

New records for the poorly-known monotypic genera *Exallostreptus* and *Guaporeptus*, and a list of species from Mato Grosso state, Brazil (Diplopoda: Spirostreptida: Spirostreptidae)

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Abstract. New records for the species *Exallostreptus vanzolinii* Hoffman, 1988 and *Guaporeptus paradisius* Hoffman, 1988, known only from the state of Rondônia, are made from the state of Mato Grosso, Brazil. Figures of gonopods, first and second leg-pair of males are provided. In addition, an updated list of 19 Spirostreptidae species from Mato Grosso is provided, with the species *Plusioporus salvadorii*, *Trichogonostreptus (Oreastreptus) mattogrossensis*, and *Urostreptus tampitauensis* widely distributed in the state.

Keywords. Neotropical; Schubart; Chapada dos Guimarães; Poconé; Cotriguaçu.

INTRODUCTION

Spirostreptidae is one of the most common and diverse families of millipedes in Brazil. The family is distributed in all terrestrial biomes, although its diversity is mostly concentrated in the Southeast region (Schubart, 1945; Krabbe, 1982). So far, approximately 110 species have been described and placed in at least 20 genera in the country (Schubart, 1945; Demange, 1970; Hoffman, 1980; Krabbe, 1982).

Among this fauna, the monotypic genera *Exallostreptus* Hoffman, 1988 (type species, *E. vanzolinii* Hoffman, 1988) and *Guaporeptus* Hoffman, 1988 (type species, *G. paradisius* Hoffman, 1988) were described based on material collected in the Madeira province, state of Rondônia (Hoffman, 1988a). Not until more than thirty years after their descriptions, both species have not yet been recorded in their type localities again or in surrounding areas, suggesting that their generic distributions are very restricted.

In this work, adults of *E. vanzolinii* and *G. paradisius* are newly recognized from the state of Mato

Grosso, which considerably expand their geographical distribution beyond the type localities. Figures of gonopods, first and second leg-pair of males using scanning electron microscopy for both species are provided here. Additionally, we also compile a list of species of Spirostreptidae recorded from the state.

MATERIAL AND METHODS

The material examined is deposited in the following Brazilian Institutions (curators in parentheses): **ABAM**, Biological Collection of Southern Amazonia, Universidade Federal de Mato Grosso, Sinop, Mato Grosso (L.D. Battirola); **CZUFMT**, Coleção Zoológica da Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso (A. Chagas-Jr.); **MZSP**, Museu de Zoologia, Universidade de São Paulo, São Paulo, São Paulo (R. Pinto da Rocha).

The photographs were taken with a Leica DFC 500 digital camera mounted on a Leica MZ16A stereomicroscope, and the extended focal range images were composed with Leica Application

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Suite version 2.5.0 (Leica Microsystems, Canton de Saint-Gall, Switzerland). The scanning electron micrographs were taken using a FEI Quanta 250 SEM (Hillsboro, Oregon, USA) with an attached SLR digital camera at the Laboratório de Biologia Celular of Instituto Butantan. The parts of the specimens for scanning electron microscopy were cleaned ultrasonically for 30 seconds twice, transferred to ethanol (70, 80, 90, and 100%) for 15 minutes each one. Then, the parts were critically point dried. The samples were mounted on aluminum stubs before being coated with gold in a sputter coater for 240 sec. The geographical coordinates were obtained from the geoloc tool of species-Link (<http://splink.cria.org.br/geoloc>). The morphological terms used follow Hoffman (2008) and Enghoff (2017). **Abbreviations:** *atp* = antetorsal process; *dmp* = distolateral metaplical process;

ip = inner process of metaplica; *lb* = lateral lobe; *mp* = metaplica; *pn* = penis; *pp* = proplica; *pfp* = prefemoral process; *px* = paracoxite; *sg* = seminal groove; *st* = sternum; *tp* = telopodite.

RESULTS

Taxonomy

Order Spirostreptida Brandt, 1833
Family Spirostreptidae Brandt, 1833
Tribe Spirostreptini Attems, 1909
Genus *Exallostreptus* Hoffman, 1988

Exallostreptus Hoffman, 1988a: 323.

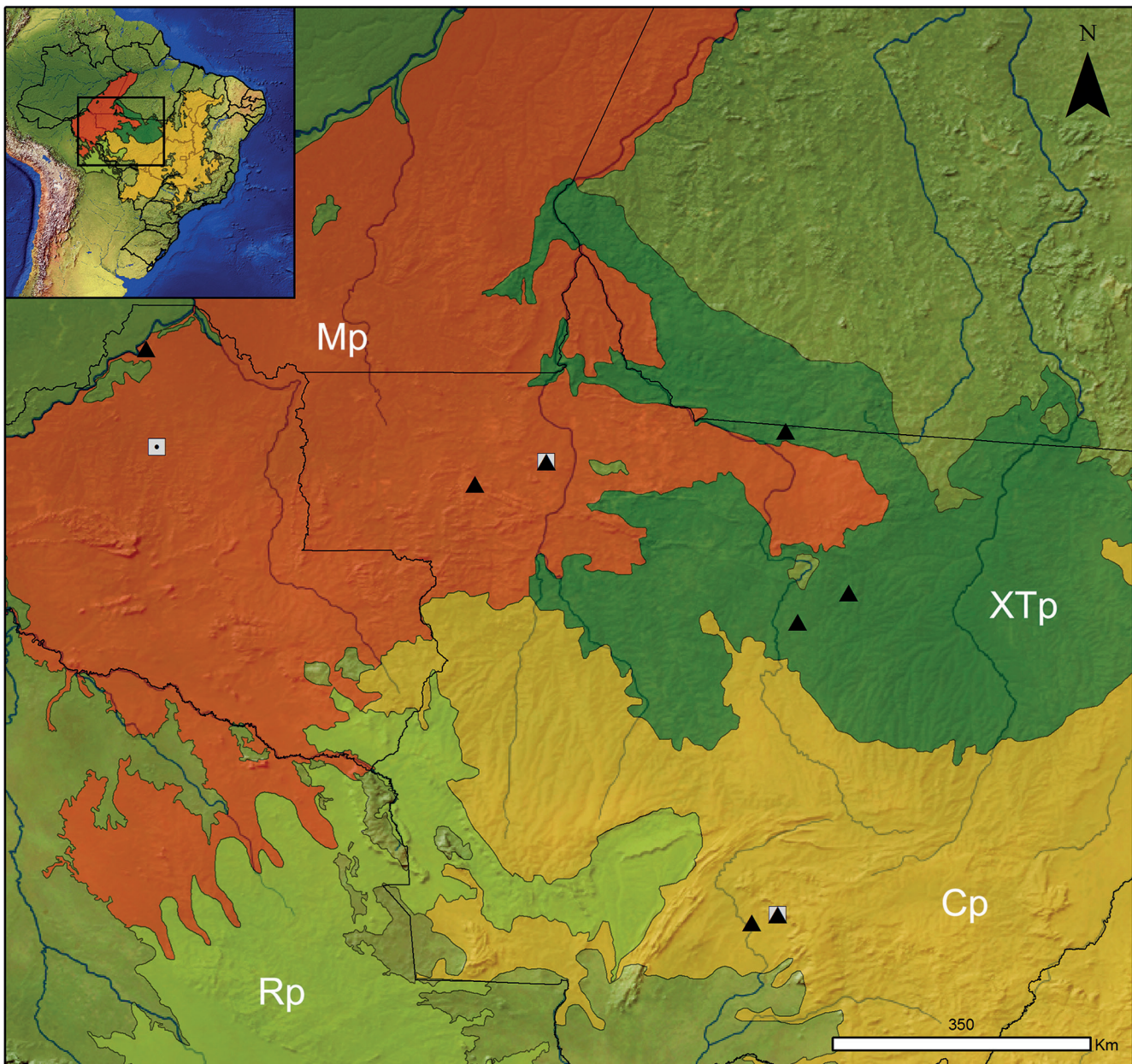


Figure 1. Distribution map of *Exallostreptus vanzolinii* (triangle) and *Guaporeptus paradisius* (square). The colours scheme refers to the biogeographical regionalization of the Neotropical region (see Morrone, 2014). Abbreviations: Mp = Madeira province; XTp = Xingu-Tapajós province; Rp = Rondônia province; Cp = Cerrado province. This figure is in color in the electronic version.

Type species: *Exallostreptus vanzolinii* Hoffman, 1988, by monotypy.

Diagnosis: Modified after Hoffman (1988a). The genus differs from all others spirostreptid genera by the following characters: prominent and thickened lateral end of collum (Fig. 2A, C); large distal edges of the paraprocts (Fig. 2B, D); metazonites with a single row of large sigilla. Males with prefemoral process of first leg-pair densely setose (Fig. 6A-B). Gonopodal proplica with lateral lobe expanded (*lb*); telopodite with broad, lamellar expansion; elongated antetorsal (*atp*) process with a complete 360° torsion at about midlength (Figs. 4A-B; 5C, E).

***Exallostreptus vanzolinii* Hoffman, 1988**
(Figs. 1; 2; 4-5; 6A-B)

Exallostreptus vanzolinii Hoffman, 1988a: 324 (male holotype from Nova Esperança, Rondônia, Brazil, 02-09. xii.1983, P.E. Vanzolini leg., deposited in MZSP, examined).

Diagnosis: Same for the genus.

Material examined: Brazil: Mato Grosso: Cuiabá [15°35'19.8"S, 56°06'21.9"W], 10.v.2012, ♂ (CZUFMT);

Chapada dos Guimarães [15°28'00.9"S, 55°45'04.8"W], cerrado, ♂, ♀ (CZUFMT); 29.iii.2013, ♂ (CZUFMT); Cotriguaçu, Fazenda São Nicolau [09°51'21.9"S, 58°14'51.8"W], 02.xi.2014, M. Karam-Gemael leg., ♂, ♀ (CZUFMT); 28.ii.2011, D.A. Batistella leg., ♂ (CZUFMT); 10.xi.2010, D.A. Batistella leg., ♂ (ABAM 0027); Aripuanã [10°10'32.3"S, 59°27'00.5"W], 15.xii.2003, C. Strussmann leg., ♂ (CZUFMT); 12.xii.2003, 2 ♂♂, ♀ (CZUFMT); Cláudia, Fazenda Continental [11°30'07.5"S, 55°12'18.3"W], Florestas Secas de Mato Grosso, 01.ii.2010, D.A. Batistella leg., ♂ (CZUFMT); Sinop [11°52'23.2"S, 55°30'02.0"W], 21.i.2010, ♂ (CZUFMT); Parque Estadual do Cristalino [09°31'32.3"S, 55°39'07.2"W], 13.xii.2012, D. Oliveira leg., ♂ (ABAM 0107); 15.xi.2012, D. Oliveira leg., ♂, ♀ (ABAM 0102).

Descriptive notes: Male, see description in Hoffman (1988a: 324, figs. 1-7). Size: Body length 102-110 mm, vertical midbody diameter 4.8-5.2 mm., 65-72 podous body rings. The examined specimens from Mato Grosso resemble those from Nova Esperança by general somatic characteristics, in particular the prominent lateral end of collum (Fig. 2A, C) and the large distal edges of the paraprocts (Fig. 2B, D). Males agree in having densely setose prefemoral process (*ppf*) in first leg-pair (Fig. 6A-B);

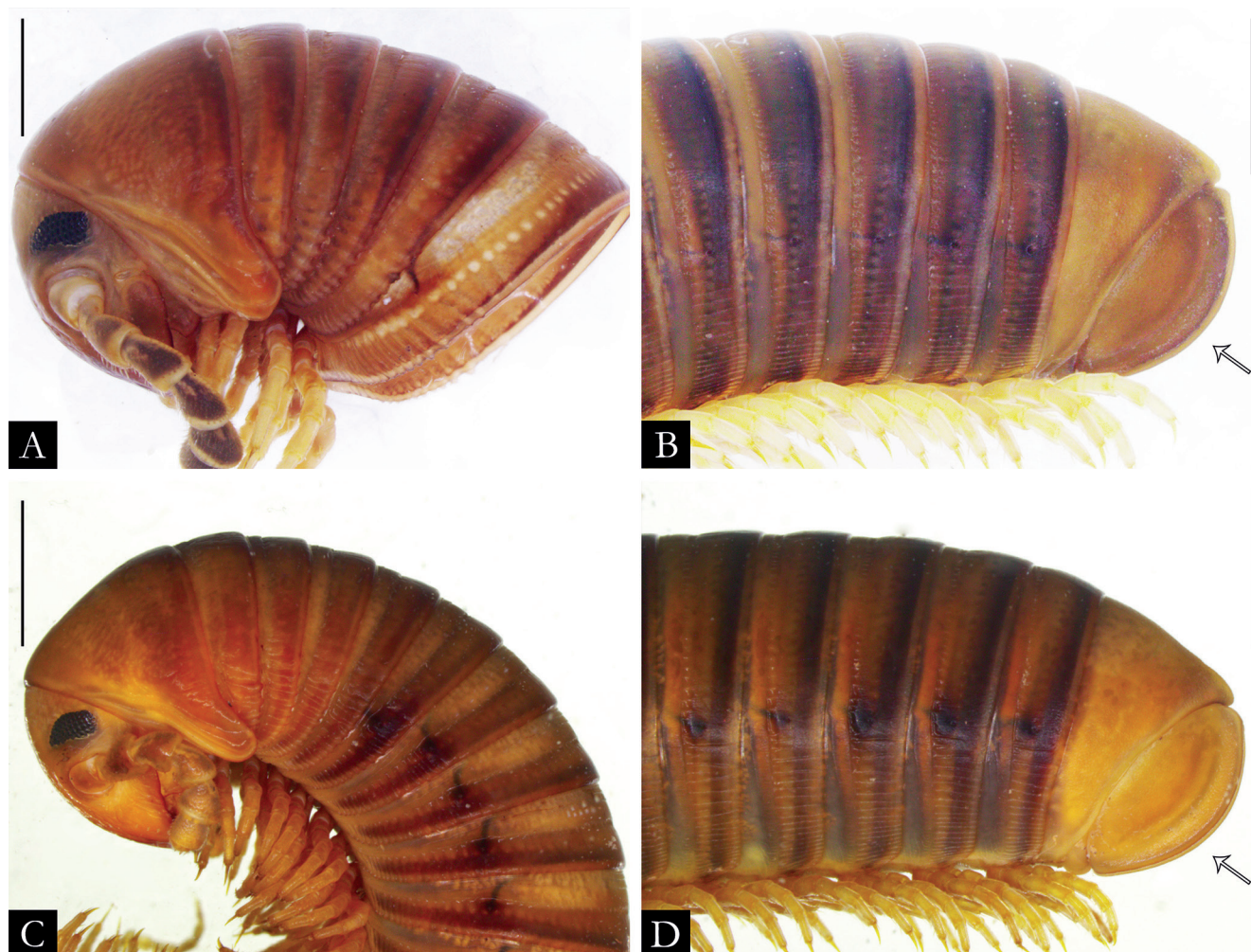


Figure 2. *Exallostreptus vanzolinii*. Male: (A) Anterior region; (B) Posterior region. Female: (C) Anterior region; (D) Posterior region. The arrows indicate the distal edges of the paraprocts. This figure is in color in the electronic version.

proplica (*pp*) with lateral lobe expanded, telopodite (*tp*) with lamellar expansion, and elongated antetorsal process with a complete 360° torsion (Figs. 4A-B; 5A-F). Ventral pads on postfemur and tibia on midbody leg-pairs (Fig. 4D). Females with nonsexual characters as in males (Fig. 2C-D).

Distribution: The species was known only from its type locality Nova Esperança, Rondônia; now also known in the state of Mato Grosso (Madeira, Xingu-Tapajós, and Cerrado provinces) (up to ca. 2,000 km. from Nova Esperança).

Genus *Guaporeptus* Hoffman, 1988

Guaporeptus Hoffman, 1988a: 327.

Type species: *Guaporeptus paradisius* Hoffman, 1988, by monotypy.

Diagnosis: Modified after Hoffman (1988a). Specimens of *Guaporeptus* resembles those of *Urostreptus* Silvestri, 1897 by presence of keel-shaped projection on epiproct (Fig. 3B, D); paraproct with broadened edge. Males of *Guaporeptus* can be easily distinguished by broad, bird-

head-shaped distolateral metaplical process (*dmp*); very short antetorsal process (*atp*); telopodite with two complete 360° torsions (*tp*) (Figs. 7A-B; 8D). First leg-pair with subtriangular, glabrous prefemoral process (*pfp*) (Fig. 6C-D).

Guaporeptus paradisius Hoffman, 1988 (Figs. 1; 3; 6C-D; 7-8)

Guaporeptus paradisius Hoffman, 1988a: 329 (male holotype and female paratype from Alto Paraíso, Rondônia, Brazil, 23-26.xii.1983, P.E. Vanzolini leg., deposited in MZSP, examined).

Note: Specimens identified by Hoffman and housed at MZSP were erroneously labeled by the author as *G. petaloproctus* [sic].

Diagnosis: Same for the genus.

Material examined: Brazil: Mato Grosso: Cotriguaçu, Fazenda São Nicolau [09°51'21.9"S, 58°14'51.8"W], 11.xii.2009, L.D. Battirola leg., ♀ (ABAM); 13.xii.2009, D.A. Batistella leg., ♀ (ABAM); ♂, ♀ (ABAM); 08.xii.2009, 3 ♂♂, ♀, 2 immatures (ABAM 0075); 13.xii.2010, 2 ♂♂



Figure 3. *Guaporeptus paradisius*. Male: (A) Anterior region; (B) Posterior region. Female: (C) Anterior region; (D) Posterior region. Scale bars in A-D = 2 mm. This figure is in color in the electronic version.

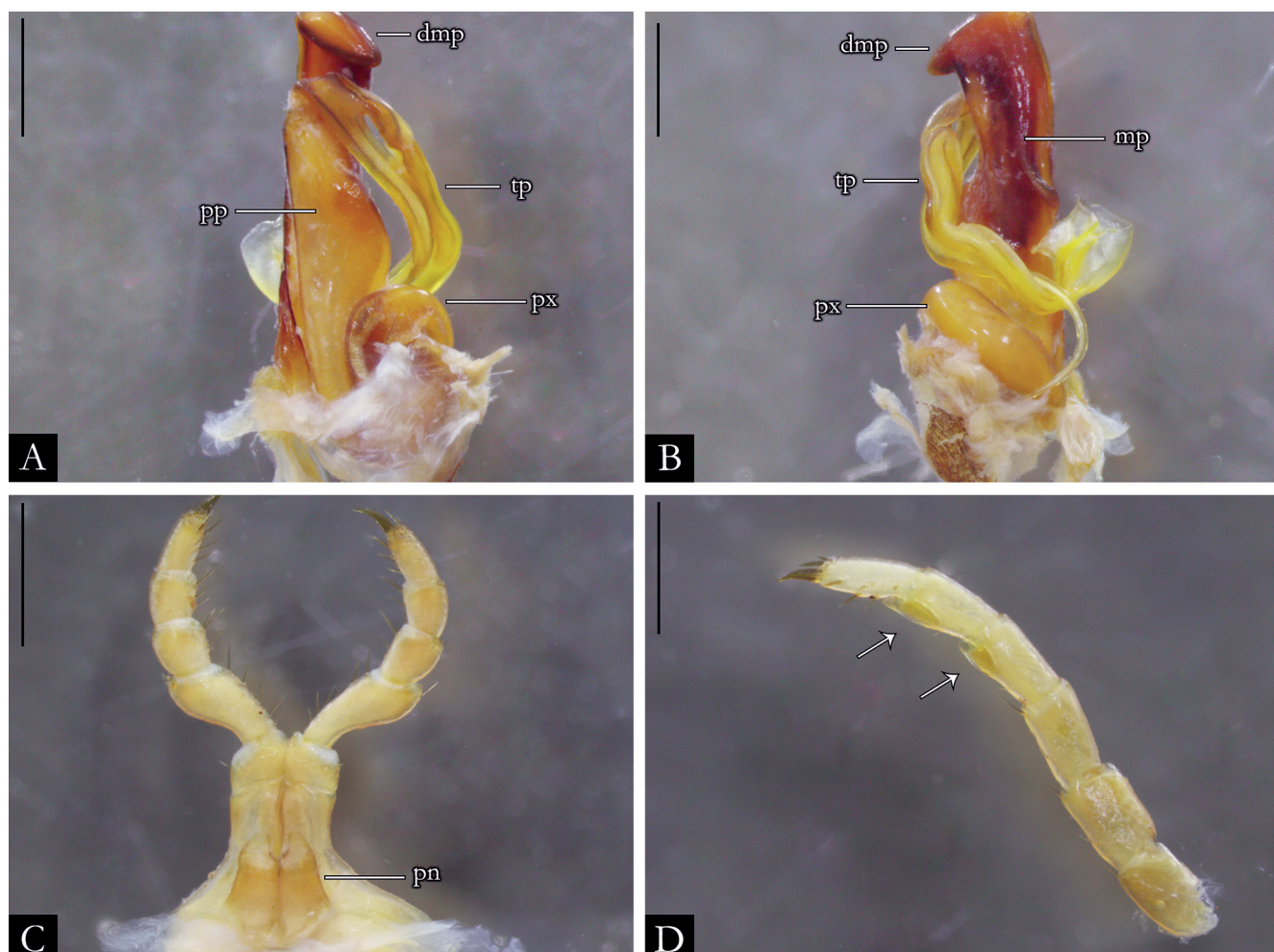


Figure 4. *Exallostreptus vanzolinii*, males: (A) Gonopod in anterior view; (B) Gonopod in posterior view; (C) Second leg-pair; (D) Midbody leg-pair. The arrows indicate the ventral pads. Scale bars in A-C = 1 mm; D = 2 mm. See abbreviations in material and methods. This figure is in color in the electronic version.

(ABAM 0087); 10.xii.2010, 4 ♂♂ (ABAM 0090); 02.xi.2014, M. Karam-Gemael leg., 6 ♂♂, ♀, 1 immature (CZUFMT), Chapada dos Guimarães [15°28'00.9"S, 55°45'04.8"W], REA, Sítio II, Floresta Galeria, 27.ix.2005, 3 ♂♂, 4 ♀♀, 1 immature (CZUFMT).

Descriptive notes: Male and female, see description in Hoffman (1988a: 329, figs. 8-14). Size: Body length 47.5-51 mm., vertical midbody diameter 4-4.8 mm., 51-54 podous body rings. The examined specimens from Mato Grosso perfectly fit the original description of *G. paradisius*. Males agree in having birdhead-shaped distolateral metapical process (*dmp*), short antetorsal process curved mesad; telopodite (*tp*) with two complete 360° torsions (Figs. 7A-B; 8D). The first leg-pair has a subtriangular and glabrous prefemoral process (*ppf*), as noted by Hoffman (1988a: 331) (Fig. 6C-D). Small ventral pads on postfemur and tibia on midbody leg-pairs (Fig. 6D). Females with nonsexual characters as in males (Fig. 3C-D).

Distribution: The species was known only from its type locality in Alto Paraíso, Rondônia; now also known from surrounding areas in the state of Mato Grosso (Madeira and Cerrado provinces).

List of species of Spirostreptidae recorded in Mato Grosso, Brazil

***Gymnostreptus heterogona* (Silvestri, 1902)**

- Orthoporus heterogona* Silvestri, 1902: 14; Schubart, 1945: 84.
- Gymnostreptus (Orthoporus) heterogona*: – Attems, 1914: 135.
- Paulistostreptus digitalis* Schubart, 1945: 80, 1958: 248; Krabbe, 1982: 318 (syn.).
- Tibiozus armatus* Attems, 1950: 223; Hoffman, 1975: 251 (syn. of *G. digitatus*).
- Conchostreptus armatus*: – Demange, 1970: 404.
- Gymnostreptus armatus*: – Hoffman, 1975: 251.
- Gymnostreptus digitatus*: – Hoffman, 1975: 251.
- Gymnostreptus heterogona*: – Krabbe, 1982: 318.

Records from Mato Grosso: unknown exact location (Schubart, 1945).

***Gymnostreptus pictus* (Schubart, 1945)**

- Conchostreptus pictus* Schubart, 1945: 78, 1947: 25, 1958: 224; Demange, 1964: 198; Hoffman, 1988b: 31.

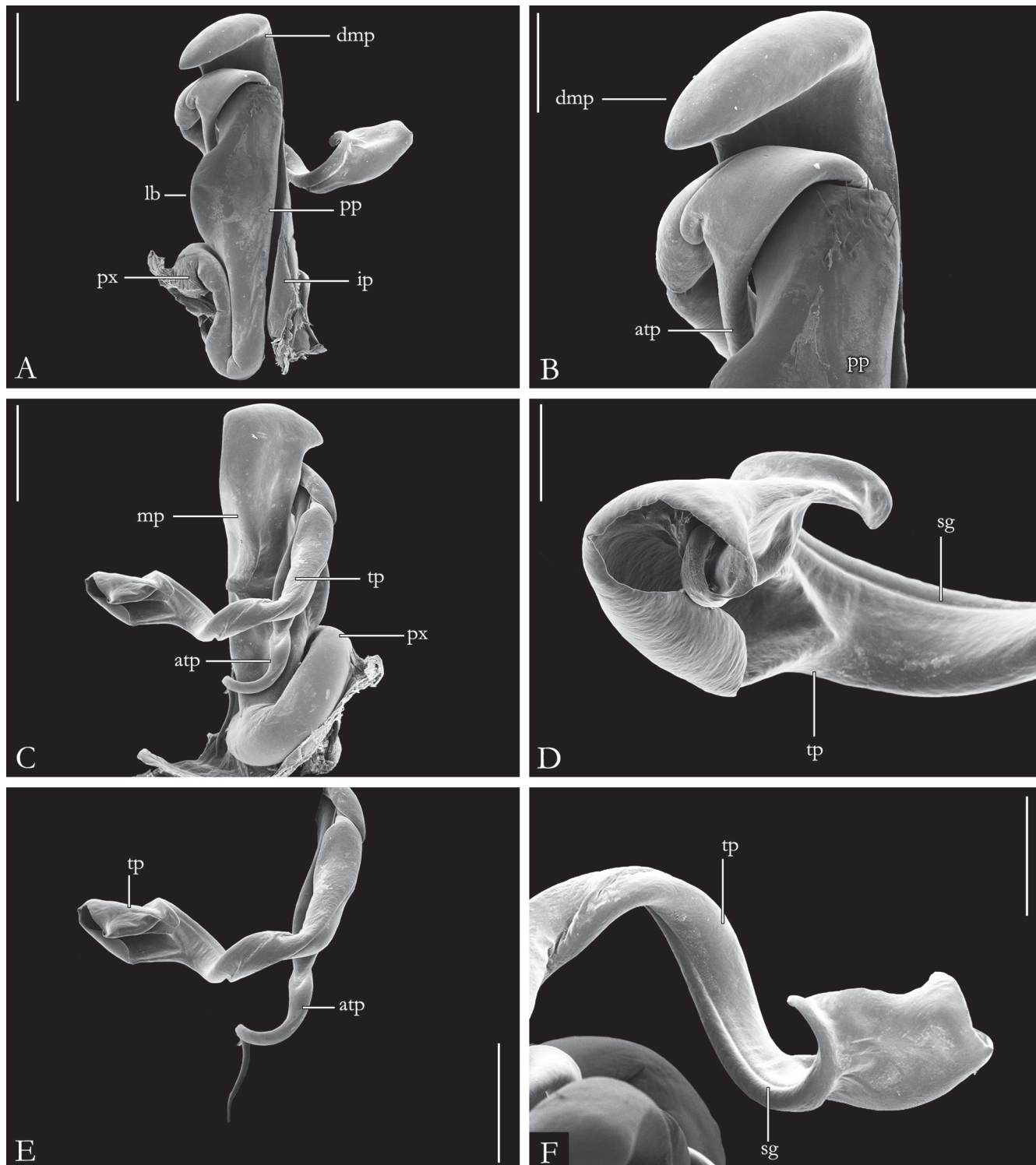


Figure 5. *Exallostreptus vanzolinii*, males, SEM images: (A) Gonopod in anterior view; (B) Detail of distal region of gonopod, in anterior view; (C) Gonopod in posterior view; (D) Detail of distal region of telopodite; (E) Detail of telopodite and antetorsal process; (F) Detail of telopodite. Scale bars in A, C, E = 1 mm; B, F = 500 μ m., D = 400 μ m. See abbreviations in material and methods. This figure is in color in the electronic version.

Conchostreptus schubarti Demange, 1970: 403; Krabbe, 1982: 321 (syn.).

Gymnostreptus pictus: – Hoffman, 1975: 251; Krabbe, 1982: 321; Golovatch et al., 2005: 278.

Records from Mato Grosso: Santa Terezinha (= formerly Barra do Tapirapé) (Schubart, 1945); Jacaré, Alto do Xingu (Schubart, 1958).

***Heteropyge araguayensis* (Schubart, 1947)**

Orthoporus araguayensis Schubart, 1947: 27.

Heteropyge araguayensis: – Hoffman, 1960: 113; Krabbe, 1982: 333; Golovatch et al., 2005: 278; Iniesta et al., 2019: 2.

Records from Mato Grosso: Santa Terezinha (= formerly Barra do Tapirapé) (Schubart, 1947); Pindaíba (Iniesta et al., 2019).

***Heteropyge lineolatus* (Attems, 1950)**

Helicosenus lineolatus Attems, 1950: 247.
Heteropyge lineolatus: – Hoffman, 1960: 112; Krabbe, 1982: 334.

Records from Mato Grosso: Cuiabá (Hoffman, 1960).

***Heteropyge paraguayensis* (Silvestri, 1895)**

Odontopyge paraguayensis Silvestri, 1895b: 11; Viggiani, 1973: 363.
Heteropyge paraguayensis: – Silvestri, 1902: 17; Attems, 1914: 179; Hoffman, 1960: 113; Krabbe, 1982: 334; Golovatch et al., 2005: 278; Santos-Silva et al., 2019: 4.
Orthoporus paraguayensis: – Schubart, 1945: 84, 1958: 237.

Records from Mato Grosso: Itaici, Santo Antônio do Leverger, and Cuiabá (Golovatch et al., 2005; Santos-Silva et al., 2019).

***Orthoporus americanus americanus* (Silvestri, 1895)**

Alloporus americanus Silvestri, 1895a: 780, 1895b: 11.

Diaporus americanus: – Silvestri, 1897: 8, 1902: 15; Schubart, 1945: 60, 1952: 405; Demange, 1970: 403.
Gymnostreptus (Diaporus) americanus: – Attems, 1914: 136.
Scaphiostreptus (Diaporus) americanus: – Attems, 1950: 244.
Alloporus sp.: – Schubart, 1950: 339.
Diaporus cf. *americanus*: – Schubart, 1958: 233.
Orthoporus americanus: – Mauriès, 1975: 1267; Krabbe, 1982: 374.

Records from Mato Grosso: Cáceres (Schubart, 1958).

***Orthoporus americanus perpromixus* (Silvestri, 1902)**

Diaporus americanus perpromixus Silvestri, 1902: 16; Schubart, 1945: 69, 1958: 210; Krabbe, 1982: 375.
Gymnostreptus (Diaporus) americanus perpromixus: – Attems, 1914: 136.

Records from Mato Grosso: Corumbá, Carandásinho (Silvestri, 1902); Miranda (Schubart, 1958).

***Orthoporus fulvomaculatus* (Schubart, 1958)**

Diaporus fulvomaculatus Schubart, 1958: 223.
Orthoporus fulvomaculatus: – Krabbe, 1982: 380.

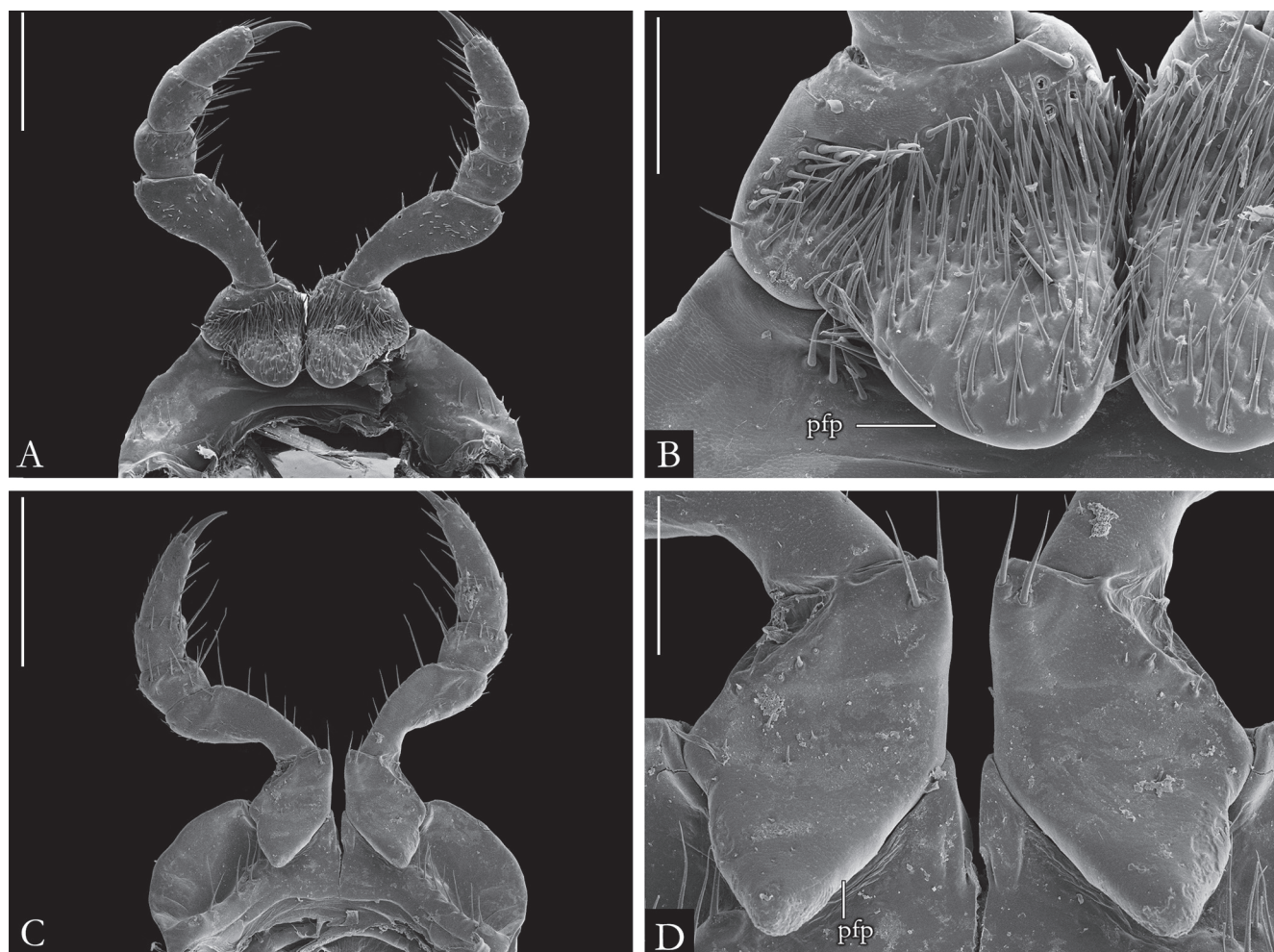


Figure 6. First leg-pair of males, SEM images: *Exallostreptus vanzolinii*: (A) First leg-pair in anterior view; (B) Detail of prefemoral process. *Guaporeptus paradisius*: (C) First leg-pair in anterior view; (D) Detail of prefemoral process. Scale bars in A, C = 1 mm; B, D = 400 µm. See abbreviations in material and methods. This figure is in color in the electronic version.

? *Orthoporus fulvomaculatus*: – Golovatch et al., 2005: 278.

Records from Mato Grosso: Nova Xavantina, close to Mortes River (Schubart, 1958).

***Orthoporus torquatus* (Schubart, 1958)**

Diaporus torquatus Schubart, 1958: 221;
Orthoporus torquatus: – Krabbe, 1982: 437.
? *Orthoporus torquatus*: – Golovatch et al., 2005: 278.

Records from Mato Grosso: Nova Xavantina, close to Mortes River (Schubart, 1958).

***Scaphiostreptus helicterus* Schubart, 1958**

Scaphiostreptus helicterus Schubart, 1958: 225; Krabbe, 1982: 444.
? *Orthoporus helicterus*: – Golovatch et al., 2005: 278.

Records from Mato Grosso: Jacaré, Alto do Xingu (Schubart, 1958).

***Plusioporos minor* (Schubart, 1958)**

Alloporos (Nesostreptus) minor Schubart, 1958: 231.

Plusioporos (Ptemtoporos) minor: – Demange, 1970: 375.
Plusioporos minor: – Krabbe, 1982: 392; Golovatch et al., 2005: 278.

Records from Mato Grosso: São Lourenço River, Pocuba-Xoreu valley (Schubart, 1958).

***Plusioporos nigricollis* (Schubart, 1947)**

Alloporos nigricollis Schubart, 1947: 4, 1950: 349.
Nesostreptus nigricollis: – Jeekel, 1952: 74.
Plusioporos nigricollis: – Hoffman, 1955: 92; Krabbe, 1982: 393; Golovatch et al., 2005: 278.
Plusioporos (Ptemtoporos) nigricollis: – Demange, 1970: 375.

Records from Mato Grosso: close to Rio Araguaia (Schubart, 1947).

***Plusioporos salvadorii* Silvestri, 1895**

Plusioporos salvadorii Silvestri, 1895b: 10, 1902: 12; Attems, 1914: 117; Hoffman, 1955: 93; Krabbe, 1982: 395; Adis et al., 2001: 127; Golovatch et al., 2005: 278; Battiroli et al., 2009: 428, et al., 2017: 5, Batistella et al., 2015: 162, Santos-Silva et al., 2018: 5, et al., 2019: 4.

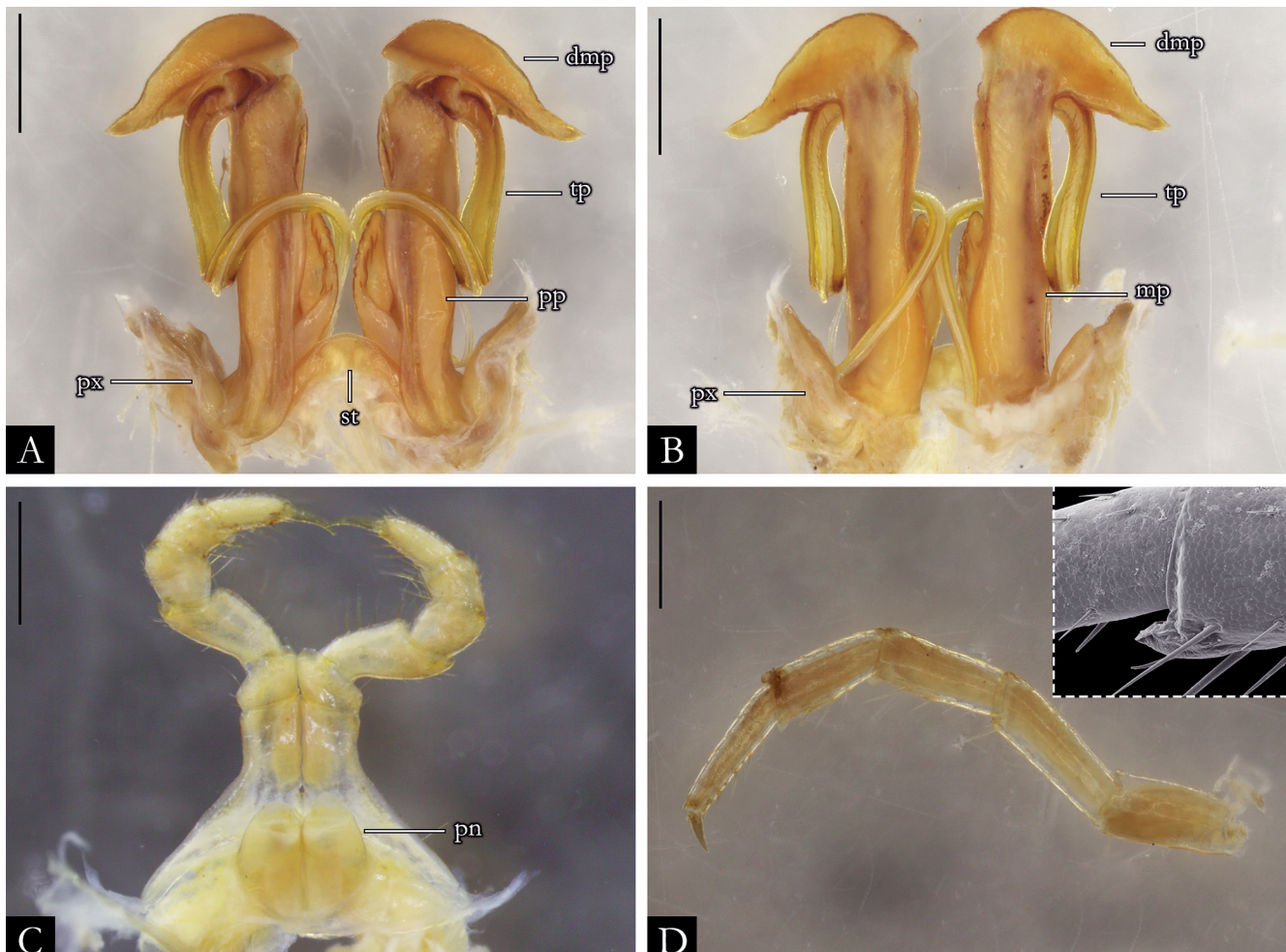


Figure 7. *Guaporeptus paradisius*, males: (A) Gonopods in anterior view; (B) Gonopods in posterior view; (C) Second leg-pair; (D) Midbody leg-pair, SEM image detailing ventral pad. Scale bars in A-C = 1 mm; D = 2 mm. See abbreviations in material and methods. This figure is in color in the electronic version.

Records from Mato Grosso: Nova Xavantina, close to Rio das Mortes (Golovatch *et al.*, 2005); Pirizal, Nossa Senhora do Livramento (Adis *et al.*, 2001); Poconé (Santos-Silva *et al.*, 2018); Fazenda São Nicolau, Cotriguaçu (Batistella *et al.*, 2015).

***Plusioporus sicki* (Schubart, 1950)**

Alloporus sicki Schubart, 1950: 337.
Nesostreptus sicki – Jeekel, 1952: 74.
Alloporus (Nesostreptus) sicki – Schubart, 1958: 220.

Plusioporus sicki: – Hoffman, 1955: 93; Krabbe, 1982: 396.

Records from Mato Grosso: Nova Xavantina, close to Rio das Mortes (Schubart, 1958).

***Trichogonostreptus (Oreastreptus) mattogrossensis* (Silvestri, 1902)**

Nanostreptus mattogrossensis Silvestri, 1902: 10; Attems, 1914: 140; Schubart, 1945: 65, 1958: 237.

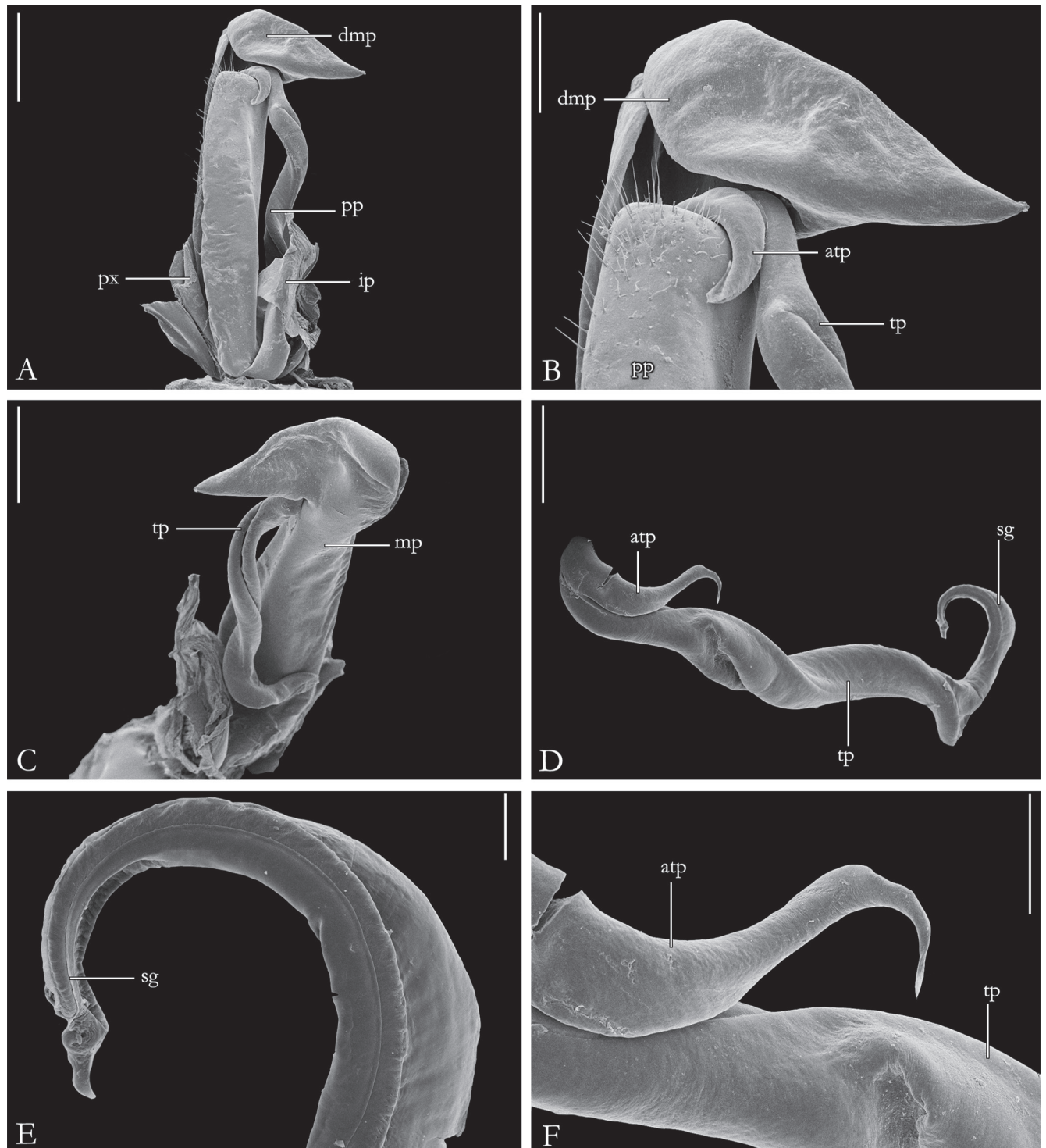


Figure 8. *Guaporeptus paradisius*, males, SEM images: (A) Gonopod in anterior view; (B) Detail of distal region of gonopod, in anterior view; (C) Gonopod in posterior view; (D) Detail of telopodite and antetorsal process; (E) Detail of distal region of telopodite; (F) Detail of antetorsal process. Scale bars in A = 1 mm; B-C = 500 µm; D = 250 µm; E = 50 µm; F = 100 µm. See abbreviations in material and methods. This figure is in color in the electronic version.

Trichogonostreptus (Oreastreptus) mattogrosensis: – Krabbe, 1982: 404; Battirola et al., 2009: 482, et al., 2016: 175, et al., 2017: 5; Batistella et al., 2015: 162; Santos-Silva et al., 2018: 5, et al., 2019: 4.

Records from Mato Grosso: Itaici, Santo Antônio do Leverger; Cuiabá (Silvestri, 1902); Pirizal, Nossa Senhora do Livramento (Battirola et al., 2009, et al., 2017); Fazenda São Nicolau, Cotriguaçu (Batistella et al., 2015); Parque Estadual do Cristalino, Novo Mundo (Battirola et al., 2016); Poconé (Santos-Silva et al., 2018).

***Trichogonostreptus (Ptenogonostreptus) unilineatus* (Schubart, 1945)**

Ptenogonostreptus unilineatus Schubart, 1945: 61, 1947: 19, 1950: 344, 1958: 248;
Trichogonostreptus (Ptenogonostreptus) unilineatus: – Krabbe, 1982: 407; Golovatch et al., 2005: 278.

Records from Mato Grosso: Santa Terezinha (= formerly Barra do Tapirapé) (Schubart, 1945).

***Urostreptus carvalhoi* (Schubart, 1947)**

Stenostreptus carvalhoi Schubart, 1947: 19, 1957: 314, 1958: 245.
Urostreptus carvalhoi: – Hoffman, 1968: 78; Krabbe, 1982: 412; Golovatch et al., 2005: 278.

Records from Mato Grosso: Santa Terezinha (= formerly Barra do Tapirapé) (Schubart, 1947).

***Urostreptus robustus* (Verhoeff, 1951)**

Exospermatix robustus Verhoeff, 1951: 41.
Urostreptus robustus: – Hoffman, 1974: 78; Krabbe, 1982: 415.

Records from Mato Grosso: close to Bandeira River (Verhoeff, 1951).

***Urostreptus tampiitauensis* (Schubart, 1947)**

Stenostreptus tampiitauensis Schubart, 1947: 23, 1957: 317, 1958: 245.
Urostreptus tampiitauensis: – Hoffman, 1968: 84; Krabbe, 1982: 416; Golovatch et al., 2005: 278; Batistella et al., 2015: 162; Battirola et al., 2016: 175; Santos-Silva et al., 2018: 5, et al., 2019: 4.

Records from Mato Grosso: Santa Terezinha (= formerly Barra do Tapirapé) (Schubart, 1947); Fazenda São Nicolau, Cotriguaçu (Batistella et al., 2015); Parque Estadual do Cristalino, Novo Mundo (Battirola et al., 2016); Poconé (Santos-Silva et al., 2018).

DISCUSSION

The fauna of Spirostreptidae in Rondônia is poorly known and hitherto only the species *E. vanzolinii* and

G. paradisius have been recorded in the state. Based on the abundance of both species in the state and their wide distributional range in Mato Grosso, it is plausible to assume that both *E. vanzolinii* and *G. paradisius* do not correspond to rare species, occurring only marginally in the former state. To date, the list of species here compiled provides distributional data for 19 species of Spirostreptidae in Mato Grosso, with *Plusioporus salvadorii*, *Trichogonostreptus (Oreastreptus) mattogrossensis*, and *Urostreptus tampiitauensis* widely distributed in the state. The localities where the species have been reported correspond to the southern region Amazon Rainforest, which partially includes an area called Arc of Deforestation, and Pantanal, one of the world's largest wetland. Historically, these regions have suffered continuous processes of habitat loss, mainly due to the advance of cattle ranching, small-scale subsistence farming, and logging (Shimabukuro et al., 1998; Laurance et al., 2001; Abdon et al., 2007; Alho, 2008; Vieira et al., 2008; Carvalho & Domingues, 2016; Milhorance & Bursztyn, 2018; Tomas et al., 2019).

According to Hoffman (1988a), *E. vanzolinii* can be compared with some African genera based on the prefemoral process densely setose (shared with *Tomogonopus* Sierwald & Mauriès, 2017) and the presence of sigilla on the metazonites (see *Bicoxidens* Attems, 1928 and *Doratogonus* Attems, 1914) (Demange, 1971; Hoffman, 1987; Mwabvu et al., 2007, et al., 2009). In addition, the South American species *Vilcastreptus hoguei* Hoffman, 1988, from Machu Pichu, Peru, also presents large sigilla on metazonites (Hoffman, 1988b). Among the South American genera, *Guaporeptus* seems to be closely related to *Urostreptus* Silvestri, 1897 by having a keel-shaped projection on epiproct and paraproct with broadened edge (Hoffman, 1988a). Importantly, the Brazilian species of *Urostreptus* occur mostly in Mato Grosso, southern Pará, and Goiás (Schubart, 1945, 1958), which suggests a possible geographical affinity for both genera. However, in the absence of any phylogenetic hypothesis little can be said about the relationship between *Guaporeptus* and *Urostreptus*.

CONCLUSIONS

The new records provided here for the species *E. vanzolinii* and *G. paradisius* considerably expand their geographical distribution beyond the type localities in Rondônia. Additionally, the list of species of Spirostreptidae in Mato Grosso indicates a high concentration of records in the southern region of Amazon Rainforest (Arc of Deforestation) and Pantanal, which has suffered continuous processes of habitat loss.

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