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Zootaxa, Auckland, v.3884, n.4, p.333-346, 2014

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<http://dx.doi.org/10.11646/zootaxa.3884.4.3>

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Taxonomic revision of *Pseudorhopalia* Wilcox & Papavero, 1971 (Insecta, Diptera, Mydidae, Rhopaliinae), with description of a new species from the Brazilian Amazon

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Abstract

The previously monotypic genus *Pseudorhopalia* Wilcox & Papavero, 1971 is here revised, with description of a new species, *Pseudorhopalia manauara*, sp. n. The type-species, *P. mirandai* (d'Andretta & Carrera, 1951), is only found in north-eastern Brazil, in the semiarid Caatinga biome. On the other hand, the new species is found in the humid Brazilian Amazonia, within dense ombrophilous forest and campina (scleromorphic scrub vegetation associated with white sand).

Keywords: Asiloidea; Mydidae; campina; caatinga; biodiversity

Introduction

Mydidae (Diptera, Asiloidea) are one of the most notable families of Diptera, including the largest flies known. The Brazilian species *Gauromydas heros* (Perty, 1833) reaches up to 7 cm in body length (Autuori 1952), excluding antenna. The family currently comprises 11 subfamilies, 66 genera and about 470 valid species (Lyons & Dikow 2010). Most species of Mydidae inhabit dry areas (Wilcox 1981), with few species occurring in tropical forests (Wilcox & Papavero 1975, Papavero *et al.* 2002). Adults are found in short periods of the year, probably spending most of their life cycles as larvae.

Rhopaliinae include 26 valid species in 6 genera distributed in the Afrotropical, Neotropical and Palaearctic regions. Papavero & Wilcox (1974) erected this subfamily originally to include the genera *Perissocerus* Gerstaecker, 1868 (Afrotropical, Palaearctic), *Pseudorhopalia* Wilcox & Papavero, 1971 (Neotropical), *Rhopalia* Macquart, 1838 (Palaearctic), and *Rhopaliana* Séguy, 1934 (Palaearctic). The following features were considered as diagnostic for Rhopaliinae: hind metatarsus never five times as long as wide; veins M₁ and M₂ coalescent, forming a single vein; anal cell closed; cell r₄ usually widely open; hind tibia cylindrical; male hypandrium completely fused to gonocoxite; gonostylus absent; female terminalia with spines on acanthophorites (Papavero & Wilcox 1974).

The Neotropical genus *Midacritus* Séguy, 1938, formerly placed in Apiophorinae (Papavero & Wilcox 1974), was later considered within Rhopaliinae in the key to the American genera of Mydidae by Artigas & Papavero (1990), as well as in the most recent catalogue of Neotropical Mydidae (Papavero 2008). Despite the cited authors having not presented a formal explanation for this change, it seems likely that the lack of a ventral keel in the hind tibia of *Midacritus* (also absent in the remaining Rhopaliinae) has supported their decision.

The genus *Pseudorhopalia* was originally created to include a single species, *P. mirandai* (d'Andretta & Carrera, 1951), currently the only known Brazilian species of Rhopaliinae (Papavero *et al.* 2002, Papavero 2008). This species has been found exclusively in Ceará State, northeastern Brazil (d'Andretta & Carrera 1951), within the semiarid Caatinga biome (Albuquerque 1999, Bastos *et al.* 1998, Velloso *et al.* 2002). *Pseudorhopalia* is herein revised, with redescription of the genus and the type-species, and addition of a new species. The definition of the genus is reviewed and discussed in order to accommodate the new species.

Material and Methods

Material studied. All the known specimens of the new species were found very recently in two conservation areas nearby Manaus, Amazonas State, Brazil: Estação Experimental de Silvicultura Florestal (expeditions coordinated by Dr. Rosaly Ale-Rocha) and Reserva Florestal Adolpho Ducke (specimen collected by A. Somavilla). The specimens are all deposited at Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (INPA; curator Dr. Augusto Loureiro Henriques), except one male paratype, which has been donated to the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP; curator Dr. Carlos J. E. Lamas). All the material of *P. mirandai* studied is deposited in MZUSP.

Preparation and study of material. Specimens were examined under Stereomicroscope ZEISS Stemi SV6. Maceration of genitalia was done using KOH 10% at room temperature for 24 hours, followed by neutralization with glacial acetic acid 1:1 ethanol solution. The structures were emerged in water-based lubricating gel (K-Med personal lubricant, Brazilian industry) to be photographed. After examination, the genitalia was transferred to a microvial, with glycerin, that were attached to the pin below the specimen.

Description of the new species. Description was made based on the male holotype, with the morphological variation observed among other specimens also described.

Terminology. Terminology follows Cumming & Wood (2009), for general morphology and Stuckenberg (1999) for antennal structures. The term “sensory area”, as used by Wilcox & Papavero (1971), designates the sunken area near apex of antenna. A capital “T” and “S”, followed by the abdominal segment number, are used to refer to “tergite” and “sternite” respectively.

Distribution records. Geographic coordinates originally cited on specimen labels are here listed between “()”. Coordinates otherwise inferred by locality data of specimens are listed between “[]”.

Illustrations. Photographs were taken with a digital AxioCam MRc5 camera connected to a Zeiss Discovery V20 stereomicroscope, using the software ZEISS AxioVs40 v. 4.8.2.0. Images were taken at sequential focal planes and then combined with the software COMBINE ZP (Hadley 2010) to obtain high-resolution montage images. The distribution map with the known records for the species was made with the software Quantum GIS (<http://www.qgis.org>). Adobe® Photoshop® and Illustrator® CS5 were used for image manipulation and plate construction.

Descriptions

Pseudorhopalia Wilcox & Papavero

Pseudorhopalia Wilcox & Papavero, 1971: 112. Type-species: *Rhopalia mirandai* d’Andretta & Carrera, 1951 (orig. des.).

Diagnosis. Prementum distinctly shorter than subcranial cavity, attached to middle of labellum; labellum reniform. Thorax densely pubescent; scutum with intraalar and acrostichal apubescent stripes. Hind trochanter without spiniform macrosetae; hind femur 8–9 times longer than broad, less than twice as broad as tibia; ventral keel and apical spur of hind tibia absent. Wing cell r_4 widely open; posterodistal extremity of discal cell truncate. Phallus ventrally connected to the gonocoxite-hypandrial complex. Female T10 with acanthophorite spines; lateral arms of furca not connected anteriorly or posteriorly.

Head. Densely pubescent; facial gibbosity slightly longer than wide; lower facial margin above the lower margin of compound eye; setulae mostly yellowish, long, erect; mystax dense, long, extended over mouthparts; pubescence very dense, whitish. **Mouthparts.** Prementum distinctly shorter than subcranial cavity, attached to middle of labellum; labellum reniform. **Antenna.** Postpedicel folding between a cylindrical proximal and a bulbous distal portion; ‘seta-like’ sensory element reduced, situated distally in cavity on postpedicel.

Thorax. Strong setae absent. Postalar callus poorly differentiated from scutum. Scutellum bare of strong setae. Mediotergite bare of setulae. Katatergite flat.

Legs. Hind trochanter without strong macrosetae; hind femur less than twice as broad as hind tibia; ventral keel and apical spur of hind tibia absent; empodium absent; claw longer than pulvillus.

Wing. Narrower than length of hind tibia; membrane longitudinally rugose; microtrichiae absent; C short black setulose on anterior wing margin until end of R_5 ; margin of wing with fine microtrichia posteriorly to end of

M₁₊₂; R₄ ending in R₁; r₄ broadly open; R₅ ending in C; M₁ and M₂ fused; M₁₊₂ ending in C; posterodistal extremity of discal cell truncate; calypter yellowish white with short sparse marginal setulae.

Abdomen. Anterior portion of T1 slightly convex, setulae absent. Tergites with dark median spot, at least on male (abdomen of female black in *P. manauara* sp. n.). **Male terminalia.** Gonocoxites and hypandrium fused together forming a gonocoxite-hypandrial complex; posterior process of the gonocoxite-hypandrial complex very short; phallus ventrally connected to the gonocoxite-hypandrial complex. **Female terminalia.** Lateral arms of furca parallel, not connected anteriorly or posteriorly; three tubular spermathecae present.

Remarks. The diagnostic features of *Pseudorhopalia* are here reviewed. The lack of vein CuA₁+M₃ in *P. mirandai* has been used to distinguish this genus from *Midacritus*, the other Neotropical genus of Rhopaliinae. As CuA₁+M₃ is actually present in *P. manauara* sp. n., this feature will not be considered diagnostic to the genus anymore. The truncate posterodistal extremity of the discal cell (acuminate in *Midacritus*), on the other hand, distinguishes the two genera. In the male genitalia of *Pseudorhopalia*, the gonocoxite-hypandrial complex is dorsally prolonged and connected to the base of the phallus. According to our observations, this feature is absent in *Midacritus*, but present in Mydinae and in some Apiophorinae genera (*Eumydas* Wilcox & Papavero and *Paramydas* Carrera & d'Andretta, 1948).

Pseudorhopalia mirandai (d'Andretta & Carrera, 1951)

(Figs. 1–3, 9)

Rhopalia mirandai d'Andretta & Carrera, 1951: 7, figs. 1–8. HT male, MZUSP. Type-locality: Brazil, Ceará, Icó.

Pseudorhopalia mirandai. Ref.– Wilcox & Papavero, 1971: figs. 57, 132–134, map 7 (new comb.); Artigas & Papavero, 1990: figs. 31–32 (spermatheca); Papavero & Artigas, 1990: 127 (cat.).

Diagnosis. Head with dense whitish pubescence, absent around ocelli. Wing vein CuA₁+M₃ absent; cell r₄ slightly constricted distally. Male and female abdomen with similar colors, mostly pale yellow with brown spots. Phallus without a pair of dorsal projections.

Male. Total length, excluding antenna, 11.07–14.89 mm, n= 5 (14.25 mm in the holotype). **Head** (Figs. 1A,C). 2.02 mm high in lateral view, 3.07 mm wide in anterior view (holotype); about 2 times wider than the interocular distance bellow antenna; setulae pale yellow, mystax pale yellow, denser on ventral half; pubescence dense, whitish, covering head entirely, except around ocelli. **Mouthparts.** Proboscis brown, labellum smaller than subcranial cavity. **Antenna.** Yellowish brown, darker on distal half of distal postpedicel, setulae yellowish brown on scape and pedicel, black on postpedicel; holotype measurements: scape 0.26 mm long, pedicel 0.13 mm long, proximal postpedicel 0.69 mm long, distal postpedicel 1.01 mm long, 0.47 mm wide; distal postpedicel broader at about two-thirds of its length; sensory area rounded, restricted to apex on anteroventral surface of antenna.

Thorax (Figs. 1A, 2A). Integument yellow, densely beige pubescent; antepronotum with a row of short black setulae; postpronotal lobe yellow setulose; scutum short yellow setulose, with reddish brown intraalar and acrostichal glabrous stripes; scutellum laterally with few short golden setulae; mediotergite brownish medially, smooth; prosternum and proepisternum long yellow setulose; anepisternum asetulose; anepimeron with sparse yellow setulae; metakatepisternum ventrally with short sparse yellow setulae; metepimeron with very few short yellow setulae.

Legs (Figs. 1A, 2B). Yellow to yellowish brown, setulae mostly short, black; fore, mid and hind coxae yellow with brown and yellow short setulae and dense beige pubescence; fore, mid and hind trochanters yellow with short yellow setulae; hind femur 3.76 mm long, 0.43 mm wide (holotype), yellowish brown, paler on proximal half, with 7–11 dark brown spiniform macrosetae (9 in the holotype), black short setulose with few yellow setulae proximally on posterior surface; fore, mid and hind tibiae yellowish brown; fore tibia with three reddish strong setae at apex; mid tibia with four reddish strong setae at apex; hind tibia 3.33 mm long, 0.13 mm wide (holotype), ventral keel undeveloped, apical spur absent, with six ventroapical to subapical strong reddish setae; fore, mid and hind tarsi yellowish brown; fore, mid and hind tarsomeres 1–4 with red to black antero and posteroventral stronger setae at apex; hind tarsomeres 1–5 lengths (width), respectively, 0.47 mm (0.17 mm), 0.26 mm, 0.22 mm, 0.19 mm, 0.39 mm (holotype); pulvillus yellow, distinctly smaller than fore, mid and hind tarsomere 5; claw orange-brown, tip black.

Wing (Fig. 2C). 8.81 mm long, 2.58 mm high (holotype); alula 0.82 mm long, 0.43 mm high (holotype); tegula

and axillary sclerites yellow; membrane hyaline; veins yellow to light brown, paler on stem vein, Sc, M_{1+2} , and at base of C; C fading posteriorly to junction with M_{1+2} ; Sc ending in C at the level of crossvein r-m; R_3 short, sometimes emerging before or after fork of R_{4+5} , but emerging from fork of R_{4+5} and absent on left wing in the holotype.; CuA_1+M_3 absent; r_4 slightly constricted on distal third by vein R_3 ; right wing with short rudimentary vein arising from R_{4+5} just before r-m; margin of upper calypter concave medially, fringe with fine, short, very sparse yellow setulae; halter yellow, darker dorsally, with very short black setulae ventrally on knob and stem.

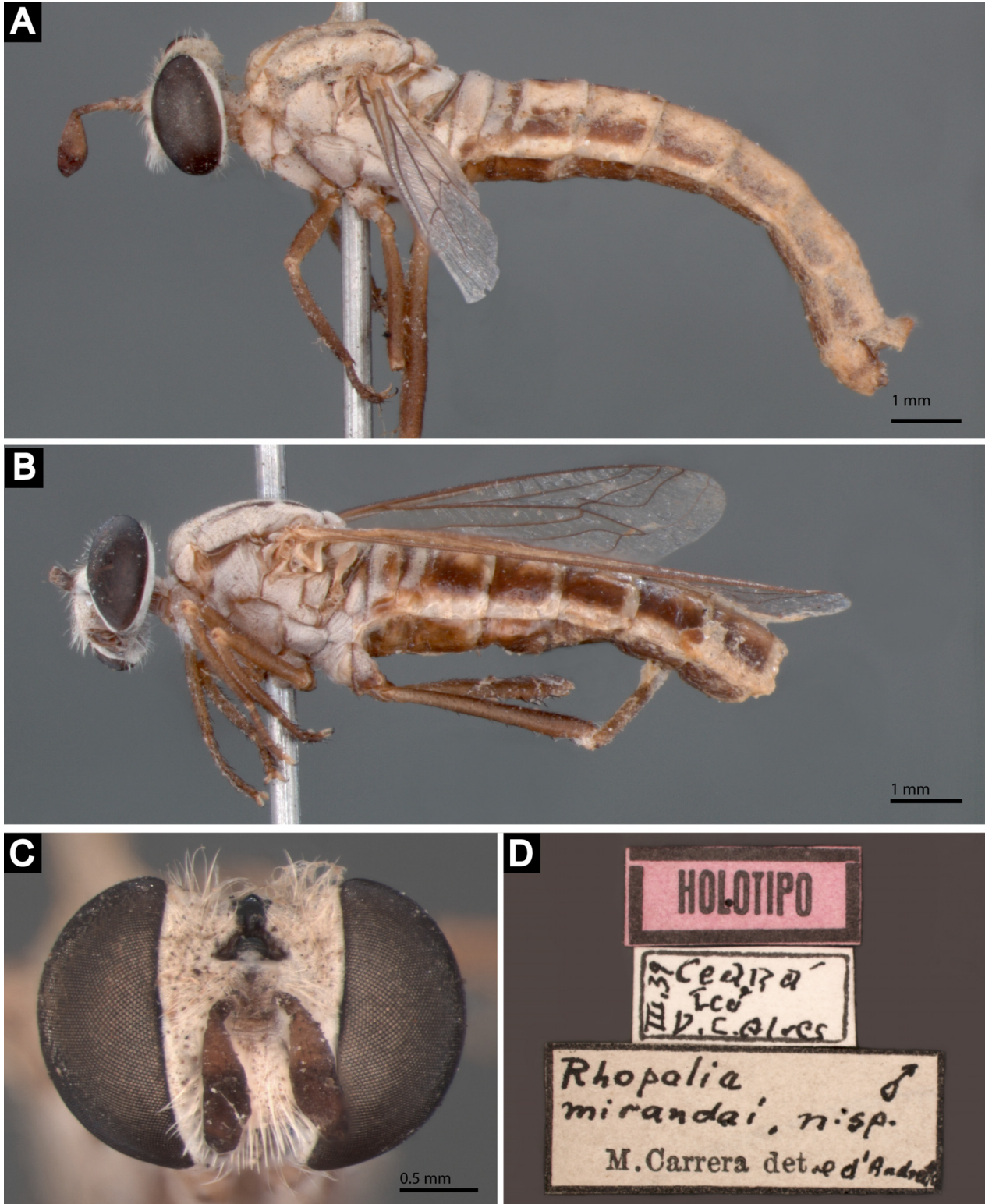


FIGURE 1. *Pseudorhopalia mirandai* d'Andretta & Carrera, 1950. **A.** Male holotype, lateral habitus. **B.** Female uncoded paratype, lateral habitus. **C.** Male holotype, head, anterior view. **D.** Male holotype, labels.

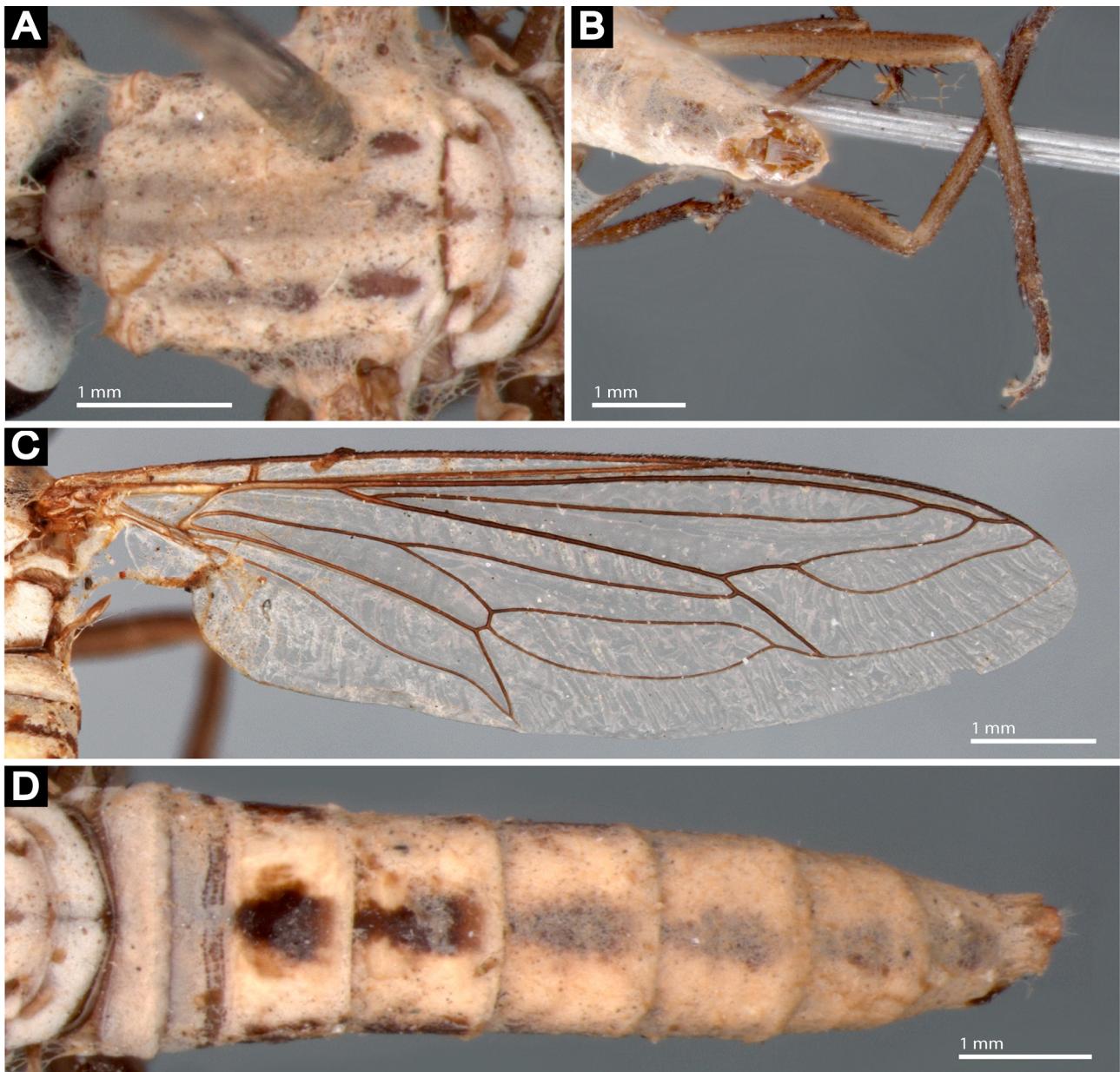


FIGURE 2. *Pseudorhopalia mirandai* d'Andretta & Carrera, 1950, male holotype. **A.** Scutum. **B.** Hind leg. **C.** Wing. **D.** Abdomen, dorsal view.

Abdomen (Figs. 1A, 2D). Tapering posteriorly. Tergites mostly pale yellow with sublateral and medial brown spots; T1 yellowish brown with dense beige pubescence; T2 brown on anterior third, bulla black; S2–7 yellowish brown with very short sparse golden setulae, apubescent. **Male terminalia** (Figs. 3A–C). Hypopygium yellow to brown; epandrium yellow setulose; posterior process of gonocoxite very short; gonocoxite-hypandrial complex dorsally prolonged and connected to the base of the phallus.

Female (Fig. 1B). **Legs.** Hind femur with 6 red spiniform macrosetae. **Abdomen.** Broader than male abdomen. **Female terminalia.** T10 with 7–9 acanthophorite spines on each plate; furca with parallel lateral arms not connected anteriorly or posteriorly.

Distribution (Fig. 9). BRAZIL. Ceará: Icó [6°24'07"S, 38°51'18"W], Cascavel [4°07'37"S, 38°14'30"W], Limoeiro [5°08'58"S, 38°05'49"W], Russas [4°56'24"S, 37°58'26"W].

Habitat. All the specimens studied were collected in the semiarid Caatinga biome, Northeastern Brazil, more specifically in the Septentrional “Sertaneja” Depression ecoregion (Velloso *et al.* 2002). Caatinga is characterized by xerophilous and deciduous vegetation, with woody, thorny and small leaved plants, along with bromeliads,

cacti, and seasonal herbs (Bastos 1998). In the Septentrional “Sertaneja” Depression, climate is hot with a very long dry season, and soil is rocky and shallow (Velloso *et al.* 2002). Caatinga is a very endangered biome, with less than 1% of its territory delimited as natural reserves with integral protection (Leal *et al.* 2005).

Examined type-material. Male holotype. BRAZIL. Ceará, Icó [6°24'07"S, 38°51'18"W], iii.1939, D. Dias col., MZUSP. Holotype condition: specimen pinned, covered with dust; labels shown in Fig. 1D.

Paratypes: BRAZIL. Ceará, Icó, iii.1939, D. Dias col., 3 male, 1 of undetermined sex, MZUSP; Limoeiro, iii.1940, D. Dias col., 1 male, 1 female, 1 of undetermined sex, MZUSP; Russas, iii.1940, D. Dias col., 1 male, 1 female, MZUSP.

Other examined material. BRAZIL. Ceará, Cascavel, ix.1939, D. Dias col., 1 male, MZUSP; xi. 1939, 1 female, MZUSP.

Remarks. Observations on female terminalia were made based on illustrations by Artigas & Papavero (1990:105, Figs. 31–32), as no available female specimen had the abdomen intact for dissection.

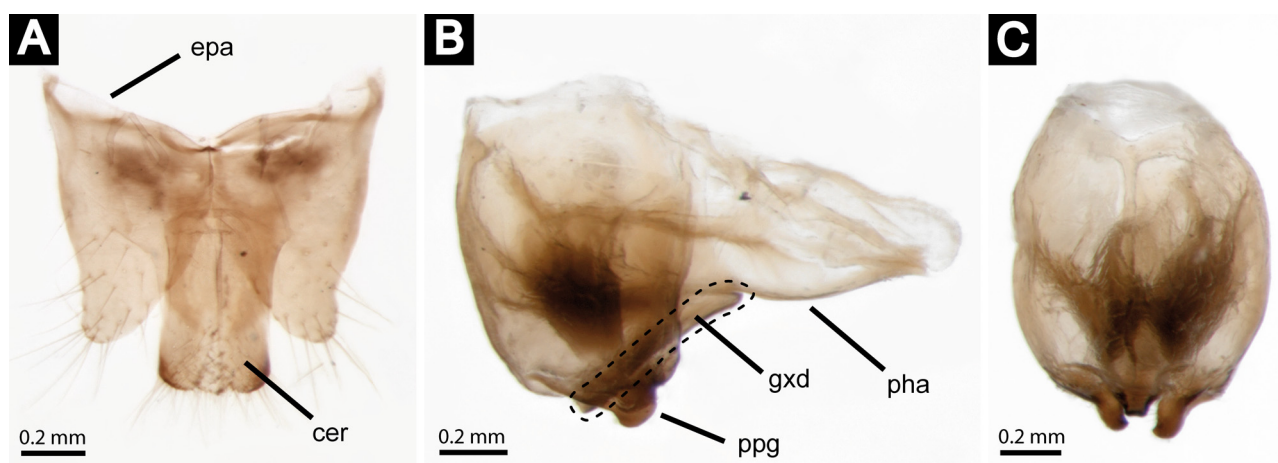


FIGURE 3. *Pseudorhopalia mirandai* d’Andretta & Carrera, 1950, male genitalia. **A.** paratype 111.194, epandrium and proctiger. **B.** uncoded specimen (MZUSP), gonocoxite-hypandrial complex and attached structures, lateral view. **C.** uncoded specimen (MZUSP), gonocoxite-hypandrial complex and attached structures, ventral view. **cer:** cercus; **epa:** epandrium; **gxd:** dorsal prolongation of the gonocoxite-hypandrial complex; **pha:** phallus.

Pseudorhopalia manauara, sp. n.

(Figs. 4–9)

Etymology. The specific epithet “manauara” (Portuguese) is how one refers to a natural born citizen of Manaus, the capital of Amazonas State, type-locality of this species, and is treated as a noun in apposition.

Diagnosis. Head with dense whitish pubescence, absent around ocelli and vertex. Wing vein CuA_1+M_3 present; cell r_4 not constricted distally. Male abdomen predominantly orange with medial dark spots; female abdomen dark brown. Phallus with a pair of dorsal projections.

Male. Total length, excluding antenna, 18.6–19.1 mm, n=3 (19.1 mm in the holotype). **Head** (Figs. 4A,C). 2.3 mm high in lateral view, 3.4 mm wide in anterior view (holotype), black, with dense whitish pubescence, absent on frons around ocelli and vertex; vertex between compound eyes slightly depressed (less than 60° angle on median eye margin); facial gibbosity slightly higher than wide; setulae yellow, few black on dorsal and ventral margins of occiput; mystax yellow, covering ventral half of facial gibbosity; pubescence dense yellow, more whitish ventrally to antenna, ventral half of occiput and postgena. **Mouthparts.** Dark brown. **Antenna.** Reddish brown, scape black, distal postpedicel red; setulae black, few golden ventrally on scape in the holotype; holotype measurements: scape 0.4 mm long, pedicel 0.1 mm long, proximal postpedicel 1.5 mm long, distal postpedicel 1.4 mm long, 0.4 mm wide; distal postpedicel broader at about two-thirds of its length, sensory area rounded, restricted to apex on inner surface of antenna.

Thorax (Figs. 4A, 5A). Integument yellowish brown to black, densely beige pubescent; antep pronotum black, with a row of short black setulae; postpronotum reddish brown (holotype) to black, black on a medial stripe,

postpronotal lobe yellowish brown, brown on posterior wall, setulae short black; scutum black on acrostichal and intraalar areas, reddish posteriorly, yellowish brown on postalar callus, setulae short black, sparse, present on supraalar and dorsocentral regions and postalar callus, pubescence forming supraalar and dorsocentral stripes connected anteriorly and posteriorly; scutellum black, asetulose, longitudinally rugose on ventral margin; mediotergite black medially, dark brown laterally, shallow rugose on dorsum, deeper laterally; katatergite dark

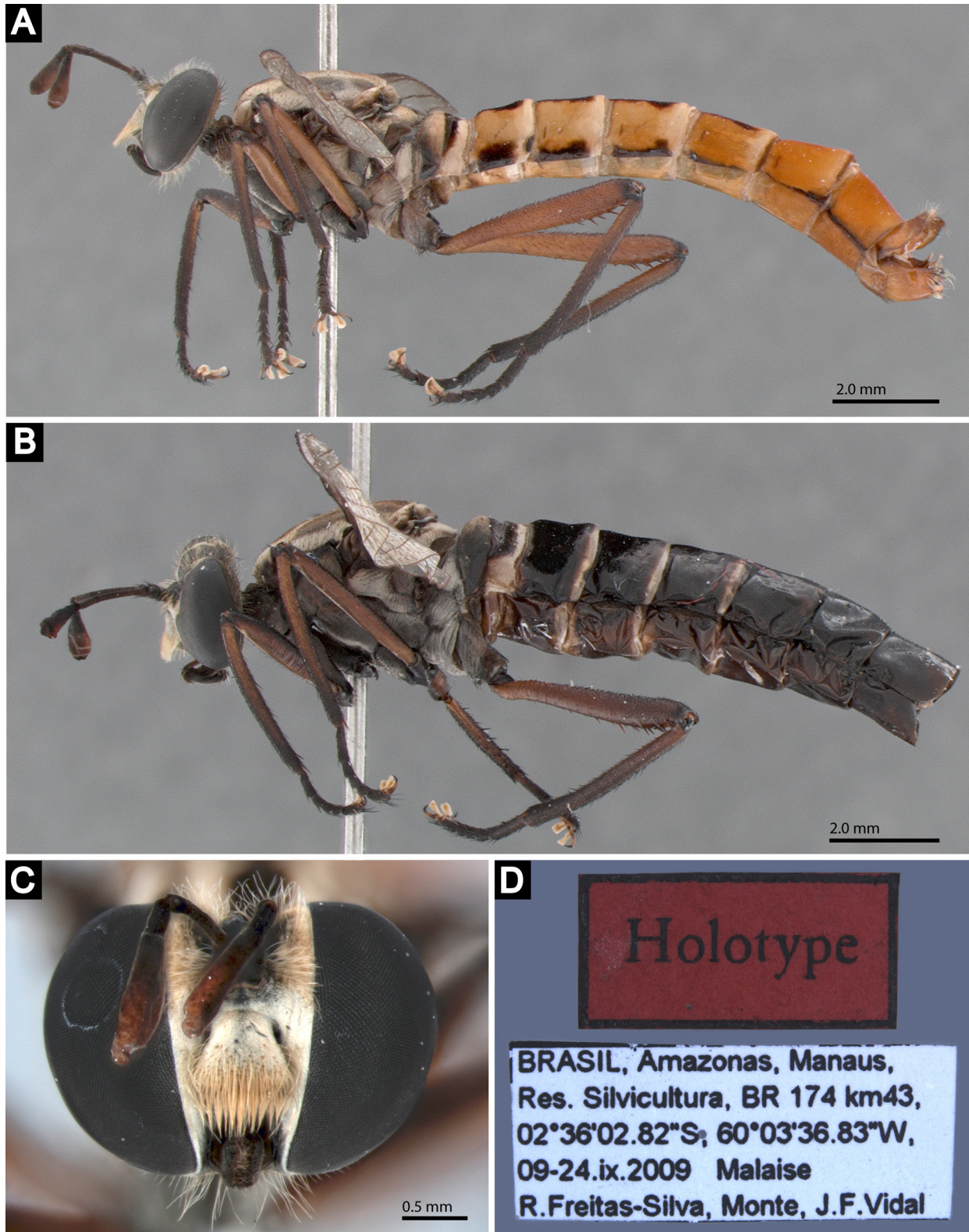


FIGURE 4. *Pseudorhopalia manauara* sp. n. **A.** Male holotype, lateral habitus. **B.** Female paratype AAM-001396, lateral habitus. **C.** Male holotype, head, anterior view. **D.** Male holotype, labels.

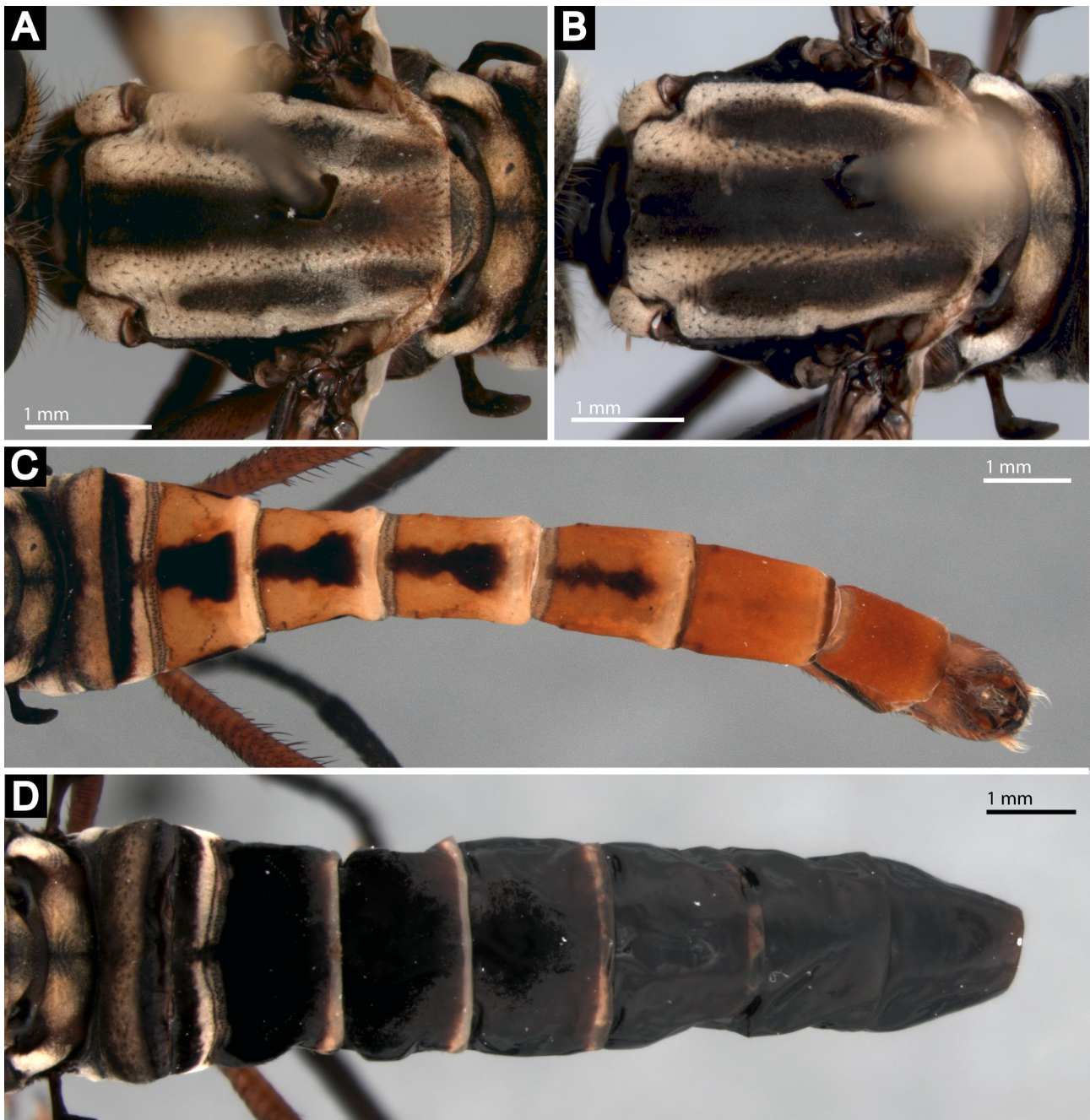


FIGURE 5. *Pseudorhopalia manauara* sp. n. **A.** Male holotype, scutum. **B.** Female paratype AAM-001396, scutum. **C.** Male holotype, abdomen, dorsal view. **D.** Female paratype AAM-001396, abdomen, dorsal view.

brown; anepisternum black or yellowish brown with black dorsal margin and black ventral spot (holotype); katepisternum yellowish brown dorsally and ventrally, remaining surface black; anepimeron yellowish brown to black (holotype), setulae long yellow to black (only yellow in the holotype); katepimeron black; metepimeron black, with few short yellow setulae; metanepisternum yellowish brown; metakatepisternum yellowish brown, ventrally with short sparse yellow setulae; meron black, densely pubescent; metepimeron yellowish brown, asetulose, densely pubescent; prosternum and proepisternum brown to black, yellow setulose, pubescent; mesosternum asetulose, pubescent. **Male terminalia** (Figs. 7A–E). Hypopygium predominantly bright orange; epandrium short black setulose; gonocoxite-hypandrial complex with pair of small projections on posterior margin, golden setulose at base of posterior process; posterior process of gonocoxite very short, black distally, roundish on outer surface at apex; phallus with a pair of dorsal projections.

Legs (Figs. 4A, 6A). Orange to dark brown, setulae mostly short, black; fore and mid coxae dark brown, hind

coxa dark brown, orange posterodorsally; fore, mid and hind coxae long setulose distally, beige pubescent; fore, mid and hind trochanters dark brown, hind trochanter dark orange proximally on posterior surface; fore and mid femora orange, dark brown anterodorsally; hind femur 5.6 mm long, 0.7 mm wide (holotype), orange, dark brown at apex, with 12 red spiniform macrosetae, long sparse red to black setulose on posteroventral surface; fore, mid and hind tibiae dark brown, paler at base; fore and mid tibiae with few black scattered posteroventral stronger setulae, including at apex; hind tibia 5.1 mm long, 0.4 mm wide (holotype), ventrally with three red apical strong setulae, ventral keel undeveloped, apical spur absent; fore, mid and hind tarsi dark brown; fore, mid and hind tarsomeres 1–4 with strong black apical setulae; hind tarsomeres 1–5 lengths (width), respectively, 1 mm (0.2 mm), 0.4 mm, 0.3 mm, 0.3 mm, 0.6 mm (holotype); pulvillus pale yellow, well-developed, slightly shorter than tarsomere 5; claw orange-brown, tip black.

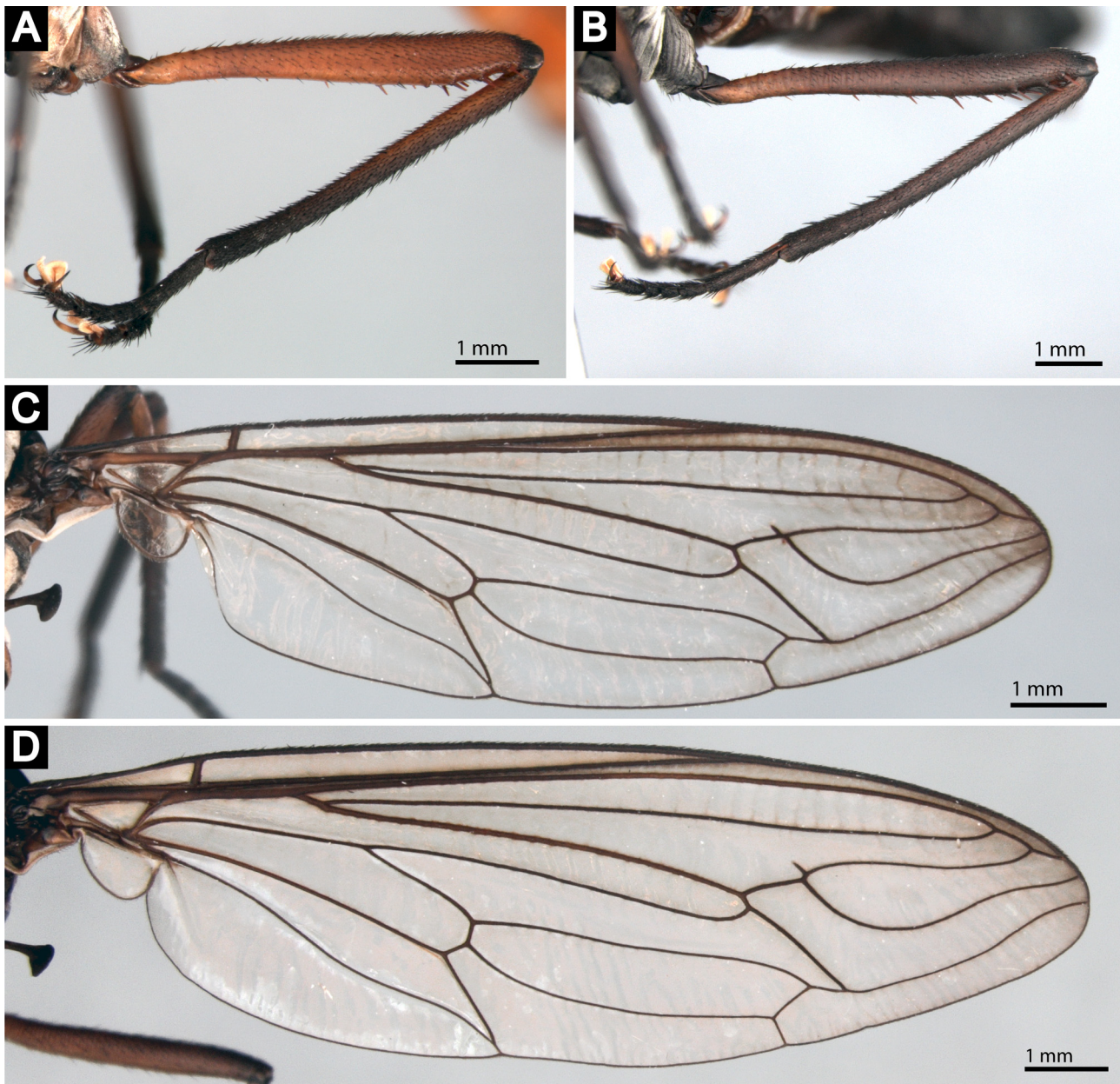


FIGURE 6. *Pseudorhopalia manauara* sp. n. **A.** Male holotype, hind leg (photograph flipped). **B.** Female paratype AAM-001396, hind leg. **C.** Male holotype, wing (photograph flipped). **D.** Female paratype AAM-001396, wing.

Wing (Fig. 6C). 11.7 mm long, 3.4 mm high (holotype); alula 0.9 mm long, 0.5 mm high (holotype); tegula and axillary sclerites brown; membrane mostly hyaline, darker at apex of wing and cell sc, deeply brown on proximal half of cell sc; veins brown, proximal half of R light brown; Sc ending in C just before R_{4+5} fork; R_3 short,

emerging proximally to fork of R_{4+5} ; veins R_4 and R_5 parallel on distal third; CuA_1+M_3 present; margin of upper calypter straight, fringe with very fine yellowish white setulae, sparsely distributed on distal half; halter dark brown.

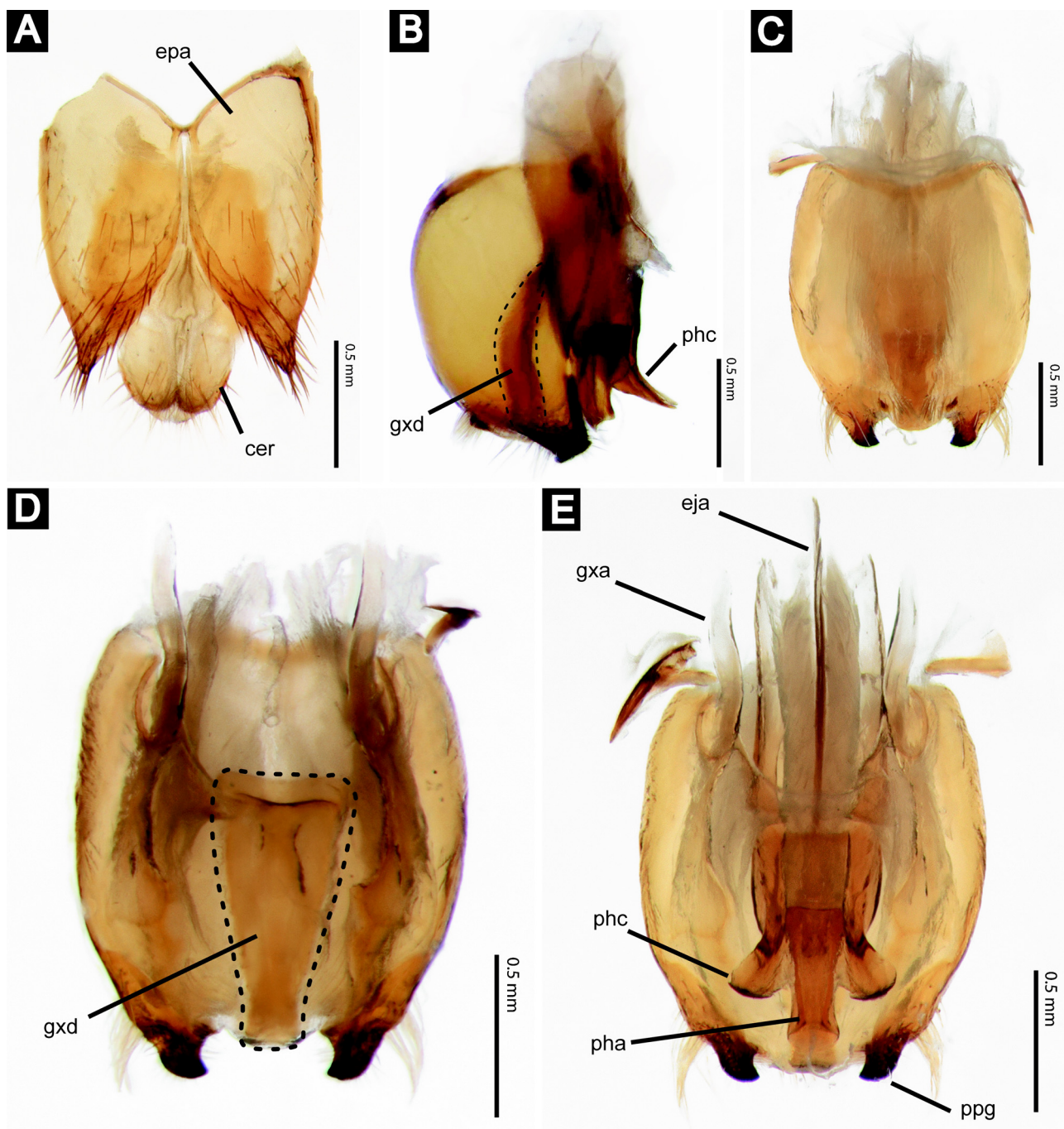


FIGURE 7. *Pseudorhopalia manuara* sp. n., Male paratype AAM-001394, genitalia. **A.** Epandrium and proctiger. **B.** gonocoxite-hypandrial complex and attached structures, lateral view. **C.** gonocoxite-hypandrial complex and attached structures, ventral view. **D.** gonocoxite-hypandrial complex and attached structures, dorsal view. **cer:** cercus; **eja:** ejaculatory apodeme; **epa:** epandrium; **gxa:** gonocoxal apodeme; **gxd:** dorsal prolongation of the gonocoxite-hypandrial complex; **pha:** phallus; **phc:** dorsal phallic projections; **ppg:** posterior process of gonocoxite-hypandrial complex.

Abdomen (Figs. 4A, 5C). Broader in T1–2 than in remaining tergites, T2 tapering posteriorly; T1 dark brown, setulae very short, sparse, recumbent on dorsum, erect laterally, densely yellowish to brown pubescent, apubescent on posterior margin; anterior third of T2 pale yellow, dark brown dorsally on anterior margin and sensory pits, densely pubescent between anterior margin and sensory pits, predominantly pale orange on posterior two-thirds,

dark brown on broad lateral margins and on medial trapezoid spot, broad posterior margin pale yellow, bulla black; tergites posterior to T2 predominantly orange; broad posterior margins of T3–5 pale yellow; broad lateral margins of T3–5 black; T6–7 bright orange, narrow lateral margins black; T3–5 with similar colors to posterior third of T2, but trapezoid spot progressively narrower posteriorly; T2–7 with very sparse short brown golden brilliant recumbent setulae, apubescent or very scarcely pubescent; S1 brown; S2–7 pale orange, being progressively brighter posteriorly; posterior margin of S2 yellowish white; S6–7 brown on narrow lateral margin; S2–7 with very short sparse brown, golden brilliant recumbent setulae.

Female (Figs. 4B, 5B,D, 6B,D, 8A,B). Total length, excluding antenna, 18.1–21.9 mm, $n=2$. **Abdomen.** Broader than male abdomen; tergites and sternites predominantly dark, either reddish brown or black. **Female terminalia.** T10 with 7 acanthophorite spines on each plate; furca with parallel lateral arms not connected anteriorly or posteriorly.

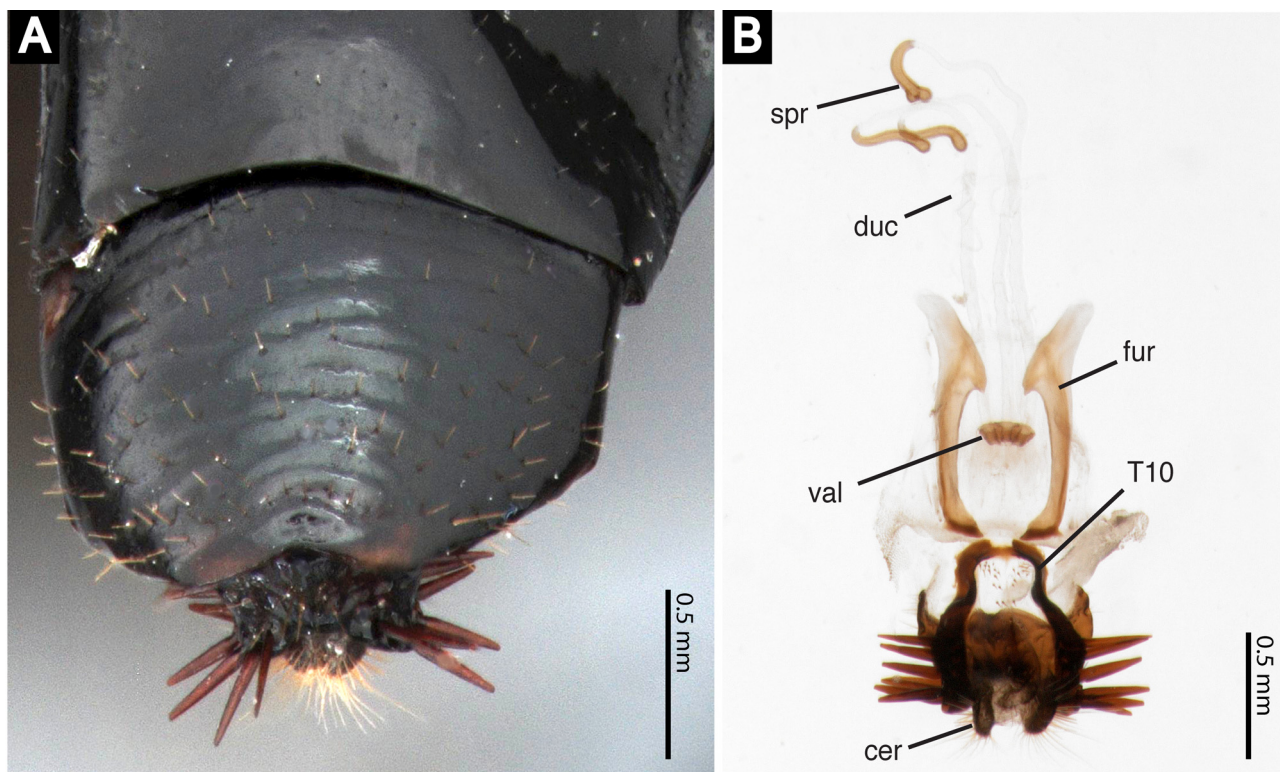


FIGURE 8. *Pseudorhopalia manauara* sp. n., Female paratype AAM-001428. **A.** Terminalia, dorsal view. **B.** Genitalia, ventral view. **cer:** cercus; **duc:** spermathecal duct; **fur:** furca; **spr:** spermatheca; **T10:** tergite 10; **val:** valvula of spermatheca.

Distribution (Fig. 9). Brazil: Amazonas, Manaus, Estação Experimental de Silvicultura Florestal (02°36'02.62"S, 60°03'36.83"W); Reserva Florestal Adolpho Ducke [2°57'S, 59°55' W].

Habitat. This species occurs in the humid Brazilian Amazonia, with specimens found in conservation areas around Manaus city. The specimens from the Estação Experimental de Silvicultura Florestal were collected by Malaise traps installed within scleromorphic scrub vegetation associated with white sand, known as campina (*sensu* Macedo & Prance 1978), campinarana (*sensu* Veloso *et al.* 1991) or Amazon caatinga (*sensu* Anderson 1981) (R. Ale-Rocha, *pers. com.*). A female specimen from the Reserva Florestal Adolpho Ducke, however, was collected in dense ombrophilous forest (*sensu* Veloso *et al.* 1991) (A. Somavilla, *pers. com.*).

Examined type-material. Male holotype. BRAZIL. Amazonas, Manaus, R. Silvicultura [Estação Experimental de Silvicultura Florestal], BR 174 km43, 02°36'02.62"S, 60°03'36.83"W, 09–24.ix.2009, Malaise, R. Freitas-Silva, Monte, J. F. Vidal colls, INPA. Holotype condition: specimen pinned; right wing folded posteriorly near apex; labels shown in Fig. 4D.

Paratypes: BRAZIL. Amazonas, Manaus, Estação Experimental de Silvicultura Florestal (02°36'02.62"S, 60°03'36.83"W), 25.viii–09.ix.2009, R. Freitas-Silva, G. Freitas, B. Souza colls, 1 male, MZUSP; 09–24.ix.2009, R. Freitas-Silva, Monte, J.F. Vidal colls, 1 male (AAM-1395), INPA; 25.viii–09.ix.2009, R. Freitas-Silva, G.

Freitas, B. Souza colls, 1 female (AAM-001396), INPA. Reserva Florestal Adolpho Ducke [2°57'S, 59°55' W], 10–15.viii.2010, A. Somavilla coll., 1 female (AAM-001428), INPA.

Remarks. The main morphological differences between these species, are: *P. mirandai* with cell r_4 constricted, vein CuA_1+M_3 absent, female abdomen similar to male, and phallus lacking dorsal projections; *P. manauara* with cell r_4 unconstricted, vein CuA_1+M_3 present, female abdomen darker than male, and phallus with a pair of dorsal projections. This species resembles the *Eumydas* species (Apiophorinae) in general body color, but *P. manauara* it is easily distinguished from them by lacking a ventral keel and an apical spur on the hind tibia.

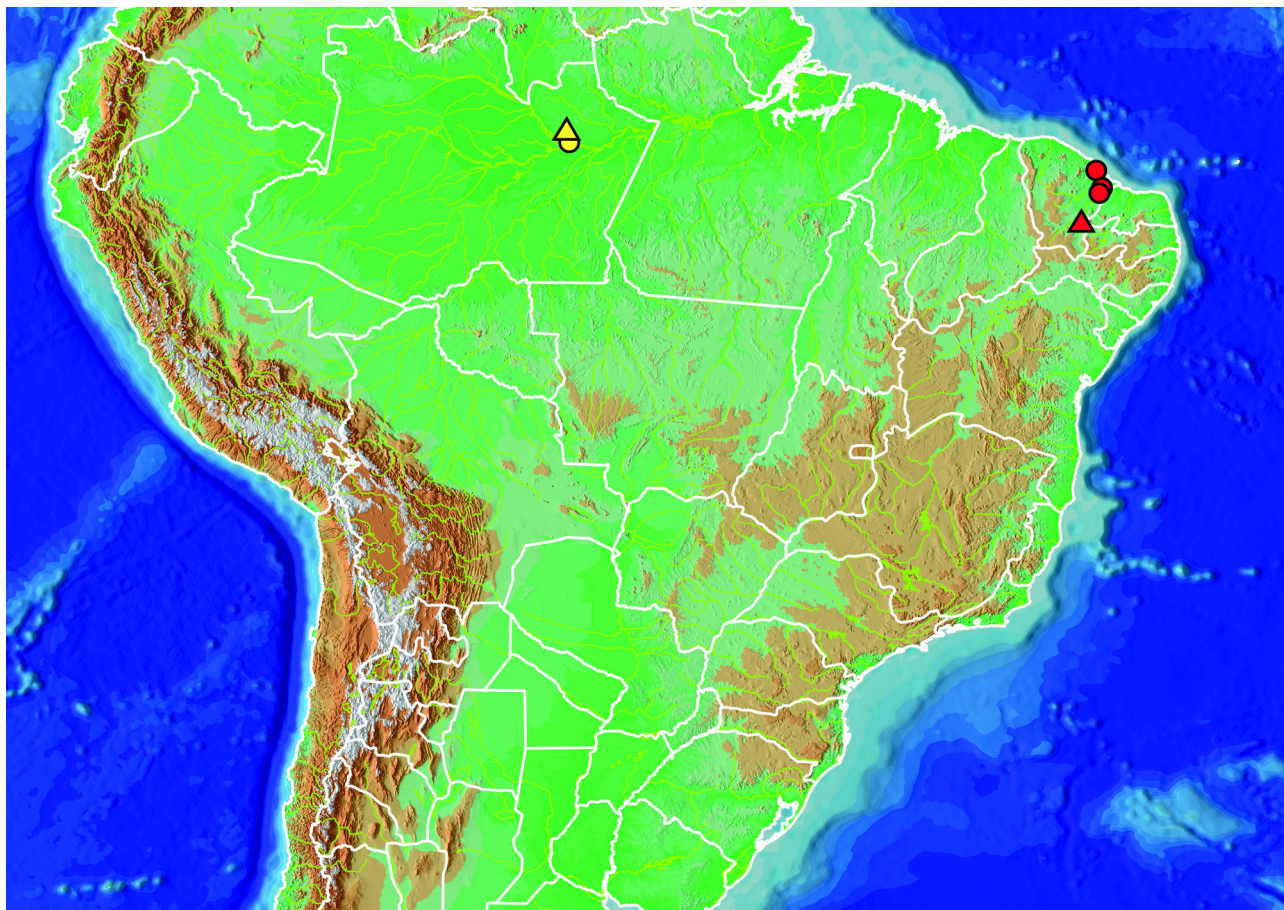


FIGURE 9. Distribution map of *Pseudorhopalia* Wilcox & Papavero, 1971. Color codes: yellow, *Pseudorhopalia manauara* sp. n.; red, *Pseudorhopalia mirandai* d'Andretta & Carrera, 1950. Triangles indicate type-localities.

Key to species of *Pseudorhopalia*

Wing vein CuA_1+M_3 absent; cell r_4 slightly constricted distally. Male and female abdomen with similar colors, mostly pale yellow with brown spots. Phallus without dorsal projections *P. mirandai*

Wing vein CuA_1+M_3 present; cell r_4 not constricted distally. Male abdomen predominantly orange with medial dark spots; female abdomen dark brown. Phallus with a pair of dorsal projections *P. manauara* sp. n.

Acknowledgments

We are very thankful to Drs. Rodrigo Vieira and Edgar Alvim for sorting the *Pseudorhopalia* specimens deposited at INPA Invertebrate Collection, and Dr. Augusto Loureiro, who kindly loaned the mentioned specimens for our study. We thank Drs. Rosaly Ale-Rocha and Alexandre Somavilla for additional information on collecting areas of the Amazonian specimens studied. We are also very thankful to Drs. Steve Gaimari, Shaun Winterton and Neal

Evenhuis for the fine review of the manuscript. This project was funded by Fundação de Amparo à Pesquisa do Estado de São Paulo, FAPESP (Procs 2009/17190-1 and 2009/07803-6 and 2013/05131-6), and Conselho Nacional de Desenvolvimento Científico e Tecnológico, CNPq (Proc 150855/2013-3).

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