PONTIFÍCIA UNIVERSIDADE CATÓLICA DO RIO GRANDE DO SUL
PROGRAMA DE PÓS-GRADUAÇÃO EM ZOOLOGIA

SISTEMÁTICA E FILOGENIA DE TRECHALEIDAE

(ARANEAE, LYCOSOIDEA)

ESTEVAM LUÍS CRUZ DA SILVA

PORTO ALEGRE, 2012

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M.Sc. Estevam Luís Cruz da Silva

Orientador: Dr. Arno Antonio Lise

TESE DE DOUTORADO

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SUMÁRIO

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A Última Mensagem do Chefe,

Caros Escoteiros:

Se vocês já assistiram à peça "Peter - Pan", lembrar-se-ão que o chefe dos piratas estava sempre fazendo o seu discurso de despedida, temendo que, ao chegar a hora de morrer, não tivesse tempo, talvez, de pronunciá-lo.

Passa-se o mesmo comigo, e assim, embora não esteja morrendo neste momento, isto irá acontecer qualquer dia destes, e desejo mandar a vocês uma última palavra de adeus. Lembrem-se: esta é a última coisa que vocês ouvirão de mim, portanto, meditem sobre ela.

Tenho levado uma vida cheia de felicidades, e desejo que cada um de vocês tenha também uma vida igualmente feliz.

Creio que Deus nos colocou neste delicioso mundo para sermos felizes e saborearmos a vida.

A felicidade não vem da riqueza, nem do sucesso profissional, nem do comodismo da vida regalada e da satisfação dos próprios apetites.

Um passo para a felicidade é, quando jovem, tornar-se forte e saudável, para poder ser útil e gozar a vida quando adulto.

O estudo da natureza mostrará a vocês quão cheio de coisas belas e maravilhosas Deus fez o mundo para o nosso deleite.

Fiquem contentes com o que possuem e tirem disso o melhor proveito. Vejam o lado bom das coisas em vez do lado pior.

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Resumo. O primeiro gênero de Trechaleidae a ser revisado foi *Trechalea* Thorell, 1890, trabalho este feito por Carico (1993), desde então a sistemática desta família de aranhas foi sendo enfocada e descrita para a região Neotropical. Desde 2008, 14 artigos foram publicados a partir de trabalhos revisivos e muitas espécies novas foram descritas nas Américas Central e do Sul. A análise cladística dos gêneros de Trechaleidae foi realizada com 64 táxons a partir de 79 caracteres morfológicos obtidos a partir do exame de espécimes, atualmente alocados em Trechaleidae (*sensu* Griswold 1993), resultou em uma única árvore mais parcimoniosa, com 394 passos (FIT = 56,08, K = 6, Ci = 0,26, Ri = 0,65). A partir desta análise, observou-se que Psechridae agrupou-se com o clado Oxyopidae + Senoculidae. Ctenidae, representado pelo gênero *Ancylometes* Bertkau, 1880*,* mostrou-se mais próximo de Pisauridae. A subfamília Rhoicininae é grupo irmão de Lycosidae, não pertencendo à Trechaleidae, e é promovida aos status de família (Rhoicinidae). *Shinobius orientalis* (Yaginuma, 1967) foi confirmado como membro de Rhoicinidae e relacionado à *Heidrunea* Brescovit & Höfer, 1994. *Neoctenus* Simon, 1897 não pertence à Trechaleidae e é transferido para Zoridae. A família Trechaleidae agora é dividida em três subfamílias: Dosseninae (*Dossenus* Simon, 1898, Nova Subfamília), Enninae (*Enna* O. Pickard-Cambridge, 1897, Nova Subfamília) e Trechaleinae Simon, 1890. Dois novos gêneros foram propostos: *Paradyrines* **gen. nov.** e *Neotrechalea* **gen. nov.**, descritos pela primeira vez*. Caricelea* Silva & Lise, 2007 foi sinonimizado com *Enna* O. Pickard-Cambridge, 1897. O gênero-tipo, *Trechalea* Thorell, 1869, é mais relacionado ao clado formado por *Syntrechalea* F. O. Pickard-Cambridge, 1902. Rhoicininae Simon, 1898 foi promovida ao status de família após a análise filogenética de Trechaleidae Simon, 1869 feita por Silva *et al*. (in press). Rhoicinidae é atualmente compostra por quatro gêneros: *Barrisca* Chamberlin & Ivie, 1936, *Heidrunea* Brescovit & Höfer, 1994, *Rhoicinus* Simon, 1898 e *Shinobius* Yaginuma, 1991. *Barrisca nannella* Chamberlin & Ivie, 1936 (espécie-tipo) e *B. kochalkai* Platnick, 1978 foram redescritas e ilustradas. O macho de *B. kochalkai* e uma nova espécie do Peru foram descritas e ilustradas pela primeira vez. Os representantes de *Heidrunea* Brescovit & Höfer, 1994 (*H. arijana* Brescovit & Höfer, 1994, *H. irmleri* Brescovit & Höfer, 1994 e *H. lobrita* Brescovit & Höfer, 1994) foram fotografados e ilustrados. *Rhoicinus* é composto por 10 espécies conhecidas e todas foram redescritas e ilustradas. *Rhoicinus weyrauchi* Exline, 1960 foi considerado sinônimo júnior de *R. wapleri* Simon, 1898. *Rhoicinus cashiari* **sp. nov.** é descrito e ilustrado com base em material proveniente do Peru. O gênero monotípico *Shinobius* Yaginuma, 1991 é

redescrito e ilustrado. Mapa com a distribuição dos representantes de Rhoicinidae é apresentado. A partir do material obtido por empréstimo para ser utilizado na análise filogenética de Trechaleidae, muitas espécies novas e novos registros foram observados. Esse novo material foi descrito a partir de trabalhos revisivos previamente publicados e reunidos em uma compilação de artigo publicaods durante o período de desenvolvimento desta Tese de Doutorado. Os gêneros *Enna* O. P.-Cambridge, 1897 e *Dyrines* Simon, 1903 foram revisados por Silva *et al*. (2008) e Carico & Silva (2008), respectivamente. Após a revisão de *Enna*, em 2008, foram descritas 13 novas espécies. Uma nova espécie de *Dyrines* foi descrita por Silva & Lise (2010). *Syntrechalea* F. O. P.-Cambridge, 1902 foi revisada por Carico (2008) e foram descritas três espécies novas, Silva & Lise (2008, 2010) descreveram três novas espécies (duas no norte do Brasil e uma da Colômbia). Com base em material proveniente do Peru foram descritas duas novas espécies de *Caricelea* Silva & Lise, 2007, o macho de *Hesydrus caripito* Carico, 2005 e uma espécie nova de *Enna* (*Enna echarate* Silva & Lise, 2009). *Dossenus* foi revisado por Silva *et al*. (2007), e o macho de *Dossenus guapore* Silva, Lise & Carico, 2007 foi descrito e uma espécie nova do norte do Brasil (Pará). O macho de *Paratrechalea longigaster* Carico, 2005 foi descrito e ilustrado e novos registros de distribuição do gênero no Brasil foram efetivados. O último gênero de Trechaleidae a ser revisado foi *Paradossenus* F.O.P.-Cambridge, 1903. Carico & Silva (2010) descreveram seis espécies novas e Silva & Lise (2011) descreveram a fêmea de *Paradossenus macuxi* de Roraima, Brasil. O comportamento de presente nupcial do macho de *Trechalea amazonica* F.O.P.-Cambridge, 1903 foi registrado no Pará, Brasil.

Abstract. The first revised genus of Trechaleidae was *Trechalea* Thorell, 1890, by Carico (1993), after this revision, the systematic of this spider family started to be know for the Neotropical region. The cladistic analysis of the Trechaleidae genera used 64 taxa and 79 characters, including all genera formerly assigned to Trechaleidae Simon, 1890, all exemplars of all families currently placed in "higher lycosoids" sensu Griswold (1993), and an array of potential Lycosoid outgroups, resulted in a single most parsimonious tree of 380 steps (FIT = 56.08, K = 6, Ci = 0.26, Ri = 0.65). This analysis suggests that Psechridae is sister to an Oxyopidae + Senoculidae lineage. Ctenidae, only represented here by *Ancylometes* Bertkau, 1880 showed to be more related to Pisauridae. The subfamily Rhoicininae Simon, 1898 is sister group of Lycosidae and is promoted to family rank (Rhoicinidae, New Status). *Shinobius orientalis* (Yaginuma, 1967) is confirmed as a true member of Rhoicinidae and closely related to *Heidrunea* Brecovit & Höfer, 1994. *Neoctenus* Simon, 1897 also does not fall within Trechaleidae and is transferred to Zoridae. The family Trechaleidae is now divided in three subfamilies: Dosseninae (*Dossenus* Simon, 1898, New Subfamily), Enninae (*Enna* O. Pickard-Cambridge, 1897, New Subfamily) and Trechaleinae Simon, 1890. The cladogram shows detailed resolution within the newly delimited Trechaleidae. Two new genera, *Paradyrines* **gen. nov.** and *Neotrechalea* **gen. nov.**, are described and illustrated for the first time. *Caricelea* Silva & Lise, 2007 is synonymized with *Enna* O. Pickard-Cambridge, 1897. *Trechalea* Thorell, 1869 is sister to the clade fromed by *Syntrechalea* F. O. Pickard-Cambridge, 1902. The Rhoicininae Simon, 1898 was recently removed from Trechaleidae Simon, 1869 and promoted to family rank based on the results of a morphological study made by Silva *et al*. (2011). The family was revised and illustrated. Rhoicinidae is composed by four genera: *Barrisca* Chamberlin & Ivie, 1936, *Heidrunea* Brescovit & Höfer, 1994, *Rhoicinus* Simon, 1898 and *Shinobius* Yaginuma, 1991. *Barrisca nannella* Chamberlin & Ivie, 1936 (type-species) and *B. kochalkai* Platnick, 1978 are redescribed and illustrated. The male of *B. kochalkai* and a new species from Peru are described and illustrated for the first time. The types of *Heidrunea* Brescovit & Höfer, 1994 (*H. arijana* Brescovit & Höfer, 1994, *H. irmleri* Brescovit & Höfer, 1994 and *H. lobrita* Brescovit & Höfer, 1994) were photographed and illustrated. The genus *Rhoicinus* comprises 10 known species and all known species are redescribed and illustrated. *Rhoicinus weyrauchi* Exline, 1960 is a junior synonym of *R. wapleri* Simon, 1898. *Rhoicinus cashiari* **sp. nov.** is described and illustrated from material collected in Peru. The monotypic genus *Shinobius* Yaginuma, 1991 is

redescribed and illustrated. Maps with the distribution of the representatives of the family are presented. Since 2008, 14 papers were published based on review papers and several new species were described and illustrated from Central and South America. The genera *Enna* O. P.-Cambridge, 1897 and *Dyrines* Simon, 1903 were revised by Silva *et al*. (2008) and Carico & Silva (2008), respectively. After the revision of *Enna*, in 2008, 13 new species were described. A new species of *Dyrines* was described by Silva & Lise (2010). *Syntrechalea* F. O. Pickard-Cambridge, 1902 was revised by Carico (2008) and after that work, three new species were described by Silva & Lise (2008, 2010) (two from Northern Brazil and one from Colombia). Based on material from Peru, two new species of *Caricelea* Silva & Lise, 2007, were proposed. The male of *Hesydrus caripito* Carico, 2005 and a new species of *Enna* (*Enna echarate* Silva & Lise, 2009) were described. *Dossenus* was revised by Silva *et al*. (2007), and the male of *Dossenus guapore* Silva, Lise & Carico, 2007 and a new species from Northern Brazil (Pará) were described. The male of *Paratrechalea longigaster* Carico, 2005 was described and illustrated and new records of the distribution of *Paratrechalea* were registered to Brazil. The last trechaleid genus to be revised was *Paradossenus* F.O.P.-Cambridge, 1903. Carico & Silva (2010) described and illustrated six new species and Silva & Lise (2011) described the female of *Paradossenus macuxi* from Roraima, Brazil. And the nuptial gift behavior of the male of *Trechalea amazonica* F. O. Pickard-Cambridge was recorded for the first time to Pará, Brazil.

Apresentação. A presente tese está dividida em três capítulos, onde o primeiro aborda a filogenia dos gêneros que compõem a família e a proposição de uma nova família de aranhas, o segundo é sobre a revisão taxonômica de Rhoicinidae Simon, 1898, família proposta a partir da análise filogenética do Capítulo I e o terceiro reúne os artigos publicados sobre a taxonomia e sistemática. Os capítulos I e II estão apresentados sob forma de artigo, formatados de acordo com as normas dos seguintes periódicos para os quais serão submetidos: "The Zoological Journal of the Linnean Society of London" e "Zootaxa", respectivamente. O Capítulo I corresponde à análise filogenética dos gêneros de Trechaleidae, incluindo dois gêneros novos, bem como representantes das principais linhagens monofiléticas reconhecidas em Lycosoidea. A análise filogenética utilizou 64 táxons, a partir da comparação de 79 caracteres morfológicos, indicando Trechaleidae como um grupo monofilético e relacionado à Lycosidae como sugerido em publicações anteriores. Foram propostas duas novas subfamílias: Dosseninae e Enninae. Dois novos gêneros foram propostos: *Paradyrines* **gen. nov.** e *Neotrechalea* **gen. nov.** O Capítulo II aborda a revisão taxonômica de Rhoicinidae Simon, 1898, com a redescrição dos quatro gêneros conhecidos (*Rhoicinus* Simon, 1898, *Barrisca* Chamberlin & Ivie, 1936, *Heidrunea* Brescovit & Höfer, 1994 e *Shinobius* Yaginuma, 1991) e a descrição de duas espécies novas para a região Neotropical.

Capítulo I

Generic phylogeny and classification of Trechaleidae Simon, 1890 (Araneae: Lycosoidea), with comments on the monophyly and placement of the new family Rhoicinidae Simon, 1898

ESTEVAM L. CRUZ DA SILVA[1], GUSTAVO HORMIGA[2], CHARLES E. GRISWOLD[3] & ARNO A. LISE[1]

[1]*Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Porto Alegre, RS, Brasil, E-mail: estevamsilva@gmail.com; lisearno@pucrs.br*

[2]*Department of Biological Sciences, The George Washington University, 2023 G St. N.W., Washington D.C., 20052 USA, E-mail: hormiga@gwu.edu*

[3]*Department of Entomology, California Academy of Sciences, 55 Music Concourse Drive, San Francisco, CA 94118, USA. E-mail: cgriswold@calacademy.org*

ABSTRACT.

We carried out a cladistic analysis to study the phylogenetic relationships of trechaleid spiders. The character matrix (64 terminal taxa scored for 79 characters, mostly morphological) included all genera formerly assigned to Trechaleidae Simon, 1890, and exemplars of all families currently placed in the "Higher Lycosoids" *sensu* Griswold (1993), as well as an array of potential Lycosoid outgroups. The parsimony analysis resulted in a single tree of minimal length using implied weight algoritms (394 steps, CI = 26, RI = 65). The results of this analysis suggest that Psechridae is sister to an Oxyopidae + Senoculidae lineage. *Zoropsis* (Zoropsidae) was found to be the sister

group of a large clade of lycosoids. The relationship of *Ancylometes* Bertkau, 1880 showed to be close related to Pisauridae. The subfamily Rhoicininae Simon, 1898 is the sister group of Lycosidae and is raised to family rank (Rhoicinidae). *Shinobius orientalis* (Yaginuma, 1967) is confirmed as a member of Rhoicinidae and closely related to *Heidrunea* Brecovit & Höfer, 1994. *Neoctenus* Simon, 1897 also does not fall within Trechaleidae and is transferred to Zoridae. The family Trechaleidae is now divided in three subfamilies: Dosseninae, Trechaleinae Simon, 1890 and Enninae. The cladogram provides detailed resolution within the newly delimited Trechaleidae. Two new genera, *Paradyrines* **gen. nov.** and *Neotrechalea* **gen. nov.**, are proposed. *Caricelea* Silva & Lise, 2007 is synonymized with *Enna* O. Pickard-Cambridge, 1897. *Trechalea* Thorell, 1869 is sister to the clade *Paratrechalea* + *Hesydrus*.

ADDITIONAL KEYWORDS: spiders — morphology — systematics — cladistics

INTRODUCTION

The “true spiders” or Araneomorphae (*araneae verae* of Simon 1892) comprise more than 42,000 described species (Platnick, 2012). The classification of this group has undergone a revolution in the last 30 years, sparked by Lehtinen’s (1967) comprehensive reassessment of Araneomorphae relationships and steered by Hennig’s phylogenetic systematics (Griswold *et al*., 1999). According to Coddington & Levi (1991) spider classification is one of the better-understood megadiverse orders: 101 of the 110 currently recognized families (92%) (Platnick 2012) has been placed cladistically, that is, in a higher taxon based on evidence assessed phylogenetically (Griswold *et al*., 1999, Griswold *et al*., 2005).

The family Trechaleidae was proposed by and initially consisted of the genera *Trechalea* Thorell, 1869 and *Dendrolycosa* Doleschall 1859. Later, Simon (1898) listed *Trechalea* as Pisauridae. Carico (1986) suggested that a “great group” of Pisauridae genera from South America, including *Trechalea,* along with other genera, constituted a monophyletic group, but he did not suggest apomorphic characters that would support the inclusion of the described genera in Trechaleidae.

Trechaleidae spiders are characterised by the following morphological characters: eyes arranged in two rows; presence of a tibial apophysis and a ventrodistal refolded rim on male palpal tibia; male palp with a large median apophysis with a dorsal embolic groove extending into the guide; epigynum generally heavily sclerotised, dark and opaque; epigynal plate conspicuous and the anterior field wide and usually distinct from the lateral lobes; and by making a discoid and flattened egg sac that is carried on the spinnerets of females (Carico 1993: 230, fig. 6). Most trechaleids present flexible tarsi, which may be helpful in the spider’s locomotion on the surface of the water during

foraging. Trechaleids live in the vegetation near the margins of rocky streams and small rivers (Carico 1993).

Currently Trechaleidae includes 117 known species distributed in 16 genera, almost all of them in the Neotropical region (Platnick 2012; Silva & Lise, 2011a, b). The only exception is the genus *Shinobius* Yaginuma, 1991, from Japan (Yaginuma 1991). *Trechalea* Thorell, 1869 is the type genus of Trechaleidae. The type-species, *Trechalea longitarsis* Koch, 1848, occurs in Colombia, Peru and Ecuador (Platnick 2012).

Until rather recently, the members of the mostly Neotropical family Trechaleidae were very poorly known. Carico (1993) made the first revision of *Trechalea* and later, Sierwald (1993) revised the genus *Paradossenus* F.O. Pickard-Cambridge, 1903 and made some important comments on the placement of the family and on the morphological features of the subfamily Rhoicininae Simon, 1898.

Several taxonomic revisions of Trechaleidae genera were made after Carico's (1993) and Sierwald's (1993) publications: *Hesydrus* Simon, 1898 (Carico 2005a), *Dossenus* Simon, 1898 (Silva, Lise & Carico, 2007), *Dyrines* Simon, 1903 (Carico & Silva, 2008), *Enna* O. Pickard-Cambridge, 1897 (Silva, Lise & Carico, 2008), *Syntrechalea* F.O. Pickard-Cambridge, 1902 (Carico 2008) and *Paradossenus* (Carico & Silva, 2010). A number of new trechaleid genera have been proposed recently, such as *Paratrechalea* and *Trechaleoides* (Carico, 2005b), the latter was recently synonymised with *Demelodos* (Silva & Lise, 2010), *Amapalea* and *Magnichela* (Silva & Lise, 2006) the later was also synonymised with *Paradossenus* (Silva & Lise 2011) and *Caricelea* (Silva & Lise, 2007) known only from Peru. Silva & Lise (2010) published some new synonymies in Trechaleidae and placed the genus *Demelodos* Mello-Leitão, 1943 as *incertae sedis*.

Exline (1950, 1960) revised the subfamily Rhoicininae and described new species of *Rhoicinus* from South America. More recently, Platnick (1979) revised the genus *Barrisca* and Brescovit & Höfer (1994) created the genus *Heidrunea*. Yaginuma (1991) erected the genus *Shinobius* for a Japanese species, which was subsequently redescribed by Sierwald (1993). Rhoicininae specimens are very rare in Brazilian and international collections.

Coddington & Levi (1991) placed Trechaleidae in a summary cladogram of Araneomorphae. Their summary tree was based on data available in the literature and on a paper by Griswold "in press" at that time (Griswold, 1993). In Griswold's (1993) cladogram the families Pisauridae, Lycosidae and Trechaleidae constitute a monophyletic group inside the "Higher Lycosoidea" and the clade formed by Lycosidae plus Trechaleidae was sister to Pisauridae. This latter clade (Lycosidae, Trechaleidae plus Pisauridae) was first discussed by Carico (1993) based on the web building behaviour (nursery-web) and spherical shape of the egg sac of Pisauridae that is carried by the female with its chelicerae. Although lycosids and trechaleids carry their egg sacs with the spinnerets, these egg sacs are lenticular in shape, with a lateral suture. After the spiderlings emerge they are carried by the female.

In a review of spider phylogeny Coddington (2005) commented on potential synapomorphies of Lycosoidea, like the grate shaped tapetum (Homann, 1971). In quantitative analyses (e.g., Silva-Dávila, 2003; Raven and Stumkat, 2005; Griswold *et al.*, 2005), the grate-shaped tapetum is subject to considerable homoplasy, with parallelisms at least in Lycosoidea and Stiphidiidae (Griswold *et al.*, 2005) and possible homoplasy within Lycosoidea as well (Silva-Dávila 2003, Raven and Stumkat 2005). In Coddington's (2005) review cladogram, which is analogous to a "supertree" that

summarizes published cladograms, Trechaleidae + Lycosidae and Pisauridae + Miturgidae (*Mituliodon*) are sister groups.

Silva-Dávila (2003) also used Trechaleidae representatives (*Trechalea* and *Neoctenus*) to test the monophyly of Ctenidae (Ctenoidea) and proposed a different hypothesis of relationships than that of Griswold (1993), placing Lycosidae and Pisauridae as a sister groups, and Trechaleidae as sister to these, but the exemplar composition of these families, as well as across the matrix, differs dramatically between the studies of Griswold (1993) and Silva-Dávila (2003). It is possible therefore that the different grouping suggested by these two studies result from differences in taxon sampling.

In their revision and cladistic analysis of the genera of Zoropsidae (Lycosoidea) from Australia Raven & Stumkat (2005) included the genera *Trechalea* Thorell, 1869 and *Rhoicinus* Simon, 1898. Their analysis included 65 morphological characters, largely based on the characters of Griswold (1993). The clade Trechaleidae plus Lycosidae is hypothesised as the sister group of Pisauridae. Polotow & Brescovit (2010) tested the familial placement of *Itatiaya*, using representatives of Ctenidae, Zoropsidae, Zorocratidae, Tengellidae, Zoridae, Miturgidae and Amaurobiidae. The genus *Itatiaya* was found to be related to the remaining representatives of Zoropsidae, and was transferred from Ctenidae to Zoropsidae. This represented the first record of Zoropsidae from the Neotropical region.

Santos's (2007a) analysis of *Architis* Simon, 1898 and *Staberius* Simon, 1898 (Pisauridae) also corroborated the results of Griswold (1993), and placed *Trechalea* and *Aglaoctenus* (Trechaleidae and Lycosidae, respectively) as sister to Pisauridae.

In this paper we have aimed to develop a more robust phylogenetic hypothesis for Trechaleidae relationships. We have scored 79 morphological characters (Appendix

1) for a sample of 64 species (Appendix 2) representing all known genera of Trechaleidae (16) and 13 outgroup genera from most biogeographic regions. In particular, we were interested in: (1) testing the monophyly of Trechaleidae; (2) inferring the relationships among currently recognized genera and for the two recognized trechaleid subfamilies (Rhoicininae Simon, 1898 and Trechaleinae Simon, 1890), (3) inferring the subfamilial placement of the trechaleid genera *Barrisca*, *Heidrunea*, *Rhoicinus* and *Shinobius*.

MATERIAL AND METHODS

SPECIMENS

We have studied specimens from the following institutions (curators in parentheses): AMNH, American Museum of Natural History, New York (N.I. Platnick); BMNH, The Natural History Museum, London, England (J. Beccaloni); CAS, California Academy of Sciences, San Francisco (C.E. Griswold); DMNS, Denver Museum of Nature and Science (P. Cushing); DZUB, Departamento de Zoologia, Universidade Federal de Brasilia, DF (P. Motta); IBSP, Instituto Butantan, São Paulo (A.D. Brescovit); MCN, Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E.H. Buckup); MCTP, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (A.A. Lise); MCZ, Museum of Comparative Zoology, Cambridge, Massachusetts (G. Giribet); MPEG, Museu Paraense Emílio Goeldi, Belém (A.B. Bonaldo); MUSM, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima (G. Lamas); NCA, The National Collection of Arachnida, ARC-Plant Protection Research Institute, Pretoria, South Africa (A. Dippenaar-Schoeman); NSMT, National Museum of Nature and Science, Tokyo, Japan (H. Ono); USNM, National Museum of Natural History, Smithsonian

Institution, Washington, D.C. (J. Coddington); SMF, Senckenberg Museum, Frankfurt (P. Jaeger).

MORPHOLOGICAL STUDY

Specimens were examined and illustrated using an Olympus SZH 10 stereomicroscope equipped with a camera lucida. For scanning electron microscopy (SEM), structures were excised, air-dried and mounted on stubs with double-sided adhesive tape. Specimens were sputter coated with gold and examined using a Philips XL 30 SEM. All SEM vouchers are deposited in MCTP. To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 hours at 25°C to remove the soft tissue (Silva & Lise, 2011b). All measurements are in millimeters. The nomenclature of the male palp and epigynum structures follows Carico (1993, 2005a, b), Sierwald (1989, 1990), and Silva, Lise & Carico (2008, 2007). Spinneret terminology follows Platnick (1990). Photographs were made using a Sony W55 attached to the stereomicroscope. Field photographs were made using a Nikon D3000.

ABBREVIATIONS

Eye measurements. AER = width of anterior eye row, PER = width of posterior eye row, OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye and posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye, ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = interdistance between posterior lateral eye and posterior median eye, PME-PME

= interdistance between posterior median eyes, ALE-AME = interdistance between anterior lateral eye and anterior median eye, AME-AME = interdistances between anterior median eyes.

Male and female genitalia. AS = accessory spermathecae, C = conductor, CO = copulatory ducts, D = duct, DD = dorsal division of median apophysis, E = embolus, EB = embolus base, ECD = ectal division of retrolateral tibial apophysis (RTA), END = ental division of RTA, FD = fertilization duct, G = guide, HS = head of spermathecae, LL = lateral lobe, MA = median apophysis, MF = middle field of epigynum, RTA = retrolateral tibial apophysis, S = spermatheca, SS = stalk of spermathecae, ST = subtegulum, T = tegulum, VA = ventral apophysis, VD = ventral division of median apophysis, VP = ventral protuberance of male palpal tibia.

Spinnerets. Ac = aciniform gland spigots, Ma = minor ampullate gland spigots.

TAXON SAMPLING

The cladistic matrix included a total of 64 terminals (Appendix 2). Because our interest here is on the monophyly, composition and affinities of Trechaleidae we included all genera formerly assigned to Trechaleidae. Previous cladistic analyses (Griswold, 1993; Silva-Dávila, 2003; Raven & Stumkat, 2005; Santos, 2007a) have been consistent in relating trechaleids to Lycosidae and Pisauridae, so we included doublets of these families. We also included an array of potential lycosoid outgroups, including taxa assigned to Ctenidae, Oxyopidae, Psechridae, and Zoropsidae. A tengellid, *Lauricius hooki* Gertsch, 1941, was used to root the trees, based on recent cladistic hypotheses of Griswold (1993), Silva-Dávila (2003) and Raven & Stumkat (2005). The outgroup terminals were also chosen based on specimen availability for

SEM imaging. Terminals of the final matrix are species represented by both males and females, when known. Family placement of each taxon used follows Platnick (2012).

PHYLOGENETIC ANALYSIS

The 64 taxa included in the matrix were scored for 79 characters (Appendix 3). The characters were coded from genitalic structures (27 from male pedipalp, 10 from female genitalia), 42 characters were based on non-genitalic morphology (eyes 4, carapace 10, legs 18, spinnerets 5, abdomen 1, egg sac 4) (Appendix 1). Autapomorphic characters were not included in the matrix since they are not informative regarding terminal taxa relationships. The multistate characters were treated as non-additive (Fitch, 1971). The character matrix was assembled and edited using Mesquite v. 2.74 (Maddison & Maddison, 2010), and analyzed using heuristic searches with implied weighted characters in TNT (Goloboff *et al*., 2008). We used standard heuristic search strategies (e.g., Santos, 2007a) to search for optimal cladograms by submitting 10,000 different trees built by random-addition sequences to tree-bisection reconnection (TBR) branch swapping, retaining 100 trees per replication. The resulting shortest trees were submitted to additional iterations of TBR branch swapping to increase the chances of finding a global optimum. During the tree searches, the programme memory was set to retain up to 100,000 trees. Branch support was estimated using Bremer Support, measuring the support of a clade as the minimum length of suboptimal trees in which the clade is not fully supported by the data, collapsing in the strict consensus (Bremer, 1994). The support indices were calculated in TNT based on 100,000 suboptimal trees (1–40 steps longer than optimal trees) obtained through 10,000 random-addition sequences followed by TBR branch swapping, retaining 10 trees per replicate (e.g., see Santos, 2007a). The cladograms obtained were then submitted again to TBR, retaining

all trees found. Character optimization and tree editing were done in WINCLADA (Nixon, 2002). To refer to clades with three or more taxa, we used a notation method proposed by Amorim (1982), in which clades are referred to by reference to its basal taxa accompanied by a plus-sign.

RESULTS AND DISCUSSION

The cladistic analysis resulted in a single most parsimonious tree (Figs 1, 2A–C) of 394 steps (FIT = 56.08, K = 6, CI = 0.26, RI = 0.65). Zoropsidae (*Zoropsis*) was found to be a sister group of a large clade of lycosoids, a result supported by five synapomorphies with a Bremer support of 5 (Figs 1, 2A). Our results suggest that Psechridae (*Psechrus*) is sister to Oxyopidae (*Peucetia*) + Senoculidae (*Senoculus*), supported by four synapomorphies (Figs 1, 2A). *Ancylometes* (Ctenidae) (Fig. 2A) is close related to the higher lycosoids, which comprise Pisauridae, *Neoctenus*, Lycosidae, Rhoicinidae and Trechaleidae. Pisauridae, represented by *Pisaura, Dolomedes* and *Cispius*, arises basally within higher lycosoids, supported six homoplastic and three unambiguous synapomorphies with a Bremer support of 5 (Figs 1, 2A). *Neoctenus* falls outside the trechaleids. Rhoicinidae, formerly a trechaleid subfamily, is the sister group of Lycosidae. The clade comprising Neoctenus + Lycosidae plus Rhoicinidae is supported by three unambiguous synapomorphies and two homoplastic synapomorphies with a Bremer support of 2 (Figs 1, 2A). The rhoicinids are supported by three homoplastic and one unambiguous synapomorphies with a Bremer support of 1 (Figs 1, 2A). *Shinobius orientalis* (Yaginuma, 1967) is confirmed as a member of Rhoicinidae and closely related to *Heidrunea* (Fig. 2A). *Rhoicinus* is related to *Barrisca*++. The cladogram shows detailed resolution within the newly delimited Trechaleidae.

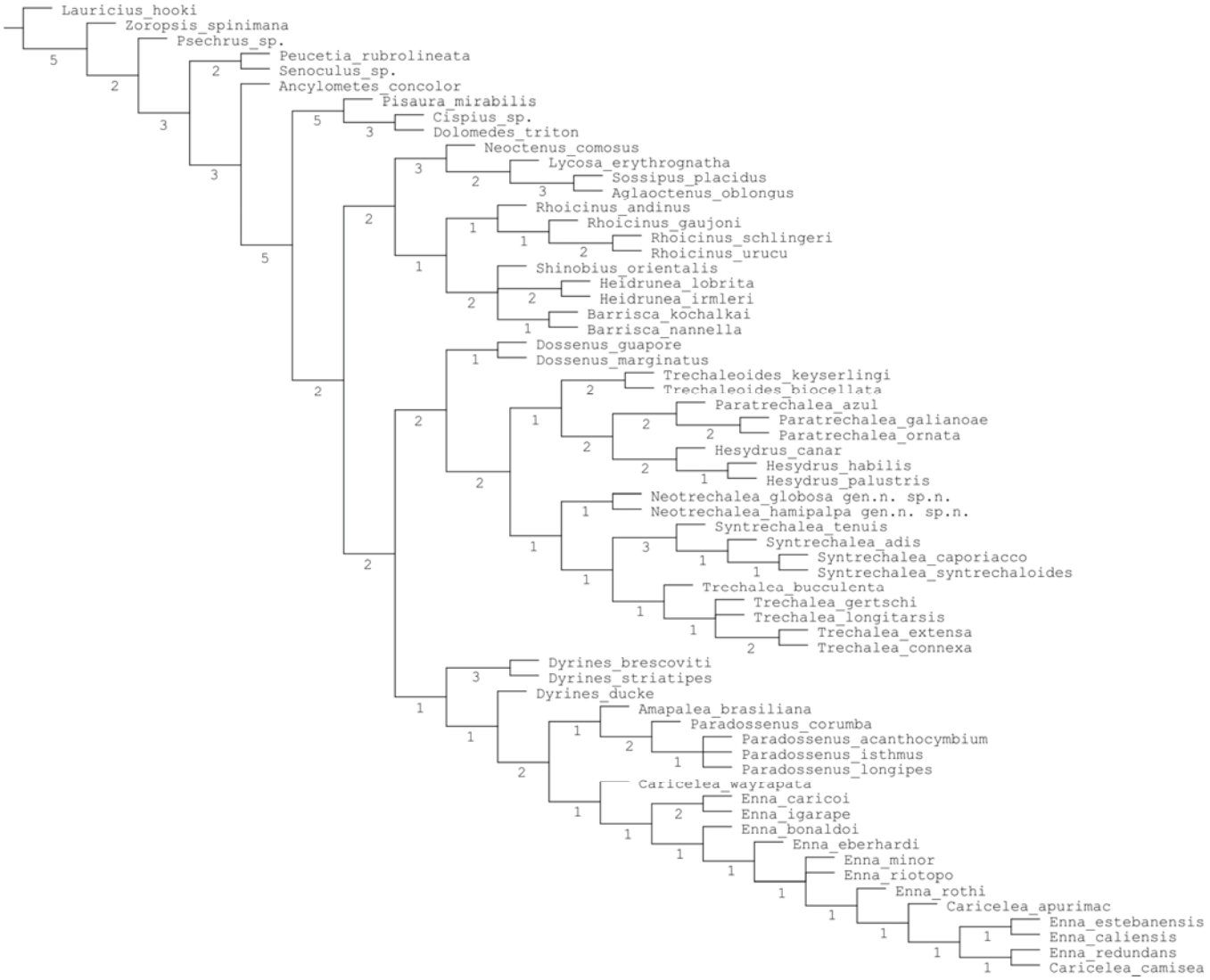

Figure 1. Most parcimonious tree resulting from analysis of data in Appendix 3 (FIT = 56.08, K = 6, L = 394, CI = 26, RI = 65). DELTRAN optimisation. Numbers above each branch indicate Bremer Support values.

OUTGROUP

Some differences from previous studies (Griswold, 1993; Raven & Stumkat, 2005) emerge among the "higher lycosoids": as in these studies Psechridae forms a clade related to Oxyopidae + Senoculidae (Fig. 2A), but this clade is basal within lycosoids, not part of the higher lycosoids as suggested by these previous studies. The relationships of Zoropsidae and monophyly of Ctenidae remain unsolved questions, as our zoropsid and ctenid exemplars appear as successive outgroups to the higher lycosoids. Our sampling of zoropsids and ctenids is so sparse that we feel that the placement of these latter families is not conclusive: we used only two genera, because the main focus of this paper is the cladistic analysis of the trechaleids and the phylogenetic placement of that family.

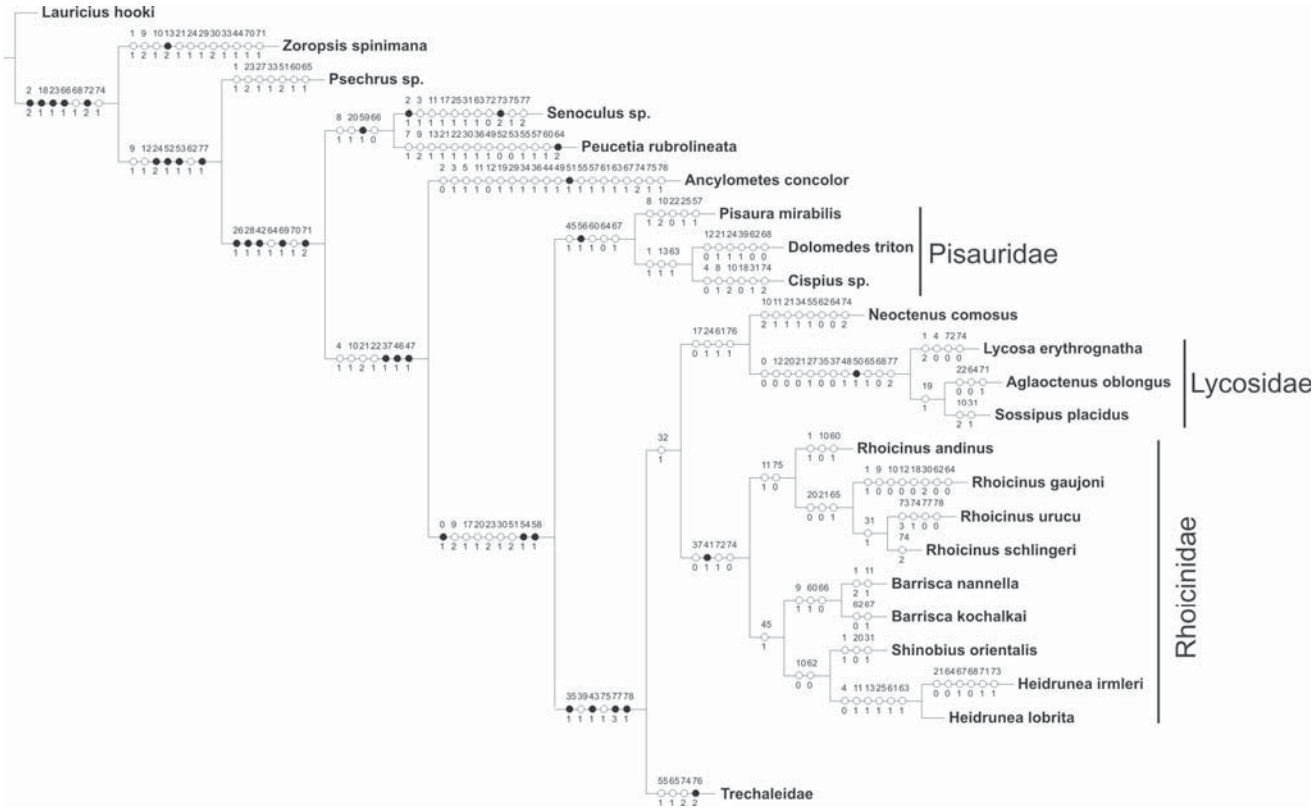

Figure 2B. Phylogenetic relationships of the outgroups and the representatives of "Higher Lycosoids" (sensu Griswold, 1993). Unambiguous character optimizations are represented by circles. White and black circles represent, respectively, homoplasious and non-homoplasious transformations.

The genus *Ancylometes* was transferred from Pisauridae to Ctenidae by Silva-Dávila (2003). In this study *Ancylometes* is sister to the higher lycosoids but, we have included only one species, *A. concolor* (Perty, 1833). In the present study, the *Ancylometes* branch is supported by the following autapomorphic characters: anterior eye straight (char. 2), shape of anterior lateral eye (ALE) and posterior median eye (PME) typical of Ctenidae (char. 3), cheliceral retromargin with four teeth (char. 5), labium rectangular (char. 11), sternum base extending to coxae IV (char. 12), female tibia I without lateral macrosetae (char. 19), with three tarsal claws (char. 29), presence of a cymbial dorsobasal projection (char. 34), presence of a ventral tibial apophysis (VA) (char. 36), with a projection (MTP) arising near the embolic base (char. 44), median apophysis positioned retrobasally on tegulum (char. 49), embolus positioned proximally (char. 51), conductor absent (char. 55), presence of a sclerotized tegular projection (char. 57), median lobe of epigynum swolled (char. 61), long copulatory ducts (char. 63), fertilization ducts (FD) positioned medianlly (char. 67), with two pairs of sigillae (char. 74), biconvex egg sac (char. 75) and egg sac seam weakly marked (char. 76). These potential synapomorphies need to be assessed across more *Ancylometes* species. The relationships of *Ancylometes* to other ctenids as hypothesized by the minimal length tree (Fig. 2B) differ from those proposed by Silva-Dávila (2003). Her conclusions were based only on the eye pattern and the genitalia of both sexes. Since *Ancylometes* retains three claws, its relation to Pisauridae and Lycosidae should be considered more carefully.

Neoctenus Simon, 1897 is currently placed in Trechaleidae in the catalog of Platnick (2012). According to Platnick (2012) the genus *Neoctenus* was transferred from Ctenidae to Zoridae by Lehtinen (1967: 374) and considered a senior synonym of *Tunabo* Chamberlin, 1916 by Silva-Dávila (2003: 31). The synonymy of *Xenoctenus*

Mello-Leitão, 1938 with *Tunabo* by Lehtinen (1967: 272) was rejected by Silva-Dávila (2003: 32). *Tunabo* had been transferred from Pisauridae to the Zoridae by Lehtinen (1967: 272), to Trechaleidae by Sierwald (1993: 57, 63), and to Lycosidae by Carico (1993: 231).

Silva-Dávila (2003) stated that the type-species, *Neoctenus comosus* Simon, 1897 (female holotype, MNHN 7223) exhibits the typical lycosid eye pattern and the male and female genitalia closely resemble those of *Paradossenus*. In fact, the eye pattern differs somewhat from lycosids, with the posterior eye row (PER) strongly recurved but not forming two rows as in lycosids. The placement of *Neoctenus* near lycosids or within Trechaleidae is refuted by our study. The results of our analysis suggest the following autapomorphies of *Neoctenus*: labium longer than wide (char. 10), rectangular shape of labium (char. 11), presence of one dorsal macrosetae on male tibia I (char. 21), presence of a dorsalbasal projection on the cymbium (char. 34), absence of conductor (char. 55, fig. ??), presence of lateral lobes (LL) (char. 62), small head of spermathecae (HS) (char. 64) and presence of two pairs of sigillae on dorsum of abdomen (char. 74). Our most parsimonious tree (Fig. 2A) suggests that *Neoctenus* is the sister group of the Lycosidae clade, thus *Neoctenus* is not closely related to Trechaleidae, despite the presence of a retrolateral tibial apophysis (RTA) on the male palp. Although *Itatiaya* Mello-Leitão, 1915 (Zoropsidae) (Polotow & Brescovit, 2010) and *Bradystichus* Simon, 1884 (Platnick & Forster, 1993) both exhibit a reduction of the inferior claw, they remain placed on their respective families. *Neoctenus* also exhibits a reduction of the inferior claw; this was not the only character supporting transfer to Zoridae. A. D. Brescovit (pers. comm.) has reported that the members of *Neoctenus*, particularly *N. comosus*, can be collected in synanthropic areas near urban centers. Such

habitat preference also differs from the majority of trechaleids, which usually occur near the margins of rivers and rocky streams (Carico, 1993; Silva, Picanço & Lise, 2005).

Based on the synapomorphies of each spider family and the diagnosis of Zoridae provided by Jocqué & Dippenaar-Schoeman (2006: 53, 270), we tentatively transfer *Neoctenus* to Zoridae (NEW FAMILY PLACEMENT). *Neoctenus* shares with Zoridae sensu Jocqué & Dippenaar-Schoeman (2006) at least the reduced inferior tarsal claw, the presence of spinose tibiae and metatarsi I and II and the presence of a retrolateral groove on the cymbium.

RHOICINIDAE SIMON, 1898 NEW STATUS

Since the erection of Rhoicininae by Simon (1898) as a subfamily within Lycosidae, this group has been placed in other families including the Agelenidae (Petrunkevitch, 1928), Pisauridae (Exline, 1950, 1960), Amaurobiidae (Lehtinen, 1967) and more recently Trechaleidae (Griswold, 1993; Sierwald 1993; Brescovit & Höfer, 1994). Genera currently in the Rhoicinidae are *Barrisca* Chamberlin & Ivie, 1936 (generic revision, see Platnick, 1979), *Heidrunea* Brescovit & Höfer, 1994, *Rhoicinus* Simon, 1898 (generic revision, see Exline, 1950, 1960) and *Shinobius* Yaginuma, 1991.

In our analysis (Fig. 2A) Rhoicinidae was resolved as the sister group of Lycosidae, but distinguished from that family by the following diagnostic synapomorphies: absence of retrolateral tibial apophysis (RTA) (char. 37), presence of the sclerotized ring on tibia apex of male palpus (char. 41), presence of ten cylindrical spigot glands on the posterior median apinnerets (PMS) (char. 72) and absence of paris of sigilla on the abdomen (char. 74). No analysis recovered a monophyletic Trechaleidae including the genera of Rhoicinidae. Based on their phylogenetic placement and on the morphological distinctiveness from Lycosidae, Rhoicininae is

raised to family rank (Rhoicinidae). In addition to the diagnosis presented here, a full description of the family will appear in a taxonomic revision (Silva & Lise, in preparation).

RHOICINIDAE SIMON, 1898

Rhoicineae Simon 1898: 320–322, figs 328–330 (a "group" within the Lycosidae). Petrunkevitch 1928: 9, 38 (error for Rhoicininae; a Subfamily of the Agelenidae).

Rhoicininae Simon, 1898: 320–322, figs 328–330 (type genus *Rhoicinus* Simon, 1898); Bonnet, 1958: 3861; Petrunkevitch, 1928: 38, 96; Petrunkevitch, 1939: 166; Exline, 1950: 2.

Rhoicinidae; Silva *et al*.

Genera included. Barrisca, *Heidrunea*, *Rhoicinus* and *Shinobius*.

Type-genus. Rhoicinus Simon, 1898.

Diagnosis. Rhoicinidae is closely related to Lycosidae forming a sister group related to Trechaleidae (Fig. 2A) based on the following diagnostic synapomorphies absence of retrolateral tibial apophysis (RTA) (char. 37), presence of the sclerotized ring on tibia apex of male palpus (char. 41, fig. 3 C), presence of ten cylindrical spigot glands on the posterior median apinnerets (PMS) (char. 72) and absence of pairs of sigilla on the abdomen (char. 74). The males of Rhoicinidae resemble the ones from Lycosidae by the absence of the retrolateral tibial apophysis, but can be distinguished from Lycosidae and Trechaleidae by the presence of sclerotized ring on the male palpal tibia (Fig. 3 C) and the elongated apex of the cymbium (Figs 3 A, B). The females present a scape-like projection of the median field of the epigynum (Fig. 3 D) and the

head of the spermathecae is usually rounded or slightly elliptical and generally presenting an accessory spermathecae.

Description. Detail description of all genera will be presented in Silva & Lise (in preparation).

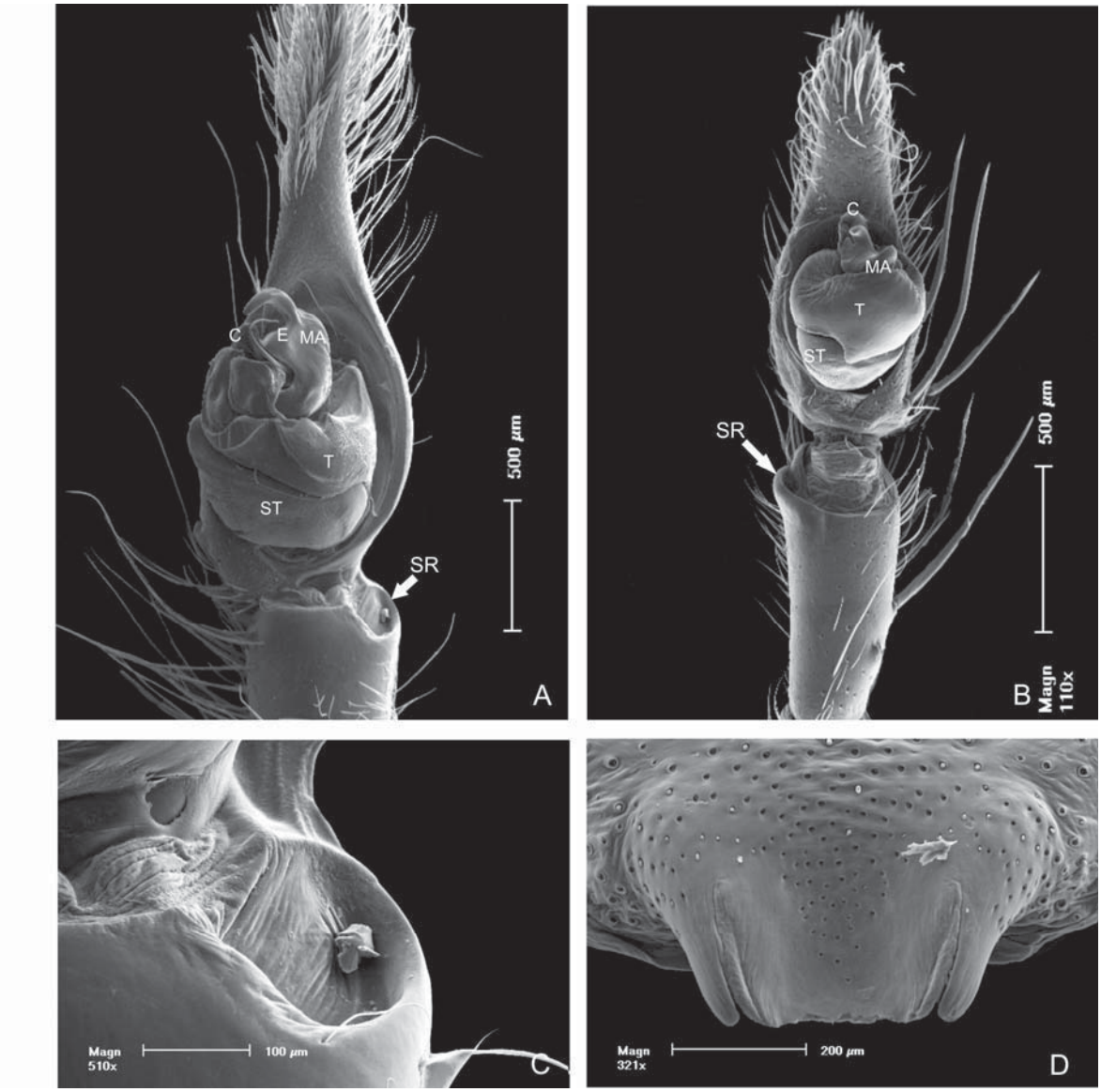

Figure 3 A–D. Morphological details of representatives of Rhoicinidae. A, *Rhoicinus gaujoni* Simon, 1898, male palpus, ventral view; B, *Shinobius orientalis* (Yaginuma, 1967), male palpus, ventral view; C, *Rhoicinus gaujoni*, detail of sclerotized ring on male papus tibia; D, *Rhoicinus gaujoni*, female epigynum, ventral view. Abbreviations: C = conductor, E = embolus, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum.

SHINOBIUS ORIENTALIS

Prior to the present study, *S. orientalis* was considered closely related to *Rhoicinus* by Sierwald (1993: 69) and therefore placed in Trechaleidae by Griswold (1993: 37). In our analysis (Fig. 2A), *S. orientalis* is placed as a member of Rhoicinidae and sister to *Heidrunea* based on longer than wide labium (char. 10) and on the scape-like shape of the mediam lobe of the epigynum (char. 62). *Shinobius* differs from other rhoicinids by its Palearctic (Japan) rather than Neotropical distribution. In addition, *Shinobius* exhibits some atypical rhoicinid behaviours, such as the flattened egg-sac as in Trechaleidae (in *Rhoicinus* and Lycosidae the egg-sac is rounded), by having the spiderlings kept in a nursery-web built by the female and by its preference for habitats near rocky streams (Kaihotsu, 1988). However, based on the cladistic results reported here (Fig. 2A) we suggest that *Shinobius* is a true member of Rhoicinidae.

TRECHALEIDAE MONOPHYLY

Our analysis differs significantly from previous analyses in both the placement and the limits of Trechaleidae. Previous analyses circumscribed Trechaleidae as containing Rhoicininae (Griswold, 1993; Raven & Stumkat, 2005) or containing *Neoctenus* (Silva-Dávila, 2003). Our analysis differs from earlier studies by excluding both Rhoicininae and *Neoctenus* from the trechaleid clade. Previous placements of Trechaleidae have all been within the "Higher Lycosoids" sensu Griswold (1993, figs. 85, 87), but sister group relationships differed: Griswold (1993) and Raven & Stumkat (2005) suggested Pisauridae as sister group of Lycosidae and Trechaleidae (Griswold *et al*., 2005, figs. 213, 215), whereas Silva-Dávila (2003) showed different topologies, presenting Trechaleidae related to the clade Psechridae + Lycosidae (Silva-Dávila,

2003: 14, fig. 1c) or Lycosidae + Pisauridae Silva-Dávila (2003: 20, fig. 5). Our analysis suggests that Trechaleidae is the sister group to Lycosidae plus Rhoicinidae.

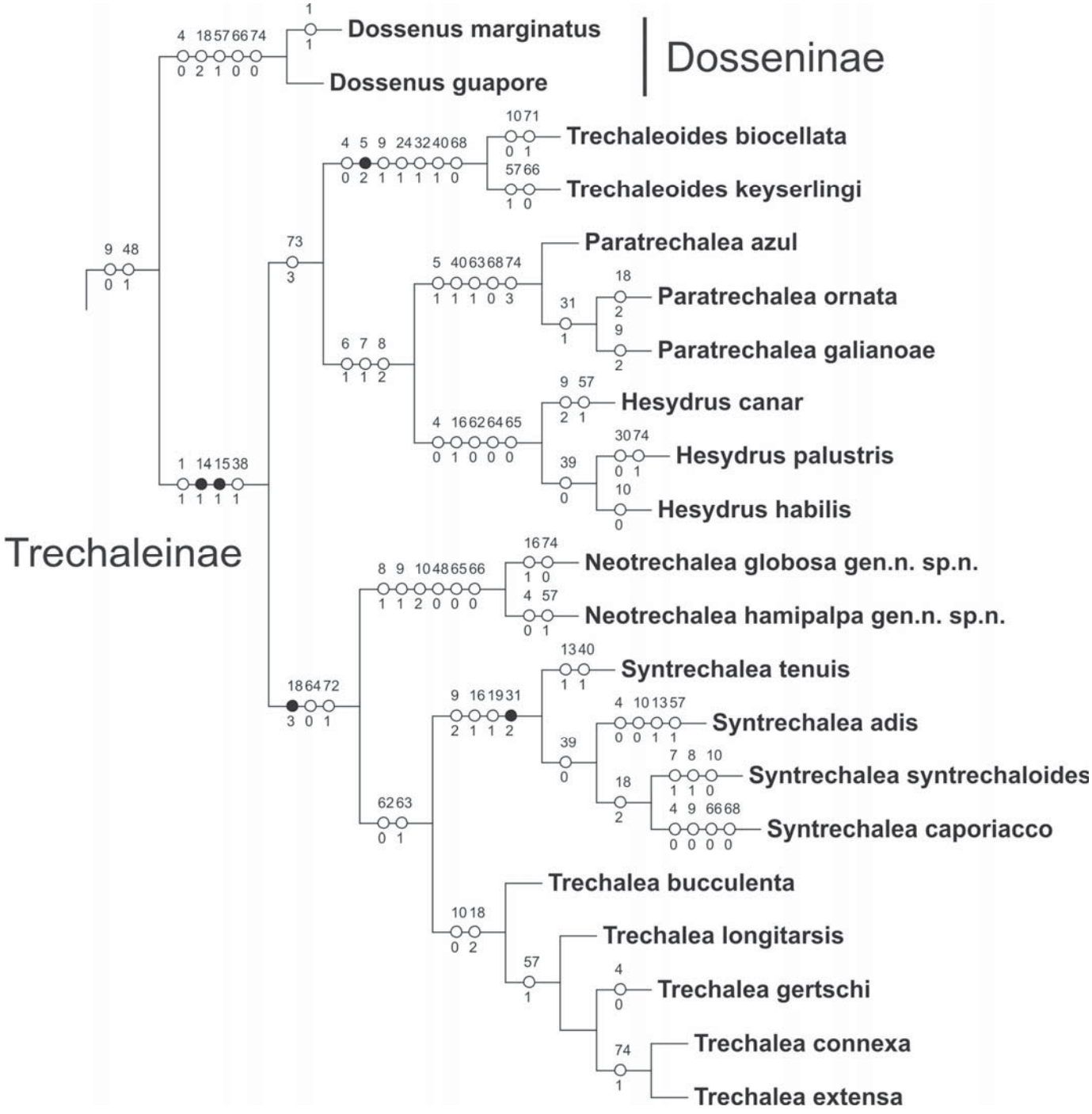

Figure 2B. Phylogenetic relationships of the new subfamilies Dosseninae and Trechaleinae Simon, 1890. Unambiguous character optimizations are represented by circles. White and black circles represent, respectively, homoplasious and non-homoplasious transformations.

INTERNAL PHYLOGENY OF TRECHALEIDAE

Trechaleidae is divided into three subfamilies: the new, monotypic Dosseninae and Enninae, and the diverse Trechaleinae.

The new subfamily Dosseninae (monotypic) is proposed and is supported by: absence of chilum (char. 4), presence of five to seven pairs of macrosetae on tibia I (char. 18), presence of a sclerotized tegular projection near embolic base (char. 57), small fertilization ducts (char. 66) and by the absence of sigillae on the abdomen (char. 74).

The subfamily Trechaleinae was recently diagnosed by Carico & Silva (2010) and is here characterised by anterior eye row recurved (char. 1, fig.??), long tarsi (char. 14), flexible tarsi (char. 15) and divided retrolateral tibial apophysys (RTA), with two branches (char. 38, fig. ???).

The subfamily Trechaleinae formed by two major clades: *Trechaleoides*++ and *Neotrechalea* **gen. nov.**++. The first clade is grouped by the elongated cylindrical spigot glands on the posterior median spinnerets (PMS) (char. 73), and the second by the presence of more than seven pairs of macrosetae on tibia I (char. 18), small head of spermathecae (HS) (char. 64) and by the presence of five cylindrical spigot glands on the posterior median spinnerets (PMS) (char. 72).

Within the Trechaleinae, the clade formed by the two species of the new genus *Neotrechalea* (Fig. B) is well supported by the following synapomorphies: slightly bristly surface of the male chelicerae (char. 8), thoracic fovea ill-defined (char. 9), labium wider than long (char. 10), median apophysis (MA) with on the dorsal division (DD) (char. 48), absence of accessory spermathecae (char. 65) and small fertilization ducts (FD) (char. 66).

The clade of *Paratrechalea+Hesydrus* (Fig. 2B) is supported by the following characters: base of male chelicerae swolled (char. 6), presence of lateral carina on male chelicerae (char. 7, fig. ??) and glabrous surface of male chelicerae (char. 8).

The clade *Neotrechalea* **gen. nov.**++ is well support (Bremer support of 1, fig. 1) and is characterised by more than seven pair of macrosetae on tibia I (char. 18), absence of head of spermathecae (HS) (char. 64) and five cylindrical spigot glands on the posterior median spinnerets (PMS) (char. 72).

Trechalea is the sister group to *Syntrechalea* (Fig. 2B), based on presence of lateral lobes (LL) (char. 62, fig. ??) and elongated copulatory ducts (CD) (char. 63, fig. ??).

As previously circumscribed the genus *Dyrines* is paraphyletic, with *D. striatipes* (Simon, 1898) emerging as the basal member of the family (i.e., sister to a clade with all other trechaleids; Fig. 2C). *Dyrines ducke* Carico & Silva, 2008 is sister to all remaining members of Enninae, a relationship supported by presence of a lateral charina on male chelicerae (char. 7), by the glabrous surface of the male chelicerae (char. 8), the labium is longer than wide (char. 10) and by the small head of spermathecae (HS) (char. 64). We propose that *Dyrines ducke* Carico & Silva, 2008 should be transferred to a new genus, *Paradyrines* (subfamily Enninae). Note that in Fig. 2C we use the genus and species combinations extant prior to the analysis: see below and the section on Systematics for the resulting new combinations.

The new subfamily Enninae consists on two distinct clades, formed by *Amapalea+Paradossenus* and *Caricelea+Enna*, both presenting a Bremer support of 1 (Figs. 1, 2C). The clade *Amapalea+Paradossenus* is supported by the following characters: labium wider than long (char. 10), sternum longer than wide (char. 13), acute ectal division (ECD) of the retrolateral tibial apophysis (RTA) (char. 39) and

median apophysis with ventral (VD) and dorsal division (DD) of the median apophysis (MA) (char. 48). The clade *Caricelea*+*Enna* is supported by shape of the sternum (as wide as long) (char. 13), presence of one dorsal macrosetae on male tibia I (char. 21) and by the presence of lateral lobes (LL) on the female epigynum (char. 62). *Caricelea* is synonymised with *Enna*, since the genus *Caricelea* is paraphyletic (see Systematics section for the resulting new combination). The synonymy is based on the following synapomorphies: swolled base of male chelicerae (char. 6, fig. ??), absence of lateral lobes (LL) (char. 62, fig. ?) and by the presence of accessory spermathecae (AS) (char. 65).

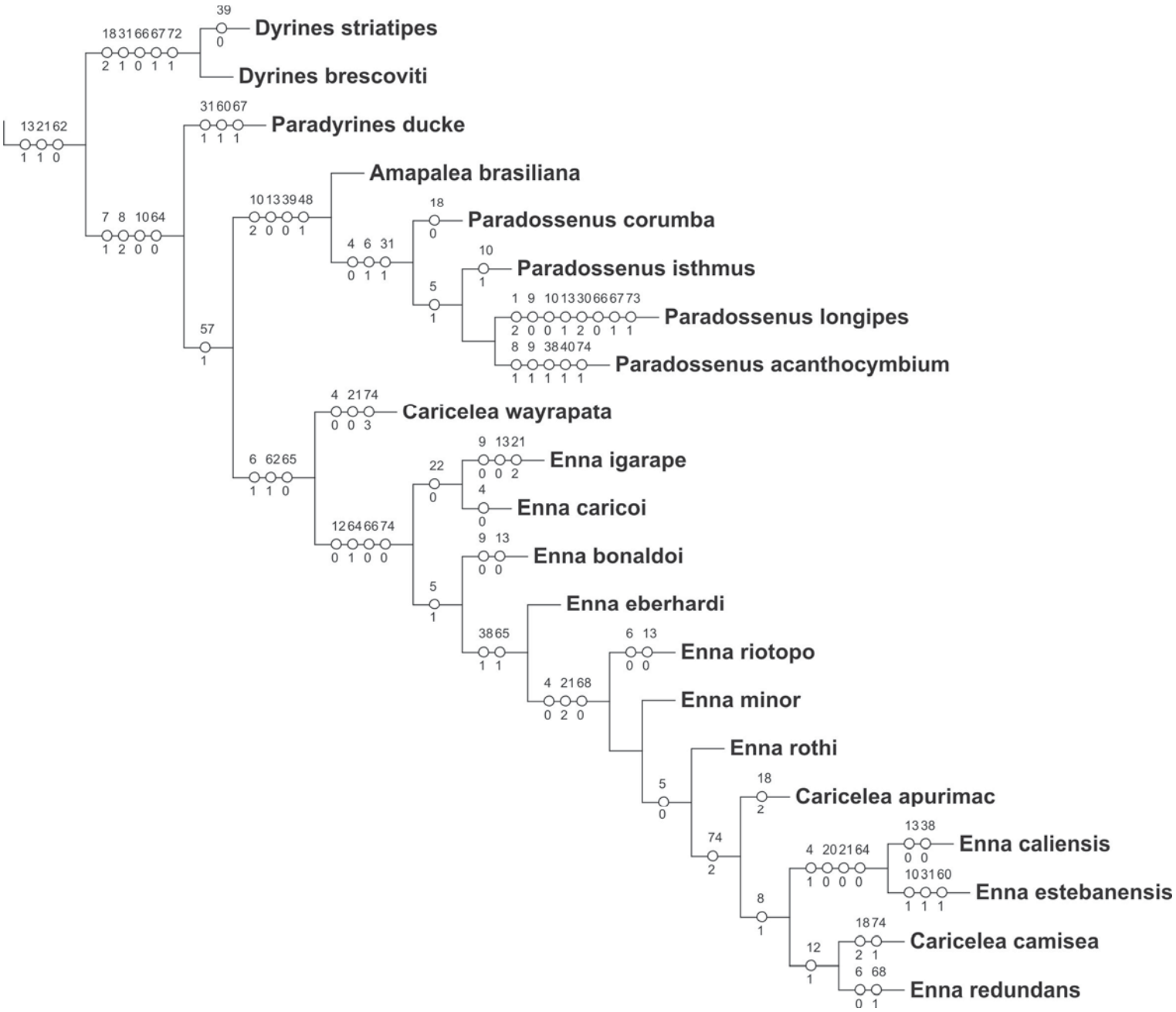

Figure 2C. Phylogenetic relationships of the new subfamily Enninae. Unambiguous character optimizations are represented by circles. White and black circles represent, respectively, homoplasious and non-homoplasious transformations.

CONCLUSIONS

The higher classification of the lycosoid spiders and their kin has come a long way since the first quantitative analysis nearly two decades ago (Griswold, 1993). A group of "Higher lycosoids" including at least Pisauridae, Lycosidae, Rhoicinidae and Trechaleidae seems well supported, as does a clade that includes the families Psechridae, Oxyopidae and Senoculidae, although the affinities of the latter clade remain unstable. The placement of miturgids (e.g., *Mituliodon*) or zorids (e.g., *Neoctenus*), near the higher lycosoids remains a provocative possibility. The composition and monophyly of Ctenidae and Zoropsidae remain problematic.

SYSTEMATICS

FAMILY TRECHALEIDAE

Type genus: *Trechalea* Thorell, 1869.

Diagnosis: Trechaleidae is closely related to Rhoicinidae, Lycosidae and Pisauridae (Fig. 2 A–C), but can be distinguished from the first two by the presence of a prominent retrolateral tibial apophysis (RTA) on the male palp (Fig. ??). Trechaleids can also be distinguished from pisauridas by the shape of their egg sacs, which are discoid and flattened (Carico, 1993: 230, fig. 6), and are carried by the female attached to the spinnerets (Fig. ??). The trechaleid male palp has a large distally situated median apophysis (MA) equipped with a dorsal division (DD) that extends distally into an apical guide (G) (Fig. ??). The females present the median lobe of the epigynum in a scape-like form, projecting ventrad with abrupt posterior margin (Fig. ??) and have a skirt on the egg sac seam (Carico, 1993: 230, fig. 6).

SUBFAMILIAL CLASSIFICATION OF TRECHALEIDAE

SUBFAMILY DOSSENINAE (NEW SUBFAMILY)

Type genus: *Dossenus* Simon, 1898.

Genera included: Dossenus Simon, 1898.

Species included: *Dossenus marginatus* Simon, 1898 and *Dossenus guapore* Silva, Lise & Carico, 2007.

Diagnosis: The representatives of Dosseninae can be distinguished from those of Trechaleinae (Fig. 2B) and Enninae (Fig. 2C) by absence of chillum (char. 4), five to seven pairs of ventral macrosetae on tibia (char. 18), presence of a sclerotized tegular (STP) projection at the embolic base (char. 57), small fertilization ducts (char. 66) and by the absence of dorsal pairs of sigillar on the abdomen (char. 74).

SUBFAMILY TRECHALEINAE SIMON, 1890, NEW STATUS

Type genus: Trechalea Thorell, 1869.

Note: This subfamily was recently diagnosed by Carico & Silva (2010) to separate the known genera, at that time, from Rhoicininae, and contained the genera now included in the Trechaleidae. Our new circumscription of the subfamily excludes *Dossenus* (Dosseninae) and *Dyrines*, *Paradyrines* **gen. nov.**, *Amapalea*, *Paradossenus* and *Enna*, those genera are assigned to the new subfamily Enninae.

Genera included: Trechaleoides Carico, 2005b, *Paratrechalea* Carico, 2005b, *Hesydrus* Simon, 1898 (for generic revision, see Carico, 2005a), *Neotrechalea* **gen. nov.** (diagnosis and description given below), *Syntrechalea* F.O. Pickard-Cambridge, 1902 (for a generic revision, see Carico, 2008a) and *Trechalea* Thorell, 1869 (for a generic revision, see Carico, 1993).

Diagnosis: The representatives of Trechaleinae can be distinguished from those of Dosseninae (Fig. 2B) and Enninae (Fig. 2C) by two synapomorphies: long tarsi (char. 14) (Fig. ??), flexible tarsi (char. 15) (Fig. ??), and also by recurved anterior eye row (Fig. ??) and by the divided retrolateral tibial apophysis (RTA) (char. 38) (Fig. ??).

SUBFAMILY ENNINAE (NEW SUBFAMILY)

Type genus: *Enna* O. Pickard-Cambridge, 1897.

Genera included: Dyrines, *Paradyrines* **gen. nov.**, *Amapalea*, *Paradossenus* and *Enna*.

Diagnosis: The representatives of Enninae (Fig. 2 C) can be differentiated from those of Dosseninae (Fig. 2 B) and Trechaleinae (Fig. 2 B) by the following homoplasic characters: sternum as wide as long (char. 13), male tibia I with one dorsal macrosetae (char. 21) and by the presence of lateral lobes (LL) on the female epigynum (char. 62) (Fig. ??).

TAXONOMIC NOTES

ENNA O. PICKARD-CAMBRIDGE 1897

Enna O. Pickard-Cambridge, 1897: 232, figs. 13 a, b, c; Roewer, 1954: 113; Bonnet, 1956: 1656-1657; Carico, 1986: 305; Sierwald, 1990: 8; Carico, 1993: 226; Sierwald, 1993: 63; Platnick, 2012.

Caricelea Silva & Lise, 2007: 26, figs 1–16, male holotype from Cusco, Wayrapata, Apurimac river, Peru (12°51'S, 73°30'W), J. Duarez & S. Cordova leg. (MUSM). Platnick 2012. **SYN. NOV.**

Note. The genus *Caricela* Silva & Lise, 2007 is synonymised with *Enna* O. Pickard-Cambridge, 1897 based on the present phylogeny (Fig. 2C) and supported by the following homoplasic synapomorphies: base of the male chelicerae swolled (char. 6), absence of lateral lobes (LL) (char. 62) and precence of accessory spermathecae (AS) (char. 65).

***PARADYRINES* GEN. NOV.**

Etymology: The masculine Latin generic name indicates similarity to the genus *Dyrines*.

Type species: *Paradyrines ducke* (Carico & Silva, 2008).

Diagnosis: The males of *Paradyrines* **gen. nov.** are similar to those of *Dyrines* in having the long and slender dorsal division (DD) of the median apophysis (MA) and the absence of the ventral division (VD) of MA (Carico & Silva, 2008: 113, fig. 4), but can be distinguished by the larger and broad ental division (END) of the retrolateral tibial apophysis (RTA) (Carico & Silva, 2008: 115, fig. 13). The females differ from the other known genera of Trechaleidae by the presence of two median large and elliptical accessory spermathecae (AS) (Carico & Silva, 2008: 115, fig. 15).

Phylogenetics: *Paradyrines* is similar to *Dyrines* but phylogenetically distinct, being the sister group to *Amapalea* + *Paradossenus* (Fig. 2 C).

Description: Carapace pale with lateral, thin, light, longitudinal lines each side, additional longitudinal light lines anteriorly; black around each eye. Sternum unmarked. Clypeus with faint dark markings. Anterior eye row straight, posterior recurved. Chelicerae unmarked, each basal segment with groove above each fang and lateral carina, three promarginal teeth, three retromarginal teeth, equidistant, proximal one smaller. Tibial ventral macrosetae pairs: I-4, II-4, III-1, IV-3. Pedipalpi with longitudinal dark lines. Abdomen pale on all sides, pair of light longitudinal lines

dorsally. Median apophysis of male palpal bulb large, rounded retrolaterally, guide arises subapically and curves prolaterally; ental division of retrolateral tibial apophysis large, blade-like, curved ventrally (Carico & Silva, 2008: 115, fig. 15).

Composition: monotypic.

***NEOTRECHALEA* GEN. NOV.** (FIGS 4–10)

*Etymology***:** The generic name is a combination of two words, "neo" (new, Latin) and "Trechalea" indicating similarity to the genus *Trechalea* Thorell, 1869. The gender is feminine.

Type species: Neotrechalea globosa **sp. nov.**

Diagnosis: The males of *Neotrechalea* **gen. nov.** are similar to those of *Trechaleoides* Carico, 2005b by the general shape of the median apophysis (MA) and by the absence of the ventral division (VD) of the median apophysis (Carico, 2005b: 799, fig. 4), but can be distinguished by the hook-like and slender guide (Figs. 4A, 5B, 7A, 8B). Epigynum differs from the other known genera of Trechaleidae by the subtriangular shape of the median scape-like projection of anterior margin of epigynum (Figs. 4E, 5E, 7E, 9B, C).

Phylogenetics: The members of the genus *Neotrechalea* **gen. nov.** are related to the clade formed by *Syntrechalea* + *Trechalea* (Fig. 2B) and can be recognized by the following synapomorphies: surface of chelicerae bristly (char. 8) (Figs. 4B, 7B), thorasic fove ill-defined (char. 9), labium wider than long (char. 10), median apophys (MA) not divided, with the dorsal division of MA (char. 48) (Figs 5B, 9A), absence of accessory spermathecae (AS) (char. 65) (Figs 4F, 6A, 7F, 9D) and by the small fertilization ducts (FD) (char. 66) (Figs 6D, 9D).

Description: Carapace slightly elevated. Chelicerae, bristly (Fig. 4B, 7B). Legs yellow. Anterior eye row slightly straight or recurved and posterior eye row recurved, ALE the smallest, PME the largest. Chelicerae with promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Tarsal organ conspicuous on tarsus (Fig. 10A, B). Tarsal trichobothria with smooth hood, projected laterally (Fig. 9F). Spinnerets shown in Fig. 10D. Posterior lateral spinnerets (PLS) with numerous cylindrical gland spigots (Fig. 10E). Posterior median spinneret (PMS) with conspicuous minor ampullate gland spigots and aciniform gland spigots (Fig. 10F). Palpal tibia with macrosetae (Figs 4C, 7C). Retrolateral tibial apophysis (RTA) divided (Figs 4D, 7D).

Composition: Two species, the type-species and *N. hamipalpa* **sp. nov.**

***NEOTRECHALEA GLOBOSA* SP. NOV.** (FIGS 4–6)

Type material: Male holotype from Dianópolis, Tocantins, Brazil [11°37'37.77"S, 46°50'10.40"W], 04-12.iii.2008, F. Pellegatti-Franco *et al*. (IBSP 97603). Paratypes: one male and one female, same data as holotype (MCTP 8866). BRAZIL, *Goiás*: Gruta Pau Pombo, São Domingos [13°23'40.78"S, 46°19'33.58"W], 15.ix.1997, P. Gnaspini (IBSP 23750); *Tocantins*: Gruta 3, Mojadores 2, Dianópolis, Tocantins, Brazil [11°37'37.77"S, 46°50'10.40"W], 04-09.xii.2007, R. Andrade *et al*. (IBSP 97636).

Etymology: The specific name is an adjective and refers to the small translucent globose projection on the retrolateral tibial projection (RTA) of male palp (Fig. 5C,D).

Diagnosis: The males of *N. globosa* **sp. nov.** resemble those of *N. hamipalpa* **sp. nov.** by the slender tip of the guide (G) of the median apophysis (MA), but can be distinguished by the globose hyaline protuberance on the RTA (Figs. 4C, D, 5C, D). The females can be distinguished from those of *N. hamipalpa* **sp. nov.** (Figs. 7E, 9B, C)

by the excavated middle field of the epigynum and conspicuous lateral lobes (LL) (Figs. 4E, 5E).

Description: Male (Holotype, IBSP 97603). Total length 8.91. Carapace, 4.25 long, 3.72 wide, light yellow, fovea marked (Fig. 4A). Clypeus yellow, 0.36 high (Fig. 4B). Anterior eye row slightly recurved, 0.74 wide; posterior 1.42 wide (Fig. 4B). Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.10, PME 0.30, PLE 0.20; AME-AME 0.09, AME-ALE 0.12, PME-PME 0.10, PME-PLE 0.28, OQA 0.36, OQP 0.60, OQH 0.52. Chelicerae light brown, bristly. Sternum yellow, bristly; 2.05 long, 1.99 wide. Labium light brown, 0.64 long, 0.70 wide. Legs yellow, unmarked, relative length: II-IV-III, I – femur 6.72/ tibia-patella 8.30/ metatarsus 10.10/ tarsus 4.39/ total 29.51; III – 5.81/ 7.47/ 6.88/ 3.48/ 23.64; IV – 5.14/ 6.97/ 6.30/ 3.81/ 22.22. Ventral pairs of macrosetae on tibiae: I-7; III-5; IV-5. Upper tarsal claws with nine teeth (Fig. 6C) and inferior tarsal claw with one tooth (Fig. 6D). Abdomen, 4.97 long, yellow, with black setae at anterior portion, one median pairs of sigilla on dorsum (Fig. 4A). Venter yellow, unmarked. Palp with elongated dorsal division of the median apophysis (DD; Figs 4C, 5A, B); retrolateral tibial apophysis with ectal division divided (ECD; Fig. 4C, D).

Female (Paratype, IBSP 23750). Total length 8.13. Carapace, 4.15 long, 3.41 wide, as in male. Clypeus yellow, 0.36 high. Anterior eye row slightly recurved, 0.80 wide; posterior 1.48 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.08, PME 0.14, PLE 0.18; AME-AME 0.10, AME-ALE 0.08, PME-PME 0.12, PME-PLE 0.30, OQA 0.36, OQP 0.66, OQH 0.54. Chelicerae as in male; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellow, 1.71 long, 1.74 wide. Labium yellowish, 0.49 long, 0.66 wide. Legs yellow, relative length: IV-II-I-III, I – femur 6.65/ tibia-patella 9.04/ metatarsus 7.98/

tarsus 3.59/ total 27.26; II – 7.31/ 9.44/ 7.71/ 3.72/ 28.18; III – 6.25/ 7.31/ 7.04/ 3.45/ 24.05; IV – 6.64/ 8.24/ 9.17/ 4.38/ 28.43. Ventral pairs of macrosetae on tibiae: I-7; II-5; III-5; IV-5. Abdomen 4.31 long, as in male. Epigynum small, middle field concave in ventral view (Figs 4E, 5E). Spermatheca small, elliptical and with conspicuous pores (Figs 4F, 6A, B).

Other material examined: BRAZIL, *Tocantins*: Gruta Vértebra, Dianópolis, Tocantins, Brazil [11°37'37.77"S, 46°50'10.40"W], 1 ♀, 04-09.xii.2007, R. Andrade *et al*. (IBSP 97629), Gruta Areia, 2 ♀ (IBSP 97639), Gruta Vozinha, 1 ♀, 04-12.iii.2008, F. Pellegatti-Franco et al. (IBSP 97606); *Goiás*: São Domingos, Parque Estadual Terra Rocan, Caverna do Segredo [13°23'40.78"S, 46°19'33.58"W], 1 ♂, 3 ♀, 09.v.2009, P. C. Motta & S. S. Salgado (DZUB 5148).

Distribution: Brazil (Tocantins, Goiás).

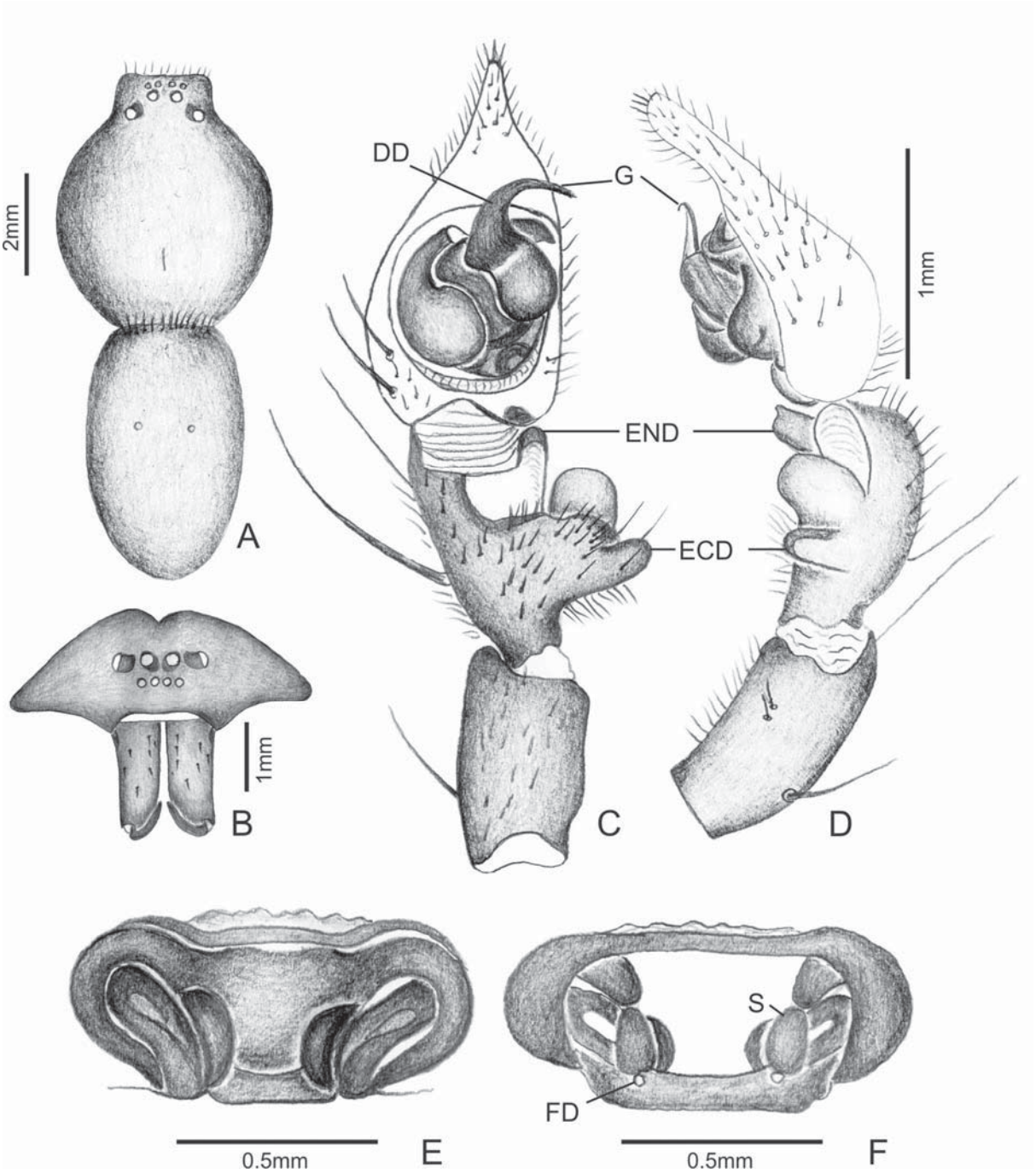

Figure 4. *Neotrechalea globosa* **gen. nov. sp. nov.** A, male, dorsal view; B, male, frontal view; C, male palpus, ventral view; D, male palpus, retrolateral view; E, epigynum, ventral view; F, epigynum, dorsal view. Abbreviations: DD, dorsal division of median apophysis; ECD, ectal division of retrolateral tibial apophysis; END, ental division of retrolateral tibial apophysis; FD, fertilization duct; G, guide; S, spermathecae.

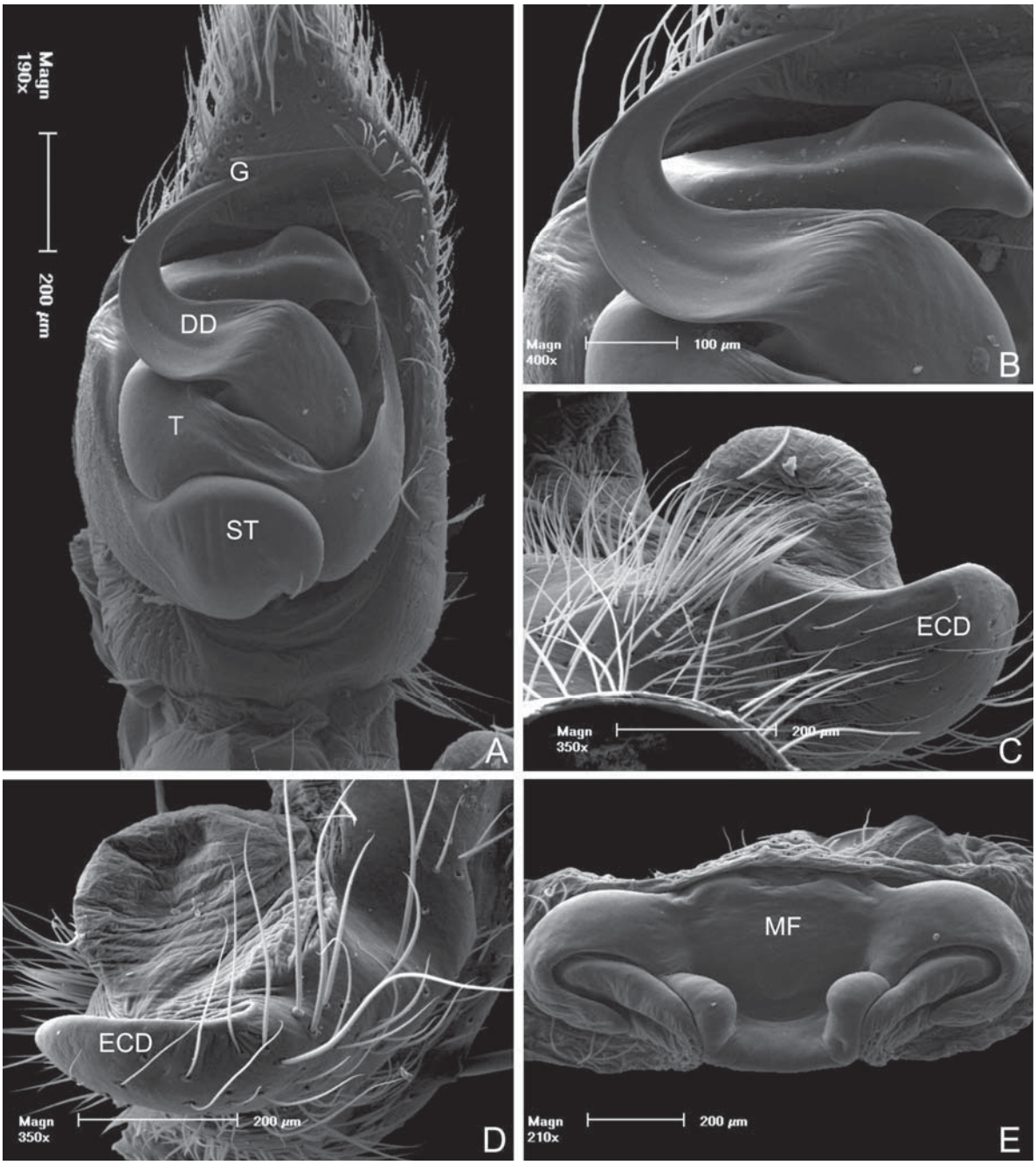

Figure 5. *Neotrechalea globosa* **gen. nov. sp. nov.** A, male palpus, ventral view; B, detail of median apophysis; C, bulbous hyaline projection on male retrolateral tibial apophysis; D, retrolateral tibial apophysis, retrolateral view; E, epigynum, ventral view. Abbreviations: DD, dorsal division of median apophysis; ECD, ectal division of retrolateral tibial apophysis; G, guide; MF, middle field; ST, subtegulum; T, tegulum.

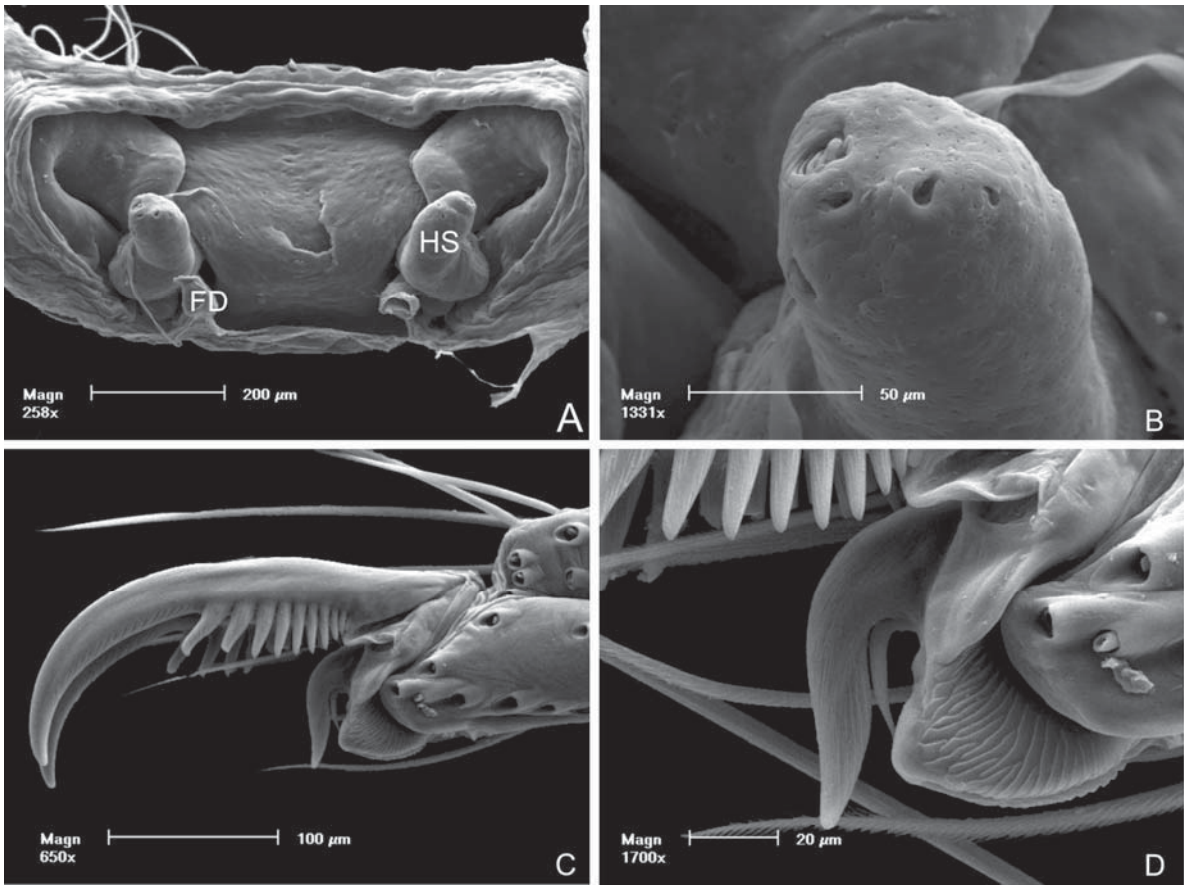

Figure 6. *Neotrechalea globosa* **gen. nov. sp. nov.** A, epigynum, dorsal view; B, detail of pores on head of spermathecae; C, tarsal claw of right leg I; D, detail of tooth on inferior tarsal claw. Abbreviations: FD, fertilization duct, HS, head of spermathecae.

***NEOTRECHALEA HAMIPALPA* SP. NOV.** (FIGS 7–10)

Type material: Male holotype from Barreiras, Bahia, Brazil [12°08'53.43"S, 44°59'26.01"W], 2001, A. D. Brescovit & E. F. Ramos (IBSP 52752). Paratypes: ten females, same data as holotype (8 ♀ – IBSP 52571, 2 ♀ – MCTP 8867).

Etymology: The specific name is a noun and is a combination of two Latin words: "hamuli, hamus, hami" (small hook) and "palpus" (male pedipalpi), referring to the hook-like shape of the dorsal division (DD) of the median apophysis (Fig. 8A, B).

Diagnosis: The males of *N. hamipalpa* **sp. nov.** resemble those of *N. globosa* **sp. nov.** (Figs. 4C, 5A, B), but can be distinguished by the elongated and thin guide (Figs. 7C, 8A, B) and by the subtriangular projection on the ectal division of the RTA (Figs. 8C, D). The females can be distinguished from those of *N. globosa* **sp. nov.** (Figs 4E, 5E) by the presence of a slightly projected scape-like projection on the middle field of epigynum (MF) and by the short stalk and rounded head of the spermatheca (Figs. 7E, F, 9D, E).

Description: Male (Holotype, IBSP 52752). Total length 5.89. Carapace, 2.90 long, 2.65 wide, light yellow (Fig. 7A). Clypeus yellow, 0.26 high. Anterior eye row slightly straight (Fig. 7B), 0.58 wide; posterior 1.12 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.09, ALE 0.08, PME 0.18, PLE 0.14; AME-AME 0.08, AME-ALE 0.06, PME-PME 0.12, PME-PLE 0.10, OQA 0.26, OQP 0.50, OQH 0.44. Chelicerae light orange, bristly (Fig. 7B); promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellow, scattered setae; 1.41 long, 1.32 wide. Labium yellowish, 0.33 long, 0.49 wide. Legs yellow, relative length: I-II-III (leg IV missing from specimen), I – femur 5.32/ tibia-patella 7.98/ metatarsus 7.44/ tarsus 3.05/ total 23.79; II – 5.58/ 7.58/ 7.31/ 2.79/ 23.26; III – 4.65/ 5.98/ 5.85/ 2.59/ 19.04. Ventral pairs of macrosetae on tibiae: I-5; II-5; III-4. Upper

tarsal claw with nine teeth (Fig. 10C) and inferior tarsal claw with one tooth (Fig. 10C). Abdomen, 2.98 long, dorsum yellow, unmarked (Fig. 7A). Venter whitish. Palp with elongated dorsal division of the median apophysis (DD; Figs 7C, 8A, B); retrolateral tibial apophysis with prominent ectal and ental divisions (ECD; Figs 7D, 8C, D).

Female (Paratype, IBSP 52571). Total length 7.84. Carapace, 3.19 long, 2.92 wide, colour as in male. Clypeus yellow, 0.25 high. Anterior eye row slightly straight, 0.62 wide; posterior 1.30 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.12, ALE 0.10, PME 0.24, PLE 0.26; AME-AME 0.08, AME-ALE 0.06, PME-PME 0.10, PME-PLE 0.28, OQA 0.30, OQP 0.58, OQH 0.46. Chelicerae colour as in male; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellow, scattered setae; 1.41 long, 1.57 wide. Labium yellow, 0.49 long, 0.55 wide. Legs as in male, relative length: IV-II-I-III, I – femur 5.14/ tibia-patella 7.55/ metatarsus 5.81/ tarsus 2.49/ total 20.99; II – 4.81/ 7.47/ 6.48/ 2.57/ 21.33; III – 4.98/ 5.81/ 5.56/ 2.40/ 18.75; IV – 5.56/ 6.80/ 7.05/ 3.15/ 22.56. Ventral pairs of macrosetae on tibiae: I-5; II-5; III-4; IV-4. Abdomen, 4.78 long, grayish, colour as in male. Venter gray, with scattered setae. Epigynum with concave middle field (MF) with rectangular median scape-like projection (Figs. 7E, 9B, C). Spermathecae short and rounded with pores (Fig. 7F, 9D, E).

Distribution: Known only from the type locality (Bahia, Brazil).

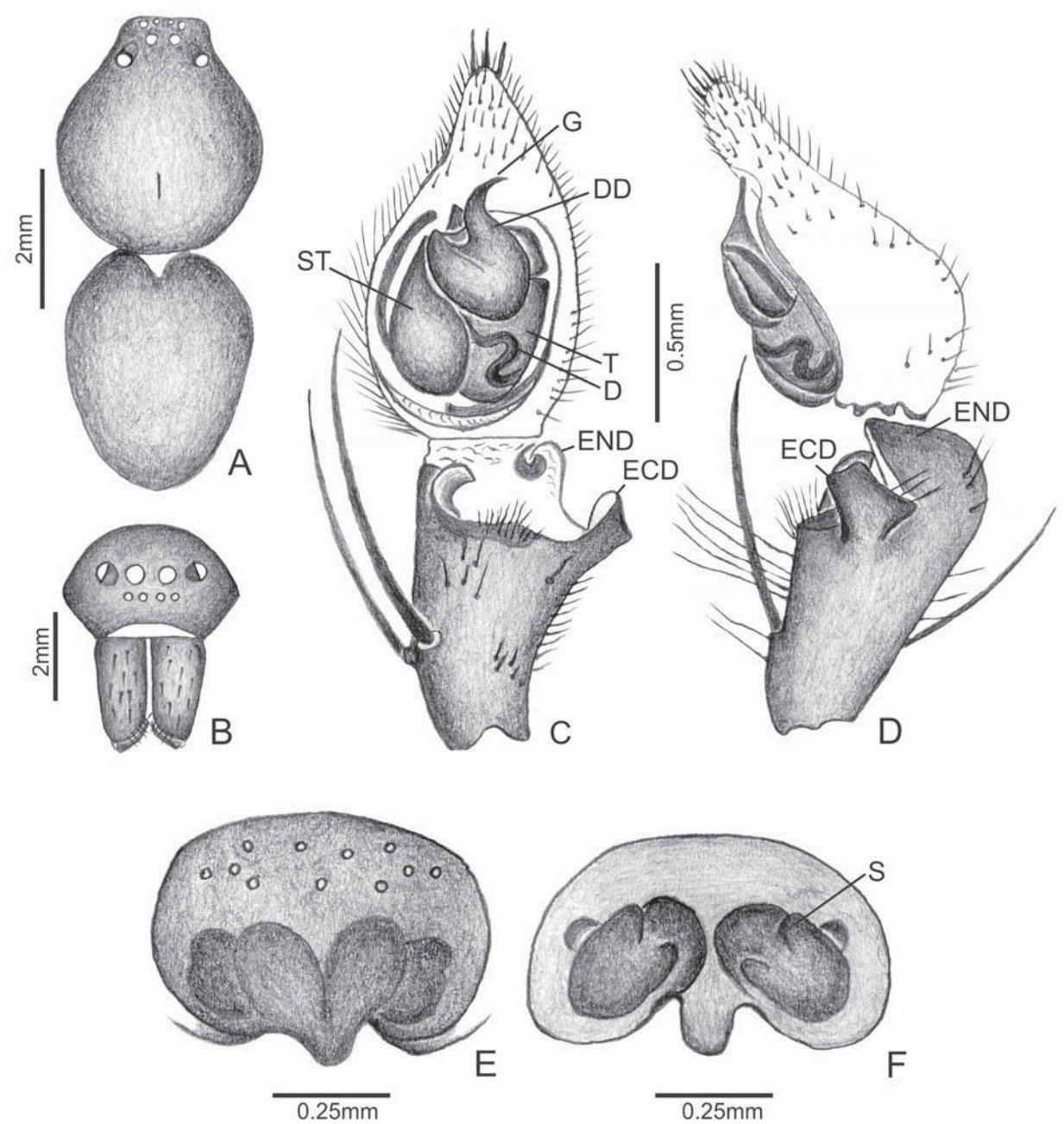

Figure 7. *Neotrechalea hamipalpa* **gen. nov. sp. nov.** A, male, dorsal view; B, male, frontal view; C, male palpus, ventral view; D, male palpus, retrolateral view; E, epigynum, ventral view; F, epigynum, dorsal view. Abbreviations: D, duct; DD, dorsal division of median apophysis; ECD, ectal division of retrolateral tibial apophysis; END, ental division of retrolateral tibial apophysis; G, guide; S, spermathecae; ST, subtegulum; T, tegulum.

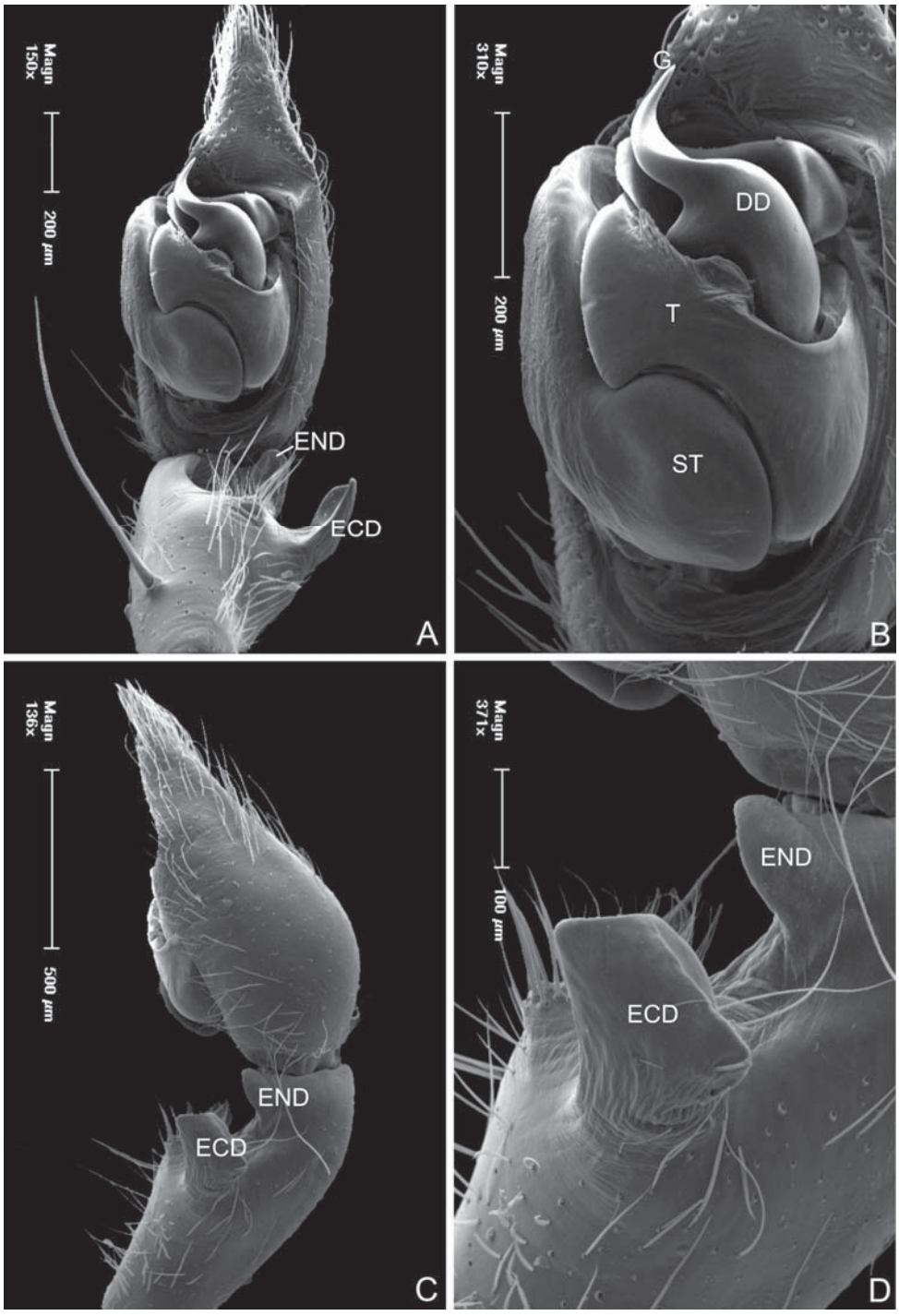

Figure 8. *Neotrechalea hamipalpa* **gen. nov. sp. nov.** A, male palpus, ventral view; B, detail of median apophysis; C, male palpus, retrolateral view; D, detail of retrolateral tibial apophysis. Abbreviations: DD, dorsal division of median apophysis; ECD, ectal division of retrolateral tibial apophysis; END, ental division of retrolateral tibial apophysis; G, guide; ST, subtegulum; T, tegulum.

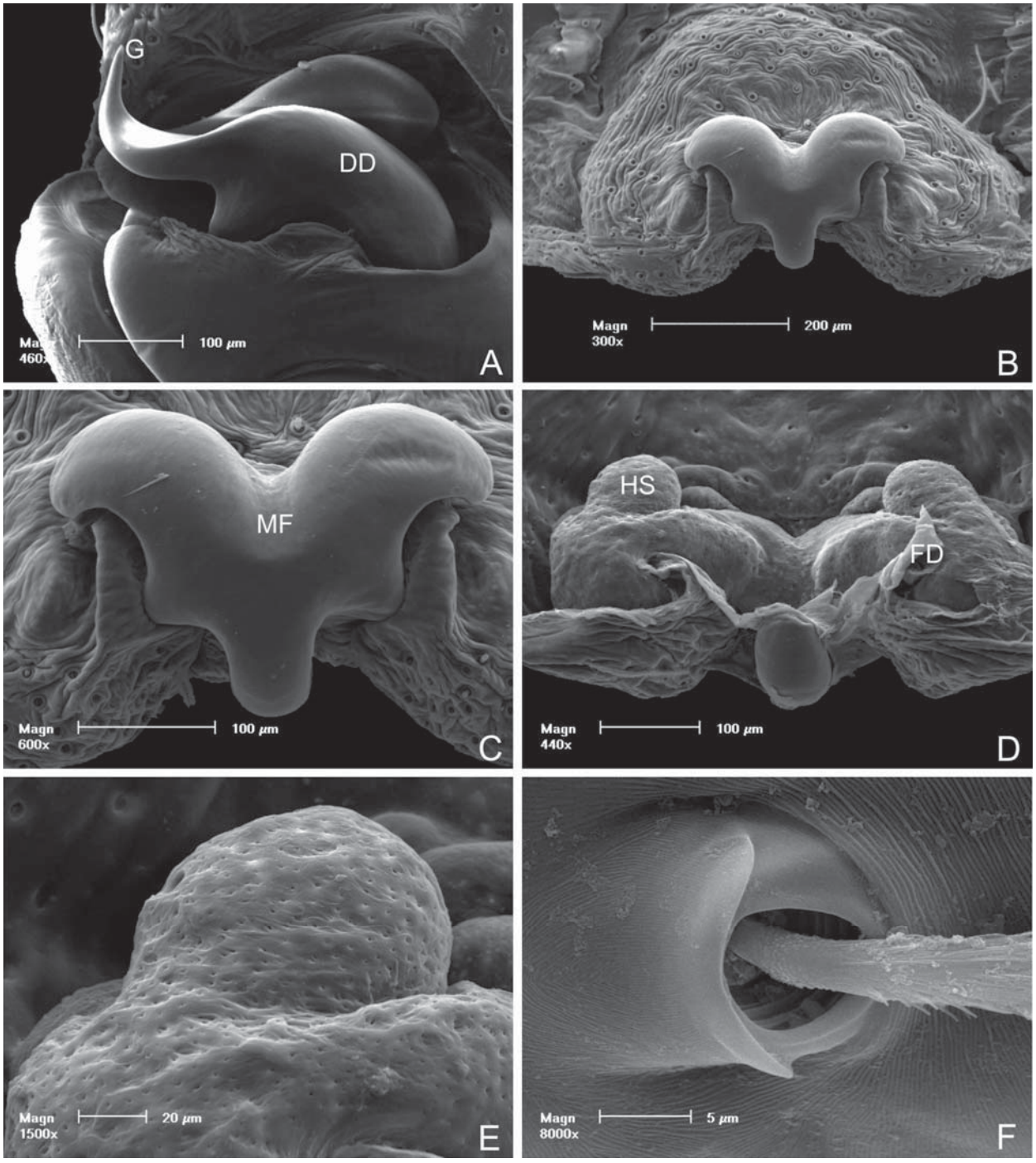

Figure 9. *Neotrechalea hamipalpa* **gen. nov. sp. nov.** A, detail of median apophysis of male palpus; B, epigynum, ventral view; C, detail of epigynum, ventral view; D, epigynum, dorsal view; E, detail of the head of spermathecae; F, tarsal trichobothria of right leg I. Abbreviations: DD, dorsal division of median apophysis; FD, fertilization duct; HS = head of spermathecae; MF, middle field of epigynum.

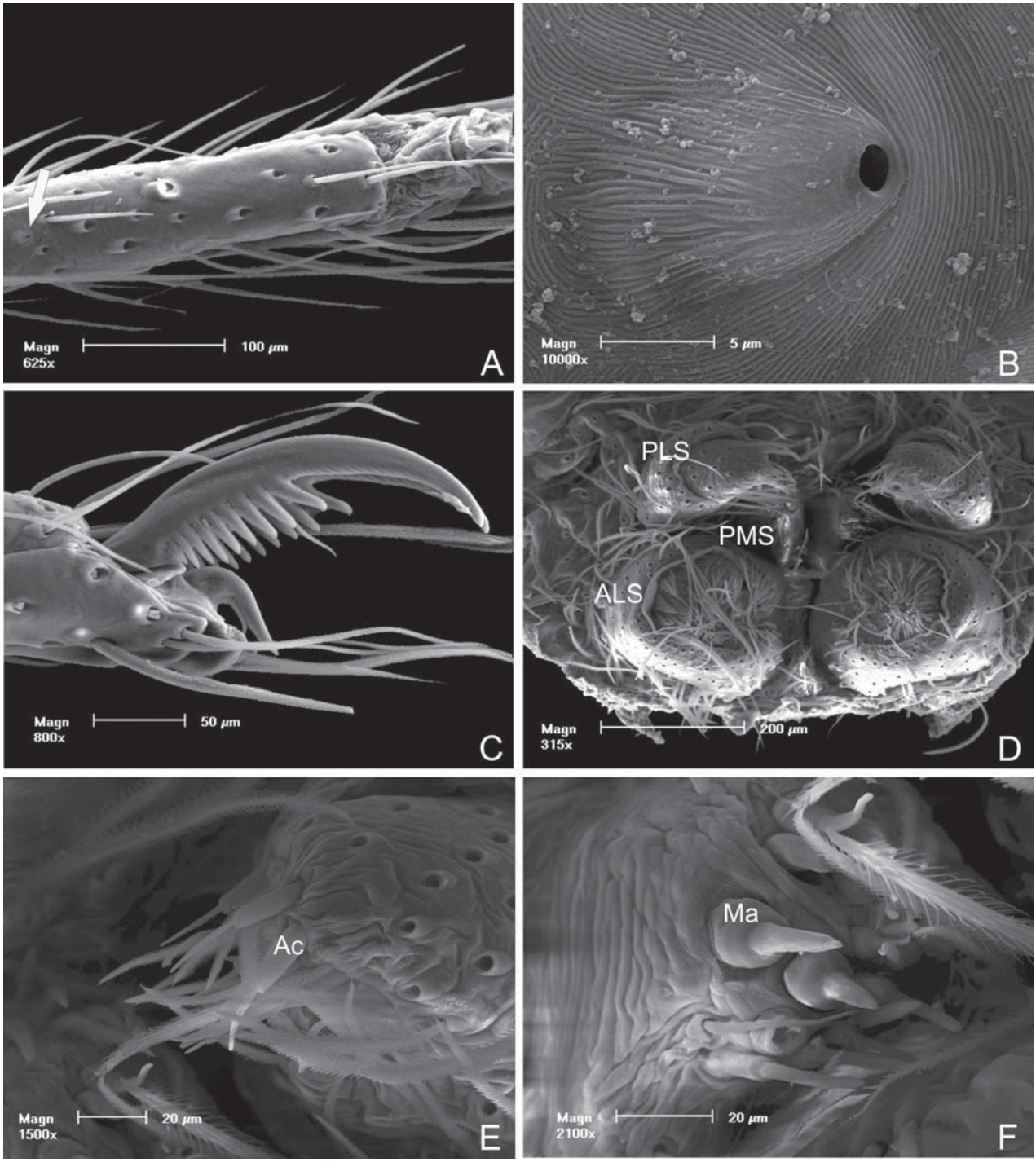

Figure 10. *Neotrechalea hamipalpa* **gen. nov. sp. nov.** A, position of tarsal organ on right leg I; B, detail of tarsal organ; C, tarsal claw of right leg II; D, spinnerets, general view; E, detail of posterior lateral spinneret (PLS); F, detail of posterior median spinneret (PMS). Abbreviations: Cy, cylindrical gland spigots; Ma, minor ampullate gland spigots; Ac, aciniform gland spigots.

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Appendix 1. List of characters used for the phylogenetic analysis (see Appendix 3). Note that the genus – species combinations are as prior to the analysis, not the new combinations derived from the analysis.

Eyes

0. Ocular rows (char. 84, Silva-Dávila, 2003: 62): (0) three rows (Fig. 11F); (1) two rows (Fig. 11A–E). Pisauridae, Rhoicinidae and Trechaleidae all present eyes in two rows. *Neoctenus* despite being close related to Lycosidae, also present eyes in two rows.

1. Shape of anterior eye row (in frontal view) (0) straight (Fig. 11A); (1) recurved (Fig. 11B-E); (2) slightly procurved (Fig. 11F). All members of Trechaleinae present the anterior eye row recurved and the majority of the members of Enninae present the anterior eye row straight.

2. Shape of anterior eyes: (0) straight (Fig. 11A); (1) recurved (Fig. 11B-E); (2) slightly procurved (Fig. 11F).

3. ALE and PME in transverse line (char. 46, Griswold, 1993: 21): (0) not in transverse line (Fig. 11A–F); (1) typical of Ctenidae (Silva-Dávila, 2003, figs 25h, i, l).

Carapace

4. Chilum (char. 70, Silva-Dávila, 2003: 59): (0) absent; (1) present (Fig. 11C). A chilum (Jocqué, 1991: 11) is absent in all the representatives of *Dossenus*, *Trechaleoides*, *Hesydrus*, *Paradossenus* and in some representatives of *Enna*, *Neotrechalea* **gen. nov.**, *Syntrechalea* and *Trechalea*.

5. Cheliceral retromargin, number of teeth: (0) three; (1) four; (2) five. Most of the examined taxa present three teeth on the cheliceral promargin. Members of *Paratrechalea* present four teeth and *Trechaleoides* present five.

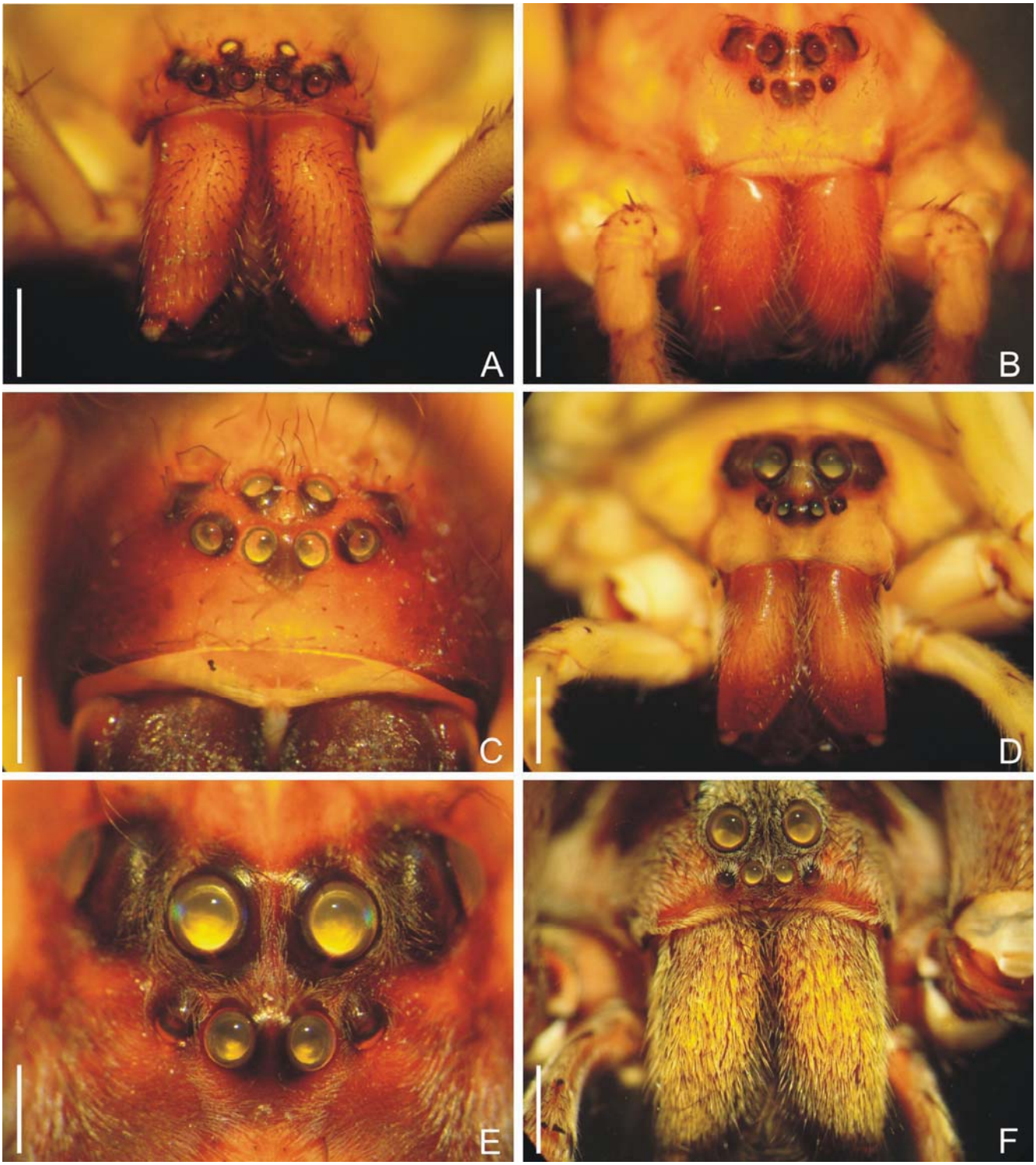


Figure 11. Eyes, frontal view. A, *Lauricius hooki*; B, *Dolomedes triton*; C, *Rhoicinus gaujoni*; D, *Syntrechalea syntrechaloides*; E, *Trechalea longitarsis*; F, *Lycosa erythrognatha*. Scale bar: 1.00 mm.

6. Base of male chelicerae: (0) not swollen (Fig. 11A); (1) swollen (Fig. 12C). Present in the representatives of *Paratrechalea*, *Hesydrus*, *Paradossenus* and in some species of *Enna*.

7. Lateral charina on male chelicerae: (0) absent; (1) present (Silva *et al*., 2006: 81, fig. 30) (Fig. 12D). The lateral charina is a sclerotized line at the lateral surface of the male chelicerae (Fig. 12D). Present in most of the representatives of Enninae, except for *Dyrines*.

8. Surface of the frontal face of male chelicerae (0) bristly (Fig. 12A); (1) slightly bristly; (2) glabrous (Fig. 12B). This character refers to the amount of bristles on the surface of the male chelicerae. The state 2 is present in *Paratrechalea*, *Hesydrus*, *Paradyrines*, *Amapalea*, *Paradossenus* and *Enna*.

9. Thoracic fovea (char. 68, Silva-Dávila, 2003: 59): (0) broad; (1) ill-defined; (2) narrow. State 0 present only in *Dossenus* and *Trechalea*. State 1 present in most of the members of *Barrisca* (Rhoicinidae), *Trechaleoides* and *Neotrechalea*. The state 2 is found in most of the examined taxa.

10. Labium width (char. 80, Silva-Dávila, 2003: 62): (0) longer than wide; (1) as wide as long (Fig. 12E); (2) wider than long. Most of the examined taxa present a labium as wide as long.

11. Labium shape (char. 81, Silva-Dávila, 2003: 62): (0) T-shaped; (1) rectangular.

12. Sternum base (char. 76, Silva-Dávila, 2003: 61): (0) extending to coxae IV; (1) slightly to strongly projected between coxae IV (Fig. 12F).

13. Sternum, ratio of length to width (char. 44, Griswold, 1993: 21): (0) longer than wide; (1) as wide as long (Fig. 12F); (2) wider than long.

Figure 12. A, *Trechalea bucculenta*, male chelicera; B, *Paratrechalea ornata*, male chelicera, frontal view; C, *Hesydrus habilis*, male chelicera; D, *Enna caliensis*, detail of lateral carina of male chelicera; E, *Syntrechalea caporiacco*, labium; F, *Trechaleoides biocellata*, sternum. Scale bar: 1.00 mm.

Legs

14. Length of tarsi: (0) short (Fig. 13A); (1) long (Figs 13B, C). State 0 is present in the majority of the examined taxa and the state 1 is exclusively present in the representatives of Trechaleinae.

15. Flexible tarsi (0) absent (Fig. 13A); (1) present (Fig. 13B). The flexible tarsus is a character often used in dichotomous keys for spider identification at family level, but we notice that this character is only present in the members of Trechaleinae.

16. Flexible metatarsi (0) absent; (1) present (Carico, 2008a: 124, fig. 18) (Fig. 13C). The flexible metatarsi is only present in *Hesydrus*, *Syntrechalea* and *Neotrechalea globosa* **gen. nov. sp. nov.**

17. Tarsal apical pseudosegment (char. 10, Santos, 2007a: 504): (0) absent; (1) present Santos, 2007b: 36, fig. 19C) (Figs 13E, F). The tarsal apical pseudosegment is only found in Pisauridae, Rhoicinidae (Fig. 13E) and Trechaleidae (Fig. 13F). Representatives of *Senoculus* Taczanowski, 1872 also present the tarsal apical pseudosegment, Jocqué & Dippenaar-Schoeman (2006) discussed that Senoculidae is probably a strong derived pisaurid, like *Euprosthenops* Pocock, 1897. Santos (2007a) stated that this character should be a possible synapomorphy of Pisauridae, although the exemplar of Trechaleidae (*Trechalea boliviensis* Carico, 1993) used on the analysis was coded as absent, once all the representatives of Trechaleidae present the apical pseudosegment on tarsi (Fig. 13F).

18. Pairs of ventral macrosetae on tibia I of both sexes (char. 46, Griswold, 1993: 21): (0) three pairs; (1) four pairs; (2) five to seven pairs; (3) more than seven (Carico, 2008a: 124, fig. 18). This character was often used by Carico (1993, 2008) to separate some genera of Trechaleidae, like *Trechalea* and *Syntrechalea*. State 0 is only present in *Lauricius hooki*, *Cispius* sp., *Rhoicinus gaujoni* and *Paradossenus corumba*. State 1 is

found in the majority of the examined taxa. State 2 is mostly present in *Dossenus*, *Dyrines* and *Trechalea*. State 3 is only present in representatives of Trechaleinae.

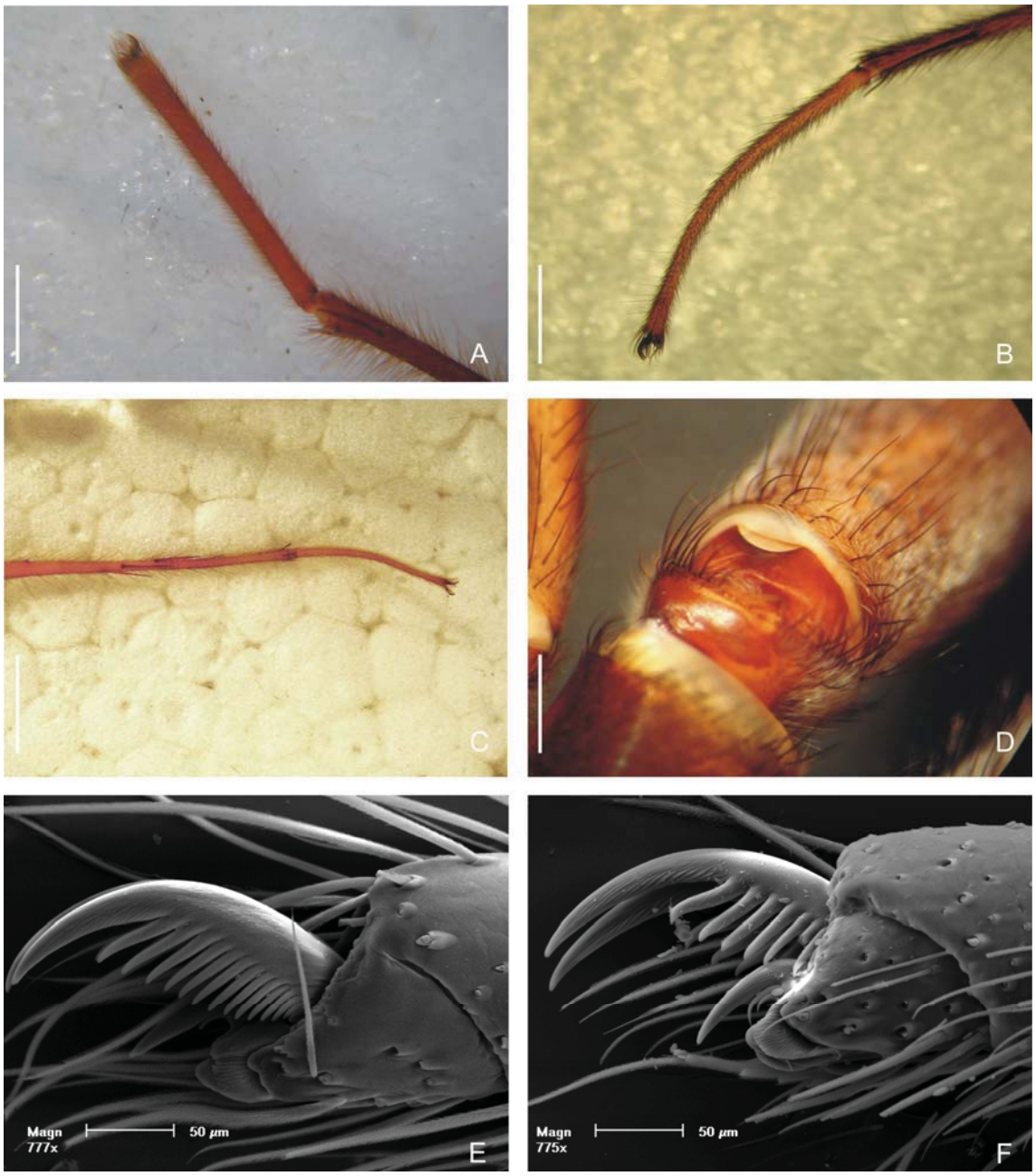


Figure 13. A, *Enna caliensis*, male tarsus; B, *Paratrechalea azul*, female tarsus; C, *Hesydrus habilis*, male tarsus; D, *Lycosa erythrognatha*, leg I trochanter notch; E, *Rhoicinus gaujoni*, tarsal psedosegment (white arrow); F, *Enna estebanensis*, tarsal psedosegment (white arrow). Scale bar: 1.00 mm.

19. Female tibia I, lateral macrosetae (char. 60, Griswold, 1993: 23): (0) present; (1) absent. State 0 is present in the majority of the examined taxa. State 1 is found in *Ancylometes concolor*, *Aglaoctenus oblongus*, *Sossipus placidus* and in the representatives of *Syntrechalea*.

20. Female tibia I, dorsal macrosetae (char. 62, Griswold, 1993: 24): (0) absent; (1) present. State 1 is present in the majority of the examined taxa.

21. Male tibia I, dorsal macrosetae (char. 61, Griswold, 1993: 23): (0) absent; (1) one; (2) two or more. State 2 is found in all representatives of Trechaleinae.

22. Male metatarsus I or II, lateroapical pairs of macrosetae (char. 63, Griswold, 1993: 24): (0) absent; (1) present.

23. Trochanter notch (char. 55, Griswold, 1993: 23): (0) absent; (1) broad, shallow; (2) deep (Fig. 13D). This character refers to the distal border of the trochanter, which exhibits a range of variation within a single family (Roth, 1964).State 2 is found in all the representatives of the "true lycosoids" *sensu* Griswold (1993)(Pisauridae, Lycosidae, Rhoicinidae and Trechaleidae).

24. Scopula on leg I (char. 66, Griswold, 1993: 26): (0) only on tarsi; (1) on tarsi and metatarsi; (2) absent. State 0 present only in *Lauricius hooki* (Tengellidae). State 1 present in the representatives of Lycosidae and in *Trechaleoides* (Trechaleidae). State 2 is present in all the members of Rhoicinidae and in most of the representatives of Trechaleidae.

25. Flattened feathery setae on legs (char. 58, Griswold, 1993: 23): (0) absent; (1) present.

26. Trichobothrial base, texture of hood (char. 57, Griswold, 1993: 23): (0) transversally striate (Fig. 14A, B, D); (1) smooth, without striations (Fig. 14C, E, F). State 0 was only observed in the outgroup: *Lauricius hooki* (Tengellidae), *Zoropsis*

spinimana (Zoropsidae) and *Psechrus* sp. (Psechridae). State 1 was observe in the majority of examined taxa.

27. Metatarsal trichobothria (char. 108, Silva-Dávila, 2003: 69): (0) two or three rows; (1) one row. A single row of trichobothria was scored in *Psechrus* and lycosoids. The remaining taxa have two trichobothrial rows.

28. Calamistrum: (0) present; (1) absent.

29. Tarsal claws (char. 110, Silva-Dávila, 2003: 69): (0) three (Figs 14B, D, E); (1) two (Fig. 14F). Three tarsal claws are regarded as the plesiomorphic condition for spiders (Silva-Dávila, 2003). Most of the examined taxa presented three tarsal claws, except for *Zoropsis spinimana* (Zoropsidae) (Fig. 14F).

30. Number of teeth on superior tarsal claw (STC) (0) six or less (Figs 15A, B); (1) seven to 12 (Figs 15C, D); (2) more than 12 (Figs 15E, F). State 0 present in the outgroup, except for *Hesydrus palustris* (Trechaleidae). State 1 is found in the majority of examined taxa. State 2 is only present in *Zoropsis spinimana* (Zoropsidae), *Rhoicinus gaujoni* (Rhoicinidae) and *Paradossenus longipes* (Trechaleidae).

31. Number of teeth on inferior tarsal claw (ITC) (0) one (Fig. 16A, B); (1) two (Fig. 16C–E); (2) none (Fig. 16F). State 0 is present in the majority of examined taxa. State 1 is present in *Senoculus* sp. (Senoculidae), *Cispius* sp. (Pisauridae), *Sossipus placidus* (Lycosidae), *Rhoicinus urucu* (Rhoicinidae), *Rhoicinus weyrauchi* (Rhoicinidae), *Shinobius orientalis* (Rhoicinidae) and some trechaleids (*Paratrechalea ornata*, *Paratrechalea galianoae*, *Dyrines*, *Paradyrines*, all the members of *Paradossenus* and *Enna estebanensis*). State 2 is only present in *Syntrechalea.*

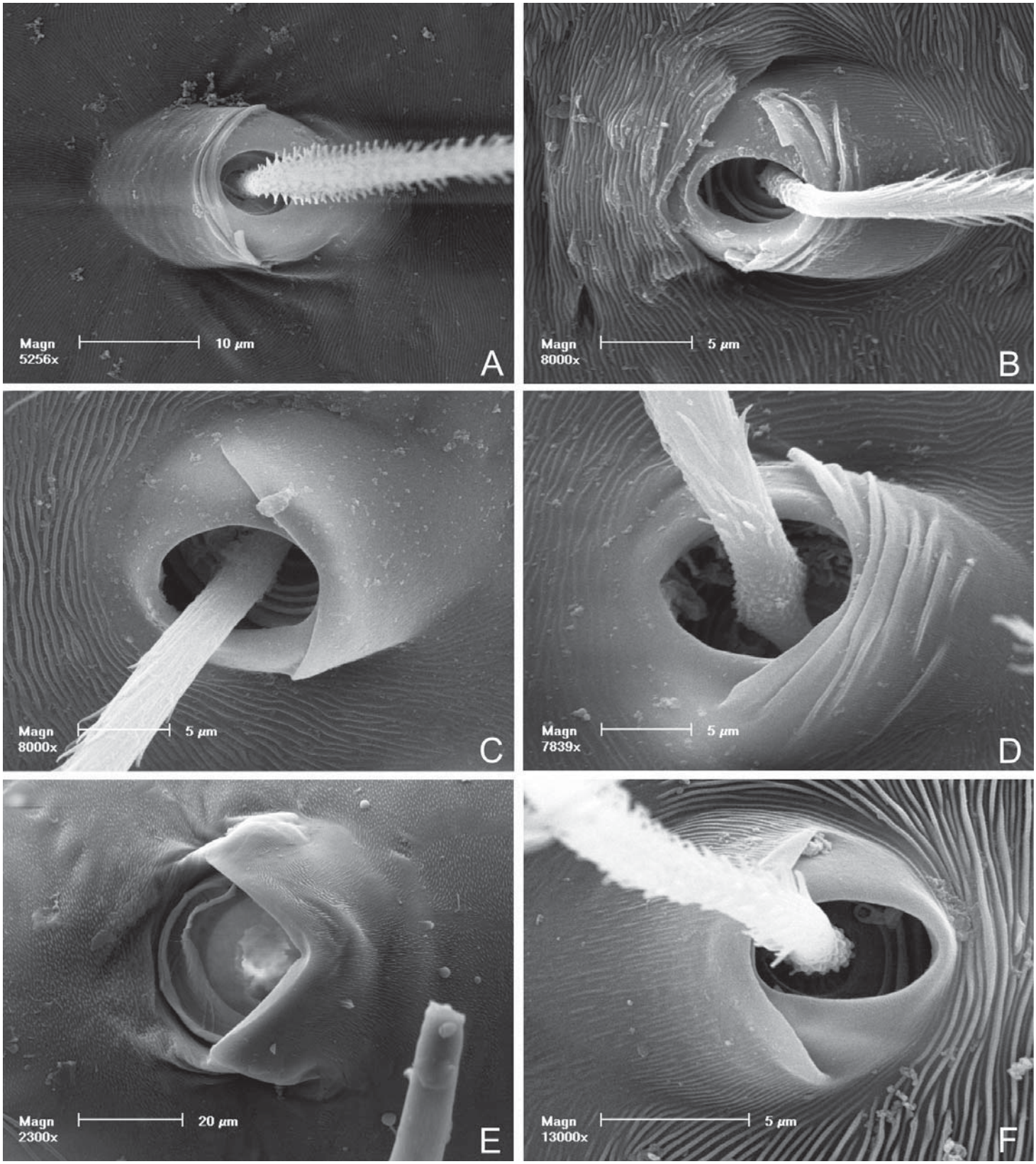


Figure 14. Tarsal trichobothria of right leg I. A, *Lauricius hooki*; B, *Psechrus* sp.; C, *Pisaura mirabilis*; D, *Zoropsis spinimana*; E, *Heidrunea irmleri*; F, *Hesydrus habilis*.

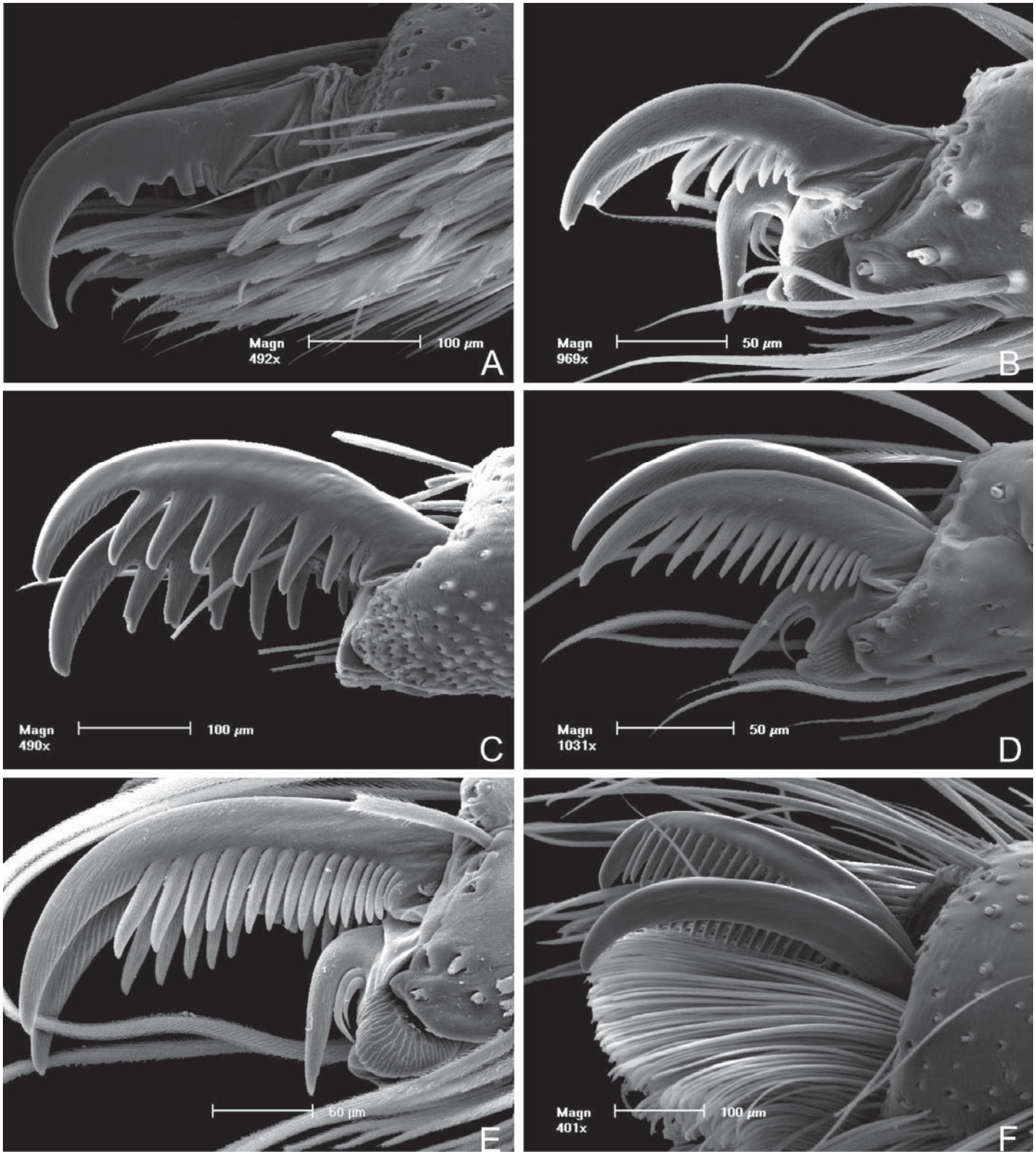


Figure 15. Tarsal claws. A, *Lauricius hooki*; B, *Senoculus* sp.; C, *Neoctenus comosus*; D, *Rhoicinus urucu*; E, *Paradossenus longipes*; F, *Zoropsis spinimana*.

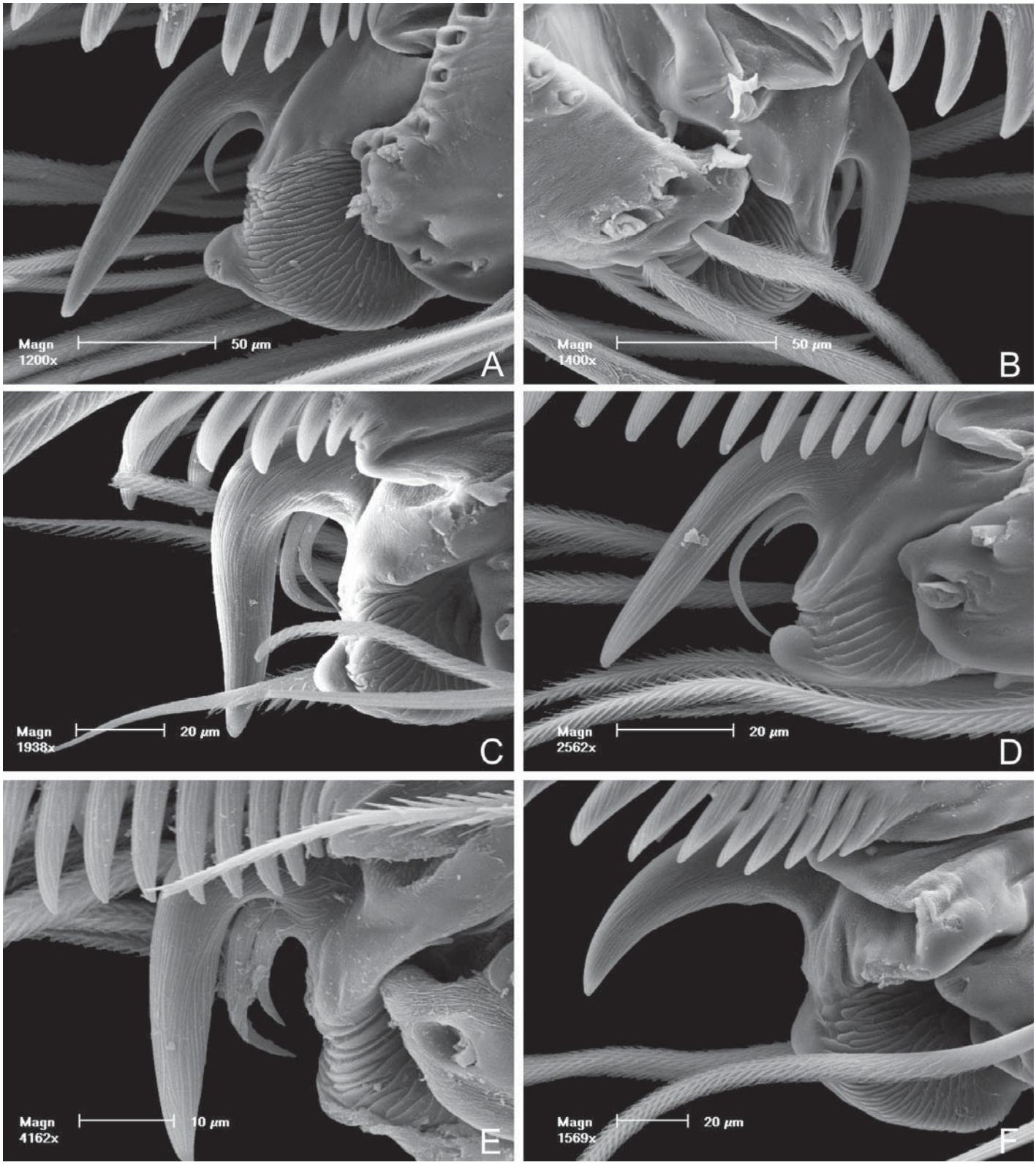


Figure 16. Inferior tarsal claw (ITC). A, *Dolomedes triton*; B, *Hesydrus habilis*; C, *Senoculus* sp.; D, *Rhoicinus urucu*; E, *Paradyrines ducke* **comb. nov.**; F, *Syntrechalea adis*.

Male palp

32. Apex of cymbium (char. 2, Raven & Stumkat, 2005: 350): (0) truncated, smaller than bulb (Fig. 18B); (1) elongated, longer than bulb (Höfer & Brescovit, 1994: 55, figs. 1–3). State 0 is found in the majority of examined taxa. State 1 is present in *Neoctenus comosus* (Fig. 20A), Lycosidae (Fig. 19D), Rhoicinidae (Figs 3A, B) and in *Trechaleoides* (Fig. 20D).

33. Cymbial dorsal scopulate patch (char. 4, Griswold, 1993: 10): (0) absent; (1) present. State 0 is observed in the majority of examined taxa. State 1 only present in *Zoropsis spinimana* (Zoropsidae) and *Psechrus* sp. (Psechridae).

34. Cymbial dorsobasal projection (char. 5, Griswold, 1993: 10): (0) absent; (1) present. State 0 observed in the majority of examined taxa. State 1 only present in *Ancylometes concolor* (Ctenidae) and *Neoctenus comosus* (Zoridae).

35. Male palpal tibia with retroapical cuticle unsclerotized (char. 2, Griswold, 1993: 10): (0) absent; (1) present. State 0 only observed in the outgroup. State 1 present in Rhoicinidae and Trechaleidae.

36. Male palpal tibia with ventral apophysis (VA) in addition to retrolateral (char. 3, Griswold, 1993: 10): (0) absent (Fig. 17F); (1) present (Fig. 17A). State 0 observed in the majority of examined taxa. State 1 only present in *Peucetia rubrolineata* (Oxyopidae) and *Ancylometes concolor* (Ctenidae).

37. Male palpal tibia with retrolateral tibial apophysis (RTA) (char. 1, Griswold, 1993: 10): (0) absent; (1) present (Fig. 17A–F). The presence of a retrolateral process on the male palpal tibia is synapomorphic for a relatively large group of spiders ("RTA clade") (Coddington and Levi, 1991). Present in almost all taxa treated here; absent only in Lycosidae and Rhoicinidae.

38. Division of RTA (0) not divided (one branch) (Fig. 17C); (1) divided (two branches) (Fig. 17B, E, F). State 0 observed in some representatives of the outgroup (*Senoculus* sp., *Peucetia rubrolineata*, *Ancylometes concolor* and Pisauridae). State 1 observed in all the members of Trechaleinae.

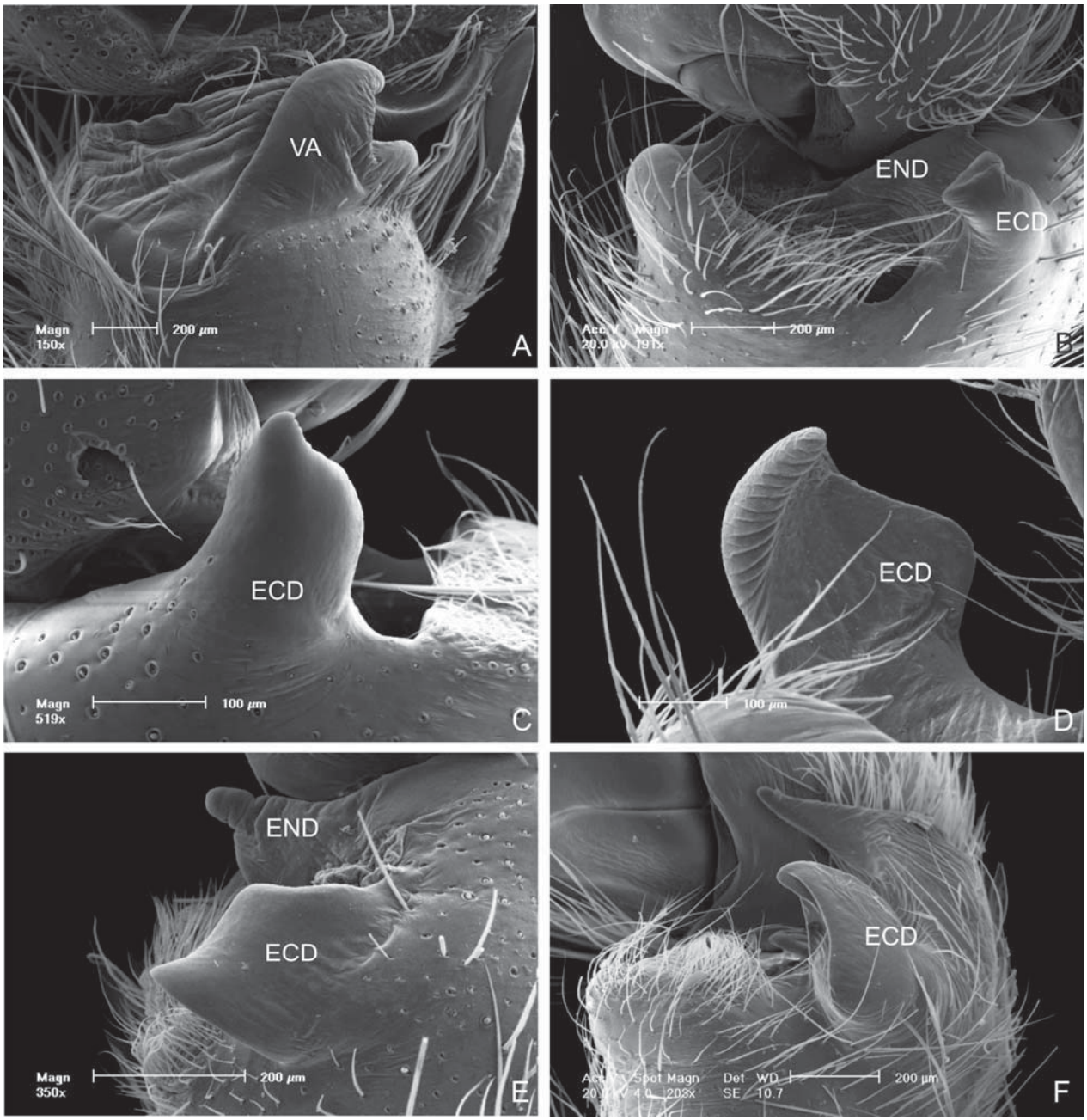


Figure 17. Ventral and retrolateral tibial apophysis and sclerotized ring of male palp. A, *Ancylometes concolor*; B, *Enna wayrapata* **comb. nov.**; C, *Dossenus guapore*; D, *Trechalea longitarsis*; E, *Hesydrus palustris*; F, *Paratrechalea ornata*. ECD, ectal division of retrolateral tibial apophysis (RTA); END, ental division of RTA; VA, ventral apophysis.

39. Shape of ectal division (ECD) of retrolateral tibial apophysis (RTA): (0) acute (Fig. 17E); (1) rounded (Fig. 17B). State 0 present in *Pisaura mirabilis* and *Cispius* sp., *Hesydrus palustris*, *H. habilis*, *Syntrechalea adis*, *S. syntrechaloides*, *S. caporiacco*, in all members of *Dyrines* and *Paradossenus*. State 1 observed in the remaining taxa.

40. Ectal division of retrolateral tibial apophysis (ECD): (0) not divided (Fig. 17C); (1) divided (Fig. 17F). State 1 only present in the representatives of *Hesydrus*, *Trechaleoides* and *Paratrechalea*.

41. Sclerotized ring on male tibia (char. 9, Silva-Dávila, 2003: 44): (0) absent; (1) present (Fig. 3C). This is a ring-like and sclerotized structure present in the male palpi (Fig. 3C) and can be used to differentiate the members of Rhoicinidae from those of Trechaleidae. State 0 is observed in the majority of examined taxa. State 1 is synapomorphy of the representatives of Rhoicinidae (Fig. 2A).

42. Subtegulum/tegulum locking lobes (char. 6, Griswold, 1993: 10): (0) present; (1) absent.

43. Tegulum, shape (char. 19, Griswold, 1993: 12): (0) oval; (1) notched probasally, subtegulum visible in ventral view (Fig. 11C, D). State 0 is present in the outgroup representatives. State 1 is present in Lycosidae, Rhoicinidae and Trechaleidae.

44. Median membranous region of tegulum (char. 22, Griswold, 1993: 15): (0) simple, convex; (1) with projection (MTP) arising near embolic base. State 0 is observed in the majority of the examined taxa. State 1 only present in *Zoropsis spinimana* (Zoropsidae) and *Ancylometes concolor* (Ctenidae).

45. Distal tegular projection (DTP) (char. 28, Santos, 2007a: 505): (0) absent (Fig. 19A, B, D); (1) present (Fig. 19C). The DTP consists in a tegular outgrowth inside which the sperm duct performs a loop before entering the apical division (Sierwald 1990: fig. 2). It was first noted by Sierwald (1990) in pisaurid pedipalpi, and coded in

cladistic analyses of lycosoid spiders by Griswold (1993: char. 20) and Silva-Dávila (2003: char. 32). In this study, the DTP emerges as a synapomorphy of Pisauridae, disappearing in *Tinus*. Although Sierwald (2000) reports a tegular structure similar to a DTP in the lycosid *Sosippus placidus*, I could not find any structure possibly homologous to it in any terminal taxa other than pisaurids.

46. Median apophysis (MA) (char. 44, Silva-Dávila, 2003: 53): (0) absent (Fig. 18C); (1) present (Figs 18D, 19A–D, 20A–D). In this study, a MA is recognized as a tegular sclerite arising either near the center or near the base of the tegulum, but, most importantly, it is articulated to the tegulum through a flexible membrane (Griswold, 1993: 11, figs. 11, 13, 20; Sierwald, 1990: 21; Lehtinen, 1967: 295; Silva-Dávila, 2003: 53). The MA is absent in *Psechrus* sp.

47. Median apophysis (MA), structure (char. 46, Silva-Dávila, 2003: 53): (0) simple; (1) complex. The shape of the MA often suggests a synapomorphy at the generic level (Sierwald, 1990: 37), and that is the case for many of the examined taxa.

48. Median apophysis (MA), division. (0) only DD, dorsal division of median apophysis (Fig. 20B); (1) with VD, ventral division of median apophysis and DD, dorsal division of median apophysis (Figs 20C, D). State 0 is present on the representatives of Rhoicinidae, *Dyrines*, *Paradyrines* **gen. nov.** and *Enna* (Fig. 20B). The presence of a divided median apophysis is found in all the members of Trechaleinae (Figs 20C, D), except on *Neotrechalea* **gen. nov.**

49. Median apophysis, position on tegulum (char. 12, Griswold, 1993: 15): (0) median, insertion near middle of tegulum; (1) retrobasal, insertion near proximal margin of tegulum. State 0 is observed in the majority of examined taxa. State 1 only observed in *Peucetia rubrolineata* (Oxyopidae) and *Ancylometes concolor* (Ctenidae).

50. Median apophysis, angle (char. 18, Griswold, 1993: 12): (0) longitudinal; (1) transverse. State 0 is present in the majority of examined taxa. State 1 is only present in Lycosidae.

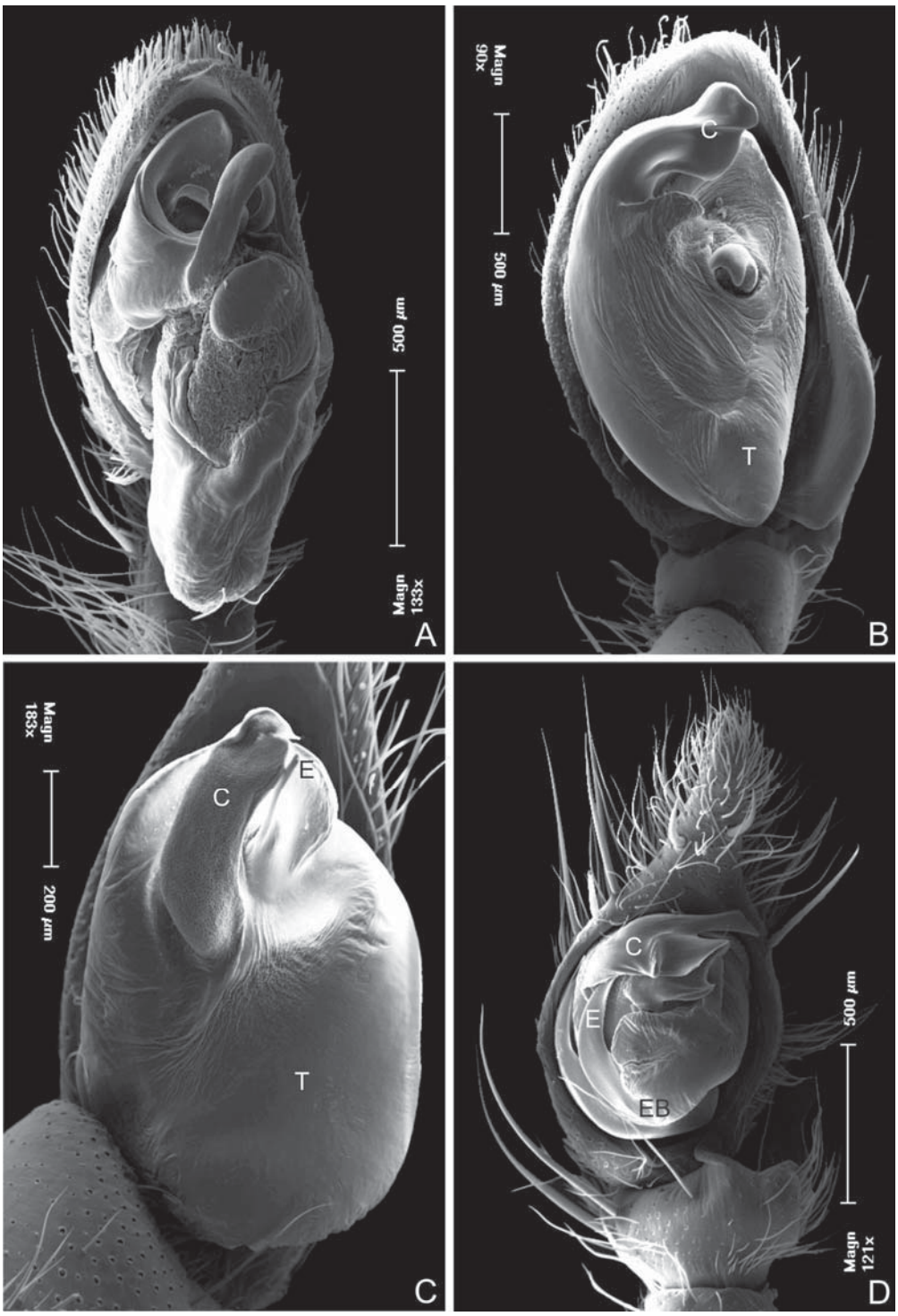


Figure 18. Male palp, ventral view. A, *Lauricius hooki*; B, *Zoropsis spinimana*; C, *Psechrus* sp.; D, *Senoculus* sp. Abbreviations: C, conductor; DTP, distal tegular projection; E, embolus; EB, embolus base; MA, median apophysis; T, tegulum.

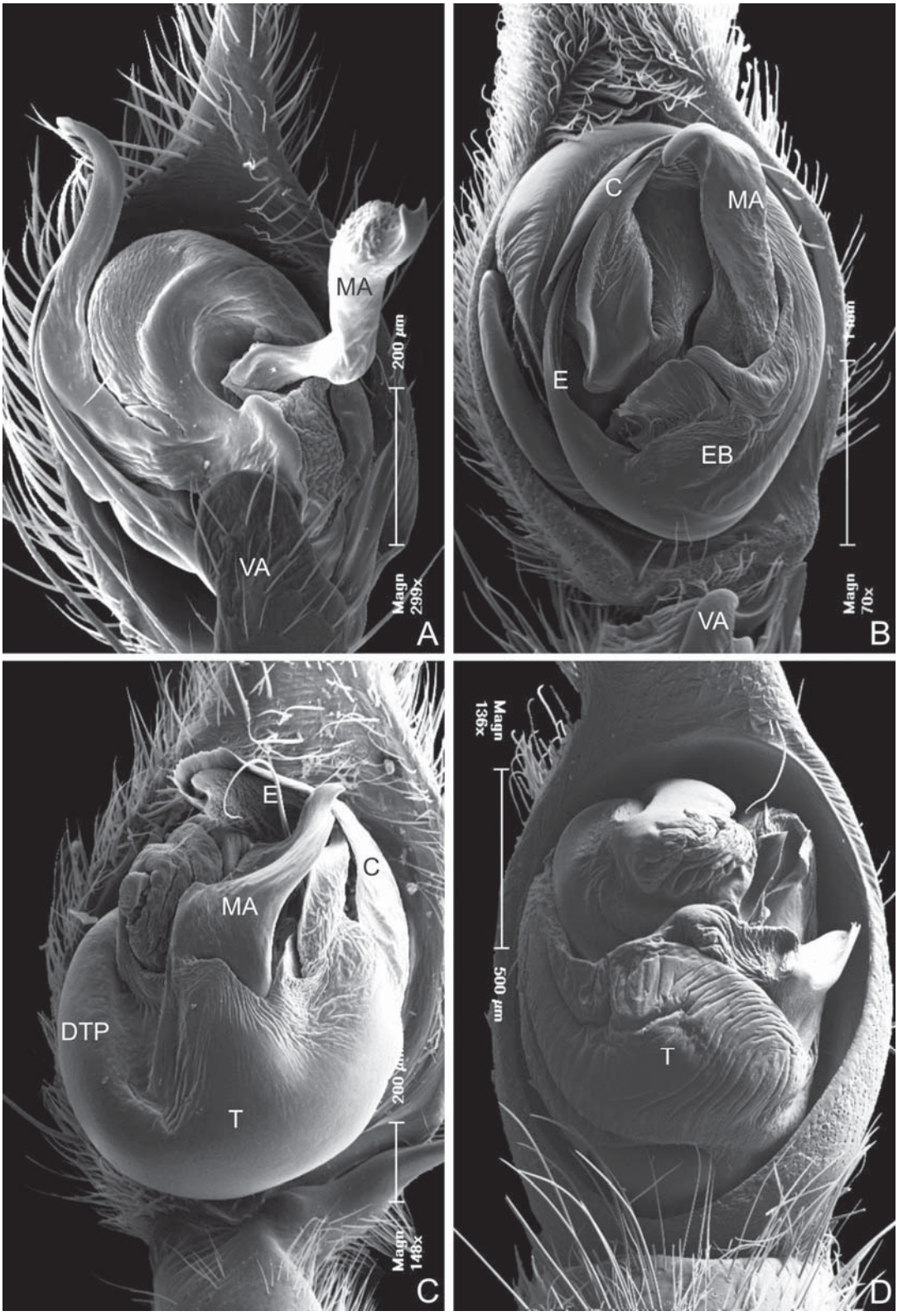


Figure 19. Male palp, ventral view. A, *Peucetia rubrolineata*; B, *Ancylometes concolor*; C, *Pisaura mirabilis*; D, *Lycosa erythrognatha.* Abbreviations: C, conductor; E, embolus; EB, embolus base; MA, median apophysis; T, tegulum; VA, ventral apophysis.

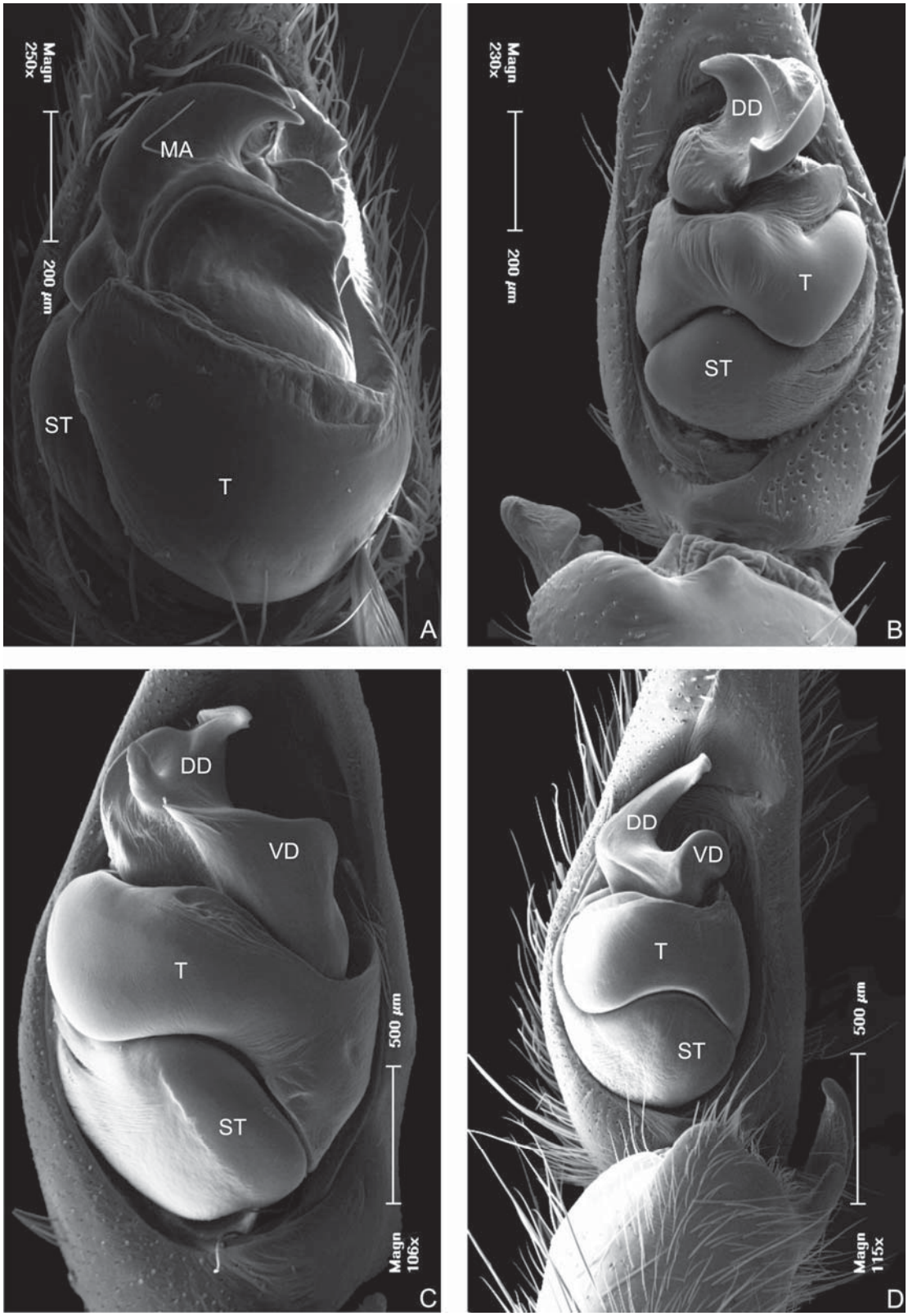


Figure 20. Male palp, ventral view. A, *Neoctenus comosus*; B, *Rhoicinus gaujoni*; C, *Trechalea longitarsis*; D, *Trechaleoides biocellata.* Abbreviations: C, conductor; DD, dorsal division of median apophysis; E, embolus; G, guide; MA, median apophysis; ST, subtegulum; T, tegulum; VD, ventral division of median apophysis.

51. Embolus origin (char. 50, Silva-Dávila, 2003: 54): (0) prolateral; (1) proximal; (2) apical. State 0 is only present in the outgroup. State 1 is present in *Ancylometes concolor* (Ctenidae). State 2 is present in *Neoctenus comosus* (Zoridae), Pisauridae, Lycosidae, Rhoicinidae and Trechaleidae.

52. Embolus, shape (char. 27, Griswold, 1993: 15): (0) stout, tapering to apex, convex or flattened; (1) slender, curved spine (Fig. 3A). State 0 is only present in *Lauricius hooki* (Tengellidae), *Zoropsis spinimana* (Zoropsidae) and *Peucetia rubromaculata* (Oxyopidae).

53. Embolus base (char. 23, Griswold, 1993: 15): (0) fixed, with sclerotized attachment to main body of tegulum; (1) flexibly attached to tegulum by membranous cuticle. In Pisauridae (*Dolomedes*) the embolic division is attached to the tegulum via the "basal membranous tube of apical division" (BMT) (Sierwald, 1990, figs. 2, 4, 30).

54. Embolus, direction of curve (left bulb, ventral view) (char. 26, Griswold, 1993: 15): (0) Clockwise, typical for most included taxa; (1) counterclockwise.

55. Conductor (char. 7, Griswold, 1993: 10): (0) present (Figs 3A, B, 19B, C); (1) absent (Figs 20A–D). A conductor is a name given to a tegular structure arising often at the retroapex from a hyaline rigid base and that may or may not support the embolus (Silva-Dávila, 2003: 52). In some taxa, especially lycosids and some pisaurids (Sierwald, 1990: 21), the conductor is a tegular outgrowth lacking articulations of any sort (i.e., completely sclerotized), and recognized as such only by reference to its association with the embolic apex (Griswold, 1993: fig. 59; Sierwald, 1990: figs. 7, 45). State 0 present in *Lauricius hooki* (Tengellidae), *Zoropsis spinimana* (Zoropsidae), *Psechrus* sp. (Psechridae), Pisauridae, Lycosidae and Rhoicinidae. The conductor is absent in *Peucetia rubromaculata* (Oxyopidae), *Ancylometes concolor* (Ctenidae), *Neoctenus comosus* (Zoridae) and all representatives of Trechaleidae (Figs 20A–D).

56. Pisauridae basal membranous tube (BMT) (char. 31, Silva-Dávila, 2003: 50): (0) absent; (1) present. This BMT may prove to be a synapomorphy of Pisauridae (Sierwald, 1990: 37, 45) and it was also pointed by Silva-Dávila (2003: 50). This structure was only observed in *Dolomedes* and *Pisaura*.

57. Sclerotized tegular projection (STP) arising near embolic base. (char. 21, Griswold, 1993: 15): (0) absent; (1) present. Posterior portion of tegulum has a small projection of various forms. State 0 present in most of the examined taxa. State 1 present in *Peucetia rubrolineata* (Oxyopidae), *Ancylometes concolor* (Ctenidae), *Pisaura mirabilis* (Pisauridae) and in some representatives of Trechaleidae, i.e., *Dossenus* spp., *Trechaleoides keyserlingi*, *Hesydrus canar*, *Neotrechalea hamipalpa* **gen. nov. sp. nov.**, *Syntrechalea adis*, *Trechalea* spp. and in all the representatives of Enninae.

58. Lycosid tegular notch (char. 19, Griswold, 1993: 14): (0) absent; (1) present. A U-shaped notch in the tegulum (Sierwald, 1990: figs. 9, 31, 48; Griswold, 1993, fig. 52) makes the subtegulum visible in ventral view (e.g., Figs. 20A–D). This tegular notch is a synapomorphy for the trechaleids, pisaurids and lycosoids (Griswold, 1993: 34). This structure is also present in *Neoctenus comosus* (Zoridae) (Fig. 20A) and Rhoicinidae (Figs 3A, B).

Epigynum

59. Epigynal configuration (char. 28, Griswold, 1993: 15): (0) clearly divided (Fig. 21A, D-F); (1) MS and LL fused, not divided longitudinally into three parts (Fig. 21B, C). State 0 present in most of the examined taxa. State 1 only observed in *Senoculus* sp. (Senoculidae) and *Peucetia rubrolineata* (Oxyopidae).

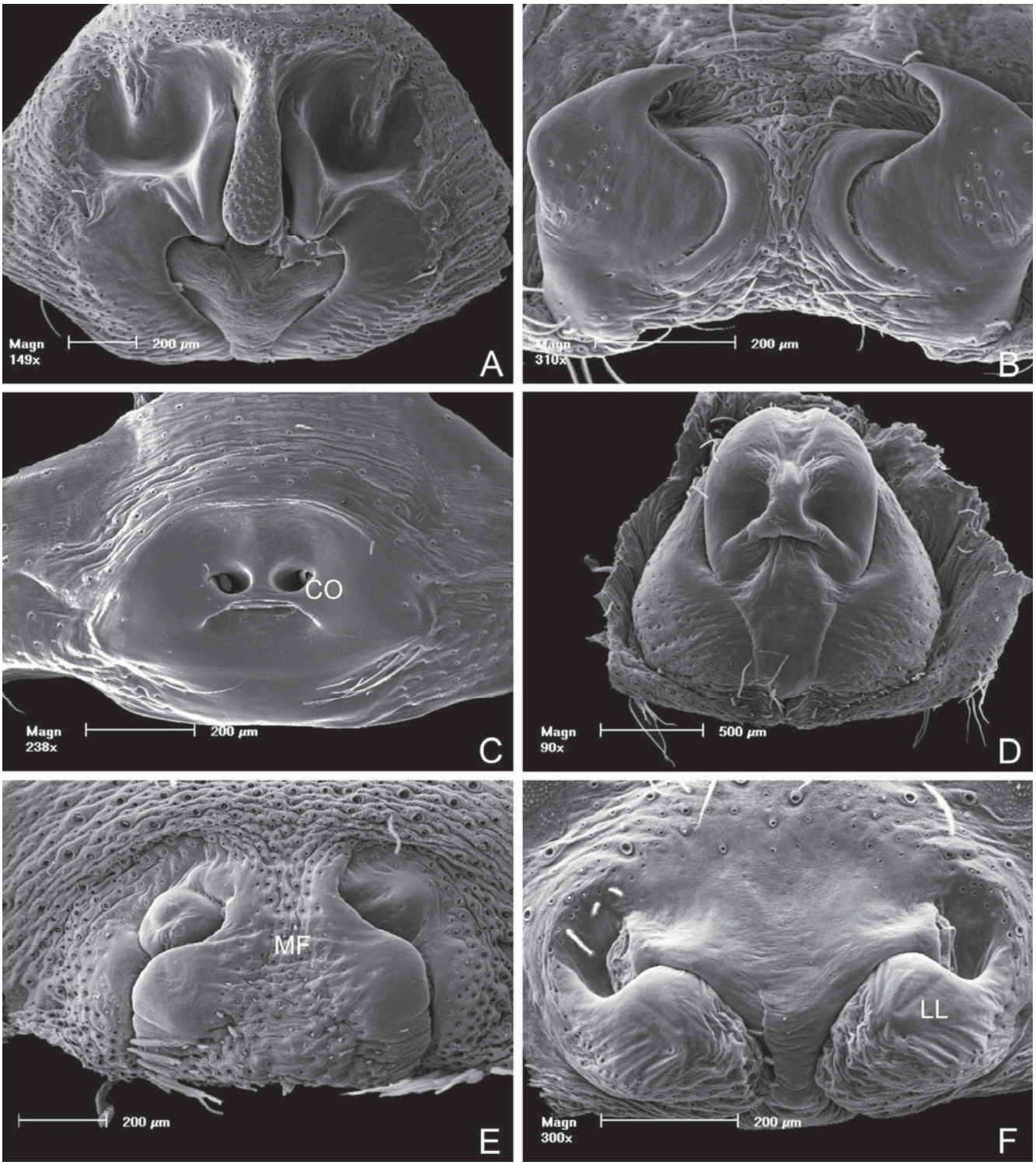


Figure 21. Epigynum, ventral view. A, *Lauricius hooki*; B, *Senoculus* sp.; C, *Peucetia rubrolineata*; D, *Ancylometes concolor*; E, *Aglaoctenus oblongus*; F, *Neoctenus comosus*. Abbreviations: CO, copulatory opening; LL, lateral lobe; MF, middle field of epigynum.

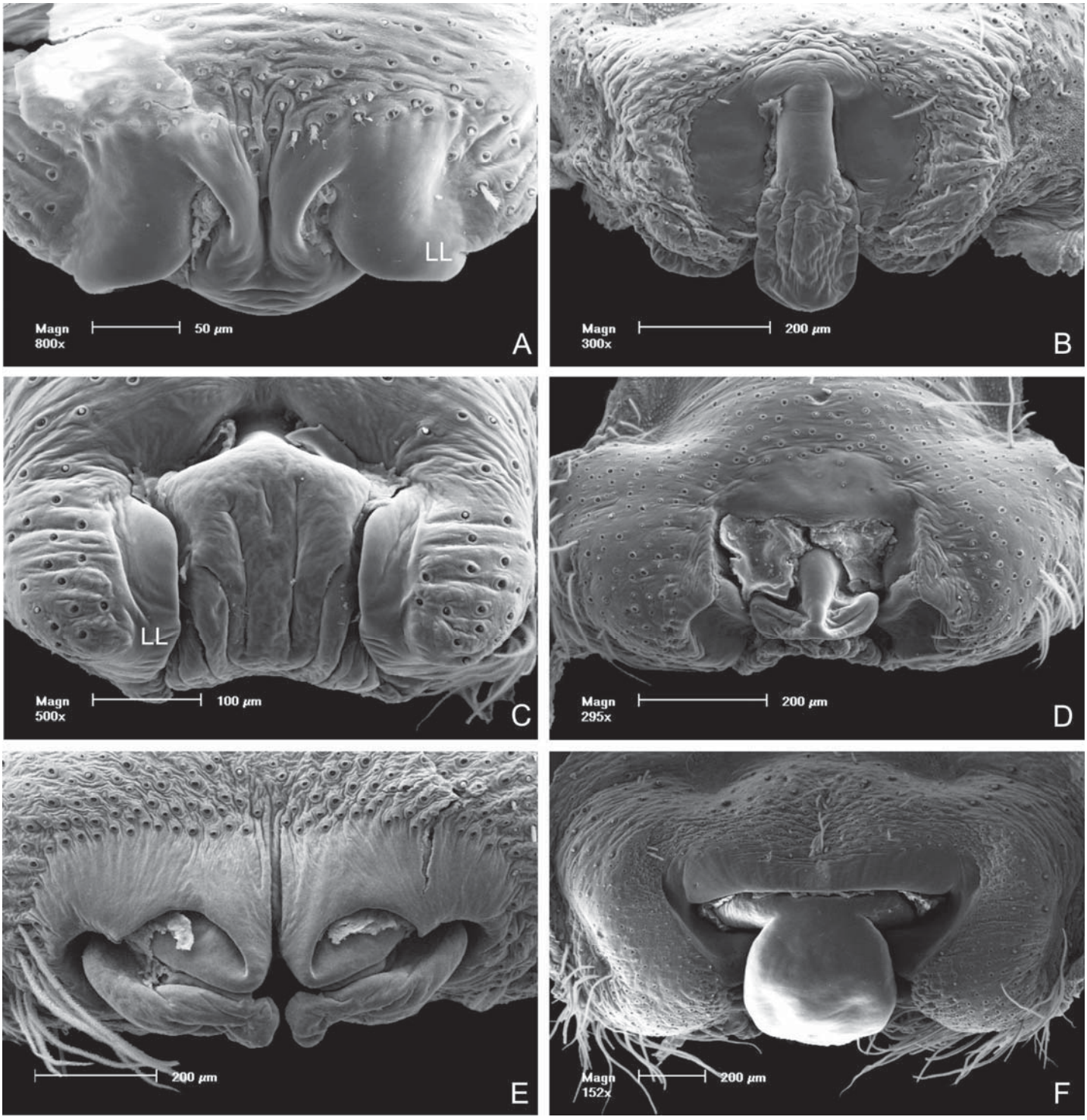


Figure 22. Epigynum, ventral view. A, *Dyrines striatipes*; B, *Hesydrus habilis*; C, *Paradossenus isthmus*; D, *Syntrechalea adis*; E, *Trechaleoides biocellata;* F, *Trechalea longitarsis*. Abbreviation: LL, lateral lobe.

60. Median sector of epigynum (MS), form (char. 31, Griswold, 1993: 18): (0) median lobe (ML), swollen, with a lobe or protuberance (Fig. 22A–F); (1) unmodified, flat or gently convex.

61. Median lobe, form (char. 32, Griswold, 1993: 18): (0) scape, projecting ventrally with abrupt posterior margin; (1) swollen lobe extending to posterior margin.

62. Lateral lobes (LL) (0) present (Figs. 21F, 22A); (1) absent.

63. Shape of copulatory duct (CD) (char. 36, Griswold, 1993: 21): (0) short, broad, length less than vulva; (1) long, length greater than or equal to vulva. State 0 seems to appear independently among the examined taxa.

64. HS (head of spermatheca) (area of vulva with pores; see Sierwald, 1989, figs. 17, 18, 24-26) (char. 37, Griswold, 1993: 21): (0) small, narrow, smaller than BS (Figs 24A–F); (1) large, spherical, larger than BS (Figs 23C, D); (2) absent, no porose area. The pores in the wall of the head of spermathecae occur very early in ontogeny and are apparently wide spread among entelegyne spiders (Sierwald, 1989: 20). Most of the representatives of Trechaleidae present pores on the head of spermathecae, like *Dossenus*, *Dyrines*, *Hesydrus*, *Paradossenus*, *Syntrechalea* and *Trechalea* (Figs.???). State 0 was observed in the outgroup (Tengellidae, Zoropsidae and Psechridae), Pisauridae, in some members of Rhoicinidae (*Rhoicinus gaujoni* and *Heidrunea irmleri*) and in most of the members of Trechaleinae and Enninae. State 1 was observed in Lycosidae (*Lycosa* and *Sossipus*), Rhoicinidae (*Barrisca* and *Shinobius*), all members of Dosseninae, in some members of Trechaleinae (*Trechaleoides* and *Paratrechalea*) and in Enninae only present in *Dyrines* and *Enna*. State 2 only observed in *Peucetia rubrolineata* (Oxyopidae).

65. Accessory spermathecae (AS): (0) absent (Figs 24A–F); (1) present (Figs 24A, F). Some trechaleid species present a spermathecal outgrowth named copulatory duct

diverticulum (cdd) by Carico (1993: 234, figs 9, 10). This lobate structure is considered a synapomorphy supporting a sister group relationship of the Lycosidae and Trechaleidae (Griswold, 1993: 34) (Silva-Dávila, 2003). The accessory spermathecae is absent (State 0) is some representatives of Trechaleinae, like *Hesydrus* and *Neotrechalea* **gen. nov.** and is also absent in *Caricelea wayrapata* (*=Enna wayrapata* **comb. nov.**), *Enna bonaldoi* and *E. igarape*. State 1 is present in Lycosidae, *Rhoicinus* (Rhoicinidae), Dosseninae and in most of the members of Trechaleinae and Enninae.

66. Fertilization ducts (FD; Sierwald 1989: figs 4, 6 and 10) (char. 57, Santos, 2007a: 506): (0) small, inconspicuous (Fig. 23B); (1) large, sclerotized (Figs 24C, D). State 0 can be observed in most of the members of Enninae. State 1 is observed in the majority of the examined taxa, especially in members of Trechaleinae.

67. Fertilization duct (FD), position (char. 40, Griswold, 1993: 21): (0) posterior; (1) median.

68. Stalk of spermathecae (char. 54, Santos, 2007a: 506): (0) long and strongly curved (Fig. 23E); (1) short, straight (Fig. 24B). State 0 is observed in pisaurids, lycosids and in some representatives of Trechaleinae (*Trechaleoides*, *Paratrechalea* and *Syntrechalea*) and in most of the members of Enninae. State 1 is present in most of the examined taxa.

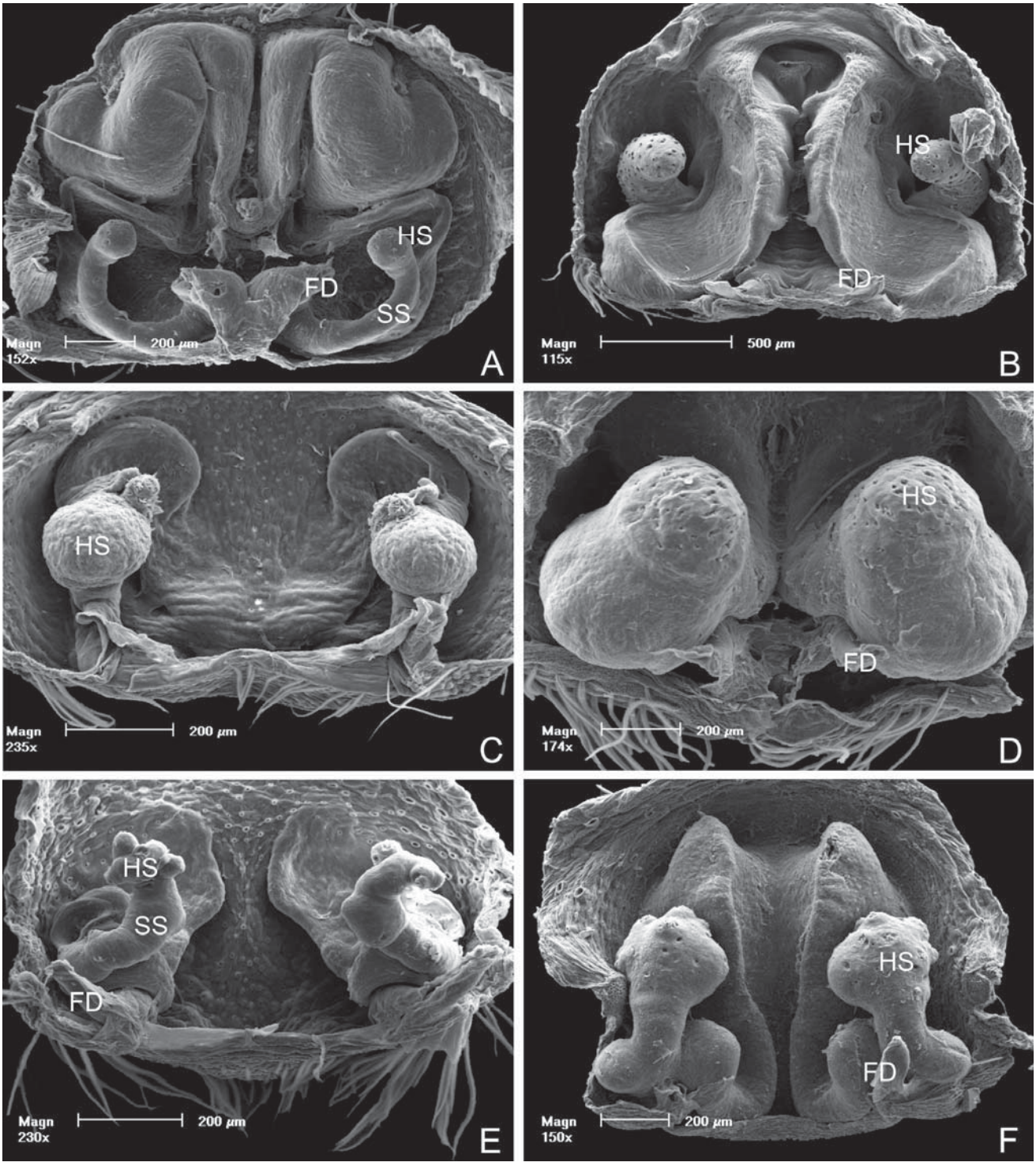


Figure 23. Epigynum, dorsal view. A, *Lauricius hooki*; B, *Zoropsis spinimana*; C, *Psechrus* sp.; D, *Ancylometes concolor*; E, *Aglaoctenus oblongus*; F, *Lycosa erythrognatha*. Abbreviations: FD, fertilization duct; HS, head of spermathecae; SS, stalk of spermathecae.

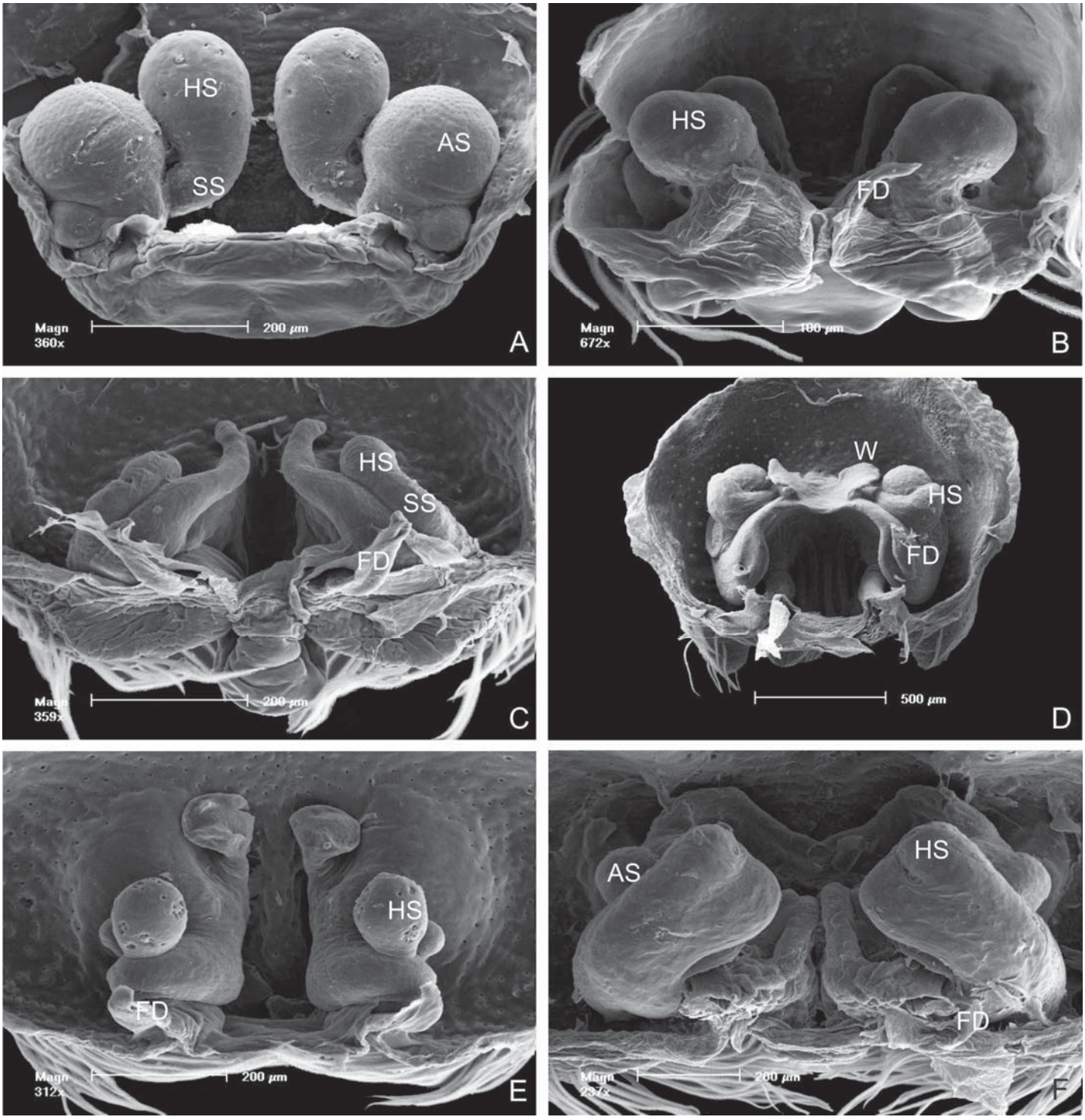


Figure 24. Epigynum, dorsal view. A, *Dossenus guapore*; B, *Dyrines striatipes*; C, *Hesydrus habilis*; D, *Paradossenus longipes*; E, *Syntrechalea syntrechaloides*; F, *Trechalea longitarsis*. Abbreviations: AS, accessory spermathecae; FD, fertilization duct; HS, head of spermathecae; SS, stalk of spermathecae.

Spinnerets

69. Cribellum(char. 129, Silva-Dávila, 2003: 73): (0) present; (1) absent. The cribellum is only present in the outgroup (Tengellidae, Zoropsidae and Psechridae).

70. Minor ampullate female spigots (char. 136, Silva-Dávila, 2003: 77): (0) one; (1) two.

71. Minor ampullate spigots (char. 137, Silva-Dávila, 2003: 77): (0) on mound; (1) separated by their diameter; (2) close together (Fig. 10F).

72. Posterior median spinnerets, cylindricals number (char. 139, Silva-Dávila, 2003: 77): (0) 3 or fewer; (1) about 5; (2) 10 or more.

73. Posterior median spinnerets, cylindricals base (char. 140, Silva-Dávila, 2003: 77): (0) normal; (1) greatly swollen; (2) tubular; (3) elongated.

Abdomen

74. Pairs of sigilla on abdomen dorsum (0) absent; (1) one pair; (2) two pairs (Fig. 25A); (3) three pairs. Sigilla are pairs of muscle impressions (small, depressed points) on the dorsum of the abdomen, which, like the radial furrows of the thorax, indicate points of attachment of muscles to the body wall (Comstock, 1910). State 0 is observed in *Lauricius hooki*, *Lycosa erythrognatha*, most of the members of Rhoicinidae, in Dosseninae, *Neotrechalea globosa* **gen. nov. sp. nov.** and in some representatives of *Enna*. State 1 is found in most of the exemplars from the outgroup (Zoropsidae, Psechridae, Senoculidae, Oxyopidae, Pisauridae, Lycosidae *Aglaoctenus* and *Sossipus*), *Rhoicinus urucu* (Rhoicinidae) and some trechaleids (*Hesydrus palustris*, *Trechalea connexa*, *T. extensa*, *Paradossenus acanthocymbium*, *Caricelea camisea*). State 2 is observed in *Ancylometes concolor* (Ctenidae), *Cispius* sp. (Pisauridae), *Neoctenus comosus*, *Rhoicinus weyrauchi* (Rhoicinidae), *Trechaleoides biocellata*, *T. keyserlingi*,

Hesydrus canar, *H. habilis*, *Neotrechalea hamipalpa* **gen. nov. sp. nov.**, *Syntrechalea* spp., *Trechalea bucculenta*, *T. longitarsis* (Fig. 25A), *T. gertschi*, *Dyrines* spp., *Paradyrines* **gen. nov.**, *Amapalea brasiliana*, *Paradossenus* spp. and some representatives of *Enna*.

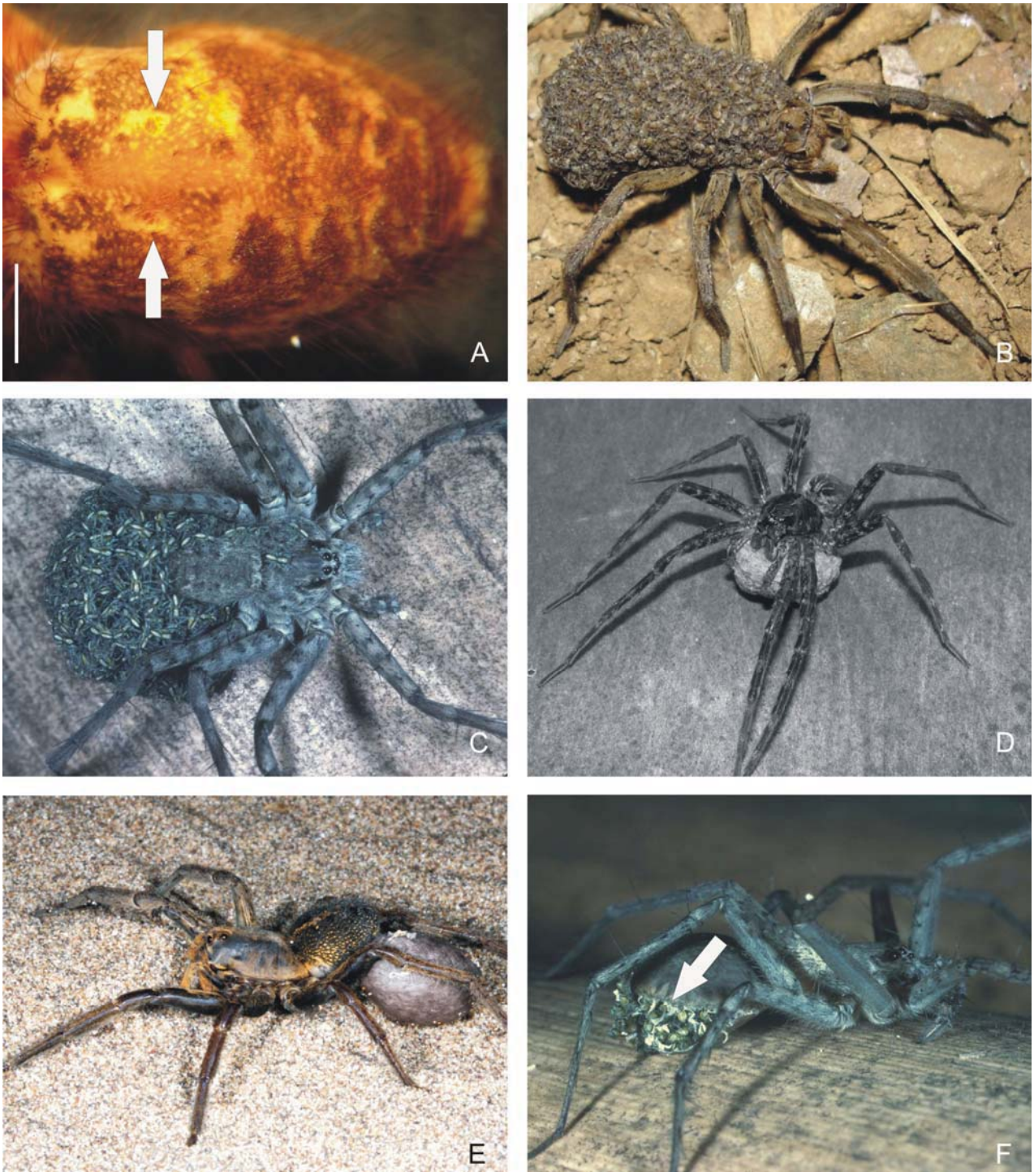
Behavioral attributes

75. Egg sac shape (char. 141, Silva-Dávila, 2003: 79): (0) spherical (Fig. 25D); (1) biconvex. State 0 is found in the majority of examined taxa. State 1 is observed in *Neoctenus comosus*, Lycosidae, *Shinobius orientalis* (Rhoicinidae) and in all trechaleids. The biconvex shape of the egg sac was traditionally used to separate lycosids and trechaleids from pisaurids, since the latter present a spherical egg sac (Figs 25 E, F).

76. Egg sac seam (char. 142, Silva-Dávila, 2003: 79): (0) not distinctive; (1) weakly marked; (2) with skirt (Carico, 1993: 230, fig. 6) (Fig. 25F). In lycosoids, the egg sac has a well-defined rim (Foelix, 1996: fig. 176b), but pisaurid egg sacs lack any kind of marking; in trechaleids, the egg sac has a distinctive skirt (Carico, 1993: fig. 6) which is absent in *Neoctenus*. State 0 is found in most of the outgroup taxa, including Rhoicinidae. State 1 is observed in *Neoctenus comosus* and in Lycosidae. State 2 is only observed in Trechaleidae and can be considered as a synapomorphy for the family.

77. Parental care (char. 145, Silva-Dávila, 2003: 80): (0) not specialized; (1) nursery web; (2) spiderlings on abdomen (Fig. 25B); (3) spiderlings on empty egg sac (Fig. 25C). State 0 is observed in *Lauricius hooki* (Tengellidae), *Zoropsis spinimana* (Zoropsidae). State 1 is present in Psechridae, Oxyopidae, *Ancylometes concolor* (Ctenidae) and Pisauridae. State 2 is only observed in Senoculidae and Lycosidae. State 3 is only found in Rhoicinidae and Trechaleidae.

78. Egg sac carried on spinnerets (char. 68, Griswold, 1993: 27): (0) no; (1) yes (Figs 25E, F). State 0 is found in the majority of the outgroup taxa. State 1 is observed in Lycosidae, Rhoicinidae and Trechaleidae.



Figures 25. Morphology and behavioral features of "Higher Lycosoidea" (*sensu* Griswold, 1993). A, *Trechalea longitarsis*, abdomen sigilla (white arrows); B, *Lycosa erythrognatha*, female carrying spiderlings; C, *Trechalea extensa*, female carrying the spiderlings on empty egg sac; D, *Dolomedes triton*, female carrying egg sca; E, *Lycosa auroguttata* (Keyserling, 1891), female with egg sac; F, *Trechalea extensa*, detail of egg sac seam (white arrow). Photos: B, Rodrigo Lingnay; C, D, F James E. Carico; E, Luis Piacentini. Scale bar: 1.00 mm.

Appendix 2. Material examined for the phylogenetic analysis. Note that the genus – species combinations are as prior to the analysis, not the new combinations derived from the analysis.

Outgroup taxa

Aglaoctenus oblongus (C. L. Koch, 1847) (Lycosidae). BRAZIL: *Rio Grande do Sul*: São Francisco de Paula, rio Maquiné, 1 ♀, 16.xi.2006, E.L.C. Silva & C. E. Ferro (MCTP 19517), 1 ♂, 21.x.2006, E.L.C. Silva & C. E. Ferro (MCTP 19619).

Ancylometes concolor (Perty, 1833) (Ctenidae). BRAZIL: *Mato Grosso*: Chapada dos Guimarães, 1 ♀, XII.1992, L. F. Silva (MCTP 2956), 1 ♂, 20-29.xi.2000, C. Strüssman (MCTP 11503).

Cispius sp. (Pisauridae). SOUTH AFRICA, Western Cape, Jacobsbaii, 3 ♂, 1 ♀, 02.x.2007, C. Haddad & R. Lyle (NCA).

Dolomedes triton (Walckenaer, 1837) (Pisauridae). USA: *Virginia*: Lynchburg, Claytor Nature Center, 1 ♂, 1 ♀, v.2010, K. Benson (MCTP 8870).

Lauricius hooki Gertsch, 1941 (Tengellidae). USA: *Arizona*: Cochise, Ash Springs, 1 ♂, 1 ♀, 06.iv.1965, B. Durden & C. Durden (DMNS).

Lycosa erythrognatha Lucas, 1836 (Lycosidae). BRAZIL: *Rio Grande do Sul*: Sapiranga, 1 ♂, 1 ♀, 02.i.2005, E.L.C. Silva (MCTP 8875).

Peucetia rubrolineata Keyserling, 1877 (Oxyopidae). BRAZIL: *Amazonas*: Manaus, Reserva da Campina, 1 ♂, 2 ♀, 01.iii.1992, A. A. Lise (MCTP 1494).

Pisaura mirabilis (Clerck, 1757) (Pisauridae). GERMANY: Manheim: Baden-Würhemberg, 1 ♂, 04.vi.1989, J. Wiesmath (MCN 20017). GERMANY: Albshawsen-Witsenhansen, 1 ♀, 15.iv.1993, A. D. Brescovit (MCTP 3210).

Psechrus sp. (Psechridae). THAILAND: Pai, 1 ♂, 1 ♀, 01-04.iii.1990, V. Roth & B. Roth (CAS).

Senoculus sp. (Senoculidae). BRAZIL: *Rio Grande do Sul*: Caxias do Sul, 1 ♂, 13.xi.1993, R. G. Buss (MCTP 4233), Gravataí, 1 ♀, 11.I.1959, A. S. Ditadi (MCTP 3896).

Sosippus placidus Brady, 1972 (Lycosidae). USA: *Florida*: Archbold Biological Station, iv-v.1987, M. Deyrup (USNM).

Zoropsis spinimana (Dufour, 1820) (Zoropsidae). USA: *California*: Santa Clara, Sunnyvale, 1 ♂, 1 ♀, i-ii.1989, V. Romano (CAS).

Trechaleidae

Amapalea brasiliana Silva & Lise, 2006. BRAZIL: Amapá: Macapá, 1 ♂, 24–28.i.2004, R. A. Silva (MCTP 17033).

Barrisca kochalkai Platnick, 1979. PERU: Amazonas, 1 ♂, 25.xii.1990, P. Goloboff et al (AMNH). VENEZUELA: Aragua, Rancho Grande Biological Station, 1 ♀, no date, C. T. Collins (AMNH).

Barrisca nannella Chamberlin & Ivie, 1936. PERU: *Madre de Dios*: Zona Reservada de Pakitza, 1 ♀, 24.ix.1987, J. Coddington & D. Silva Dávila (MUSM). VENEZUELA: Aragua, 1 ♂, 10.viii.1987, Bordon & Peck (AMNH).

Caricelea apurimac Silva & Lise, 2008. PERU: *Cuzco*: Apurimac river, 1 ♂, 28.viii.1997, J. Duarez (MUSM).

Caricelea camisea Silva & Lise, 2008. PERU: *Cuzco*: Camisea river, Cashiriari, 1 ♂, vii.1997, J. Duarez & S. Córdova (MUSM 500065).

Caricelea wayrapata Silva & Lise, 2007. PERU: *Cuzco*: Wayrapata, 1 ♀, 24.vii.1998, J. Duarez & S. Córdova (MCTP 18322).

Dossenus guapore Silva, Lise & Carico, 2007. COLOMBIA: *Meta*: Lomalinda, 1 ♂, 1 ♀, iii.1998, B. T. Carroll (CAS).

Dossenus marginatus Simon, 1898. BRAZIL: *Amazonas*: São Gabriel da Cachoeira, Morro dos Seis Lagos, 1 ♂, 1 ♀, 28.ix.1990, A. A. Lise (MCTP 1191).

Dyrines brescoviti Silva & Lise, 2010. BRAZIL, *Sergipe*: Itabaina, Estação Ecológica da Serra de Itabaina [10°40'S, 37°25'W], 1 ♀, 14-20.IX.1999, A.D. Brescovit (IBSP 57729).

Dyrines ducke Carico & Silva, 2008. BRAZIL: *Amazonas*: Manaus, Reserva Ducke, 1 ♂, 06.iv.1992, S. Darwich (MCTP 2845), 1 ♀, 10.II.1992 (MCTP 2725).

Dyrines striatipes (Simon, 1898). VENEZUELA: *Amazonas*: Baria river, 1 ♂, 1 ♀, 20.vii.1984, L. S. Ford & C. W. Myers (MCTP 8874).

Enna bonaldoi Silva, Lise & Carico, 2008. BRAZIL, *Amazonas*: Coari, Porto Urucú, Igarapé da Lontra, 1 ♂, 1 ♀, 24.vii.2003, D.D. Guimarães (MCTP 19478).

Enna caliensis Silva, Lise & Carico, 2008. COLOMBIA: *Cali*: Valle, 1 ♂, 1 ♀, 05.iii.1973, H. Levi (MCZ 70112).

Enna caricoi Silva & Lise, 2011. COLOMBIA, San *Pablo*: San Pedro, 1 ♂, 13.V.1975, J. A. Kochalka (MCTP 8869).

Enna eberhardi Silva, Lise & Carico, 2008. PANAMA: Boquete, 1 ♂, 1 ♀, 14.viii.1983, W. Eberhard *et al*. (MCZ 69711, 69712).

Enna estebanensis (Simon, 1898). ECUADOR: Balzapamba, 1 ♂, v.1938, W. M. Clarck-Macintyre (AMNH).

Enna igarape Silva, Lise & Carico, 2008. BRAZIL: *Amazonas*: Igarapé da Lontra, Rio Urucú, Porto Urucú, Coari, 1 ♂, 1 ♀, 23.vii.2003, D. D. Guimarães (MPEG 1435, 1433).

Enna minor Petrunkevitch 1925. COLOMBIA, *Departamento de Santander*: 1 ♀, Hacienda La Estrella, Quebrada, Oquina, 28.ii.1959 (AMNH).

Enna redundans (Platnick, 1993). BRAZIL, *Tocantins*: Dianópolis, Gruta da Vozinha, 1 ♂, 1 ♀, 04–09.XII.2007, R. Andrade (IBSP 97626).

Enna riotopo Silva, Lise & Carico, 2008. ECUADOR, Pastaza river near Wapota, 2 ♂, 1 ♀, 2.iv.1938, W.C. MacIntyre (MCZ).

Enna rothi Silva, Lise & Carico, 2008. ECUADOR, *Quijos*: Napo, 12 km from Baeza, 1 ♀, 10.ix.1994, V. Roth (CAS).

Heidrunea irmleri Brescovit & Höfer, 1994. BRAZIL: *Amazonas*: Igapó, rio Tarumã-Mirim, 1 ♀, 29.I.1988, H. Höfer (MCN 24062), 1 ♂, 20.x–19.xi.1971, U. Irmler (MCN 24061).

Heidrunea lobrita Brescovit & Höfer, 1994. BRAZIL: *Amazonas*: rio Tarumã-Mirim, 1 ♀, 11.i.1977, J. Adis (AMNH).

Hesydrus canar Carico, 2005. Ecuador Rio Yanayacu, Canar, 1 ♂, 1 ♀, 22.ix.1984, F. Man Ging (MECN).

Hesydrus habilis (O. Pickard-Cambridge, 1896). COSTA RICA: Limón, Chirrito river, 1 ♂, 1 ♀, 16.viii.1983, J. Carico & F. Coyle (MCTP 8873).

Hesydrus palustris Simon, 1898. PERU: San Alejandro, 1 ♂, 1 ♀, vi.1947, W. Weyrauchi (AMNH).

Neoctenus comosus Simon, 1897. BRAZIL, *Mato Grosso*: Usina Hidrelétrica de Guaporé, 1 ♂, 1 ♀, 04-17.x.2002, Operação Cota (MCTP 13529).

Neotrechalea globosa **gen. nov. sp. n.** BRAZIL: Tocantins: Dianópolis, 1 ♂, 1 ♀, 04-12.iii.2008, F. Pellegatti-Franco et al. (MCTP 8866).

Neotrechalea hamipalpa **gen. nov. sp. n.** BRAZIL: *Bahia*: Barreiras, 1 ♂, 1 ♀, 2001, A. D. Brescovit & E. F. Ramos (MCTP 8867).

Paradossenus acanthocymbium Carico & Silva, 2010. BRAZIL, *Rio Grande do Sul*: Uruguaiana, Imbaá [29°44'S, 57°05'W], 1 ♂, 1 ♀, i.2009, R. Alves *leg.* (MCTP).

Paradossenus corumba Brescovit & Raizer, 2000. BRAZIL, *Mato Grosso do Sul:* Porto Cercado, 1 ♂, 1 ♀, viii.1992, A. A. Lise & A. Braul (MCTP 2496).

Paradossenus isthmus Carico & Silva, 2010. PANAMA: *Canal Zone*: Barro Colorado Island, 1 ♂, 1 ♀, 18.i.1958, A. M. Chickering (MCTP 8872).

Paradossenus longipes (Taczanowski, 1874). BRAZIL: *Rio Grande do Sul*: Sapiranga, 1 ♂, 1 ♀, 31.i.2004, E.L.C. Silva (MCTP 22595).

Paratrechalea azul Carico, 2005. BRAZIL, *Rio Grande do Sul*: Cambará do Sul, Parque Nacional da Serra Geral, Arroio Fortaleza, 1 ♂, 2 ♀, 20-23.i.2005, E. L. C. Silva col. (MCTP 16567).

Paratrechalea galianoae Carico, 2005. BRAZIL, *Rio Grande do Sul*: São Francisco de Paula, arroio Bananeiras, 1 ♂, 2 ♀, 23.iv.2005, E. L. C. Silva (MCTP 16728, 17167).

Paratrechalea ornata (Mello-Leitão, 1943). BRAZIL: *Rio Grande do Sul*: Sapiranga, 1 ♂, 05.ix.2001, E.L.C. Silva (MCTP 8871), 1 ♀, 14.xi.2005 (MCTP 17583).

Rhoicinus andinus Exline, 1960. PERU, *Monson Valley*: Tingo Maria, Huánuco, 1 ♀, 02.xii.1954, E. I Schlinger & E. S. Ross (CAS 8651). PERU, Cashiari, Camisea River, Cusco, 2 ♂, 24.VII.1998, J. Duárez & S. Córdova leg. (MUSM).

Rhoicinus gaujoni Simon, 1898. BRAZIL: *Amazonas*: Manaus, Ilha da Marchantaria, 1 ♂, 17.xi.1987, A. D. Brescovit (MCN 22194), 1 ♀, 16.xii.1987 (MCN 22195).

Rhoicinus urucu Brescovit & Oliveira, 1994. BRAZIL, *Amazonas*: Coari, Porto Urucu, 1 ♂, 1 ♀, ix.2006, N. F. Lo Man Hung (IBSP 123912).

Rhoicinus schlingeri Exline, 1960. PERU, Tingo Maria, 1 ♀, 05.x.1954, E. I. Schlinger & E. S. Ross (CAS).

Shinobius orientalis (Yaginuma, 1967). JAPAN: *Honshu*: Misugi-Mura, Ichishi-gun, Mie Pref., 1 ♂, 1 ♀, 06.xi.1988, K. Kaihotsu (NSMT 6934).

Syntrechalea adis Carico, 2008. BRAZIL: *Pará*: Oriximiná, Igarapé do Poção, 1 ♂, 1 ♀, 19.i.2009, E.L.C. Silva (MCTP 28590).

Syntrechalea caporiacco Carico, 2008. BRAZIL, *Bahia*: Una (Reserva Biológica de Una), 1 ♂, 1 ♀, 15-28.xi.2000, A. D. Brescovit *et al.* (IBSP 45516, 47674).

Syntrechalea syntrechaloides (Mello-Leitão, 1941). BRAZIL: *Pará*: Vitória do Xingu, 1 ♂, 25.xi.2000, unknown collector (MPEG 4787), *Amazonas*: Presidente Figueiredo, Usina Hidrelétrica de Balbina, 1 ♀, 1987/1988 (IBSP 10861).

Syntrechalea tenuis F. O. Pickard-Cambridge, 1902. BRAZIL, *Acre*: Xapurí (Reserva Extrativista da Pimenteira), 1 ♂, 1 ♀, 05-07.iv.1996, Equipe IBSP/SMNK (IBSP 16086).

Trechalea bucculenta (Simon, 1898). BRAZIL, *Rio Grande do Sul*: Barragem Itaúba, Arroio do Tigre, 1 ♂, 06.iii.2001, R. Ott (MCTP 11585); BR-153, 2 ♀, ii.1989, Itá-Machadinho (MCTP 0509).

Trechalea connexa (O . Pickard-Cambridge, 1898). MEXICO, *Veracruz:* Fortin , 2 ♂, 28.iv.-01.v.1944, C. Bolivar & I. Piiia (AMNH); *Nayarit*: Tepic, 1 ♀, 02.viii. 1947, C. Goodnight (AMNH).

Trechalea extensa O. Pickard-Cambridge, 1896. GUATEMALA, Rokminhi, 1 ♀, Sarg (BMNH).

Trechalea gertschi Carico & Minch, 1981. USA, *Arizona:* Maricopa County, 9 mi. S Sunflower, 1 ♂, 2 ♀, 03.vi.1979, E. Minch (AMNH).

Trechalea longitarsis (C. L. Koch, 1847). BRAZIL: *Pará*: Marabá, Serra Norte, 1 ♀, 14.iv.1983, B. Neto (MPEG 4829), *Amazonas*, no date and collector, 1 ♂ (SMF).

Trechaleoides biocellata (Mello-Leitão, 1926). BRAZIL: *Rio Grande do Sul*: Sapiranga, 1 ♂, 1 ♀, 15.xi.2005, E.L.C. Silva (MCTP 2056).

Trechaleoides keyserlingi (F. O. Pickard-Cambridge, 1903). BRAZIL: *Rio Grande do Sul*: São Jerônimo, Fazenda Casa Branca, 1 ♂, 1 ♀, 20-21.v.1992, J. E. Hennig (MCN 10373).

Appendix 3. Data showing character states for each terminal taxon, the number of steps and the consistency and retention index (in percentage) for each character on the tree of figures 1–4. Inapplicable characters are denoted by '–', unknown entries by '?'.

	Characters																														
Taxa	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Lauricius hooki	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zoropsis spinimana	0	1	2	0	0	0	0	0	0	2	1	0	0	2	0	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	2
Ancylometes concolor	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	2	1	1	2	?	1	0	1	0	0
Psechrus sp.	0	1	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	2	2	0	0	1	0	0	0
Senoculus sp.	0	0	1	1	0	0	0	0	1	1	0	1	1	0	0	0	0	1	1	0	1	0	0	1	2	1	1	0	1	0	0
Peucetia rubrolineata	0	?	2	0	0	0	0	1	1	2	0	?	1	1	0	0	0	0	1	0	1	1	1	1	-	0	?	0	1	0	1
Dolomedes triton	1	1	2	0	1	0	0	0	0	2	1	0	0	1	0	0	0	1	1	0	1	1	1	2	1	0	1	0	1	0	1
Cispius sp.	1	1	2	0	0	0	0	0	1	2	2	0	1	1	0	0	0	1	0	0	1	2	1	2	2	0	1	0	1	0	1
Pisaura mirabilis	1	0	2	0	1	0	0	0	1	2	2	0	1	0	0	0	0	1	1	0	1	2	0	2	2	1	1	0	1	0	1
Aglaoctenus oblongus	0	0	2	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	1	1	0	0	0	2	1	0	1	1	1	0	1
Lycosa erythrognatha	0	2	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	1	2	1	0	1	1	1	0	1
Sossipus placidus	0	0	2	0	1	0	0	0	0	2	2	0	0	0	0	0	0	0	1	1	0	0	1	2	1	0	1	1	1	0	1
Barrisca nannella	1	2	2	0	1	0	0	0	0	1	1	1	1	0	0	0	0	1	?	0	1	2	1	2	2	0	1	0	1	0	1
Barrisca kochalkai	1	0	2	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	?	0	1	2	1	2	2	0	1	0	1	0	1
Heidrunea irmleri	1	0	2	0	0	0	0	0	0	2	0	1	1	1	0	0	0	1	1	0	1	0	1	2	2	1	1	0	1	0	1
Heidrunea lobrita	1	0	2	0	0	0	0	0	0	2	0	1	1	1	0	0	0	1	1	0	1	?	1	2	2	1	1	0	1	0	1
Neoctenus comosus	1	0	2	0	1	0	0	0	0	2	2	1	1	0	0	0	0	0	1	0	1	1	1	2	1	?	1	0	1	0	1
Rhoicinus andinus	1	1	2	0	1	0	0	0	0	2	0	1	1	0	0	0	0	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Rhoicinus gaujoni	1	1	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	2	2	0	1	0	1	0	2
Rhoicinus urucu	1	0	2	0	1	0	0	0	0	2	1	1	1	0	0	0	0	1	1	0	0	0	1	2	2	0	1	0	1	0	1
Rhoicinus schlingeri	1	0	2	0	1	0	0	0	0	2	1	1	1	0	0	0	0	1	1	0	0	0	1	2	2	?	?	?	1	0	1
Shinobius orientalis	1	1	2	0	1	0	0	0	0	2	0	0	1	0	0	0	0	1	1	0	0	2	1	2	2	0	1	0	1	0	1
Amapalea brasiliana	1	0	2	0	1	0	0	1	2	2	2	0	1	0	0	0	0	1	1	0	-	1	1	2	2	0	1	0	1	0	1
Caricelea wayrapata	1	0	2	0	0	0	1	1	2	2	0	0	1	1	0	0	0	1	1	?	?	0	1	2	2	0	1	0	1	0	1
Caricelea apurimac	1	0	2	0	0	0	1	1	2	2	0	0	0	1	0	0	0	1	2	0	-	2	1	2	2	0	?	?	1	0	?
Caricelea camisea	1	0	2	0	0	0	1	1	1	2	0	0	1	1	0	0	0	1	2	0	-	2	1	2	2	0	?	?	1	0	?
Dossenus marginatus	1	1	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Dossenus guapore	1	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Dyrines ducke	1	0	2	0	1	0	0	1	2	2	0	0	1	1	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	1
Dyrines striatipes	1	0	2	0	1	0	0	0	0	2	1	0	1	1	0	0	0	1	2	0	1	1	1	2	2	0	1	0	1	0	1
Dyrines brescoviti	1	0	2	0	1	0	-	-	-	2	1	0	1	1	0	0	0	1	2	0	1	-	-	2	2	0	1	0	1	0	1
Enna redundans	1	0	2	0	0	0	0	1	1	2	0	0	1	1	0	0	0	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Enna caliensis	1	0	2	0	1	0	1	1	1	2	0	0	0	0	0	0	0	1	1	0	0	0	1	2	2	0	1	0	1	0	1
Enna estebanensis	1	0	2	0	1	0	1	1	1	2	1	0	0	1	0	0	0	1	1	0	0	0	1	2	2	0	1	0	1	0	1
Enna riotopo	1	0	2	0	0	1	0	1	2	2	0	0	0	0	0	0	0	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Enna rothi	1	?	2	0	0	0	-	-	-	2	0	0	0	1	0	0	0	1	1	0	1	-	-	2	2	0	1	0	1	0	1
Enna minor	1	?	2	0	0	1	-	-	-	2	0	0	0	1	0	0	0	1	1	0	1	-	-	2	2	0	1	0	1	0	1
Enna igarape	1	?	2	0	1	0	1	1	2	0	0	0	0	0	0	0	0	1	1	0	1	2	0	2	2	0	1	0	1	0	1
Enna bonaldoi	1	?	2	0	1	1	1	1	2	0	0	0	0	0	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	1
Enna eberhardi	1	?	2	0	1	1	1	1	2	2	0	0	0	1	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	1
Enna caricoi	1	?	2	0	0	0	1	1	2	2	0	0	0	1	0	0	0	1	1	0	1	1	0	2	2	0	1	0	1	0	1
Hesydrus palustris	1	1	2	0	0	0	1	1	2	0	1	0	1	0	1	1	1	1	1	0	1	2	1	2	2	0	1	0	1	0	0
Hesydrus canar	1	1	2	0	0	0	1	1	2	2	1	0	1	0	1	1	1	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Hesydrus habilis	1	1	2	0	0	0	1	1	2	0	0	0	1	0	1	1	1	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Paradossenus longipes	1	2	2	0	0	1	1	1	2	0	0	0	1	1	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	2
Paradossenus corumba	1	0	2	0	0	0	1	1	2	2	2	0	1	0	0	0	0	1	0	0	1	1	1	2	2	0	1	0	1	0	1
Paradossenus isthmus	1	0	2	0	0	1	1	1	2	2	1	0	1	0	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	1
Paradossenus acanthocymbium	1	0	2	0	0	1	1	1	1	1	2	0	1	0	0	0	0	1	1	0	1	1	1	2	2	0	1	0	1	0	1
Paratrechalea ornata	1	1	2	0	1	1	1	1	2	0	1	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Paratrechalea azul	1	1	2	0	1	1	1	1	2	0	1	0	1	0	1	1	0	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Paratrechalea galianoae	1	1	2	0	1	1	1	1	2	2	1	0	1	0	1	1	0	1	1	0	1	2	1	2	2	0	1	0	1	0	1
Syntrechalea syntrechaloides	1	1	2	0	1	0	0	1	1	2	0	0	1	0	1	1	1	1	2	1	1	2	1	2	2	0	1	0	1	0	1
Syntrechalea adis	1	1	2	0	0	0	0	0	0	2	0	0	1	1	1	1	1	1	3	1	1	2	1	2	2	0	1	0	1	0	1
Syntrechalea tenuis	1	1	2	0	1	0	0	0	0	2	1	0	1	1	1	1	1	1	3	1	1	2	1	2	2	0	1	0	1	0	1
Syntrechalea caporiacco	1	1	2	0	0	0	0	0	0	0	1	0	1	0	1	1	1	1	2	1	1	2	1	2	2	0	1	0	1	0	1
Trechalea bucculenta	1	1	2	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Trechalea longitarsis	1	1	2	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Trechalea connexa	1	1	2	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Trechalea extensa	1	1	2	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Trechalea gertschi	1	1	2	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	2	0	1	2	1	2	2	0	1	0	1	0	1
Trechaleoides biocellata	1	1	2	0	0	2	0	0	0	1	0	0	1	0	1	1	0	1	1	0	1	2	1	2	1	0	1	0	1	0	1
Trechaleoides keyserlingi	1	1	2	0	0	2	0	0	0	1	1	0	1	0	1	1	0	1	1	0	1	2	1	2	1	0	1	0	1	0	1
Neotrechalea globosa gen.n. sp.n.	1	1	2	0	1	0	0	0	1	1	2	0	1	0	1	1	1	1	3	0	1	2	1	2	2	0	1	0	1	0	1
Neotrechalea hamipalpa gen.n. sp.n.	1	1	2	0	0	0	0	0	1	1	2	0	1	0	1	1	0	1	3	0	1	2	1	2	2	0	1	0	1	0	1
Steps	1	6	1	1	7	4	4	3	5	7	7	4	5	6	0	0	2	2	6	2	4	6	4	1	3	2	0	1	0	1	4
Ci	50	18	66	50	6	33	20	25	22	11	10	16	14	15	100	100	33	33	25	33	16	15	20	66	40	33	100	50	100	50	33
Ri	87	67	0	0	51	63	77	87	75	40	40	44	64	42	100	100	71	75	52	66	58	56	42	66	57	33	100	66	100	0	33

Taxa	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Lauricius hooki	0	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zoropsis spinimana	-	0	1	0	0	0	0	-	-	-	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ancylometes concolor	-	0	0	1	0	1	1	0	0	0	0	1	?	1	0	1	1	0	1	0	1	1	1	0	1	0	1	0	0
Psechrus sp.	0	0	1	0	0	0	0	-	-	-	0	0	0	0	0	0	-	-	-	-	2	1	1	0	0	0	0	0	0
Senoculus sp.	1	0	0	0	0	0	0	0	-	-	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Peucetia rubrolineata	0	0	0	0	0	1	0	0	-	-	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1
Dolomedes triton	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	1	0	0	0	2	1	1	1	0	1	0	1	0
Cispius sp.	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	1	0	0	0	2	1	1	1	0	1	0	1	0
Pisaura mirabilis	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	1	0	0	0	2	1	1	1	0	1	1	1	0
Aglaoctenus oblongus	0	1	0	0	0	0	0	-	-	-	0	1	1	0	0	1	1	1	0	1	2	1	1	1	0	0	0	1	0
Lycosa erythrognatha	0	1	0	0	0	0	0	-	-	-	0	1	1	0	0	1	1	1	0	1	2	1	1	1	0	0	0	1	0
Sossipus placidus	1	1	0	0	0	0	0	-	-	-	0	1	1	0	0	1	1	1	0	1	2	1	1	1	0	0	0	1	0
Barrisca nannella	0	1	0	0	1	0	0	-	-	-	1	1	1	0	1	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Barrisca kochalkai	0	1	0	0	1	0	0	-	-	-	1	1	1	0	1	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Heidrunea irmleri	0	1	0	0	1	0	0	-	-	-	1	1	1	0	1	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Heidrunea lobrita	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Neoctenus comosus	-	1	0	1	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	0	1	0
Rhoicinus andinus	0	1	0	0	1	0	0	-	-	-	1	1	1	0	0	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Rhoicinus gaujoni	0	1	0	0	1	0	0	-	-	-	1	1	1	0	0	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Rhoicinus urucu	1	1	0	0	1	0	0	-	-	-	1	1	1	0	0	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Rhoicinus schlingeri	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Shinobius orientalis	1	1	0	0	1	0	0	-	-	-	1	1	1	0	1	1	1	0	0	0	2	1	1	1	0	0	0	1	0
Amapalea brasiliana	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	?	-
Caricelea wayrapata	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Caricelea apurimac	?	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	-
Caricelea camisea	?	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	-
Dossenus marginatus	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Dossenus guapore	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Dyrines ducke	1	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	0	?	0
Dyrines striatipes	1	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	0	1	0
Dyrines brescoviti	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Enna redundans	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna caliensis	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna estebanensis	1	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna riotopo	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna rothi	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Enna minor	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Enna igarape	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna bonaldoi	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna eberhardi	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Enna caricoi	0	0	0	0	1	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	-
Hesydrus palustris	0	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Hesydrus canar	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Hesydrus habilis	0	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Paradossenus longipes	1	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Paradossenus corumba	1	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Paradossenus isthmus	1	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Paradossenus acanthocymbium	1	0	0	0	1	0	1	1	0	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Paratrechalea ornata	1	0	0	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Paratrechalea azul	0	0	0	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Paratrechalea galianoae	1	0	0	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Syntrechalea syntrechaloides	2	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Syntrechalea adis	2	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Syntrechalea tenuis	2	0	0	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Syntrechalea caporiacco	2	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Trechalea bucculenta	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Trechalea longitarsis	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Trechalea connexa	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Trechalea extensa	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Trechalea gertschi	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Trechaleoides biocellata	0	1	?	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	0	1	0
Trechaleoides keyserlingi	0	1	0	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	0	0	2	1	1	1	1	0	1	1	0
Neotrechalea globosa gen.n. sp.n.	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	0	1	0
Neotrechalea hamipalpa gen.n. sp.n.	0	0	0	0	1	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	2	1	1	1	1	0	1	1	0
Steps	6	1	1	1	1	1	2	3	4	3	0	0	0	1	1	0	0	3	1	0	1	1	1	0	3	0	6	0	0
Ci	18	50	50	50	50	50	33	25	16	25	100	100	100	50	50	100	100	25	50	100	66	50	50	100	25	100	10	100	100
Ri	50	91	0	0	90	0	85	84	61	50	100	100	100	0	83	100	100	88	0	100	66	50	50	100	81	100	67	100	100

Taxa	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78
Lauricius hooki	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	?	?	0	0
Zoropsis spinimana	0	0	0	0	0	0	1	0	1	0	1	1	2	0	1	?	?	0	0
Ancylometes concolor	0	1	1	1	1	0	1	1	1	1	1	2	2	0	2	1	1	1	0
Psechrus sp.	1	-	1	0	0	1	1	0	1	0	0	-	2	?	1	0	0	1	0
Senoculus sp.	-	-	1	1	1	0	0	0	?	1	1	2	0	2	1	1	0	2	0
Peucetia rubrolineata	1	?	1	0	2	0	0	?	?	1	1	?	2	?	1	0	0	1	?
Dolomedes triton	1	-	0	1	0	0	1	1	0	1	1	2	2	0	1	0	0	1	0
*Cispius s*p.	1	-	1	1	0	0	1	1	1	1	?	?	?	?	2	0	0	1	0
Pisaura mirabilis	1	-	?	0	0	?	1	1	?	1	?	?	?	?	1	0	0	1	0
Aglaoctenus oblongus	0	1	1	0	0	1	1	0	0	1	1	1	?	?	1	1	1	2	1
Lycosa erythrognatha	0	1	1	0	1	1	1	0	0	1	1	2	0	0	0	1	1	2	1
Sossipus placidus	0	1	1	0	1	1	1	0	0	1	?	?	?	?	1	?	?	?	1
Barrisca nannella	1	-	1	0	1	0	0	0	1	1	?	?	?	?	0	?	?	?	?
Barrisca kochalkai	1	-	0	0	1	0	0	1	1	1	1	?	1	0	0	?	?	?	?
Heidrunea irmleri	0	1	0	1	0	?	1	1	0	1	1	1	1	1	?	?	?	?	?
Heidrunea lobrita	0	1	0	1	1	?	1	0	1	1	?	?	?	?	?	?	?	?	?
Neoctenus comosus	0	1	0	0	0	0	1	0	1	1	1	2	?	?	2	1	1	?	?
Rhoicinus andinus	1	-	1	0	?	?	1	?	1	1	?	?	?	?	0	0	0	?	?
Rhoicinus gaujoni	0	0	0	0	0	1	1	0	1	1	?	?	?	?	0	0	0	?	?
Rhoicinus urucu	0	0	1	0	?	?	1	0	1	1	1	2	1	3	1	0	0	0	0
Rhoicinus schlingeri	0	0	1	0	1	1	1	0	1	1	?	?	?	?	2	0	0	?	?
Shinobius orientalis	0	0	0	0	1	0	1	0	1	1	?	?	?	?	0	1	0	3	1
Amapalea brasiliana	-	-	-	-	-	-	-	-	-	1	?	?	?	?	?	-	-	-	-
Caricelea wayrapata	0	0	1	0	0	0	1	0	1	1	?	?	?	?	3	?	2	3	1
Caricelea apurimac	-	-	-	-	-	-	-	-	-	1	?	?	?	?	2	-	-	-	-
Caricelea camisea	-	-	-	-	-	-	-	-	-	1	?	?	?	?	1	-	-	-	-
Dossenus marginatus	0	0	1	0	1	1	0	0	1	1	?	?	?	?	0	1	2	3	1
Dossenus guapore	0	0	1	0	1	1	0	0	1	1	1	2	2	0	0	1	2	3	1
Dyrines ducke	1	-	0	0	0	1	1	1	1	1	?	?	?	?	2	?	2	3	1
Dyrines striatipes	0	0	0	0	1	1	0	1	1	1	1	2	1	0	2	1	2	3	1
Dyrines brescoviti	0	0	0	0	1	1	0	1	1	1	1	2	1	?	2	?	?	3	1
Enna redundans	0	0	1	0	1	1	0	0	1	1	?	?	?	?	2	1	2	3	1
Enna caliensis	0	-	1	0	0	1	0	0	0	1	?	?	?	?	2	1	2	3	1
Enna estebanensis	1	-	1	0	0	1	0	0	0	1	?	?	?	?	2	1	2	3	1
Enna riotopo	0	0	1	0	1	1	0	0	0	1	?	?	?	?	0	1	2	3	1
Enna rothi	0	0	1	0	1	1	0	0	0	1	?	?	?	?	0	?	?	?	?
Enna minor	0	0	1	0	1	1	0	0	0	1	?	?	?	?	0	1	2	3	1
Enna igarape	0	0	1	0	1	0	0	0	1	1	?	?	?	?	0	1	2	3	1
Enna bonaldoi	0	0	1	0	1	0	0	0	1	1	?	2	2	0	0	1	2	3	1
Enna eberhardi	0	0	1	0	1	1	0	0	1	1	?	?	?	?	0	1	2	3	1
Enna caricoi	-	-	-	-	-	-	-	-	-	1	?	?	?	?	0	-	-	-	-
Hesydrus palustris	0	0	0	0	0	0	1	0	1	1	?	?	?	?	1	1	2	3	1
Hesydrus canar	0	0	0	0	0	0	1	0	1	1	?	?	?	?	2	1	2	3	1
Hesydrus habilis	0	0	0	0	0	0	1	0	1	1	1	2	2	3	2	1	2	3	1
Paradossenus longipes	0	0	0	0	0	1	0	1	1	1	1	2	2	1	2	1	2	3	1
Paradossenus corumba	0	0	0	0	0	1	1	0	1	1	1	?	?	?	2	1	2	3	1
Paradossenus isthmus	0	0	0	0	0	1	1	0	1	1	?	?	?	?	2	1	2	3	1
Paradossenus acanthocymbium	0	0	0	0	0	1	1	0	1	1	?	?	?	?	1	1	2	3	1
Paratrechalea ornata	0	0	1	1	1	1	1	0	0	1	1	2	2	3	3	1	2	3	1
Paratrechalea azul	0	0	1	1	1	1	1	0	0	1	?	?	?	?	3	1	2	3	1
Paratrechalea galianoae	0	0	1	1	1	1	1	0	0	1	?	?	?	?	3	1	2	3	1
Syntrechalea syntrechaloides	0	0	0	1	0	1	1	0	1	1	?	?	?	?	2	1	2	3	1
Syntrechalea adis	0	0	0	1	0	1	1	0	1	1	1	2	1	0	2	1	2	3	1
Syntrechalea tenuis	0	0	0	1	0	1	1	0	1	1	?	?	?	?	2	1	2	3	1
Syntrechalea caporiacco	0	0	0	1	0	1	0	0	0	1	?	?	?	?	2	1	2	3	1
Trechalea bucculenta	0	0	0	1	0	1	1	0	1	1	?	?	?	?	2	1	2	?	?
Trechalea longitarsis	0	0	0	1	0	1	1	0	1	1	?	?	?	?	2	1	2	3	1
Trechalea connexa	0	0	0	1	0	1	1	0	1	1	?	?	?	?	1	1	2	3	1
Trechalea extensa	0	0	0	1	0	1	1	0	1	1	?	?	?	?	1	1	2	3	1
Trechalea gertschi	0	0	0	1	0	1	1	0	1	1	?	?	?	?	2	1	2	3	1
Trechaleoides biocellata	0	0	1	0	1	1	1	0	0	1	1	1	2	3	2	1	2	3	1
Trechaleoides keyserlingi	0	0	1	0	1	1	0	0	0	1	?	?	?	?	2	1	2	3	1
Neotrechalea globosa gen.n. sp.n.	0	0	1	0	0	0	0	0	1	1	?	?	?	?	0	?	?	?	?
Neotrechalea hamipalpa gen.n. sp.n.	0	0	1	0	0	0	0	0	1	1	1	2	1	0	2	?	?	?	?
Steps	5	2	6	4	6	5	6	5	5	0	1	3	4	2	7	3	1	2	1
Ci	14	33	10	16	16	12	10	14	11	100	50	40	33	60	15	25	66	60	50
Ri	33	66	66	70	58	61	59	33	50	100	0	0	50	50	50	62	92	77	87

Capítulo II

Taxonomic revision of the spider family Rhoicinidae (Araneae, Lycosoidea)

ESTEVAM L. CRUZ DA SILVA & ARNO A. LISE

Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, Sala 125, Av. Ipiranga 6681, 90619-900, Porto Alegre, RS, Brasil, E-mail: estevamsilva@gmail.com; lisearno@pucrs.br

Abstract

The Rhoicininae Simon, 1898 was recently removed from Trechaleidae Simon, 1869 and promoted to family rank based on the results of a morphological study made by Silva *et al*. (in press). The family is here revised. Rhoicinidae is composed by four genera: *Barrisca* Chamberlin & Ivie, 1936, *Heidrunea* Brescovit & Höfer, 1994, *Rhoicinus* Simon, 1898 and *Shinobius* Yaginuma, 1991. *Barrisca nannella* Chamberlin & Ivie, 1936 (type-species) and *B. kochalkai* Platnick, 1978 are redescribed and illustrated. The male of *B. kochalkai* and a new species from Peru are described and illustrated for the first time. The representatives of *Heidrunea* Brescovit & Höfer, 1994 (*H. arijana* Brescovit & Höfer, 1994, *H. irmleri* Brescovit & Höfer, 1994 and *H. lobrita* Brescovit & Höfer, 1994) were illustrated. The genus *Rhoicinus* comprises 10 known species and all known species are redescribed and illustrated. *Rhoicinus weyrauchi* Exline, 1960 is a junior synonym of *R. wapleri* Simon, 1898. *Rhoicinus cashiari* **sp. nov.** is described and illustrated from material collected in Peru. The monotypic genus *Shinobius* Yaginuma, 1991 is redescribed and illustrated. Maps with the distribution of the representatives of the family are presented.

Key words: systematics; morphology; new species; Japan; Neotropical region.

Introduction

Simon (1898) proposed Rhoicineae and listed as a group of Lycosidae. Later, Petrunkevitch (1928) erroneously listed as Rhoicinae, an error for Rhoicininae, as a Subfamily of Agelenidae.

The Subfamily Rhoicininae was redefined by Sierwald (1993), consisting, at that time, of three genera: *Rhoicinus* Simon, 1898, *Barrisca* Chamberlain & Ivie, 1936 and *Shinobius* Yaginuma, 1991. Griswold (1993) placed the Subfamily in Trechaleidae and a few observations of this placement were made by Carico (1993: 234). The genus *Xingusiella* Mello-Leitão, 1940 was included in Rhoicininae by Lehtinen (1967: 332) and synonymized by Sierwald (1993) with *Paradossenus* F.O.P.-Cambridge, 1903, which is a member of Trechaleinae, recently diagnosed by Carico & Silva (2010).

Both Sierwald (1990) and Griswold (1993) considered rhoicinines to be related to the trechaleids. The latter author included an undescribed *Rhoicinus* in his cladogram which emerged as a sister group to *Trechalea*. And, therein implied, the two genera could be considered members of the Trechaleidae. Because of the problems historically in assigning a Family for rhoicinines (Platnick, 1979), the perceived weakness of Griswold's synapomorphies (discussed below), and the diversity of characters among the various genera currently assigned to the group (Exline, 1960), and is included in the Trechaleidae.

Exline (1950) described a new species of *Rhoicinus*, *R. wallsi*, and the new genus *Rhoicinaria*, and included it in Rhoicininae together with *Rhoicinus*. Exline (1960) discussed the placement of *Rhoicinaria* in Rhoicininae after observations made by Homann (1952) based on eye color, placing it closer to Pisauridae than to

Agelenidae or Lycosidae. The genus *Calacadia,* described by Exline (1960) was also included in Rhoicininae, which then comprised three genera: *Rhoicinus* Simon, 1898, *Rhoicinaria* Exline, 1960 and *Calacadia*. Lehtinen (1967: 219) transferred *Rhoicinaria* to Amphinectidae, later corroborated by Davies (1998: 242), and *Calacadia* Exline, 1960 was transferred to Amaurobiidae by Lehtinen (1967: 262).

The genus *Rhoicinus* was proposed by Simon (1898) and currently comprises 10 species distributed mostly in Ecuador, Venezuela, Guyana, Peru and Brazil (Platnick, 2012). The genus was formerly listed in the Pisauridae or Agelenidae, transferred to the Amaurobiidae by Lehtinen (1967: 262) and to Trechaleidae by Sierwald (1993: 69) and Griswold (1993: 37). We can consider the first revision of *Rhoicinus*, the work of Exline (1960) where the type-species, *Rhoicinus gaujoni* Simon, 1898, was redescribed and four new species of Western South America (Peru) were described and illustrated: *R. andinus* (female), *R. rothi* (male and female), *R. schlingeri* (female) and *R. weyrauchi* (female). Brescovit (1993) synonymized *Pelayo fuscus* (Caporiacco, 1947) with *Josa* Keyserling, 1891 (Anyphaenidae) and transferred it to *Rhoicinus*. Höfer & Brescovit (1994) described the male of *Rhoicinus gaujoni* and a new species based in one male from the Amazon region, Northern Brazil (*R. lugato*). Brescovit & Oliveira (1994) described *Rhoicinus urucu* (male and female) also from Northern Brazil (state of Amazonas). Recently, Silva (2007) described and illustrated the male of *Rhoicinus andinus* Exline, 1960 from Cusco, Peru.

The spider genus *Barrisca* was established by Chamberlin & Ivie (1936), type-species *B. nannella*, originally known to Panama, Colombia, Venezuela and Peru. The genus was transferred from the Agelenidae to the Rhoicininae (Pisauridae) by Roth (1964: 759), to the Amaurobiidae by Lehtinen (1967: 218) and transferred to Trechaleidae (Rhoicininae) by Sierwald (1993: 69) and Griswold (1993: 37).

The genus *Heidrunea* was proposed by Brescovit & Höfer (1994) based on material collected in central Amazonian forest, in Brazil. It comprises only three species: *Heidrunea irmleri* (type-species, male and female), *H. arijana* (male and female) and *H. lobrita* (female).

The spider genus *Shinobius* was proposed by Yaginuma (1991) for the Japanese species *S. orientalis* (Yaginuma, 1967), which was originally described in the African genus *Cispius* Simon, 1898. It was placed in Trechaleidae (Rhoicininae) by Griswold (1993: 37).

Silva *et al*. (in prep.) showed a clade well supported comprising Lycosidae plus Rhoicinidae. The representatives of Rhoicinidae can be recognized by the foolowing synapomorphies, listed by Silva *et al*. (in prep.): absence of retrolateral tibial apophysis (RTA) (char. 37) (Figs 14, 66, 86, 98), presence of the sclerotized ring on tibia apex of male palpus (char. 41) (Figs 14, 66, 86, 98), presence of ten cylindrical spigot glands on the posterior median spinnerets (PMS) (char. 72) (Fig. 47) and absence of pairs of sigilla on the abdomen (char. 74). *Shinobius orientalis* (Yaginuma, 1967) is confirmed as a member of Rhoicinidae closely related to *Heidrunea* and *Rhoicinus* is related to the clade formed by *Barrisca* + *Shinobius* + *Heidrunea*.

In this work we diagnose and describe the family Rhoicinidae. The two known species of *Barrisca* (*B. nannella* and *B. kochalkai* Platnick, 1979) are redescribed and illustrated and also the male of *B. kochalkai*, from Peru. The 10 known species of *Rhoicinus* are also redescribed and illustrated, plus a new species from Peru. The types of *Heidrunea* (*H. irmleri*, *H. arijana* and *H. lobrita*) and *Shinobius* (*S. orientalis* (Yaginuma, 1967) are also redescribed and illustrated. Maps with the geographical distribution of the representatives of the Family are presented.

Material and Methods

Specimens

The material examined is deposited in the following institutions: **AMNH**, American Museum of Natural History, New York (N. I. Platnick); **CAS**, California Academy of Sciences, San Francisco (C. E. Griswold); **FMNH**, Field Museum of Natural History, Chicago (P. Sierwald); **IBSP**, Instituto Butantan, São Paulo (A. D. Brescovit); **INPA**, Instituto Nacional de Pesquisas da Amazônia, Manaus (C. Magalhães); **MCN**, Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E. H. Buckup); **MCTP**, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (A. A. Lise); **MCZ**, Museum of Comparative Zoology, Cambridge, Massachusetts (G. Giribet); **MNHN**, Muséum National d'Histoire Naturelle, Paris (C. Rollard); **MPEG**, Museu Paraense Emílio Goeldi, Belém (A. B. Bonaldo); **MUSM**, Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima (G. Lamas); **MZS**, Museo Zoologico La Specola, Firenze (L. Bartolozzi); **NMNS**, National Museum of Nature and Science, Tokyo, Japan (H. Ono); **SMNK**, Staatlisches Museum für Naturkunde Karlsruhe, Karlsruhe (H. Höfer); **USNM**, National Museum of Natural History, Smithsonian Institution, Washington, D.C. (J. Coddington); **UA**, Universidade do Amazonas, Manaus (N. O. Aguiar).

Morphological examinations

The material was examined and illustrated using a stereomicroscope ZEISS model Stemi SV 6 equipped with camera lucida. For scanning electron microscopy, structures were excised, air-dried and mounted on stubs with double-sided adhesive tape. This material was sputter coated with gold and examined using a Philips XL 30.

The photographs were made using a digital camera Sony W55 attached to the stereomicroscope. To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 hours at 25°C. All measurements are in millimeters. The nomenclature of the male palpus and female epigynum structures follows Exline (1950, 1960), Sierwald (1993), Silva (2007). Spinneret terminology follows Platnick, 1990.

Abbreviations:

Eye measurements. OQA = width of ocular quadrangle anteriorly, OQP = width of ocular quadrangle posteriorly, OQH = height of ocular quadrangle, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye , ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = interdistance between posterior lateral eye and posterior median eye, PME-PME = interdistance between posterior median eyes, ALE-AME = interdistance between anterior lateral eye and anterior median eye, AME-AME = interdistances between anterior median eyes.

Male and female genitalia. AS, accessory spermathecae; C, conductor; CD, copulatory ducts; CMA, circular membranous area; DTP, distal tegular projection; E, embolus; FD, fertilization ducts; HS, head of spermathecae; LL, lateral lobes; MA, median apophysis; MEA, membranous area; MF, middle field of epigynum; S, spermatheca; SR, sclerotized ring; SS, stalk of spermathecae; ST, subtegulum; T, tegulum.

Taxonomy

Rhoicinidae Simon, 1898

Rhoicineae Simon 1898a: 320–322, figs 328–330 (a "group" within the Lycosidae). Petrunkevitch 1928: 9, 38 (error for Rhoicininae; a Subfamily of the Agelenidae).

Rhoicininae Simon, 1898a: 320–322, figs 328–330 (type genus *Rhoicinus* Simon, 1898); Bonnet, 1958: 3861; Petrunkevitch, 1928: 38, 96; Petrunkevitch, 1939: 166; Exline, 1950: 2.

Rhoicinidae; Silva *et al*. (in press).

Genera included. *Barrisca*, *Heidrunea*, *Rhoicinus* and *Shinobius*.

Type-genus. *Rhoicinus* Simon, 1898 (by original designation).

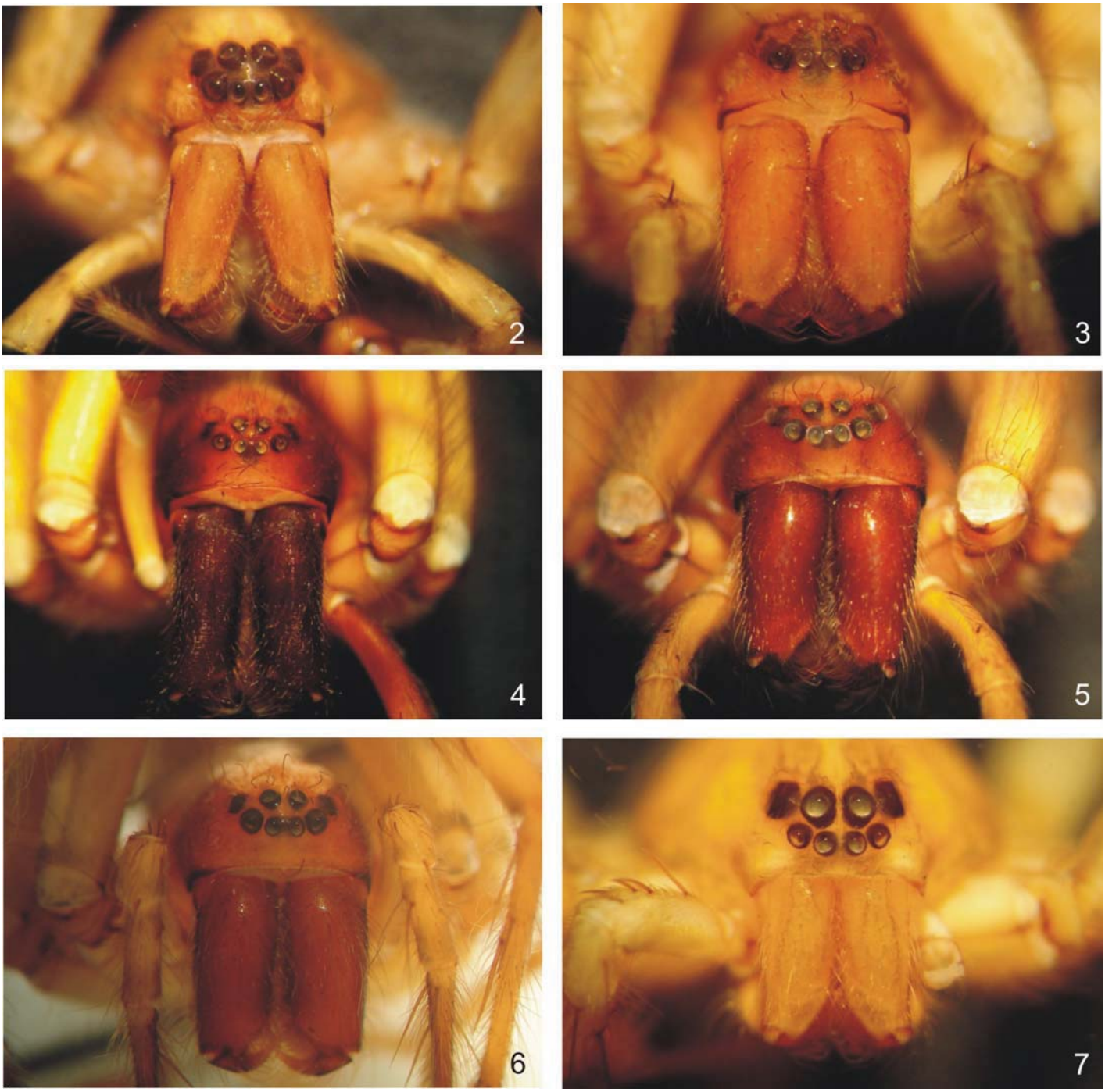
Diagnosis. Rhoicinidae is closely related to Lycosidae forming a sister group related to Trechaleidae based on the following diagnostic synapomorphies, listed by Silva *et al*. (in prep.) absence of retrolateral tibial apophysis (RTA) (Figs 14, 66, 86, 98), presence of the sclerotized ring on tibia apex of male palpus (Figs 14, 66, 86, 98), presence of ten cylindrical spigot glands on the posterior median spinnerets (PMS) (Fig. 47) and absence of pairs of sigilla on the abdomen. The males of Rhoicinidae resemble the ones from Lycosidae by the absence of the retrolateral tibial apophysis, but can be distinguished from Lycosidae and Trechaleidae by the presence of sclerotized ring on the male palpal tibia (Figs 22, 66, 87, 106) and the elongated apex of the cymbium (Figs 14, 19, 23, 28, 32, 37, 66, 86, 98). The females present a scape-like projection of the median field of the epigynum (Figs 57, 73, 88, 92, 95, 102) and the head of the spermathecae is usually rounded or slightly elliptical and generally presenting an accessory spermathecae (Figs 17, 21, 27, 31, 35, 43, 61).

Description. Eyes in two rows, posterior row recurved (dorsal view) or straight (frontal view); eyes of approximately equal size, or anterior median eyes a little smaller than others (Figs 2–8); upper claws bearing many teeth (Figs 44, 63, 70, 79), lower claw with one tooth (Fig. 70); integument covered with plumose hairs; no onychium or scopula on legs; three teeth on the posterior margin of fang furrow. Males with elongated distal haft of cymbium (Figs 14, 19, 23, 28, 32, 37, 66, 86, 91, 104); RTA absent; a sclerotized ring (SR) on retrolateral tibia (Figs 22, 25, 66, 71, 86, 107); median apophysis (MA) conspicuous (Figs 20, 71, 86, 105); embolus (E) short and thin (Figs 20, 24, 29, 32, 38, 72). Female epigynum usually projected at the posterior margin (Figs 57, 73, 88, 92, 95, 102); head of spermathecae rounded (Figs 27, 31, 52, 55, 58, 74, 85, 89, 96) or elliptical (Figs 17, 35, 42, 69, 93). Egg sac is attached to posterior spinnerets (Brescovit & Oliveira, 1994: 68, figs. 1, 2).

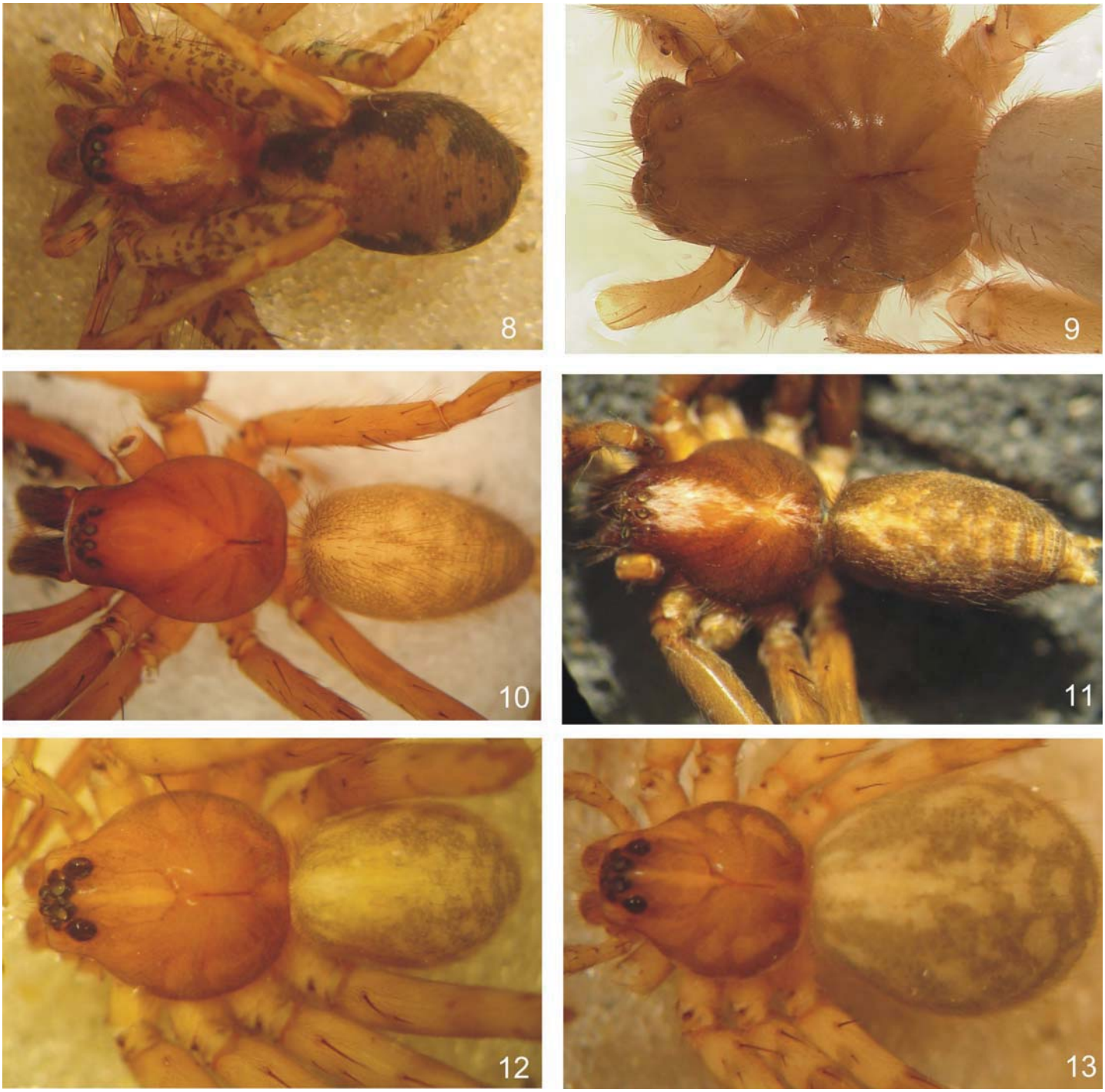
Distribution. Neartic (Japan) and Neotropical (Central and South America) (Fig. 1).

Natural history. *Rhoicinus urucu* Brescovit & Oliveira, 1994 is reported to build a sheet-web to hunt preys on bromelids (Brescovit & Oliveira, 1994: 68). Representatives of *Shinobius orientalis* (Yaginuma, 1967) can be found near rocky streams, environment also preferred by trechaleids (Kaihotsu, 1988: 14, fig. 1).

FIGURE 1. Distribution of Rhoicinidae in the Neotropical region.



FIGURES 2–7. Frontal view of the genera of Rhoicinidae. 2, *Barrisca nannella* (male); 3, *Barrisca kochalkai* (female); 4, *Rhoicinus gaujoni* (male); 5, *Rhoicinus andinus* (female); 6, *Rhoicinus rothi* (female); 7, *Shinobius orientalis* (male).



FIGURES 8–13. Dorsal view of habitus of the genera of Rhoicinidae. 8, *Barrisca nannella* (female); 9, *Heidrunea arijana* (male); 10, *Rhoicinus lugato* (male); 11, *Rhoicinus urucu* (male); 12, *Shinobius orientalis* (male); 13, *Shinobius orientalis* (female).

***Rhoicinus* Simon, 1898**

Figs 1, 5, 6, 11, 12, 15–66

Rhoicinus Simon, 1898b: 129 (description of the genus). Simon, 1898a: 322, figs. 328–330; Petrunkevitch, 1925: 173; Petrunkevitch, 1928: 96; Bonnet, 1958: 3862; Exline, 1960: 587, figs. 4, 6; Lehtinen, 1967: 262; Sierwald, 1993: 69; Griswold, 1993: 37; Höfer & Brescovit, 1994: 55, figs. 1-4, 8-11; Platnick, 2012.

Type-species. *Rhoicinus gaujoni* (by original designation).

Diagnosis. The males of *Rhoicinus* (Figs 14, 19, 23, 28, 32, 37) can be distinguished from those of *Heidrunea* (Figs 86, 90) and *Barrisca* (Figs 66, 71) by the larger median apophysis (Figs 20, 24, 29, 32, 38) and presence of strong macrosetae on the male cymbium (Silva, 2007: 62, figs. 1, 2). The females resembles those of *Heidrunea* (Figs 88, 92, 95) and *Barrisca* (Figs 68, 73), but can be distinguished by the presence of a prominent and distinctive scape-like projection on the posterior margin of the epigynum (Figs 16, 26, 30, 34, 41, 51, 54, 57).

Description. Carapace low to slightly elevated, fovea marked. Anterior eye row recurved; posterior straight (Figs 4–6). Chelicerae bristly (Fig. 5); promargin and retromargin of fang furrow each with three teeth equidistant and equal in size. Sternum with scattered setae. Labium unmarked. Legs light brown, unmarked, relative length: IV-I-III-II. Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Spinnerets (Fig. 47). Posterior lateral spinneret (PLS) with several aciniform spigot glands (Ac) (Fig. 48). Posterior median spinnerets (PMS) with aciniform spigot glands (Ac) and macroampullate spigot glands (Ma) (Fig. 49). Anterior lateral spinnerets (ALS) with numerous piriform spigot glands (Pi) and two macroampullate spigot glands (MAp) (Fig. 50). Abdomen slightly long (Figs 10, 11), dorsum bristly and with conspicuous sigillae. Venter with scattered setae.

Distribution. Central America (Costa Rica) to South America (Venezuela, Colombia, Ecuador, Guyana, Brazil, Peru, Bolivia) (Fig. 1).

***Rhoicinus gaujoni* Simon, 1898**

Figs. 1, 4, 14–22

Rhoicinus gaujoni Simon, 1898b: 129 (four females syntypes from Zamora, Departamento Zamora-Chinchipe, Ecuador, Gaujon leg., in MNHN 10382, examined). Simon, 1898a: 322, figs. 328–330; Petrunkevitch, 1911: 578; Petrunkevitch, 1928: 96; Bonnet, 1958: 3862; Exline, 1960: 587, figs. 4, 6; Lehtinen, 1967: 444, fig. 195; Höfer & Brescovit, 1994: 55, figs. 1-4, 8-11 (description of male). Platnick, 2012.

Diagnosis. Males of *Rhoicinus gaujoni* resemble those of *R. rothi* and *R. urucu* by the general shape of the median apophysis (Figs 29, 38), but can be distinguished by the slender distal haft of the median apophysis (MA) and by the narrow base of the conductor (C) (Figs 14, 19). Females resemble the ones of *R. urucu* by the presence of conspicuous lateral lobes (LL) (Fig. 41), but can be distinguished by longer lateral lobes (Fig. 16), by the broad and longer fertilization ducts (FD) (Figs 17, 18) and by the long and elliptical shape of the head of the spermathecae (HS) (Figs 17, 20, 21).

Description. Female (Holotype, Zamora, Ecuador, MNHN 10382). Total length 13.83. Carapace 5.58 long, 4.25 wide, light brown, unmarked. Clypeus light brown, 0.40 high. Anterior eye row recurved, 1.16 wide; posterior straight, 1.64 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.20, ALE 0.20, PME 0.18, PLE 0.13; AME-AME 0.13, AME-ALE 0.14, PME-PME 0.22, PME-PLE 0.40, OQA 0.44, OQP 0.60, OQH 0.62. Chelicerae dark brown, bristly. Sternum light brown, with scattered setae; 2.39 long, 2.36 wide. Labium dark brown, light brown distally,

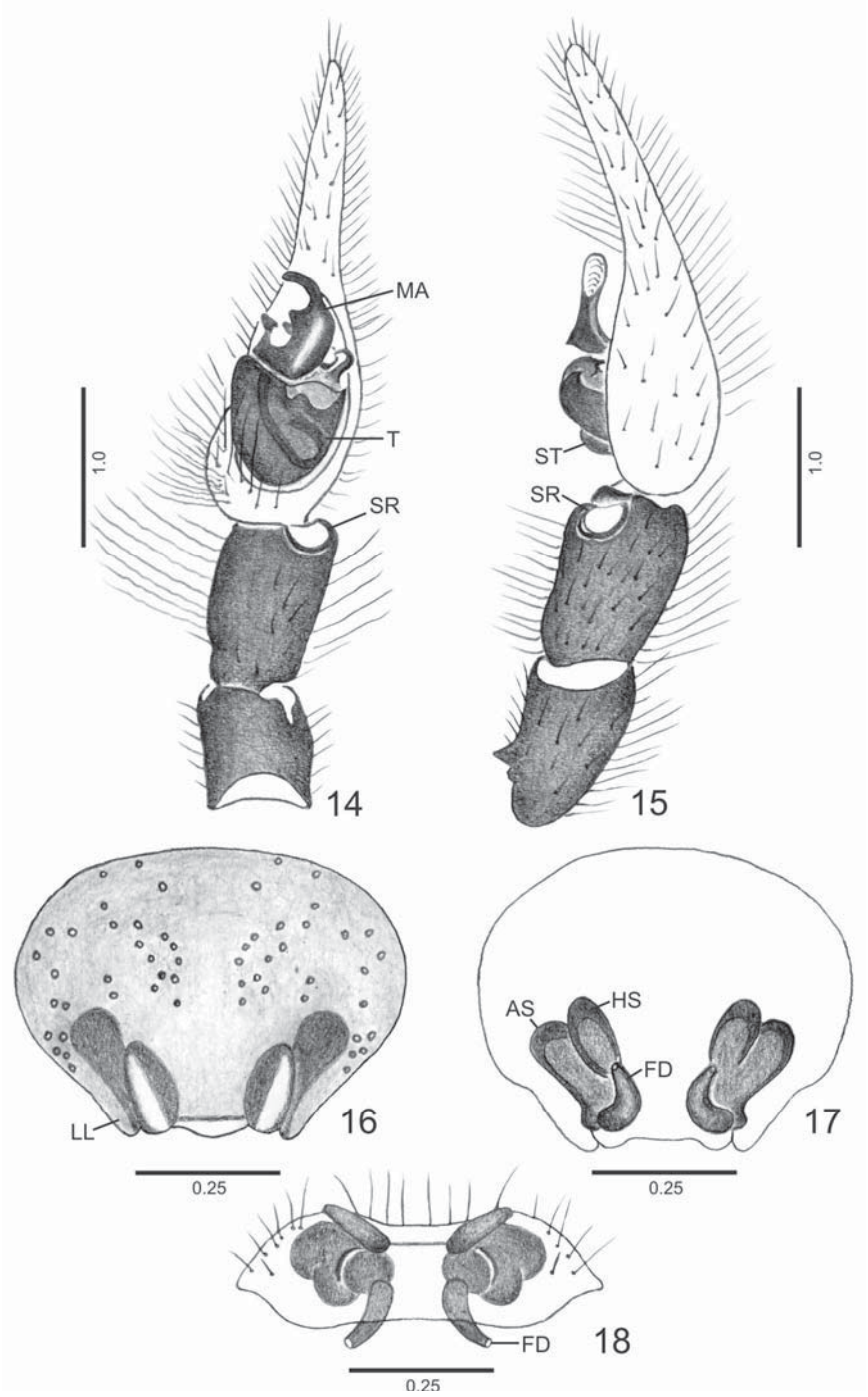
1.06 long, 0.95 wide. Legs light brown, unmarked, relative length: IV-I-III-II. Leg measurements: I – femur 5.58/ tibia-patella 7.31/ metatarsus 5.05/ tarsus 2.52/ total 20.46; II – 3.99/ 5.32/ 3.32/ 2.52/ 14.75; III – 5.05/ 5.98/ 4.25/ 1.99/ 17.27; IV – 6.11/ 7.44/ 6.25/ 2.66/ 22.46. Hood of trichobothria smooth (Fig. 22). Abdomen 7.31 long, dark gray, lighter anteriorly, bristly and with three pairs of sigillae. Venter light brown, with scattered setae. Epigynum with conspicuous lateral lobes (LL) and middle field slightly projected (Fig. 16); spermathecae elliptical with large accessory spermathecae (AS) (Figs 17, 20, 21).

Male (Amazonas, Brazil, INPA). Total length 13.03. Carapace 5.98 long, 4.65 wide, light brown as in female. Clypeus as in female, 0.53 high. Anterior eye row slightly recurved (Fig. 4), 1.17 wide; posterior straight, 1.61 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.21, ALE 0.18, PME 0.17, PLE 0.16; AME-AME 0.12, AME-ALE 0.12, PME-PME 0.20, PME-PLE 0.31, OQA 0.52, OQP 0.62, OQH 0.58. Chelicerae color as in female. Sternum as in female; 2.79 long, 2.66 wide. Labium dark brown, 1.06 long, 0.95 wide. Legs as in female, relative length: I-IV-II-III. Leg measurements: I – femur 6.78/ tibia-patella 8.91/ metatarsus 7.18/ tarsus 3.19/ total 26.06; II – 6.65/ 8.64/ 6.67/ 2.92/ 24.88; III – 5.71/ 6.65/ 5.18/ 2.26/ 19.80; IV – 7.18/ 8.37/ 7.31/ 2.90/ 25.76. Abdomen 6.25 long, color of dorsum and venter as in female. Cymbium 3.19 long. Palpus with prominent sclerotized ring on tibia (Fig. 15); median apophysis with elongated tip (Figs 14, 19).

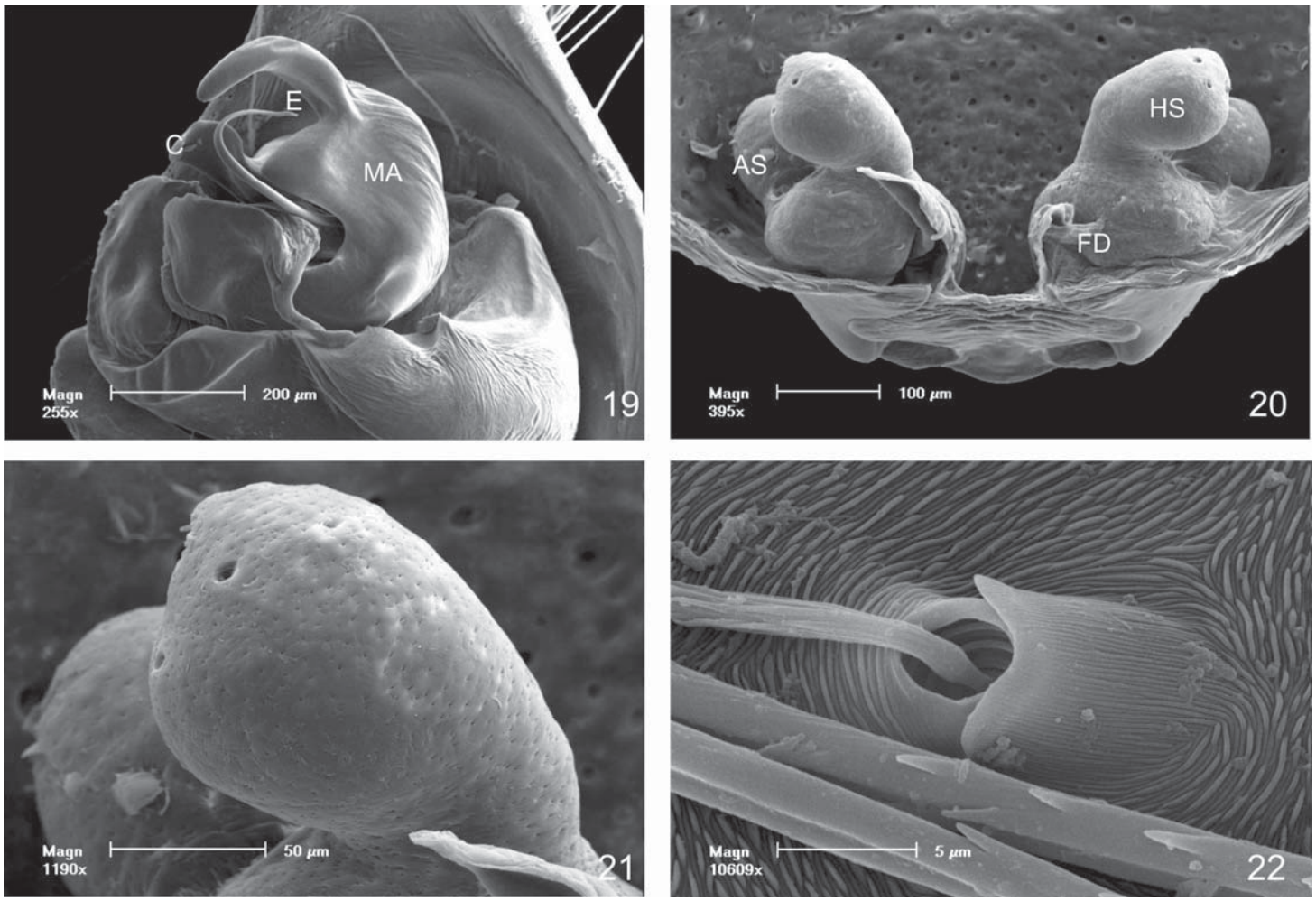
Other material examined. ECUADOR, 30km from Puyo, Rio Negro (01º29'S, 78º00'W), 1 ♀, 14.I.1994, V. Roth *leg*. (CAS); BOLIVIA, *Beni*: Beni Biological Station, Zone I (14°47'S, 66°15'W), 1 ♂, 2 ♀, 08-14.XI.1989, J. Coddington *leg*. (USNM); BRAZIL, *Amazonas*: Manaus, Ilha da Marchantaria (3º13'S, 59º53'W), 1 ♀, 16.XII.1987, A. D. Brescovit *leg*. (MCN 22195), 1 ♂, 17.XI.1987 (MCN 22194), *Pará*:

Novo Progresso, Serra do Cachimbo, Campo de Provas Brigadeiro Velloso (07º08'S, 55º22'W), 1 ♂, 1 ♀, 19.IX.2003, A. B. Bonaldo *leg*. (MPEG 15600).

Distribution. Ecuador (Puyo), Bolivia (Beni), Brazil (Amazonas, Pará) (Fig. 1).



FIGURES 14–18. *Rhoicinus gaujoni*. 14, 15 male palpus (14 ventral, 15 retrolateral). 16–18 female epigynum (16 ventral, 17 dorsal, 18 posterior). (AS, accessory spermathecae, FD = fertilization duct, HS = head of spermathecae, LL = lateral lobe, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum).



FIGURES 19–22. *Rhoicinus gaujoni.* 19 male palpus, ventral view, 20 female epigynum, dorsal view, 21 detail of the head of the spermathecae, 22 trichobothria of right leg II (C = conductor, E = embolus, MA = median apophysis, SR = sclerotized ring).

***Rhoicinus fuscus* (Caporiacco, 1947)**

Pelayo fuscus Caporiacco, 1947: 27 (immature holotype from Two Mouths, Essequibo, Guyana, in MZS, not examined). Caporiacco, 1948: 679; Roewer, 1954: 544.

Rhoicinus fuscus; Brescovit, 1993: 129; Platnick, 2012.

Note. Brescovit (1993) transferred the species *Pelayo fuscus,* described by Caporiacco (1947) in the Anyphaenidae, to *Rhoicinus,* but as it is an immature specimen, he considered it as *incertae sedis*.

***Rhoicinus andinus* Exline, 1960**

Figs 1, 5, 23–27

Rhoicinus andinus Exline, 1960: 597, figs. 3, 7, 9 (female holotype from Huanuco-San Martin, Monson Valley, near Tingo Maria, 02 December 1954, E.I. Schlinger and E.S. Ross leg., in CAS type # 8651, examined). Silva, 2007: 61; Platnick, 2012.

Diagnosis. Males of *R. andinus* can be distinguished from those of *R. gaujoni* and *R. lugato* (Figs 20, 32) by the presence of a larger sclerotized ring at the palpal tibiae and short median apophysis (Figs 23, 24) and by the absence of dorsal macrosetae on cymbium. Females of *R. andinus* resemble those of *R. rothi* (Figs 30, 31) by the general shape of the middle field of epigynum (Fig. 26), but can the be distinguished by the presence of rounded lateral lobes (LL) (Fig. 26) and by the short projection of the middle field of the epigynum(Fig. 26).

Description. Female (Holotype, Huanuco-San Martin, Monson Valley, Peru, CAS 8651). Total length 9.97. Carapace light brown, with a median dark brown band, 4.15 long, 3.16 wide. Clypeus light brown, 0.30 high. Anterior eye row slightly recurved, 0.90 wide; posterior straight, 1.22 wide (Fig. 5). Eye diameters, interdistances, and

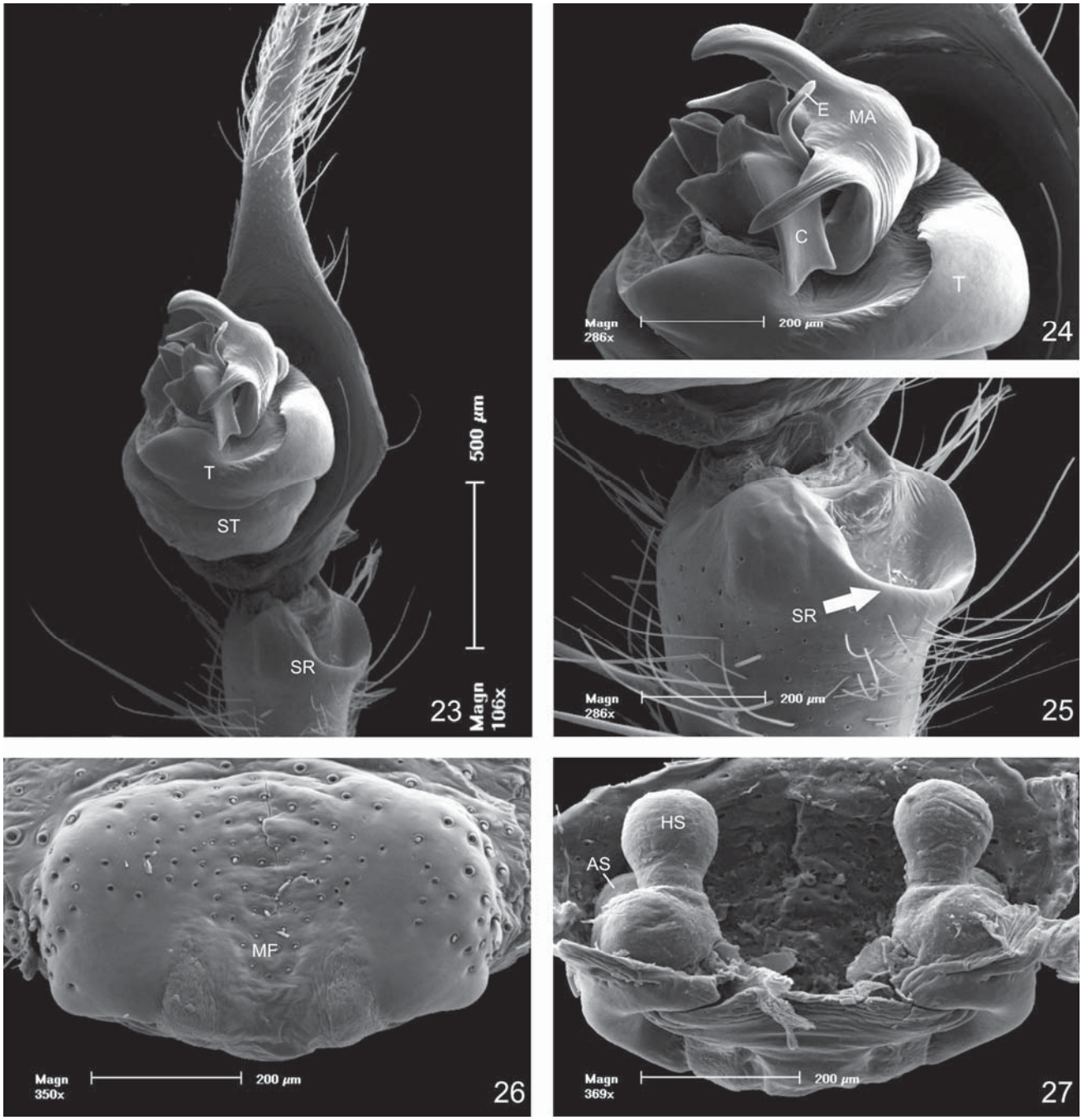
median ocular quadrangle: AME 0.17, ALE 0.18, PME 0.16, PLE 0.14; AME-AME 0.12, AME-ALE 0.08, PME-PME 0.14, PME-PLE 0.23, OQA 0.46, OQP 0.50, OQH 0.51. Chelicerae reddish-brown, bristly. Sternum light brown, median area dark brown, with scattered setae; 2.15 long, 1.82 wide. Labium dark brown, light brown distally, 0.67 long, 0.74 wide. Legs light brown with dark brown annuli on femora, relative length: IV-II-I-III. Leg measurements: I – femur 3.56/ tibia-patella 4.56/ metatarsus 3.48/ tarsus 1.82/ total 13.42; II – 4.15/ 4.89/ 3.40/ 1.90/ 14.34; III – 3.81/ 4.23/ 3.15/ 1.66/ 12.85; IV – 4.48/ 4.81/ 4.73/ 2.07/ 16.09. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 5.39 long, dark gray, dorsum with a whitish patch at the anterior portion; two pairs of sigillae. Venter light brown, with scattered setae. Epigynum with rounded lateral lobes (LL) (Fig. 26) and short projection of the middle field (MF) (Fig. 26).

Male (Cusco, Peru, MUSM). Total length 7.3.Carapace, 3.34 long, 2.75 wide, pale yellow, pale brown at the lateral margins, with dark bristles; pale yellow at the ocular region (Fig. 3). Chelicerae, pale brown, with small pale brown bristles, not enlarged at the base. Labium 0.52 long, 0.58 wide, pale yellow, light brown at the distal margin, darker at the anterior margin. Clypeus, yellow, with long bristles at the posterior margin, dark lateral projections, 0.16 high. Sternum 1.70 long, 1.58 wide, pale yellow, with small pale brown bristles. Eye diameters, interdistances and median ocular quadrangle: anterior eye row 0.93 wide, recurved, posterior row 0.96 wide, recurved. AME 0.18, ALE 0.15, PME 0.18, PLE 0.12, AME-AME 0.09, AME-ALE 0.43, PME-PME 0.45, PME-PLE 0.24, OQA, 0.45 long, OQP 0.53, OQH 0.61. Legs, pale yellow ventrally, pale brown spots dorsally. Relative length of legs: IV-I-II-III. Measurements: I – femur 5.22/ tibia-patella 7.47/ metatarsus 6.30/ tarsus 3.07/ total 22.06; II – 4.89/ 6.47/ 5.97/ 2.98/ 20.31; III – 3.90/ 4.98/ 4.23/ 2.24/ 15.35; IV – 5.47/ 6.80/ 7.22/ 2.90/

22.39. Ventral pairs of macrosetae on tibiae: I-4, II-4, III-3, IV-3. Abdomen 3.96 long, gray, longer than wide, moderately covered with setae, unmarked, venter light, unmarked. Palpus, elongated cymbium 1.64 long, distally narrowed (Fig. 23), without dorsal macrosetae. Median apophysis large and elongated, embolus short and conspicuous (Figs 23, 24).

Other material examined. BOLIVIA, *La Paz*: Yolosa (16º29'S, 68º08'W), 1 ♀, 06.I.1991, P. Goloboff *et al*. (AMNH); PERU, *Huanuco*: Divisoria, Cordillera Azul (9º55'S, 76º13'W), 1 ♀, W.K. Weyrauch (AMNH), Cashiari, Camisea river, Cusco, 1 ♂, 24.VIII.1998, J. Duárez & S. Córdova (MUSM).

Distribution. Bolivia (La Paz), Peru (Huanuco, San Martin, Cusco) (Fig. 1).



FIGURES 23–27. *Rhoicinus andinus*. 23–25 male palpus (23 ventral, 24 median apophysis, 25 sclerotized ring). 26, 27 female epigynum (26 ventral, 27 dorsal). (AS, accessory spermathecae, C = conductor, E = embolus, HS = head of spermathecae, MA = median apophysis, MF = middle field of epigynum, SR = sclerotized ring, ST = subtegulum, T = tegulum).

***Rhoicinus rothi* Exline, 1960**

Figs 1, 6, 28–31

Rhoicinus rothi Exline, 1960: 592, figs. 1, 2, 2a, 5, 10, 12, 14, 15 (female holotype and male paratype from San Martin, Hara, 20 miles S.E. from Moybamba, Peru [7º14'S, 76º49'W], 1-30 June 1947, F. Woytkowski leg., in AMNH, examined).

Diagnosis. Males of *Rhoicinus rothi* resembles those of *R. gaujoni* and *R. urucu* by the general shape of the median apophysis (Figs 14, 19, 37–39), but can be distinguished by the short and broad tip of the median apophysis (MA) and by the wider base of the conductor (C) (Figs 28, 29). Females of *R. rothi* resemble those of *R. andinus* and *R. urucu* by the presence of conspicuous lateral lobes (LL) (Figs 26, 41) and rounded head of spermathecae (Figs 27, 42), but can be distinguished by shorter lateral lobes (Fig. 30) and by the short stalk of the spermathecae (SS) (Fig. 31).

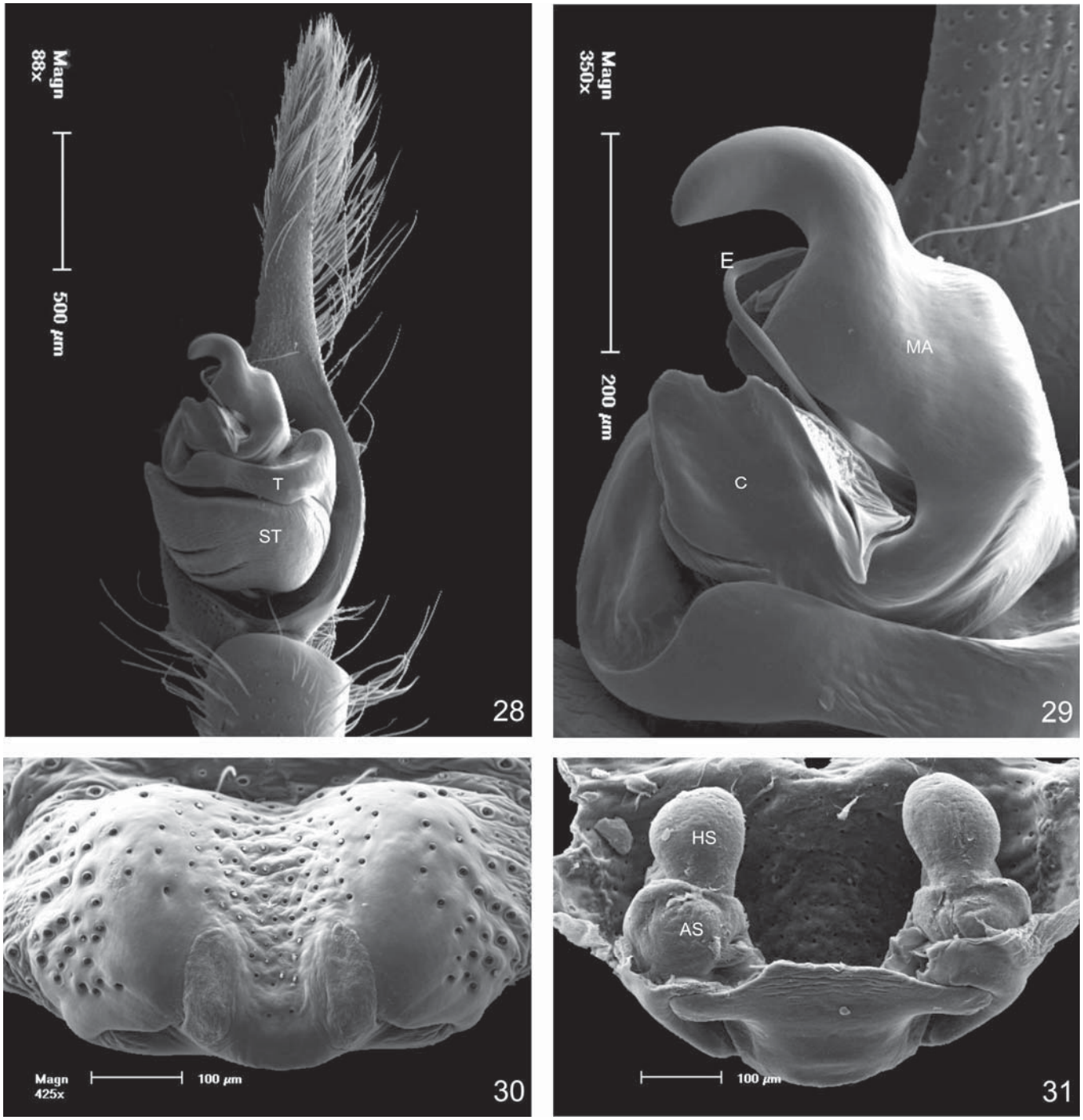
Description. Female (Holotype, San Martin, Peru, AMNH). Total length 11.03. Carapace 4.82 long, 3.32 wide, light brown, dark brown laterally; with median striations near fovea. Clypeus dark brown, 0.38 high. Anterior eye row slightly recurved, 1.04 wide; posterior straight, 1.36 wide (Fig. 6). Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.20, PME 0.18, PLE 0.15; AME-AME 0.10, AME-ALE 0.14, PME-PME 0.16, PME-PLE 0.30, OQA 0.42, OQP 0.54, OQH 0.48. Chelicerae dark reddish-orange, with scattered setae. Sternum yellow, bristly; 2.07 long, 1.82 wide. Labium dark brown, light brown distally, 1.49 long, 0.84 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III. Leg measurements: I – femur 4.23/ tibia-patella 5.39/ metatarsus 3.65/ tarsus 1.99/ total 15.26; II – 4.20/ 5.31/ 3.56/ 1.90/ 14.97; III – 3.81/ 4.39/ 3.40/ 1.41/ 13.01; IV – 4.73/ 5.81/ 4.98/ 2.07/ 17.59. Abdomen 5.89 long, dark gray. Dorsum bristly with an anterior light brown irregular patch. Venter light brown, with scattered setae. Epigynum slightly

depressed at the middle field (MF) (Fig. 30) and with short lateral lobes (Fig. 30); with short stalk of the spermathecae (SS) (Fig. 31).

Male (Paratype, San Martin, Peru, AMNH). Total length 6.72. Carapace 3.32 long, 2.49 wide, dark brown as in female. Clypeus as in female, 0.22 high. Anterior eye row slightly recurved, 0.74 wide; posterior straight, 1.00 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.14, PME 0.12, PLE 0.11; AME-AME 0.07, AME-ALE 0.06, PME-PME 0.12, PME-PLE 0.21, OQA 0.34, OQP 0.42, OQH 0.40. Chelicerae as in female. Sternum as in female; 1.57 long, 1.41 wide. Labium dark brown, 0.58 long, 0.49 wide. Legs as in female, relative length: IV-I-II-III. Leg measurements: I – femur 3.40/ tibia-patella 4.39/ metatarsus 3.39/ tarsus 1.88/ total 13.06; II – 3.32/ 4.31/ 3.30/ 1.74/ 12.67; III – 2.90/ 3.48/ 2.73/ 1.41/ 10.52; IV – 3.65/ 4.38/ 3.90/ 1.68/ 13.61. Abdomen 3.15 long, dorsum and venter as in female. Cymbium 1.82 long. Palpus with short and broad tip of the median apophysis (MA) and wider base of the conductor (C) (Figs 28, 29).

Other material examined. COSTA RICA, *Heredia*: Rara Avis, 17km from Puerto Viejo (10º28'N, 84º00'W), 1 ♂, 29.XII.1990-01.I.1991, P. R. Craig *leg*. (CAS); BOLIVIA, Beni: Estação Biológica Beni, Zone I (14°47'S, 66°15'W), 1 ♂, 2 ♀, 08-14.XI.1989, J. Coddington *leg*. (USNM); PERU, *San Martin*: Hara, 20 mi SE of Moyobamba (7º14'S, 76º49'W), 1 ♂, 01-30.VI.1947, F. Woytkowski *leg*. (AMNH), *Junin*: San Ramon, Estancia Naranjal (11º20'S, 75º20'W), 1 ♀, 20-27.VII.1965, unknown collector (AMNH), *Pucallpa*: Ucatali (8º23'S, 74º33'W), 1 ♂, 1 ♀, 28.VII.1986, D. Silva-Dávila *leg*. (MUSM), *Cusco*: Pagoren, Camisea river (11°42'S, 72°54'W), 2 ♂, V.1998, J. Duárez & S. Córdova *leg*. (MUSM); BRAZIL, *Pará*: Belém (1º27'S, 48º30'W), 1 ♀, 05.II.1979, P. Eremita *leg*. (MPEG 4834); *Mato Grosso*: Sinop (11º52'S, 55º29'W), 7 ♂, 1 ♀, IX.1976, M. Alvarenga *leg*. (AMNH).

Distribution. Costa Rica (Heredia), Bolivia (Beni), Peru (San Martin, Junin, Pucallpa, Cusco), Brazil (Pará, Mato Grosso) (Fig. 1).



FIGURES 28–31. *Rhoicinus rothi*. 28, 29 male palpus (28 ventral, 29 median apophysis). 30, 31 female epigynum (30 ventral, 31 detail of MF). (AS, accessory spermathecae, C = conductor, E = embolus, HS = head of spermathecae, MA = median apophysis, ST = subtegulum, T = tegulum).

***Rhoicinus lugato* Höfer & Brescovit, 1994**

Figs 1, 10, 32, 33

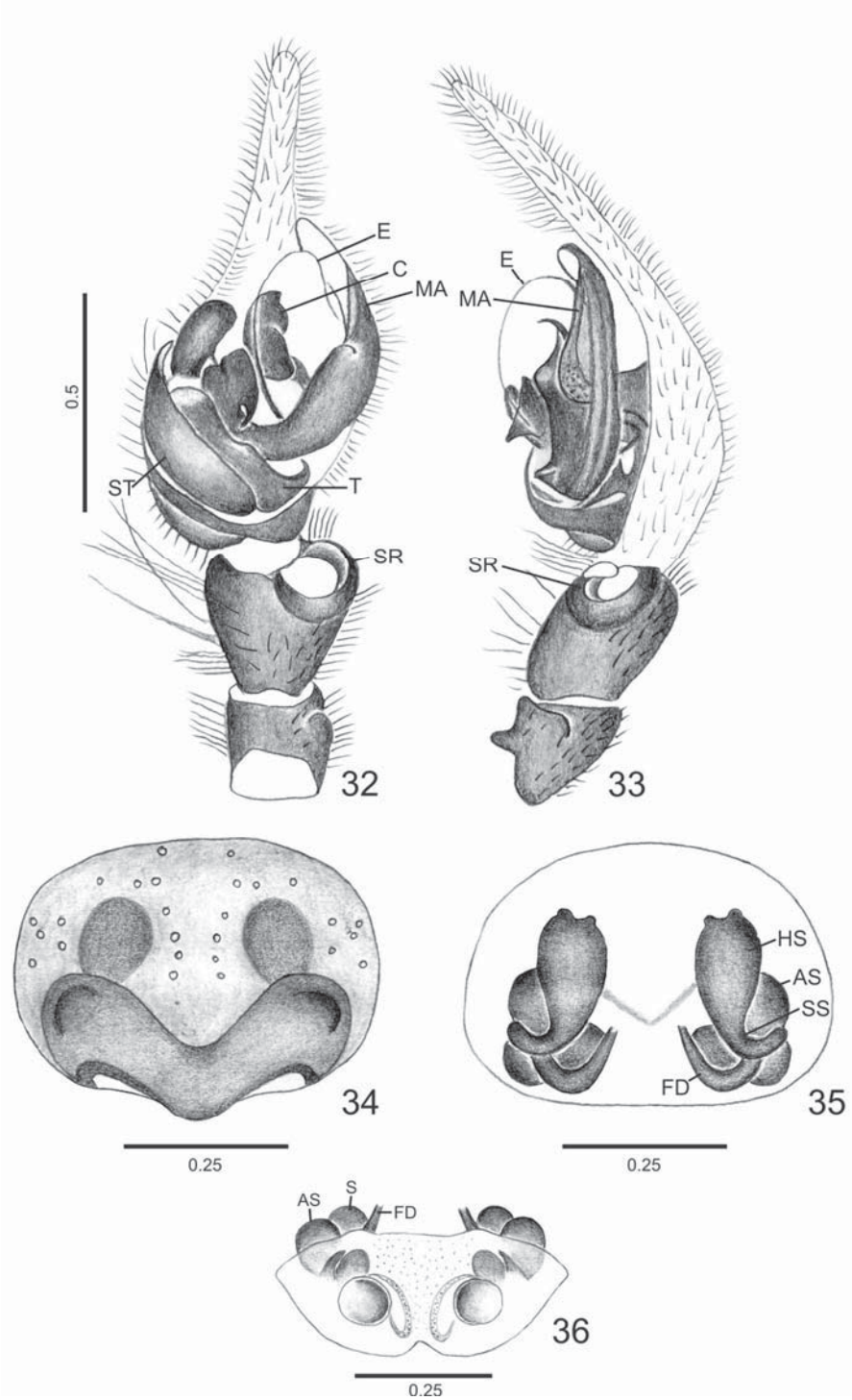
Rhoicinus lugato Höfer & Brescovit, 1994: 58, figs. 5–7 (male holotype from Ilha da Marchantaria, Rio Solimões, Amazonas, Brazil [03°15'S, 59°58'W], 13 December 1987, H. Höfer, in INPA Ar 65, examined). Platnick, 2012.

Diagnosis. The male of *R. lugato* can be distinguished from the other known males of *Rhoicinus* (Figs 19, 24, 29, 38) by the larger, wider and internally excavated median apophysis (MA) and by the wider and deeply excavated sclerotized ring on male palpal tibia (Figs 32, 33).

Description. Male (Holotype, Amazonas, Brazil, INPA). Total length 7.13. Carapace 3.40 long, 2.65 wide, light brown, fovea deep and marked. Clypeus light brown, 0.30 high. Anterior eye row straight, 0.74 wide; posterior straight, 1.02 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.15, PME 0.14, PLE 0.10; AME-AME 0.08, AME-ALE 0.07, PME-PME 0.13, PME-PLE 0.17, OQA 0.34, OQP 0.44, OQH 0.38. Chelicerae reddish-brown, with scattered setae. Sternum light brown, dark brown laterally; 1.57 long, 1.49 wide. Labium dark brown, light brown distally, 0.49 long, 0.66 wide. Legs light brown, unmarked, relative length: IV-I-II-III. Leg measurements: I – femur 4.15/ tibia-patella 5.56/ metatarsus 4.55/ tarsus 2.24/ total 16.50; II – 3.81/ 5.14/ 4.31/ 1.99/ 15.25; III – 3.56/ 3.98/ 3.40/ 1.32/ 12.26; IV – 4.14/ 5.47/ 4.98/ 2.07/ 16.66. Abdomen 3.48 long, dorsum light brown and bristly; with two pairs of sigillae (Fig. 10). Venter light brown, setae scattered. Cymbium 2.49 long. Palpus with prominent and internally excavated median apophysis (MA); sclerotized ring (SR) of palpal tibia wide and deeply excavated (Figs 32, 33).

Distribution. Known only from the type locality (Brazil, Amazonas) (Fig. 1).

Female. Unknown.



FIGURES 32–36. *Rhoicinus lugato*. 32, 33 male palpus (32 ventral, 33 retrolateral). 34–36 *Rhoicinus cashiari* **sp. nov.** female epigynum (34 ventral, 35 dorsal, 36 posterior). (AS, accessory spermathecae, C = conductor, E = embolus, FD = fertilization duct, HS = head of spermathecae, MA = median apophysis, SS = stalk of spermathecae, SR = sclerotized ring, ST = subtegulum, T = tegulum).

***Rhoicinus cashiari* new species**

Figs 1, 34–36

Type. Female holotype from Cashiari, Cusco, Peru [11°51'S, 72°46'W], V-VI.1997, J. Duárez & S. Córdova (MUSM).

Etymology. The specific name is a noun, and refers to the type locality.

Diagnosis. The female of *R. cashiari* **sp. nov.** can be distinguished from the other known females of *Rhoicinus* (Figs 16, 26, 30, 41, 51, 54, 57) by the presence of strongly sclerotized "lip-like" projection at the posterior margin of the epigynum (Fig. 34); head of the spermathecae (HS) with small projections (Fig. 35).

Condition of holotype. Left leg I and right leg IV are detached and abdomen is loose.

Description. Female (Holotype, Cashiari, Cusco, Peru, MUSM). Total length 8.04. Carapace 4.23 long, 3.40 wide, light brown, darker laterally, with a median brown area behind the cephalic area. Clypeus light brown, 0.26 high. Anterior eye row straight, 1.06 wide; posterior 1.34 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.17, ALE 0.18, PME 0.21, PLE 0.14; AME-AME 0.13, AME-ALE 0.12, PME-PME 0.10, PME-PLE 0.30, OQA 0.38, OQP 0.44, OQH 0.48. Chelicerae dark orange, bristly. Sternum light brown, bristly; 2.07 long, 1.82 wide. Labium light brown, dark brown laterally, 0.49 long, 1.49 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III. Leg measurements: I – femur 5.56/ tibia-patella 6.64/ metatarsus 4.98/ tarsus 2.82/ total 20.00; II – 5.39/ 6.30/ 4.56/ 2.32/ 18.57; III – 4.56/ 5.14/ 3.81/ 1.90/ 15.41; IV – 5.81/ 6.80/ 6.05/ 2.40/ 21.06. Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Abdomen 3.81 long, dark gray, dorsum with a small light brown patch at the anterior portion. Venter light gray, with scattered setae. Epigynum with a strongly sclerotized "lip-like" projection at the posterior margin of the

epigynum (Fig. 35). Head of the spermathecae (HS) with small projections (Fig. 35) and accessory spermathecae prominent (Figs 35, 36).

Distribution. Known only from the type locality (Cashiari, Cusco, Peru) (Fig. 1).

Male. Unknown.

***Rhoicinus urucu* Brescovit & Oliveira, 1994**

Figs 1, 11, 37–50

Rhoicinus urucu Brescovit & Oliveira, 1994: 64, figs. 2–8 (male holotype from Rio Urucu, Coari, Amazonas, Brazil [4º04'S, 63º08'W], 10 February 1992, M.E. Oliveira *leg*., in UA, examined).

Diagnosis. Males of *Rhoicinus urucu* resembles those of *R. gaujoni* and *R. rothi* by the general shape of the median apophysis (Figs 19–21, 28, 29), but can be distinguished by the short, slender and more curved tip of the median apophysis (MA) and by the small conductor (C) (Figs 37–39). Females of *R. urucu* resemble those of *R. gaujoni* by the presence of conspicuous lateral lobes (LL) (Fig. 16) and by the shape of the head of spermathecae (HS) (Fig. 17), but can be distinguished by shorter lateral lobes, which present a short indentation (Fig. 41) and by the short stalk of the spermathecae (SS) (Figs 42, 43).

Description. Male (Holotype, Coari, Amazonas, Brazil, UA). Total length 5.39. Carapace 2.65 long, 2.07 wide, dark brown, median area with scattered white setae (Fig. 11). Clypeus dark brown, 0.20 high. Anterior eye row straight, 0.50 wide; posterior straight, 0.72 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.08, ALE 0.10, PME 0.12, PLE 0.14; AME-AME 0.06, AME-ALE 0.04, PME-PME 0.08, PME-PLE 0.12, OQA 0.26, OQP 0.32, OQH 0.30. Chelicerae dark reddish-brown,

setae scattered. Sternum light brown, dark brown laterally; 1.24 long, 1.23 wide. Labium dark brown, 0.49 long, 0.41 wide. Legs: dark brown from coxae to tibiae and light brown from metatarsi to tarsi, relative length: IV-I-II-III. Leg measurements: I – femur 3.65/ tibia-patella 4.73/ metatarsus 3.90/ tarsus 2.24/ total 14.52; II – 3.73/ 4.15/ 3.48/ 1.99/ 13.35; III – 2.98/ 3.65/ 2.90/ 1.49/ 11.02; IV – 3.98/ 4.64/ 4.15/ 1.90/ 14.67. Abdomen 2.90 long, dark brown and dorsum with an arrow-like patch at the anterior portion; three pairs of sigillae. Venter light brown, with scattered setae. Cymbium 1.57 long. Palpus with the tip of the median apophysis (MA) short, slender and more curved; conductor (C) short (Figs 37–39).

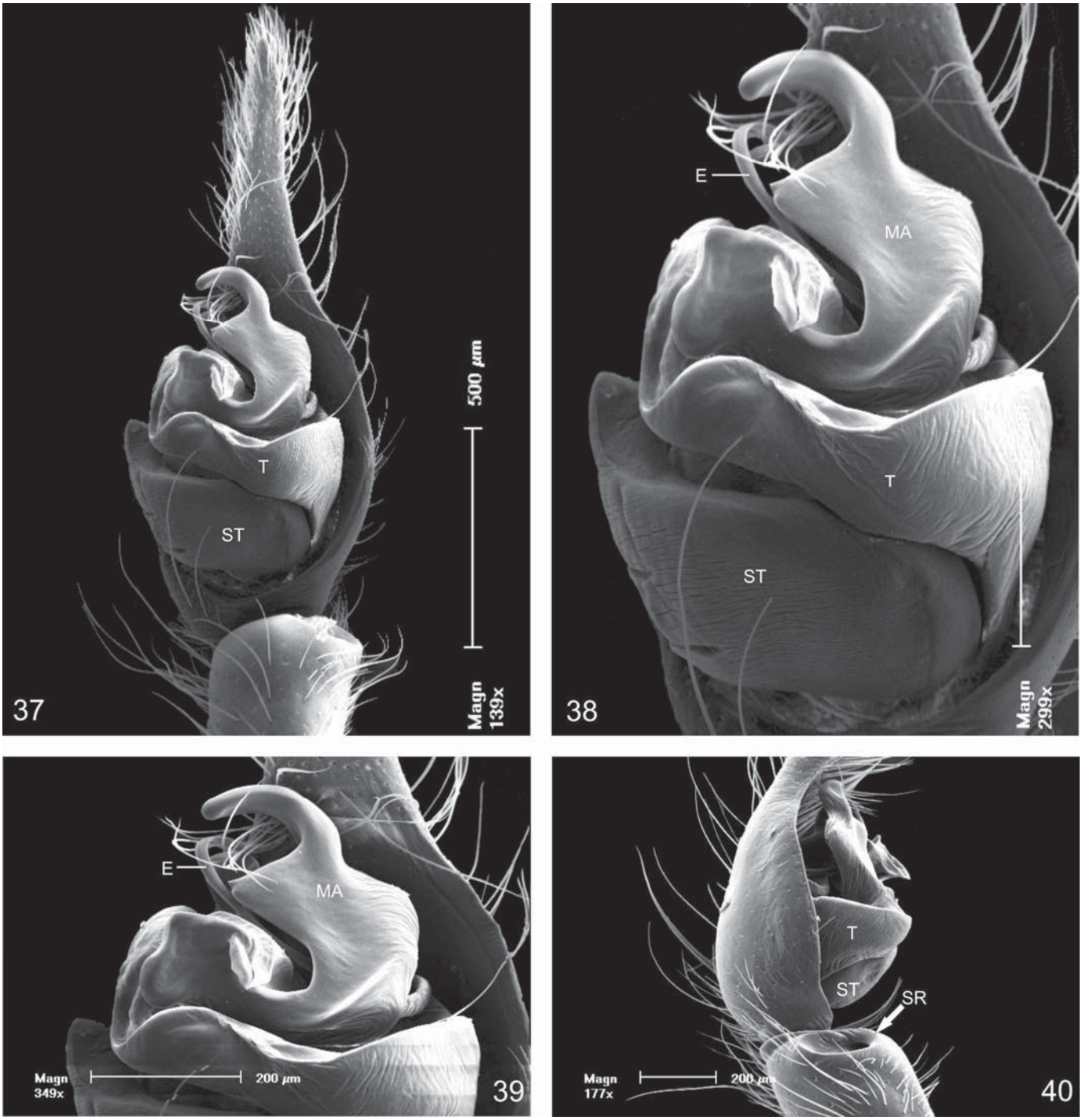
Female (Paratype, Amazonas, Brazil, INPA). Total length 5.64. Carapace 2.40 long, 1.90 wide, dark brown as in male. Clypeus as in male, 0.18 high. Anterior eye row slightly recurved, 0.56 wide; posterior straight, 0.80 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.10, ALE 0.11, PME 0.14, PLE 0.12; AME-AME 0.05, AME-ALE 0.07, PME-PME 0.08, PME-PLE 0.12, OQA 0.26, OQP 0.34, OQH 0.32. Chelicerae as in male. Sternum as in male; 1.24 long, 1.07 wide. Labium dark brown, 0.33 long, 0.41 wide. Legs as in male, relative length: IV-I-II-III. Leg measurements: I – femur 2.82/ tibia-patella 3.40/ metatarsus 2.65/ tarsus 1.66/ total 10.53; II – 2.90/ 3.32/ 2.57/ 1.49/ 10.28; III – 2.49/ 2.82/ 2.24/ 1.16/ 8.71; IV – 3.32/ 3.98/ 3.56/ 1.57/ 12.43. Trichobothria with distinct hood (Fig. 46). Superior tarsal claw with 12 teeth (Fig. 44) and inferior with one tooth (Fig. 45). Abdomen 2.82 long, dorsum and venter as in male. Epigynum with prominent lateral lobes with short indentation (Fig. 41); stalk of the spermathecae (SS) short and head of the spermathecae elliptical (Figs 42, 43).

Other material examined. BRAZIL, *Amazonas*: Reserva de Campina (3º25'S, 65º53'W), 1 ♂, 2 ♀, 02.XI.1992, H. Mesquita *leg*. (MCN 22330); Coari, Base de

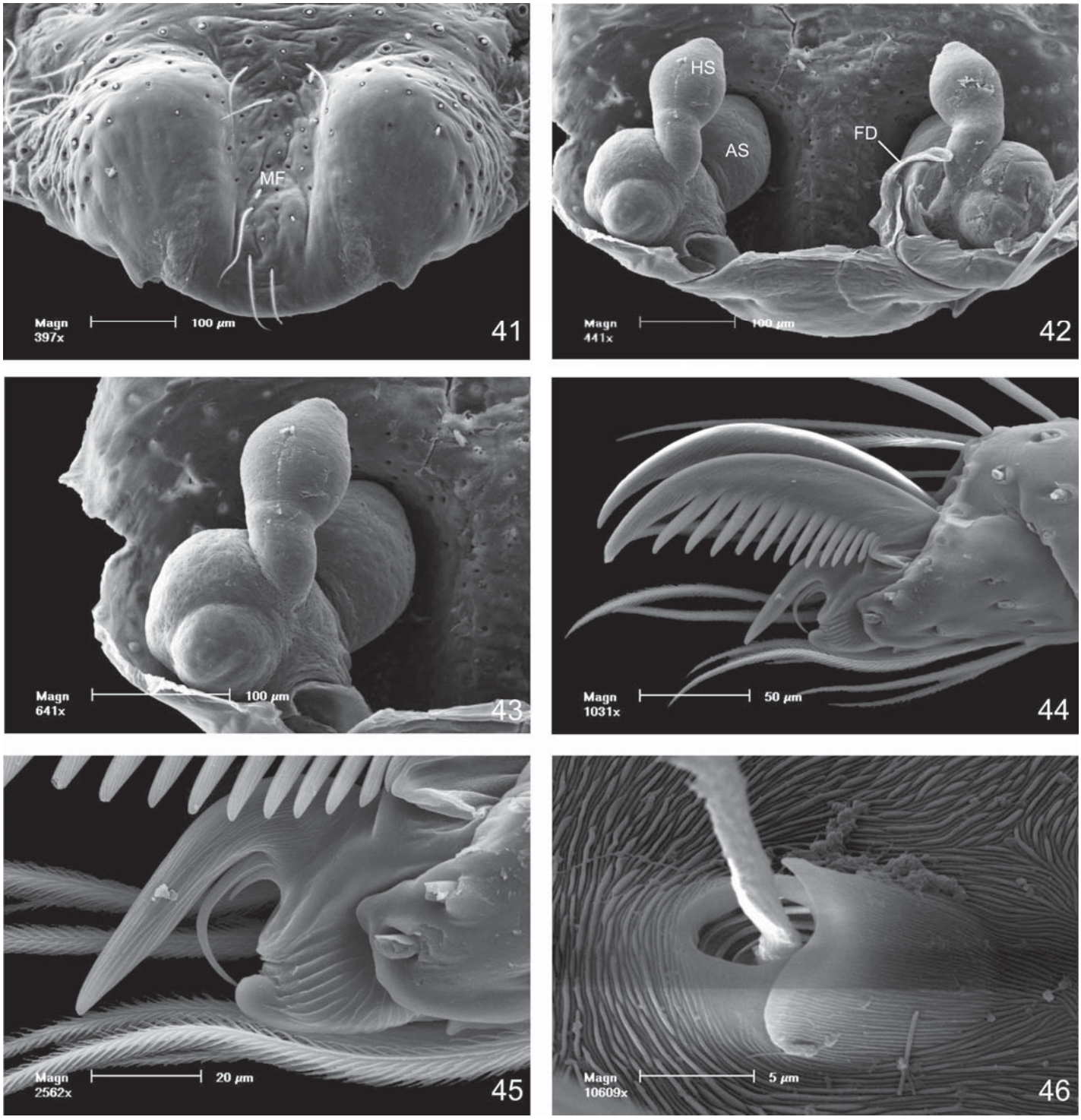
Operações Geólogo Pedro de Moura [04°53'14"S, 65°13'37'W], 1 ♂, 2 ♀, IX, 2006, N. F. Lo Man Hung *leg*. (IBSP 123911, 123912), ♀, 01.XI.2008, S. C. Dias & D. F. Candiani *leg*. (MPEG 16711), 2 ♂, 04.XI.2008, D. F. Candiani *leg*. (MPEG 16712), 2 ♂, 1 ♀, X.2006, N. F. Lo Man Hung *leg*. (MPEG 13205), 1 ♀, 04.XI.2008, L. S. Carvalho *leg*. (MPEG).

Distribution. Brazil (Amazonas) (Fig. 1).

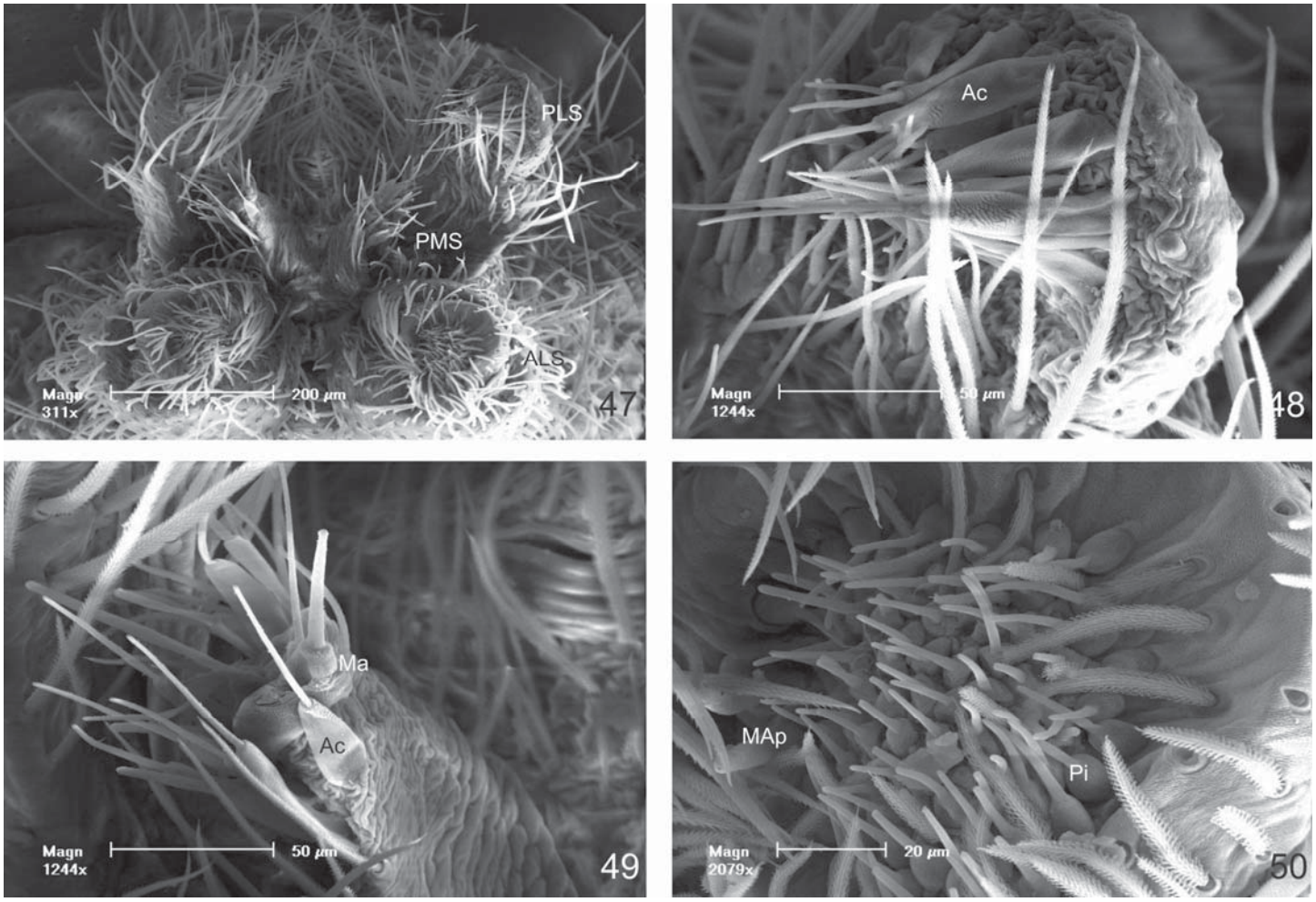
Natural history. Brescovit & Oliveira (1994) reported that *R. urucu* inhabits bromelids in central Amazonian forest. The spiders can build an irregular funnel web near the base of the leaves. The females were observed carrying a spherical egg sac attached to the spinnerets.



FIGURES 37–40. *Rhoicinus urucu*. 37–40 male palpus (37 ventral, 38 bulbus, 39 median apophysis, 40 retrolateral). (E = embolus, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum).



FIGURES 41–46. *Rhoicinus urucu* (female). 41–43 female epigynum (41 ventral, 42 dorsal, 43 detail of spermatheca). 44 Tarsal claw of left leg I; 45 detail of inferior tarsal claw of left I; 46 trichobothria of right leg II. (AS, accessory spermathecae, FD = fertilization duct, HS = head of spermathecae, MF = middle field of epigynum).



FIGURES 47–50. Detail of the spinnerets of *Rhoicinus urucu* (female) (47 general view, 48 PLS, 49 PMS, 50 ALS). (Ac = aciniform spigot gland, ALS = anterior lateral spinneret, Ma = microampullate spigot gland, MAp = macroampullate spigot gland, Pi = pyriform spigot gland, PMS = posterior median spinneret, PLS = posterior lateral spinneret).

***Rhoicinus schlingeri* Exline, 1960**

Figs 1, 51–53

Rhoicinus schlingeri Exline, 1960: 595, fig. 8 (female holotype from Tingo Maria, Peru [09°17'S, 75°59'W], 5 October 1954, E. I. Schlinger & E. S. Ross, in CAS, examined). Platnick, 2012.

Diagnosis. Females of *Rhoicinus schlingeri* resemble those of *R. rothi* by the general shape of the middle field of the epigynum (Fig. 30), but can be distinguished by the presence of slightly projected scape-like posterior margin of the epigynum (Fig. 51) and by the short, wide and rounded head of the spermathecae (Figs 52, 53).

Description. Female (Holotype, Tingo Maria, Peru, CAS). Total length 8.05. Carapace 3.65 long, 2.82 wide, brown, dark brown laterally. Clypeus light brown, 0.26 high. Anterior eye row slightly recurved, 0.80 wide; posterior straight, 1.10 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.14, PME 0.14, PLE 0.12; AME-AME 0.09, AME-ALE 0.10, PME-PME 0.16, PME-PLE 0.24, OQA 0.32, OQP 0.44, OQH 0.42. Chelicerae reddish-brown, bristly. Sternum light brown; 1.82 long, 1.74 wide. Labium dark brown, light brown laterally, 0.58 long, 0.66 wide. Legs light brown with dark brown annuli on femora, other legs light brown, unmarked, relative length: IV-II-I-III. Leg measurements: I – femur 2.98/ tibia-patella 3.98/ metatarsus 2.65/ tarsus 1.49/ total 11.10; II – 3.23/ 4.06/ 2.73/ 1.41/ 11.43; III – 3.07/ 3.48/ 2.49/ 1.32/ 10.36; IV – 3.65/ 4.48/ 3.90/ 1.66/ 13.69. Abdomen 4.31 long, gray, dorsum with a small irregular light brown patch anteriorly and two pairs of sigilla. Venter light brown, with scattered setae. Epigynum with the middle field with the posterior margin slightly projected (Fig. 51); head of the spermathecae short and rounded (Figs 52, 53).

Distribution. Known only from the type locality (Fig. 1).

Male. Unknown.

***Rhoicinus wapleri* Simon, 1898**

Figs 1, 54–56, 60–65

Rhoicinus wapleri Simon, 1898c: 129 (female holotype from Colonia Tovar, Venezuela [08º19'N, 71º45'W], in MNHN, examined). Petrunkevitch, 1911: 578; Platnick, 2012.

Rhoicinus weyrauchi Exline, 1960: 599, figs. 11, 13 (female holotype from Junin, Chanchamayo Valley, Peru [11º07'S, 75º21'W], 7 February 1953, W. K. Weyrauch, in CAS, examined). Platnick, 2012. **New synonymy.**

Note. Body size, the dorsal colour pattern of the carapace and abdomen, and the shape of scape-like projection of the middle field (MF) of the epigynum of *R. weyrauchi* is the same as those of the type of *R. wapleri*.

Diagnosis. The females of *Rhoicinus wapleri* resemble those of *R. gaujoni* by the general shape of the middle field of the epigynum (Fig. 16), but can be distinguished by the presence of straight posterior margin of the epigynum (Fig. 54) and by the absence of lateral lobes (LL) and accessory spermathecae (Figs 58, 59).

Description. Female (Holotype, Colonia Tovar, Venezuela, MNHN). Total length 5.22. Carapace light brown, 2.40 long, 1.82 wide. Clypeus light brown, 0.20 high. Anterior eye row recurved, 0.56 wide; posterior straight, 0.76 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.11, ALE 0.10, PME 0.12, PLE 0.13; AME-AME 0.06, AME-ALE 0.04, PME-PME 0.09, PME-PLE 0.14, OQA 0.28, OQP 0.36, OQH 0.34. Chelicerae reddish-brown, with scattered setae anteriorly. Sternum yellow, light brown laterally; 1.07 long, 1.16 wide. Labium light brown, yellow laterally, 0.58 long, 0.41 wide. Legs light brown with dark brown annuli

on femora and tibia, relative length: IV-II-I-III. Leg measurements: I – femur 2.07/ tibia-patella 2.49/ metatarsus 1.90/ tarsus 1.24/ total 7.70; II – 2.24/ 2.65/ 1.82/ 1.32/ 8.03; III – 1.74/ 2.07/ 1.73/ 0.99/ 6.53; IV – 2.40/ 2.90/ 2.65/ 1.32/ 9.27. Ventral pairs of macrosetae on tibiae: I-4; II-3; III-3; IV-3. Superior tarsal claw with ten teeth and inferior with one tooth (Fig. 63). Posterior lateral spinneret (ALS) (Fig. 64) and anterior lateral spinneret (PLS) with numerous aciniform spigot glands (Ac) (Fig. 65). Abdomen 2.15 long, light brown, dorsum with a small irregular patches anteriorly and one pair of sigillae. Venter light brown, with scattered setae. Posterior margin of the epigynum straight (Fig. 54); absence of lateral lobes (LL) and accessory spermathecae (Figs 58, 59). Head of spermathecae (HS) slightly elliptical (Fig. 62).

Other material examined. COLOMBIA, *Caquetá*: Fazenda Miller Gomez [00º52'N, 73º51'W], 1 ♀, IV-VI.2008, P. Lavelle et al. (MPEG 16714); PERU, *Pucallapa*: Ucayali, Puente Huacamayo [08º23'S, 74º33'W], 1 ♀, 28.VIII.1986, D. Silva-Dávila (MUSM), *Junin*: Valle Chanchamayo [11º07'S, 75º21'W], 1 ♀, 18.X.1963, unknown collector (MUSM).

Distribution. Colombia (Caquetá), Venezuela (Colonia Tovar), Peru (Junin, Pucallpa) (Fig. 1).

Male. Unknown.

Rhoicinus wallsi Exline, 1950

Figs 1, 57–59

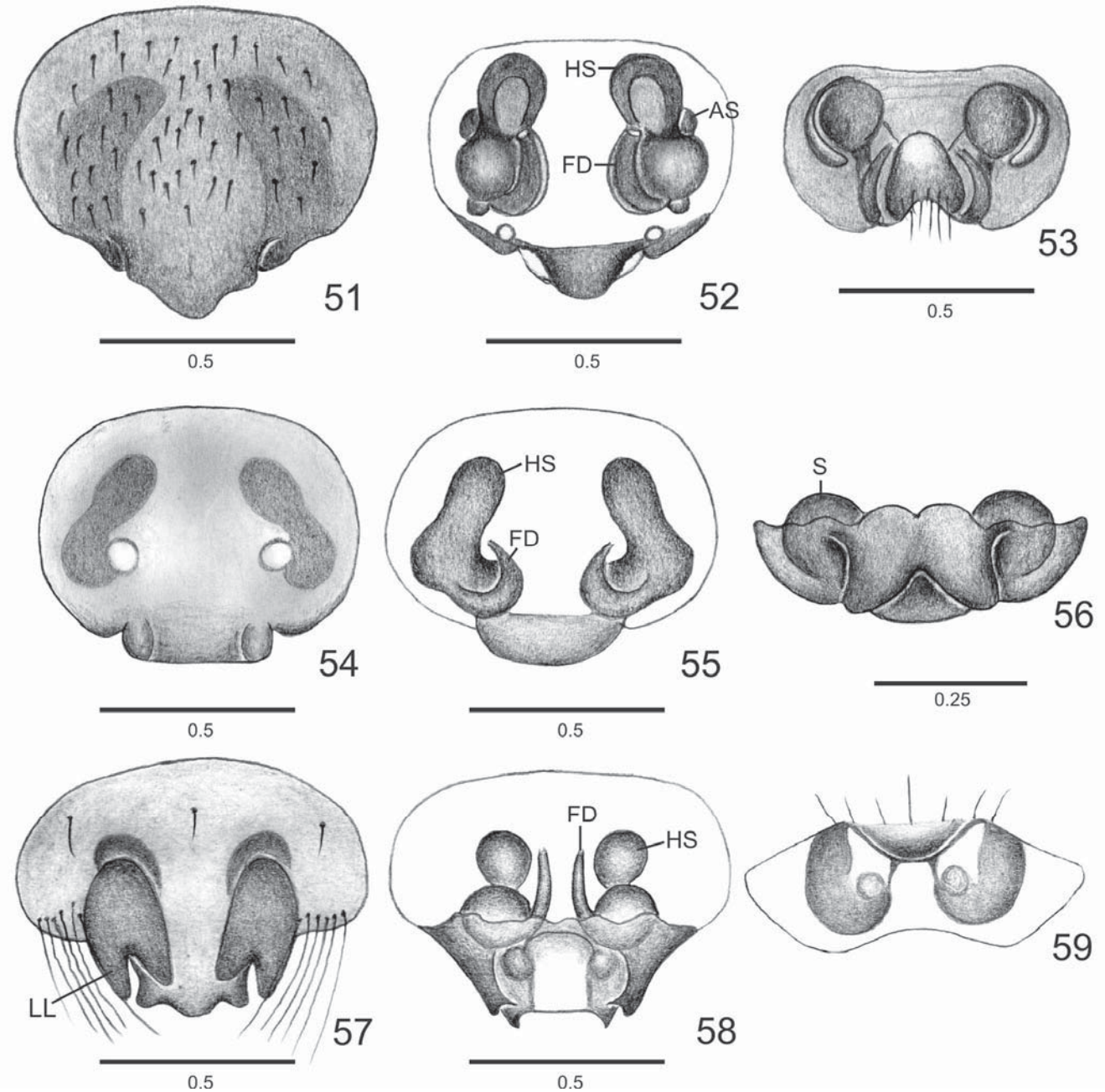
Rhoicinus wallsi Exline, 1950: 3, figs. 6–8 (female holotype from El Oro Province, Colorado River, Ecuador [03°26'S, 79°49'W], 4 November 1942, E. L. Moore & R. Walls, in AMNH, examined). Platnick, 2012.

Diagnoses. The female of *Rhoicinus wallsi* can be distinguished from the other known females of *Rhoicinus* (Figs 16, 26, 30, 34, 41, 51, 54, 60) by the prominent and sclerotized lateral lobes (LL) (Fig. 57), by the scape-like projection with a median rounded projection at the posterior margin (Figs 57, 59) and by the rounded head of spermathecae (Fig. 58).

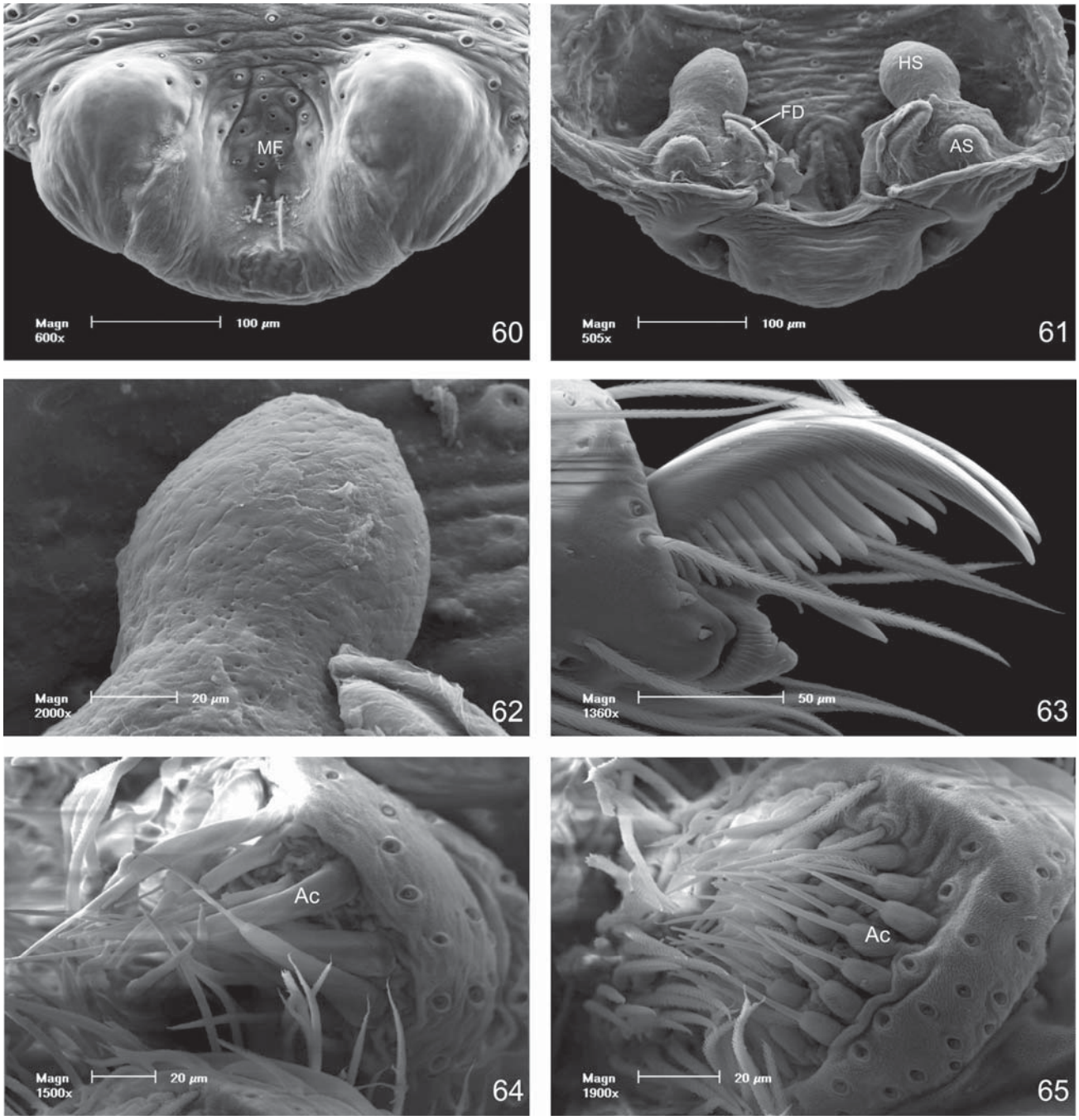
Description. Female (Holotype, El Oro, Ecuador, MNHN). Total length 6.88. Carapace dark brown, median area light brown, darker laterally, 3.15 long, 2.49 wide. Clypeus light brown, setae scattered, 0.24 high. Anterior eye row recurved, 0.72 wide; posterior straight, 0.96 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.12, ALE 0.15, PME 0.14, PLE 0.12; AME-AME 0.08, AME-ALE 0.06, PME-PME 0.12, PME-PLE 0.20, OQA 0.34, OQP 0.42, OQH 0.44. Chelicerae orange, bristly; promargin and retromargin of fang furrow each with three teeth equidistant and equal in size. Sternum light, with scattered setae; 1.49 long, 1.66 wide. Labium light brown, 0.66 long, 0.49 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III. Leg measurements: I – femur 3.28/ tibia-patella 4.15/ metatarsus 2.86/ tarsus 1.80/ total 12.09; II – 3.15/ 4.06/ 2.90/ 1.66/ 11.77; III – 2.82/ 3.32/ 2.32/ 1.32/ 9.78; IV – 3.56/ 4.02/ 3.48/ 1.74/ 12.80. Ventral pairs of macrosetae on tibiae: I-4; II-3; III-3; IV-3. Abdomen 3.73 long, dorsum gray, unmarked. Venter whitish, with scattered setae. Epigynum with prominent and sclerotized lateral lobes (LL) (Fig. 57) and with a scape-like projection with a median rounded projection at the posterior margin (Figs 57, 59); head of spermathecae rounded (Fig. 58) and with long fertilization ducts (FD) (Fig. 58).

Distribution. Known only from the type locality (El Oro Province, Ecuador) (Fig. 1).

Male. Unknown.



FIGURES 51–59. 51–53 *Rhoicinus schlingeri*. 51–53 female epigynum (51 ventral, 52 dorsal, 53 posterior). 54–56 *Rhoicinus wapleri.* female epigynum (54 ventral, 55 dorsal, 56 posterior). 57–59 *Rhoicinus wallsi.* female epigynum (57 ventral, 58 dorsal, 59 posterior). (AS = accessory spermathecae, FD = fertilization duct, HS = head of spermathecae, LL = lateral lobe, S = spermathecae).



FIGURES 60–65. Morphological details of *Rhoicinus wapleri* (female). 60–62 female epigynum (60 ventral, 61 dorsal, 62 detail of HS). 63 tarsal claw of right leg II. 64, 65 spinnerets (64 PLS, 65 ALS). (Ac = aciniform spigot gland, AS = accessory spermathecae, FD = fertilization duct, HS = head of spermathecae, MF = middle field of epigynum).

***Barrisca* Chamberlin and Ivie, 1936**

Figs. 1, 2, 3, 8, 66–85

Type-species. *Barrisca nannella* Chamberlin and Ivie, 1936 (by original designation).

Diagnosis. *Barrisca* is closely related to *Rhoicinus* by the elongated tip of cymbium and conspicuous tegulum and subtegulum (Figs 20, 38), but can be distinguished by the coiled median apophysis (Figs 66, 71) and the by the shorter tip of the cymbium (Figs 66, 71). The females can be distinguished from those of *Rhoicinus* (Figs 17, 27, 31, 42, 61) by the presence of a pair of circular membranous areas (CMA) on the middle field of the epigynum (MF) (Figs 68, 73), by the shorter spermathecae and by the rounded head of spermathecae (HS) (Figs 69, 74).

Description. Carapace low, fovea marked (Fig. 8). Anterior eye row straight to slightly recurved; posterior straight (Figs 2, 3). Chelicerae with scattered setae (Figs 2, 3); promargin and retromargin of fang furrow each with three teeth equidistant and equal in size. Sternum with scattered setae. Labium unmarked. Legs light brown, unmarked. Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Abdomen slightly elongated (Fig. 8); venter with scattered setae.

Distribution. Central America (Costa Rica, Panama) and South America (Ecuador, Venezuela, Colombia, Peru) (Fig. 1).

Natural history. Unknown.

***Barrisca nannella* Chamberlin and Ivie, 1936**

Figs 1, 2, 8, 66–70

Barrisca nannella Chamberlin and Ivie, 1936: 15, figs. 28-32 (male holotype from Barro Colorado Island, Canal Zone, Panama, in AMNH, examined). Platnick, 1979: 216, figs. 1–4; Platnick, 2012.

Diagnosis. The females of *B. nannella* are similar to those of *B. kochalkai* and *B. comaina* **sp. nov.** by the presence of a membranous area (MEA) on the middle field of the epigynum (MF) (Figs 73, 82), but can be distinguished by the small lateral lobes (LL) (Fig. 68) and the prominent epigynal folds at the posterior margin (Fig. 68). The males of *B. nannella* can be distinguished from those of *B. kochalkai* (Figs 71, 72) by the small distal tegular projection (DTP) and conductor (C) (Figs 66, 67) and by the coiled median apophysis (MA) (Figs 66, 67).

Description. Male (Holotype, Barro Colorado Island, Panama, AMNH). Total length 5.39. Carapace 2.24 long, 1.82 wide, light brown, two lateral dark brown bands; striated dark brown lines from fovea to cephalic area. Clypeus dark brown, 0.08 high. Anterior eye row straight, 0.58 wide; posterior straight, 0.74 wide (Fig. 2). Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.16, PME 0.14, PLE 0.08; AME-AME 0.02, AME-ALE 0.04, PME-PME 0.07, PME-PLE 0.10, OQA 0.26, OQP 0.38, OQH 0.40. Chelicerae light brown with a median dark brown band, with scattered setae; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum dark brown, with a light brown median band; 1.10 long, 1.00 wide. Labium light brown, 0.26 long, 0.40 wide. Legs: light brown with dark brown spots from femora to tibiae and dark brown annuli on metatarsi and tarsi; relative length: IV-I-II-III. Leg measurements: I – femur 3.49/ tibia-patella 4.30/ metatarsus 3.44/ tarsus 1.66/ total 12.89; II – 3.53/ 4.25/ 3.42/ 1.55/ 12.75; III – 2.99/

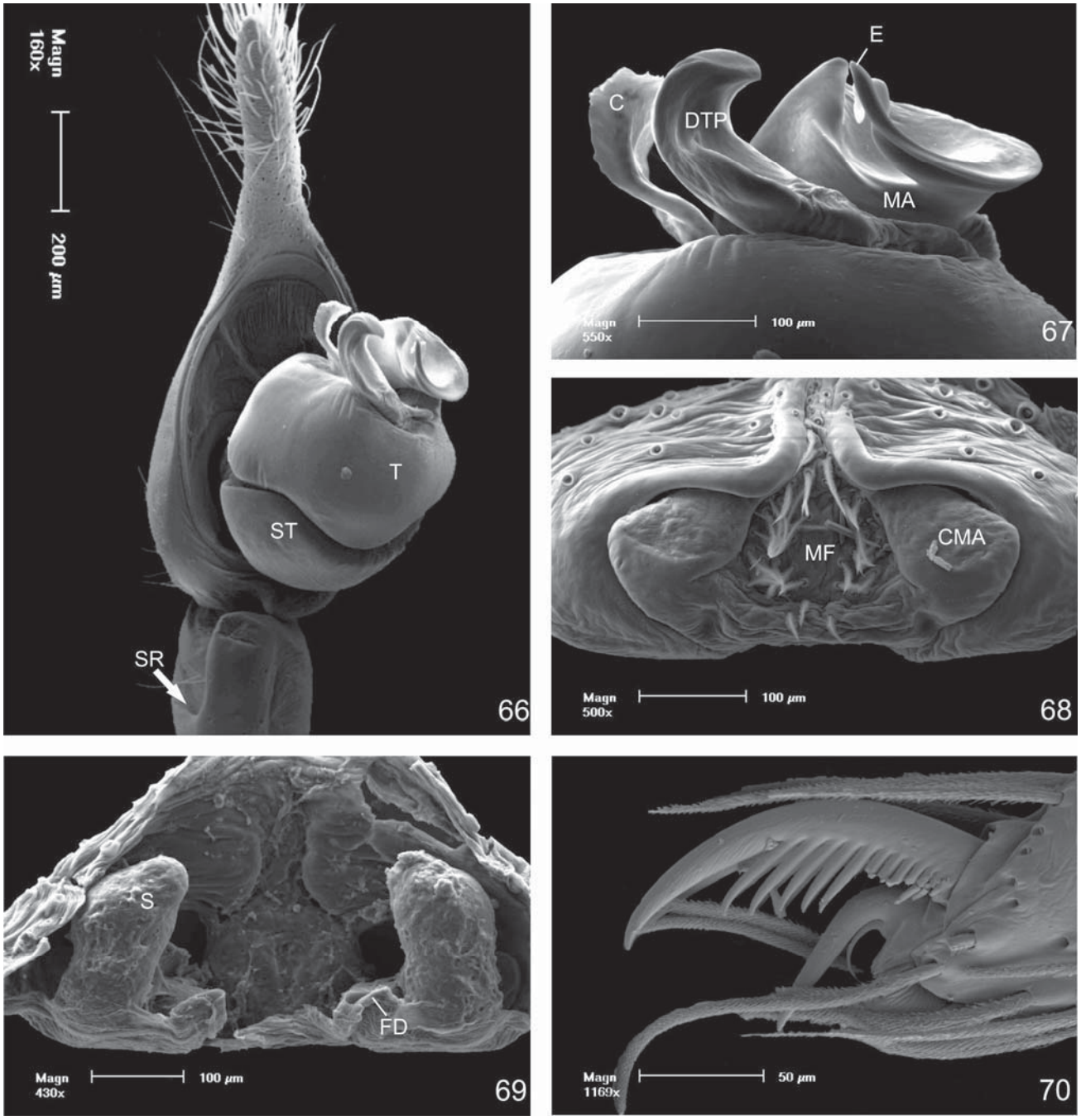
3.46/ 2.92/ 1.15/ 10.52; IV – 3.55/ 4.21/ 4.09/ 1.55/ 13.40. Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Abdomen 3.32 long, dorsum light brown with dark brown bands laterally. Venter light brown to yellow with numerous median irregular dark brown patches, with scattered setae. Cymbium 1.55 long. Palpus with a small distal tegular projection (DTP) and conductor (C) (Figs 66, 67) and coiled median apophysis (MA) (Fig. 67).

Female (Paratype, Barro Colorado Island, Panama, AMNH). Total length 5.64. Carapace 2.32 long, 1.90 wide, light brown as in male (Fig. 8). Clypeus as in male, 0.12 high. Anterior eye row slightly recurved, 0.58 wide; posterior straight, 0.76 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.08, ALE 0.12, PME 0.11, PLE 0.10; AME-AME 0.08, AME-ALE 0.06, PME-PME 0.10, PME-PLE 0.10, OQA 0.24, OQP 0.34, OQH 0.36. Chelicerae as in male; promargin and retromargin of fang furrow each with three teeth equidistant and equal in size. Sternum as in male; 1.06 long, 1.04 wide. Labium light brown, 0.30 long, 0.36 wide. Legs as in male, relative length: IV-I-II-III. Leg measurements: I – femur 3.35/ tibia-patella 3.88/ metatarsus 2.74/ tarsus 1.33/ total 11.30; II – 3.49/ 3.78/ 2.74/ 1.22/ 11.23; III – 3.02/ 3.28/ 2.56/ 1.17/ 10.03; IV – 3.67/ 4.05/ 3.71/ 1.30/ 12.73. Superior tarsal claw with 12 teeth (Fig. 71). Abdomen 3.07 long, dorsum and venter as in male. Epigynum with small lateral lobes (LL) (Fig. 68) and the prominent epigynal folds at the posterior margin (Fig. 69).

Other material examined. COSTA RICA, *Heredia*: 4km SE from Puerto Viejo de Sarapiqui, Finca La Selva [10º28'N, 84º00'W], 1 ♀, X.1981, C. E. Griswold (CAS); Butler's Finca [09º18'N, 83º47'W], 1 ♀, 28.I.1976, Roth-Schroepfer (CAS). ECUADOR, Baeza [00º27'S, 77º56'W], 1 ♀, 01.IV.1994, V. B. Roth (FMNH). COLOMBIA, *Valle del Cauca*: near Lago Calima [03º53'N, 76º29'W], 1 ♂, 2 ♀, 1400m, VI.1976, W.G. Eberhard (MCZ). VENEZUELA, *Aragua*: Maracay, Rancho

Grande [10º13'N, 67º16'W], 1 ♂, 01-10.VIII.1987, Bordon & Peck (AMNH). PERU, *Madre de Dios*: Zona Reservada de Pakitza [11°58'S, 71°18'W], 1 ♀, 24.IX.1987, J. Coddington & D. Silva-Dávila (MUSM); *Amazonas*: Montenegro, Bagua [05º06'S, 78º06'W], 1 ♂, 29.IX-01.X.1963, Herrer & Wydodzinsky (AMNH); *Tingo Maria*: Monson Valley, 1 ♀, 20.XI.1954, E. I. Schlinger & E. S. Ross (CAS).

Distribution. Costa Rica (Heredia), Ecuador (Baeza), Colombia (Valle del Cauca), Venezuela (Aragua), Peru (Madre de Dios, Amazonas, Tingo Maria) (Fig. 1).



FIGURES 66–70. *Barrisca nannella*. 66, 67 male palpus (66 ventral, 67 detail of bulbus). 68, 69 female epigynum (68 ventral, 69 dorsal). 70 tarsal claw of right leg IV, lateral view. (C = conductor, CMA = circular membranous area, DTP = distal tegular projection, E = embolus, FD = fertilization duct, MA = median apophysis, MF = middle field of epigynum, S = spermathecae, SR = sclerotized ring, ST = subtegulum, T = tegulum).

***Barrisca kochalkai* Platnick, 1979**

Figs 1, 3, 71–81

Barrisca kochalkai Platnick, 1979: 217, figs. 5, 6 (female holotype from San Pedro, Sierra Nevada de Santa Marta, Magdalena, Colombia [11º14'N, 72º12'W], 18 May 1975, J. A. Kochalka, in AMNH, examined). Platnick, 1979: 217; Platnick, 2012.

Diagnosis. Females of *B. kochalkai* are similar to those of *B. nannella* (Fig. 68) by the general shape of the middle field of the epigynum (MF) with the presence of the circular membranous areas (CMA) (Fig. 73), but can be distinguished by the larger and conspicuous lateral lobes (LL) on the epigynum (Fig. 73) and the rounded and wider head of the spermathecae (Figs 74, 75). The male of *B. kochalkai* (Figs 71, 72) can be distinguished from the ones of *B. nannella* (Figs 66, 67) by the larger distal tegular projection (DTP) (Fig. 72) and by the elongated and conspicuous embolus (Fig. 72).

Description. Female (Holotype, San Pedro, Colombia, AMNH). Total length 7.88. Carapace 3.48 long, 2.73 wide, light brown, unmarked. Clypeus yellow, 0.20 high. Anterior eye row straight (Fig. 3), 0.80 wide; posterior straight, 1.06 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.12, ALE 0.14, PME 0.20, PLE 0.10; AME-AME 0.10, AME-ALE 0.10, PME-PME 0.32, PME-PLE 0.20, OQA 0.34, OQP 0.50, OQH 0.48. Chelicerae light brown, bristly; promargin and retromargins of fang furrow with three teeth equidistant and equal in size. Sternum light brown with a whitish median band; 1.70 long, 1.65 wide. Labium light brown, 0.34 long, 0.60 wide. Legs: light brown with dark brown annuli on femora and tibia. Relative length: IV-II-I-III. Leg measurements: I – femur 3.98/ tibia-patella 4.73/ metatarsus 3.48/ tarsus 1.74/ total 13.93; II – 4.06/ 4.75/ 3.32/ 1.82/ 13.95; III – 3.73/ 4.06/ 3.28/ 1.41/ 12.48; IV – 4.56/ 4.98/ 4.48/ 1.66/ 15.68. Ventral pairs of macrosetae on tibiae: I-

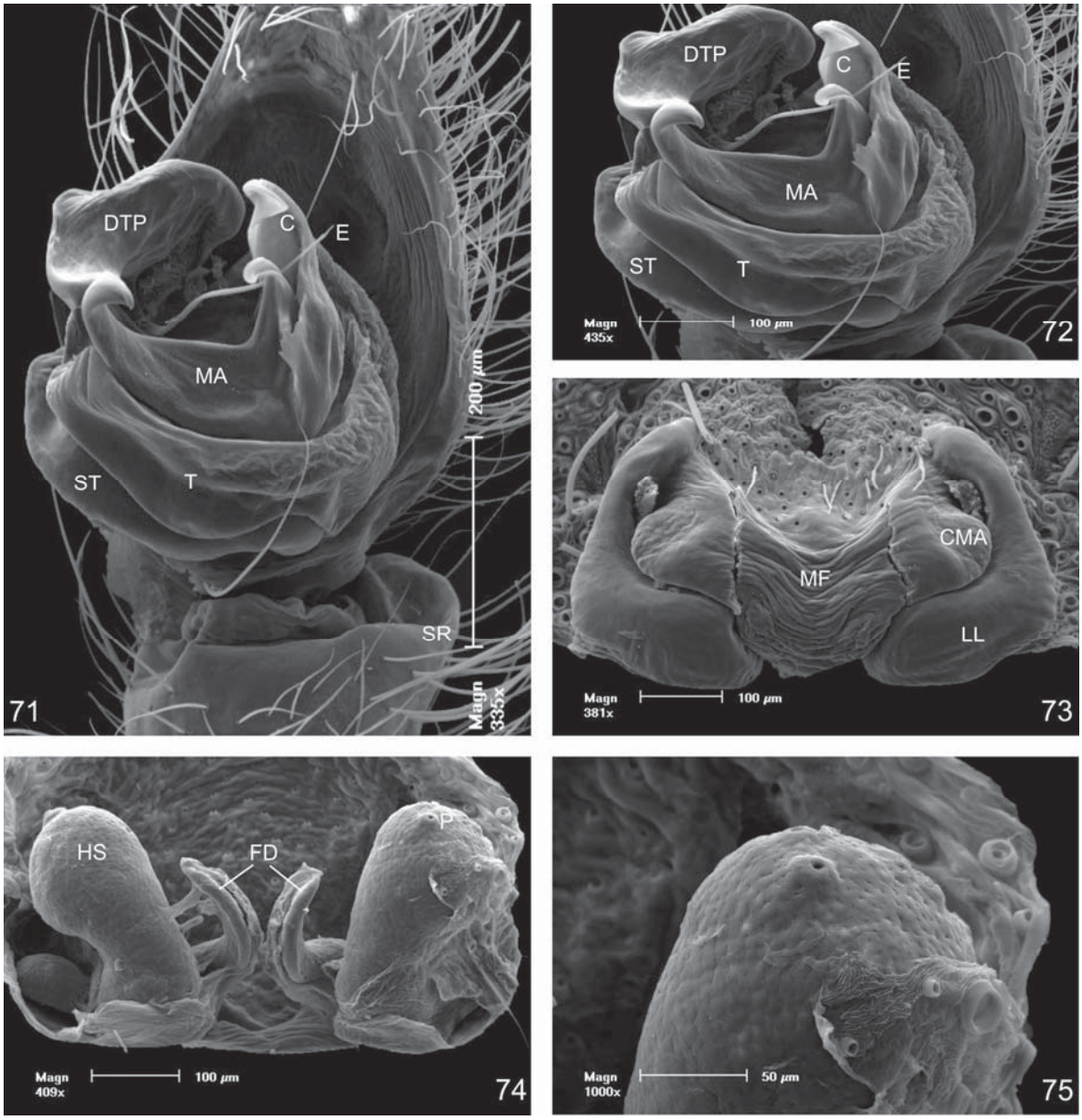
3; II-3; III-3; IV-3. Tarsal organ small and elliptical (Figs 76, 77). Trichobothria on metatarsi with hood laterally projected (Fig. 78). Superior tarsal claw of right leg IV with 12 teeth and inferior with one tooth (Fig. 79). Spinnerets (Fig. 80). Posterior lateral spinnerets (PLS) with conspicuous aciniform spigot glands (Ac) (Fig. 81). Abdomen 4.39 long, light brown with a whitish median band at anterior portion. Venter gray with a median light brown band. Epigynum with conspicuous lateral lobes (LL) (Fig. 73) and two membranous circular lobes on the middle field of epigynum (MF) (Fig. 73). Head of spermathecae (HS) short (Fig. 74) with pores on small protuberances (Fig. 75).

Male (Allotype, Amazonas, Montenegro, Peru, AMNH). Total length 4.69. Carapace 2.49 long, 2.15 wide, light brown with a median whitish band. Clypeus as in female, 0.18 high. Anterior eye row slightly recurved, 0.76 wide; posterior straight, 0.90 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.10, ALE 0.13, PME 0.10, PLE 0.06; AME-AME 0.12, AME-ALE 0.06, PME-PME 0.14, PME-PLE 0.16, OQA 0.34, OQP 0.36, OQH 0.38. Chelicerae as in female; promargin and retromargins of fang furrow with three teeth, equidistant and equal in size. Sternum as in female, 1.10 long, 1.20 wide. Labium dark brown, 0.30 long, 0.40 wide. Legs as in female, relative length: IV-I-II-III. Leg measurements: I – femur 4.15/ tibia-patella 4.98; II – 4.31/ 5.06; III – femur 3.56/ tibia-patella 4.15/ metatarsus 2.40/ tarsus 0.99/ total 11.10; IV – 4.73/ 5.39/ 5.16/ 2.15/ 17.43. Abdomen 3.48 long, dorsum and venter coloration as in female. Palpus tibia with prominent sclerotized ring (SR), large distal tegular projection (DPT) and elongated embolus (Figs 71, 72).

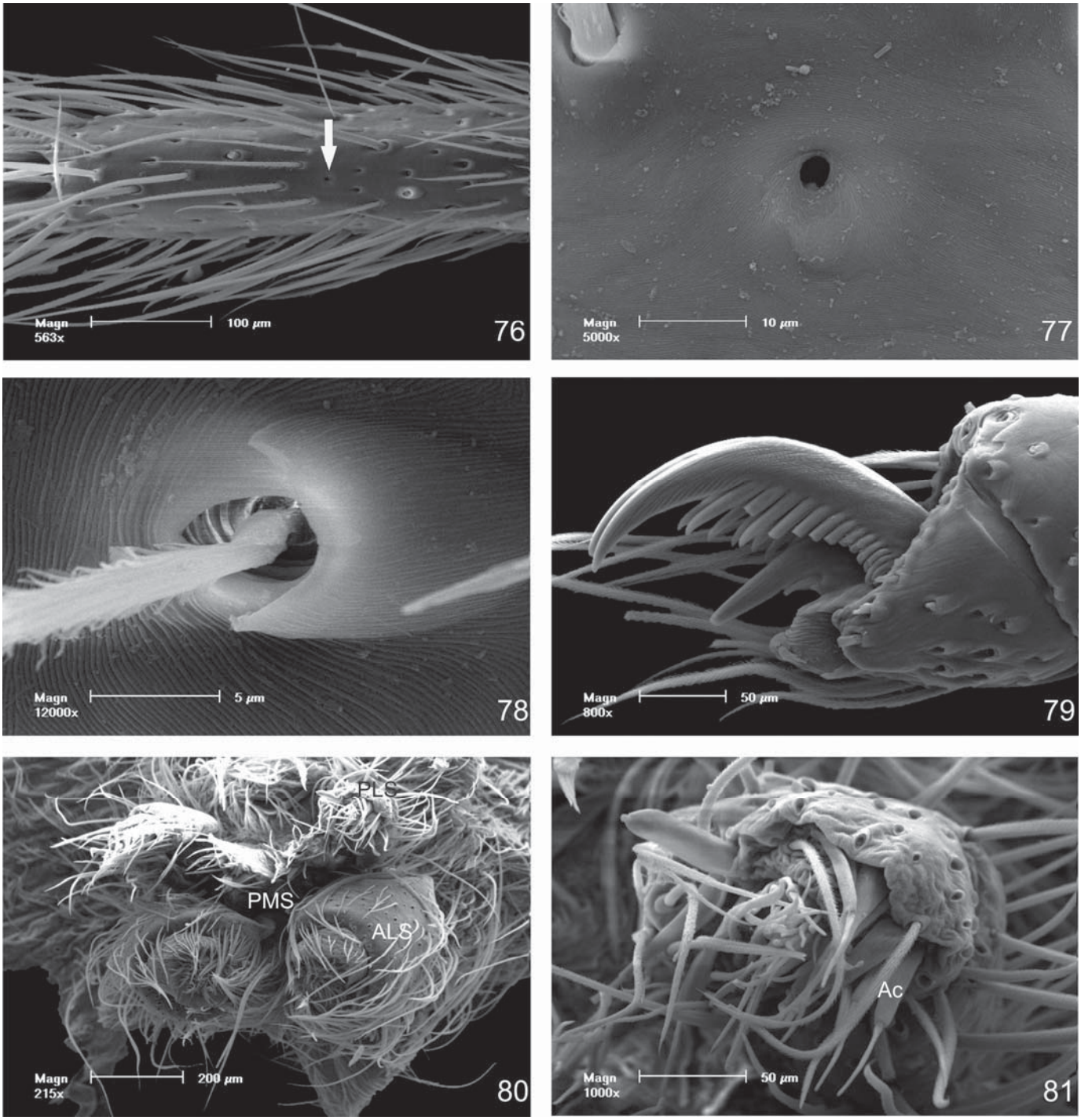
Other material examined. COLOMBIA, *San Pedro*: Sierra Nevada de Santa Marta, Magdalena [11º14'N, 72º12'W], 2 ♀, 18.V.1975, J A. Kochalka (AMNH). VENEZUELA, *Aragua*: Rancho Grande Biological Station [10º04'N, 67º32'W], 2 ♀,

C. T. Collins (AMNH, MCZ). PERU, *Amazonas*: Montenegro [05º06'S, 78º06'W], 1 ♂, 25.XII.1990, P. Goloboff et al. (AMNH).

Distribution. Colombia (San Pedro), Venezuela (Aragua), Peru (Amazonas) (Fig. 1).



FIGURES 71–75. *Barrisca kochalkai*. 71, 72 male palpus (71 ventral, 72 detail of bulbus). 73–75 female epigynum (73 ventral, 74 dorsal, 75 detail of the pores on the head of spermatheca). (C = conductor, CMA = circular membranous area, DTP = distal tegular projection, E = embolus, FD = fertilization duct, LL = lateral lobe, MA = median apophysis, MF = middle field of epigynum, SR = sclerotized ring, ST = subtegulum, T = tegulum).



FIGURES 76–81. Morphological details of *Barrisca kochalkai* (female). 76, position of tarsal organ (white setae); 77, shape of tarsal organ; 78, trichobothria of right leg I; 79, tarsal claw of right leg II. 80, 81 Spinnerets (80, general view; 81, details of ALS). (Ac = aciniform spigot gland, ALS = anterior lateral spinneret, PMS = posterior median spinneret, PLS = posterior lateral spinneret).

***Barrisca comaina* new species**

Figs. 1, 82–85

Type. Female holotype from Amazonas, rio Comaina, Peru [3º52'S, 77º46'W], 21.X.1987, D. Silva-Dávila, deposited in MUSM. **Paratypes**: 1 ♀, Huancabamba, Pasco, Quebrada Chispa, NW Iscozacin, Peru [10°10'S, 75°15'W], 03.XI.1986, D. Silva-Dávila (MUSM); 1 ♀, same locality, 01.XI.1986, same collectors (MUSM); 1 ♀, same locality (MCTP 33332).

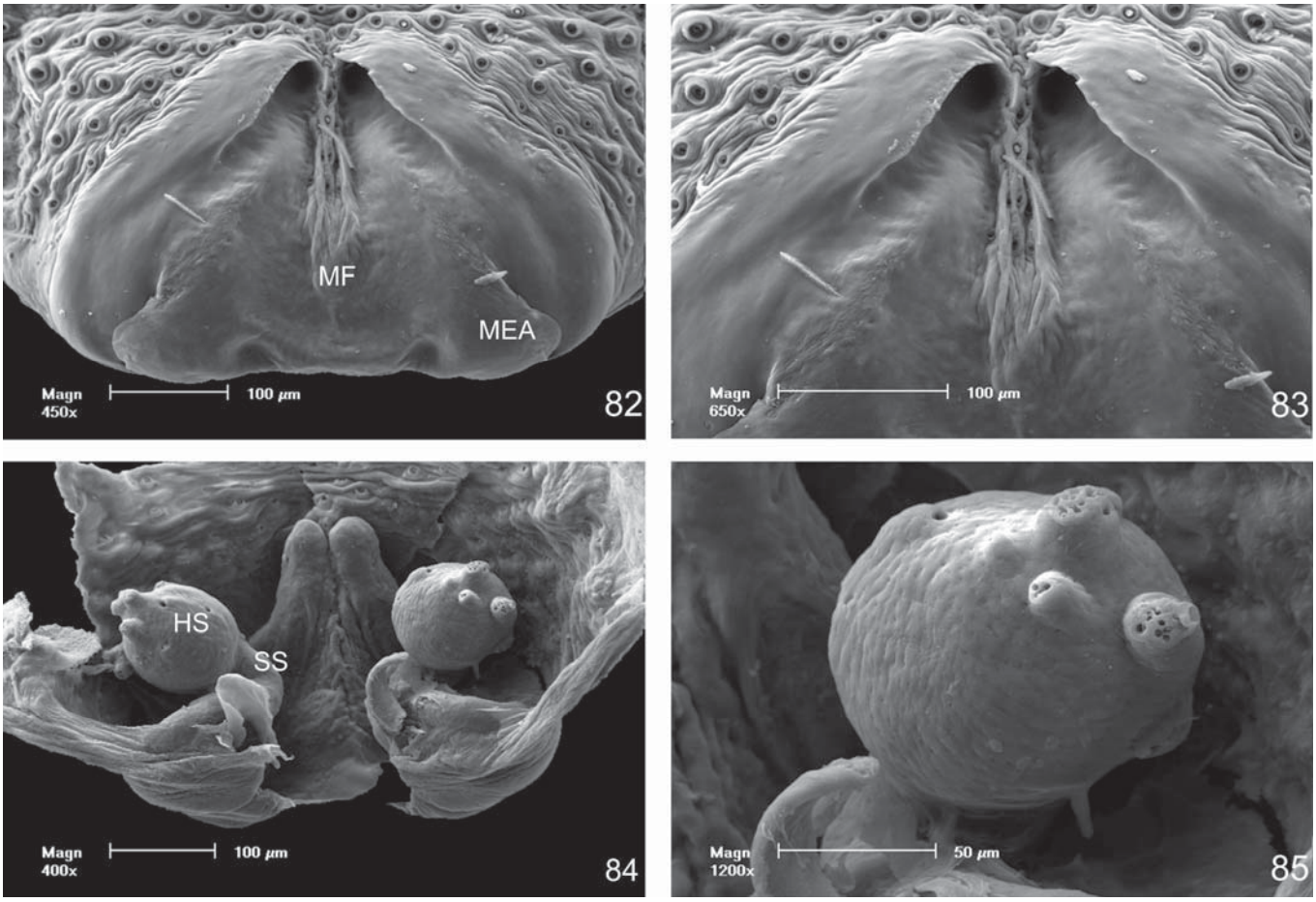
Diagnosis. The female of *B. comaina* **sp. nov.** can be distinguished from the females of *B. nannella* (Fig. 68) and *B. kochalkai* (Fig. 73) by the presence of short median septum (Fig. 82), two deeply excavated anterior folds on the middle field of the epigynum (MF) (Fig. 83), subtriangular membrane area of MF (Fig. 82) and the pores on the head of spermathecae (HS) located on three small protuberances (Figs. 84, 85).

Description. Female (Holotype, Amazonas, rio Comaina, Peru, MUSM). Total length 5.47. Carapace 2.24 long, 1.82 wide, dark brown with a median light brown band; irregular dark brown patches laterally. Clypeus light brown, 0.16 high. Anterior eye row slightly recurved, 0.64 wide; posterior straight, 0.90 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.12, PME 0.14, PLE 0.11; AME-AME 0.07, AME-ALE 0.06, PME-PME 0.08, PME-PLE 0.18, OQA 0.30, OQP 0.40, OQH 0.34. Chelicerae light brown, scattered setae; promargin and retromargins of fang furrow with three teeth, equidistant and equal in size. Sternum dark brown, with a median light brown band, with scattered setae; 1.20 long, 1.10 wide. Labium dark brown, light brown distally, 0.24 long, 0.40 wide. Legs light brown, with dark brown annuli on all leg segments, relative length: IV-I-III-II. Leg measurements: I – femur 2.82/ tibia-patella 3.32/ metatarsus 2.49/ tarsus 1.41/ total 10.04; II – 2.90/ 3.33/ 2.57/ 1.32/ 10.12; III – 2.65/ 2.90/ 2.15/ 1.07/ 8.77; IV – 3.32/ 3.73/ 2.98/ 1.49/ 11.52.

Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Abdomen 2.82 long, dorsum light brown with whitish arrow-like patch at anterior portion; bristly. Venter light brown with several irregular dark brown patches, with scattered setae. Epigynum with a short median septum (Fig. 82) and two deep anterior folds on the middle field of the epigynum (MF) (Figs. 83). The membrane area (MEA) lateral of the middle field of epigynum (MF) presents a subtriangular shape (Fig. 82). Head of the spermathecae (HS) with conspicuous pores placed on three small protuberances (Figs. 84, 85).

Distribution. Peru (Amazonas, Huancabamba) (Fig. 1).

Male. Unknown.



FIGURES 82–85. *Barrisca comaina* **sp. nov.** 82–85 Female epigynum (82, ventral view; 83 detail of copulatory openings; 84, dorsal view; 85, detail of pores on the head of HS). (HS = head of spermathecae, MEA = membranous area, MF = middle field of epigynum, SS = stalk of spermathecae).

***Heidrunea* Brescovit & Höfer, 1994**

Figs 1, 9, 86–97

Type-species. *Heidrunea irmleri* Brescovit & Höfer, 1994 (by original designation).

Diagnosis. The representatives of *Heidrunea* (Figs 86–97) can be distinguished from those of *Rhoicinus* (Figs 4–6) and *Barrisca* (Figs 2, 3) by the strongly recurved posterior eye row having the PLE widely separated from the PME (Fig. 9), and absence of strong macrosetae on the male cymbium (Figs 87, 91). The females are distinguished from *Rhoicinus* by the presence of prominent and distinctive epigynal folds at the anterior margins (Figs 88, 92, 95).

Description. Carapace oval, narrower anteriorly. Anterior eye row (AER) moderately recurved in dorsal view; posterior eye row (PER) strongly recurved. Clypeus height equal to the diameter of anterior eyes. Chelicerae robust; with 3 promarginal and 3 retromarginal teeth. Sternum as long as wide. Legs thin, with short setae. Tarsi with three claws, superior with 10-12 teeth and inferior with one tooth. Abdomen oval, longer than wide (Fig. 9); bristly dorsally. Cymbium elongated with strong macrosetae (Figs 86, 87, 90, 91). Palpal bulb with distinct subtegulum and tegulum (Figs 86, 87, 90, 91). Conductor heavily sclerotized and median apophysis lamelliform and elongated (Figs 86, 90). Embolus short, curved at the tip (Figs 86, 90). Epigynum with a projected scape-like middle field (MF) (Figs 88, 92, 95), spermathecae short and wide (Figs 89, 93, 96).

Distribution. Brazil (Amazonas) (Fig. 1).

***Heidrunea irmleri* Brescovit & Höfer, 1994**

Figs. 1, 90–94

Heidrunea irmleri Brescovit & Höfer 1994: 73, figs. 2, 4a, b, 5-7 (male holotype from Rio Tarumã Mirim, Amazonas, Brazil, October 20–November 19 1971, U. Irmler leg, in SMNK, examined). Platnick, 2012.

Diagnosis. The males of *Heidrunea irmleri* (Figs??) resembles those of *H. arijana* by the general shape of the tegulum, but can be distinguished by the elongated tegulum and by the deeply notched sclerotized ring (SR) on palpal tibia (Figs 86, 87, 90, 91). The females can be distinguished from those of *H. arijana* (Figs ??) and *H. lobrita* (Figs??) by the presence of a projected scape-like middle field of epigynum (Figs 88, 92) and short and wider spermathecae (Fig. 89).

Description. See Brescovit & Höfer (1994).

Distribution. Brazil (Amazonas).

***Heidrunea arijana* Brescovit & Höfer, 1994**

Figs 1, 9, 86–89

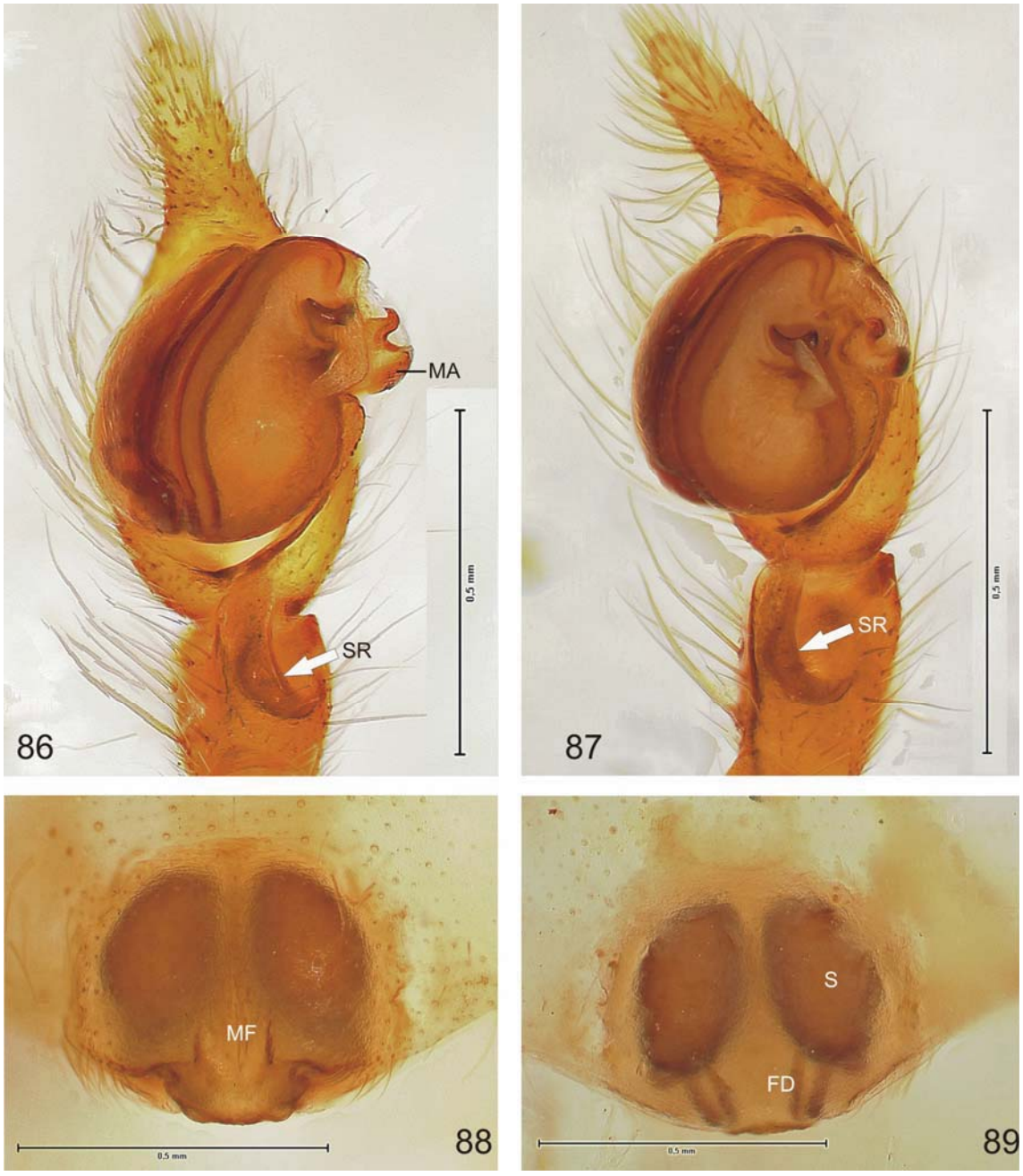
Heidrunea arijana Brescovit & Höfer 1994: 74, figs. 3, 4c,d (male holotype from Lago Janauari, Manaus, Amazonas, Brazil, November 17–December 21 1971, U. Irmler leg, in SMNK, examined). Platnick, 2012.

Diagnosis. The males of *Heidrunea arijana* resemble those of *H. irmleri* (Figs 90, 91) by the enlarged tegulum and the deeply notched sclerotized ring on palpal tibia (Fig. 90), but can be distinguished by the smaller median apophysis with a curved distal tip (Fig. 86). Females resemble those of *H. irmleri* by the projected scape-like middle field of epigynum (Figs 88, 92), but can be distinguished by the less projected scape of

the middle field of epigynum (Fig. 88) and by the larger and wider spermathecae (Fig. 89).

Description. See Brescovit & Höfer (1994) for description.

Distribution. Brazil (Amazonas) (Fig. 1).



FIGURES 86–89. *Heidrunea arijana*. 87, 88 male palpus (86, ventral view; 87, retrolateral view). 88, 89 female epigynum (88, ventral; 89 dorsal). (FD = fertilization duct, MA = median apophysis, MF = middle field of epigynum, S = spermathecae, SR = sclerotized ring).

***Heidrunea lobrita* Brescovit & Höfer, 1994**

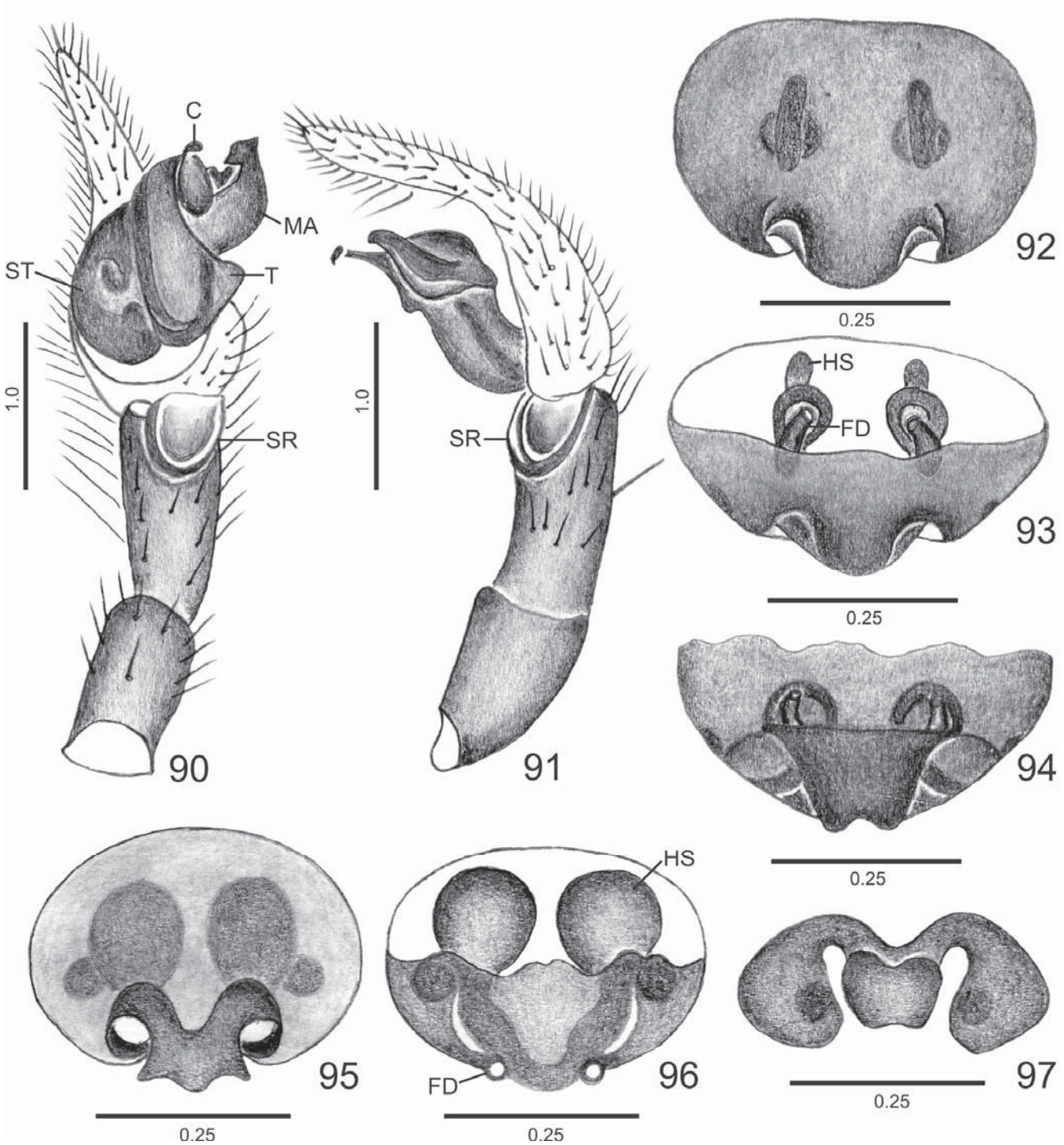
Figs 1, 95–97

Heidrunea lobrita Brescovit & Höfer 1994: 79, figs. 4e, f (female holotype from Rio Tarumã Mirim, Amazonas, Brazil, 25 November 1976, J. Adis leg, in SMNK, examined). Platnick, 2012.

Diagnosis. Females of *Heidrunea lobrita* can be distinguished from of *H. irmleri* and *H. arijana* by the subquadrangular border of the posterior margin of the epigynum (Fig. 95).

Description. See Brescovit & Höfer (1994).

Distribution. Brazil (Amazonas) (Fig. 1).



FIGURES 90–97. *Heidrunea irmleri* 90, 91 male palpus (90, ventral; 91, retrolateral). 92–94 female epigynum (92, ventral; 93, dorsal; 94, posterior). 95–97 *Heidrunea lobrita*. 95–97 female epigynum (95, ventral; 96, dorsal; 97, posterior). (C = conductor, E = embolus, FD = fertilization duct, HS = head of spermathecae, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum).

***Shinobius* Yaginuma, 1991**

Figs 1, 7, 12, 13, 98–107

Shinobius Yaginuma, 1991:1; Sierwald, 1993: 69; Griswold, 1993: 37. Platnick, 2012.

Type-species. *Cispius orientalis* Yaginuma, 1967.

Diagnosis. Males of *Shinobius orientalis* can be distinguished from those of *Rhoicinus* (Figs 19, 23, 28, 32, 37) by the shorter tip of the cymbium (Figs 98, 99, 104), by the short median apophysis (MA) (Fig. 105) and by the shallow sclerotized ring (SR) on male palpus tibia (Fig. 107). Females of *S. orientalis* resemble those of *Rhoicinus* by the scape-like projection of the posterior margin of epigynum (Figs 16, 26, 30, 34, 41, 51, 54, 57, 60), but can be distinguished by the presence of conspicuous copulatory openings (Fig. 102) and by the conspicuous finger-like projections on the head of the spermathecae (HS) (Figs 100, 101, 103).

Description. See species description.

Distribution. Endemic to Japan.

***Shinobius orientalis* (Yaginuma, 1967)**

Figs 1, 7, 12, 13, 98–107

Cispius orientalis Yaginuma, 1967: 56, 62, figs. 3.1–8 (female holotype from Mie Prefecture, Japan [37°29'N, 139°50'E], 4 May 1965, R. Hashimoto, in NMNS, examined). Yaginuma, 1971: 126; Yaginuma, 1986: 175; Chikuni, 1989: 106.

Shinobius orientalis; Yaginuma, 1991: 2, figs. 1–8 (transferred from *Cispius*). Kaihotsu, 1988: 14; Yaginuma, 1991: 2; Sierwald, 1993: 15, 16; Ono, 2009a: 221; Platnick, 2012.

Diagnosis. See genus diagnosis.

Description. Male (Holotype, Japan, NMNS). Total length 5.47. Carapace 2.90 long, 2.48 wide, light brown, dark brown at the border (Fig. 12). Clypeus yellow, 0.14 high. Anterior eye row slightly recurved, 0.70 wide; posterior slightly recurved, 1.04 wide (Fig. 7). Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.15, PME 0.20, PLE 0.14; AME-AME 0.08, AME-ALE 0.07, PME-PME 0.10, PME-PLE 0.18, OQA 0.36, OQP 0.50, OQH 0.44. Chelicerae light brown with a median brown band, bristly; promargin and retromargin of fang furrow each with three teeth equidistant and equal in size. Sternum yellow, with scattered setae; 1.66 long, 1.57 wide. Labium yellow, light brown laterally, 0.49 long, 0.48 wide. Legs: yellow with faint light brown annuli on femora and tibia, relative length: IV-II-I-III. Leg measurements: I – femur 3.07/ tibia-patella 4.81/ metatarsus 3.15/ tarsus 1.41/ total 12.44; II – 3.48/ 4.98/ 3.56/ 1.49/ 13.51; III – 3.32/ 4.23/ 3.14/ 1.32/ 12.01; IV – 3.48/ 4.64/ 4.15/ 1.66/ 13.93. Ventral pairs of macrosetae on tibiae: I-3; II-3; III-3; IV-3. Abdomen 2.49 long, dorsum dark brown with a whitish patch. Venter light gray, glabrous. Cymbium 1.37 long, with strong macrosetae retrolateral surface (Fig. 99). Palpal tibiae with long and strong macrosetae on retrolateral and dorsal surface (Figs 98, 99); sclerotized ring present (Fig. 107). Median apophysis short (Fig. 105); tegulum and subtegulum prominent (Figs 104, 105).

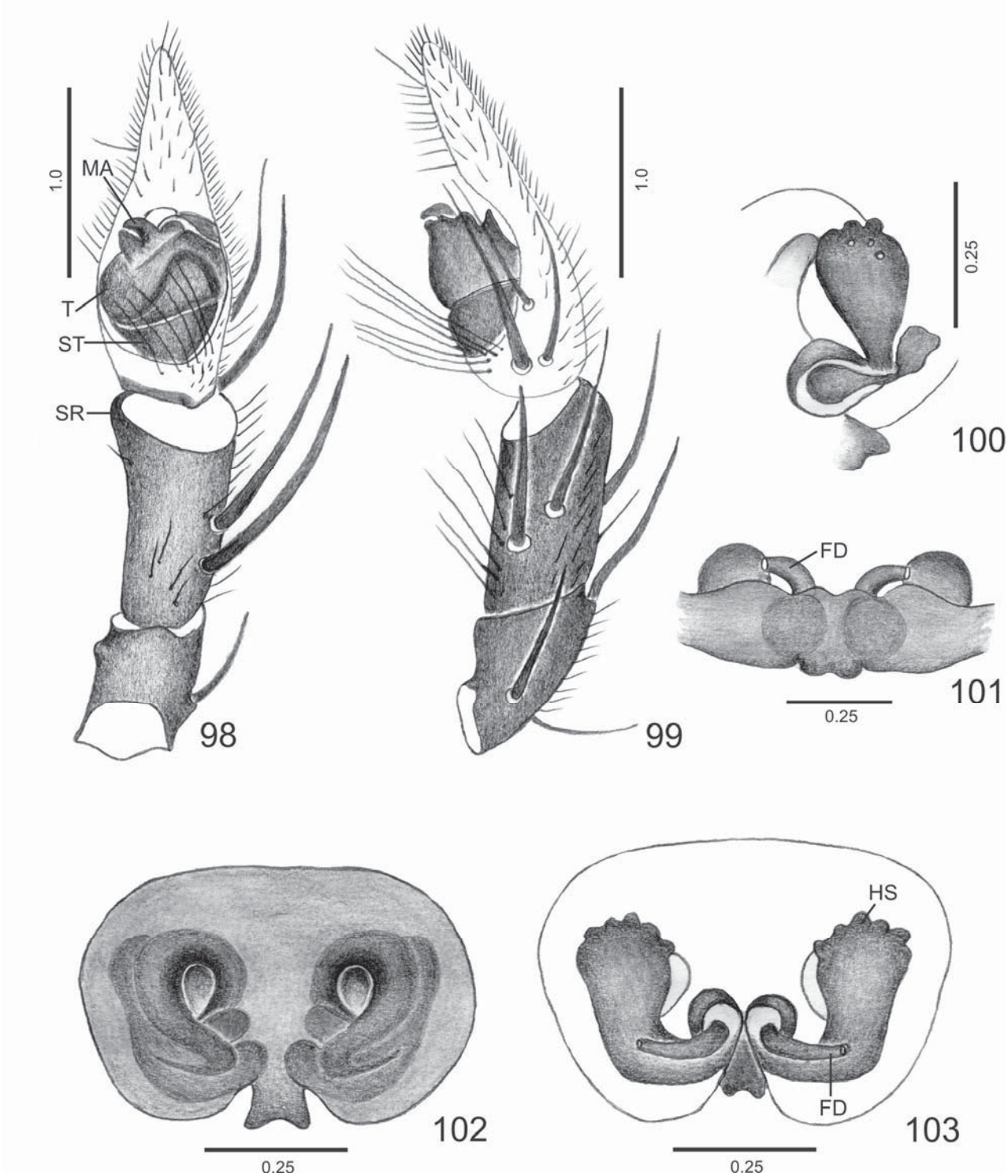
Female (Paratype, NMNS). Total length 7.47. Carapace 3.07 long, 2.65 wide, dark brown as in male (Fig. 13). Clypeus as in male, 0.18 high. Anterior eye row slightly recurved, 0.78 wide; posterior straight, 1.16 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.10, PME 0.18, PLE 0.12; AME-AME 0.10, AME-ALE 0.07, PME-PME 0.14, PME-PLE 0.34, OQA 0.38, OQP 0.52, OQH 0.46. Chelicerae as in male; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum as in male; 1.66 long, 1.82 wide. Labium dark

brown, 0.33 long, 0.47 wide. Legs as in male, relative length: IV-II-I-III. Leg measurements: I – femur 3.15/ tibia-patella 4.23/ metatarsus 2.90/ tarsus 1.55/ total 11.83; II – 3.40/ 4.39/ 3.14/ 1.41/ 12.34; III – 3.07/ 3.98/ 2.90/ 1.24/ 11.19; IV – 3.65/ 4.22/ 3.81/ 1.57/ 13.25. Abdomen 3.98 long, dorsum and venter as in male. Epigynum with conspicuous copulatory openings (CO) (Fig. 102); middle field with a slightly projected posterior margin (Fig. 102). Head of spermathecae (HS) rounded with distal "finger-like" projections (Fig. 103).

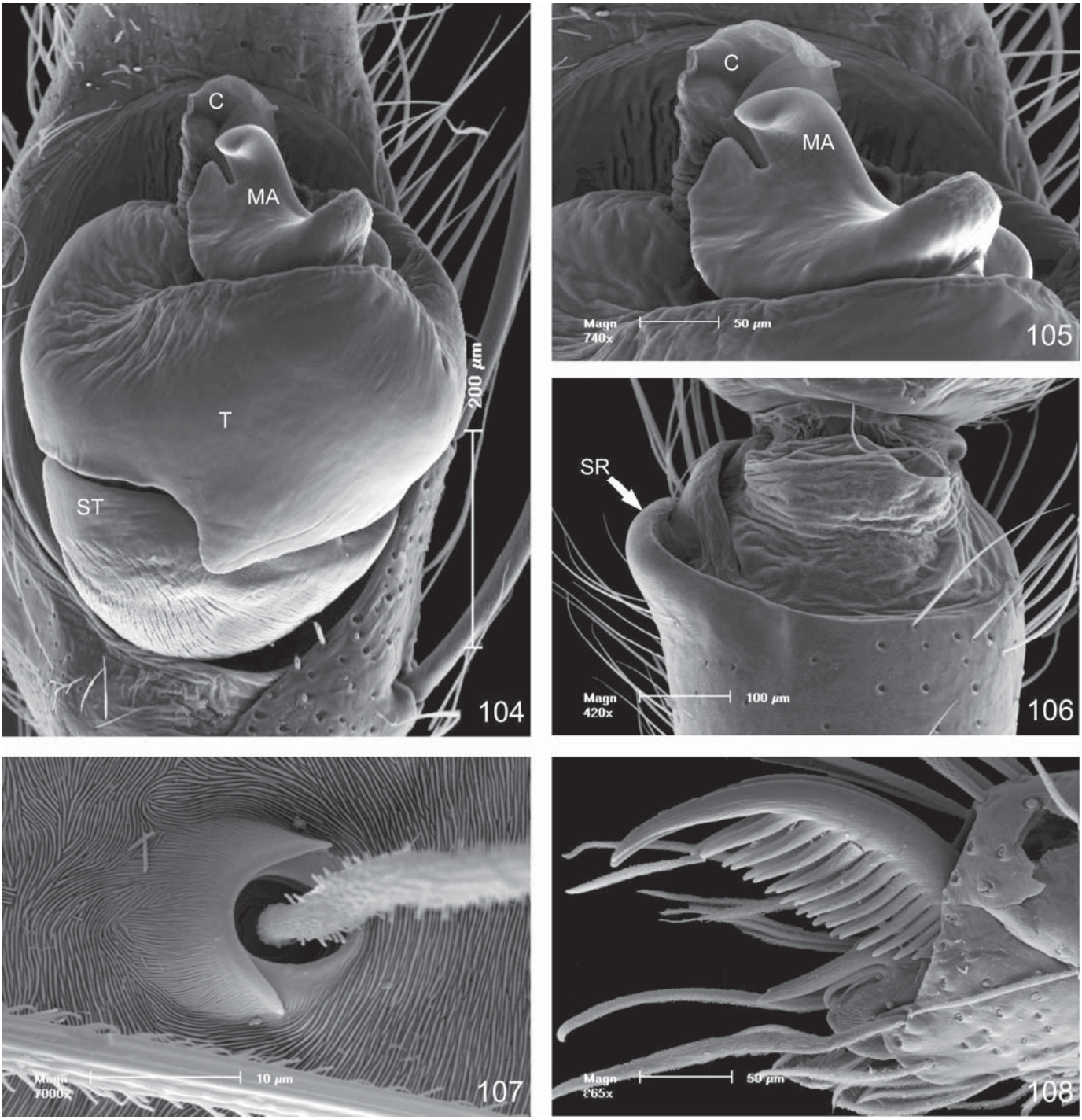
Other material examined. JAPAN, *Honshu*: Mie Pref., Misugi-Mura, Ichishi-gun [37°29'N, 139°50'E], 1 ♂, 1 ♀, 06.XI.1988, K. Kaihotsu *leg*. (NSMT 6934), 1 ♂, 1 ♀, IV.1985, K. Kaihotsu *leg*. (FMNH).

Distribution. Japan (Misugi-Mura, Honshu and Shikoku).

Natural history. The female builds a lenticular egg sac carried on the spinnerets, similar to those of Trechaleidae (Kaihotsu, 1988: 16, fig. 3). The spiderlings after emerging stay on top of the empty egg sac still carried on the spinnerets (Kaihotsu, 1988: 18, fig. 4). The preferred environment is also similar to the trechaleids: the spiders can be found near rocky streams (Kaihotsu, 1988: 14, fig. 1).



FIGURES 98–103. *Shinobius orientalis* (Yaginuma, 1967). 98, 99 male palpus (98 ventral, 99 retrolateral). 100–103 female epigynum (100 detail of HS, 101 posterior, 102 ventral, 103 dorsal). (FD = fertilization duct, HS = head of spermathecae, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum).



FIGURES 104–108. Morphological details of *Shinobius orientalis* (Yaginuma, 1967). 104–106 male palpus (104 ventral, 105 bulbus, 106 sclerotized ring), 107 hood of trichobthria of right leg I, 108, tarsal claw of right leg IV. (C = conductor, MA = median apophysis, SR = sclerotized ring, ST = subtegulum, T = tegulum).

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Capítulo III

Description of a new species of the spider genus *Syntrechalea* (Araneae: Lycosoidea: Trechaleidae) from Colombia

Estevam L. C. da Silva & Arno A. Lise

Laboratório de Aracnologia, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul. Avenida Ipiranga 6681, Prédio 40, sala 167, 90619-900 Porto Alegre, Rio Grande do Sul, Brasil.
E-mail: estevamsilva@gmail.com; lisearno@pucrs.br

ABSTRACT. A new species of the spider genus *Syntrechalea* F.O.P.-Cambridge, 1902 is described and illustrated based on material collected in Loreto Mocagua, Colombia. Representatives of this spider genus exhibit an arboreal foraging behavior and are distinguished from the other genera of Trechaleidae by the flattened carapace, long legs and flexible metatarsi and tarsi. New records on the distribution of *Syntrechalea tenuis* F.O.P.-Cambridge, 1902 in Colombia are presented.
KEY WORDS. Distribution; Neotropical region; spiders; taxonomy.

RESUMO. **Descrição de uma nova espécie de *Syntrechalea* (Araneae: Lycosoidea: Trechaleidae) da Colômbia.** Uma espécie nova do gênero *Syntrechalea* F.O.P.-Cambridge, 1902 é descrita e ilustrada, a partir de material coletado em Loreto Mocagua, Colômbia. Os representantes deste gênero apresentam o hábito arbóreo de forragear e são distinguidos dos demais gêneros de Trechaleidae pela carapaça achatada, pernas longas e metatarsos e tarsos flexíveis. Novos registros de distribuição de *Syntrechalea tenuis* F.O.P.-Cambridge, 1902 na Colômbia são apresentados.
PALAVRAS-CHAVE. Aranhas; distribuição; região Neotropical; taxonomia.

Syntrechalea F.O.P.-Cambridge, 1902 was recently revised by Carico (2008) and comprises eight species, four of them newly described (*S. adisi*, *S. brasilia* from Brazil, *S. caporiaccoi* from Venezuela, *S. napoensis* from Ecuador, and *S. caballero* from Paraguay).

The representatives of this spider genus are primarily recognized by the long and slender legs, flattened carapace, and flexible tarsi and metatarsi, character shared with *Hesydrus* Simon, 1898, its closely related genus (by the general shape of median apophysis and flexible tarsi and metatarsi). The retrolateral tibial apophysis is bifurcated with the ectal division narrow and the ental division prominent and flattened. The female epigynum is varied but has the middle field distinct and in a posterior position and surrounded by the anterior field. Most of these spiders are arboreal, foraging on the tree trunks in the inundated forests of Northern Brazil (Carico 2008).

The objective of this work is to describe and illustrate a new species of *Syntrechalea* from Departamento del Amazonas, Loreto Mocagua in Colombia. New records of the distribution of *Syntrechalea tenuis* F.O.P.-Cambridge, 1902 in Colombia are presented.

MATERIAL AND METHODS

The material examined is deposited in Instituto de Ciencias Naturales de la Universidad Nacional de Colombia (ICN, E. Florez). The nomenclature of the male palpus structures follows Carico (1993, 2008) and Silva *et al*. (2008). The photograph was obtained with a digital camera connected to the stereomicroscope. All the measurements are in millimeters. The abbreviations related to eyes measurements, including diameter, interdistances and median ocular quadrangle are those routinely used in spider descriptions.

Syntrechalea colombiana sp. nov.

Figs 1-6

Type. Male holotype from Loreto Mocagua, Leticia, Departamento del Amazonas, Colombia (3°50'48"S, 70°13' 10"W), 15.XI.2001, C. Sandoval leg, deposited in ICN 768.

Etymology. The specific name is a noun and refers to the type locality.

Conditions of holotype. Missing tibia, metatarsus and tarsus of left legs I and II.

Diagnosis. *Syntrechalea colombiana* is similar to *S. caporiaccoi* by the shape of the ventral division of median apophysis (Carico, 2008, fig. 24), but can be distinguished by the pointed dorsal division of median apophysis (Fig. 3).

Description. Holotype male. Total length 12.36. Carapace (Fig. 2), 5.05 long, 4.65 wide, yellowish, darker on cephalic area (Fig. 2). Clypeus light brown, darker anteriorly, 0.70 high. Anterior eye row slightly straight, 1.10 wide; posterior 2.29 wide.

Figure 1. Type locality of *Syntrechalea colombiana* **sp. nov.** in Colombia.

Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.12, PME 0.46, PLE 0.20; AME-AME 0.24, AME-ALE 0.12, PME-PME 0.50, PME-PLE 0.46, MOQ, 0.94 long, frontal view, anterior width 0.58, posterior width 1.12. Chelicerae light reddish-brown, without lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum bristly, yellowish, darker at margins; 1.99 long, 2.39 wide. Labium brownish, darker at anterior margin, 0.93 long, 0.94 wide. Legs yellowish, with light brown annuli on femora, relative length: IV-I-II-III, leg measurements: I – femur 10.64/tibia-patella 13.96/metatarsus 10.37/tarsus 6.11/total 41.08; II – 9.57/11.97/9.31/5.98/36.83; III – 7.58/7.98/7.44/5.32/28.32; IV – 11.57/11.65/12.10/7.31/42.63. Ventral pairs of macrosetae on tibiae: I-6; II-6; III-4; IV-4. Bothrium conspicuous (Fig. 5). Tarsal with three teeth (Fig. 6). Abdomen, 6.65 long, dorsum grayish, bristly, blanched due to conservation (Fig. 2). Venter light brown, scattered setae. Ventral division of median apophysis acute; guide pointed and ventrally curved (Fig. 3). Retrolateral tibial apophysis (RTA) prominent, ectal division acute at apex; ental division lobed (Fig. 4).

Female. Unknown.

Note. The examination of the type of *Syntrechalea reimoseri* (Caporiacco, 1947) showed some differences in the morphological characters, such as coloration and shape of the abdomen. Also, a juvenile female was found in the same vial as the male described in this paper, but it could not be described because it was an antepenultimate female epigynum and the somatic characters mentioned above are different from *S. reimoseri*. The localities listed in the revision of *Syntrechalea* F.O.P.-Cambridge, 1902 made by Carico (2008) are Ecuador, Guyana (female lectotype), Peru, and Brazil. Since there is no material registered from Colombia, the association of this male with the female of *S. reimoseri* is difficult, since in the type series of *S. reimoseri*, there was also included a male that were described as a new species: *S. caporiaccoi* Carico, 2008.

Distribution. Known only from the type locality (Fig. 1).

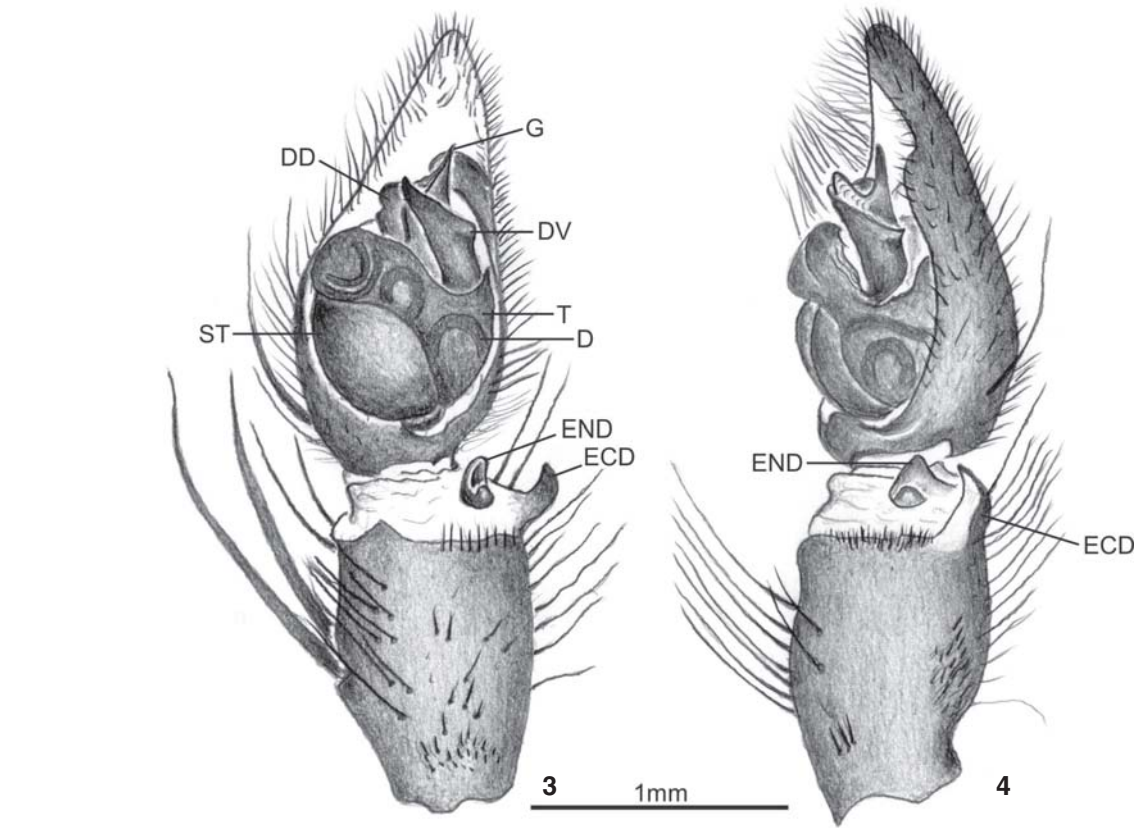
Natural history. It is assumed to be arboreal, by its anatomical features which are similar to the other representatives of the genus.

Syntrechalea tenuis F.O. Pickard-Cambridge, 1902

Syntrechalea tenuis F.O. Pickard-Cambridge, 1902: 314, female holotype from Bugaba, Chiriquí, Panama, Champion *leg*. (BMNH) (not examined); Roewer, 1954: 139; Bonnet, 1956: 4225; Platnick, 2008. Carico, 2008: 120, figs 1, 8-11.

Syntrechalea porshi Reimoser, 1939: 339 (not examined); Roewer, 1954: 139; Platnick, 2008; Carico, 2008: 120. **Syn. nov.**

Figure 2. Habitus of *Syntrechalea colombiana* **sp. nov.** Scale bar: 1mm.



Figures 3-6. Morphological details of *Syntrechalea colombiana* **sp. nov.**: (3-4) male palpus: (3) ventral view; (4) retrolateral view; (5) detail of bothrium of right leg IV; (6) tarsal claw of right leg I. (DD) Dorsal division of median apophysis, (ECD) ectal division of RTA, (END) ental division of RTA, (RTA) retrolateral tibial apophysis, (ST) subtegulum, (T) tegulum, (VD) ventral division of median apophysis, (VP) ventrodistal protuberance of male palpal tibia.

Distribution. Mexico, Costa Rica, Panama and Colombia.

New records. Colombia, *Caqueta*: El Paujil (01°33'52"N; 75°19'55"W, 326 m), 1 male, IV.1990, unknown collector (ICN 686); *Cundinamarca*: Caqueza (04°24'32"N; 73°53'05"W, 1520 m), 1 male, 1 female, 04.IV.2002, A. Rodriguez *leg*. (ICN 1891).

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Scientific Note

Notes on the distribution of *Trechalea boliviensis* Carico, 1993 (Araneae, Lycosoidea, Trechaleidae) in Brazil

Estevam Luís Cruz da Silva[1]

[1] *Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Sala 167, Avenida Ipiranga, 6681, Partenon, 90.619-900, Porto Alegre, RS, Brasil. E-mail: estevamsilva@gmail.com*

Abstract. The distribution of *T. boliviensis* is first recorded in some localities of Brazil, such as; Amazonas, Paraná and Rio Grande do Sul. This new information regarding this species distribution shows a wide range of occurrence. Notes of variance of the males and female body size were noted.

Key words: spiders, distribution, Neotropical region.

Resumo. Notas sobre a distribuição de *Trechalea boliviensis* Carico, 1993 (Araneae, Trechaleidae) no Brasil. A distribuição de *Trechalea boliviensis* é registrada pela primeira vez em localidades do Brasil, como: Amazonas, Mato Grosso, Paraná e Rio Grande do Sul. Esta nova informação sobre a distribuição desta espécie, indica que esta apresenta uma ampla área de ocorrência. A variação do tamanho corporal de machos e fêmeas foi registrada.

Palavras-chaves: aranhas, distribuição, região Neotropical.

The spider family Trechaleidae Simon, 1890 presents a wide distribution, from Northern USA to Southern Brazil (Platnick, 2007). The members of this spider family usually occur near to bodies of freshwater (Carico, 1993).

Trechalea boliviensis was described by Carico (1993), the holotype is a male collected in Departament of Beni, in Bolivia; other material also examined by Carico were from Peru.

The objective of this work is to register the new geographical distribution range of *T. boliviensis* from material deposited in Brazilian collections.

After the careful examination of 51 specimens (17 males; 34 females) belonging to the following institutions: MUSM, Museo de Historia Natural of Universidad Nacional Mayor de San Marcos (D. Silva-Dávila); IBSP, Instituto Butantan, São Paulo (A.D. Brescovit), MCN, Museu de Ciências Naturais, Fundação Zoobotânica, Porto Alegre (E.H Buckup) and MHCI, Museu de História Natural "Capão da Imbuia", Paraná (J. de Moura Leite) the occurrence of this species is recorded for the first time to some localities in Brazil, like, Amazonas, Mato Grosso, Paraná and Rio Grande do Sul (Fig. 1) and the geographical distribution is enlarged.

Figure 1. Map with the distribution of *Trechalea boliviensis* in Brazil.

Trechalea boliviensis CARICO, 1993: 252, figs. 65-68, map 3 (male holotype from Bolivia, Department of Beni, 8-14.XI.1989, J. Coddington *et al.* col., deposited in the Instituto de Ecología, La Paz, Bolivia). (not examined). PLATNICK, 2006.

Distribution. Bolivia, Peru, Brazil (Amazonas, Mato Grosso, Paraná, Rio Grande do Sul).

Adicional records. PERU. **Madre de Dios**: Zona Reservada Pakitza (11°56'S; 71°17'W; 356m), @&, 04.V.1991, D. Silva col. (MUSM); **Loreto**: Pithecia, B&, @&, 07-15.V.1990, T. Erwin & D. Silva col. (MUSM); Panguana, 2 B&, @&, 1988, C.Manhart col. (MCN 19402); BRASIL. **Amazonas**: Manaus, Reserva Florestal Adolfo Ducke, B&, 14-23.VIII.1991, A.D. Brescovit col. (MCN 21444), Ilha da Marchantaria, 2 B&, VIII.1999, G.F. Dutra & A.J. Santos col. (IBSP 36213, 39933); **Mato Grosso**: Anaurilândia (Usina Hidrelétrica Engenheiro Sérgio Motta), 5 B&, 24 @&, 15.XI-23.XII.1999, Equipe IBSP col. (IBSP 23352, 23467, 23468, 23491); **Paraná**: Fênix, B&, 24.XI.1986, Equipe PROFAUPAR col. (MCN 20317); Guaíra, @&, II.1947, Bolfregue col. (MHCI 4485); **Rio Grande do Sul**: Derrubadas, Parque Estadual do Turvo, 5 B&, 23 @&, 11-18.I.2002, Equipe BIOTA col. (IBSP 52636, 52637, 52639, 52640, 52640, 52641, 52642, 52643, 52644, 52645, 52646).

Remarks

The Brazilian territory is rich of fluviatic systems and there are no geographical barriers, this fact could explain the wide distribution of a spider species that were first described for Bolivia, in Brazil. The main problem regarding the collection of Trechaleidae species is that many Arachnologists or spider collectors do not easily access the areas of occurrence of these spiders. The collecting technique required to sample this kind of spiders, needs a suit to get them in the water, like the one used by fishermen, and an entomologic net to capture the specimens.

Measurements of the species described by CARICO (1993) presented a variation of the female carapace length and width of 4.2 to 4.5 mm and the males were at 3.7 to 4.2 mm. The specimens collected in Amazonas, Mato Grosso, Paraná and Rio Grande do Sul presented a variance of carapace in males of 3.9 to 4.4 mm (N=17) and in females a variance of 4.3 to 4.7 mm (N=34).

The female dorsal's pattern and ocular region was photographed in the stereomicroscope ZEISS Stemi SV 6 with a digital camera connected to the device. Also the dorsal pattern of coloration of the males and females matches perfectly with the drawings of CARICO (1993) (Fig. 2).

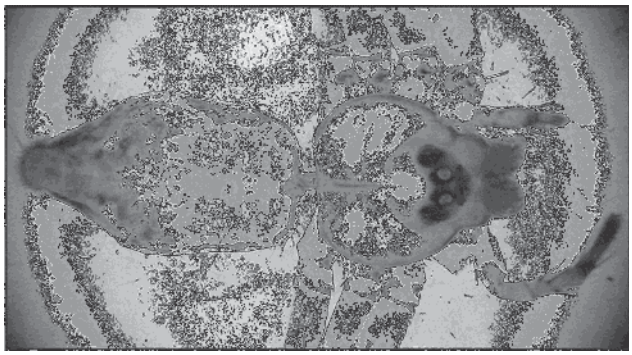

Figure 2. Dorsal view of a female of *Trechalea boliviensis* Carico, 1993 (IBSP 52636) from Derrubadas, Rio Grande do Sul, Brazil.

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I would like to thank the curators of the collections, for the loan of material for examination; Dr. James E. Carico (Lynchburg College, USA) for the support. Juliane Picanço (PUCRS) for the photo and José W. Thomé (PUCRS) for the disposal of the laboratory equipments for the digital photographs.

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NOTA CIENTÍFICA

New record of nuptial gift observed in *Trechalea amazonica* (Araneae, Lycosoidea, Trechaleidae)

Primer registro de un regalo nupcial en *Trechalea amazonica* (Araneae, Lycosoidea, Trechaleidae)

Estevam Luís Cruz da Silva[1] and Arno Antonio Lise[1]

1 Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, sala 167, Av. Ipiranga, 6681, 90619-900, Porto Alegre, Rio Grande do Sul, Brasil. E-mail Estevam Cruz: estevamsilva@gmail.com; E-mail Arno Lise lisearno@pucrs.br

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Abstract

The first record of a nuptial gift in *Trechalea amazonica* F.O.P.-Cambridge, 1903, is herein presented. The observations were made in the Oriximiná, Pará, northern Brazil. Two males were found on tree trunks near the water, each holding in the chelicerae a small prey wrapped in silk. This is the second confirmed observation of the nuptial gift behavior in the family Trechaleidae, first in the genus *Trechalea* Thorell, 1869, and later in *Paratrechalea* Carico, 2005 from southern Brazil. This new observation could be used in phylogenetic and evolutionary studies for this poorly studied spider family.

Keywords: Araneae, nuptial gift, Neotropical region.

Resumen

Se presenta el primer registro de un regalo nupcial en *Trechalea amazonica* F.O.P - Cambridge, 1903. Las observaciones se hicieron en el pantanal de Oriximiná, Pará, Brasil. Se encontraron dos machos en troncos de árboles cerca del agua, cada uno cargando en los quelíceros una presa pequeña envuelta en seda. Ésta es la segunda observación confirmada del comportamiento nuptial del regalo en la familia Trechaleidae, primero en el género *Trechalea* Thorell, 1869, y más adelante adentro *Paratrechalea* Carico, 2005 del Brasil meridional. Esta nueva observación se podría utilizar en estudios filogeneticos y evolutivos para esta familia.

Palabras clave: Araneae, regalo nupcial, region Neotropical.

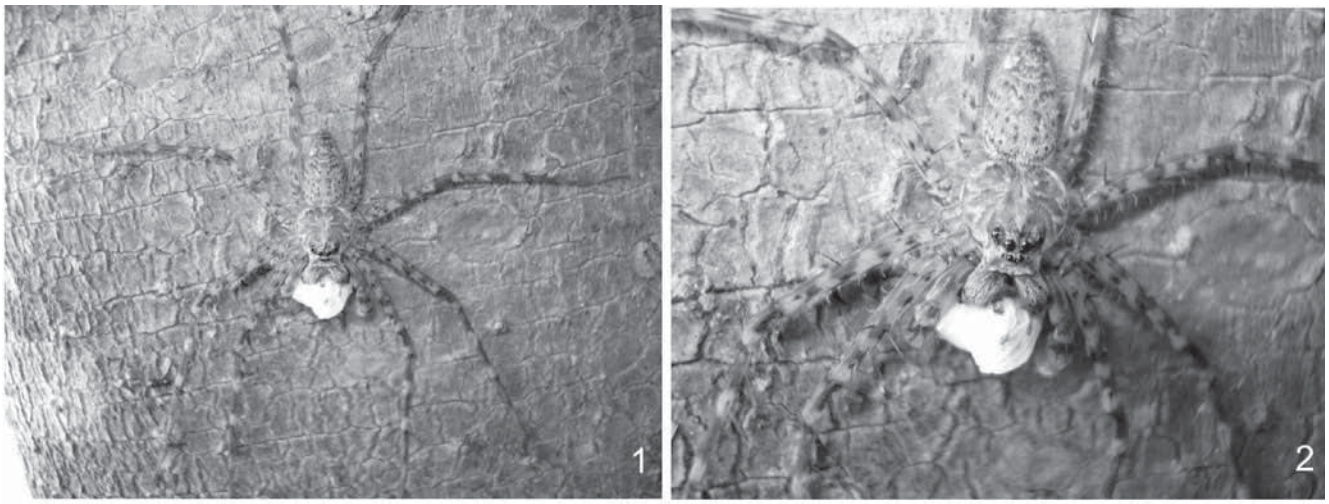
Introduction

The use of nuptial gifts in spiders was first observed in males of *Pisaura mirabilis* (Clerck, 1757) (Bristowe & Locket 1926). This behavior, previously known only for pisaurid spiders, has been recently reported for a few trechaleid species (Costa-Schmidt et al. 2008).

In the Neotropical region, the first record of a nuptial gift for a non-pisaurid specimen was reported by Silva (2005) for *Trechalea bucculenta* (Simon 1898), a member of the family Trechaleidae. Later, this behavior was described in detail after field observations made by Costa-Schmidt et al. (2008), for *Paratrechalea azul* Carico, 2005 and *P. ornata* (Mello-Leitão 1943), in Maquiné, Southern Brazil. Recently, Albo et al. (2009) have observed the same behavior of nuptial gift construction in populations of *Paratrechalea ornata* (Mello-Leitão, 1943) from Uruguay.

In the city of Oriximiná, northern Brasil (01°45'S, 55°50'W), two males were observed on tree trunks near the water, each holding in the chelicerae a small, wrapped prey, consisting of an immature Ctenidae spider for one of them and an immature Lycosidae spider for another one (Figs. 1, 2). The males holding the eggsacs is certainly an indication of nuptial gift behavior, since all the representatives of Trechaleidae usually eat their preys without making any wrapping, observed by Silva et al. (2005) for the predatory behavior of Trechaleidae. Also, some females were observed carrying eggsacs in tree trunks (Fig. 3) The presence of females with eggsacs indicates the activity of mature males in the area, thus it can explain the presence of many males with nuptial gifts (field observations).

The specimens were collected manually and deposited in the collection of Arachnida and Myriapoda of Museu de Ciências



Figures 1-2. *Trechalea amazonica* F.O.P.-Cambridge, 1903: 1, 2 males with nuptial gifts.

Figures 3-4. *Trechalea amazonica* F.O.P.-Cambridge, 1903: 3. Female carrying an eggsac. Figure 4. Area of sampling of Iripixi Lake, Oriximiná, Pará, Northern Brazil.

e Tecnologia (MCTP) of Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). The area was sampled from January 17th to February 7th in 2009 in Iripixi Lake, in the city of Oriximiná, state of Pará, Northern Brazil (Fig. 4).

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We want to thank Francisco de Aguiar Picanço for help with the field work and Dr. James E. Carico (Lynchburg College) for comments on the manuscript. This study was supported by "Conselho Nacional de Desenvolvimento Científico e Tecnológico" (CNPq N° 140282/2008-4 for ELCS).

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On the taxonomy of Trechaleidae (Araneae: Lycosoidea) from Colombia and Peru

Estevam Luís Cruz da Silva & Arno Antonio Lise

Laboratório de Aracnologia, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul. Avenida Ipiranga 6681, prédio 40, sala 125, 90619-900 Porto Alegre, Rio Grande do Sul, Brasil.
E-mail: estevamsilva@gmail.com; lisearno@pucrs.br

ABSTRACT. A new species of *Enna* O. Pickard-Cambridge, 1897 from Cusco, Peru and two new species of *Caricelea* Silva & Lise, 2007 based in males collected in Cusco, Peru are described. *Enna echarate* **sp. nov.** can be distinguished from other species by the two lateral excavations on the epigynal middle field. *Caricelea apurimac* **sp. nov.** an be distinguished from the other members of the genus, by the larger lamellar projection (LP) on the median apophysis that covers most of the guide. *Caricelea camisea* **sp. nov.** can be distinguished from other species of the genus, by the smaller lamellar projection and the smaller and acute ental division of the retrolateral apophysis. The males of *Hesydrus caripito* Carico, 2005 and *Syntrechalea reimoseri* (Caporiacco, 1947) are described and illustrated for the first time. *Trechalea numida* Mello-Leitão, 1943 and *Trechalea limai* Mello-Leitão, 1941 are transferred to *Thaumasia* Perty, 1833 (Pisauridae) and *Paratrechalea* Carico, 2005 (Trechaleidae) as *species inquirenda* and *nomen dubium*, respectively. New records of *Hesydrus aurantius* (Mello-Leitão, 1942), *Hesydrus caripito* Carico, 2005, *Enna maya* Silva, Lise & Carico, 2008 and *Syntrechalea reimoseri* (Caporiacco, 1947) from Colombia and Peru are presented.

KEY WORDS. distribution; new species; Neotropical region, taxonomy.

Trechaleidae spiders can be can be found near or in the vegetation of the margins of rocky streams (Carico 1993). The material gathered during the past five years from South America presented a high richness of species, especially in some regions of Peru and Colombia.

In this work, we describe and illustrate a new species of *Enna* from Cusco, Peru and two new species of *Caricelea* Silva & Lise, 2007 also from Cusco, Peru. The males of *Hesydrus caripito* Carico, 2005 and *Syntrechalea reimoseri* (Caporiacco, 1947) are described and illustrated for the first time. New records of the distribution of *Hesydrus aurantius* (Mello-Leitão, 1942) and *Enna maya* Silva, Lise & Carico, 2008 in Peru and Colombia are presented.

MATERIAL AND METHODS

The material examined is deposited in American Museum of Natural History, New York, USA (AMNH, N. Platnick), Instituto de Ciencias Naturales de la Universidad Nacional de Colombia (ICN, E. Florez), Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM, D. Silva-Dávila) and Museu Nacional da Universidade Federal do Rio de Janeiro, Brazil (MNRJ, A.B. Kury). The nomenclature of the male palpal structures follows Carico (1993, 2008) and Silva *et al.* (2008). To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme tripsine for 48 hours at 25°C. All the measurements are in millimeters. The abbreviations related to eyes measurements, including diameter, interdistances and median ocular quadrangle are those routinely used in spider descriptions.

TAXONOMY

Paratrechalea limai (Mello-Leitão, 1941), **comb. nov.**

Trechalea limai Mello-Leitão, 1941: 245, figs 1 and 2 (Male and female syntypes from Iguape, São Paulo, Brazil, O. Leonardos *leg.*, deposited in the MNRJ 41857, not examined, type assumed to be lost). Mello-Leitão, 1941: 253. Carico, 1993: 237. Carico, 2005: 798. Platnick, 2008.

Remarks. The name is transferred to *Paratrechalea* (Trechaleidae) as a *nomen dubium*, based on the original descriptions, measurements, coloration pattern and drawings that present enough diagnostic characters to include this species in the genus, like the "scape-like" projection of the female epigynum typical of species of *Paratrechalea* and the type locality is in the range of distribution of the genus. Since the type is assumed to be missing from the collection of MNRJ, based on the original drawings, we can not determine the species.

Thaumasia numida (Mello-Leitão, 1943), **comb. nov.**

Trechalea numida Mello-Leitão, 1943: 3 (Immature female holotype from Caruaru, Pernambuco, Brazil, R. von Ihering *leg.*, deposited in the MNRJ 41857, examined). Roewer, 1954: 143. Carico, 1993: 237 (*nomen dubium*). Platnick, 2008.

Remarks. *Trechalea numida* is transferred to *Thaumasia* (Pisauridae) as *species inquirenda*, based on the typical dorsal pattern in most species of the latter genus, i.e., wide median dark area with lateral white bands.

Caricelea apurimac **sp. nov.**

Figs 1-4

Type. Male holotype from Apurimac river, Cusco, Peru, 28.VII.1997, J. Duarez & S. Cordova *leg.*, deposited in MUSM 500067.

Diagnosis. This species can be distinguished from the other members of the genus, by the larger lamellar projection (LP) on the median apophysis that covers most of the guide (Fig. 2).

Description. Holotype male. Total length 7.63. Carapace dark brown, darker laterally, brownish striate lines at anterior area, 3.56 long, 2.98 wide. Clypeus dark brown, 0.34 high. Anterior eye row slightly straight, 0.90 wide; posterior 1.66 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.12, PME 0.26, PLE 0.14; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.42, PME-PLE 0.30, OQA 0.46, OQP 0.90, OQH 0.60. Chelicerae red-brownish, bristly, with lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, scattered setae; 1.41 long, 1.66 wide. Labium dark brown, bristly, 0.49 long, 0.58 wide. Legs brownish with light brown annuli on femora, relative length: I-IV-II-III, I – femur 4.73/tibia-patella 7.05/metatarsus 5.22/tarsus 2.07/total 19.07; II – 4.98/6.22/4.56/1.82/17.58; III – 3.56/3.31/3.40/1.49/11.76; IV – 4.39/5.39/5.81/2.07/17.66. Ventral pairs of macrosetae on tibiae: I-5; II-4; III-3; IV-3. Abdomen, 3.32 long, grayish, bristly; brownish laterally. Venter yellowish, with scattered setae. Ventral division of median apophysis with large lamellar projection (Fig. 2); guide acute and retrolaterally curved (Fig. 2). Retrolateral tibial apophysis (RTA) prominent, ectal division rounded at apex (Figs 3 and 4); ental division triangular and pointed at apex (Figs 3 and 4).

Female. Unknown.

Distribution. Known only from the type locality (Fig. 1).

Etymology. The specific name is a noun in apposition and refers to the type locality.

Caricelea camisea **sp. nov.**

Figs 1, 5-7

Type. Male holotype from Camisea river, Cashiriari, Cusco, Peru, VI.1997, J. Duarez & S. Cordova *leg.*, deposited in MUSM 500065.

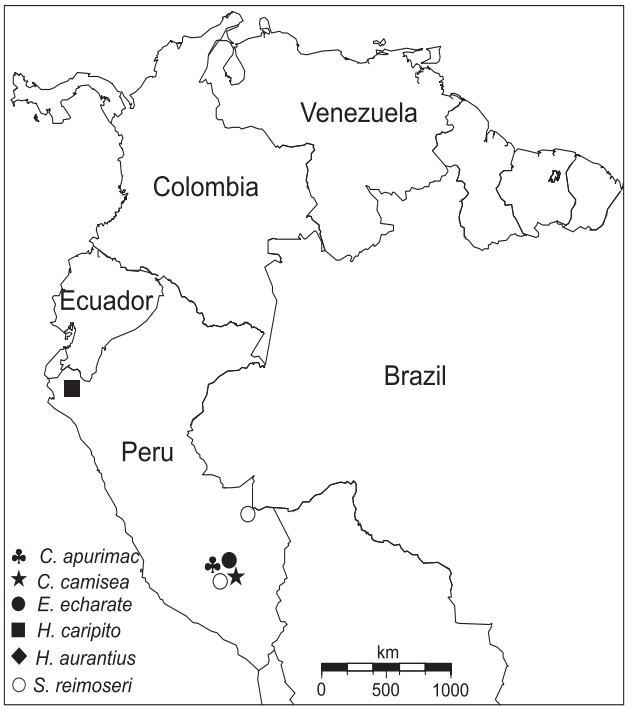
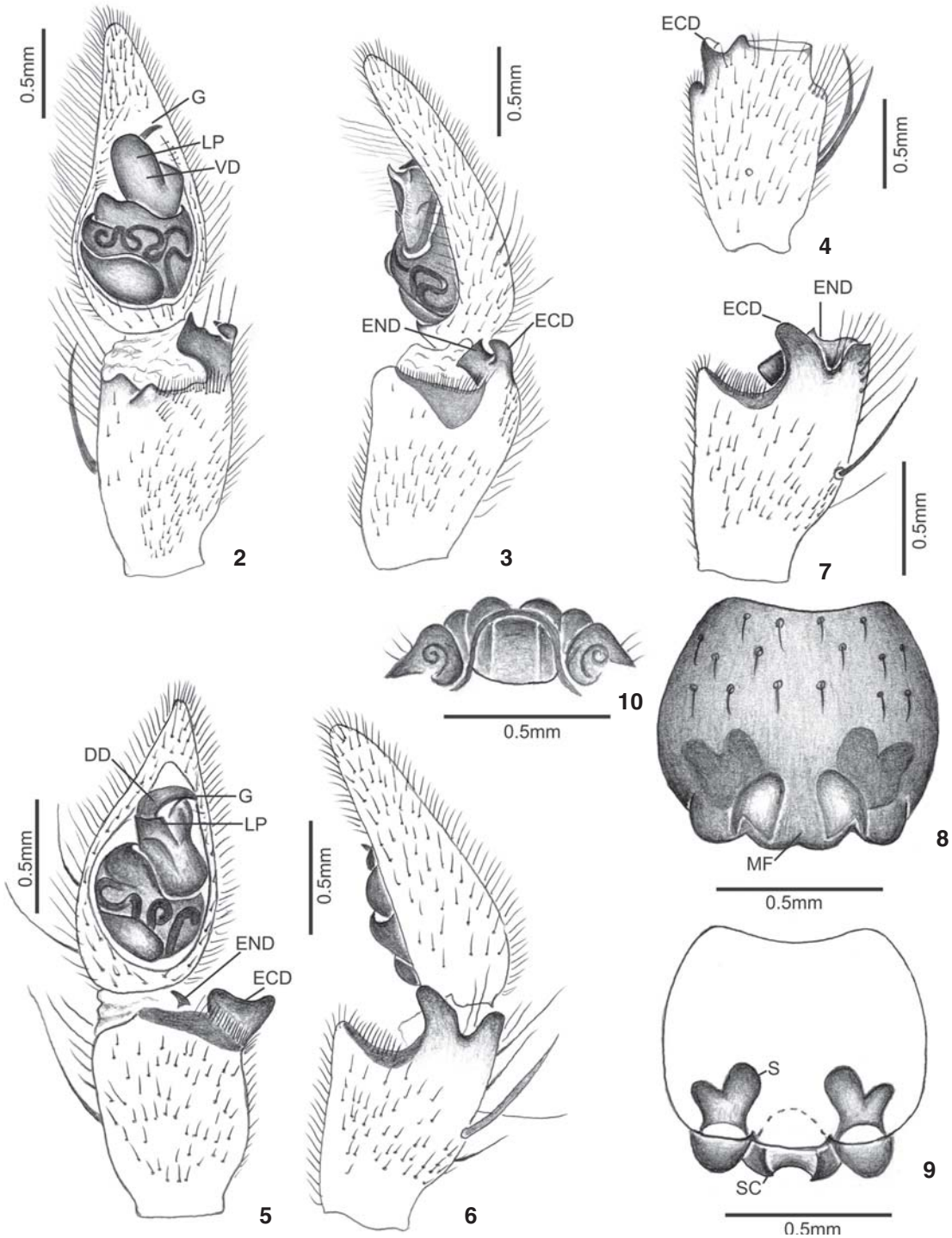


Figure 1. Distributions of *C. apurimac* **sp. nov.**, *C. camisea* **sp. nov.**, *Enna echarate* **sp. nov.**, *H. caripito*, *H. aurantius* and *S. reimoseri* in Peru and Colombia.

Diagnosis. The male of *C. camisea* **sp. nov.** resembles the ones of *C. wayrapata* (see Silva & Lise 2007, figs 4-6) by the general shape of the median apophysis, but can be distinguished by the smaller lamellar projection and the smaller and acute ental division of the retrolateral apophysis (Fig. 5).

Description. Male (Holotype). Total length 5.06. Carapace light brown, darker laterally, with an "u" shaped spot at anterior area, 2.57 long, 2.24 wide. Clypeus dark brown, 0.20 high. Anterior eye row slightly straight, 0.70 wide; posterior 1.30 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.10, PME 0.24, PLE 0.14; AME-AME 0.07, AME-ALE 0.06, PME-PME 0.26, PME-PLE 0.22, OQA 0.38, OQP 0.70, OQH 0.51. Chelicerae red-brownish, bristly, with lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.16 long, 1.32 wide. Labium dark brown, darker laterally, 0.40 long, 0.41 wide. Legs brownish with light brown annuli on femora, relative length: I-IV-II-III, I – femur 3.92/tibia-patella 4.73/metatarsus 3.48/tarsus 1.49/total 13.02; II – 3.31/3.98/3.23/1.24/11.76; III – 2.57/2.98/2.49/0.85/8.89; IV – 3.15/4.15/3.98/1.32/12.60. Ventral pairs of macrosetae on tibiae: I-5; II-4; III-3; IV-3. Abdomen, 2.65 long, grayish, with scattered small light dots and three small horizontal bands. Venter yellowish, with scattered se-



Figures 2-10. *Carilea apurimac* **sp. nov.**, male palpus: (2) ventral view. (3) retrolateral view. (4) dorsal view (detail of retrolateral apophysis). (5-7) *C. camisea* **sp. nov.**, male palpus: (5) ventral view; (6) retrolateral view; (7) detail of retrolateral tibial apophysis, dorsal view; (8-10) *E. echarate* **sp. nov.**, female epigynum: (8) ventral view; (9) dorsal view; (10) posterior view. (ECD) Ectal division of RTA, (END) ental division of RTA, (G) guide, (LP) lamellar projection, (MF) middle field of epigynum, (RTA) retrolateral tibial apophysis, (S) spermatheca, (SC) scape, (VD) ventral division of median apophysis.

tae. Ventral division of median apophysis with small lamellar projection (Fig. 5); guide pointed and curved (Fig. 5). Retrolateral tibial apophysis (RTA) prominent, ectal division rounded at apex (Figs 6 and 7); ental division small and triangular (Fig. 7).

Female. Unknown.

Distribution. Known only from the type locality (Fig. 1).

Etymology. The specific name is a noun in apposition and refers to the type locality.

Enna echarate **sp. nov.**

Figs 1, 8-10

Type. Female holotype from Puente Chaguares, Echarate, Cusco, Peru, 09.VIII.1989, R. Tejada leg, deposited in MUSM 500054.

Diagnosis. The female of *E. echarate* **sp. nov.** is similar to *E. rothi* (see Silva *et al*. 2008, figs 46-48) by the general shape of the epigynal middle field, but can be distinguished by the two lateral excavations on that region (Fig. 8).

Description. Female (Holotype). Total length 8.54. Carapace 3.48 long, 3.15 wide, light brown, darker laterally. Clypeus brownish, 0.26 high. Anterior eye row slightly straight, 0.90 wide; posterior 1.66 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.18, ALE 0.12, PME 0.24, PLE 0.20; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.43, PME-PLE 0.28, OQA 0.48, OQP 0.88, OQH 0.53. Chelicerae red-brownish, bristly, without lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.49 long, 1.57 wide. Labium light brown, darker anteriorly, 0.74 long, 0.58 wide. Legs brownish with light brown annuli on femora, relative length: I-II-IV-III, I – femur 4.15/tibia-patella 5.39/metatarsus 3.98/tarsus 1.49/total 15.01; II – 4.16/5.31/3.56/1.57/14.60; III – 2.32/2.73/2.07/0.83/7.95; IV – 2.47/3.15/3.01/0.91/9.54. Ventral pairs of macrosetae on tibiae: I-4; II-3; III-3; IV-3. Abdomen, 4.98 long, grayish, bristly, with small light dots. Venter yellowish, with scattered setae. Middle field of epigynum with two small excavations (Fig. 8), scape slightly projected (Figs 9 and 10); spermathecae rounded at apex (Fig. 9).

Male. Unknown.

Distribution. Known only from the type locality (Fig. 1).

Etymology. The specific name is a noun in apposition and refers to the type locality.

Enna maya Silva, Lise & Carico, 2008

Enna maya Silva, Lise & Carico, 2008: 85, figs 37-39 (Female holotype from Copan, Honduras, 08.III.1939 deposited in AMNH, examined).

Distribution. Costa Rica, Honduras, Peru.

Additional record. Peru, *Madre de Dios*, 15km east from Puerto Maldonado (12°33'S, 69°03'W, 200 m), 1 female, 19.VIII.1989, D. Silva *leg*. (MUSM 0500055).

Hesydrus caripito Carico, 2005

Figs 1, 11, 12

Hesydrus caripito Carico, 2005: 793, figs 16 and 17 (Female holotype from Caripito, Monagas, Venezuela, 10°80'79"N, 63°80'69"W, 17.III.1942, New York Zoological Society 1942 Venezuela Expedition leg, deposited in AMNH, not examined). Platnick, 2008.

Diagnosis. The males of *H. caripito* is similar to the ones of *H. canar* (see Carico 2005, figs 12 and 13) by the bifurcated apex of the ectal division of the retrolateral tibial apophysis (Fig. 12), but can be distinguished by the absence of a pointed spur on the apex of the guide of the median apophysis (Fig. 11).

Description. Male (MUSM 500070). Total length 12.36. Carapace 6.78 long, 6.65 wide, brownish, darker on cephalic area; bristly laterally. Clypeus yellowish, 0.31 high. Anterior eye row slightly straight, 0.99 wide; posterior 2.66 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.25, ALE 0.15, PME 0.35, PLE 0.31; AME-AME 0.21, AME-ALE 0.09, PME-PME 0.49, PME-PLE 0.62, OQA 0.77, OQP 1.24, OQH 1.02. Chelicerae red-brownish, with lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 3.80 long, 3.19 wide. Labium light brown, darker posteriorly, 1.06 long, 1.19 wide. Legs light brown, with light brown annuli on femora, relative length: IV-II-I-III, I – femur 7.98/tibia-patella 10.64/metatarsus 8.24/tarsus 4.25/total 31.11; II – 10.10/12.91/8.64/4.65/36.30; III – 8.11/9.97/7.83/4.52/30.43; IV – 8.92/11.70/11.98/5.98/38.58. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 5.98 long, grayish, bristly, with two small paramedian light brown bands. Venter yellowish, scattered setae. Ventral division of median apophysis truncated medially; dorsal division ending in acute guide (Fig. 11). Retrolateral tibial apophysis prominent, ectal division bilobed (Fig. 12).

Additional records. Colombia, *Valle*: Restrepo, 1 female, no date, Equipe Universidad Nacional *leg*. (ICN 685); *Santander*: Charalá, Virolín, 1 female, III.1981, I. de Arévalo *leg*. (ICN 688); *Boyaca*: Quebrada la Cristalina, 1 male, 1 female, 06.III.2000, M. Rocha *leg*. (ICN 1037); *Cundinamarca*: Caquezá, rio Blanco-rio Negro, 1 female, 04.IV.2002, A. Ruiz *leg*. (ICN 1739); *Tolima*: Ibague, 1 female, 24.II.2002, H. Pullido *leg*. (ICN 1740). PERU, *Piura*: Mangas river, 1 male, 2 females, 1 juvenile, 06.X.1955, F. Blancas *leg*. (MUSM 500070).

Distribution. Colombia, Peru, Venezuela (Fig. 1).

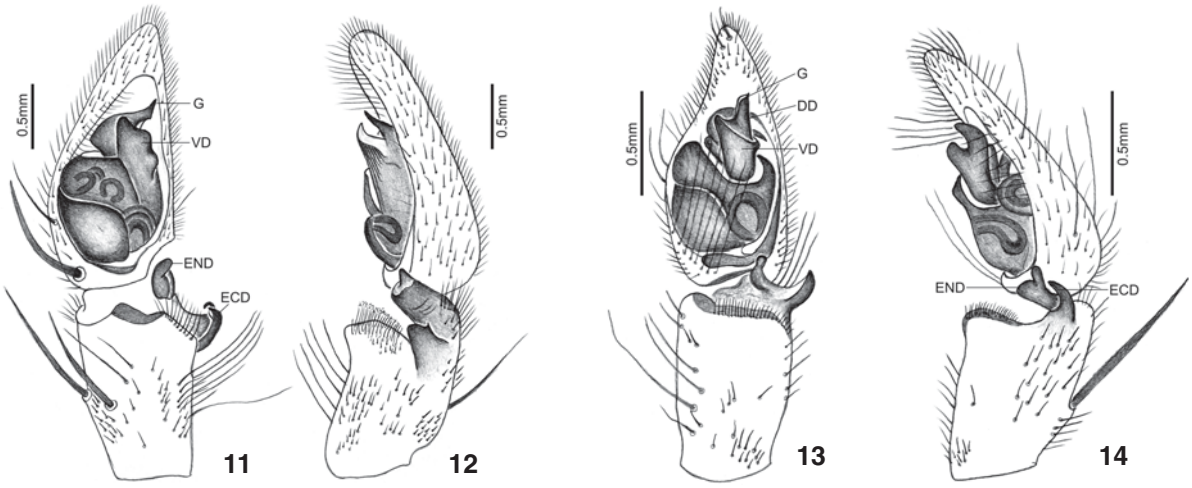
Natural history. Unknown.

Hesydrus aurantius (Mello-Leitão, 1942)

Trechalea aurantia Mello-Leitão, 1942: 430, figs 3-4 (male and two female syntypes from La Merced, Junín, Peru, J. Soukup *leg*., deposited in MNRJ 2310, examined, male lectotype and female paralectotype designated by Silva, 2006). Platnick, 2008.

Hesydrus aurantius: Silva, 2006: 50. Platnick, 2008.

Distribution. Colombia, Peru, Bolivia.



Figures 11-12. *Hesydrus caripito*, male palpus: (11) ventral view; (12) retrolateral view; (13-14) *S. reimoseri*, male palpus: (13) ventral view; (14) retrolateral view. (DD) Dorsal division of median apophysis, (ECD) ectal division of RTA, (END) ental division of RTA, (RTA) retrolateral tibial apophysis, (G) guide, (VD) ventral division of median apophysis.

Additional records. Colombia, *Boyaca*: Ins. Pto. Quebrada la Cristalina, 1 male, 1 female, 06.III.2000, M. Rocha *leg.* (ICN 1037), 1 female, 03.III.2002, H. Gasca *leg.* (ICN 1040). Peru, *Ucayali*: Pucallpa, Puente Huacamayo, 2 males, 1 female, 28.VIII.1986, D. Silva *leg.* (MUSM 0500068); *Huanuco*: Tingo Maria, Cueva de lãs Pavas (9°24'S, 75°58'W, 800 m), 1 female, 24-30.X.2004, W. Paredes *leg.* (MUSM 0500073), Pucallpa, 5km from la Cumbre (9°11'S, 75°48'W, 677 m), 2 males, 02.IX.2007, W. Paredes *leg.* (MUSM 0500074); *Amazonas*: Cordillera del Condor, Alto Rio Comaina, Quebrada Ponce, 3 males, 2 females, 02.XI.1987, D. Silva *leg.* (MUSM 0500072); *Madre de Dios*: Zona Preservada Pakitza, Quebrada Pachija (11°56'S, 71°17'W, 356 m), 2 males, 2 females, 17.VII.1992, D. Silva *leg.* (MUSM 0500029); *Cusco*: Líne Gaseoducto Peru LNG (12°19'S, 73°02'W), 2 females, 19-22.IV.2007, W. Paredes *leg.* (MUSM 0500069).

Syntrechalea reimoseri (Caporiacco, 1947)

Figs 1, 13, 14

Trechalea reimoseri Caporiacco, 1947: 22; Caporiacco, 1948: 634; Roewer, 1954: 143; Platnick, 2008.

Syntrechalea reimoseri: Carico, 1993: 237; Carico, 2008: 121.

Diagnosis. The males of *S. reimoseri* (Caporiacco, 1947) resembles the ones of *S. syntrechaloides* (Mello-Leitão, 1941) (see Carico 2008, figs 20 and 21) by the shape of the ventral division of the median apophysis of the male palpus, but can be distinguished by the long, slender and acute guide and the acute ectal division of the retrolateral tibial apophysis (Figs 13 and 14).

Description. Male (MUSM 500044). Total length 7.48. Carapace 2.88 long, 2.63 wide, yellowish, darker on cephalic area. Clypeus yellowish, 0.22 high. Anterior eye row slightly straight, 0.78 wide; posterior 1.60 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.10, PME 0.30, PLE 0.14; AME-AME 0.12, AME-ALE 0.08, PME-PME 0.30, PME-PLE 0.24, OQA 0.44, OQP 0.88, OQH 0.65. Chelicerae yellowish, without lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.55 long, 1.45 wide. Labium yellowish, darker laterally, 0.18 long, 0.43 wide. Legs yellowish, I – missing; II – missing; III – femur 5.58/tibia-patella 6.11/metatarsus 5.32/tarsus 3.45/total 20.46; IV – 7.98/9.57/9.98/5.71/33.24. Ventral pairs of macrosetae on tibiae: III-7; IV-8. Abdomen, 4.53 long, heart shaped anteriorly, grayish, with scattered setae; dorsum yellowish. Venter yellowish, with scattered setae. Ventral division of median apophysis acute distally (Fig. 13); guide pointed and apically curved (Fig. 13). Retrolateral tibial apophysis prominent, ectal division acute at apex (Fig. 14); ental division lobed (Fig. 14).

Distribution. Ecuador, Peru, Guyana, Brazil (Fig. 1).

Material examined. Peru, *Cusco*: Kugapocori-Nahua (76°88'S, 86°90'W), 422 m, 1 male, 1 female, 28.VII.2007, C. Torres *leg.* (MUSM 0500044); *Madre de Dios*: 15 km east from Puerto Maldonado (12°33'S, 69°03'W, 200 m), 1 female, 3 juveniles, 01-08.VII.1989, D. Silva *leg.* (MUSM 0500053).

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Article

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Four new species of the Neotropical spider genus *Enna* (Araneae, Lycosoidea, Trechaleidae) from Brazil

ESTEVAM L. CRUZ DA SILVA & ARNO A. LISE

Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, Sala 125, Av. Ipiranga 6681, 90619-900, Porto Alegre, RS, Brasil. E-mail: estevamsilva@gmail.com

Abstract

Currently, 24 species are known for the spider genus *Enna* O. Pickard-Cambridge, from North, Central and South America, of which six are known from Brazil. In this study four new species are described and illustrated based on female specimens from the Southeastern and Southern Brazilian states of Minas Gerais, São Paulo, Rio de Janeiro and Paraná. *Enna trivittata* **sp. n.**, *E. segredo* **sp. n.**, *E. meridionalis* **sp. n.** and *E. caparao* **sp. n.** can be distinguished from all known species by the general shape of the epigynum. New records in Brazil are presented for *E. braslandia* Silva, Lise & Carico and *E. redundans* (Platnick).

Key words: taxonomy, new species, distribution, Brazil

Introduction

The spider genus *Enna* O. Pickard-Cambridge, 1897 was recently revised by Silva *et al*. 2008 that described 18 new species, and Silva and Lise (2009) who described a new species from Peru. This genus can be considered the most diverse in the family Trechaleidae with 25 known species occurring in the Neotropical region (Platnick 2009).

In Brazil, only six species are known and most of them are restricted to the Amazonian region and only one species was described for central Brazil (*Enna braslandia* Silva, Lise & Carico, 2008).
Members of *Enna* resemble *Dossenus* Simon, 1898 by the shape of the dorsal division of the median apophysis (Silva *et al*. 2007, fig. 5), which is concave and ends in an acute guide, and by the tarsi and metatarsi short and straight compared to the long and flexible tarsi of *Trechalea* Thorell 1869 and *Trechaleoides* Carico 2005 (Carico, 1993; Carico, 2005). Species of *Enna* can be recognised by the middle field of the female epigynum conspicuous, hood-like, concave beneath, and comprising part of the dorsal rim of the epigastric furrow (Silva *et al.* 2008).

The four new species here described and illustrated, occur in the southern limits of the distribution range of the genus. Additionally, new records of *E. braslandia* Silva, Lise & Carico, 2008 and *E. redundans* (Platnick, 1993) in Brazil are presented.

Material and methods

The material examined is deposited in Instituto Butantan, São Paulo, Brazil (**IBSP**, A. D. Brescovit) and Museu de Zoologia da Universidade de São Paulo, Brazil (**MZSP**, R. Pinto da Rocha). The nomenclature of the female epigynum structures follows Carico (1993) and Silva *et al*. (2008). To study the excised epigyna,

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the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme tripsine for 48 hours at 25°C to remove the soft tissue. The photographs were obtained with a Sony W 55 digital camera connected to a OLYMPUS SZH 10 stereomicroscope. All the measurements are in millimeters. The abbreviations related to eye measurements, including diameter, interdistances and median ocular quadrangle are those routinely used in spider descriptions.

Enna trivittata **new species**
Figs. 1, 5–7

Type material: Holotype: female from São Pedro, Fazenda Santa Maria do Meio, São Paulo, Brazil [22°33'S, 47°57'W], 29.V.2001, R. M. C. Castro (IBSP 57336).

Etymology. The specific name is an adjective referring to the three whitish longitudinal stripes on the dorsum of abdomen (Fig. 1).

Diagnosis. The female of *E. trivittata* **sp. n.** resembles *E. maya* Silva, Lise & Carico, 2008 (p. 87, fig. 39) by the shape of the epigynal middle field (Fig. 5), but can be distinguished by a projected scape (Fig. 6) and the presence of well defined accessory spermathecae (Fig. 7).

Description. Female (Holotype, IBSP 57336). Total length 9.84. Carapace, 4.38 long, 3.72 wide, light brown (Fig. 1). Clypeus dark brown, bristly, 0.31 high. Anterior eye row straight, 1.00 wide; posterior 1.84 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.20, ALE 0.16, PME 0.24, PLE 0.30; AME-AME 0.16, AME-ALE 0.10, PME-PME 0.52, PME-PLE 0.38, OQA 0.58, OQP 1.06, OQH 0.66. Chelicerae red-brownish, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, bristly, 1.70 long, 1.86 wide. Labium dark brown, 0.65 long, 0.74 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III, I – femur 4.06/ tibia-patella 5.81/ metatarsus 3.82/ tarsus 1.74/ total 15.43; II – 4.31/ 5.47/ 3.65/ 1.66/ 15.09; III – 3.56/ 4.31/ 3.07/ 1.49/ 12.43; IV – 4.15/ 5.39/ 4.56/ 1.82/ 15.92. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 5.32 long, grayish, with scattered setae, dorsum with three whitish longitudinal stripes (Fig. 1). Venter whitish. Middle field of epigynum with two small excavations (Fig. 5), scape slightly projected (Fig. 6); spermathecae rounded at apex with small accessory spermathecae (Fig. 7).

Distribution. Known only from the type locality.

Enna segredo **new species**
Figs. 2, 8–10

Type material: Holotype: female from Usina Hidrelétrica de Segredo (Reservatório do rio Jordão/Candói/ Mangueirinha), Paraná, Brazil [23° 46'S, 46° 18'W], IV.1996, R. Bertani (IBSP 11678).

Paratypes: 2♀, same data as holotype (IBSP 11650, 11169).

Etymology. The specific name is a noun in apposition referring to the type locality.

Diagnosis. The female of *E. segredo* **sp. n.** is similar to the one of *E. estebanensis* (Simon, 1898) (Silva *et al*., 2008, p. 92, figs. 68–70) by the shape of the anterior margin of the middle field of epigynum (Fig. 8), but can be distinguished by an elevation on the central area of middle field (MF) (Figs. 8, 9) and by the prominent median septum (MS) (Fig. 10).

Description. Female (Holotype, IBSP 11678). Total length 9.70. Carapace 4.92 long, 4.38 wide, dark brown, with three light brown one median and lateral stripes, darker laterally (Fig. 2). Clypeus light brown, bristly, 0.40 high. Anterior eye row straight, 1.04 wide; posterior 2.03 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.14, PME 0.22, PLE 0.26; AME-AME 0.20, AME-ALE 0.10, PME-PME 0.50, PME-PLE 0.42, OQA 0.48, OQP 0.99, OQH 0.63. Chelicerae dark brown, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum

yellowish, bristly; 4.39 long, 4.89 wide. Labium dark brown, lighter posteriorly, 1.99 long, 1.90 wide. Legs brownish with light brown annuli on femora, relative length: IV-I-II-III, I – femur 4.23/ tibia-patella 5.56/ metatarsus 3.73/ tarsus 1.82/ total 15.34; II – 4.31/ 5.47/ 3.57/ 1.74/ 15.09; III – 3.48/ 4.15/ 3.90/ 1.41/ 12.94; IV – 4.33/ 5.22/ 3.98/ 1.90/ 15.43. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 4.78 long, grayish, bristly (Fig. 2). Venter grayish, with scattered setae. Middle field of epigynum elevated and scape slightly projected (Figs. 8, 9); spermathecae short and elliptical with long copulatory duct (CD) (Fig. 10).

Distribution. Known only from the type locality.

***Enna meridionalis* new species**
Figs. 3, 11–13

Type material: Holotype: female from Cruzeiro do Iguaçu, Dois Vizinhos, Foz do rio Chopim, Paraná, Brazil [25° 37'S, 53°08'W], 08–15.X.1998, Equipe IBSP (IBSP 21155). **Paratype:** one female, same data as holotype (IBSP 21045).

Etymology. The specific name is a noun and means "from South", referring to the type locality in southern Brazil.

Diagnosis. The female of *E. meridionalis* **sp. n.** is similar to *E. hara* Silva, Lise & Carico, 2008 (p. 93, figs. 74–76) by the general shape and by the small sulci on the middle field of epigynum (Figs. 11, 12), but can be distinguished by the short and round head of spermathecae (Fig. 13).

Description. Female (Holotype, IBSP 21155). Total length 6.64. Carapace, 2.57 long, 2.32 wide, dark brown, with a light brown median band (Fig. 3). Clypeus light brown, 0.26 high. Anterior eye row straight, 0.74 wide; posterior 1.42 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.12, PME 0.20, PLE 0.31; AME-AME 0.14, AME-ALE 0.05, PME-PME 0.36, PME-PLE 0.22, OQA 0.42, OQP 0.82, OQH 0.50. Chelicerae red-brownish, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, bristly; 2.98 long, 1.57 wide. Labium yellowish, 0.99 long, 1.23 wide. Legs brownish with dark brown spots, relative length: IV-I-II-III, I – femur 2.40/ tibia-patella 3.90/ metatarsus 2.49/ tarsus 1.24/ total 10.03; II – 2.82/ 3.56/ 2.45/ 1.16/ 9.99; III – 1.83/ 2.57/ 2.15/ 1.07/ 7.62; IV – 2.83/ 3.48/ 3.32/ 1.18/ 10.81. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 3.81 long, grayish, with scattered setae and sparse small light dots (Fig. 3). Venter whitish, with scattered setae. Middle field of epigynum with a small median excavation (Fig. 11, 12), scape slightly projected (Fig. 12); spermathecae rounded at apex (Fig. 13).

Distribution. Known only from the type locality.

***Enna caparao* new species**
Figs. 4, 14–16

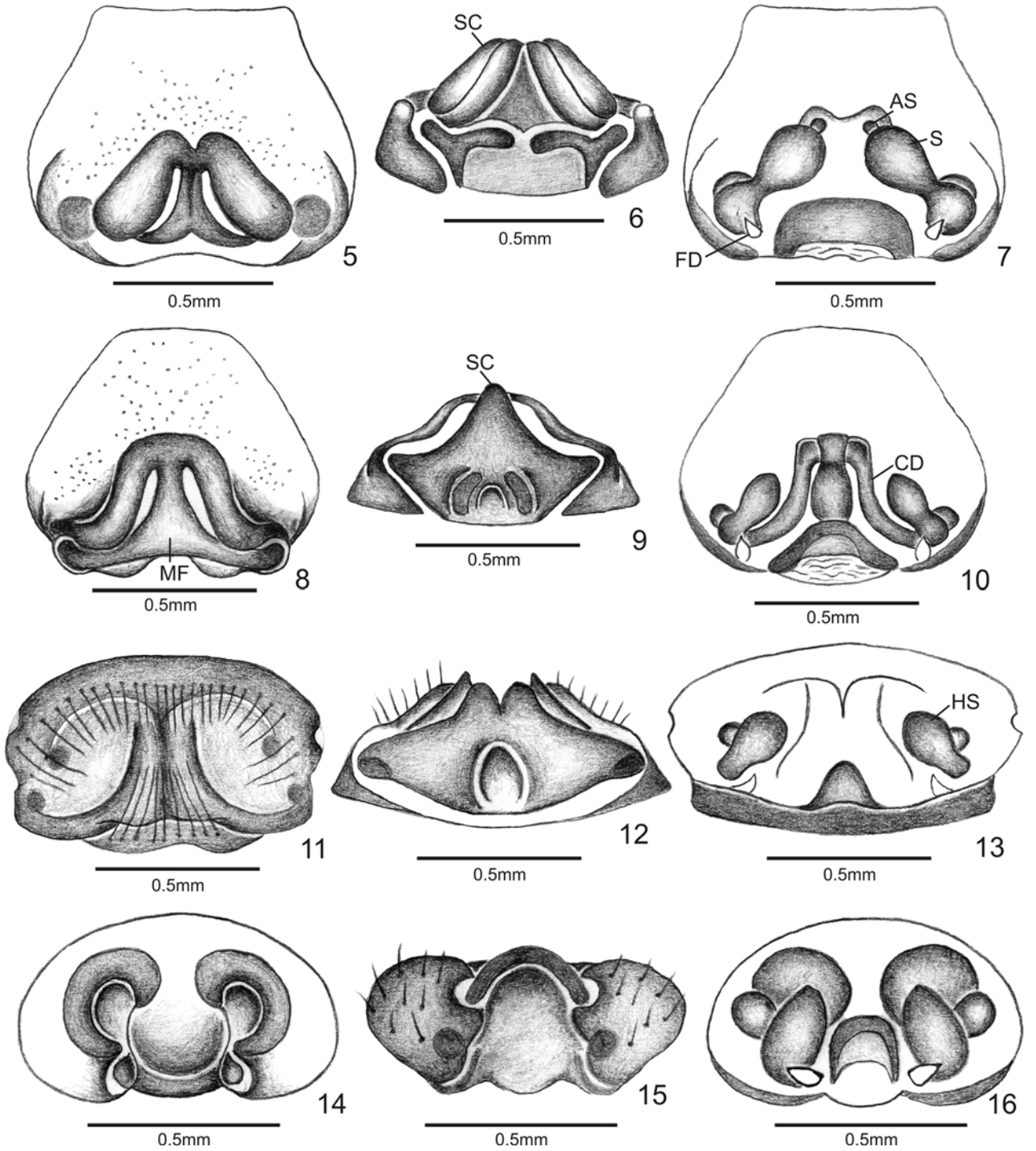
Type material: Holotype: female holotype from Alto Caparaó, Parque Nacional do Caparaó, Minas Gerais, Brazil [20° 25'S, 41° 52'W], 01–07.V.2002, Equipe Biota (IBSP 52750).

Paratypes: BRAZIL: Rio de Janeiro: Teresópolis, Parque Nacional da Serra dos Órgãos [22°27'S, 42°59'W], 1 ♀, 18–22.VIII.2001, Equipe Biota (IBSP 52859); **São Paulo**: Paranapiacaba, Estação Biológica Alto da Serra [23°46'S, 46º18'W], 1 ♀, 13.XII.1996, R. Pinto da Rocha (MZSP 17641), same locality, 1 ♀, 27.X.1951, W. Bokermann (MZSP 11453).

Etymology. The specific name is a noun in apposition taken from the type locality.

Diagnosis. The female of *E. caparao* **sp. n.** can be distinguished from all known species by the two lateral excavations on the epigynal middle field (Fig. 14), the slightly projected scape (Fig. 15) and by the presence of conspicuous accessory spermathecae (Fig. 16).

FIGURES 1–4. *Enna* spp., female habitus, dorsal view. 1. *Enna trivittata* **sp. n.** 2. *E. segredo* **sp. n.** 3. *E. meridionalis* **sp. n.** 4. *E. caparao* **sp. n.**



FIGURES 5–16. 5–7. *Enna trivittata* **sp. n.**, female epigynum (5 ventral, 6 posterior, 7 dorsal). 8–10. *E. segredo* **sp. n.**, female epigynum (8 ventral, 9 posterior, 10 dorsal). 11–13. *E. meridionalis* **sp. n.**, female epigynum (11 ventral, 12 posterior, 13 dorsal). 14–16. *E. caparao* **sp. n.**, female epigynum (14 ventral, 15 posterior, 16 dorsal). (AS = accessory spermathecae; CD = copulatory duct; FD = fertilization duct; HS = head of spermathecae, MF = middle field of epigynum; S = spermathecae, SC = scape).

Description. Female (Holotype, IBSP 52750). Total length 9.31. Carapace, 4.38 long, 3.99 wide, light brown, darker laterally, with two brownish thin median bands (Fig. 4). Clypeus yellowish, darker laterally, 0.30 high. Anterior eye row straight, 1.14 wide; posterior 1.80 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.20, ALE 0.14, PME 0.26, PLE 0.30; AME-AME 0.14, AME-ALE

0.10, PME-PME 0.42, PME-PLE 0.32, OQA 0.58, OQP 0.88, OQH 0.62. Chelicerae red-brownish, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, bristly; 1.79 long, 2.01 wide. Labium brownish, 0.71 long, 0.77 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III, I – femur 5.18/ tibia-patella 7.18/ metatarsus 4.65/ tarsus 2.40/ total 19.41; II – 5.32/ 7.04/ 4.78/ 2.26/ 19.40; III – 4.52/ 5.18/ 3.98/ 1.59/ 15.27; IV – 4.93/ 6.38/ 5.58/ 1.99/ 18.88. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 4.92 long, yellowish with irregular grayish dots, bristly (Fig. 4). Venter yellowish, with scattered setae. Median field of epigynum with two small lateral excavations (Fig. 14), scape slightly projected (Fig. 15); head of spermathecae rounded at apex (Fig. 16).

Distribution. Brazil (states of Minas Gerais, São Paulo and Rio de Janeiro).

New records

Enna braslandia Silva, Lise & Carico, 2008

Enna braslandia Silva, Lise & Carico, 2008: 84–85, figs. 5, 34–36. Male holotype from Braslândia, Distrito Federal, Brazil, 26.I.2004, F. Jordão leg., deposited in Universidade de Brasília (UnB), Brazil (examined).

Distribution. Brazil (Distrito Federal, Mato Grosso do Sul).

New record. BRAZIL, *Mato Grosso do Sul*: Paranaíba, 1 ♂, 1983, R. R. da Silva *leg.* (IBSP 6807).

Enna redundans (Platnick, 1993)

Dossenus fidelis Mello-Leitão, 1943: 165 (junior primary homonym of *Dossenus fidelis* Mello-Leitão, 1920). Silva *et al*. 2007: 141.

Dossenus redundans Platnick, 1993: 523 (replacement name for *Dossenus fidelis* Mello-Leitão, 1943), male lectotype and female paralectotype from Soledade, Paraíba, Brazil, deposited in Museu Nacional (MNRJ), Rio de Janeiro, Brazil (examined). Silva *et al*. 2007: 139. Platnick, 2009.

Enna redundans; Silva, Lise & Carico, 2008: 107–109, figs. 5, 151–155.

Distribution. Brazil (Paraíba, Tocantins, Goiás).

New records. BRAZIL, *Tocantins*: Dianópolis, Gruta da Vozinha, 1 ♂, 1 ♀, 04–09.XII.2007, R. Andrade *leg.* (IBSP 97626); *Goiás*: Altinópolis, Gruta das Cinco Bocas, 1 ♀, 06.II.1999, A. C. Ribeiro *leg.* (IBSP 24192).

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On the taxonomy of the Neotropical spider genera *Dossenus* and *Dyrines* (Araneae: Lycosoidea: Trechaleidae) from Brazil

Estevam L. C. da Silva & Arno A. Lise

Laboratório de Aracnologia, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul. Avenida Ipiranga 6681, Prédio 40, Sala 125, 90619-900 Porto Alegre, Rio Grande do Sul, Brazil. E-mail: estevamsilva@gmail.com

ABSTRACT. The male of *Dossenus guapore* Silva, Lise & Carico, 2007 is described and illustrated for the first time, based on material from Bonito, Mato Grosso do Sul, Brazil. The spider genus *Dossenus* Simon, 1898 is distributed from Panama to southern Brazil and can be distinguished by the other known genera of Trechaleidae by the median dark brown band on the carapace that extends to the abdomen and by the spoon-like shape of the median apophysis of the male palpus. A new species of *Dyrines* Simon, 1903, *D. brescoviti* **sp. nov.**, is described and illustrated based on material collected in Sergipe and Paraná, Brazil. The representatives of this spider genus are relatively small and can be distinguished from the other genera by the longitudinal dark brown bands on the legs. New records of *Dyrines striatipes* (Simon, 1898) are presented.

KEY WORDS. Morphology; Neotropical region; new species; taxonomy.

Dossenus Simon, 1903 was recently revised by Silva *et al*. (2007) and includes two species: *D. marginatus* Simon, 1898 (type-species) (Trinidad-Tobago, Colombia, Peru, Brazil) and *D. guapore* Silva, Lise & Carico, 2007 (Panama, Brazil) (Platnick 2010). The representatives of this genus are characterized by the median dark brown band on the carapace that extends to the abdomen, the male palpus resembles the ones of *Enna* O.P. Cambridge, 1897 by the spoon-like shape of the median apophysis of the male palpus, the female epigynum presents a slightly projected scape (Silva *et al*. 2007).

Dyrines Simon, 1903 was recently revised by Carico & Silva (2008) and now includes only three species: *Dyrines striatipes* (Simon, 1898) (type species, Panama to Venezuela), *D. ducke* Carico & Silva, 2008 (Amazonas, Brazil) and *D. huanuco* Carico & Silva, 2008 (Huanuco, Peru) (Platnick 2010). The representatives of this spider genus are relatively small if compared to other larger species, e.g., *Trechalea* Thorell, 1869. The main character that can be used to separate the specimens of this genus from other species,are the longitudinal dark bands on the legs (Carico & Silva 2008).

The distribution of this genus was restricted to the Amazon area, especially in Brazil. The present new record from northeastern Brazil (Bahia) increases the occurrence of the genus.

In this work we describe and illustrate the male of *D. guapore* from Mato Grosso do Sul, Brazil and a new species of *Dyrines* from Sergipe, Brazil and new records of *Dyrines striatipes* are given.

MATERIAL AND METHODS

The material examined is deposited in Instituto Butantan, São Paulo, Brazil (IBSP, A.D. Brescovit) and Museu de Ciências e Tecnologia of Pontifícia Universidade Católica do Rio Grande do Sul (MCTP, A.A. Lise). The nomenclature of the male palpus structures follows Carico (1993), Silva *et al*. (2007) and Carico & Silva (2008). All the measurements are in millimeters. The abbreviations related to eye measurements, including diameter, interdistances and median ocular quadrangle are those routinely used in spider descriptions.

TAXONOMY

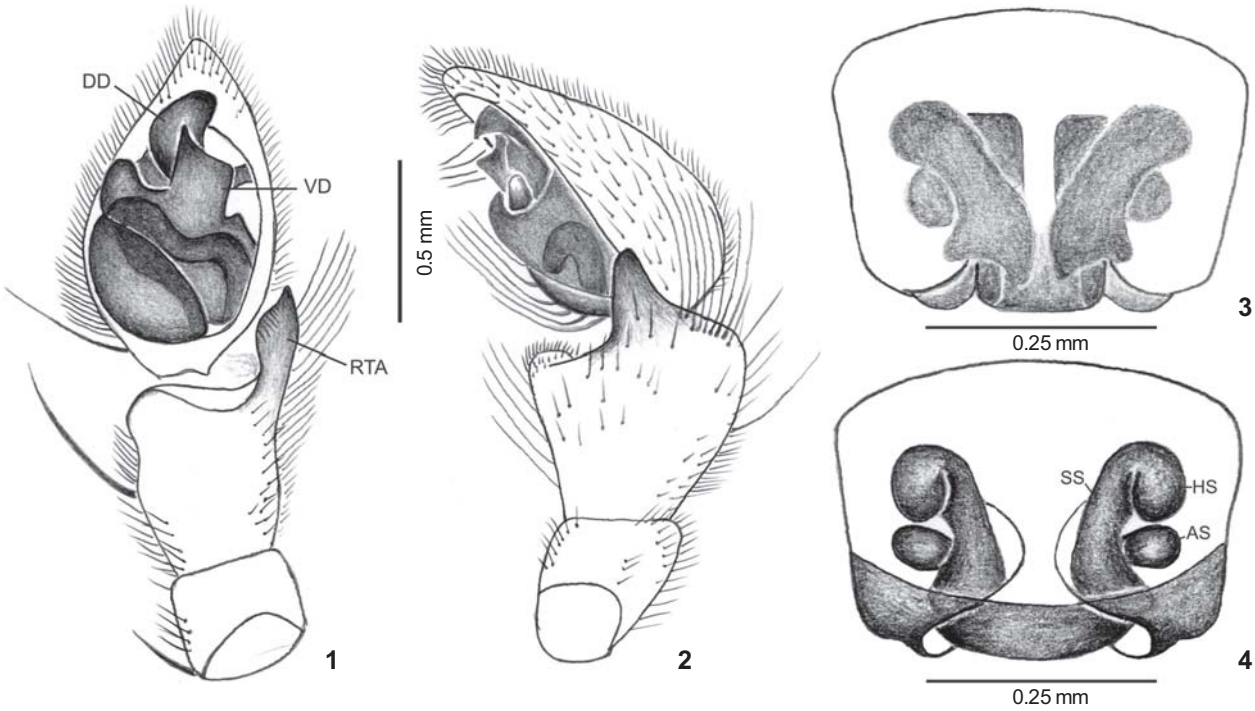
Dossenus guapore Silva, Lise & Carico, 2007

Figs 1-2

Dossenus guapore Silva *et al*. 2007: 147, figs 1, 19, 20, 31, 32, female holotype from Usina Hidrelétrica de Guaporé, Vale do São Domingos, Mato Grosso, Brazil, X.1999, Equipe Resgate *leg*. (IBSP 41643) (examined); Platnick, 2010.

Diagnosis. The male of *D. guapore* resembles the ones of *D. marginatus* Simon, 1898 by the general shape of the median apophysis and retrolateral tibial apophysis (Silva *et al*. 2007, figs 5 and 6), but can be distinguished by the wider base of the ventral division of the median apophysis (VD) (Fig. 1) and by the acute apex of the retrolateral tibial apophysis (Fig. 2).

Description. Male (IBSP 52861). Total length 5.89. Carapace 2.57 long, 2.49 wide, light brown with median brownish band, rounded by a band of whitish setae. Clypeus brownish, 0.24 high. Anterior eye row straight, 0.62 wide; posterior 1.39 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.11, ALE 0.09, PME 0.21, PLE 0.18; AME-AME 0.09, AME-ALE 0.06, PME-PME 0.27, PME-PLE 0.26, OQA 0.34, OQP 0.58, OQH 0.52. Chelicerae dark brown, bristly, light



Figures 1-4. *Dossenus guapore*, male palpus: (1) ventral view; (2) retrolateral view. (3-4) *Dyrines brescoviti* **sp. nov.**, female epigynum: (3) ventral view; (4) dorsal view. (AS) Accessory spermathecae, (DD) dorsal division of median apophysis, (HS) head of spermathecae, (MS) medium septum, (RTA) Retrolateral tibial apophysis, (SS) stalk of spermathecae, (VD) ventral division of median apophysis.

brown near fang; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, scattered setae; 1.33 long, 1.30 wide. Labium dark brown, lighter posteriorly, 0.31 long, 0.44 wide. Legs dark brown with light brown spots, relative length: I-IV-II-III, I – femur 3.07/tibia-patella 4.15/metatarsus 3.65/tarsus 1.32/total 12.19; II – 3.15/4.23/3.32/1.24/11.94; III – 1.90/2.49/1.90/0.99/7.28; IV – 3.16/3.73/3.81/1.33/12.03. Ventral pairs of macrosetae on tibiae: I-5; II-5; III-3; IV-3. Abdomen, 3.40 long, dark brown, with a median light brown band rounded by a line of white setae, strong setae anteriorlly. Venter light brown, with two thin brownish bands; scattered setae. Palpus with rounded dorsal division of the median apophysis and ventral division wider at the base (Fig. 1). Retrolateral tibial apophysis with an acute apex (Fig. 2).

Material examined. Brazil: *Mato Grosso do Sul*: Bonito (Abismo Anhumas, 21°10'S, 56°35'W), male, 14-23.X.2002, Equipe Biota *leg.* (IBSP 52861).

Distribution. Panama, Colombia, Brazil (Amazonas, Mato Grosso, Mato Grosso do Sul, São Paulo).

Remarks. The male can be considered co-specific with the female holotype of *D. guapore* because the type locality is in the same range of occurrence for the species. Since after the revision, most of the known species were synonymyzed,and only one new species was described at that time (*D. guapore*). Thus *D. marginatus* even present a wide distribution from Central America (Panama) to southern Brazil the differences between the two males are very conspicuous.

Dyrines brescoviti **sp. nov.**

Figs 3-4

Diagnosis. The female of *D. brescoviti* **sp. nov.** resembles the ones of *D. striatipes* (Carico & Silva 2008, figs 6 and 7), by the shape of the middle field of the epigynum (Fig. 1), but can be distinguished by the general shape of the spermathecae (Fig. 4), disposition of the accessory spermathecae and by the separated medium septum (Fig. 3).

Description. Female, holotype. Total length 3.81. Carapace 2.10 long, 1.95 wide, light brown, darker laterally, small thin whitish band. Clypeus brownish, 0.10 high. Anterior eye row slightly straight, 0.60 wide; posterior 0.98 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.06, PME 0.15, PLE 0.14; AME-AME 0.08, AME-ALE 0.08, PME-PME 0.12, PME-PLE 0.20, OQA 0.32, OQP 0.44, OQH 0.38. Chelicerae light brown, with two brownish longitudinal bands, bristly, without lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Ster-

num yellowish, scattered setae; 1.08 long, 0.99 wide. Labium light brown, darker anteriorlly, 0.31 long, 0.34 wide. Legs brownish with light brown longitudinal bands extending from femora to tarsi, relative length: I-IV-II-III, I – femur 2.69/tibia-patella 3.78/metatarsus 3.16/tarsus 1.11/total 10.74; II – 2.32/2.88/2.32/0.78/8.30; III – 1.39/1.73/1.55/0.71/5.38; IV – 2.48/2.63/2.91/0.83/8.85. Ventral pairs of macrosetae on tibiae: I-5; II-5; III-4; IV-3. Abdomen, 1.70 long, light brown, bristly, dorsum with four conspicuous sigilla, darker anteriorlly. Venter yellowish, scattered setae. Female epigynum with prominent scape (Fig. 3). Head of spermathecae globular and directed ventrally (Fig. 4) and accessory spermathecae circular at the base of spermathecae stalk (Fig. 4).

Male. Unknown.

Type. Female holotype from Estação Ecológica da Serra de Itabaina, Itabaina, Sergipe, Brazil (10°40'S, 37°25'W), 14-20.IX.1999, A.D. Brescovit *leg.*, deposited in Instituto Butantan (IBSP 57729). One female paratype from Morretes, Paraná, Brazil, 09-19.I.1995, A. Braul *leg.*, deposited in MCTP 12326.

Distribution. Brazil (Sergipe, Paraná).

Etymology. The specific name is a patronym in honor of the collector of the type-species, A.D. Brescovit.

Dyrines striatipes (Simon, 1898)

Drances striatipes Simon, 1898: 18.

Dyrines striatipes: Simon, 1903: 1045; Petrunkevitch, 1925: 543; Roewer, 1954: 136; Bonnet, 1956: 1615; Sierwald, 1990; Carico & Silva, 2008; Platnick, 2009.

Dyrines lineatipes Petrunkevitch, 1925: 166, figs 86, 87; Carico & Silva, 2008: 112; Platnick, 2009. **Syn. nov.**

Distribution. Panama, Venezuela, Guyana, Brazil.

Addtional record. Brazil, *Bahia*: Itabuna (Fazenda São Francisco), 1 male, 26.III.1970, CEPLAC *leg.* (IBSP 15811).

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Two new species and new records of *Syntrechalea* (Araneae: Lycosoidea: Trechaleidae) from Brazil

Estevam L. C. da Silva & Arno A. Lise

Laboratório de Aracnologia, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul. Avenida Ipiranga 6681, Prédio 40, Sala 125, 90619-900 Porto Alegre, Rio Grande do Sul, Brazil. E-mail: estevamsilva@gmail.com

ABSTRACT. Currently, nine species of *Syntrechalea* F.O. Pickard-Cambridge, 1902 are known, six of them occurring in Brazil. In this study, two new species of of this genus are described and illustrated from the states of Amazonas and Tocantins, northern Brazil. *Syntrechalea neblina* **sp.nov.** can be distinguished from all known species by the bifurcated guide of the median apophysis. *Syntrechalea robusta* **sp.nov.** can be distinguished from all known species by the wider and concave ectal division of the retrolateral tibial apophysis. Additionally, new records of *S. adis* Carico, 2008, *S. brasilia* Carico, 2008, *S. caporiacco* Carico, 2008, *S. napoensis* Carico, 2008, *S. syntrechaloides* (Mello-Leitão, 1941) and *S. tenuis* F.O. Pickard-Cambridge, 1902 are provided.

KEY WORDS. Distribution; Neotropical region; spider; taxonomy.

The spider genus *Syntrechalea* F.O. Pickard-Cambridge, 1897 was recently revised by Carico (2008) and five new species from South America were described and illustrated. Silva & Lise (2008) described and illustrated a new species from Colombia, *S. colombiana* (known only by the male). Silva & Lise (2009) also described the male of *Syntrechalea reimoseri* (Caporiacco, 1947) from Cusco, Peru. Currently, nine species of *Syntrechalea* are known and most of its representatives are apparently restricted to South America, except by *S. tenuis* F.O. Pickard-Cambridge, 1902 (type-species), which occurs from Mexico to Colombia (Platnick 2009).

The representatives of this genus have an unusual habitat preference. Different from other trechaleid, that usually occur in rocky margins of streams (Carico 1993), *Syntrechalea* spp. occur mainly in tree trunks near the water and have adaptations to the arboreal foraging habitat: the body is flattened, cephalic area elevated, legs are long and slender, with both tarsi and metatarsi flexible, and a with large number of macrosetae pairs on the tibia of legs I and II (Carico 2008).

This work describes and illustrates two new species of *Syntrechalea* from northern Brazil. Additionally, new records of *Syntrechalea adis* Carico, 2008, *S. brasilia* Carico, 2008, *S. caporiacco* Carico, 2008, *S. napoensis* Carico, 2008, *S. syntrechaloides* (Mello-Leitão, 1941), and *S. tenuis* are provided.

MATERIAL AND METHODS

The material examined is deposited in Instituto Butantan, São Paulo, Brazil (IBSP, A.D. Brescovit), Intituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (INPA, C. Magalhães), Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil (MCTP, A.A. Lise), and Museu Paraense Emílio Goeldi, Belém, Pará, Brazil (MPEG, A.B. Bonaldo). The nomenclature of the male palpus and female epigynum structures follows Carico (1993, 2008) and Silva & Lise (2008, 2009). To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme tripsine for 48 hours at 25°C to remove the soft tissue. The scanning electron micrographs (SEM) were made using a Philips XL 30 of the Centro de Microscopia e Microanálises (CEMM) of the Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). All the measurements are in millimeters. The abbreviations related to eye measurements, including diameter, interdistances, and median ocular quadrangle, are those routinely used in spider descriptions.

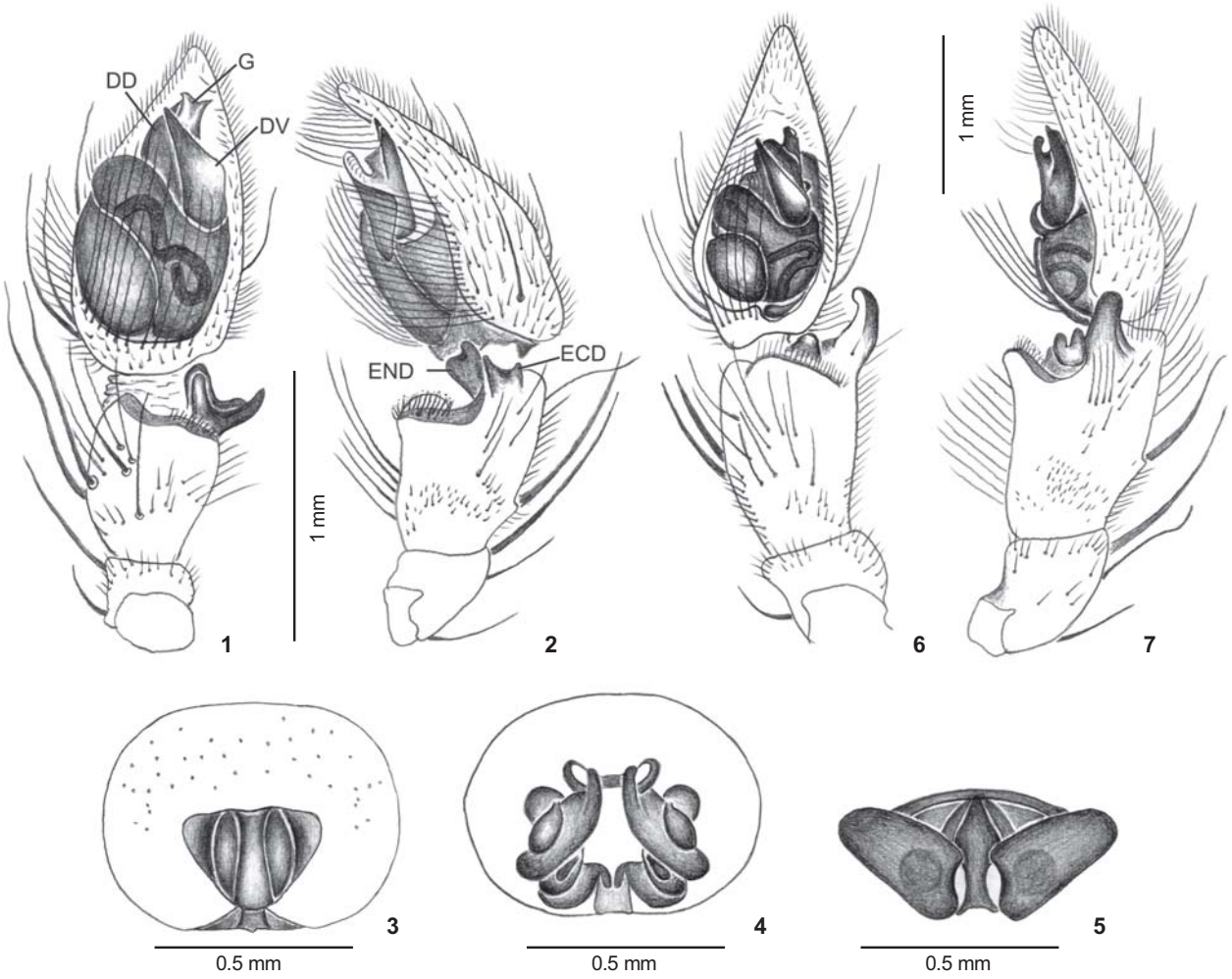
TAXONOMY

Syntrechalea neblina **sp. nov.**

Figs 1-5

Types. Male holotype from Pico da Neblina, Cachoeira do Tucano, São Gabriel da Cachoeira, state of Amazonas, Brazil (00°07'N, 67°05'W), 22.IX.2007, A. Nogueira leg, deposited in INPA. Paratype: one female, same locality as holotype, 23.IX.2007, N.L.M. Hung *leg.* (INPA).

Diagnosis. The male of *S. neblina* **sp. nov.** is similar to the one of *S. tenuis* (Carico 2008: figs 8-9) by the shape of the retrolateral tibial apophysis but can be distinguished by the bifurcated guide of the median apophysis (Figs 1 and 2). The female is similar to those of *S. tenuis* (Carico 2008: 123, figs 10-11) by the general shape of the middle field and anterior por-



Figures 1-7. (1-5) *Syntrechalea neblina* **sp. nov.** (1-2) Male palpus: (1) ventral view; (2) retrolateral view; (3-5) female epigynum: (3) ventral view; (4) dorsal view; (5) posterior view. (6-7) *S. robusta* **sp. nov.** (6-7) Male palpus: (6) ventral view; (7) retrolateral view. (DD) Dorsal division of median apophysis, (ECD) ectal division of retrolateral tibial apophysis, (END) ental division of retrolateral tibial apophysis, (G) guide of median apophysis, (VD) ventral division of median apophysis, (HS) head of spermathecae.

tion of the epigynum, but can be distinguished by the presence of two small projections on the middle field of epigynum and the shape of the head of spermathecae (Figs 3-5).

Description. Male (holotype). Total length 6.22. Carapace, 3.32 long, 2.90 wide, yellowish, brownish laterally, slightly flattened. Ocular area dark brown. Clypeus yellowish, 0.26 high. Anterior eye row straight, 0.78 wide; posterior 1.60 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.18, ALE 0.14, PME 0.30, PLE 0.29; AME-AME 0.12, AME-ALE 0.06, PME-PME 0.28, PME-PLE 0.22, OQA 0.44, OQP 0.86, OQH 0.74. Chelicerae yellowish, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.07 long, 1.49 wide. Labium yellowish, 0.33 long, 0.49 wide. Legs yellowish with light brown spots on femora, tibia and patella, relative length: IV-II-I, II – femur 7.32/patella-tibia 9.31/metatarsus 7.63/tarsus 5.39/total 29.65; III – 6.25/7.31/8.24/6.65/28.45; IV – 7.84/9.57/12.36/7.18/36.95. Ventral pairs of macrosetae on tibiae: II-11; III-5; IV-5. Abdomen, 3.73 long, yellowish, with an irregular spot on dorsum and scattered setae; venter yellowish, with scattered setae. Male palpus presenting a prominent median apophysis with a bifurcated guide (Fig. 1). Retrolateral tibial apophysis with the both ental and ectal divisions also bifurcated (Fig. 2).

Female (paratype). Total length 6.22. Carapace 2.57 long, 2.55 wide, coloration as in male. Clypeus coloration as in male, 0.24 high. Anterior eye row straight, 0.72 wide; posterior 1.52 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.11, PME 0.28, PLE 0.15; AME-AME 0.16, AME-ALE 0.07, PME-PME 0.34, PME-PLE 0.25, OQA 0.40, OQP 0.88, OQH 0.62. Chelicerae coloration as in male; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum coloration as in male, 1.55 long, 1.24 wide. Labium coloration as in male, 0.40 long, 0.46 wide. Legs as in male, relative length: IV-I-II-III, I – femur 5.14/patella-tibia 6.47/metatarsus 4.89/tarsus 2.73/total 19.23; II – 4.81/6.05/4.64/2.90/18.40; III – 3.48/4.31/3.65/2.65/14.09; IV – 5.97/6.48/6.80/3.90/23.15. Ventral pairs of macrosetae on tibiae: I-7; II-7; III-5; IV-4. Abdomen, 3.90 long, coloration as in male. Venter grayish, with numerous white dots and scattered setae. Middle field of epigynum with two small projections, scape slightly projected; spermathecae rounded at apex (Figs 3-5).

Distribution. Known only from the type locality.

Etymology. The specific name is a noun in apposition taken from the Portuguese language reffering to the type locality.

Syntrechalea robusta sp. nov.

Figs 6-11

Types. Male holotype from Palmas, state of Tocantins, Brazil (10°10'S, 48°19'W), 11-28.III.1998, M. Calleffo *leg*., deposited in IBSP 17580. Paratype: one male from Fazenda Globo, Cocalinho, state of Mato Grosso, Brazil (14°22'S, 50°59'W), 01-10.IX.1997, M. Calleffo *leg*. (IBSP 13895).

Diagnosis. The male of *S. robusta* (Figs 6-10) is similar to the ones of *S. syntrechaloides* (Mello-Leitão, 1941) by the shape of the median apophysis of male palpus (Carico 2008: 125, figs 20-21), but can be distinguished by wider and concave ectal division of the retrolateral tibial apophysis (Figs 8-10).

Description. Male (holotype). Total length 7.47. Carapace, 4.15 long, 3.98 wide, light brown, dark brown laterally, slightly flattened. Ocular area dark brown. Clypeus dark brown, 0.44 high. Anterior eye row straight, 1.02 wide; posterior 2.03 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.20, PME 0.34, PLE 0.31; AME-AME 0.20, AME-ALE 0.06, PME-PME 0.34, PME-PLE 0.36, OQA 0.52, OQP 1.08, OQH 0.76. Chelicerae dark-brownish, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.87 long, 1.76 wide. Labium yellowish, 0.41 long, 0.34 wide. Legs yellowish with light brown spots on femora, tibia and patella, relative length: IV-I-III-II, I – femur 9.31/patella-tibia 12.63/metatarsus 9.44/tarsus 6.65/total 38.03; II – 6.64/7.98/6.63/4.62/25.87; III – 7.30/8.64/7.98/3.99/27.91; IV – 9.57/11.72/10.90/7.04/39.23. Ventral pairs of macrosetae on tibiae: I-7; II-8; III-7; IV-5. Abdomen, 3.32 long, dark brown, with numerous dark brown bristles at anterior portion; venter yellowish, with scattered setae. Male palpus with the dorsal division of the median apophysis with a lateral lobe (Figs 6-7). Ectal division of retrolateral tibial apophysis prominent (Figs 7 and 8-10).

Distribution. Brazil (states of Tocantins and Mato Grosso).

Etymology. The specific name is a noun and refers to the prominent ectal division of the retrolateral tibial apophysis of male palpus (Figs 8-10).

New records

Syntrechalea adis Carico, 2008

Syntrechalea adis Carico, 2008: 123, figs 2, 4, 14-19 (Male holotype from Igapó, rio Tarumã-Mirim, state of Amazonas, Brazil, 02.III.1983, J. Adis *leg*., deposited in INPA, not examined).

Distribution. Venezuela, Brazil, Surinam, Peru.

New records. Brazil, *Amazonas*: São Gabriel da Cachoeira (Pico da Neblina, Bebedouro Velho, 0º46'N, 65º59'W), 1 female, 13.X.2007, D. Candiani *leg*. (INPA); Novo Airão, Estação Ecológica de Anavilhanas (2º37'S, 60º56'W), 2 females, VIII.2006, A.J. Santos *leg*. (IBSP 73509); *Pará*: Oriximiná, Igarapé do Poção (1º45'S, 55º49'W), 1 male, 2 females, 19.I.2009, E.L.C. Silva *leg*. (MCTP).

Syntrechalea brasilia Carico, 2008

Syntrechalea brasilia Carico, 2008: 128, figs 2, 7, 28-31 (Male holotype from Distrito Federal, Brasília, Brazil, XI.2003, M. Prada *leg*., deposited in the Departamento de Zoologia, in the Universidade de Brasília, not examined).

Distribution. Brazil (states of Rondônia, Distrito Federal, and Minas Gerais).

New records. Brazil, *Rondônia*: Vilhena (12º43'S, 60º08'W), 1 female, IX.1999, M. Carvalho *leg*. (IBSP 81005); *Minas Gerais*: Uberlândia (18º54'S, 48º15'W), 1 male, XI.1996, D. Cunha *leg*. (IBSP 8334); (Reserva de Caça e Pesca, 18º54'S, 48º18'W), 1 male, XI.1996, D. Cunha *leg*. (IBSP 8333).

Syntrechalea caporiacco Carico, 2008

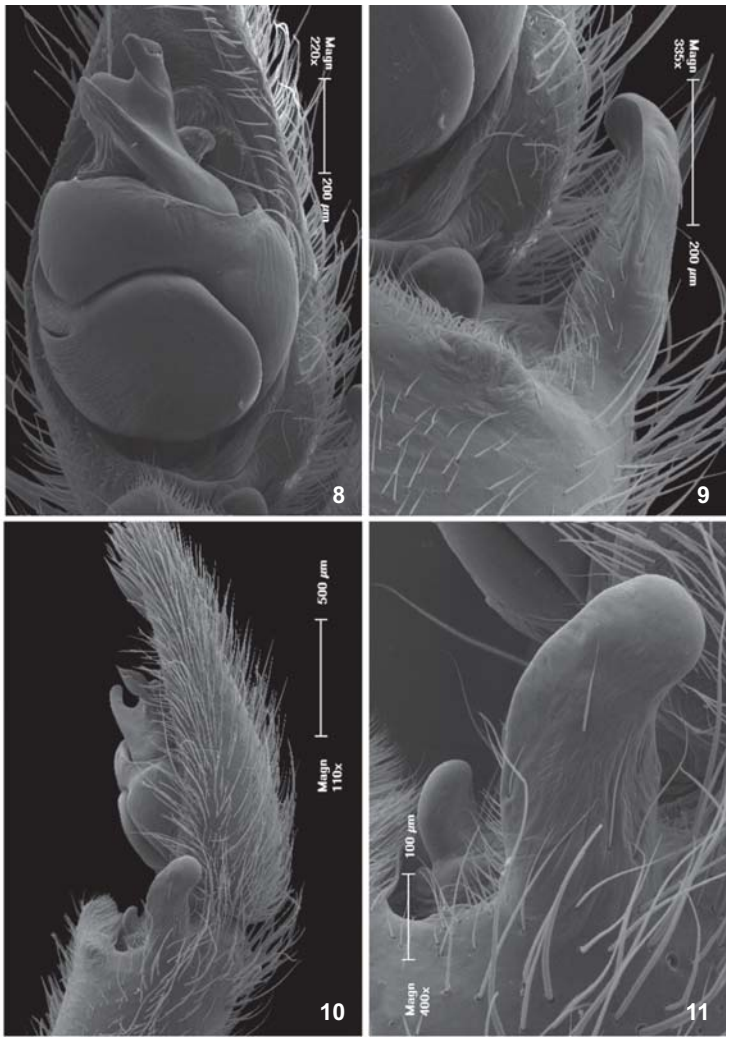
Syntrechalea caporiacco Carico, 2008: 127, figs 2, 24-27 (Male holotype from Base Cerro Yapacama, Amazonas, Venezuela, 23.II.1978, C.W. Myers *leg*., deposited in American Museum of Natural History, not examined).

Distribution. Venezuela, Brazil, Guyana, Peru.

New records. Brazil, *Bahia*: Una (Reserva Biológica de Una, 15º16'S, 39º04'W), 1 male, 1 female, 15-28.XI.2000, A.D. Brescovit *et al. leg*. (IBSP 45516, 47674); *Alagoas*: Maceió (Serra da Saudinha, Ipioca, 9º39'S, 35º44'W), 1 female, XI.2004, G.Q.C. Correia *leg*. (IBSP 3835).

Syntrechalea napoensis Carico, 2008

Syntrechalea napoensis Carico, 2008: 129, figs 32, 33 (Male holotype from Napo, Alianhui, 20 km E of Puerto Napo, Ecuador, 01°00'S, 77°25'W, IX.1996, E.S. Ross *leg*., deposited in the California Academy of Sciences, not examined).



Figures 8-11. *Syntrechalea robusta* **sp. nov.** , male palpus: (8) detail of bulbus, ventral view; (9) detail of retrolateral tibial apophysis, ventral view; (10) male palpus, lateral view; (11) detail of ectal division of retrolateral tibial apophysis, lateral view.

Distribution. Ecuador, Brazil.

New record. Brazil, *Acre*: Senador Guiomard (Reserva Extrativista de Catuaba, 10°08'S, 67°43'W), 1 male, 2002, E.F. Morato *leg*. (IBSP 84628).

Syntrechalea syntrechaloides (Mello-Leitão, 1941)

Trechalea syntrechaloides Mello-Leitão, 1941: 246 (Female holotype from Cachoeirinha, Bocaiúva, state of Paraná, Brazil, no date, L. De Morrietes *leg*., deposited in Museu Nacional do Rio de Janeiro, not examined).

Syntrechalea syntrechaloides; Carico, 2008: 127, figs 2, 5, 20-23.

Distribution. Colombia, Venezuela, Brazil, Guyana, Peru, Bolivia.

New records. Brazil, *Acre*: Xapurí (Reserva Extrativista da Pimenteira, 10°36'S, 68°29'W), 1 female, 05-07.IV.1996, Equipe IBSP/SMNK *leg*. (IBSP 16029); *Amazonas*: Manaus (Reserva km 41, 3°06'S, 60°01'W), 1 male, VIII.2000, A.J. Santos *leg*. (IBSP 39938); Presidente Figueiredo (2°01'S, 60°01'W), Usina Hidrelétrica de Balbina (1°30'S, 59°12'W), 1 female, 1987/1988, Equipe IBSP *leg*. (IBSP 10861); *Pará*: Santarém (Campus do Aeroporto, 2°25'S, 54°42'W), 1 male, 28.I.1994, A.D. Brescovit *leg*. (IBSP 62931); Oriximiná (Igarapé do Poção, 1°45'S, 55°49'W), 1 male, 1 female, 19.I.2009, E.L.C. Silva *leg*. (MCTP); Vitória do Xingu (2°52'S, 52°01'W), 1 male, 28.XI.2008 (MPEG 4781); *Paraíba*: São José da Mata (Sítio São Miguel, 7°12'S, 35°55'W), 2 males, 10.IV.1997, A.D. Brescovit *leg*. (IBSP 8893); *Goiás*: Catalão (18°10'S, 47°56'W), 4 males, 19-28.IX.1999, G.G. Montingelli *leg*. (IBSP 26242); *São Paulo*: Rio Claro (22°24'S,

47°34'W), 2 males, 1 female, 04.XI.2008, A.M. Giroti & E. Paula *leg*. (IBSP 122267, 122737, 122485); 2 females, 17.XII.2008 (IBSP 122483, 122484); *Paraná*: Foz do Iguaçu (Parque Nacional de Foz do Iguaçu, 25°36'S, 54°25'W), 1 female, 03-12.III.2002, Equipe Biota *leg*. (IBSP 52625); *Rio de Janeiro*: Pinheiral (Fazenda Santa Helena, 22°34'S, 44°21'W), 1 female, 05-11.XI.1999, A.D. Brescovit *leg*. (IBSP 52733).

Syntrechalea tenuis F.O.Pickard-Cambridge, 1902

Syntrechalea tenuis F.O.Pickard-Cambridge, 1902: 314 (Female holotype from Bugaba, Chiriquí, Panama, Champion *leg*., deposited in The Natural History Museum, London, not examined); Roewer, 1954: 139; Bonnet, 1956: 4225; Carico, 2008: 120, figs 1, 8-11.

Syntrechalea porshi Reimoser, 1939: 339 (Male holotype from Rio Reventatou, Hamburg Farm, Limon, 1930, E. Reimoser *leg*., deposited in Naturhistorisches Museum zu Hamburg, not examined); Roewer, 1954: 139; Platnick, 2009; Carico, 2008: 120 (Syn.).

Distribution. Mexico to Colombia.

New records. Brazil, *Acre*: Xapurí (Reserva Extrativista da Pimenteira, 10°36'S, 68°29'W), 1 male, 1 female, 05-07.IV.1996, Equipe IBSP/SMNK *leg*. (IBSP 16086); *Amazonas*: Manaus (Reserva km 41, 3°06'S, 60°01'W), 2 males, VII-VIII.2006, A.J. Santos *leg*. (IBSP 80256); *Bahia*: Salvador (Parque Municipal do Pituaçu, 12°59'S, 38°29'W), 2 males, 20-25.I.2004, E.S.S. Álvares *leg*. (IBSP 80787); *Alagoas*: Maceió (Serra da Saudinha, Ipioca, 9°39'S, 35°44'W), 1 male, 04.II.2004, G.Q.C. Correia *leg*. (IBSP 63811); *Pará*: Vitória do Xingu (2°52'S, 52°01'W), 1 male, 25.IX.2000 (MPEG 4787); *São Paulo*: Rio Claro (22°24'S, 47°34'W), 1 female, 20.I.2006, A.M. Giroti & E. Paula *leg*. (IBSP 59115).

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Taxonomic review of the Neotropical spider genus *Paradossenus* (Araneae: Lycosoidea: Trechaleidae: Trechaleinae) with a new erection of the subfamily Trechaleinae and a key to included genera

James E. Carico[1]: School of Sciences, Lynchburg College, 1501 Lakeside Drive, Lynchburg, Virginia 24501, USA

Estevam Luís Cruz da Silva: Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Porto Alegre, RS, Brazil. E-mail: estevamsilva@gmail.com

Abstract. The Neotropical spider genus *Paradossenus* is revised and currently comprises a total of 14 species. *P. andinus* (Simon 1898), *P. protentus* (Karsch 1879) and *P. venezuelanus* (Simon 1898) are new junior synonyms of *P. longipes* (Taczanowski 1874), the type species of the genus. Five known species, *P. longipes*, *P. caricoi* Sierwald 1993, *P. pulcher* Sierwald 1993, *P. corumba* Brescovit & Raizer 2000, and *P. minimus* (Mello-Leitão 1940), are redescribed and illustrated. New species: *P. isthmus*, *P. benicito*, *P. amazonensis*, *P. acanthocymbium*, *P. tocantins* and *P. pozo* are described from both male and female. The new species *P. sabana* is described only from the male while *P. junin* is described only from the female. The subfamily Trechaleinae is erected, diagnosed, and an illustrated key to all the included genera is presented.

Keywords: New species, taxonomy, Neotropical region

The genus *Paradossenus* was described by F.O. Pickard-Cambridge (1903) originally as a genus in the family Pisauridae. Following the reintroduction (Carico 1981) of Simon's (1890) family, Trechaleidae, the genus was subsequently transferred to the latter family (Carico 1993; Sierwald 1993). Sierwald (1993) in the first taxonomic revision of the genus *Paradossenus*, found synonymies and described two new species, *P. pulcher* and *P. caricoi*. In addition, she included an opinion on the taxonomic position of the subfamily Rhoicininae in the Trechaleidae, pointed out the synonymy of *Xingusiella* (Mello-Leitão 1940) with *Paradossenus*, and discussed synapomorphies of the female genitalia in the family Trechaleidae. Brescovit et al. (2000) redescribed the recently rediscovered *P. minimus* (Mello-Leitão 1940), and included notes on the distribution and morphology of *P. longipes* (Taczanowski 1874). In this same paper, the latter authors also described *P. corumba* and included notes on the web-building behavior and ecology of this species.

The current paper reviews the taxonomy of the genus *Paradossenus*, a project made possible as a result of numerous new collections available through the cooperation of several museums, particularly those in South America. In addition, we describe the new subfamily, Trechaleinae, to include that group of non-Rhoicininae genera that has been identified as the core group of genera of the family from the beginning, as well as some new ones. Because we believe that the maturity level of the taxonomy of this subfamily sufficiently warrants it following recent generic revisions of all polytypic genera, we offer a diagnostic key to the genera of the same subfamily. However, because of the lack of females in three monotypic genera, it is obvious that this key will be substantially improved as these sexes are discovered as well as by any new genera and species which may be found subsequently.

METHODS

The material examined belongs to the following institutions: American Museum of Natural History, New York (AMNH); British Museum of Natural History, London (BMNH); California Academy of Science, San Francisco (CAS); Instituto Butantan, São Paulo (IBSP); Field Museum of Natural History, Chicago (FMNH); Polish Academy of Science, Museum of the Institute of Zoology Warsaw (PAN); Museo Argentino de Ciencias Naturales Bernardino Rivadavia, Division Entomologia, Buenos Aires (MACN); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (MCN); Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul – PUCRS, Porto Alegre (MCTP); Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ); Museu Equitoriano Ciências Naturales, Quito, Ecuador (MECN); Muséum National d'Histoire Naturelle, Paris (MNHN); Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ); Laboratório de Aracnologia da Universidade Federal de Minas Gerais, Belo Horizonte, Brazil (LAMG); Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima (MUSM); Museo Zoologico "La Specola", Firenze (MZUF); Museu de Zoologia da Universidade de São Paulo, Brazil (MZSP); Zoologisches Museum der Humboldt Universität, Museum fur Naturkunde der Humboldt Universität, Berlin (ZMHU).

All measurements are in mm. As an index to the size of the body, only the length of the relatively rigid carapace is given because of variability in the condition of the softer abdomen. Following critical point drying, the scanning electron micrographs (SEM) were made with a Philips XL 30 scanning electron microscope in the Centro de Microscopia e Microanálises (CEMM) of Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS).

The nomenclature and anatomy of the male palpus and female epigynal structures follows Carico (1993), Silva et al. (2008) and Sierwald (1993). Abbreviations are used throughout the manuscript: AE, anterior eyes, or length of anterior eye row; AF, anterior field of epigynum; ALE, anterior lateral eyes; AME, anterior median eyes; AS, accessory spermathecae; CO, copulatory ducts; D, duct; DD, dorsal division of median apophysis; E, embolus; ECD, ectal division of retrolateral tibial apophysis (RTA); END, ental division of

[1] Deceased 24 March 2009

RTA; G, guide, terminal portion of median apophysis; HS, head of spermathecae; LL, lateral lobes of epigynum; MA, median apophysis; MF, middle field of epigynum; OQA, anterior part of ocular quadrangle, or length of line composed of anterior median eyes; OQH, ocular quadrangle height, or length of a line composed of anterior median eye and posterior median eye; OQP, posterior part of ocular quadrangle, or length of line composed of posterior median eyes; PE, posterior eyes, or length of posterior eye row; PLE, posterior lateral eyes; PME, posterior median eyes; RTA retrolateral tibial apophysis of male palpal tibia; S, spermathecae; ST, subtegulum; T, tegulum; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

TAXONOMY

Family Trechaleidae Simon 1890

Diagnosis.—The spider family Trechaleidae is defined as follows: eyes arranged in two rows, tibial apophysis and a ventro-distal refolded rim on male palpal tibia; male palpus with a large median apophysis with a dorsal embolic groove extending into the guide; female epigynum generally heavily sclerotized, dark and opaque; epigynal plate conspicuous, anterior field wide and usually distinct from the lateral lobes. Female builds discoid and flattened egg sac, fixed and carried on the spinnerets (Carico 1993; Silva et al. 2008).

Subfamily Trechaleinae Simon 1890

Type genus.—*Trechalea* Thorell 1869

Note.—Since in the original description of the family Trechaleidae there is no mention of a name for a subfamily, because when the subfamily Rhoicininae was included in Trechaleidae (Griswold 1993; Sierwald 1993) it presented a group of genera included in Rhoicininae and the remaining genera were not included in any named subfamily, we felt the need to erect a name of a subfamily to include these remaining genera.

Diagnosis.—The subfamily Trechaleinae can be securely distinguished from the subfamily Rhoicininae by characters of the eye pattern and male palpus. The tibia of the male pedipalp in the Trechaleinae has a well-developed retrolateral apophysis composed of either a single part or a pair of subdivisions; a retrolateral apophysis is lacking in the Rhoicininae. The width of the anterior eye row is equal to or only slightly larger than the length of the posterior median row of eyes, and the anterior lateral eyes are always smaller than the anterior median eyes. In the Rhoicininae the anterior eye row is distinctly wider than the posterior median eye row, and if it is narrower, then the anterior lateral eyes are smaller than the anterior median eyes.

Description.—Eye pattern in two rows, PE row recurved, wider than AE row, width of anterior eye row equal to or only slightly greater than length of posterior ocular quadrangle, ALE often situated adjacent to and beneath PLE, PE equal in size and larger than AE, ALE smaller than AME, AME/ALE interdistance separated by less than the diameter of ALE and less than AME/AME interdistance. Palpal bulb in ventral view in three distinct and consistent subdivisions; subtegulum smaller than tegulum and situated slightly prolaterally; tegulum extending diagonally over full width of bulb face and median apophysis apical, variable but divided into ventral and dorsal divisions with the guide tip located on the dorsal division and usually visible as a short, acute point. The RTA is located on the distal rim of the tibia; a broad, membranous concavity is present on the ventro-distal end of the tibia.

PLACEMENT OF GENERA INTO SUBFAMILIES

Genera included in the subfamily Rhoicininae.—Since the introduction of this subfamily by Simon (1898a) as a group within the Lycosidae, it has been moved to other families including the Agelenidae (Petrunkevitch 1928), the Pisauridae (Exline 1950, 1960), and currently the Trechaleidae (Griswold 1993; Sierwald 1993; Brescovit & Höfer 1994). Genera currently (Platnick 2009) in the Rhoicininae are *Barrisca* Chamberlin & Ivie 1936 (generic revision, see Platnick 1979), *Heidrunea* Brescovit & Höfer 1994, *Rhoicinus* Simon 1898a (generic revision, see Exline 1950), *Shinobius* Yaginuma 1991, none of which possess the combination of characters that define the Trechaleinae (see diagnosis in this paper).

Genera included in the subfamily Trechaleinae.—We place the following genera into the subfamily Trechaleinae: *Amapalea* Silva & Lise 2006, *Caricelea* Silva & Lise 2007, *Dossenus* Simon 1898b (generic revision, see Silva et al. 2007), *Dyrines* Simon 1903 (generic revision, see Carico & Silva 2008), *Enna* O. Pickard-Cambridge 1897 (generic revision, see Silva, et al. 2008), *Hesydrus* Simon 1898a (generic revision, see Carico 2005a), *Magnichela* Silva & Lise 2006, *Paradossenus* F.O. Pickard-Cambridge 1903 (generic revisions, see Sierwald 1993; current paper), *Paratrechalea* Carico 2005b, *Syntrechalea* F.O. Pickard-Cambridge 1902 (generic revision, see Carico 2008b), *Trechalea* Thorell 1869 (generic revision, see Carico 1993) and *Trechaleoides* Carico 2005b. For a diagnostic key to the identification of the genera in the subfamily Trechaleinae, see Appendix I.

Genus excluded from the Trechaleinae.—*Neoctenus* Simon 1897, which has been a matter of considerable dispute (see review in Platnick 2009) regarding its family placement, is excluded here from the subfamily Trechaleinae and the diagnostic key below because it does not comply with the character set used to define Trechaleinae. Further, it is not our objective in this study to confirm or dispute the taxonomic position of *Neoctenus* in any family or subfamily.

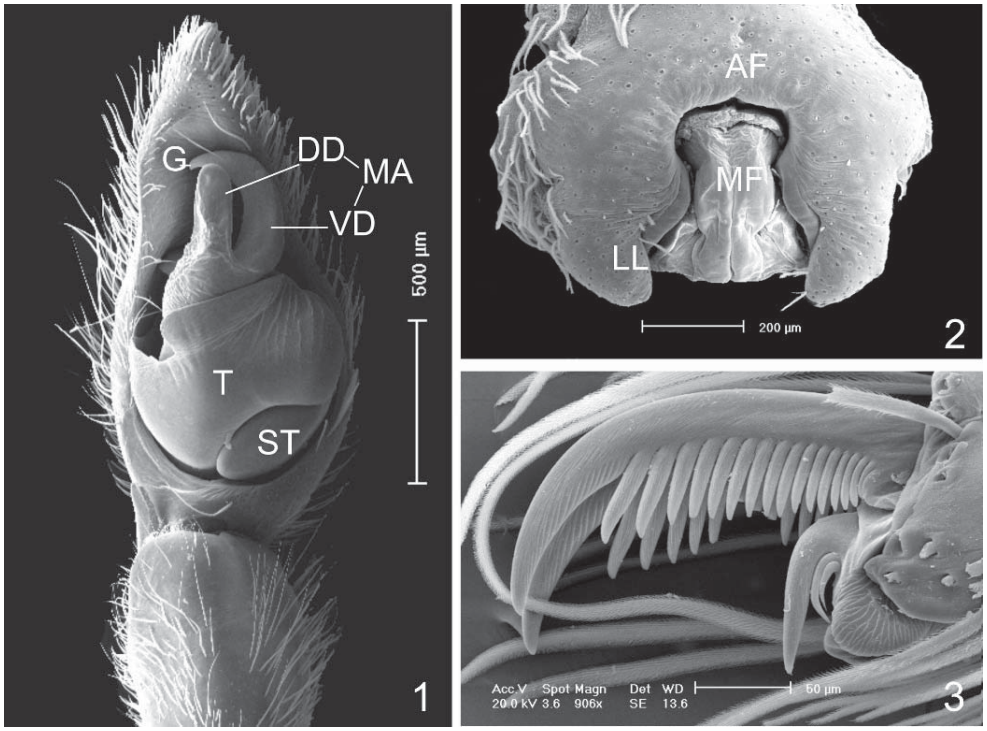
Genus *Paradossenus* F.O. Pickard-Cambridge 1903

Paradossenus F.O. Pickard-Cambridge 1903:155; Roewer 1954:139; Bonnet 1958:3325; Carico 1993:226; Sierwald 1993:53–74; Brescovit, et al. 2000:7–15; Platnick 2009.

Xingusiella Mello-Leitão 1940:23, fig. 1 (junior synonym of *Paradossenus*); Sierwald 1993:55; Platnick 2009.

Type species.—*Paradossenus longipes* (Taczanowski 1874).

Diagnosis.—This genus resembles *Dossenus* Simon 1898 by the absence of the ental division (END) of the retrolateral tibial apophysis (RTA) (Figs. 6, 12, 22, 26, 31, 44, 48), but can be distinguished by the combination of the following characters: metatarsi and tarsi of the legs are straight and neither bent nor flexible as in some other relatively typical trechaleid genera; i.e., *Trechalea* Thorell 1869 and *Hesydrus* Simon 1898. Males are distinguished by the presence of a conspicuous ectal division of the RTA (ECD), not divided, except in *P. amazonensis* and *P. acanthocymbium* (Figs. 35,



Figures 1–3.—*Paradossenus longipes*. 1. Left male pedipalpus (reversed), ventral view; 2. Female epigynum, ventral view; 3. Tarsal claw, left leg; IV, lateral view. Abbreviations: AF, anterior field of epigynum; DD, dorsal division of median apophysis; G, guide, terminal portion of median apophysis; MA, median apophysis; MF, middle field of epigynum; ST, subtegulum; T, tegulum; VD, ventral division of median apophysis.

39), which is slender, acute and sometimes somewhat curved (Figs. 6, 12, 22, 26, 31, 44, 48). The female epigynum has a distinct middle field that is situated between a pair of distinct lateral elevations; internally there is wide variation, with the presence of conspicuous spermathecae and the presence of an accessory spermathecae (except in *P. pozo*, Fig. 50) attached to a sclerotized arch with membranous wings (W) (except in *P. corumba*, *P. pulcher* and *P. benicito*) (Figs. 8, 14, 16, 18, 20, 24, 28, 33, 37, 42, 46).

Description.—Carapace moderately high to low, height of cephalic area higher or not, length 1.7–4.4, AE row slightly procurved. Sternum about as long as wide, almost always unmarked. Paturon generally swollen anteriorly, with a diagonal groove above fang origin (Fig. 22); chelicerae with promargin typically with three teeth with middle largest (none in *P. acanthocymbium*); retromarginal teeth variable from three to 4. Median apophysis of male palpus conspicuous, (Fig. 1) with short, curved guide arising from dorsal division; ventral division variable, typically rounded on retrolateral edge (except *P. corumba*); tibia shorter than cymbium and with a single, narrow, tapered retrolateral apophysis (except *P. amazonensis* and *P. acanthocymbium*, which have an additional, small, proximal projection). Female epigynum, in ventral view, with a distinct but variable middle field and lobular lateral elevations (Figs. 7, 13, 15, 17, 19, 23, 27, 32, 36, 41, 45, 49); internal components very variable but usually with small spermathecae and large accessory spermathecae (Figs. 8, 14, 16, 18, 20, 24, 28, 33, 37, 42, 46, 50).

Distribution.—The genus *Paradossenus* extends from southeastern Nicaragua southward to northern Uruguay, and locality labels with specimens commonly include names of streams suggesting that aquatic habitats are essential for their occurrence (Fig. 4).

Paradossenus longipes (Taczanowski 1874)
Figs. 1–9

Dolomedes longipes Taczanowski 1874:88.
Hygropoda andina Simon 1898a:316, 1898b:22; Roewer 1954:138; Bonnet 1957:2243.
Paradossenus andinus Carico 1993:231; Platnick 2009. New synonymy.
Paradossenus nigricans F.O. Pickard-Cambridge 1903 (= *P. longipes*, Sierwald 1993:57); Roewer 1954:139; Bonnet 1958:3325.
Paradossenus taczanowskii Caporiacco 1948:631 (= *P. longipes*, Sierwald 1990:35).
Trechalea protenta Karsch 1879:540.
Paradossenus protentus Carico 1993:231; Platnick 2009. New synonymy.
Hygropoda venezuelana Simon 1898b:22; Roewer 1954:138; Bonnet 1957:2244.
Paradossenus venezuelanus Carico 1993:231; Platnick 2009. New synonymy.

Type material.—Female lectotype, male paralectotype: FRENCH GUIANA: Cayenne, K. Jelski (PAN), examined.

Other material examined:—ARGENTINA: *Chaco*, 2 females, Selva del Rio de Oro, 27°04′S, 58°34′W, 27 January 1965, Galiano (MLP); *Parque*, ''Islas Malvinas'' (Mnes.), 1 female, 2 February 1988, Goloboff & Szumik (MACN); *Salta*,

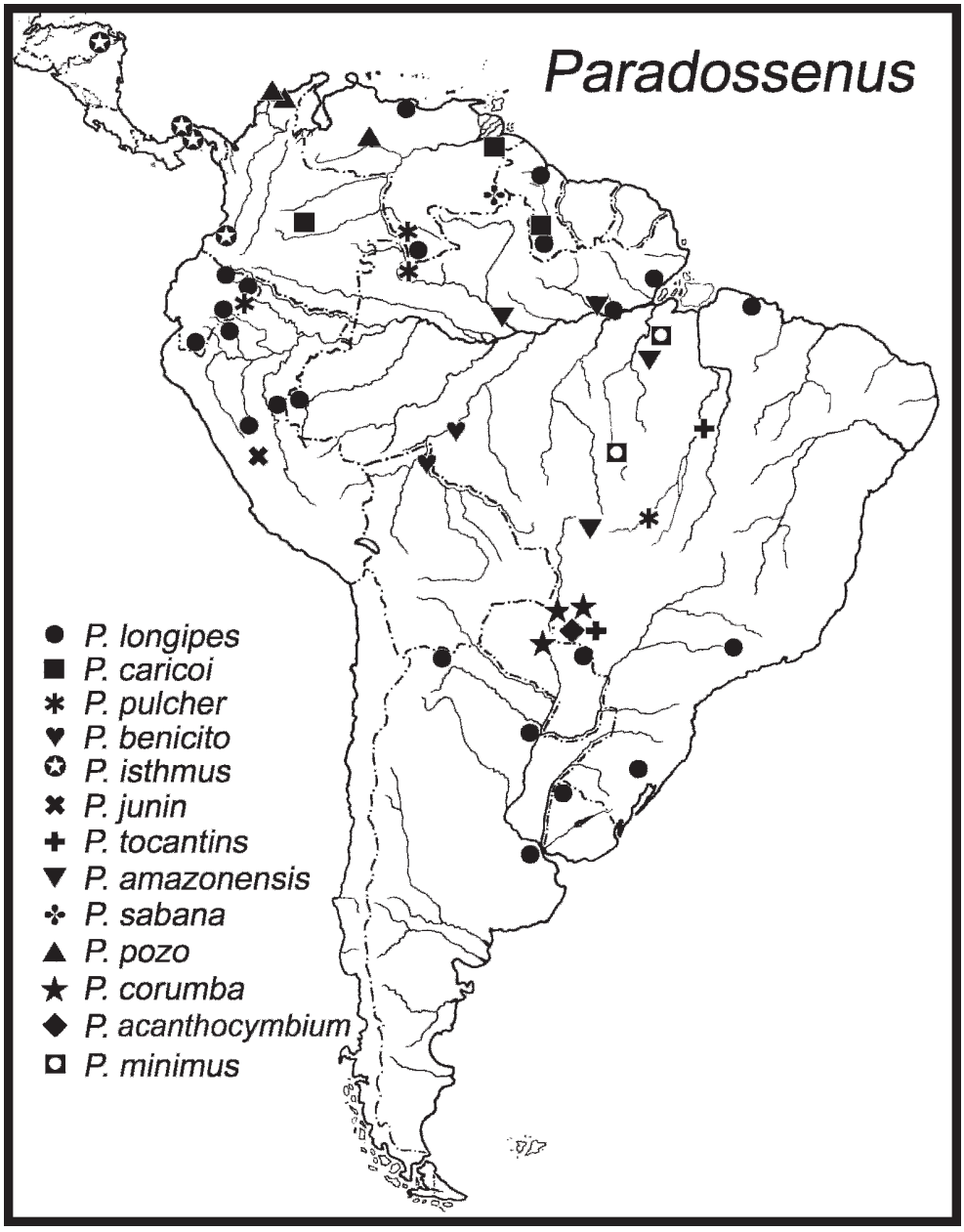
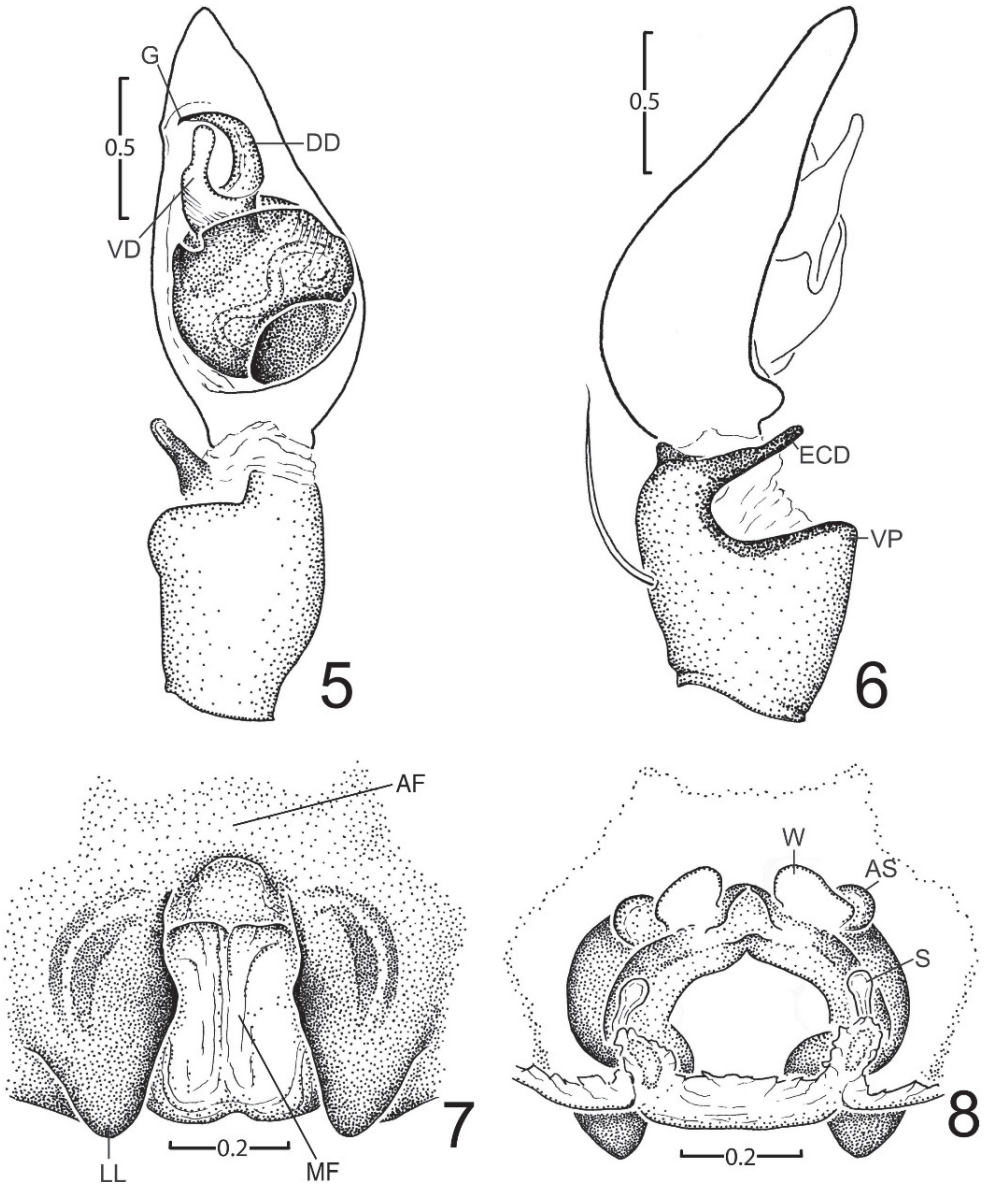


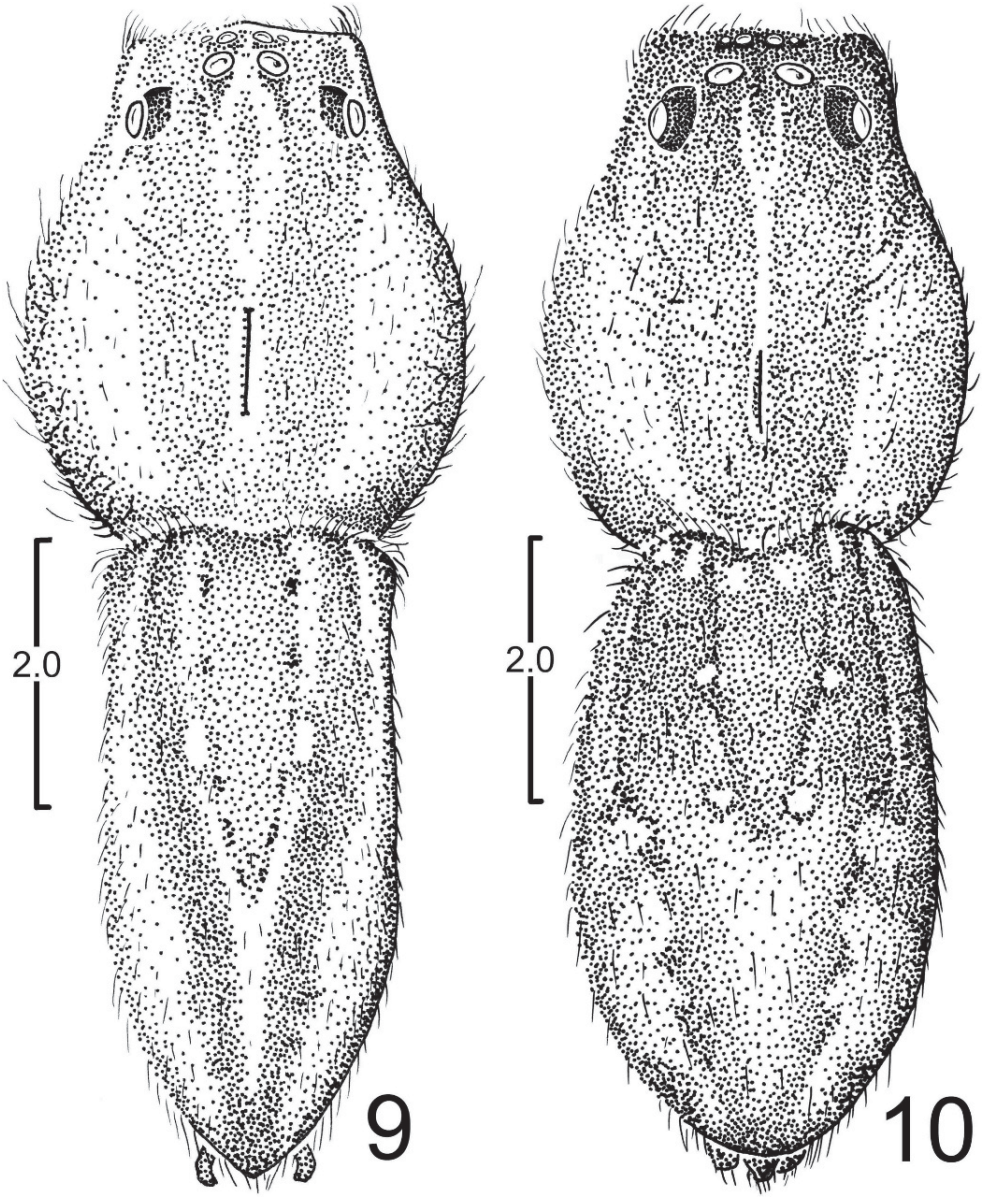
Figure 4.—Distribution of species of *Paradossenus*.

Rinadavia, Santa Victoria, 22°11′S, 64°45′W, 1 female, June 1961, Bachman (MACN); *Misiones*, 1 female, 3–12 December 1989, Garabi (MCTP 1289); Ste Maria, 22°11′S, 64°45′W, 1 female, no date, Sciap. Delan. etc. (MACN); *Buenos Aires*, Carapachay, km. 10 Delta, Bs. Is., 34°25′S, 58°35′W, 1 male, 2 females, December 1986, Goloboff (MACN). BRAZIL: *Amazonas*, Manaus, Reserva Florestal Adolpho Ducke, 3°06′S, 60°01′W, 1 female, 8 April 1992, S. Darwich (MCTP 2846); 1 female, 8 April 1992, U. Barbosa (MCTP 2719); 1 female, 8 April 1992, S. Darwich (MCTP 2718); Rio Purus, NW of Sena Madureira, Boca do Matapa, 1°54′S, 53°29′W, 1 male, 22 September 1973, B. Patterson (MCZ); *Acré*, Rio Purus, NW of Sena Madureira, Seringal Santo Antonio (above Manuel Urbana), 8°13′S, 72°59′W, 1 female, 15–18 September 1973, B. Patterson (MCZ); *Pará*, Canindé, Rio Gurupi, 0°31′S, 51°14′W, 1 male, 27–31 October 1964, B. Malkin (AMNH); 2 females, 3–11 June 1963, B. Malkin (AMNH); Rio Gurupi, 1°13′S, 46°06′W, 1 female, 7–15 April 1963, B. Malkin (AMNH); *Mato Grosso*, Barra do Taparape, 1 female, 17 December 1963–2 February 1964, B. Malkin (AMNH); Usina Hidrelétrica Guaporé, 15°58′S, 59°53′W, 1 female, 4–14 October 2002, Operação Coatá (MCTP 17586); *Minas Gerais*: Santana do Riacho, Parque Nacional da Serra do Cipó, Rio do Peixe, 1 male, 2 females, 10–14 February 2001, E.S.S. Álvarez (LAMG 568); *São Paulo*: Pirassununga, Rio dos Cocais, 21°59′S, 47°25′W, 1 female, 1 March 1940,



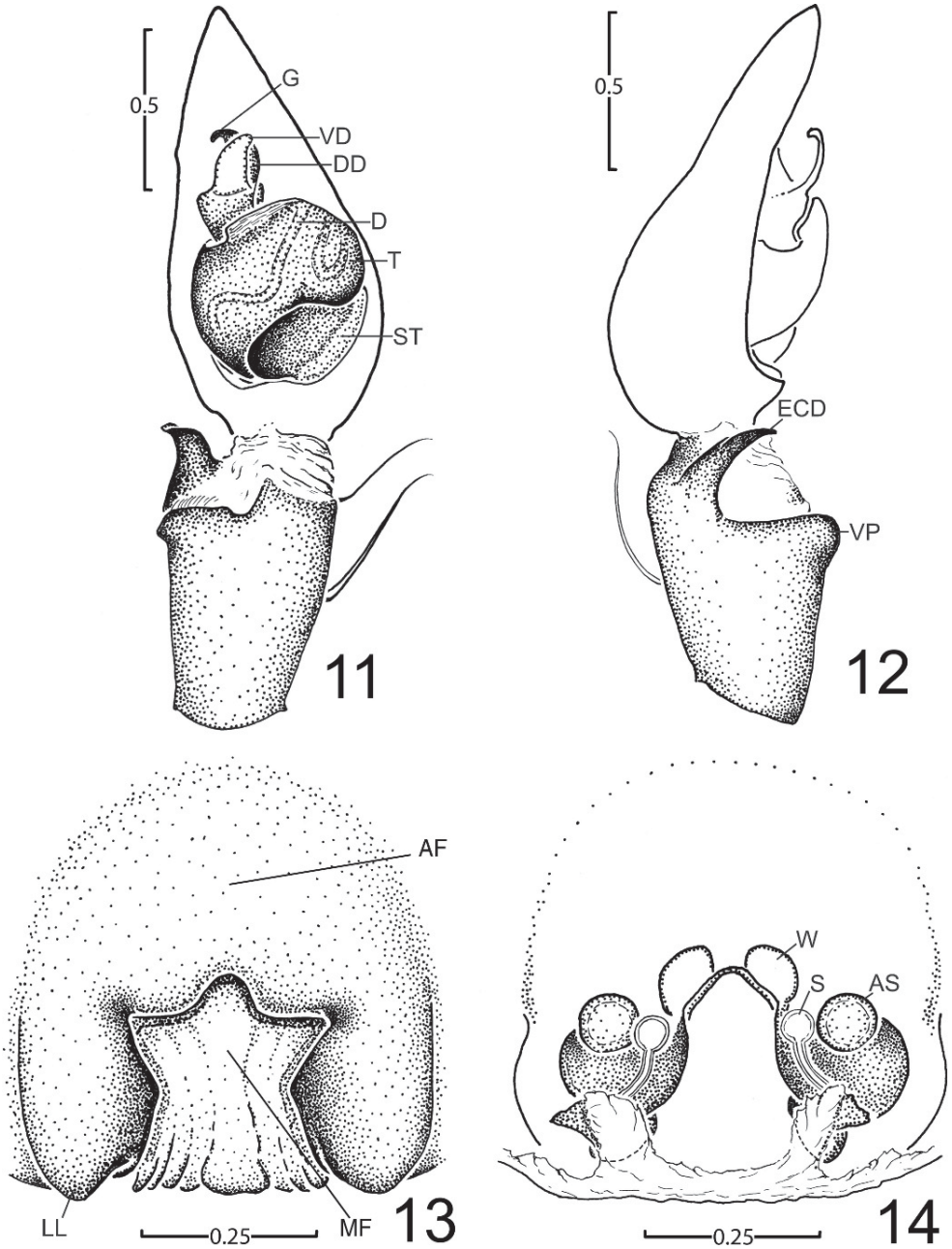
Figures 5–8.—Genitalia of *Paradossenus longipes*. 5, 6. Right pedipalpus; 5. Ventral view; 6. Retrolateral view; 7, 8. Epigynum; 7. Ventral view; 8. Dorsal view. Abbreviations: AF, anterior field of epigynum; AS, accessory spermathecae; DD, dorsal division of median apophysis; ECD, ectal division of retrolateral tibial apophysis (RTA); G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; MF, middle field of epigynum; S, spermathecae; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

Schulbart (MZSP 7073); Mogi Guaçu, Rio Mogiguaçú, 22°22′S, 46°56′W, 1 female, 18 October 1940, Schulbart (MZSP 7146); *Rio Grande do Sul*: Sapiranga, Arroio Feitoria, 29°35′S, 51°15′W, 1 female, 23 February 2004, E.L.C. Silva (MCTP 16571); 2 females, 23 February 2006, E.L.C. Silva (MCTP 21718); 1 female, 20 February 2008, E.L.C. Silva (MCTP 21719); 1 male, 1 female, 31 January 2004, E.L.C. Silva (MCTP 21720); 1 male, 2 females, February 2008, E.L.C. Silva (MCN 37300); Mampituba, Rio Mampituba, 29°10′S, 49°43′W, 1 male, 1 female, 26 March 2006, E.L.C. Silva (MCTP 0870); Rio Uruguai, BR-153, 34°12′S, 58°18′W, 1 male, February 1989, Itá-Machadinho (MCTP 1296); Estrela Velha, Barragem Itaúba, 29°10′S, 53°09′W, 1 female, 8 March 2001, R. Ott (MCN 33722); 2 females, 6 March 2001, R. Ott (MCN 33684); Porto Alegre, Ilha do Laje, 29°57′S, 51°16′W, 1 female, 22 March 1983, J.E. Lang (MCN 11486); Ilha das Flores, 29°59′S, 51°15′W, 2 females, 17 June 1992, C.S. Bastos (MCN 10487); São Leopoldo, 30°05′S, 51°36′W, 1 female, 6 August 1982, C.J. Becker (MCN 10663); 2 females, 25 March 1983, C.J. Becker (MCN 11518); 1 female, 17 March 1965, C. Valle (MZSP 4796); Eldorado do Sul, Parque Estadual Delta do Jacuí, 30°05′S, 51°36′W, 1 female, 5 January 2000, A. Barcelos (MCN 32095); Triunfo, 29°56′S, 51°43′W, 1 female, 12 January 1989, H.A. Gastal (MCN 18086); Pinhal Grande, Rio Jacuí, 29°16′S, 53°20′W, 1 female, 7 May 1998, M.A.L. Marques (MCN 29390); Terra de Areia, Rio dos Pintos,



Figures 9–10.—*Paradossenus* species, dorsal views. 9. *P. longipes*; 10. *P. isthmus*.

29°35′S, 50°04′W, 1 male, 27 December 2002, E.L.C. Silva (MCN 37301); Júlio de Castilhos, Barragem Itaúba, 29°16′S, 53°20′W, 1 female, 22 October 1998, L. Moura (MCN 30604). ECUADOR: *Napo*, R.F. Cuyabeno, Rio Cuyabeno, 0°16′S, 75°53′W, 1 female, 25 July 1985, L. Avilés (MECN); *Pastaza*, Cusuimi, on Rio Cusuimi, 150 km SE Puyo, 2°48′S, 77°38′W, 1 male, 15–31 June 1971 (also 15–22 May 1971), W.B. Malkin (FMNH); *Sucumbios*, Lago Agrio nr. Entrance to Cuyabeno, 0°06′N, 76°54′W, 2 females, 20–30 September, V. Roth (CAS). GUYANA: *Upper Takkutu-Upper Essequebo*, Kkuyuwimi River. From K Landing to Essequebo River, 7°02′N, 58°27′W, 1 male, 2 females, 1 juvenile, 1–8 December 1937, W.G. Hassler (AMNH); Shudicar River, Upper Essequibo River, 1 female, 1 January 1938, W.B. Hassler (AMNH); *Cuyuni-Mazaruni*, Bartica District, Kartabo, 6°24′N, 58°37′W, 1 female, unknown date, W. Beebe #22467 (AMNH); 1921, Beebe (AMNH); 1 female, 1924, unknown collector, (AMNH); (*unknown province*), Onoro Region, 1°37′N, 58°38′W, 1 female, 13–18 December 1937, W.G. Hassler (AMNH). PARAGUAY: *Amambay*, near Pedro Juan Caballero, 22°34′S, 55°37′W, 1 female, 25–27, November 1956, C.J.D. Brown (MCZ); *Paraguari*, ca. Ybtymi, 25°46′S, 56°47′W, 1 female, 1957, J.P. Rivaldi (AMNH). PERU: *Madre de Dios*, Rewervada de Manu, Puesto de Vigil. Pakitza, quebrada Il Bano, 11°58′S, 71°18′W, 1 female, 5 October 1987, D. Silva & J. Coddington; *Loreto*, Alto Amazonas, Pastaza, 4°55′S, 76°24′W, 1 female, October 1973, J.C. Olin (MCZ); Caballococha, 1 male , no date and collector (MUSM #00500058); *Huanuco*, Monson Valley, Tingo Maria, 9°17′ 76°00′ W, 1 female, 19 November 1954, E.I. Schlinger & E.S.

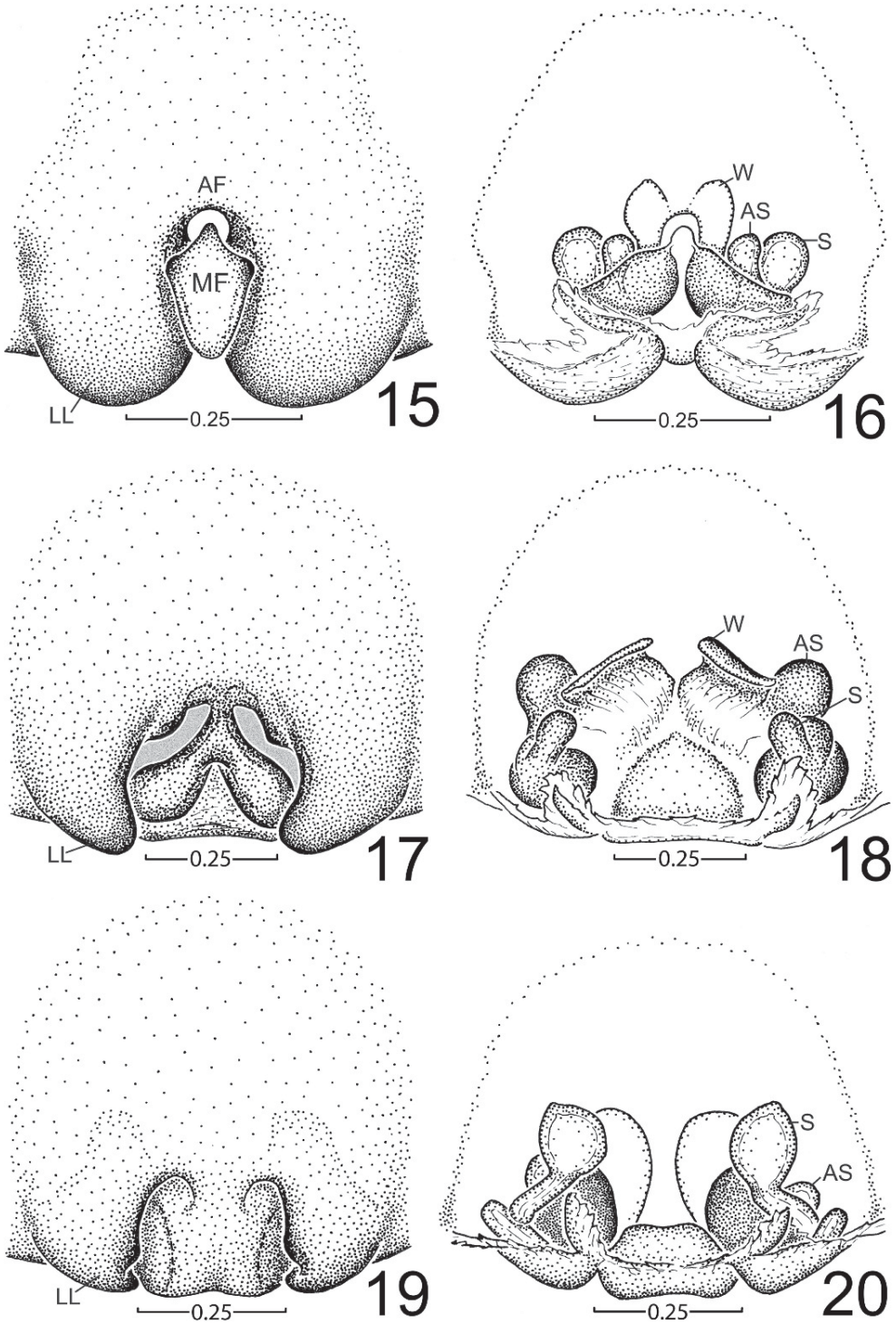


Figures 11–14.—*Paradossenus isthmus*. 11, 12. Right pedipalpus; 11. Ventral view; 12. Retrolateral view; 13, 14. Epigynum; 13. Ventral view; 14. Dorsal view. Abbreviations: AF, anterior field of epigynum; AS, accessory spermathecae; DD, dorsal division of median apophysis; D, duct; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; MF, middle field of epigynum; S, spermathecae; ST, subtegulum; T, tegulum; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

Ross (CAS); 1 male, 1 female, 26 October 1954, E.I. Schlinger & E.S. Ross (CAS); *Ucayali*, La Frontera, Upper Utoquinia, 8°13′S, 74°31′W, 1 male, 1928, H. Bassler (AMNH). URUGUAY: *Salto*, Rio Arape (Tangarupa), 31°01′S, 57°30′W, 1 male, 1 female, 20 December 1954, collector unknown (MACN). VENEZUELA: *Territorio Federal*, Delta Amaccuro, Rio Orinoco Delta, 8°30′N, 60°50′W, 1 female, January–February, 1935, N. Weber (MCZ); *Amazonas*, Rio Yaciba, 0°50 N, 66°10′W, 1 male, 3 December 1953, unknown collector (AMNH).

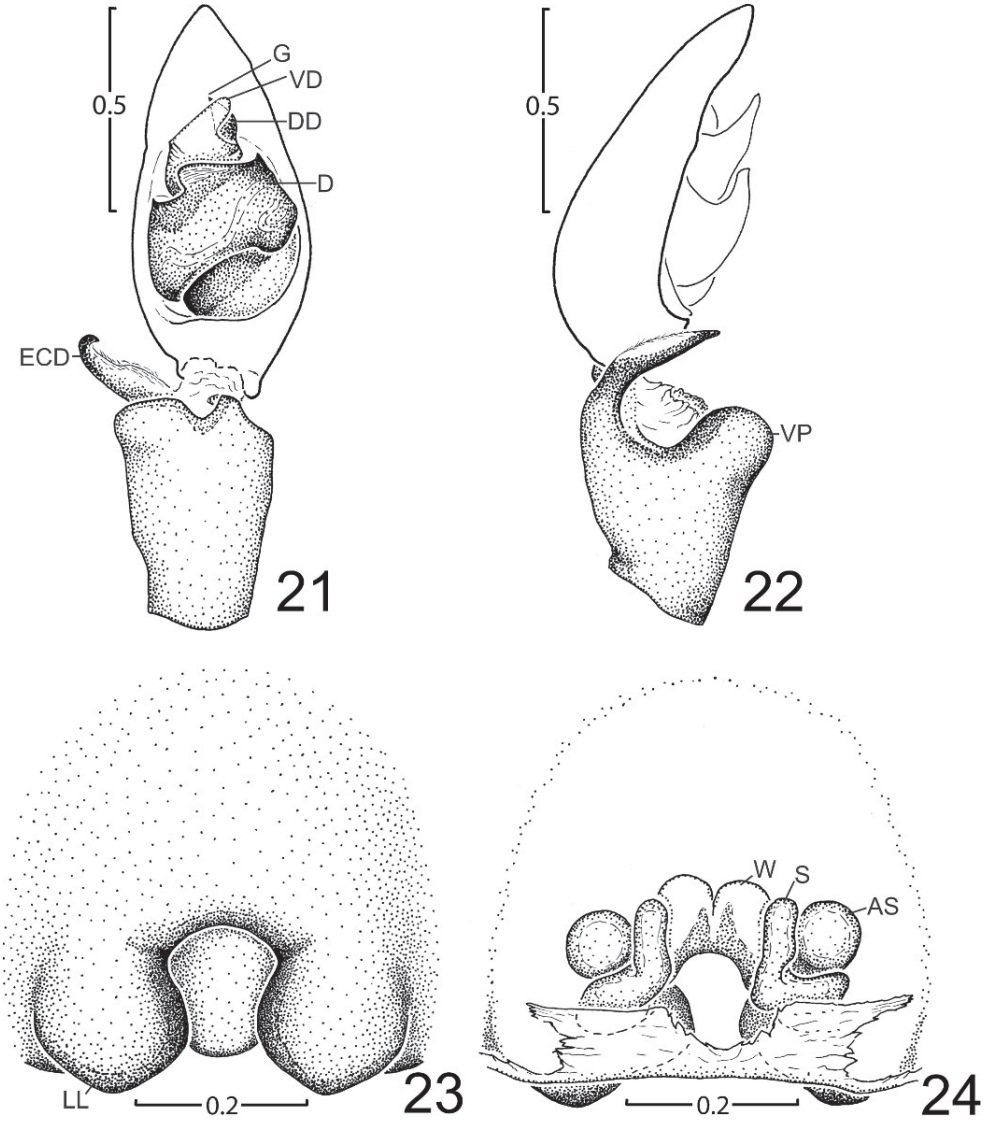
Diagnosis.—The females of *P. longipes* resemble those of *P. amazonensis* (Fig. 36) by the general shape of their epigynum, but can be distinguished by the wider middle field (MF), straight-edged laterally, whitish and with shallow grooves (Figs. 2, 7). The males are similar to those of *P. isthmus* (Fig. 11) by the general shape of the median apophysis, but can be distinguished by the more developed dorsal division (DD) of median apophysis (MA) that presents a "hook-like" shape (Figs. 1, 5).

Description.—*Female* (*lectotype*): Carapace length 3.5, width 3.1. Sternum length 1.72, width 1.60, light and



Figures 15–20.—Epigyna of *Paradossenus* species. 15, 16. *P. caricoi*; 15. Ventral view; 16. Dorsal view; 17, 18. *P. pulcher*; 17. Ventral view; 18. Dorsal view; 19, 20. *P. junin*; 19. Ventral view; 20. Dorsal view. Abbreviations: AF, anterior field of epigynum; AS, accessory spermathecae; LL, lateral lobes of epigynum; MF, middle field of epigynum; S, spermathecae; W, wings.

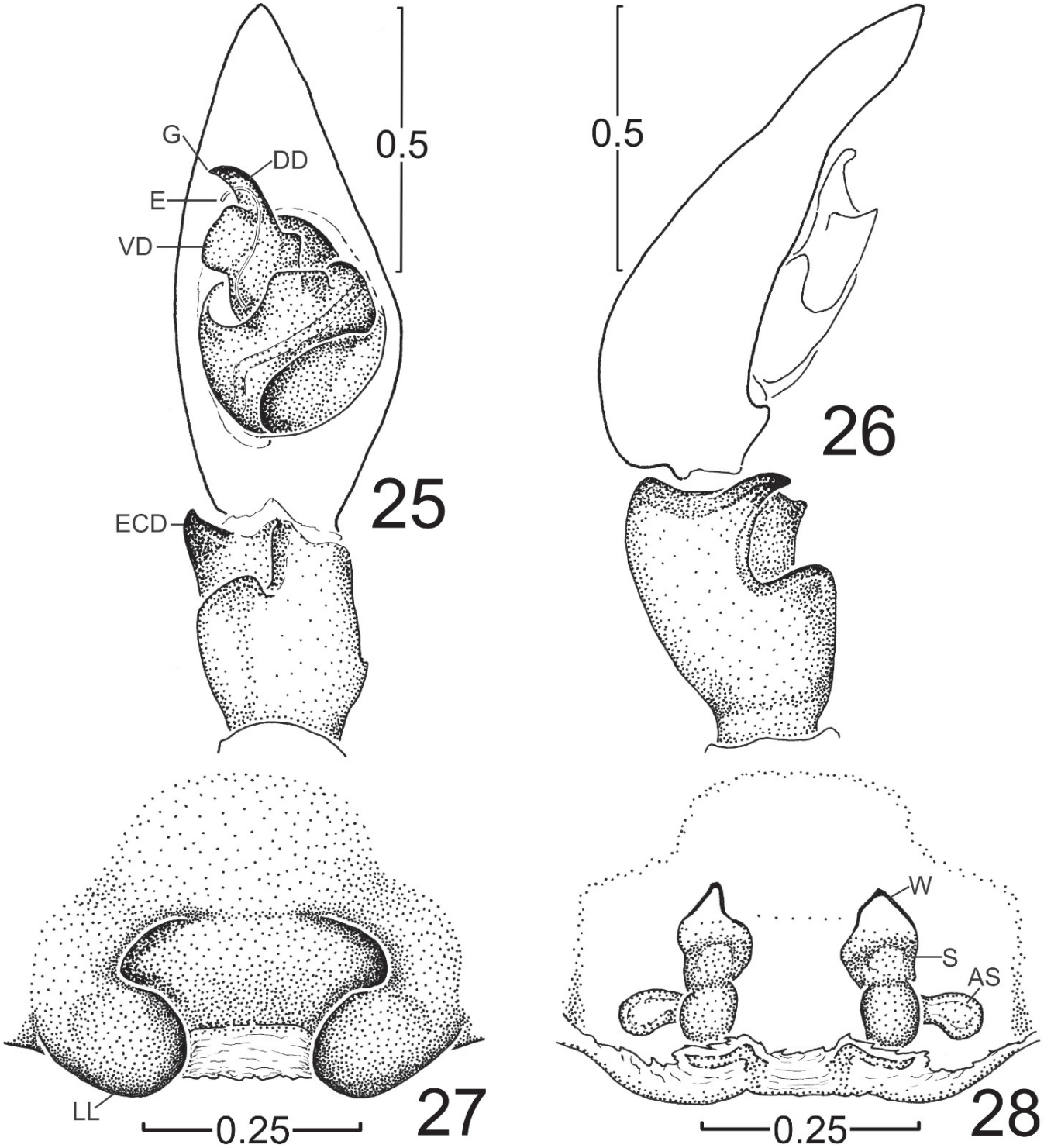
unmarked; labium length 0.68, width 0.64, dark but lighter anteriorly. Clypeus height 0.22, width 1.50. Carapace with longitudinal wide median dark band divided medially with narrow light band; dark reticulations laterally in lateral light areas. Anterior eye row slightly recurved, eye measurements in Table 1. Cheliceral teeth: promarginal 3, proximal one shortest, remainder subequal; retromarginal 4, second from proximal shortest, remainder subequal. Color of legs light with small maculae around base of setae. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 5.8, 7.4, 5.6,



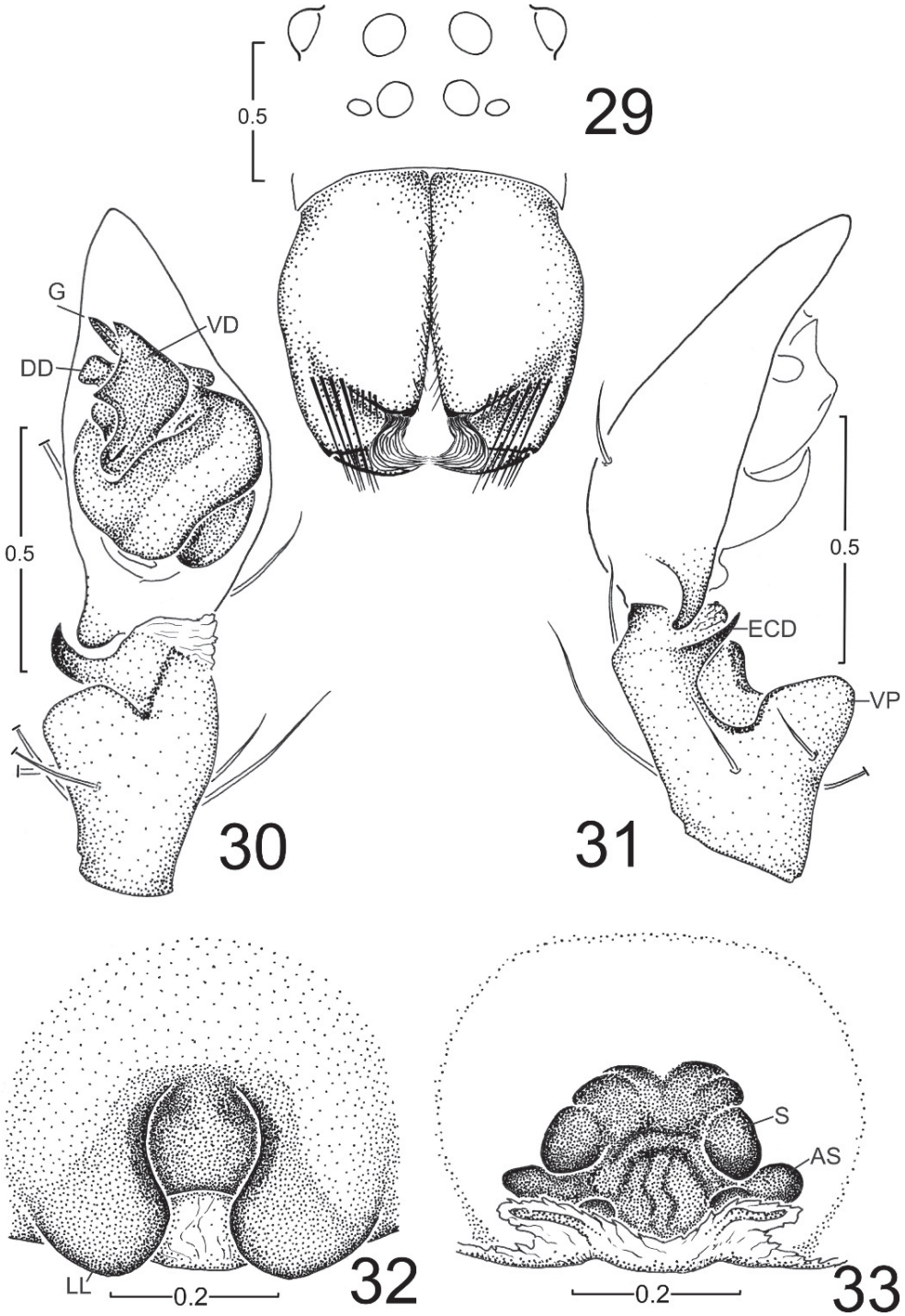
Figures 21–24.—Genitalia of *Paradossenus benicito*. 21, 22. Right pedipalpus; 21. Ventral view; 22. Retrolateral view; 23, 24. Epigynum; 23. Ventral view; 24. Dorsal view. Abbreviations: AS, accessory spermathecae; DD, dorsal division of median apophysis; D, duct; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

2.4, 21.2; II – 4.8, 5.7, 4.1, 1.8, 16.4; III – 2.8, 3.0, 2.3, 1.2, 9-3; IV – 4.7, 5.0, 4.5, 1.7, 15.9; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 5.0; anterior margin notched, median band above cardiac area tapered posteriorly with incomplete narrow light bands laterally; ventrally light and without distinct pattern. Middle field (MF) of female epigynum white, rectangular with longitudinal grooves, deep cavity anteriorly; lateral lobes (LL) triangular at posterior margin (Figs. 2, 7); spermathecae attached to a sclerotized arch, with small, stalked, accessory spermathecae conspicuous dorsally (Fig. 8).

Male (*paralectotype*): Carapace length 3.9, width 3.2. Sternum length 1.68, width 1.52; labium length 0.68, width 0.60. Clypeus height 0.28, width 1.80. Carapace (Fig. 9) with longitudinal median wide dark band divided medially with narrow light band; dark reticulations laterally in lateral light areas also covered with light hairs extending to corner of clypeus. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae dark reddish brown with diagonal depression distally; 4–5 curved macrosetae emerging from a tubercle distally near fang; cheliceral teeth, promarginal 3, middle largest, remainder subequal; retromarginal 4, second from proximal shortest, remainder subequal. Color of legs light, lacking distinct pattern. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 10.5, 14.2, 10.7, 4.2, 39.6; II – 6.6, 8.5, 6.5, 2.5, 24.1; III – 3.7, 4.0, 3.2, 1.4, 12.3; IV – 6.5, 6.9, 6.8, 2.4, 22.6; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3; each paired tarsal claw with 15 teeth, unpaired claw with two small teeth (Fig. 3). Abdomen length 5.2; anterior margin notched;

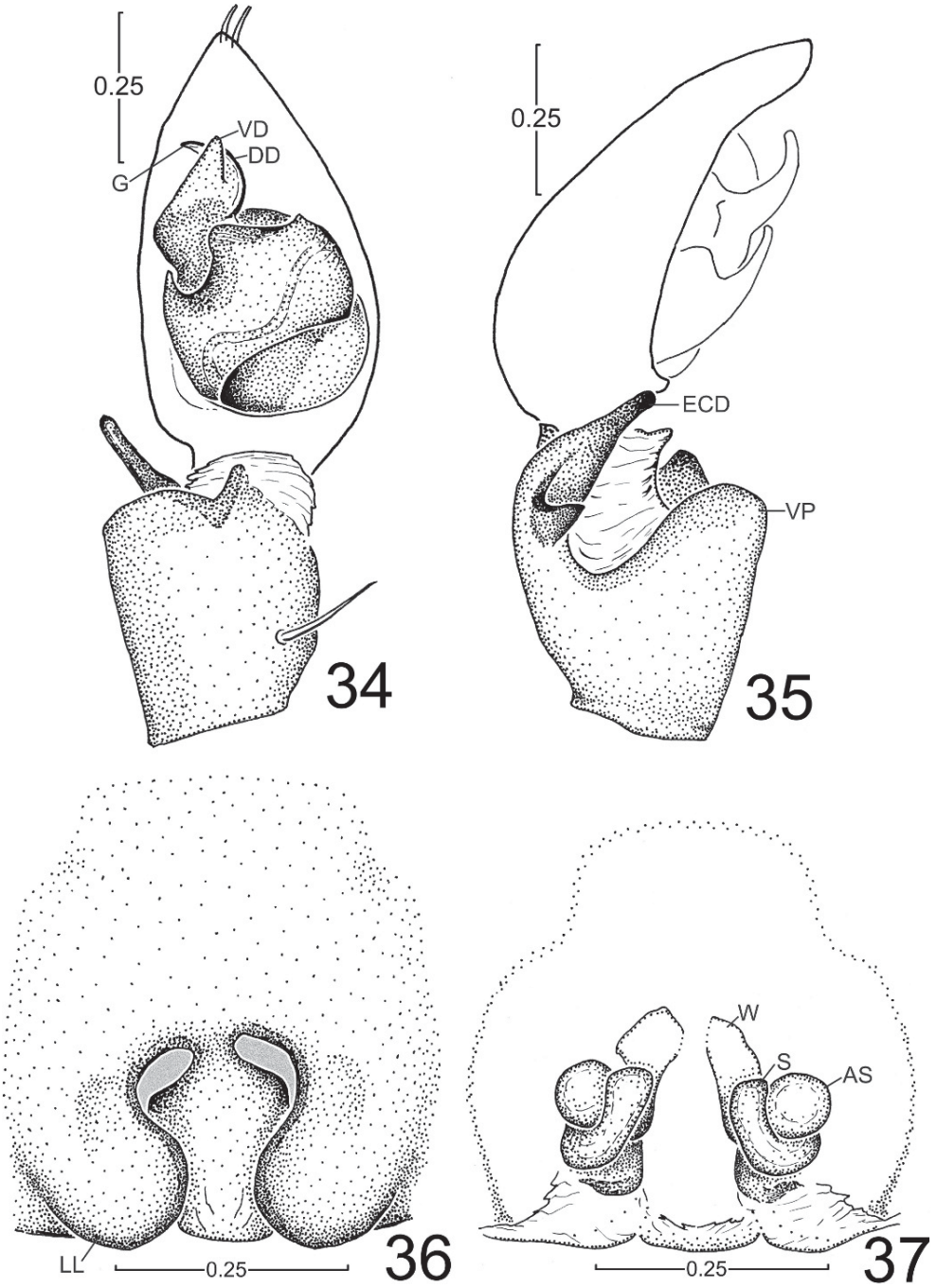


Figures 25–28.—Genitalia of *Paradossenus tocantins*. 25, 26. Right palpus; 25. Ventral view; 26. Dorsal view; 27, 28. Epigynum; 27. Ventral view; 28. Dorsal view. Abbreviations: AS, accessory spermathecae; DD, dorsal division of median apophysis; E, embolus; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; VD, ventral division of median apophysis; W, wings.



Figures 29–33.—*Paradossenus corumba*. 29. Eyes and chelicerae, frontal view; 30, 31. Right pedipalpus; 30. Ventral view; 31. Retrolateral view; 32, 33. Epigynum; 32. Ventral view; 33. Dorsal view. Abbreviations: AS, accessory spermathecae; DD, dorsal division of median apophysis; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia.

median dark band above cardiac area tapered posteriorly, surrounded laterally by narrow light bands joining posteriorly which, in turn, are bordered laterally with outer dark bands that join posteriorly (Fig. 9); venter light and unmarked. Dorsal division (DD) of the median apophysis (MA) of male palpus composed of conspicuous curved, sickle-shaped guide (G) and ventral division (VD) single, flattened, spatula-shaped rounded apically; dorsal division narrow, ''hook-like'' (Figs. 1, 5). Retrolateral tibial apophysis (RTA) single, tapered, directed ventrally (Fig. 6).

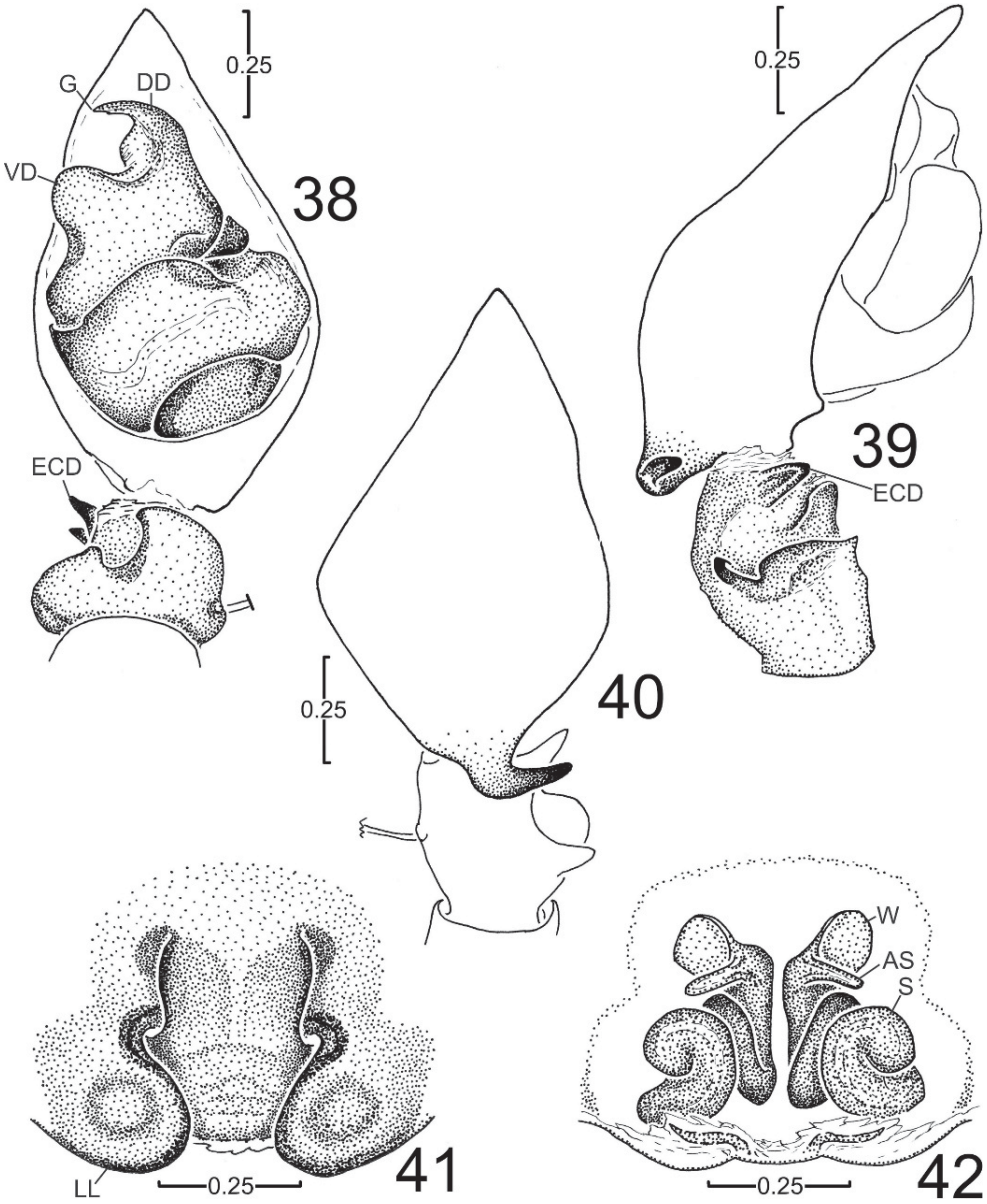


Figures 34–37.—Genitalia of *Paradossenus amazonensis*. 34, 35. Right pedipalpus; 34. Ventral view; 35. Retrolateral view; 36, 37. Epigynum; 36. Ventral view; 37. Dorsal view. Abbreviations: AS, accessory spermathecae; DD, dorsal division of median apophysis; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

Variation.—The average carapace length of eleven males is 3.82 (range 3.4–4.6) and the average carapace length of fifteen females is 3.68 (range 3.2–4.6).

Natural history.—Representatives of this species were found exclusively on the vegetation near rocky streams. Adult males and females are found from December to April (field observations in Rio Grande do Sul, southern Brazil, made by ELCS).

Distribution.—The range extends from Guyana and coastal Venezuela southward through the Amazon River basin to Uruguay and Argentina (Fig. 4). For additional notes on the distribution of this species, see Sierwald (1993) and Brescovit et al. (2000).



Figures 38–42.—Genitalia of *Paradossenus acanthocymbium*. 38–40. Right pedipalpus; 38. Ventral view; 39. Retrolateral view; 40. Dorsal view; 41, 42. Epigynum; 41. Ventral view; 42. Dorsal view. Abbreviations: AS, accessory spermathecae; DD, dorsal division of median apophysis; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; VD, ventral division of median apophysis; W, wings.

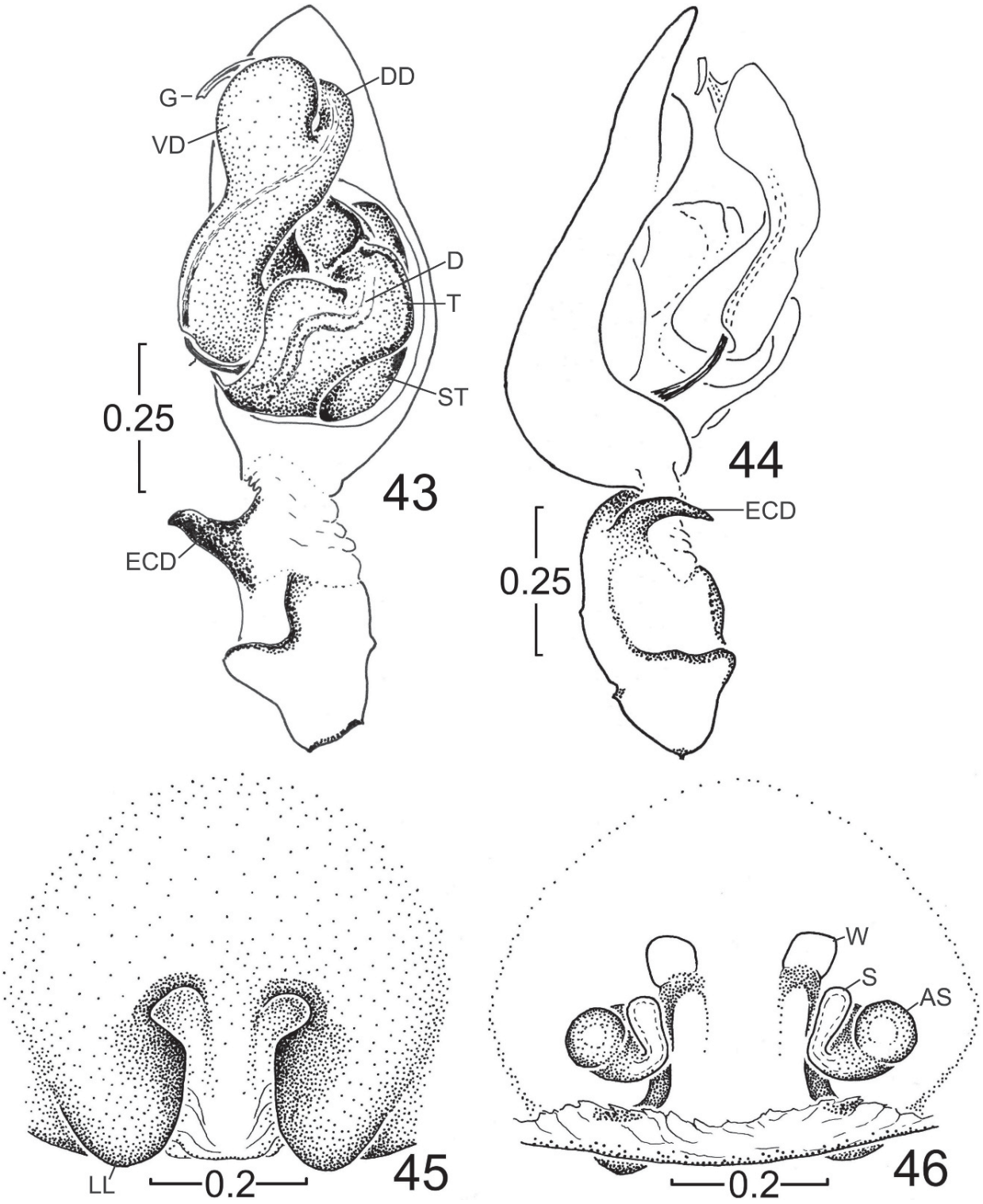
Paradossenus isthmus new species
Figs. 4, 10–14

Type material.—Holotype male, 1 paratype male, 5 paratype females: PANAMA: *Canal Zone*: Barro Colorado Island, edge of Lake Gatun, 9 09′N, 79°50′W, 4 August 1983, J.E. Carico (AMNH).

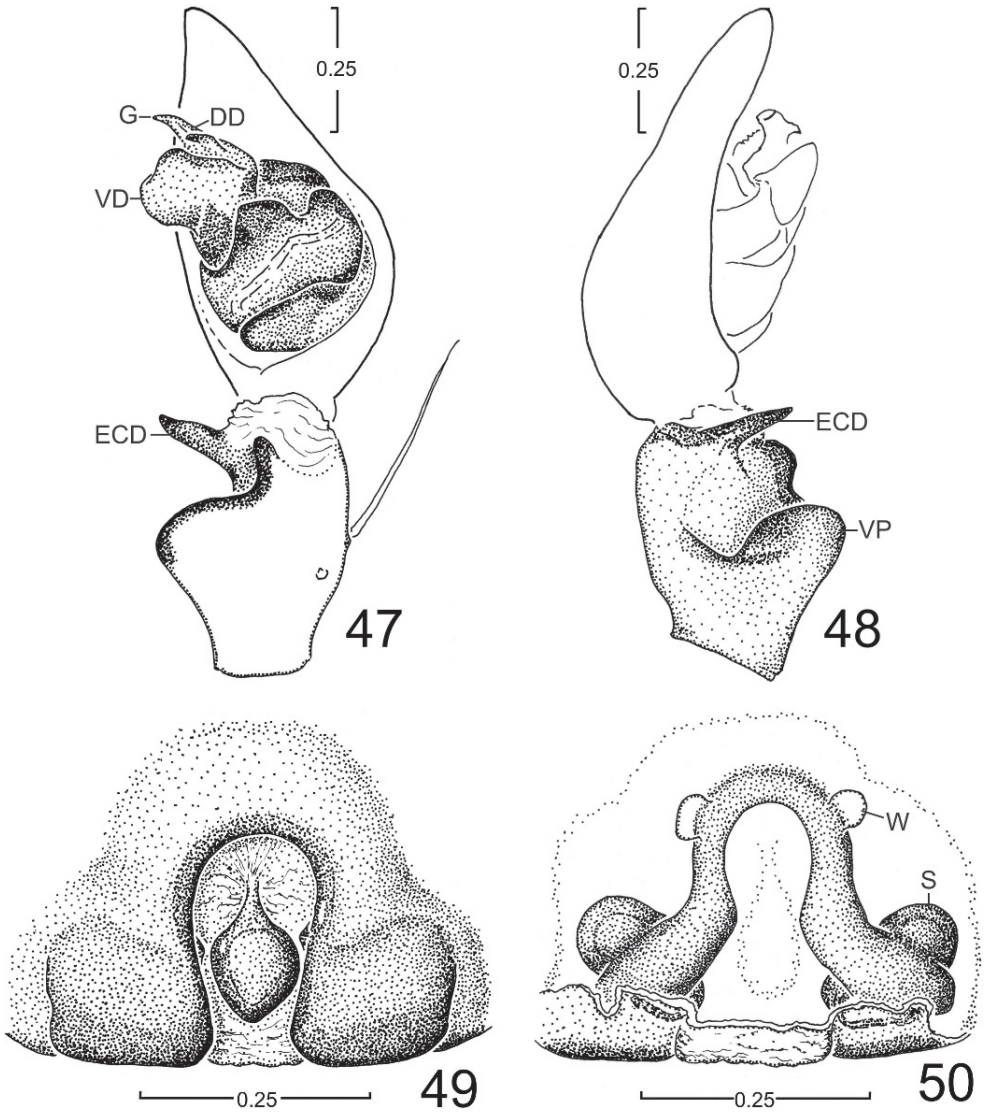
Other material examined:—PANAMA: *Canal Zone*: Barro Colorado Island, 9°09′N, 79°50′W, 57 males, 86 females, 16 June 1934–5 March 1958), A.M. Chickering (MCZ); 1 female, 30 July–1 September 1928, Chamberlin (MCZ); Colón: 2 males, 22 females, Frijoles, 9°10′N, 79°47′W, 25 January 1958, A.M. Chickering (MCZ). NICARAGUA: *Atlàntico Norte*: Masawas, Rio Waspuk, 14°38′N, 84°26′W, 10–31 October 1955, 1 female, W. B. Malkin (AMNH). COLOMBIA: *Chocó*: Quebrada Taparral, 15 km N of Palestina, Rio San Juan, 4°09′N, 77°04′W, 28–31 May 1969, 2 females, B. Malkin (AMNH).

Etymology.—The name is a noun in apposition suggested by the term describing the physiographical feature of the area of distribution (“*isthmus*” = narrow portion of land that connects two continents).

Diagnosis.—The males of *P. isthmus* resemble those of *P. benicito* (Figs. 21, 22) by the general shape of the median



Figures 43–46.—Epigyna of *Paradossenus* species. 43, 44. *P. sabana*, right palpus; 43. Ventral view; 44. Dorsal view; 45, 46. *P. minimus*, epigynum; 45. Ventral view; 46. Dorsal view. Abbreviations: AS, accessory spermathecae; D, duct; DD, dorsal division of median apophysis; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; LL, lateral lobes of epigynum; S, spermathecae; ST, subtegulum; T. tegulum; VD, ventral division of median apophysis; W, wings.



Figures 47–50.—Genitalia of *Paradossenus pozo*. 47, 48. Right pedipalpus; 47. Ventral view; 48. Retrolateral view; 49, 50. Epigynum; 49. Ventral view; 50. Dorsal view. Abbreviations: DD, dorsal division of median apophysis; ECD, ectal division of RTA; G, guide, terminal portion of median apophysis; S, spermathecae; VD, ventral division of median apophysis; VP, ventral protuberance of male palpal tibia; W, wings.

apophysis and retrolateral tibial apophysis, but can be distinguished by narrow and acute terminal portion of the ectal division of RTA (Fig. 12). The female epigynum is similar to those of *P. longipes* (Figs. 2, 7) by the general shape of the middle field (MF), but can be distinguished by the conspicuous grooves on the anterior margin of epigynum (Fig. 13).

Description.—*Male* (*holotype*): Carapace length 3.7, width 3.1. Sternum length 1.88, width 1.64; labium length 0.80, width 0.68. Clypeus height 0.20, width 1.80. Carapace with longitudinal wide median dark band divided medially with narrow light band; light setae in lateral light areas extending to lateral corners of clypeus. Anterior eye row recurved, eye measurements in Table 1. Chelicerae dark reddish brown with diagonal depression distally; 4–5 curved macrosetae emerging from a tubercle distally near fang; cheliceral teeth, promarginal 3, middle largest, remainder subequal; retromarginal 4, second from proximal shortest, remainder subequal. Color of legs light, lacking distinct pattern. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 9.5, 12.2, 10.2, 3.7, 35.6; II – 6.0, 7.9, 6.0, 2.4, 22.3; III – 3.5, 3.9, 3.2, 1.4, 12.0; IV – 6.0, 6.4, 6.6, 2.2, 21.2; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 4.6; anterior margin notched; median dark band over cardiac area tapered posteriorly, surrounded laterally by lines of light spots joining posteriorly which, in turn, are bordered laterally with outer dark bands that join posteriorly and extend to anal tubercle; venter light and unmarked. Male palpus with dorsal division (DD) of median apophysis (MA) composed of conspicuous curved, sickle-shaped guide (G) and ventral division (VD) single, flattened, tapered distally, curved and rounded apically (Fig. 11). Retrolateral tibial apophysis (RTA) single, acute and curved ventrally (Fig. 12).

Table 1.—Eye measurements for species of *Paradossenus*. Measurements are dimensions with outer limits of entities included. AE row = width of anterior eye row, PE row = width of posterior eye row, OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye at posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye, ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE–PME = inter-distance between posterior lateral eye and posterior median eye, PME–PME = inter-distance between posterior median eyes, ALE–AME = inter-distance between anterior lateral eye and anterior median eye, AME–AME = inter-distance between anterior median eyes.

	P. longipes, ♂	*P. longipes*, ♀	*P. isthmus*, ♂	*P. isthmus*, ♀	*P. caricoi*, ♀	*P. pulcher*, ♀	*P. junin*, ♀	*P. benicito*, ♂	*P. benicito*, ♀	*P. tocantins*, ♂	*P. tocantins*, ♀	*P. corumba*, ♂	*P. corumba*, ♀	*P. amazonensis*, ♂	*P. amazonensis*, ♀	*P. acanthocymbium*, ♂	*P. acanthocymbium*, ♀	*P. sabana*, ♂	*P. minimus*, ♀	*P. pozo*, ♂	*P. pozo*, ♀
AE row	0.86	0.76	0.80	0.87	0.59	1.19	0.78	0.62	0.64	0.50	0.50	0.55	0.60	0.58	0.73	0.55	0.50	0.50	0.66	0.48	0.50
PE row	1.88	1.76	1.78	1.92	1.44	1.94	1.46	1.50	1.56	1.00	1.10	0.96	1.09	1.35	1.62	1.05	1.01	0.86	1.58	0.90	0.93
OQA	0.52	0.44	0.48	0.50	0.36	0.62	0.43	0.40	0.40	0.28	0.28	0.33	0.35	0.36	0.45	0.31	0.30	0.25	0.40	0.30	0.30
OQP	0.74	0.70	0.70	0.77	0.60	1.04	0.79	0.66	0.66	0.50	0.50	0.48	0.51	0.60	0.75	0.50	0.50	0.43	0.68	0.45	0.43
OQH	0.69	0.62	0.64	0.67	0.48	0.63	0.53	0.56	0.54	0.42	0.45	0.45	0.45	0.48	0.56	0.46	0.42	0.36	0.53	0.41	0.40
PLE	0.32	0.28	0.26	0.28	0.26	0.28	0.26	0.24	0.24	0.20	0.22	0.20	0.18	0.25	0.30	0.20	0.20	0.14	0.25	0.18	0.19
PME	0.32	0.24	0.26	0.25	0.23	0.27	0.25	0.24	0.24	0.19	0.20	0.18	0.18	0.24	0.28	0.20	0.18	0.14	0.25	0.17	0.19
ALE	0.16	0.12	0.13	0.15	0.10	0.18	0.13	0.10	0.12	0.10	0.08	0.11	0.10	0.10	0.11	0.10	0.10	0.07	0.12	0.08	0.09
AME	0.22	0.20	0.20	0.20	0.14	0.26	0.17	0.18	0.16	0.13	0.12	0.15	0.15	0.15	0.18	0.12	0.12	0.11	0.18	0.14	0.13
PLE–PME	0.40	0.41	0.41	0.48	0.35	0.39	0.27	0.32	0.38	0.20	0.22	0.20	0.27	0.32	0.40	0.19	0.20	0.23	0.35	0.17	0.20
PME–PME	0.22	0.18	0.23	0.25	0.19	0.59	0.38	0.25	0.26	0.15	0.16	0.15	0.17	0.15	0.28	0.14	0.16	0.14	0.23	0.16	0.14
ALE–AME	0.04	0.06	0.04	0.03	0.02	0.15	0.06	0.02	0.02	0.03	0.02	0.02	0.05	0.02	0.06	0.03	0.02	0.09	0.03	0.02	0.03
AME–AME	0.08	0.10	0.10	0.13	0.10	0.11	0.10	0.06	0.08	0.05	0.06	0.05	0.07	0.08	0.10	0.09	0.08	0.07	0.10	0.05	0.05

Female (*paratype*): Carapace length 4.1, width 3.6. Sternum length 2.00, width 1.88, light and unmarked; labium length 0.84, width 0.72, dark but lighter anteriorly. Clypeus height 0.65, width 1.80. Carapace with longitudinal wide median dark band divided medially with narrow light band; light setae in lateral light areas extending to lateral corners of clypeus. Anterior eye row recurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, proximal one shortest, remainder subequal; retromarginal 5, varying sizes, plus an additional one in the right fang groove. Color of legs light with small maculae around base of some setae. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 7.8, 10.3, 7.7, 3.4, 29.2; II – 5.8, 7.4, 5.3, 2.5, 21.0; III – 3.5, 3.9, 3.0, 1.4, 13.2; IV – 5.9, 6.3, 6.0, 2.8, 21.0; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 4.9; anterior margin notched, median dark band over cardiac area tapered posteriorly, surrounded laterally by lines of light spots joining posteriorly which, in turn, are bordered laterally with outer dark bands that join posteriorly and extend to anal tubercle; venter light and unmarked. Middle field (MF) of female epigynum broad at distal portion, with longitudinal grooves, no cavity at anterior margin; lateral lobes (LL) rounded at posterior margin (Fig. 13); spermathecae small, stalked, attached to a sclerotized arch with two conspicuous wings and accessory spermathecae (Fig. 14).

Variation.—The average carapace length of sixteen males is 4.07 (range 3.7–4.6) and the average carapace length of thirteen females is 3.97 (range 3.3–4.3). The average diameter of nine egg sacs is 6.91 (range 6.3–7.8).

Natural history.—In Barro Colorado Island, Canal Zone, Panama, this species is found on vegetation at the margins of streams.

Distribution.—Range of distribution extends from southeastern Nicaragua to the northern Pacific coast of Colombia (Fig. 4).

Paradossenus caricoi Sierwald
Figs. 4, 15, 16

Paradossenus caricoi, Sierwald 1993; Platnick 2009.

Type material.—Female holotype: GUYANA: *Demerara*: Tibicuri-CuyahB [Tibikuri?], 6°07′W, 58°21′N, October 1931, Beccari & Romiti, (MZUF #537), examined.

Other material examined:—COLOMBIA: *Meta*: Pto. Lleras, Lomalinda, 3°18′N, 73°22′W, 1 female, March 1988, B.T. Carroll, V.D. Roth (CAS). GUYANA: *Essequibo*: Kuyuwini River, from K. Landing to Essequibo River, 2°16′N, 58°16′W, 1 female, 1–8 December 1937, W.G. Hassler (AMNH). VENEZUELA: *Bolivar*: Cono Corozo, 7°19′N, 61°31′W, 1 female, 11 January 1956, Wurdack & Monachino (AMNH).

Diagnosis.—The females of *P. caricoi* are similar to those of *P. benicito* (Fig. 23) by the general shape of the middle field of the epigynum, but can be distinguished by being narrowed posteriorly and have the uniquely anterior end constricted and imbedded in a circular concavity, while the lateral elevations are large and prominent (Fig. 15).

Description.—*Female* (*holotype*): Carapace length 2.4, width 2.1. Sternum length 1.28, width 1.16, medium grey, lighter in anterior one-third, covered with fine, light, prostrate setae; labium length 0.48, width 0.48, medium brown, lighter distally. Clypeus height 0.14, width 1.12. Carapace medium height, medium brown, becoming darker laterally and in eye region; narrow median lighter band in posterior one-half. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, proximal one shortest, equidistant; retromarginal 4, second to proximal one largest, remaining three equal in size, all equidistant. Color of legs light, with scattered dark maculae above. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 3.9, 5.1, 3–7, 1.8, 14.5; II – 3.4, 4.2, 3.0, 1.5, 12.1; III – 2.0, 2.2, 1.6, 0.9, 6.7; IV – 3.2, 3.3, 3.1, 1.3, 10.9; total leg length sequence: I-II–IV-III; ventral macrosetae pairs on tibiae: I-5, II-5, III-3, IV-3. Abdomen length 2.9; anterior margin notched, medium band composed of several, narrow, transverse dark lines; pair of small light spots one-third from anterior margin; larger light spots laterally in posterior half; sides covered by alternating light and dark lines; venter light and unmarked. Middle field (MF) of female epigynum wider anteriorly and narrowing posteriorly; lateral lobes (LL) rounded in posterior margin (Fig. 15); spermethecae attached to a sclerotized arch, with a dorsally conspicuous spermathecae; wings located anteriorlly (Fig. 16).

Natural history.—The label in the collection from Colombia states: ''grasslands; patches of jungle, woods, marsh''.

Distribution.—Based on the three known collection localities, this species is distributed in northern South American from Colombia to Guyana (Fig. 4).

Paradossenus pulcher Sierwald 1993
Figs. 4, 17, 18

Paradossenus pulcher Sierwald 1993:58; Platnick 2009.

Type material.—Female holotype: VENEZUELA: *Amazonas*: Upper RPo BarPa, ca. 100 m elevation, 1°28′N, 66°31′W, 20 July 1984, Linda S. Ford & Charles W. Myers (AMNH), examined.

Other material examined:—ECUADOR: *Sucumbios*: 1 female, Cabanas Cuybeno, 0°16′S, 75°53′W, 24–29 September 1994, V. Roth (CAS). BRAZIL: *Mato Grosso*: Usina Hidrelétrica de Guaporé, 13°59′S, 60°33′W, 1 female, 4–14 October 2002, Operação Coatá (MCTP 13572).

Diagnosis.—The females of *P. pulcher* can be distinguished from other females of *Paradossenus* by the unique shape of the middle field, which is connected anteriorlly to the anterior field of the epigynum by a narrow bridge, and by a deep cleft posteriorly at the midline forming a pair of lobes (Fig. 17).

Description.—*Female* (*holotype*): Carapace length 4.4, width 3.6. Sternum length 2.05, width 1.95; labium length 0.90, width 0.80, light brown, lighter distally. Clypeus height 0.30, width 1.85. Carapace light brown without distinct pattern. Anterior eye row recurved, eye measurements in Table 1. Chelicerae medium brown becoming gradually darker distally; cheliceral teeth, promarginal 3, middle largest, remainder subequal; retromarginal 5, irregular sizes both left and right. Color of legs light, lacking distinct pattern. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 7.9, 10.4, 6.6, 2.9, 27.8; II – 5.7, 6.8, 4.5, 2.0, 19.0; III – 3.5, 4.5, 4.2, 1.3, 13.5; IV – 6.3, 7.4, 5.7, 1.9, 21.3; total leg length sequence: I-IV-II-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 5.2; anterior margin slightly notched; median dark band over cardiac area tapered posteriorly, surrounded

laterally by short, narrow, light bands anteriorlly; pair of undulating, narrow, light lines laterally on dorsum; sides light with indistinct, scattered darker spots, venter light and unmarked. Middle field of epigynum (MF) shaped as an inverted "V" with the apex anteriorlly attached to anterior field, thus without a cavity at anterior margin, separated from lateral lobes by deep grooves; lateral lobes (LL) rounded in posterior margin (Fig. 17); spermathecae heavily sclerotized, attached to a bulbous elevation, with a small conspicuous accessory spermathecae, unstalked, heavily sclerotized (Fig. 18).

Natural history.—A note with the type collection states: "fallen into dugout canoe from overhanging vegetation".

Distribution.—Ecuador, Venezuela and Brazil (Fig. 4).

Paradossenus junin new species
Figs. 4, 19, 20

Type material.—Female holotype: PERU: *Junin*: Huacapistana, 11°14′S, 75°29′W, 27–30 July 1965, P. & B. Wygodzinsky (AMNH).

Etymology.—The name is a noun in apposition suggested by the name of the province of the type locality.

Diagnosis.—The females of *P. junin* are similar to those of *P. amazonensis* (Fig. 36) by the general shape of the middle field of the epigynum, but can be distinguished by the anterior field that presents a wide bridge and bears a pair of longitudinal creases (Fig. 19).

Description.—*Female* (*holotype*): Carapace length 3.1, width 2.7. Sternum length 1.48, width 1.56, light with indistinct dark areas laterally; labium length 0.55, width 0.55, light brown, lighter distally. Clypeus height 0.27, width 1.43. Carapace light brown with irregular and interrupted lateral light bands. Anterior eye row recurved, eye measurements in Table 1. Chelicerae medium brown, becoming gradually lighter distally; cheliceral teeth, promarginal 3, middle largest, remainder subequal; retromarginal 3, subequal, equidistant. Color of legs light with indistinct, faint pattern on dorsal side of femora and tibiae. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 3.9, 4.6, 3.1, 1.4, 13.0; II – 3.5, 4.4, 3.0, 1.3, 12.2; III – 3.1, 3.4, 2.6, 1.1, 10.2; IV – 3.1, 3.6, 2.7, 1.2, 10.6; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 5.5; cuticle separated from body with possible distortion of shape and size, no apparent distinct pattern. Middle field (MF) of epigynum broad, covered antero-laterally by lateral lobes (Fig. 19); spermathecae large, stalked, dorsal, conspicuous, and obscuring the accessory spermathecae from dorsal view (Fig. 20).

Natural history.—Nothing is known.

Distribution.—Known only from the type locality (Fig. 4).

Paradossenus benicito new species
Figs. 4, 21–24

Type material.—Male holotype and female paratype: BOLIVIA: *Beni*: Rio Benicito, Chacobo Indian Village, open river, swept from river vegetation, 11°23′S, 65°47′W, 13–26 July 1960, B. Malkin (AMNH).

Other material examined.—BRAZIL: *Rondônia*: Porto Velho, 9°12′S, 64°18′ W, 1 male, 25–29 January 1922, J.H. Williamson (MCZ).

Etymology.—The name is a noun in apposition suggested by the name of the river of the type locality.

Diagnosis.—The male of *P. benicito* resembles those of *P. amazonensis* (Fig. 34) by the general shape of the medina apophysis, but can be distinguished by the narrowed and curved tip of the ectal division of RTA and the absence of a lateral projection (Figs. 21, 22). The middle field of the female epigynum is wider anteriorly and concave in outline; the spermathecae are not stalked, but parallel in their orientation to each other (Figs. 23, 24).

Description.—*Male* (*holotype*): Carapace length 2.9, width 2.3. Sternum length 1.10, width 1.12; labium length 0.58, width 0.48, darker posteriorly. Clypeus height 0.14, width 1.06. Carapace low, rubbed, dark brown, graduating to lighter medially and with triangular light area posteriorly; scattered light setae in eye region. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae dark reddish brown with diagonal depression distally and lateral carinae; 4–5 curved macrosetae emerging from the medial and distal margin of paturon near fang; cheliceral teeth, promarginal 2, subequal; retromarginal 4, second from proximal shortest, remainder subequal. Color of legs light, lacking distinct pattern. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I & II missing; III – 2.4, 2.6, 2.2, 0.9, 8.1; IV – 4.5, 4.7, 4.2, 1.4, 14.8; ventral macrosetae pairs on tibiae: III-3, IV-3. Abdomen length 3.1; anterior margin damaged; narrow median dark band over cardiac area tapered posteriorly, laterally with reticulating dark color; venter light and unmarked. Dorsal division (DD) of median apophysis (MA) composed of inconspicuous triangular-shaped guide (G) and ventral division (VD) single, flattened, narrowed distally, directed medially and rounded apically (Fig. 21). Retrolateral tibial apophysis (RTA) single, tapered, hooked ventrally (Fig. 22).

Female (*paratype*): Carapace length 2.6, width 2.3. Sternum length 2.80, width 2.40, light and unmarked, dense hair at outer edge; labium length 0.54, width 0.46, medium brown but lighter anteriorly. Clypeus height 0.16, width 1.10. Carapace low, medium brown; scattered light setae in eye region. Anterior eye row slightly recurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, middle one shortest, remainder subequal; retromarginal 4, second from proximal smallest, remainder subequal. Color of legs light, unmarked. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 4.5, 5.3, 3.8, 1.7, 15.3; II – 3.7, 3.5, 3.0, 1.4, 11.6; III – 2.0, 2.3, 1.6, 0.8, 6.7; IV – 3.7, 3.7, 3.5, 1.3, 12.2; total leg length sequence: I-IV-II-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 4.0; anterior margin notched, narrow median dark band over cardiac area tapered posteriorly, surrounded laterally by series of indistinct light spots; venter light and unmarked. Middle field (MF) of epigynum without longitudinal grooves, no cavity at anterior margin; lateral lobes (LL) rounded in posterior margin (Fig. 23); spermathecae attached to a sclerotized arch, with small, un-stalked, accessory spermathecae conspicuous dorsally (Fig. 24).

Natural history.—Nothing is known.

Distribution.—Northern Bolivia and Brazil (state of Rondônia) (Fig. 4).

Paradossenus tocantins new species
Figs. 4, 25–28

Type material.—Male holotype: BRAZIL: *Tocantins*: Miracema, Usina Hidrelátrica Luís Eduardo Magalhães, 9°34′S,

48°23′W, 11–21 October 2001, R. Bertani & I. Toledo (IBSP 31553). Male and female paratypes, same location, date and collectors as in holotype (MCTP 22512).

Other material examined:—BRAZIL: *Tocantins*: Miracema, Usina Hidrelátrica Eduardo Magalhães, 9°34′S, 48°23′W, 1 male, 11–21 October 2001, R. Bertani & I. Toledo (IBSP 31542); 1 male, 3 females (IBSP 126736); 1 female, 1–11 October 2001, E.K. Kashimata & C.K. Fukami (IBSP 31591); 3 males, 4 females (IBSP 31523); 2 males, 6 females (IBSP 31554); *Mato Grosso do Sul*: Corumb, Passo do Lontra, Miranda e Abobral, 19°00′S, 57°39′W, 1 female, July 1998–November 1999, J. Raizer (MCTP).

Etymology.—The specific name is a noun in apposition taken from the name of the province of the type locality.

Diagnosis.—The males of *P. tocantins* are similar to those of *P. pozo* (Fig. 47) by the general shape of the median apophysis, but can be distinguished by the thickened and slightly curved dorsal division of the median apophysis, and the ventral division is small and straight on the retrolateral margin (Fig. 25). The middle field of the female epigynum, as in *P. corumba* (Fig. 32), is divided into an anterior heavily sclerotized part and a white, membranous posterior part, but differs from the latter by having the whole middle field distinctly wider than long (Fig. 27).

Description.—*Male* (*holotype*): Carapace length 2.1, width 1.7. Sternum length 1.10, width 0.95, unmarked; labium length 0.33, width 0.36, darker posteriorly. Clypeus height 0.12, width 0.92. Carapace low, medium brown reticulations except with light submarginal and median bands. Anterior eye row straight, eye measurements in Table 1. Chelicerae light brown, with diagonal depression distally, no lateral carinae; 4–5 curved macrosetae emerging from the medial and distal protuberance of paturon near fang; cheliceral teeth, promarginal 4, equidistant, second to proximal largest; retromarginal 4, equidistant, subequal. Color of leg IV light, bearing scattered small maculae except black on retrolateral sides of femur, patella-tibia. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I, II, III missing; IV – 2.8, 2.9, 2.9, 1.0, 9.6; ventral macrosetae pairs on tibiae: IV-3. Abdomen length 2.5; anterior margin indented; dorsally light brown with lighter chevrons in posterior half, laterally with dark lines, venter light and unmarked.

Palpus with dorsal division (DD) of median apophysis is composed of curved, triangular guide (G) and ventral division (VD) flattened, rounded (Fig. 25). Retrolateral tibial apophysis (RTA) single, triangular (Fig. 26).

Female (*paratype*): Carapace length 2.0, width 1.8. Sternum length 1.12, width 1.00, light and unmarked; labium length 0.30, width 0.34, light. Clypeus height 0.12, width 0.81. Carapace medium height, color light marked by light brown medially lighter submarginal bands, black marginal bands posteriorly. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, equal distance, middle largest; retromarginal 3, tending larger distally, equidistant. Color of legs light, marked by scattered dark spots concentrating in a narrow band on retrolateral surfaces. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I & II missing; III – 1.8, 1.9, 1.6, 0.7, 6.0; IV – 2.5, 2.5, 2.7, 1.0, 8.7; ventral macrosetae pairs on tibiae: I & II missing, III-3, IV- 3. Abdomen rounded and widest posteriorly, color light and darker posteriorly, light gray area over cardiac area, dark band laterally; light and unmarked ventrally. Epigynum wider than long, middle field (MF) twice as wide as long (Fig. 27); lateral lobes (LL) rounded, very widely separated in posterior margin; spermathecae and accessory spermathecae small; wings pointed anteriorlly (Fig. 28).

Natural history.—Nothing is known.

Distribution.—Brazil (states of Tocantins and Mato Grosso do Sul) (Fig. 4).

Paradossenus corumba Brescovit & Raizer 2000
Figs. 4, 29–33

Paradossenus corumba Brescovit et al. 2000:8–12, figs. 1–5, 11–17, 23; Platnick 2009.

Type material.—Male holotype (IBSP #6901) and paratype female (IBSP #6903), BRAZIL: *Mato Grosso do Sul*: Corumbà, 19°00′S, 57°39′W, 1994, R. Raizer, examined.

Other material examined:—PARAGUAY: *Concepcion*: Puerto Vallemi, confluence of R. Apa & R. Paraguay, 22°08′S, 57°58′W, 1 male, 8–21 May 1952, A. Bachman. See Brescovit et al. (2000) for additional distributional notes.

Diagnosis.—The male cymbium bears a unique apophysis retrolaterally at the base; the median apophysis differs from all other species by the angular outline of the ventral division and the additional projections from the dorsal division (Figs. 30, 31). The epigynum is similar to *P. tocantins* (Fig. 27) in having the middle field continuous with the anterior field, and being composed of a dark, heavily sclerotized anterior portion and a posterior clear, membranous portion but differs from the latter by the middle field being longer than wide (Fig. 32).

Description.—*Male* (*holotype*): Carapace length 2.2, width 1.8. Sternum length 0.60, width 0.55, light and unmarked; labium length 0.37, width 0.45, light. Clypeus height 0.15, width 0.98. Carapace medium height, highest posteriorly, color medium brown marked by distinct light submarginal bands and narrow dark marginal bands; medial, narrow light line extending from fovea to edge of clypeus. Anterior eye row slightly procurved, eye measurements in Table 1. Paturon with antero-proximal knobs bearing series of strong setae clusters of sinuous bristles covering each fang (Fig. 29). Cheliceral teeth, promarginal 3, equal distance, middle largest (all smaller than typical); retromarginal 3, equal size, equidistant. Color of legs light, marked by indistinct light maculae and longitudinal lines on lateral margins of femora and tibiae. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 3.9, 4.9, 3.8, 1.8, 14.4; II – 3.3, 3.9, 3.0, 1.0, 11.6; III – 2.0, 2.2, 1.6, 0.7, 6.5; IV – 3.3, 3.5, 3.3, 1.2, 11.3; ventral macrosetae pairs on tibiae: I-3, II-3, III-3, IV-3 (terminal pair present only on III & IV). Abdomen dorsal color pattern on anterior two-thirds with dark grey folium flanked by 2 pairs of white spots; posterior third with 4 transverse medium grey bands; sides with reticulated dark lines; venter with semi-circular white area anteriorly. Cymbium of male palpus with a flattened projection located proximally and retrolaterally(Figs. 30, 31); dorsal division (DD) of median apophysis (MA) composed by a small spatulate projection and a distal, straight guide (G) (Fig. 30); ventral division (VD) with 2 retrolateral acute projections (Fig. 30). Retrolateral tibial apophysis (RTA) single, tapered, pointed distally (Fig. 31).

Female (*paratype*): Carapace length 2.3, width 2.1. Sternum length 1.10, width 1.1, light and unmarked; labium length 0.30, width 0.34, light. Clypeus height 0.17, width 0.90. Carapace medium height, highest posteriorly, color medium brown marked by distinct light submarginal bands and narrow dark marginal bands; medial, narrow light line extending from fovea to edge of clypeus. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, equal distance, middle largest; retromarginal 3, size increases distally, equidistant. Color of legs light, marked by scattered light grey, incomplete bands on femora and tibiae. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 3.1, 3.8, 2.6, 1.2, 10.7; II – 2.8, 3.2, 2.4, 1.1, 9.5; III – 1.8, 2.0, 1.5, 0.8, 6.1; IV – 3.1, 2.9, 2.9, 1.1, 10.0; ventral macrosetae pairs on tibiae: I–3, II-3, III-2, IV-3 (terminal pair present only on IV). Abdomen color pattern obscured because of poor condition. Middle field of female epigynum subdivided with posterior half with irregular grooves (Fig. 32); lateral lobes (LL) rounded, widely separated in posterior margin (Fig. 32); spermathecae dark and heavily sclerotized (Fig. 33).

Natural history.—Brescovit et al. (2000) have described the web-building and prey capture behavior of this species. See this reference also for details of the anatomy.

Distribution.—Found in the Pantanal, states of Mato Grosso do Sul, Brazil and Concepcion, Paraguay (Fig. 4).

Paradossenus amazonensis new species
Figs. 4, 34–37

Type material.—Holotype male, paratype female, juvenile male; BRAZIL: *Amazonas*: Novo Airão, Arquipálago de Anavilhanas, 2°37′S, 60°56′W, July 2004, S.C. Dias (MCTP #22514).

Other material examined:—BRAZIL: *Pará*: Oriximiná, Lago Iripixi, 1°46′S, 55°50′W, 17 January 2009, 1 male, 1 female, E.L.C. Silva (MCTP # 8834); Prainha, Curuana, Restinga do Moreru, 2°38′S, 50°32′W, 1 female, 24 Oct. 2003, F. Rego (IBSP 91605). *Mato Grosso*: Nossa Senhora do Livramento, Pantanal de Poconé, Pirizal, Fazenda Retiro Novo, 16°15′S, 57°56′W, 23 March 2005, L. P. Battirola (IBSP 91481).

Etymology.—The name means "from Amazon" taken from the name of the province of the type locality.

Diagnosis.—The male of *P. amazonensis* is similar to those of *P. corumba* Brescovit & Raizer, 2000 (Figs. 30, 31) by the general shape of the RTA, but can be distinguished by the divided ectal division (ECD) of RTA and the lack of the projection, present only in *P. corumba* and *P. acanthocymbium* (Figs. 31, 39, 40). The middle field of the female epigynum presents some unique characters: it is joined by a narrow bridge to the anterior field and is overlapped significantly by the lateral elevations (Fig. 36).

Description.—*Male* (*holotype*): Carapace length 2.5, width 2.5. Sternum length 1.20, width 1.08, medium brown, lighter in the center; labium length 0.32, width 0.40, lighter distally. Clypeus height 0.10, width 0.95. Carapace low, medium brown with darker reticulations. Anterior eye row slightly recurved, eye measurements in Table 1. Chelicerae medium brown with small maculae in proximal half, with diagonal depressions distally, lateral carinae on distal third; slight distal protuberance of paturon near fang; cheliceral teeth, promarginal 3, middle one largest; retromarginal 4, proximal 2 much smaller than other two. Color of legs light, scattered indistinct maculae except darker ones on leg III. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I missing; II – 3.5, 4.4, 3.2, 1.4, 12.5; III – 1.9, 2.1, 1.7, 0.8, 6.5; IV – 3.5, 3.6, 3.4, 1.3, 11.8; ventral macrosetae pairs on tibiae: II–4, III–3, IV-3. Abdomen length 2.6; anterior margin indented; dorsally medium brown with pair of light spots in posterior half, laterally medium brown, venter light and unmarked. Cymbium of male palpus longer than tibia, dorsal division (DD) of median apophysis (ma) composed of curved, subtriangular guide (G) and ventral division (VD) triangular with distal portion light and covering guide (Fig. 34). Retrolateral tibial apophysis composed of two parts, distal division one longer, directed ventrally, narrow and rounded distally, proximal division shorter, triangular and acute (Fig. 34).

Female (*paratype*): Carapace length 3.0, width 2.8. Sternum length 1.60, width 1.32, light and unmarked; labium length 0.52, width 0.48, light grey. Clypeus height 0.19, width 1.31. Carapace low, medium brown; darker in eye region. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, proximal one shortest, proximal two closest; retromarginal 4, variable but proximal two largest, equidistant. Color of legs light, with scattered faint markings above, more distinct on leg III. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 4.9, 6.4, 4.4, 2.1, 17.8; II – 4.1, 5.0, 3.5, 2.0, 14.6; III – 2.1, 2.4, 2.0, 1.0, 7.5; IV – 4.0, 4.0, 3.9, 1.6, 13.5; total leg length sequence: I-II-IV-III; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 3.8; anterior margin notched, narrow median dark band over cardiac area tapered posteriorly, surrounded laterally by indistinct, alternating light and dark bands; venter light and unmarked. Middle field of epigynum wider anteriorly and partially overlapped posteriorly by lateral lobes (LL) (Fig. 36); lateral lobes rounded in posterior margin (Fig. 36); spermathecae attached to a sclerotized arch, with accessory spermathecae conspicuous dorsally; wings located anteriorly (Fig. 37).

Natural history.—One female were observed in Pará (northern Brazil) foraging in the lower vegetation on inundated areas near the large rivers (field observation made by ELCS).

Distribution.—Brazil (Amazonas, Pará and Mato Grosso) (Fig. 4).

Paradossenus acanthocymbium new species
Figs. 4, 38–42

Type material.—Male holotype: BRAZIL: *Mato Grosso do Sul*: Corumb, Passo do Lontra, Miranda e Abobral, 19°00′S, 57°39′W, July 1998–November 1999, J. Raizer (IBSP 91560). Paratypes: six males and four females, same data as holotype (IBSP 126737; MCTP 22513).

Other material examined:—BRAZIL: *Rio Grande do Sul*: Uruguaiana, 29°42′S, 57°07′W, 2 males, 2 females, 22 January 2009, R. Alves (MCTP).

Etymology.—The specific name refers to the prominent acute projection (*acantho* = spine) on the dorsal surface of the male cymbium.

Diagnosis.—The male of *P. acanthocymbium* resembles those of *P. corumba* (Fig. 30) by the general shape of the median apophysis of the male palpus (Fig. 38), but can be

distinguished by the curved acute projection on the dorsal side at the base of the cymbium (Figs. 39, 40). The retrolateral side of the palpal tibia has an additional apophysis to the usual RTA (Fig. 39), a character shared only with *P. amazonensis* (Fig. 35), but differs from the latter in shape and position (Fig. 39). Middle field of female epigynum broad, extending three-fourths length of epigynal field; lateral lobes (LL) rounded, widely separated in posterior margin (Fig. 41).

Description.—*Male* (*holotype*): Carapace length 2.3, width 2.1. Sternum length 1.20, width 1.10, light, unmarked; labium length 0.30, width 0.34, light, lighter distally. Clypeus height 0.16, width 0.92. Carapace medium height, higher in cephalic region, color marked by reddish-brown reticulations darkening laterally to black marginal bands, with lighter areas medially, posteriorly and with isolated light areas submarginally. Anterior eye row slightly procurved, eye measurements in Table 1. Chelicerae brownish laterally, gradually becoming darker medially and with narrow light bands medially, with shallow diagonal depressions distally, lateral carinae absent; cheliceral teeth, promarginal 0; retromarginal 3, equidistant, equal size. Color of legs light, marked by dark maculae concentrating in pro- and retrolateral surfaces. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I missing; II – 2.7, 3.5, 2.7, 1.1, 10.0; III – 2.1, 2.3, 2.0, 0.8, 7.2; IV – 2.6, 2.9, 2.8, 1.1, 9.4; ventral macrosetae pairs on tibiae: I – missing, II–4, III–3, IV-3. Abdomen widest posteriorly, color pattern with indistinct pattern, lighter medially, becoming darker laterally; medium gray in cardiac area. Male palpus with a distinct, proximal, dorsal curved, projection on the cymbium longer than tibia (Figs. 39, 40); dorsal division (DD) of median apophysis composed of curved, flattened guide (G) and ventral division (VD) rounded in outline and not greatly distinct from dorsal division (Fig. 38). Retrolateral tibial apophysis composed of a short, apically flattened distal division and a widely separated small, pointed, medial division (Fig. 39).

Female (*paratype*): Carapace length 2.1, width 1.9. Sternum length 1.10, width 1.05, light and unmarked; labium length 0.28, width 0.38, light. Clypeus height 0.16, width 0.88. Carapace medium height, higher in cephalic region, color marked by reddish-brown reticulations darkening laterally to black marginal bands, with lighter areas medially, posteriorly and with irregular light submarginal bands. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, equal distance, middle largest; retromarginal 3, tending larger distally, equidistant. Color of legs light, marked by dark maculae concentrating in pro- and retrolateral surfaces. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 2.7, 3.4, 2.5, 1.0, 9.6; II – 2.6, 3.1, 2.1, 0.9, 8.7; III – 2.0, 2.2, 1.9, 0.8, 6.9; IV – 2.6, remainder of segments missing; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV- missing. Abdomen widest posteriorly, color dark grey with pair of large white spots anteriorly; three medial, transverse, bands posteriorly. Middle field of female epigynum broad, extending three-fourths length of epigynal field; lateral lobes (LL) rounded, widely separated in posterior margin (Fig. 41); spermathecae broadly looped, with head of spermathecae located transversely in dorsal half (Fig. 42).

Natural history.—Nothing is known.

Distribution.—Only known from the type locality (Fig. 4).

Paradossenus sabana new species
Figs. 4, 43, 44

Type material.—Male holotype: VENEZUELA: *Bolivar*: Parupa, Gran Sabana, 1500 m, 5°30′N, 61°30′W, 27 June–10 July 1987, S. & J. Peck (AMNH).

Etymology.—The name is a noun in apposition suggested by the name of the type locality.

Diagnosis.—The male of *P. sabana* can be distinguished by all the other known males of *Paradossenus* by the median apophysis that is uniquely longer than the palpal tibia, the embolus is conspicuous and the ventral division broadly rounded (Fig. 43).

Description.—*Male* (*holotype*): Carapace length 2.3, width 1.8. Sternum length 1.04, width 0.96, light, unmarked; labium length 0.33, width 0.36, light. Clypeus height 0.13, width 0.88. Carapace medium height, distinct, wide, medium brown, median band, light submarginal bands with dark narrow margins. Anterior eye row slightly procurved, eye measurements in Table 1. Chelicerae light brown, with diagonal depressions distally, lateral carinae absent; cheliceral teeth, promarginal 3, middle one largest; retromarginal 3 equal size. Color of legs light, dark lines on prolateral and retrolateral sides of femora of legs I, II, IV; scattered small maculae on dorsal surface of femora, tibia and all of leg IV. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 3.5, 4.9, 3.4, 1.3, 13.7; II – 3.1, 4.0, 2.9, 1.2, 11.2; III – 1.7, 2.0, 1.6, 0.7, 6.0; IV – 3.5, 3.6, 3.4, 1.2, 11.6; ventral macrosetae pairs on tibiae (terminal pair missing on all tibiae): I–5, II–5, III–2, IV-2. Abdomen damaged. Palpus with median apophysis longer than tibia, dorsal division (DD) composed of curved, triangular guide (G) and ventral division (VD) rounded in outline (Fig. 43). Retrolateral tibial apophysis composed of single, tapered, acute and directed ventrally (Fig. 44).

Distribution.—Known only from the type locality (Fig. 4).

Paradossenus minimus (Mello-Leitão 1940)
Figs. 4, 45, 46

Xingusiella minima Mello- Leitão 1940:23; Roewer 1954:144.
Paradossenus minimus, Sierwald 1993:57; Brescovit et al. 2000:13,14; Platnick 2009.

Type material.—Female holotype of *Xingusiella minima*: BRAZIL: *Pará*: Rio Xingu, 3°24′S, 51°50′W, H. Leonardos (MNRJ 585), examined.

Other material examined:—BRAZIL: *Mato Grosso*: 2 female, Posto Indígena Capitão Vasconcelos, Parque Indígena do Xingu, Rio Tuatuari, 11°59′S, 54°00′W, 1 female, 29 July–4 August 1957, B. Malkin & S. Bunell, Jr. (AMNH).

Diagnosis.—The female epigynum middle field resembles those of *P. longipes* (Figs. 2, 7) by its transparent, grooved surface, but differs from the latter by the comparatively very small internal structures (Fig. 46).

Description.—*Female* (*holotype*): Carapace length 2.6, width 2.4. Sternum length 1.48, width 1.12, light anteriorly becoming darker laterally and posteriorly; labium length 0.50, width 0.45, medium brown, lighter distally. Clypeus height 0.16, width 1.10. Carapace medium brown becoming darker laterally and anteriorly, light area from cephalic groove to posterior edge. Anterior eye row straight, eye measurements in Table 1. Chelicerae medium brown becoming gradually lighter distally; cheliceral teeth, promarginal 3, subequal; retro-

marginal 4, distal two equal size and largest, proximal next largest, remaining one very small. Color of legs light with gray annuli. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – missing; II – 3.6, 4.4, 3.0, 1.3, 12.3; III – 2.0, 2.1, 1.7, 0.9, 6.7; IV – 3.7, 3.7, 3.2, 1.3, 11.9; ventral macrosetae pairs on tibiae: II-4, III-2 (apical pair missing), IV-3. Abdomen length 3.6; dorsum with light gray over cardiac area and a pair of parallel, irregular, wavy bands posteriorly; sides with irregular parallel, narrow lines; venter light, unmarked.

Middle field of epigynum light colored, widened anteriorly, covered posteriorly by darker lateral lobes (Fig. 45); spermathecae small, narrow, stalked, dorsal; accessory spermathecae spherical, heavily sclerotized (Fig. 46).

Distribution.—Along tributaries of Rio Xingu in the states of Para and Mato Grosso, Brazil (Fig. 4).

Paradossenus pozo new species
Figs. 4, 47–50

Type material.—Male holotype: COLOMBIA: *Magdalena*: Pozo Colorado, 11 km W Santa Maria, 11°10′N, 74°14′W, 25–30 April 1986, B. Malkin (AMNH). Paratypes: 9 males and 5 females, same location, date and collector as holotype (AMNH).

Other material examined:—COLOMBIA: *Magdalena*: 82 km W of Santa Marta, Island Salamanca Parque National, 11°03′N, 74°48′W, 1 female, 22 February 1968, B. Malkin (AMNH). VENEZUELA: *Guarico*: Hato Masaquari, 60 m, 8°34′N, 67°35′W, 3 males, 3–29 May 1985, J. Carpenter & A. Menke (MCZ).

Etymology.—The name is a noun in apposition suggested by the name of the type locality.

Diagnosis.—The males of *P. pozo* resemble those of *P. tocantins* (Fig. 25) by the swollen shape of the ventral division of the median apophysis, but can be distinguished by the presence of a unique spur at the base of the dorsal division and guide (Fig. 47). The female epigynum also has a unique middle field, which is recessed within an archway and has a small, prominent elevation; internally, the spermathecae and small wings are mounted on a thick and very prominent sclerotized arch (Figs. 49, 50).

Description.—*Male* (*holotype*): Carapace length 1.7, width 1.9. Sternum length 1.00, width 1.15, light, unmarked; labium length 0.26, width 0.33, medium brown, lighter distally. Clypeus height 0.14, width 0.92. Carapace medium height but higher posteriorly, indistinct, wide, light brown, median band with lighter median triangle posterior to eyes; indistinct light submarginal bands with dark narrow margins. Anterior eye row slightly procurved, eye measurements in Table 1. Chelicerae medium brown, with diagonal depressions distally, lateral carinae absent; cheliceral teeth, promarginal 3, equal size, equidistant; retromarginal 3, equidistant, middle largest. Color of legs light, unmarked. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I missing; I – 2.8, 3.7, 2.8, 1.3, 10.6; II – 2.5, 3.1, 2.3, 1.0, 8.9; III – 1.6, 1.8, 1.4, 0.7, 5.5; IV – 2.5, 2.6, 2.6, 1.0, 8.7; ventral macrosetae pairs on tibiae: I–3, II–3, III–2, IV-3. Abdomen damaged.

Dorsal division (DD) of median apophysis composed of curved, triangular guide (G), and ventral division (VD) rounded in outline (Fig. 47). Retrolateral tibial apophysis composed of single, tapered, pointed part (Fig. 48).

Female (*paratype*): Carapace length 1.9, width 1.6. Sternum length 0.90, width 1.00, light and unmarked; labium length 0.28, width 0.34, light grey. Clypeus height 0.15, width 0.85. Carapace medium height but higher posteriorly, indistinct, wide, light brown, median band with lighter median triangle posterior to eyes; indistinct light submarginal bands with dark narrow margins. Anterior eye row slightly procurved, eye measurements in Table 1. Cheliceral teeth, promarginal 3, equal distance, middle largest; retromarginal 3, equal size, equidistant. Color of legs light, unmarked. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 2.2, 2.8, 2.1, 1.1, 8.2; II – 2.1, 2.6, 2.1, 1.0, 7.8; III – 1.5, 1.7, 1.3, 0.7, 5.2; IV – missing; ventral macrosetae pairs on tibiae: I-3, II-3, III-2, IV- missing. Abdomen damaged. Middle field (MF) of female epigynum, wider anteriorly and partially overlapped posteriorly by lateral lobes (LL) (Fig. 49); lateral lobes rounded in posterior margin (Fig. 49); spermathecae attached to a sclerotized arch; wings located anteriorly (Fig. 50).

Variation.—Average carapace length for ten males = 2.0 (range 1.7–2.5); average carapace length for five females = 1.8 (range 1.7–1.9.

Natural history.—The female from Island Salamanca was taken from vegetation at the shore of a strongly brackish pond.

Distribution.—Known only from the northern coast of Colombia and central Venezuela (Fig. 4).

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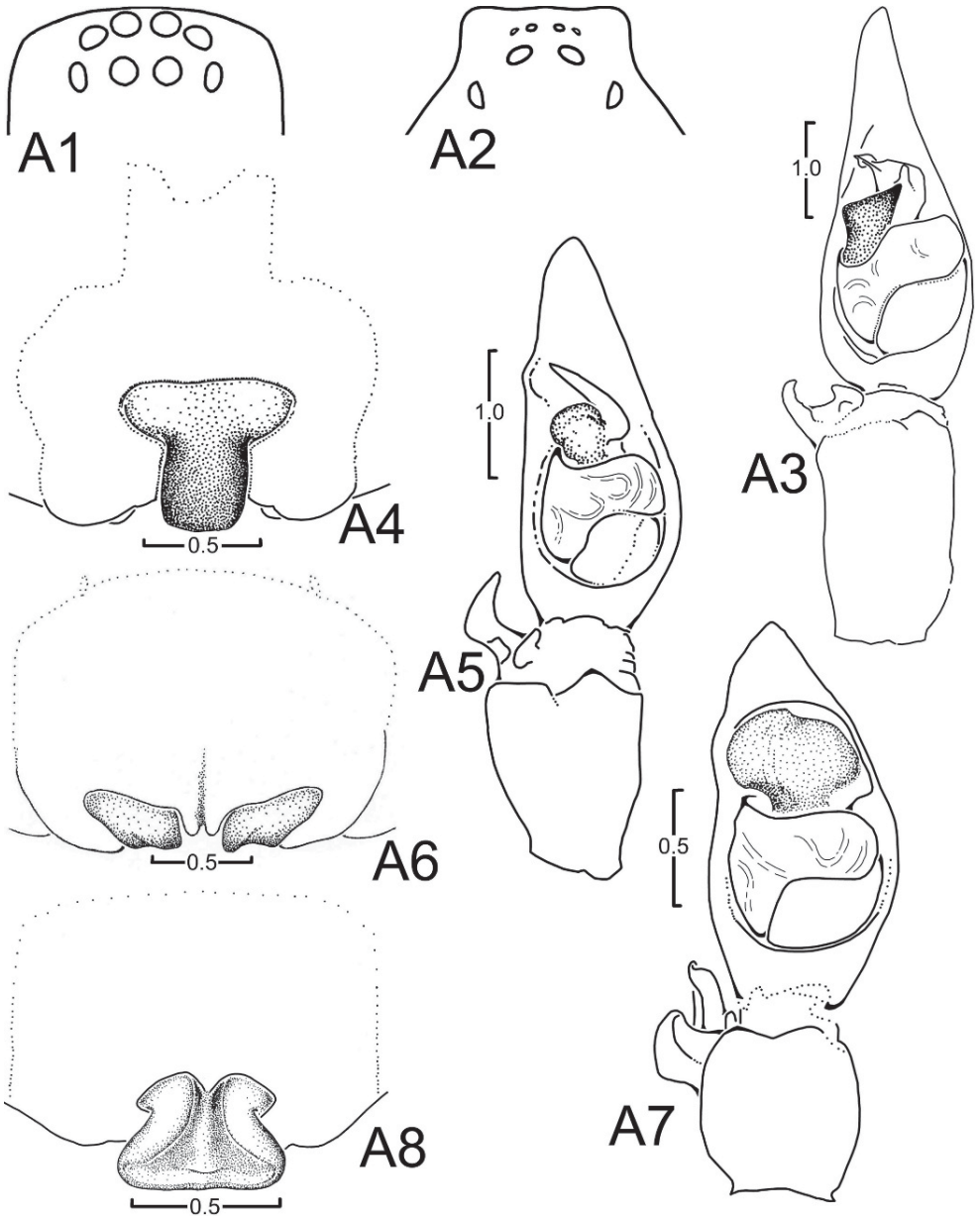
APPENDIX I

Note on the key to the Trechaleinae.—This review of the taxonomy of *Paradossenus* represents the final one in a series of generic revisions in the subfamily; therefore we can now offer this key to the Trechaleinae as an aid for those engaged in work in the taxonomy and biology of the family Trechaleidae. Because of the lack of females for three trechaleine genera, it must be assumed that the key will be substantially improved in the future following the discovery of these females. We recommend that the key be used in conjunction with the published resources upon which it is based.

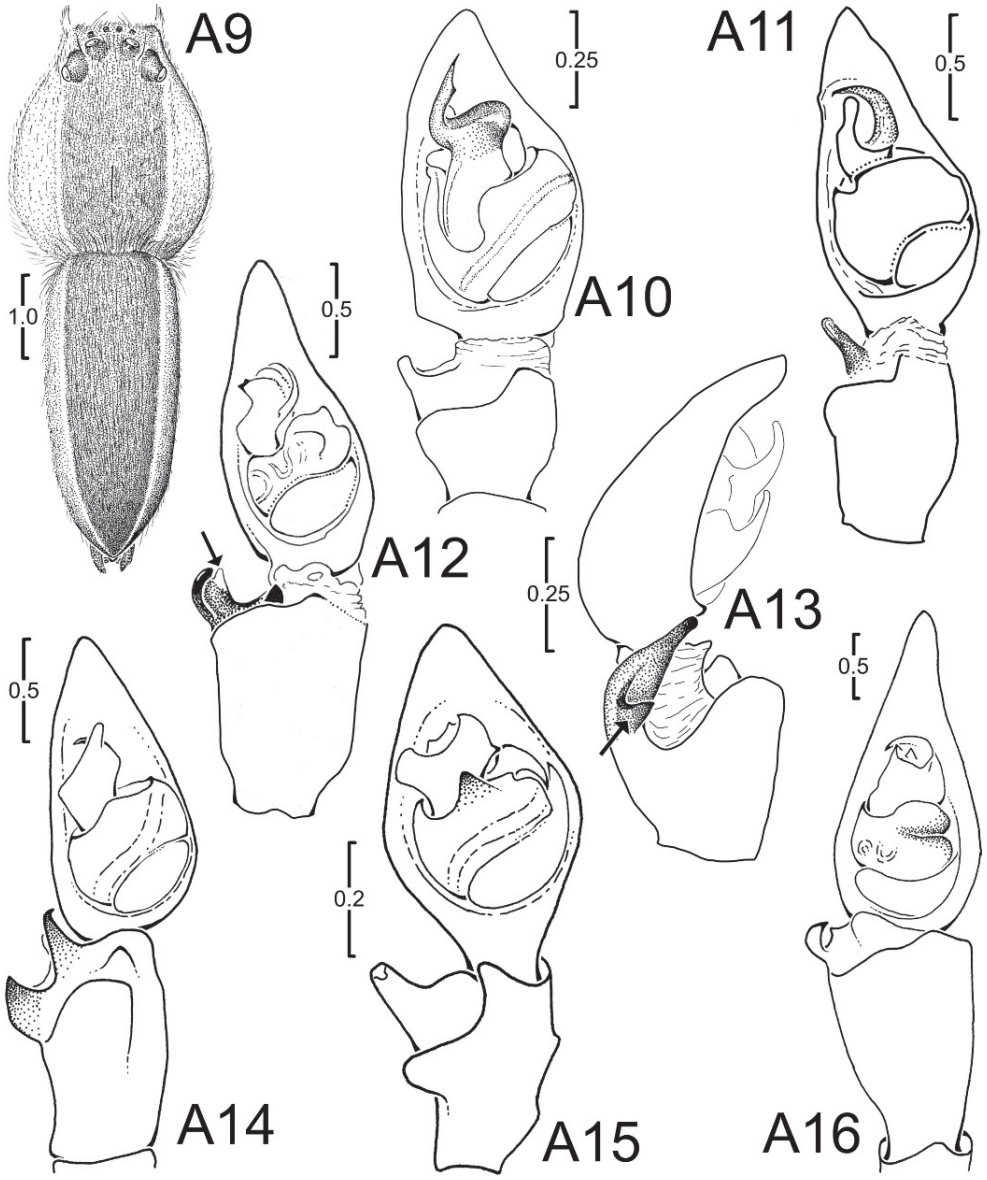
PROVISIONAL DIAGNOSTIC KEY TO GENERA OF THE SUBFAMILY TRECHALEINAE

1a Width of anterior eye row distinctly larger than length of AME of posterior ocular quadrangle, anterior lateral eyes often placed under posterior lateral eyes (Fig. A1) . . . . . Subfamily Rhoicininae
1b Width of anterior eye row equal to or only slightly greater than length of AME of posterior ocular quadrangle (Fig. A2) . . . . . Subfamily Trechaleinae 2
2a Tarsi flexible and usually bent 3
2b Tarsi not flexible and straight 7
3a Metatarsi flexible and usually bent 4
3b Metatarsi not flexible and always straight 5
4a 6 or more ventral macrosetae pairs on tibia I . . . . . *Syntrechalea*
4b 4 or less ventral macrosetae pairs on tibia I . . . . . *Hesydrus*
5a Ventral division of median apophysis angular in outline (Fig. A3), middle field of epigynum not divided posteriorly and usually wider anteriorly (Fig. A4) . . . . . *Trechalea*
5b Ventral division of median apophysis rounded in outline (Fig. A5), middle field divided into two lateral parts (Fig. A6), or wider posteriorly if not divided 6
6a Ventral division of median apophysis small (Fig. A5), middle field of epigynum divided into two lateral parts (Fig. A6) . . . . . *Trechaleoides*
6b Ventral division of median apophysis large (Fig. A7), middle field of epigynum not divided into two lateral parts, wider at posterior margin (Fig. A8) . . . . . *Paratrechalea*
7a Both sexes with a broad, bold, dark band extending length of body and limited laterally by narrow white lines (Fig. A9) *Dossenus*
7b Median band absent, or, if present, with uneven edge and not bold 8
8a Legs with several distinct, parallel, longitudinal dark lines; guide tip of male palpus directed distally (Fig. A10) . . . . . *Dyrines*
8b Leg pattern not as above, guide tip of male palpus directed retrolaterally (Fig. A11) 9

9a RTA composed of two divisions located at or near the distal rim of tibia (Fig. A12) 10
9b RTA composed of one division (Fig. A11), or if two, the ectal division located proximally along rim distant from ental division (Fig. A13) 11
10a RTA with ental division distinctly smaller than ectal division, ental division with small, translucent protuberance along distal edge (Fig. A12); epigynum middle field hood-like and concave beneath . . . . . *Enna*
10b RTA with ental division as large as or larger than ectal division, ectal division without translucent protuberance (Fig. A14); female unknown . . . . . *Magnichela*
11a Tegulum with projection directed distally (Fig. A15); female unknown . . . . . *Amapalea*
11b Tegulum without projection (Fig. A11) 12
12a Tegulum with transverse groove; female unknown (Fig. A16) . . . . . *Caricelea*
12b Tegulum without transverse groove (Fig. A11) . . . . . *Paradossenus*



Figures A1–A8.—Key characters of Trechaleinae and Rhoicininae. A1. Eye pattern of *Rhoicinus*; A2. Eye pattern of *Trechalea*, dorsal view; A3. *Trechalea longipes*, right palpus, ventral view; A4. *Trechalea longipes*, epigynum, ventral view; A5. *Trechaleoides keyserlingi*, right palpus, ventral view; A6. *Trechaleoides keyserlingi*, epigynum, ventral view; A7. *Paratrechalea ornata*, right palpus, ventral view; A8. *Paratrechalea ornata*, epigynum, ventral view.



Figures A9–A16.—Key characters of the subfamily Trechaleinae. A9. *Dossenus marginatus*, habitus, dorsal view; A10. *Dyrines striatipes*, right palpus, ventral view; A11. *Paradossenus longipes*, right palpus, ventral view; A12. *Enna velox*, right palpus, ventral view; A13. *Paradossenus amazonensis*, right palpus, retrolateral view; A14. *Magnichela santaremensis*, left palpus (reversed), ventral view; A15. *Amapalea brasiliana*, left palpus (reversed), ventral view; A16. *Caricelea wayrapata*, left palpus (reversed), ventral view.

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SHORT COMMUNICATION

On the taxonomy of Trechaleidae (Araneae: Lycosoidea) from South America

James E. Carico[1]: School of Science, Lynchburg College, 1501 Lakeside Drive, Lynchburg, Virginia 24501, USA

Estevam Luís Cruz da Silva: Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Porto Alegre, RS, Brazil. E-mail: estevamsilva@gmail.com

Abstract. A new species of *Trechalea* Thorell 1869, *T. rothi* from Colombia, South America, is described, illustrated and compared with the only other two species of the genus also known from Colombia, *T. longitaris* (C.L. Koch 1848) and *T. lomalinda* Carico 1993. Additionally, it is compared with the similar species, *T. trinidadensis* Carico 1993. A single female from Pará, Brazil, is also described and illustrated as a new species, *Enna xingu*, based on features of the genitalia.

Keywords: Taxonomy, morphology, new species, Neotropical region

The genus *Trechalea* Thorell 1869 was revised by Carico (1993), who redescribed seven species and described three new species. This genus occurs from the southern USA to southern Brazil (Platnick 2009). Representatives of *Trechalea* can be distinguished from *Syntrechalea* F.O. Pickard-Cambridge 1902 and *Hesydrus* Simon 1898 by having only the tarsi flexible; the latter two genera present both flexible tarsi and metatarsi. *Trechalea* can also be separated from the other two genera by the male palpal bulb; median apophysis with acute, conspicuous guide; ventral division variable but thickened, tibial retrolateral apophysis divided with ental division distinct, often lobed and partly surrounded by ventral-cymbium tibial membrane, ectal division conspicuous and in various forms. Female epigynal plate with middle field about as wide as long or only slightly longer than wide, usually widest anteriorlly.

The single female specimen that is the subject of this paper was found in a collection of unidentified material borrowed from the California Academy of Sciences, San Francisco, California. In a recent revision of the genus (Carico 1993), the total number of species in this mostly Neotropical genus was determined to be eleven, and that number remains to date (Platnick 2009). With the new species described herein, the total number rises to twelve.

The genus *Enna* was recently revised by Silva et al. (2008), and this genus is now considered the most diverse in the family Trechaleidae, with 24 known species occurring from Mexico to southern Brazil (Platnick 2009). Most of the species occur in Central America.

The representatives of *Enna* resemble *Dossenus* Simon 1898 by the shape of the dorsal division of the median apophysis (Silva et al. 2007, fig. 5), which is concave and ends in an acute guide, and by the tarsi and metatarsi, which are short and straight when compared to the long and flexible tarsi of *Trechalea* Thorell 1869 and *Trechaleoides* Carico 2005. The middle field of the female epigynum is conspicuous, hood-like, concave beneath, and comprises part of the dorsal rim of the epigastric furrow (Silva et al. 2008).

A female spider of the genus *Enna* was found in a shipment of unidentified pisaurids and trechaleids from the National Museum of Natural History, Washington, D.C., and is here described as a new species. This new species further illustrates the unique biogeographic pattern of the genus that is presented in the generic revision of this Neotropical genus (Silva et al. 2008). Specifically, the numerous members of the genus tend to be found with limited distributions in very scattered localities ranging from southern Mexico to Bolivia.

[1] Deceased 24 March 2009

The objective of this work is to describe and illustrate a new species of *Trechalea* from Colombia and a new species of *Enna* from northern Brazil.

METHODS

The material examined is deposited in California Academy of Sciences, San Francisco (CAS: C. Griswold) and National Museum of Natural History, Washington, D.C. (USNM: J.A. Coddington). The nomenclature of the female epigynal structures follow Carico (1993) and Silva et al. (2008). To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 h at 25° C to remove the soft tissue. All the measurements are in mm. The abbreviations relate to eye measurements, including diameter, interdistances and median ocular quadrangle, following Carico (1993) and Silva et al. (2008).

Family Trechaleidae Simon 1890
Subfamily Trechaleinae Simon 1890
Genus *Trechalea* Thorell 1869

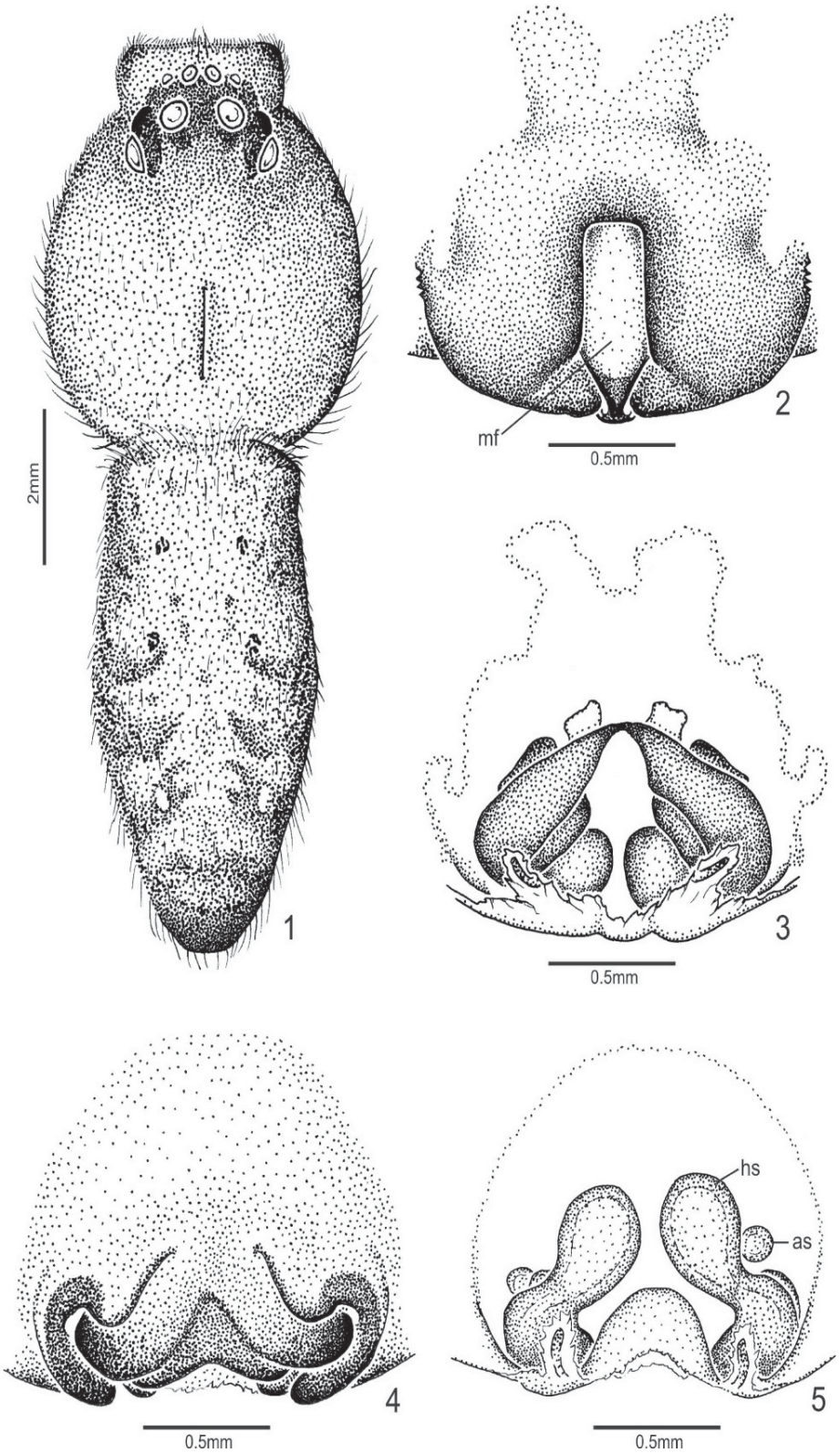
Type species.—*Triclaria longitarsis* C.L. Koch 1848, original designation.

Trechalea rothi new species
Figs. 1–3

Type specimen.—Holotype female, COLOMBIA: *Meta*: Puerto Lleras (72°22′W, 03°18′N), March 1994, B.T. Carroll, V. & B. Roth leg. (CAS).

Etymology.—The species name is in honor of a collector of the specimen, Vincent D. Roth, for his many contributions to Arachnology.

Diagnosis.—This species differs from other Colombian species by the following characters: *Trechalea longitarsis* (C.L. Koch 1848) has a higher number of tibial ventral macrosetae pairs (I-4, II-4, III-3, IV-3), light submarginal carapace bands, unmarked legs, and an epigynum whose middle field is wider anteriorly. *Trechalea lomalinda* Carico 1993 has the middle field of the epigynum triangular and internally the accessory spermathecae is more slender and not dark in color. *T. rothi* resembles most closely the female of *T. trinidadensis* Carico 1993, but the latter has 5, 5, 3, 3 tibial ventral macrosetae pairs versus 4, 4, 3, 3 for *T. rothi*, a different abdominal dorsal pattern, and an epigynum with a significantly wider middle field. *T. trinidadensis* is currently known only from Trinidad (Carico 1993) and Rio Solimões, Amazonas, Brazil (Carico 2008).



Figures 1–5.—Two new trechalid spiders. 1–3. *Trechalea rothi* new species: 1. Dorsal pattern of female; 2. Epigynum, ventral view; 3. Epigynum, dorsal view. 4, 5. Epigynum of *Enna xingu* new species: 4. Ventral view; 5. Dorsal view. Abbreviations: as = accessory spermathecae; hs = head of spermathecae; mf = middle field.

Description.—*Female (holotype):* Carapace (Fig. 1) low, cephalic area not elevated, length 5.3, width 5.2, light brown with indistinct pattern, narrow dark marginal band, dark in eye region. Sternum light, unmarked, length 2.8, width 2.6; labium dark brown, lighter at anterior margin, length 1.16, width 1.00. Clypeus height 1.20, width 2.56. Anterior eye row straight, a cluster of strong setae posterior to each PLE, measurements: AE 2.60, PE 5.20, OQA 1.60, OQP 2.72, OQH 2.24, PLE 1.16, PME 1.16, ALE 0.36, AME 0.64, PLE–PME 0.92, PME–PME 0.68, ALE–AME 0.12, AME–AME 0.32. Chelicerae face dark brown, darker distally, clothed in long light hairs, three prolateral teeth, equidistant, middle largest; three prolateral teeth, equal size, distal two closer. Leg segment lengths: femur, patella-tibia, metatarsus, tarsus, total: I – 7.9, 10.3, 6.2, 3.8, 28.2; II – 8.3, 10.1, 6.9, 4.2, 29.5; III – 7.1, 8.0, 6.3, 4.1, 25.5; IV – 9.4, 10.6, 9.6, 5.5, 35.1; tibial ventral macrosetae pairs: 1- 4, II- 4, III-3, IV-3. Color of legs light, darker above with irregular maculae. Abdomen (Fig. 1) length 6.8, dorsally with three pairs of distinct dark spots amid other irregular markings, long setae at anterior edge and laterally at the outer edge, light ventrally. Epigynum middle field about twice as long as wide, straight sides, white but black at posterior tip (Fig. 2); internal structures heavily sclerotized and dark, accessory spermathecae large, conspicuous, positioned diagonally, with head of spermathecae (*hs*) small, lying upon anterior surface of the later (Fig. 3).

Male.—Unknown.

Natural history.—Unknown.

Distribution.—Known only from the type locality.

Note.—This specimen was collected with a female of *Trechalea lomalinda* Carico 1993.

Genus *Enna* O. Pickard-Cambridge 1897

Type species.—*Enna velox* O. Pickard-Cambridge 1897, by original designation.

Enna xingu new species
Figs. 4, 5

Material examined.—Holotype female: BRAZIL: *Pará*: ca 60 km S. Altamira, Rio Xingu Camp, (52°22′W, 03°39′S), 1–7 Oct. 1986, P. Spangler & O. Flint leg. (USNM 2048172).

Etymology.—The name is a noun in apposition derived from the name of the type locality.

Diagnosis.—This species is distinguished by details of the genitalia, specifically by the width and indented margin of the posterior part of the middle field of the epigynum and the rim of the posterior concavity beneath the hood-like middle field is almost circular in posterior view (Figs. 4, 5).

Description.—*Female (holotype):* Carapace (crushed, dimensions estimated) length 4.3±, width 3.0±. Sternum length 1.64, width 1.80, light, unmarked; labium length 0.76, width 0.72, dark brown, lighter distally. Clypeus height 0.32, width 1.92. Carapace light, dark in ocular area. Anterior eye row straight. Eye measurements: AE 0.96, PE 1.84, OQA 0.58, OQP 1.00, OQH 0.65, PLE 0.33, PME 0.30, ALE 0.18, AME 0.22, PLE–PME 0.32, PME–PME 0.48, ALE–AME 0.05, AME–AME 0.17. Chelicerae medium brown, becoming gradually lighter distally; cheliceral teeth: promarginal 3, middle largest, remainder subequal; retromarginal 3, subequal, equidistant. Color of legs light with indistinct, faint pattern on dorsal side of femora and tibiae. Leg segment lengths: I – femur 4.4, patella-tibia 5.9, metatarsus 4.1, tarsus 1.9, total 16.3; II – 4.3, 5.5, 3.8, 1.7, 15.3; III – 3.5, 4.1, 3.0, 1.3, 11.9; IV – 4.3, 5.1, 4.9, 1.9, 16.2; total leg length sequence: I- III- II- IV; ventral macrosetae pairs on tibiae: I-4, II-4, III-3, IV-3. Abdomen length 4.5; light background color; dorsum mostly with small, scattered, dark maculae, but with a pair of large maculae centrally; sides with parallel dark lines; venter dusky. Middle field (*mf*) of epigynum much wider than long, incurved and very dark at posterior margin (Fig. 4); head of spermathecae (*hs*) large, dorsal, conspicuous, and mostly obscuring the small accessory spermathecae (*as*) from dorsal view (Fig. 4).

Male.—Unknown.

Natural history.—Unknown.

Distribution.—Known only from the type locality.

ACKNOWLEDGMENTS

Thanks are extended to J.A. Coddington for loan of the specimen of *Enna*, and to Charles Griswold and the California Academy of Science for loan of the type specimen of *Trechalea*. We also thank Douglass Morse and Ingi Agnarsson who reviewed the manuscript.

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Taxonomic notes on the genus *Paratrechalea* Carico, 2005 (Araneae: Trechaleidae: Trechaleinae)

ESTEVAM L. CRUZ DA SILVA[1,2,3] & ARNO A. LISE[2]

[1]*Department of Biological Sciences, The George Washington University, 2023 G St. N.W., Washington D.C., 20052 USA. E-mail: estevamsilva@gmail.com*

[2]*Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, sala 125, Av. Ipiranga 6681, 90619-900, Porto Alegre, Rio Grande do Sul, Brazil. E-mail: lisearno@pucrs.br*

[3]*Corresponding author*

Abstract

The male of *Paratrechalea longigaster* Carico, 2005 and the female of *P. julyae* Silva & Lise, 2006 are described and illustrated for the first time, and new records provided. Photomicrographs of the female genitalia showing accessory spermathecae for *P. ornata* (Mello-Leitão, 1943) and *P. azul* Carico, 2005 as well as the morphological variation of the epigynum in both species are also presented. A previously unreported feature of the male palpus common to both *P. azul* Carico, 2005 and *P. ornata* (Mello-Leitão, 1943) is also discussed.

Key words: spiders, taxonomy, morphology, Neotropical region

Introduction

The spider genus *Paratrechalea* was proposed by Carico (2005) to include *Trechalea ornata* Mello-Leitão, 1943 and six new species. This genus is characterized by the long and slender tarsi; females have an epigynum with a posterior-median scape and males a median apophysis with a flattened and greatly expanded ventral division (Carico 2005, Fig. 1). This genus seems to be restricted to the southern areas of Brazil, Argentina and Uruguay, with most species occurring in Brazil.

In this work we describe the male of *Paratrechalea longigaster* Carico, 2005 and the female of *P. julyae* Silva & Lise, 2006 and provide new records of the latter, based on additional specimens from Brazil. Additionally, SEM images illustrating the male palpi of *P. julyae* and *P. ornata* (Mello-Leitão, 1943) as well as the morphological variation of the female genitalia of *P. ornata* and *P. azul* Carico, 2005 from different localities in the Brazilian states of Rio Grande do Sul and Santa Catarina are provided for the first time.

Material and methods

The material examined is deposited in Instituto Butantan, São Paulo, Brazil (IBSP, I. Knysak), Museu de Ciências Naturais da Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brazil (MCN, E. H. Buckup), Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil (MCTP, A. A. Lise) and Museo de La Plata, Buenos Aires, Argentina (MLP, L. A. Pereira). The nomenclature of the male palpus and female epigynum structures follows Carico (1993; 2005) and Silva *et al*. (2006). To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 hours at 25°C to remove the soft tissue. For scanning electron microscopy, structures were excised, air-dried and mounted on stubs with double-sided

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adhesive tape. This material was sputter coated with gold and examined using a Philips XL 30. *Paratrechalea* SEM vouchers are deposited in MCTP. All measurements are in millimeters. Abbreviations related to eye measurements (AE row = width of anterior eye row, PE row = width of posterior eye row, OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye and posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye , ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = distance between posterior lateral eye and posterior median eye, PME-PME = distance between posterior median eyes, ALE-AME = distance between anterior lateral eye and anterior median eye, AME-AME = distances between anterior median eyes).

Taxonomy

Paratrechalea longigaster Carico 2005

Figs 1–3

Paratrechalea longigaster Carico 2005: 808, figs 15, 24, 25 (Female holotype, Santa Maria, Misiones, Argentina, 1956, M.J. Viana *leg*., deposited in Museo Argentino de Ciências Naturales Bernardino Rivadavia, not examined).

Diagnosis. The male of *P. longigaster* resembles that of *P. ornata* (see Carico 2005: p. 806, fig. 18) by the shape of the median apophysis, wide at the base, covering most of the guide (Fig. 1), but can be distinguished by the acute apex of the retrolateral tibial apophysis ectal division, which is bifurcated (Figs 2, 3).

Note. The male here described was considered as belonging to *P. longigaster* because of its conspicuously elongated abdomen.

Description. Male (Allotype, IBSP 55739). Total length 8.71. Carapace, 3.32 long, 2.82 wide, yellowish, with median light brown band, darker laterally. Clypeus brownish, 0.18 high. Anterior eye row slightly straight, 0.74 wide; posterior 1.32 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.16, PME 0.26, PLE 0.18; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.20, PME-PLE 0.28, OQA 0.36, OQP 0.68, OQH 0.60. Chelicerae bristly, light brown, with median dark brown band, with lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, bristly, darker laterally; 1.66 long, 1.32 wide. Labium yellowish, slightly darker laterally, 0.49 long, 0.48 wide. Legs yellowish, relative length: I-IV-II-III, I – femur 4.73/ tibia-patella 6.80/ metatarsus 5.22/ tarsus 2.82/ total 19.57; II – 4.70/ 6.22/ 4.98/ 2.65/ 18.55; III – 3.32/ 3.48/ 2.90/ 1.32/ 11.22; IV – 5.22/ 5.81/ 5.72/ 2.33/ 19.08. Ventral pairs of macrosetae on tibiae: I-5; II-5; III-3; IV-4. Abdomen, 5.81 long, grayish, with longitudinal light brown band on dorsal surface, scattered setae. Venter grayish, with scattered setae. Palpus with enlarged ventral division of median apophysis (VD; Fig. 1); retrolateral tibial apophysis with prominent ectal division (ECD; Figs 1, 3). Tibiae of palpi with prominent ventral protuberance (VP; Figs 1, 3).

Other material examined. BRAZIL: *Minas Gerais*, Catas Altas, Reserva Particular do Patrimônio Natural (RPPN) Santuário do Caraça (20°04'S, 43°23'W), 1 ♀, 12.I.2002, E. S. S. Álvares leg. (IBSP 55739); *São Paulo*, Estação Biológica Itirapina (22° 15' S, 47° 49' W), 1 ♀, IX.1992, A. A. Nogueira *leg*. (IBSP 52845).

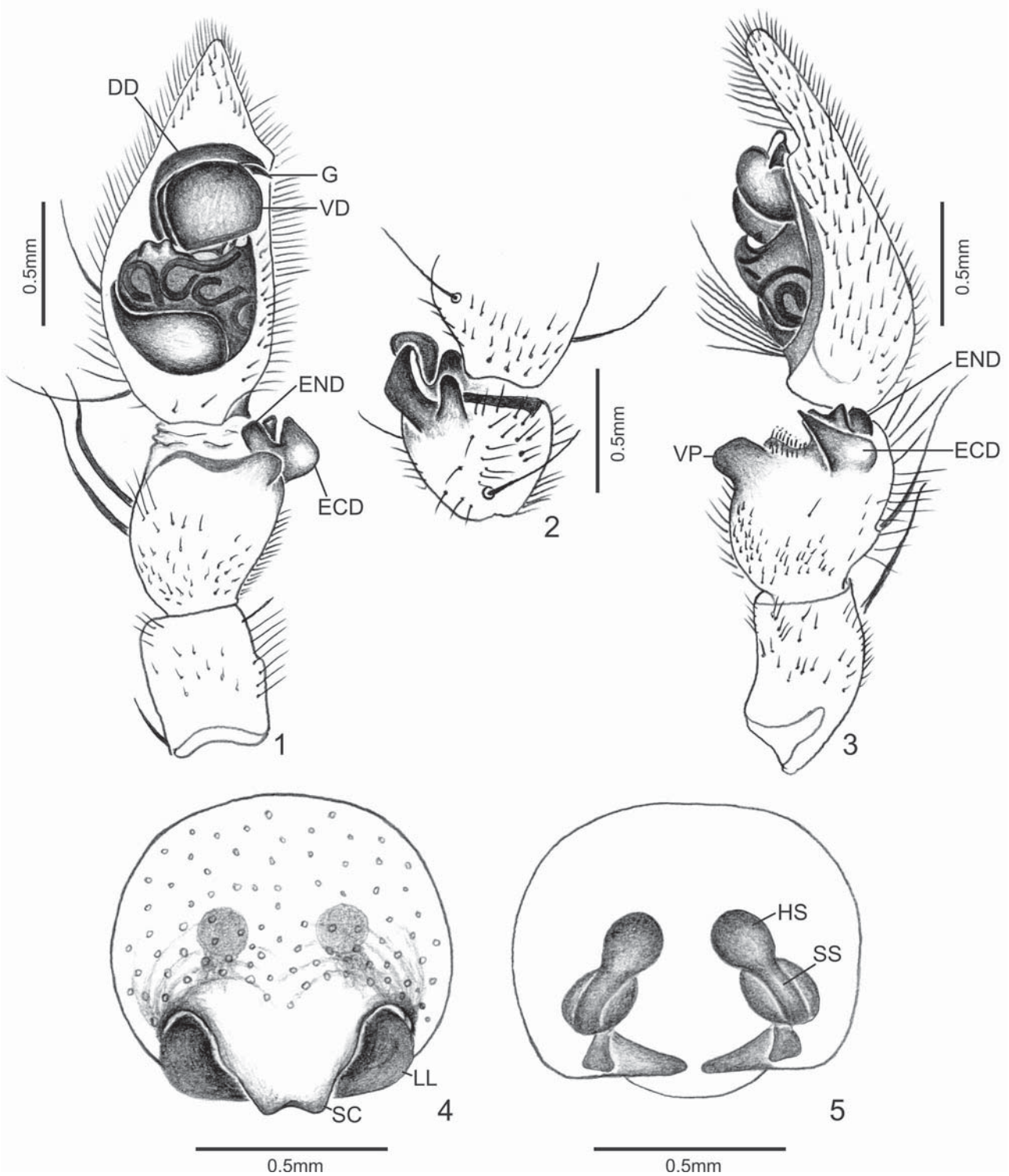
Distribution. Argentina (Misiones), Brazil (São Paulo, Santa Catarina, Rio Grande do Sul).

Paratrechalea julyae Silva & Lise 2006

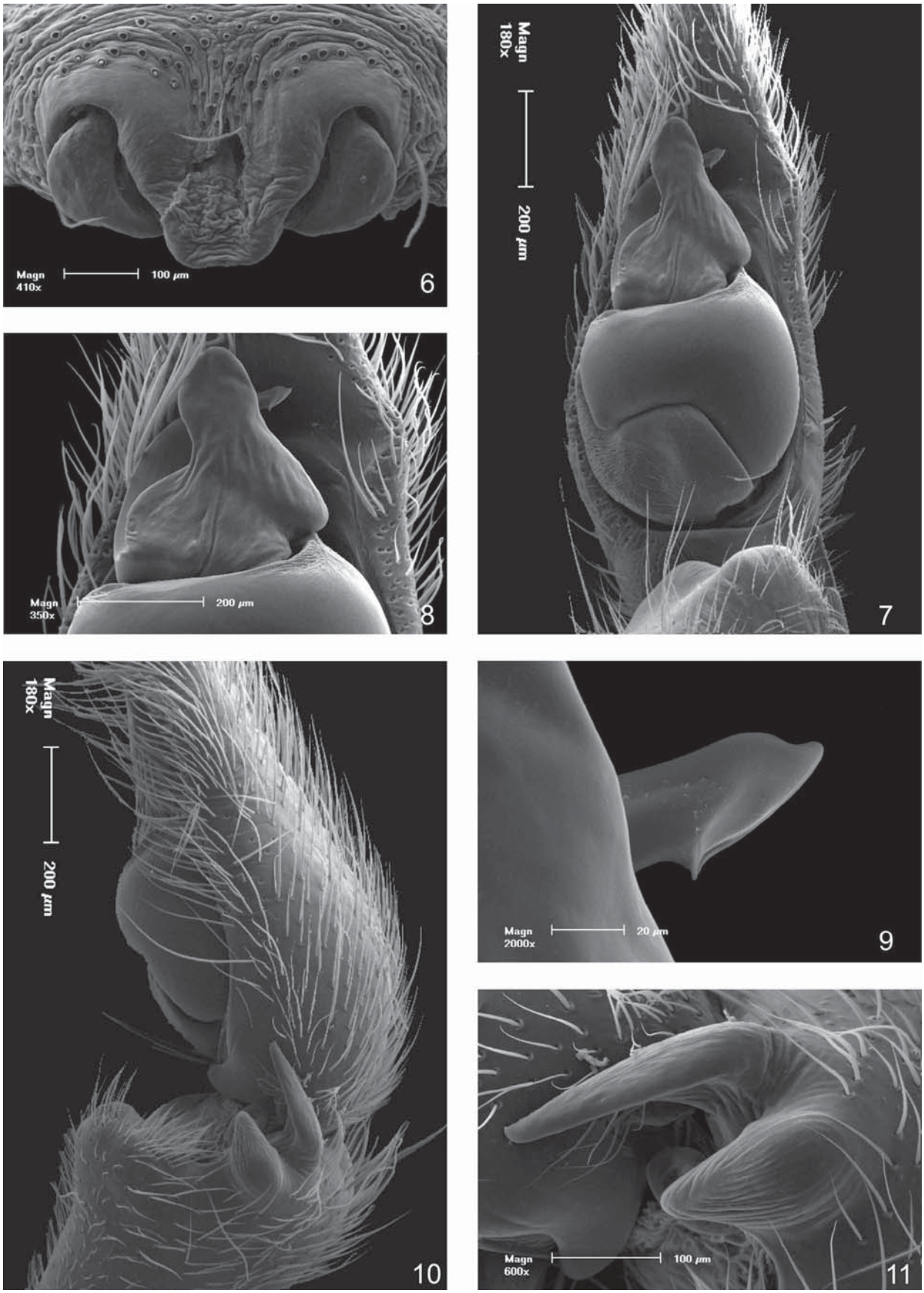
Figs 4–11

Paratrechalea julyae Silva & Lise 2006: 72, figs 1–6 (Male holotype, Fazenda Paissandu, Mucuri,Bahia, Brazil, 15.VI.1979, A. C. Niella *leg*., deposited in MCN 10851, examined).

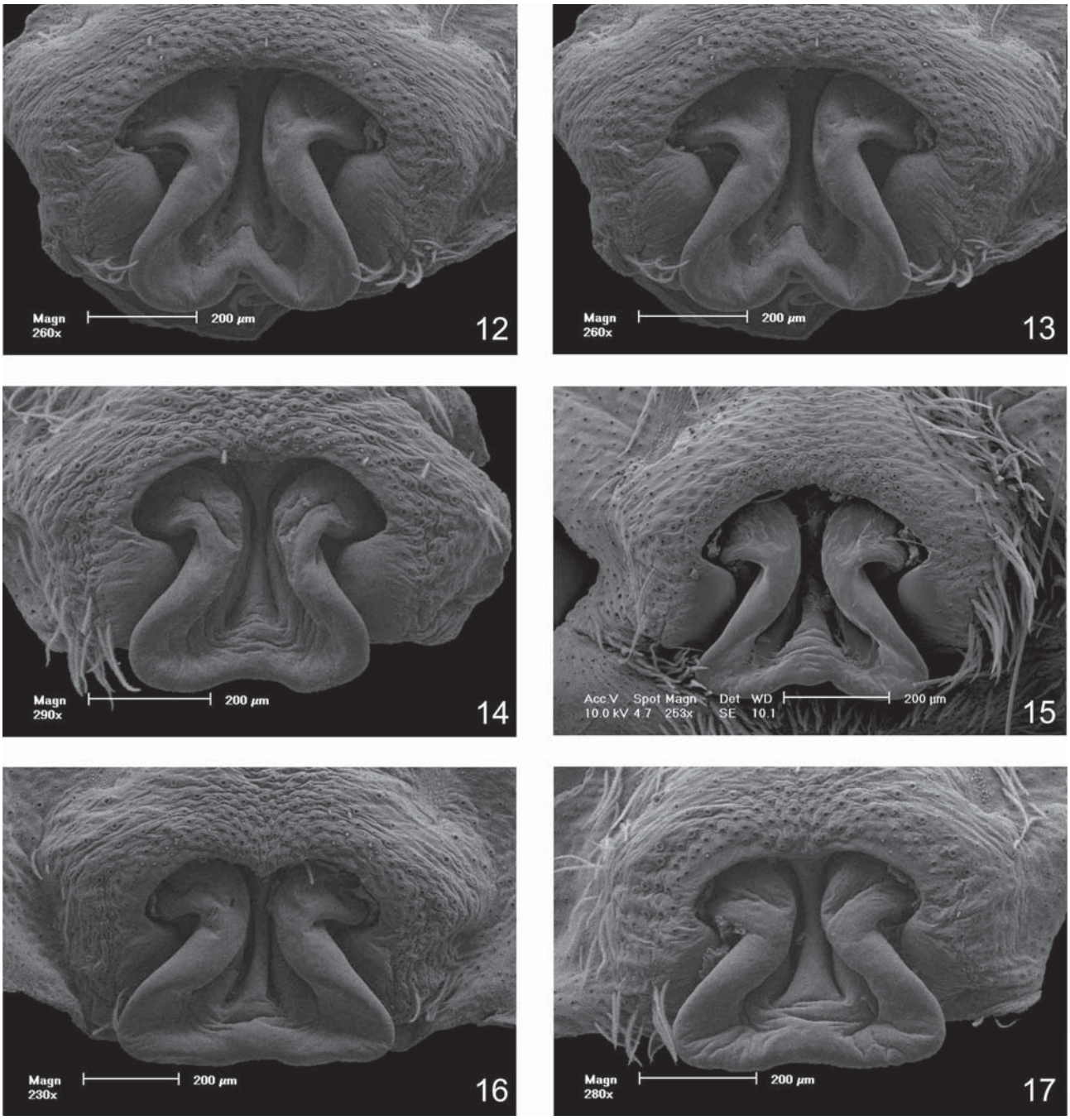
Diagnosis. The female of *P. julyae* is similar to *P. saopaulo* Carico, 2005 (see Carico 2005: fig. 32) and *P. wygodzinskyi* (Soares & Camargo, 1948) (see Silva *et al*. 2006: fig. 19) by the projected shape of the scape of the middle field of epigynum, but can be distinguished by the longer and triangular shape of the scape and the excavated lateral lobes (LL) (Figs 4, 6).



FIGURES 1–5. 1–3. *Paratrechalea longigaster*, left palpus (1 ventral view, 2 detail of retrolateral tibial apophysis, 3 retrolateral view). 4, 5. *Paratrechalea julyae*, female genitalia (4 epigynum, ventral view, 5 internal genitalia, dorsal view). (ECD = ectal division of RTA, END = ental division of RTA, DD = dorsal division of median apophysis, G = guide of median apophysis; HS = head of spermathecae; LL = lateral lobes, MA = median apophysis, MF = middle field of epigynum, RTA = retrolateral tibial apophysis, SC = scape; SS, stalk of spermathecae; VD = ventral division of MA).



FIGURES 6–11. Morphological details of *Paratrechalea julyae*, epigynum (6 ventral view). 7–11. male palpus (7 ventral view, 8 median apophysis, 9 guide, 10 retrolateral view, 11 retrolateral tibial apophysis).

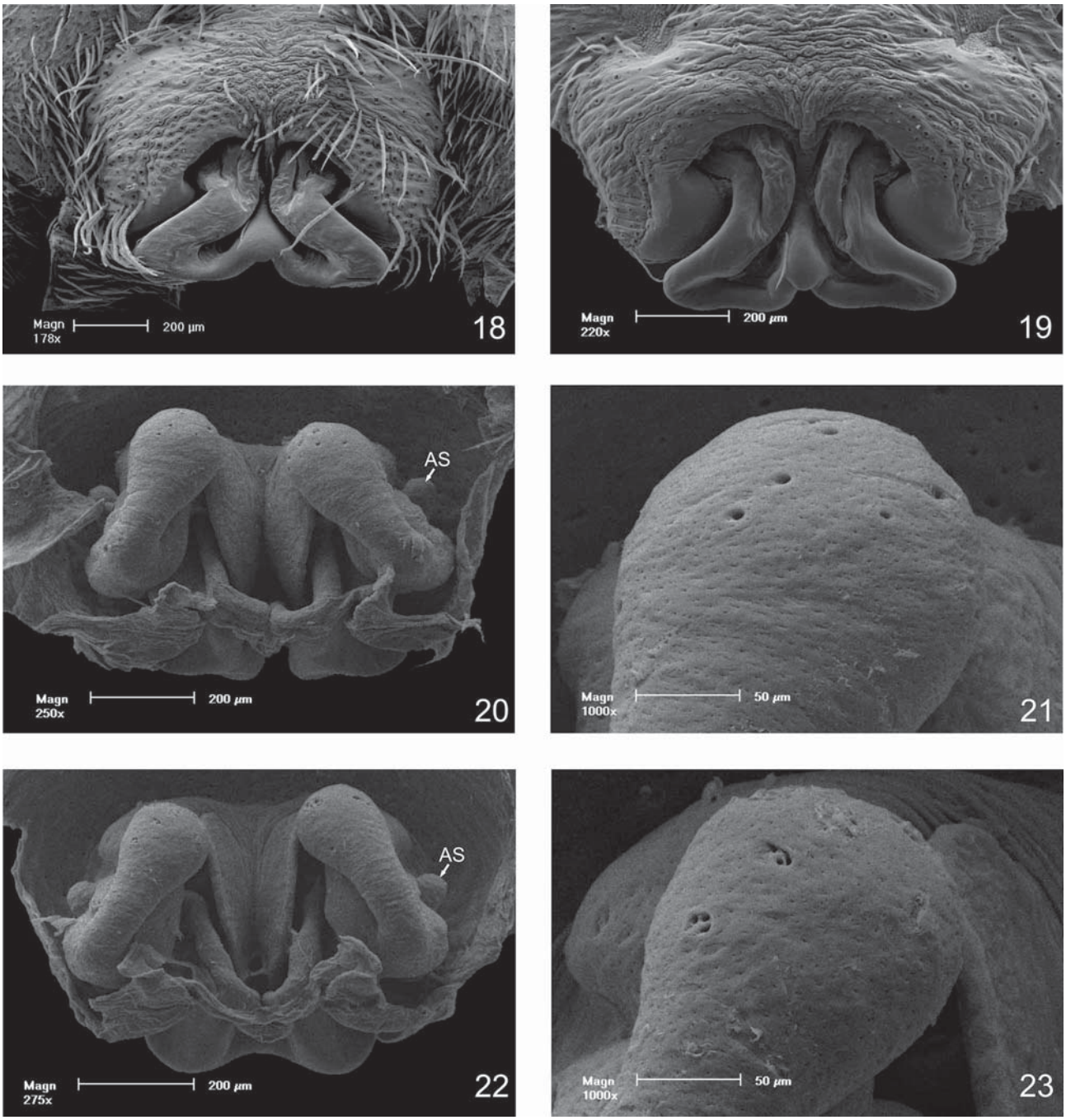


FIGURES 12–17. Variations of the epigynum of *Paratrechalea ornata* 12–17. Epigynum, ventral view (12 Itaara, Rio Grande do Sul, 13 São Francisco de Paula, Rio Grande do Sul, 14 Sapiranga, Rio Grande do Sul, 15 Seara, Santa Catarina, 16 Canela, Rio Grande do Sul, 17 São Francisco de Paula, Rio Grande do Sul).

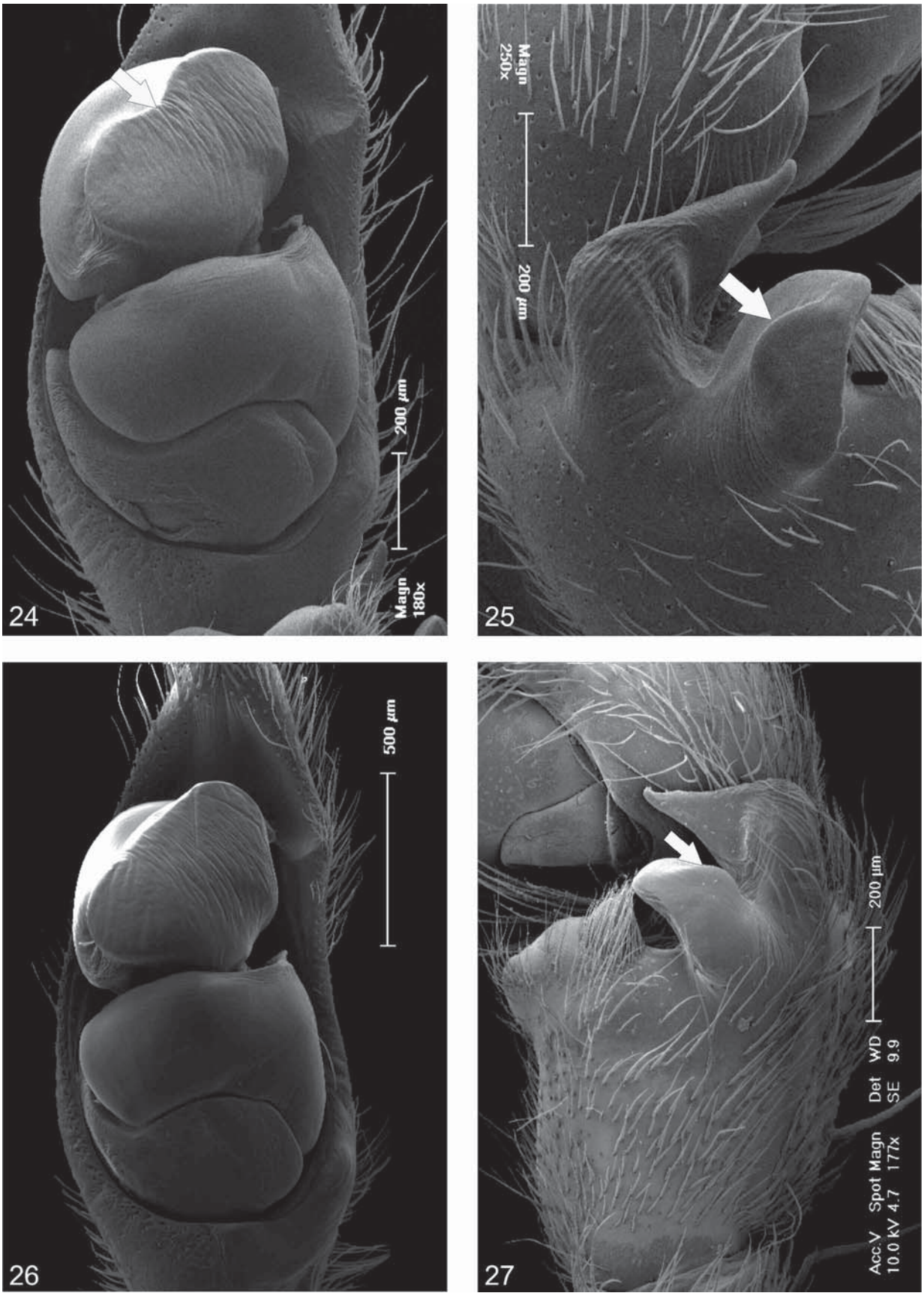
Description. Male. Described by Silva *et al*., 2006: 72, figs 1–6. New remarks: male palpus with excavated spur on tip of guide of median apophysis (Figs 7–9) and prominent retrolateral tibial apophysis (Figs 10–11).

Female (São Paulo, Parque Estadual da Serra do Mar, Ubatuba, Brazil IBSP 6989). Total length 7.47. Carapace, 2.90 long, 2.73 wide, light brown with two brownish longitudinal bands; dark brown laterally. Clypeus brownish, 0.24 high. Anterior eye row slightly straight, 0.71 wide; posterior 1.33 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.13, ALE 0.12, PME 0.18, PLE 0.20; AME-AME 0.09, AME-ALE 0.06, PME-PME 0.24, PME-PLE 0.27, OQA 0.34, OQP 0.72, OQH 0.55. Chelicerae bristly, yellowish, with a median light brown band, without lateral carina; promargin and retromargin of fang

furrow with three teeth equidistant and equal in size. Sternum yellowish, light brown laterally, with irregular median spot; 1.41 long, 1.32 wide. Labium light brown, darker posteriorly, 0.33 long, 0.49 wide. Legs brownish with light brown annuli on femora, relative length: I-II-IV-III, I – femur 3.32/ tibia-patella 4.31/ metatarsus 3.15/ tarsus 1.90/ total 12.58; II – 3.23/ 4.15/ 2.98/ 1.66/ 12.02; III – 1.82/ 1.74/ 1.49/ 0.83/ 5.88; IV – 2.57/ 2.65/ 2.90/ 1.16/ 9.28. Ventral pairs of macrosetae on tibiae: I-4; II-3; III-3; IV-3. Abdomen, 3.98 long, bristly, grayish, lighter at anterior portion, with scattered setae. Venter grayish, with scattered setae. Middle field of epigynum with projected scape (Figs 4, 6); excavated lateral lobes (LL) (Figs 4, 6), spermathecae rounded at apex (Fig. 5).



FIGURES 18–23. Variations of the epigynum of *Paratrechalea* spp. 18, 19. *Paratrechalea azul*, epigynum, ventral view (18 Itati, Rio Grande do Sul, 19 São Francisco de Paula, Rio Grande do Sul). 20. *Paratrechalea azul*, internal genitalia, dorsal view. 21. Detail of pores on the head of spermathecae (São Francisco de Paula, Rio Grande do Sul). 22, 23. *Paratrechalea ornata*, internal genitalia (22 dorsal view, 23 detail of pores on the head of spermathecae (Sapiranga, Rio Grande do Sul). (AS = accessory spermathecae)



FIGURES 24–27. 24, 25. *Paratrechalea ornata*, male palpus (24 bulb, ventral view, 25 RTA, retrolateral view). 26, 27. *Paratrechalea azul*, male palpus (26 bulb, ventral view, 27 tibia, retrolateral view). White arrow in Fig. 24 shows median sulcus on the ventral division of the median apophysis. White arrows in Figs 25 and 27 show RTA ectal division.

Other material examined. BRAZIL, *Bahia*: Camacan (15°24'S, 39°30'W), 1 ♂, no date, CEPLAC *leg.* (IBSP 15813); Gandu, Fazenda São Rafael (13°44'S, 39°28'W), 1 ♀, 08.V.1969, CEPLAC *leg*. (IBSP 15810); *São Paulo*, Parque Estadual da Serra do Mar, Ubatuba (23°26'S, 45°05'W), 1 ♀, IV.1996, L. S. Rocha *leg.* (IBSP 6989); *Rio de Janeiro*: Pinheral, Fazenda Santa Helena (22°31'S, 43°59'W), 1 ♂, 2 ♀, (22° 34'S, 44° 21'W), 05–11.XI.1999, A. D. Brescovit *et al*. *leg*. (IBSP 52743; 52737), 3 ♂, 4 ♀ (IBSP 52734), 1 ♂ (IBSP 52736); Marambaia, Ilha de Marambaia (22°49'S, 42°56'W), 1 ♂, 2 ♀, 23–25.XI.2007, M. Silveira *leg*. (IBSP 88603).

Distribution. Brazil (Bahia, São Paulo, Rio de Janeiro).

Remarks on the female genitalia of *Paratrechalea ornata* and *Paratrechalea azul*

An examination of the types of *Paratrechalea ornata* and *Paratrechalea azul* showed that both species have a pair of accessory spermathecae (Figs 20–23), a morphological feature not present in the original drawings (Carico 2005). These structures appear to be present in *P. azul* (Carico 2005: fig. 29) and apparently absent in *P. ornata* (Carico 2005: fig. 21). The SEM examination of some specimens collected in the states of Rio Grande do Sul and Santa Catarina, Brazil, showed that both species have accessory spermathecae (Figs 20–23); also, that females may have a variable epigynal scape, which varies at the anterior margin (Figs 12–19). Most of the specimens have an epigynal scape with a marked excavation (Figs 12, 13, 18, 19), a small excavation (Figs 14, 15) or a slightly straight margin (Figs 16, 17). The female genitalia in dorsal view does not show any variation for either shape or length of the spermathecae (Figs 20; 22). The head of the spermathecae has conspicuous pores (Figs 21; 23).

Also, in regards to the ectal division of the retrolateral tibial apophysis (ECD) it should be mentioned that the ECD lateral excavation was not mentioned by Silva *et al*. (2006) as a distinct morphological character for *P. azul*. However, after examining several individuals from different populations, it was observed that males of both *P azul* and *P. ornata* have this feature (Figs 25, 27, white arrow), but *P. ornata* and *P. azul* can still be distinguished by the median sulcus on the ventral division of the median apophysis (Figs 24; 26).

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Carico, J.E. (2005) Descriptions of two new spider genera of Trechaleidae (Araneae, Lycosoidea) from South America. *Journal of Arachnology*, 33, 797–812.

Silva, E.L.C., Lise, A.A., Buckup, E.H. & Brescovit, A.D. (2006) Taxonomy and new records in the Neotropical spider genus *Paratrechalea* (Araneae, Lycosoidea, Trechaleidae). *Biociências*, 14, 71–82.

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Correspondence

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Synonyms and one new record in the spider family Trechaleidae (Araneae: Lycosoidea)

ESTEVAM L. CRUZ DA SILVA[1,2] & ARNO A. LISE[1]

[1]*Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Porto Alegre, RS, Brazil.*
E-mail: estevamsilva@gmail.com; lisearno@pucrs.br
[2]*Department of Biological Sciences, The George Washington University, 2023 G St. N.W., Washington D.C., 20052 USA*

After the publication of the first taxonomic revision of *Trechalea* Thorell, 1869 by Carico (1993), several genera of Trechaleidae were revised, including *Dossenus* Simon, 1898 (Silva *et al*. 2007), *Enna* O. Pickard-Cambridge, 1897 (Silva *et al*. 2008), *Syntrechalea* F.O. Pickard-Cambridge, 1902 (Carico 2008) and *Hesydrus* Simon, 1898 (Carico 2005a). New genera have also been proposed, for example, *Paratrechalea* Carico, 2005 and *Trechaleoides* Carico, 2005 (Carico 2005b). However, there is still much taxonomic work to be done in the spider family Trechaleidae and here we identify further synonymies and list misidentifications of genera and species.

Demelodos Mello-Leitão, 1943 is here considered as *insertae sedis*, since it is known only from a single immature specimen. *Trechalea amazonica* F.O. Pickard-Cambridge, 1903 is a senior synonym of *T. trinidadensis* Carico, 1993 and *T. rothi* Carico & Silva, 2010. *Trechalea boliviensis* Carico, 1993 is a senior synonym of *Syntrechalea colombiana* Silva & Lise, 2008. *Enna redundans* (Platnick, 1993) is a senior synonym of *Enna braslandia* Silva, Lise & Carico, 2008. *Syntrechalea caballero* Carico, 2008 is recorded at a new locality in southeastern Brazil.

The material examined is deposited in the following institutions (with abbreviations and curators in parentheses): American Museum of Natural History, New York, USA (**AMNH**, N.I. Platnick), The Natural History Museum, London, England (**BMNH**, P. Hillyard), the California Academy of Sciences, San Francisco, USA (**CAS**, C. Griswold), the Instituto de Ciencias Naturales de la Universidade Nacional de Colombia, Bogotá, Colombia (**ICN**, E. Florez), the Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (**INPA**, C. Magalhães), the Instituto de Ecología, La Paz, Bolivia (**IE**), the Museum of Comparative Zoology, Massachusetts, USA (**MCZ**, G. Giribet), the Museu Nacional, Rio de Janeiro, Brazil (**MNRJ**, A.B. Kury), the Universidade Estadual Paulista, São Paulo, Brazil (**UBTU**, I.M.P. Rinaldi) and the Departamento de Zoologia, Universidade de Brasília, Brazil (**UnB**, P. Motta).

Taxonomy

Demelodos Mello-Leitão, 1943

Demelodos Mello-Leitão, 1943: 164. Type species: *Demelodos iheringi* Mello-Leitão 1943: 164, immature female holotype from Rio Grande do Norte, Rudolf von Ihering (MNRJ, examined).

Note. The genus *Demelodos* was proposed by Mello-Leitão (1943), but in the original description, Mello-Leitão used two different spellings, the one above and *Demolodos*. Caporiacco (1948) presumed that the name is an anagram of *Dolomedes* Latreille, 1804, and the former spelling is assumed to be the correct one; the spelling *Demolodes*, used by Roewer (1955) and subsequent catalogues (Brignoli 1983; Platnick 1989), is incorrect (Platnick 1993). The holotype is labelled with the *in schedula "Demelodos dubius"* specific name (Silva-Moreira *et al*., 2010). The genus was placed in the "*Trechalea* genus-group" by Sierwald (1990).

The holotype of *Demelodos iheringi*, which is a small, immature female and the only known specimen, cannot be distinguished from other genera in Trechaleidae, and is considered as *insertae sedis*.

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***Trechalea amazonica* F.O. Pickard-Cambridge, 1903**

Trechalea amazonica F.O. Pickard-Cambridge, 1903:163, plate 15, figs 18–20, male holotype from Santarém, Pará, Brazil, F.O. Pickard-Cambridge 1895–1896 (BMNH, examined). Carico, 1993: 251.
Trechalea manauensis Carico *et al*. 1985: 289, figs 1–4, male holotype from Ilha da Marchantaria, rio Solimões, Manaus, Amazonas, Brazil (INPA, examined). Carico, 1993: 251.
Trechalea trinidadensis Carico, 1993: 255, figs73, 74, female holotype from Port of Spain, Trinidad, 28 May 1968, Erik N. Kjelleswig-Waering (AMNH, examined). Carico, 2008: 171. **New synonymy.**
Trechalea rothi Carico & Silva, 2010: 357, figs. 1–3, female holotype from Meta, Puerto Lleras, Colombia, March 1994, B. T. Carroll & B. Roth (CAS, examined). **New synonymy.**

Note. We have examined the types and other material from other regions of Central and South America of *Trechalea manauensis*, *T. trinidadensis* and *T. rothi* and their genitalia and body length and colour pattern match those of *T. amazonica*. They occur in the same areas and habitats, since there are no geographical barriers in northern part of South America (Colombia, Venezuela, Brazil).

***Trechalea boliviensis* Carico, 1993**

Trechalea boliviensis Carico 1993: 252, figs 65–68, male holotype from Departamento del Beni, Est. Biol. Beni, Zone 1, 8–14 November 1989, J. Coddington *et al*. leg. (IE, examined).
Syntrechalea colombiana Silva & Lise, 2008: 495, figs 1–6, male holotype from Loreto Mocagua, Leticia, Departamento del Amazonas, Colombia, 15 November 2001, C. Sandoval leg. (ICN 768, examined). **New synonymy.**

Note. Body size, the dorsal colour pattern of the carapace and abdomen, and the dorsal division of the median apophysis of the male palpus of *Syntrechalea colombiana* is the same as those of the type of *Trechalea boliviensis*.

***Enna redundans* (Platnick, 1993)**

Dossenus fidelis Mello-Leitão 1943: 165 (junior primary homonym of *Dossenus fidelis* Mello-Leitão 1920).
Dossenus redundans Platnick, 1993: 523 (replacement name for *Dossenus fidelis* Mello-Leitão 1943); Silva *et al*., 2007: 139.
Enna redundans (Platnick); Silva *et al*., 2008: 107, figs 151–155, male lectotype from Soledade, Paraíba, Brazil [7°03'S, 36°21'W] (MNRJ 58301, examined).
Enna braslandia Silva *et al*., 2008: 84, figs 34–36, male holotype from Distrito Federal, Braslândia, ''Labirinto da Lama'', Brazil [15°42'S, 48°13'W], 26 January 2004, F. Jordão (UnB 3097, examined). **New synonymy.**

Note. We have examined the holotype of *Enna braslandia* and other specimens from the same area, and the shape of dorsal division of the median apophysis and the ectal division of the retrolateral tibial apophysis of the male palpus matches those of *E. redundans*.

New record

***Syntrechalea caballero* Carico, 2008**

Syntrechalea caballero Carico 2008: 129, figs. 2, 6, 34, 35, female holotype from Paraguari, near Pedro Juan Caballero, Paraguay [22°34'S, 55°37'W], 25–27.XI.1956, C. J. D. Brown (MCZ, examined).

New record. BRAZIL: São Paulo: Pariquera-Açú [24°42'S, 47°53'W], 1 ♀, II.2001, E. Wienskoski (UBTU 3371).
Distribution. Paraguay (Pedro Juan Caballero), Brazil (São Paulo).
Note. This is the first record of this species from Brazil, which was previously only known from Paraguay.

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Article

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The Neotropical spider genus *Paradossenus* (Araneae, Trechaleidae): a new species, taxonomic notes and new records

ESTEVAM L. CRUZ DA SILVA[1,2] & ARNO A. LISE[1]

[1]*Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, Sala 125, Av. Ipiranga 6681, 90619-900, Porto Alegre, RS, Brazil. E-mail: estevamsilva@gmail.com; lisearno@pucrs.br*

[2]*Department of Biological Sciences, The George Washington University, 2023 G St. N.W., Washington D.C., 20052 USA*

Abstract

The male of *Paradossenus pulcher* Sierwald, 1993 and a new species, *P. macuxi*, from Roraima, Northern Brazil are described and illustrated for the first time. The monotypic genus *Magnichela* Silva & Lise, 2006 is a junior synonym of *Paradossenus* F.O. Pickard-Cambridge, 1903. *Paradossenus amazonensis* Carico & Silva, 2010 is a junior synonym of *Magnichela santaremensis* Silva & Lise, 2006 (type species). New data on the Brazilian distributions of *Paradossenus acanthocymbium* Carico & Silva, 2010, *P. tocantins* Carico & Silva, 2010 and *P. pozo* Carico & Silva, 2010 are presented.

Key words: spiders, taxonomy, morphology, distribution, Neotropical region

Introduction

Sierwald (1993) made the first revision of the genus *Paradossenus* F.O. Pickard-Cambridge, 1903 and described two new species: *P. caricoi* Sierwald, 1993 and *P. pulcher* Sierwald, 1993. Recently, the genus was revised by Carico and Silva (2010), describing nine new species from Central and South America. Currently, there are 14 species of *Paradossenus* known, all from Central and South America (Platnick 2010).

The genus *Paradossenus* can be distinguished from the other trechaleid genera by the short and straight tarsi, retrolateral tibial apophysis of the males, which usually has one branch, and the female epigynum, which has a distinct middle field that is between a pair of distinct lateral elevations; internally there is wide variation with the presence of primary and secondary spermathecae (Carico & Silva 2010).

In this work, we describe and illustrate the male of *Paradossenus pulcher* and one new species, *P. makuxi*. *Paradossenus amazonensis* Carico & Silva, 2010 is a junior synonym of *Magnichela santaremensis* Silva & Lise, 2006. The monotypic genus *Magnichela* Silva & Lise, 2006 is a junior synonym of *Paradossenus* F.O. Pickard-Cambridge, 1903. New data on the distribution in Brazil of *Paradossenus acanthocymbium* Carico & Silva, 2010, *P. tocantins* Carico & Silva, 2010 and *P. pozo* Carico & Silva, 2010 are given.

Material and methods

The material examined is deposited in Museu de Ciências Naturais, Fundação Zoobotânica, Porto Alegre, Brazil (MCN, E. H. Buckup), Instituto Butantan, São Paulo, Brazil (IBSP, A. D. Brescovit) and Museu de Zoologia da Universidade de São Paulo, Brazil (MZSP, R. Pinto-da-Rocha). The nomenclature of the female epigynal structures follows Carico (1993), Sierwald (1993) and Carico and Silva (2010). To study the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 hours at 25°C to remove the soft tissue. All the measurements are in millimeters. Abbreviations related to eye measurements (AE row = width of anterior eye row, PE row = width of posterior eye row, OQA = width of ocular quadrangle anteriorlly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of

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posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye and posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye , ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = distance between posterior lateral eye and posterior median eye, PME-PME = distance between posterior median eyes, ALE-AME = distance between anterior lateral eye and anterior median eye, AME-AME = distances between anterior median eyes).

Taxonomy

Trechaleidae Simon, 1890

Paradossenus F.O. Pickard-Cambridge, 1903

Paradossenus F.O. Pickard-Cambridge 1903: 155; Carico 1993: 226; Sierwald 1993: 53; Brescovit *et al*. 2000: 7.
Xingusiella Mello-Leitão 1940: 23, fig. 1; Sierwald 1990: 51; Sierwald 1993:55; Carico & Silva 2010: 213. Synonymized by Sierwald, 1993.
Magnichela Silva & Lise 2006: 64. **New synonymy.**

Diagnosis. This genus resembles *Dossenus* Simon 1898 in the absence of the ental division (END) of the retrolateral tibial apophysis (RTA) (Carico & Silva 2010: figs 6, 12, 22, 26, 31, 44, 48), but can be distinguished by the metatarsi and tarsi of the legs that are straight and neither bent nor flexible as in some other relatively typical trechaleid genera; i.e., *Trechalea* Thorell 1869 and *Hesydrus* Simon 1898. Males are distinguished by the presence of a conspicuous ectal division of the RTA (ECD), which is not divided and is slender, acute and often somewhat curved (Carico & Silva 2010: figs 6, 12, 22, 26, 31, 44, 48). The female epigynum has a distinct middle field that is situated between a pair of distinct lateral elevations; internally there is wide variation, with the presence of conspicuous spermathecae and the presence of an accessory spermathecae attached to a sclerotized arch with membranous wing-shaped structures (W) (Carico & Silva 2010: figs 8, 14, 16, 18, 20, 24, 28, 33, 37, 42, 46).

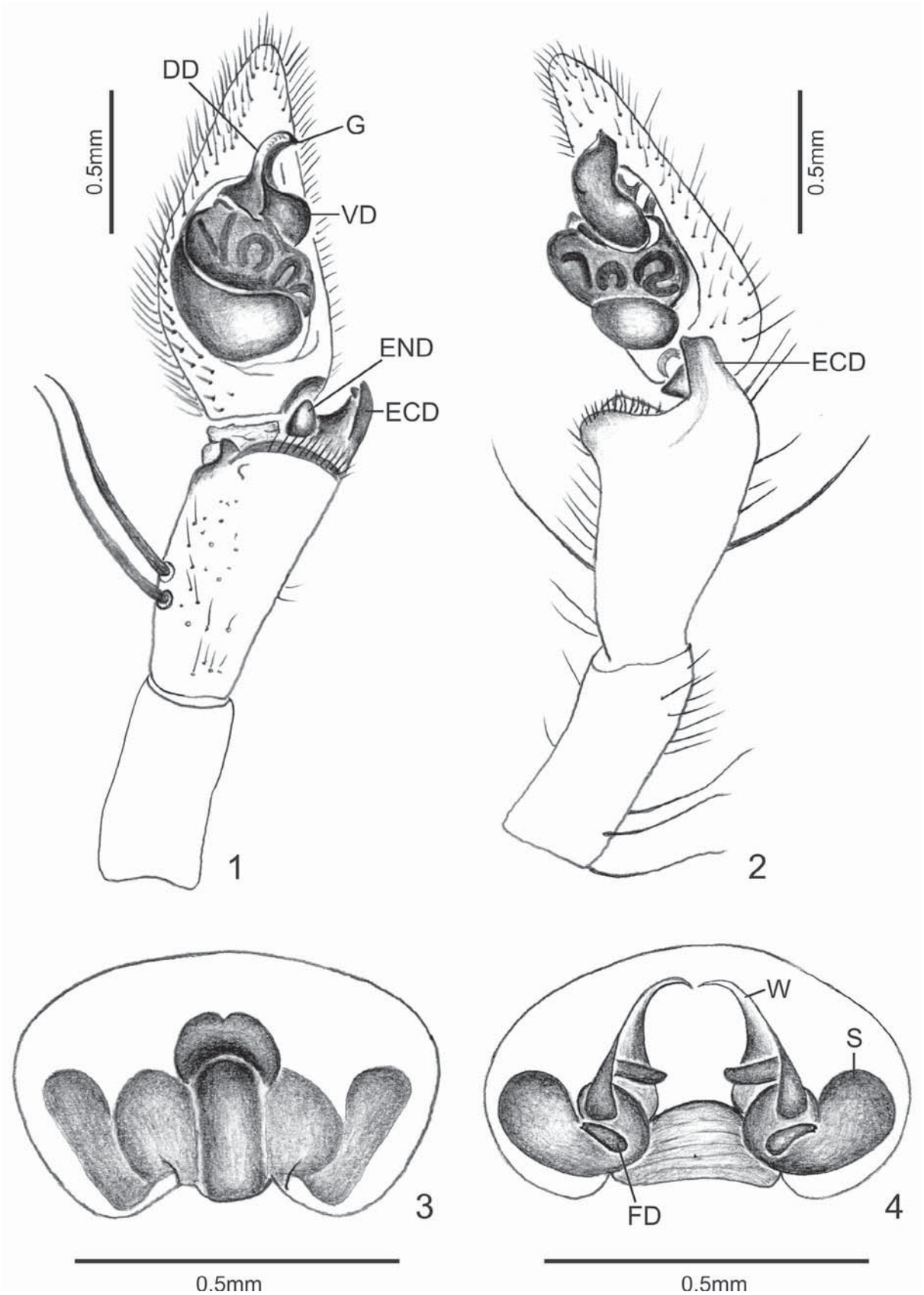
Paradossenus pulcher Sierwald, 1993

Figs 1, 2, 5

Paradossenus pulcher Sierwald, 1993: 58, figs 3, 4, 29, female holotype from Amazonas, upper Rio Bario, Venezuela [2°49'N, 65°06'W], 20.VII.1984, L. S. Ford & C. W. Myers (AMNH) (examined); Carico and Silva, 2010: 228.

Diagnosis. The male of *Paradossenus pulcher* is similar to that of *P. tocantins* Carico & Silva, 2010 (Carico & Silva 2010: 228, figs 17, 18) in the shape of the dorsal division of the median apophysis (Fig. 1), but can be distinguished by presence of an ental division on the retrolateral tibial apophysis (END) (Fig. 2). The females of *P. pulcher* can be distinguished from the other known species of *Paradossenus* by the unique shape of the middle field, which is connected anteriorlly to the anterior field of the epigynum by a narrow bridge, and by a deep cleft posteriorly at the midline forming a pair of lobes (Carico & Silva, 2010: 228, fig. 17).

Description. Male (Amazonas, Novo Airão/Moura, Brazil, IBSP 39940). Total length 7.47. Carapace 3.32 long, 3.07 wide, yellowish, with two median light brown bands, darker laterally. Clypeus yellowish, 0.10 high. Anterior eye row slightly procurved, 0.94 wide; posterior 1.50 wide, recurved. Eye diameters, interdistances, and median ocular quadrangle: AME 0.22, ALE 0.16, PME 0.20, PLE 0.21; AME-AME 0.14, AME-ALE 0.09, PME-PME 0.46, PME-PLE 0.30, OQA 0.52, OQP 0.88, OQH 0.46. Chelicerae yellowish, scattered setae; promargin with three teeth, retromargin of fang furrow with four teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.41 long, 1.49 wide. Labium light brown, 0.58 long, 0.49 wide. Legs yellowish, relative length: I-IV-II-III, I—femur 7.88/ tibia-patella 10.64/ metatarsus 7.89/ tarsus 3.65/ total 30.06; II—4.98/ 5.81/ 3.99/ 1.90/ 16.68; III—2.90/ 3.07/ 2.49/ 1.49/ 9.95; IV—5.22/ 7.47/ 5.39/ 1.98/ 20.06. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 4.15 long, light brown, with a median whitish T-shaped mark anteriorlly, scattered setae on dorsum. Venter grayish, with scattered setae. Palpus with distinguished dorsal and ventral divisions of the median apophysis and acute guide (Fig. 1). Retrolateral tibial apophysis with two branches (ental and ectal divisions) (Fig. 2).



FIGURES 1–4. *Paradossenus pulcher* Sierwald, 1993. 1–2. male palpus (1 ventral view, 2 retrolateral). *Paradossenus makuxi* **sp. n.** 3, 4. female epigynum (3 ventral view, 4 dorsal). (DD = dorsal division of median apophysis, ECD = ectal division of the retrolateral tibial apophysis, END = ental division of the retrolateral tibial apophysis, FD = fertilization duct, G = guide of median apophysis, S = spermathecae, VD = ventral division of median apophysis, W = wing-shaped structures).

Material examined. BRAZIL, *Amazonas*: Novo Airão/Moura, Parque Nacional do Jaú, Igapó do rio Jaú [2°37'S, 60°56'W], 1 ♂, 1 ♀, 30.VI.2000, E. M. Venticinque *leg*. (IBSP 39940).

Distribution. Ecuador, Venezuela, Brazil (Amazonas, Mato Grosso) (Fig. 5).

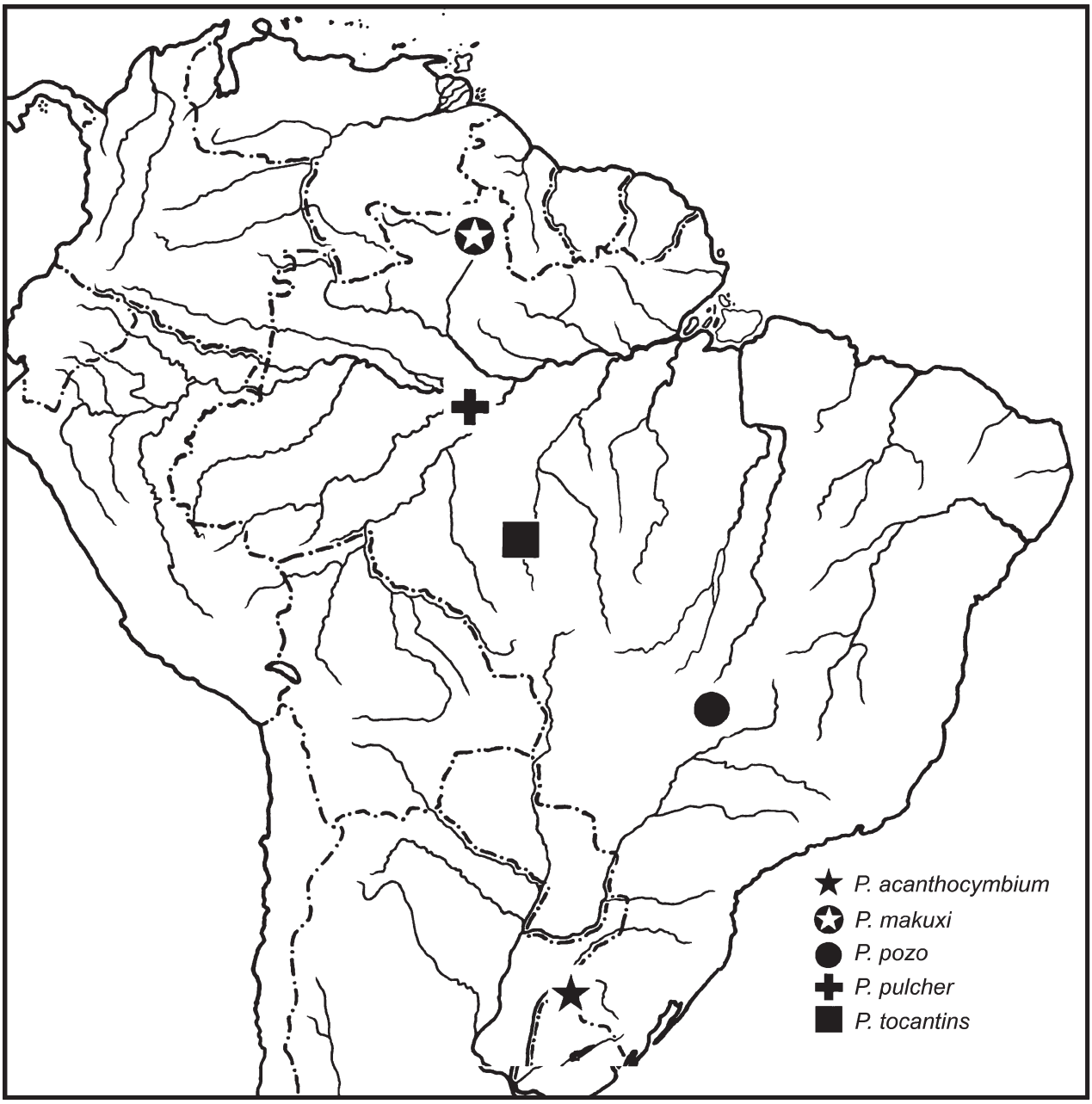


FIGURE 5. Distribution of *Paradossenus* species in Brazil.

***Paradossenus makuxi* new species**
Figs 3, 4, 5

Type. Female holotype from Surumu, Roraima, Brazil [4°19'N, 60°44'W], IX.1966, M. Alvarenga *leg*., deposited in MZSP 11594.

Etymology. The specific name is a noun, and refers to the Indian tribe Makuxi, which inhabits the Northeastern areas of Roraima, Brazil.

Diagnosis. The female of *P. makuxi* **sp. nov.** is similar to that of *P. acanthocymbium* Carico & Silva, 2010 (Carico & Silva 2010: 231, figs 41, 42) in the general shape of the middle field of epigynum, the lateral lobes (LL)

(Fig. 3) and the presence of a flattened accessory spermathecae (AS) (Fig. 4), but can be distinguished by the larger spermathecae and by the elongated wing-shaped structures (W) (Fig. 4).

Description. Female (Holotype, Surumu, Roraima, Brazil, MZSP 11594). Total length 8.54. Carapace, 3.48 long, 3.15 wide, light brown, darker laterally. Clypeus light brown, 0.26 high. Anterior eye row slightly straight, 0.90 wide; posterior 1.66 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.18, ALE 0.12, PME 0.24, PLE 0.20; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.43, PME-PLE 0.28, OQA 0.48, OQP 0.88, OQH 0.53. Chelicerae dark brown, bristly, without lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, with scattered setae; 1.49 long, 1.57 wide. Labium light brown, darker anteriorlly, 0.74 long, 0.58 wide. Legs light brown with dark brown annuli on femora, relative length: I-II-IV-III, I—femur 4.15/ tibia-patella 5.39/ metatarsus 3.98/ tarsus 1.49/ total 15.01; II—4.16/ 5.31/ 3.56/ 1.57/ 14.60; III—2.32/ 2.73/ 2.07/ 0.83/ 7.95; IV—2.47/ 3.15/ 3.01/ 0.91/ 9.54. Ventral pairs of macrosetae on tibiae: I-4; II-3; III-3; IV-3. Abdomen, 4.98 long, light gray, bristly, with small light dots. Venter light yellow, with scattered setae. Epigynum with conspicuous lateral lobes (Fig. 3) and rounded spermathecae (Fig. 4).

Distribution. Known only from the type locality (Roraima, Brazil) (Fig. 5).

Male. Unknown.

Paradossenus santaremensis (Silva & Lise, 2006) new combination

Paradossenus amazonensis Carico & Silva, 2010: 231, figs 34–37, male holotype from Novo Airão, Arquipélago de Anavilhanas, Amazonas, Brazil, VII.2004, S. C. Dias *leg*. (MCTP 22514) (examined).

Magnichela santaremensis Silva & Lise 2006: 65, figs 6–12, male holotype from Alter do Chão, Santarém, Pará, Brazil, 29.I.1994, A. D. Brescovit *leg*. (MCN 25049) (examined). **New synonymy.**

Remarks. Silva and Lise (2006) described the genus based on one male, which has an enlarged anterior face of the chelicerae. After the examination of the male holotype of *Magnichela santaremensis*, we noticed that the male palpus is identical to that of *Paradossenus amazonensis*.

New records

Paradossenus acanthocymbium Carico & Silva, 2010

Paradossenus acanthocymbium Carico & Silva, 2010: 231, figs 38–42, male holotype and female paratype from Corumbá, Mato Grosso do Sul, Brazil, VII.1998-IX.1999, R. Raizer *leg.* (IBSP).

Distribution. Brazil (Mato Grosso do Sul, Rio Grande do Sul).

Additional record. BRAZIL, *Rio Grande do Sul*: Uruguaiana, Imbaá [29°44'S, 57°05'W], 1 ♂, 1 ♀, I.2009, R. Alves *leg.* (MCTP) (Fig. 5).

Paradossenus tocantins Carico & Silva, 2010

Paradossenus tocantins Carico & Silva, 2010: 229, figs 25–28, male holotype from Tocantins, Miracema, Usina Hidrelétrica Eduardo Magalhães, Brazil, 11-21 Oct. 2001, R. Bertani & I. Toledo (IBSP 31553).

Distribution. Brazil (Tocantins, Mato Grosso).

Additional record. BRAZIL, *Mato Grosso*: Tapirapis [12°39'S, 56°55'W], 1 ♂, 11-30.XI.1960, B. Malkin *leg*. (MZSP 10714) (Fig. 5).

Paradossenus pozo Carico & Silva, 2010

Paradossenus pozo Carico & Silva, 2010: 233, figs 47–50, male holotype and female paratypes from Magdalena, Pozo Colorado, 11 km W Santa Maria, Colombia, 25-30 April 1986, B. Malkin *leg*., deposited in AMNH.

Distribution. Colombia (Magdalena); Brazil (Mato Grosso do Sul) (Fig. 5).

Additional record. BRAZIL, *Mato Grosso do Sul*: Três Lagoas (Fazenda Floresta) [20°45'S, 51°41'W], 1 ♀, 17.IX.1964, unknown collector (MZSP 3628).

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Correspondence

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A new species of *Dossenus* Simon, 1898 (Araneae, Trechaleidae) from Northern Brazil

ESTEVAM L. CRUZ DA SILVA[1] & ARNO A. LISE[2]
Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Porto Alegre, RS, Brazil.
E-mail: [1]estevamsilva@gmail.com; [2]lisearno@pucrs.br

The genus *Dossenus* Simon, 1903 was revised by Silva *et al.* (2007) and includes two species: *D. marginatus* Simon, 1898 (type-species) (Trinidad-Tobago, Colombia, Peru, Brazil) and *D. guapore* Silva, Lise & Carico, 2007 (Panama, Colombia, Brazil). Silva & Lise (2010) recently described and illustrated the male of *D. guapore* from Mato Grosso do Sul, Brazil. Members of this genus are characterised by the median dark brown band on the carapace extending to the abdomen, the spoon-like shape of the median apophysis on the male palpus resembling that of *Enna* O. Pickard-Cambridge, 1897 and the female epigynum, which has a slightly projected scape (Silva *et al.* 2007).

In this work we describe and illustrate one new species, *D. paraensis*, from Pará, Northern Brazil.

The material examined is deposited in Museu de Ciências e Tecnologia of Pontifícia Universidade Católica do Rio Grande do Sul, Brazil (**MCTP**, A.A. Lise). The nomenclature of the female epigynum structures follows Carico (1993) and Silva *et al*. (2007). To facilitate examination of the epigynum, it was excised and the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme tripsine for 48 hours at 25°C. All measurements are in millimetres. Abbreviations related to eye measurements: OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye and posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye , ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = interdistance between posterior lateral eye and posterior median eye, PME-PME = interdistance between posterior median eyes, ALE-AME = interdistance between anterior lateral eye and anterior median eye, AME-AME = interdistances between anterior median eyes.

Taxonomy

Dossenus paraensis new species

Figs. 1, 2

Type material: Holotype: female from Pará, Brazil [06°09’42.49”S, 52°42’10.07’W], XI.1945, C. D. Michener (MCTP 8865).

Etymology. The specific name is a noun in apposition, referring to the type locality.

Diagnosis. The female of *D. paraensis* **sp. n.** can be distinguished from those of *D. marginatus* Simon, 1898 and *D. guapore* (Silva *et al*. 2007, pp. 142, 148, figs. 7, 8, 31, 32) by the presence of a short median projection on the scape of the epigynum (Fig. 1). This new species has only four pairs of ventral macrosetae on tibia I and II, differing from *D. marginatus* and *D. guapore*, which has five pairs.

Description. Female (Holotype, MCTP 8865). Total length 8.05. Carapace 4.06 long, 3.15 wide, light yellow with a median light brown band surrounded by a white line extending to the abdomen, darker laterally. Clypeus light yellow, 0.26 high. Anterior eye row slightly recurved, 0.80 wide; posterior 1.60 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.14, ALE 0.12, PME 0.30, PLE 0.22; AME-AME 0.14, AME-ALE 0.10, PME-PME 0.30, PME-PLE 0.40, OQA 0.40, OQP 0.82, OQH 0.68. Chelicerae light brown, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum light yellow with scattered setae; 2.07 long, 1.66 wide. Labium yellow, 0.33 long, 0.48 wide. Legs yellow, relative length: IV-I-II-III, I – femur 4.31/ tibia-patella 5.39/

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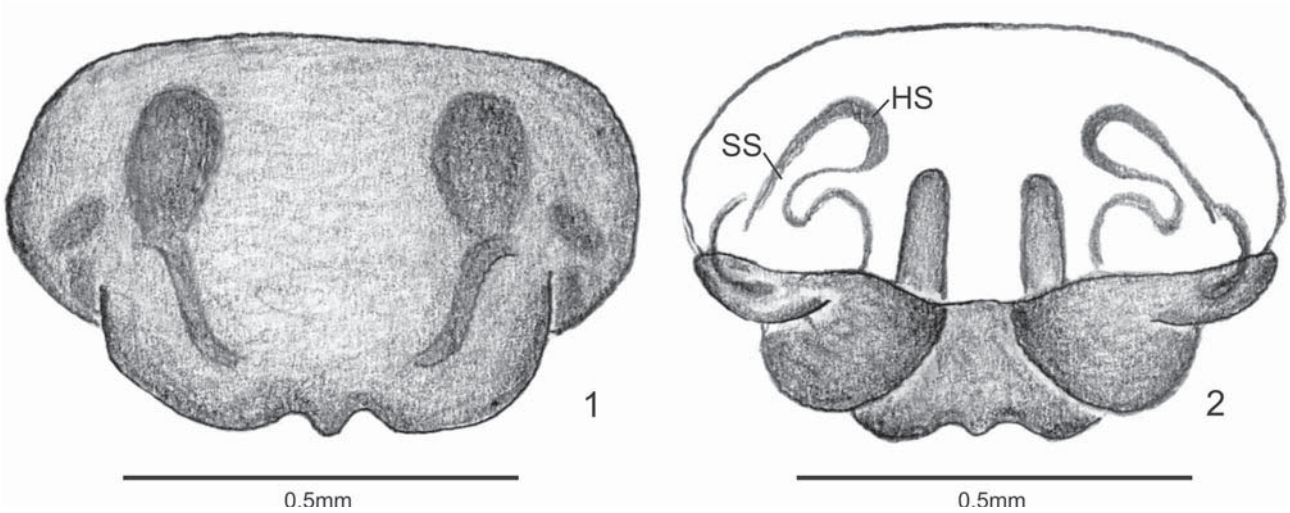
metatarsus 4.31/ tarsus 2.07/ total 16.08; II – 4.23/ 5.47/ 3.65/ 1.90/ 15.25; III – 3.32/ 3.73/ 2.24/ 1.41/ 10.70; IV – 4.73/ 5.56/ 4.56/ 2.10/ 16.95. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen, 3.98 long, light brown, with dark brown setae on anterior portion; dorsum with a median light brown band. Venter light gray, with scattered setae. Epigynum with prominent scape, presenting a short projection on the anterior margin (Fig. 1). Stalk of spermathecae (SS) elongated and head of spermathecae (HS) elliptical (Fig. 2).

Male. Unknown.

Distribution. Known only from the type locality.



FIGURES 1, 2. *Dossenus paraensis* **sp. n.** female genitalia (1 epigynum, ventral view, 2 internal genitalia, dorsal view). (HS = head of spermathecae; SS = stalk of spermathecae).

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Article

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Seven new species of *Enna* (Araneae: Trechaleidae) from Central and South America

ESTEVAM L. CRUZ DA SILVA[1] & ARNO A. LISE[2]

Programa de Pós-Graduação em Zoologia, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Faculdade de Biociências, Museu de Ciências e Tecnologia (MCTP), Laboratório de Aracnologia, Prédio 40, Sala 125, Av. Ipiranga 6681, 90619-900, Porto Alegre, RS, Brazil. E-mail: [1]estevamsilva@gmail.com; [2]lisearno@pucrs.br

Abstract

Seven new species of the spider genus *Enna* O. Pickard-Cambridge, 1897 from Central and South America are described and illustrated for the first time: *Enna carinata* **sp. nov.** (male, Panama), *E. triste* **sp. nov.** (male, Venezuela), *E. caricoi* **sp. nov.** (male, Colombia), *E. venezuelana* **sp. nov.** (female, Venezuela), *E. silvae* **sp. nov.** (female, Peru), *E. frijoles* **sp. nov.** (female, Panama) and *E. zurqui* **sp. nov.** (female, Costa Rica). A new record of *Enna estebanensis* (Simon, 1898) is reported from Ecuador.

Key words: taxonomy, morphology, Neotropical region

Introduction

The spider genus *Enna* O. Pickard-Cambridge, 1897 was revised by Silva *et al*. 2008 and 18 new species were described and illustrated. Subsequently a new species, *E. echarate* Silva & Lise, 2009, was described from Peru (Silva & Lise 2009a) and four new species were described from Brazil: *E. trivittata* Silva & Lise, 2009, *E. segredo* Silva & Lise, 2009, *E. meridionalis* Silva & Lise, 2009 and *E. caparao* Silva & Lise, 2009 (Silva & Lise 2009b). All five of these species are known only from female specimens.

The genus *Enna* is distributed in the Americas, from México to Southern Brazil, and currently comprises 27 species (Platnick 2011).

In this work we describe and illustrate seven new species: *Enna carinata* **sp. nov.** (Panama), *E. triste* **sp. nov.** (Venezuela), *E. caricoi* **sp. nov.** (Colombia), *E. venezuelana* **sp. nov.** (Venezuela), *E. silvae* **sp. nov.** (Peru), *E. frijoles* **sp. nov.** (Panama) and *E. zurqui* **sp. nov.** (Costa Rica). A new record for *Enna estebanensis* (Simon, 1898) in Ecuador is also presented.

Material and methods

The material examined is deposited in American Museum of Natural History, New York, USA (AMNH), Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Brazil (MCTP), Museum of Comparative Zoology, Cambridge, USA (MCZ) and Museo de Historia Natural de la Universidad Mayor de San Marcos, Lima Peru (MUSM). The nomenclature of the male palpus and female epigynum structures follows Carico (1993), Silva *et al*. (2008) and Silva & Lise (2009a, 2009b). To facilitate study of the excised epigyna, the soft tissue was removed by a combination of dissection with a small surgical blade and immersion in the enzyme trypsin for 48 hours at 25°C. All measurements are in millimeters. Abbreviations related to eye measurements (OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye and posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye , ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = distance between posterior

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lateral eye and posterior median eye, PME-PME = distance between posterior median eyes, ALE-AME = distance between anterior lateral eye and anterior median eye, AME-AME = distances between anterior median eyes). Abbreviations related to male and female genitalia: CO = copulatory ducts; DD = dorsal division of median apophysis; ECD = ectal division of retrolateral tibial apophysis (RTA); FD = fertilization ducts; G = guide; HS = head of spermathecae; LL = lateral lobe; LLA = lateral lamella; LP = lateral projection on the ectal division of the retrolateral tibial apophysis; MA = median apophysis; MF = middle field of epigynum; RTA = retrolateral tibial apophysis; ST = subtegulum; T = tegulum.

Taxonomy

Trechaleidae Simon, 1890

Genus *Enna* O. Pickard-Cambridge 1897

Enna O. Pickard-Cambridge 1897: 232, figs 13a–c.
Type species. *Enna velox* O. Pickard-Cambridge 1897, by original designation.

Diagnosis. This genus resembles *Dossenus* Simon, 1898 by the general shape of the dorsal division of the median apophysis, which is concave and ends in an acute guide (Silva *et al*., 2008, figs 9, 10), and by the tarsi and metatarsi that are short and straight compared to the long and flexible tarsi of *Trechalea* Thorell, 1869 and *Trechaleoides* Carico, 2005. The dorsal division of the median apophysis is always larger than the ventral division and is usually concave. The guide of the distal portion of the dorsal division of the median apophysis is curved, directed retrolaterally, and narrowed to an acute point. The ventral division of the median apophysis is absent or extremely reduced, e.g., *E. estebanensis*, *E. colonche* **sp. nov.** and *E. caliensis* **sp. nov.** (Silva *et al*., 2008, figs 58, 59, 67, 81, 82). The ectal division of the retrolateral tibial apophysis is prominent, generally with a small lateral translucent but sclerotized projection (LP, Silva *et al*., 2008, fig. 1). The middle field of the epigynum is conspicuous, hood-like, concave beneath, and comprises part of the dorsal rim of the epigastric furrow. Internally, each side of the epigynum has a large, conspicuous globose dorsal spermatheca and a small ventral spermatheca (Silva *et al*., 2008, fig. 2).

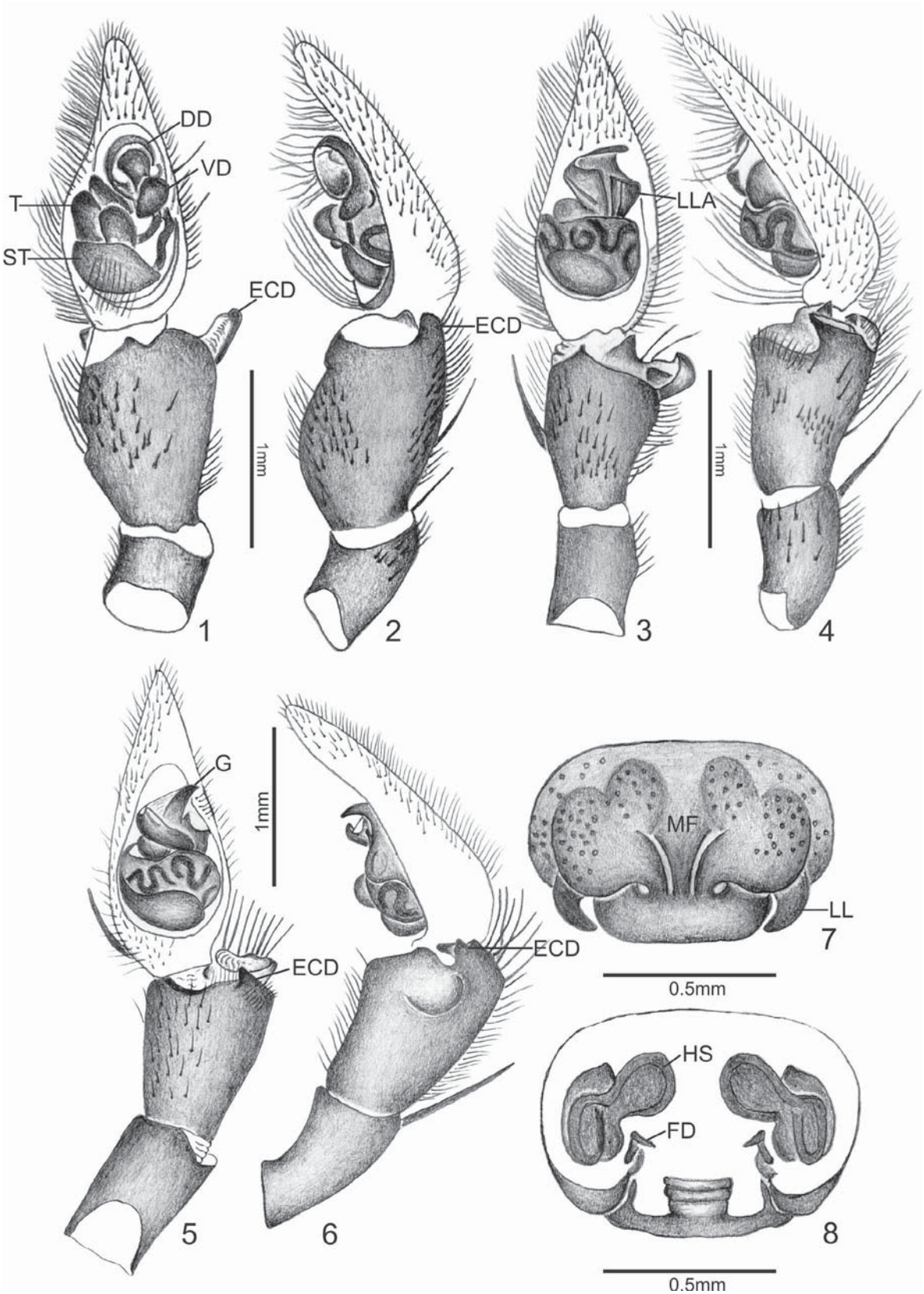
Enna carinata new species
Figs 1, 2

Type. Male holotype from Colon Province, Santa Rosa, Panama [09°02’00.38”N, 80°10’03.10’W], XI.1945, C. D. Michener (AMNH).

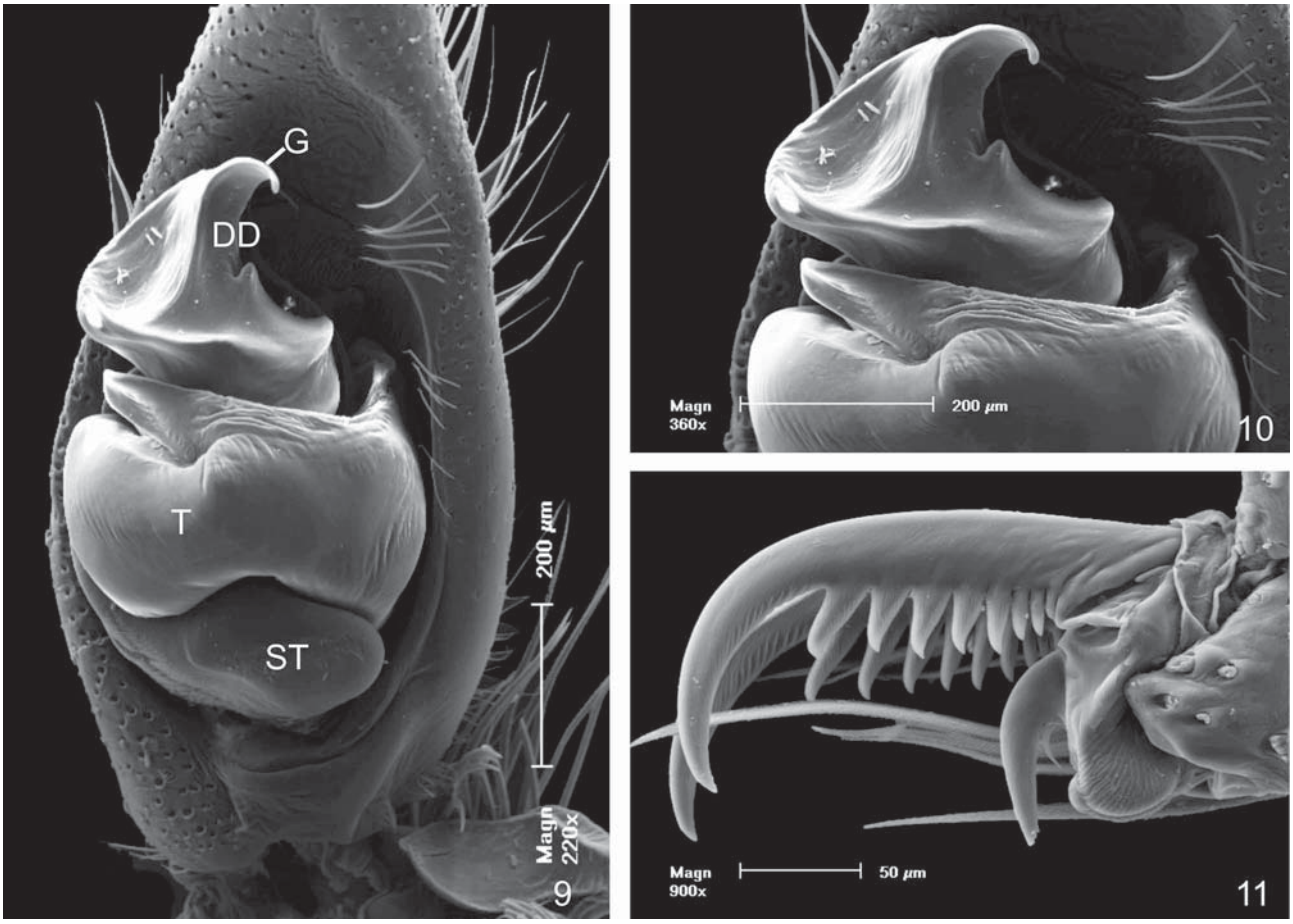
Etymology. The specific name is an adjective referring to the marked and conspicuous lateral carina on the male chelicerae.

Diagnosis. The male of *E. carinata* **sp. nov.** resembles those of *E. igarape* Silva, Lise & Carico, 2008 by the presence of the ventral division of the median apophysis (VD) (Silva *et al*. 2008, p. 96, figs 100, 101), but can be distinguished by the shorter and wider ectal division (ECD) of the retrolateral tibial apophysis (RTA) (Fig. 2).

Description. Male (Holotype, Colon Province, Santa Rosa, Panama, AMNH). Total length 6.47. Carapace 3.65 long, 2.82 wide, light brown, darker laterally. Clypeus light brown, 0.26 high. Anterior eye row straight, 0.66 wide; posterior 1.40 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.12, ALE 0.06, PME 0.16, PLE 0.20; AME-AME 0.22, AME-ALE 0.24, PME-PME 0.60, PME-PLE 0.08, OQA 0.46, OQP 0.90, OQH 0.48. Chelicerae light brown, glabrous, with marked and conspicuous lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish with scattered setae; 1.66 long, 1.49 wide. Labium yellowish, 0.49 long, 0.58 wide. Legs light brown, relative length: II-IV-III. Leg measurements: I—femur 4.15 (only left femur of leg I present); II—femur 4.31/ tibia-patella 5.56/ metatarsus 3.73/ tarsus 1.66/ total 15.26; III—3.15/ 4.15/ 2.98/ 1.24/ 11.52; IV—4.12/ 4.98/ 4.15/ 1.74/ 14.99. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 2.57 long, grayish, with several irregular white patches on dorsum. Venter grayish, with scattered setae. Palpus with enlarged dorsal division of the median apophysis (DD, Fig. 1). Retrolateral tibial apophysis with a short and wide ectal division (ECD, Fig. 2).



FIGURES 1–8. *Enna carinata* **sp. nov.** 1, 2. male palpus (1 ventral, 2 retrolateral). *Enna triste* **sp. nov.** 3, 4. male palpus (3 ventral, 4 retrolateral). *Enna caricoi* **sp. nov.** 5, 6. male palpus (5 ventral, 6 retrolateral). *Enna venezuelana* **sp. nov.** 7, 8. female epigynum (7 ventral, 8 dorsal). (DD, dorsal division of the median apophysis; ECD, ectal division of the retrolateral tibial apophysis; FD, fertilizations ducts; HS, head of spermathecae; LL, lateral lobe; LLA, lateral lamella; MF, middle field of epigynum; ST, subtegulum; T, tegulum; VD, ventral division of the median apophysis).



FIGURES 9–11. *Enna caricoi* **sp. nov.** 9, 10. male palpus (9 ventral, 10 detail of median apophysis). 11. detail of tarsal claw of right leg II. (DD, dorsal division of the median apophysis; G, guide of median apophysis ST, subtegulum; T, tegulum).

Distribution. Known only from the type locality (Colon Province, Santa Rosa, Panama).

Female. Unknown.

Enna triste new species

Figs 3, 4

Type. Male holotype from Golfo Triste, Venezuela [10°00'21.65"N, 66°55'49.44'W], 06.IX.1942, W. M. Beeber (AMNH).

Etymology. The specific name is a noun and refers to the type locality.

Diagnosis. The male of *E. triste* **sp. nov.** resembles those of *E. huanuco* Silva, Lise & Carico 2008 by the general shape of the dorsal division (DD) of the median apophysis (Silva *et al*. 2008, p. 91, fig. 73), but can be distinguished by the larger lateral lamella (LLA) on the dorsal division of the median apophysis (Fig. 3) and by the slender, acute ectal division (ECD) of the retrolateral tibial apophysis (RTA) (Fig. 4).

Description. Male (Holotype, Golfo Triste, Venezuela, AMNH). Total length 6.22. Carapace 4.15 long, 3.48 wide, dark brown. Clypeus dark brown, 0.28 high. Anterior eye row straight, 0.94 wide; posterior 1.70 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.18, ALE 0.14, PME 0.22, PLE 0.26; AME-AME 0.12, AME-ALE 0.07, PME-PME 0.40, PME-PLE 0.34, OQA 0.50, OQP 0.90, OQH 0.64. Chelicerae dark brown, swollen distally, glabrous, with lateral carina; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum light brown, darker laterally, scattered setae; 1.49 long, 1.99 wide. Labium dark brown, light brown distally, 0.41 long, 0.66 wide. Legs dark brown, unmarked, relative length: II-IV-III. Leg measurements: I—femur 6.22/ tibia-patella 7.71/ metatarsus 6.30/ tarsus 2.98/ total 23.21; II—6.25/ 8.72/ 7.55/ 2.57/ 25.09; III—5.06/ 6.22/ 5.56/ 1.85/ 18.69. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3. Abdomen 2.90 long,

grayish, with irregular white patches on dorsum; three pairs of sigilla. Venter light gray, unmarked. Palpus with enlarged lateral lamella (LLA) on the dorsal division of the median apophysis (Fig. 3). Retrolateral tibial apophysis with a prominent and slender ectal division (ECD) (Fig. 4).

Distribution. Known only from the type locality (Golfo Triste, Venezuela).

Female. Unknown.

Enna caricoi new species

Figs 5, 6, 9–11

Type. Male holotype from San Pablo, San Pedro, Colombia [10°03'07.73"N, 75°16'07.27'W], 13.V.1975, J. A. Kochalka (MCTP 8869).

Etymology. The specific name is a patronym in honor of the late arachnologist James E. Carico, who made many contributions to the taxonomy of the Trechaleidae.

Diagnosis. The male of *E. caricoi* **sp. nov.** resembles those of *E. redundans* (Platnick, 1993) by the long and acute guide (G) of the median apophysis (Silva *et al*. 2008, p. 107, fig. 153), but can be distinguished by the slender and curved tip of the guide (G) (Fig. 5), by the presence of a lateral tooth-like projection on the dorsal division (DD) of the median apophysis (Figs 9, 10) and by the short and rounded tip of the ectal division (ECD) of the retrolateral tibial apophysis (Fig. 6).

Description. Male (Holotype, San Pablo, San Pedro, Colombia, MCTP 8869). Total length 7.63. Carapace 3.75 long, 2.82 wide, light brown, darker laterally; small dark brown bristles laterally; fovea with dark mark. Clypeus light brown, 0.30 high. Anterior eye row straight, 0.90 wide; posterior 1.60 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.16, ALE 0.14, PME 0.26, PLE 0.24; AME-AME 0.14, AME-ALE 0.08, PME-PME 0.36, PME-PLE 0.20, OQA 0.42, OQP 0.84, OQH 0.52. Chelicerae reddish-brown, with small light brown setae; lateral carina conspicuous, depressed distally, near the fangs; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum light brown, scattered setae; 1.92 long, 1.86 wide. Labium light brown, whitish distally, 0.62 long, 0.68 wide. Legs light brown, scattered dark brown spots on femora, relative length: II-IV-I-III. Leg measurements: I—femur 5.97/ tibia-patella 7.63/ metatarsus 7.96/ tarsus 2.15/ total 23.71; II—6.64/ 10.77/ 8.38/ 2.82/ 28.61; III—4.81/ 5.81/ 4.98/ 0.99/ 16.59; IV—6.80/ 9.57/ 7.71/ 1.82/ 25.90. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Superior tarsal claw with eight teeth and inferior tarsal claw with one tooth (Fig. 11). Abdomen 3.98 long, grayish, dorsum with a median light brown band and two pairs of sigilla. Venter grayish, with scattered setae. Palpus with a prominent and acute guide (G) on the dorsal division of the median apophysis (Fig. 5). Retrolateral tibial apophysis short with a rounded ectal division (ECD) (Fig. 6).

Distribution. Known only from the type locality (San Pablo, San Pedro, Colombia).

Female. Unknown.

Enna venezuelana new species

Figs 7, 8

Type. Female holotype from Tach, 20 km from San Cristo, Venezuela [10°30'00.22"N, 66°55'00.13'W], 20–22.V.1974, S. Peck (MCZ).

Etymology. The specific name is a noun and refers to the type locality.

Diagnosis. The females of *E. venezuelana* **sp. nov.** resembles those of *E. baeza* Silva, Lise & Carico, 2008 by the general shape of the middle field (MF) of the epigynum (Silva *et al*. 2008, p. 93, fig. 79), but can be distinguished by the presence of conspicuous lateral lobes (LL) (Fig. 7) and by the absence of distal projections on the head of spermathecae (Fig. 8).

Description. Female (Holotype, Tach, Venezuela, MCZ). Total length 9.51. Carapace, 4.15 long, 3.56 wide, light brown, darker laterally; fovea with dark mark. Clypeus light brown with small dark bristles anteriorly, 0.36 high. Anterior eye row straight, 0.98 wide; posterior 1.78 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.20, ALE 0.16, PME 0.26, PLE 0.28; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.44,

PME-PLE 0.34, OQA 0.46, OQP 0.96, OQH 0.62. Chelicerae reddish-brown, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellow, scattered setae; 1.90 long, 1.99 wide. Labium dark brown, light distally, 0.58 long, 0.74 wide. Legs light brown with dark brown spots on femora, relative length: IV-I-II-III. Leg measurements: I—femur 5.58/ tibia-patella 7.98/ metatarsus 5.98/ tarsus 2.52/ total 22.06; II—6.11/ 5.98/ 5.85/ 2.26/ 20.20; III—5.32/ 5.95/ 4.78/ 1.72/ 17.77; IV—5.98/ 7.71/ 6.65/ 2.22/ 22.56. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 5.22 long, dark brown with two pairs of sigilla. Venter grayish, unmarked. Middle field of the epigynum (MF) with a small, short scape-like projection (Fig. 7). Head of spermathecae rounded and with conspicuous fertilization ducts (FD) (Fig. 8).

Distribution. Known only from the type locality (Tach, Venezuela).

Male. Unknown.

***Enna silvae* new species**
Figs 12, 13

Type. Female holotype from Madre de Dios, 15 km E from Puerto Maldonado, Peru [11°45'33.54"S, 70°48'52.44'W], 17.VII.1989, D. Silva (MUSM). Paratypes: two females, same locality and data as holotype (MUSM, MCTP 8868)

Etymology. The specific name is a matronym in honor of the collector of the types, Diana Silva.

Diagnosis. The females of *E. silvae* **sp. nov.** resembles those of *E. hara* Silva, Lise & Carico, 2008 by the shape of the middle field of the epigynum (MF) (Silva *et al*. 2008, p. 94, fig. 76), but can be distinguished by smooth median area of the middle field of the epigynum (MF) (Fig. 12) and by the rounded head of spermathecae (Fig. 13).

Description. Female (Holotype, Madre de Dios, Peru, MUSM). Total length 4.81. Carapace 2.24 long, 2.07 wide, dark brown with a median light brown band. Clypeus dark brown, 0.18 high. Anterior eye row slightly recurved, 0.60 wide; posterior 1.24 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.12, ALE 0.08, PME 0.18, PLE 0.20; AME-AME 0.10, AME-ALE 0.02, PME-PME 0.30, PME-PLE 0.16, OQA 0.36, OQP 0.72, OQH 0.44. Chelicerae dark brown, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum light brown, with dark brown patches laterally; scattered setae; 0.99 long, 0.91 wide. Labium dark brown, lighter distally, 0.33 long, 0.41 wide. Legs light brown with dark brown annuli on femora, relative length: IV-I-II-III. Leg measurements: I—femur 2.49/ tibia-patella 3.32/ metatarsus 2.40/ tarsus 0.99/ total 9.20; II—2.24/ 3.40/ 2.24/ 0.91/ 8.79; III—1.99/ 2.33/ 1.90/ 0.83/ 7.05; IV—2.40/ 2.98/ 2.90/ 1.03/ 9.31. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 2.49 long, dark gray, with several irregular white patches on dorsum. Venter grayish, with scattered setae. Middle field of the epigynum (MF) smooth and not projected (Fig. 12). Head of spermathecae rounded and with inconspicuous fertilization ducts (FD) (Fig. 13).

Distribution. Known only from the type locality (Madre de Dios, Peru).

Male. Unknown.

***Enna frijoles* new species**
Figs 14, 15

Type. Female holotype from Canal Zone, Frijoles river, Panama [09°07'09.82"N, 79°43'12.93'W], 19.II.1976, A. Newton (MCZ 91419).

Etymology. The specific name is a noun and refers to the type locality.

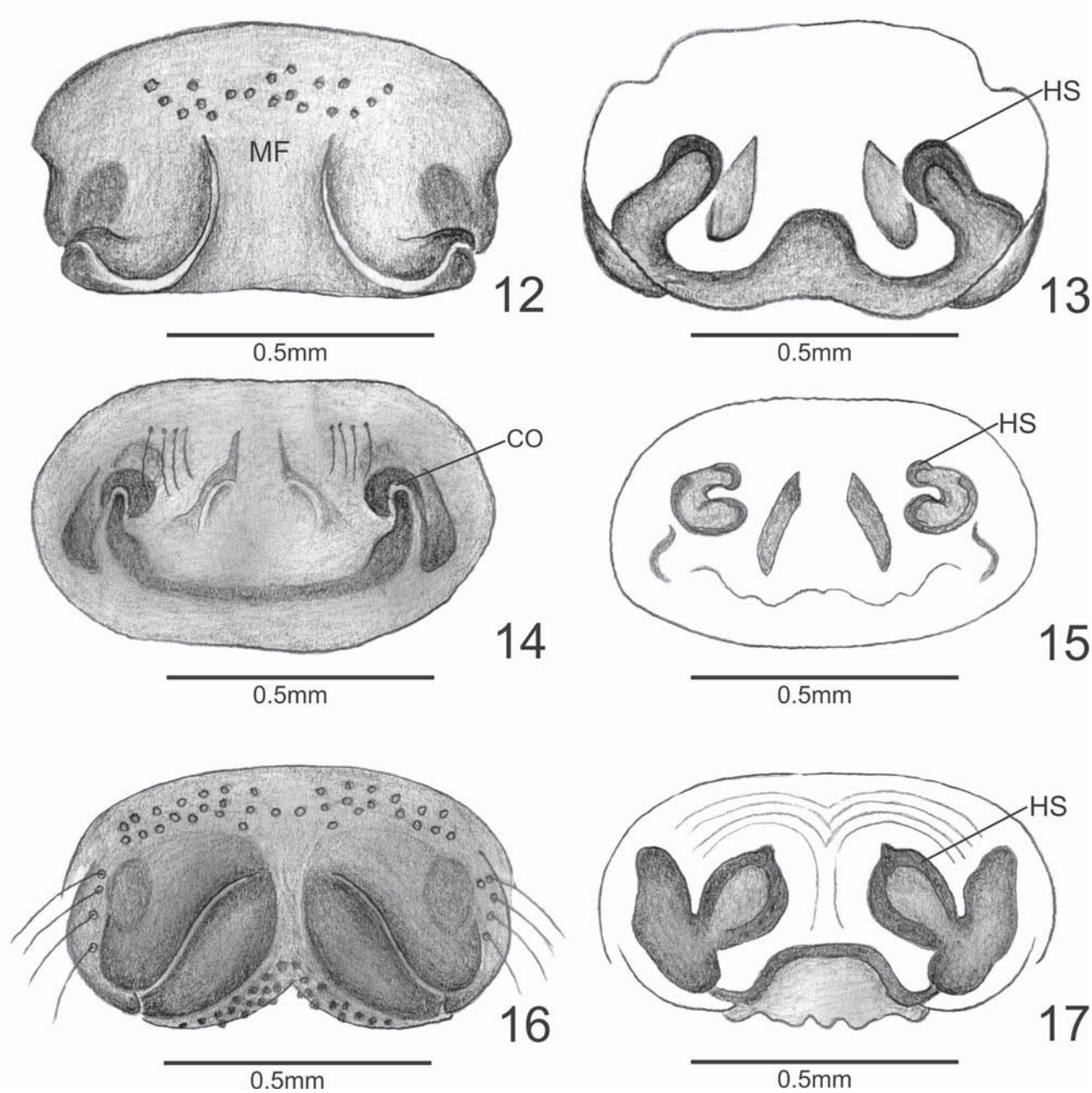
Diagnosis. The female of *E. frijoles* **sp. nov.** resembles those of *E. nesiotes* Chamberlin, 1925 by the shape of the middle field (MF) of the epigynum and by the short and curved spermathecae (Silva *et al*. 2008, p. 82, figs 18, 19), but can be distinguished by a smooth middle field of epigynum without excavations (Fig. 14) and by the conspicuous copulatory openings (CO) (Fig. 14).

Description. Female (Holotype, Canal Zone, Frijoles river, Panama, MCZ 91419). Total length 5.97. Carapace 3.07 long, 2.82 wide, light brown, with irregular dark brown pattern laterally; scattered setae. Clypeus brownish, 0.26 high. Anterior eye row straight, 0.82 wide; posterior 1.50 wide. Eye diameters, interdistances, and median

ocular quadrangle: AME 0.14, ALE 0.10, PME 0.16, PLE 0.14; AME-AME 0.16, AME-ALE 0.06, PME-PME 0.52, PME-PLE 0.28, OQA 0.46, OQP 0.88, OQH 0.44. Chelicerae reddish-brown bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish, darker laterally; bristly, 1.32 long, 1.49 wide. Labium light brown, slightly darker laterally, 0.49 long, 0.49 wide. Legs light brown, with irregular dark spots on femora, relative length: IV-II-I-III. Leg measurements: I—femur 2.65/ tibia-patella 3.81/ metatarsus 2.63/ tarsus 1.07/ total 10.16; II—3.23/ 3.98/ 2.24/ 1.03/ 10.48; III—2.73/ 3.32/ 2.49/ 0.83/ 9.37; IV—3.32/ 4.23/ 3.56/ 1.16/ 12.27. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 3.07 long, grayish, with irregular dark brown bands laterally, bristly. Venter light gray. Middle field of epigynum wide, smooth and not projected (Fig. 14). Head of spermathecae (HS) short and small (Fig. 15).

Distribution. Known only from the type locality (Canal Zone, Panama).

Male. Unknown.



FIGURES 12–17. *Enna silvae* **sp. nov.** 12, 13. female epigynum (12 ventral, 13 dorsal). *Enna frijoles* **sp. nov.** 14, 15. female epigynum (14 ventral, 15 dorsal). *Enna zurqui* **sp. nov.** 16, 17. female epigynum (16 ventral, 17 dorsal). (CO, copulatory openings; HS, head of spermathecae).

***Enna zurqui* new species**
Figs 16, 17

Type. Female holotype from San Jose, Zurqui, Costa Rica [09°54'37.90"N, 84°03'15.17'W], 14.IX.1995, B. A. Hüber (MCZ 90521).

Etymology. The specific name is a noun and refers to the type locality.

Diagnosis. The female of *E. zurqui* **sp. nov.** resembles those of *E. meridionalis* Silva & Lise, 2009 by the general shape of the median field of epigynum (Silva & Lise 2009b, p. 50, fig. 11), but can be distinguished by the strongly excavated anterior margin of the epigynum (Fig. 16) and by the small projections on the head of spermathecae (HS) (Fig. 17).

Description. Female (Holotype, San Jose, Zurqui, Costa Rica, MCZ 90521). Total length 8.30. Carapace 4.23 long, 3.56 wide, light brown, with two irregular white lateral bands, darker laterally. Clypeus brownish, 0.32 high. Anterior eye row straight, 0.98 wide; posterior 1.92 wide. Eye diameters, interdistances, and median ocular quadrangle: AME 0.18, ALE 0.10, PME 0.22, PLE 0.26; AME-AME 0.13, AME-ALE 0.10, PME-PME 0.56, PME-PLE 0.34, OQA 0.54, OQP 1.06, OQH 0.60. Chelicerae reddish-brown, bristly; promargin and retromargin of fang furrow with three teeth equidistant and equal in size. Sternum yellowish with scattered setae; 1.82 long, 1.90 wide. Labium dark brown, slightly lighter distally, 0.83 long, 0.66 wide. Legs brownish, with irregular dark brown marks on femora, relative length: IV-II-I-III. Leg measurements: I—femur 4.15/ tibia-patella 5.47/ metatarsus 4.06/ tarsus 1.49/ total 15.17; II—4.39/ 5.39/ 4.10/ 1.41/ 15.29; III—3.81/ 4.23/ 3.48/ 1.26/ 12.78; IV—3.98/ 5.14/ 4.64/ 1.66/ 15.42. Ventral pairs of macrosetae on tibiae: I-4; II-4; III-3; IV-3. Abdomen 3.81 long, dorsum dark gray, with a irregular whitish band, scattered setae and three pairs of sigilla. Venter grayish, with scattered setae. Epigynum excavated at the anterior margin (Fig. 16) and head of spermathecae (HS) with small projections (Fig. 17).

Distribution. Known only from the type locality (San Jose, Costa Rica).

Male. Unknown.

New record

***Enna estebanensis* (Simon, 1898)**

Hesydrus estebanensis Simon 1898: 20.
Enna estebanensis (Simon): Carico 2005: 786; Silva *et al*., 2008: 91, figs 62–70.

New record. Ecuador: Balzapamba, 1 ♂, V.1938, W. M. Clarck-Macintyre (AMNH).

Distribution. Venezuela, Ecuador.

Discussion

The specimens in this work were all described as new species. It may be possible that they are synonymous with other species previously described by Silva *et al*. (2008) and Silva & Lise (2009a, 2009b), but this seems unlikely as all the species here described were not collected from the same locality as any known species. Also, the specimens here described were not collected with specimens of the opposite sex so it was not possible to match males or females of each species.

Acknowledgments

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