5A4 [trap code] | 2°45'27,17"S/58°2 9'12,55"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♀ MPEG); "Brasil: AM [Amazonas state], Itapiranga | 03-10.v[May].2019 I[rainy season](C2)[not logged site]T3A1 [trap code] | 2°33'54,75"S/58°28'22,52"W | L. F. B. Pereira | CESIT - UEA [left sideline]" (1♀ UEA); "Brasil: AM [Amazonas state], Silves | 05-12.v[May].2020 A19 [trap code] | 2°35'27,57"S/58°45'33,67"W | L.Klemann-Junior;R.S.Moura | CESIT - UEA [left sideline]" (1♂ UEA); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe - I. voo frango [flight interception trap baited with rotten chicken] | 28.iv[April]-01.v[May].2022 T2/A1 [trap code] | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]" (1♀ INPA, 1♀ CEMT); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe - I. voo frango [flight interception trap baited with rotten chicken] | 28.iv[April]-01.v[May].2022 T3/A3 [trap code] | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]" (2♂♂ MZUSP); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe – Prato rosa [pink pan trap] | 28.iv[April]-01.v[May].2022 T3/A3 [trap code] | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]" (1♂ CEMT); "Brasil: AM [Amazonas state], Silves | 29.v[May]-05.vi[June].2022 A5 [trap code] | 2°35'27,57"S/58°45'33,67"W | L.Klemann-Junior;R.S.Moura | CESIT - UEA [left sideline]" (1♀ CEMT); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe - I. voo frango [flight interception trap baited with rotten chicken] | 22-24.vi[June].2023 T2/A4 [trap code] | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]" (2♂♂ MPEG, 2♀♀ INPA, 2♀♀ MZUSP); "Brasil: AM [Amazonas state], Silves | Faz. [farm] Caribe - I. voo frango [flight interception trap baited with rotten chicken] | 23.vi[June].2023 | 2°32'50,48"S/58°48'23,16"W | L.Klemann-Junior | CESIT - UEA [left sideline]" (2♀♀ MPEG). All paratypes with label "PARATYPE [yellow label] | *Philothalpus* | *precious* sp. nov. | Desig. Klemann-Junior *et al*. 2024".

Diagnosis. Among *Philothalpus* species that have the integument of the head and pronotum appearing dull due to dense microsculpture formed by uniformly distributed micropunctures, *P. precious* **sp. nov.** is similar to *P. mauroprasinus* in major coloration pattern and is similar to *P. mauroprasinus* and *P. bilobus* in that the paramere is divided into two elongate lobes. However, *P. precious* **sp. nov.** can be differentiated from *P. mauroprasinus* by the head and pronotum dark reddish brown with greenish golden overtones (head and pronotum black with greenish overtones in *P. mauroprasinus*); by the metallic greenish golden overtones of the elytra (black with metallic green overtones in *P. mauroprasinus*); by the posterior 1/3 of tergites IV–V and posterior 1/4 of tergite VI reddish brown (dark reddish brown in *P. mauroprasinus*); and by the distinctive shape of the parameral lobes. Each lobe of the paramere of *P. precious* differs from those of *P. mauroprasinus* by the absence of a tooth, by the rounded apex and by the arrangement of the peg setae (Fig. 2). Furthermore, the parameral lobes are wider throughout their lengths (narrower in *P. bilobus* and *P. mauroprasinus*); apices broader and not curved inward (narrower and curved inward in *P. bilobus* and *P. mauroprasinus*); median lobe wider throughout their length (narrower in *P. bilobus* and *P. mauroprasinus*); less acute apically in ventral view that in *P. bilobus.*

Description. Holotype male, BL: 10.50.

Coloration. Head (Fig. 1B) dark reddish brown with greenish golden overtones, anterior border of clypeus and around antennal insertions reddish brown. Pronotum (Fig. 1C) dark reddish brown with greenish golden overtones. Antennal segments 1–2 reddish brown, segment 3 dark reddish brown with the basal 1/3 lighter, segments 4–11 dark reddish brown to black. Legs reddish brown. Scutellum black; elytra (Fig. 1D) black with metallic greenish golden overtones. Abdomen (Fig. 1A) dark reddish brown, almost black, except posterior border of segment III, posterior 1/3 of segments IV–V, posterior 1/4 of segment VI, posterior 2/5 of segment VII, anterior border of segment VII, and anterior 2/3 of segment VIII, reddish brown. Prosternum, meso- and metaventrite dark reddish brown.

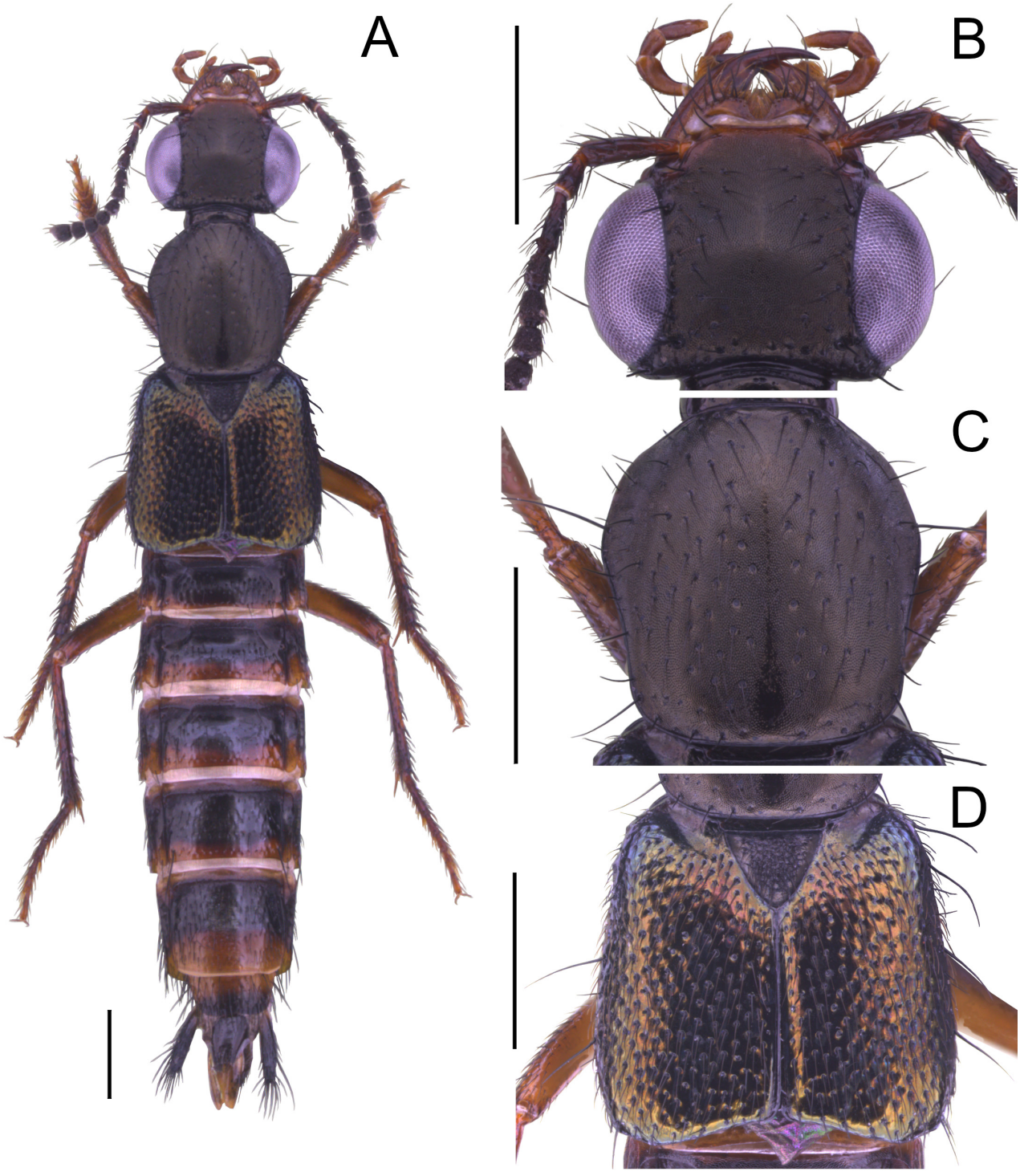

FIGURE 1. Holotype of *Philothalpus precious* **sp. nov.**. **A**. Dorsal habitus. **B**. Head. **C**. Pronotum. **D**. Elytra. Scale bars = 1 mm.

Head (Figs 1A,B) wider (HW: 1.78) than long (HL: 1.29), with rounded hind angles. Head with long black macrosetae along borders. Epicranium with sparse umbilicate punctures each carrying dark brown microsetae, umbilicate punctures absent in middle. Distance between punctures varies, up to 2.7 times diameter of puncture. Integument of epicranium appearing dull due to dense microsculpture formed by uniformly distributed micropunctures; micropunctures are absent on anterior border of clypeus, around antennal insertions, and posterior border of head. Eyes prominent, length (OL: 0.94) about 7/10 the length of head, distance between eyes (IO: 0.95) about 2.3 times the width of eyes (OW: 0.41). Gula very narrow posteriorly (least width: length ratio = 0.03), gular sulci widely separated anteromedially and contiguous posteriorly. Neck glossy; dorsal surface punctate; integument between punctures with sparse micropunctures; punctures and micropunctures absent in lateral surface. Antennal segment 1 gradually club-like thickened, segment 2 shorter than segment 3, segments 4–5 longer than wide, segments 6–7 quadrate, segments 8–10 slightly transverse; segments 4–11 densely covered by microtrichae.

Pronotum (Fig. 1C) longer than wide (PL: 1.81; PW: 1.65), wider anteriorly; antero-lateral angles obtusely rounded curved; with dark brown microsetae and few black macrosetae along borders. Medium size umbilicate punctures uniformly distributed, except punctures absent along midline; puncture density in the pronotum about 3 punctures / 0.3 mm and with a distance of about 2–5 punctures from each other. Integument of pronotum appearing dull due to dense microsculpture formed by uniformly distributed micropunctures; micropunctures absent in an anterior-posterior line medially. Scutellum with dense dark brown microsetae and punctures covering surface, except punctures and microsetae absent along lateral margins of scutellum. Elytra (Fig. 1D) wider than pronotum (EL: 2.16; EW: 2.22); denser punctation than on pronotum (about 4 puncture diameters / 0.3 mm); covered with glossy dark brown microsetae and few long black macrosetae along lateral borders of elytra.

Legs almost completely covered with glossy yellow or brown microsetae; segments of protarsus 1–4 strongly bilobate and ventrally with yellowish setae.

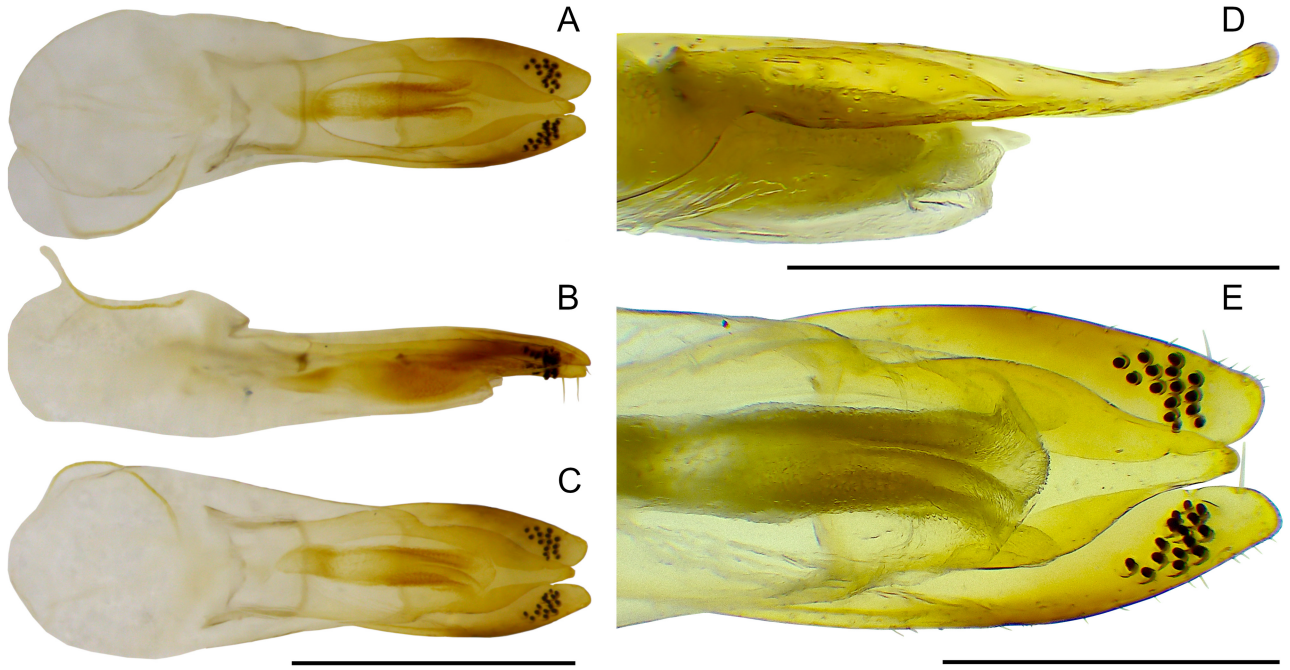

FIGURE 2. Aedeagus of *Philothalpus precious* **sp. nov.** (Paratype). **A**. Parameral view. **B**. Lateral view. **C**. Antiparameral view. **D.** Detail of apex, lateral view (paramere removed). **E.** Detail of apex, antiparameral view. Scale bars = 1 mm (**A–C**), 0.5 mm (**D–E**).

Abdomen: Tergites and sternites III–VII with uniform punctation pattern, moderately covered with punctures and glossy golden or brown setae. Golden microsetae predominate on tergite III and sternites III–IV, brown macrosetae on tergites IV–VII and sternites V–VII, black macrosetae arranged in row at the apical borders of all tergites and sternites except tergite VII. Posterior angles of tergites and sternites III–VI with one long black macrosetae. Abdominal tergites III–V with accessory ridges and anterior transverse basal carina. Posterior margin of tergite VIII with a slight emargination. Posterior margin of sternite VII emarginate. Basal transverse carina on sternites III–VI projected posteriorly at middle, projected anteriorly on sternite VII, and emarginate anteriorly on

lateral third of sternites III–VII. Male sternite VII with median subbasal depression completely covered with a tuft of long setae (porose structure). Male sternite VIII and tergite X slightly emarginate, sternite IX emarginate.

Aedeagus as in Figures 2A–E; paramere separated to near base into two lobes, lobes together slight longer and wider than medial lobe, in parameral view each lobe broadened medially in middle third and converging distally to a rounded apex, apices not curved inward (Figs 2A,C,E); paramere slightly curved in lateral view (Fig. 2B). Peg setae grouped near the apex of each lobe of paramere (Figs 2A,C,E). Median lobe as in Figure 2, in lateral view slightly curved upwards from middle to apex (Figs 2B,D); positioned between of two lobes of paramere (Figs 2A,C,E); in antiparameral view, converging to a pointed apex (Figs 2A,C,E).

Female similar to male, except: the first four protarsomeres less expanded; the posterior margin of tergite VIII with a shallower emargination; and sternite VII without depression bearing tuft of long setae.

Habitat. Captured with flight interception traps installed on the ground and baited with fresh human and pig feces (1:9 ratio) (see Moura *et al*. 2021 for details), rotten chicken, or rotten fish. The collection sites belong to the company Precious Woods – Mil Madeiras Preciosas and are destined for selective logging. The vegetation in the area is Evergreen Tropical Forest "Floresta Ombrófila Densa de Terras Baixas" (Veloso *et al*. 1991).

Distribution. Known from municipalities of Silves and Itapiranga in Amazonas State, Brazil.

Etymology. The specific epithet refers to the name of the company, Precious Woods – Mil Madeiras Preciosas, owner of the lands where all known specimens were collected; it is a noun in apposition.

Discussion

The new species belong to the genus *Philothalpus*, based on the presence of the following characters used by Chatzimanolis & Ashe (2005) to recognize the genus *Philothalpus*: tergites III–V with pair of accessory ridges on the anterior basal transverse carina (Fig. 1A); large prominent eyes (Fig. 1A); antennal segments 1–3 longer than wide (Fig. 1B), segment 1 longer than 2 and 3 (Fig. 1B), segment 3 longer than 2 (Fig. 1B), segments 4–5 longer than wide (Fig. 1B), segments 6–7 quadrate (Fig. 1A), segments 8–10 slightly transverse (Fig. 1A), segments 4–11 covered with microtrichae (Fig. 1A); pronotum slightly elongate (Fig. 1C), broadest in apical third, narrowest in basal third, sides of pronotum strongly concave in dorsal view; tarsal articles 1–4 of anterior legs broadened and flattened, covered with flattened, spatulate setae (Fig. 1A); basal carinae of abdominal sternites III–IV strongly sinuate, medial portion of basal carina expanded posteriorly into a strong lobe; and male with a porose structure on abdominal sternite VII.

To include *P. precious* sp. nov., the taxonomic key proposed by Chatzimanolis (2020) is modified as follows:

Couplets 1–6 without modification.

7. Head and pronotum red-brown to dark brown (Chatzimanolis & Ashe 2005; fig. 5). Elytra metallic green. Abdomen orange except for antero-medial disk of tergites II–V, anterior 2/3–3/4 of segment VI except at base, anterior 1/2– 2/3 of segment VII and posterior 1/2 of segment VIII brown. Legs orange. Aedeagus as in Chatzimanolis & Ashe (2005; figs. 53–56) . . . . . *P. bilobus*

\- Head and pronotum black or dark reddish brown with greenish or greenish golden overtones (Chatzimanolis & Ashe 2005; figs. 7, 29, 30) and Figs. (1A–C). Elytra black with greenish or greenish golden overtones (Fig. 1D); abdomen overall darker, colored differently; legs darker, at least partly dark brown 7A

7A Head and pronotum black with greenish overtones (Chatzimanolis & Ashe 2005; figs. 7, 29, 30). Elytra black with greenish overtones. Abdomen dark reddish brown except segment II and posterior border of sternites III–VI, posterior 1/3 of segment VII and anterior 4/5 of segment VIII dark orange. Legs brown. Aedeagus as in Chatzimanolis & Ashe 2005 (figs. 82–85) . . . . . *P. mauroprasinus*

\- Head and pronotum dark reddish brown with greenish golden overtones (Figs 1A–C). Elytra black with metallic greenish golden overtones (Fig. 1D). Abdomen dark reddish brown, almost black, except posterior border of segment III, posterior 1/3 of segments IV–V, posterior 1/4 of segment VI, posterior 2/5 of segment VII, anterior border of segment VII, and anterior 2/3 of segment VIII, reddish brown. Legs brownish orange with dorsal part of hind femora and apical third of all tibiae dark brown. Aedeagus as in Figures (2A–E) . . . . . *P. precious* **sp. nov.**

Couplets 8–26 without modification.

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