

Phylogeny of *Pachylis* Lepeletier & Serville, 1825
(Hemiptera, Coreidae, Coreinae) with *Thasus* Stål, 1865
as a new synonym, and the redescription
of *Pachylis laticornis* (Fabricius, 1798)

Wanessa da S. COSTA & Luiz A. CAMPOS



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COUVERTURE / *COVER*:

Pachylis laticornis (Fabricius, 1798) female: dorsal and ventral views.

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Wanessa da S. COSTA
Luiz A. CAMPOS

Programa de Pós-Graduação em Biologia Animal, Departamento de Zoologia,
Universidade Federal do Rio Grande do Sul,
Avenida Bento Gonçalves 9500, 91501-970, Porto Alegre, RS (Brazil)
wanessa.dsc@gmail.com (corresponding author);
luiz.campos@ufrgs.br

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ABSTRACT

Pachylis Lepeletier & Serville, 1825 is one out of 22 genera of Nematopodini Amyot & Serville, 1843, which contains some of the largest species of Coreidae Leach, 1815. With eight species, the genus is characterized by the presence of expansion on antennomeres III and ventrally on metatibiae. *Pachylis* is sometimes confused with *Thasus* Stål, 1865, but the metatibial expansions are dorsal and ventral in the latter. *Pachylis* and *Thasus* have already been treated as closely related from a taxonomic perspective, although this relationship has never been tested in previous phylogenetic analyses. A phylogeny including seven *Pachylis* species and four *Thasus* species is performed here, based on morphological data and under implied weighting. *Pachylis laticornis* (Fabricius, 1798) is redescribed and *P. furvus* Brailovsky & Guerrero, 2014 is proposed as its new synonym. The outgroup contains 44 species, 30 out of them representative of other Nematopodini, and 14 species representing other tribes and subfamilies of Coreidae. We recovered *Pachylis* monophyletic and sister to *T. rutilus* Brailovsky & Barrera in Brailovsky *et al.*, 1994 with the remaining three species of *Thasus* recovered sister to the clade of *T. rutilus* and *Pachylis*. Here we propose *Thasus* as a new junior synonym of *Pachylis* following our phylogenetic results. Our results also indicate Nematopodini, *Melucha* Amyot & Serville, 1843, and *Piezogaster* Amyot & Serville, 1843 are not monophyletic, emphasizing the need for further phylogenetic studies including these taxa.

KEY WORDS

Meropachyinae,
leaf-footed bugs,
squash bugs,
Western hemisphere,
Male and female
genitalia,
new synonym,
new combinations.

RÉSUMÉ

Phylogénie de Pachylis Lepeletier & Serville, 1825 (Hemiptera, Coreidae, Coreinae) avec Thasus Stål, 1865 comme nouveau synonyme, et la redescription de Pachylis laticornis (Fabricius, 1798).

Pachylis Lepeletier & Serville, 1825 est l'un des 22 genres de Nematopodini Amyot & Serville, 1843, qui comporte certaines des plus grandes espèces de Coreidae Leach, 1815. Avec huit espèces, le genre est caractérisé par la présence d'expansion sur les antennes III et ventralement sur les métatibias. *Pachylis* est parfois confondu avec *Thasus* Stål, 1865, mais les expansions métatibiales sont dorsales et ventrales chez ce dernier. *Pachylis* et *Thasus* ont déjà été traités comme étroitement liés d'un point de vue taxonomique, bien que cette parenté n'ait jamais été testée par les analyses phylogénétiques antérieures. Une phylogénie incluant sept espèces de *Pachylis* et quatre espèces de *Thasus* est réalisée ici, basée sur des données morphologiques traitées sous pondération implicite. *Pachylis laticornis* (Fabricius, 1798) est redécrit et *P. furvus* Brailovsky & Guerrero, 2014 est proposé comme son nouveau synonyme. Le groupe externe contient 44 espèces, dont 30 représentant d'autres Nematopodini et 14 espèces appartenant à d'autres tribus et sous-familles de Coreidae. Nous retrouvons *Pachylis* monophyletic et groupe-frère de *T. rutilus* Brailovsky & Barrera in Brailovsky *et al.*, 1994 avec les trois espèces restantes de *Thasus* formant le groupe-frère du clade comprenant *T. rutilus* et *Pachylis*. Nous proposons ici *Thasus* comme nouveau synonyme junior de *Pachylis* suivant nos résultats phylogénétiques. Nos résultats indiquent également que les Nematopodini, *Melucha* Amyot & Serville, 1843 et *Piezogaster* Amyot & Serville, 1843 ne sont pas monophylétiques, ce qui souligne la nécessité d'autres études phylogénétiques incluant ces taxons.

MOTS CLÉS
Meropachyinae,
punaises de courge,
hémisphère ouest,
genitalia mâles
et femelles,
synonyme nouveau,
combinaisons nouvelles.

INTRODUCTION

Coreidae Leach, 1815 contains more than 2500 extant species in four subfamilies (CoreoideaSF Team 2020) occurring worldwide but mainly in tropical regions (Fernandes *et al.* 2015). Diagnostic features of Coreidae are the numerous veins in the membrane of the hemelytra, head narrower than the pronotum, and hind femora and tibiae frequently strong and expanded, the latter popularized the family as leaf-footed bugs (Schuh & Slater 1995), while other common name include squash bugs. Coreids are not considered primary agricultural pests, but their phytophagous feeding habit can cause severe damage to different crops (Mitchell 2000). Angiosperms, monocots, dicots, and principally gymnosperms encompass their food, which covers from specialized to extreme polyphagous species (Fernandes *et al.* 2015).

Of the 37 tribes in the family, Nematopodini Nematopodini comprises the largest species of Coreidae, with 22 genera limited to the Americas. *Pachylis* Lepeletier & Serville, 1825 is distinct from other Nematopodini for its black to light brown color, expanded antennomeres III, and ventrally expanded metatibiae (Brailovsky & Guerrero 2014). The genus was described originally to include four South American species, two of them remain classified in *Pachylis*, the type-species *P. pharaonis* (Herbst, 1784) and *P. laticornis* (Fabricius, 1798). Many species described in *Pachylis* have been transferred to other genera [e.g. *Thasus heteropus* (Latreille, 1811); *Molchina hopei* (Perty, 1833); *Thasus acutangulus* (Stål, 1858 [1859])]. After the taxonomic revision of Brailovsky & Guerrero (2014), the genus contains eight Neotropical species, *P. argentinus* Berg, 1879, *P. bipunctatus* (Thunberg, 1825), *P. furvus* Brailovsky & Guerrero, 2014, *P. laticornis*, *P. nervosus* Dallas, 1852, *P. peramplius* Brailovsky & Guerrero, 2014, *P. pharaonis*, and *P. tenuicornis* Dallas, 1852. Brailovsky & Guerrero (2014)

considered *P. obscura* Spinola, 1837 and *P. striatus* (Thunberg, 1825) *incertae sedis*.

Originally, *Pachylis* was placed in Anisoscelites by Blanchard (1840) and moved to Nematopides (currently Nematopodini) with 12 other genera by Amyot & Serville (1843). Subsequently, it was placed in either Mictini Amyot & Serville, 1843 (Dallas 1852; Stål 1870; Uhler 1886; Lethierry & Severin 1894; Pennington 1920) and Acanthocerini Bergroth, 1913 (Bergroth 1913). After the revisions of Mictini and Nematopodini Amyot & Serville, 1843 (O'Shea & Schaefer 1978; O'Shea 1980), *Pachylis* was maintained in Nematopodini.

Pachylis is often confused with *Thasus* Stål, 1865. Both have robust black species and antennomeres and metatibiae expanded (Brailovsky *et al.* 1994b). *Pachylis* has metatibiae expanded ventrally and *Thasus* on both sides (Brailovsky *et al.* 1994b). The genera are also a little different in antennomeres III expansion (Brailovsky *et al.* 1994b). Because of these small differences, it has been argued that *Pachylis* and *Thasus* are sister groups (O'Shea 1980; Brailovsky *et al.* 1994b). Though *Pachylis* was recently reviewed (Brailovsky & Guerrero 2014), its monophyly and relationships with *Thasus* have never been tested. The single previous phylogenetic analysis which included *Pachylis* but not *Thasus* (Costa *et al.* 2021), found either Meropachyini Stål, 1868 (Meropachyinae) or *Melucha phyllocnemis* (Burmeister, 1835) as its sister groups. On the other hand, *Thasus* has been included in many cladistic analyses (Kieran *et al.* 2019; Forthman *et al.* 2019, 2020; Emberts *et al.* 2020) with contrasting hypotheses. Through a morphology-based phylogenetic analysis, we investigate the monophyly of *Pachylis* and its relationships with other genera (including *Thasus*), considered taxonomically related. The synonymy of *P. furvus* and *P. laticornis* was decided previous to the analysis as a result of the taxonomic assessment of the species.

MATERIAL AND METHODS

SELECTION OF TAXA AND CHARACTERS

The analysis included 51 terminals (Table 1). Specimen identification followed the specialized literature (e.g. O’Shea 1980; Packauskas 1994; Brailovsky & Guerrero 2014). The ingroup was composed of seven species of *Pachylis* and four of *Thasus*. For the outgroup, we included 40 terminals, of which 26 species representatives of other genera of Nematopodini and another 14 species from different tribes and subfamilies of Coreidae (Coreinae: Acanthocephalini, Acanthocerini, Anisoscnelini, Coreini, Daladerini, Mictini, and Nematopodini; Meropachyinae: Meropachyini and Spathophorini) (Table 1). *Coreus marginatus* (Linnaeus, 1758) was used to root the trees based on Costa *et al.* (2021). A list of examined specimens per species and their depositories is listed below and in Appendix 1.

Images for character states illustration were obtained in multiple focal planes using a DS-Fi2 camera coupled to a Nikon AZ100M scope and stacked with the NIS Elements AR. The scales on the plates are in millimetres (mm). The genitalia of both sexes were boiled in KOH 10%; the aedeagus were everted mechanically when needed. All the structures were preserved in liquid glycerin.

Character descriptions are based on the rationale proposed by Sereno (2007). The taxon-character matrix was built in the software Mesquite 3.01 (Maddison & Maddison 2015); all characters are discrete, and the notations ‘-’ and ‘?’ refer to non-comparable and unobserved characters, respectively. We used 82 characters, 57 of which are listed as proposed in or modified from the literature (Li & Zheng 1994, 1996; Costa *et al.* 2021). References for each character, if any, and additional comments are available in the character list. In the text, we indicate in parentheses the character number and its respective status.

SEARCH STRATEGIES

Character polarization followed the outgroup method (Nixon & Carpenter 1993). Parsimony analyses were performed in TNT 1.5 (Goloboff & Catalano 2016) under implied weighting (Goloboff 1993), following the procedure proposed by Miranda (2009). This method allows finding the topologies that better fit the data through a similarity analysis, performed with the ‘lazy’ script (Costa *et al.* 2021 – Supplementary Script S1). We also investigated taxa with large numbers of missing data. We performed a first analysis excluding all characters with missing data and a second analysis replacing the missing states with simulated ones.

Relative Bremer support values (Goloboff & Farris 2001) were calculated using suboptimal trees up to 10 extra steps and 0.9 relative fit difference. Symmetric resampling was performed with a removal probability of 33% and 100 replicates, using new technology search with up to 100 random additional sequences. Majority rule consensus (cut-off 50%) of the most similar K-values trees was performed to analyze the frequency of each clade in the most parsimonious trees. Character state transformations were explored in Winclada 1.00.08 (Nixon 2002).

TAXONOMIC TREATMENT

The synonymies proposed here were supported by cladistic analysis and observations of specimens, including type material. New diagnoses for the senior synonyms are provided, as well as illustrations for relevant characteristics. We arrange a synonym list and the corresponding citations based on CoreoideaSF Team (2020) and Packauskas (2010). The key for *Pachylis* species used previous works (Brailovsky *et al.* 1994b; Schaefer & Packauskas 1997; Brailovsky & Guerrero 2014). The terminology of female genital structures follows Zhou & Rédei (2020). Measurements are in millimetres.

ABBREVIATIONS

IW analysis implied weighting analysis.

Museum acronyms

CAS	California Academy of Sciences, San Francisco;
CEAH	Instituto Biológico de São Paulo, Coleção Entomológica Adolph Hempel, São Paulo;
DZUP	Coleção Entomológica Padre Jesus Santiago Moure, Curitiba;
FEIS	Department of Plant Protection da Universidade Estadual Paulista Júlio de Mesquita Filho, São Paulo;
FIOC	Fundação Instituto Oswaldo Cruz, Rio de Janeiro;
FMNH	Field Museum of Natural History, Chicago;
FSCA	Florida Department of Agriculture and Consumer Services, Gainesville;
INPA	Instituto Nacional de Pesquisas da Amazônia, Coleção Sistemática de Entomologia, Manaus;
MAPA	Museu Anchieta de Ciências Naturais, Porto Alegre;
MCNZ	Museu de Ciências Naturais da Fundação Zoológica do Rio Grande do Sul, Porto Alegre;
MCTP	Museu de Ciências da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre;
MLPA	Museo de La Plata de la Universidad Nacional de La Plata, La Plata;
MNHCI	Museu de História Natural Capão da Imbuia, Curitiba;
MPEG	Museu Paraense Emilio Goeldi, Belém;
MPUJ	Museo Javeriano de Historia Natural da Pontifícia Universidad Javeriana, Bogotá;
MZSP	Museu de Zoologia da Universidade de São Paulo, São Paulo;
OUMNH	Oxford University Museum of Natural History, Oxford;
PUC Minas	Coleção de Invertebrados do Museu de Ciências Naturais da Pontifícia Universidade Católica de Minas, Belo Horizonte;
RMNH	Rijksmuseum van Natuurlijke Historie, Amsterdam;
ZMUC	Zoological Museum Copenhagen, Copenhagen;
ZUEC	Museu de Zoologia do Instituto de Biologia da UNICAMP, São Paulo.

RESULTS

MORPHOLOGICAL CHARACTERS AND MATRICE

The 82 characters are listed along character descriptions, 25 of which are proposed here for the first time and indicated by *. List of characters from the cladistic analysis of *Pachylis* Le Peletier & Serville, 1825 (Coreidae, Coreinae, Nematopodini). Characters-list comprises matrix-number, character description

TABLE 1. — Character matrix of *Pachylis* Le Peletier & Serville, 1825 cladistic to analysis, Hemiptera, Coreidae, Coreinae, Nematopodini.

Coreus_marginatus	0000-00000000000000000000000000000000-0000000-00000000000000000000-0000000000000000-
Pachylis_argentinus	1001100000110101100010110110001101000110001110101010011101000111001000111101000110
Pachylis_bipunctatus	100110001011010101000010010100001101001110001110100010111101000111001000111101000110
Pachylis_laticornis_	1001100000110100100010110110001101001110001110101010111101000111001000111101000110
Pachylis_nervosus	1001100010110101100010110110001101001110001110100010111101000111001000111101000110
Pachylis_peramplius	1001100000010100000010110110001101001110001110100010011101000111001000111101000110
Pachylis_pharaonis	1001100000110101000010210110001000001110001110101010011001000011101000011011000110
Pachylis_tenuicornis	1001000010110101100010110110001001001110001110101010110101000111001000111101000110
Cnemyrtus_scriptus	1000-1110011010000011000010000010101-100001010010010110001010000-01000121011010111
Cnemyrtus_variolosus	1000-1110011010000011000011000000001010000101001101010000100000-01000121011010111
Himella_venosa	1000-0100111110011101021011000000001-1000010100111100100010011110011001210011--111
Melucha_aculeata	100100010211100000001001221001000000-11011110111010011001000111111100110011--112
Melucha_acutispina	001100010 [02] 11000000001001221001000000-110111101110100000100011101110021001010112
Melucha_chapadana	1101000100111001001100 [01] 011000011-01-1001111011110011001001001110110000110011--111
Melucha_gladiator	000100010211010000001001221001000000-1101111011110010001000011001010111001010112
Melucha_lineatella	1100-001011110001001100 [01] 011000010101-1001111011110011001000101011000011001010111
Melucha_perampla	00010001001101000000100122100100??00-[01]??1?1?10111?100????????111011010011001010112
Melucha_phyllocnemis	111100000111010000001001221001000000 [01] 101111011110010001000111011000011001010112
Melucha_quadrivittis	00010001011101000000100122100100??00-0??1?1?10111?100????????1111?1000011001010112
Melucha_quinquelineata	00010001001110010011001211000011-00-110111001011001100100100111111000011001010112
Mozena_sp._1	1000-0010010010000001001011110100011-00000101000001011100100000-01010121001000110
Mozena_sp._2	1000-0110010010000001001011110100001100100111000001011100100000-01010121001000110
Mozena_sp._3	1000-0010010010000001001011110??0001?001?0?1?00??010?11001002????????????????????
Neoquintius_araguacitus	1000-011110111001010100101?000??1-01?110?0?1?00??010?1001000????????????????????
Nematopus_manauensis	1000-000011011001111100011100001010100100000-0011110010100002011011011110011--11-
Nematopus_yasunensis	1000-000011011001111100011100001010101000000-0011110010000020110110111110011--11-
Ouranion_crenulatus	10000101001101000011101001000000011100000101000001111100100000-01000121011000111
Ouranion_serrulatus	100001010011010000011010100000100001110000101000001111100100000-01000121011000111
Piezogaster_rubronotatus	1000-0010010010000001001011000000011-000001010000010011001002110-010001210011--111
Piezogaster_auriculatus	1000-0010010010000101001011010??0011?000?0?0?00??010?11001000????????????????????
Piezogaster_tetricus	1?0??0010010010000011001011000?10011?000?0?0?00??010?11001002????????????????????
Piezogaster_vates	1000-0010000010000001001011000000011-000001010000?10011001010100-000101110011--111
Quintius_dentifer	1000-011111110111011011001011000??0101?100?0?0?00??010?1001000????????????????????
Quintius_marginatus	1000-0111201110111001001011000??1-01?101?0?0?00??010?1001000????????????????????
Thasus_acutangus	00110000001100000000101101100011010001101111011110011001000111101000111101011110
Thasus_gigas	00110000001101001000100101100011010011101111010111001110110011110100011110101110
Thasus_neocalifornicus	001100000011010000001011011000110100111011110101110011101100111011000111101011110
Thasus_rutilus	100110000011010000001011011000??0100?110?1?1?01??110?11101000????????????????????
Empedocles_luridus	0010-0110111001000001001101000000011-0001101-000000001000101000-00000001001--00-
Campitischium_clavipes	1000-100001000000000021000000000011-00000110000000001001101000-010110001101--00-
Crinocerus_sanctus	1000-1000010000000001021100110000001-00000111000000001001101000-010011000111--00-
Phthiacnemis_picta	1000-001110101100000100110010000001-10000100001100000100010101110010001100001011-
Dalader_acuticosta	1001000000110010000000000000000011-000000-00000100000010110010000000001000010-
Pternistria_insularis	1000-0000011100000101101111000010101-0001111001111001001-11011100100000?101--10-
Mictis_profana	1000-000001100000000100001100000000-01100111000001000001-00000-000000000001--10-
Hirtilcus_gracillius	0110-0100011010101111101011000001-01-[01]01001101010010001001000100-010000110011--112
Allopeza_granulipes_	0000-00111010101011112100100001?11-0??1?1?11010?101??????001001000?110001--011
Diariptus_hexacanthus	1000-00100010100011111210110000??00-0??0?1?10010?100????????00111011000111011--111
Lycambes_sp1	1100-0111101010001011021011001?10101-00000110101110011001000010-01000110001000111
Spathophora_biclavata	000100011111101000011010110000000001101111111111001101-00011011000011001010112
Spathophora_umbrosa	00010001111111010000110101100000000001011111111110011001100111011010011001010112

and its states, fit value, literature source when necessary and, when available, the corresponding figure. The respective fit value and figure number follow each character. The illustrations of some of these characters are shown in Figures 1-15. The taxon-character matrix is also available as supplementary material (Table 1).

1. Antennomere I, cross-section, shape: oblong (0); cylindrical (1). Character 01 – Costa *et al.* (2020). 0.31614.
2. Antennomere II, cross-section, shape: cylindrical (0); oblong (1). Character 01 – Costa *et al.* (2020). 0.51892.

3. Antennomere I, sulcus: absent (0); present (1). Character 01 – Costa *et al.* (2020). 0.44721.
4. Antennomere III, lateral expansion: absent (0); present (1). Character 08 Costa – *et al.* (2020). 0.76393. (Fig. 1).
- * 5. Antennomere III, lateral expansion, sulcus: absent (0); present (1). 0.76393.
6. Antenniferous tubercles, external lateral angle, spine: absent (0); present (1). Character 10 – Costa *et al.* (2020). 0.76393. (Fig. 1).

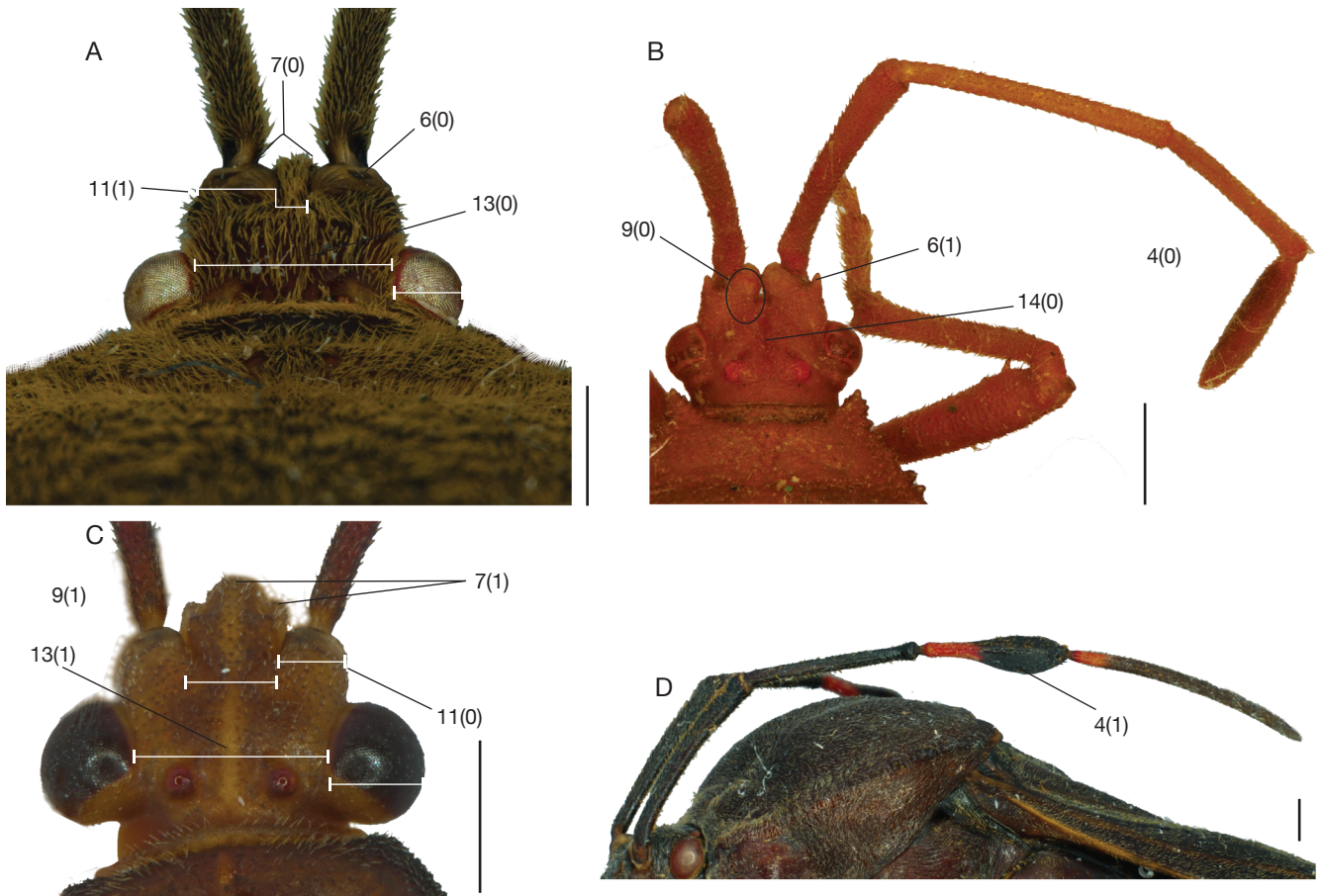


FIG. 1. — Characters indicated by numbers (4, 6, 7, 9, 11, 13, 14) and respective states in parentheses: **A**, *Pachylis bipunctatus* (Thunberg, 1825); **B**, *Crinocerus sanctus* (Fabricius, 1775); **C**, *Quintius marginatus* Stål, 1865, dorsal view (A-C); **D**, *Pachylis nervosus* Dallas, 1852, lateral view. Scale bars: 1 mm.

7. Clypeus, dorsal view, length in relation to mandibular plates: equal or shorter (0); longer (1). Character 12 – Costa *et al.* (2020). 0.35037. (Fig. 1).
8. Clypeus, lateral view, position concerning antenniferous tubers: lower (0); higher or parallel (1). Character 06 – Li (1996). 0.39291. (Fig. 2).
9. Mandibular plates, position relative to antenniferous tubercles: below them (0); between them (0). Modified from character 06 – Li (1996); Character 14 – Costa *et al.* (2020). 0.35037. (Fig. 1).
10. Second rostral segment, labium, expansion: expanded along the entire ventral margin (0); partially expanded along the ventral margin (1); dorsal and ventral margins parallel and not expanded (2). Character 19 – Costa *et al.* (2020). 0.31614. (Fig. 2).
- * 11. Antenniferous tubercles, clipeo: narrow, width between the tubercles is greater than or equal to the width of these (0); large, width between the tubercles is less than their width (1). 0.31614. (Fig. 1).
12. Eye, dorsal view, base, callus: present (0); absent (1). Modified from character 10 – Li (1996). 0.44721. (Fig. 3).
- * 13. Eye, dorsal view, width in relation to the interocular distance width: narrow, width is less than half the width of the interocular distance (0); large, width is greater than half the width of the interocular distance (1). 0.44721. (Fig. 1).
14. Head, central groove: present (0); absent (1). Modified from character 04 – Li (1996). 0.51892.
- * 15. Head, the maximum length in relation to the maximum pronotal length: small, less than half the length of pronotum (0); large, more than half the length of the pronotum (1). 0.61803. (Fig. 3).
- Thorax*
- * 16. Pronotum, lateral view, collar, projection of the anterior margin in relation to the head: absent (0); present (1). 0.39291. (Fig. 4).
17. Pronotum, anterolateral margins, shape: irregular (0); smooth (1). Modified from character 16 – Li & Zheng (1994); Character 21 – Costa *et al.* (2020). 0.39291. (Fig. 3).
18. Pronotum, lateral view, anterior half, angle related to scutellum: 45° or more (0); 30° or less (1). Modified from character 12 – Li & Zheng (1994); Character 23 – Costa *et al.* (2020). 1. (Fig. 4).
19. Pronotum, callus, tubercles: absent (0); present (1). Modified from character 17 – Li & Zheng (1994). 0.35037. (Fig. 3).

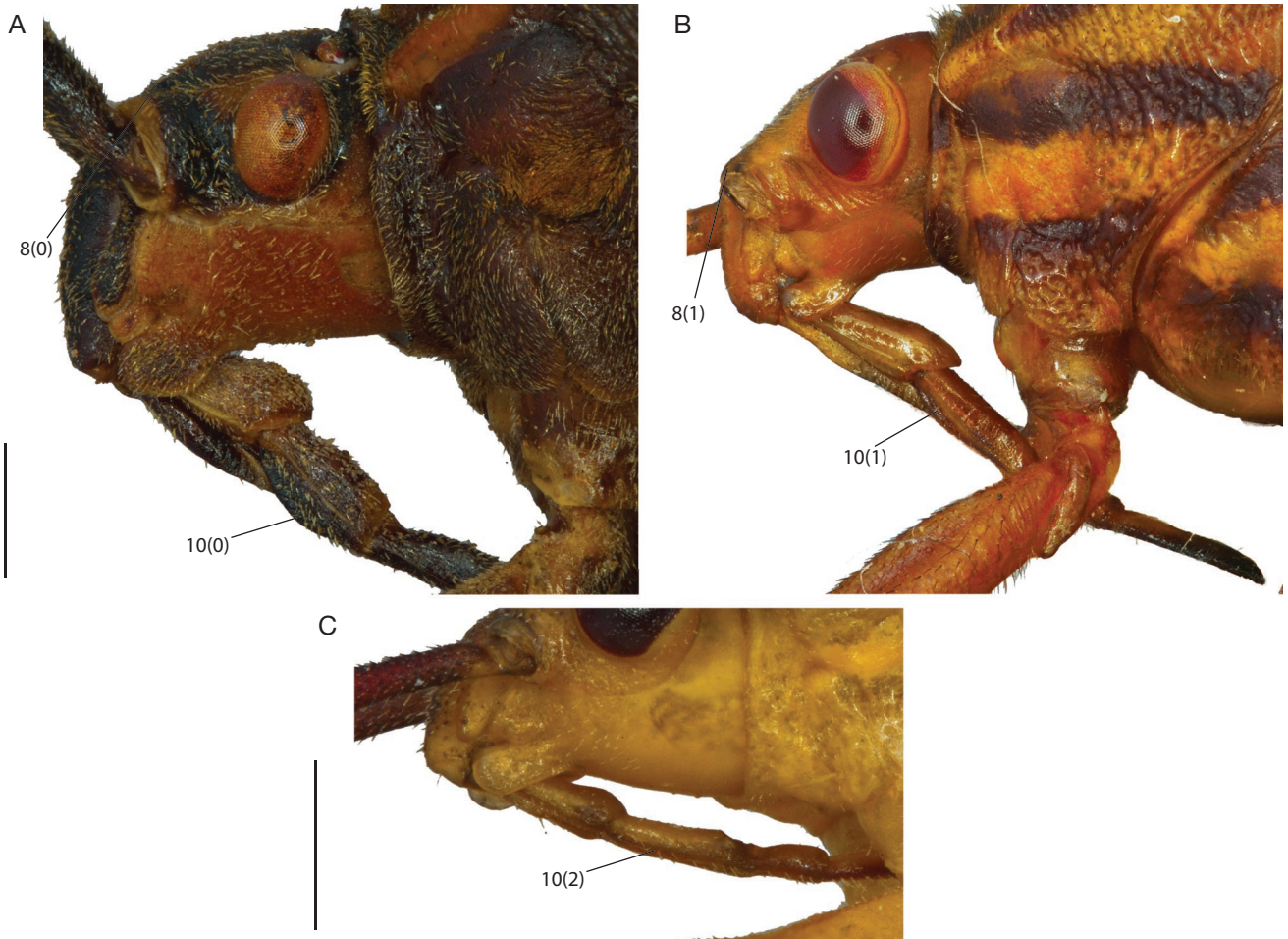


FIG. 2. — Characters indicated by numbers (8, 10) and respective states in parentheses: **A**, *Pachylis argentinus* Berg, 1879; **B**, *Spathophora biclavata* (Fabricius, 1803); **C**, *Quintius marginatus* Stål, 1865; lateral view. Scale bars: 1 mm.

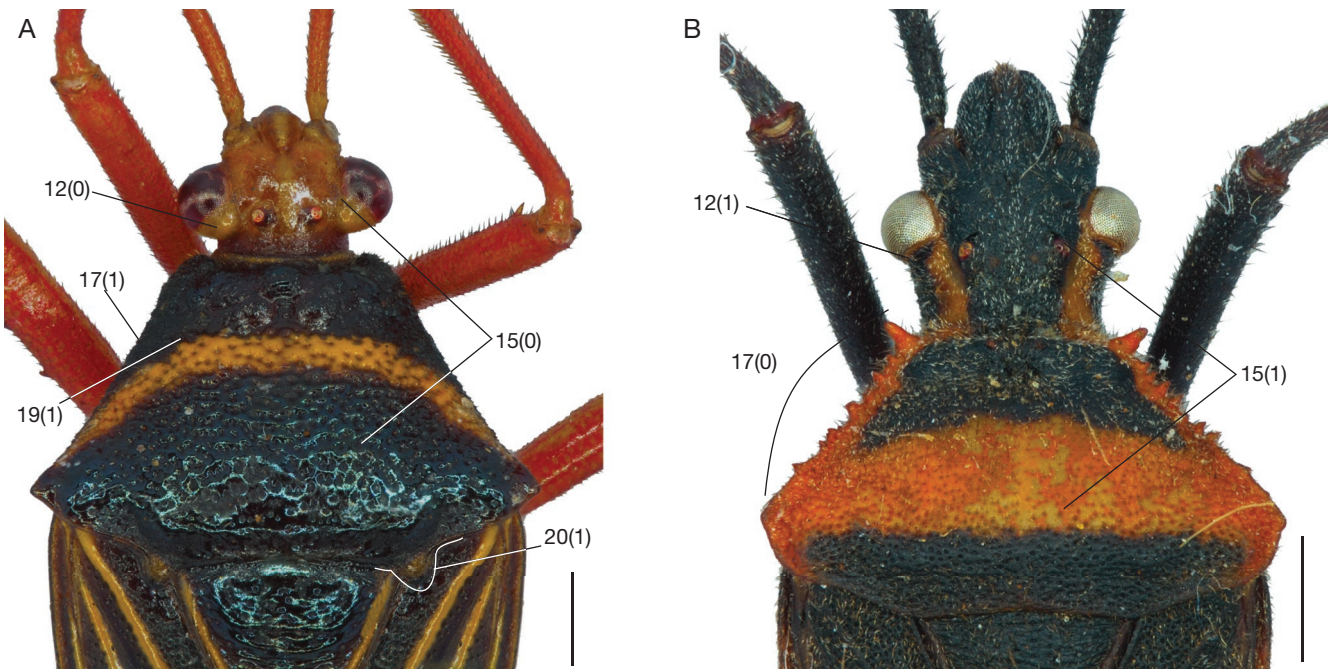


FIG. 3. — Characters indicated by numbers (12, 15, 17, 19, 20) and respective states in parentheses: **A**, *Nematopus manausensis* Brailovsky & Camacho, 2003; **B**, *Phthiacnemia picta* (Drury, 1773); dorsal view. Scale bars: 1 mm.

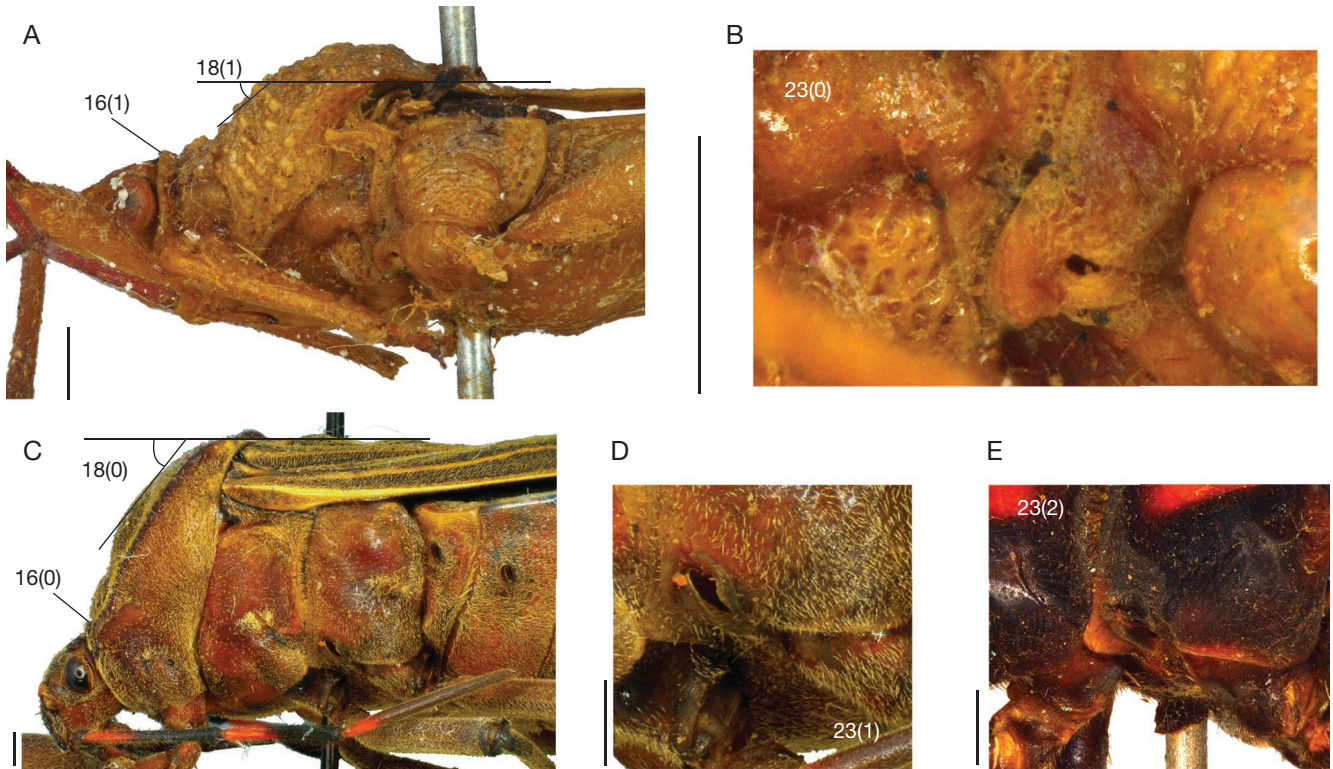


FIG. 4. — Characters indicated by numbers (16, 18, 23) and respective states in parentheses: **A, B**, *Hirilcus gracilis* (Burmeister, 1835); **C, D**, *Pachylis peramplus* Brailovsky & Guerrero, 2014; **E**, *Pachylis pharaonis* (Herbst, 1784); lateral view. Scale bars: 1 mm.

20. Pronotum, posterolateral angle, spine projection: absent (0); present (1). Character 24 – Costa *et al.* (2020). 0.39291. (Fig. 3).
21. Hemelytra, membrane venation, shape: anastomosed (0); not anastomosed (1). Character 24 – Costa *et al.* (2020). 0.76393. (Fig. 5).
22. Posterior acetabulum, shape: flat (0); produced laterally (1). Character 26 – Costa *et al.* (2020). 0.51892. (Fig. 5).
23. Metapleura, peritreme, shape: auricle (0); lobe (1); spout (2). Character 27 – Costa *et al.* (2020). 0.31614. (Fig. 4).
24. Metapleura, ostiole, ventral view, position concerning external lateral margin of metacoxa: external (0); internal (1). Character 30 – Costa *et al.* (2020). 0.51892. (Fig. 24).
25. Prosternum, shape: flat (0); sulcate (1); elevated (2). Modified from character 32 – Costa *et al.* (2020). 0.35037. (Fig. 6).
26. Mesosternum, shape: sulcate (0); flat (1); elevated (2). Modified from character 33 – Costa *et al.* (2020). 0.51892. (Fig. 6).
27. Metasternum, shape: sulcate (0); flat (1). Character 34 – Costa *et al.* (2020). 0.39291. (Fig. 6).
- * 28. Mesosternum, anterior portion, anterior projection: present (0); absent (1). 0.61803. (Fig. 6).
- * 29. Mesosternum, anterior portion, double elevation: absent (0); present (1). 0.76393. (Fig. 6).
- * 30. Mesosternum, central portion, transverse streaks: absent (0); present (1). 0.76393. (Fig. 6).
31. Metacoxa, male, inner lateral surface, spine: absent (0); present (1). Character 37 – Costa *et al.* (2020). 0.61803. (Fig. 7).
32. Mesofemur, male, ventral margin, spines: distributed along the axis and not limited to the anterior portion (0); limited to the anterior portion (1). Modified character 41 – Costa *et al.* (2020). 0.26447. (Fig. 7).
33. Mesofemur, female, ventral margin, spine (s) along the longitudinal axis: present (0); absent (1). Character 42 – Costa *et al.* (2020). 0.44721.
34. Mesofemur, female, ventral margin, spines: distributed along the axis and not limited to the anterior portion (0); limited to the anterior portion (1). Character 43 – Costa *et al.* (2020). 0.35037.
- * 35. Mesofemur, dorsal and lateral margins, tubercles: absent (0); present (1). 0.31614. (Fig. 7).
36. Mesofemur, ventral margin, carina: present (0); absent (1). Character 44 – Costa *et al.* (2020). 0.51892. (Fig. 7).
- * 37. Metafemur, male, most prominent spine, number: one (0); two (1). 0.44721. (Fig. 7).
38. Metafemur, dorsal and lateral margins, tubercles: present (0); absent (1). Modified character 49 – Costa *et al.* (2020). 0.35037.
39. Metafemur, female, ventral margin, carina: absent (0); present (1). Character 50 – Costa *et al.* (2020). 0.51892.
40. Metatibia, female, lateral view, longitudinal axis, shape: straight (0); curved (1). Modified from character 55 – Costa *et al.* (2020). 0.51892. (Fig. 7).

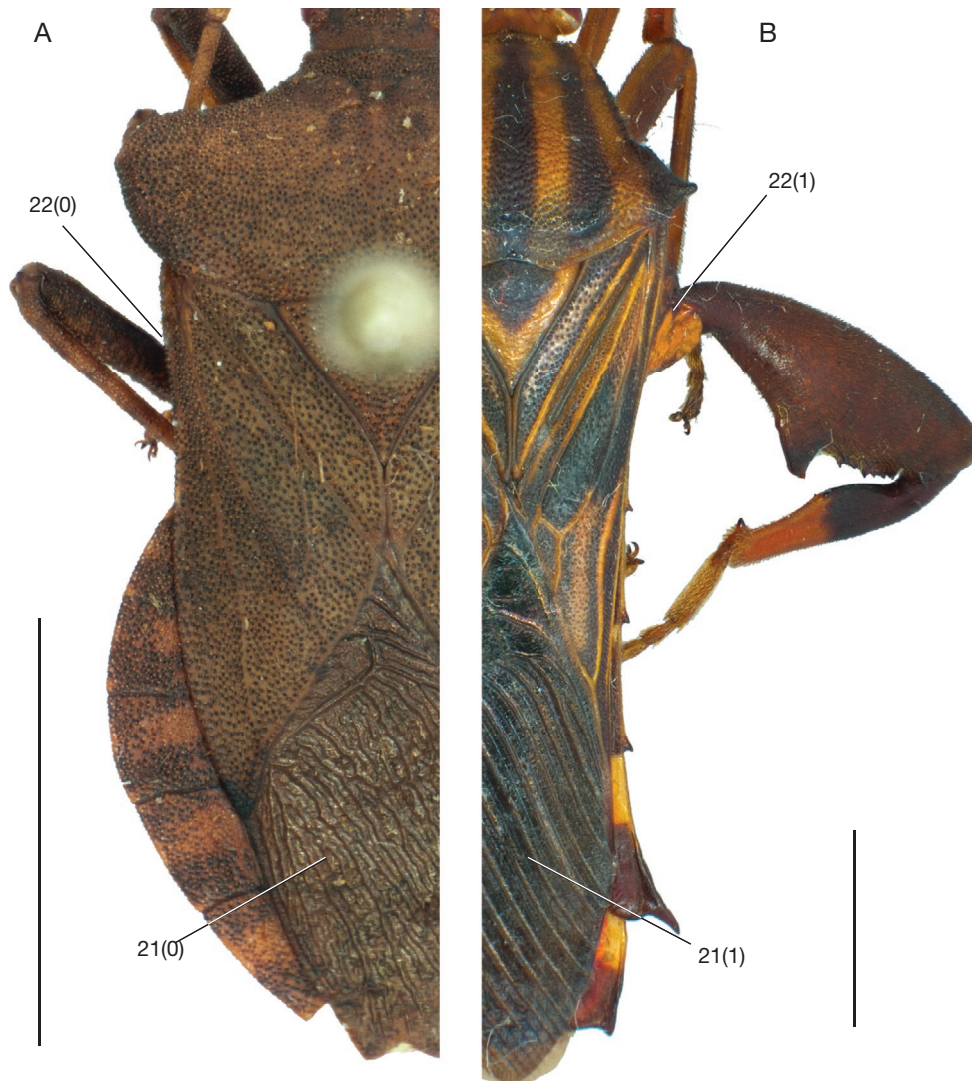


FIG. 5. — Characters indicated by numbers (22, 23) and respective states in parentheses: **A**, *Coreus marginatus* (Linnaeus, 1758); **B**, *Spathophora biclavata* (Fabricius, 1803); dorsal view. Scale bars: 5 mm.

- 41. Metatibia, male, dorsal margin, lateral expansion: absent (0); present (1). Modified from character 56 – Costa *et al.* (2020). 0.44721. (Fig. 7).
 - 42. Metatibia, female, dorsal margin, lateral expansion: absent (0); present (1). Modified from character 56 – Costa *et al.* (2020). 0.51892.
 - 43. Metatibia, male, ventral margin, lateral expansion: absent (0); present (1). Modified from character 57 – Costa *et al.* (2020). 0.76393. (Fig. 7).
 - 44. Metatibia, female, ventral margin, lateral expansion: absent (0); present (1). Modified from character 58 – Costa *et al.* (2020). 0.44721.
 - 45. Metatibia, male, ventral margin, expansion margin, spine: absent (0); present (1). Character 59 – Costa *et al.* (2020). 0.51892. (Fig. 7).
 - 46. Metatibia, male, distal apex, dorsal larger spine: absent (0); present (1). Character 61 – Costa *et al.* (2020). 0.76393. (Fig. 7).
 - * 47. Protarsomere I, cross-section, shape: cylindrical (0); triangular (1). 1. (Fig. 7).
- Abdomen*
- 48. Connexivum, male, extent in relation to hemelytra: produced (0); non-produced (1). Character 62 – Costa *et al.* (2020). 0.39291. (Fig. 8).
 - 49. Connexivum, male, external posterolateral angle, laterotergite VII, spine: absent (0); present (1). Modified from character 63 – Costa *et al.* (2020). 0.35037. (Fig. 8).
 - * 50. Connexivum, female, external posterolateral angle, laterotergite VII, spine: absent (0); present (1). 0.39291.
 - 51. Sterna III-VI, lateral view, spiracles, position in relation to anterior and posterior margins of the respective sternum: equidistant (0); the distance of the posterior margin twice longer than the distance from the anterior margin (1). Character 65 – Costa *et al.* (2020). 0.61803. (Fig. 9).

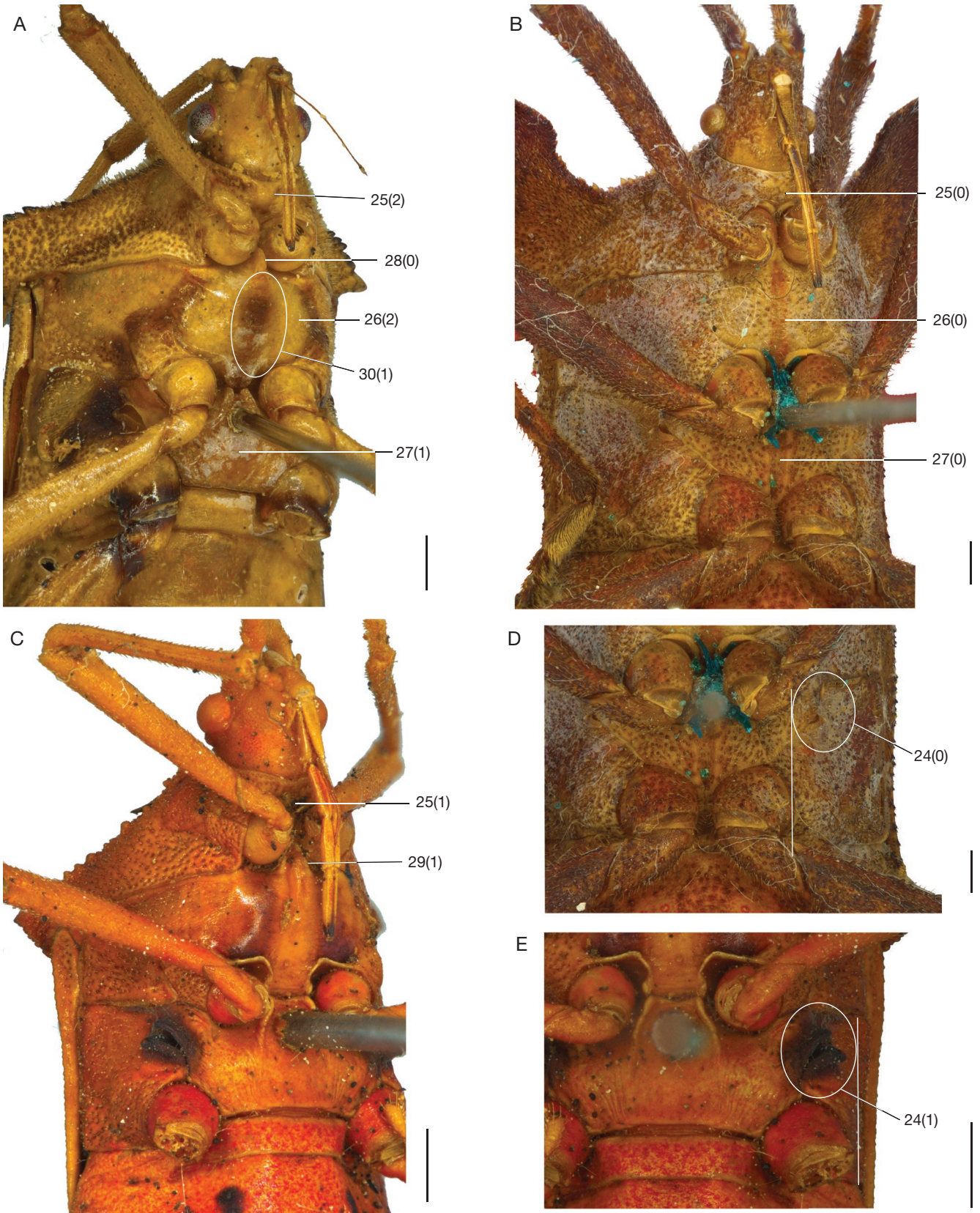


FIG. 6. — Characters indicated by numbers (24–30) and respective states in parentheses: **A**, *Melucha quadrivittis* Stål, 1862; **B**, **E**, *Dalader acuticosta* Amyot & Serville, 1843; **C**, **F**, *Crinocerus sanctus* (Fabricius, 1775); **A**, **B**, **C**, ventrolateral view; **E**, **F**, ventral view. Scale bars: 1 mm.



FIG. 7. — Characters indicated by numbers (31, 32, 35-37, 40, 41, 43, 45-47) and respective states in parentheses: **A, G**, *Thasus neocalifornicus* Brailovsky & Barrera in Brailovsky et al., 1994b; **B**, *Camptischium clavipes* (Fabricius, 1803); **C**, *Ouranion crenulatus* (Stål, 1860[1859]); **D, H**, *Hirlicus gracilis* (Burmeister, 1835); **E**, *Coreus marginatus* (Linnaeus, 1758); **F**, *Pachylis argentinus* Berg, 1879; **I**, *Ouranion serrulatus* (Perty, 1830); **J**, *Pachylis laticornis* (Fabricius, 1798). **A-H**, ventral view; **I, J**, apical view. Scale bars: 1 mm.

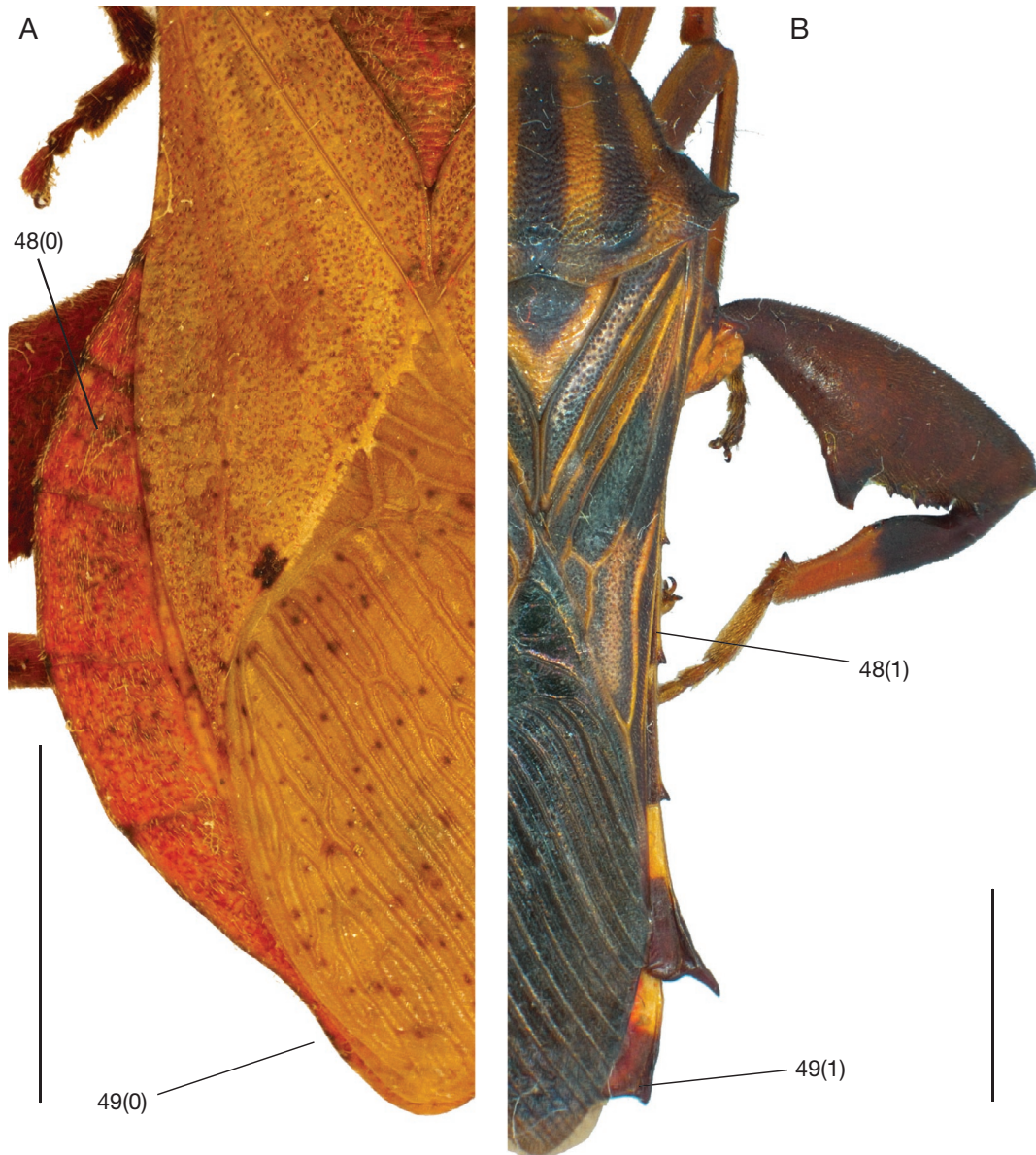


FIG. 8. — Characters indicated by numbers (48, 49) and respective states in parentheses: **A**, *Ouranion crenulatus* (Stål, 1860[1859]); **B**, *Spathophora biclavata* (Fabricius, 1803); dorsal view. Scale bars: 5 mm.

52. Sterna IV-VI, median longitudinal sulcus: absent (0); present (1). Character 68 – Costa *et al.* (2020). 1. (Fig. 10).
53. Sternum VII, male, posterior margin, median longitudinal cleft: absent (0); present (1). Character 70 – Costa *et al.* (2020). 0.61803. (Fig. 10).
54. Sternum VII, female, the position of the spiracles related to the imaginary longitudinal line from the external posterolateral angle: external or over the line (0); inner (1). Character 71 – Costa *et al.* (2020). 0.35037. (Fig. 11).
55. Sternum VII, female, inner anterior margin, median process: present (0); absent (1). Character 75 – Costa *et al.* (2020). 0.35037. (Fig. 11).
56. Sternum VII, female, posterior margin, shape: concave (0); convex (1). Modified from character 78 – Costa *et al.* (2020). 0.51892. (Fig. 11).
57. Tergum IX, female, inner anterior margin, shape: produced anteriorly (0); non-produced anteriorly (1). Character 80 – Costa *et al.* (2020). 0.76393. (Fig. 12).
58. Tergum IX, female, inner anterior margin, projection, shape: truncated (0); tapering (1). Modified from character 81 – Costa *et al.* (2020). 0.51892. (Fig. 12).

Female genitalia

59. Genital plates, valvifer VIII, anterior leaf, sclerotization: absent (0); present (1). Character 91 – Costa *et al.* (2020). 0.39291. (Fig. 13).

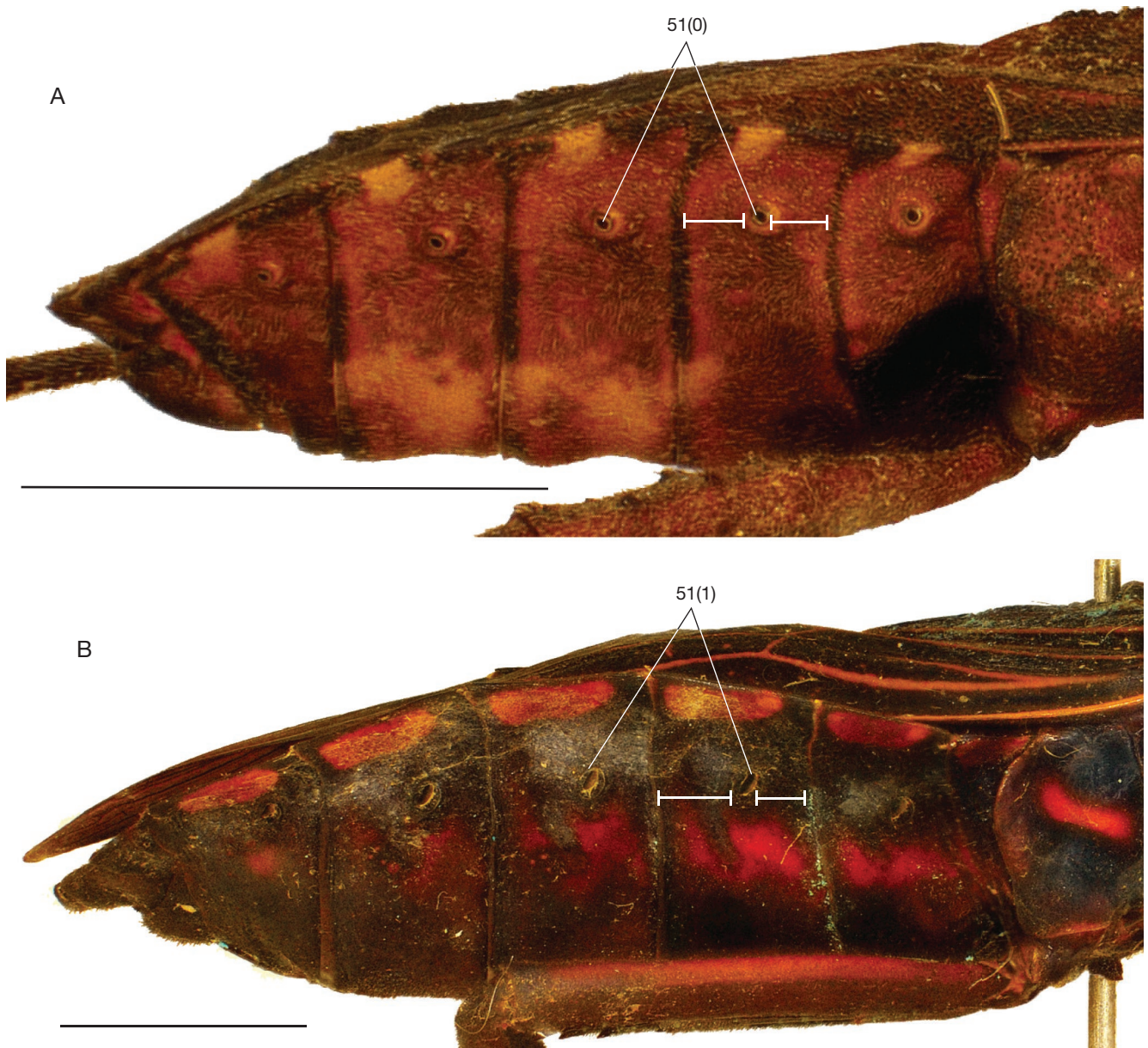


FIG. 9. — Character indicated by number (51) and respective states in parentheses: **A**, *Camptischium clavipes* (Fabricius, 1803); **B**, *Pachylis pharaonis* (Herbst, 1784); lateral view. Scale bars: 5mm.

60. Ginatrium, sclerite: present (0); absent (1). Character 94 – Costa *et al.* (2020). 0.51892. (Fig. 12).
61. Spermatheca, bulb, shape: sickle (0); rounded / elliptical (1); anchor (2). Modified from character 95 – Costa *et al.* (2020). 0.39291. (Fig. 12).

Male genitalia

62. Genital capsule, dorsal view, processes of dorsal rim: absent (0); present (1). Character 102 – Costa *et al.* (2020). 0.31614. (Fig. 14).
63. Genital capsule, dorsolateral view, ventral margin, upper leaflet, projection: absent (0); present (1). Modified from character 101 – Costa *et al.* (2020). 0.39291. (Fig. 14).
64. Genital capsule, dorsolateral view, posterior leaflet, projection: absent (0); present (1). 0.51892. (Fig. 14)
- * 65. Genital capsule, posterior view, ventral surface, posterior leaflet, projection, position: contiguous (0); separate (1). 0.39291. (Fig. 14).
- * 66. Genital capsule, dorsolateral view, ventral margin, lateral leaflet, projection: absent (0); present (1). 0.44721. (Fig. 14)
- * 67. Genital capsule, dorsal view, superior processes of lateral margin: present (0); absent (1). 0.51892. (Fig. 14).

Observation: We rectify here the indication of the posterior margin, previously described by Costa *et al.* (2020), as the ventral margin, as we consider, in addition to positioning, the common origin of the structure.



FIG. 10. — Caracteres indicated by numbers (52, 53) and respective states in parentheses: **A**, *Mictis profana* (Fabricius, 1803); **B**, *Ouranion crenulatus* (Stål, 1860[1859]); ventral view. Scale bars: 5 mm.

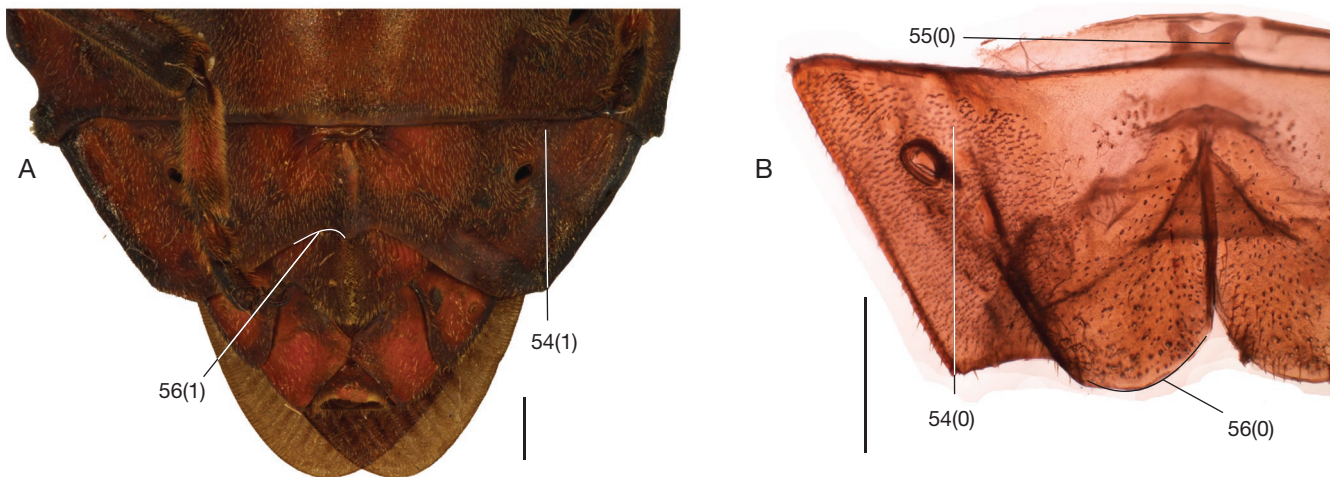


FIG. 11. — Caracteres indicated by numbers (54-56) and respective states in parentheses: **A**, *Pachylis laticornis* (Fabricius, 1798); **B**, *Melucha acutispina* Bredin, 1903; ventral view. Scale bars: 1 mm.

68. Genital capsule, posterior view, opening, position: dorsal (0); dorsoposterior (1). Character 105 – Costa *et al.* (2020). 0.44721. (Fig. 14).
 69. Genital capsule, cuplike sclerite: present (0); absent (1). Character 103 – Costa *et al.* (2020). 0.39291. (Fig. 14).

70. Paramere, apex, shape: hook (0); straight (1). Character 108 – Costa *et al.* (2020). 0.76393. (Fig. 14).
 71. Aedeagus, ductus seminis distalis, length compared to phallosome: same length (0); twice or almost twice longer than phallosome (1). Character 114 – Costa *et al.*

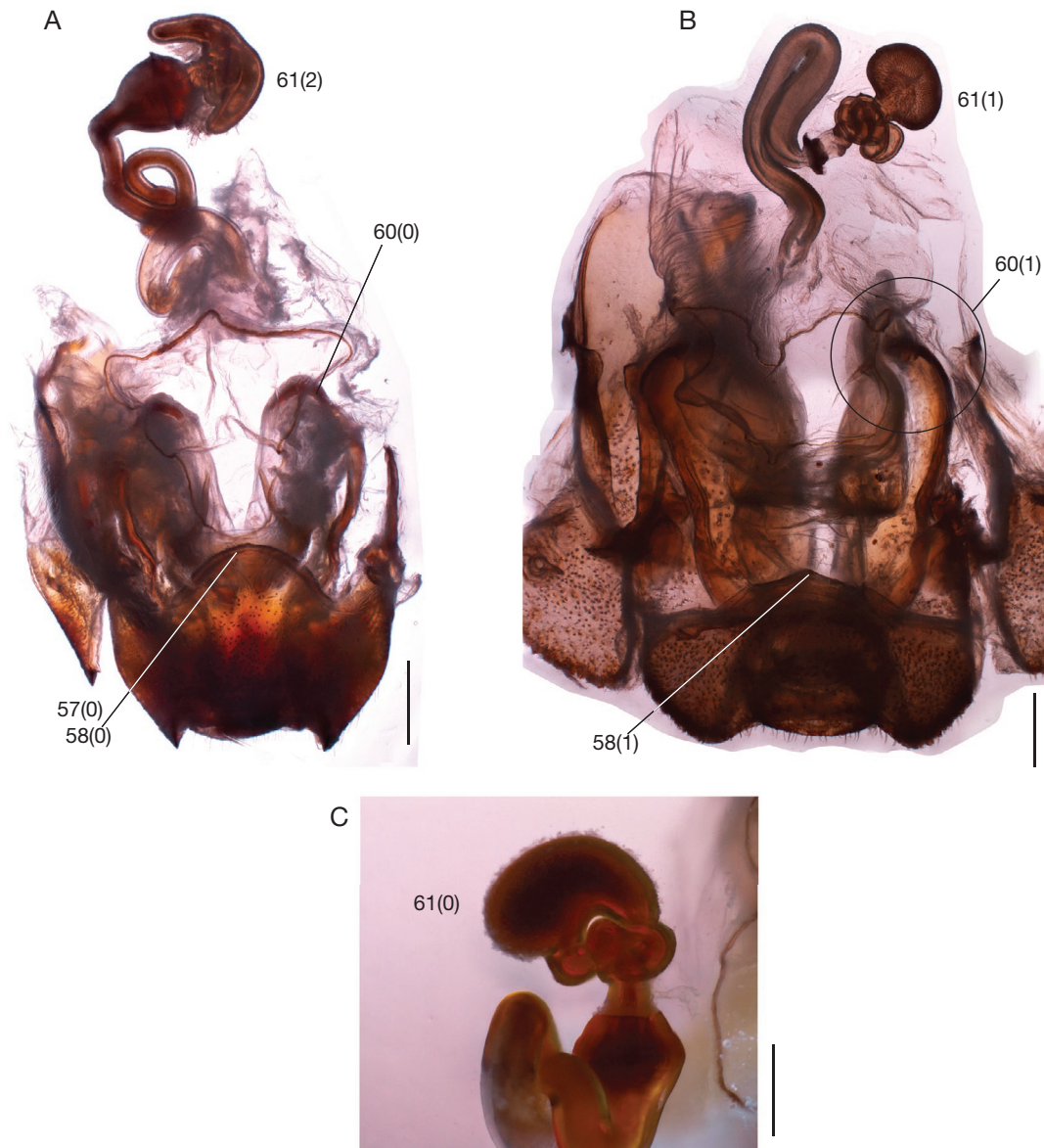


FIG. 12. — Characters indicated by (57, 58, 60, 61) and respective states in parentheses: **A**, *Nematopus manausensis* Brailovsky & Camacho, 2003; **B**, *Dalader acuticosta* Amyot & Serville, 1843; **C**, *Pachylis laticornis* (Fabricius, 1798); dorsal view. Scale bars: 0.5 mm.

- (2020). 0.35037. (Fig. 15).
72. Aedeagus, ductus seminis distalis, arrangement in the larger and distal part of vesica: spiraled and opened (0) straight and entirely enclosed (1); straight and opened laterally (2). Modified from character 113 – Costa *et al.* (2020). 0.61803. (Fig. 15).
- * 73. Aedeagus, vesica, integument: sclerotized (0); membranous (1). 0.76393. (Fig. 15).
74. Aedeagus, vesica, integument, distal part, vestiture: smooth (0); rugose (1). Character 115 – Costa *et al.* (2020). 0.44721. (Fig. 15).
- * 75. Aedeagus, conjunctivae, disticonjunctiva, lower median dorsal sclerotized process: present (0); absent (1). 0.44721. (Fig. 15).
- * 76. Aedeagus, conjunctivae, disticonjunctiva, upper median dorsal membranous process: present (0); absent (1). 0.51892. (Fig. 15).
- * 77. Aedeagus, conjunctivae, disticonjunctiva, lower ventral sclerotized process: present (0); absent (1). 0.39291. (Fig. 15).
- * 78. Aedeagus, conjunctivae, disticonjunctiva, lower ventral sclerotized process, position concerning the phallosome: lateral (0); median (1). 0.61803. (Fig. 15)
- * 79. Aedeagus, conjunctivae, disticonjunctivae, inferior ventral sclerotized process, shape: straight (0); curved (1). 1. (Fig. 15).
- * 80. Aedeagus, conjunctivae, disticonjunctiva, lower lateral sclerotized process: absent (0); present (1). 0.61803. (Fig. 15).

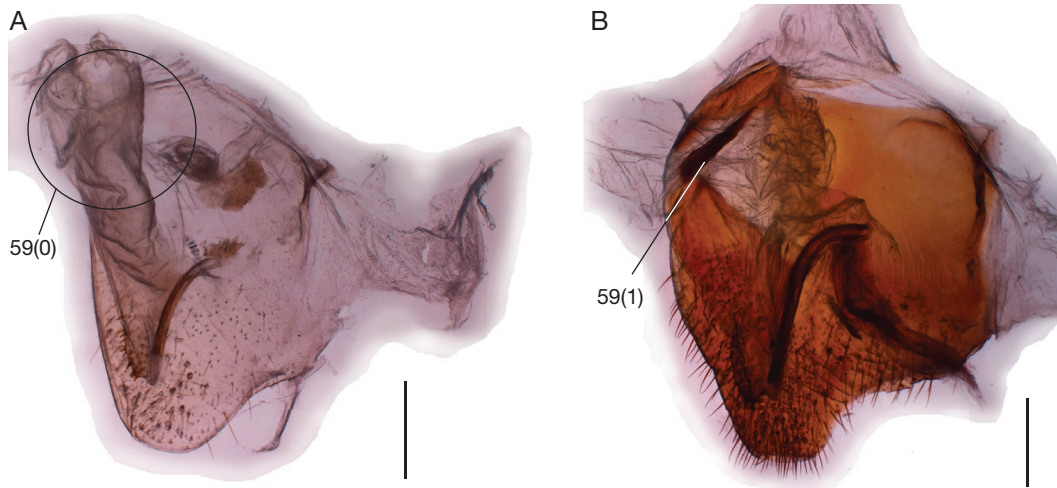


FIG. 13. — Character indicated by number (59) and respective states in: **A**, *Melucha chapadana* Brailovsky, 1993; **B**, *Spathophora umbrosa* (Drury, 1782); dorsal view. Scale bars: 0.5 mm.

- * 81. Aedeagus, conjunctivae, disticonjunctivae, upper lateral sclerotized process: absent (0); present (1). 1. (Fig. 15).
- * 82. Aedeagus, conjunctivae, disticonjunctiva, upper lateral sclerotized process, dorsal margin, shape: hook (0); flat (rounded/truncated) (1); gutter (2). 0.61803. (Fig. 15).

CLADISTIC ANALYSIS

The IW analysis resulted in the same consensus trees for the first and third K-values. We present and discuss the first K-value (3.236) consensus, with 387 steps and fit = 39.082 (Fig. 16).

Pachylis is monophyletic sister to *Thasus rutilus* Brailovsky & Barrera in Brailovsky *et al.*, 1994b (clade K). This sister-group relationship is supported here by two synapomorphies, one of them not homoplastic (5: 1). The remaining *Thasus* species grouped together (clade J), with three synapomorphies, one of them not homoplastic (79: 1). The sister-group relationship between *Pachylis* + *T. rutilus* (clade K) and *Thasus* (clade J) is supported by eight homoplastic synapomorphies (clade I). This relationship between *Pachylis* and *Thasus* (clade I) was recovered in all the most parsimonious trees, as shown by the frequency calculated in the Majority rule consensus (Fig. 16).

We performed extra analyses, considering a possible fluctuation of *T. rutilus*, due to the large number of missing data for male characters (Wiens 2003; Prevosti & Chemisquy 2010). In a first extra analysis, we excluded all the characters (31; 32; 37; 41; 43; 45; 48; 49; 53; 62-82) marked as missing in *T. rutilus* (Appendix 2). In a second analysis we replaced the missing states in *T. rutilus* by fictional states, based on the highest state frequency for each character in remainder *Thasus* species (Appendix 2) (31: 1; 32: 1; 37: 1; 41: 1; 43: 1; 45: 1; 48: 0; 49: 1; 53: 0; 62: 1; 63: 1; 64: 1; 65: 1; 66: 0; 67: 1; 68: 0; 69: 0; 70: 0; 71: 1; 72: 1; 73: 1; 74: 1; 75: 0; 76: 1; 77: 0; 78: 1; 79: 1; 80: 1; 81: 1; 82: 0). In the first extra analysis *T. rutilus* remains sister to *Pachylis*, and the remainder species of *Thasus* external to *Pachylis* + *T. rutilus* (Appendix 2). However, in the second extra analysis, *T. rutilus* and the other *Thasus* species were recovered monophyletic, but nested between *Pachylis* species (Appendix 2).

We recovered a polyphyletic *Melucha* Amyot & Serville, 1843. Part of its species were sister group of *Pachylis* + *Thasus*, with a single homoplastic synapomorphy (13: 0) (clade H). *Spathophora* (clade F) is sister to clade H, with *M. quinquelineata* Stål, 1865, *M. chapadana* Brailovsky, 1993, and *Melucha lineatella* (Fabricius, 1803), successively external to clade F.

We didn't recover the monophyly of Nematopodini since species of both Meropachyinae and Anisoscelini (Coreinae) grouped with different Nematopodini genera. All the Nematopodini are clade A supported by six synapomorphies, four exclusives (14:1; 72: 1; 73: 1; 81: 1).

TAXONOMY

Family COREIDAE Leach, 1815
Subfamily COREINAE Leach, 1815
Tribe NEMATOPODINI Amyot & Serville, 1843

Pachylis Le Peletier & Serville, 1825

Pachylis Le Peletier & Serville, 1825: 62. — Latreille 1829: 196; 1836: 120. — Griffith & Pidgeon 1832: 218. — Laporte 1833: 25, 29. — Burmeister 1835: 300. — Brullé 1835: 353. — Herrich-Schäffer 1836: 62, plate XCII. — Spinola 1837: 38, table 7. — Voigt 1839: 373. — Blanchard 1840: 120; 1845: 441; 1847: 380. — Westwood 1840[1839]: 482; 1842: 4; 1849: 564. — Drapiez 1842: 265. — Agassiz 1843: 14. — Amyot & Serville 1843: XXXI, 194. — Audouin *et al.* 1845: 36. — Signoret 1847: 301. — Herrich-Schäffer 1850: 239. — Spinola 1850: 81. — Dallas 1852: 378. — Chenu & Desmarest 1859: 213. — Dohrn 1859: 24. — Stål 1858[1859]: 439; 1858: 29; 1862: 275; 1867: 158; 1868[1867]: 538; 1870: 131; 1873: 36. — Fauvel 1862: 275. — Costa 1868: 35. — Walker 1871: 43, 52; 1873: 32. — Uhler 1886: 10. — Lethierry & Severin 1894: 13-14. — Pittier & Biolley 1895: 15. — Kirkaldy 1900: 265; 1901: 178. — Osborn 1904: 197. — Bergroth 1913: 144. — Pennington 1920: 13. — Piza 1958: 949. — O'Shea & Schaefer 1978: 783. — O'Shea 1980: 199. — Froeschner 1981: 23; 1999: 46. — Brailovsky *et al.* 1994b: 319. — Schaefer & Packauskas 1997: 207. — Packauskas 2010: 176. — Brailovsky & Guerrero 2014: 365. — CoreoideaSF Team 2020. — Costa *et al.* 2021: 309.

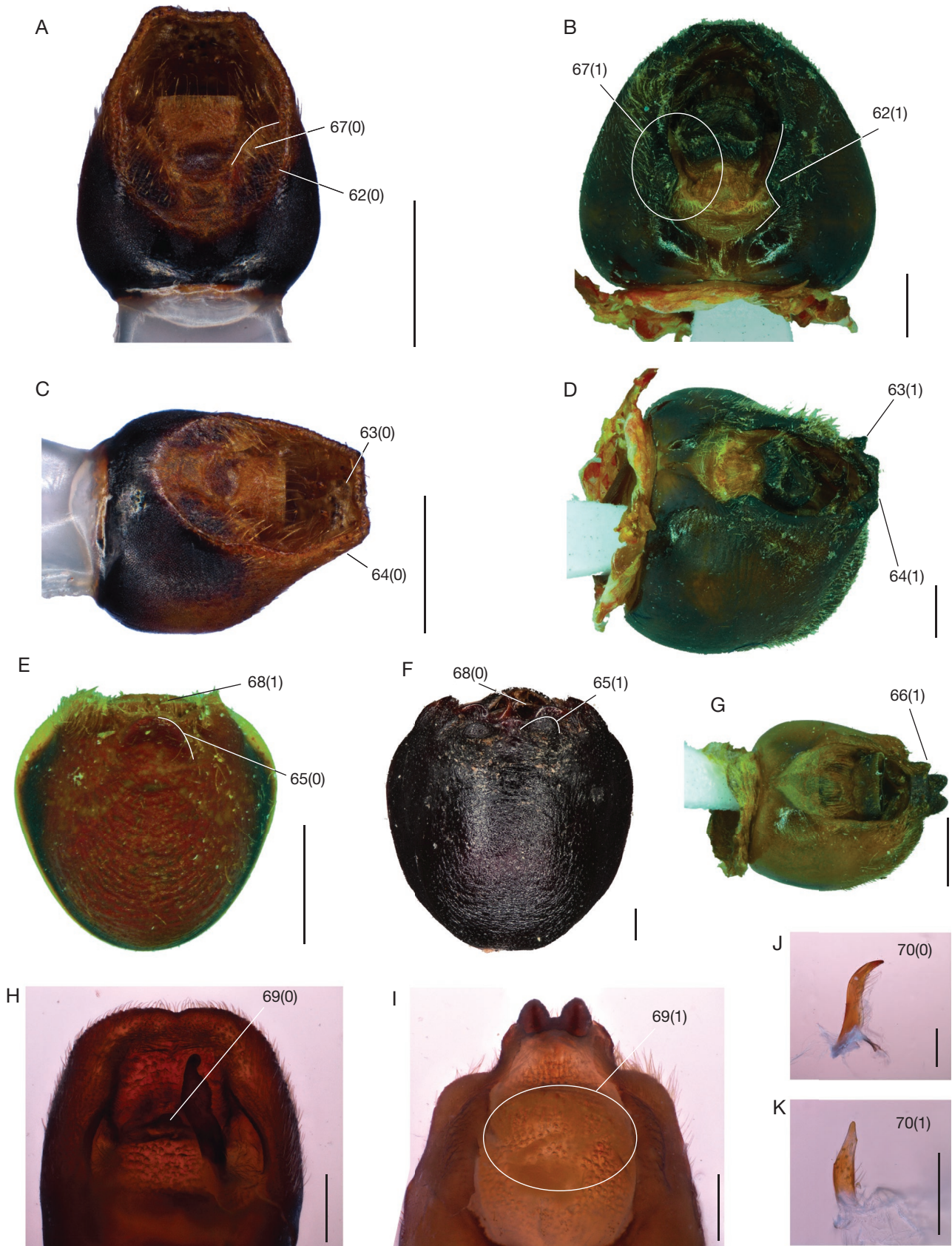


FIG. 14. — Caracteres indicados por números (62-70) e respectivos estados em parênteses: **A, C**, *Coreus marginatus* (Linnaeus, 1758); **B, D**, *Pachylis nervosus* Dallas, 1852; **E**, *Melucha acutispina* Breddin, 1903; **F**, *Pachylis pharaonis* (Herbst, 1784); **G, I**, *Melucha perampla* Brailovsky & Barrera, 2014; **H**, *Mictis profana* (Fabricius, 1803); **J**, *Pachylis laticornis* (Fabricius, 1798); **K**, *Nematopus manusensis* Brailovsky & Camacho, 2003; **A, B, H-K**, dorsal view; **C, D, G**, dorsolateral view; **E, F**, posterior view. Scale bars: A, C, F, H-K, 0.5 mm; B, D, E, G, 1 mm.

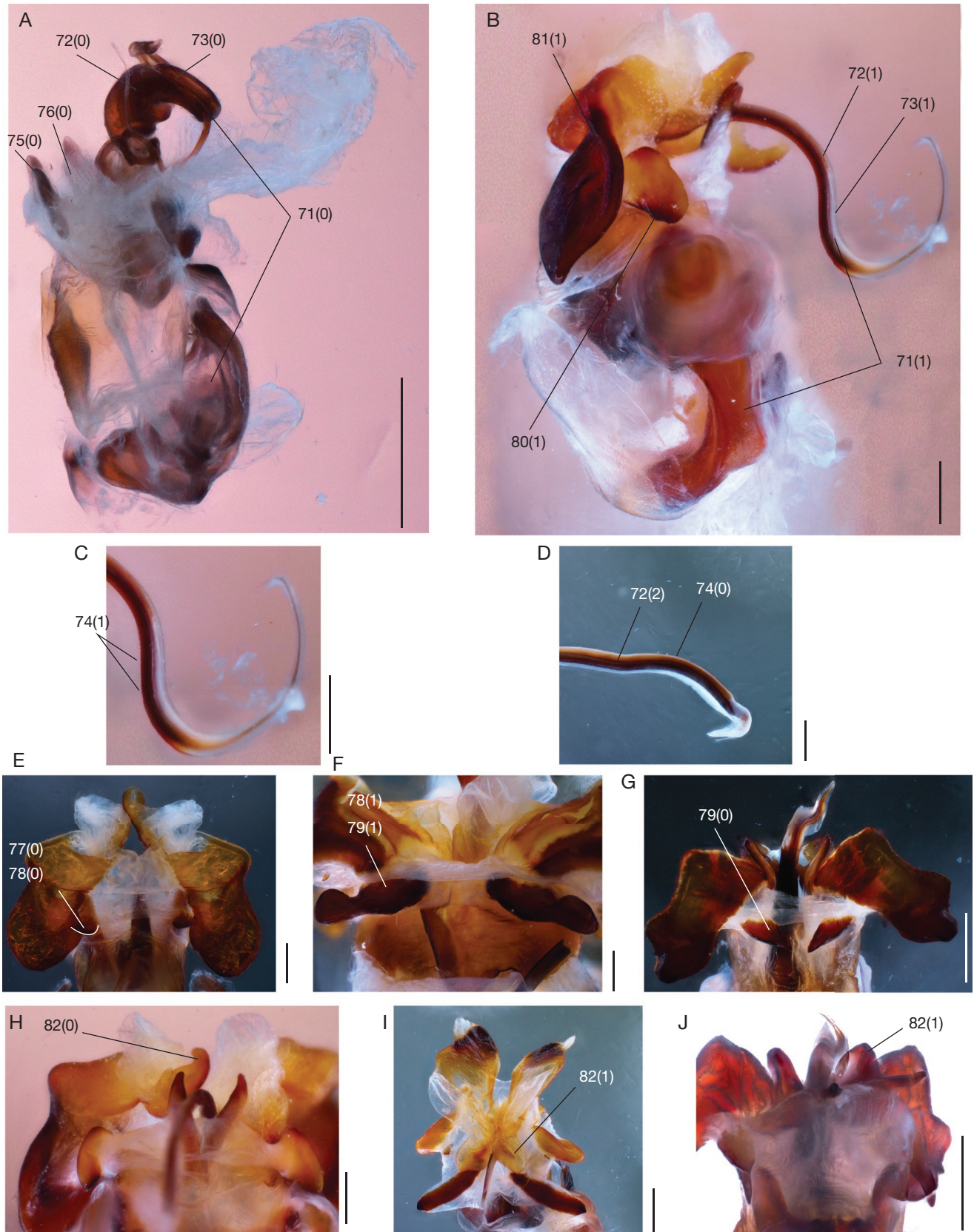


FIG. 15. — Characters indicated by number (71-82) and respective states in parentheses: **A**, *Coreus marginatus* (Linnaeus, 1758); **B**, **C**, **H**, *Pachylis laticornis* (Fabricius, 1798); **D**, *Cnemyrtus scriptus* (Burmeister, 1835); **E**, *Pachylis argentinus* Berg, 1879; **F**, *Thasus acutangulus* (Stål, 1858); **G**, **J**, *Melucha quinquelineata* Stål, 1865; **I**, *Piezogaster rubronotatus* (Stål, 1862); **A**-**D**, lateral view; **E**-**G**, ventral view; **H**-**J**, dorsal view. Scale bars: 0.5 mm.

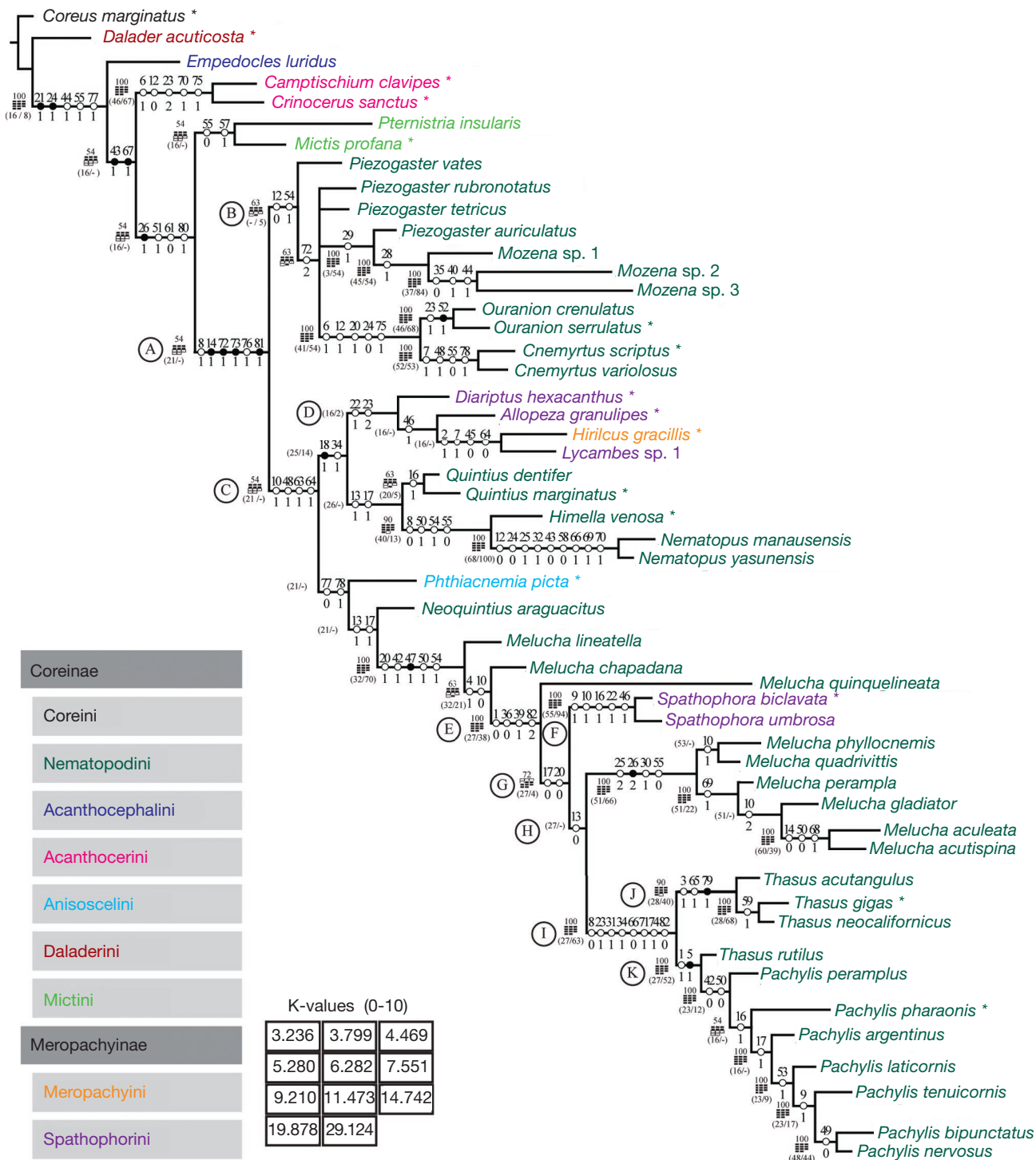


FIG. 16. — Consensus cladogram from *Pachylis* Le Peletier & Serville, 1825 under implied weighting resulting from the first K-value (3.211). The values for the majority rule are indicated above the set of rectangles, which in turn indicate the presence (black rectangles) and absence (white rectangles) of the same set of species for the different K-values indicated; the values for relative Bremer support and symmetric resampling are indicated in parentheses, respectively; type species are indicated by a *; letters in circles indicate the branch name; subfamilies and tribes in the color legend.

Thasus Stål, 1865: 174; 1868[1867]: 538; 1870: 132. — Distant 1881: 108. — Lethierry & Severin 1894: 14. — Torre-Bueno 1941: 53. — O’Shea 1980: 218. — Froeschner 1981: 23; 1988: 88. — Brailovsky *et al.* 1994b: 319. — Packauskas 2010: 187. — Kieran *et al.* 2019: 299. — Forthman *et al.* 2019: 528; 2020: 2. — Emberts *et al.* 2020: figs S2–S5. — CoreoideaSF Team 2020 **n. syn.**

TYPE SPECIES. — *Pachylis*: *Cimex pharaonis* Herbst, 1784, subsequent designation by Blanchard (1847) (See more information in Dolling 2010). *Thasus*: *Pachylis acutangula* Stål, 1858, subsequent designation by O’Shea (1980).

EXAMINED MATERIAL. — See Supplementary material (Appendix 1).

INCLUDED SPECIES

- Pachylis acutangulus* Stål, 1858[1859] stat. rev.
Pachylis argentinus Berg, 1879.
Pachylis bipunctatus (Thunberg, 1825).
Pachylis carchinus (Brailovsky & Barrera in Brailovsky *et al.*, 1994b) n. comb.
Pachylis gigas Klug, 1835 in Burmeister (1835) stat. rev.
Pachylis heteropus (Latreille, 1811) stat. rev.
Pachylis laticornis (Fabricius, 1798).
Pachylis luteolus (Brailovsky & Barrera in Brailovsky *et al.*, 1994b) n. comb.
Pachylis neocalifornicus (Brailovsky & Barrera in Brailovsky *et al.*, 1994b) n. comb.
Pachylis nervosus Dallas, 1852.
Pachylis odonnellae (Schaefer & Packauskas in Brailovsky *et al.*, 1994b) n. comb.
Pachylis peramplus Brailovsky & Guerrero, 2014.
Pachylis pharaonis (Herbst, 1784).
Pachylis rutilus (Brailovsky & Barrera in Brailovsky *et al.*, 1994b) n. comb.
Pachylis tenuicornis Dallas, 1852.
Pachylis obscura Spinola, 1837 *incertae sedis*.
Pachylis striatus (Thunberg, 1825) *incertae sedis*.

DIAGNOSIS. — Robust body covered with tiny bristles; *Pachylis* includes the largest species of Coreidae, some specimens reaching more than 40 mm in length. Color varies from black to brown, with yellow or red spots in some species, mainly on the antennae, hemelytra, and legs. Head width less than half the pronotal width. Eye width less than half the head width; pre-ocellar tubercle absent; clypeus not elevated above the antenniferous tubercles; antennomeres I, II, and IV cylindrical, III laterally expanded, reduced in some species; apex of rostrum never surpassing the mesocoxae. Thorax with pronotum steeply declivous; pro- and mesosternum flat; male metatrochanters and metacoxae bearing a rounded spine; male metafemora expanded and robust; male metatibiae curved longitudinally, expanded and with spines on the inner margin, in some species also on the dorsal margin; male connexivum exposed, except in *Pachylis acutangulus* (Stål, 1858[1859]) stat. rev. Sclerotized tooth in valvula IX, sometimes bifid as in *P. gigas* Klug in Burmeister, 1835 stat. rev. Coupled spermathecal pump of varying proportions, cupuliform in *P. bipunctatus*. Genital capsule with bifid or contiguous ventral rim; cuplike sclerite and cross bridge present but not projected; vesica straight and membranous; *ductus seminis distalis* twice or almost twice the phallosomal length, except in *Pachylis pharaonis*; disticonjunctiva with two pairs of processes, one anterior upper lateral hook-shaped, and one posterior of variable shape (rounded, sinuous or bifid) and as wide as long.

REMARKS

The diagnostic characteristics of *Pachylis* and *Thasus* are identical, with only the absence or presence of the ventral expansion in the posterior metatibiae purportedly distinguishing them (Brailovsky *et al.* 1994b; Brailovsky & Guerrero 2014). In the cladistic analysis the ventral expansion resulted homoplastic, not allowing for the separation between *Pachylis* and *Thasus* as suggested by previous taxonomic works (Brailovsky *et al.* 1994b; Brailovsky & Guerrero 2014). Therefore, the classification presented here is based on the phylogenetic results.

Pachylis acutangulus Stål, 1858[1859] stat. rev.

Pachylis acutangulus Stål, 1858[1859]: 439 (*acutangula*); 1862: 275; 1870: 132. — Walker 1871: 53. — Uhler 1886: 10. — Distant 1881: 108; 1892: 352. — Lethierry & Severin 1894: 14. — Blöte 1938: 303. — CoreoideaSF Team 2020.

Thasus acutangulus — Gibson & Carillo 1959: 23. — Aldrich & Blum 1978: 58. — Schaefer & O'Shea 1979: 521. — O'Shea 1980: 219. — Brailovsky *et al.* 1994b: 325. — Schaefer & Packauskas 1997: 206. — Arnett 2000: 256. — Forbes & Schaefer 2003: 240. — Packauskas 2010: 187. — Linares & Orozco 2017: 20. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — **Mexico** • 1♂; Baja Calif. Sur. 5 km. E San Antonio; R. L. Aalbu col.; VIII.[19]75; CAS • 3 ♀; Chiapas, N. slope of Cerro Bola N. Cerro Tres Picos; 1224–2134 m alt.; El Sumidero 18 km N. Tuxtla Gutier rez; alt. 1372 m; D. E. Breedlove, Carolyn Mullinex; 5.V/19.VIII.1972; CAS • 1♂; Vera Cruz, Koebele, Koebele Collection; CAS; Sta. Rosa, Toledo, Veracruz 1200 m, Pe. Moure & R. Ayah; 14.VIII.1982; DZUP361301.

Guatemala • 1♀, 7♂; Panajachel, D. Q. Cavagnaro & M. E. Irwin Collectors; 19.VIII.63 [1963?].

Pachylis argentinus Berg, 1879

Pachylis argentinus Berg, 1879: 64–66. — Lethierry & Severin 1894: 13. — Pennington 1920: 15. — Bosq 1937: 116; 1940: 403. — Blöte 1938: 303. — Ruffinelli & Pirán 1959: 26. — Grazia-Vieira & Casini 1973: 61. — Schaefer & O'Shea 1979: 521. — O'Shea 1980: 211. — Packauskas 2010: 176. — Garcete-Barrett 2016: 129. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — **Brazil** • 2 ♀; Rio Grande do Sul, Uruguai-ana; 23.IX.1993; João Cantarelli col.; MCTP 22915, 22906 • 1♂; 1.XI.1993; Roberto Vieira col.; MCTP 22922.

Argentina • 2♂; Buenos Aires; sobre pileta natación; IX.1938; M. Viana col. • 1♂; San José (cufra); 8.XII.91; 13C74a26; E. F. Acosta y Lara col. • 3♂; La Plata, jardín botánico, Facultad de Agronomía; 25.XI.1955; sobre *Acacia cavenia*; J. Marchioni col. • 1♂; Corrientes, São Roque; II.1980 • 1♀; Casco Urbana, La Plata, Ba, Aq.; I.17; Varela col.; MLPA • 2♂, 1♀; Tucuman, Capital; X.1938; IBSP 0006.835, 0006.827, 0006.804 • 1♂; IBSP 0006.831 • 1♀, 1♂; Cordoba, Capilladel Monte; XI.1943; MNHCI 10565, DZUP 361464.

Pachylis bipunctatus (Thunberg, 1825)

'De Bruine Dikspriet' (vernacular name) Stoll, 1784: 102. — CoreoideaSF Team 2020.

Pendulinus bipunctatus Thunberg, 1825: 6. — CoreoideaSF Team 2020.

Pachylis bipunctatus — Stål 1867: 158; 1870: 132. — Lethierry & Severin 1894: 13. — O'Shea 1980: 211. — Packauskas 2010: 176–177. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — **Brasil** • 6♂, 1♀; Goiás, Campinas; R. Spitz leg.; I.18[1918?], I/II.38[1938?]; MCNZ 4749, 4750, 4754, 4755, 4759, 4760, 4763 • 14♀, 5♂; Espirito Santo: Santa Tereza; C. Elias leg.; XI.64, 3/4/7.XII.64, 21.II/14.IV.1966; DZUP 361321, 361322, 361323, 361324, 361326, 361327, 361328, 361329, 361332, 361333, 361334, 361335, 361336, 361337, 361338, 361340, 361341, 361342, 361343, 361448 • 1♀; Rio de Janeiro, Petrópolis; J. Bechny col.; 5–7.III.1962; MZSP 1792 • Rio de Janeiro, Maria

Comprida – Secretário, [Petrópolis?]; Jane M. Costa Col.; 16.XI.93; FIOC 77252 • 1 ♂; São Paulo; Guarulhos, P. A. Blumer leg.; 1953; MHNCI 15353 • 1 ♀; São Paulo; Ipiranga, Hempel, XI.[19?]19; FIOC 81045 • 5 ♂, 2 ♀; São Paulo; O. F. col., B. L. R., VI.1932; III/IV.1933; IBSP 0.006.817, 0.006.824, 0.006.826, 0.006.830, 0.006.832, 0.006.833, 0.006.836 • 1 ♂; São Paulo; A. Monteiro “[col.?”]; Coleção Ferracioli; 2.IX.55; MZSP 2186 • 1 ♀, 1 ♂; São Paulo; Diadema, Eldorado; 23°43’41”S, 46°37’28”O; III.2011; MZSP without numbers • 2 ♂; São Paulo; São Bento do Sapucaí, L. Backup leg.; I.1953; MCNZ 4751, 4762 • 1 ♀, 1 ♂; no data; MZSP 1805, 1806.

Pachylis carchinus (Brailovsky & Barrera
in Brailovsky *et al.*, 1994b) n. comb.

Thasus carchinus Brailovsky & Barrera in Brailovsky *et al.*, 1994b: 325. — Packauskas 2010: 188. — CoreoideaSF Team 2020.

Pachylis gigas Klug, 1835
in Burmeister (1835) stat. rev.

Pachylis gigas Klug in Burmeister, 1835: 338. — Brullé 1835: 368. — Blanchard 1840: 121. — Dallas 1852: 383. — Stål 1862: 275; 1867: 158. — Walker 1871: 52. — Wilson 1909: 91. — Blöte 1938: 303. — CoreoideaSF Team 2020.

Thasus gigas – Stål 1870: 132. — Distant 1881: 108; 1892: 351. — Lethierry & Severin 1894: 14. — Gibson & Carrillo 1959: 24. — Schaefer & O’Shea 1979: 521. — O’Shea 1980: 219. — Schaefer & Mitchell 1983: 600. — Manna 1984: 194. — Henry & Froeschner 1988: 89. — Brailovsky *et al.* 1994b: 325; 1994a: 247; 1995: 73. — Schaefer & Packauskas 1997: 206. — Forbes & Schaefer 2003: 239. — Packauskas 2010: 188. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — Mexico • ♂; Aguascalientes Rincon de Romos, 6300’ rocks, Agave; R. L. Aalbu col.; 9.VII.82[1982?] • 3 ♂; 1 ♀; Cuernavaca, Crawford; CAS • 1 ♂, 1 ♀; Querétaro St., Villa Bernal; 20°44’41”N, 99°56’22”W; 2060m a.s.l.; J. E. Eger & H. Brailovsky; 1.VII.2015; FSCA • 4 ♀; Zimapan; 26/29.VIII.41[1941?]; CAS • ♂; Estado de Morelos; 8 km S. of Cuernavaca; 1300m; Edward S. Ross; 6.IX.1980; CAS.

Pachylis heteropus (Latreille, 1811) stat. rev.

Coreus heteropus Latreille, 1811: 189. — CoreoideaSF Team 2020.

Pachylis heteropus – Dallas 1852: 385. — Stål 1870: 132. — Walker 1871: 53. — Blöte 1938: 304. — CoreoideaSF Team 2020.

Thasus heteropus – Lethierry & Severin 1894: 14. — O’Shea 1980: 219. — Froeschner 1981: 23. — Brailovsky *et al.* 1994b: 330. — Packauskas 2010: 188. — CoreoideaSF Team 2020.

Pachylis luteolus (Brailovsky & Barrera
in Brailovsky *et al.*, 1994b) n. comb.

Thasus luteolus Brailovsky & Barrera in Brailovsky *et al.*, 1994b: 325. — Schaefer & Packauskas 1997: 207. — Packauskas 2010: 188. — CoreoideaSF Team 2020.

Pachylis neocalifornicus (Brailovsky & Barrera
in Brailovsky *et al.* 1994b) n. comb.

Pachylis gigas (misapplied name (CoreoideaSF Team 2020)) – Uhler 1875: 831; 1876: 295; 1877: 1325; 1886: 10; 1894: 232. — Torre-Bueno & Ambrose 1936: 184. — Blöte 1938: 303. — CoreoideaSF Team 2020.

Thasus gigas (misapplied name (CoreoideaSF Team 2020)) – Glover 1876: 56. — Distant 1881: 108. — Van Duzee 1917: 92; 1923: 132. — Torre-Bueno 1942: 184; 1940: 102. — O’Shea 1980: 213. — Froeschner 1988: 89. — CoreoideaSF Team 2020.

Thasus acutangulus (misapplied name (CoreoideaSF Team 2020)) – Torre-Bueno 1940: 45; 1941: 54; 1945: 83. — Slater & Baranowski 1978: 57. — O’Shea 1980: 218. — Arnett 2000: 256. — CoreoideaSF Team 2020.

Thasus sp. – Jones 1993: 6.

Thasus neocalifornicus Brailovsky & Barrera in Brailovsky *et al.*, 1994b: 325. — Forbes & Schaefer 2003: 235. — Prudic *et al.* 2008: 734-741. — Packauskas 2010: 189. — Forthman *et al.* 2019: 529, 529; 2020: fig. 3. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — United States • 1 ♀; Dabrin Canyon D. Catalmambi, Arizona; F. M. Jones coll.; 24.IX.[?]23; CAS • 3 ♀, 3 ♂; Arizona, Madera Canyon, Pina County, 8 mi SE Continental; Mountain View (*Prosopis juliflora*); JCS/MLP, R. L. Aalbu coll.; J. Helfer col.; D. B. Thomas coll.; coll. Steve Fend Saelon Renks 607; 3.X.1960; 20.VIII.1971; 7.VIII.1972, 16.VIII.[19?]76, 14.VIII.1981; CAS • ♀, ♂; Box/Madera Canyon AZ; 11.VIII. [19?]77 • 1 ♀, 1 ♂; Arizona, Patagonia, J. W. coll., E. R. Leach; VIII. [19?]38; 1.VIII.1940; CAS • 2 ♀, 2 ♂; Arizona, Cochise Co. Mule Mts, Mule Gulch, AZ80 & Dbl Adobe Rd; 31°26.5’N, 109°49.5’W; Desert grass land; 1400 m; Barrick Museum 0433, San Bernardino Ranch, WL Partt, P. R. Emrlich leg.; 30.VIII. [19?]61; 7.VIII.1995; CAS • 1 ♂; Arizona, Cochise Co. Benson; Richard M. Brown; 5.VIII.2001; CAS • 1 ♀; Santa Cruz Co., Tumacacori, AZ; IX.1993; CAS.

Mexico • 4 ♂, 2 ♀; Baja Calif. Sur Miraflores; 5.0 km E San Antonio; H. G. Real & R. E. Main; R. L. Aalbu coll.; 8.VIII.1971/23. VIII.75(1975?); CAS • 2 ♀, 2 ♂; Sonora 5min N. E. Santa Ana; R. L. Aalbu collr. 1.VIII.73(1973); CAS • 4 ♀, 1 ♂; Sinaloa, Rio Fuerte at Hwy. 15, Mazatlan; R. L. Aalbu collected at Blacklite; VIII.68(1968?), 17/30.VII.73(1973?); CAS • 1 ♀; Aguascalientes & Jalisco border on rt. 45 Acacia scrub 6500’; Rolf L. Aalbu coll., 9.VII.1982; CAS • 1 ♂; Michoacan 25min W La Barca nr. Lago de Chapala; Griswold & Jackson coll.; 11.IX.76(1976?); CAS.

Unspecified Locality Data. 2 ♀, 1 ♂; Ariz. Snoru.; EPVanDuzee coll.; CAS.

Pachylis nervosus Dallas, 1852

Pachylis nervosus Dallas, 1852: 383. — Dohrn 1859: 30. — Stål 1870: 132. — Walker 1871: 52. — Lethierry & Severin 1894: 13. — Van Duzee 1901: 346. — O’Shea 1980: 211. — Packauskas 2010: 178. — Linares & Orozco 2017: 16. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — México • 1 ♀; Yucatan; CAS • 3 ♀; Chiapas, S. slope of Cerro Vernal 13 mi. S. of Tonalá; alt. 610 m; 5.X.1974; D. E. Breedlove & J. A. Breedlove; CAS • 1 ♀, 1 ♂; Cuernavaca, Crawford; CAS.

Belize • 1 ♀; California Academy of Sciences Collection 180 Gift from Pomona College; CAS 4736.

Costa Rica • 1 ♂; Mrs. E. L. Kerr coll.; 1.IX.1906.

Panamá • 7 ♂, 5 ♀; Canal Zone, Fort Clayton, Paul W. Johnson Pres. to Calif. Acad. Sci. by David Johnson, Pres. by K. E. Frick

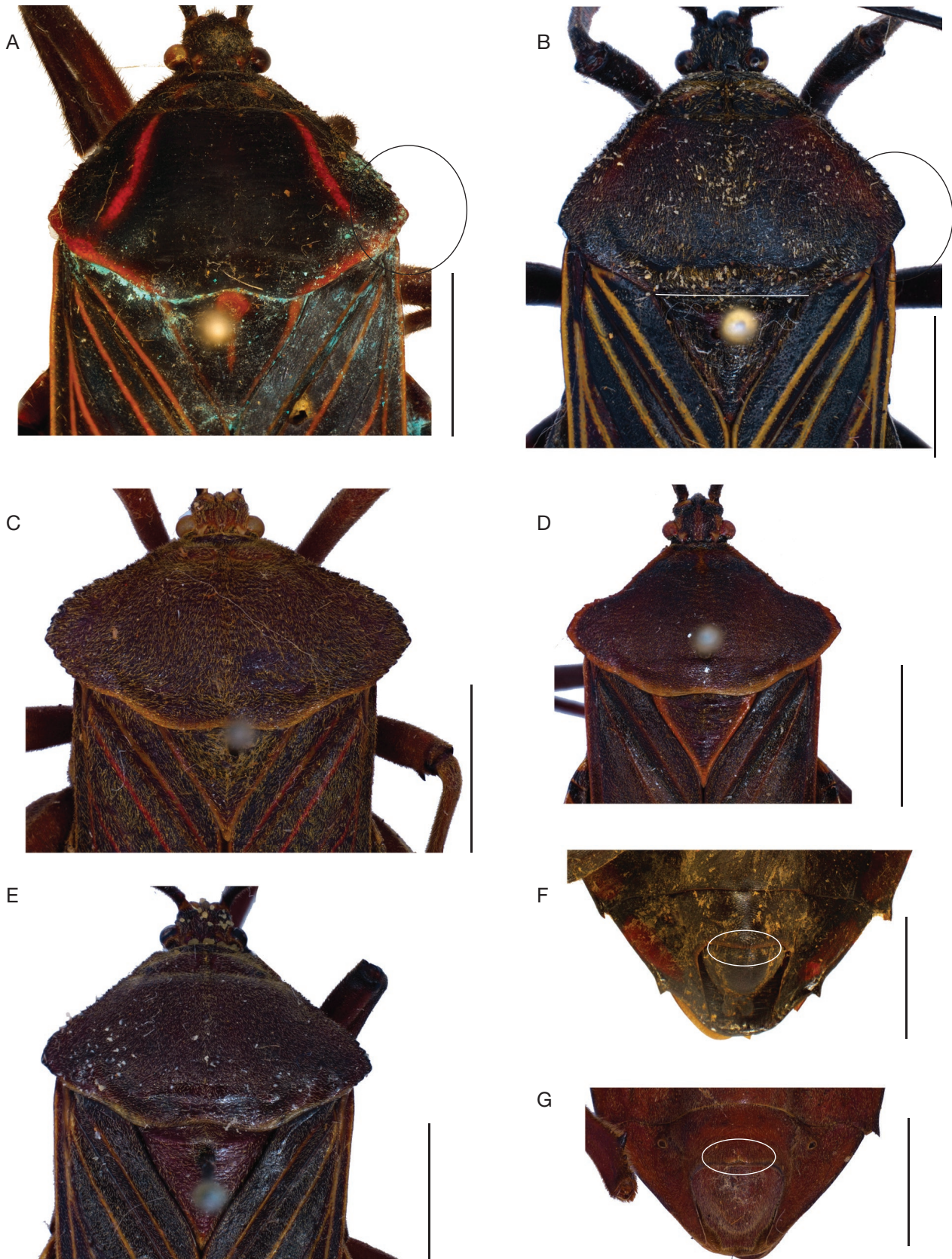


FIG. 17. — **A, F**, *Pachylis pharaonis* (Herbst, 1784); **B**, *Pachylis gigas* Klug, 1835 in Burmeister (1835) stat. rev.; **C, G**, *Pachylis bipunctatus* (Thunberg, 1825); **D**, *Pachylis argentinus* Berg, 1879; **E**, *Pachylis nervosus* Dallas, 1852; **A-F**, dorsal view; **F-G**, ventral view. Scale bars: A-G, 5 mm.

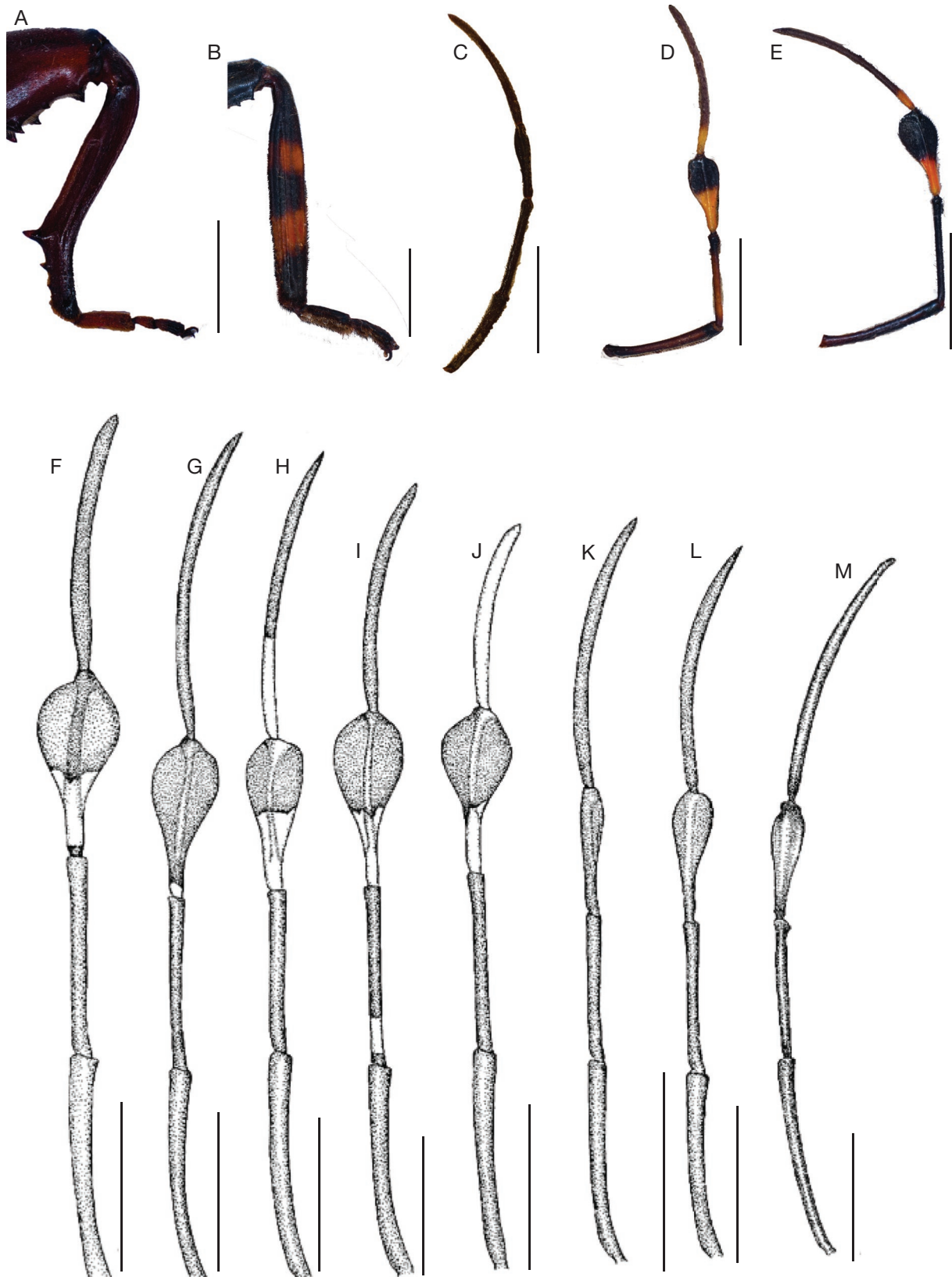


FIG. 18. — **A, D**, *Pachylis peramplus* Brailovsky & Guerrero, 2014; **B, F**, *Pachylis gigas* Klug in Burmeister, 1835 stat. rev.; **C**, *Pachylis pharaonis* (Herbst, 1784); **E**, *Pachylis nervosus* Dallas, 1852; **G**, *Pachylis carchinus* (Brailovsky & Barrera in Brailovsky et al., 1994B) n. comb.; **H**, *Pachylis rutilus* (Brailovsky & Barrera in Brailovsky et al., 1994b) n. comb.; **I**, *Pachylis acutangulus* Stål, 1858 stat. rev.; **J**, *Pachylis neocalifornicus* (Brailovsky & Barrera in Brailovsky et al., 1994b) n. comb.; **K**, *Pachylis heteropus* (Latreille, 1811) stat. rev.; **L**, *Pachylis luteolus* (Brailovsky & Barrera in Brailovsky et al., 1994b) n. comb.; **M**, *Pachylis odonnellae* (Schaefer & Packauskas in Brailovsky et al., 1994b) n. comb. **A-M**, dorsal view. Scale bars: 5 mm. Image credits: F-M, modified from Brailovsky et al. (1994B).

coll.; IV.44(1944?); 25.IX.45(1945?), 23.VII/10.VIII.1956; CAS. **Brazil** • 1♀; Amazonas, Manaus; INPA; E. F. Ribeiro; 12.III.1982; INPA. **No Data** • ♀; CAS.

Pachylis odonnellae (Schaefer & Packauskas
in Brailovsky *et al.*, 1994b) n. comb.

Thasus odonnellae Schaefer & Packauskas in Brailovsky *et al.*, 1994b: 325. — Packauskas 2010: 189. — CoreoideaSF Team 2020.

Pachylis peramplus Brailovsky & Guerrero, 2014

Pachylis peramplus Brailovsky & Guerrero, 2014: 368. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — **Panamá** • 1♀; Tres Rios Plantation, Gatun, C.Z. [Panamá?]; T. O. Zachokke Collector; III.1930; CAS • 3♀; Canal Zone, Fort Clayton; Paul W. Johnson Pres. to Calif. Acad. Sci. by David Johnson, Pres. by K. E. Frick Collector; 15.III.45, 23.VII/10.VIII.1956; CAS.

Peru • 2♀, 1♂; Dept. Amazonas Montenegro; forested Mtn. slopes; 300 m a.s.l., P. C. Hutchison and J. K. Wright Collection; 22-25.I.1964; CAS without numbers.

No Data • 1♀; P. C. Hutchison and J. K. Wright Collection; CAS.

Pachylis pharaonis (Herbst, 1784)

“Pharaos-Wantz” (vernacular name) Stoll, 1780: 19. — CoreoideaSF Team 2020.

“De Pharaos-Wantz” (vernacular name) Stoll, 1782: 75. — CoreoideaSF Team 2020.

Cimex pharaonis Herbst, 1784: 258. — CoreoideaSF Team 2020.

Cimex seriatus Reich, 1795: 133. — CoreoideaSF Team 2020.

Lygaeus psotomphaneg Lichtenstein, 1796: 110. — CoreoideaSF Team 2020.

Lygaeus pharaonis Fabricius, 1803: 208. — CoreoideaSF Team 2020.

Pendulinus bilineatus Thunberg, 1825: 4. — Stål 1855: 347. — CoreoideaSF Team 2020.

Pachylis fallax Stål, 1862: 276. — Stål 1870: 131. — Walker 1871: 53. — CoreoideaSF Team 2020.

Pachylis laticornis – Walker 1871: 52. — CoreoideaSF Team 2020.

Pachylis pharaonis – Burmeister 1835: 338. — Spinola 1837: 135. — Blanchard 1840: 122. — Westwood 1842: 13. — Amyot & Serville 1843: 194. — Herrich-Schaeffer 1851: 259. — Dallas 1852: 383. — Stål 1862: 276; 1868: 46; 1870: 131. — Mayr 1866: 91. — Walker 1871: 52. — Distant 1881: 107. — Berg 1892: 65-66. — Lethierry & Severin 1894: 14. — Pennington 1920: 13. — Monte 1937: 70. — Blöte 1938: 303. — Piza 1945: 120. — Schaefer & O’Shea 1979: 521. — Ueshima 1979: 69. — O’Shea 1980: 211. — Froeschner 1999: 47. — Packauskas 2010: 178. — Garcete-Barrett 2016: 131. — CoreoideaSF Team 2020.

TYPE MATERIAL (PHOTOS). — Synonym type • *Lygaeus pharaonis*, Fabricius, 1803 – types • 1♂; ZMUC 00101310, labels: “Amer. merid. Schmidl Mús. de Sehestedl; Lygaeus pharaonis Fabr.” • 1♀; ZMUC 00101311, labels: “Amer. merid. Schmidl Mús. de Sehestedl;

Lygaeus pharaonis Fabr”, “*Lygaeus pharaonis* Herbst Syst. Rhyng. P. 208. 20 Leth. Et Serv. P. 14”, “De lo eks er kun typer for *Lygaeus pharaonis sensu* Frabricius. Ihhe for Herbst’s art.”

NON-TYPE MATERIAL. — **Colômbia** • 1♂; Leticia, Amazonas, Com. Monilla Amela Km 9; Bo MSNM; BTF, Parcela, Alvarez Alfonso Garcia col., OCR-2003; MPUJ.

Peru • Madre de Dios Tambopata, Reserve; 12°50’S, 69°17’W; 300 m; O. Mielke; 25.X.1991; DZUP 361470.

Brazil • 2♂; Amazonas, Manaus; B. C. Ratcliffe; Rosa; 31.VI.1977, 20.XI.82; INPA (without number) • 1♀; Amazonas, Bairro de Petrópolis, Manaus; Jônathas Vieira da Silva; 13.I.78; INPA • 1♂; Pedro, Manaus; T. M. Moraes; 2.VI.82; INPA • 1♀; Aleixo; R. Py-Daniel col.; X.82; INPA • 1♂; Benjamin Constant; Alto Amazonas; MZSP • 2♂; Roraima; F. da Beira, F. M. Oliveira; 7.XI.64; DZUP 361471, 363436 • 3♂; Vilhena, Polonoroeste; C. Elias leg.; 4, 26.IX, 17.XII.1986; DZUP 361302, 361432, 363436 • 1♂; Pará Óbidos, bx. 7 Amazonas; Museu Dirings; MZSP 1846 • 1♂; Óbidos, baixo Amazonas, Dirings; MZSP 1842 • 1♀, 1♂; Óbidos, A. Maller; DZUP 363432, 361467 • 1♂; Tucuruí; Remansão, er. Nunes de Mello; 11.VIII.1980; INPA 5619 • 1♀; Belém, Mocambo, W. L. Overall, I.VI.1981; MPEG 05017075 • 1♂; Monte Dourado, I. S. Gerayeb; 2.XI.1979; MPEG 05016488 • 1♂; Ouro Preto d’Oeste, Projeto Polonoroeste; C. Elias leg.; 18.X.1987; DZUP 361469 • 1♀; Maranhão: Rondônia; Iza, 27.XII.88; MZSP • 1♂; Mato Grosso; Cuiabá, M. Alvarenga; I.1963; DZUP 361455 • 1♂, 1♀; Cáceres, Polonoroeste; 4.XII.1984; C. Elias leg.; DZUP 361459, 361434 • 2♂, 2♀; Est. Fontanilha; R. Humbolt; J. B. Moraes col.; 8.XI.75; L. P. Albuq. and J. B. Hernes; INPA 0173; 3 without number • 1♀, 1♂; Aripuanã, A. B. Rylands; 22.IV.1979; INPA (two without number) • 3♂, 3♀; Chapada dos Guimarães, A. A. Lise; VII.92; MCTP 1734, 1735, 1736, 1737; 1738, 1739, 1740 • 2♀, ♂; Mato Grosso do Sul, Inocência, Campo Bom Farm Hand collected on bush Inhã, R. A. col., 14.X.2015 (FEIS three without number • ♂; Mato Grosso do Sul, (updated location) Faz. Dr José Mendes, Três Lagoas, Exp. Dept. Zool., 14-24.X.1964; MZSP 1825 • ♂; Minas Gerais, Belo Horizonte, O. Monte; IBSP 0.006.825 • 4♀, 1♂; Minas Gerais, Passos, C. Elias leg.; 20-25.XI.61; DZUP 361460, 361457, 361461, 361472; 361476 • 2♀; Minas Gerais, Araxá, C. T. & C. Elias leg.; 5.IX/29.XI.65; DZUP 361458, 361491 • 1♀; Minas Gerais, Varginha; M. Alvarenga; IX.61; DZUP 361462 • 8♀, 2♂; Minas Gerais, Corinto; C. Elias; 1-10.X.1979; DZUP 363422, 363423, 363424, 363425, 363430, 363431, 363433; 363434, 363435, 363483 • 1♀; Minas Gerais, Passos de Caldas, Claudionor Elias; XI.61; DZUP 361473 • 1♀, 1♂; Minas Gerais, Inbiá; C. T. & C. Elias; 20.X.1965; DZUP 361480, 361482 • 1♂; Minas Gerais, Ibiraci; C. Elias leg.; X.61; DZUP 361454 • 8♀, 6♂; Espírito Santo, Santa Teresa; 5.II.64, 12/26/29.X.64, XI.64, 7.XII.64, 3/7/8.XII.64; C. T., C. Elias leg.; DZUP 361451, 361453, 361456, 361458, 361463, 361474; 361475, 361477, 361478, 361479, 361481, 361487, 361488, 361489; 363429 • 1♂; São Paulo; A. Montorse; 19.X.57; Coleção Ferraciolli, São Paulo-SP; MZSP • 1♂; São Paulo, Fazenda Angico, Atibaia, São Paulo, E. B. Montemor; 20.X.1979; ZUEC 3130 • 1♂, 1♀; São Paulo: Guarulhos, P. A. Blumer leg.; I.1955; MNHCI 15356, 15357 • 1♂; São Paulo, Jundiá; N. Shiroma; 27.X.1978; ZUEC 2967 • 3♂, 2♀; Campinas; E. Fornini, F. Böhcher, V. Sanches; 10.VIII.76, 16.X.76, 06/18.XI.1977; ZUEC 1754, 1757, 1760, 2386, 2384 • 5♂, 2♀; Joaquim Egidio, Campinas; M. I. Faccioli, L. H. Allement, C. S. Flores, D. Pedroni, L. Q. Berian, M. A. Magnani; 20/21.X.79, 04.XI.1979; ZUEC 3120, 3122, 3123, 3124, 3125, 3126, 3127 • 1♂; Foz Rio das Pedras, Campinas; G. Merlin col. Coletado em tronco; 5.XI.75; ZUEC 1755 • 2♂; Rio Claro, Claretiano col.; 26.X.33; MHNCI 961, 962 • 1♀, 1♂; Paraná, Porecatu; 20.X.1970; Becker-Hatschback; DZUP 361435, 361449 • 1♂; Paraná, Foz do Iguaçu; XI.1969; Dr E. Cichovski leg.; DZUP 361436 • 1♀; Paraná; C. Mourão; I.52; DZUP 361452 • 1♂; Paraná, Campus do MPEG, Curitiba, Márcio Souza; 17.VI.1993; MPEG 05017788

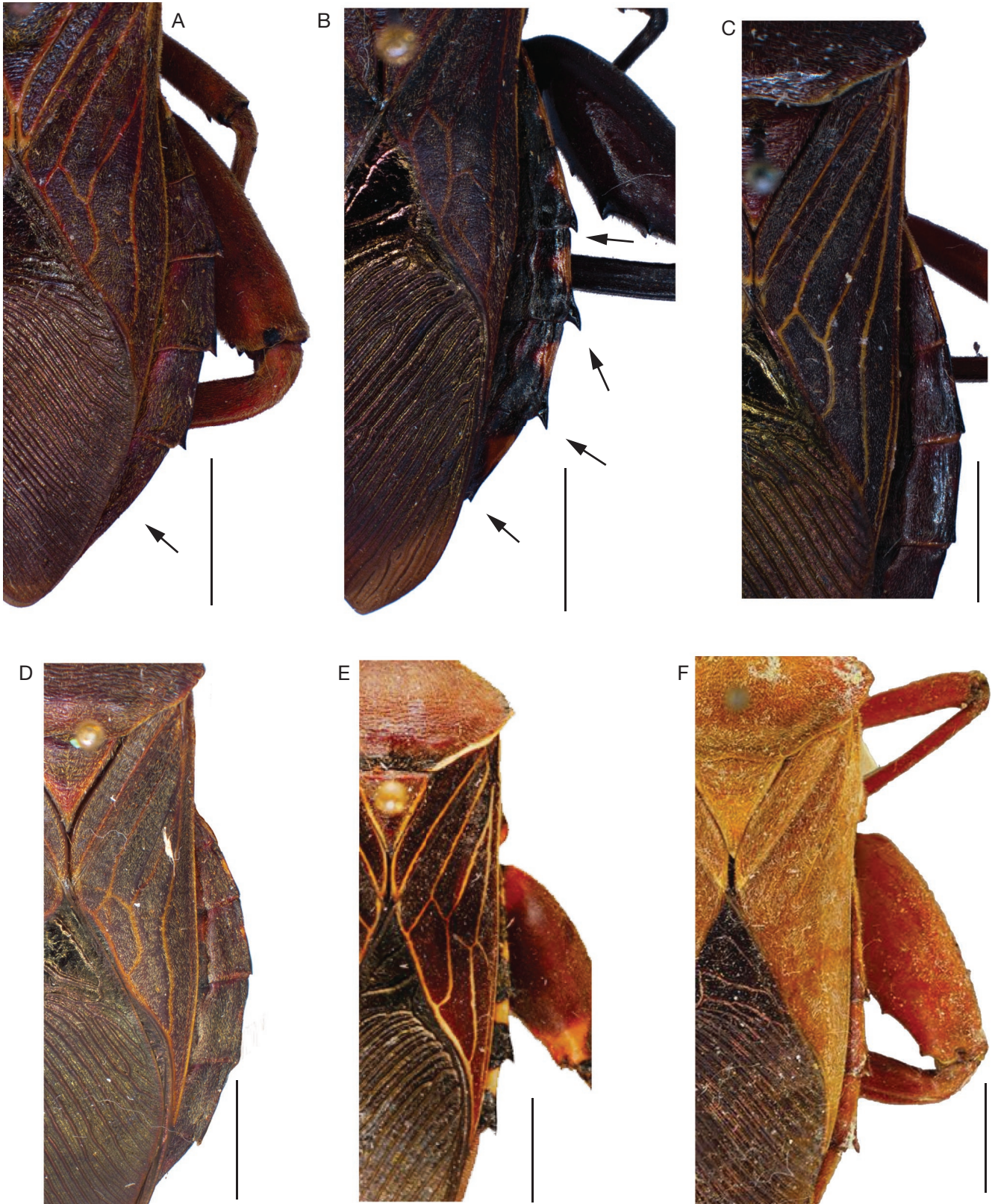


FIG. 19. — **A**, *Pachylis bipunctatus* (Thunberg, 1825); **B**, *Pachylis tenuicornis* Dallas, 1852; **C**, *Pachylis nervosus* Dallas, 1852; **D**, *Pachylis laticornis* (Fabricius, 1798); **E**, *Pachylis luteolus* (Brailovsky & Barrera in Brailovsky et al., 1994b) n. comb.; **F**, *Pachylis odonnellae* (Schaefer & Packauskas in Brailovsky et al. 1994b) n. comb.: **A-F**, dorsal view. Scale bars: 5 mm. Image credits: E, F, modified from CoreoideaSF Team (2020).

• 1 ♂; Paraná, Jussara, H. Florestal; 340 m; Exp. Dept.o ZOO UFPR; DZUP 36433 • 1 ♂; Paraná, Jussara; H. Florestal 340 m; Exp. Dpto. Zoo. UFPR; 12-15.X.1974; DZUP 361440 • 1 ♂; Rio Grande do Sul, Pelotas, Oliveira; 15.XI.1979; MCTP 22910 • 1 ♀; Rio Grande do Sul, Campo Novo, Mielke and Mirra; 9.XI.1985; DZUP 361468.

Argentina • 1 ♂; Misiones; XI. 1958; MLPA • ♂; no data; MLPA.

Pachylis rutilus (Brailovsky & Barrera
in Brailovsky *et al.*, 1994b) n. comb.

Thasus rutilus Brailovsky & Barrera in Brailovsky *et al.*, 1994b: 325. — Schaefer & Packauskas 1997: 207. — Packauskas 2010: 189. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — Brazil • ♀; Roraima, Vilhena, Polonoroeste; C. Elias leg.; 4.XI.1986; DZUP 361300 • 2 ♀; Mato Grosso, Chapada dos Guimarães; Exc. Dep. Zool-UFPR (Polonoroeste); 2.XII.1983; DZUP 361444, 361443.

Pachylis tenuicornis Dallas, 1852

Pachylis tenuicornis Dallas, 1852: 384. — Dohrn 1859: 24. — Stål 1870: 132. — Walker 1871: 52, 53. — Distant 1888: 32. — Lethierry & Severin 1894: 14. — Blöte 1938: 303. — O’Shea 1980: 211. — Packauskas 2010: 178. — CoreoideaSF Team 2020.

NON-TYPE MATERIAL. — Brazil • 1 ♂, 5 ♀; Espírito Santo, Santa Tereza; C. & C. T. Elias leg.; DZUP 361442, 361305, 361446, 361304, 361445, 361447 • 1 ♂; Rio de Janeiro, Fazenda Santa Rosa; 4.II.4[?]; CEIOC 81042 • 1 ♀, ♂; São Paulo, Osasco; 9.XI.1956; M. A. Vulcano col.; MZSP 1790, 1797 • 1 ♂; Paraná, Londrina; Heimtal P, Nord-P, B. Pohl; 12.1944; MZSP 1782 • 1 ♂; Tibagy, Salto da Conceição; 12.57, 5403; DZUP 361465 • 1 ♂; Morretes, S. ala Prata; 28.X.46; DZUP 361466 • 1 ♂, 2 ♂; Santa Catarina; Brusque; V. Becker leg.; 18.XII.67; DZUP 361310, 361309, 361311.

Pachylis obscura Spinola, 1837 *incertae sedis*

Pachylis obscura Spinola, 1837: 137. — Stål 1873: 51 (*Incertae sedis*). — Lethierry & Severin 1894: 23 (*Incertae sedis*). — Brailovsky & Guerrero 2014: 363 (*Incertae sedis*). — CoreoideaSF Team 2020.

Mictis obscura – Stål 1866: 259. — CoreoideaSF Team 2020.

Pachylis striatus (Thunberg, 1825) *incertae sedis*

De Bonte Dikspret (vernacular name) Stoll, 1784: 101. — CoreoideaSF Team 2020.

Pendulinus striatus Thunberg, 1825: 6. — Packauskas 2010: 178. — Brailovsky & Guerrero 2014: 363 (*incertae sedis*). — CoreoideaSF Team 2020.

Pachylis striatus – Stål 1867: 158; 1870: 132. — Lethierry & Severin 1894: 14. — O’Shea 1980: 211. — Packauskas 2010: 178. — Brailovsky & Guerrero 2014: 363 (*incertae sedis*). — CoreoideaSF Team 2020.

Pachylis laticornis (Fabricius, 1798)
(Figs 20–27)

Lygaeus femoratus Lichtenstein, 1796: 107 (name unavailable, ICZN opinion 1820).

Lygaeus laticornis Fabricius, 1798: 538; 1803: 208. — Latreille 1807: 121. — Thunberg 1823: 2. — Burmeister 1835: 339. — Amyot & Serville 1843: 194. — Stål 1870: 131. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pendulinus bidentatus Thunberg, 1825: 6. — Stål 1855: 347; 1870: 131. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pendulinus maculatus Thunberg, 1825: 5. — Stål 1855: 347 (larva); 1870: 132. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pendulinus gigas Thunberg, 1825: 7. — Stål 1855: 347; 1870: 131. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pendulinus grossus Thunberg, 1825: 7. — Stål 1870: 131. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pachylis laticornis – Le Peletier & Serville 1825: 62. — Laporte 1833: 29. — Herrich-Schaeffer 1836: 63–64; 1851: 259; 1853: 146. — Spinola 1837: 135. — Blanchard 1840: 122. — Westwood 1842: 4. — Dallas 1852: 384. — Stål 1855: 347; 1858: 29; 1867: 158; 1868: 46; 1870: 131. — Uhler 1869: 323. — Walker 1871: 52. — Berg 1879: 64. — Distant 1881: 107; 1901: 327. — Lethierry & Severin 1894: 13. — Osborn 1904: 197. — Bergroth 1913: 144. — Torre-Bueno 1915: 218. — Pennington 1920: 13. — Campos 1925: 53. — Monte 1937: 70. — Blöte 1938: 303. — Schaefer & O’Shea 1979: 521. — O’Shea 1980: 211. — Froeschner 1981: 23. — Aldrich *et al.* 1982: 1369. — Schaefer & Mitchell 1983: 600. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pachylis rufitarsis Spinola, 1837: 136. — Stål (1870): 131. — Dallas 1852: 384. — Packauskas 2010: 177 (*rufitarsus*). — CoreoideaSF Team 2020 (*rufitarsus*).

Pachylis grossus Westwood 1842: 13. — Distant 1901: 327.

Thasus grossus – Stål 1870: 133. — Lethierry & Severin 1894: 14. — Distant 1901: 327.

Pachylis serus Berg, 1881: 260–261. — Brailovsky & Guerrero 2014: 362. — Distant 1888: vii. — Lethierry & Severin 1894: 14. — Pennington 1920: 13. — Grazia-Vieira & Casini 1973: 61. — Conceição & Viana Filho 1994: 149. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pachylis gigas – Ueshima 1979: 69. — Packauskas 2010: 177. — CoreoideaSF Team 2020.

Pachylis laticornis var. *annulipes* Blöte, 1938: 303. — O’Shea 1980: 211.

Pachylis furvus Brailovsky & Guerrero, 2014: 369. n. syn.

Pachylis laticornis laticornis – Costa *et al.* 2021: 326.

TYPE MATERIAL (PHOTOS). — *Lygaeus laticornis* Fabricius, 1798 – possible syntype ♂ “Amer. Merid. Schmidt Müs. Jond Lund *Lygaeus laticornis* Fabr”, “Male”, ZMUC 00513668 • *Pachylis grossus* Westwood, 1842 – lectotype ♂; OUMNH, labels: “Type. Westw. (HOPE) C. Hemipt. 1842 Part II, p. 13 Distant, P.Z.S., 1901, p. 325–335”, “hec.(?) femoratus(?) front(?) acuminat(?)”, “Type”, “*Pachylis laticornis* Fabr.”, “*Coreus heteropus* det. Hum(?)...(?)”, “*Cimex femoratus*”, “Type Hem: 309 *Pachylis grossus* Westwood HOPE DEP. OXFORD” • *Pachylis laticornis annulipes* Blöte, 1938 – holotype ♀, RMNH, labels: “Holotypus VAR.”, “v. Lansberge, Caracas.”, “Museum Leiden. *Pachylis laticornis* F. Det: Blöte”.

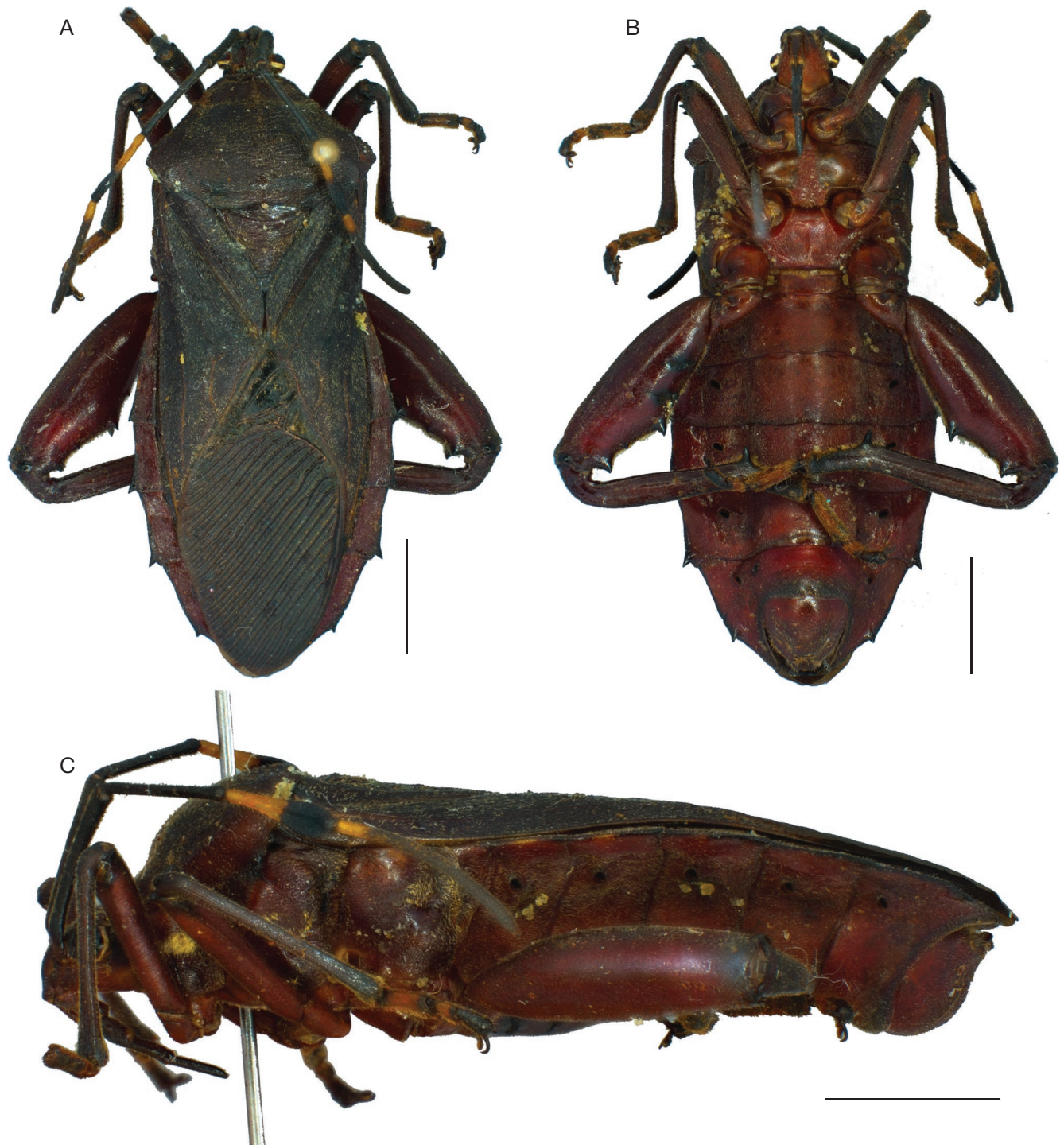


FIG. 20. — *Pachylis laticornis* (Fabricius, 1798) male. **A**, dorsal; **B**, ventral; **C**, lateral. Scale bars: 5 mm.

“Museum Leiden. *Pachylis laticornis* F. v. *annulipes* Blöte Det.” • *Pachylis furvus* Brailovsky & Guerrero, 2014 – holotype ♂; FMNH, data from Brailovsky & Guerrero (2014): Colombia: Meta, Villavicencio, 18.VII.1938, H. Dybas.

NON-TYPE MATERIAL. — Mexico • 1♂; Chiapas, S. slope of Cerro Vernal 13 mi. S. of Tonalá; alt. 610 m; 5.X.1974; D. E. Breedlove & J. A. Breedlove.

Panama • 1♀; Fort Clayton, C. Z.; 15.III.45; K. E. Frick col.; CAS • 1♂; IV.44, K. E. Frick col.; CAS.

Guiana • 1♂; Demerara; 24.IV.01; R. J. Crew; CAS.

Peru • 1♀; Dept. Amazonas, Montenegro, forested, mtn. slopes; alt. 300 m; 22-25.I.1964; P. C. Hutchison and J. K. Wright col.; CAS • 1♀; Leoncio Prado, Tingo Maria, Monzon Valley; 10.XI.1954; E. I. Schlinger & E. S. Ross col.; CAS • 1♀; Satipo; VIII. 1944; P. Paprzyck [77256]; FIOC • 1♀; II.1944; P. Paprzyck [77255]; FIOC. Brazil • 1♂; Amapá, Serra do Navio, Rio Amapari, Diversitas Neotropica; 06.V.1994; Nr. Campo: 326; MZSP • 1♀; Amazonas, Alto Solimões; XII.1979; A. Lise leg. [14721]; MCNZ • 2♂; Amazonas; Benjamin Constant; Rio Javari; III.1961; Dirings; MZSP • 1♀;

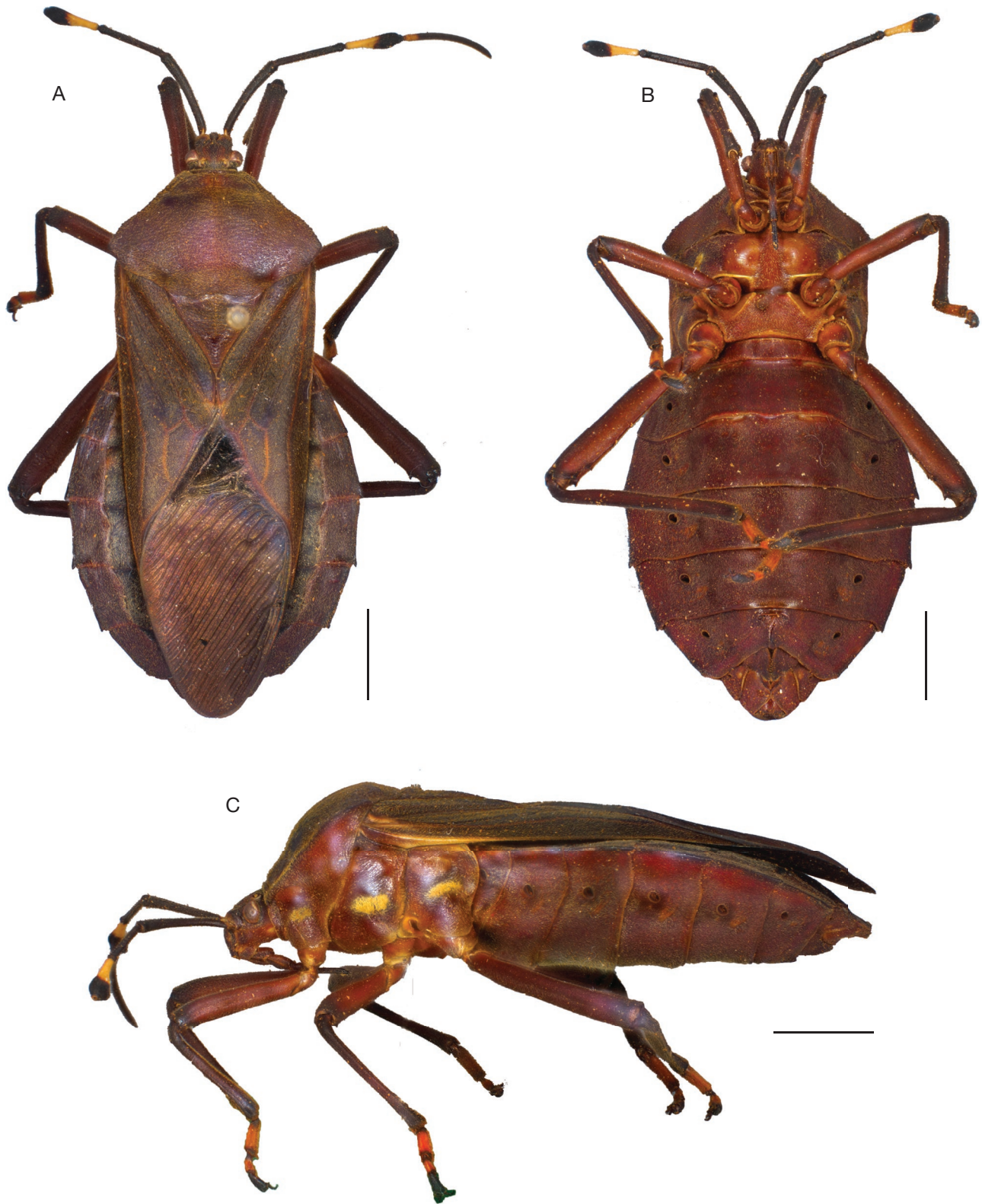


FIG. 21. — *Pachylis laticornis* (Fabricius, 1798) female: **A**, dorsal; **B**, ventral; **C**, lateral. Scale bars: 5 mm.

Amazonas, Manaus, BR 174 km; 18, 26.II.1980; C. Fonseca; INPA • 1♂; Amazonas, Manaus; 18.II.1963; [2499]; INPA • 1♀; Amazonas, Manaus; 17.XI.1978(?1878); Cristovão; INPA • 1♀; Amazonas, Manaus; I.N.P.M.; III-IV.76; Montouchet & Buhrnhein col. [1758];

ZUEC • 1♀; Amazonas, Manaus; 17.XI.1978; Cristovão; INPA • 1♂; Amazonas, Manaus; 24.IV.76; Nilce; INPA • 1♂; Amazonas, Manaus, BR 174 km 45; V.82; E. Oliveira col.; INPA • ♂; Amazonas, Manaus; 27.II.1982; E. F. Ribeiro; INPA • 1♀; Amazonas,

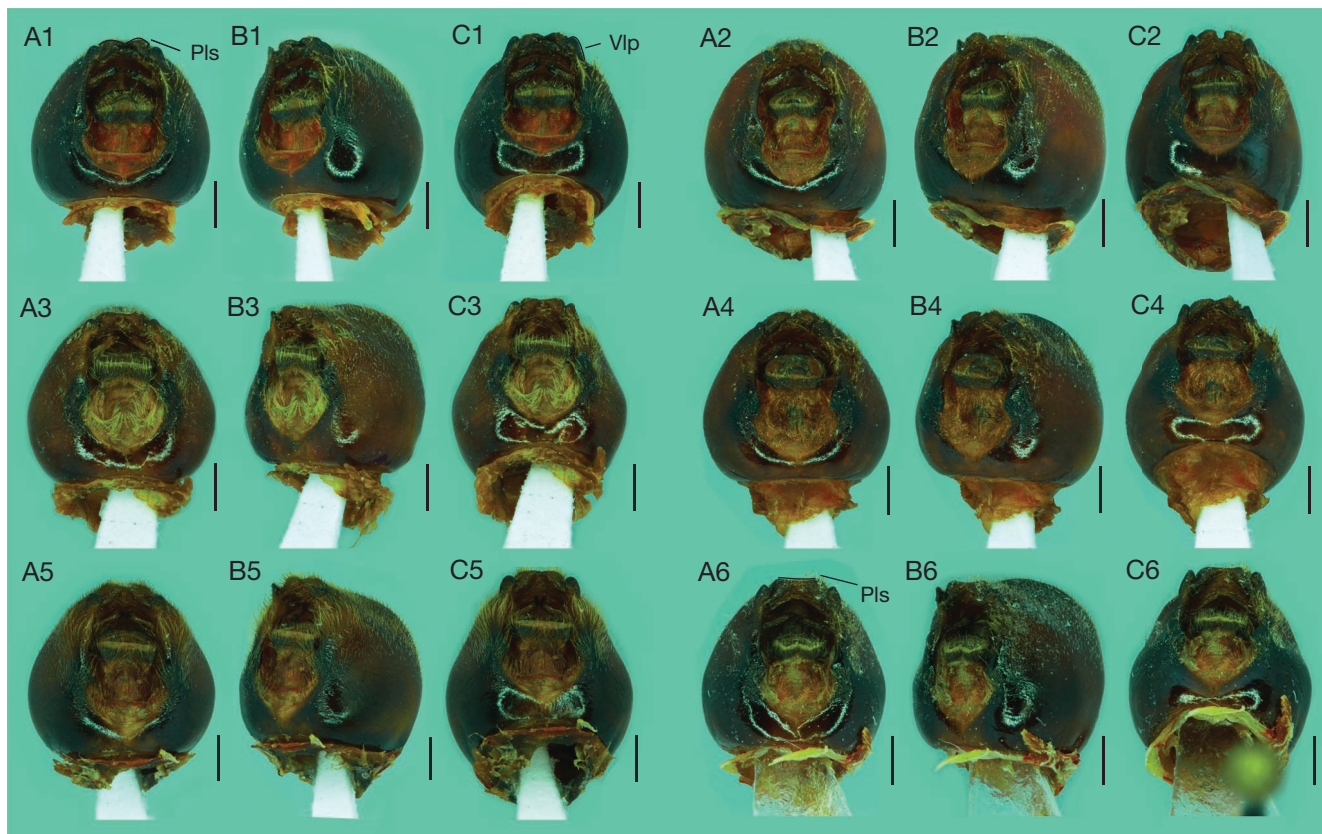


Fig. 22. — Genital capsule of *Pachylis laticornis* (Fabricius, 1798): **A1-6**, dorsal; **B1-6**, dorsolateral; **C1-6**, dorsoanterior. Abbreviations: **Pls**, posterior leaflet surface; **Vlp**, lateral projections of ventral rim. Scale bars: 1 mm.

Manaus; 18.III.1976; Paraluppi; INPA • 1♂; Amazonas, Manaus; 25.V.82; F.U.R., Latorre L. R.; INPA • ♂; Amazonas, Manaus, Est. Aleixo km 4; IV.1975; P. Ivo Braga col.; INPA • 1♀; Pará, Ananindeua; 28.IX.1997; Moacir Ribeiro, [05017941]; MPEG • 4♂; Pará, Baker; CAS • 1♂; Pará, Belém; 22.V.1983; A. L. Henriques; INPA • 1♀; Pará, Belém; 15.IV.1980; A. Barreto [05017129]; MPEG • 2♂; Pará, Serra Norte; 25.VI.1985; N. Bittencourt [05015855; 05015856]; MPEG • 1♀; Paraíba; João Pessoa; VII.1955; Pe. Pereira [1788]; MZSP • 1♂; Paraíba; João Pessoa; VII.1977; Victor Daniel; INPA • 1♀, 2♂; Distrito Federal, Brasília; 29.XI.65; D. Suere M. Becker [004719; 004720; 004721]; MCNZ • 3♀, 2♂; Distrito Federal, Brasília, Campus UnB; 27.X.65; D. Suere M. Becker [004727; 004723; 004745; 004747; 004748]; MCNZ • 1♂; Distrito Federal, Brasília, Campus UnB, sobre cretifera; 27.X.65; C. Alho [004732]; MCNZ • 1♀; Distrito Federal, Brasília, Campus UnB, sobre cretifera; 23.X.65; C. Alho [004734]; MCNZ • 2♀; Minas Gerais; Alpinópolis; II.1961; Claudionor Elias [361317; 361318]; DZUP • 1♀; Minas Gerais; Belo Horizonte, Base da Serra do Curral; 19°57'20"S, 43°54'30"W; 15.IV.2017; H. N. Vasconcelos, N. N. Vasconcelos & M. F. Vasconcelos [H640] (ENT MCN PUC Minas • 1♀, 4♂; Minas Gerais; Ibiá; 11.X.1965; C. Elias leg. [361312; 361313; 361319; 361397; 361398]; DZUP • 1♀, 1♂; Minas Gerais; São Gonçalo do Rio Preto, Parque Estadual do Rio Preto; 18°07'07"S, 43°20'41"W; 28.V.2015; Moreira-Silva L. Paprocki H. [H973; H974]; ENT MCN PUC Minas • 1♀; Espírito Santo, Baixo Guandu; 23-31.XII.1970; C. Elias col. [361303]; DZUP • 1♀; Espírito Santo, Conceição da Barra; 26-30.XI.1968; Tadeu & C. Elias col. [363428]; DZUP • 1♂; Espírito Santo, Conceição da Barra; 24-30.IV.69; C. & C. T. Elias leg. [361441]; DZUP • 2♂; Espírito Santo, Linhares; 2-7.VIII.1974; C. Elias col. [363426; 363427]; DZUP • 2♀, 7♂; Espírito Santo, Santa Teresa; 7.XII.64; C. Elias leg. [361329; 361641; 361642; 361660; 361661; 361662;

361663; 361664; 361665]; DZUP • ♂; Rio de Janeiro, D.F. Corcovado; IX.1959; Alvarenga e Seabra [361330]; DZUP • 1♂; Rio de Janeiro, D.F. Corcovado; XII.1958; Alvarenga e Seabra [361394]; DZUP • 1♂; Rio D.F.; VIII.54; L. B. H.; MCNZ • 1♀; Rio de Janeiro, Manguinhos; I.86; Catharina M.E.G.F. [77253]; FIOC • 1♀; Rio de Janeiro; D. Mendes [0.006.828]; CEAH • 1♂; São Paulo, Campinas, Fazenda Santa Genebra; 17.XI.1977 [2387]; ZUEC • 1♂; São Paulo, Campinas, Santa Genebra; 20.X.2003; E. P. Teixeira col. [7778]; CEAH • 2♀; São Paulo, Guarulhos; I.1953; P. A. Blumer; MHNCI • 1♂; São Paulo, Ilha dos Búzios; 16.X-4. XI.1963 [1775]; MZSP • 1♂; São Paulo, Jundiaí; 28.X.1961; L. R. Silva col. [1777]; MZSP • 1♂; São Paulo, Jundiaí; 5.XII.1961; Werner col. [1783]; MZSP • 2♂; São Paulo, Mogi Guaçu, Faz. Campininha; 17-19.XI.1967; H. Reichardt col. [1784, 1785]; MZSP • 1♂; São Paulo, Represa R. Grande G.B.; 9.I.67; F. M. Oliveira leg. [361395]; DZUP • 1♀; São Paulo, Rio Claro, Lago Azul, leisure area hand collected; 25.X.2008; Cardoso, A. R. col.; FEIS • 1♂; São Paulo, Ypiranga; XI.19; Hempel [81045]; FIOC • 1♂; São Paulo, São Sebastião, Flamboyant; 29.III.89; Martines J. [0.006.834]; CEAH • 1♂; São Paulo, São Pedro, Cerrado; 18-25. IV.2002; Feitosa R. M. col.; MZSP • 2♀, 1♂; Paraná, Jaguariaíva, 3.XI.72, Pe. Moure leg. [361437; 361438; 361439]; DZUP • 1♂; Paraná, Jaguariaíva; 28.XII.66; F. Giacomel leg. [361331]; DZUP • 2♂; Paraná, Jaguariaíva; 28.XII.1969; F. Giacomel leg. [361314; 361396]; DZUP • 1♀, 1♂; Paraná, Jaguariaíva; 2.IX.1974; Rosado Neto [361428; 361429]; DZUP • 1♂; Paraná, Ponta Grossa; XI.1942; MHNCI • 1♀, 1♂; Paraná, Ponta Grossa; XI.1945; MHNCI • 1♂; Paraná, Ponta Grossa, Pedreira; XI.43 [361316]; DZUP • 1♀, ♂; Tibagi, Salto da Conceição; XII.57 [361299; 361393]; DZUP • 1♀; Rio Grande do Sul, Bento Gonçalves; II.55; E. Viana leg. [004756]; MCNZ • 1♀, 1♂; Rio Grande do Sul, Canoas; 27.XI.58;

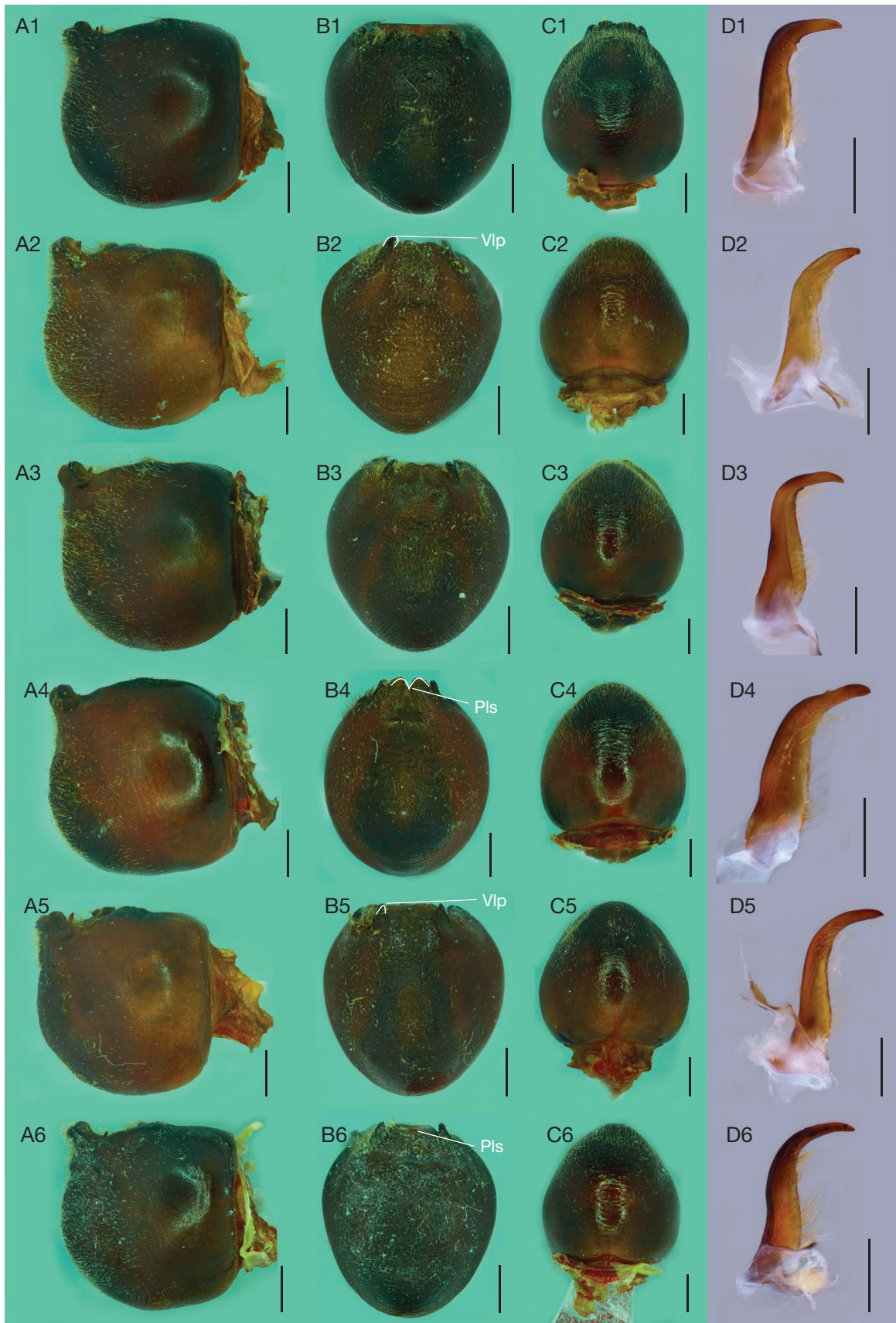


FIG. 23. — Genital capsule (A-C) and paramere (D) of *Pachylis laticornis* (Fabricius, 1798): A1-6, lateral; B1-6, posterior; C1-6, ventral; D1-6, paramere. Abbreviations: Pls, posterior leaflet surface; Vlp, lateral projections of ventral rim. Scale bars: A-C, 1 mm; D, 0.5 mm.

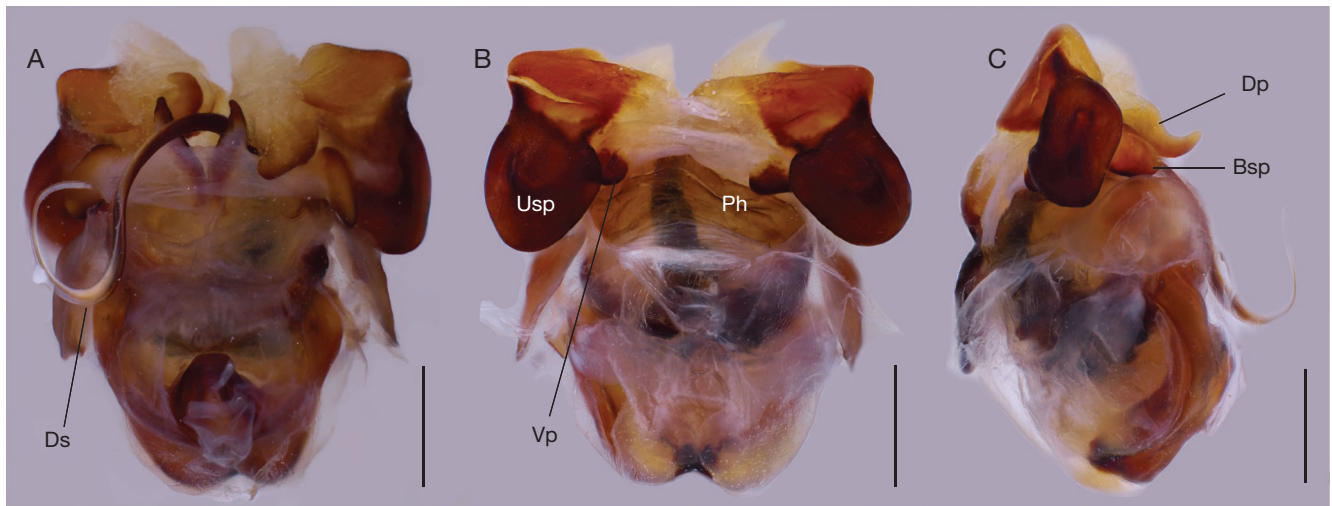


FIG. 24. — Aedeagus of *Pachylis laticornis* (Fabricius, 1798): **A**, dorsal; **B**, ventral; **C**, lateral. Abbreviations: **Bsp**, bottom side process; **Dp**, dorsal process; **Ds**, Ductus seminis; **Ph**, Phallosome; **Usp**, upper side process; **Vp**, ventral process. Scale bars: 1 mm.

D. C. Redaelli leg. [02965; 02967]; MCNZ • 1♀; Rio Grande do Sul, Lageado; I.65; H. Bofinen leg. [02964]; MCNZ • 1♂; Rio Grande do Sul, Montenegro [004743]; MCNZ • ♂; Rio Grande do Sul, Montenegro; 1.XII.1977; A. Lise leg. [11505]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 16.I.76; L. N. Ramos [04923]; MCNZ • ♂; Rio Grande do Sul, Porto Alegre; XII.73; F. Z. da Cruz [04937]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 17.XII.1980; M. Anaide leg. [46425]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 24.XI.1985; T. de Lema leg. [48574]; MCNZ • 2 ♀; Rio Grande do Sul, Porto Alegre; XII.1981; T. de Lema leg. [46321; 46322]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 29.XI.1984; E. M. L. M. Santos leg. [48378]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 20.XII.1977; A. Pereira leg. [14714]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre; 16.VIII.80; Antonio leg. [04924]; MCNZ • ♂; Rio Grande do Sul, Porto Alegre, Verão 62/63 [004742]; MCNZ • ♂; Rio Grande do Sul, Porto Alegre, Belém Novo; 6.XII.62 [04938]; MCNZ • ♂; Rio Grande do Sul, Porto Alegre, Jardim Botânico; XI.1991; A. Pereira leg. [50441]; MCNZ • ♂; Rio Grande do Sul, Porto Alegre, Jardim Botânico; 30.XI.1990 [50363]; MCNZ • ♀; Rio Grande do Sul, Porto Alegre, J. Botânico, XI.1991, A. Pereira leg. [50440]; MCNZ • ♂; Rio Grande do Sul, Triunfo, 27.X.1977, M. E. Lanzer leg. [11503]; MCNZ • 1♀; Rio Grande do Sul, Viamão, Águas Claras; 27.XII.1987; A. P. Nunes leg. [49775]; MCNZ • 1♂; Rio Grande do Sul, Viamão; XI.56; M. Palova leg. [004740]; MCNZ.

DIAGNOSIS. — Black to light brown, usually without evident bands or stains, except for antennomeres III, always with the basal articulation yellow. Antennomeres III expanded, the external expansion larger than the internal. Pronotum semitrapezoidal, with protruding humeral angles, not forming spines, and slightly sloping. Genital capsule with the expansion of the superior layer of ventral rim rounded or triangular; upper lateral process with rounded ventral margin. Proximal conduit of the spermatheca elongated with no more than three turns; spermathecal pump as wide as long.

REDESCRIPTION

Coloration

General color. Black to light brown (Figs 20; 21). Head usually with bands and spots lighter than the general color, such as the union between the mandibular plates, maxillary plates, and clypeus, in addition to macules on the side of the ocelli.

Black or light brown, with a light spot at the base and apex of labial segment II, occasionally the lateral margin of segment I is yellow. Antenniferous tubercles black, often with a lighter outer margin. Antennomeres I and II completely black, sometimes apical portion of antennomeres II yellow; III with black apical half and yellow at base; IV yellow at base and all the rest black. Pronotum black to brown. Black scutellum and in some cases lighter, but not contrasting, lateral margins and apex. Ostioles and peritremes brown, lighter than the pleura. Hemelytral veins rarely lighter than the general color. Light brown coxae and femora, the latter distally black. Tibiae and trochanters usually black, sometimes with yellow tones in the proximal portion. Tarsomeres I and II with black ends and a larger, central yellow portion. Dorsal abdomen light brown, contrasting with the connexivum; abdominal glands scars usually yellow. Connexival segments usually with yellow spots on the central portion and the posterior margin; spiracles sometimes yellowish; abdominal sternites light brown and posterior margin usually yellow. Female sternite VII brown to reddish brown, with darker lateral margins and posterolateral angles; plica usually contrasting, yellow or black. Genital capsule dark reddish brown.

Morphology

Head. Subquadrangular, covered by tiny bristles, mainly in the dorsal surface and antennae. Deflected clypeus, extending beyond the antenniferous tubercles and mandibular plates. Deflected and concave mandibular plates. Antennomeres ratio: IV>I>II>III; antennomere I slightly more robust than II and IV; antennomere III usually expanded between the median portion and the apex, the external expansion larger than the internal, the latter grooved; antennomere IV fusiform.

Thorax. Semitrapezoidal pronotum; collar marked dorsally, laterally not projected in relation to the head and posterior margin slightly concave; anterior pronotal angles subtly projected to the sides, without spine; smooth anterolateral



FIG. 25. — Female genital plates of *Pachylis laticornis* (Fabricius, 1798): A-F, ventral. Abbreviations: **Lt VIII**, laterotergite VIII; **Lt IX**, laterotergite IX; **Vf VIII**, valvifer VIII; **Vf IX**, valvifers IX. Scale bars: 1 mm.

margins, with tubercles close to the humeral angle; salient humeral angles, not forming a spine, in some specimens slightly sloping in posterior view; posterolateral margin truncated and smooth. Pronotal disc with tiny protrusions, usually imperceptible with the thin layer of bristles, which gives a velvety appearance to the surface; pronotal calli smooth, without bristles and not protruding; posterior portion of the pronotal disc deflected in relation to the central portion, giving the

impression of a low carina. Scutellum as wide as long; wider than long in some females; generally with wrinkles irregularly distributed. Hemelytra reaching the last abdominal segment; corium covered by tiny bristles; hemelytral membrane with 4 to 5 basal cells followed by many parallel longitudinal veins. Pleura with few and sparse bristles; in some specimens, tufts of yellowish bristles lateral to the coxal sockets. Scent gland ostiole larger than peritreme; elongated peritreme, with the

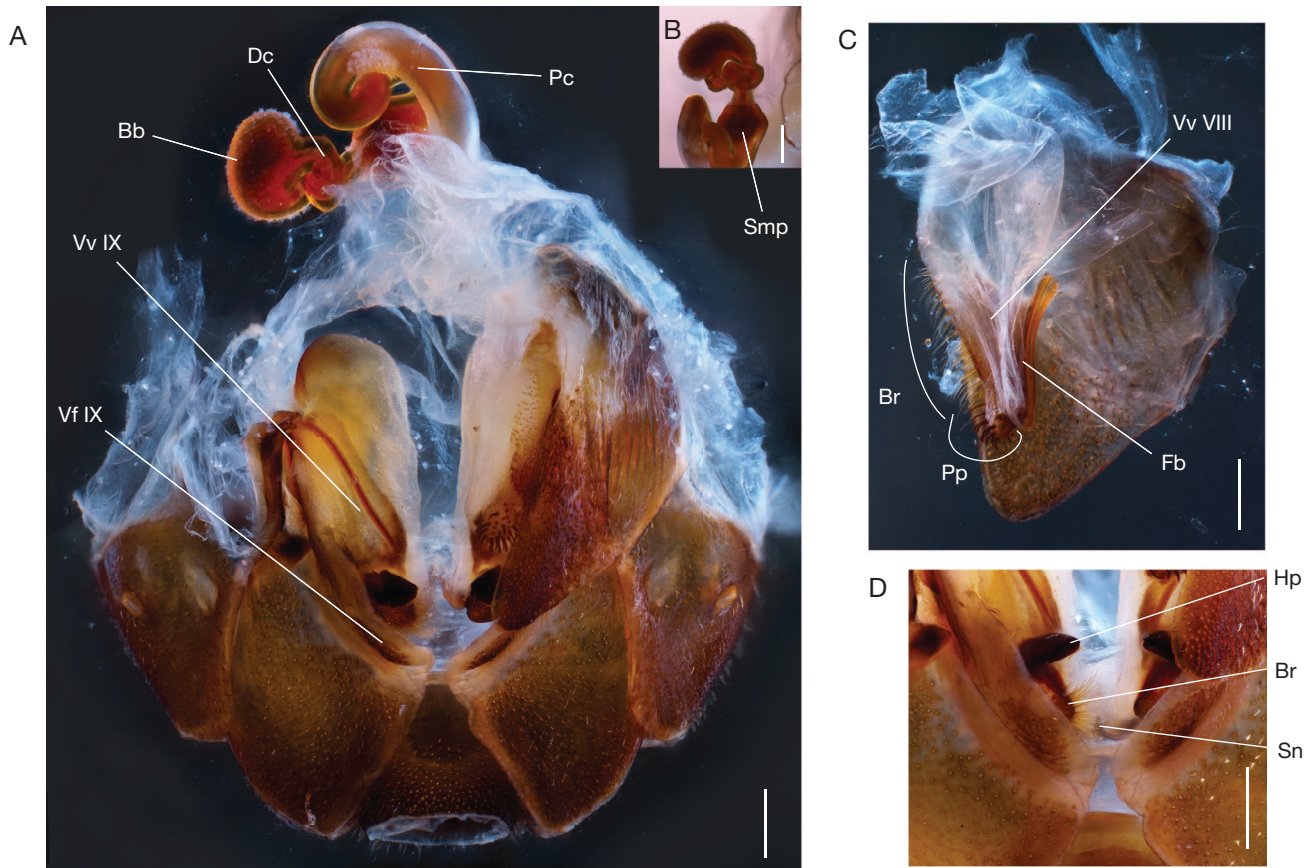


FIG. 26. — Female genital inner of *Pachylis laticornis* (Fabricius, 1798): **A, B, D**, ventral; **C**, dorsal. Abbreviations: **Bb**, spermathecal bulb; **Br**, bristles; **Dc**, distal spermathecal conduit; **Fb**, first branch; **Hp**, hook-shaped process; **Pc**, spermathecal proximal conduit; **Pp**, lobular papillae; **Sn**, spine; **Smp**, spermathecal pump; **Vf IX**, valvifers IX; **Vv VIII**, valvulae VIII; **Vv IX**, valvulae IX; Scale bars: 0.5 mm.

anterior portion larger than the posterior. Reduced prosternum, due to the closeness of the procoxae; meso- and metasternum smooth. Unarmed coxae and trochanters, except the male hind legs. Pro- and mesofemora with a pair of distal spines, positioned side by side and on two reduced carinas; smooth dorsal and lateral margins, including in the metafemora. Metafemora with 4-7 spines arranged in two rows, which may vary in the same individual; the male central and distal spines larger than the others, which may be greater in number than in females; when the female distal spine is robust, subsequent spines progressively smaller towards the femoral apex. Pro- and mesotibiae subtriangular in cross section, without spines, grooved dorsally and with thickened distally. Ventrally expanded metatibiae, the expansion reduced in the female; grooved anteriorly, longitudinally curved in the male and straight in the female; with a ventral row of 3-4 tiny apical spines, one of them larger in the male. Tarsomeres I and II triangular in cross section with numerous setae covering the ventral margin; tarsomere III club-shaped.

Abdomen. Connexivum and sternites with few sparse bristles. Connexiva III-VII with apical spine, usually larger in the male and absent in the female connexivum VII. Spiracles III-VII large, elliptical, and with slightly projected margins. Grooves and punctures near spiracles III-VII. Posterior margin of male's sternite VII uniformly convex, with a median longitudinal

fissure. Posterior margin of female's sternite VII strongly concave, with truncated posterolateral margins not extending beyond the posterior margin of valvifers VIII; presence of a longitudinal fissure with overlapping margins and with the posterior and central margins projected over valvifers VIII. Female plica concave to straight and anterior to the spiracles. Anterior margin of the female tergite IX projected anteriorly. **Male genitalia** (Figs 22-24). Genital capsule covered by bristles posteriorly (Figs 22; 23A-C), piriform in dorsal and ventral views and rounded in posterior view; superior layer of ventral rim expanded in two rounded or triangular lateral projections (Figs 22; 23B: Vlp); posterior margin of the inferior layer of ventral rim straight to sinuous (Figs 22; 23B: Pls). Parameres not visible in rest position, thin and sclerotized; head hook-shaped, foot slightly wider than the body; inner margin grooved (probably the 'inner camber' by Tsai *et al.* (2011)) and covered by long bristles (Fig. 23D). Phallosome markedly sclerotized ventrally (Fig. 24B: Ph). Ductus seminis long and not spiraled, completely enveloped by the membranous vesicle (Fig. 24A: Ds). Disticonjunctiva with an elongated and dorsally slender process (Fig. 24C: Dp); ventrolateral process truncated and striated (Fig. 24B: Vp); lateral inner process rounded (Fig. 24C: Bsp); upper lateral process larger than the others, with the dorsal margin hook-shaped and the ventral rounded and elongated (Fig. 24B: Usp).

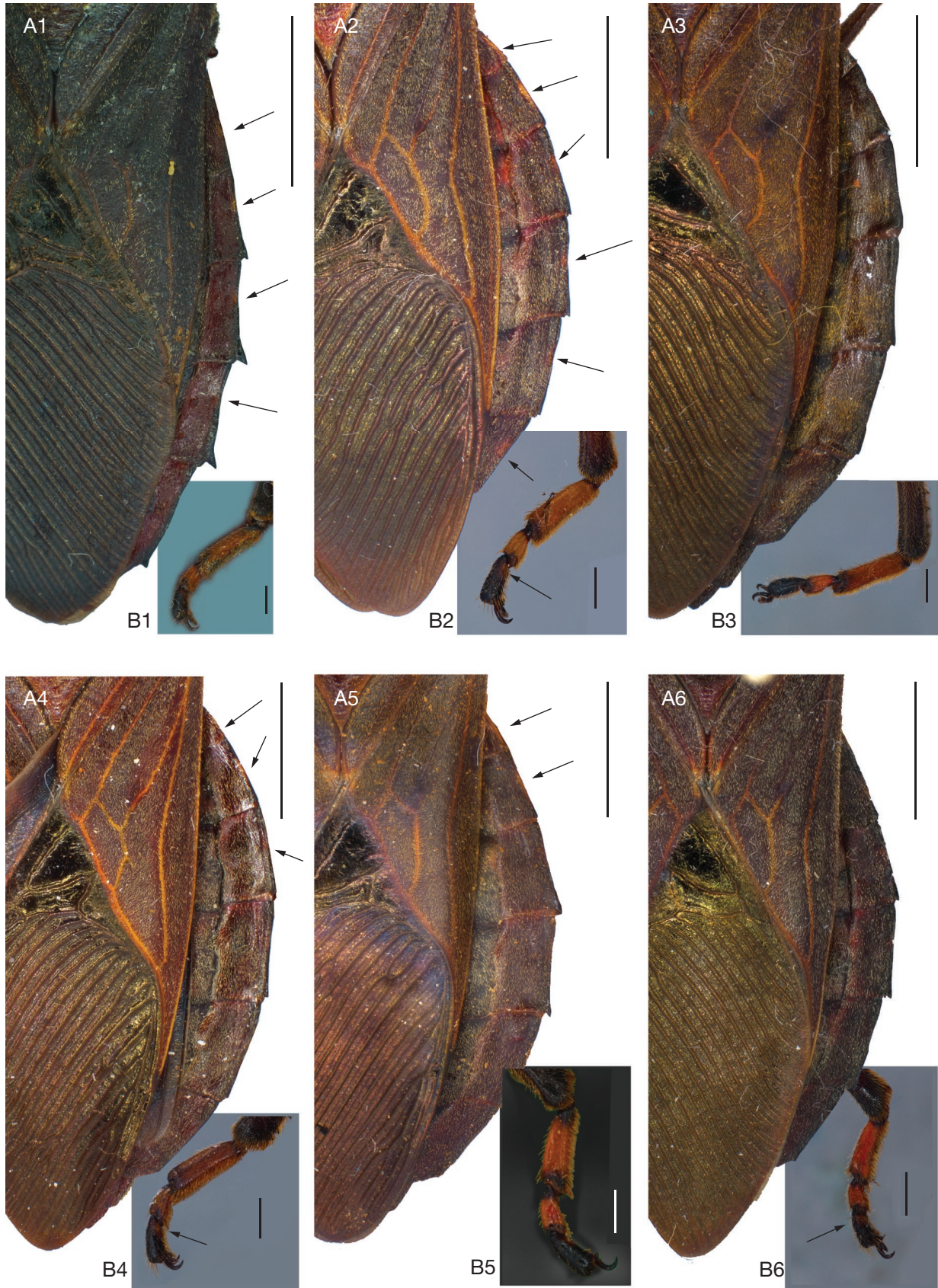


FIG. 27. — Variations in connexiva color (A1-6) and tarsomere III (B1-6) of *Pachylis laticornis* (Fabricius, 1798): A1-6, dorsal; B1-6, lateral. Scale bars: A1-6.5 mm; B1-6.1 mm.

Female genitalia (Figs 25; 26). Triangular laterotergites VIII (Fig. 25: Lt VIII), as long as wide, with spiracles closer to the anterior margin; triangular valvifers VIII (Fig. 25: Vf VIII), with rounded and slightly narrow posterior margin, never exceeding the posterior margin of laterotergites VIII; valvifers IX visible externally (Fig. 25; 26A: Vf IX); triangular laterotergite IX (Fig. 25: Lt IX) tapering to apex; valvulae VIII elongated and semitriangular (Fig. 26C: Vv VIII), lateral margin lined with bristles (Fig. 26C: Br), internally the posterior apex truncated and covered by lobular papillae (Fig. 26C: Pp); anterior fibula first branch (Fig. 26C: Fb) parallel to the internal side of valvulae VIII, not extending beyond the posterior margin; tubular valvulae IX (Fig. 26A: Vv IX), elongated, with posterior margin covered by long, thick bristles (Fig. 26D: Br); convergent and hook-shaped process on the inner side of the valvulae IX posterior margin (Fig. 26D: Hp); gynatrium with marked straps, posterior opening biconcave, sclerotized, and forming a tiny central spine (Fig. 26D: Sn); proximal spermathecal conduit elongated with up to three turns (Fig. 26A: Pc); spermathecal pump as wide as long, coupled-type, where the proximal and distal conduits are heavily sclerotized and difficult to delimit (Fig. 26B: Spm); distal spermathecal shorter than proximal, and with a greater number of turns, generally intertwined (Fig. 26A: Dc); sickle-shaped spermathecal bulb (Fig. 26A: Bb), often covered by a thin membrane.

Measurements. Male and female, mean respectively. Body length – 28.4; 28.0. Head length – 1.9; 1.9 / width – 2.9; 3.0. Antennomere I – 4.9; 4.7 / II – 4.1; 4.1 / III – 3.6; 3.6 / IV – 5.9; 5.5. Length of labial segments I – 1.2; 1.1 / II – 1.2; 1.2 / III – 1.3; 1.2 / IV – 1.7; 1.6. Pronotum length – 6.8; 6.6 / width – 10.1; 11.6; Scutellum length – 4.0; 4.2 / width – 4.0; 4.6.

REMARKS

The absence of a macula in the connexival segments or limited only to the anterior margin and the black tarsomeres III were considered diagnostic characteristics to distinguish *P. laticornis* from *P. furvus* (Brailovsky & Guerrero 2014). *Pachylis furvus*, in turn, would have the central portion of the connexival segments spotted, in some specimens extending to the anterior margin, and bicolor or black tarsomeres III (Brailovsky & Guerrero 2014). We observed different combinations of those characteristics overlapping between species. The presence of connexival macula and the tarsomeres color are even variable between segments in the same individual (Fig. 27). The *P. laticornis* type specimens has the same color pattern as the *P. furvus* holotype (CoreoideaSF 2020). Morphological characteristics, which are markedly different between *Pachylis* species, do not vary between these two species, such as: shape of the posterior margin of the superior layer of ventral rim of the genital capsule; size and position of the posterior projections of the genital capsule; shape of the ventral margin of the upper lateral process of the disticonjunctiva; proportion of the spermathecal pump in relation to the proximal conduit. Considering the above, we conclude *P. furvus* is a junior synonym of *P. laticornis*.

The presence of a median longitudinal fissure in the male sternite VIII distinguishes *P. laticornis*, *P. tenuicornis*, *P. bipunctatus*, and *P. nervosus* from the other species of *Pachylis* s.l. In turn, *P. laticornis* can be distinguished from these three species by the mandibular plates positioned between the antenniferous tubercles. *Pachylis tenuicornis* differs from *P. laticornis* in not having the grooved antennomere III and having a median process on the ventral margin of the female sternite VII. *Pachylis laticornis* differs from *P. bipunctatus* by the irregular anterolateral margins of the pronotum, auricle-shaped peritreme, and grooved metasternum. Unlike *P. laticornis*, *Pachylis bipunctatus* and *P. nervosus* do not have a spine in the male sternite VII. The females of *P. laticornis* are distinguished by the proximal conduit of the elongated spermatheca, with at most three turns, and the spermathecal pump with as long as wide.

DISCUSSION

PACHYLIS' POSITION IN NEMATOPODINI

The analysis strengthens the hypothesis of the positioning of *Pachylis* next to genera currently classified in Nematopodini (clade A) (Packauskas 2010; Brailovsky & Guerrero 2014; CoreoideaSF Team 2020). Most of the characters in clade A are of male genitalia, reinforcing the importance of these characters in the delimitation of Coreoidea groups (O'Shea & Schaefer 1978).

The paraphyly of Nematopodini has already been observed previously (Forthman *et al.* 2019, 2020; Kieran *et al.* 2019; Costa *et al.* 2021). All the Meropachyinae we sampled were recovered in the Nematopodini clade (clade A), confirming previous findings (Forthman *et al.* 2019, 2020; Kieran *et al.* 2019; Costa *et al.* 2021). We recovered *Phthiacnemia picta* (Drury, 1773) among the Nematopodini for the first time. Some of the tribe's diagnostic characters are homoplasies and, because of these, we highlight the need for further phylogenetic analyses, including new characters and more taxa, to better understand the relationships in the subfamily. Molecular studies might also offer further insights to these relationships (e.g. Forthman *et al.* 2020).

PACHYLIS AND *THASUS* AS A MONOPHYLETIC GROUP

Pachylis and *Thasus* have been treated as taxonomically related (O'Shea 1980; Brailovsky *et al.* 1994b; Brailovsky & Guerrero 2014), although their phylogenetic relationships have never been tested. Under the cladistic perspective, the two characteristics traditionally used to delimit each genus, i.e., the expansion in antennomere III and the metatibia, are not recovered as synapomorphies. The antennomere III expansion is variable between species and indistinguishable between genera. The metatibial dorsal expansion present in *Thasus* (characters 41 and 42) has been reported as absent in *Pachylis* (Brailovsky *et al.* 1994b; Brailovsky & Guerrero 2014). The presence of a tibial expansion was not sufficient to keep *T. rutilus* together with the remainder *Thasus* species (clade K), nor to keep all the *Thasus* species separate from *Pachylis*. In the second extra

KEY TO THE SPECIES OF *PACHYLIS* LE PELETIER & SERVILLE, 1825

The present key is based on Schaefer & Packauskas (1997), Brailovsky & Guerrero (2014), and Brailovsky *et al.* (1994B).

1. Humeral angles obtuse but with a small spine (if spine absent, angle obtuse) (Fig. 17A); posterior margin of pronotum with shallow median depression (Fig. 17A). Ventrally expanded metatibiae (Fig. 18A) 2
 — Humeral angles sharp, acuminate, sometimes with a spine (if spine removed, angle remains acuminate) (Fig. 17B); posterior margin of pronotum straight (Fig. 17B). Expanded dorsal and ventral metatibiae (Fig. 18B) 8
2. Antennomeres III black, reduced expansion (less than segment width) (Fig. 18C) 3
 — Antennomeres III bicolor, lighter on basal third or median portion, of red to yellow tones, and the rest black; well-marked expansion (equals or twice the segment width) (Fig. 18D) 5
3. Pronotal disc with two or three dark orange or reddish longitudinal bands (Fig. 17A). Reddish brown scutellum with yellowish lateral margins, apex, and longitudinal band (Fig. 17A). Posterior margin of abdominal sternite VII without a median longitudinal fissure (Fig. 17F) *Pachylis pharaonis* (Herbst, 1784)
 — Pronotal disc light brown and without dark orange or reddish longitudinal bands (Fig. 17C). Dark brown scutellum with lateral margins and apex dark orange, without a light longitudinal band (Fig. 17C). Posterior margin of abdominal sternite VII with a median longitudinal fissure (Fig. 17G) 4
4. Pronotum width greater than 13.20mm (male) and 11.20mm (female). Connexival segments III-VII dark brown (Fig. 19A); posterior margin of connexival segments IV-VI with a small, wider than long spine (Fig. 19A), and male VII without spine *Pachylis bipunctatus* (Thunberg, 1825)
 — Pronotum width is less than 11.60mm (male) and 10.90mm (female). Connexival segments III-VII reddish brown with a yellowish macula in the middle third (Fig. 19B); posterior margin of connexival segments IV-VI with a large, longer than wide spine (Fig. 19B), and male VII with spine *Pachylis tenuicornis* Dallas, 1852
5. Antennomere I light orange, black on base and apex; antennomere II light orange, black on apex (Fig. 18D) *Pachylis peramplus* Brailovsky & Guerrero, 2014
 — Antennomeres I and II black or reddish brown (Fig. 18E) 6
6. Pronotal humeral angles acute and elevated, anterolateral margins yellowish or dark orange yellow (Fig. 17D). Lateral margins of the scutellum yellow (Fig. 18B). Black femora, tibiae, and trochanters. Posterior margin of abdominal sternite VII without a median longitudinal fissure *Pachylis argentinus* Berg, 1879
 — Pronotal humeral angles obtuse, reddish brown to black anterolateral margins (Fig. 17E). Lateral margins of the scutellum reddish brown or black, not contrasting with the disc (Fig. 17E). Femora, tibiae, and trochanters are never entirely black. Posterior margin of abdominal sternite VII with a median longitudinal fissure 7
7. Clavus and corium veins yellow, contrasting with the reddish brown surface of the hemelytra (Fig. 19C). Posterior margin of pronotum markedly yellow (Fig. 17E) *Pachylis nervosus* Dallas, 1852
 — Clavus and corium veins not contrasting with the rest of the hemelytra (Fig. 19D). Posterior margin of the pronotum not contrasting with the disc *Pachylis laticornis* (Fabricius, 1798)
8. Antennomeres III dark, expansion narrow and elliptical (Fig. 18K-M) 9
 — Antennomeres III dark brown (*Pachylis carchinus* n. comb.) or bicolored, expansion broad (Fig. 18F-J) 11
9. Connexival segments IV-VII dark brown, with yellow spots (Fig. 19E). Clavus and corium veins pale, contrasting with the hemelytral surface (Fig. 19E) *Pachylis luteolus* (Schaefer & Packauskas, 1994 in Brailovsky *et al.* (1994B)) n. comb.
 — Connexival segments IV-VII dark brown to orange, without yellow spots (Fig. 19F). Clavus and corium veins not contrasting with the hemelytral surface (Fig. 19F) 10

analysis, although *T. rutilus* claded with the remainder *Thasus* species, the *Thasus* clade nested between *Pachylis* species. Several diagnostic characteristics recorded in the literature for *Pachylis* and *Thasus* (O'Shea 1980; Brailovsky *et al.* 1994b; Brailovsky & Guerrero 2014), are identical, and some were tested here (8: 0; 31: 1). Both genera also share new characters of the male genitalia (66: 0; 71: 1; 74: 1; 82: 0). Although homoplastic, this character set is more robust than the traditional characters and allows a clear definition of *Pachylis* and *Thasus* as a single genus. We highlight the presence of a sclerotized tooth

in valvulae IX, described for *Thasus* females (Brailovsky *et al.* 1994b), which is also observed in *Pachylis*, although not included here as a character in the matrix.

With our phylogenetic hypothesis and previous discussions, we intend to establish a classification reflecting monophyletic groups. Therefore, we propose to synonymize *Thasus* to *Pachylis* (clade I). We henceforward refer to the grouping *Pachylis* + *Thasus* as *Pachylis sensu lato* (*s.l.*) and the previous classifications by Brailovsky & Guerrero (2014) and Brailovsky *et al.* (1994b) as *Pachylis sensu stricto* (*s.s.*) and *Thasus s.s.*, respec-

tively. We propose keeping *Pachylis* classified in Nematopodini because a taxonomic rearrangement of the tribe is beyond the scope of this study.

PACHYLIS LATO SENSU (PACHYLIS + THASUS) AND MELUCHA
Previous phylogenies recovered *Pachylis s.s.* sister to *M. phyllocnemis* (Costa *et al.* 2021), and *Thasus s.s.* sister to *M. quadrivittis* (Forthman *et al.* 2020), but both works included only one species of *Melucha* each. We sampled about 70% of the *Melucha* species (9/13), including those used by Forthman *et al.* (2020) and Costa *et al.* (2021). We found a polyphyletic *Melucha* with both *M. phyllocnemis* and *M. quadrivittis* in the clade (H) sister to *Pachylis s.l.* *Melucha* has the greatest interspecific dissimilarity compared to other Nematopodini genera but a taxonomic revision and a phylogenetic hypothesis including all its species is still lacking. Such studies could better clarify the relationships of all species currently classified in *Melucha* with *Pachylis s.l.* and other genera such as *Vivianadema* Brailovsky, 1987 and *Meluchamixia* Brailovsky, 1987 (Brailovsky *et al.* 1994b).

CONCLUDING REMARKS

This is the first contribution to the taxonomy of *Pachylis* based on a cladistic analysis. We included a large sample of taxa considered either taxonomically or phylogenetically related, clarifying questions regarding the classification of the genus and the validity of Nematopodini. *Thasus*, which we have shown to be a paraphyletic group, is proposed here as a new junior synonym of *Pachylis*. Our study also brought a new diagnosis of *Pachylis* and indicated the synonymy between *P. laticornis* and *P. furvus*. We ratified Nematopodini's paraphyly (Forthman *et al.* 2019, 2020; Kieran *et al.* 2019; Costa *et al.* 2021) and demonstrated that *Piezogaster* and *Melucha* are not monophyletic. Like previous studies (Li 1997; Forthman *et al.* 2019, 2020; Kieran *et al.* 2019; Costa *et al.* 2021), our results did not support the status of Meropachyinae as distinct from Coreinae. Timely analysis can elucidate the relationships between genera currently classified in Nematopodini and Meropachyinae. The inclusion of additional terminals, as well as quantitative and molecular characters, is recommended in future studies.

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APPENDICES

APPENDIX 1. — List of examined material.

DEPOSITORIES

AMS	Australian Museum (New South Wales);
CAS	California Academy of Sciences (California);
DZUP	Coleção Entomológica Padre Jesus Santiago Moure (Paraná);
FEIS	Department of Plant Protection da Universidade Estadual Paulista Júlio de Mesquita Filho (São Paulo, Brazil);
FSCA	Florida Department of Agriculture and Consumer Services (Florida, USA);
INPA	Instituto Nacional de Pesquisas da Amazônia, Coleção Sistemática de Entomologia (Amazonas, Brazil);
MAPA	Museu Anchieta de Ciências Naturais (Rio Grande do Sul, Brazil);
MCNZ	Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul (Rio Grande do Sul, Brazil);
MLPA	Museo de La Plata de la Universidad Nacional de La Plata (La Plata, Argentina);
MPEG	Museu Paraense Emilio Goeldi (Pará, Brazil);
MPUJ	Museo Javeriano de Historia Natural da Pontificia Universidad Javeriana (Bogota, Colombia);
MZSP	Museu de Zoologia da Universidade de São Paulo (São Paulo, Brasil);
NHRS	Naturhistoriska riksmuseet (Stockholm, Sweden);
UFRG	Coleção Entomológica da Universidade Federal do Rio Grande do Sul (Rio Grande do Sul, Brazil);
UFV	Museu Regional de Entomologia da Universidade Federal de Viçosa (Minas Gerais, Brazil).

SPECIMEN DATA BY SPECIES

Family COREIDAE
Subfamily COREINAE
Tribe ACANTHOCEPHALINI

Empedocles luridus
Brailovskiy & Barrera, 1998

NON-TYPE MATERIAL. — **Brazil** • 2♂, ♀; Rio Grande do Sul, Derubadas; P. E. Turvo; 27°14'48.9"S, 53°57'36.7"W / 27°13'49.5"S, 53°58'57.6"W / 27°13'26.4"S, 53°51'02.8"W guarda-chuva ent., A. Barcellos, R. Ott, I. Heidrich, L. Moura; 21/28/30.X.2003; MCNZ 54710, 54921, 176828 • ♀; São Francisco de Paula, Arno Lise, 4.?.1974; MCNZ 9571 • ♂; Salto do Jacuí, A. L. H. da Silva col. 06.V.1998; MCNZ 179291 • ♀; Montenegro; E. H. Backup leg.; 17.XI.1977; MCNZ 10784 • ♀, ♂; Triunfo; A. Lise leg., T. Arigony leg.; 10.X/28.XI.1977; MCNZ 10781, 10783.

Tribe ACANTHOCERINI

Camptischium clavipes (Fabricius, 1803)

NON-TYPE MATERIAL. — **Brazil** • 3♀, 2♂; Rio Grande do Sul, Canela; M. Hoffmann; 12.X.74(1974?); MCNZ 9928, 9931, 9938, 9939, 9940 • ♂; Triunfo; M. H. Galileo leg.; 15.IX.1977; MCNZ 10769.

Crinocerus sanctus (Fabricius, 1775)

NON-TYPE MATERIAL. — **Brazil** • ♀; Distrito Federal, Brazilia, D. Slicre(?) and M. Becker; 22.X.65(1965); MCNZ 4784 • ♂, ♀; São Paulo, Ilha de S. Sebastião; H. Urban leg.; XI.58(1958?); MCNZ 4785, 179562 • 2♀; Santa Catarina, Itapiranga, I.54(1954?); MCNZ 4787, 179561 • ♀; Rio Grande do Sul; Farroupilha, Desv. Blauth; MCNZ 4786.

Unspecified Locality Data. ♂; MA. 14.XII.39(1939?); MCNZ 4782 • ♀; MM. 19.12.39(1939?); MCNZ 4780.

Tribe ANISOSCELINI

Phthiacnemia picta (Drury, 1773)

NON-TYPE MATERIAL. — **Brazil** • ♀; Santa Catarina: Criciúma, Campus UNESC, Costa, R.C.; 20.III.2003; UFRG 244 • ♀, ♂; Rio Grande do Sul, Porto Alegre, T. Lema col.; 6.II.67(1967?); MCNZ 5251, 5250 • ♀, ♂; Guaíba; M. H. Galileo leg.; 17.II.1976; MCNZ 10997, 10998.

Tribe COREINI

Coreus marginatus (Linnaeus, 1758)

NON-TYPE MATERIAL. — **Bulgaria** • ♂, ♀; Ruse env. J. Stary lgt. 11.V.1999; MCNZ Permuta BMNH(2015-77).

Kazakhstan • ♂; Kungei Gebirze Khalansh, N. G. Skopin, VI.1958; MCNZ Permuta BMNH 1960-419 • ♀; E., N. G. Skopin, B. M.; MCNZ Permuta BMNH 1960-419.

Tribe DALADERINI

Dalader acuticosta Amyot & Serville, 1843

NON-TYPE MATERIAL. — **India** • ♀; Kumaon, W. Admora, H. G. C.; MCNZ Permuta BMNH 127-409.

Vietnam • ♂; Tonkin, Hoabinh., R. V. de Salvaza; VIII.1918; MCNZ Permuta BMNH 1992-112 • ♂; Indo-China, Tonkin, R. V. de Salvaza, 1917-98; MCNZ Permuta BMNH 1992-112).

Unspecified Locality Data • ♀; ent/G 10475, Assam(?); NHRS-GULI 000004900.

Tribe MICTINI

Mictis profana (Fabricius, 1803)

NON-TYPE MATERIAL. — **Australia** • ♀; NHRS-GULI000004334 • ♀; Karijini NP, Dales Gorge (WA 22:28.5S 118:33 OE), Reid, Lassau & Donnelly AM Pibara Survey (Biomaps) shrubs/trees, 26.XI.2003; AMS K549154 • ♀; South Australia: 12km E of Copely, Filinders Range; 322 m; 30°32'19"S, 138°31'52"E; Cas-sis, Schuh, Schwartz; CA01L60; 07.XI.2001 • 2♂, 2♀; QLD:

Balgal Beach; 19:01S 146:24E; L. Weight, 05.I.1992; AMS K163829, K163831, K163830, K163832 • ♂; Cunnamulla, Q., N. Geary; 10.X.38(1938?); AMS K163826 • ♂; Miranda N. S. W., R. Havnstein; 11.VI.61(1961?); AMS K163848 • ♂; Plantiful CK. Q., G. Moore; 29.I.45(1945?); AMS K163817 • ♂, ♀; Mt White, nr Coen, N. Qld, M. S. & B.J. Moulds; 10.I.1988; AMS K163863 • ♀; N. S. W. Killara., N. E. Kent, 4.XI.1945; MCNZ Permuta BMNH 1950-317 • ♂; N. S. W. Casula, M. I. Nikitin; 7.XI.1958; MCNZ Permuta BMNH 1959-57, Newton, NSW, R. Browne; 24.V.1985; AMS K163818 • 2♀; 55km S. Mt. Magnet, WA, G. A. Holloway; 30.XIII.1981; AMS K163852, K163851 • ♂; Horrocks Pass, SE of Port Augusta, S.A., M. S. & B. J. Moulds, 20.XI.1985; AMS K163827 • ♂; Rose Bay, NSW, J. Watson, 4.IX.1965; AMS K163820 • ♂; Karratha, nr. Derby, W. A., G. Jones, 26.I.1978; AMS K163850 • ♂; Serpentine Falls, Darling Ranges, W. A., G. A. Holloway & H. Hughes, 20.I.1971; AMS K163824 • ♂; Coral Bay turnoff, S. of Exmouth, W. A., G. A. Holloway; 31.VII.1978; AMS K163847 • ♂; Birralong, N. S. W., A. B. Marlar, II.25(1925?), K51151; AMS K549152 • ♀, 2♂; Pilbara, Dist, Rhodes Ridge Camp; 23° 06'04.9"S, 119°21'13.6"E; 694m; Caesalpinaceae *Senna artemisioides* subsp. *Oligophylla*; Perth 5636450, Host WA99-H75, Cassis & Silveira L36, 30.V.1999; AMS K549155, K549158, K549157 • ♀; Bondi Sjsnas(?), Austral NSW, V. R. Bejsák lgt., 11.IX.84(1984?); AMS K163822 • ♀; Bobbin Head, P. Epskaine, R. B. A., 4.XI.68(1968?); AMS K549156 • ♀; Glen Gerald Gorge, Rawlinson Ranges, W. A., G. A. Holloway; 16.V.1983; AMS K163825 • ♀; Powella, Aramac, C. Q., F. Bradshaw, VIII.1920; AMS K163815 • ♀; John Forrest Nat'l Park, Darling Ranges, W. A., g A. Holloway & H. Hugher, 23.I.1971; AMS K163821 • ♀, ♂; 28 km W. Yalgoo, W. A., G. A. Holloway, 1.IX.1981; AMS K163854, K163855.
Vanuatu • 2♀; Anatom IS. Anlghowhat, Umetch, M. J. W. Cock, 24/26.XI.1983; MCNZ Permuta BMNH 83-426, 83-429, C.I.E.COLLA. 15654.
Unspecified Locality Data • ♂; Woodlank, Mulsant(?), ENT/G 10460; NHRS-Guli 000047305.

Pternistria insularis (Walker, 1871)

NON-TYPE MATERIAL. — **New Guinea** • ♂; Dromena Village, nr. Hollandia; E. Le G. Troughton; 26.II-2.III.1945; AMS K163883 • 2♀; Kid.(?) Well.(?) Lafen.(?), C. Richart; AMS K163888, K163889 • ♂; Fly River; Geo. Soc. Exp.; AMS K163884.

Tribe NEMATOPODINI

Cnemyrtus scriptus (Burmeister, 1835)

NON-TYPE MATERIAL. — **Argentina** • 2♂; Chaco, Charata, Bosq, X.1924; MLPA • ♀; S. Ventana; col. A. A. Pirán; XI.1970; MLPA. **Brazil** • 3♀; Paraná; P. Grossa, Lajeado, S. Acaña, preso teia de aranha; 1939; 7.XI.45(1945?), X.45(1945?); MHNCI 10574, DZUP 360157, 360158 • ♀; Cerro Azul (Paraná?); I.1931; MAPA.

Cnemyrtus variolosus
 Brailovsky, 1989

NON-TYPE MATERIAL. — **Brazil** • ♂; C/ Cerrado Base II, 23.VIII.89(1989?); MZSP • Minas Gerais; 5♂, 2♀; Passos, Claudionor Ellas; XI.61(1961?); DZUP 360131, 360134, 360139, 360140, 360141, 360142, 360143.
Without Data • ♀; 19985, 71306; MZSP.

Himella venosa Dallas, 1852

NON-TYPE MATERIAL. — **Brazil** • ♀; Amazonas, Manaus, Aleixo, INPA, col. V. Dy-Daniel, IV.82(1982?); INPA • ♀, ♂; Rio de Janeiro, Corcovado, GB, J. S. Moure Alvarenga e Seabra, 18.IX.61(1961?); DZUP 361974, 362004 • ♂; Tinguá, Tr(?), VIII.40(1940?); INPA).

Melucha aculeata Montandon, 1895

NON-TYPE MATERIAL. — **Brazil** • 2♀, 6♂; Rondônia, Ouro Preto do Oeste, Projeto Polonoroeste, C. Elias leg.; 5, 12.IX / 17, 18, 29.X / 13.XI.1987, 15.III.1988; DZUP 363490, 363494, 363495, 363498, 363509, 363562, 363563, 363566.
Peru • ♀; Pucallpa, Rio Ucayali; 200 mtr; Dirings; MZSP1737.

Melucha acutispina Breddin, 1903

NON-TYPE MATERIAL. — **Brazil** • ♀; Mato Grosso, Cáceres, C. Elias leg. Polonoroeste, 12.III.1985; DZUP 361549) • Espírito Santo, ♀, ♂; Linhares, C. Ellias col., 17-22.VI.1974; DZUP 361509, 361512). WITHOUT DATA: ♀; 7795, 71019; MZSP 1709).

Melucha chapadana Brailovsky, 1993

NON-TYPE MATERIAL. — **Brazil** • ♂, ♀; Roraima, Itapuá do Oeste Flona Jamari, Trilha Pedra Grande, 09°11'39.4"S, 63°04'55.3"W, Varredura, J.A.Rafael, F.F. Xavier F°, R.M. Vieira & R.H. Aquino, 08.X.2014; INPA • ♂; Amazonas, Manaus, Amazonas, Estr. Am. 1km 15, A. Faustino, 19.VII.1970; INPA 3004 • 8♀, 5♂; Rondônia, Ouro Preto do Oeste, Sítio Deus é Amor, R. INPA/Ceplac 104300S-621445W, Projeto Polonoroeste, M.F. Torres, R.B. Neto, C. Elias, J.A. Rafael & F.F. Xavier F°, col. Manual, 12.XI.1984, 19.III.1985, 05.IX.1987, 03/12/18/29.X.1987, 12/13.XI.1987, 15.III.1988, 15.III.1989; INPA without number, MPEG 05017558, 05017561, DZUP 361563, 351578, 351582, 363488, 363596, 363497, 363500, 363507, 363511, 363517, 363527 • ♀; Forte Príncipe da Beira, G.R. Kloss, 19.XI-3.XIII.1967; MZSP 1717 • ♀; Campo Novo Rondon, Fazenda Amorim; 10°38'32.9"S, 63°30'38.2"W; Coleta Manual; rede; Nihei & equipe col., 17.X.2011; MZSP • 4♂, 5♀; Vilhena, Polonoroeste; C. Elias; 26.IX/29.X/09/15.X/04. XI and 04/17.XII.1986; DZUP 361403, 361404, 361406, 361407, 361561, 361562, 363501, 363569 • ♀; Pará; Obidos, X.1968; DZUP 361597 • ♀; Aripuaná, Resv. Humblf, MT, III.1977, Pará, W.L. Overall; MPEG 05016664 • Mato Grosso, ♂; Est. Fontanilha, R. Humbolt, col-J.B. Moraes, 08.VIII.75(1975?); INPA 0173 • ♂; Rosário do Oeste, Dirings; MZSP 1712 • ♀; Cáceres, Proj. Polonoroeste, Buzzi, Mielke, Elias Casagrande leg.; 19/14.XI.1984; DZUP 361533, 363579.

Melucha gladiator (Fabricius, 1803)

NON-TYPE MATERIAL. — **Brazil** • ♀; Amazonas, Manaus, Coleta manual, H.D.D. Rodrigues leg.; 11, 23.V.2011; INPA). Pará, ♂; S. M. do Guamá, J. Dias, 26.II.1987; MPEG 05015885 • ♂, ♀; Obidos; MPEG 05016598, 05016599 • ♀; Benevides, T. Pimenniel; 16 a 19.III.1993; MPEG 05017689 • ♀; Belém Utinga, C. Moreira, 27.XII.1977; MPEG 05016601 • 6♀; Rondônia, Vilhena, Polonoroeste, C. Elias; 26.IX and 04/17.XII.1986; DZUP 361547, 361548, 363473, 363474, 363475, 363476 • ♀; Ouro Preto do Oeste, Projeto Polonoroeste; C. Elias, 29.X.1987; DZUP 363503 • ♂; Mato Grosso, Aripuaná, Est. Da Colonia, Col-L.P. Albuquerque & L. Antony,

22.I.76(1976?); INPA 0200 • ♀; Margem Iguarapé, R. Humboldt, col.-J.B. Mornes, 21.XI.75(1975?); INPA • ♀; Jacaré, P.N. Xingu, M. Alvarenga leg.; 25 a 30.XI.1965; DZUP 359313 • ♀; Mato Grosso do Sul; Ap. do Taboado, Rural área; hand collected; L.A.A. Queiroz; 03.X.2011; FEIS • ♂; São Paulo, Guatapé; M. Carrera col., 1.1945; IBSP0.006.829.

Melucha lineatella (Fabricius, 1803)

NON-TYPE MATERIAL. — **Brazil** • ♂; Amapá; Porto Grande; E. L. Oliveira; 9.V.1982; INPA) • 2♀; Amazonas; Barcelos, Rio Aracá, Boca do Curuduri; 00°05'50"N, 63°17'22"W; Sopé da Serra do Aracá; 0°52'24"N, 63°27'19"W; C.F. Schwertner col., C. Durigan, Varredura; coleta manual; VII.2007; 16.VI.2010; INPA • 2♀; Novo Airão AM 352 Ramal Km10 02°42'56.5"S, 60°56'26.7"W; Armadilha luminosa móvel 18:00-21:00h and 21:00-24:00h; J.A. Rafael, D. Takiya & J.T. Câmara; 28-29.VIII.2011; INPA • ♀, 3♂; Obidos, Bx. Amazonas, Traira, Dirings; VIII/XII.59(1959?); MZSP 1695, 1797, 1699, 1700 • 4♀, ♂; Manaus, Estr. Am 1km15; Res. Ducke; 02°55'S 59°59'W; Reserva Florestal Adolpho Ducke AM010; 02°55'51"S, 59°58'59"W; Trilha do Barro Branco, Trilha da Ciência, J. T. Câmara, B.R.S. Machado, Serrão, Rose, A. Faustino, P. Torres, coleta manual, Rede entomológica; 29.VI.1970; 18.IV.1998, 10.IV.2002, 01-20.V.2010; INPA 3004 • ♀; Beruri, Rio Purus; 03°56'62"S, 61°21'02"W; Coleta Manual, Xavier & Aquino leg.; XII.2003; INPA • ♀; Novo Aripuaná, Lago Xadá; 05°15'39"S, 60°42'32"W; Coleta manual, F. Xavier, F. Godoi & A. Lourido Leg.; INPA • ♀; S. Gabriel da Cachoeira, Penny e Elias, 5-12.VII.1980; INPA • 3♀; Pará; Tucuruí, Rio Tocantins, Chiqueirão, Canoal; M.F. Torres; 28.III.1984, 02/07.IV.1984; MPEG 05016513, 05016517, 05016502 • ♀; Mun. De Itaituba, Rio Tapajoz, Camargo, Dirings; V?/VI?.62(1962); MZSP • ♀, ♂; Belém Mocambo, P. Waldir, Exp. Perm. Amaz.; III.1964, 01.IV.1977; MPEG 05016672, MZSP 1730 • 2♀; Mun. Benevides; 408 km06; Faz. Morelandia, M.F. Torres, W. França; 22.X.1991, 21.VI.1980; MPEG 05015926, 05016774 • ♀; Parauapebas, Carajás, Flona Carajás; INPA • ♀; Rondônia; Ouro Preto do Oeste, Margem direita Rio Paraíso; M.F. Torres; 17.III.1985; MPEG 05017563 • 3♀; Ouro Preto d'Oeste, Projeto Polonoeste; C. Elias leg.; 29.X and 18.XI.1987; DZUP 361568, 361573, 363492.

Melucha perampla Brailovsky & Barrera, 2014

NON-TYPE MATERIAL. — **Brazil** • ♂; Paraná; Matelândia; A. Maller; XI.1952; DZUP 362054.

Melucha phyllocnemis (Burmeister, 1835)

NON-TYPE MATERIAL. — **Brazil** • 3♀; Mato Grosso; Chap. Guimarães; C. Elias col.; 30.III.1983; DZUP 362161, 362162, 362164 • ♀; Goiás; Jataí, Faz. Aceiro, Exp. Dep. Zool. X.1962; MZSP 1711 • 3♀, 3♂; Espírito Santo, Sta. Tereza, C. Elias leg.; 10.VI.64(1964?), 07.XII.64(1964?), 04.II.1966; DZUP 361493, 361495, 361496, 361497, 361499, 361500 • ♀; Santa Maria; C.T. & C. Elias; 21.I.1967; DZUP 361494 • ♀; Rio de Janeiro; Itatiaia, Dirings; III.59(1959); MCNZ 1708 • ♀; Corcovado; GB; Sebrae e Alvarenga; X.1961; DZUP 361498 • ♀; Rep. R. Grande; F. M. Oliveira leg.; 15.II.1967; DZUP 361492 • 2♂; São Paulo; São Carlos; U.F.S. Carlos; M.H. Marinonie leg.; 14.X.1982; DZUP 362166, 362167 • ♀, 2♂; Agudos, Ouro da Flora AS; Ex Underbrush of pinus Caribaed Stand, Ex Pireas caribaca stand, Flechtmann, Duraflora AS etanol trap, 31 PCC, Flechtmann col.; 22.IV.1990, 29.XII.1992, 29.VIII.95(1995?) • ♂; FEIS; São Sebastião; Altair Pereira da Silva leg.; Coleção Ferracioli São Paulo-SP; 7.XI.1956; MZSP 2459 • ♀;

Paraná; Tapejara; I.1953; DZUP 361485 • ♀, 2♂; Ponta Grossa, Pedreira, Ronda; G. Chuva; 1940, XII.43(1943?), IV.59(1959?); MHNCI 10567, DZUP 361483, 361484 • 2♀, ♂; Curitiba, Parolim, Fonte Ahu; Claretiano col.; 13.I.40(1940?), II.38(1938?); MHNCI 970, 971, 972 • ♀; Santa Catarina; Maracajá; A. Miranda; 06.IV.2005; UFRG 000971 • ♀; Criciúma, Parque José Milante; T. Bertolin; 22.XI.2005; UFRG 02007 • 3♀, 3♂; Araranguá; F. M. Bianchi; 24.IV.2009; UFRG 04459, 04478, 04479, 04490, 04492, 04493 • ♀; Rio Grande do Sul; (?RS, ?São Leopoldo), Vila Charlau; J. G. Vieira col.; 08.X.73(1973); MCNZ 8771 • ♀, ♂; Novo Hamburgo; C.J. Becker leg.; 25.XI.1983, 17.VI.1986; MCNZ 51665, 51666 • ♀; Campo Bom; C. J. Becker leg.; 19-20.V.1986; MCNZ 51667 • ♂; Montenegro; H. Biscoff leg.; 03.XI.1977; MCNZ 11498 • ♀; Canela, Barragem dos Bugres; L. Moura col.; 25.XI.1998; MCNZ 178524 • ♀, ♂; Triunfo; C.J. Becker leg.; H.A. Gastal; 28.X.1977, 12.V.1981; MCNZ 11497, 46033 • ♂, ♀; Palmares do Sul; Istmo Lagoa Capivari; 30°15'08.2"S, 50°32'01.1"W; Ilha Grande; 30°21'36"S, 50°37'46"W; Mata ciliar do Rio Palmares, Guarda-chuva ent., Equipe Probio col.; 10.IV.2003; 20.V.2004; MCNZ 53727, 176330. **Without Data** • ♀; MCNZ 4918 • ♂; 71290; MZSP 1713 • ♂; 71926; MZSP 1705 • ♂; 3299, 71059; MZSP 1751 • 2♂, ♀; M.R., 20.XI.39, 19.XII.39; MCNZ 4920, 4921, 4922.

Melucha quadrivittis Stål, 1862

NON-TYPE MATERIAL. — **Brazil** • Mato Grosso, ♂; Chap. Guimarães, C. Elias, 30.III.1983; DZUP 362163). Espírito Santo, ♂; Sta. Tereza, C. Elias, 18-23.XII.67(1967?); DZUP 362165). Rio de Janeiro, ♂; Itatiaia; 1.100mtr), Dirings; MZSP 1735). São Paulo, ♂; Agudos, Duraflora S.A., Pinus caribaceae v handurensis stand, Box trap baited with P. car bohomensis logs, C.A. Flechtmann col., 06.IV.1993; FEIS) ♂; Santos, Praia do Itaguapé, Rabello col., 23.I.1962; MZSP 1745).

Melucha quinquelineata Stål, 1865

NON-TYPE MATERIAL. — **Brazil** • ♀; Amazonas; Manaus; Am-010 km50; 02°44'13"S, 59°54'32"W; Armadilha de Luz Mista, F.F. Xavier, G.M. Lourido, 05-08.II.2005; INPA • ♂; Ipixuna, Rio Gregório, Com. Largo grande; 07°10'11.7"S, 70°49'10.3"W, Armadilha Luminosa; J.A. Rafael, A. Agudelo, R. Andrezza legs., 23-24.V.2011; INPA • ♀; Roráima; Ilha de Manacá, M.E.L. de Souza leg.; 21-25.IX.1987; MCNZ 49861 • ♀; Pará; Conceição do Araguaia, P. Maurício, 17-21.XI.1979; MPEG 05016777 • 4♀; Rondônia; Ouro Preto do Oeste, Res. INPA, Armadilha Suspensa 20, F. F. Ramos, C. Elias, 25-28.III.1985, 29.X.1987; MPEG 05016056, DZUP 361571, 361572, 361574 • ♀; Mato Grosso; Xingú, Dirings; MZSP 1738. **Unspecified Locality Data.** ♀; Goyaz, Spitz; MZSP 1724.

Mozena sp. 1

NON-TYPE MATERIAL. — **Mexico** • 2♂, ♀; Guerrero, Acapuco, Pereira & Halffter; 6-7.X.1961; MZSP.

Mozena sp. 2

NON-TYPE MATERIAL. — **Mexico** • ♀, ♂; Michoacan, Morelia, M. A. Vulcano col., 25.V.1962; MZSP 1759, 1755 • ♀; Morelos, Silvestre, C. S. Mastell, 1955; MZSP 1757 • ♀; Morelos, Ayala, V. O. Becker leg, 26.VI.71(1971?); DZUP 361517.

Mozena sp. 3

NON-TYPE MATERIAL. — United States • ♀; Texas, Sann Antonio, V.1949; DZUP 361399.

Nematopus manausensis

Brailovsky & Camacho, 2003

NON-TYPE MATERIAL. — Brazil • ♂; Amazonas, Manaus, Estrada ZF-2, arm. Luz móvel, J. A. Rafael, F. F. Xavier F°, R. Machado, A. A. Agudelo & Y. K. Dantas, 01.X.2005; INPA • ♂; Rotação Exp. Silvicultura Tropical, Br 174 Km 43 S1, Rede Entomológica, R. Borges col., 08 – 11.III.2002; INPA • ♂; BR-174 Km50, ZF-2 Km21; 02°38'16"S, 60°09'26"W; Armadilha de Luz mista, F. F. Xavier F., G. Z. Lopes, A. L. Aguiar, A. L. Rodrigues, J. R. Oliveira, 13-27.XII.2012; INPA • ♀; Res. Ducke, Igarapé Barro Branco, Armadilha Malaise, A. Henrique Leg.; 08-18.XI.2004; INPA • ♂; Itacoatiara, Madeireira MIL; 024510S, 583911W; arm. Lumínosa móvel; J. A. Rafael, R. J. P. Machado & A. Silva F°.; 29-30.XI.2005; INPA.

Nematopus yasunensis

Brailovsky & Camacho, 2003

NON-TYPE MATERIAL. — Brazil • ♀; Amazonas; São Paulo de Olivença, Boa Esperança; 032738S-691429W; Várzea, Manual, J. A. Rafael & F. F. Xavier; 13.IX.2005; INPA • 2♂, ♀; Benjamin Constant, Nova Aliança; 04°15'20"S, 69°20'42"W; Coleta Manual, F. F. Xavier F°, IV.2004; INPA • ♀, ♂; Rondônia, Ouro Preto do Oeste, R. INPA/Ceplac 104300S-621445W, col. Manual, J. A. Rafael & F. F. Xavier; 20.IV.2006; INPA.

Neoquintius araguacitus

(Brailovsky & Barrera, 1986)

NON-TYPE MATERIAL. — Brazil • ♀; Rio de Janeiro; Corcovado (GB), J. S. Moure, Alvarenga e Seabra, 18.IX.61 (1961?); DZUP 363253).

Ouranion crenulatus (Stål, 1860)

NON-TYPE MATERIAL. — Brazil • ♂; Minas Gerais, CEL. Pacheco, Agua Limpa, Vasco Gomes, 30.X.46(1946?); UFV 493 • ♀; Paraná; Tibagy, Salto da Conceição; XII.52(1952?); DZUP 361745 • ♀; Rio Grande do Sul; Triunfo, Parque BRASKEM, Trilha Principal, guarda-chuva ent.; D. Casagrande & A. Barcellos col.; 09.II.2010; MCNZ 181358.

Ouranion serrulatus (Perty, 1830)

NON-TYPE MATERIAL. — Brazil • 2♂, 2♀; Espírito Santo, Conceição da Barra, C. & C. T. Elias leg.; 15-21.X.68(1968?), 29.X-4.XI.68(1968?), 15.XI.68(1968?); DZUP 361638, 361639, 361640, 361868.

Piezogaster auriculatus (Stål, 1862)

NON-TYPE MATERIAL. — Guatemala • ♀; Izabal, Firmeza, Rio Bobos, nr. Morales, J. B. Heppner; 950 m; 29-31.V.2007; FSCA.

Piezogaster rubronotatus (Stål, 1862)

NON-TYPE MATERIAL. — Colômbia • ♀, ♂; Villavicencio, 1000 m, 15.III.72(1972?); MPUJ 0427 • ♂; Chiraja; Puesto de la Virgen Wa Villavicencio Km 86 a msnm; R. Ovalle leg.; 6.IV.1986; MPUJ. Bolívia • ♂, ♀; Region Chaparé, Dep. Cochabamba; 400mtr; Dirings; 20.IX and 5.X.1949; MZSP 1946, 1948 • ♂; Region Chapare 400M (Tropica), Zieshka, Dirings, X.1950; MZSP 1952.

Piezogaster tetricus (Stål, 1862)

NON-TYPE MATERIAL. — Mexico • ♀; Nogales, Vera Cruz, Halffter, Pereira; 26.X.1961; MZSP 1953.

Piezogaster vates (Stål, 1862)

NON-TYPE MATERIAL. — Mexico • 3♂, ♀; Guerrero, Acapulco, Pereira & Halffter; 6-7.X.1961; MZSP • ♂; Tenancingo, Barrera & Pereira; 23.XI.1961; MZSP 1950 • ♂; Huizilac Morelos; 1400 m; Bolivar, Pereira; 3.X.1961; MZSP 1951.

Quintius dentifer Stål, 1870

NON-TYPE MATERIAL. — Argentina • ♀; Misiones, P. N. Iguazú 25°40'40.8"S, 54°26'55.9"W; 18.XI.2008 Van-Som Pescado; MLPA.

Quintius marginatus Stål, 1865

NON-TYPE MATERIAL. — Brazil • Amazonas; ♀; Barcelos, Rio Paduari, Comum Ararão; 00°30'18"N, 64°03'30"W; Varredura, C. F. Schwertner col.; INPA.

Subfamily MEROPACHYINAE

Tribe MEROPACHYINI

Hirilcus gracilis (Burmeister, 1835)

NON-TYPE MATERIAL. — Brazil • ♂, ♀; São Paulo; Ilha S. Sebastião, H. Urban leg; XI.58(1958?); MCNZ.

Tribe SPATHOPHORINI

Allopeza granulipes (Fallou, 1891)

NON-TYPE MATERIAL. — Brazil • 2♂; Paraná, Curitiba, Coll. Clar-etiano; I.1943; MHNCI 997, 998.

Diariptus hexacanthus Stål, 1860

NON-TYPE MATERIAL. — Brazil • 3♂; Pará, Itaituba; Rio Tapajós, Dirings; MZSP 4170, 4172, 4174.

Lycambes sp. 1

NON-TYPE MATERIAL. — Brazil • 4♂, 4♀; Espírito Santo, Linhares; C. Elias leg.; A. Maller leg.; XI.65(1965?), 12-18.XI.68(1968?), 24-29.IV.1972; DZUP 361976, 361977, 361981, 361982, 361983,

363480, 363481, 363482 • ♀; Conceição da Barra, C. T. & C. Elias, 15.XI.1969; DZUP 362026.

Vda Puerto Castro, Finca Hato Palmera, 3°30'56"N, 72°26'0.14"W, José Ramírez, 21.XI.2014-11 dic 201; MPUJ.
Brazil • ♀; Pará; Tailândia (AG), J. Malta col, L-50, 21.XI.2005; MZSP 179).

Spathophora biclavata (Fabricius, 1803)

NON-TYPE MATERIAL. — Colombia • ♂; Boyacá, Santa María, sector La Almenara, c. 1.7km NNE de Santa María, 4.87486°N, 73.25508°W, 1123 m, P. Erazo, C. Lesmes, L. López, Borde de bosque, Trampa de luz blanca, 13-17.III.2016; MPUJ 0049960 • ♂; Antioquia, San Luis, rio claro, 1.440 msnm, A. Quintero, 4.III.94(1994?); MPUJ • ♀; Meta, Santiarem, Hacienda Tocancipa em bosque cuqalerta 330m, Centalsetal col., 22.IV.2006; MPUJ • ♀; Meta, San Martín,

Spathophora umbrosa (Drury, 1782)

NON-TYPE MATERIAL. — Brazil • ♀; Pará; Serra Norte, Caldeirão, Armadilha Suspensa 1.6 m, F. F. Ramos, 13-16.IX.1985; MPEG 05015993 • ♀; Melgaço, Caxiuanã-ECFPn, Percurso 8, ECFPn Mata da Sede, O. Silveira, J. Pena col., 25.III.1998; MPEG 05017810 • ♂; Mato Grosso do Sul, Selvíria, Cerrado atand air net, A. P. Ribeiro, 18.X.2008; FEIS. Without Data • ♀; 71295; MZSP.

APPENDIX 2. — Part of the cladogram under implied weighting for *Pachylis* Le Peletier & Serville, 1825: A, tree under 5 K value (7.287), where we excluded all characters with missing data in *Thasus rutilus* Brailovsky & Barrera, 1994 in Brailovsky et al. (1994B), as follows, based on the original matrix: 31; 32; 37; 41; 43; 45; 48; 49; 53; 62 – 82; B, tree under 3 K-value (5.280), where we include fictional states in *T. rutilus*, based on the highest number present for the character in the other *Thasus* species, as follows, based on the original matrix: 31: 1; 32: 1; 37: 1; 41: 1; 43: 1; 45: 1; 48: 0; 49: 1; 53: 0; 62: 1; 63: 1; 64: 1; 65: 1; 66: 0; 67: 1; 68: 0; 69: 0; 70: 0; 71: 1; 72: 1; 73: 1; 74: 1; 75: 0; 76: 1; 77: 0; 78: 1; 79: 1; 80: 1; 81: 1; 82: 0.

