

Two new species of *Pirhosigma* Giordani Soika (Vespidae, Eumeninae), with an updated catalog for the genus

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Abstract

Two new species of eumenine wasps were described from Panama and Peru, namely *Pirhosigma abregoi* Garcete-Barrett & Hermes **sp. nov.** and *P. cambrai* Garcete-Barrett & Ferreira **sp. nov.** Lectotypes are designated for *Eumenes deformata barberoi* Bertoni and *Eumenes superficialis mondaiensis* Bertoni. *Pirhosigma mearimense putumayense* Giordani Soika **stat. nov.** is treated as a color variation of the typical *P. mearimense* (Zavattari). Additions to the key by Ferreira et al. (2017) are made and an updated catalog for species included in the genus is provided.

Keywords

New species, Panama, Peru, Potter wasps, Taxonomy

Introduction

Recently, the Eumeninae, the so-called potter wasps, have been receiving much attention in studies regarding the higher-level phylogenetic relationships of their main lineages, especially with the aid of novel molecular data (Hines et al. 2007; Pickett and Carpenter 2010; Hermes et al. 2014; Bank et al. 2017; Piekarski et al. 2018). The most recent results based on large-scale genomic datasets (Bank et al. 2017; Piekarski et al. 2018) have implied paraphyly of Eumeninae *sensu* Carpenter (1982), whose monophyly was corroborated by Pickett and Carpenter 2010 and Hermes et al. 2014.

Despite this recent phylogenetic progress, the Neotropical fauna of potter wasps remains little explored, a fact that is particularly noticeable by the poor representation of the group in most Latin American entomological collections. In fact, the group is not as abundant as the social vespids, and few experts are carrying out research within the group. Nevertheless, the number of described species has been increasing constantly for the Neotropics (e.g. Hermes 2012; Lopes and Noll 2014; Lopes and Hermes 2015; Cooper, 2016a, b; Lopes et al. 2017), indicating the need for more research to be carried out for the taxon.

Pirhosigma is a somewhat small genus of eumenine wasps, currently comprising nine described species. Of these, two were described within the last three years (Ferreira et al. 2015, Ferreira et al. 2017). Recently, Hermes et al. (2013) provided an insightful study on the nesting biology of two species of *Pirhosigma*, with special reference to the use of vegetable matter for potentially camouflaging the mud nests. Such biological strategies are scarcely known for the potter wasps as a whole, but recent available data are showing them to be very plastic regarding nesting strategies (e.g. Hermes et al. 2015, Auko et al. 2015). We hereby propose the description of two new species of *Pirhosigma*, along with an updated catalog for all species included in the genus.

Material and methods

Material from the following institutions was examined (the acronyms follow Evenhuis (2018) when available):

- MIUP** Museo de Invertebrados Graham B. Fairchild, Universidad de Panama, Panama (Dr. Roberto Cambra, Dr. Diomedes Quintero and Jean Carlos Ábrego);
- MSNG** Museo Civico di Storia Naturale “Giacomo Doria”, Genova, Italy (Dr. Maria Tavano);
- INPA** Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (Dr. Márcio L. de Oliveira).

Additional acronyms mentioned in the catalog of species of *Pirhosigma* are:

- AMNH** American Museum of Natural History, New York, USA;
- CMNH** Carnegie Museum of Natural History, Pittsburgh, USA;

CUIC	Cornell University, Ithaca, USA;
MHNG	Muséum d'Histoire Naturelle, Geneva, Switzerland;
MNHNPY	Museo Nacional de Historia Natural del Paraguay, San Lorenzo, Paraguay;
MSNVE	Museo di Storia Naturale, Venice, Italy;
RMNH	Naturalis Biodiversity Centre, Leiden, Netherlands.

Type specimens of species potentially closely related to the new species were examined from the cited institutions (details in the taxonomic catalog). All examined specimens were dry pinned preserved ones. Examination was undertaken with a Leica S8 APO stereomicroscope. Photographs of structures of interest were obtained with a Canon EOS Rebel T6 digital camera attached to the stereomicroscope. The same camera with a Canon Macro 100 mm lens and a Yongnuo 2x Extensor were used for photographing specimen habitus. All images were captured using Canon EOS Utility software and using a light dome modified from Kawada and Buffington (2016). The final stacking of multiple layers was carried out with the Helicon Focus software.

Body length is taken from the frons to the hind border of T2 and expressed as an approximate measurement, as body position can modify it more or less substantially. Wing length is taken from the humeral angle of the wing at the border of the tegula to the wing tip and expressed as an approximate measurement, as wing position can affect the total measurement.

Taxonomy

Pirhosigma abregoi Garcete-Barrett & Hermes, sp. nov.

<http://zoobank.org/A50BFD49-2125-49E6-88D2-873FDC30EEA9>

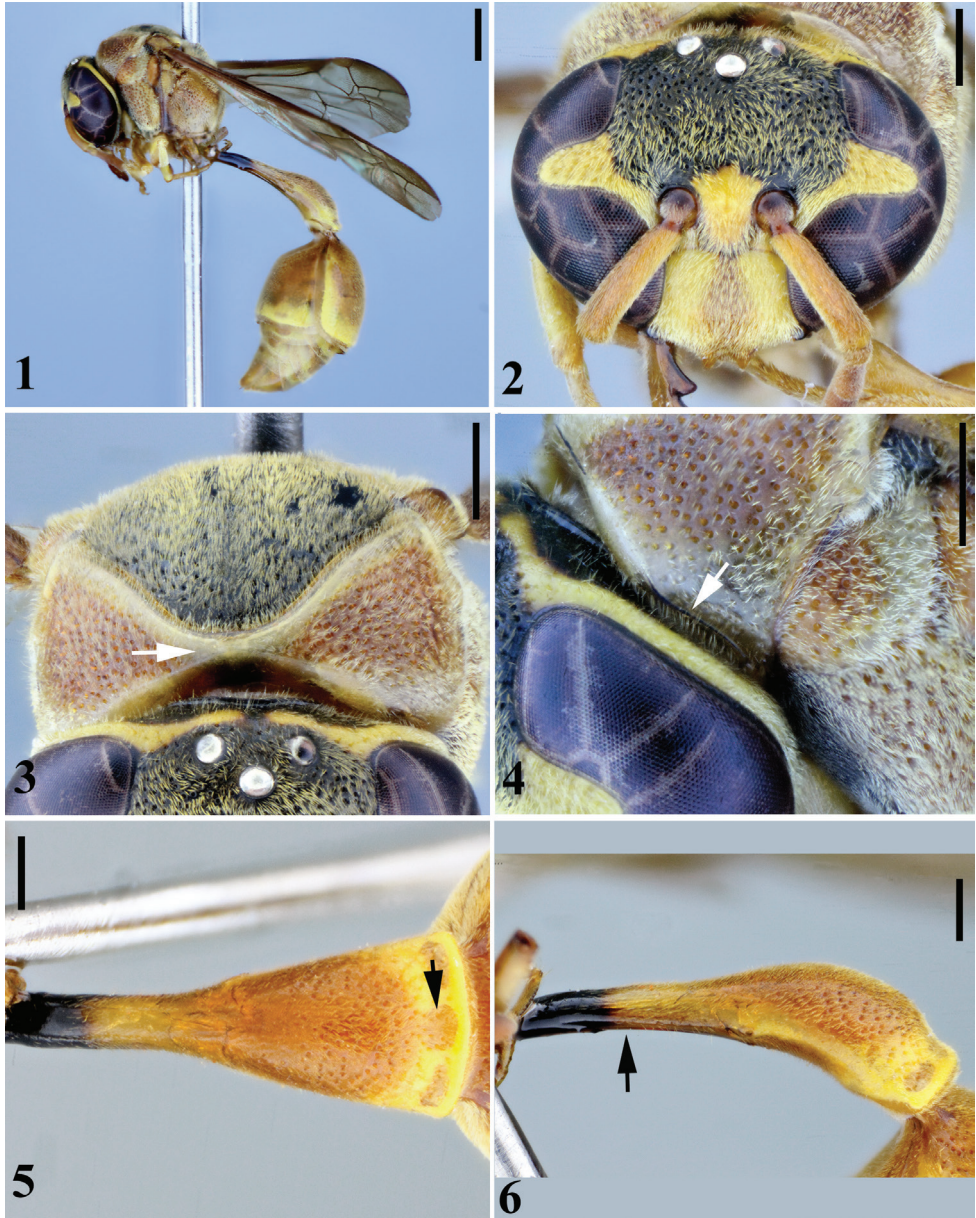
Figs 1–7

Comments and diagnosis. This is the only species of *Pirhosigma* that does not present a preapical fossa in T1 (Fig. 5), which is present in all other species of this genus. However, this species presents all the other diagnostic features of *Pirhosigma*, such as the shape of T1, apically flask-shaped, with the apical lamella not preceded by a transverse swelling, and the basal portion with two laterally longitudinal carinae (Giordani Soika 1978; Carpenter and Vecht 1991) (Fig. 6). *Pirhosigma abregoi* differs from all other species of *Pirhosigma* by the following set of features: (i) absence of an evident preapical fossa on T1 (Fig. 5); (ii) pronotal carina in the shape of an inverted “V” in frontal view (Fig. 3), with a well-developed lateral lamella (Fig. 4); (iii) T2 oval, longer than wide, with evident, deep and spaced punctures (Fig. 7); (iv) lateral portion of the pronotum greatly shortened (Fig. 4); (v) short clypeus, wider than long (Fig. 2).

Description. *Holotype female.*

Measurements. Body length (from head to apex of T1): 5.5 mm; Forewing length (from mid tegula to apex): 6.07 mm.

Color. Body with predominantly brown-yellowish tegument. Yellow head, with a wide oval black mark on the frons, connected to a narrow black band extending to



Figures 1–6. *Pirhosigma abregoi* Garcete-Barrett & Hermes, holotype female **1** habitus **2** head, frontal view **3** pronotum, frontal view, arrow pointing to the pronotal carina in the shape of an inverted “V” **4** pronotum, lateral view, arrow pointing to the well-developed lateral lamella in the pronotal carina **5** T1, dorsal view, arrow pointing to the apical portion without a well-developed preapical fossa **6** T1, lateral view, arrow pointing to the well-developed longitudinal carina. Scale bars: 1 mm (**1**); 0.5 mm (**2–6**).

the occiput; brownish mark in the center of the clypeus. Mesosoma and metasoma with predominantly brown-yellowish tegument. Antennae with brownish scape and pedicel; progressively darker flagellum from the base to the apex. Mesoscutum totally

blackened. Scutellum with a central black-brown spot. Brownish propodeum. Black mark in the basal portion of T1. Yellow marks more prominent in the regions that follow: parategulae; apical margin of T1; lateral and apical margins of T2; apical margin of S1. Brown wings.

Structure. Labrum truncated. Clypeus broader than long, with short and emarginated apex; small and not carinate apical teeth present. Interantennal region without cariniform elevation. Pronotal carina well developed in all its extension, in the shape of an inverted “V” in frontal view, with a well-developed lateral lamella. Lateral surface of pronotum narrow, with the distance between pronotal fovea and the mesepisternum smaller than the size of the fovea itself; pronotal fovea slit-shaped. Pretegular carina absent. Parategulae triangular. Sulcus between the scutellum and metanotum obsolete. T1 elongated, with basal portion longer than the apical portion; two lateral longitudinal carinae present, not reaching half of the segment; preapical fossa absent. T2 oval, longer than wide, with lamella well developed. S2 without abrupt basal elevation.

Sculpture. Clypeus without evident punctation. Frons and vertex with deep, coarse and abundant punctures, with space between them smaller than the size of a puncture. Pronotum with granular punctation, with shallow, abundant and slightly thickened punctures, distance between them smaller than the size of a puncture. Mesepisternum with deep punctures, denser in its upper portion; shallow and slightly evident punctures in its lower portion. Mesoscutum, scutellum and propodeum with deep and coarse punctures. Apex of T1 with evident shallow punctation. T2 with well-marked deep punctation, distance between them smaller than the size of a puncture.

Pilosity. Golden pubescence covering the entire surface of the body. Bristles shorter, thick and abundant on clypeus, frons, vertex, and mesosoma. Elongated, delicate and thin bristles in the metasoma.

Male. Unknown.

Type material. Holotype: PANAMA • 1 ♀; Peninsula Gigante, Barro Colorado Nature Monument; 30 Jul. 1990; A. Mena leg. (MIUP).

Type locality. Peninsula Gigante: Barro Colorado Nature Monument; Panama.

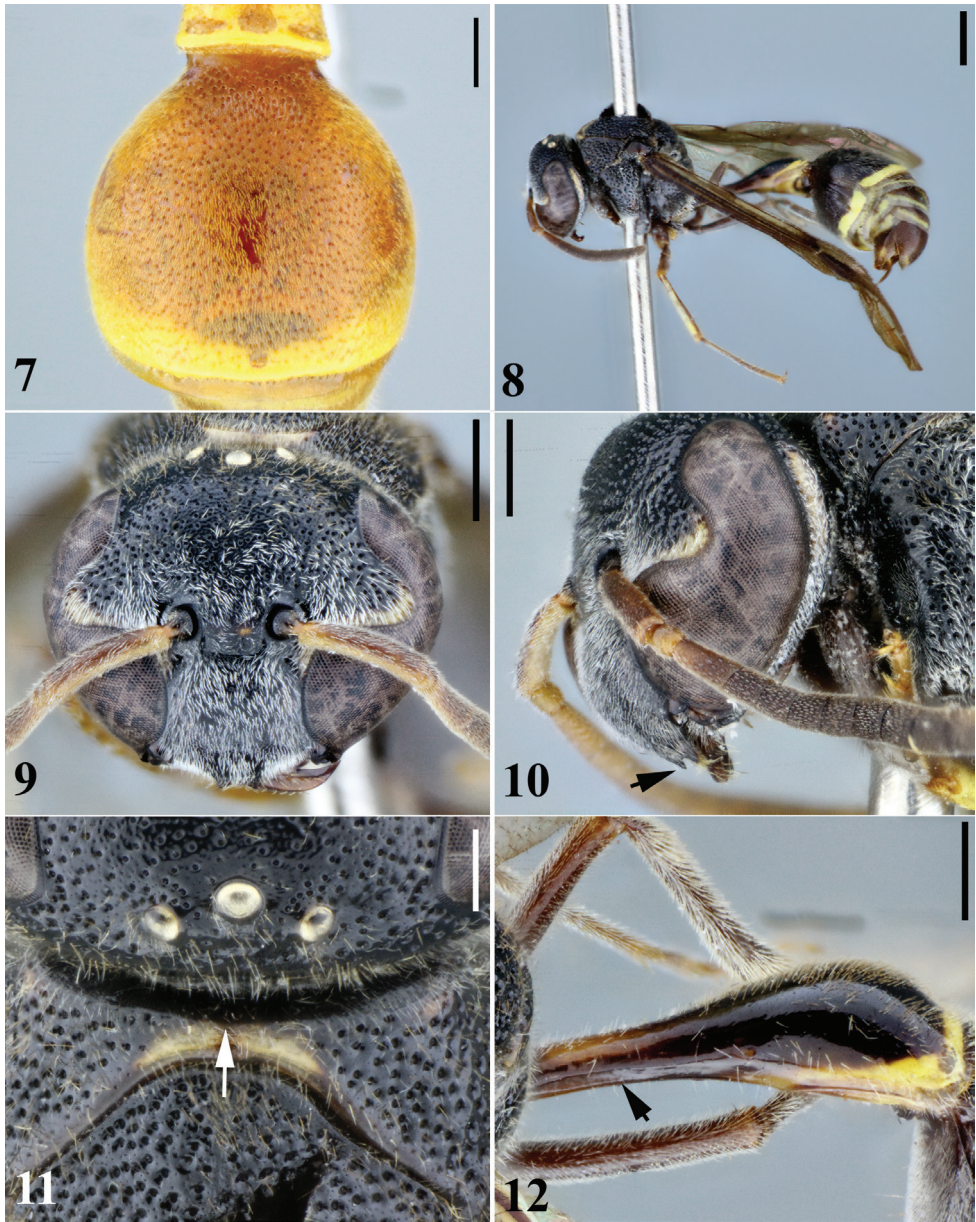
Etymology. This species is named after the Panamanian Biologist Jean Carlos Abrego.

***Pirhosigma cambrai* Garcete-Barrett & Ferreira, sp. nov.**

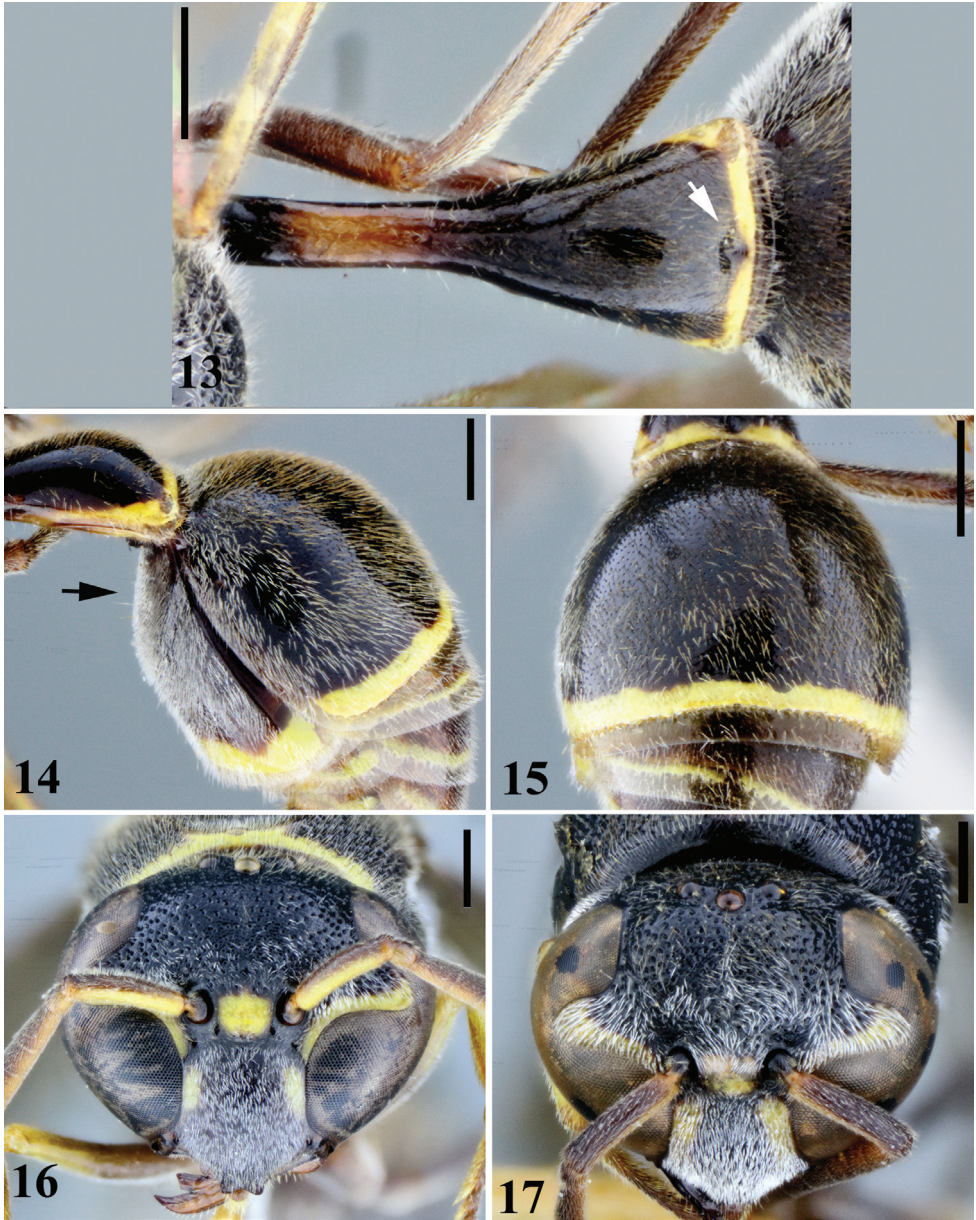
<http://zoobank.org/73F75F9A-9304-437D-A8F6-957E2A33BF33>

Figs 8–15

Comments and diagnosis. *P. cambrai* is quite similar to *P. mearimense* (Zavattari) and *P. sulcata* Ferreira & Hermes, sharing with them the S2 without a basal slope followed by an elevation (Fig. 14); T1 distinctly filiform with basal region of greater length than the apical portion (Figs 12–13); T2 wider than long (Fig. 15); pronotal carina well developed dorsally (Fig. 11); and a black body color, with few yellow marks (Fig. 8). *Pirhosigma cambrai* is distinguished from *P. mearimense* and *P. sulcata*



Figures 7–12. *Pirhosigma abregoi* Garcete-Barrett & Hermes, holotype female **7** T2 with an evident punctation, dorsal view. *Pirhosigma cambrai* Garcete-Barrett & Ferreira, holotype female **8** habitus **9** head, frontal view **10** head, lateral view, arrow pointing to the curved clypeus apex **11** pronotum, dorsal view, arrow pointing to the well-developed dorsally pronotal carina **12** T1, lateral view, arrow pointing to the well-developed longitudinal carina. Scale bars: 1 mm (**8**); 0.5 mm (**7, 9–12**).



Figures 13–17. Representatives of *Pirhosigma* species **13–15** *Pirhosigma cambrai* Garcete-Barrett & Ferreira, holotype female **13** T1, dorsal view, arrow pointing to the apex with a pre-apical fossa well-developed **14** T1 and S2, lateral view, arrow pointing to the S2 without a basal slope followed by an elevation **15** T2, dorsal view **16** *Pirhosigma mearimense* (Zavattari), female head, frontal view **17** *Pirhosigma sulcata* Ferreira & Hermes, holotype male head, frontal view. Scale bars: 0.5 mm (**13–17**).

Ferreira & Hermes by the presence of a short, wider than long clypeus (Fig. 9), curved backwards (Fig. 10).

Description. *Holotype female.*

Measurements. Body length (from head to apex of T1): 5.10 mm; Forewing length (from mid tegula to apex): 6.50 mm.

Color. Body with predominantly blackish tegument. Yellow marks as follows: stripes on inner margin of compound eyes; upper surface of the gena; narrow range in the antero-dorsal region of pronotum; narrow bands in the distal portions of the T1–T6 and S2–S6. S1 brownish. Antennae brownish. Yellow-brownish legs. Brownish wings.

Structure. Labrum rounded, narrow. Clypeus broader than long, apically curved backwards and with short, concave and emarginated apex; small and ecarinate apical teeth present, with small distance between each other. Interantennal region without cariniform elevation. Pronotal carina well developed dorsally, gently and roundly re-curved in the humeral region. Lateral surface of pronotum narrow, with the distance between pronotal fovea and the mesepisternum smaller than the size of the fovea itself. Pretegular carina absent. Parategulae pointed. Sulcus between scutellum and metanotum obsolete. T1 distinctly filiform with basal region of greater length than the apical portion; two lateral longitudinal carina present; preapical fossa present. T2 wider than long, outlined as a half oval in dorsal view; well-developed apical lamella. S2 without basal slope followed by an elevation.

Sculpture. Clypeus without evident punctation. Frons and vertex with evident and abundant punctures, with distance between them approximately smaller than the size of a puncture; micro-punctation evident. Pronotum, upper portion of the mesepisternum, mesoscutum, scutellum, metanotum and propodeum with deep and abundant punctures, with distance between punctures smaller than the size of a puncture. Lower portion of the mesepisternum with shallow and sparse punctures, distance between them approximately greater than the size of a puncture. T1 unpunctate. T2 with micro-punctation evident.

Pilosity. Fine whitish pubescence covering the entire body. Whitish bristles covering the head, concentrated in the clypeus. Brownish, short and thin bristles on mesosoma. Brownish and long bristles on T1–T6 and S2–S6.

Male. Unknown.

Type material. Holotype: PERU • 1 ♀; Madre de Dios, Manu Reserve, Pakitza Station; 1–2 Mar. 1992; R. Cambra leg. (MIUP).

Type locality. Madre de Dios: Manu Reserve, Pakitza Station; Peru.

Etymology. This species is dedicated to the Panamanian entomologist Roberto Cambra.

Comments. The holotype of *P. cambrai* sp. nov. (female, MIUP) was compared with the holotypes of *P. mearimense* (Zavattari) (male, MSNG) and *P. sulcata* Ferreira & Hermes (male, INPA). Additional material of *P. mearimense*, two males and two females, were also analyzed (MSNVE). Unfortunately, the female of *P. sulcata* remains unknown, but by the uniformity of the clypeus between the sexes of *Pirhosigma*, we consider the comparison of this structure valid for the distinction between the species *P. sulcata*/*P. mearimense* from *P. cambrai*.

Additional examined material. *Pirhosigma mearimense* (Zavattari): Holotype: BRAZIL • 1 ♂; Miarim; Gribodo leg. (MSNG). SURINAME • 1 ♂; Republiek; 6 May. 1963; J. v. d. Vecht leg. (MSNVE). 1 ♀; Republiek; 24 Sep. 1963; D. C. Gey-skes leg. (MSNVE) PERU • 1 ♂; El Campamiento, Colonia Perene; 21 Jun. 1920; Giordani Soika leg. (MSNVE). BOLIVIA • 1 ♀; Buenavista, Dep. Sta Cruz; alt. 450 m. (MSNVE). *Pirhosigma sulcata* Ferreira & Hermes: Holotype: BRAZIL • 1 ♂; Ama-zonas, KM31 AM-010, CEPLAC; 18 Jun. 1976; Joselita M. Santos leg. (INPA).

Updated key to the species of *Pirhosigma*, adapted from Ferreira et al. (2017)

The species *P. abregoi* is readily differentiated from all other species in the key of Ferreira et al. (2017), since it is the only species that does not present a preapical fossa in T1 – compare Fig. 5: *P. abregoi*, without a preapical fossa on T1; and Fig. 13: *P. cambrai*, with a preapical fossa on T1.

- 1' Preapical fossa on T1 absent (Fig. 5) *P. abregoi* Garcete-Barrett & Hermes, sp. nov.
- Preapical fossa on T1 present (Fig. 13)(couplet 1 in Ferreira et al. 2017)

The species *P. cambrai* runs to couplet 6 of Ferreira et al. (2017), which is modified as follows:

- 6 Pronotal carina well developed dorsally (Fig. 11); black, with a few yellow spots (Fig. 8) **6'**
- Pronotal carina not evident dorsally; yellowish with black marks and bands**8**
- 6'** Short clypeus, wider than long (Fig. 9) *P. cambrai* Garcete-Barrett & Ferreira, sp. nov.
- Clypeus longer than wide or almost as long as wide (Figs 16, 17)..... **7**
- 7** Male with a well-marked groove between the metanotum and the scutellum [female unknown]..... *P. sulcata* Ferreira & Hermes
- Male without a well-marked groove between the metanotum and the scutellum *P. mearimense* (Zavattari)

A Catalog of the genus *Pirhosigma* Giordani Soika (only taxonomic and nomenclatural procedures are indicated where they apply)

Pirhosigma Giordani Soika, 1978: 11, 229.

Type species: *Eumenes simulans* de Saussure, 1875, by original designation.

Tricomenes Giordani Soika, 1978: 10, 254.

Type species: *Eumenes pilosus* Fox, 1899, by original designation and monotypy.

Pirhosigma; Giordani Soika 1978: 10, 230–231. Carpenter and van der Vecht 1991: 230 (*Tricomenes* rejected, acting as first reviser).

Pirhosigma aenigmaticum Giordani Soika, 1978

Eumenes simulans; Zavattari 1906: 19; Zavattari 1912: 118. Misidentification.

Pirhosigma aenigmaticum Giordani Soika, 1978: 231, 250.

Type Data: Holotype female **RMNH**.

Type Locality: Valle Anchicaya, Cali, Colombia.

Pirhosigma aenigmaticum; Carpenter and van der Vecht 1991: 229 (probable synonym of *P. simulans* (de Saussure)). West-Eberhard et al. 1995: 574. Rodríguez-Palafox 1996: 480. Ferreira et al. 2017: 277.

Distribution: Mexico, Costa Rica, Panama, Colombia, Venezuela, Ecuador.

Pirhosigma deforme (Fox, 1899)

Eumenes deforma Fox, 1899: 453, 461.

Type Data: Lectotype female **CMNH**.

Type Locality: Corumbá, Mato Grosso do Sul, Brazil.

Eumenes deforma; Dalla Torre 1904: 22. Brèthes 1906: 335. Bertoni 1918: 206.

Carpenter and van der Vecht 1991: 229 (designation of lectotype).

Eumenes deformata [!] *barberoi* Bertoni, 1926: 76.

Type Data: Lectotype female by present designation (**MNHNPY**).

Type Locality: Puerto Bertoni, Paraguay.

Eumenes deformata barberoi; Bertoni 1934: 112, 118.

Pirhosigma deforme; Giordani Soika 1978: 230, 231. Hermes and Köhler 2004: 74, 86. Somavilla et al. 2010: 260. Hermes et al. 2013: 434. Hermes et al. 2014: 456, 470, 471, 475. Ferreira et al. 2017: 276.

Distribution: Brazil, Paraguay.

Remarks. In the original description (Bertoni, 1926) of *Eumenes deformata barberoi*, the author did not mention how many specimens were part of the type series nor the locality where they were collected. Furthermore, Bertoni labelled seven specimens as *Eumenes deformata paranensis* (unpublished subspecific name), and the name *barberoi* was never attached to any specimen whatsoever. The lack of a locality, in this case, poses no issue, since all individuals bear a label with the locality “Puerto Bertoni”, where the author lived for many years and collected many of his specimens. Also, the only subspecific name proposed by Bertoni under the specific name *deformata* is indeed *barberoi*, which leaves no doubt about the members of the type series. Finally, the description matches these specimens, and one well-preserved female was chosen as the lectotype and labelled accordingly; the remainder of the specimens (two males and four females) are to be treated as paralectotypes.

Here we have the opportunity to correct the date of Bertoni’s paper “Hymenópteros nuevos o poco conocidos”. Though considered as published in December of 1925, as suggested in the heading of its cover, issue 2(1) of the “Revista de la Sociedad Científica del Paraguay”, was actually printed in 1926, as indicated in the foot of the very same cover. This paper contains the original descriptions of the species-level names *Zetamenes rufomaculata* ssp. *meridionalis* Bertoni, *Zetamenes filiformis* var. *costarricensis* Bertoni, *Discoelius strigosus* ssp. *costarricensis* Bertoni, *Pachymenes atra* var. *ornatissima*

Bertoni, *Eumenes deformata barberoi* Bertoni, *Amphimenes totonacus* var. *manateci* Bertoni, *Monobia paraguayensis* Bertoni, *Odynerus migonei* Bertoni and the generic name *Protozethus* Bertoni.

Pirhosigma limpidum Giordani Soika, 1978

Pirhosigma limpidum Giordani Soika, 1978: 230, 240.

Type Data: Holotype female **MSNVE**.

Type Locality: Espírito Santo, Brazil.

Pirhosigma limpidum; Hermes et al. 2013: 434. Hermes et al. 2014: 472. Ferreira et al. 2017: 272, 277.

Distribution: Brazil.

Pirhosigma mearimense (Zavattari, 1912)

Eumenes mearimensis Zavattari, 1912: 101.

Type Data: Holotype male **MSNG**.

Type Locality: Vitoria do Mearim, Maranhão, Brazil (Penati and Mariotti 2015).

Pirhosigma mearimense; Giordani Soika 1978: 231, 243. Ferreira et al. 2015: 118, 119. Ferreira et al. 2017: 277.

Pirhosigma mearimense mearimense; Santos et al. 2015: 41.

Pirhosigma mearimense putumayense Giordani Soika, 1978: 245. **New status.**

Type Data: Holotype female **CUIC**.

Type Locality: Putumayo, Peru.

Pirhosigma mearimense putumayense; Rasmussen & Asenjo, 2009: 42.

Distribution: Suriname, Brazil, Peru, Bolivia.

Remarks. It is widely acknowledged by the vespidae experts that Antonio Giordani Soika was very fond of proposing subspecies based solely on coloration (see Carpenter (1987) for a good example). We hereby treat *P. mearimense putumayense* as a mere color variation of the typical form.

Pirhosigma pilosa (Fox, 1899)

Eumenes pilosa Fox, 1899: 454, 461.

Type Data: Lectotype female **CMNH**.

Type Locality: Chapada dos Guimarães, Mato Grosso, Brazil (15°26'S 55°45'W) (Papavero 1973, Carpenter and van der Vecht 1991).

Eumenes pilosa; Dalla Torre 1904: 24. Bertoni 1934: 112, 117.

Tricomenes pilosus; Giordani Soika 1978: 254 (inadvertent designation of lectotype).

Pirhosigma pilosa; Carpenter and van der Vecht 1991: 230. Ferreira et al. 2017: 277.

Distribution: Ecuador, Brazil.

Pirhosigma simulans (de Saussure, 1875)

Eumenes simulans de Saussure, 1875: 91.

Type Data: Lectotype female **MHNG**.

Type Locality: Orizaba, Mexico.

Zeteumenes simulans; Bertoni 1934: 110.

Pirhosigma simulans; Giordani Soika 1978: 231, 247. Rodríguez-Palafox 1996: 480. Ferreira et al. 2017: 277.

Distribution: Mexico.

Pirhosigma sulcata Ferreira & Hermes, 2015

Pirhosigma sulcata Ferreira et al. 2015: 118.

Type Data: Holotype male **INPA**.

Type Locality: Km 31 AM-010, Ceplac, Amazonas, Brazil.

Pirhosigma sulcata; Ferreira et al. 2017: 277.

Distribution: Brazil.

Pirhosigma superficiale (Fox, 1899)

Eumenes superficialis Fox, 1899: 441, 460.

Type Data: Lectotype female **CMNH**.

Type Locality: Chapada dos Guimarães, Mato Grosso, Brazil (15°26'S 55°45'W) (Papavero 1973, Carpenter and van der Vecht 1991).

Eumenes superficialis; Dalla Torre 1904: 25. Brèthes 1906: 335. Bertoni 1911: 106. Zavattari 1911: 49. Zavattari 1912: 99. Bertoni 1918: 206. Bertoni 1934: 113, 118. Carpenter and van der Vecht 1991: 225 (syn: *Pirhosigma superficiale impurum* Giordani Soika).

Eumenes superficialis mondaiensis Bertoni, 1934: 118.

Type Data: Lectotype female by present designation (**MNHNPY**).

Type Locality: Puerto Bertoni, Paraguay.

Pirhosigma superficiale; Giordani Soika 1978: 230, 236 (inadvertent designation of lectotype). Garcete-Barrett 1999: 8. Hermes and Köhler 2004: 74, 86. Soma-villa et al. 2010: 260. Hermes et al. 2013: 433, 434. Hermes et al. 2014: 456, 472, 475. Ferreira et al. 2017: 270, 272, 276.

Pirhosigma superficiale impurum Giordani Soika 1978: 230, 239.

Type Data: Holotype female MCZ.

Type Locality: Oran, Abra Grande, Salta, Argentina (MCZ Type Database, http://140.247.96.247/mcz/Species_record.php?id=25550).

Pirhosigma superficiale impurum; Carpenter and van der Vecht 1991: 211, 225 (synonym of typical *P. superficiale*).

Distribution: Brazil, Paraguay, Argentina.

Remarks. Bertoni (1934) mentioned 20 specimens, both males and females, which he randomly chose to provide the description of *Eumenes superficialis mondaiensis*. Fifteen out of these twenty specimens were found at the MNHNPY to be part of the type series. Seven specimens are labelled as from Puerto Bertoni, two from Assuncion and five from Vista Alegre. These localities were all mentioned in the original description, except for the latter. Bertoni (1934) also mentioned having examined specimens from

“Amambái (Norte)” which undoubtedly correspond to Vista Alegre, which is in the upper part of the Aguaray Guazu river in the Amabay Department and, according to Brèthes (1924), on the approximate coordinates 23°40'S, 55°50'W (though Brèthes indicated 33 degrees for the coordinate south, which was no doubt just a *lapsus* ending in an inadvertent error of 10 degrees). One well preserved female from Puerto Bertoni was chosen as the lectotype and labelled accordingly; the remainder of the specimens (six males and eight females) are to be treated as paralectotypes.

Pirhosigma transfluvium Ferreira & Oliveira, 2017

Pirhosigma transfluvium Ferreira et al. 2017: 270, 277.

Type Data: Holotype male **AMNH**.

Type Locality: Beni: Rio Itenez, Bolivia.

Distribution: Bolivia.

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