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Revisão taxonômica e análise cladística do gênero *Dolichothele* Mello-  
Leitão, 1923 (Araneae: Theraphosidae)

São José do Rio Preto  
2016

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Dissertação apresentada como parte dos requisitos para obtenção do título de Mestre em Biologia Animal, junto ao Programa de Pós-Graduação em Biologia Animal, do Instituto de Biociências, Letras e Ciências Exatas da Universidade Estadual Paulista “Júlio de Mesquita Filho”, Câmpus de São José do Rio Preto.

Orientador: Prof. Dr. Rogério Bertani

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## RESUMO

O gênero *Dolichothele* Mello-Leitão, 1923 é revisado e compreende 11 espécies: *D. exilis* Mello-Leitão, 1923 (espécie-tipo), *D. bolivianum* (Vol, 2001), *D. dominguense* (Guadanucci, 2007), *D. rufoniger* (Guadanucci, 2007), *D. tucuruense* (Guadanucci, 2007), *D. diamantinensis* (Bertani, Santos & Righi, 2009), *D. mineirum* (Guadanucci, 2011), e 4 espécies novas: *D. sp. nov. 1*, *D. sp. nov. 2*, *D. sp. Nov. 3*, e *D. sp. nov. 4*. *Dolichothele auratum* (Vellard, 1924), cujo tipo está supostamente perdido, é considerado *nomem dubium*. Todas as espécies são rediagnosticadas e uma chave é apresentada permitindo as suas identificações. Mapas com a distribuição de todas as espécies são apresentados. Análises cladísticas utilizando uma matriz com 30 caracteres e 20 táxons foi analisada utilizando pesos iguais com o programa Nona 2.0, assim como com pesos diferentes usando PeeWee 1.3 e concavidades de 1 a 6. Dois cladogramas foram obtidos com pesos iguais, o consenso (L = 68, IC = 0,55, RI = 0,67) não recuperou o gênero *Dolichothele* como monofilético, uma vez que *D. exilis* não está incluído no clado com as outras espécies. Um único cladograma foi obtido usando diferentes pesos e concavidades 1-6 (L = 62, fit = 1996.4), todos com a mesma topologia. O cladograma escolhido com pesos diferentes confirma o monofiletismo de *Dolichothele*, cujo clado é suportado pelo caráter "escópula tarsal da perna IV integral, com fileira de cerdas esparsas".

**Palavras-chave:** Bolívia, Brasil, Ischnocolinae, novas espécies, taxonomia de aranhas.

## ABSTRACT

The genus *Dolichothele* Mello-Leitão, 1923 is revised and comprises 11 species: *D. exilis* Mello-Leitão, 1923 (type species), *D. bolivianum* (Vol, 2001), *D. dominguense* (Guadanucci, 2007), *D. rufoniger* (Guadanucci, 2007), *D. tucuruense* (Guadanucci, 2007), *D. diamantinensis* (Bertani, Santos & Righi, 2009), *D. mineirum* (Guadanucci, 2011), and 4 new species: *D. sp. nov. 1*, *D. sp. nov. 2*, *D. sp. nov. 3*, and *D. sp. nov. 4*. *Dolichothele auratum* (Vellard, 1924) which type is supposed lost is herein considered *nomem dubium*. All the species were rediagnosed and a key is presented allowing their identification. Maps with the distribution of all species are presented. Cladistic analyses using a matrix with 30 characters and 20 taxa were carried out using equal weights with the program Nona 2.0 as well as with different weights using Pee- Wee 1.3 and concavities from 1 to 6. Two cladograms were obtained with equal weights, and the consensus (L = 68, CI = 0.55, RI = 0.67) did not recover the genus *Dolichothele* as monophyletic, since *D. exilis* is not included in the clade with the other species. A single cladogram was obtained using different weights and concavities 1-6 (L=62, fit=1996.4) all having the same topology. The chosen cladogram using different weights confirms the monophyly of *Dolichothele*, which clade is supported by the character “scopula tarsal of the leg IV integral, with row of sparse setae”.

**Key words:** Bolivia, Brazil, Ischnocolinae, new species, spider taxonomy.

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**Taxonomic revision and cladistic analysis of the genus *Dolichothele* Mello-Leitão,  
1923 (Araneae: Theraphosidae)**

(Manuscript formatted for the journal Zootaxa)

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**Abstract**

The genus *Dolichothele* Mello-Leitão, 1923 is revised and comprises 11 species: *D. exilis* Mello-Leitão, 1923 (type species), *D. bolivianum* (Vol, 2001), *D. dominguense* (Guadanucci, 2007), *D. rufoniger* (Guadanucci, 2007), *D. tucuruense* (Guadanucci, 2007), *D. diamantinensis* (Bertani, Santos & Righi, 2009), *D. mineirum* (Guadanucci, 2011), and 4 new species: *D. sp. nov. 1*, *D. sp. nov. 2*, *D. sp. nov. 3*, and *D. sp. nov. 4*. *Dolichothele auratum* (Vellard, 1924) which type is supposed lost is herein considered *nomem dubium*. All the species were rediagnosed and a key is presented allowing their identification. Maps with the distribution of all species are presented. Cladistic analyses using a matrix with 30 characters and 20 taxa were carried out using equal weights with the program Nona 2.0 as well as with different weights using Pee- Wee 1.3 and concavities from 1 to 6. Two cladograms were obtained with equal weights, and the consensus (L = 68, CI = 0.55, RI = 0.67) did not recover the genus *Dolichothele* as monophyletic, since *D. exilis* is not included in the clade with the other species. A single cladogram was obtained using different weights and concavities 1-6 (L=62, fit=1996.4) all having the same topology. The chosen cladogram using different weights confirms the monophyly of *Dolichothele*, which clade is supported by the character “scopula tarsal of the leg IV integral, with row of sparse setae”.

**Key words:** Bolivia, Brazil, Ischnocolinae, new species, spider taxonomy.

## 1 INTRODUCTION

The genus *Dolichothele* Mello-Leitão, 1923 was described with a single species, *Dolichothele exilis* Mello-Leitão, 1923, from the state of Paraíba, Brazil, and included in the Barychelidae. Posteriorly, Bücherl *et al.* (1971) examined the female holotype and transferred it to the Theraphosidae, Ischnocolinae. In his mygalomorph revision Raven (1985) considered the genera *Dolichothele* and *Goniodontium* Mello-Leitão, 1923 junior-synonymous of *Hapalotremus* Simon (Theraphosidae, Theraphosinae), but he was not followed by Schmidt (2002), who restored the genus *Dolichothele* and considered it *incertae sedis*. More recently, Lucas & Indicatti (2015) examined the holotype of the type species *Dolichothele exilis* and considered it senior-synonym of *Goniodontium* and *Oligoxystre* Vellard, 1924 making several new combinations: *D. muticum* (Mello-Leitão, 1923) (from *Goniodontium*); *D. auratum* (Vellard, 1924), *D. bolivianum* (Vol, 2001), *D. diamantinensis* (Bertani, Santos & Righi, 2009), *D. dominguense* (Guadanucci, 2007), *D. mineirum* (Guadanucci, 2011), *D. rufoniger* (Guadanucci, 2007) and *D. tucuruense* (Guadanucci, 2007) from *Oligoxystre*. In the same study, the species *Oligoxystre caatinga* Guadanucci, 2007 and *Goniodontium muticum* Mello-Leitão, 1923 were synonymized with *Dolichothele exilis* Mello-Leitão, 1923 (Lucas & Indicatti 2015).

Most of the species presently in *Dolichothele* were described in the genus *Oligoxystre* which was revised by Guadanucci (2007; 2011). This author recognized 8 species distributed in Brazil and Bolivia and carried out cladistic analyses showing the relationship of the species of the genus. Despite being important contributions to the taxonomic and cladistic knowledge of the genus, some questions remained unresolved. The identity of the type species of *Oligoxystre*, *O. auratum* is unknown since the holotype is lost and the description does not allow identifying the species (Raven 1985). Other questions not satisfactorily attended concerns *D. bolivianum* which has a wide distribution from central Brazil to eastern Bolivia. Guadanucci (2007) observed variation in color between populations of this species but considered that the examined specimens have the same genitalia morphology, therefore belonging to the same species (Guadanucci 2007). *Dolichothele mineirum* also have a wide distribution in the Brazilian Atlantic forest, and, despite observing variation in genitalia morphology among populations, Guadanucci (2007) considered them to belong to the same species.

The aim of this work is to taxonomically revise the genus *Dolichothele* and to carry out a new cladistic analysis of its species. Four new species are recognized and are herein described.

## 2 MATERIALS AND METHODS

All measurements are in millimeters and were obtained from the right appendages, unless they were missing or regenerated. For larger structures such as carapace, abdomen, legs and palp articles it was used a Mitutoyo digital caliper with an error of 0.005mm, rounded up to two significant decimals. Legs and palp articles were measured from the dorsal aspect. Images of the structures were made with a LEICA M205C dissecting microscope with a LEICA LAS montage and a LAS 3D module with which small structures as eyes were measured.

Photomicrographs were obtained with a Scanning Electron Microscope SEM FEI Quanta 250. Analysis of the morphology of tibia IV setae was also done with a LEICA DM2500 microscope after removing some setae from the distal ventral area of tibia IV of the following male specimens: *Dolichothele exilis* (LEEV 229), *Dolichothele bolivianum* (MZSP 26083), *Dolichothele dominguense* (LEEV 246), *Dolichothele rufoniger* (LEEV 249), *Dolichothele diamantinensis* (MZSP 29072), *Dolichothele mineirum* (UFMG 17704), *Dolichothele* sp. nov. 1 (DZUB 8248), *Dolichothele* sp. nov. 2 (DZUB 8249), *Dolichothele* sp. nov. 3 (LEEV 253) and *Dolichothele* sp. nov. 4 (LEEV 263) as well as the specimens used as outgroups.

The position of spines on legs and palp followed the terminology of Petrunkevitch (1925) with the modifications of Bertani (2001). Abbreviation: (ALE) anterior lateral eyes, (AME) anterior median eyes, (ap) apical, (d) dorsal, (ITC) inferior tarsal claw, (PLE) posterior lateral eyes, (PLS) posterior lateral spinnerets, (PME) posterior median eyes, (PMS) posterior median spinnerets, (p) prolateral, (r) retrolateral, (STC) superior tarsal claw, and (v) ventral.

Specimens of the following institutions were examined: DZUB, Departamento de Zoologia da Universidade de Brasília, Brasília; IBSP, Laboratório de Coleções Zoológicas, Instituto Butantan, São Paulo; LEEV, Laboratório de Ecologia e Evolução, Instituto Butantan, São Paulo; MNHN-AR, Muséum national d'Histoire naturelle, Paris; MNK-AR, Museo de Historia Natural Noel Kempff, Santa Cruz; MNRJ, Museu

Nacional da Universidade Federal do Rio de Janeiro, Rio de Janeiro; MZUSP, Museu de Zoologia da Universidade de São Paulo, São Paulo; UFMG, Coleções Taxonômicas da Universidade Federal de Minas Gerais, Belo Horizonte.

Maps of species distribution were done with the program ArcGIS 10.

Geographical coordinates were obtained from the labels when available (primary source, indicated by rounded brackets) or using Google Earth© (secondary source, indicated by square brackets).

For the cladistic analyses, the data matrix and the choice of out-groups were made primarily based on the cladograms proposed by Guadanucci (2011; 2014), with modifications.

As outgroups it was included the following taxa:

Theraphosidae, Theraphosinae: *Homoeomma montanum* (Mello-Leitão, 1923), 1 male, BRAZIL, state of Rio de Janeiro, Petrópolis, A.M. Zaccelly col., July 1975 (MNRJ 13771); 1 female, BRAZIL, State of Minas Gerais, Lima Duarte, Parque Estadual de Ibitipoca, A. de Oliveira & B.M. Souza col., 08 November 1997 (IBSP 8928);

Theraphosidae, Ischnocolinae *incertae sedis*: *Guyruita atlantica* Guadanucci, male, BRAZIL, state of Espírito Santo, Sooretama, Rebio Sooretama, Eq. Arachol., 21 May 2006 (MNRJ unnumbered), 3 females, BRAZIL, state of Alagoas, Murici, E. E. Murici, 04 July 2006, R. Bertani, R. H. Nagahama & D. R. M. Ortega (LEEV 276); *Guyruita cerrado* Guadanucci, male, BRAZIL, state of Goiás, Catalão, 21 October 2015, R. Bertani *et al.* (LEEV 277), female, BRAZIL, state of Tocantins, Peixe, 18 March 2006, Resgate de Fauna (LEEV 278); *Catumiri chicoi* Guadanucci, male and female, BRAZIL, state of Bahia, São João da Mata, RPPN Sapiranga, 02 October 2007, R. Bertani, C. S. Fukushima & R. H. Nagahama (LEEV 279); *Sickius longibulbi* Soares & Camargo, male, BRAZIL, Distrito Federal, Brasília, Reserva da Marinha, 11 August 2007, R. Bertani *et al.* (LEEV 280); and *Holothele rondoni* (Lucas and Bücherl), male holotype and female paratype, BRAZIL, state of Amazonas, Iauaretê (IBSP 4090);

Barychelidae, Sasoninae: *Sason robustum* (O. Pickard-Cambrige), male and female, CEYLAN (MNHN AR 4563);

Paratropididae, Glabropelmatinae: *Melloina santuario* Bertani. Holotype male (MIZA 520) and paratype female (MNRJ 12961), VENEZUELA, Lara, Cueva El Santuario [9°49'N, 70°03'W], O. Villarreal, 19 April 2000;

Nemesiidae, Pycnothelinae: *Stenoterommata* sp., male and female, BRAZIL, Minas Gerais, Ouro Preto, Parque Estadual do Itacolomi, January 2005. R. Bertani *et al.* (LEEV 275).

A data matrix with 20 taxa and 30 characters (Table I) was analyzed with the programs Nona 2.0 for Windows (Goloboff 1998) and Pee-Wee 1.3 for Windows (Goloboff 1997) using the commands h1000, h/20, amb- and mult\*50. For Pee-Wee the concavities 1 to 6 were used. All characters were treated as non-additive.

**Table 1.** Data matrix showing distribution of character states in cladistic analysis. (?=unknown, - = non-applicable, both treated as missing data).

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>Stenoterommata</i> sp.	0	1	0	0	0	1	1	1	2	0	0	-	-	0	0	0
<i>Sason robustum</i>	0	0	1	0	1	1	1	1	2	1	0	-	-	0	0	0
<i>Melloina santuario</i>	0	0	1	0	0	0	0	1	1	0	0	0	1	-	0	0
<i>Holothele rondoni</i>	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0
<i>Homoeomma montanum</i>	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	1
<i>Sickius longibulbi</i>	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	2
<i>Guyruita cerrado</i>	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
<i>Guyruita atlantica</i>	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
<i>Catumiri chicaoi</i>	0	1	1	0	1	1	1	1	0	0	0	0	-	0	0	0
<i>Dolichothele exilis</i>	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
<i>Dolichothele bolivianum</i>	0	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1
<i>Dolichothele dominguense</i>	0	1	1	0	1	1	1	1	1	1	0	1	1	0	0	1
<i>Dolichothele tucuruense</i>	0	0	1	0	1	1	1	1	1	1	0	0	1	?	0	0
<i>Dolichothele rufoniger</i>	0	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0
<i>Dolichothele diamantinensis</i>	0	0	1	0	1	1	1	1	1	1	1	0	0	0	0	1
<i>Dolichothele mineirum</i>	0	0	1	0	1	1	1	1	1	1	0	0	1	1	1	0
<i>Dolichothele</i> sp.nov.1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1
<i>Dolichothele</i> sp.nov.2	0	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1
<i>Dolichothele</i> sp.nov.3	0	0	1	0	1	1	1	1	1	1	0	0	1	1	1	0
<i>Dolichothele</i> sp.nov.4	0	0	1	0	1	1	1	1	1	1	0	0	0	0	0	1

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
<i>Stenoterommata</i> sp.	0	0	0	0	1	0	0	1	2	1	1	-	-	0	0
<i>Sason robustum</i>	1	1	2	1	0	0	2	1	0	1	1	0	0	0	0
<i>Melloina santuario</i>	0	1	-	1	1	0	1	0	0	1	2	-	-	-	0
<i>Holothele rondoni</i>	1	1	0	1	1	0	1	0	0	1	0	0	1	-	0
<i>Homoeomma montanum</i>	1	1	0	1	1	0	1	1	0	1	2	-	-	-	-
<i>Sickius longibulbi</i>	1	0	0	1	0	0	1	0	0	0	-	-	-	-	-
<i>Guyruita cerrado</i>	1	0	0	1	0	0	1	0	0	1	1	0	0	1	1
<i>Guyruita atlantica</i>	1	0	0	1	0	0	1	0	0	1	1	0	0	1	1
<i>Catumiri chicao</i>	1	0	0	1	1	0	1	0	0	1	2	-	-	-	0
<i>Dolichothele exilis</i>	1	1	1	1	0	0	1	0	0	1	1	0	0	1	0
<i>Dolichothele bolivianum</i>	1	1	1	1	0	0	1	1	1	1	1	0	1	1	0
<i>Dolichothele dominguense</i>	1	1	1	1	0	0	1	0	1	1	1	0	1	2	0
<i>Dolichothele tucuruense</i>	1	1	1	1	0	0	1	0	0	1	1	1	1	1	0
<i>Dolichothele rufoniger</i>	1	1	1	1	0	0	1	0	0	1	1	1	1	1	0
<i>Dolichothele diamantinensis</i>	1	1	1	1	0	0	1	0	0	1	1	0	0	1	0
<i>Dolichothele mineirum</i>	1	1	1	1	0	0	1	0	0	1	1	0	1	1	0
<i>Dolichothele</i> sp.nov.1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	0
<i>Dolichothele</i> sp.nov.2	1	1	1	1	0	1	1	1	1	1	1	0	0	1	0
<i>Dolichothele</i> sp.nov.3	1	1	1	1	0	0	1	0	0	1	1	0	0	1	1
<i>Dolichothele</i> sp.nov.4	1	1	1	1	0	0	1	0	0	1	1	0	1	1	1

Cladist analyses were based in the matrices of Guadanucci (2011; 2014): characters 1, 4, 5, 6, 7, 8, 9, 11, 12, 15, 17, 18, 20, 23, 24, 26, 27; characters 20, 23, 24 and 26 were slightly modified. Characters 16, 19, 22 were based in Raven (1985). Characters 0, 2, 3, 10, 13, 14, 21, 25, 28, 29, 30 are newly introduced.

List of characters: **(0)** Carapace, (0) covered by iridescent red setae (Figs 66–67), (1) covered by setae having other color (Fig. 69). **(1)** Clypeus: (0) absent, (1) present, short. **(2)** Anterior row of eyes: (0) straight, (1) procurved. This character is frequently used in cladistic analysis, but was not included in Guadanucci (2011; 2014) works. **(3)** Ventral region, color: (0) brown, (1) black. This is an apomorphy to *D. exilis* (Guadanucci 2011). **(4)** Maxilla, number of cuspules: (0) more than 60, (1) less than 50. **(5)** Labium, number of cuspules: (0) more than 15, (1) less than 10. **(6)** Labium, width:

(0) longer than wide, (1) wider than long. **(7)** Sigilla, position: (0) more than two diameters from margin, (1) one diameter or less from margin. **(8)** Tibial apophysis on leg I in males: (0) a single branch, (1) two-branched, (2) megaspine. **(9)** Tibial apophysis on leg I in males, insertion: (0) close to tip (Fig. 4), (1) far from tip (Fig. 28). **(10)** Tibial apophysis on leg I in males, insertion: (0) inclined in relation to tibia axis (Figs 3–4), (1) perpendicularly to the axis of the tibia (Figs 27–28). The state 1 is an apomorphy of *D. diamantinensis*. **(11)** Tibial apophysis on leg I in males, apical part of the retrolateral branch: (0) narrowing (Fig. 3), (1) thickened (Fig. 16). **(12)** Tibial apophysis on leg I in males, prolateral branch length: (0) as long as or longer than the contiguous spine (Fig. 4), (1) shorter than the spine (Fig. 23). **(13)** Setae on tibiae of males: (0) smooth on distal part (Figs 92–93), (1) with teeth on distal part (Figs 94–96). The morphological study carried out in this work found that some *Dolichothele* species (*D. bolivianum*, *D. mineirum*, *D. sp. nov. 1*, *D. sp. nov. 2* and *D. sp. nov. 3*) have setae covering of tibiae and metatarsi with a very particular structure. Instead of being smooth as in other *Dolichothele* species and in the outgroup, these setae have a surface formed by series of small teeth on their distal part (Figs 94–96). **(14)** Long setae on tibiae and metatarsi of males: (0) absent; (1) present (Figs 82, 85). Males of *Dolichothele mineirum* and *D. sp. nov. 3* have long setae on tibiae and metatarsi, easily seen in living specimens. This character is newly introduced here. **(15)** Leg I, metatarsus of males: (0) straight, (1) slightly curved, (2) strongly curved. This character was modified from that of Guadanucci (2011) to include the state 2, found in *Sickius longibulbi*, which is clearly distinct from the other two states. **(16)** Scopulae on tarsi of males and females: (0) poorly developed, (1) well developed. Character introduced by Raven (1985) as a putative synapomorphy of Barychelidae and a large internal clade of Theraphosidae. **(17)** Scopulae on tarsi of leg I in males and females: (0) divided by a band of setae, (1) not divided by a band of setae. **(18)** Scopulae on tarsi of leg IV of males and females: (0) divided by a band of setae, (1) not divided, but with sparse setae, (2) not divided by a band of setae. **(19)** Subungueal tuft: (0) absent, (1) present; **(20)** Tarsal claws: (0) lacking teeth, (1) with teeth. **(21)** Lateral part of the abdomen in females: (0) homogeneous in color, (1) with black stripes (Fig. 75). **(22)** Distal segment of lateral posterior spinnerets: (0) short, triangular, (1) long, digitiform, (2) very short, rounded; **(23)** Male palpal bulb, embolus: (0) long (Fig. 1), (1) short (Fig. 6). This character was modified from that of Guadanucci (2011) and does not include the curvature, as it is difficult to separate the distinct states proposed by that author. **(24)**

Male palpal bulb embolus: (0) smooth (Fig. 25), (1) with small keel (Fig. 9), (2) with several soft keels. It was included the state 2 for *Stenoterommata* sp. which has a disctive embolus with several parallel soft keels. **(25)** Spermathecae: (0) absent, (1) present. The state 0 is an apomorphy of *Sickius longibulbi*. **(26)** Spermathecae, lobules: (0) a single lobe, (1) multilobular, (2) lacking lobules. This character was modified to include the state 0. **(27)** Spermathecae, outer basal part: (0) lacking lobes (Fig. 18); (1) with lobes (Fig.19, 24). This character was modified to distinguish the lobes distributed on the basal area and those restricted to the distal area. **(28)** Spermathecae, multilobular, lobes: (0) only in the apex (Fig. 5), (1) spread over inner surface (Fig. 34). The comparasion of the morphology of spermathecae showed that the position of the lobes on the spermathecae is informative and therefore it was included as a new character. **(29)** Spermathecae, number of lobes: (0) 3, (1) 4-12 (Fig. 39), (2) more than 15 (Fig. 18). The number of spermatheca lobes was found to be constant and informative to the analysis. Three distinct states were observed in the specimens examined, from very few (state 0) to an intermediate state found in most ingroup species and *Guyruita* spp. (between 4 and 12) to a large number of lobes (more than 15), found exclusively in *D. dominguense*. **(30)** Spermathecae, outer distal surface: (0) lacking lobes (Fig. 34), (1) with lobes (Fig. 54). Spermatheca lobes are present on the outer distal surface of *D.* sp. nov. 3 and *D.* sp. Nov. 4 and are informative to the analysis. Therefore, it was included as a new character.

The character 14 of Guadanucci (2011) (metatarsal swollen trichobothria), was not included in this analysis, as it is difficult to separate between normal and swollen trichobothria. The author abandoned this character in a subsequent work (Guadanucci 2014).

### 3 RESULTS

#### 3.1 Taxonomy

*Dolichothele* Mello-Leitão, 1923

*Dolichothele* Mello-Leitão, 1923: 119 (Type species by original designation *D. exilis* Mello-Leitão, 1923, type in MNRJ, not examined); Lucas & Indicatti 2015: 205.

*Oligoxystre* Vellard, 1924: 151, pl. 10, f. 38 (Type species by original designation *O. auratum* Vellard, 1924, should be deposited at Instituto Vital Brazil, Niterói, lost); first synonymized by Lucas & Indicatti 2015: 205; World Spider Catalog 2016.

*Pseudoligoxystre* Vol, 2001: figs 4–6, 7 (type species *Pseudoligoxystre bolivianum* Vol, 2001, deposited at MNK-AR, examined); first synonymized by Guadanucci 2007.

*Goniodontium* Mello-Leitão, 1923: 126 (type species by original designation *Goniodontium muticum* Mello-Leitão, 1923, type at MNRJ, not examined); first synonymized by Lucas & Indicatti 2015: 205.

**3.1.1 Diagnosis.** (From Guadanucci 2011). Differs from other ischnocoline and resembles genus *Catumiri* by the labium much wider than long, bearing a reduced number of cuspules (fewer than 10). It differs from *Catumiri* by the undivided tarsal scopula on legs I–III and scopula on tarsi IV undivided but with a longitudinal band of setae, the metatarsi I and II having scopula ventrally for all its length, the spermathecae with numerous lobules, the well-developed retrolateral branch of the male tibial apophysis, and by the tarsal claws of males without teeth.

**3.1.2 Redescription.** Carapace longer than wide, cephalic region low, hardly distinct. Thoracic striae indistinguishable. Fovea shallow or deep, straight or slightly procurved. Chelicerae without rastellum, basal segments with 8 to 13 teeth, and small teeth on basal area. Eye tubercle low, wider than long. Clypeus present, short (*D. exilis*, *D. dominguense*, *D. bolivianum*, *D. sp. nov. 1* and *D. sp. nov. 2*), or absent (*D. diamantinensis*, *D. tucuruense*, *D. rufoniger*, *D. sp. nov. 3* and *D. sp. nov. 4*). Anterior eye row slightly procurved, posterior slightly recurved. Labium wider than long, with few (2–4) cuspules. Maxila subrectangular, anterior lobe distinctly produced into a conical process, inner angle bearing few cuspules (18–35). Sternum longer than wide, sigilla close to the margin. PMS one-segmented, short; PLS three-segmented, the apical segment digitiform. Claw tufts present; STC without teeth. Scopulae of tarsi I–III undivided, IV undivided with longitudinal band of setae. Scopulae of metatarsi I–II entire for length, III–IV apical  $\frac{3}{4}$  scopulated, except *D. dominguense* with metatarsi III and IV with scopula only on distal half. Male tibial apophysis on leg I with two branches positioned inclined (most species) or perpendicularly (*D. diamantinensis*) to the axis of the tibia. Retrolateral branch longer than prolateral, not dilated on distal portion (except *D. dominguense*), bearing a spine on its midlength. Prolateral branch

shorter than contiguous spine (*D. bolivianum*, *D. dominguense*, *D. tucuruense*, *D. rufoniger*, *D. sp. nov. 1*, *D. sp. nov. 2*, *D. sp. nov. 3* and *D. sp. nov. 4*), as long as the contiguous spine, or longer (*D. exilis*, *D. diamantinensis* and *D. sp. nov. 4*). Male palpal bulb pyriform, embolus long lacking keels (*D. exilis*, *D. diamantinensis*, *D. tucuruense*, *D. rufoniger*, *D. sp. nov. 3* and *D. sp. nov. 4*), long with keel (*D. dominguense*) or short with keel (*D. bolivianum*, *D. dominguense*, *D. sp. nov. 1*, *D. sp. nov. 2*). Spermathecae short (*D. bolivianum*, *D. sp. nov. 1*, *D. sp. nov. 2*) or long (*D. exilis*, *D. dominguense*, *D. diamantinensis*, *D. tucuruense*, *D. rufoniger*, *D. sp. nov. 3* and *D. sp. nov. 4*). Carapace covered with long red iridescent setae (*D. sp. nov. 1*), iridescent blue (*D. diamantinensis*) or brown color. General color pattern brown, red (*D. rufoniger*), iridescent blue (*D. diamantinensis*), or gray (*D. sp. nov. 4*).

**3.1.3 Species included.** *Dolichothele exilis* Mello-Leitão, 1923, *Dolichothele bolivianum* (Vol, 2001), *Dolichothele dominguense* (Guadanucci, 2007), *Dolichothele tucuruense* (Guadanucci, 2007), *Dolichothele rufoniger* (Guadanucci, 2007), *Dolichothele diamantinensis* (Bertani, Santos & Righi, 2009), *Dolichothele mineirum* (Guadanucci, 2011), *Dolichothele sp. nov. 1*, *Dolichothele sp. nov. 2*, *Dolichothele sp. nov. 3*, *Dolichothele sp. nov. 4*.

### 3.1.4 Identification key for *Dolichothele* species

Males

- |   |  |                       |
|---|--|-----------------------|
| 1 | Male palpal bulb embolus with small subapical keel (Figs 55–59).....   | 2                     |
| - | Male palpal bulb embolus lacking keel (Figs 60–65).....  | 5                     |
| 2 | Embolus very long (Fig. 59).....   | <i>D. dominguense</i> |
| - | Embolus short or long (Figs 55–58).....  | 3                     |
| 3 | Embolus short and strongly curved on its distal third (Fig. 55), carapace covered with iridescent red setae (Fig. 67).....                         | <i>D. sp. nov. 1</i>  |
| - | Embolus long and slightly curved (Figs 56–58), carapace covered with brown or black setae (Figs 70, 72).....                                       | 4                     |
| 4 | Basal part of embolus thickened (Fig. 56), carapace covered with brown setae (Fig. 70).....  | <i>D. bolivianum</i>  |
| - | Basal part of embolus not thickened (Figs 57–58); carapace covered by black setae on its centre and light-brown setae on its margin (Fig. 72)..... | <i>D. sp. nov. 2</i>  |

- 5 Tibial apophysis on leg I inserted perpendicularly to the tibia axis (Figs 27–28); carapace and legs iridescent blue (Bertani *et al.* 2009; fig.7).....*D. diamantinensis*
- Tibial apophysis on leg I inclined in relation to tibia axis (Figs 3–4, 22–23, 32–33, 47–48, 52–53); carapace and legs of other color than iridescent blue (Figs 76–77, 79, 81, 86).....6
- 6 Prolateral branch of tibial apophyses on leg I longer or the same size as the contiguous spine (Figs 4, 28, 53).....7
- Prolateral branch of tibial apophyses on leg I shorter than the contiguous spine (Figs 23, 33, 48).....8
- 7 Tibial apophysis of leg I positioned close to the tibia apex (Fig. 4); embolus slender at its base (Fig. 2); sternum, coxae, maxillae and labium black.....*D. exilis*.
- Tibial apophysis of leg I positioned far from the tibia apex (Fig. 53); embolus thicker at its base (Fig. 51); sternum, coxae, maxillae and labium brown.....*D. sp. nov.* 4
- 8 Tibiae and metatarsis with dense plumose setae (Figs 79, 81–82, 85); bulb with very long embolus (Figs 61–62); .....9
- Tibiae and metatarsis lacking plumose setae; bulb with long embolus (Fig. 65, Guadanucci 2007, fig. 32);.....10
- 9 Embolus base slightly curved, tapering; embolus ca. 3.5 times tegulum length (Fig. 45)..... *D. sp. nov.*3
- Embolus base curved, narrowing abruptly; embolus ca. 3 times tegulum length (Fig. 30)..... *D. mineirum*
- 10 Tibial apophysis of leg I positioned close to the tibia apex (Fig. 23); carapace and basal segments of legs and palps reddish, distal segments blackish.....*D. rufoniger*
- Tibial apophysis of leg I positioned far from the tibia apex (Guadanucci 2007, fig. 30); carapace and legs brown.....*D. tucuruense*

#### Females

- 1 Spermathecae short (Figs 13, 39, 44).....2
- Spermathecae long (Figs 5, 18, 19, 24, 29, 34, 49, 54).....4

- 2 Spermathecae straight and narrow (Fig. 44)..... *D. sp. nov.* 2  
 - Spermathecae triangular (Figs 13, 39).....3
- 3 Broader spermathecae (Fig. 39); cephalothorax covered by reddish metallic setae (Fig. 66).....*D. sp. nov.* 1  
 - Spermathecae slender (Fig. 13); cephalothorax covered by brown setae (Figs 68–69).....*D. bolivianum*
- 4 Spermathecae with basal lateral lobes (Figs 19, 24).....5  
 - Spermathecae lacking basal lateral lobes (Figs 5, 18, 29, 34, 49, 54).....6
- 5 Lateral lobe elongated and bilobulated (Fig. 19); carapace and legs brown.....*D. tucuruiense*  
 - Lateral lobe short and not bilobulated (Fig. 24); carapace and legs reddish (Fig. 77).....*D. rufoniger*
- 6 Spermathecae with lobes only on their apex (Fig. 5).....*D. exilis*  
 - Spermathecae with lobes on their apex and other areas (Figs 18, 29, 34, 49, 54).....7
- 7 Spermathecae slender with lobes throughout their length (Fig. 18).....*D. dominguense*  
 - Spermathecae slightly thicker with lobes not distributed over all their length (Figs 29, 34, 49, 54).....8
- 8 Spermathecae straight with a larger lobe in their apex and some lobes around it (Fig. 29); carapace, legs and palps iridescent blue (Fig. 88).....*D. diamantinensis*  
 - Spermathecae curved with some lobes in their apex and some distributed over its inner and outer surface (Figs 34, 49, 54); carapace, legs and palps brownish or greyish (Figs 78, 80, 86).....9
- 9 Spermathecae with lobes distally on the inner surface (Fig. 34); carapace, legs and palps brown (Fig. 78).....*D. mineirum*  
 - Spermathecae with lobes on the inner and outer surface (Figs 49, 54); carapace and legs dark brown or gray (Figs 80, 84, 86).....10
- 10 Spermathecae slightly curved and with small lobes distally (Fig. 49); carapace, legs and palps dark brown (Figs 80, 84).....*D. sp. nov.* 3

- Spermathecae curved and with large lobes distributed by half of the spermathecae length (Fig. 54); carapace, legs and palps gray (Fig. 86).....*D. sp. nov. 4*

### 3.1.5 *Dolichothele exilis* Mello-Leitão, 1923

Figs 1–5, 60, 76, 91.

*Dolichothele exilis* Mello-Leitão, 1923: 120 (female holotype from Parahyba do Norte (sic) state of Paraíba, Brazil, T. Leitão col., MNRJ 13898, not examined); Bücherl *et al.* 1971: 127, f. 52; Schmidt 2002: 16, f. 1; Schmidt 2003: 196, f. 559; Lucas & Indicatti 2015: 207, f. 1-10; World Spider Catalog 2016. *Goniodontium muticum* Mello-Leitão, 1923: 127 (female holotype from Villa Nova, state of Bahia, Brazil, E. Garbe col., MZUSP 159, not examined). Firstly synonymized by Lucas & Indicatti 2015: 207.

*Leptopelma nigrioculatum*; Bücherl, Timotheo & Lucas, 1971: 128, f. 53 (Holotype male from Campina Grande, state of Paraíba, Brazil, T. Leitão (MNRJ 1407), not examined.

*Ischnocolus nigrioculatum*; Raven, 1985: 43, 155.

*Nemesia nigrioculata*; Raven, 1990:21.

*Hapalotremus exilis*; Raven 1985: 152; Cavallo & Ferretti 2015: 882 (*species inquirenda*).

*Hapalotremus muticus*; Raven 1985: 153; Cavallo & Ferretti 2015: 883 (*species inquirenda*).

*Oligoxystre caatinga* Guadanucci, 2007: 13, f. 21-24 (male holotype and female paratype from Central, state of Bahia, Brazil, A. D. Brescovit & E. Folly-Ramos col., 12-27 July 2000, IBSP 109487, 109482, not available for loan); Firstly synonymized by Lucas & Indicatti 2015: 4.

**3.1.5.1 Diagnosis.** Males of *D. exilis* resemble those of *D. rufoniger*, *D. tucuruense*, *D. diamantinensis*, *D. sp. nov. 4*, *D. mineirum*, and *D. sp. nov. 3*, by the absence of keel on male palpal bulb embolus. They differ from *D. rufoniger*, *D. tucuruense*, *D. mineirum*, and *D. sp. nov. 3* by the long prolateral branch of tibial apophysis, as long as the contiguous spine (Fig. 3). It differs from *D. diamantinensis* by the tibial apophysis on

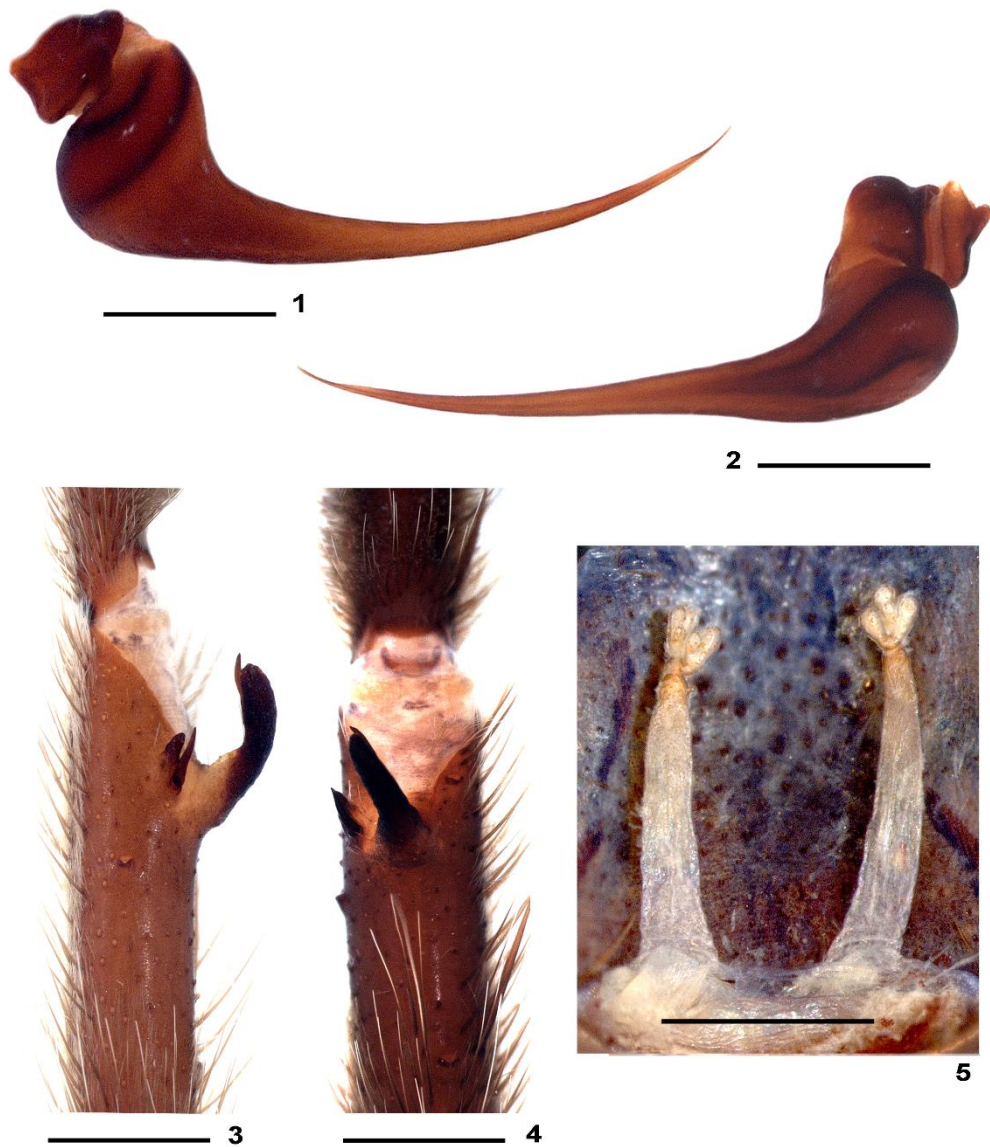
leg I inclined in relation to tibia axis (Fig. 4) and for the general brown color (Fig. 76). From *D. sp. nov. 4* it differs by the tibial apophysis of leg I positioned close to the tibia apex (Fig. 4) and embolus slender at its base (Fig. 1). Females of *D. exilis* resemble those of *D. rufoniger*, *D. tucuruense*, *D. diamantinensis*, *D. dominguense*, *D. sp. nov. 4*, *D. mineirum*, and *D. sp. nov. 3*, by the long spermathecae. They differ from *D. rufoniger* and *D. tucuruense* by the absence of external lobes on the spermathecae; from *D. diamantinensis*, *D. dominguense*, *D. sp. nov. 4*, *D. mineirum*, and *D. sp. nov. 3* by the presence of lobes only on the apex of the spermathecae (Fig. 5). Additionally, males and females of *D. exilis* differ from all other species by black sternum, labium, coxae and maxilla.

**3.1.5.2 Material examined.** Paratype female, BRAZIL, *Bahia*: Jacobina, Caatinga do Moura [10°58'S 40°46'W], 24-29 January 1980 (MZUSP 18977).

**3.1.5.3 Additional material.** BRAZIL, *Ceará*, Parambú, Rod. BR 020, Cachoeira do Calista (06°27'65 9''S 40°42'464''W), 6 females, 19 March 1999, A. Kury & A. Giupponi (MNRJ 03848); Santa Quitéria [4°19'S 40°9'W], 5 males, 2 females, 3-12 November 2014, D. Pedroso (MNRJ unnumbered); *Piauí*: Valença do Piauí [6°24'S 41°44'W], 6 females, 29 March 1975, P. E. Vanzolini (MZUSP 10.838); *Rio Grande do Norte*: Martins [6°4'S 37°54'W], 1 female, 14 March 2014, C.S. Fukushima (LEEV 216); 1 male, 18 March 2014, K.C.T. Riciluca (LEEV 217); 1 male, 3 females, 19 March 2014, K.C.T. Riciluca, N. M. Gonçalves & C.S. Fukushima (LEEV 218); 3 females, 20 March 2014, C.S. Fukushima & N. M. Gonçalves (LEEV 219); 1 male, 2 females, 22 October 2014, A.P.L. Giupponi (LEEV 220); 8 males, 23 October 2014, A.P.L. Giupponi & C.S. Fukushima (LEEV 221); 1 male, 25 October 2014, A.P.L. Giupponi (LEEV 222); 2 males, 2 females, without data and collector (LEEV 223); Assu, Floresta Nacional de Açu [5°34'S 36°56'W], 2 females, 23 March 2014, N. M. Gonçalves (LEEV 224); 4 females, 24 March 2014, N. M. Gonçalves (LEEV 225); 1 female, 25 March 2014, N. M. Gonçalves (LEEV 226); 3 males, 3 females, 26 March 2014, N. M. Gonçalves & K.C.T. Riciluca (LEEV 227); 1 male, 1 female, 29 October 2014, A.P.L. Giupponi & C.S. Fukushima (LEEV 228); 6 males, 3 females, 30 October 2014, C.S. Fukushima, A.P.L. Giupponi & L.P.O. Monteiro (LEEV 229); Serra Negra do Norte, Estação Ecológica do Seridó [6°34'S 37°16'W], 1 male, 1 female, 11 March 2014, N. M. Gonçalves & C.S. Fukushima (LEEV 230); 1 male, 12 March 2014, N. M.

Gonçalves (LEEV 231); 1 female, 13 March 2014, C.S. Fukushima LEEV 232; 1 male, 3 females, 14 October 2014, A.P.L. Giupponi & C.S. Fukushima (LEEV 233); 1 male, 1 female 15 October 2014, A.P.L. Giupponi (LEEV 234) 1 female, 18 October 2014, A.P.L. Giupponi (LEEV 235); 1 male, 1 female, without data and collector (LEEV 236); Punaú, Rio do Fogo [5°16'S 35°23'W], 1 female, 7 November 2012, R. Bertani (LEEV 237); [5° 21'S 35°25'W], 1 male, 11 April 2014, K. C. T. Riciluca (LEEV 238); 1 male, 14 April 2014, S. N. Miglione (LEEV 239); 1 male, 26 November 2014, C.S. Fukushima (LEEV 240); 2 females, 29 November 2014, C.S. Fukushima (LEEV 241); Macaiba [5°51'S 35°21'W], 1 female, without data, C.S. Fukushima (LEEV 242); *Bahia*: Jacobina, Serra do Ouro [5°51'S 35°21'W], 1 male, 4 females, 22 October 1990, G. Skuk (MZUSP 18980); Mucugê (12°45'67.3''S 41°30'82.7''W), 1 male, 18 March 2008, R. Bertani, C.S. Fukushima R.H. Nagahama (LEEV 243); São Desidério [12° 25'S 44°57'W], 4 females, 11 November 2011, B.J. Pedroso & Scatolini (MNRJ 06882), 1 male, 1 female, 3 November 2011, D. Pedroso (MNRJ 4410); Canarana (11°47'5.24''S 41°47'1.66''W), 11 females, 1 June 2005, D. Pedroso & Bichuette (MNRJ 06889, MNRJ 06890, MNRJ 06891); Campo Formoso [10°32'S 40°18'W], November 2012, Giupponi & Baptista (MNRJ 06888); Casa Nova (09°17'16.7''S 41°28'10.4''W), 1 female, 24 March 1999, A. Kury & A. Giupponi (MNRJ 03849).

**3.1.5.4 Distribution.** Brazil, states of Maranhão, Ceará, Piauí, Rio Grande do Norte, Pernambuco, Alagoas, and Bahia (Fig. 91).



**Figures 1–5.** *Dolichothele exilis*, from Caatinga do Moura, state of Bahia, Brazil. (1–4) Male (MZSP 18980). **1**, right bulb, retrolateral. **2**, same, prolateral. **3**, left leg I tibial apophysis prolateral. **4**, same, ventral. **5**, Paratype female (MZUSP 18977) from Serra do Ouro, Jacobina, state of Bahia, Brazil, spermathecae, dorsal. Scale bar: 1mm.

### 3.1.6 *Dolichothele bolivianum* (Vol, 2001)

Figs 6–13, 56, 68–71, 89.

*Pseudoligoxystre bolivianus* Vol, 2001: 3, f. 1–7.

*Oligoxystre bolivianum*; Guadanucci 2007: 4, f. 1–12.

*Dolichothete bolivianum*; Lucas & Indicatti 2015: 207; World Spider Catalog 2016.

**3.1.6.1 Diagnosis.** Males of *D. bolivianum* resemble those of *D. dominguense*, *D. sp. nov. 2*, and *D. sp. nov. 1*, by the presence of a small subapical keel on male palpal bulb embolus. They differ from *D. dominguense* by the short embolus; from *D. sp. nov. 1*, by the less curved and longer embolus (Fig. 56); and from *D. sp. nov. 2*, by stouter embolus, mainly on its more basal portion (Fig. 56). Females of *D. bolivianum* resemble those of *D. sp. nov. 2*, and *D. sp. nov. 1*, by the short spermathecae. They differ from *D. sp. nov. 2*, by the shorter and somewhat triangular shape (Fig. 13); from *D. sp. nov. 1*, they differ by slender spermathecae and cephalothorax covered by brown setae (Figs 13, 68–69).

**3.1.6.2 Material examined.** Holotype male, BOLIVIA, *Santa Cruz*: Samaipata [18°7'S 63°53'W], September 2000, J. M. Verdez and H. Simoens (MNK-AR 003); 1 female, 28 December 2015, I. S. Revollo & R.B. Huanto (MNK-AR).

**3.1.6.3 Additional material.** BOLIVIA, *Santa Cruz*: Samaipata [18°10'S 63°50'W], 1 male, 06 October 2004, D. Weinmann & A. Stirm (MZUSP 26083); 1 male, 07 October 2004, D. Weinmann & A. Stirm (MZUSP 26082).

**3.1.6.4 Redescription.** Holotype (Figs 6–8; 70). Carapace 7.3 long, 5.4 wide, chelicerae 2.6. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 7.2, 3.9, 5.3, 5.1, 3.6, 25.1. II: 6.5, 3.2, 4.5, 4.2, 3.1, 21.5. III: 5.2, 2.4, 3.6, 4.5, 3.0, 18.7. IV: 7.1, 3.0, 5.6, 6.3, 3.6, 25.7. Palp: 3.9, 2.6, 3.5, – , 1.5, 11.5. Mid-widths: femora I–IV = 1.6, 1.3, 1.6, 1.2, palp = 1.0; patellae I–IV = 1.2, 1.4, 1.0, 1.2, palp = 1.2; tibiae I–IV = 1.1, 1.0, 1.3, 0.9, palp = 1.0; metatarsi I–IV = 1.3, 0.9, 0.7, 0.7; tarsi I–IV = 0.7, 0.7, 0.7, 0.9, palp = 0.9. Abdomen 7.7 long, 3.9 wide. Spinnerets: PMS, 0.7 long, 0.4 wide, 0.3 apart; PLS, 1.4

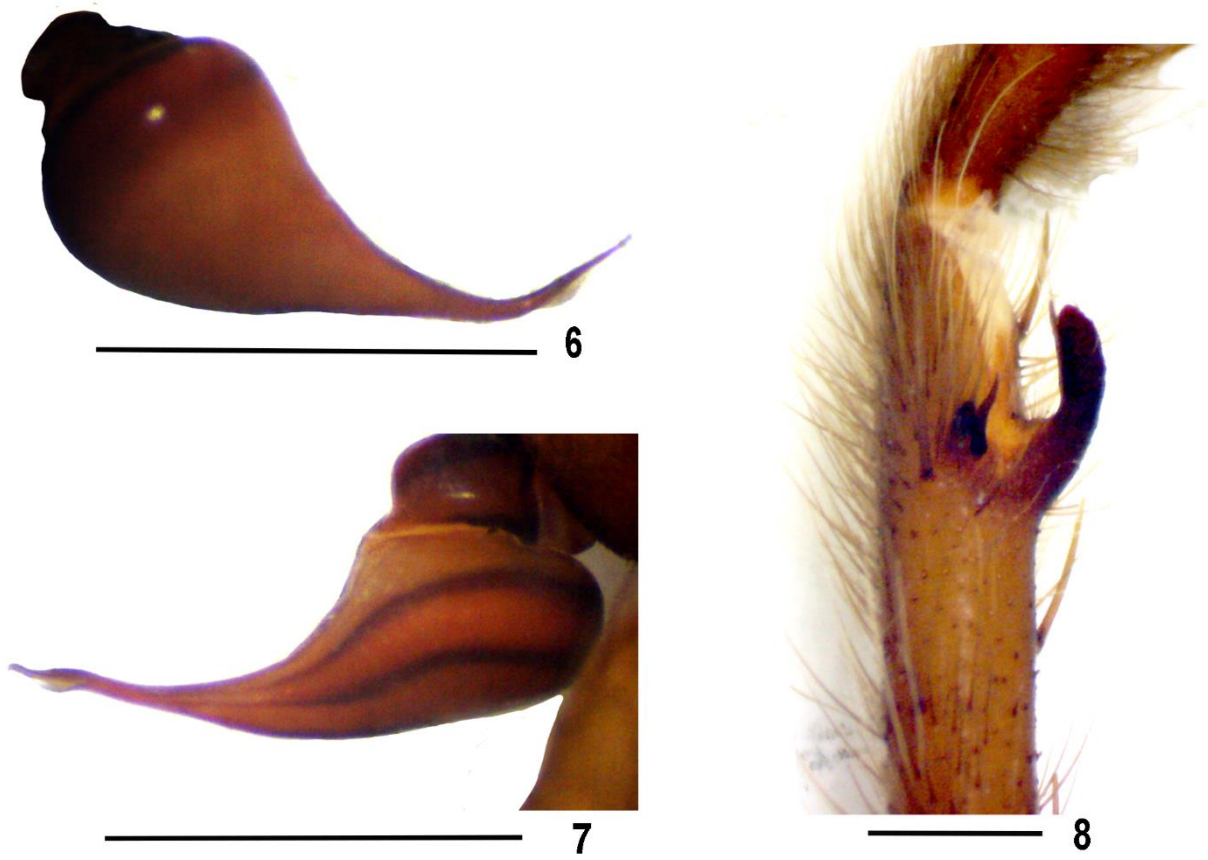
basal, 1.1 middle, 1.4 distal; mid-widths 0.8, 0.7, 0.6 respectively. Carapace. Length to width 1.35. Fovea: straight, deep, 0.8 wide. Eyes and eye tubercle. Tubercle 0.8 long, 1.1 wide. Clypeus 0.3 wide. Anterior eye row slightly procurved, posterior slightly recurved. Sizes and inter-distances: AME 0.5, ALE 1.1, PME 0.6, PLE 1.0, AME–AME 0.1, AME–ALE 0.1, AME–PME 0.1, ALE–ALE 0.4, ALE–PME 0.2, PME–PME 0.6, PME–PLE 0.1, PLE–PLE 0.7, ALE–PLE 0.2, AME–PLE 0.2. Maxillae: 1.7 long, 1.5 nwide. Cuspules: 20 spread over ventral inner heel. Labium: 0.3 long, 1.0 wide, with 3 cuspules. Labio-sternal groove shallow, narrow, and with two sigilla. Chelicerae. Rastelum absent, basal segment with 8 teeth decreasing in size from distal to basal portion. Sternum: 3.7 long, 2.8 wide. Sigilla: three pairs ovals, hardly visible, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal half of tarsi I–IV. Scopula: tarsi I–IV fully scopulate; IV with two row of setae, not separating the scopula. Metatarsi I–II fully scopulate; III 2/3, IV 1/3 distal scopulate, with two row of setae, not separating the scopula. Spination: palp: femur p0-0-1, patella v0-2-1, tibia v0-1-1; leg I: femur 0, patella 0, tibia v2-2-2, r2-2-1, metatarsus v0-1-0, p1-1-0, r1-0-0; leg II: femur p0-0-1, patella 0, tibia v1-2-1, p1-1-0; metatarsus v0-1-0; leg III: femur d0-1-0, patella 0, tibia v2-4-1, p1-1-0, r1-1-0, metatarsus v0-2-1ap, p1-1-0, r0-1-2(1ap), d0-0-1ap; IV: femur d0-2-0, patella 0, tibia v2-3-2, p1-1-1, r1-1-0, metatarsus v0-1-1ap, p0-1-1ap, r1-2-1ap. Claws: ITC absent from all legs; STC without teeth. Palp: Bulb pyriform, embolus broad at its base, tapering and curved 45° to the retrolateral side on its distal third, bearing a small keel just after the curvature. Embolus the same or a little longer than tegulum. Male tibial apophysis with two branches originating from a common low base, positioned distant from metatarsus. Retrolateral branch longer than prolateral, not dilated on distal portion, bearing a spine on its midlength. Prolateral branch short than contiguous spine. Both branches inclined ca. 45° to the prolateral side. Metatarsus I slightly curved. Color pattern. Carapace, chelicerae and legs dorsally brown, covered with light brown setae. Distal metatarsi and tarsi darker. Carapace with long light brown setae. Sternum, labium, maxillae, and coxae light brown. Other leg articles ventrally brown. Abdomen dark brown covered with short golden setae and long light brown setae. Distal femora, patellae, tibiae and metatarsi with narrow whitish rings. Longitudinal stripes on leg articles not evident.

**3.1.6.5 Redescription.** Female MNK-AR. Carapace 7.8 long, 6.1 wide, chelicerae 3.1. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 5.3, 3.3, 3.5, 3.1, 2.3, 19.8. II: 4.9, 3.3, 3.1, 3.0, 2.2, 16.5. III: 4.2, 2.8, 2.6, 3.0, 2.1, 14.7. IV: 5.6, 3.6, 4.5, 4.6, 2.5,

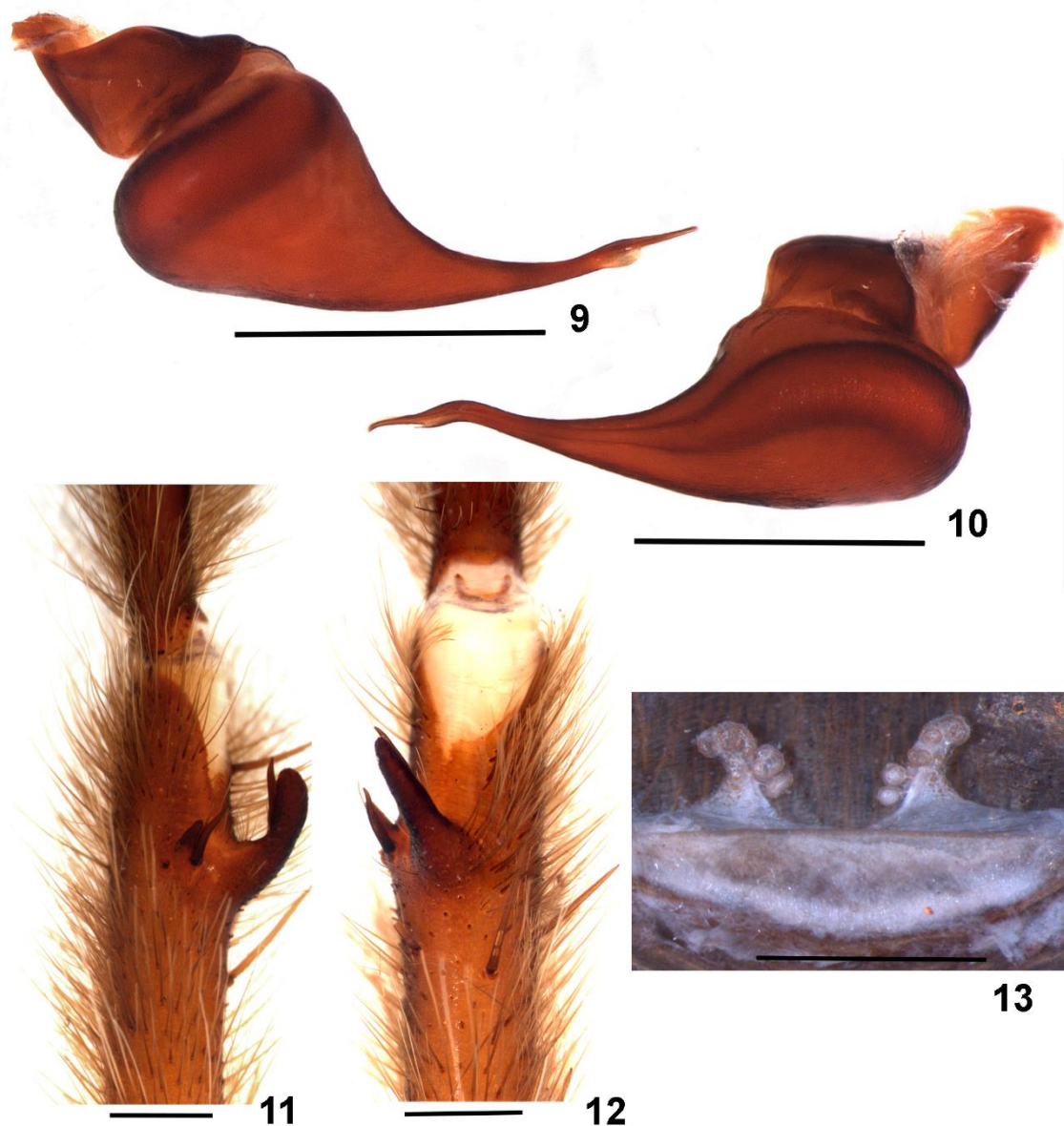
20.8. Palp: 4.2, 2.5, 2.3, –, 2.4, 11.4. Mid-widths: femora I–IV = 1.4, 1.5, 1.5, 1.2, palp = 1.2; patellae I–IV = 1.2, 1.3, 1.4, 1.3, palp = 1.2; tibiae I–IV = 1.3, 1.3, 1.1, 1.3, palp = 1.3; metatarsi I–IV = 1.0, 1.0, 1.1, 0.8; tarsi I–IV = 1.3, 1.2, 1.1, 1.1, palp = 1.3. Abdomen 10.1 long, 6.4 wide. Spinnerets: PMS 0.92 long, 0.42 wide, 0.33 apart; PLS 1.42 basal, 1.02 middle, 1.85 distal; mid-widths 0.98, 0.84, 0.70 respectively. Carapace: length to width 1.27. Fovea: straight, deep, 0.66 wide. Eyes and eye tubercle. Tubercle 0.97 long, 1.36 wide. Clypeus 0.10 wide. Anterior eye row slightly procurved, posterior eye row slightly recurved. Sizes and inter-distances: AME 0.42, ALE 0.41, PME 0.22, PLE 0.28, AME–AME 0.07, AME–ALE 0.08, AME–PME 0.06, ALE–ALE 0.75, ALE–PME 0.30, PME–PME 0.66, PME–PLE 0.09, PLE–PLE 1.05, ALE–PLE 0.16, AME–PLE 0.30. Eye group 1.36 wide, 0.72 long. Maxillae: 2.22 long, 1.35 wide. Cuspules: 18 spread over ventral inner heel. Lyra absent. Labium: 0.61 long, 1.20 wide, with 4 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 8 teeth decreasing in size from distal to basal portion, with small teeth on basal area. Sternum: 3.64 long, 3.12 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, hardly visible, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with two row of setae, not separating the scopula. Metatarsi I–II fully scopulate; III–IV 2/3 distal scopulate, IV with two rows of setae, not separating the scopula. Spination: palp: femur 0, patella 0, tibia v0-0-1ap; leg I: femur 0, patella 0, tibia v0-0-1ap, metatarsus v1-0-0; leg II: femur p0-0-1, patella 0, tibia 0; metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v0-0-2ap, p0-1-0, r1-1-0, metatarsus v2-0-2ap, p1-2-2(1ap), r0-1-1; IV: femur r0-0-1, patella 0, tibia v0-1-2ap, r1-0-1, metatarsus v2-0-1ap, p0-1-2(1ap), r1-0-3(2ap). Claws: ITC absent from all legs; STC lacking teeth. Genitalia: Spermathecae short, triangular, with 5-6 lobes on internal side, from tip to base. Color pattern. As in male.

**3.1.6.6 Distribution.** Bolivia, state of Santa Cruz (Fig. 89).

**3.1.6.7 Remarks.** I collected females and immatures under rocks on the way to mountains on Samaipata (Fig. 71), Santa Cruz, Bolivia, during the day and afternoon (December 2015). Immatures (Fig. 68) have black carapace and abdomen and brown legs, except for the black tarsi.



**Figures 6–8.** *Dolichothele bolivianum*, male holotype (MNK-AR 003), from Samaipata, Santa Cruz, Bolivia. **6**, right bulb, retrolateral. **7**, same, prolateral. **8**, left leg I tibial apophysis, prolateral. Scale bar: 1mm.



**Figures 9–13.** *Dolichothele bolivianum*. (9–12) Male (MZSP 26083). **9**, right bulb, retrolateral. **10**, same, prolateral. **11**, left leg I tibial apophysis, prolateral. **12**, same, ventral. **13**, Female (MNK-AR) spermathecae, dorsal. Both from Samaipata, Santa Cruz, Bolivia. Scale bar: 1mm

### 3.1.7 *Dolichothele dominguense* (Guadanucci, 2007).

Figs 14–18, 59, 89.

*Oligoxystre dominguense* Guadanucci, 2007: 14 f. 25–29 (male holotype from São Domingos, Goiás, Brazil, A. Chagas Junior & M. G. Bichuette col., IV. 2000

(IBSP8625) and female paratype from Serra da Mesa, Minaçu, Goiás, Brazil (IBSP 9467), not available for loan), a paratype female examined (MZUSP 26536).

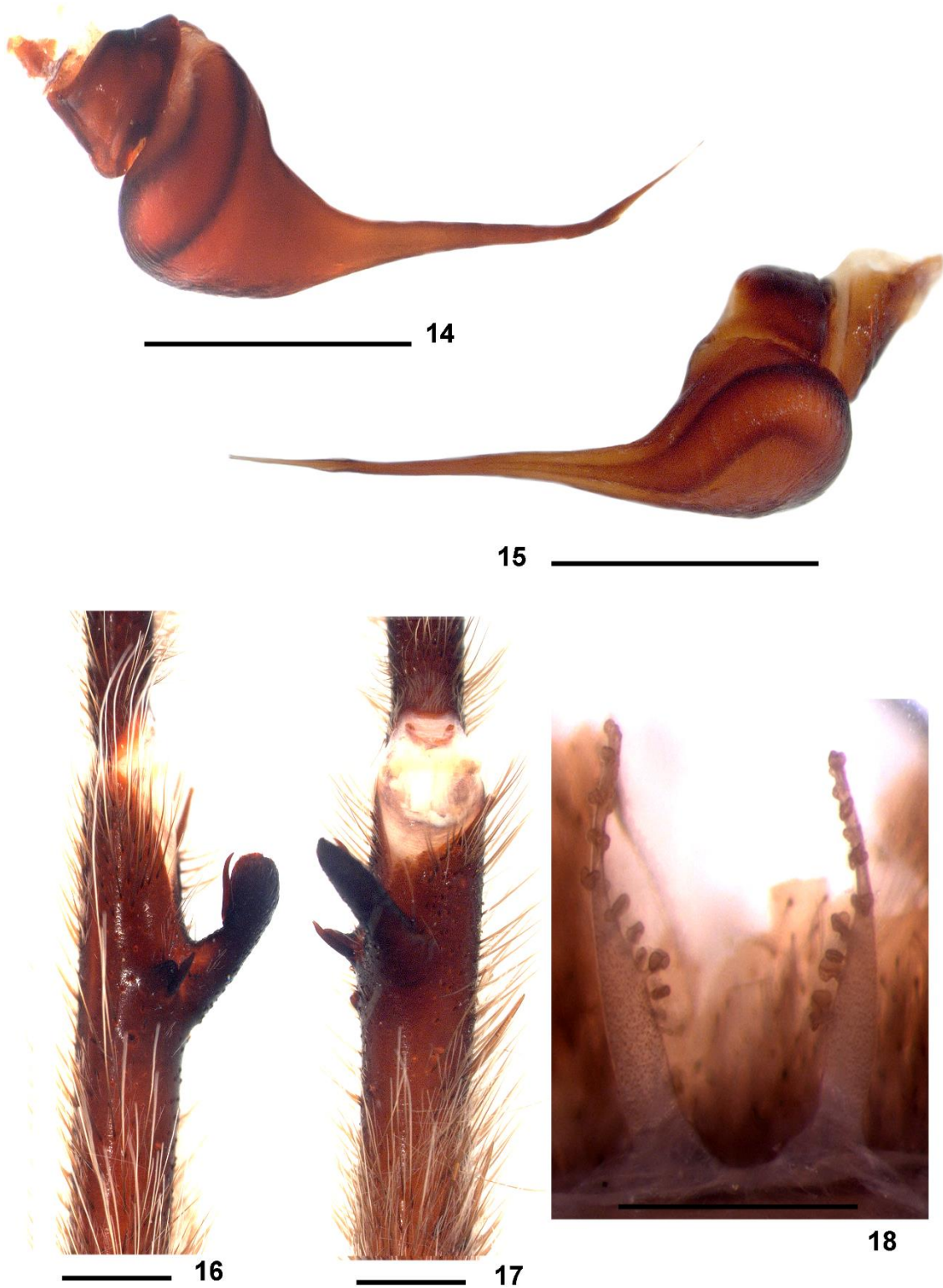
*Dolichothele dominguense*; Lucas & Indicatti 2015: 207; World Spider Catalog 2016.

**3.1.7.1 Diagnosis.** Males of *D. dominguense* resemble those of *D. bolivianum*, *D. sp. nov. 2*, and *D. sp. nov. 1*, by the presence of a small subapical keel on male palpal bulb embolus. They differ from *D. bolivianum*, *D. sp. nov. 2*, and *D. sp. nov. 1*, by the long embolus (Fig. 59). Females of *D. dominguense* resemble those of *D. exilis*, *D. rufoniger*, *D. tucuruense*, *D. sp. nov. 4*, *D. mineirum*, *D. diamantinensis* and *D. sp. nov. 3*, by the long spermathecae. They differ from all species in the genus by having lobes throughout spermathecae length (Fig. 18).

**3.1.7.2 Material examined.** Type material. Paratype male. BRAZIL, Goiás: São Domingos [13°24'S 46° 19' W], 1 April 2000, A. Chagas Junior & M. G. Bichuette (MZUSP 26536).

**3.1.7.3 Additional material.** BRAZIL, Tocantins: Peixe [12°1'S 48° 28' W], 1 female, 09 March 2006, R. Bertani (LEEV 244); 1 female, 10 March 2006, R. Bertani (LEEV 245); 3 males, 1 female, 13 March 2006, R. Bertani (LEEV 246); 1 female, 7 February 2006, R.M. G. Andrade (LEEV 247); Goiás: Monte Alegre de Goiás [12°18'S 46° 54'W], 1 female, 13 August 2010, R. Meli (DZUB 5756); Minas Gerais: Januária [15°34'S 44°21'W], 1 male, August 2005, Doação Secretaria da Saúde (MNRJ 06879).

**3.1.7.4 Distribution.** Brazil, states of Tocantins, Goiás and Minas Gerais (Fig. 89).



**Figures 14–18.** *Dolichothele dominguense*. (14–17) Male paratype (MZUSP 26536) from São Domingos, state of Goiás, Brazil. **14**, right bulb, retrolateral. **15**, same, prolateral. **16**, left leg I tibial apophysis, prolateral view. **17**, same, ventral. **18**, Female.

### 3.1.8 *Dolichothele tucuruense* (Guadanucci, 2007)

Figs 19, 90.

*Oligoxystre tucuruense* Guadanucci, 2007: 16, f. 30–33 (male holotype from Tucuruí, Pará, Brazil (IBSP 9459) not available for loan; one paratype female examined (MZUSP 26537).

*Dolichothele tucuruense*; Lucas & Indicatti 2015: 207; World Spider Catalog 2016.

**3.1.8.1 Diagnosis.** Males of *D. tucuruense* resemble those of *D. exilis*, *D. sp. nov. 4*, *D. diamantinensis*, *D. sp. nov. 3*, *D. mineirum*, and *D. rufoniger* by the absence of keel on male palpal bulb embolus. They differ from *D. exilis*, *D. sp. nov. 4* and *D. diamantinensis* by the tibial apophysis prolateral branch being smaller than the contiguous spine (Guadanucci 2007, fig. 30); from *D. mineirum* and *D. sp. nov. 3* by lacking plumose setae over tibiae and metatarsi. It differs from *D. rufoniger* by the tibial apophysis of leg I positioned far from the tibia apex and carapace and legs brown. Females of *D. tucuruense* resemble those of *D. exilis*, *D. dominguense*, *D. sp. nov. 4*, *D. sp. nov. 3*, *D. mineirum*, *D. diamantinensis* and *D. rufoniger* by the long spermathecae. They differ from *D. exilis*, *D. sp. nov. 4*, *D. sp. nov. 3*, *D. mineirum*, *D. dominguense* and *D. diamantinensis* by the presence of basal lateral lobes on the spermathecae; and from *D. rufoniger* by the elongated and bilobulated lateral lobes on the spermathecae (Fig. 19).

**3.1.8.2 Material examined.** Type material. Paratype female. BRAZIL, *Pará*: Tucuruí [3°48'S 49° 46'W], 1 July 1984, C. Pantoja & R.S. Pereira (MZUSP 26537).

**3.1.8.3 Additional material.** BRAZIL, *Pará*: Tucuruí [3°48'S 49° 46' W], 1 female, 8 July 1980, B. Mascarenhas (MZUSP 9488); São Félix do Xingu [6°39'S 51°58' W], 1 female, December 2010, P.H.S. Vaz (DZUB 5958).

**3.1.8.4 Distribution.** Brazil, state of *Pará* (Fig. 90).



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**Figure 19.** *Dolichothele tucuriense*, female paratype (MZUSP 26537), from Tucuruí, state of Pará, Brazil, spermathecae, dorsal. Scale bar: 1mm.

### 3.1.9 *Dolichothele rufoniger* (Guadanucci, 2007)

Figs 20–24, 65, 77, 90.

*Oligoxystre rufoniger*; Guadanucci, 2007: 17, f. 34–37, 39 (Male holotype. BRAZIL, Piauí: Ribeiro Gonçalves and Uruçuí, Station Biological Uruçuí [11°32'S 44° 33' W], 19-29 January 2001, G.G. Montingelli (MZUSP 20570); Paratype female, BRAZIL, Bahia: Morro do Chapéu [11°32'S 41° 9'W], 3 October 1990, G. Skuk (MZUSP 18986), examined).

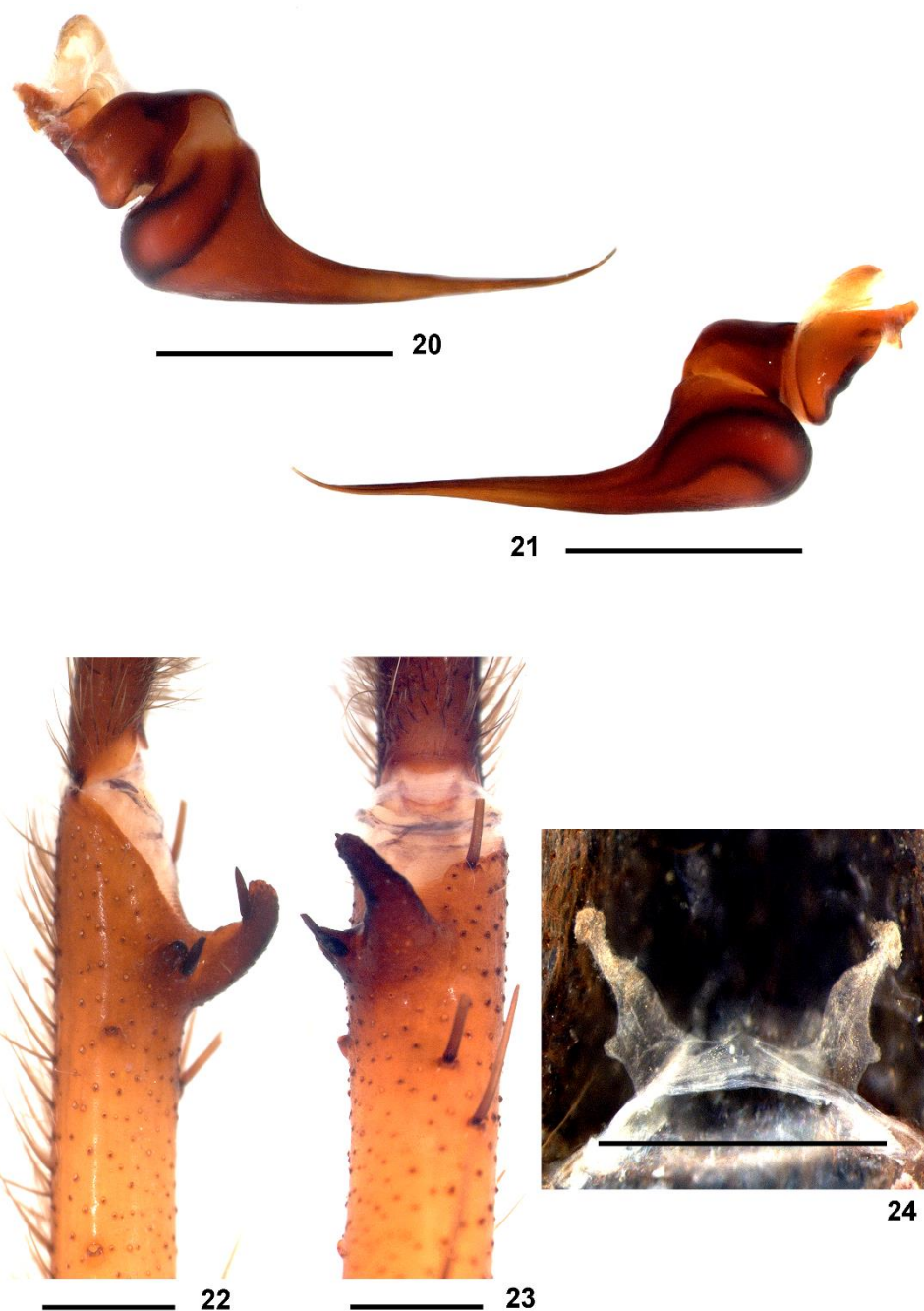
*Dolichothele rufoniger*; Lucas & Indicatti 2015: 207. World Spider Catalog 2016.

**3.1.9.1 Diagnosis.** Males of *D. rufoniger* resemble those of *D. exilis*, *D. sp. nov. 4*, *D. diamantinensis*, *D. mineirum*, *D. sp. nov. 3*, and *D. tucuruense*, by the absence of keel on male palpal bulb embolus. They differ from *D. exilis*, *D. sp. nov. 4*, and *D. diamantinensis* by the tibial apophysis prolateral branch shorter than the contiguous spine (Fig. 22); from *D. mineirum* and *D. sp. nov. 3* by the tibiae and metatarsi lacking plumose setae. It differs from *D. tucuruense* by the tibial apophysis of leg I positioned close to the tibia apex (Fig. 23), carapace and basal segments of legs and palp reddish and distal segments blackish. Females of *D. rufoniger* resemble those of *D. tucuruense* by the long spermathecae with lobes on the basal external portion. They differ from *D. tucuruense* by having a short lobe in the lateral basal part of each spermathecae (Fig. 24).

**3.1.9.2 Material examined.** Type material. Male holotype. BRAZIL, *Piauí*: Ribeiro Gonçalves and Uruçuí, Station Biological Uruçuí [11°32'S 44° 33' W], 19-29 January 2001, G.G. Montingelli (MZUSP 20570); Paratype female, BRAZIL, *Bahía*: Morro do Chapéu [11°32'S 41° 9'W], 3 October 1990, G. Skuk (MZUSP 18986).

**3.1.9.3 Additional material.** BRAZIL, *Piauí*: Guaribas, Parque Nacional Serra das Confusões (9°13'12.3''S 43°29'26.7''W), 2 males, 9-12 December 2010, L.S. Carvalho *et al.* (UFMG 17514, UFMG 17515); *Rio Grande do Norte*: Macaíba, Escola Agrícola de Jundiá [6°1'S 35°22' W], 1 male, 9 September 2013, C.S. Fukusima, W. Pessoa (LEEV 248); *Bahia*: Andaraí [12°48'S 41°19'W], 4 males, 1 female, 20 February 2008, R. Bertani, C.S. Fukushima & R.H. Nagahama (LEEV 249), 2 females, without date and collector (LEEV 250); Palmeiras [12°30'S 41°19'W], 1 male, 3 females, 15 February 2008, R. Bertani, C.S. Fukushima & R.H. Nagahama (LEEV 251) *Minas Gerais* [15°16'S 43°30'W], 2 females, 26 April 2001, Giupponi *et al.* (MNRJ 06880); Grão Mongol, Parque Estadual de Grão-Mongol (16°30'17.40''S 42°49'31.99''W), 1 male, 11-25 January 2014, F. Leal (LEEV 252).

**3.1.9.4 Distribution.** Brazil, state of Piauí, Rio Grande do Norte, Bahia and Minas Gerais (Fig. 90).



**Figures 20–24.** *Dolichothele rufoniger*. (20–23) Male holotype (MZUSP 20570), from Uruçui, state of Piauí, Brazil. **20**, right bulb, retrolateral. **21**, same, prolateral. **22**, left leg I tibial apophysis, prolateral. **23**, same, ventral. **24**, Female paratype (MZUSP 18986), from Morro do Chapéu, state of Bahia, Brazil, spermathecae, dorsal. Scale bar: 1mm.

### **3.1.10 *Dolichothele diamantinensis* (Bertani, Santos & Righi, 2009).**

Figs 25–29, 63, 88, 91.

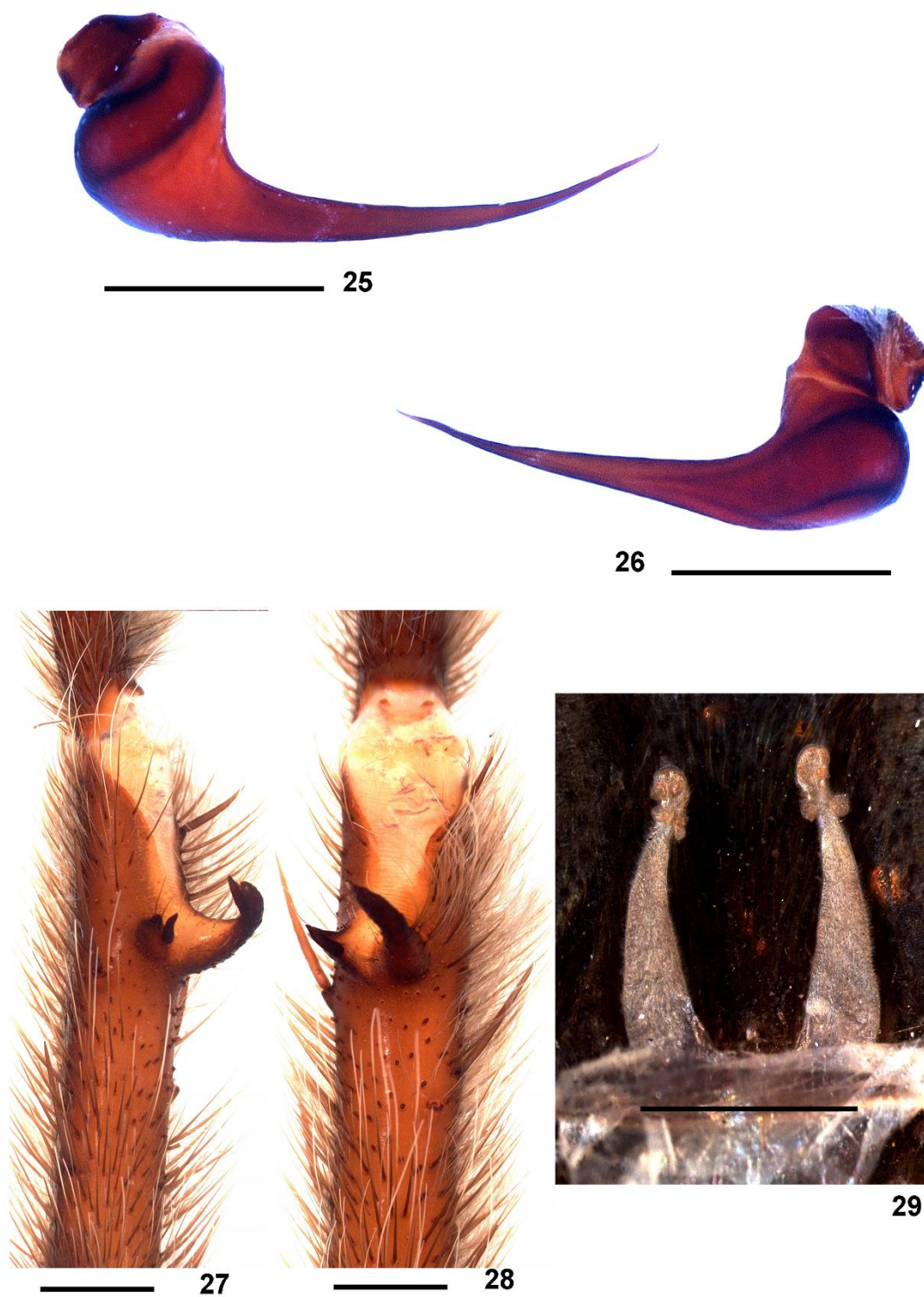
*Oligoxystre diamantinensis* Bertani, Santos & Righi, 2009: 45 f. 1–9.

*Dolichothele diamantinensis*: Lucas & Indicatti 2015: 207. World Spider Catalog 2016.

**3.1.10.1 Diagnosis.** Males of *D. diamantinensis* resemble those of *D. rufoniger*, *D. tucuriense*, *D. exilis*, *D. sp. nov. 3*, *D. sp. nov. 4*, and *D. mineirum* by the absence of keel on male palpal bulb embolus. They differ from all these species the tibial apophysis on leg I inserted in a perpendicular angle in relation to the tibia axis (Figs 27–28). Females of *D. diamantinensis* resemble those of *D. rufoniger*, *D. tucuruiense*, *D. dominguense*, *D. sp. nov. 4*, *D. exilis*, *D. sp. nov. 3* and *D. mineirum* by the long spermathecae. They differ from females from all these species by the spermathecae with one large lobe on its apex and lobes of different sizes around it (Fig. 29). Additionally, males and females differ from those of all *Dolichothele* species by the iridescent blue setae over the carapace, legs and palp (Fig. 88).

**3.1.10.2 Material examined.** Type material. Male holotype. BRAZIL, *Minas Gerais*: Diamantina [18°14'S 43° 36'W], 4 December 2005, T. dos Santos & A. F. Righi (MZUSP 29071); Paratype Male and female, without date, T. dos Santos & A. F. Righi (MZUSP 29072, MZUSP 29073).

**3.1.10.3 Distribution.** Brazil, state of Minas Gerais (Fig. 91).



**Figures 25–29.** *Dolichothele diamantinensis*. (25–28) Male paratype (MZUSP 29071). **25**, right bulb, retrolateral. **26**, same, prolateral. **27**, left leg I tibial apophysis, prolateral. **28**, same, ventral. **29**, female paratype (MZUSP 29073), spermathecae, dorsal. Both from Diamantina, state of Minas Gerais, Brazil. Scale bar: 1mm.

### 3.1.11 *Dolichothele mineirum* (Guadanucci, 2011).

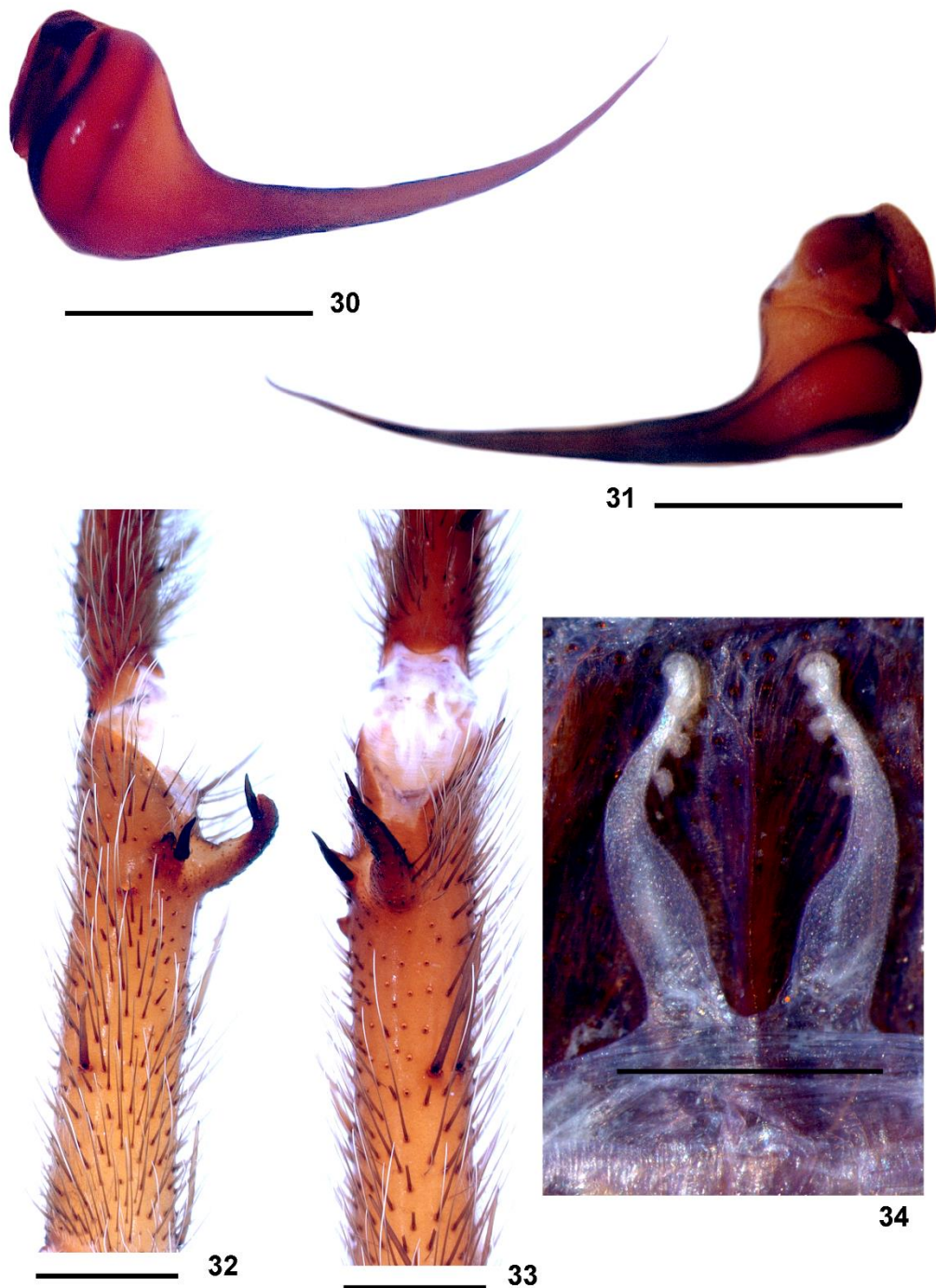
Figs 30–34, 62, 78–79, 91.

*Oligoxystre mineirum* Guadanucci, 2011: 322 f. 3-6 (holotype male, Itabuna (14°47'S 39°16'W), state of Bahia, Brazil, R. Bertani (IBSP 9501); paratypes: female, Itabuna, state of Bahia, Brazil (IBSP 9452); female, Ilhéus (14°47'S 39°02'W), state of Bahia, Brazil, A.D. Brescovit & R. Bertani, 24 April 1998 (IBSP 9464); Ilhéus, state of Bahia, Brazil, R. Bertani, D. Pinz & K. Faria (IBSP 9463); male, Santa Bárbara, state of Minas Gerais, Brazil, R. Bertani, 24 July 1995 (IBSP 9492); male, Diamantina (18°14'S 43°36'W), state of Minas Gerais, Brazil, J. P. L. Guadanucci, October 2008 (CAD 228). Not available for loan. *Dolichothele mineirum*: Lucas & Indicatti 2015: 207. World Spider Catalog 2016.

**3.1.11.1 Diagnosis.** Males of *D. mineirum* resemble those of *D. rufoniger*, *D. tucuruense*, *D. exilis*, *D. diamantinensis*, *D. sp. nov. 4*, and *D. sp. nov. 3* by the absence of keel on male palpal bulb embolus. They differ from all these species, except *D. sp. nov. 3* by having plumose setae over tibiae and metatarsi (Fig. 79). It can be distinguished from *D. sp. nov. 3* by the embolus base curved, narrowing abruptly and embolus ca. 3 times tegulum length (Fig. 30). Females of *D. mineirum* resemble those of *D. rufoniger*, *D. tucuruense*, *D. dominguense*, *D. exilis*, *D. diamantinensis*, *D. sp. nov. 3*, and *D. sp. nov. 4*, by the long spermathecae. It differs from *D. rufoniger* and *D. tucuruense* by spermathecae lacking lobes on its external basal part; from *D. dominguense* by the spermathecae with lobes restricted to its distal part; from *D. exilis* and *D. diamantinensis* by the spermathecae having lobes on its internal surface; from *D. sp. nov. 3* by shorter and curved spermathecae, and from *D. sp. nov. 4* by the absence of lobes of different sizes on the external surface of the distal spermathecae (Fig. 34).

**3.1.11.2 Material examined.** BRAZIL, *Bahía*: Uruçuca [14°26'S 39° 51'W], 1 male, 3 female, 29 July 2014, A. Anker, E.A. Araujo & P. H. Martins (UFMG 17704, UFMG 17705, UFMG 17703, UFMG 17696).

**3.1. 11.3 Distribution.** Brazil, state of Bahia (Fig. 91).



**Figures 30–34.** *Dolichothele mineirum*. (30–33) Male (UFMG 17704). **30**, right bulb, retrolateral. **31**, same, prolateral. **32**, left leg I tibial apophysis, prolateral. **33**, same, ventral. **34**, Female (UFMG 17703), spermathecae, dorsal. Both from Uruçuca, state of Bahia, Brazil. Scale bar: 1mm.

### 3.1.12 *Dolichothele* sp. nov. 1

Figs 35–39, 55, 66–67, 89.

*Oligoxystre bolivianum*; Guadanucci 2007: 4, f. 1–8 (in part);

*Dolichothele bolivianum*; Lucas & Indicatti 2015: 207 (in part);

**3.1.12.1 Diagnosis.** Males of *D.* sp. nov. 1, resemble those of *D. dominguense*, *D.* sp. nov. 2 and *D. bolivianum*, by the presence of a small subapical keel on male palpal bulb embolus. They differ from all these species by the very short and strongly curved embolus (Fig. 55). Females of *D.* sp. nov. 1, resemble those of *D.* sp. nov. 2 and *D. bolivianum* by the short spermathecae. They differ from *D.* sp. nov. 2 by the shorter and somewhat triangular shape; from *D. bolivianum* by broader spermathecae (Fig. 39). Additionally, males and females differ from all *Dolichothele* species by the carapace covered with iridescent red setae (Figs 66–67).

**3.1.12.2 Material examined.** Type material. Female holotype. BRAZIL, *Distrito Federal*: Brasília, Reserva Ecológica do IBGE [16°56'S 47°53'W], 10 July 2007, R. Bertani, P. Motta, C.S. Fukushima, R.H. Nagahama, J. Crisóstomo (DZUB 8246); Male paratype. BRAZIL, *Distrito Federal*: Brasília [15°47'S 47°52'W], without additional data (DZUB 8248).

**3.1.12.3 Additional material.** BRAZIL, *Distrito Federal*: Brasília, 1 male, without additional data (DZUB 131); SHIS – QI 26 Chac. 17 [15°49'S 47°48'W], 1 female, 29 September 2002, S.S. Salles (DZUB 343); Reserva Ecológica do IBGE [16°56'S 47°53'W], cerrado, termite mound, 1 male, 02 September 2002, J.R.R. Pinto (DZUB 1129); IBGE, cerrado, 43JC, 1 female, 02 October 2003, M. Milhomem (DZUB 870); IBGE, termite mound, 1 female, 02 October 2014, R. Japiassu (DZUB 6741); Centro de Instrução e Adestramento de Brasília-CIAB-Marinha (16°00'6.73"S 47°57'5.82"W), termite mound, 1 female, 11 July 2007, R. Bertani, P.C.Motta, C.S.Fukushima, R.H.Nagahama, J. Crisóstomo (DZUB 8247); Sobradinho [15°39'S 47°47'W], Cond. Fraternidade, DF425, inside house, 1 male, 06 September 2006, P.C. Motta (DZUB 1824); same data, 1 female, 06 November 2006 (DZUB 1992); same data, 1 female, 11.01.2007, P.C. Motta (DZUB 2099); Córrego do Urubú, 1 male, 11 January 2007, P.C. Motta (DZUB 2099), 1 male, 29 October 2007, J. Marinho (DZUB 2752); Goiás:

Caldas Novas [17°44'S 48°37'W], P. E. PESCAN, Cerrado s. s., daytime hand collecting, 1 male, 01 November 2014, P.C. Motta *et al.* (DZUB 7592); Cocalzinho [15°46'S 48°46'W], 1 male, 07 October 2011, I. R. Pereira Silva (DZUB 4788); Catalão [18°09'S 47°56'W] (Fazenda Alvorada), 1 male, January 2004, J.P.L. Guadanucci & A. Monteiro (MZUSP 26076), 1 female, February 2003, J.P.L. Guadanucci (MZUSP 23224); Aragarças [16°05'S 52°14'W], 1 male, 15 July 1976, L. Edmundo (MNRJ 03850).

**3.1.12.4 Description.** Female holotype (DZUB 8246). Carapace 9.4 long, 8.3 wide, chelicerae 4.3. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 7.1, 4.7, 4.4, 4.5, 2.9, 23.6. II: 6.6, 4.4, 4.3, 4.2, 2.5, 22.0. III: 6.0, 3.5, 3.7, 4.4, 2.7, 20.3. IV: 7.1, 4.2, 5.4, 6.1, 2.9, 25.7. Palp: 5.4, 3.6, 3.2, –, 2.9, 15.1. Mid-widths: femora I–IV=1.5, 1.5, 1.6, 1.7, palp = 1.3; patella I–IV = 1.1, 1.2, 1.2, 1.4, palp = 1.3; tibiae I–IV = 1.5, 1.3, 1.2, 1.2, palp = 1.3; metatarsi I–IV = 1.2, 1.3, 1.2, 0.9; tarsi I–IV=1.3, 1.3, 1.1, 1.0, palp = 1.5. Abdomen 10.8 long, 5.3 wide. pinnerets: PMS, 1.36 long, 0.63 wide, 0.41 apart; PLS, 2.27 basal, 1.24 middle, 1.48 distal; mid-widths 1.11, 1.08, 0.81 respectively. Carapace: length to width 1.13. Fovea: straight, deep, 1.30 wide. Eyes and eye tubercle. Tubercle 1.07 long, 1.39 wide. Clypeus 0.20 wide. Anterior row slightly procurved, posterior row slightly recurved. Sizes and inter-distances: AME 0.37, ALE 0.35, PME 0.28, PLE 0.30, AME–AME 0.36, AME–ALE 0.15, AME–PME 0.08, ALE–ALE 1.00, ALE–PME 0.30, PME–PME 0.86, PME–PLE 0.08, PLE–PLE 1.22, ALE–PLE 0.22, AME–PLE 0.30. Eye group 1.39 wide, 0.75 long. Maxillae: 3.08 long, 1.41 wide. Cuspules: 22 spread over ventral inner heel. Lyra absent. Labium: 0.62 long, 1.38 wide, with 4 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 8 teeth decreasing in size from distal to basal portion; and small teeth on basal area. Sternum: 4.53 long, 4.26 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: Tarsi I–IV fully scopulate, IV with two row of setae, not separating the scopula. Metatarsi I–III fully scopulate; IV 2/3 scopulate, with two rows of setae, not separating the scopula. Spination: palp: femur p0-0-2, patella 0, tibia v0-2-2(1ap), metatarsus 0; leg I: femur p0-0-1, patella 0, tibia v0-1-1ap, p0-0-1, metatarsus v1-0-0; leg II: femur p0-0-1, patella 0, tibia v0-1-1ap, p1-0-1, metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v0-2-2ap, p1-0-1, r0-0-1; metatarsus v1-1-2ap, p1-0-1ap, r0-1-0;

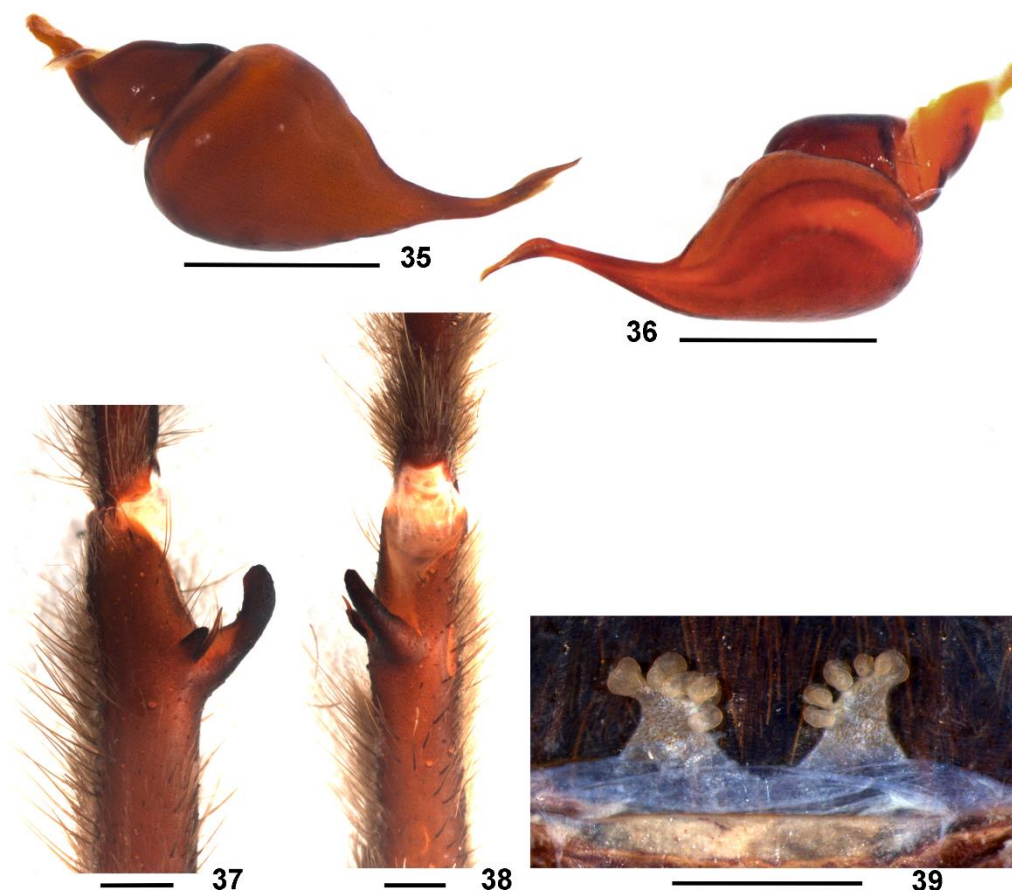
IV: femur r0-0-1, patella 0, tibia v1-2-3(2ap), p0-0-1, r0-0-1, metatarsus v2-0-2ap, p1-1-1, r0-1-1. Claws: ITC absent from all legs; STC lacking teeth. Spermathecae short, triangular, with ca. 6 lobes on internal side, from tip to base. Color pattern. Carapace brown covered with long metallic reddish setae. Chelicerae and legs ventrally and dorsally dark, except for black femora. Sternum, labium, maxillae, and coxae brown. Abdomen ventrally brown, dorsally black. Distal femora, patellae, tibiae and metatarsi rings not evident. Longitudinal stripes on leg articles not evident.

**3.1.12.5 Description.** Male paratype (DZUB 8248). Carapace 8.1 long, 7.3 wide, chelicerae 3.5. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 8.3, 4.6, 5.6, 5.5, 3.6, 27.6. II: 7.2, 4.4, 4.0, 5.1, 3.2, 23.9. III: 6.2, 3.3, 4.1, 5.2, 3.3, 22.1. IV: 8.2, 4.0, 6.4, 7.3, 3.7, 29.6. Palp: 4.9, 3.3, 3.7, – , 1.6, 13.5. Mid-widths: femur I–IV = 1.9, 1.8, 1.7, 1.7, palp = 1.5; patella I–IV = 1.5, 1.6, 1.6, 1.5, palp = 1.4; tibiae I–IV = 1.2, 1.3, 1.2, 1.2, palp = 1.3; metatarsi I–IV = 0.9, 0.9, 0.9, 0.8; tarsi I–IV = 1.1, 1.0, 1.0, 1.0, palp = 1.2. Abdomen 8.8 long, 5.0 wide. Spinnerets: PMS, 0.76 long, 0.45 wide, 0.25 apart; PLS, 1.13 basal, 1.06 middle, 1.60 distal; mid-widths 0.51, 0.53, 0.39 respectively. Carapace. Length to width 1.10. Fovea: straight, deep, 1.37 wide. Eyes and eye tubercle. Tubercle 1.12 long, 1.51 wide. Clypeus 0.09 wide. Anterior eye row slightly procurved, posterior eye row slightly recurved. Sizes and inter-distances: AME 0.41, ALE 0.38, PME 0.26, PLE 0.38, AME–AME 0.08, AME–ALE 0.10, AME–PME 0.02, ALE–ALE 0.85, ALE–PME 0.29, PME–PME 0.74, PME–PLE 0.08, PLE–PLE 1.17, ALE–PLE 0.18, AME–PLE 0.31. Eye group 1.51 wide, 0.79 long. Maxillae: 2.52 long, 1.35 wide. Cuspules: 8 spread over ventral inner heel. Lyra absent. Labium: 0.48 long, 1.32 wide, with 2 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 8 teeth decreasing in size from distal to basal portion, with very small denticles on base. Sternum: 4.41 long, 2.70 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with two row of setae, not separating the scopula. Metatarsi I-II fully scopulate; III –IV 2/3 scopulate. IV with two rows of setae, not separating the scopula. Spination: palp: femur p0-0-2, patella 0, tibia 0; leg I: femur p0-0-1, patella 0, tibia v0-1-0, p0-1-0, metatarsus 0; leg II: femur p0-0-1; patella 0, tibia v0-2-1ap, p1-0-1, metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v0-2-2ap, p1-1-0, r1-0-1, metatarsus v1-0-0, r0-1-1; leg IV: femur r0-0-1, patella 0, tibia

v0-1-0, p1-0-0, r2-0-1, metatarsus v1-0-1ap, p1-1-1, r0-1-1. Claws: ITC absent from all legs; STC lacking teeth. Palp: Bulb pyriform, embolus narrowing abruptly at its base and curved slightly to prolateral and then 45° to the retrolateral side on its distal third ('s' shape, as seen from above), bearing a small keel just after the curvature. Embolus shorter than tegulum. Male tibial apophysis with two branches originating from a common low base, positioned distant from metatarsus. Retrolateral branch longer than prolateral, not dilated on distal portion, bearing a spine on its midlength. Prolateral branch shorter than contiguous spine. Both branches inclined ca. 45° to the prolateral side. Metatarsus I slightly curved. Color pattern. As in female, except chelicerae and trochanter dorsally reddish and abdomen with long reddish setae.

**3.1.12.6 Distribution.** Brazil, Distrito Federal and state of Goiás (Fig. 89).

**3.1.12.7 Remarks:** In Distrito Federal, the female constructs silk tunnels under rocks and logs and males were found moving between September and November when they leave their shelter to search for females (Motta 2014).



**Figures 35–39.** *Dolichothele* sp. nov. 1. (35–38) Male paratype (DZUB 8248), from Brasília, Distrito Federal, Brazil. **35**, right bulb, retrolateral. **36**, same, prolateral. **37**, left leg I tibial apophysis, prolateral. **38**, same, ventral. **39**, Female holotype (DZUB 8246), from Reserva Biológica do IBGE, Brasília, Distrito Federal, Brazil, spermathecae, dorsal. Scale bar: 1mm

### 3.1.13 *Dolichothele* sp. nov. 2

Figs 40–44, 57–58, 72–75, 89.

*Oligoxystre bolivianum*; Guadanucci 2007: 4, f. 1–8 (in part);

*Dolichothele bolivianum*; Lucas & Indicatti 2015: 207 (in part);

**3.1.13.1 Diagnosis.** Males of *D.* sp. nov. 2 resemble those of *D. dominguense*, *D. bolivianum* and *D.* sp. nov. 1 by the presence of a small subapical keel on male palpal bulb embolus. They differ from *D. dominguense* by the short embolus; from *D.* sp. nov. 1, by the less curved and longer embolus; and from *D. bolivianum* by slender embolus

(Figs 57–58). Females of *D. sp. nov.* 2 resemble those of *D. bolivianum* and *D. sp. nov.* 1, by the short spermathecae. They differ from both *D. bolivianum* and *D. sp. nov.* 1 by the long and narrow spermathecae shape (Fig. 44).

**3.1.13.2 Material examined.** Type material. Male holotype. BRAZIL, *Rondônia*: Monte Negro [10°15'S 63°17'W], nighttime hand collecting, 23 July 2007, P.I.Silva Jr., R. Bertani & R. Martins (DZUB 8249); Female paratype. BR421, Km 30, 20 December 2013, P.I.Silva Jr. (DZUB 8250).

**3.1.13.3 Additional material.** BRAZIL, *Rondonia*: Monte Negro [10°15'S 63°17'W], BR421, Km 30, daytime hand collecting, 1 female, 18 December 2013, P.I.Silva Jr. (DZUB 8251); 1 female, 18 December 2013, P.H. Martins *et al.* (UFMG 17214); BOLÍVIA, *La Paz*: San Buenaventura [14°27'S 67°35'W], 1 female, 04 October 2004, D. Weinmann & A. Stirm (MZUSP 26084); 1 male, 04 October 2004, D. Weinmann & A. Stirm (MZUSP 26085).

**3.1.13.4 Description.** Male holotype (DZUB 8249). Carapace 5.6 long, 5.2 wide, chelicerae 2.5. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 6.2, 3.4, 5.1, 5.0, 3.6, 23.3 II: 6.5, 3.1, 4.3, 4.7, 3.0, 21.6. III: 5.2, 2.2, 3.6, 4.1, 3.0, 18.1. IV: 6.6, 3.0, 5.1, 6.5, 3.4, 24.6. Palp: 4.2, 2.1, 3.5, –, 1.3, 11.1. Mid-widths: femur I–IV = 1.0, 1.1, 1.2, 0.9, palp = 1.0; patella I–IV = 1.0, 1.1, 1.0, 0.6, palp = 0.9; tibiae I–IV = 1.0, 0.5, 0.7, 0.7, palp = 1.0; metatarsi I–IV = 0.9, 0.7, 0.7, 0.7; tarsi I–IV = 0.8, 0.7, 0.8, 0.6, palp = 0.7. Abdomen 6.8 long, 4.9 wide. Spinnerets: PMS, 0.66 long, 0.27 wide, 0.25 apart; PLS, 1.20 basal, 1.16 middle, 1.98 distal; mid-widths 0.56, 0.52, 0.39, respectively. Carapace: length to width 1.07. Fovea: slightly procurve, deep, 0.86 wide. Eyes and eye tubercle. Tubercle 0.89 long, 1.23 wide. Clypeus 0.05 wide. Anterior row slightly procurved, posterior row slightly recurved. Sizes and inter-distances: AME 0.38, ALE 0.32, PME 0.23, PLE 0.29, AME–AME 0.11, AME–ALE 0.14, AME–PME 0.43, ALE–ALE 0.71, ALE–PME 0.23, PME–PME 0.64, PME–PLE 0.40, PLE–PLE 0.90, ALE–PLE 0.17, AME–PLE 0.27. Eye group 1.23 wide, 0.64 long. Maxillae: 1.96 long, 1.03 wide. Cuspules: 22 spread over ventral inner heel. Lyra absent. Labium: 0.41 long, 0.96 wide, with 4 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 8 teeth decreasing in size from distal to basal portion, with very small denticles on base. Sternum: 3.07 long, 2.62 wide.

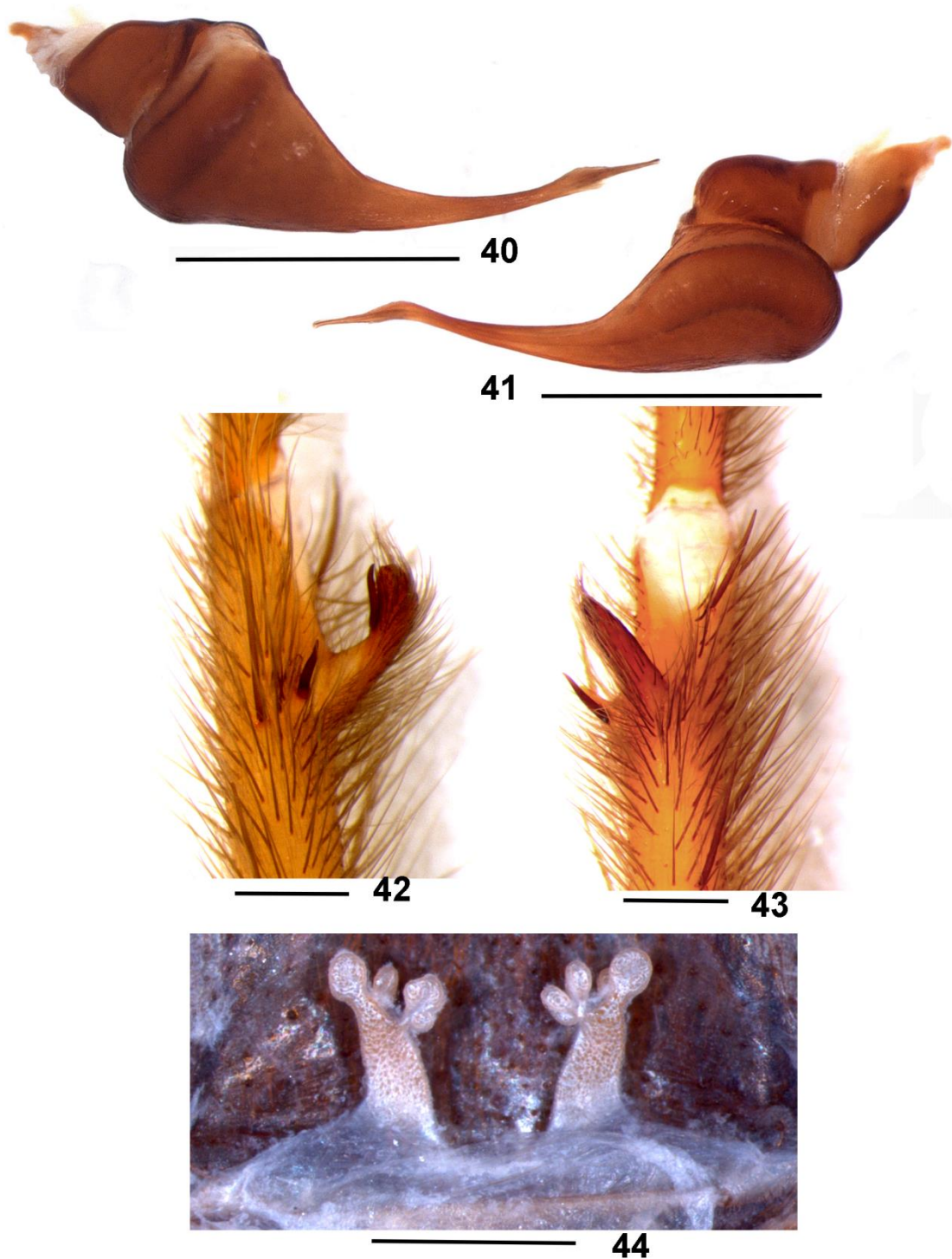
Posterior angle rounded, not separating coxae IV. Sigilla: not evident. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I-IV. Scopula: tarsi I-IV fully scopulate, IV with sparse setae, not separating the scopula. Metatarsi I fully scopulate; II-IV 2/3 distal scopulate, IV with sparse setae, not separating the scopula. Spination: palp: femur p0-0-1, patella 0, tibia p0-1-0; leg I: femur p0-0-1, patella 0, tibia v0-0-2(1ap), p0-0-2, r2-2-1ap, metatarsus p0-1-0, r1-0-0; leg II: femur p0-1-1, patella 0, tibia v2-2-2(1ap), p1-1-0, metatarsus v1-0-0; leg III: femur p1-1-1, r1-1-1, d1-0-0, patella 0, tibia v2-3-2ap, p1-0-1, r1-0-1, metatarsus v 1-1-1ap, p1-1-2(1ap), r0-1-1; leg IV: femur p0-0-1, r0-0-1, patella 0, tibia v3-2-1ap, p 1-0-1, r 0-1-0, metatarsus v2-0-2ap, p1-1-1, r1-1-1. Claws: ITC absent from all legs; STC lacking teeth. Palp: Bulb pyriform, embolus narrowing abruptly at its base and curved 45° to the retrolateral side on its distal third, bearing a small keel just after the curvature. Embolus longer than tegulum. Male tibial apophysis with two branches originating from a common low base, positioned distant from metatarsus. Retrolateral branch longer than prolateral, not dilated on distal portion, bearing a spine on its midlength. Prolateral branch shorter than contiguous spine. Both branches inclined ca. 45° to the prolateral side. Metatarsus I slightly curved. Color pattern. Carapace black bordered by light brown long setae. Chelicerae and legs dorsally and ventrally black. Sternum, labium, maxillae, and coxae brown. Abdomen ventrally brown, dorsally black. Distal femora, patellae, tibiae and metatarsi rings not evident. Longitudinal stripes on leg articles not evident.

**3.1.13.5 Description.** Female holotype (DZUB 8250). Carapace 10.9 long, 8.2 wide, chelicerae 5.5. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 8.0, 5.3, 5.7, 4.9, 3.3, 27.2. II: 7.4, 5.0, 4.9, 5.1, 3.8, 26.5. III: 7.2, 3.9, 4.7, 5.5, 3.7, 25. IV: 9.0, 4.7, 7.0, 7.7, 3.8, 32.2. Palp: 6.0, 3.8, 3.9, – , 4.7, 18.4. Mid-widths: femora I-IV =2.1, 1.7, 1.5, 1.7, palp = 1.6; patella I-IV = 1.9, 1.8, 1.7, 1.5, palp = 1.6; tibiae I-IV = 1.7, 1.2, 1.4, 1.5, palp = 1.5; metatarsi I-IV =1.5, 1.3, 1.2, 1.1; tarsi I-IV = 1.2, 1.1, 1.2, 1.3, palp = 1.6. Abdomen 12.2 long, 7.6 wide. Spinnerets: PMS, 1.17 long, 0.62 wide, 0.30 apart; PLS, 2.33 basal, 1.81 middle, 2.70 distal; mid-widths 1.27, 1.22, 0.93, respectively. Carapace: length to width 1.32. Fovea: slightly procurve, deep, 1.24 wide. Eyes and eye tubercle. Tubercle 1.30 long, 1.83 wide. Clypeus 0.10 wide. Anterior row slightly procurved, posterior row slightly recurved. Sizes and inter-distances: AME 0.46, ALE 0.49, PME 0.29, PLE 0.42, AME-AME 0.12, AME-ALE 0.15, AME-PME 0.07, ALE-

ALE 1.05, ALE–PME 0.26, PME–PME 1.02, PME–PLE 0.12, PLE–PLE 1.37, ALE–PLE 0.22, AME–PLE 0.38. Eye group 1.83 wide, 0.96 long. Maxillae: 3.67 long, 1.86 wide. Cuspules: 16 spread over ventral inner heel. Lyra absent. Labium: 0.71 long, 1.68 wide, with 2 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 9 teeth decreasing in size from distal to basal portion, and small teeth on basal area. Sternum: 5.21 long, 4.17 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with two row of setae, not separating the scopula. Metatarsi I–II fully scopulate; III–IV 3/4 distal scopulate with two row of setae, not separating the scopula. Spination: palp: femur p0-0-1, patella 0, tibia v0-2-3(2ap), p0-1-0; leg I: femur 0, patella 0, tibia v0-1-1ap, p0-0-1, metatarsus v1-0-0; leg II: femur p0-0-1, patella 0, tibia v0-1-1ap, p0-0-1; metatarsus v1-0-0; leg III: femur p0-1-1, r0-1-1, patella 0, tibia v1-2-2ap, p0-1-1, r 0-1-1, metatarsus v2-0-3ap, p1-1-1, r0-1-1; IV: femur r0-0-1, patella 0, tibia v1-2-2, p0-1-0, r1-0-1, metatarsus v2-0-3ap, p0-1-1, r1-0-1. Claws: ITC absent from all legs; STC lacking teeth. Spermathecae short, longer than wide, rectangular, with 4 lobes on its tip. Color pattern. Carapace brown covered with long light brown setae. Chelicerae dark brown. Legs dorsally brown, covered with dark brown setae. Sternum, labium, maxillae, and coxae light brown. Other leg articles ventrally brown. Abdomen ventrally brown, dorsally dark brown extending laterally and forming four wide stripes. Distal femora, patellae, tibiae and metatarsi with narrow whitish rings. Longitudinal stripes on leg articles not evident.

**3.1.13.6 Distribution.** Brazil, state of Rondônia and Bolivia, La Paz (Fig. 89).

**3.1.13.7 Remarks.** Immatures have black carapace and abdomen and the legs are dorsally greyish to brownish with black tarsi. The abdomen dorsum shows black stripes on the laterals (Fig. 73).



**Figures 40–44.** *Dolichothele* sp. nov. 2. (40–43) Male holotype (DZUB 8249), from Monte Negro, state of Rondônia, Brazil. **40**, right bulb, retrolateral. **41**, same, prolateral. **42**, left leg I tibial apophysis, prolateral. **43**, same, ventral. **44**, Female paratype (DZUB 8250), from BR421, Km 30, Monte Negro, state of Rondônia, Brazil, spermathecae, dorsal. Scale bar: 1mm.

### 3.1.14 *Dolichothele* sp. nov. 3

Figs 45–49, 61, 80–85, 91, 94–96.

*Oligoxystre mineirum*; Guadanucci 2011: 322, f. 3–6 (in part);

*Dolichothele mineirum*; Lucas & Indicatti 2015: 207 (in part);

**3.1.14.1 Diagnosis.** Males of *D. sp. nov. 3* resemble those of *D. rufoniger*, *D. tucuruense*, *D. exilis*, *D. diamantinensis*, *D. sp. nov. 4*, and *D. mineirum* by the absence of keel on male palpal bulb embolus. They differ from all these species, except *D. mineirum* by having plumose setae over tibiae and metatarsi (Fig. 82). It can be distinguished from *D. mineirum* by the slightly curved embolus base, tapering and embolus ca. 3.5 times the tegulum length (Fig. 45). Females of *D. sp. nov. 3* resemble those of *D. rufoniger*, *D. tucuruense*, *D. dominguense*, *D. exilis*, *D. diamantinensis*, *D. mineirum*, and *D. sp. nov. 4*, by the long spermathecae. It differs from *D. rufoniger* and *D. tucuruense* by spermathecae lacking lobes on its external basal part; from *D. dominguense* by the spermathecae with lobes restricted to its distal part; from *D. mineirum* by the longer and straighter spermathecae; from *D. exilis*, *D. diamantinensis* and *D. sp. nov. 4* by the very long and little curved spermathecae with small lobes distally (Fig. 49). Additionally, it can be distinguished from *D. exilis* by the sternum, coxae, labium and maxillae brown, and from *D. diamantinensis* by lacking iridescent blue setae over carapace and legs (Figs 80–81).

**3.1.14.2 Material examined.** Type material. Male holotype. BRAZIL, *Rio Grande do Norte*: Baía Formosa, RPPN Mata Estrela [6°23'S 34°59'W], 19 April 2014, W. Pessoa (LEEV 253); Female paratype, 22 April 2014, C. S. Fukushima (LEEV 258).

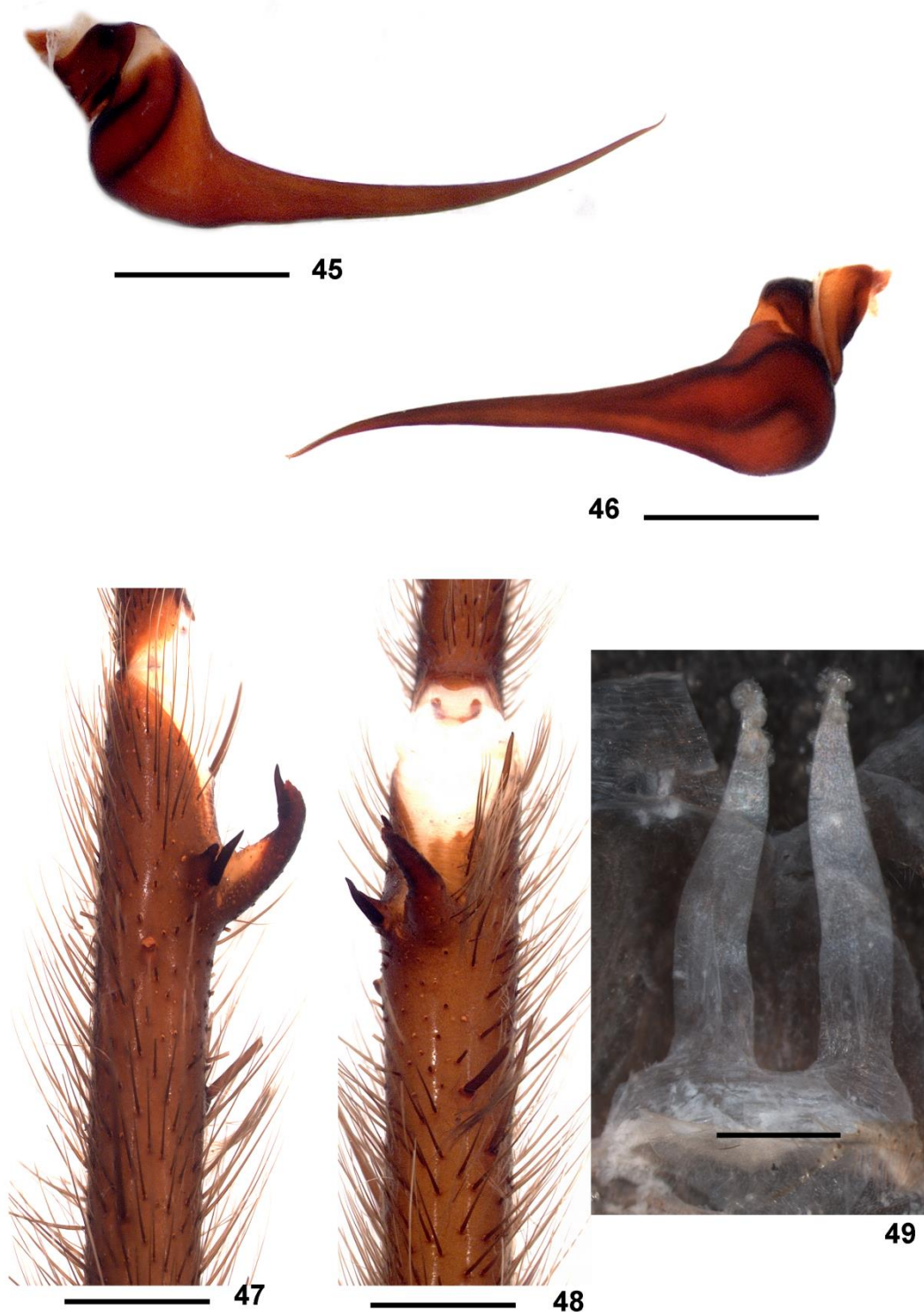
**3.1.14.3 Additional material.** BRAZIL, *Rio Grande do Norte*: Baía Formosa, RPPN Mata Estrela [6°23'S 34° 59'W], 1 female, 11 September 2013, C.S. Fukushima & W. Pessoa (LEEV 254), 1 female, 18 April 2014, S.N. Migliore (LEEV 255) 19 April 2014, K.C.T. Riciluca (LEEV 256); *Alagoas*: Murici, Estação Ecológica de Murici (9°15'18.6''S 35°51'01.7''W), 1 male, 17 August 2006, R. Bertani, D. Ortega & R.H. Nagahama (LEEV 257); *Bahia*: Salvador [12°55'S 38° 27'W], 1 male, without data.

**3.1.14.4 Description.** Male holotype (LEEV 253). Carapace 8.8 long, 7.0 wide, chelicerae 2.7. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 8.7, 4.9, 7.1, 7.0, 3.5, 31.2. II: 8.3, 4.7, 6.3, 7.3, 3.6, 30.2. III: 7.0, 3.4, 5.4, 6.6, 3.4, 25.8. IV: 8.9, 3.7, 8.0, 9.2, 4.1, 33.9. Palp: 4.9, 3.0, 4.2, - , 1.8, 13.9. Mid-widths: femora I–IV =1.9, 1.6, 1.3,

1.7, palp = 1.2; patella I–IV = 1.3, 1.3, 1.3, 1.4, palp = 1.1; tibiae I–IV = 1.1, 1.0, 1.3, 1.4 palp = 1.1; metatarsi I–IV = 0.8, 0.8, 0.8, 0.7; tarsi I–IV = 0.8, 0.8, 0.7, 0.7, palp = 0.8. Abdomen 8.3 long, 4.0 wide. Spinnerets: PMS, 0.75 long, 0.31 wide, 0.22 apart; PLS, 1.35 basal, 1.01 middle, 2.15 distal; mid-widths 0.78, 0.55, 0.45 respectively. Carapace: length to width 1.25. Fovea: straight and shallow, 0.75 wide. Eyes and eye tubercle: Tubercle 1.35 long, 0.46 wide. Clypeus absent. Anterior eye row slightly procurved, posterior eye row slightly recurved. Sizes and inter-distances: AME 0.47, ALE 0.46, PME 0.39, PLE 0.37, AME–AME 0.18, AME–ALE 0.18, AME–PME 0.05, ALE–ALE 1.26, ALE–PME 0.30, PME–PME 0.87, PME–PLE 0.50, PLE–PLE 1.47, ALE–PLE 0.24, AME–PLE 0.38. Eye group 1.89 wide, 0.97 long. Maxillae: 2.30 long, 1.39 wide. Cuspules: 18 spread over ventral inner heel. Lyra absent. Labium: 0.65 long, 1.22 wide, with 2 cuspules. Labio-sternal shallow, narrow with two sigilla. Chelicerae. Rastellum absent, basal segment with 9 teeth decreasing in size from distal to basal portion, and small teeth on basal area. Sternum: 4.28 long, 3.58 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with sparse setae, that does not separate it. Metatarsi I fully scopulate; II–IV 2/3, distal scopulate, IV with sparse setae, not separating the scopula. Spinination: palp: femur p0-0-1, patella 0, tibia r1-2-0; leg I: femur p0-1-1, patella 0, tibia p0-1-1, r1-2-1ap, metatarsus r1-0-0; leg II: femur 0, patella 0, tibia v1-1-2ap, p0-1-1, r0-1-0, metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v1-1-0, p1-2-2(1ap), r1-0-2(1ap), metatarsus v1-0-1ap, p1-2-2(1ap), r0-1-2(1ap); leg IV: femur r0-0-1, patella 0, tibia v1-1-2ap, p1-2-1, r0-1-1, metatarsus v1-0-1ap, p0-2-2(1ap), r1-0-2(1ap). Claws: ITC absent from all legs; STC lacking teeth. Palp: Bulb slightly pyriform, embolus lacking keel, slightly curved, elongated, 3.5 times the tegulum length. Male tibial apophysis of leg I with two branches originating from a common low base, positioned far from metatarsus. Retrolateral branch longer than prolateral, not dilated on distal portion, bearing a spine on its midlength. Prolateral branch shorter than contiguous spine. Both branches inclined ca. 45° to the prolateral side. Metatarsus I slightly curved. Color pattern. Carapace brown covered with long light brown setae. Chelicerae and legs ventrally and dorsally dark brown covered by light brown setae. Sternum, labium, maxillae, and coxae brown. Abdomen ventrally dark brown, dorsally covered with long and orange setae. Distal femora, patellae, tibiae and metatarsi rings not evident. Longitudinal stripes on leg articles not evident.

**3.1.14.5 Description.** Female paratype (LEEV 258). Carapace 10.2 long, 8.4 wide, chelicerae 3.9. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 7.7, 4.7, 5.3, 4.7, 3.5, 25.9. II: 7.3, 4.8, 5.1, 5.2, 2.6, 25.3. III: 6.1, 3.5, 4.0, 5.5, 2.7, 21.8. IV: 7.7, 4.5, 7.3, 7.7, 2.5, 29.7. Palp: 5.8, 3.7, 3.3, -, 4.1, 16.9. Mid-widths: femora I–IV = 1.5, 2.1, 2.3, 2.2, palp = 1.5; patella I–IV = 1.6, 1.7, 1.6, 1.7, palp = 1.6; tibiae I–IV = 1.6, 1.7, 1.6, 1.5, palp = 1.4; metatarsi I–IV = 1.2, 1.6, 1.0, 1.0; tarsi I–IV = 1.3, 1.1, 1.1, 1.0, palp = 1.3. Abdomen 13.3 long, 7.2 wide. Spinnerets: PMS, 1.13 long, 1.68 wide, 0.51 apart; PLS, 2.13 basal, 1.41 middle, 2.57 distal; mid-widths 0.97, 0.93, 0.82 respectively. Carapace: length to width 1.21. Fovea: straight and shallow, 0.83 wide. Eyes and eye tubercle: Tubercle 1.23 long, 2.18 wide. Clypeus absent. Anterior eye row slightly procurved, posterior eye row slightly recurved. Sizes and inter-distances: AME 1.55, ALE 1.63, PME 1.35, PLE 1.47, AME–AME 0.23, AME–ALE 0.14, AME–PME 0.08, ALE–ALE 2.18, ALE–PME 0.27, PME–PME 1.20, PME–PLE 0.13, PLE–PLE 1.85, ALE–PLE 0.17, AME–PLE 0.43. Eye group 2.18 wide, 1.02 long. Maxillae: 3.05 long, 1.94 wide. Cuspules: 10 spread over ventral inner heel. Lyra absent. Labium: 0.82 long, 1.64 wide, with 4 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 9 teeth decreasing in size from distal to basal portion, and small teeth on basal area. Sternum: 4.97 long, 3.62 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with row of two setae, not separating the scopula. Metatarsi I–II fully scopulate; III–IV 2/3 distal scopulate with row of two setae, not separating the scopula. Spination: palp: femur 0, patella 0, tibia v0-1-1ap, p0-0-1ap, r0-1-1ap; leg I: femur 0, patella 0, tibia v1-1-0, p0-1-1ap, r 0-0-1ap, metatarsus v1-0-0; leg II: femur 0, patella 0, tibia v0-0-1ap, p0-0-2(1ap), r0-1-0; metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v1-1-0, p0-1-1ap, r0-1-0, metatarsus v1-0-1ap, p0-1-2ap, r0-1-1ap; IV: femur 0, patella 0, tibia v0-1-0, p0-2-1ap, r0-1-1ap, metatarsus v0-1-0, p0-2-1ap, r0-1-1ap. Claws: ITC absent from all legs; STC lacking teeth. Genitalia: Spermathecae long slightly curved in the distal part, with small lobes on the apex, on the inner surface and on external surface. Color pattern. As in male.

**3.1.14.6 Distribution.** Brazil, states of Rio Grande do Norte, Alagoas and Salvador (Fig. 91).



**Figures 45–49.** *Dolichothele* sp. nov. 3. (45–48). Male holotype (LEEV 253). **45**, right bulb, retrolateral. **46**, same, prolateral. **47**, left leg I tibial apophysis, prolateral. **48**, same, ventral. **49**, Female paratype (LEEV 258), spermathecae, dorsal. Scale bar: 1mm.

### 3.1.15 *Dolichothele* sp. nov.4

Figs 50–54, 64, 86–87, 91, 92–93.

*Oligoxystre mineirum*; Guadanucci 2011: 322, f. 3–6 (in part);

*Dolichothele mineirum*; Lucas & Indicatti 2015: 207 (in part);

**3.1.15.1 Diagnosis.** Males of *D.* sp. nov. 4, resemble those of *D. rufoniger*, *D. tucuriense*, *D. exilis*, *D.* sp. nov. 3, *D. mineirum* and *D. diamantinensis* by the absence of keel on male palpal bulb embolus. They differ from *D. rufoniger*, *D. tucuriense*, *D. mineirum* and *D.* sp. nov. 3 by the prolateral branch of tibial apophysis on leg I longer or the same size as the contiguous spine (Fig. 53). It can be distinguished from *D. diamantinensis* by the tibial apophysis inclined in relation to the tibia axis (Figs 52-53) and by lacking iridescent blue setae over carapace and legs. It differs from males of *D. exilis* by the tibial apophysis positioned far from tibia apex (Fig. 53) and the brown sternum, coxae, labium and maxillae. Females of *D.* sp. nov. 4 resemble those of *D. rufoniger*, *D. tucuriense*, *D. dominguense*, *D. diamantinensis*, *D. exilis*, *D.* sp. nov. 3 and *D. mineirum* by the long spermathecae. They differ from *D. rufoniger* and *D. tucuriense* by absence of basal external lobes on the spermathecae; from *D. dominguense* by the little number of lobes distributed on internal spermathecae; from *D. exilis*, *D. diamantinensis* and *D.* sp. nov. 3 by presence of lobes by the distal half of internal surface of spermathecae; and from *D. mineirum* by the presence of different sized lobes on the distal external surface of spermathecae (Fig. 54) and the grayish coloration on the carapace, abdomen and legs (Fig. 86).

**3.1.15.2 Material examined.** Type material. Male holotype. BRAZIL, *Minas Gerais*: Ouro Preto, Parque Estadual do Itacolomi (20°24'6.18''S 43°30'4.69''W), February 2005, born in captivity, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 259); Female holotype, 12 April 2006, born in captivity, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 260).

**3.1.15.3 Additional material.** BRAZIL, *Minas Gerais*: Ouro Preto, Parque Estadual do Itacolomi (20°24'6.18''S 43°30'4.69''W), 15 females, 8 males, 10 immatures, 10 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 261); 2

males, 2 immatures, 11 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 262); 6 females, 3 males, January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 263); 1 female, June 2012, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 264); 1 male, 1 female, without date, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 265); Campo Rupestre (20°25'14.4''S 43°30'27.6''W), 1 male, 3 females, 13 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 266); Ouro Preto, Estação Ecológica do Tripuí (20°22'9.32''S 43°33'28.7''W), 1 female, 7 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 267); 1 female, 1 immature, 8 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 268); 1 female, 9 January 2005, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 269), 6 females, 2 males, without date, R. Bertani, C.S. Fukushima, R. Martins & M.P.M. Pavani (LEEV 270); born in captivity, 2 females, 5 immatures, February 2005 (LEEV 271); 1 female, 4 immatures, February 2006 (LEEV 272); 3 females, 12 immatures, 1 male, 12 April 2006 (LEEV 273); 1 female, 18 April 2006, without code; 2 males, 2 immatures, without date (LEEV 274); *Espírito Santo*: immature, 20 April 2006, Eq. Arachnid (MNRJ unnumbered); 1 immature, 21 April 2006, Eq. Arachnid (MNRJ unnumbered). Sooretama, Linhares, Jaguaré and Vila Valério, Reserva Biológica de Sooretama [19°14'S 40°10'W], 1 female, 19 April 2006, Eq. Arachnid (MNRJ unnumbered).

**3.1.15.4 Description.** Male holotype (LEEV 259). Carapace 8.4 long, 7.0 wide, chelicerae 3.2. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 8.4, 4.2, 6.4, 6.0, 4.0, 29.0. II: 7.6, 4.2, 5.8, 6.1, 3.2, 26.9. III: 6.8, 3.3, 4.7, 5.6, 3.4, 23.8. IV: 8.4, 3.7, 6.8, 8.1, 4.4, 31.4. Palp: 5.1, 3.0, 4.0, -, 1.9, 14.0. Mid-widths: femora I–IV = 1.7, 1.6, 1.5, 1.5, palp = 1.3; patellae I–IV = 1.4, 1.4, 1.5, 1.5, palp = 1.0; tibiae I–IV = 1.6, 1.3, 1.5, 1.4, palp = 1.2; metatarsi I–IV = 0.9, 0.9, 1.0, 0.9; tarsi I–IV = 0.8, 0.9, 0.9, 0.8, palp = 1.1. Abdomen 8.6 long, 5.0 wide. Spinnerets: PMS, 0.82 long, 0.39 wide, 0.16 apart; PLS, 1.69 basal, 1.41 middle, 1.90 distal; mid-widths 0.79, 0.60, 0.45 respectively. Carapace: length to width 1.2. Fovea: straight and shallow, 1.59 wide. Eyes and eye tubercle: tubercle 1.10 long, 1.79 wide. Clypeus absent. Anterior eye row slightly procurved, posterior row slightly recurved. Sizes and interdistances: AME 0.37, ALE 0.51, PME 0.33, PLE 0.37, AME–AME 0.15, AME–ALE 0.19, AME–PME 0.06, ALE–ALE 0.95, ALE–PME 0.28, PME–PME 1.04, PME–PLE 0.09, PLE–PLE 1.50, ALE–

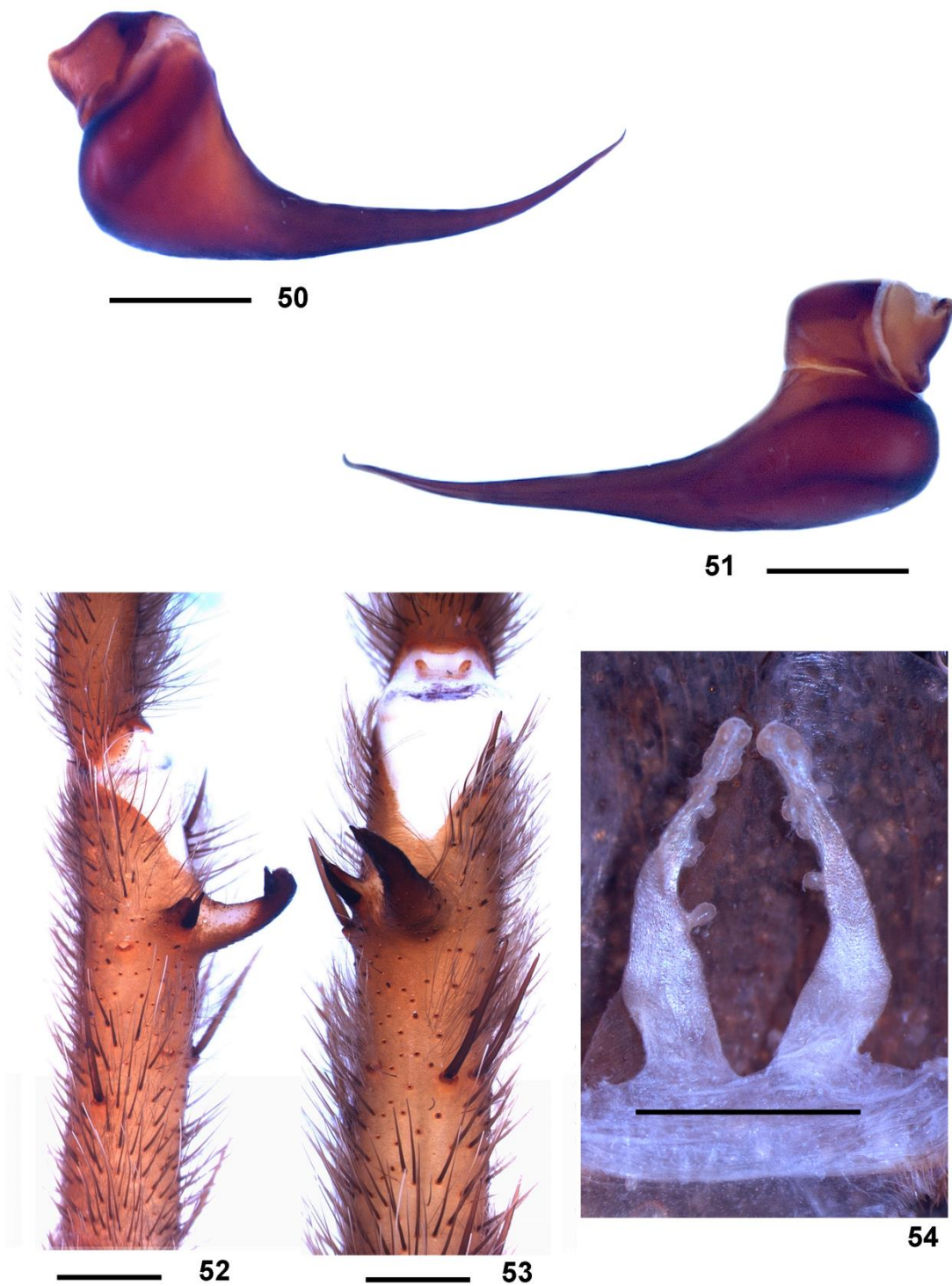
PLE 0.19, AME–PLE 0.44. Eye group 1.50 wide, 0.86 long. Maxillae: 2.40 long, 1.25 wide. Cuspules: 17 spread over ventral inner heel. Lyra absent. Labium: 0.65 long, 1.31 wide, with 2 cuspules. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 8 teeth decreasing in size from distal to basal portion, with very small denticles on base. Sternum: 3.88 long, 3.33 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with sparse setae, not separating the scopula. Metatarsi I–II fully scopulate; III–IV 2/3, distal scopulate, IV with sparse setae, not separating the scopula. Spination: palp: femur 0, patella 0, tibia p1-1-2, r2-1-1; leg I: femur 0, patella 0, tibia v1-2-0, p1-1-0, r1-1-1ap, metatarsus v2-0-0; leg II: femur 0, patella 0, tibia v1-1-1-0, p1-2-2(1ap), r1-1-1ap, metatarsus v1-0-0; leg III: femur 0, patella 0, tibia v1-1-1ap, p1-2-0, r1-2-3(1ap), metatarsus v1-0-1ap, p0-2-1ap, r0-1-2(1ap); IV: femur 0, patella 0, tibia v1-1-2ap, p1-2-2, r0-2-1. metatarsus v0-1-2ap, p1-0-0, r0-2-2(1ap). Claws: ITC absent from all legs; STC lacking teeth. Palp: Bulb pyriform, embolus long, curved, 2 times tegulum length, lacking keel. Male tibial apophysis with two branches originating from a common low base, positioned far from tibia apex. Retrolateral branch longer than prolateral, not dilated on distal portion, bearing a spine on its midlength. Prolateral branch as long as its contiguous spine. Both branches inclined ca. 45° to prolateral side. Metatarsus I slightly curved. Color pattern. Carapace covered with long gray setae. Chelicerae and legs ventrally dark brown, dorsally grayish, covered by light grayish setae and orange setae on the legs; sternum, labium, maxillae, and coxae brown. Abdomen ventrally dark brown, dorsally covered by long orange setae. Distal femora, patellae, tibiae and metatarsi rings whitish. Longitudinal stripes on legs and palps not evident.

**3.1.15.5 Description.** Female paratype (LEEV 260). Carapace 11.6 long, 9.6 wide, chelicerae 5.7. Legs (femur, patella, tibia, metatarsus, tarsus, total): I: 9.1, 5.8, 6.7, 6.0, 3.8, 31, 4. II: 8.3, 5.4, 5.7, 5.8, 3.4, 28.6. III: 7.8, 4.6, 5.1, 5.9, 3.3, 26.7. IV: 9.5, 5.4, 7.1, 8.6, 3.2, 33.8. Palp: 7.1, 4.2, 4.0, - , 3.9, 19.2. Mid-widths: femora I–IV = 2.0, 1.8, 1.9, 2.0, palp = 2.0; patella I–IV = 2.1, 2.0, 1.8, 2.0, palp = 1.7; tibiae I–IV = 1.8, 1.7, 1.7, 1.8 palp = 1.7; metatarsi I–IV = 1.7, 1.5, 1.5, 1.3; tarsi I–IV = 1.7, 1.7, 1.5, 1.4, palp = 1.9. Abdomen 12.6 long, 6.4 wide. Spinnerets: PMS, 1.18 long, 1.68 wide, 1.52 apart;

PLS, 2.80 basal, 1.98 middle, 2.74 distal; mid-widths 1.39, 1.33, 0.93 respectively. Carapace: length to width 1.20. Fovea: straight and shallow, 1.26 wide. Eyes and eye tubercle: Tubercle 1.77 long, 2.46 wide. Clypeus absent. Anterior eye row slightly procurved, posterior eye row slightly recurved. Sizes and inter-distances: AME 0.53, ALE 0.65, PME 0.47, PLE 0.42, AME–AME 0.21, AME–ALE 0.30, AME–PME 0.12, ALE–ALE 1.51 ALE–PME 0.30, PME–PME 1.20, PME–PLE 0.14, PLE–PLE 1.92, ALE–PLE 0.23, AME–PLE 0.59. Eye group 2.46 wide, 1.13 long. Maxillae: 3.38 long, 1.77 wide. Cuspules: 11 spread over ventral inner heel. Lyra absent. Labium: 0.95 long, 1.89 wide, with 1 cuspule. Labio-sternal groove shallow, narrow, with two sigilla. Chelicerae. Rastellum absent, basal segment with 9 teeth decreasing in size from distal to basal portion, and small teeth on basal area. Sternum: 5.99 long, 4.77 wide. Posterior angle rounded, not separating coxae IV. Sigilla: three pairs, all small, rounded, less than one diameter from margin. Legs: leg formula: IV I II III. Clavate trichobothria: on distal 2/3 of tarsi I–IV. Scopula: tarsi I–IV fully scopulate, IV with two row of setae, not separating the scopula. Metatarsi I–II fully scopulate; III–IV 2/3 distal scopulate with two rows of setae, not separating the scopula. Spination: palp: femur 0, patella 0, tibia v1-1-0, p1-2-1ap, r0-1-2(1ap); leg I: femur 0, patella 0, tibia v1-1-0, p0-1-1ap, r0-0-1ap, metatarsus v1-0-0; leg II: femur 0, patella 0, tibia v1-1-0, p0-0-2(1ap) ; metatarsus v1-0-0; leg III: femur 0, patella 0 tibia v1-1-2ap, p0-1-1, metatarsus v1-0-1ap, p0-1-3(2ap), r0-1-1ap; IV: femur 0, patella 0, tibia v0-1-1ap, p0-1-1ap, r1-1-0, metatarsus v1-0-2ap, p0-2-0, r0-1-2(1ap). Claws: ITC absent from all legs; STC lacking teeth. Spermathecae long, curved inwards, with several elongated lobes on apex, inner surface and on external surface. Color pattern: As in male.

**3.1.15.6 Distribution.** Brazil, states of Minas Gerais and Espírito Santo (Fig. 91).

**3.1.15.7 Remarks.** In Ouro Preto, state of Minas Gerais, all specimens were collected in rock crevices (Fig. 87) or under rocks in Cerrado or Campo Rupestre formations.



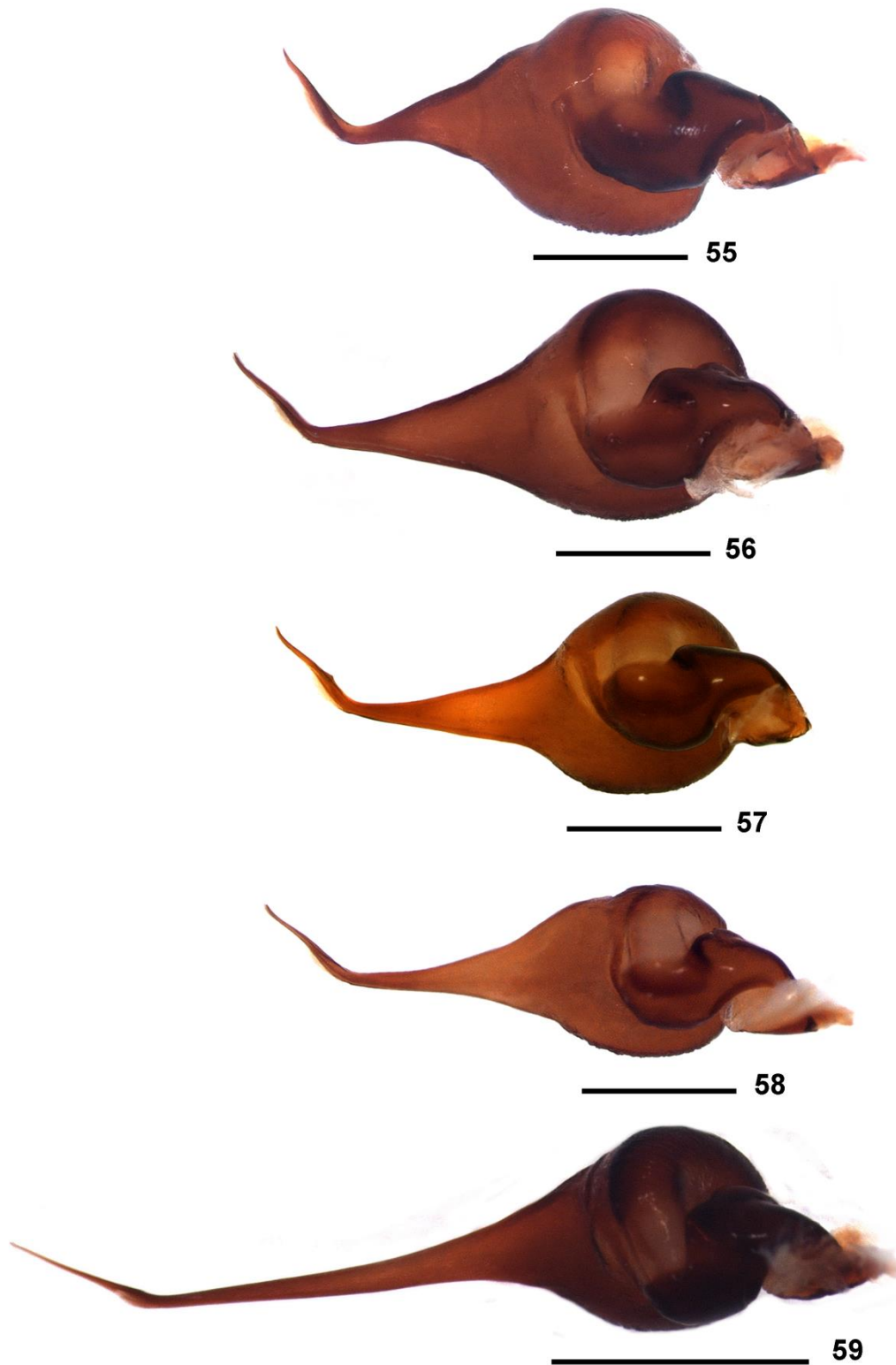
**Figures 50–54.** *Dolichothele* sp. nov. 4. (50–53) Male holotype (LEEV 259). **50**, right bulb, retrolateral. **51**, same, prolateral. **52**, left leg I tibial apophysis, prolateral. **53**, same, ventral. **54**, Female holotype (LEEV 260), spermathecae, dorsal. Scale bar: 1mm.

### 3.1.16 *Dolichothele auratum* (Vellard, 1924)

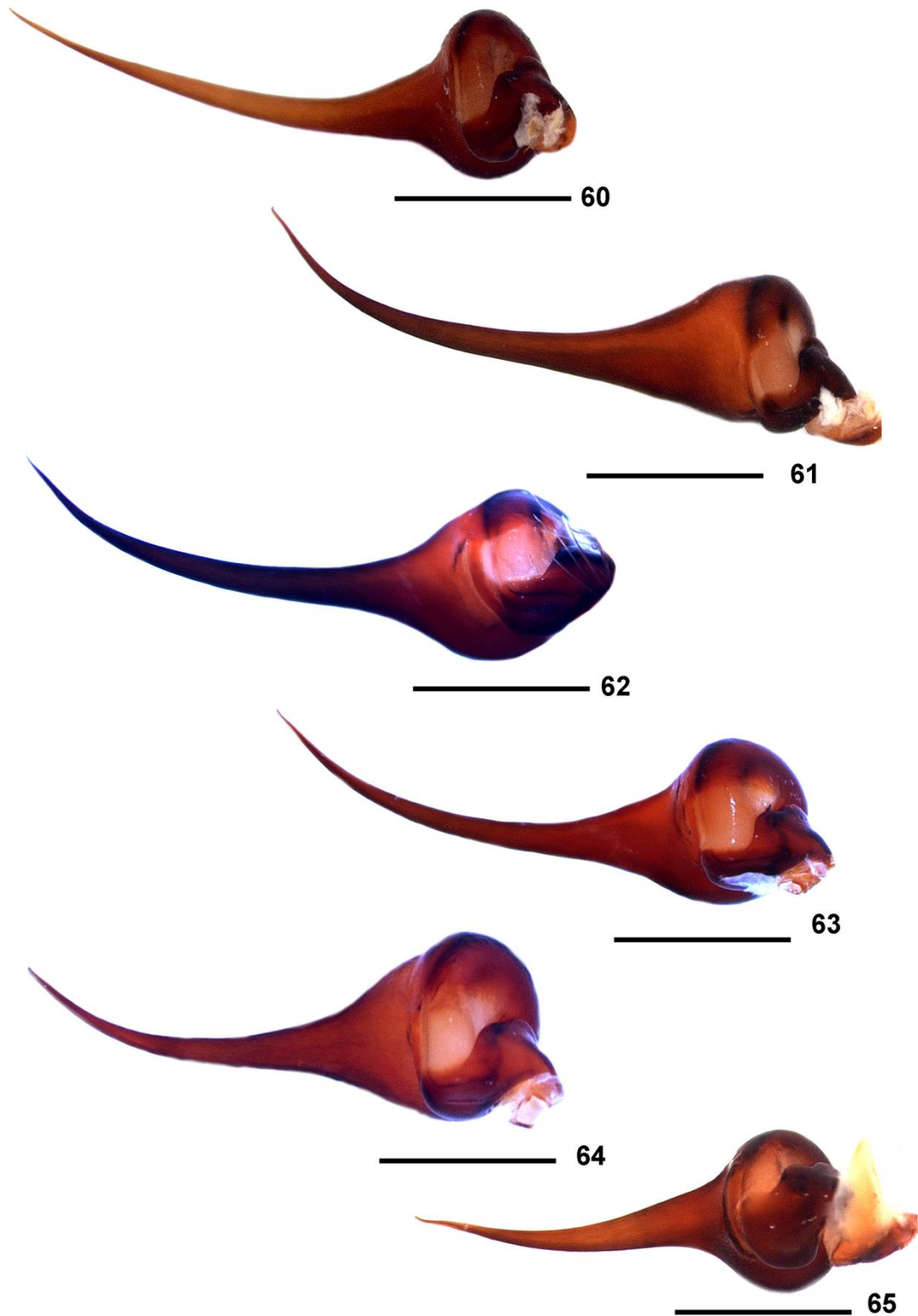
*Oligoxystre auratum* Vellard, 1924: 152, f. 38 (Holotype male from Catalão, state of Goiás, Brazil, should be deposited at Instituto Vital Brazil, Niterói, supposed lost Guadanucci (2007)).

*Dolichothele auratum*; Lucas & Indicatti 2015: 207.

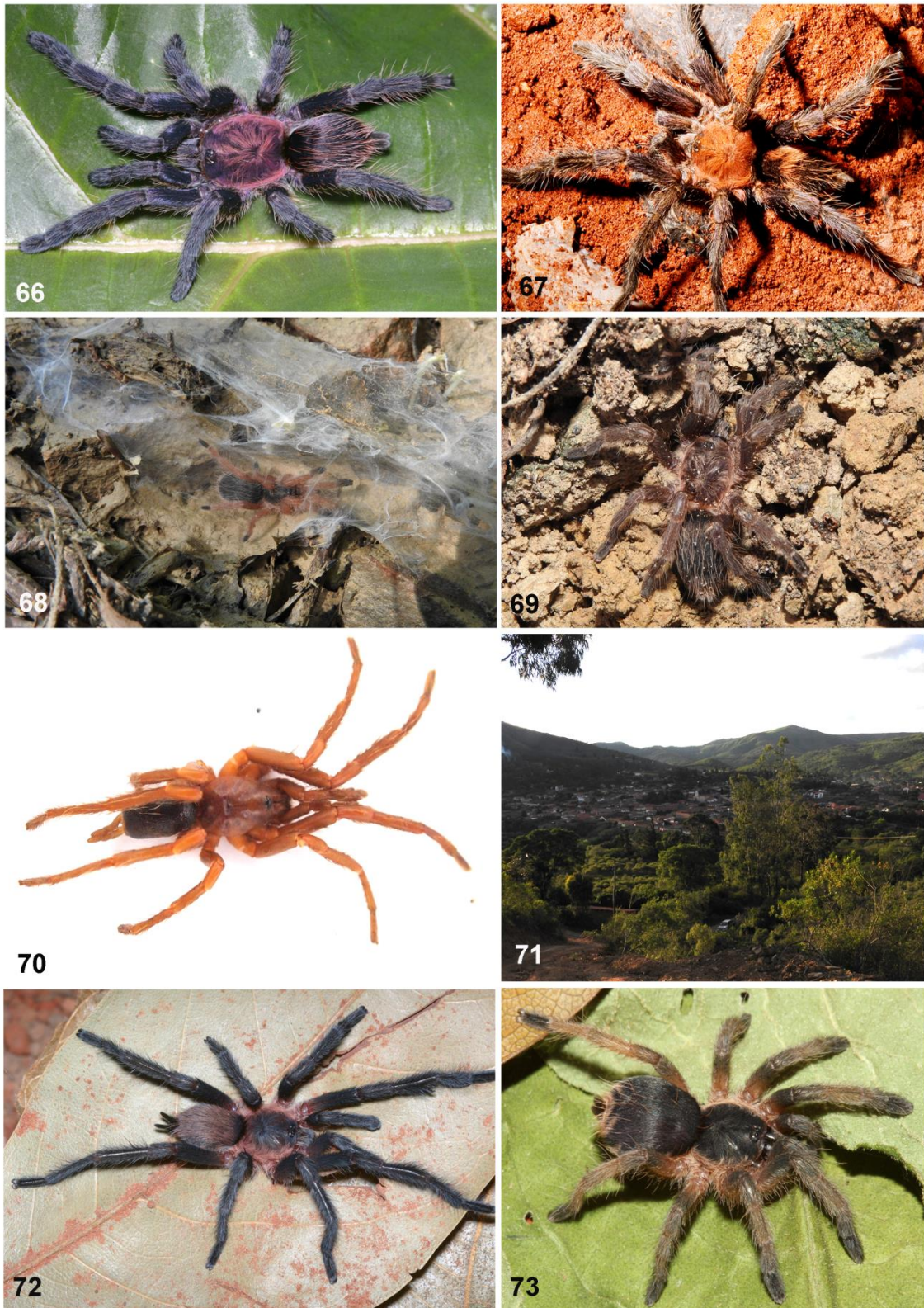
The holotype of *Dolichothele auratum* (Vellard, 1924) was deposited at Instituto Vital Brazil, Niterói, but this collection no longer exists (Guadanucci 2007). This author collected some specimens at the type locality but the male he found had short embolus, contrasting with the published figures of the holotype that has a long embolus. Therefore, it is not the same species described by Vellard (1924). I participated of a field trip to Catalão in October 2015 trying to collect the species described by Vellard (1924), but none specimen was found. As all the efforts to collect specimens of the species that matches with Vellard's (1924) description were unsuccessful and the holotype no longer exists, *Dolichothele auratum* (Vellard, 1924) is herein considered as *nomen dubium*.



**Figures 55–59.** *Dolichothele* spp. male palpal bulbs, dorsal view. **55**, *Dolichothele* sp. nov. 1, paratype (DZUB 8248). **56**, *Dolichothele bolivianum* (MZSP 26083). **57**, *Dolichothele* sp. nov. 2 (MZSP 26085). **58**, *Dolichothele* sp. nov. 2, holotype (DZUB 8249). **59**, *Dolichothele dominguense*, paratype (MZUSP 26536). Scale bar: 1mm.



**Figures 60–65.** *Dolichothele* spp. male palpal bulbs, dorsal view. **60**, *Dolichothele exilis* (MZSP 18980). **61**, *Dolichothele* sp. nov. **3**, holotype (LEEV 253). **62**, *Dolichothele mineirum* (UFMG 17704). **63**, *Dolichothele diamantinensis*, paratype (MZUSP 29071). **64**, *Dolichothele* sp. nov. **4**, holotype (LEEV 259). **65**, *Dolichothele rufoniger*, holotype (MZUSP 20570). Scale bar: 1mm.



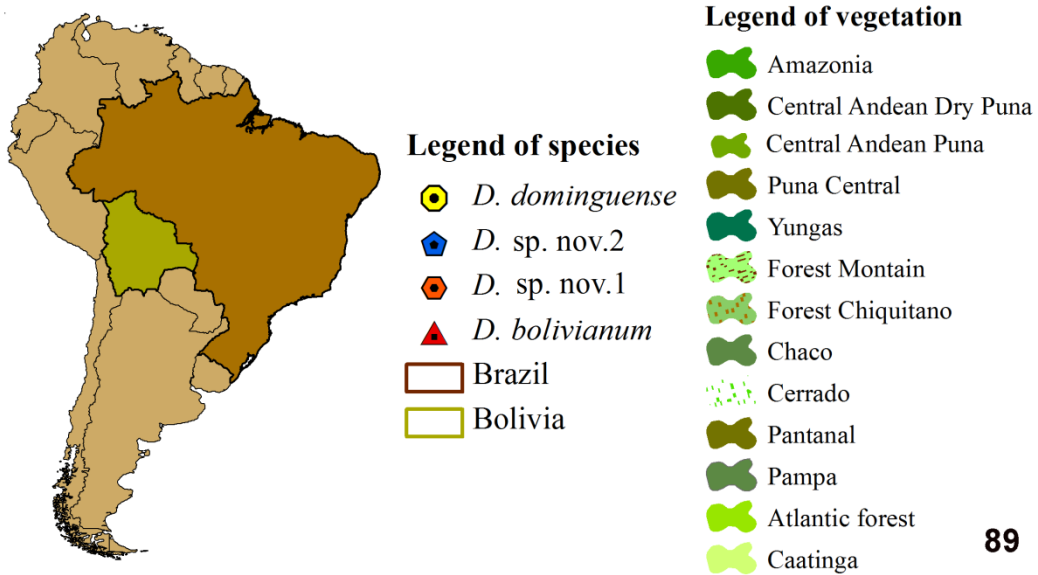
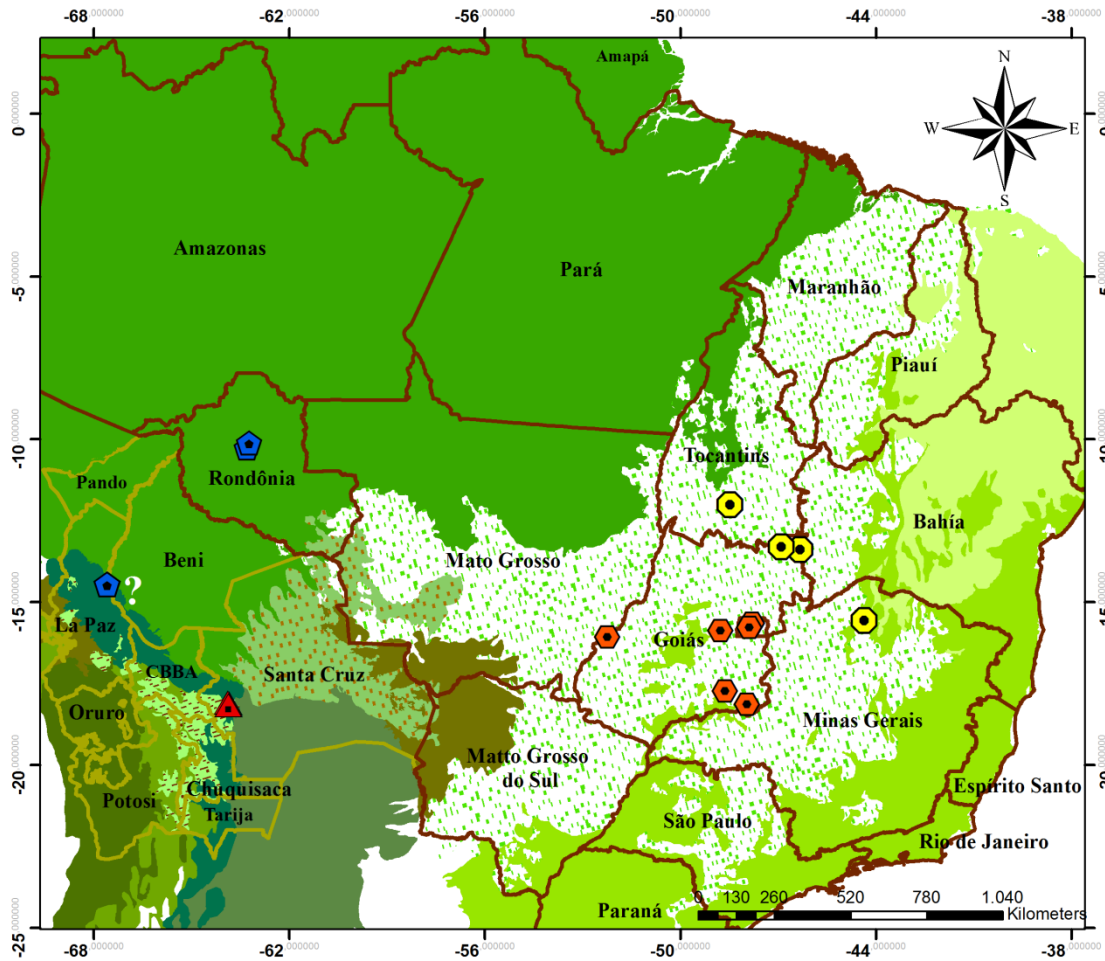
**Figures 66–73.** *Dolichothele* spp. **66–67, *Dolichothele* sp. nov. 1; 66, female. 67, male.** Both from Brazil, Distrito Federal, Brasília. **68–71, *Dolichothele bolivianum*; 68, immature. 69, female. 70, male holotype. 71, Samaipata.** Both from Bolivia, Santa Cruz, Samaipata. **72–73, *Dolichothele* sp. nov. 2; 72, male. 73, immature.** Both from Brazil, Rondônia, Monte Negro. Photos: P.C. Motta (67), I.S. Revollo & R.B. Huanto (68–71). R. Bertani (66, 72–73).



**Figures 74–81.** *Dolichothele* spp. **74–75**, *Dolichothele* sp. nov. **2**; **74**, female. **75**, female, detail of lateral abdomen showing stripes. Both from Brazil, Rondônia, Monte Negro. **76**, *Dolichothele exilis*, male. From Brazil, Bahia. **77**, *Dolichothele rufoniger*, female. From Brazil, Bahia. **78–79**, *Dolichothele mineirum*; **78**, female. From Brazil, Bahia. **79**, male. From Brazil, Sergipe, Santa Luzia do Itanhý. **80–81**, *Dolichothele* sp. nov. **3**; **80**, female. **81**, male. Both from Brazil, Rio Grande do Norte, Baía Formosa. Photos: R. Bertani.



**Figures 82–88.** *Dolichothele* spp. **82–83,** *Dolichothele* sp. nov. **3;** **82,** Male leg IV. **83,** retreat of immature under tree bark, Rebio Saltinho, Pernambuco. **84–85,** *Dolichothele* sp. nov. **3;** **84,** female. **85,** male. Both from Brazil, Alagoas, Murici. **86–87,** *Dolichothele* sp. nov. **4;** **86,** female. **87,** retreats on rock crevices. Both from Brazil, Minas Gerais, Ouro Preto. **88,** *Dolichothele diamantinensis*, female, from Brazil, Minas Gerais, Diamantina. Photos: R. Bertani.



**Figure 89.** Map showing records of *D. bolivianum*, *D. sp. nov. 1*, *D. sp. nov. 2*, and *D. dominguense*.

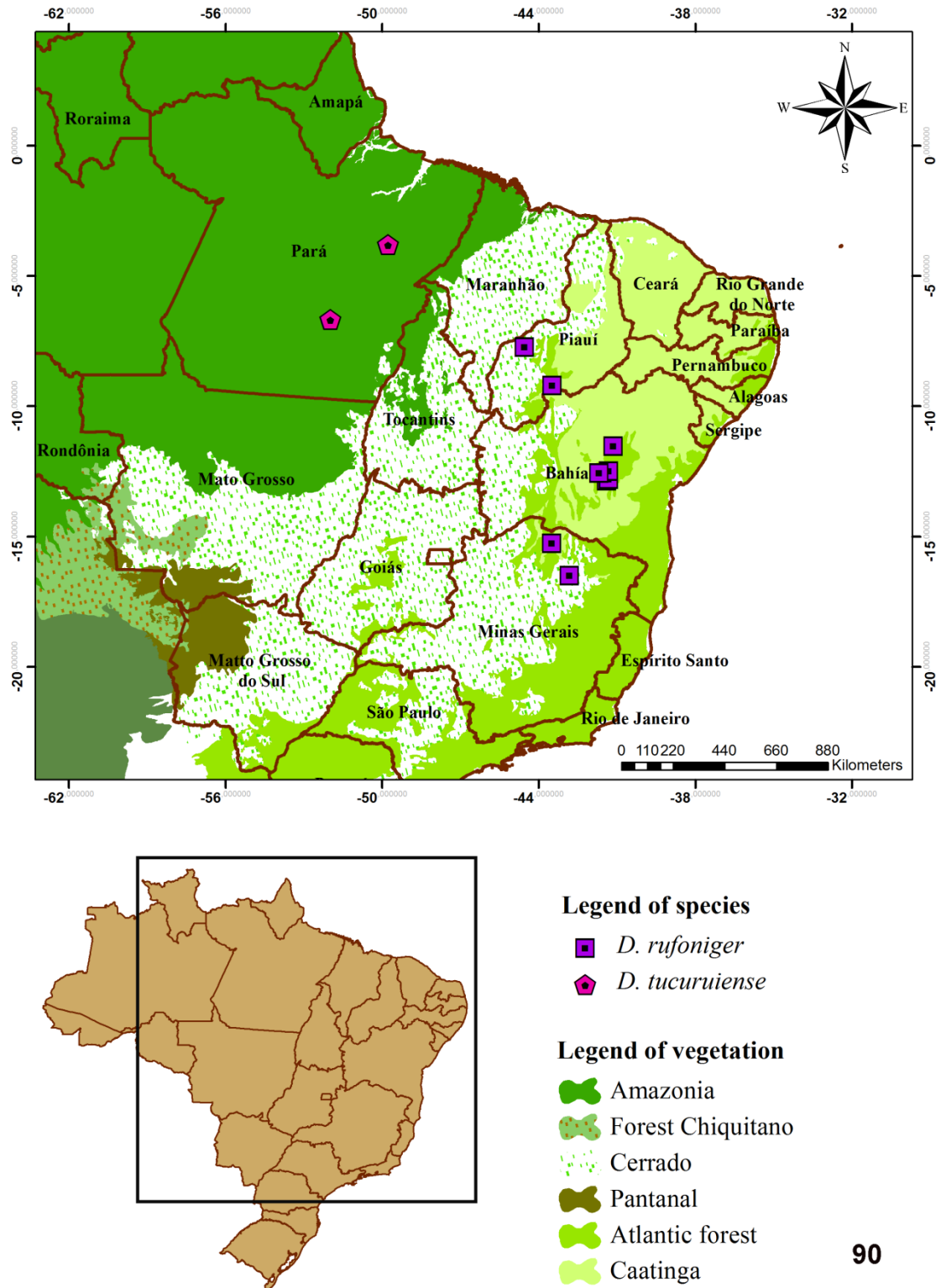
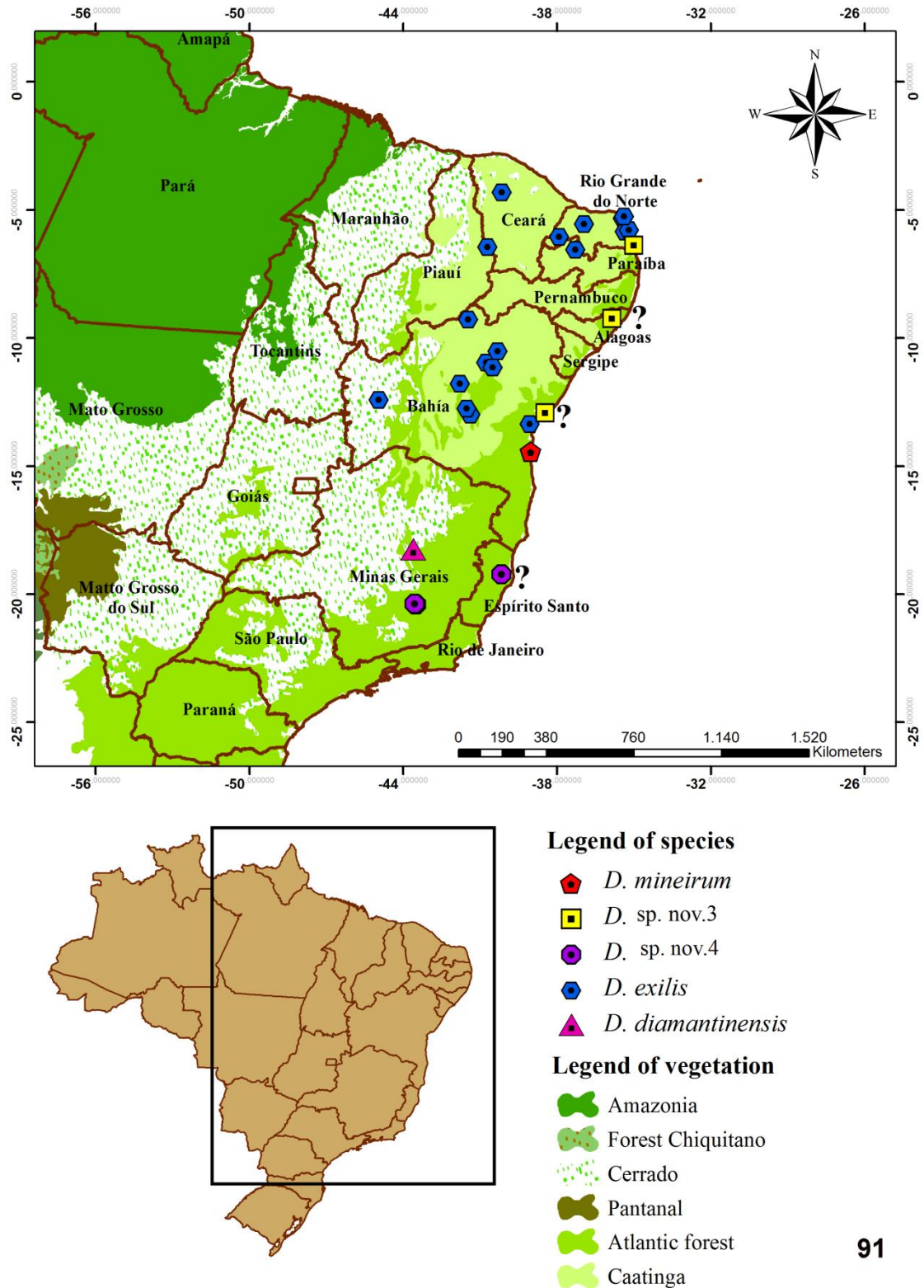
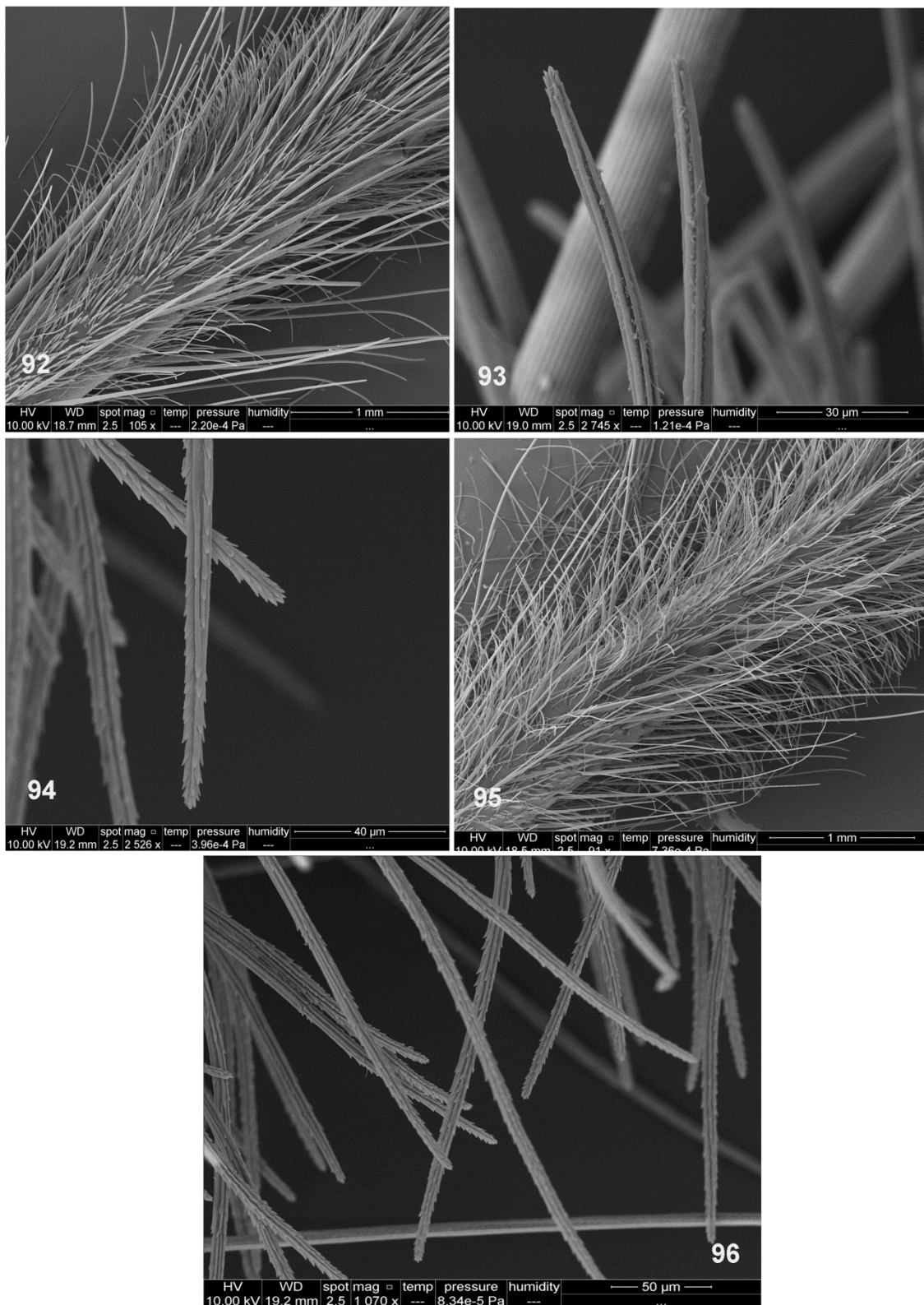


Figure 90. Map showing records of *D. tucuruense* and *D. rufoniger*.



**Figure 91.** Map showing records of *D. exilis*, *D. diamantinensis*, *D. mineirum*, *D. sp. nov. 3* and *D. sp. nov. 4*.



**Figures 92–96.** Male tibia IV. **92–93, *Dolichothele* sp. nov. 4;** **92**, general aspect showing few short plumose setae. **93**, detail of the smooth setae. **94–96, *Dolichothele* sp. nov. 3;** **94**, detail of dentate setae; **95**, general aspect showing several long plumose setae. **96**, detail of dentate setae.

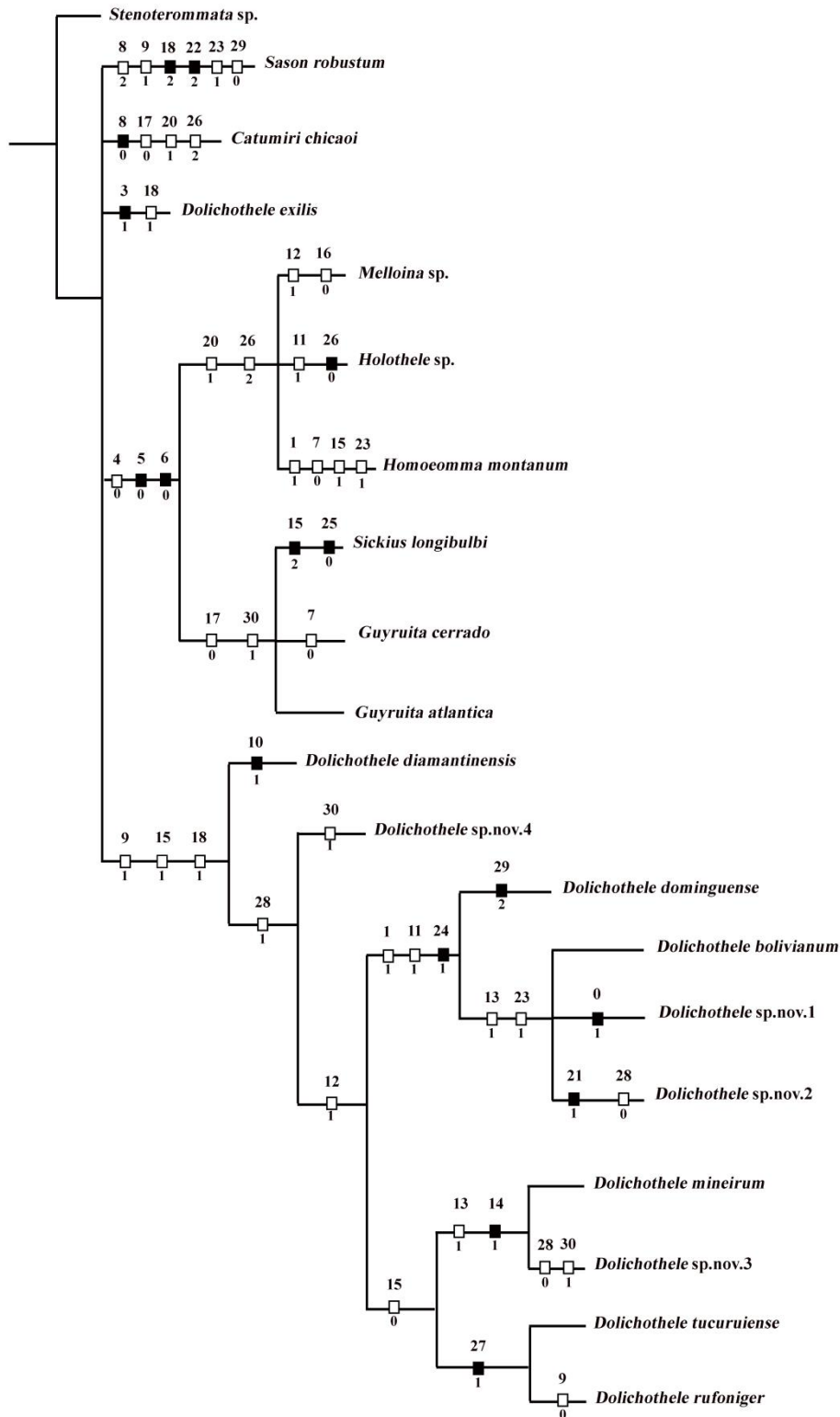
### 3.2 Cladistics

The analysis with Nona 2.0 using equal weights resulted in two cladograms which consensus (68 steps, consistency index of 0.55 and retention index of 0.67) is showed in Fig. 97. It shows *Dolichothele exilis*, the type species of the genus, collapsed in a polytomy with the outgroup taxa and the monophyletic clade having the remaining *Dolichothele* species. The program Pee-Wee 1.6 using different weights retrieved a single cladogram (Fig. 98) having the same topology with concavities 1 to 6. Table 2 shows steps and fits found for each concavity used and Table 3 the fits, steps and extra steps of each character. The topology obtained with this program shows that *Dolichothele* is monophyletic and supported by the synapomorphy “scopula tarsal of the leg IV integral, with row of sparse setae”. Guadanucci (2011) did not include this character in his analysis of *Oligoxystre* (now *Dolichothele*), but it was latter included (Guadanucci 2014), in a broader analysis of Ischnocolinae and considered one of the three synapomorphies of the genus. The other two putative synapomorphies, spermathecae with lobules and scopula of tarsi I integral were not retrieved in the present analysis as synapomorphies of *Dolichothele*.

In the cladogram obtained here with Pee-Wee, *Dolichothele exilis* is the most basal species (Fig. 98). It has two apomorphies, the presence of black sternum, coxae, labium and maxillae (character 3), and the presence of short clypeus (character 1) with homoplasies with *Homoeomma montanum* and the clade having *Dolichothele dominguense*, *Dolichothele* sp. nov. 2, *Dolichothele bolivianum*, and *Dolichothele* sp. nov. 1. The clade having the remaining species of *Dolichothele* has as synapomorphies the position of the apophysis tibial far from tibia apex (character 9) (having homoplasies with *Sason robustum* and *Dolichothele rufoniger*); and the metatarsus I slightly curved (character 15), having homoplasies with *Homoeomma montanum* and the clade *Dolichothele tucuruense* + *Dolichothele rufoniger*, *Dolichothele mineirum* + *Dolichothele* sp. nov. 3. The most basal species of this large clade is *Dolichothele diamantinensis*, having as autapomorphy the presence of tibial apophysis inserted perpendicularly em relation to the axis of the tibia (character 10). The clade sister of *Dolichothele diamantinensis* is supported by the synapomorphy “spermathecae lobules distributed on the inner surface” (character 28), with reversion to the plesiomorphic state in the species *Dolichothele* sp. nov. 2 and *Dolichothele* sp. nov. 3. The basal specie of this clade is *Dolichothele* sp. nov. 4, having as apomorphy the presence of lobules in

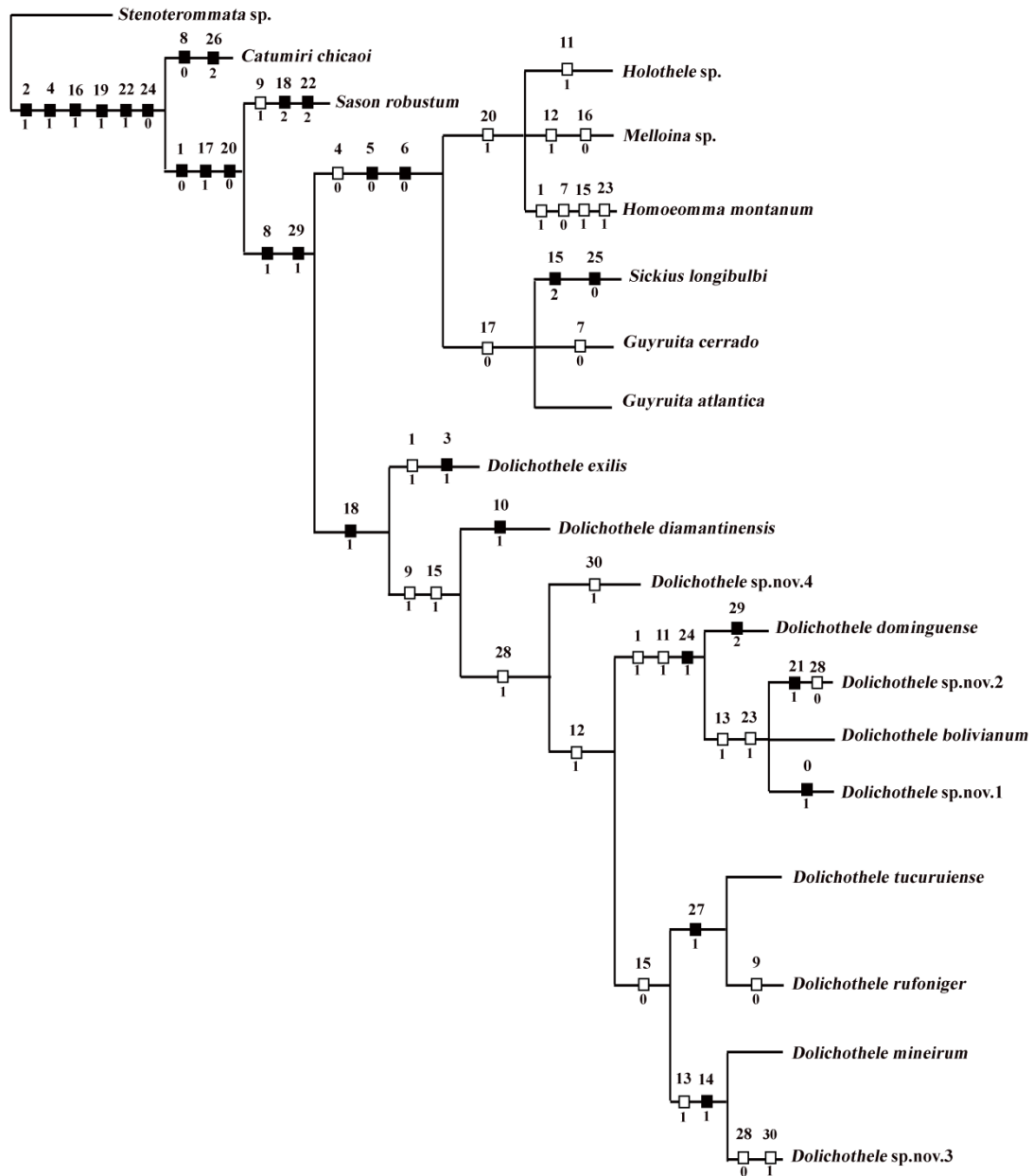
the external surface of the spermathecae on the distal part (character 30), with homoplasies in *Dolichothele* sp. nov. 3 and the clade *Sickius* + *Guyruita*. Its sister clade is supported by the synapomorphy “length of the prolateral branch shorter than its contiguous spine” (character 12), with homoplasy with *Melloina santuario*. This clade is divided in two. The first has *D. dominguense*, *D. bolivianum*, *D. sp. nov. 1* and *D. sp. nov. 2* and is supported by three synapomorphies: “short clypeus” (character 1), with homoplasy in *Homoeomma montanum* and *Dolichothele exilis*; “retrolateral branch of tibial apophysis thick in its apical part” (character 11), with homoplasy in *Holothele* sp.; and “presence of a subapical keel on the embolus” (character 24). The most basal species of this clade is *Dolichothele dominguense*, having as apomorphy “number of lobules in the spermathecae higher than 15”. The sister clade has the remaining three species collapsed, due to the lack of additional information to resolve the trichotomy. The clade is supported by two synapomorphies: “presence of dentate setae in the tibia of males” (character 13), with homoplasy in the clade *Dolichothele mineirum* + *Dolichothele* sp. nov. 3; and “presence of short embolus on palp” (character 23), with homoplasy in *Homoeomma montanum*. *Dolichothele* sp. nov. 2 has as apomorphies: “presence of black stripes on lateral part of the abdomen in females” (character 21); and “spermathecae lobules only in apex” (character 28), with homoplasies in the species: *Dolichothele* sp. nov. 4 and in the clade [(*Dolichothele dominguense*, (*Dolichothele* sp. nov. 2, *Dolichothele bolivianum*, *Dolichothele* sp. nov. 1)) + ((*Dolichothele tucuruiense*, *Dolichothele rufoniger*) + (*Dolichothele mineirum*, *Dolichothele* sp. nov. 3)]. *Dolichothele* sp. nov. 1 has as apomorphy “carapace covered by iridescent red setae” (character 0). The sister clade has the species *D. tucuruiense*, *D. rufoniger*, *D. mineirum*, and *D. sp. nov. 3*. and is supported by the apomorphy “metatarsus of the leg I straight” (character 15), with homoplasies in *Homoeomma montanum* and clade *D. diamantinensis* [*Dolichothele* sp. nov. 4, (*Dolichothele dominguense*, (*Dolichothele* sp. nov. 2, *Dolichothele bolivianum*, *Dolichothele* sp. nov. 1)) + ((*Dolichothele tucuruiense* + *Dolichothele rufoniger*) (*Dolichothele mineirum* + *Dolichothele* sp. nov. 3)]. This clade is divided in two, the clade *D. rufoniger* + *D. tucuruiense* is supported by the sinapomorphy “presence of lobules on external basal part of the spermathecae” (character 27). *Dolichothele tucuruiense* lacks an apomorphy, and *Dolichothele rufoniger* has as apomorphy the “insertion of the tibial apophysis close to tibia apex” (character 9), with homoplasies in *Sason robustum* and the clade [*Dolichothele diamantinensis* + (*Dolichothele* sp. nov. 4) + (*Dolichothele dominguense* +

(*Dolichothele* sp. Nov .2, *Dolichothele bolivianum*, *Dolichothele* sp. nov. 1)) + ((*Dolichothele tucuruense*, *Dolichothele rufoniger*), (*Dolichothele mineirum*, *Dolichothele* sp. nov. 3). The sister clade is supported by the synapomorphies: “presence of dentate setae in the tibia of males” (character 13), with homoplasy with the clade *Dolichothele* sp. nov. 2, *Dolichothele bolivianum*, *Dolichothele* sp. nov. 1; and “presence of plumose setae in the tibia and metatarsus of males” (character 14). *Dolichothele mineirum* lacks an apomorphy and the sister species *Dolichothele* sp. nov. 3 has two apomorphies: “spermathecae lobules only on its apex” (character 28), having homoplasy with *Dolichothele* sp. nov. 2, and “presence of lobules in the external surface of the spermathecae on their distal part” (character 30), with homoplasy in *Dolichothele* sp. nov. 4.



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**Figure 97.** Cladogram of *Dolichothele* species obtained with Nona 2.0 with equal weights (L = 68, CI = 0.55, RI = 0.67). Black squares = synapomorphies, white squares = homoplasies.



**Figure 98.** Cladogram of *Dolichothele* species obtained with Pee-Wee 1.3 using different weights and concavity 6 (L = 62, fit 1996,4). Black squares = synapomorphies, white squares = homoplasies.

**Table 2.** Number of trees obtained, length and fit using different concavities and X-PEE-WEE.

	Trees	Length	FIT
K = 1	1	62	1425,0
K = 2	1	62	1670,0
K = 3	1	62	1805,0
K = 4	1	62	1891,4
K = 5	1	62	1951,7
K = 6	1	62	1996,4

**Table 3.** Characters, Fits, Steps and Extra Steps for characters of cladogram of Fig. 98.

Character	Fit	Steps	Extra Steps
0	-	-	-
1	66.6	4	3
2	-	-	-
3	-	-	-
4	85.71	2	1
5	100	1	0
6	100	1	0
7	85.71	2	1
8	100	2	0
9	75	3	2
10	-	-	-
11	85.71	2	1
12	85.71	2	1
13	85.71	2	1
14	100	1	0
15	75	4	2
16	85.71	2	1
17	85.71	2	1
18	100	2	0
19	-	-	-
20	85.71	2	1

21	-	-	-
22	-	-	-
23	66.6	4	3
24	100	2	0
25	-	-	-
26	85.71	3	1
27	100	1	0
28	66.6	4	3
29	100	2	0
30	75	3	2

#### 4 DISCUSSION

Guadanucci (2007; 2011) recognized eight species in *Oligoxystre* Vellard, 1924 (now *Dolichothele*). One of these species, *D. bolivianum*, was considered to have a wide distribution from Central-Western Brazil to Bolivia, close to the Andes (Guadanucci 2007). He found variation on color pattern throughout the distribution of this species, but considered them as local populational variation. Herein, examining the material of Guadanucci (2007) together with additional specimens recently collected, it is possible to recognize two more species, which are herein described. *Dolichothele* sp. nov. 1 males clearly have a shorter embolus with a strong “S” shaped curvature (Fig. 55), distinct from the longer and straighter embolus of *D. bolivianum* from Bolivia. Females have a broader spermathecae (Fig. 39) and, as the male, have the carapace with a distinct color pattern of iridescent reddish setae covering it (Figs 66–67). Another new species also related with *D. bolivianum* was recognized from state of Rondônia, Brazil. Males of the new species, *D. sp. nov. 2*, has a slender embolus (Figs 57–58), when comparing with *D. bolivianum*, and the females have narrow spermathecae with lobes restricted to their apex (Fig. 44). The color pattern is also distinct, males have a dark carapace with orange setae on its borders and the female has stripes on the lateral abdomen (Figs 72–75), character unknown in other species of *Dolichothele*. The phytophysiognomy is very distinct in the regions of occurrence of these species. *Dolichothele bolivianum* is found in Bosque Chiquitano, whereas *D. sp. nov. 1* occurs on the Cerrado stricto sensu from Central-Western Brazil and *D. sp. nov. 2*, on the Amazon region, and probably in Cerrado fragments (Fig. 89).

Guadanucci (2011) published *D. mineirum*, another species with wide distribution on Brazil, occurring from the Espinhaço range in the state of Minas Gerais to most of the Brazilian Atlantic forest of Northeastern Brazil. By examining more specimens from these regions it was possible to recognize two more species. *Dolichothele* sp. nov. 3 males have a longer embolus tapering from the tegulum (Fig. 61), whereas in *D. mineirum* the embolus narrows abruptly on its base (Fig. 62). The females have a longer and straighter spermathecae (Fig. 49). Males of the second species, *D.* sp. nov. 4, have a shorter embolus (Fig. 64) and the prolateral branch of tibial apophysis on leg I is longer or the same size as its contiguous spine (Fig. 53). Furthermore, they lack the long setae found on tibiae and metatarsi of the legs. These setae form a conspicuous “brush” clearly seen in live specimens of *D. mineirum* and *D.* sp. nov. 3 (Figs 79, 81, 82, 85). Under SEM analysis the setae of *D. mineirum* and *D.* sp. nov. 4 showed morphological differences (Figs 92–93). Those of *D. mineirum* have their distal part having series of small teeth (Figs 94–96) whereas those of *D.* sp. nov. 4 these setae lack teeth in the same part (Figs 92–93). The cladistic analysis (Fig. 98), showed that the presence of dentate setae on tibiae and metatarsi in males is a synapomorphy of *D. mineirum* with *D.* sp. nov. 3 with parallelism in the clade *D. bolivianum*, *D.* sp. nov. 1 and *D.* sp. nov. 2. *Dolichothele* sp. nov. 4 is found in the state of Minas Gerais, in the phytophysiognomies of Cerrado and Campo rupestre, whereas *D. mineirum* and *D.* sp. nov. 3 are found in humid areas of Brazilian Atlantic Rainforest (Fig. 91).

The cladogram obtained here (Fig. 98) confirms partially those of Guadanucci (2011; 2014), by the clade *D. rufoniger* and *D. tucuruense* as sister species, as well as *D. dominguense* and *D. bolivianum* in the same clade (together with *D.* sp. nov. 1 and *D.* sp. nov. 2). The basal position of *D. exilis* (*Oligoxystre caatinga* in Guadanucci 2011) was also retrieved in the present analysis. It also confirms the monophyly of *Dolichothele*. However, a single synapomorphy, “scopula tarsal of leg IV integral” was found here to support the genus clade. This character was not used by Guadanucci (2011) who, however, proposed five synapomorphies for *Oligoxystre* (now *Dolichothele*): few cuspules (fewer than 50) on maxillae; few cuspules (fewer than 10) on labium; labium much wider than long; sigillae contiguous to sternum margin; presence of swollen trichobothria on metatarsi. These characters (except for the latter), even though included in the present analysis, were not retrieved as synapomorphies of

*Dolichothele*. Guadanucci (2011) included only *Holothele rondoni* and *Guyruita cerrado* as outgroups in his analysis. Two outgroups are insufficient to express the diversity of theraphosid especially considering the basal position of *Dolichothele* in this family which demands also the inclusion of taxa of related families as Barychelidae and Paratropididae. The polarization of the characters as well as the homoplasies with other closely related taxa are also affected by the inclusion of a limited number of outgroups taxa. Therefore, the high support found by Guadanucci (2011) surely is the result of the lack of inclusion of additional outgroups. In a broader analysis Guadanucci (2014) included five species of *Oligoxystre* (now *Dolichothele*) and several representatives of most theraphosid subfamilies and barychelids. The clade was rooted in *Stenoterommata* (Nemesiidae). In the analysis of Guadanucci (2014) *Dolichothele* is supported by three ambiguous synapomorphies: spermathecal receptacula with lobes, tarsal scopula I not divided and tarsal scopula IV not divided with a longitudinal band of setae. The former synapomorphies presented by Guadanucci (2011): few cuspules (fewer than 50) on maxillae; few cuspules (fewer than 10) on labium; labium much wider than long and sigillae contiguous to sternum margin were found to be plesiomorphies (Guadanucci, 2014) and the character presence of swollen trichobothrium on metatarsi was not included in the matrix. The characters “receptacle with lobes” and “tarsal scopula I not divided with a longitudinal band of setae” were retrieved as plesiomorphies in the analysis carried out here. Thus, the single character supporting the genus *Dolichothele* in the present analysis is the tarsal scopula IV not divided with a longitudinal band of setae.

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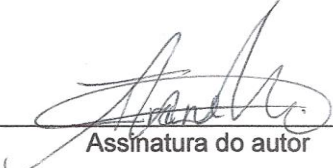
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