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Monograph

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On Venezuelan pholcid spiders (Araneae, Pholcidae)

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Abstract. We present a comprehensive revision of the pholcid spider collection of M.A. González-Sponga, who between 1998 and 2011 described 22 new genera and 51 new species of Pholcidae from Venezuela. In addition, we treat the pholcid material collected during three expeditions to Venezuela conducted between 2002 and 2020. Of González-Sponga's pholcid taxa we recognize three genera and 24 species as valid. We describe 43 new species (all from males and females) in one new and 13 previously described genera; four genera are newly recorded for Venezuela. We describe the previously unknown females of 15 species, present new records for 46 previously described species, synonymize one genus and one species, and correct numerous minor errors in previous publications on Venezuelan pholcids.

At the generic level, the Venezuelan pholcid fauna now appears fairly well known, but available data on distribution and endemism suggest that many species remain undiscovered and undescribed. Despite the obvious gaps, our data are congruent with previous studies on other taxa that have the highest levels of endemism in the Venezuelan Andes, the Coastal Ranges, and the Guyana Highlands. The Falcón Region in particular shows a complex mosaic of biogeographic relationships with other regions.

We provide new biological data on numerous species. We document the first cases of evolutionary microhabitat shifts in the genera *Mecolaesthus* Simon, 1893 and *Priscula* Simon, 1893. We document several cases of close congeners sharing localities, usually in slightly to conspicuously different microhabitats, sometimes apparently in identical microhabitats. We document several cases of color polymorphism, mostly intersexual, in *Metagonia conica* (Simon, 1893) both intersexual and among males. We document further cases of two rare phenomena in Pholcidae: use of specific non-silken structures for retreats (in *Pisaboa* Huber, 2000) and egg parasitism (in *Priscula*).

Keywords. Synspermiata, Venezuela, taxonomy, microhabitat shifts, color polymorphism.

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Introduction

Modern taxonomic work is supposed to have a systematic rather than a geographic focus (Mayr & Ashlock 1991), or at least a geographic focus that treats a biogeographic region. A focus on a political region such as Venezuela makes little sense biologically and needs justification. Our justification is the main original goal of this work: to present an extensive reanalysis of the pholcid taxa described by Manuel Ángel González-Sponga (GS). Between 1998 and 2011, GS published eleven papers dedicated entirely to Venezuelan pholcids, describing 22 new genera and 51 new species. His collection was by far the largest collection of Venezuelan pholcids worldwide, but it was private and not publicly accessible. This impeded not only further work on Venezuelan pholcids but on northern South American pholcids in general. Some of GS's new genera and species could be synonymized based on his descriptions, i.e., without consulting the specimens (Huber 2009; Huber *et al.* 2014a) but some genera and the majority of species could not be evaluated properly without seeing the types.

After GS's death in 2009, his collection was transferred to the Museo del Instituto de Zoología Agrícola (MIZA) of the Universidad Central de Venezuela in Maracay. It thus became publicly accessible which finally facilitated a detailed revision of all of GS's pholcid taxa. Despite of some minor problems, the collection is in good condition, well preserved, and the accompanying card catalog is almost complete. Of the 51 type vials, only one is missing, and that loss is manageable because it concerns an unambiguous synonym of the introduced species *Crossopriza lyoni* (Blackwall, 1867). An equally manageable problem is that GS never separated holotypes from paratypes, even though he consistently

said so in the descriptions. In several cases it is thus impossible to know which specimen is the holotype, but in no case does this create reasonable doubt about the identity of the species. A third minor problem is that the vials do not contain labels with detailed collection data but only numbers. The problem is minor because the numbers refer to a card catalogue that is almost complete. Only 21 cards are missing, most of them referring to vials with *Mecolaesthus longissimus* Simon, 1893 (7) and *Litoporus aerius* Simon, 1893 (7). Four numbers in the pholcid vials are represented by two cards in the catalog, meaning that the true locality is unclear.

A final problem of the GS pholcid spider collection is actually a characteristic of almost any generalist collection: it is heavily biased in several respects, for example regarding body size, habitats, and geographic coverage. Of the 1300 adult specimens in the collection, 620 are large synanthropic species [*Physocylus globosus* (Taczanowski, 1874); *Crossopriza lyoni*; *Artema atlanta* Walckenaer, 1837], 150 represent the large and widespread *Mesabolivar eberhardi* Huber, 2000. At the same time the collection contains few small species, for example no *Anopsicus* Chamberlin & Ivie, 1938; *Blancoa* Huber, 2000; *Canaima* Huber, 2000; *Chibchea* Huber, 2000; *Pisaboa* Huber, 2000; and no Ninetinae Simon, 1890. Regarding natural habitats, the collection is biased towards near-ground habitats, probably reflecting GS's special interest in harvestmen. As a result, there are few leaf-dwelling species included in the collection, and they are sometimes absent even from localities that GS visited repeatedly and where several leaf-dwelling species occur (e.g., Trujillo, Laguna Negra). Finally, a geographic bias is unavoidable in a country as large and complex as Venezuela, with countless areas that are difficult and costly to access.

In an effort to alleviate some of the problems inherent in the GS pholcid collection, three expeditions were conducted, the second and third (2018, 2020) with a specific focus on fresh material of species described by GS. This has more than tripled the number of available adult specimens to over 4200. Even though our knowledge about the rich Venezuelan pholcid fauna continues to be fragmentary, this work contributes to a solid basis for future work on the taxonomy, phylogeny, biogeography, and natural history of northern South American pholcids.

Material and methods

Most of the material studied herein is deposited in the Museo del Instituto de Zoología Agrícola, Universidad Central de Venezuela, Maracay, Venezuela (MIZA) and in the Zoological Research Museum Alexander Koenig, Bonn, Germany (ZFMK). The former collection includes the collection González-Sponga (abbreviated as MAGS). A few specimens studied are deposited in the California Academy of Sciences, San Francisco, USA (CAS) and the Senckenberg Museum in Frankfurt, Germany (SMF). Further museum abbreviations used: AMNH, American Museum of Natural History, New York, USA; MNHN, Musée national d'histoire naturelle, Paris, France; MBLUZ, Museo de Biología de la Universidad del Zulia, Maracaibo, Venezuela.

Taxonomic descriptions follow the style of recent publications on Pholcidae (e.g., Huber 2018; Huber & Carvalho 2019; based on Huber 2000). Measurements were done on a dissecting microscope with an ocular grid and are in mm unless otherwise noted; eye measurements are $\pm 5 \mu\text{m}$. Photos were made either with a Nikon D5200 digital camera mounted on a Wild-M8 dissecting microscope (Maracay) or with a Nikon Coolpix 995 digital camera (2048 \times 1536 pixels) mounted on a Nikon SMZ 18 dissecting microscope or a Leitz Dialux 20 compound microscope (Bonn). Zerene Stacker version 1.04 (<https://zerenesystems.com/cms/>) and CombineZP (<https://combinezp.software.informer.com/>) were used for stacking photos. Drawings are partly based on photos that were traced on a light table and later finished under a dissecting microscope, or they were directly drawn with a Leitz Dialux 20 compound microscope using a drawing tube. Epigyna were cleared with a warm NaOH solution and then stained with chlorazol black. Locality coordinates are in round brackets when copied from labels and original

publications or when received directly from collectors, in square brackets when derived from some other source (such as online gazetteers, Google Earth, etc.). Distribution maps were generated with ArcMap 10.0. Photographs, drawings, and maps were edited with Photoshop CS6. Genera are arranged alphabetically; species are grouped following similarity and putative phylogenetic relationships.

Molecular data (CO1 and 28S sequences) have been gathered for a number of specimens but the data set could not be completed because of delayed permits. Molecular data will thus be published separately at a later point. In this paper, we refer to molecular data a few times, but taxonomic decisions are never based exclusively or even mainly on this unpublished information.

Abbreviations used in figures only are explained in the figure legends. The following morphological abbreviations are used in text:

- ALE = anterior lateral eyes
- ALS = anterior lateral spinnerets
- AME = anterior median eyes
- m a.s.l. = meters above sea level
- L/d = length/diameter
- PME = posterior median eyes
- PMS = posterior median spinnerets

Results

Class Arachnida Cuvier, 1812
Order Araneae Clerck, 1757
Family Pholcidae C.L. Koch, 1851

Anopsicus Chamberlin & Ivie, 1938

Notes

With now 64 described species (all but the new species below in Mexico, Central America, and the West Indies), *Anopsicus* is among the most species-rich pholcid genera. The majority of species has a total body length of less than 2 mm, and 23 species are known from only one sex. Fortunately, Gertsch's (1982) revision of the genus treats most known species (all except *A. tico* Huber, 1998), and his illustrations, even though offering little detail, provide enough information to confidently distinguish most species.

A comparison of the Venezuelan specimens below with Gertsch's descriptions and drawings reveals that some named species appear to be similar in structure [e.g., procurus of *A. mitchelli* (Gertsch, 1971); genital bulb of *A. silvanus* Gertsch, 1982], but none is as small as the species below (*A. chiapa* Gertsch, 1982 is the smallest, with a body length of 1.12 and carapace width of 0.57). In addition, Gertsch (1982) emphasized the high degree of endemism in this genus ("...one of the prime identification aids for the species of *Anopsicus* is geography..."). In fact, his identification keys are divided by geographic regions (Mexico, Central America, West Indies) because there was no overlap. The putatively new species below is the first to be described from South America, so it appears very unlikely also from this perspective that it could be a synonym of a Central American or West Indian (only Cuba and Jamaica) species.

The assignment of the species below to *Anopsicus* appears straightforward by Gertsch's (1982) criteria and by similarity, but it should be noted that the monophyly of *Anopsicus* has never been tested by rigorous analysis. In our recent molecular phylogeny (Eberle *et al.* 2018; Huber *et al.* 2018), the few species of *Anopsicus* included were scattered among representatives of *Modisimus* Simon, 1893.

It remains unclear whether those species were erroneously assigned to *Anopsicus* or if *Anopsicus* is non-monophyletic.

Anopsicus ana Huber sp. nov.

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Figs 1–2, 5–12, 14–16, 1025, 1033

Diagnosis

Distinguished from known congeners by combination of body size (total body length ~1.0); procurus shape (Figs 7–8; weakly sclerotized flat sclerite, wide in lateral view, narrow in dorsal view); processes of genital bulb (Fig. 9; straight apophysis accompanied by membranous process); armature of male chelicerae (Figs 10–11; pair of frontal processes pointing downwards); epigynum (Figs 14–15; only posterior margin sclerotized, sclerotized area wider laterally than medially); and internal female genitalia (Figs 12, 16; pore plates in vertical position on tent-like sclerite).

Etymology

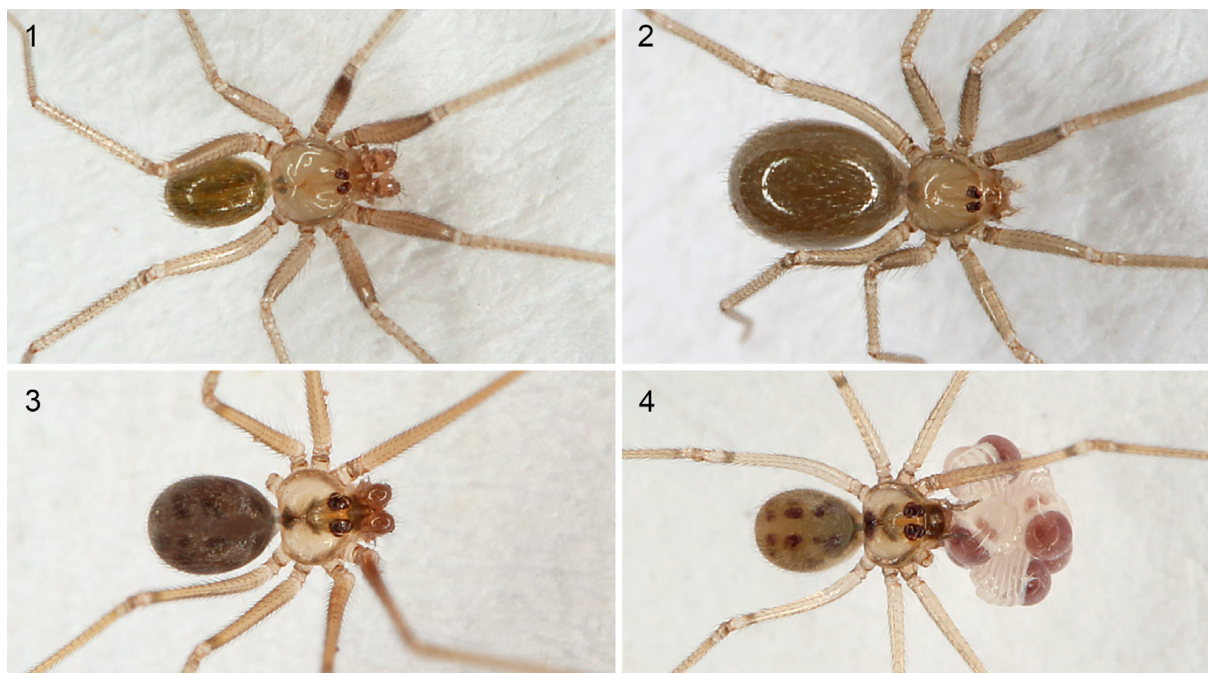
The species name refers to the type locality; noun in apposition.

Type material

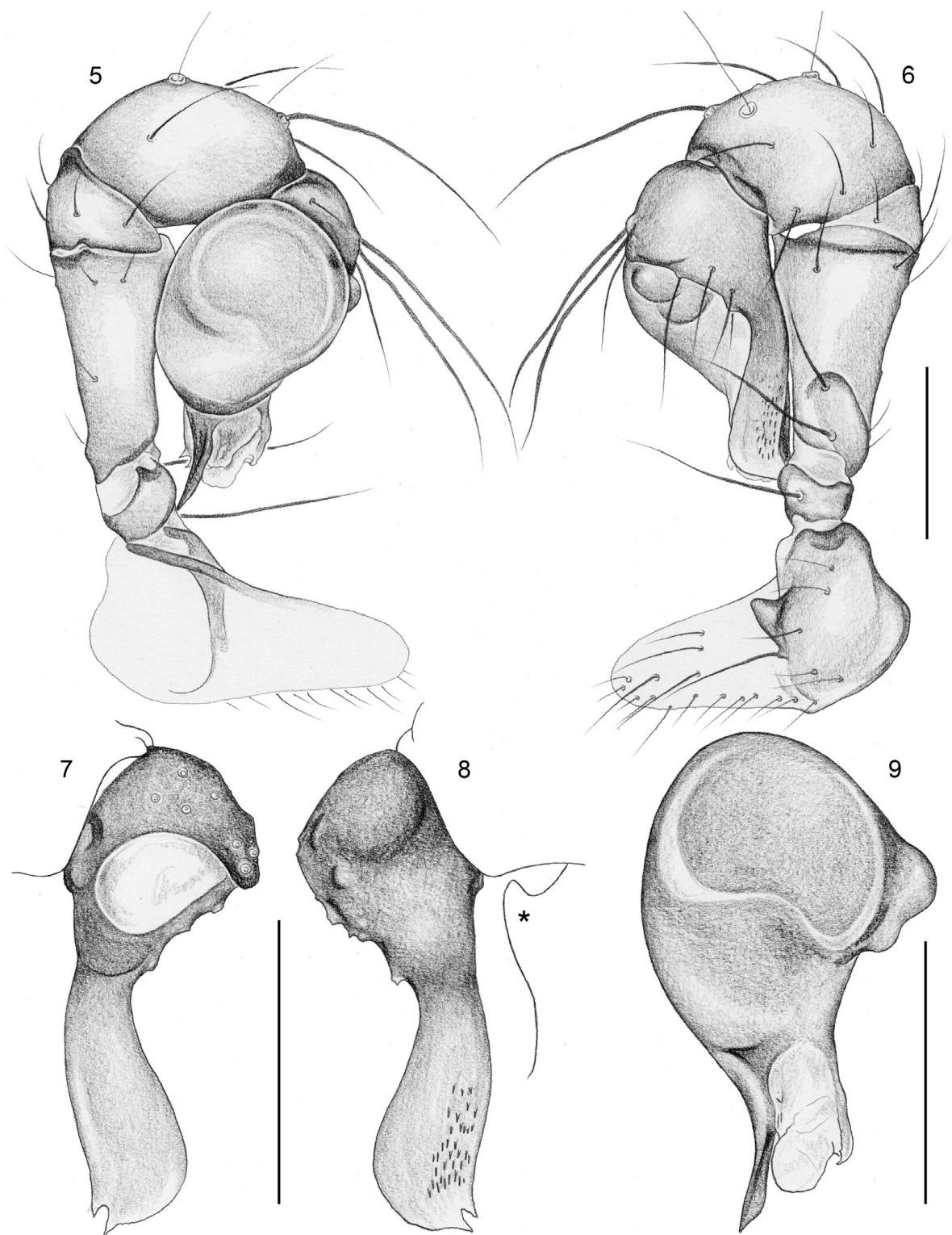
VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21812), Península de Paraguaná, Cerro Santa Ana (11.8141° N, 69.9478° W), 380 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 4 ♂♂, 4 ♀♀, ZFMK (Ar 21813), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-190), same collection data as for holotype • 3 ♂♂, 2 ♀♀, ZFMK (Ar 21814), and 1 ♂, 2 ♀♀ in pure



Figs 1–4. Live specimens. **1–2.** *Anopsicus ana* Huber sp. nov.; male from Falcón, Cueva del Guano and female from Cerro Santa Ana. **3–4.** *Blancoa piacoa* Huber, 2000; male and female with egg sac from Bolívar, Ciudad Guayana.



Figs 5–9. *Anopsicus ana* Huber sp. nov.; from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21813). **5–6.** Left male pedipalp, prolateral and retrolateral views. **7–8.** Left male tarsus and procurus, prolateral and retrolateral views (asterisk: ventral femur apophysis). **9.** Left genital bulb, prolateral (slightly dorsal) view. Scale lines: 0.1 mm.

ethanol, ZFMK (Ven18-188), Península de Paraguaná, Cerro Santa Ana (11.8202° N, 69.9447° W), 530 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21815), and 5 ♀♀ in pure ethanol, ZFMK (Ven18-178), Península de Paraguaná, Cueva del Guano (11.9000° N, 69.9479° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.).

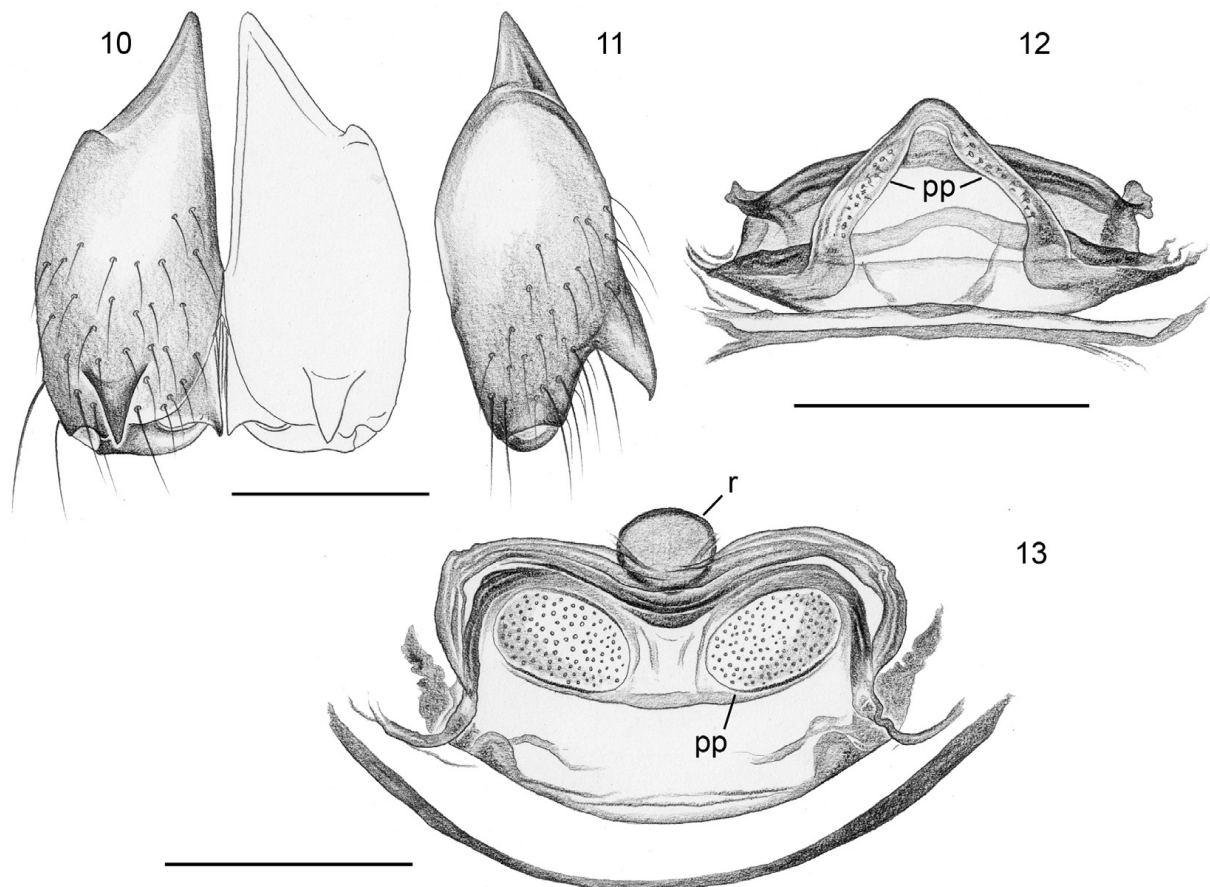
Description

Male (holotype)

MEASUREMENTS. Total body length 1.05, carapace width 0.45. Distance PME–PME 40 µm; diameter PME 30 µm; distance PME–ALE 15 µm; AME absent. Leg 1: 2.55 (0.65+0.15+0.70+0.70+0.35), tibia 2: 0.45, tibia 3: 0.40, tibia 4: 0.60; tibia 1 L/d: 12.

COLOR (in ethanol). Prosoma and legs ochre-yellow, ocular area and clypeus barely darker, carapace with very indistinct radial marks and internal posterior dark mark; legs ochre yellow, without dark rings; abdomen pale bluish gray with small darker bluish mark in gonopore area.

BODY. Habitus as in Fig. 1. Ocular area not raised. Carapace with very shallow, almost non-existent thoracic groove. Clypeus unmodified. Sternum barely wider than long (0.32/0.30). Abdomen globular.



Figs 10–13. *Anopsicus ana* Huber sp. nov. (10–12); from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21813), and *Blancoa piacoa* Huber, 2000 (13); from Delta Amacuro, between El Triunfo and Piacoa (ZFMK Ar 21816). **10–11.** Male chelicerae, frontal and lateral views. **12–13.** Cleared female genitalia, dorsal views. Abbreviations: pp=pore plates; r=receptacle. Scale lines: 0.1 mm.

CHELICERAE. As in Figs 10–11, with pair of simple pointed frontal processes directed downwards; without modified hairs and stridulatory ridges.

PALPS. As in Figs 5–6; coxa with retrolateral apophysis, trochanter barely modified, femur proximally with large retrolateral process, distally with short ventral process directed towards distal (asterisk in Fig. 8); procurus (Figs 7–8) weakly sclerotized flat sclerite, wide in lateral view, narrow in dorsal view, with small cuticular spines on retrolateral side, distally with two points directed towards ventral; genital bulb (Fig. 9) distally with straight apophysis accompanied by membranous process (the latter presumably carrying the sperm duct).

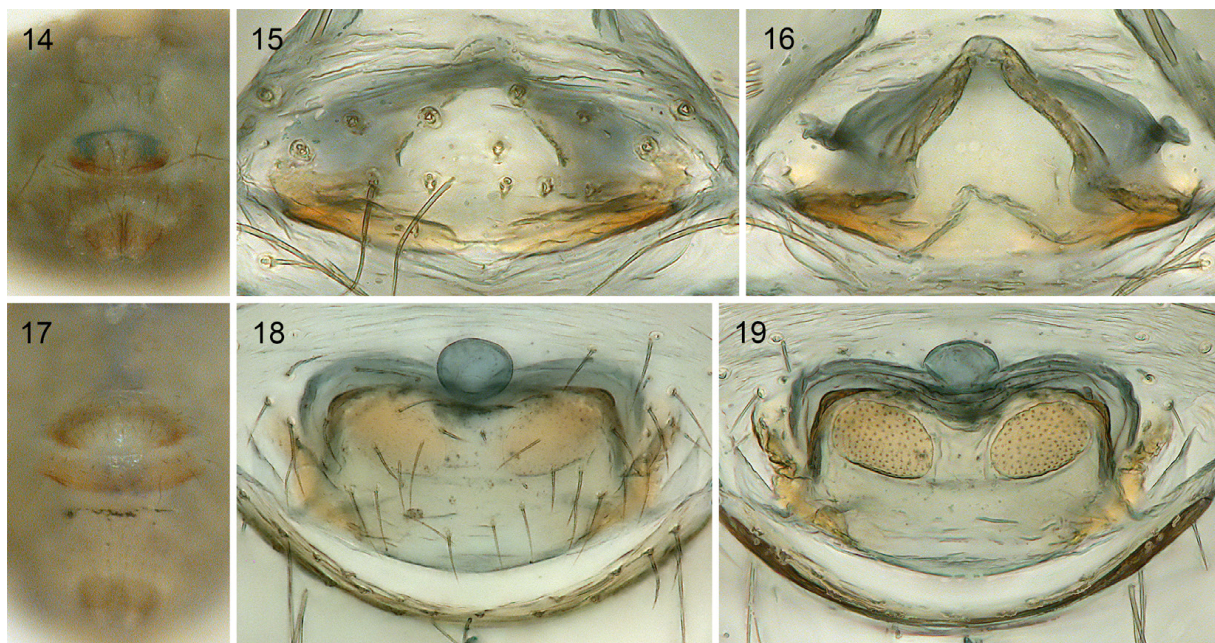
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 53%; prolateral trichobothrium absent on tibia 1; femur 3 not thickened; tarsus 1 with ~7 pseudosegments, difficult to see in light microscope.

Male (variation)

Tibia 1 in nine males (incl. holotype): 0.65–0.85 (mean 0.73); the two males from the cave (Cueva del Guano) have the longest legs (0.80, 0.85); all other males range from 0.65–0.75. Eyes and coloration do not seem to differ between epigeal and hypogean males.

Female

In general similar to male (Fig. 2). Tibia 1 in eight females: 0.70–1.05 (mean 0.81); the two females from the cave have the longest legs (0.90, 1.05); all other females range from 0.70–0.85. Without stridulatory apparatus between prosoma and abdomen. Epigynum (Fig. 14) simple flat plate, only posterior margin sclerotized, sclerotized area wider laterally than medially; internal structures partly visible through cuticle (often bluish or greenish). Most females with genital plug and epigynal plate tilted up to more or less vertical position. Internal genitalia (Figs 12, 15–16) with pore plates in vertical position on tent-like sclerite.



Figs 14–19. Epigyna, ventral views, and cleared female genitalia, ventral and dorsal views. **14–16.** *Anopsicus ana* Huber sp. nov.; from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21813). **17–19.** *Blancoa piacoa* Huber, 2000; from Delta Amacuro, between El Triunfo and Piacoa (ZFMK Ar 21816).

Distribution

Known from two neighboring localities on the Paraguaná peninsula in the Venezuelan state Falcón (Fig. 1033).

Natural history

At Cerro Santa Ana the spiders were found in the leaf litter, sitting or running directly on the undersides of dead leaves; no webs were seen. They seemed to prefer the higher and more humid areas of the mountain [where they occurred very close to *Pisaboa marcuzzii* (Caporiacco, 1955) comb. nov.]. They were not found in the dryer and lower parts, where the corresponding microhabitat was occupied by *Galapa spiniphila* Huber sp. nov. and *Modisimus culicinus* (Simon, 1893).

In the cave Cueva del Guano, the spiders were found on the undersides of small rocks in the twilight area; *Chisosa caquetio* Huber, 2019 occurred in the same place but was found in dead bromeliads on the ground that had fallen into the entrance area of the cave; no pholcids were found in the very hot, humid, and entirely dark deeper parts of the cave, where abundant ticks of the genus *Antricola* Cooley & Kohls, 1942 were found covering much of the floor of the gallery (see Peck 1982 for a short description of the cave).

Artema Walckenaer, 1837

Notes

In the New World, the genus *Artema* is only represented by its type species, the synanthropic, pantropical *A. atlanta* Walckenaer, 1837 (Aharon *et al.* 2017). In Venezuela, the species has been recorded only twice (Fig. 1038): from Falcón, El Recreo [11.350° N, 69.814° W] (González-Sponga 2005, as *Coroia magna* González-Sponga, 2005), approximately 10 ♂♂, 12 ♀♀, 10 juvs types of *Coroia magna*, MIZA 105732 (MAGS 1440), Mar. 1999 (E. Bravo), examined; and from Zulia, Maracaibo [10.80° N, 71.73° W] (Colmenares 2008), 1 ♂, 1 ♀, MBLUZ, not examined. The female paratype of *Tibiosa coreana* González-Sponga, 2005 (= *Crossopriza lyoni*) illustrated in González-Sponga (2005) is also *A. atlanta* (as already noted in Huber 2009), but this material does not represent an additional record (the types of *Tibiosa coreana* also originate from El Recreo, but were collected earlier than the types of *Coroia magna*, in Sep. 1996).

Blancoa Huber, 2000

Notes

Only two species are known in this genus, both from Venezuela. Below we provide some new data on the type species, *B. piacoa* Huber, 2000. The second species, *B. guacharo* Huber, 2000 continues to be known from a single male specimen, originating from “Caripe, Cueva Guacharo, ..., forest over coffee” (probably near Cueva del Guácharo, approximately 10.173° N, 63.552° W, i.e., ~8 km ESE of the coordinates on the original label, cf. Huber 2000).

Blancoa piacoa Huber, 2000
Figs 3–4, 13, 17–19, 1030, 1033

Blancoa piacoa Huber, 2000: 332, figs 32, 131, 182, 1333–1344 (♂♀).

New records

VENEZUELA – **Bolívar** • 3 ♂♂, 2 ♀♀, 2 juvs, ZFMK (Ar 21817), and 5 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-164), Ciudad Guayana, Parque La Llovizna (8.3130° N, 62.6724° W), 50 m a.s.l., 11 Nov.

2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 9 ♀♀, 1 juv., ZFMK (Ar 21818), same data but 14 Nov. 2018 • 2 ♂♂, 3 ♀♀, ZFMK (Ar 21819), and 7 ♀♀ in pure ethanol, ZFMK (Ven18-172), La Neverita (8.0970° N, 62.6727° W), 225 m a.s.l., 13 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Delta Amacuro** • 4 ♂♂, 3 ♀♀, 2 juvs, ZFMK (Ar 21816), and 1 ♂, 5 ♀♀ in pure ethanol, ZFMK (Ven18-167), between El Triunfo and Piacoa (8.5285° N, 62.2958° W), 75 m a.s.l., 12 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Description (amendments; see Huber 2000)

Tibia 1 in eight newly collected males: 1.90–2.45 (mean 2.21); in 16 newly collected females: 1.20–1.50 (mean 1.28). Tibiae 1 and 2 with higher than usual density of short vertical hairs in males only. Prolateral trichobothrium apparently absent on tibia 1. Epigynum and internal female genitalia as in Figs 13, 17–19.

Distribution

Known from several localities in the Venezuelan states Delta Amacuro, Bolívar, and Monagas (Fig. 1033).

Natural history

Between El Triunfo and Piacoa this species was found in the leaf litter of a humid forest, on the undersides of curved leaves on the ground. In Parque La Llovizna the forest was much dryer and the spiders lived under pieces of wood and bark on the ground, in almost the same microhabitat as *Modisimus simoni* Huber, 1997 in the same place.

Boconita Huber gen. nov.

urn:lsid:zoobank.org:act:1C907EDE-66B1-4772-BEBC-BDE59A14ACA4

Type species

Boconita sayona Huber gen. et sp. nov.

Etymology

The name is derived from the town Boconó, close to the type locality of the type species. Gender feminine.

Diagnosis

Distinguished from other Modisiminae genera by armature of male chelicerae (Figs 32, 41; pair of frontal processes with several short modified hairs each and pair of small frontal apophyses; similar only in *Systemita* Simon, 1893), by shape of procurus (Figs 28, 37; bifid distal process directed towards dorsal), by shape of genital bulb (distinctive prolateral-ventral sclerite set with small cones; arrows in Figs 30, 39), by shape of epigynum (Figs 44, 47; wider than long), by pair of pocket-like structures in female internal genitalia (arrows in Figs 34, 45, 48), by presence of cuticular cusps on male femora, and by male femur 3 enlarged at basis. From possibly closely related genus *Systemita* also by presence of AME.

Description

See species descriptions below; the two known species are very similar to each other.

Monophyly and relationships

The two included species share several distinctive and unique characters that are likely to be synapomorphies: cuticular cusps on male femora; male femur 3 enlarged at basis; genital bulb with prolateral-ventral sclerite set with small cones (arrows in Figs 30, 39). Other similarities are shared with *Systemita prasina* Simon, 1893: male cheliceral apophyses with modified hairs; epigynal plate reduced

in comparison to other close relatives like *Coryssocnemis* Simon, 1893 and *Mecolaesthus* Simon, 1893. Preliminary molecular data (J.J. Astrin, B.A. Huber, unpubl. data) support the monophyly of the genus but not the sister-group relationship with *Systemita*; instead, *Boconita* gen. nov. is seen as sister to *Coryssocnemis*, and both together as sister to *Systemita*.

Composition and distribution

Only the two species newly described below, from the Venezuelan states Trujillo and Lara (Fig. 1033).

Boconita sayona Huber gen. et sp. nov.

urn:lsid:zoobank.org:act:8AA29E5E-D94A-4916-A0C4-D9DC0458EAFE

Figs 20–34, 44–46, 1029, 1033

Diagnosis

Distinguished from *B. yacambu* Huber gen. et sp. nov. by stronger frontal processes on male chelicerae (compare Figs 32 and 41), by much larger prolateral apophysis distally on male genital bulb (asterisk in Fig. 30), and by epigynal plate narrower posteriorly than anteriorly and with anterior indentation (i.e., V-shaped; Fig. 44).

Etymology

The species name refers to the Venezuelan folklore character La Sayona, who, cursed by her mother, appears as a seductive and beautiful woman who tempts married men and lures them into ruin; noun in apposition.



Figs 20–23. *Boconita sayona* Huber sp. nov., live males (20–22) and female (23) from Trujillo, Laguna Negra.

Type material

VENEZUELA – **Trujillo** • ♂ holotype, ZFMK (Ar 21820), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

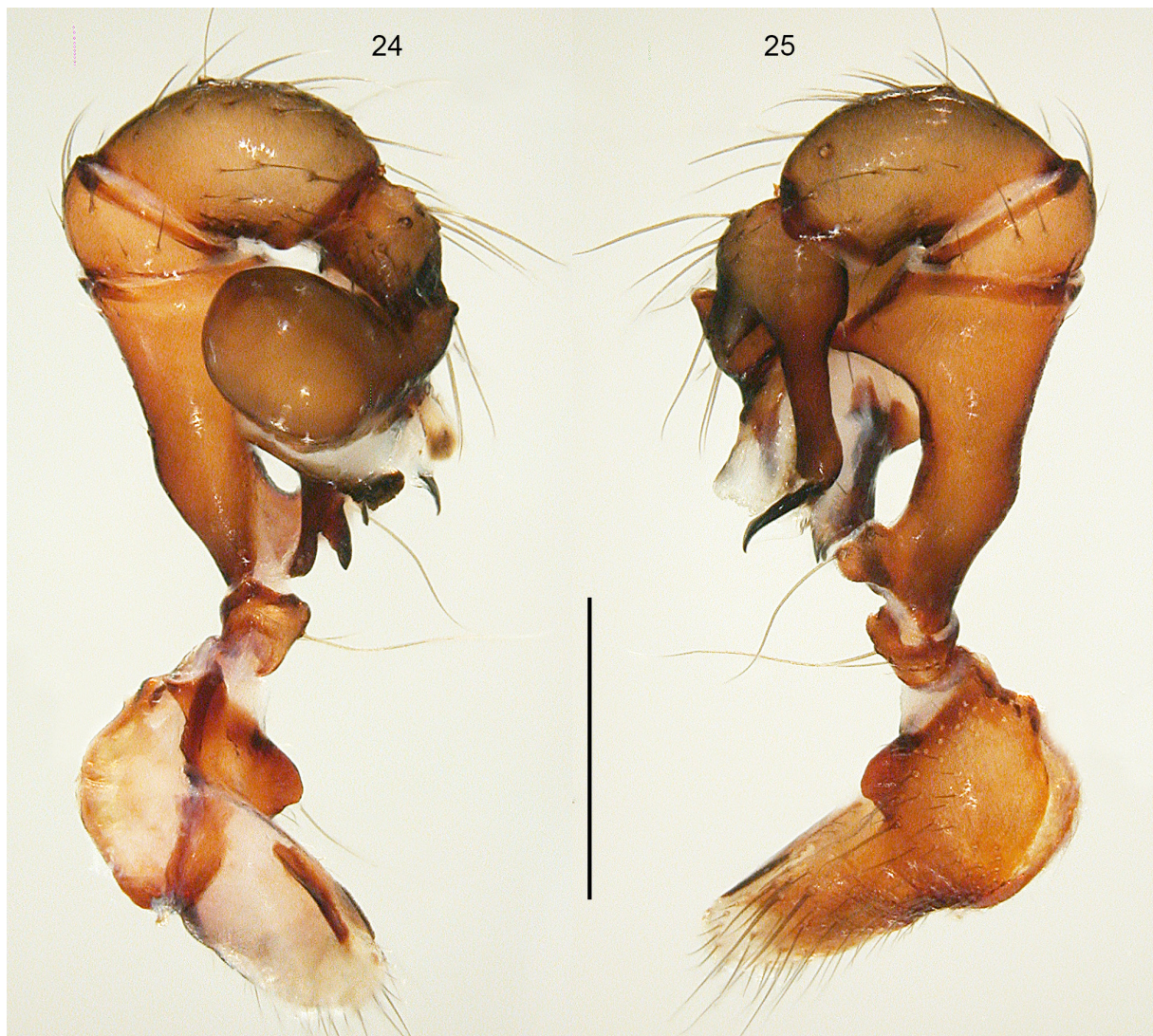
Other material examined

VENEZUELA – **Trujillo** • 4 ♂♂, 2 ♀♀, ZFMK (Ar 21821–22), and 1 ♀ in pure ethanol, ZFMK (Ven18-210), same collection data as for holotype.

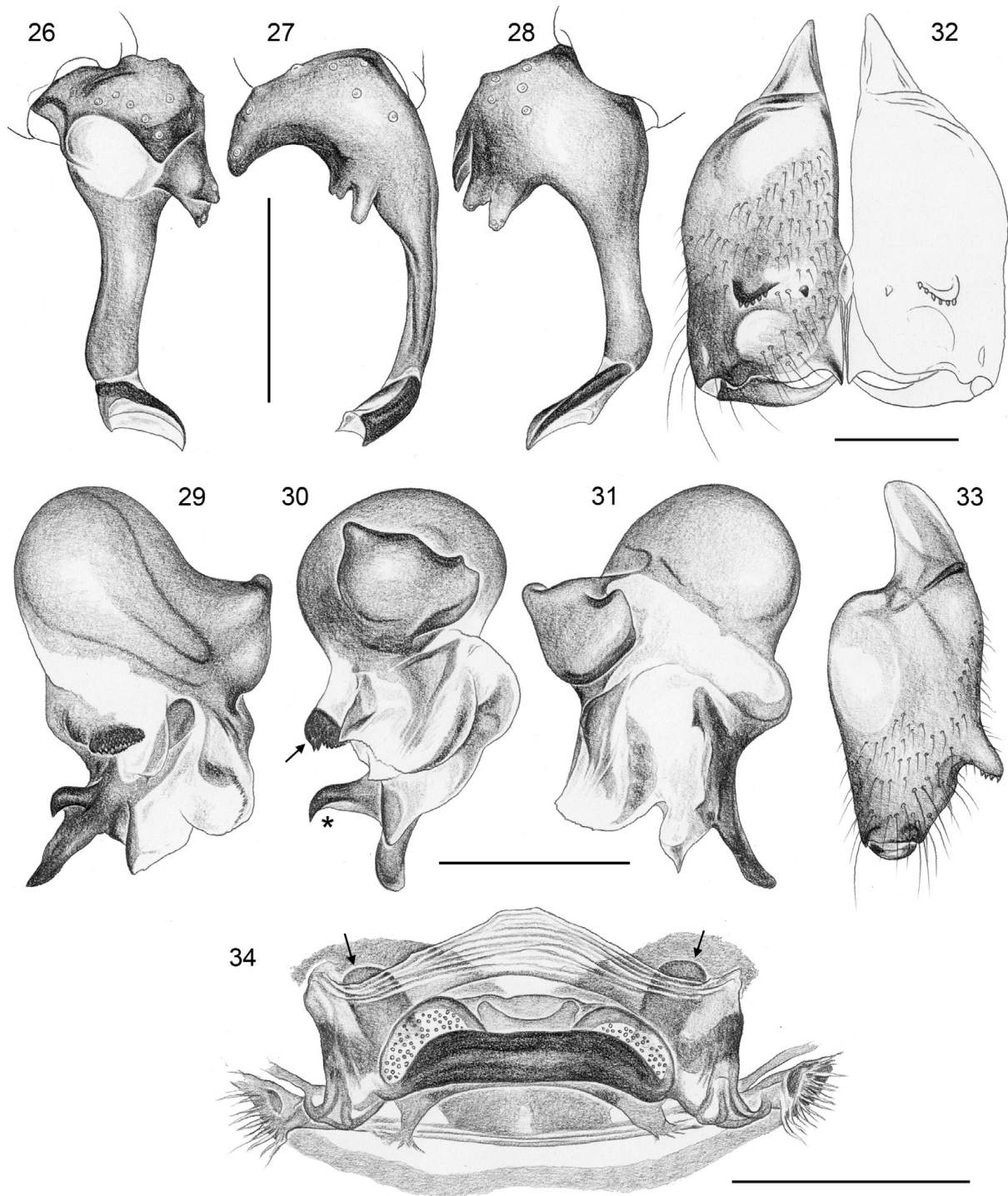
Description

Male (holotype)

MEASUREMENTS. Total body length 4.5, carapace width 2.0. Distance PME–PME 150 µm; diameter PME 150 µm; distance PME–ALE 150 µm; distance AME–AME 20 µm; diameter AME 40 µm. Leg 1: 57.0 (14.8+0.8+13.3+24.8+3.3), tibia 2: 8.4, tibia 3: 6.5, tibia 4: 8.0; tibia 1 L/d: 70; femur 3 slightly thicker than other femora (femur 1 diameter: 280 µm; femur 3 diameter: 300 µm).



Figs 24–25. *Boconita sayona* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21821); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 26–34. *Boconita sayona* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21821–22). **26–28.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **29–31.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: prolateral-ventral sclerite set with small cones; asterisk: distinctive prolateral apophysis). **32–33.** Male chelicerae, frontal and lateral views. **34.** Cleared female genitalia, dorsal view (arrows: possible pockets or receptacles). Scale lines: 0.3 mm.

COLOR (in ethanol). Carapace ochre-yellow to orange, with dark median line and pair of light marks beside ocular area; clypeus only at rim slightly darker; sternum orange; legs dark brown, tips of femora and tibiae whitish, with indistinct darker rings on femora (subdistally) and tibiae (proximally and subdistally); abdomen ochre-yellow to gray, dorsally and laterally with dark bluish marks, ventrally with large indistinct light brown median plates in front of gonopore and in front of spinnerets, with dark internal mark behind gonopore.

BODY. Habitus as in Figs 20–22. Ocular area slightly raised. Carapace with shallow but distinct thoracic groove, not inflated posteriorly. Clypeus unmodified. Sternum wider than long (1.35/0.90), unmodified. Abdomen oval, slightly pointed at spinnerets.

CHELICERAE. AS in Figs 32–33, with pair of frontal processes with several short modified hairs each and pair of small frontal apophyses; with distinct whitish area between frontal process and fang joint.

PALPS. AS in Figs 24–25; very small relative to body size (Fig. 20); coxa with large retrolateral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral apophysis, with low dorsal hump, distally widened and with prominent rounded ventral process; patella dorso-distally slightly protruding; procurus (Figs 26–28) at basis with bifid dorsal process, without retrolateral apophysis, distally with bifid process, large retrolateral sclerite connected to smaller and lighter prolateral sclerite by transparent membrane; genital bulb complex (Figs 29–31), with several distinctive sclerites embedded in whitish membrane, with prolateral-ventral sclerite set with small cones.

LEGS. Without spines and curved hairs; few vertical hairs; femora densely covered with small cuticular cusps, with unusually thin and short hairs; femur 3 enlarged at basis; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly very distinct.

Male (variation)

Tibia 1 in five males (including holotype): 13.2–14.4 (mean 13.7).

Female

In general similar to male (Fig. 23), but leg femora with regular hairs and without cusps; femur 3 not enlarged at basis; sternum orange as in male. Tibia 1 in two females: 10.7, 11.2. Epigynum (Fig. 44) dark brown plate wider than long, narrow posteriorly, wide anteriorly; posterior plate indistinct and very short. Internal genitalia (Figs 34, 45–46) with strong median transversal sclerite connected to pore plates, and pair of sclerites (pockets? receptacles?) ventral of uterus externus (arrows in Fig. 34).

Distribution

Known from type locality only, in Venezuela, Trujillo (Fig. 1033).

Natural history

Most specimens were found in large webs in sheltered spaces close to the lake; few were found at the bases of trees deeper in the forest.

Boconita yacambu Huber gen. et sp. nov.

urn:lsid:zoobank.org:act:B51C7D75-61FC-4F5A-AFE6-4323641085D6

Figs 35–43, 47–49, 1033

Diagnosis

Distinguished from the very similar *B. sayona* Huber gen. et sp. nov. by more slender frontal processes on male chelicerae (compare Figs 32 and 41), by much smaller prolateral apophysis distally on male genital bulb (asterisk in Fig. 39), and by epigynal plate not narrower posteriorly than anteriorly and without anterior indentation (i.e., not V-shaped; Fig. 47).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – Lara • ♂ holotype, ZFMK (Ar 21823), Yacambú National Park, Sendero Ecológico (9.709° N, 69.578–69.582° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal, B. Striffler, A. Giupponi).

Other material examined

VENEZUELA – Lara • 11 ♂♂, 10 ♀♀, ZFMK (Ar 21824), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven02/100-64), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 4.5, carapace width 2.0. Distance PME–PME 170 µm; diameter PME 170 µm; distance PME–ALE 130 µm; distance AME–AME 25 µm; diameter AME 40 µm. Leg 1: 58.6 (14.9+0.8+13.7+26.0+3.2), tibia 2: 8.6, tibia 3: 6.7, tibia 4: 8.1; tibia 1 L/d: 76; femur 3 slightly thicker than other femora (femur 1 diameter: 270 µm; femur 3 diameter: 300 µm).

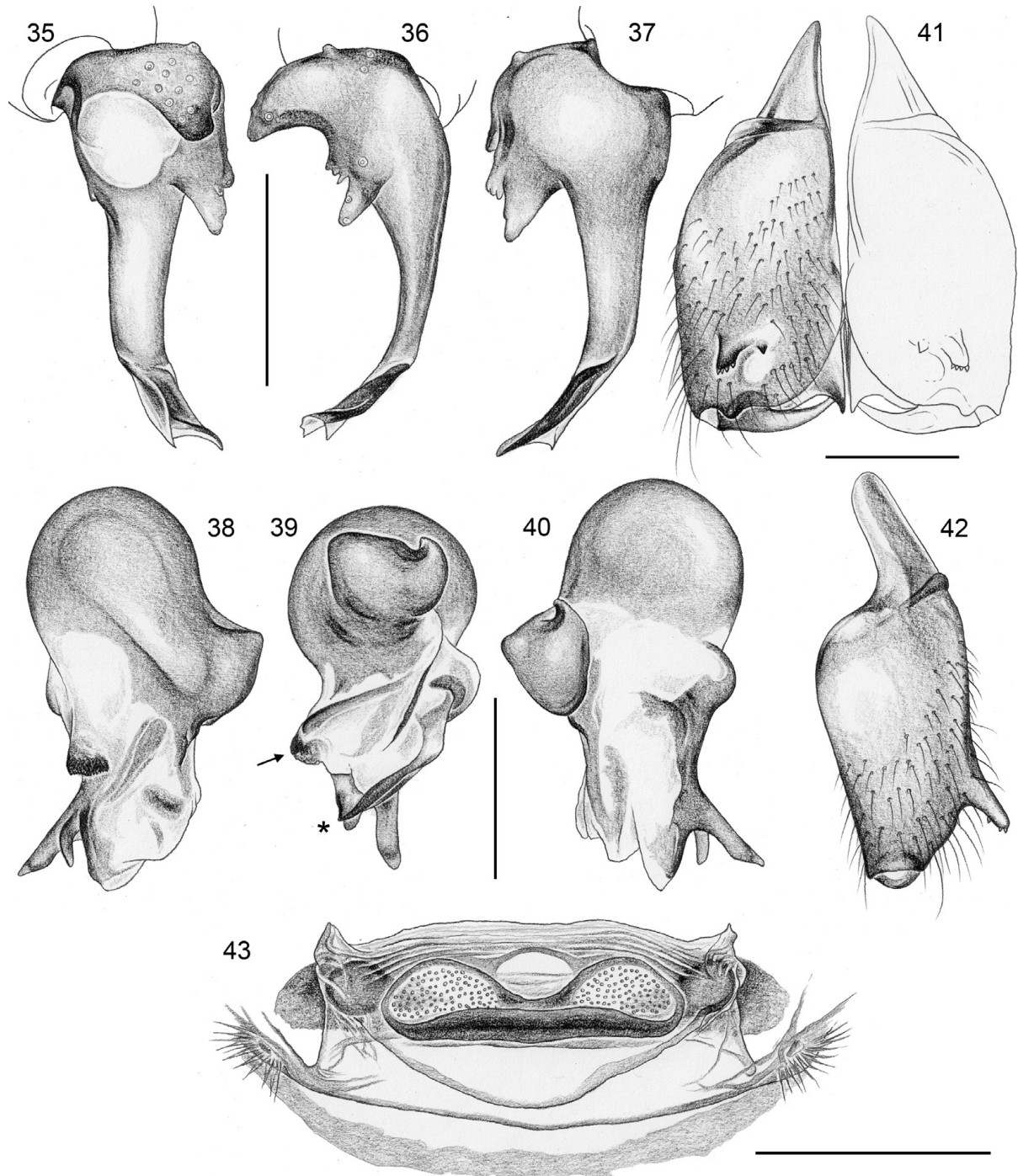
COLOR (in ethanol). Carapace ochre-yellow with slightly darker radial marks, ocular area and clypeus brown, clypeus at rim medially whitish; sternum ochre yellow posteriorly, light brown anteriorly; legs brown, tips of femora and tibiae whitish, with indistinct darker rings on femora (subdistally) and tibiae (proximally and subdistally); abdomen pale greenish gray, dorsally and laterally with dark bluish marks, ventrally with large indistinct light brown plates in front of gonopore and in front of spinnerets, with dark internal mark behind gonopore.

BODY. Habitus as in *B. sayona* Huber gen. et sp. nov. (cf. Figs 20–22). Ocular area slightly raised. Carapace with shallow but distinct thoracic groove, not inflated posteriorly. Clypeus unmodified. Sternum wider than long (1.40/1.00), unmodified. Abdomen oval, slightly pointed at spinnerets.

CHELICERAE. AS in Figs 41–42, with pair of frontal processes with several short modified hairs each and pair of small frontal apophyses; with distinct whitish area around frontal apophysis.

PALPS. In general very similar to *B. sayona* Huber gen. et sp. nov. (cf. Figs 24–25); very small relative to body size; coxa with large retrolateral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral apophysis, with low dorsal hump, distally widened and with prominent rounded ventral process; patella dorso-distally slightly protruding; procurus (Figs 35–37) at basis with bifid dorsal process, without retrolateral apophysis, distally with bifid process, large retrolateral sclerite connected to membranous prolateral process by transparent membrane; genital bulb complex (Figs 38–40), with several distinctive sclerites embedded in whitish membrane.

LEGS. Without spines and curved hairs; few vertical hairs; femora densely covered with small cuticular cusps, with unusually thin and short hairs; femur 3 enlarged at basis; retrolateral trichobothrium of tibia 1 at 3.5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with 36 pseudosegments, all very distinct.



Figs 35–43. *Boconita yacambu* Huber sp. nov.; from Lara, Yacambú National Park (type locality; ZFMK Ar 21824). **35–37.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **38–40.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: prolateral-ventral sclerite set with small cones; asterisk: distinctive prolateral apophysis). **41–42.** Male chelicerae, frontal and lateral views. **43.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Male (variation)

Tibia 1 in ten males (including holotype): 12.4–14.1 (mean 13.5). Paler males without radial marks on carapace and with ochre-yellow legs.

Female

In general similar to male but leg femora with regular hairs and without cusps; femur 3 not enlarged at basis; sternum color as in male. Tibia 1 in seven females: 9.7–10.9 (mean 10.3). Epigynum very short but wide dark brown plate (Fig. 47); light brown and very short posterior plate. Internal genitalia (Figs 43, 48–49) with strong median transversal sclerite connected to pore plates, and pair of sclerites (pockets? receptacles?) ventral of uterus externus.

Distribution

Known from type locality only, in Venezuela, Lara (Fig. 1033).

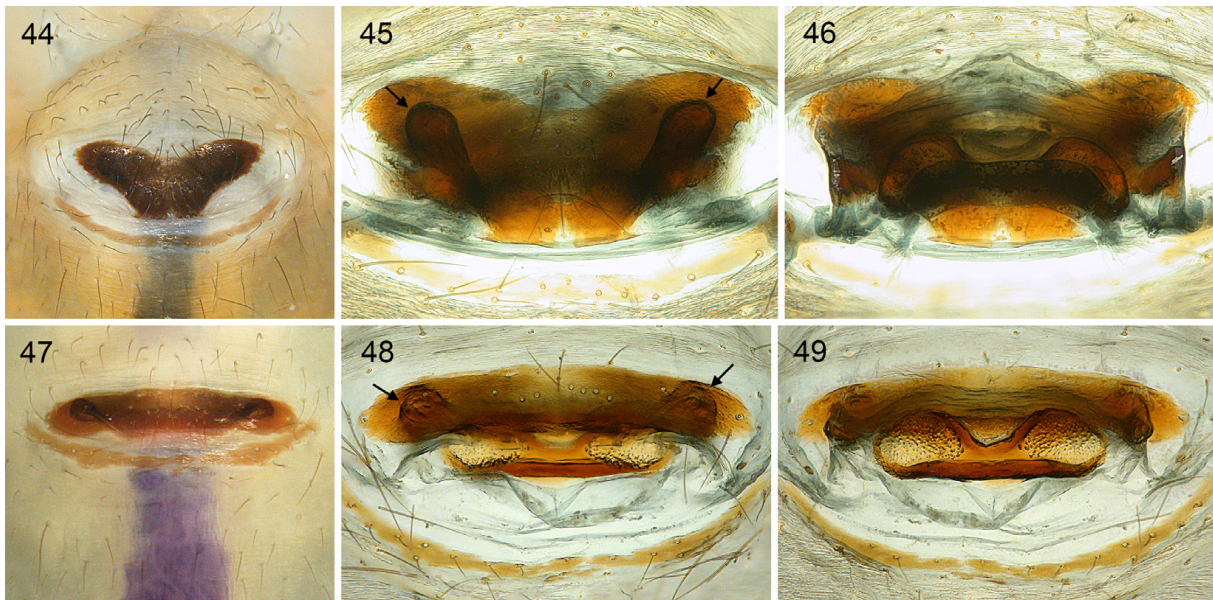
Natural history

This species was very abundant at the type locality where it was collected from dense, unusually flat webs close to the forest floor; at disturbance the spiders fled towards the back, i.e., towards a sheltered place among roots or logs or leaf litter.

Canaima Huber, 2000

Notes

Only two species were previously known in this genus, the type species *C. arima* (Gertsch, 1982) from Trinidad and *C. merida* Huber, 2000 from Mérida, Venezuela. Below, we describe six further Venezuelan species, closing to some degree the geographic gap between Trinidad and Mérida (Fig. 1034). All species



Figs 44–49. *Boconita* Huber gen. nov., epigyna, ventral views and cleared female genitalia, ventral and dorsal views (arrows: possible pockets or receptacles). **44–46.** *B. sayona* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21822). **47–49.** *B. yacambu* Huber sp. nov.; from Lara, Yacambú National Park (type locality; ZFMK Ar 21824).

are known from very limited geographic areas, suggesting that these small spiders may be considerably more diverse than suggested by the low number of described species.

The assignment of the new species to *Canaima* is not obvious. Most new species share the main synpomorphy of *Canaima* (very short cheliceral entapophyses; e.g., Figs 60, 65, 70, 83, 87) and have similar male cheliceral armatures and general male palpal morphologies. In addition, none has an inflated male palpal tibia like *Blancoa* Huber, 2000, the only Modisiminae genus in Venezuela with superficially similar species. For most new species, the assignment to *Canaima* appears thus like a plausible solution, even though based on limited evidence. Most problematic is *C. guaraque* Huber sp. nov., a species with a highly unique pedipalp that may well end up in a separate (new) genus.

During our 2018 trip we made a major effort to recollect *C. merida* but could not find it at the type locality (15 km NE Mérida, El Valle, 2400 m a.s.l., approximately 8.689° N, 71.100° W). Only two specimens of this species are known to exist in collections: the male holotype (in AMNH) and a newly examined male with poorly specified locality data (only “Mérida”), deposited in SMF (RII/5626).

Canaima perlonga Huber sp. nov.

urn:lsid:zoobank.org:act:4CD21277-92EC-47AC-95AC-03FC3D2462A3

Figs 58–61, 72–74, 1034

Diagnosis

Distinguished from congeners by armature of male chelicerae (Fig. 60; pair of short frontal apophyses, similar to *C. merida* Huber, 2000), by shape of procurus (Fig. 59; distinctive bifid tip), and by internal female genitalia (Figs 61, 74): pore plates close together; with large and complex anterior median receptacle; tongue-shaped posterior membranous process (arrow in Fig. 61; similar to *C. loca* Huber sp. nov.); note that female of *C. merida* is unknown.

Etymology

The species name (Latin: laborious, painful, cumbersome) refers to the difficulty we had finding this tiny spider; adjective.

Type material

VENEZUELA – Lara • ♂ holotype, ZFMK (Ar 21825), Yacambú National Park, along Sendero Ecológico (9.710° N, 69.578–69.582° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González).

Other material examined

VENEZUELA – Lara • 2 ♂♂, 3 ♀♀, ZFMK (Ar 21826), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 1.35, carapace width 0.65. Distance PME–PME 45 µm; diameter PME 60 µm; distance PME–ALE 45 µm; AME absent. Leg 1: 6.80 (1.65+0.20+1.75+2.40+0.80), tibia 2: 1.00, tibia 3: 0.80, tibia 4: 1.15; tibia 1 L/d: 35.

COLOR (in ethanol). Prosoma and legs ochre-yellow, carapace with thin median dark line; legs without dark rings; abdomen pale greenish gray, dorsally and laterally densely covered with dark bluish marks.

BODY. Habitus similar to *C. loca* Huber sp. nov. (cf. Fig. 50). Ocular area slightly raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.45/0.35), with pair of anterior humps. Abdomen oval.

CHELICERAE. AS in Fig. 60, with very short entapophyses and pair of simple frontal apophyses.

PALPS. AS in Figs 58–59; coxa with distinct retrolateral apophysis, trochanter with small ventral process, femur proximally with retrolateral-ventral process, distally with retrolateral ventral apophysis (arrow in Fig. 59) and smaller prolateral ventral hump; tibia very short, dorsally rounded, not angular; procurus distally bifid; genital bulb with large process distally provided with weakly sclerotized pointed elements.

LEGS. Without spines and curved hairs; with higher than usual density of vertical hairs on tibiae; retrolateral trichobothrium of tibia 1 at 23%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~12 pseudosegments, distally fairly distinct.

Male (variation)

Tibia 1 in two other males: 1.85, 2.00.

Female

In general similar to male but without humps on sternum, with usual low number of vertical hairs on tibiae. Tibia 1 in two females: 1.40, 1.45. Epigynum (Fig. 72) light brown anterior plate apparently divided into anterior and posterior parts, with short tongue-shaped posterior process (arrow in Fig. 61; internal?), large posterior plate light brown. Internal genitalia (Figs 61, 74) with pore plates close together; with large and complex anterior median receptacle.

Distribution

Known from type locality only, in Venezuela, Lara (Fig. 1034).

Natural history

The spiders were found under decaying logs and dead leaves on the ground.

Canaima loca Huber sp. nov.

urn:lsid:zoobank.org:act:3CD86337-E326-4EC5-A392-52CFB0BADF58

Figs 50–51, 62–67, 75–77, 1029, 1034

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Figs 65–66; pair of long flattened frontal apophyses), by shape of procurus (Fig. 63; short, with pair of slender distal apophyses connected by transparent membrane), and by internal female genitalia (Figs 67, 77): pair of semicircular sclerites; angular anterior sclerite, tongue-shaped posterior membranous process (arrow in Fig. 67; similar to *C. perlonga* Huber sp. nov.), and large anterior median receptacle; note that female of *C. merida* Huber, 2000 is unknown.

Etymology

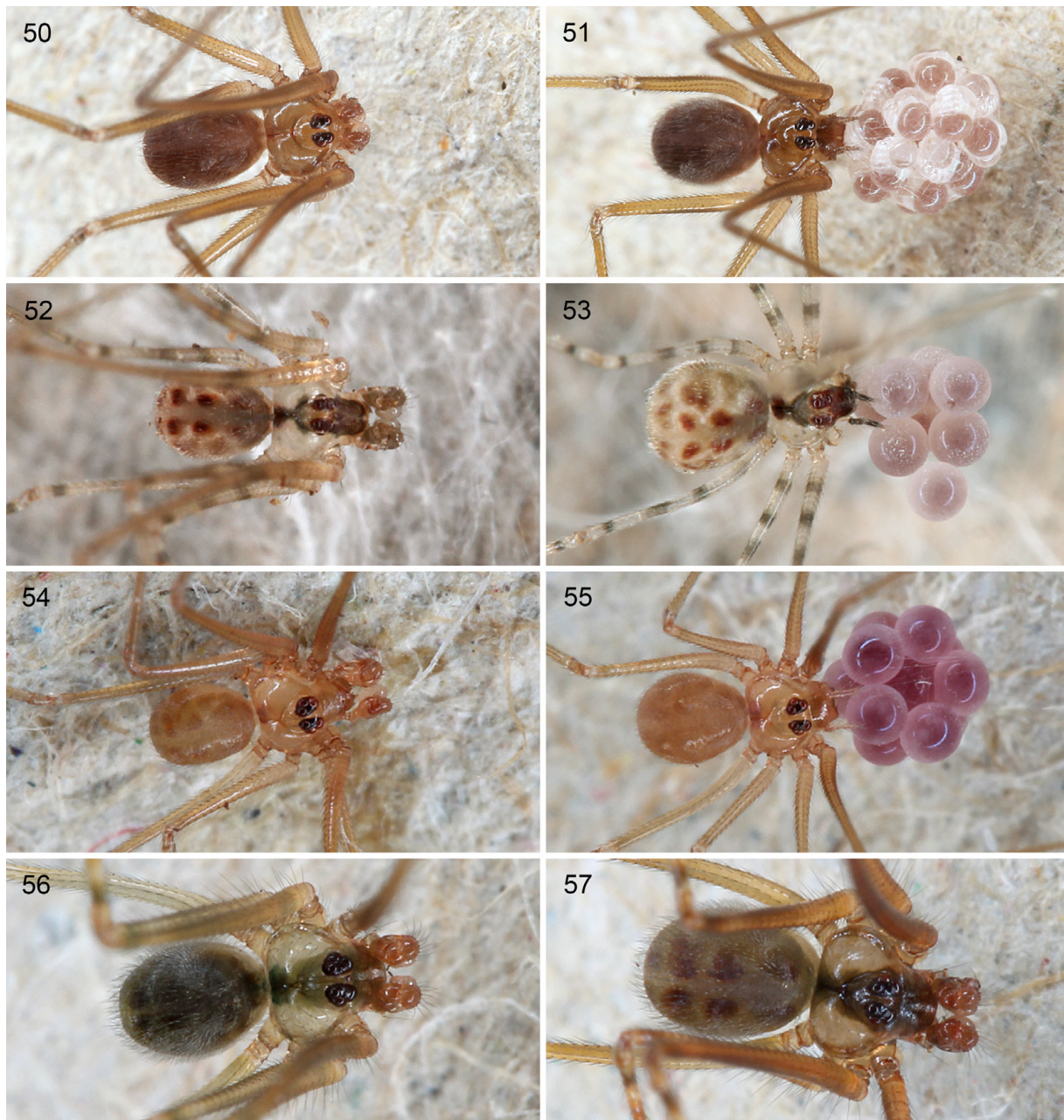
The species name (Spanish: crazy) refers to the erratic running of this species when the leaf on which it rested was turned; used as noun in apposition.

Type material

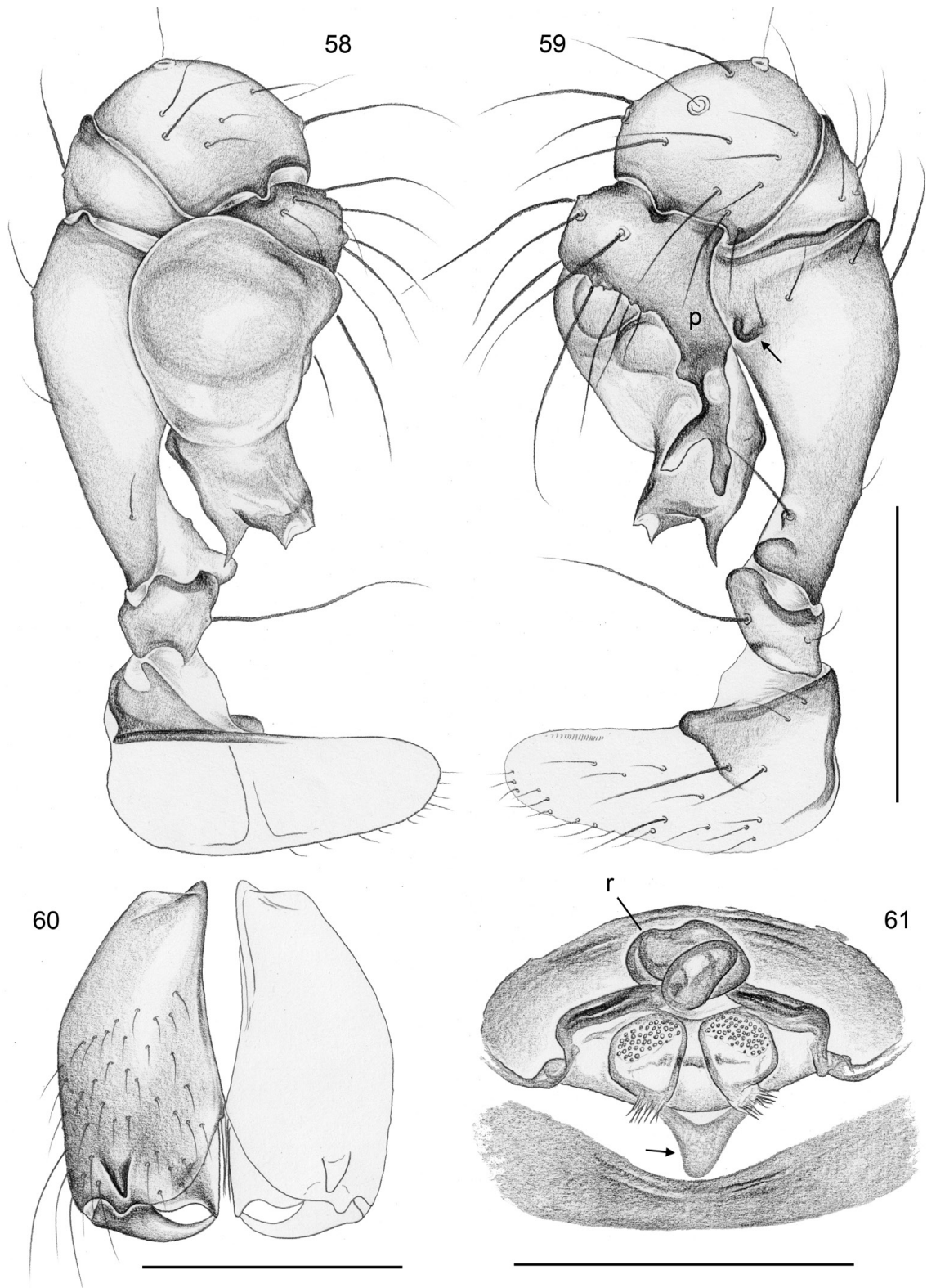
VENEZUELA – **Trujillo** • ♂ holotype, ZFMK (Ar 21827), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

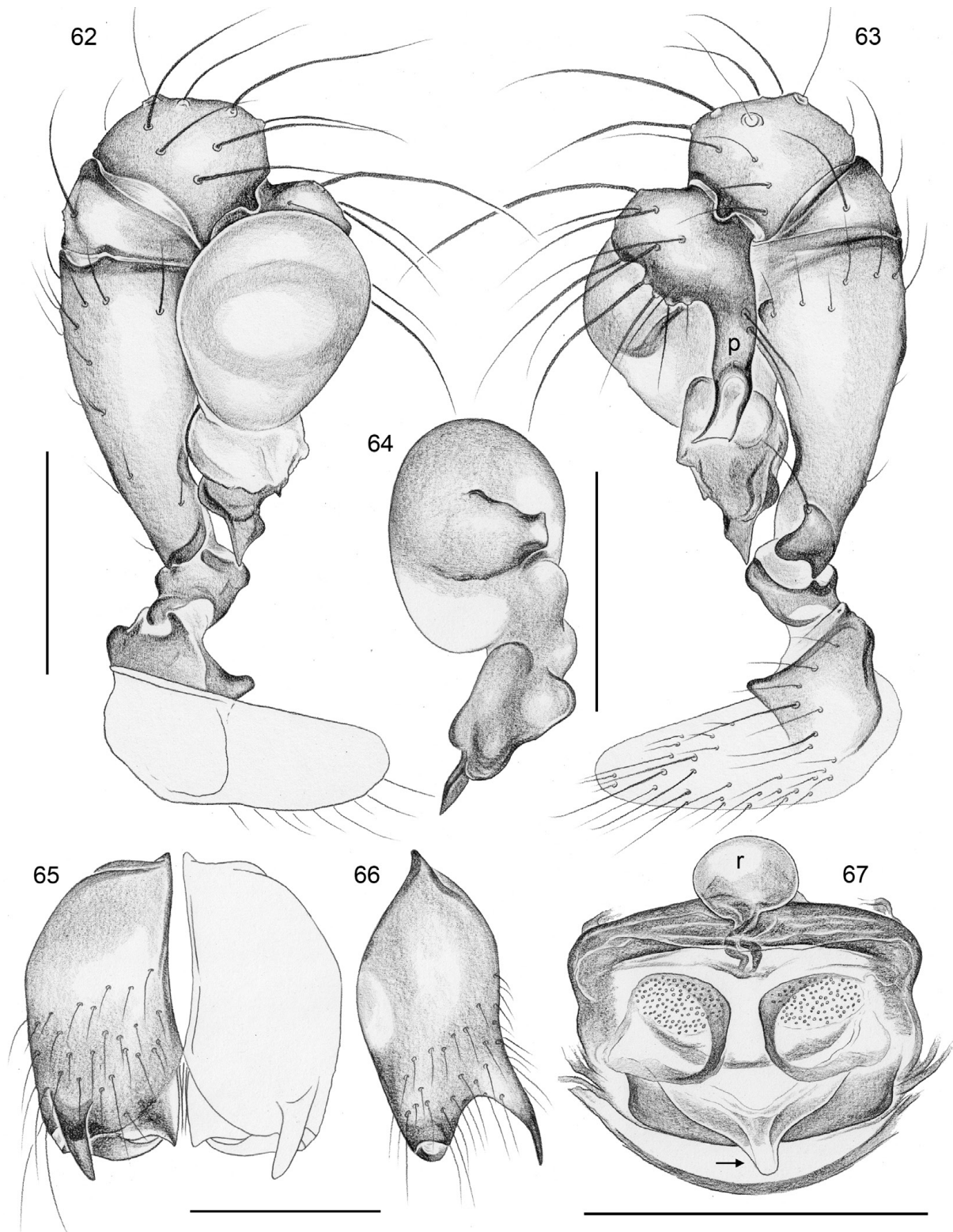
VENEZUELA – **Trujillo** • 8 ♂♂, 7 ♀♀, ZFMK (Ar 21828), and 8 ♀♀ in pure ethanol, ZFMK (Ven18-209), same collection data as for holotype • 3 ♀♀, misidentified paratypes of *Mecolaesthus discrepantis* (González-Sponga, 2003), MIZA 105754 (MAGS 1383), Boconó, Laguna Negra [approximately 9.305° N, 70.175° W], 28 Feb. 1993 (A.R. Delgado, M.A. González S.) • 1 ♀, MIZA 105814 (MAGS 1426), same locality, 13 Sep. 1996 (M.A. González S.).



Figs 50–57. *Canaima* Huber, 2000, live specimens. **50–51.** *C. loca* Huber sp. nov., male and female with egg sac from Trujillo, Laguna Negra. **52–53.** *C. avila* Huber sp. nov., male and female with egg sac from Miranda, El Ávila National Park. **54–55.** *C. guaquirá* Huber sp. nov., male and female with egg sac from Yaracuy, Guaquirá. **56–57.** *C. guaraque* Huber sp. nov.; males from Mérida, between Tovar and Guaraque.



Figs 58–61. *Canaima perlonga* Huber sp. nov.; from Lara, Yacambú National Park (type locality; ZFMK Ar 21826). **58–59.** Left male pedipalp, prolateral and retrolateral views (arrow: ventral femur apophysis). **60.** Male chelicerae, frontal view. **61.** Cleared female genitalia, dorsal view (arrow: tongue-shaped posterior process). Abbreviations: p=procurus; r=receptacle. Scale lines: 0.2 mm.



Figs 62–67. *Canaima loca* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21828). **62–63.** Left male pedipalp, prolateral and retrolateral views. **64.** Left genital bulb, dorsal view. **65–66.** Male chelicerae, frontal and lateral views. **67.** Cleared female genitalia, dorsal view (arrow: tongue-shaped posterior process). Abbreviations: p=procursus; r=receptacle. Scale lines: 0.2 mm.

Description

Male (holotype)

MEASUREMENTS. Total body length 1.5, carapace width 0.75. Distance PME–PME 45 μm ; diameter PME 70 μm ; distance PME–ALE 45 μm ; AME absent. Leg 1: 11.5 (2.7+0.3+2.9+4.3+1.3), tibia 2: 1.6, tibia 3: 1.3, tibia 4: 1.7; tibia 1 L/d: 48.

COLOR (in ethanol). Prosoma and legs ochre-yellow, carapace with thin median dark line; legs without dark rings; abdomen pale greenish gray, dorsally and laterally densely covered with dark bluish marks.

BODY. Habitus as in Fig. 50. Ocular area slightly raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.52/0.40), with pair of anterior humps. Abdomen oval.

CHELICERAE. As in Figs 65–66, with very short entapophyses and pair of long flattened frontal apophyses.

PALPS. As in Figs 62–63; coxa with distinct retrolateral apophysis, trochanter with small ventral process, femur proximally with retrolateral process, distally with two small ventral processes, one slightly prolateral, the other slightly retrolateral; tibia very short, dorsally angular; procurus with pair of slender distal apophyses connected by transparent membrane; genital bulb (Fig. 64) with complex distal process.

LEGS. Without spines and curved hairs; with slightly higher than usual density of vertical hairs on tibiae; retrolateral trichobothrium of tibia 1 at 23%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~15 pseudosegments, distally fairly distinct.

Male (variation)

Tibia 1 in seven males (incl. holotype): 2.8–3.2 (mean 3.0).

Female

In general similar to male (Fig. 51) but without humps on sternum, and sternum posteriorly slightly inflated; with few vertical hairs on tibiae. Tibia 1 in seven females: 2.3–2.5 (mean 2.4). Epigynum (Fig. 75) light brown transversal plate, whitish inflated area in front of epigynum, internal sclerites partly visible in uncleared specimens; posterior plate indistinct, light brown. Internal genitalia (Figs 67, 77) with pair of semicircular sclerites open laterally and partly surrounding pore plates; angular anterior sclerite, and large anterior median receptacle; with tongue-shaped posterior membranous process (arrow in Fig. 67).

Distribution

Known from type locality only, in Venezuela, Trujillo (Fig. 1034).

Natural history

At Laguna Negra this species was very abundant in the leaf litter, especially on the undersides of *Cecropia* leaves. When the leaves were turned, the spiders started to run erratically at high speed and eventually dropped from the leaf. Even when leaves were carefully shaken over a white plastic sheet, the spiders continued their running with quick turns, resulting in the loss of about half of the specimens found. No webs were seen.

Canaima zerpa Huber sp. nov.

urn:lsid:zoobank.org:act:27026FC3-BF0B-48E5-B790-E489ABF48473

Figs 68–71, 78–80, 1034

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Fig. 70; three pairs of frontal apophyses), by shape of procurus (Fig. 69; pointed distal apophysis), and by internal female genitalia

(Figs 71, 80): large oval pore plates in slightly vertical position, no tongue-shaped posterior membranous process, anterior and posterior membranous sacs (arrows in Fig. 71); note that female of *C. merida* Huber, 2000 is unknown.

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Mérida** • ♂ holotype, ZFMK (Ar 21829), Monte Zerpa, forest above La Hechicera (8.637° N, 71.165° W), 14–21 Jun. 2014 (N. Sánchez, M. Fernández).

Other material examined

VENEZUELA – **Mérida** • 1 ♂, 1 ♀, ZFMK (Ar 21830), same collection data as for holotype but Apr.–Aug. 2016 (M. Fernández) • 1 ♂, ZFMK (Ar 21831), same collection data as for holotype but 30 Mar. 2013 (D. Meta).

Description

Male (holotype)

MEASUREMENTS. Total body length 1.7, carapace width 0.70. Distance PME–PME 60 µm; diameter PME 70 µm; distance PME–ALE 30 µm; AME tiny (diameter ~10 µm), contiguous. Leg 1: 7.1 (1.7+0.3+1.8+2.4+0.9), tibia 2: 1.0, tibia 3: 0.8, tibia 4: 1.1; tibia 1 L/d: 26.

COLOR (in ethanol). Prosoma and legs ochre-yellow, carapace with indistinct radial marks, ocular area with indistinct median and lateral marks; sternum anteriorly whitish; legs without dark rings; abdomen pale ochre gray, dorsally and laterally densely covered with large purplish marks, ventrally with small purplish mark in gonopore area.

BODY. Habitus similar to *C. loca* Huber sp. nov. (cf. Fig. 50). Ocular area slightly raised. Carapace with deep thoracic groove. Clypeus unmodified. Sternum wider than long (0.54/0.38), with pair of anterior humps. Abdomen globular.

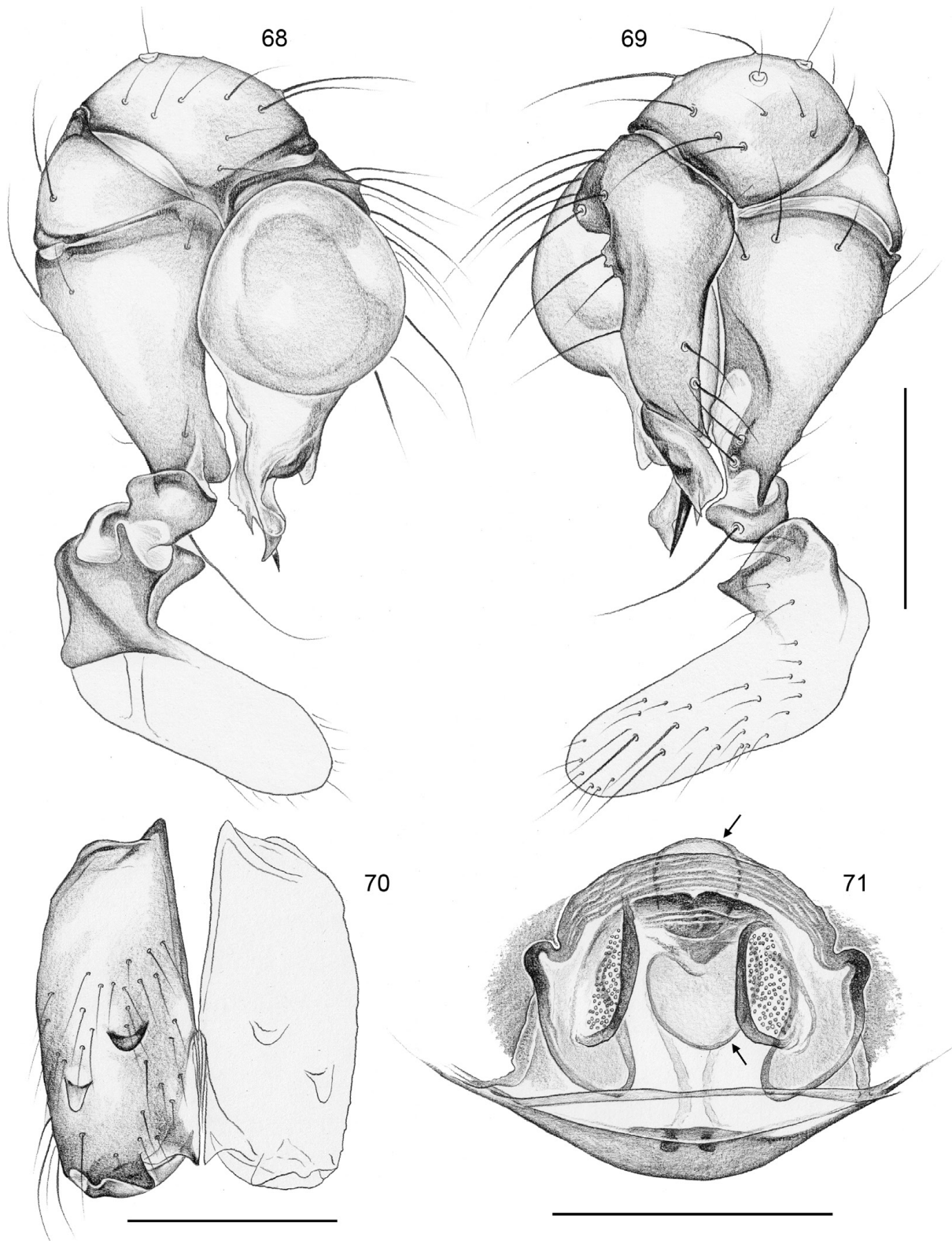
CHELICERAE. As in Fig. 70, with three pairs of distinctive frontal processes: dark rounded apophyses proximally, light processes medially (poorly visible in dissecting microscope), and dark apophyses distally in front of fangs.

PALPS. As in Figs 68–69; coxa with distinct retrolateral-ventral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally widened, without ventral process; procurus very simple, distally with dorsal blade-like apophysis and ventral membranous elements; genital bulb with slightly sclerotized distal apophysis parallel to semi-transparent elements.

LEGS. Without spines and curved hairs; with higher than usual density of vertical hairs on tibiae (especially tibia 1); retrolateral trichobothrium of tibia 1 at 24%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~15 pseudosegments, distally fairly distinct.

Male (variation)

Tibia 1 in other male: 1.9 (missing in third male examined).



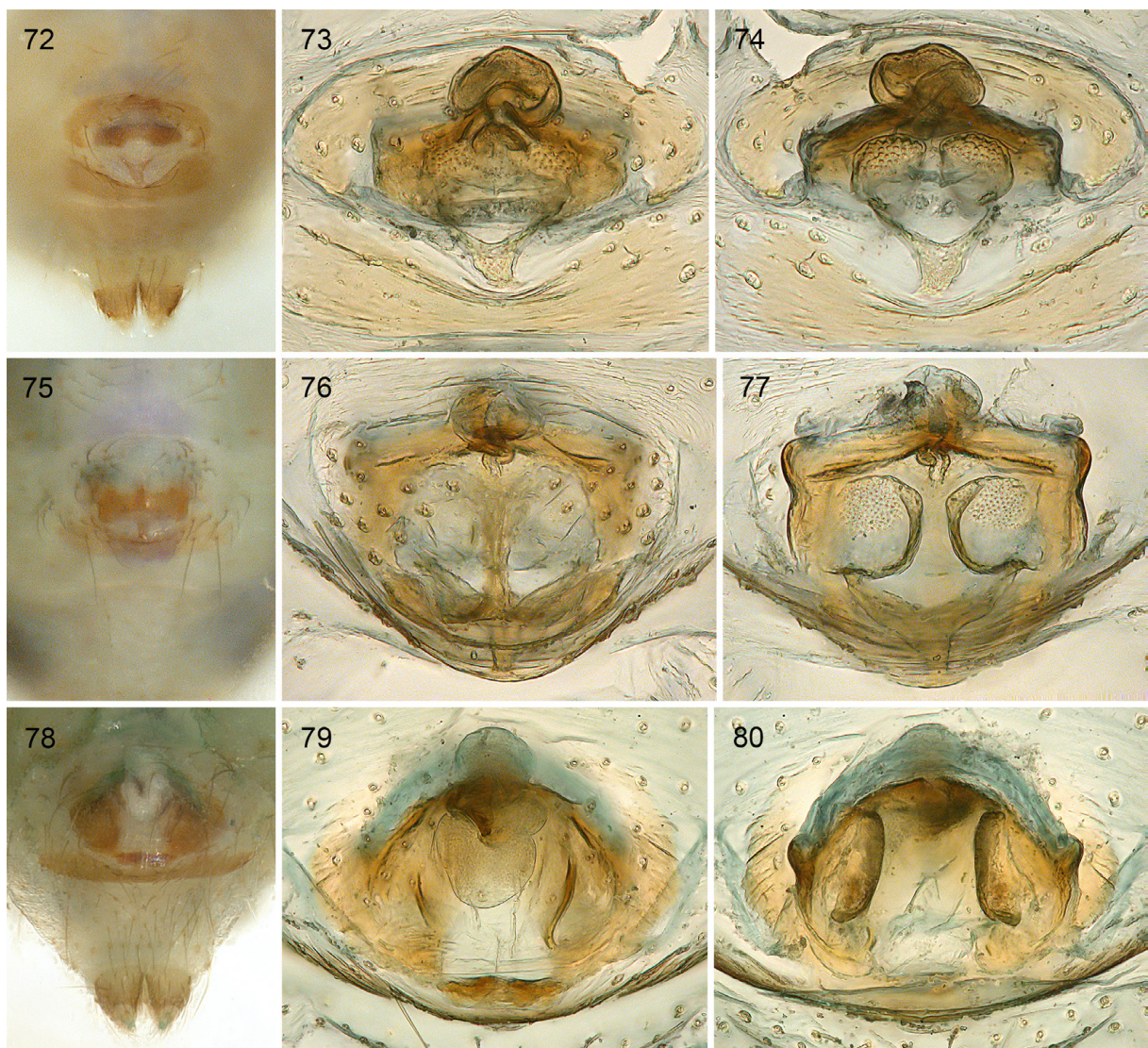
Figs 68–71. *Canaima zerpa* Huber sp. nov.; from Mérida, Monte Zerpa (type locality; male: ZFMK Ar 21831, female: ZFMK Ar 21830). **68–69.** Left male pedipalp, prolateral and retrolateral views. **70.** Male chelicerae, frontal view. **71.** Cleared female genitalia, dorsal view (arrows: anterior and posterior membranous sacs/receptacles). Scale lines: 0.2 mm.

Female

In general similar to male but without humps on sternum, with few vertical hairs on leg tibiae. Tibia I in single female: 1.5. Epigynum (Fig. 78) with light median area, internal whitish membranous sac visible in this area in untreated specimen. Internal genitalia (Figs 71, 79–80) with large oval pore plates in slightly vertical position, without tongue-shaped posterior membranous process, with anterior and posterior membranous sacs (arrows in Fig. 71).

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1034).



Figs 72–80. *Canaima* Huber, 2000, epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **72–74.** *C. perlonga* Huber sp. nov.; from Lara, Yacambú National Park (type locality; ZFMK Ar 21826). **75–77.** *C. loca* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21828). **78–80.** *C. zerpa* Huber sp. nov.; from Mérida, Monte Zerpa (type locality; ZFMK Ar 21830).

Canaima avila Huber sp. nov.

urn:lsid:zoobank.org:act:EF382001-C5C1-47E8-9679-E75E4C6F82A5

Figs 52–53, 81–84, 93–95, 1034

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Fig. 83; distinctive pair of distal processes and pair of low frontal humps), by shape of procurus (Fig. 82; distinctive subdistal dorsal widening – arrow in Fig. 82), by strongly banded legs (Figs 52–53; femora with 3–4 dark rings), and by external and internal female genitalia (Figs 84, 93): strong lateral sclerites, small median sclerite; pair of internal anterior pockets/folds; elongate transversal pore plates close together; note that female of *C. merida* Huber, 2000 is unknown.

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Miranda** • ♂ holotype, ZFMK (Ar 21832), El Ávila National Park, near La Julia, ‘site 2’ (10.5037° N, 66.8107° W), 1060 m a.s.l., dry forest, 22–23 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Miranda** • 4 ♂♂, 5 ♀♀, ZFMK (Ar 21833), and 8 ♀♀, 7 juvs in pure ethanol, ZFMK (Ven20-179), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 1.25, carapace width 0.60. Distance PME–PME 50 µm; diameter PME 60 µm; distance PME–ALE 30 µm; AME absent. Leg 1: 10.9 (2.8+0.2+2.8+4.3+0.8), tibia 2: 1.6, tibia 3: 1.1, tibia 4: 1.3; tibia 1 L/d: 56.

COLOR (in ethanol). Prosoma and legs pale ochre-yellow, carapace and clypeus medially darker, legs with indistinct dark rings on femora (three) and tibiae (two); abdomen pale gray, dorsally light brown with large dark marks.

BODY. Habitus as in Fig. 52. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified but slightly more protruding than in female. Sternum wider than long (0.44/0.32), with pair of small but distinct anterior processes. Abdomen globular.

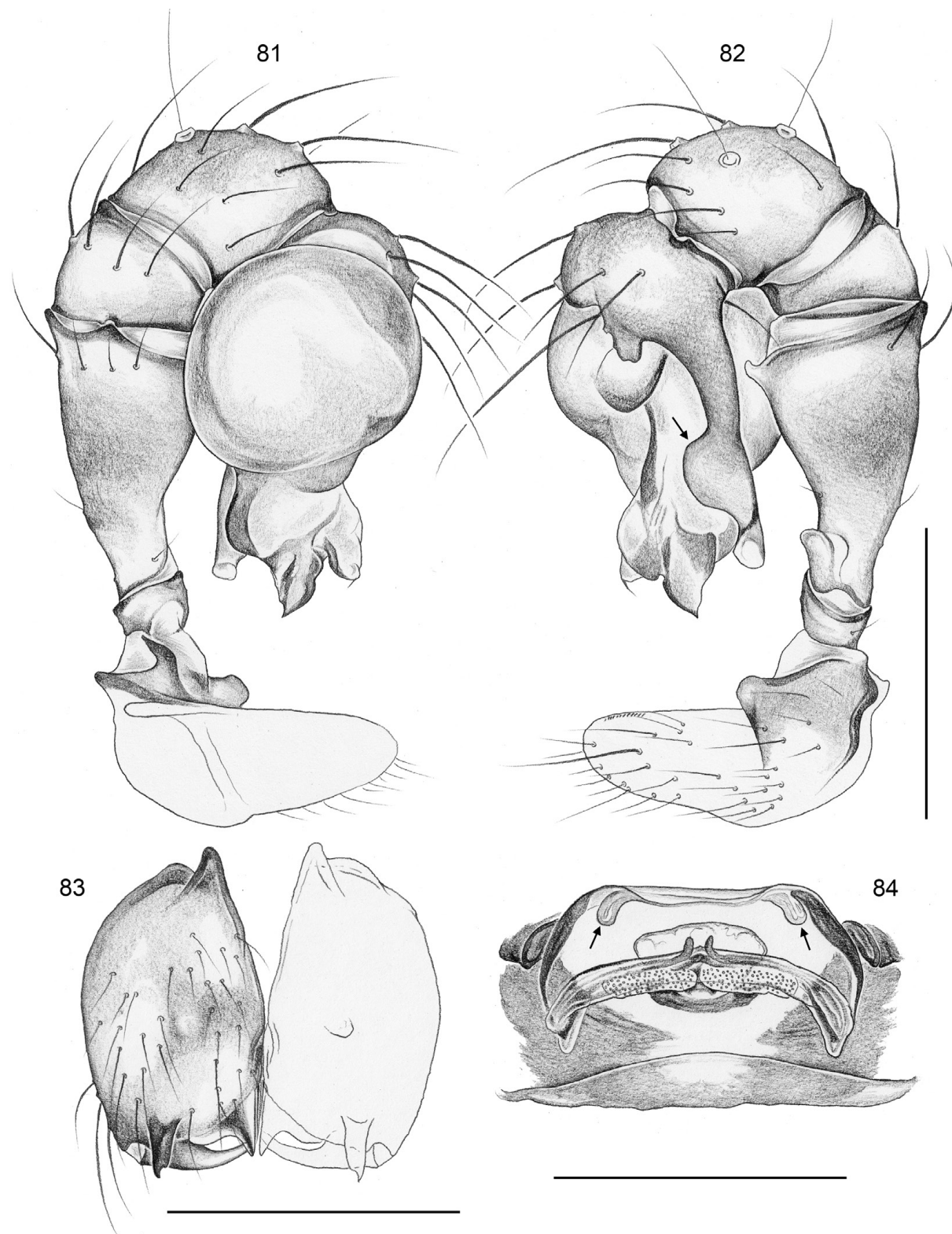
CHELICERAE. As in Fig. 83, with distinctive pair of distal processes overhanging fangs and pair of low, light frontal humps.

PALPS. As in Figs 81–82; coxa with distinct retrolateral-ventral apophysis, trochanter barely modified, femur proximally with light retrolateral process, distally with small ventral process; procurus with distinctive subdistal dorsal widening (arrow in Fig. 82); genital bulb with complex distal process.

LEGS. Without spines and curved hairs; with higher than usual density of vertical hairs on tibiae (apparently only dorsally); retrolateral trichobothrium of tibia 1 at 11%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~13 pseudosegments.

Male (variation)

Tibia 1 in five males (incl. holotype): 2.7–2.9 (mean 2.8).



Figs 81–84. *Canaima avila* Huber sp. nov.; from Miranda, El Ávila National Park (type locality; ZFMK Ar 21833). **81–82.** Left male pedipalp, prolateral and retrolateral views (arrow: distinctive dorsal widening of procurus). **83.** Male chelicerae, frontal view. **84.** Cleared female genitalia, dorsal view (arrows: anterior pockets/folds). Scale lines: 0.2 mm.

Female

In general similar to male (Fig. 53) but without humps on sternum, clypeus less protruding, few vertical hairs on leg tibiae, sternum anteriorly laterally light brown, rings on legs more distinct, femora with four rings. Tibia 1 in five females: 1.9–2.2 (mean 2.02). Epigynum (Fig. 93) barely protruding, anterior plate with strong lateral sclerites, medially whitish with small light brown sclerite; large light brown posterior plate. Internal genitalia (Figs 84, 94–95) with elongate transversal pore plates close together and pair of unsclerotized internal anterior pockets/folds (arrows in Fig. 84); large median transparent receptacle.

Distribution

Known from type locality only, in Venezuela, Miranda (Fig. 1034).

Natural history

Most specimens were collected in masses of dead leaves and other debris suspended among lianas and other vegetation ~1–2 m above the ground.

Canaima guaquirá Huber sp. nov.

urn:lsid:zoobank.org:act:ABAD982F-9BF4-4CE6-BF7D-934296A0224E

Figs 54–55, 85–88, 96–98, 1034

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Fig. 87; three pairs of processes, with highly distinctive distal pair of slender curved processes), by shape of procurus (Fig. 86; distinctive dorso-distal sclerite), by dorsal process on genital bulb (arrow in Fig. 86), and by internal female genitalia (Figs 88, 98): anterior bilobed sclerite (arrows in Fig. 88); median arc between pore plates; pore plates far apart; note that female of *C. merida* Huber, 2000 is unknown.

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Yaracuy** • ♂ holotype, ZFMK (Ar 21834), Guaquirá, ‘site 1’ (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

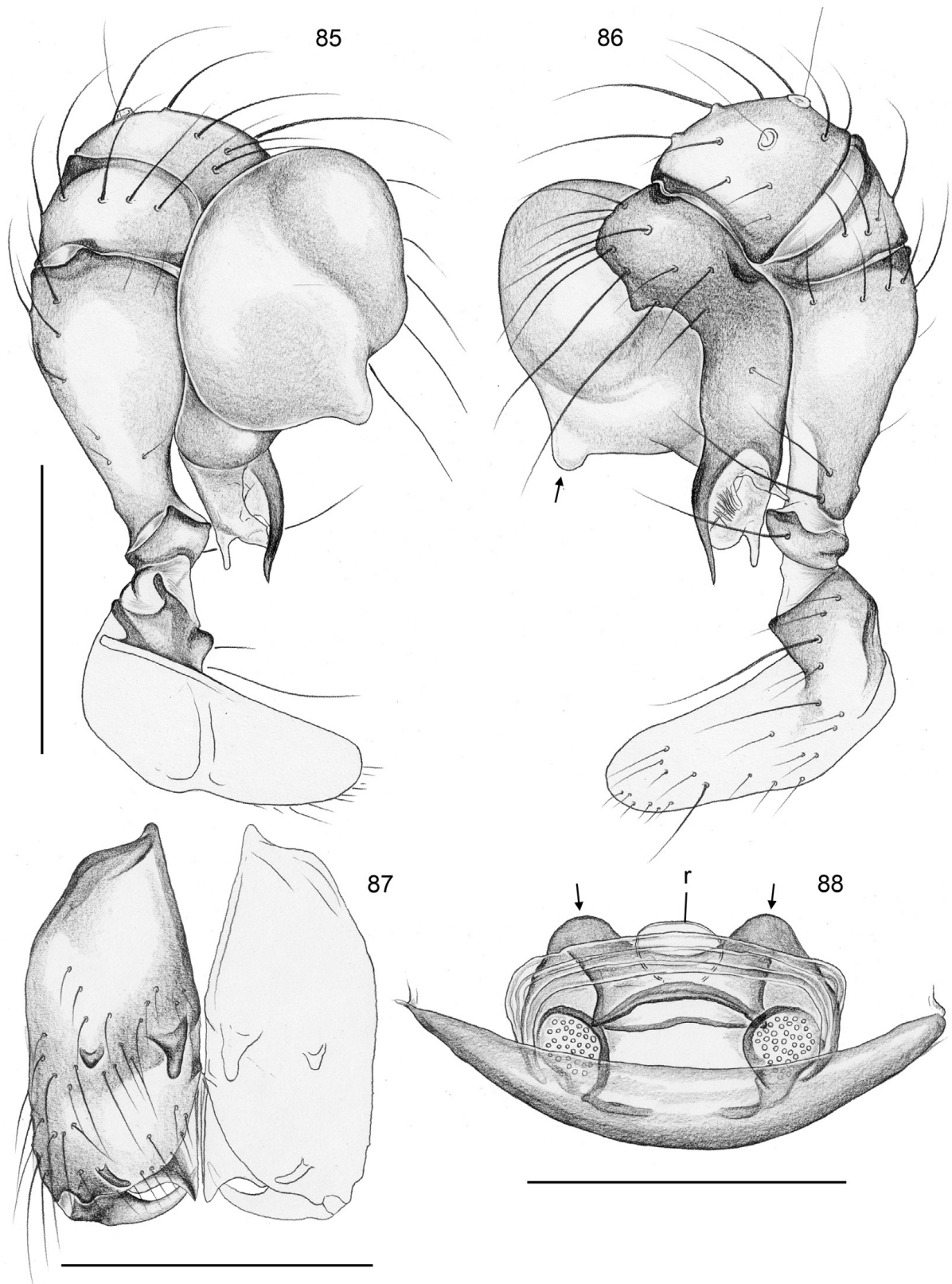
Other material examined

VENEZUELA – **Yaracuy** • 3 ♂♂, 6 ♀♀, ZFMK (Ar 21835), and 8 ♀♀ in pure ethanol, ZFMK (Ven20-158), same collection data as for holotype • 1 ♂, 6 ♀♀, ZFMK (Ar 21836), Guaquirá, ‘site 2’ (10.2807° N, 68.6530° W), 150 m a.s.l., forest along stream, 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Description**Male (holotype)**

MEASUREMENTS. Total body length 1.1, carapace width 0.55. Distance PME–PME 35 µm; diameter PME 60 µm; distance PME–ALE 30 µm; AME absent. Leg 1: 8.45 (2.0+0.2+2.2+3.15+0.9), tibia 2: 1.1, tibia 3: 0.85, tibia 4: 1.1; tibia 1 L/d: 49.

COLOR (in ethanol). Prosoma and legs ochre-yellow, sternum whitish, legs without dark rings; abdomen pale greenish gray, dorsally with darker bluish marks.



Figs 85–88. *Canaima guaquiri* Huber sp. nov.; from Yaracuy, Guaquira (type locality; ZFMK Ar 21835). **85–86.** Left male pedipalp, prolateral and retrolateral views (arrow: dorsal process on genital bulb). **87.** Male chelicerae, frontal view. **88.** Cleared female genitalia, dorsal view (arrows: anterior bilobed sclerite). Abbreviation: r=receptacle. Scale lines: 0.2 mm.

BODY. Habitus as in Fig. 54. Ocular area slightly raised. Carapace with distinct thoracic groove. Clypeus slightly more protruding than in female and with sclerotized rim. Sternum wider than long (0.40/0.30), with pair of small but distinct anterior processes. Abdomen oval.

CHELICERAE. As in Fig. 87, with very short entapophyses and three pairs of frontal processes; highly distinctive distal pair of slender curved processes.

PALPS. As in Figs 85–86; coxa with distinct retrolateral-ventral apophysis, trochanter with low ventral process, femur proximally with retrolateral process, distally with small ventral process (similar to *C. arima*; cf. Huber 2000: fig. 1322); procurus with distinctive dorso-distal sclerite and membranous elements; genital bulb with semitransparent dorsal process (arrow in Fig. 86), embolar process whitish, weakly sclerotized.

LEGS. Without spines and curved hairs; with higher than usual density of vertical hairs on tibiae; retrolateral trichobothrium of tibia 1 at 25%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~13 pseudosegments.

Male (variation)

Tibia 1 in five males (incl. holotype): 1.9–2.4 (mean 2.14).

Female

In general similar to male (Fig. 55) but without humps on sternum, clypeus less protruding and rim not sclerotized, few vertical hairs on leg tibiae. Tibia 1 in 13 females: 1.50–1.75 (mean 1.65). Epigynum (Fig. 96) slightly protruding, anterior plate medially whitish, laterally brown, sclerotized; large light brown posterior plate. Internal genitalia (Figs 88, 97–98) with anterior bilobed sclerite (arrows in Fig. 88), median arc between pore plates, pore plates far apart, and large anterior transparent receptacle.

Distribution

Known from type locality only, in Venezuela, Yaracuy (Fig. 1034).

Natural history

Most specimens were collected in dead bamboo sheaths on the ground but the species seemed to be common in the general forest leaf litter.

Canaima guaraque Huber sp. nov.

urn:lsid:zoobank.org:act:C64AF2C8-4C26-4630-BF1B-85B163F9E225

Figs 56–57, 89–92, 99–101, 1034

Diagnosis

Easily distinguished from known congeners by male pedipalp (Figs 89–90; long and slender procurus; complex embolar division with several distinctive processes), by male chelicerae (Fig. 91; pair of long frontal apophyses; similar only in *C. loca* Huber sp. nov.), and by internal female genitalia (Figs 92, 101): oval pore plates far apart, without tongue-shaped posterior membranous process and without anterior median receptacle; note that female of *C. merida* Huber, 2000 is unknown.

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21837), between Tovar and Guaraque (8.2578° N, 71.7184° W), 2490 m a.s.l., forest along stream, 11 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 1 ♂, 1 ♀, ZFMK (Ar 21838), and 1 ♀ in pure ethanol, ZFMK (Ven20-127), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 1.7, carapace width 0.75. Distance PME–PME 60 µm; diameter PME 70 µm; distance PME–ALE 60 µm; distance AME–AME ~10 µm; diameter AME ~10 µm (AME possibly non-functional). Leg 1: 11.5 (2.9+0.2+2.8+4.3+1.3), tibia 2: 1.7, tibia 3: 1.3, tibia 4: 1.5; tibia 1 L/d: 40.

COLOR (in ethanol). Carapace ochre-yellow, with light brown median and lateral bands connected posteriorly, ocular area and clypeus darker brown, sternum pale ochre to light brown; legs ochre-yellow, with slightly darker rings on femora (subdistally) and tibiae (proximally and subdistally); abdomen greenish-gray, with three pairs of dark bluish marks dorsally, dark mark in gonopore area.

BODY. Habitus as in Fig. 56. Ocular area slightly raised. Carapace with distinct thoracic groove. Clypeus with sclerotized rim but otherwise unmodified. Sternum wider than long (0.62/0.40), with pair of small but distinct anterior humps. Abdomen globular.

CHELICERAE. As in Fig. 91, with entapophyses of regular length and pair of long frontal apophyses overhanging fangs.

PALPS. As in Figs 89–90; coxa with distinct retrolateral-ventral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally with rounded retrolateral-ventral process; tibia very short, globular; procurus long and slender, widely curved; genital bulb with complex embolar division with several distinctive distal processes.

LEGS. Without spines and curved hairs; with higher than usual density of vertical hairs on tibiae; retrolateral trichobothrium of tibia 1 at 14%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~18 pseudosegments, fairly distinct.

Male (variation)

Tibia 1 in second male: 2.6.

Female

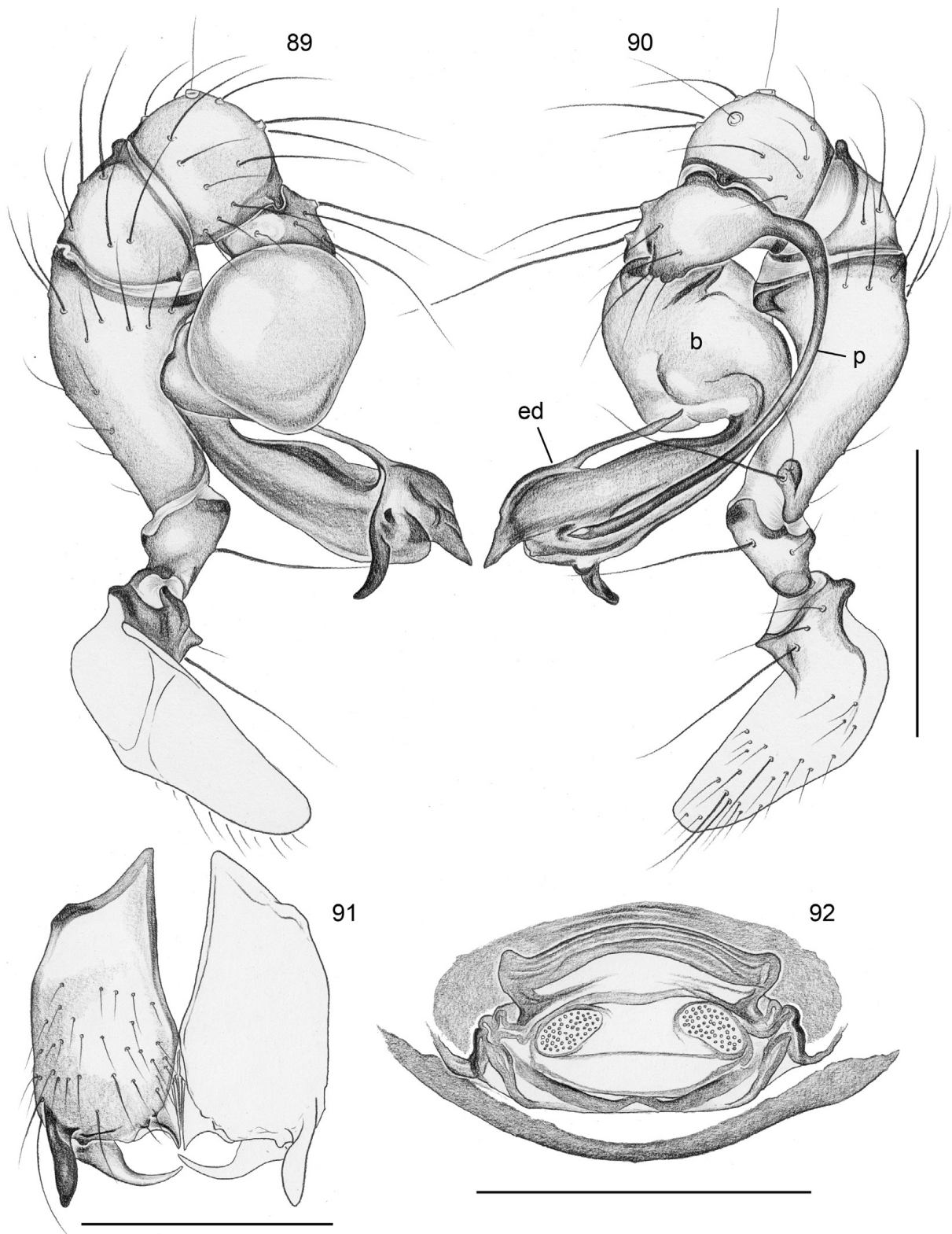
In general similar to male (Fig. 57) but without humps on sternum, clypeus rim not sclerotized, few vertical hairs on tibiae, dark rings on legs more distinct. Tibia 1 in two females: 1.7, 1.9. Epigynum (Fig. 99) simple, slightly protruding plate with whitish median area; short and wide posterior plate; sclerotized arc on posterior side of genital opening. Internal genitalia (Figs 92, 100–101) with oval pore plates far apart, without tongue-shaped posterior membranous process and without anterior median receptacle.

Distribution

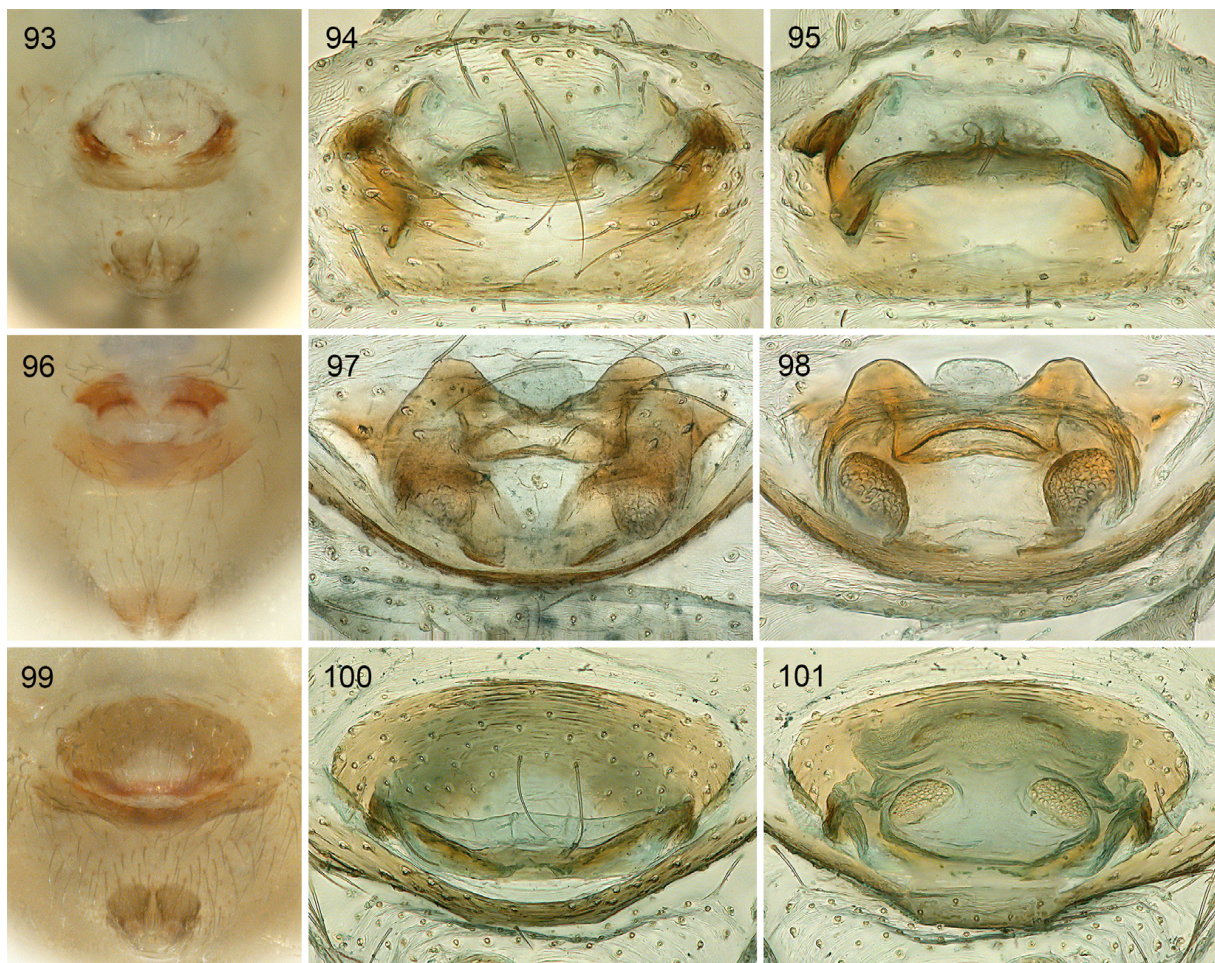
Known from type locality only, in Venezuela, Mérida (Fig. 1034).

Natural history

The spiders were brushed from mosses growing on rocks near a small forest stream.



Figs 89–92. *Canaima guaraque* Huber sp. nov.; from Mérida, between Tovar and Guaraque (type locality; ZFMK Ar 21837–38). **89–90.** Left male pedipalp, prolateral and retrolateral views. **91.** Male chelicerae, frontal view. **92.** Cleared female genitalia, dorsal view. Abbreviations: b=genital bulb; ed=embolar division of genital bulb; p=procurus. Scale lines: 0.3 mm.



Figs 93–101. *Canaima* Huber, 2000, epigyna, ventral views, and cleared female genitalia, ventral and dorsal views. **93–95.** *C. avila* Huber sp. nov.; from Miranda, El Ávila National Park (type locality; ZFMK Ar 21833). **96–98.** *C. guaquirá* Huber sp. nov.; from Yaracuy, Guaquirá (type locality; ZFMK Ar 21835). **99–101.** *C. guaraque* Huber sp. nov.; from Mérida, between Tovar and Guaraque (type locality; ZFMK Ar 21838).

Carapovia González-Sponga, 1998

Notes

The South American genus *Carapovia* was revised recently (Huber 2016, 2018). It is particularly species-rich in the Brazilian Atlantic Forest, while only a few widespread species are known from the Amazon region. The type species *C. paraguaensis* González-Sponga, 1998 is the only species known from Venezuela.

Carapovia paraguaensis González-Sponga, 1998

Figs 102–105, 1030, 1036

Carapovia paraguaensis González-Sponga, 1998: 19, figs 1–10 (♂♀).

Carapovia paraguaensis – Huber 2000: 240, figs 947–954; 2005b: 555, figs 67–72, 89–90, 96; 2018: fig. 741. — Carvalho *et al.* 2017: 13.

Type material

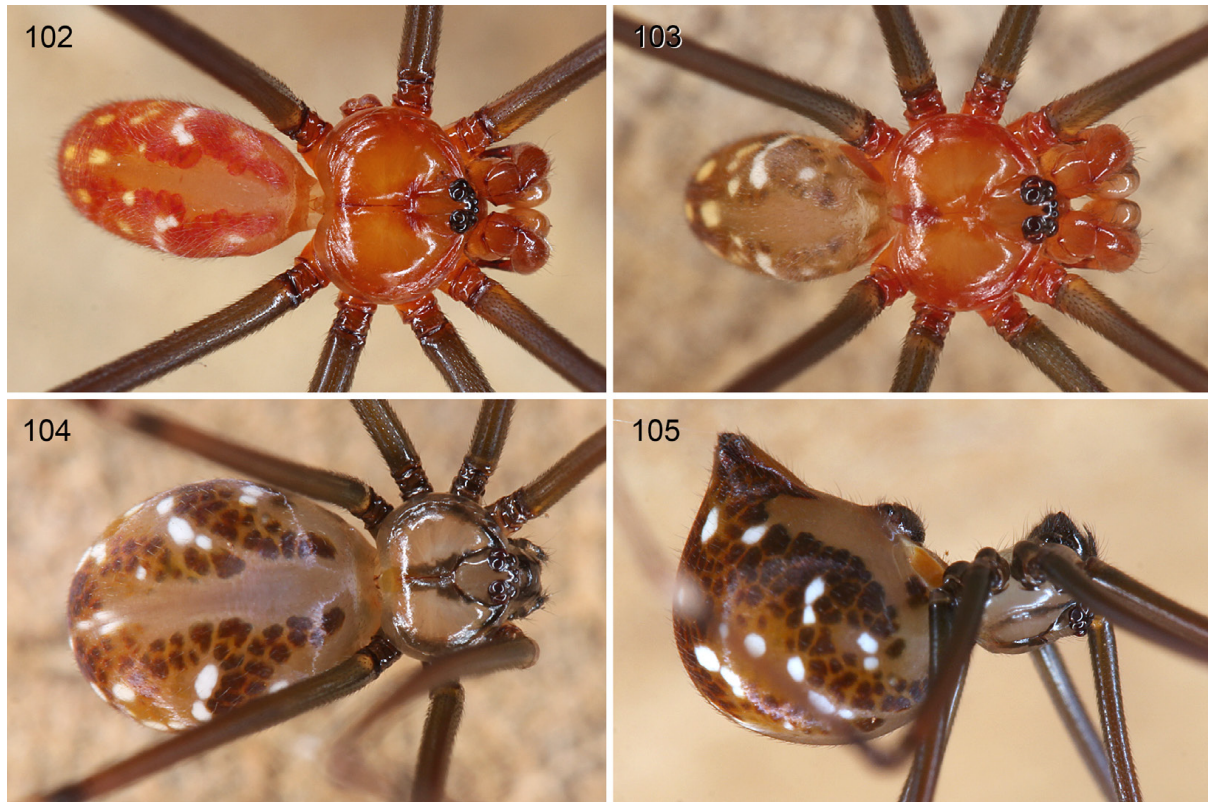
VENEZUELA – **Bolívar** • 2 ♂♂, 2 ♀♀, 2 juvs types (see Notes below), MIZA 105736 (MAGS 1178), “río Carapo, en la base del tepui Guaiquinima” [5.728° N, 63.534° W], 480 m a.s.l., 17 Feb. 1990 (L. Sanabria, M.A. González S.); examined.

New records

VENEZUELA – **Bolívar** • 4 ♂♂, ZFMK (Ar 21840), and 2 ♂♂ in pure ethanol, ZFMK (Ven18-171), La Neverita (8.0970° N, 62.6727° W), 225 m a.s.l., 13 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀, CAS (separated from 9027301), Río Caura, Campamento Cecilia Magdalena [approximately 6.3° N, 64.5° W, 250 m a.s.l.], 12 Apr. 1957 (collector not given). – **Delta Amacuro** • 8 ♂♂, 1 ♀, 1 juv., ZFMK (Ar 21839), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven18-166), between El Triunfo and Piacoa (8.5285° N, 62.2958° W), 75 m a.s.l., 12 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Notes

Contrary to the original description, the holotype is not physically separated from the paratypes; the specimens above are thus treated as ‘types’. The two males in the type vial appear indistinguishable, so there is currently no need to designate a lectotype. However, in addition to the two females of *C. paraguaensis*, the vial contains three females of *Mesabolivar spinosus* (González-Sponga, 2005). The original drawings of the female were made from correctly identified specimens.



Figs 102–105. *Carapoia paraguaensis* González-Sponga, 1998; live males and females from Delta Amacuro, between El Triunfo and Piacoa. Note sexual color dimorphism.

Distribution

Widespread in the Guyana Highlands of eastern Venezuela, Guyana, and northern Brazil (Fig. 1036; see also Huber 2018: fig. 741). The two 2018 records above mark the most northern localities of this species known so far. The species has not been documented from north of the Orinoco River.

Natural history

This species was found in strongly curved, sometimes almost globular webs, close to the ground but exposed rather than hidden in protected spaces.

Chibchea Huber, 2000

Notes

The largely Andean genus *Chibchea* now includes 21 described species, ranging from Venezuela to Chile, with a few species known from the Amazon basin (Huber 2000; Huber & Carvalho 2019). The type species is from Colombia, and several species, in particular those from Venezuela and Chile, were originally assigned tentatively to the genus (Huber 2000).

Preliminary molecular (CO1) data (J.J. Astrin, B.A. Huber, unpublished data) do not place *C. thunbergae* Huber sp. nov. with the Brazilian *C. amapa* Huber & Carvalho, 2019 and *C. santosi* Huber & Carvalho, 2019, both of which are presumably ‘true’ *Chibchea* (i.e., with apophyses on the male cheliceral fangs). Thus, *C. thunbergae* Huber sp. nov. and the other three known Venezuelan representatives of *Chibchea* may eventually end up in their own genus.

We do not have new data on one of the two previously described species from Venezuela, *Chibchea merida* Huber, 2000 from Mérida state, known from three localities: “coffee forest” at Univ. Los Andes [approximately 8.591° N, 71.144° W], Quebrada Eusebio [approximately 8.684° N, 71.380° W], and Cueva del Pirata near La Azulita [8.7130° N, 71.4405° W] (the coordinates of the latter locality in Huber 2000 were copied from the label but are wrong, i.e., about 5 km S of the cave).

Chibchea thunbergae Huber sp. nov.

urn:lsid:zoobank.org:act:91ADBB74-C36E-45E0-8584-C2AA3C4DFBBD

Figs 106–107, 112–120, 128–130, 1035

Diagnosis

Distinguished from similar congeners (*C. tunebo* Huber, 2000; *C. merida* Huber, 2000; *C. danielae* Huber sp. nov.) by male chelicerae (Figs 118–119; without proximal apophyses, without short spine-like hairs distally), and by long median receptacle in internal female genitalia (Figs 120, 129).

Etymology

This species is dedicated to Greta Thunberg for her courageous fight against human-induced climate change, defying the resistance of many, including some of the most powerful yet ignorant political leaders of the world.

Type material

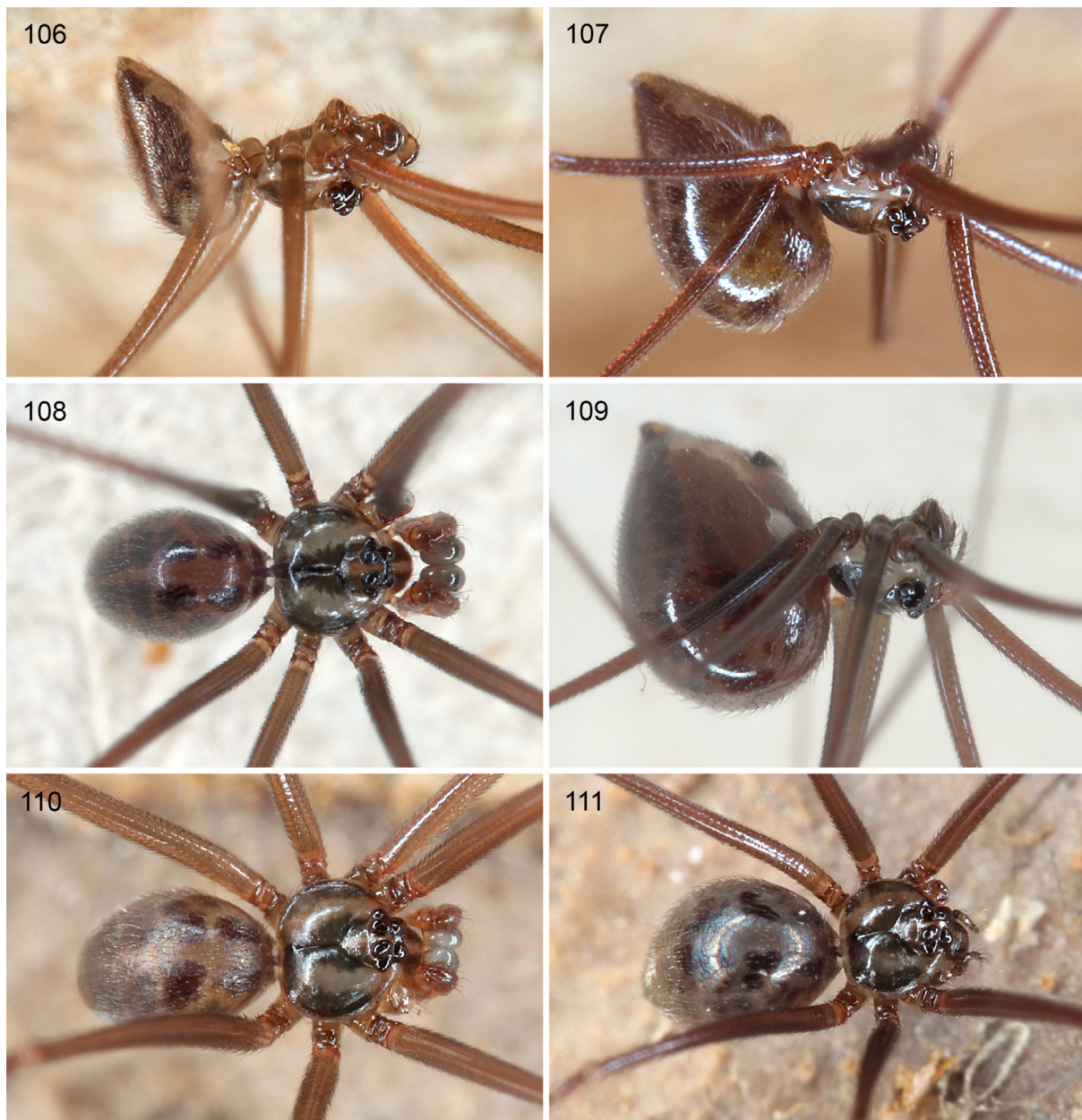
VENEZUELA – Lara • ♂ holotype, ZFMK (Ar 21841), between Coro and Barquisimeto, El Rodeo (10.7240° N, 69.3008° W), 400 m a.s.l., 19 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – Lara • 2 ♂♂, 5 ♀♀, ZFMK (Ar 21842), and 3 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven18-200), same collection data as for holotype.

Assigned tentatively

VENEZUELA – Falcón • 1 ♂, 1 ♀, ZFMK (Ar 21843), and 1 ♀ in pure ethanol, ZFMK (Ven20-150), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).



Figs 106–111. *Chibchea* Huber, 2000, live specimens. **106–107.** *C. thunbergae* Huber sp. nov.; male and female from Lara, between Coro and Barquisimeto. **108–109.** *C. danielae* Huber sp. nov.; male and female from Mérida, Mesa Bolívar. **110–111.** *C. tunebo* Huber, 2000; male and female from Táchira, La Trampa.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.0, carapace width 0.8. Distance PME–PME 95 μm ; diameter PME 65 μm ; distance PME–ALE 100 μm ; distance AME–AME 15 μm ; diameter AME 15 μm . Leg 1: 14.2 (3.4+0.3+3.5+6.0+1.0), tibia 2: 2.4, tibia 3: 2.0, tibia 4: 2.6; tibia 1 L/d: 50.

COLOR (in ethanol). Carapace ochre to light brown, medially and laterally slightly darker; clypeus with pair of wide brown marks; sternum dark ochre; legs ochre to light brown, without dark rings; abdomen pale greenish gray, dorsally and laterally with dark bluish marks, ventrally with light brown mark in front of gonopore and long dark blue band behind gonopore.

BODY. Habitus as in Fig. 106. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.56/0.40), unmodified. Abdomen elongated, tapering towards spinnerets.

CHELICERAE. As in Figs 118–119, pair of proximal bulges set with slightly stronger and longer hairs, distally strongly invaginated, with pair of distinctive brushes of hairs directed towards median; fangs unmodified.

PALPS. In general as in *C. merida* Huber, 2000 (cf. Huber 2000: figs 643–644); coxa with distinct retrolateral apophysis, trochanter barely modified, femur proximally with retrolateral-ventral process, distally only weakly widening; tibia very short; procurus very simple (Figs 112–114); genital bulb (Figs 115–117) with hair-like processes on distal apophysis (very similar *C. merida*).

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 11%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~20 pseudosegments, indistinct.

Male (variation)

Tibia 1 in two other males from type locality: 3.3 (both). The male from Santa Cruz de La Alegría has slightly longer legs (tibia 1: 3.8) and a slenderer bulbapophysis; material from this locality is thus assigned tentatively.

Female

In general similar to male (Fig. 107). Tibia 1 in five females from type locality: 2.9–3.3 (mean 3.1). Epigynum (Fig. 128) light brown bulging plate, wider anteriorly than posteriorly; without posterior plate. Internal genitalia (Figs 120, 129–130) with pair of oval pore plates and long median receptacle originating anteriorly and directed towards posterior.

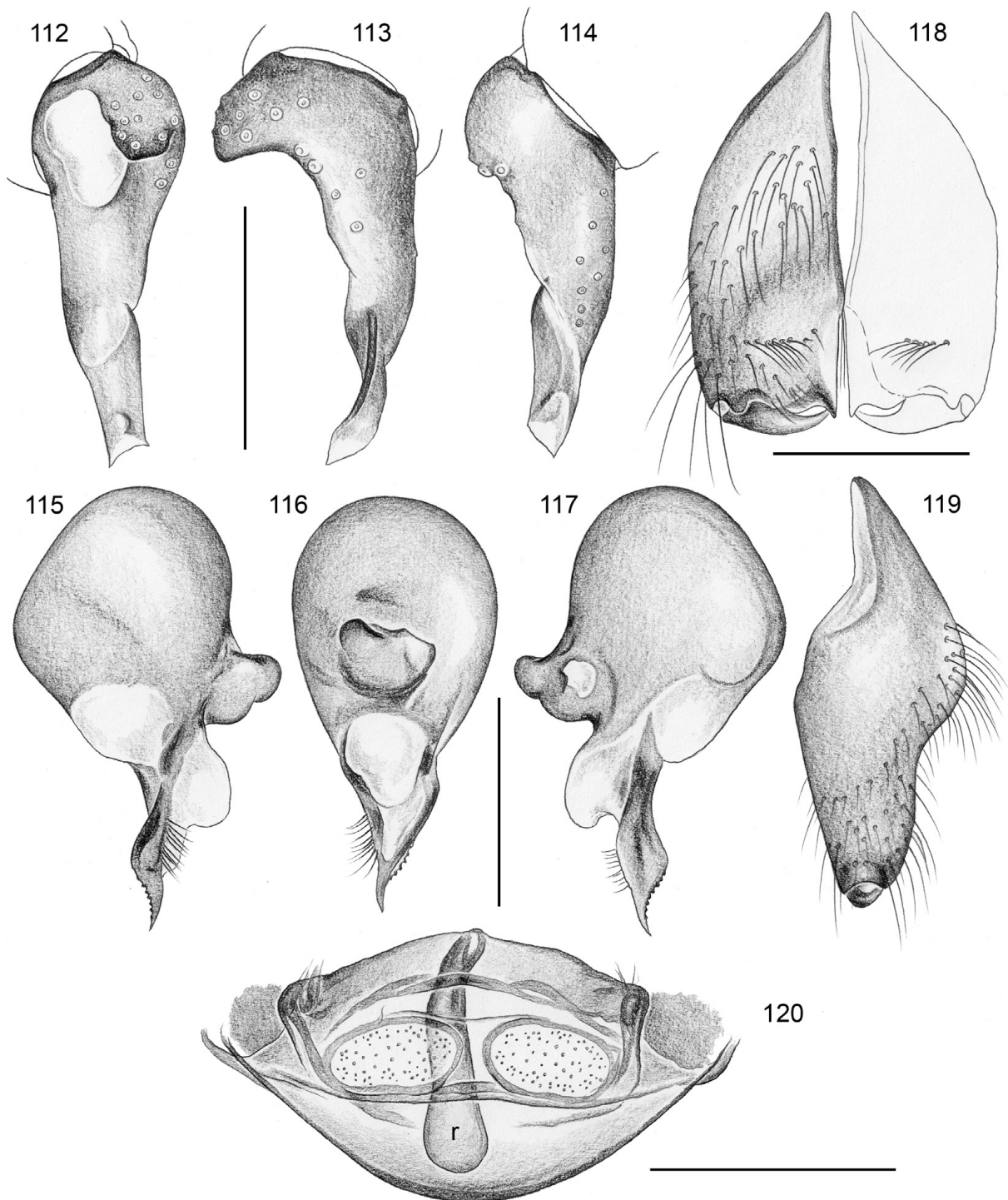
Females from Santa Cruz de La Alegría share the long median receptacle but have smaller pore plates; tibia 1: 2.6, 3.0.

Distribution

Known from two localities in the Venezuelan states Lara and Falcón (Fig. 1035); however, specimens from Falcón are assigned tentatively.

Natural history

At the type locality, the spiders were found in a disturbed forest very close to the ground, in strongly curved dome-shaped webs. Three of the eight females had a large whitish genital plug (cf. *C. merida* Huber, 2000; Huber 2000: figs 645, 647).



Figs 112–120. *Chibchea thunbergae* Huber sp. nov.; from Lara, between Coro and Barquisimeto (type locality; ZFMK Ar 21842). **112–114.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **115–117.** Left genital bulb, prolateral, dorsal, and retrolateral views. **118–119.** Male chelicerae, frontal and lateral views. **120.** Cleared female genitalia, dorsal view. Abbreviation: r=receptacle. Scale lines: 0.2 mm.

Chibchea danielae Huber sp. nov.

urn:lsid:zoobank.org:act:BDC193DC-E8A2-46AF-B5D2-8728CF83EAA9

Figs 108–109, 121–126, 131–133, 1035

Diagnosis

Distinguished from similar congeners (*C. tunebo* Huber, 2000; *C. merida* Huber, 2000; *C. thunbergae* Huber sp. nov.) by male chelicerae (Fig. 122; deep furrow followed distally by distinctive frontal process and field of short spines), by distal process of genital bulb (Figs 123–125; slender, with brush of hair-like structures), and by large round receptacle in internal female genitalia (Fig. 126).

Etymology

This species is named for Daniela de Jesús Salomón Machado who died at the age of 15 on July 31st, 2017 after having been shot at a political demonstration against the acting president of Venezuela. She represents the many victims of violence, both by *colectivos* and protesters.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21844), forest above Mesa Bolívar (8.467° N, 71.614° W), 1300 m a.s.l., 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 2 ♀♀, together with male holotype, same data.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.5, carapace width 0.95. Distance PME–PME 80 µm; diameter PME 90 µm; distance PME–ALE 80 µm; distance AME–AME 20 µm; diameter AME 20 µm. Leg 1: 22.5 (5.2+0.4+5.4+10.1+1.4), tibia 2: 3.3, tibia 3: 2.6, tibia 4: 3.6; tibia 1 L/d: 68.

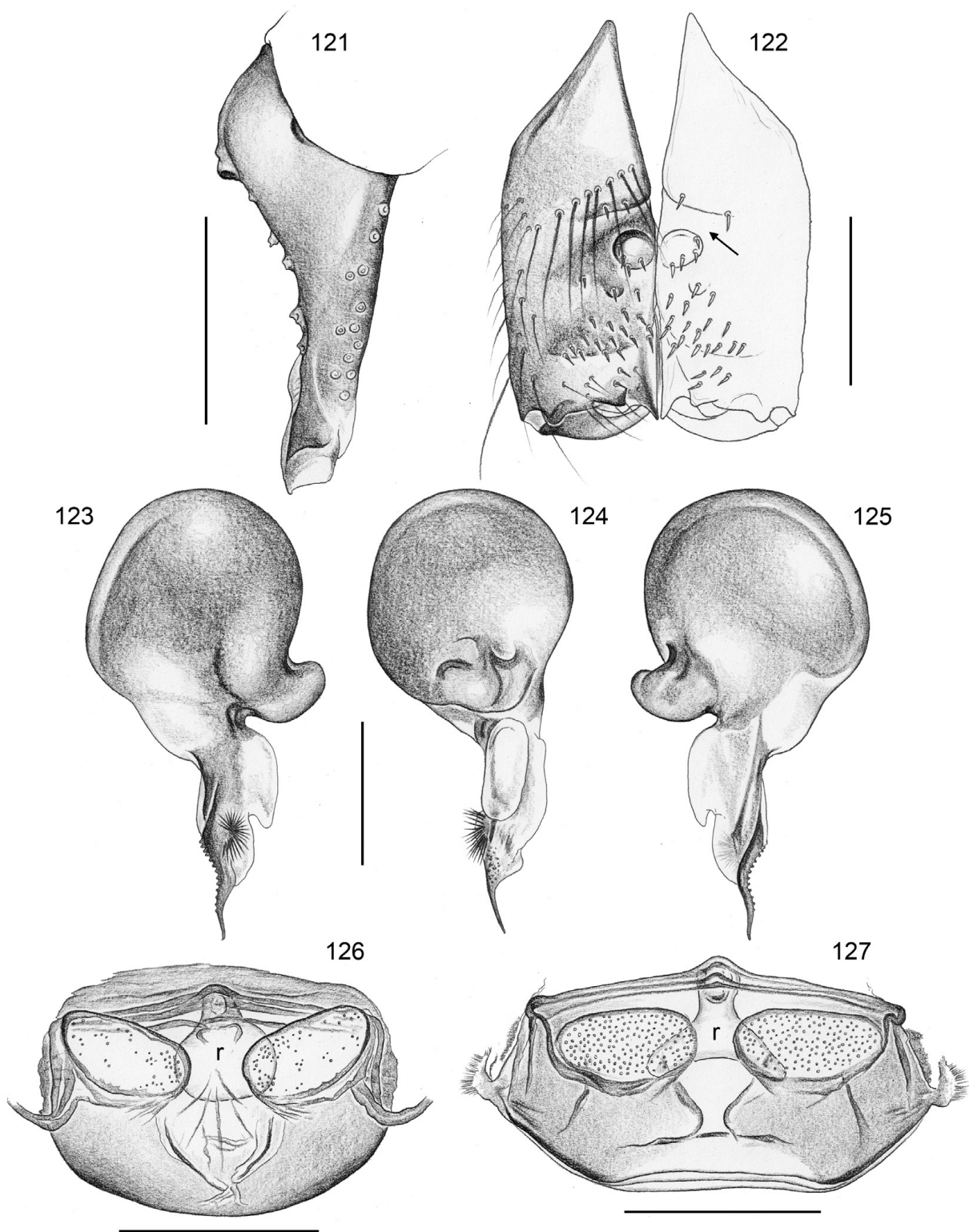
COLOR (in ethanol). Carapace pale ochre-yellow, with wide median and lateral dark bands, clypeus with pair of dark bands, sternum dark brown; legs light brown, without dark rings; abdomen pale bluish gray, dorsally and laterally with dark bluish marks, ventrally with large light brown mark in front of gonopore and long dark blue band between gonopore and spinnerets.

BODY. Habitus as in Fig. 108. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.66/0.46), unmodified. Abdomen elongated, tapering towards spinnerets.

CHELICERAE. AS in Fig. 122, pair of proximal bulges set with combs of stronger and longer hairs, pair of deep transversal furrows (arrow in Fig. 122) followed distally by distinctive frontal processes and large fields of short spines, and small sclerotized processes close to laminae; fangs unmodified.

PALPS. In general as in *C. merida* Huber, 2000 (cf. Huber 2000: figs 643–644); coxa with distinct retrolateral apophysis, trochanter barely modified, femur proximally with retrolateral-ventral process, distally only weakly widening; procurus very simple (Fig. 121); genital bulb (Figs 123–125) with brush of hair-like processes, slender distal apophysis.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 11%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~25 pseudosegments.



Figs 121–127. *Chibchea danielae* Huber sp. nov. (121–126); from Mérida, forest above Mesa Bolívar (type locality; ZFMK Ar 21844); and *C. tunebo* Huber, 2000 (127); from Táchira, forest near La Trampa (ZFMK Ar 21845). **121.** Left palpal tarsus and procurus, retrolateral view. **122.** Male chelicerae, frontal view (arrow: deep furrow). **123–125.** Left genital bulb, prolateral, dorsal, and retrolateral views. **126–127.** Cleared female genitalia, dorsal views. Abbreviation: r=receptacle. Scale lines: 0.2 mm.

Female

In general similar to male (Fig. 109). Tibia 1 in two females: 3.2, 3.4. Epigynum (Fig. 131) light brown plate, weakly bulging; without posterior plate. Internal genitalia (Figs 126, 132–133) with large round receptacle.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1035).

Natural history

The spiders were collected on the ground, between and under small rocks near a small forest stream. They lived in small webs but ran rapidly over the ground when disturbed.

Chibchea tunebo Huber, 2000
Figs 110–111, 127, 134–140, 1035

Chibchea tunebo Huber, 2000: 171, figs 652–655 (♂).

Diagnosis

Distinguished from similar congeners (*C. merida* Huber, 2000; *C. thunbergae* Huber sp. nov.; *C. danielae* Huber sp. nov.) by male chelicerae (Huber 2000: fig. 652; long hairs proximally, deep frontal invagination, short spine-like hairs distally) and by female internal genitalia (Figs 127, 137; Y-shaped anterior receptacle).

Type material

VENEZUELA – **Táchira** • ♂ holotype, AMNH, Pregonero, “2nd forest road at Camp Siberia”, 1280 m a.s.l. [approximately 7.893° N, 71.719° W], 10–13 Jul. 1989 (S. & J. Peck).

New record

VENEZUELA – **Táchira** • 3 ♂♂, 6 ♀♀, 2 juvs, ZFMK (Ar 21845), and 4 ♀♀, 4 juvs in pure ethanol, ZFMK (Ven20-120), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Assigned tentatively

VENEZUELA – **Mérida** • 5 ♂♂, 1 ♀, ZFMK (Ar 21846), and 4 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-135), forest above Caño Azul (8.8543° N, 71.3651° W), 280 m a.s.l., 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, 3 ♀♀, 1 juv., ZFMK (Ar 21847), and 3 ♀♀ in pure ethanol, ZFMK (Ven20-109), Las Piedras, ‘site 2’ (8.9002° N, 70.6279° W), 1700 m a.s.l., degraded forest, 7 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Note

We were not able to exactly locate the type locality “2nd forest road at Camp Siberia”, but “Campamento Siberia” is at 3 km from our new collecting site, suggesting that the new site is within a few km from the type locality.

Redescription of male (amendments; see Huber 2000)

Measurements (male from near La Trampa): Total body length 2.4, carapace width 0.9. Distance PME–PME 80 µm; diameter PME 90 µm; distance PME–ALE 80 µm; distance AME–AME 15 µm; diameter AME 20 µm. Leg 1: 19.1 (4.4+0.3+4.6+8.4+1.4), tibia 2: 3.0, tibia 3: 2.4, tibia 4: 3.2; tibia 1 L/d: 61. Pair of lateral distal patches of short modified hairs situated on low light brown humps. Retrolateral

trichobothrium on tibia 1 at 10%; prolateral trichobothrium absent on tibia 1. Tibia 1 in three other newly collected males from near La Trampa: 4.2, 4.5, 4.7.

Males from Caño Azul are slightly smaller (tibia 1 in five males: 3.6–4.2, mean 3.9) but appear otherwise indistinguishable from males from near La Trampa. They are assigned tentatively because of the accompanying females (see below).

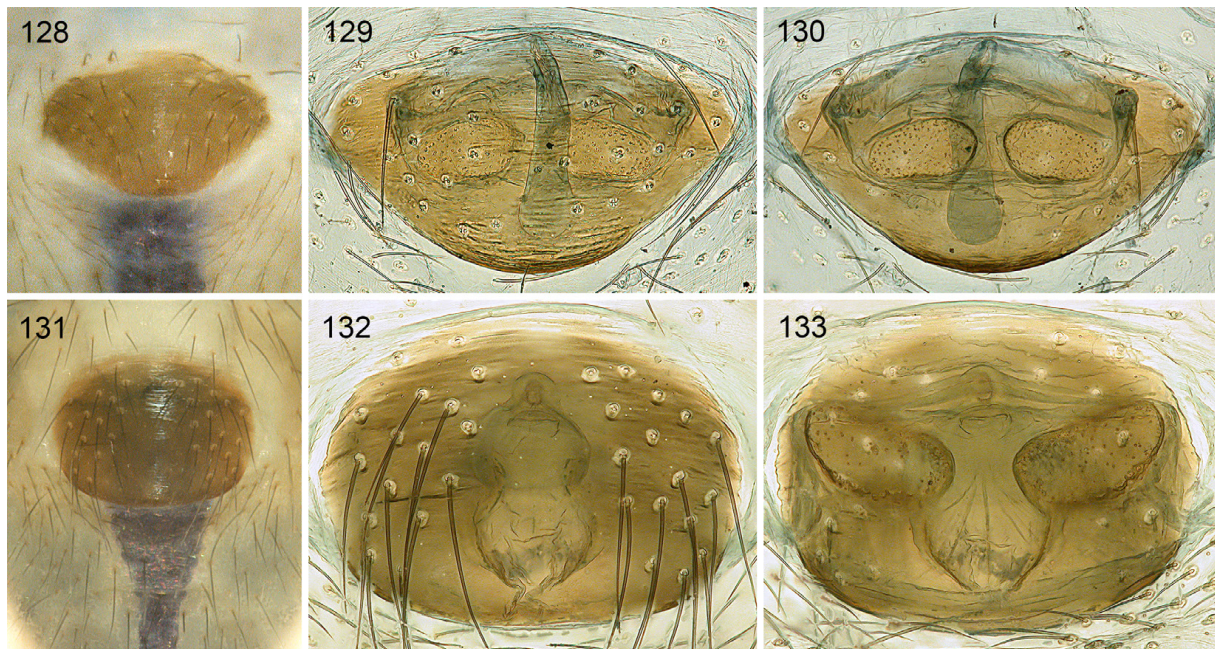
The male from Las Piedras has considerably shorter legs (tibia 1: 3.2), and the spines on the chelicerae are not divided into two patches on each side; the palps appear identical to males from La Trampa.

Description of female

Female in general very similar to male (Fig. 111). Epigynum simple, weakly curved transversal plate, without posterior plate (Fig. 134). Internal genitalia (Figs 127, 137–138) with pair of large oval pore plates, anterior transparent receptacle Y-shaped. Tibia 1 in six females: 3.2–3.6 (mean 3.4).

Females from Caño Azul are slightly smaller (tibia 1 in five females: 2.7–3.0, mean 2.9) and have a slightly longer but narrower epigynal plate (Fig. 135; length/width: 0.22/0.34, versus 0.20/0.40 in females from near La Trampa). They are therefore assigned tentatively. The internal genitalia appear largely identical (large oval pore plates; Y-shaped anterior receptacle).

Females from Las Piedras are slightly smaller (tibia 1 in six females: 2.7–3.0, mean 2.8) and the posterior epigynal margin is protruding rather than indented (Fig. 136); the internal genitalia (Figs 139–140) differ slightly in the shape of the pore plates (narrowing laterally) and in the shape of the receptacle (widened posteriorly rather than Y-shaped). They are therefore assigned tentatively.



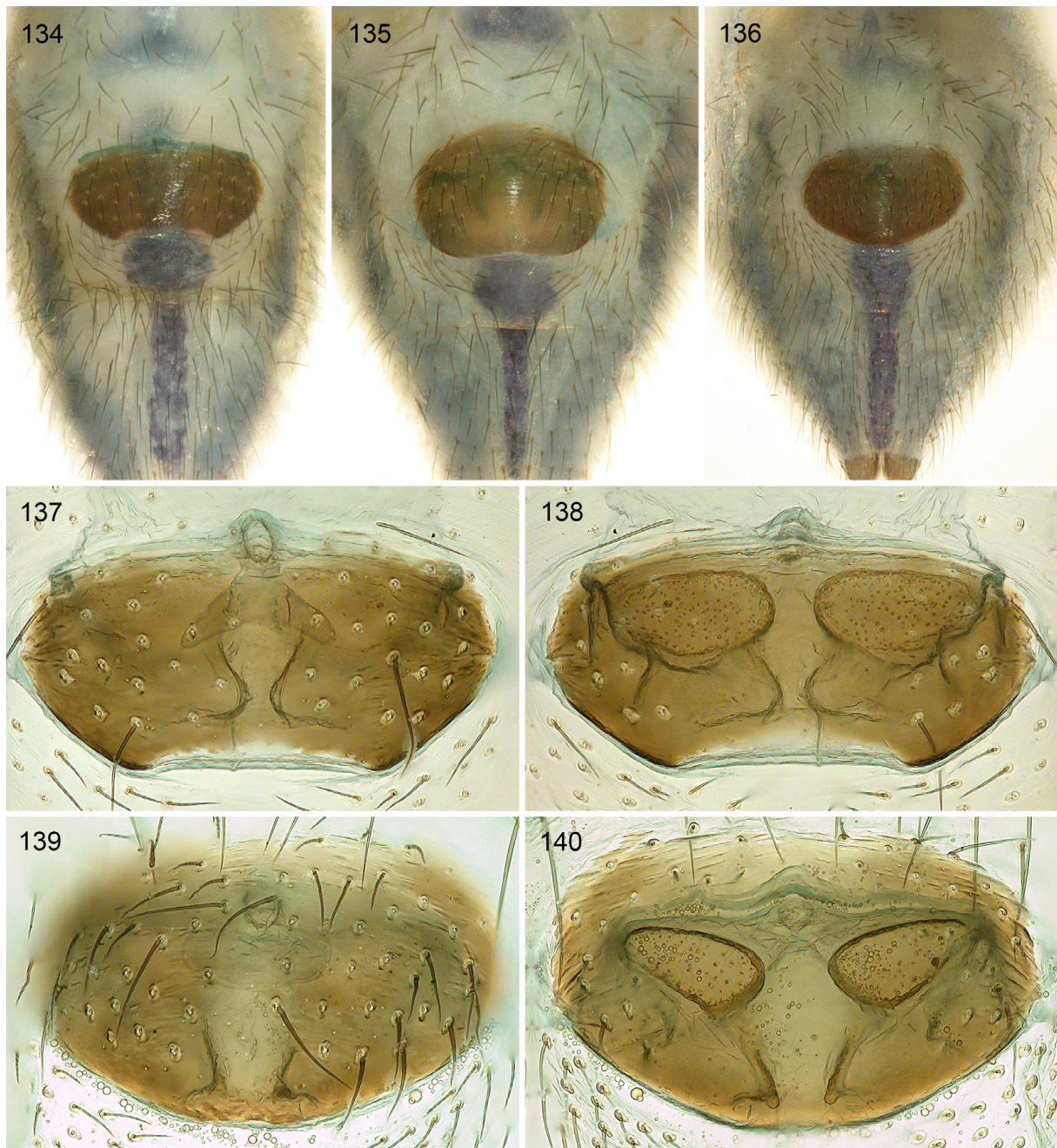
Figs 128–133. *Chibchea* Huber, 2000; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **128–130.** *C. thunbergae* Huber sp. nov.; from Lara, between Coro and Barquisimeto (type locality; ZFMK Ar 21842). **131–133.** *C. danielae* Huber sp. nov.; from Mérida, above Mesa Bolívar (type locality; ZFMK Ar 21844).

Distribution

Known from three localities in the Venezuelan states Táchira and Mérida (Fig. 1035); however, specimens from Mérida are assigned tentatively.

Natural history

At all three new localities, the spiders were found in the leaf litter, in curved leaves that provided space for the small, weakly domed webs.



Figs 134–140. *Chibchea tunebo* Huber, 2000; female abdomens, ventral views and cleared female genitalia, ventral and dorsal views. **134, 137–138.** Táchira, forest near La Trampa (ZFMK Ar 21845). **135.** Mérida, forest above Caño Azul (ZFMK Ar 21846). **136, 139–140.** Mérida, Las Piedras (ZFMK Ar 21847).

Chisosa Huber, 2000

Notes

This genus currently contains three species: the type species *C. diluta* (Gertsch & Mulaik, 1941) from Texas, USA; *C. baja* (Gertsch, 1982) from Baja California, Mexico; and the recently described *C. caquetio* Huber, 2019, previously known from Curaçao and Aruba only. The last species is here newly documented for mainland South America. This is the only known indigenous member of Arteminae in Venezuela. Other Arteminae in Venezuela are introduced [*Artema atlanta* Walckenaer, 1837; *Physocyclus globosus* (Taczanowski, 1874)]. Together with the Chilean genus *Aucana* Huber, 2000 (whose position in Arteminae needs to be confirmed) it is the only indigenous member of Arteminae known in all of South America.

Chisosa caquetio Huber, 2019
Figs 172–173, 1025, 1032, 1036

Chisosa caquetio Huber in Huber & Carvalho 2019: 31, figs 105–113 (♂♀).

Gen.n. Geneve59 – Eberle *et al.* 2018 (molecular data). — Huber *et al.* 2018: fig. 2.

New records

VENEZUELA – **Falcón** • 3 ♂♂, 3 ♀♀, ZFMK (Ar 21848), and 1 ♂, 5 ♀♀ in pure ethanol, ZFMK (Ven18-179, 247), Península de Paraguaná, Cueva del Guano (11.9000° N, 69.9479° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 3 ♀♀, ZFMK (Ar 21849), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-181), Península de Paraguaná, near Cueva del Guano (11.9026° N, 69.9456° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 1 ♂, 1 ♀, ZFMK (Ar 21850), and 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-242), Catia La Mar (10.6092° N, 67.0064° W), 50 m a.s.l., 10 Dec. 2018 (B.A. Huber).

Distribution

Known from the Netherlands Antilles (Curaçao and Aruba) and from the Venezuelan states Falcón and La Guaira (Fig. 1036).

Natural history

In the cave Cueva del Guano, the spiders were found in dead bromeliads on the ground that had fallen into the entrance area (*Anopsisus ana* Huber sp. nov. was found under stones in the same place). Outside of the cave, *C. caquetio* shared the microhabitat (dead basal leaves of spiny ground-dwelling bromeliads) with *Galapa spiniphila* Huber sp. nov. and *Modisimus culicinus* (Simon, 1893). In Catia La Mar, the species was found in dry leaf litter among cacti on a very arid hill between airport and sea (Fig. 1032), also in close proximity to *Modisimus culicinus*.

Coryssocnemis Simon, 1893

Notes

Coryssocnemis now includes seven species from Venezuela and Trinidad (including the Venezuelan type species *C. callaica* Simon, 1893), five species from Mexico and Central America, and three species from Brazil (Rio de Janeiro). However, all species except those from Venezuela and Trinidad are certainly or very likely misplaced (Huber 2000: 344). *Coryssocnemis* is thus currently endemic to Venezuela (Coastal Ranges) and Trinidad. Judging from its known distribution (Fig. 1037), it is not likely to range into Guyana, Brazil, or Colombia. All five Venezuelan species are treated below.

Coryssocnemis callaica Simon, 1893

Fig. 1037

Coryssocnemis callaica Simon, 1893a: 321.

Coryssocnemis callaica – Simon 1893b: 479–483, fig. 476. — Huber 1997d: 578, figs 3a–e, 4a–b, 5a–d; 2000: figs 993–994. — González-Sponga 2010: 10 (only the record from La Venta, see Notes below).

Misidentification

Coryssocnemis callaica – González-Sponga 2010: 10 (all records except La Venta), pl. 1, figs 1–10 (see *C. guatopo* below).

Notes

González-Sponga (2010) was the first since Simon (1893a, 1893b) to report new records for this species. He cited material from six localities. We reexamined this material but only one of the vials was found to contain *C. callaica*: 1 ♂, 1 ♀, 1 juv., MIZA 105758 (MAGS 1375), La Venta, 1500 m a.s.l., 12 Oct. 1992 (E. González S., E. González L., M.A. González S.). All other vials contain *C. guatopo* Huber, 2000 (see below for details). It is not clear on which specimens the illustrations in González-Sponga (2010) are based, but they represent *C. guatopo* and not *C. callaica*. One additional female specimen was found in a vial together with *Priscula salmeronica* González-Sponga, 1999: 1 ♀, MIZA 105665 (separated from MAGS 1166), Quebrada Quintero, El Ávila National Park, 19 Aug. 1989 (A.R. Delgado, E. González S., M.A. González S.). *Coryssocnemis callaica* is thus currently known from three neighboring localities in El Ávila National Park (Fig. 1037):

The type locality “Corosal”, which is presumably along the old road between Caracas and the coast [approximately 10.56–10.57° N, 66.96° W].

La Venta, maybe less than 1 km from the type locality, presumably at approximately 10.554° N, 66.960° W. Both Corosal and La Venta appear to be slightly north of the border between Distrito Capital and La Guaira, i.e., in the state of La Guaira. Both localities were inaccessible to us due to security reasons.

Quebrada Quintero [10.517° N, 66.852° W] in the state of Miranda.

Coryssocnemis guatopo Huber, 2000

Fig. 1037

Coryssocnemis guatopo Huber 2000: 251, figs 995–1000.

Coryssocnemis callaica (misidentification) – González-Sponga 2010: 10 (all records except La Venta), pl. 1, figs 1–10.

Notes

Five of the six records of González-Sponga (2010) for *C. callaica* Simon, 1893 are in fact based on *C. guatopo*. The full information is listed here because González-Sponga (2010) only listed locality names.

Material examined

VENEZUELA – **Miranda** • 2 ♂♂, 1 ♀, MIZA 105724 (MAGS 995), Guatopo National Park [approximately 10.06° N, 66.46° W], 27 Jun. 1981 (A.R. Delgado de G., J.A. González D., M.A.

González S.) • 6 ♂♂, 13 ♀♀, and approximately 5 juvs, MIZA 105766 (MAGS 1097), Boca de Cura [10.204° N, 66.291° W], 11 Oct. 1987 (A.R. Delgado, M.A. González S.) • 1 ♀, MIZA 105637 (MAGS 1098), same data as previous • 1 ♀, 2 juvs, MIZA 105624 (MAGS 1015), Salmerón [approximately 10.469° N, 66.376° W], 250 m a.s.l., 10 Jan. 1987 (A.R. Delgado, M.A. González S.) • 1 ♂, MIZA 105725 (MAGS 1016), same data as previous • approximately 10 ♂♂, 10 ♀♀, 15 juvs, MIZA 105593 (MAGS 1038), Salmerón, 250 m a.s.l., 12 Mar. 1987 (A.R. Delgado, M.A. González S.) • 2 ♂♂, 1 ♀, MIZA 105604 (MAGS 1116), Biringo [10.483° N, 66.237° W], 27 Feb. 1988 (A.R. Delgado de G.) • 5 ♂♂, 2 ♀♀, MIZA 105618 (MAGS 1111), between Carenero and Chrimena (“carretera Carenero-Chirimena”) [approximately 10.57° N, 66.14° W], 9 Feb. 1988 (A.R. Delgado, M.A. González S.) • 2 ♂♂, MIZA 105698 (separated from MAGS 845), near Tacarigua de Mamporal (“a 1 km de Tacarigua de Mamporal a la vía a Río Chico”) [10.382° N, 66.147° W], 31 Oct. 1981 (A.R. Delgado de G., M.A. González S.).

Distribution

Known from several localities in the Venezuelan state Miranda (Fig. 1037).

Coryssocnemis tarsocurvipes (González-Sponga, 2003)

Figs 141–148, 1037

Carupania tarsocurvipes González-Sponga, 2003: 92, figs 1a–j.

Coryssocnemis tarsocurvipes – Huber 2009: 68.

Coryssocnemis simla (misidentification) – Astrin *et al.* 2006: 444 (see Notes below).

Notes

This species is morphologically almost indistinguishable from *C. simla* Huber, 2000 from Trinidad. In a previous molecular study (Astrin *et al.* 2006) the Venezuelan specimens from Cascada del Chorro listed below were tentatively considered conspecific with *C. simla* even though P-distances were unusually high for within species comparisons. Morphological reanalysis confirms the high similarity but here we follow the conservative approach in Huber (2009) in maintaining *C. tarsocurvipes* as a valid species until a more detailed species limit analysis is available.

The specimens in the paratype vials below include *C. tarsocurvipes* and *C. monagas* Huber, 2000 and originate from two neighboring localities: Playa Pui Pui and Playa Medina. It is unclear if both species were found at both localities, or if each species was found at only one of the two places. The juvenile paratypes were separated from the adult specimens because they might belong to any of the two species.

Diagnosis

Almost identical to *C. simla* (see Diagnosis in Huber 2000: 248); distinguished from *C. simla* by apparently consistently narrower ventral process on tip of procurus (arrow in Fig. 142; compare with Huber 2000: figs 984, 988); male chelicerae (Fig. 143) and genital bulb (Fig. 141) appear identical. Ventral tube-like pockets of uterus externus (arrows in Fig. 147) possibly closer together than in *C. simla*, but this character is variable within *C. simla* (just as other characters of the female genitalia in both ‘species’, Figs 145–154), requiring study of larger samples.

Type material

VENEZUELA – **Sucre** • ♂ holotype, MIZA 105634 (MAGS 1009), near Carupano (“alrededores de Carúpano, río Chaure, Macarapana”) [10.658° N, 63.246° W], Dec. 1986 (X.E. Moya); examined • 8 ♂♂, 15 ♀♀ paratypes, MIZA 105677 (MAGS 1436), and 19 juv. paratypes, MIZA 105818 (separated

from MAGS 1436), Playa Pui Pui [10.698° N, 62.968° W] and Playa Medina [10.715° N, 63.010° W] (“Playa Puipui y Playa Medina”), at sea level, 7 Jan. 1999 (A.R. Delgado, M. García, M.A. González S., M.A. González D.); examined.

Other material examined

VENEZUELA – Sucre • 3 ♂♂, 1 ♀, ZFMK (Ar 21851), and 2 ♂♂, 4 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven02/100-50], Cascada el Chorro (10.392° N, 63.633° W), ~160 m a.s.l., near ground at river, 30 Nov. 2002 (B.A. Huber).

Distribution

Known from several localities in the Venezuelan state Sucre (Fig. 1037).



Figs 141–142. *Coryssocnemis tarsocurvipes* (González-Sponga, 2003); paratype from Sucre, “Playa Puipui y Playa Medina”, MIZA 105677 (MAGS 1436); left male pedipalp, prolateral and retrolateral views (arrow: ventral process on tip of procurus). Scale line: 0.5 mm.



Figs 143–145. *Coryssocnemis tarsocurvipes* (González-Sponga, 2003); paratypes from Sucre, “Playa Puipui y Playa Medina”, MIZA 105677 (MAGS 1436). **143.** Male prosoma, oblique frontal view. **144–145.** Epigynum, lateral and ventral views. Scale lines: 0.5 mm.

Coryssocnemis guacharo Huber sp. nov.

urn:lsid:zoobank.org:act:24083CA9-C261-462C-B28C-E36647EC95B4

Figs 155–164, 166–168, 1037

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Fig. 163; pair of simple frontal processes); by shape of procurus (Figs 157–159; slender distal sclerite slightly spiraling); by shapes of distal bulbal processes (Figs 160–162; small ventral apophysis and larger dorsal transparent flap); by epigynum (Fig. 166; semicircular plate with pair of shallow depressions), and by internal female genitalia (Figs 164, 168; large contiguous pore plates; large median anterior receptacle).

Etymology

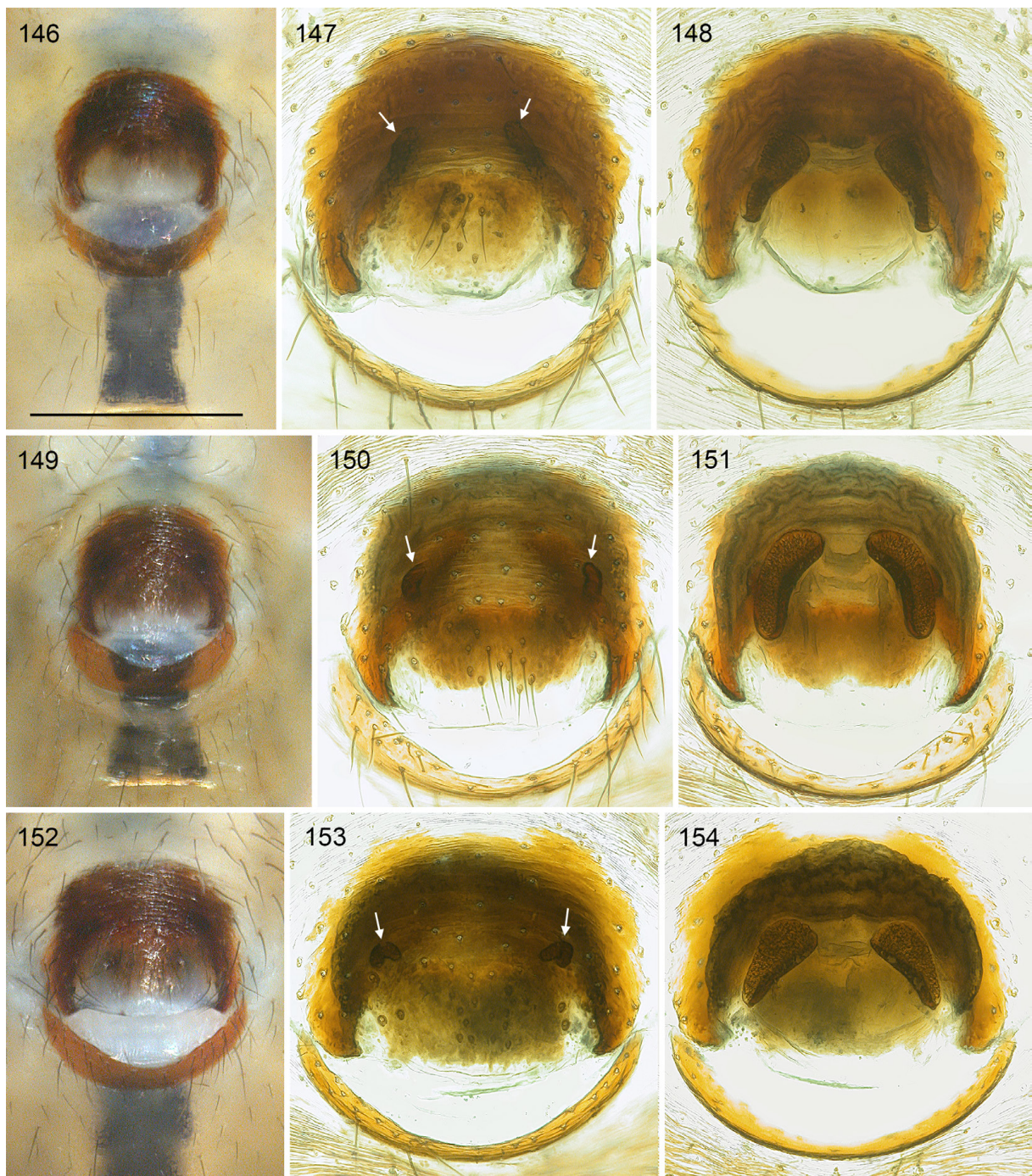
The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Monagas** • ♂ holotype, ZFMK (Ar 21852), near Cueva del Guácharo (10.167° N, 63.550° W), ~1050–1100 m a.s.l., 1 Dec. 2002 (B.A. Huber).

Other material examined

VENEZUELA – **Monagas** • 6 ♂♂, 7 ♀♀, ZFMK (Ar 21853), and 1 ♂, 3 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven02/100-26), same collection data as for holotype • 1 ♂, ZFMK (Ar 21854), along trail



Figs 146–154. *Coryssocnemis* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views (arrows: ventral tube-like pockets). **146–148.** *C. tarsocurvipes* (González-Sponga, 2003); from Sucre, Cascada El Chorro (ZFMK Ar 21851). **149–154.** *C. simla* Huber, 2000; from Trinidad, Arima Valley, Simla (ZFMK), small and large female specimens. Scale line (for all epigyna): 0.5 mm.

from Cueva del Guácharo to Salto la Paila (10.175° N, 63.558° W), ~1100 m a.s.l., 30 Nov. 2002 (B.A. Huber).

Description

Male (holotype)

MEASUREMENTS. Total body length 3.7, carapace width 1.5. Distance PME–PME 140 µm; diameter PME 140 µm; distance PME–ALE 120 µm; diameter AME 30 µm; distance AME–AME 20 µm. Leg 1: 50.1 (12.4+0.7+11.7+21.7+3.6), tibia 2: 7.9, tibia 3: 6.3, tibia 4: 7.3; femur 2 slightly wider than other femora (300 µm vs 280 µm); tibia 1 L/d: 81.

COLOR (in ethanol). Carapace ochre-gray with dark median line; ocular area slightly darkened; sternum yellowish; legs ochre to light brown, tips of femora and tibiae lighter, without dark rings; abdomen pale gray, dorsally and laterally with dark bluish marks, ventrally with light brown mark in gonopore area and dark blue median band behind gonopore.

BODY. Habitus very similar to *C. simla* Huber, 2000 (cf. Huber 2000: fig. 980). Ocular area moderately raised. Carapace with distinct thoracic groove, not inflated. Clypeus unmodified. Sternum wider than long (1.15/0.75). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Fig. 163, with pair of simple small frontal apophyses and additional pair of tiny apophyses directly behind main apophyses (not visible in frontal view).

PALPS. AS in Figs 155–156; coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with retrolateral-ventral process, distally with ventral apophysis slightly directed towards distal; procurus (Figs 157–159) at basis with bifid dorsal process, distally with (1) long heavily sclerotized slender process slightly spiraling, membranous and transparent on prolateral side, (2) two roundish processes on prolateral side, and (3) two transparent fringed processes; genital bulb process complex (Figs 160–162), distally with dark apophysis with small teeth on ventral side and large transparent flap.

LEGS. With single row of short spines on femur 1 (~50) and femur 2 (~32); without curved hairs, few vertical hairs; retrolateral trichobothrium of tibia 1 at 2%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~60 pseudosegments, mostly fairly distinct.

Male (variation)

Tibia 1 in five males (incl. holotype): 11.3–12.0 (mean 11.7); number of spines variable (e.g., male with tibia 1 length 11.6: 40 spines on femur 1).

Female

In general similar to male but without spines on legs. Tibia 1 in six females: 8.1–9.2 (mean 8.7). Epigynum (Fig. 166) semicircular brown plate with pair of shallow dark depressions, dark median receptacle visible in uncleared specimens. Internal genitalia (Figs 164, 167–168) with large contiguous pore plates and large median anterior receptacle.

Distribution

Known from two neighboring sites in the Venezuelan state Monagas (Fig. 1037).

Natural history

The spiders were very abundant in a secondary forest with coffee near Cueva del Guácharo.



Figs 155–156. *Coryssocnemis guacharo* Huber sp. nov.; from Monagas, near Cueva del Guácharo (type locality; ZFMK Ar 21853); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.

***Coryssocnemis monagas* Huber, 2000**

Figs 165, 169–171, 1037

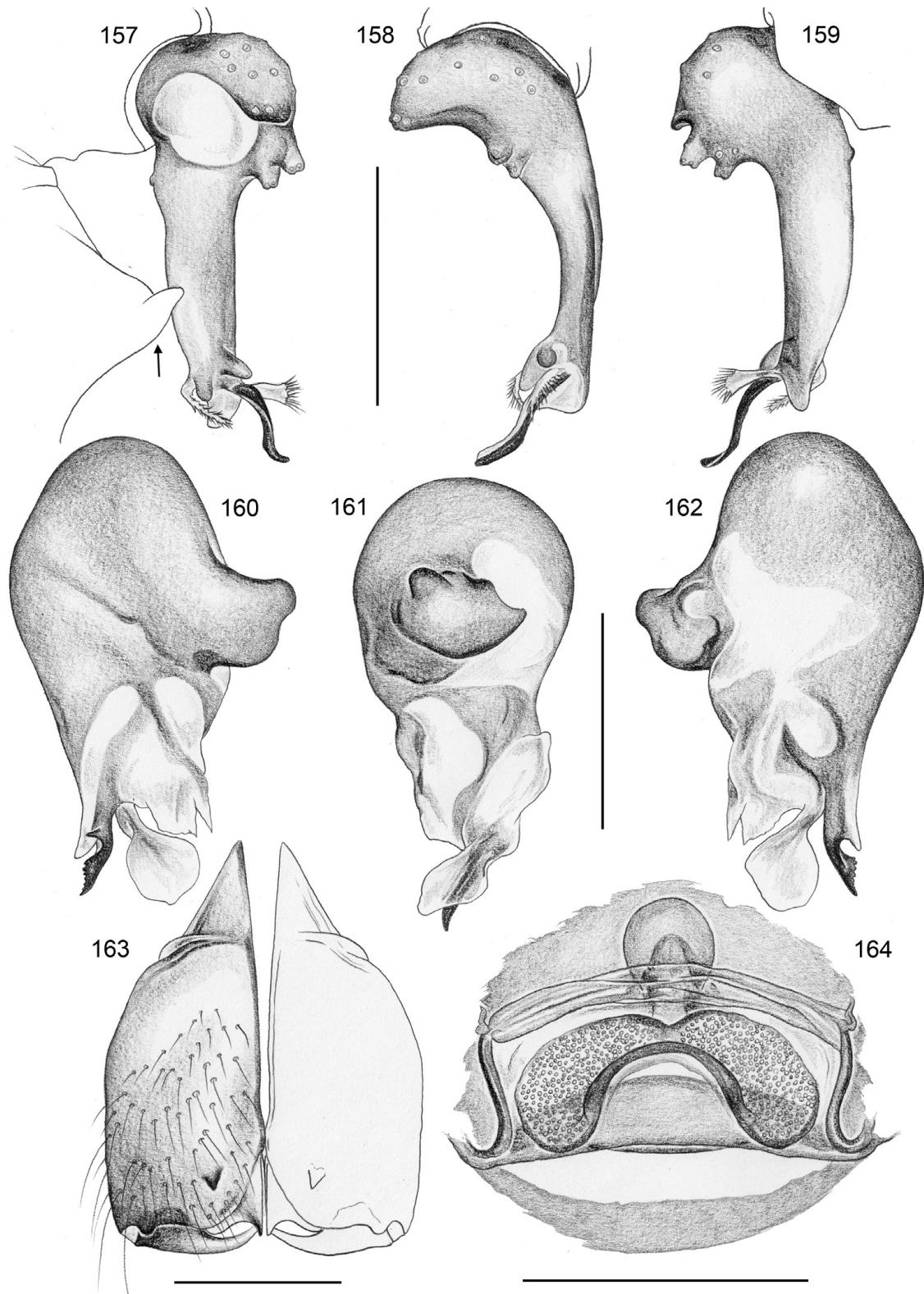
Coryssocnemis monagas Huber, 2000: 251, figs 1001–1004 (♂).

Note

This species was described from a single male specimen from Venezuela, Monagas, “27 km SW Caripe” [approximately 10.08° N, 63.63° W]. The new material listed below was included in a vial with numerous paratypes of *Carupania tarsocurvipes* González-Sponga, 2003 (= *Coryssocnemis t.*; see above). The specimens in that vial originate from two neighboring localities ~100 km NE of the type locality of *C. monagas*: Playa Pui Pui and Playa Medina. It is unclear if both species were found at both localities, or if each species was found at only one of the two places.

New record

VENEZUELA – Sucre • 3 ♂♂, 6 ♀♀, misidentified paratypes of *Carupania tarsocurvipes*, MIZA 105817 (separated from MAGS 1436; 3 ♂♂, 4 ♀♀) and ZFMK (Ar 21855; 2 ♀♀), Playa Pui Pui



Figs 157–164. *Coryssocnemis guacharo* Huber sp. nov.; from Monagas, near Cueva del Guácharo (type locality; ZFMK Ar 21853). **157–159.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **160–162.** Left genital bulb, prolateral, dorsal, and retrolateral views. **163.** Male chelicerae, frontal view. **164.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

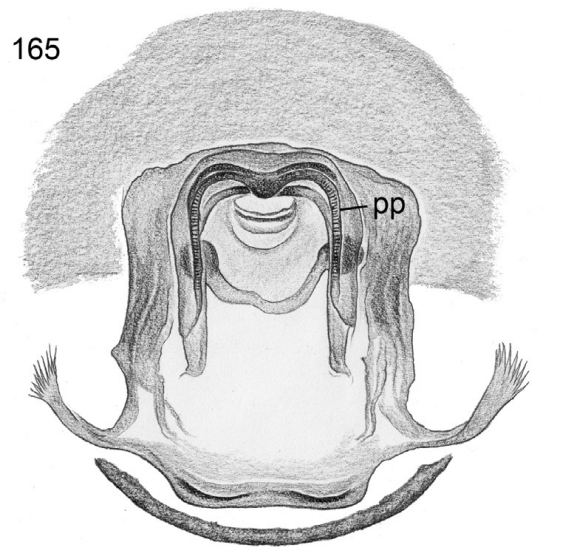
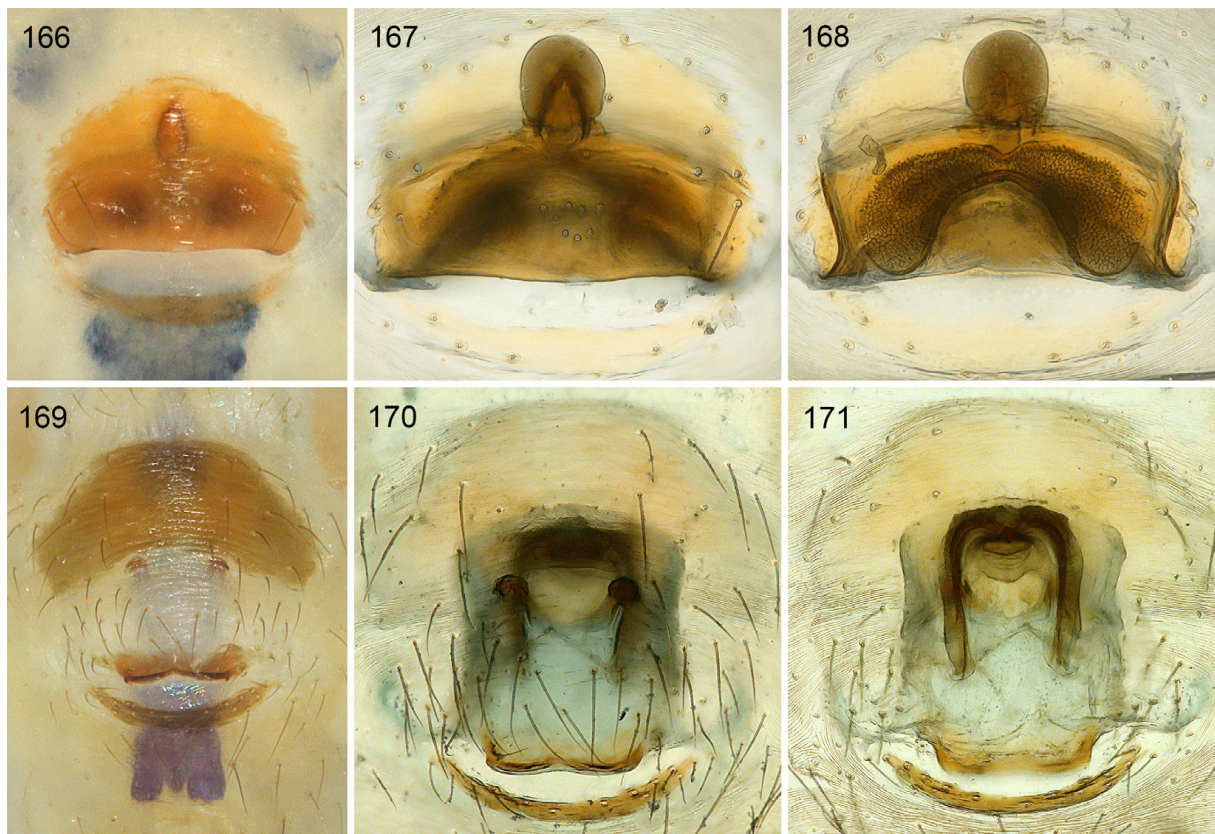


Fig. 165. *Coryssocnemis monagas* Huber, 2000; from Sucre, “Playa Puipui y Playa Medina” (ZFMK Ar 21855), cleared female genitalia, dorsal view. Abbreviation: pp=pore plate. Scale line: 0.3 mm.



Figs 166–171. *Coryssocnemis* Simon, 1893; epigyna, ventral views, and cleared female genitalia, ventral and dorsal views. **166–168.** *C. guacharo* Huber sp. nov.; from Monagas, near Cueva del Guácharo (type locality; ZFMK Ar 21853). **169–171.** *C. monagas* Huber, 2000; from Sucre, “Playa Puipui y Playa Medina” (ZFMK Ar 21855).

[10.698° N, 62.968° W] and Playa Medina [10.715° N, 63.010° W] (“Playa Puipui y Playa Medina”), at sea level, 7 Jan. 1999 (A.R. Delgado, M. García, M.A. González S., M.A. González D.).

Description of female

In general similar to male but femora without spines. Tibia 1 in five females: 3.9–5.1 (mean 4.6). Epigynum (Fig. 169) anterior half light brown plate, posterior half whitish with pair of internal structures visible through cuticle, posterior margin heavily sclerotized protruding rim with pair of shallow pockets; posterior plate short and narrow. Internal genitalia (Figs 165, 170–171) with sclerotized arc; pore plates in vertical position.

Distribution

Known from the Venezuelan states Monagas and Sucre (Fig. 1037).

Crossopriza Simon, 1893

Note

In the New World, the genus *Crossopriza* is represented by its type species only, the synanthropic, introduced *C. lyoni* (Blackwall, 1867).

Crossopriza lyoni (Blackwall, 1867)

Fig. 1039

Notes

In Venezuela, *C. lyoni* is common in buildings and has been recorded from numerous localities (Fig. 1039) in the states Amazonas, Aragua, Bolívar, Capital, Falcón, Lara, Sucre, and Zulia (González-Sponga 2006, under various names – see Huber 2009; Colmenares 2008).

González-Sponga (2006) described five species in his new genus *Tibiosa* González-Sponga, 2006 that were all synonymized with *Crossopriza lyoni* without seeing the types (Huber 2009). The types of *Tibiosa casanaimensis* González-Sponga, 2006 (MAGS 1314) seem to be lost. Our reexamination of all other types confirmed the synonymies. As usual, González-Sponga did not separate the holotypes from the paratypes if originating from the same locality, so they are here simply treated as ‘types’ (except for *T. caracensis* and *T. moraensis*, each with only one male specimen).

MIZA 105741 (MAGS 1286), ♂ holotype; and MIZA 105706 (MAGS 1379), 3 ♂♂, 5 ♀♀, 5 juvs paratypes of *Tibiosa caracensis* González-Sponga, 2006 from Caracas (holotype: Edif. Aloa, Urb. Horizonte [10.4945° N, 66.8155° W]; paratypes: Edif. Turpial, Terrazas del Ávila [10.501° N, 66.792° W]).

MIZA 105735 (MAGS 1418), approximately 30 ♂♂, 30 ♀♀, types of *Tibiosa coreana* González-Sponga, 2006 from Falcón, El Recreo [11.350° N, 69.814° W].

MIZA 105705 (MAGS 1303), 2 ♂♂, 1 ♀, 2 juvs types of *Tibiosa guayanesa* González-Sponga, 2006 from Bolívar, Los Pijiguaos [6.570° N, 66.810° W].

MIZA 105819 (MAGS 1355), ♂ holotype, 3 ♀♀, 5 juvs paratypes of *Tibiosa moraensis* González-Sponga, 2006 from Aragua, “Granja La Caridad (Turagua), Sta. Cruz de Mora, Dtto. Sucre” [locality not identified, possibly approximately 10.131° N, 67.530° W].

New records

VENEZUELA – **Falcón** • 1 ♂, ZFMK (Ar 21858), Bariro (10.7733° N, 70.7409° W), 230 m a.s.l., on house, 14 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Mérida** • 1 ♀, ZFMK (Ar 21856), Santa Elena de Arenales (8.8232° N, 71.4631° W), 70 m a.s.l., in building, 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Trujillo** • 1 ♀, ZFMK (Ar 21857), Sabana Grande (9.4114° N, 70.7952° W), 110 m a.s.l., in building, 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Zulia** • 1 ♀, ZFMK (Ar 21859), SE Bachaquero (9.9123° N, 71.0472° W), 5 m a.s.l., in building, 14 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Galapa Huber, 2000

Notes

The genus *Galapa* was established for two species endemic to the Galapagos Islands (Huber 2000). A third species was described in 2014, also from the Galapagos Islands (Baert 2014). The new Venezuelan species below is assigned to *Galapa* because it shares two specific similarities: (1) unique (among Ninetinae) armature of the male chelicerae (processes on male cheliceral fangs but otherwise unmodified; compare Huber 2000: fig. 384 and Fig. 181); (2) dorsal (in the new species below slightly prolateral) process of the procurus (compare Huber 2000: figs 383, 387 with Fig. 180). In addition, the general morphology of the proximal palpal segments is similar (slender femur, large tibia), and the genital bulb of the new species below strongly resembles the bulb of *G. baerti* (Gertsch & Peck, 1992) (compare Huber 2000: fig. 381 with Fig. 178).

This suggests that *Galapa* may in fact be a widespread genus. An undescribed species from Costa Rica (Guanacaste, no precise locality data; deposited in ZFMK) may also belong in this group and thus support this view. It seems to lack a dorsal process on the procurus but shares the unique cheliceral morphology and is also otherwise very similar. A formal test of the monophyly of the genus does not exist.

Galapa spiniphila Huber sp. nov.

urn:lsid:zoobank.org:act:43841C1C-F973-4B31-8DC0-63958E477005

Figs 174–175, 178–188, 1040

Diagnosis

Easily distinguished from most described Ninetinae (except congeners) by processes on male cheliceral fangs but otherwise unmodified male chelicerae (Fig. 181); from other *Galapa* species by distinctive shape of procurus (Figs 179–180; distal apophysis curved toward retrolateral, large dorsal branch curved toward prolateral and lodged in pocket of genital bulb), by large genital bulb with three distal pointed apophyses (Figs 178, 180), and by membranous elements posteriorly in internal female genitalia (Figs 182, 185, 188); a very similar undescribed species from Costa Rica (see Notes above) differs by pair of pointed processes distally on procurus pointing toward retrolateral.

Etymology

The species name (Latin: the one who likes spines) refers to one microhabitat of this species, among the spiny leaves of ground-dwelling bromeliads; adjective.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21860), Península de Paraguaná, near Cueva del Guano (11.9026° N, 69.9456° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – Falcón • 2 ♀♀ (and two female abdomens transferred from ZFMK, Ven18-183), together with male holotype, and 4 ♀♀ in pure ethanol, ZFMK (Ven18-183), same collection data as for holotype.

Description

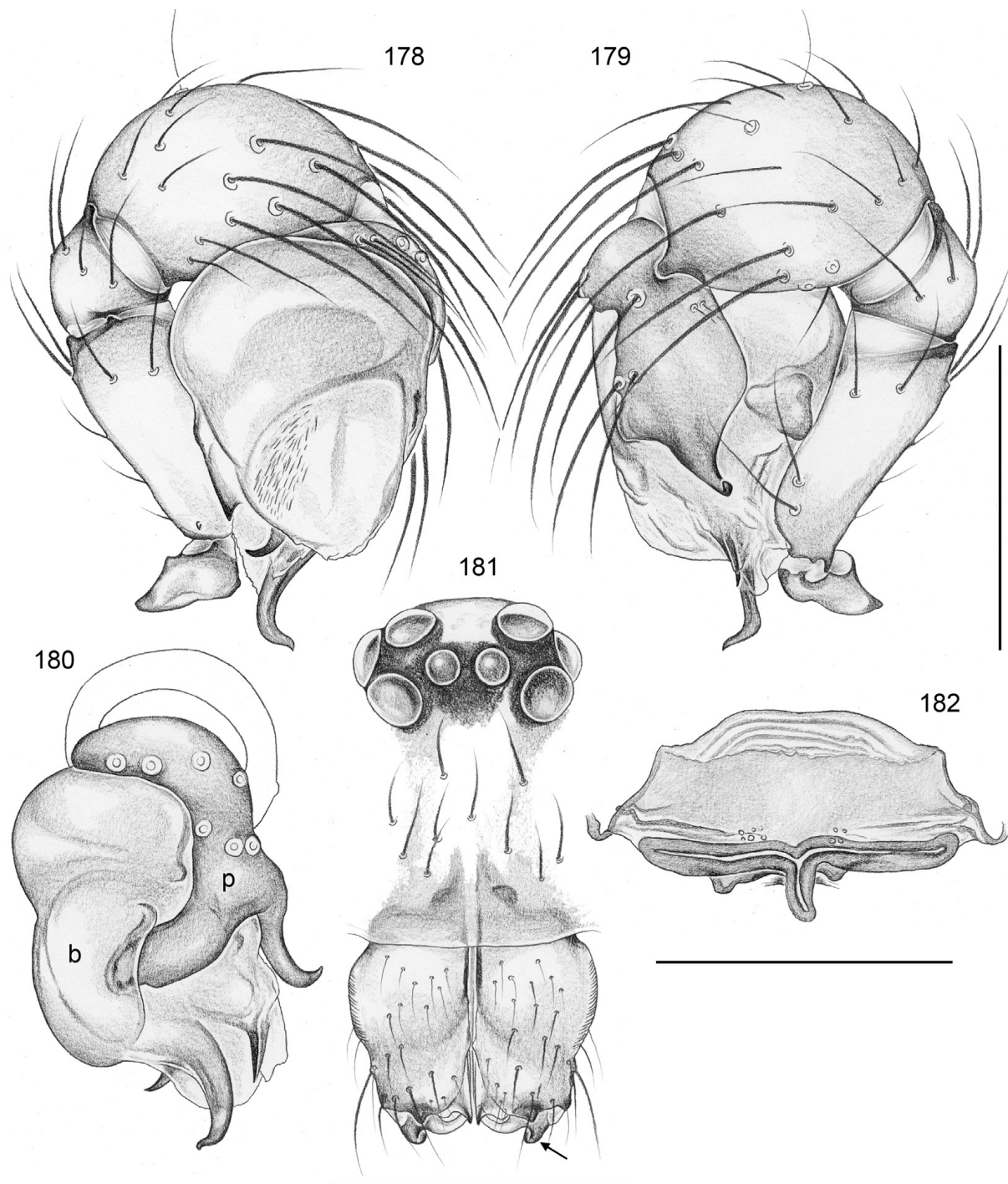
Male (holotype)

MEASUREMENTS. Total body length 0.95, carapace width 0.42. Distance PME–PME 40 µm; diameter PME 40 µm; distance PME–ALE 15 µm; distance AME–AME 10 µm; diameter AME 20 µm. Leg 1: 1.84 (0.52+0.12+0.48+0.44+0.28), tibia 2: 0.40, tibia 3: 0.36, tibia 4: 0.58; tibia 1 L/d: 9.

COLOR (in ethanol). Prosoma and legs monochromous ochre-yellow; abdomen monochromous pale gray.



Figs 172–177. Live specimens. **172–173.** *Chisosa caquetio* Huber, 2019; male and female with egg sac from Falcón, Cueva del Guano. **174–175.** *Galapa spiniphila* Huber sp. nov.; male and female with egg sac from Falcón, near Cueva del Guano. **176–177.** *Ibotyporanga bariro* Huber sp. nov.; male and female from Falcón, SE Bariro.



Figs 178–182. *Galapa spiniphila* Huber sp. nov.; from Falcón, near Cueva del Guano (type locality; ZFMK Ar 21860). **178–179.** Left male pedipalp, prolateral and retrolateral views. **180.** Left procurus and genital bulb, dorsal view. **181.** Male ocular area, clypeus, and chelicerae, frontal view (arrow: process on male cheliceral fang). **182.** Cleared female genitalia, dorsal view. Abbreviations: b=genital bulb; p=procurus. Scale lines: 0.2 mm.

BODY. Habitus as in Fig. 174. Ocular area barely raised. Carapace without thoracic groove. Clypeus barely modified (slightly bulging). Sternum slightly wider than long (0.30/0.26), with pair of indistinct anterior humps. Abdomen globular.

CHELICERAE. As in Fig. 181, main segments unmodified except for low lateral elevations with fine stridulatory ridges; fangs with distinctive proximal processes.

PALPS. As in Figs 178–179; coxa (not shown) unmodified; trochanter barely modified; femur slender, with proximal prolateral stridulatory pick; tibia large; procurus wide in lateral view, main branch distally curved toward retrolateral, large dorsal branch curved toward prolateral and lodged in pocket of genital bulb (Fig. 180); genital bulb very large, with fine hair-like processes on prolateral side, with three distal pointed apophyses.

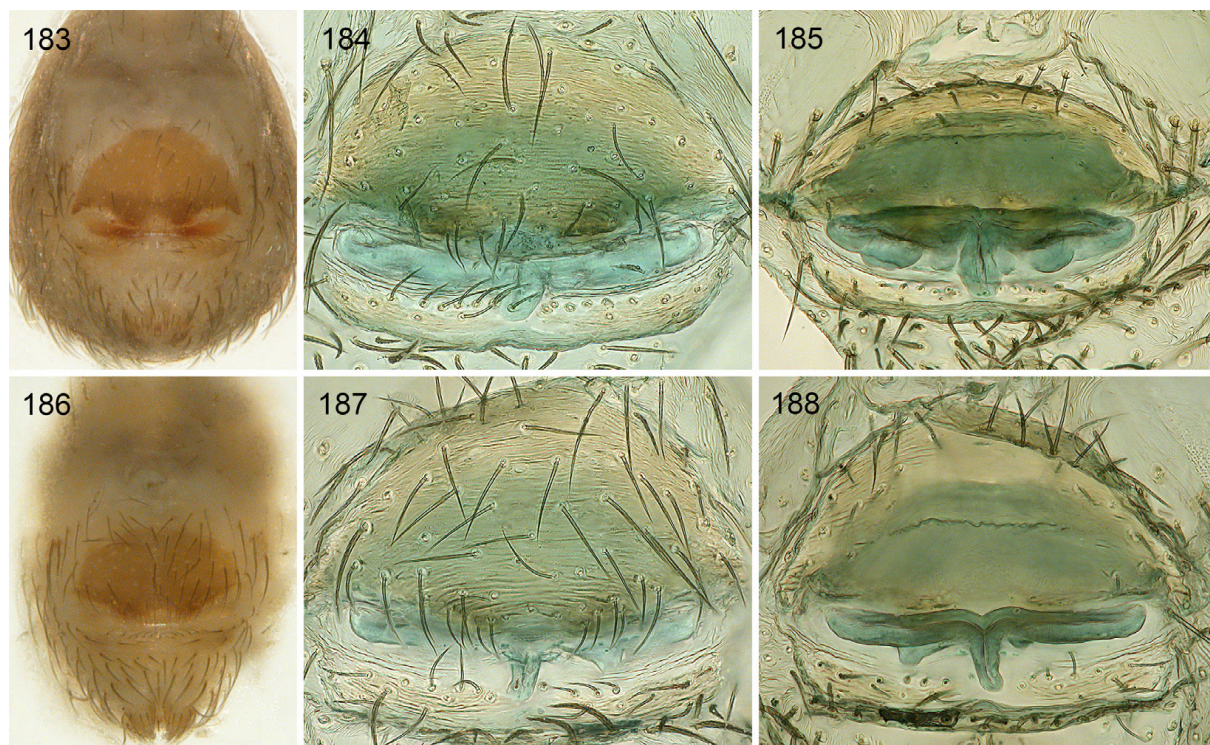
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 52%; prolateral trichobothrium absent on tibia 1; tarsus 1 with 5 pseudosegments.

Female

In general similar to male (Fig. 175) but without humps on sternum. Tibia 1 in four females: 0.43, 0.44, 0.45, 0.46. Epigynum (Figs 183, 186) light brown semicircular plate, weakly protruding. Internal genitalia (Figs 182, 185, 188) apparently with thin membranous anterior chamber and thick membranous posterior elements of unknown significance; apparently with pore plates (few pores, very indistinct).

Distribution

Known from type locality only, in Venezuela, Falcón (Fig. 1040).



Figs 183–188. *Galapa spiniphila* Huber sp. nov.; female abdomens, ventral views and cleared female genitalia, ventral and dorsal views, two females from Falcón, near Cueva del Guano (type locality; ZFMK Ar 21860).

Natural history

The spiders were found on the ground in xerophytic thorn forest. They were hiding among the extremely spiny hard leaves of a terrestrial bromeliad and ran rapidly when disturbed.

Ibotyporanga Mello-Leitão, 1944

Notes

Ibotyporanga previously included four species, all of them endemic to Brazil (Huber 2000; Huber & Brescovit 2003). Unpublished material in collections suggests that the genus is species-rich and widespread in South America, ranging from Paraguay to northern Colombia (B.A. Huber, L.S. Carvalho, unpublished data).

The material available to us suggests that at least two species occur in Venezuela. One of them is formally described below. The second species is not formally described because no males are available. The shape of the epigynum and the internal female genitalia (Figs 197–199) suggest that the following specimens are not conspecific with *I. bariro* Huber sp. nov.: 2 juveniles, ZFMK (Ar 21861) and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven18-182) (female abdomen transferred to ZFMK Ar 21861), from Falcón, Península de Paraguaná, near Cueva del Guano (11.9026° N, 69.9456° W), under pieces of wood on ground in arid vegetation, 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Ibotyporanga bariro Huber sp. nov.

urn:lsid:zoobank.org:act:24EB3E00-C450-496F-B069-582C29062C21

Figs 176–177, 189–196, 1031, 1040

Diagnosis

Easily distinguished from known congeners by shape of procurus (Fig. 190; wide, weakly curved, without side branch, distally with transparent fringed membrane); female internal genitalia (Fig. 193) without U-shaped median structure (in contrast to *I. naideae* Mello-Leitão, 1944 and *I. emekori* Huber & Brescovit, 2003; females of *I. diroa* Huber & Brescovit, 2003 and *I. ramosae* Huber & Brescovit, 2003 are unknown).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21862), SE Bariro (10.7304° N, 70.6957° W), 360 m a.s.l., on arid hill, 14 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

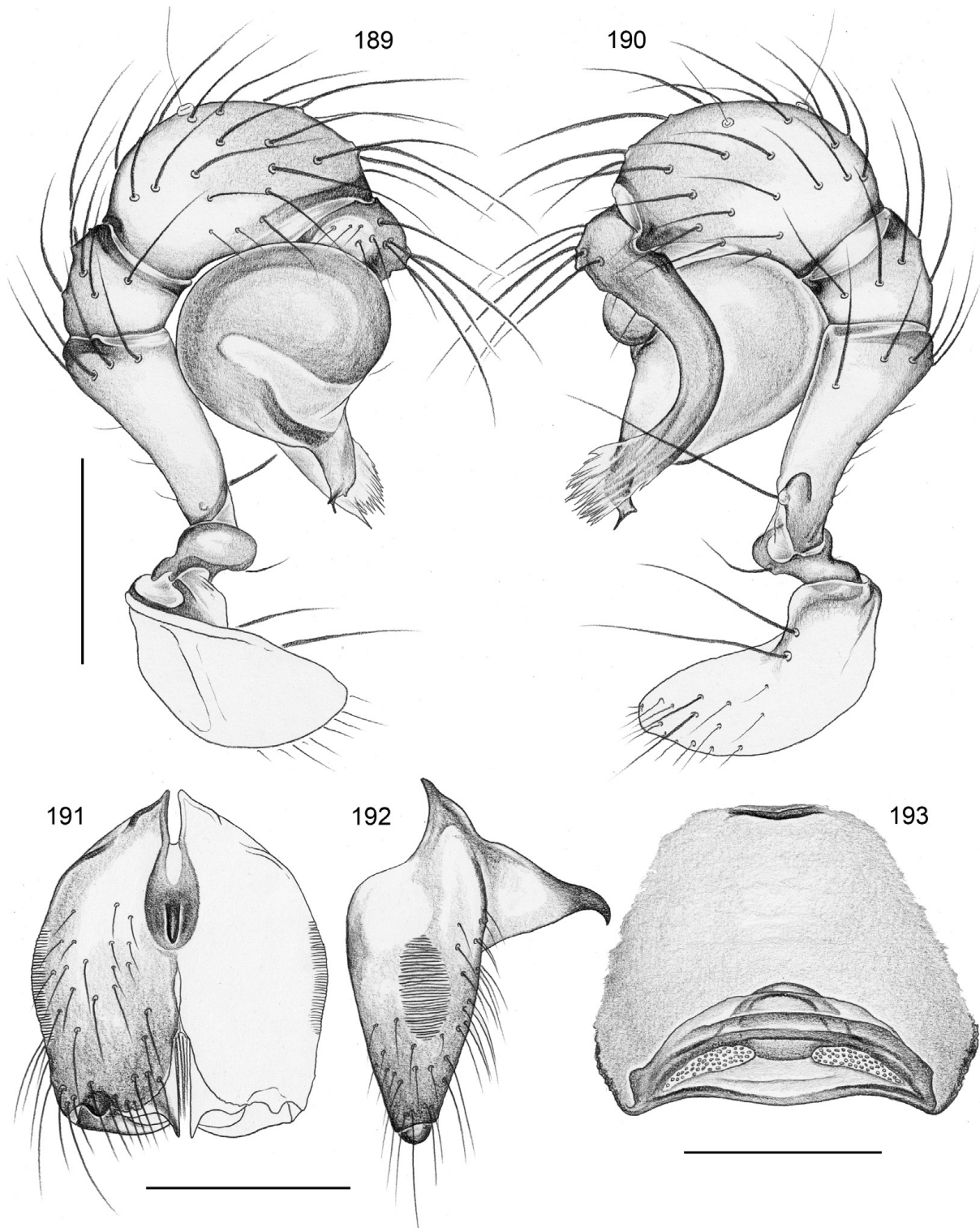
VENEZUELA – **Falcón** • 1 ♂ (and two female abdomens transferred from ZFMK, Ven20-141), ZFMK (Ar 21863), and 6 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-141), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 1.7, carapace width 0.95. Distance PME–PME 50 µm; diameter PME 60 µm; distance PME–ALE 25 µm; distance AME–AME 15 µm; diameter AME 30 µm. Leg 1: 4.00 (1.10+0.30+1.00+1.15+0.45), tibia 2: 0.90, tibia 3: 0.85, tibia 4: 1.20; tibia 1 L/d: 10.

COLOR (in ethanol). Prosoma and legs ochre-yellow, carapace with brown median band excluding ocular area; legs without dark rings; abdomen gray, with small dark marks dorsally.



Figs 189–193. *Ibotyporanga bariro* Huber sp. nov.; from Falcón, SE Bariro (type locality; ZFMK Ar 21862–63). **189–190.** Left male pedipalp, prolateral and retrolateral views. **191–192.** Male chelicerae, frontal and lateral views. **193.** Cleared female genitalia, dorsal view. Scale lines: 0.2 mm.

BODY. Habitus as in Fig. 176. Ocular area barely raised. Carapace with distinct thoracic groove. Clypeus barely modified (slightly more protruding than in female). Sternum wider than long (0.50/0.38), without anterior humps. Abdomen globular.

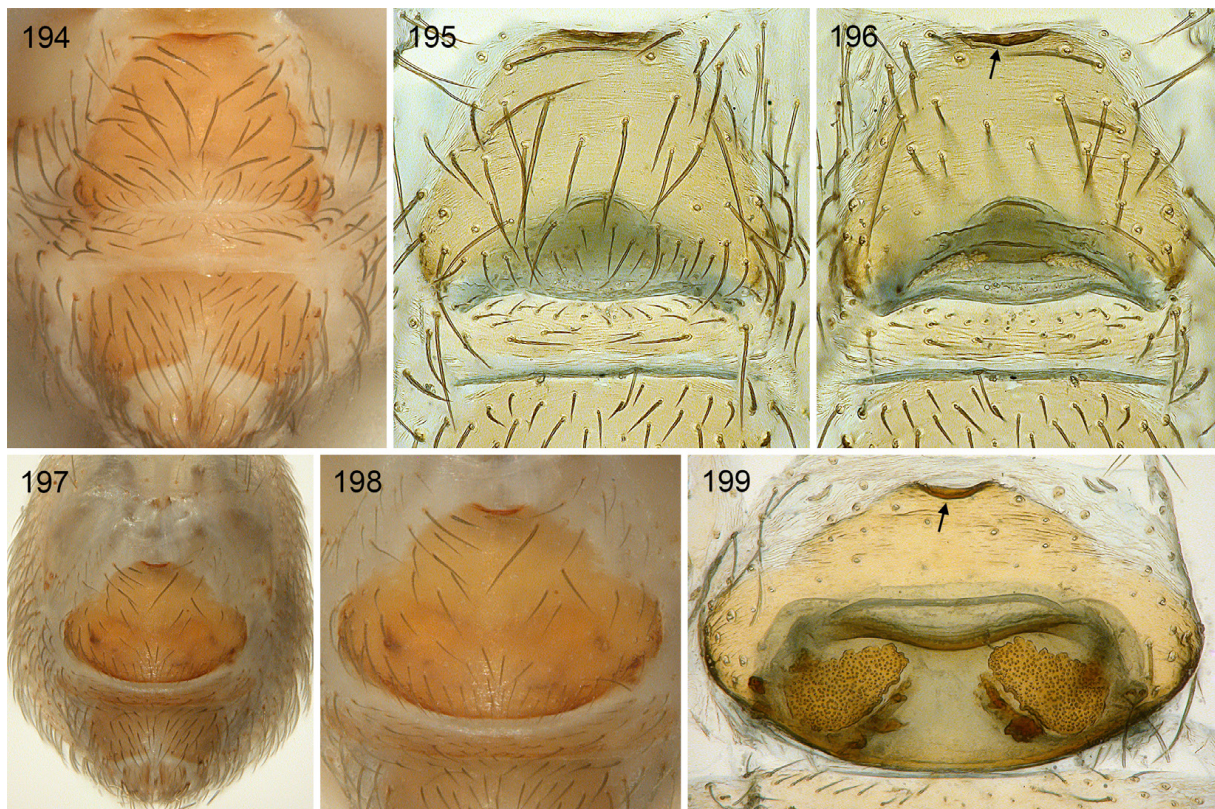
CHELICERAE. AS in Figs 191–192, with strong median apophysis and lateral stridulatory ridges.

PALPS. AS in Figs 189–190; coxa unmodified; trochanter with rounded ventral projection; femur proximally slender, with retrolateral process and prolateral stridulatory pick (modified hair), distally widened; patella cylindrical; tibia enlarged; procurus very simple, wide, weakly curved, without side branch, distally with transparent fringed membrane; genital bulb large, with prolateral sclerotized band, simple embolar division ending in small sclerotized angular apophysis.

LEGS. Without spines and curved hairs; vertical hairs in high density prolatero-dorsally on tibiae 1–2; retrolateral trichobothrium of tibia 1 at 58%; prolateral trichobothrium absent on tibia 1; tarsus 1 with 6 pseudosegments.

Female

In general similar to male (Fig. 177), clypeus slightly less protruding, with usual low density of vertical hairs on tibiae, dark median band on carapace sometimes including ocular area and clypeus, abdomen variably with or without dark marks. Tibia 1 in six females: 0.85–1.00 (mean 0.90). Epigynum (Fig. 194)



Figs 194–199. *Ibotyporanga* Mello-Leitão, 1944; epigyna and cleared female genitalia (arrows: anterior rim/pocket, presumably for male cheliceral apophysis). **194–196.** *I. bariro* Huber sp. nov.; from Falcón, SE Bariro (type locality; ZFMK Ar 21863), epigynum, ventral view, and cleared female genitalia, ventral and dorsal views. **197–199.** *Ibotyporanga* sp. from Falcón, near Cueva del Guano (ZFMK Ar 21861), epigynum and cleared female genitalia, dorsal view.

anterior plate trapezoidal, with anterior sclerotized rim; posterior plate short, simple. Internal genitalia (Figs 193, 195–196) small relative to epigynal plate, with pair of drop-shaped pore plates, without U-shaped median structure and without pair of lateral blind tubes.

Distribution

Known from type locality only, in Venezuela, Falcón (Fig. 1040).

Natural history

The species was collected on an arid hill dominated by small trees and cacti (Fig. 1031). Most specimens were collected from partly hollow rotten branches on the ground. When shaken out of their shelters, the spiders ran extremely rapidly over the ground. The species shared the locality with three other pholcid species, an unidentified Ninetinae (on the undersides of rocks), *Modisimus culicinus* (Simon, 1893) (under rocks) and *Physocyclus globosus* (Taczanowski, 1874) (among and under rocks).

Litoporus Simon, 1893

Notes

The South American genus *Litoporus* now includes 11 nominal species. Three of them occur in Venezuela: the type species *L. aeri* Simon, 1893; the very similar newly described *L. curimagua* Huber sp. nov.; and the widespread *L. uncat* (Simon, 1893). All three Venezuelan species are treated below.

Litoporus aeri Simon, 1893 Figs 200–202, 208–209, 1041

Litoporus aeri Simon, 1893a: 321.

Litoporus aeri – Simon 1893b: 479–483, fig. 479. — Huber 1997d: 582, figs 8a–b, 9a–e (not figs 8c–d; see Notes below). — González-Sponga 2010: 15, pl. 3, figs 1–8.

Diagnosis

Males are easily distinguished from most known congeners (except *L. curimagua* Huber sp. nov.) by armature of chelicerae (Fig. 208; two pairs of frontal apophyses, proximal pair short but wide). Females (newly described below) with distinctive internal genital structures (Figs 201–202, 209; anterior receptacle, heavily sclerotized ventral structure, and pair of processes originating from pore plates); note, however, that females of several putatively closely related species are unknown (*L. dimona* Huber, 2000; *L. saul* Huber, 2000; *L. secoya* Huber, 2000). Distinguished from very similar *L. curimagua* Huber sp. nov. by proximal cheliceral apophyses inclined rather than horizontal (compare Figs 208 and 210), by anterior margins of pore plates strongly bent towards posterior (arrows in Figs 201 and 206), and by pair of processes originating from pore plates (compare Figs 209 and 211).

Type material

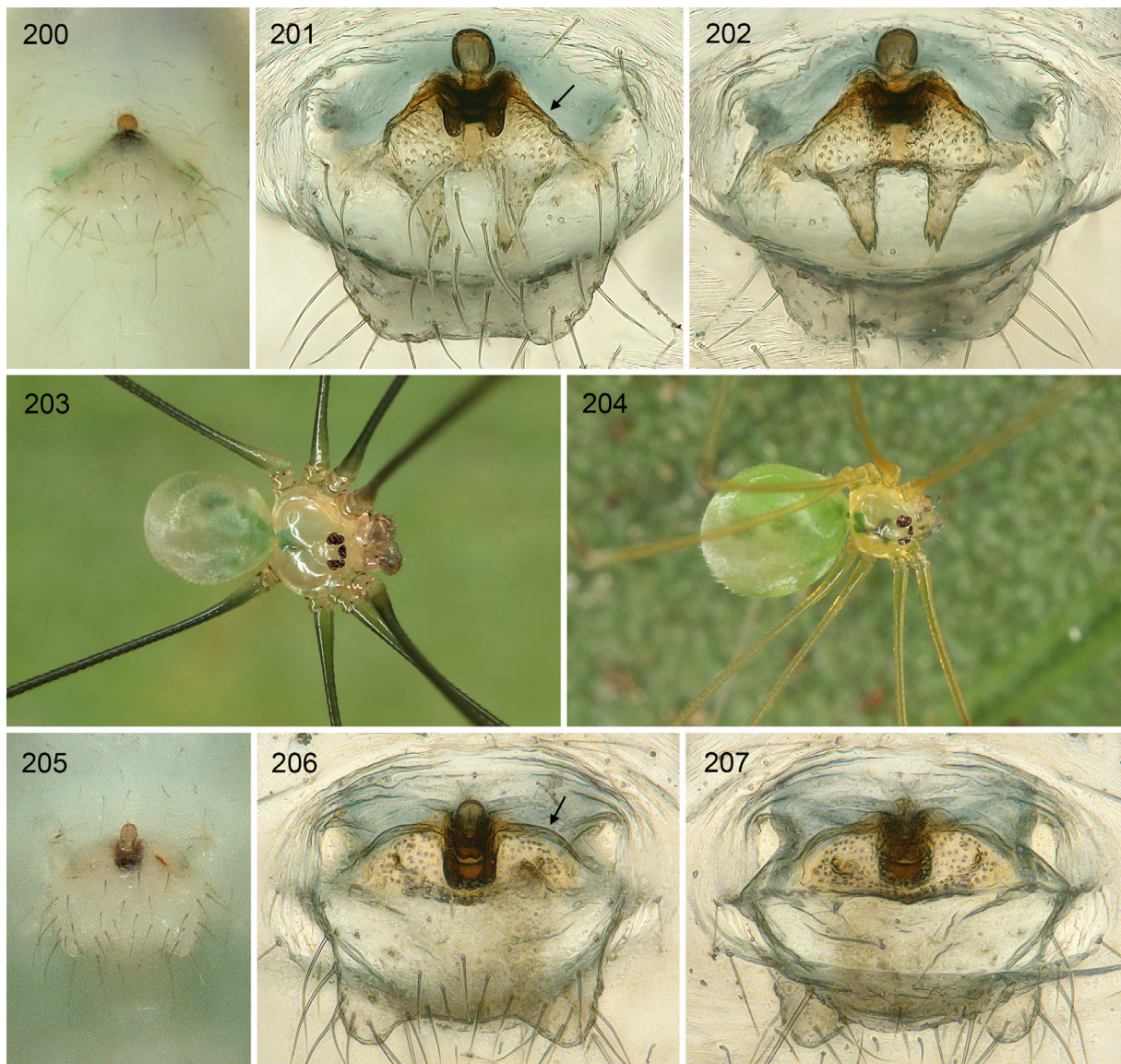
VENEZUELA – **Carabobo** • ♂ lectotype (designated in Huber 1997d), 11 ♂♂ paralectotypes, and one misidentified female paralectotype (see Notes below), MNHN, San Esteban [approximately 10.425° N, 68.015° W], Mar. 1888 (E. Simon); examined.

Notes

The new material below confirms the old suspicion (in Huber 1997d) that the single female accompanying the male types of this species is not conspecific with the males. It is very likely a *Mecolaesthus* Simon, 1893.

González-Sponga (2010) redescribed the species and cited material from seven localities. This material seems to be present in the MAGS collection, but there are two major problems regarding the material and the publication. First, the collection cards (that contain all the collection data) of all seven vials are lost. Within the vials there are only labels with the MAGS numbers (334, 502, 1037, 1040, 1043, 1051, 1092). Second, the publication mentions only vial MAGS 502 with 9 ♂♂, 5 ♀♀, but this vial contains only 2 ♂♂, and all seven vials together contain 24 ♂♂, and 3 juveniles and not a single female. González-Sponga's (2010) figure 8 (abdomen) is thus probably from a juvenile, and it is probably for this reason that his figure 9 (epigynum) exists in the legend but not in the plate.

The numerical agreement between seven localities mentioned in González-Sponga (2010) and seven vials with *L. aerius* in the MAGS collection suggests that all his records are probably valid. They



Figs 200–207. *Litoporus* Simon, 1893; epigyna, ventral views; cleared female genitalia, ventral and dorsal views (arrows: distinctive slopes of anterior margins of pore plates); and live specimens. **200–202.** *L. aerius* Simon, 1893; from Miranda, El Ávila National Park (ZFMK Ar 21864). **203–207.** *L. curimagua* Huber sp. nov.; from Falcón, Curimagua (female genitalia: ZFMK Ar 21867).

are thus all shown in the map in Fig. 1041. Apart from the type locality San Esteban this includes the following:

Miranda, Birongo [10.482° N, 66.240° W]

Miranda, El Guapo-Las Mayas [10.149° N, 65.972° W]

Miranda, Guatopo National Park [approximately 10.06° N, 66.46° W]

Miranda, Pueblo Seco-Chuspa [approximately 10.59° N, 66.26° W]

Miranda, Salmerón [approximately 10.468° N, 66.376° W]

Anzoátegui, Sabana de Uchire [approximately 10.02° N, 65.52° W]

New records

VENEZUELA – **Miranda** • 3 ♂♂, 3 ♀♀, ZFMK (Ar 21864), and 3 ♂♂, 1 ♀ in pure ethanol, ZFMK (Ven18-144), El Ávila National Park, Sabas Nieves (10.5165° N, 66.8558° W), 1080 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, ZFMK (Ar 21865), and 3 ♀♀ in pure ethanol, ZFMK (Ven20-180), El Ávila National Park, near La Julia, ‘site 3’ (10.5066° N, 66.8119° W), 1090 m a.s.l., forest near dry brook bed, 22 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Redescription of male (amendments, see Huber 1997d)

Measurements (male from El Ávila): distance PME–PME 160 µm; diameter PME 50 µm; distance PME–ALE 40 µm; distance AME–AME 40 µm; diameter AME 30 µm. Leg 1: 38.1 (10.7+0.4+8.9+16.4+1.7), tibia 2: 6.3, tibia 3: 4.5, tibia 4: 5.9; tibia 1 L/d: 99. Carapace monochromous whitish to pale ochre; legs light brown, femora and tibiae with whitish tips, metatarsi entire distal half whitish. Thoracic furrow shallow but distinct. Retrolateral trichobothrium on tibia 1 at 1.5%; prolateral trichobothrium present on tibia 1. Tibia 1 in 11 males (Sabas Nieves and types measured in Huber 1997d): 8.5–9.9 (mean 9.2); tibia 1 in male from near La Julia: 6.7.

Description of female

In general similar to male (and very similar to *L. curimagua* Huber sp. nov.; cf. Fig. 204), but carapace with dark Y-mark, and legs pale ochre yellow with darker patellae and tibia-metatarsus joints, without whitish tips. Tibia 1 in three females from Sabas Nieves: 4.2, 4.3, 4.4; two females from near La Julia: 3.5, 3.5. Epigynum (Fig. 200) weakly sclerotized, posteriorly rectangular plate, internal structures partly visible in uncleared specimens. Internal genitalia (Figs 201–202, 209) with anterior median receptacle, heavily sclerotized ventral structure, and pair of processes originating from pore plates.

Distribution

Known from several localities in the Venezuelan states Carabobo, Miranda, and Anzoátegui (Fig. 1041).

Natural history

The newly collected specimens were found in domed webs among low vegetation (10–40 cm above the ground). The specimens from Sabas Nieves were found in a humid part of the forest close to a small stream; near La Julia the species was found close to a dry brook bed. The long-legged males were constantly slightly swinging in the webs while the females were not seen to move but were hiding on the undersides of leaves. It is probably for this reason that the collections of E. Simon and M.A. González-Sponga include numerous males but no females.

Litoporus curimagua Huber sp. nov.

urn:lsid:zoobank.org:act:EAA9BFD6-9534-4342-9944-41DB61CF2891

Figs 203–207, 210–211, 1041

Diagnosis

Easily distinguished from most congeners (except *L. aeri* Simon, 1893) by male cheliceral armature (Fig. 210; pair of transversal apophyses); from very similar *L. aeri* by proximal cheliceral apophyses horizontal rather than inclined (compare Figs 208 and 210), by anterior margins of pore plates weakly bent towards posterior (arrows in Figs 201 and 206), and by absence of pair of processes originating from pore plates (compare Figs 209 and 211).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21866), Sierra de San Luis, E Curimagua (11.1748° N, 69.6273° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 2 ♂♂, 1 ♀, and one female abdomen (transferred from Ven18-192), ZFMK (Ar 21867), and 1 ♀ in pure ethanol, ZFMK (Ven18-192), same collection data as for holotype. – **Yaracuy** • 11 ♂♂, 4 ♀♀, ZFMK (Ar 21868), and 1 ♂, 3 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven20-155), Yurubi National Park (10.4913° N, 68.6564° W), 140 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 3 ♂♂, 3 ♀♀, ZFMK (Ar 21869), Guaquira, ‘site 1’ (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 5 ♂♂, 4 ♀♀, 5 juvs, ZFMK (Ar 21870), Guaquira, ‘site 2’ (10.2807° N, 68.6530° W), 150 m a.s.l., forest along stream, 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Assigned tentatively (see description of females below)

VENEZUELA – **Táchira** • 4 ♂♂, 2 ♀♀, 1 juv., ZFMK (Ar 21871), and 1 ♀, 2 juvs in pure ethanol, ZFMK (Ven20-124), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Description

Male (holotype)

MEASUREMENTS. Total body length 2.1, carapace width 0.7. Distance PME–PME 140 µm; diameter PME 55 µm; distance PME–ALE 55 µm; distance AME–AME 30 µm; diameter AME 30 µm. Leg 1: 37.9 (10.7+0.3+8.8+16.4+1.7), tibia 2: 6.3, tibia 3: 4.5, tibia 4: 5.9; tibia 1 L/d: 98.

COLOR (in ethanol). Prosoma pale ochre-yellow, carapace with thin dark median line; legs darker ochre, femora and tibiae with whitish tips, metatarsi distal third to distal half whitish, whitish areas particularly prominent on legs 1, 2, and 4; abdomen pale greenish gray, light brown plates in front of gonopore and in front of spinnerets.

BODY. Habitus as in Fig. 203. Ocular area slightly raised. Carapace with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.60/0.40), unmodified. Abdomen oval.

CHELICERAE. As in Fig. 210, pair of proximal transversal apophyses and pair of small distal apophyses; lateral view very similar to *L. aeri* (cf. Huber 1997d: fig. 9e).

PALPS. Apparently indistinguishable from *L. aerius* (cf. Huber 1997d: figs 9a–c); coxa with retrolateral apophysis, trochanter barely modified, femur proximally with retrolateral-ventral process, distally with large ventral protrusion; procurus simple and slender, distally curved towards dorsal; genital bulb with large distal process, ventrally sclerotized, dorsally membranous and whitish.

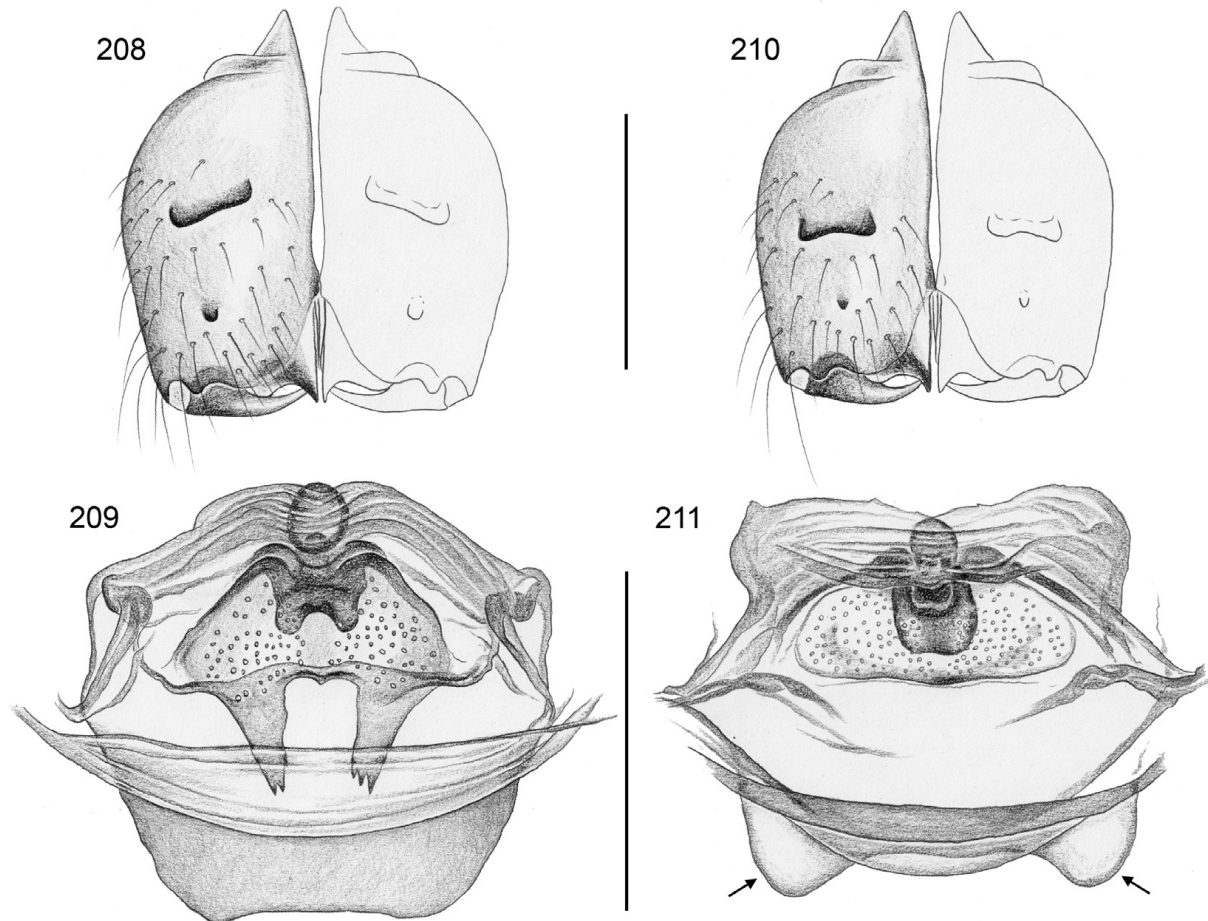
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 2%; prolateral trichobothrium present on tibia 1; tarsus 1 with ~25 pseudosegments, indistinct.

Male (variation)

Tibia 1 in 15 males from Falcón and Yaracuy: 6.9–9.3 (mean 8.3); in four males from Táchira: 7.7, 7.8, 8.0, 8.4. Males from Táchira apparently indistinguishable from holotype.

Female

In general similar to male (Fig. 204) but carapace with dark Y-mark, legs pale ochre-yellow with darker patellae and tibia-metatarsus joints, without distinct whitish tips. Tibia 1 in seven females from Falcón and Yaracuy: 3.8–4.7 (mean 4.3). Epigynum (Fig. 205) weakly sclerotized, internal structures partly visible through cuticle. Internal genitalia (Figs 206–207, 211) with pore plates medially fused, with



Figs 208–211. *Litoporus aerius* Simon, 1893; from Miranda, El Ávila National Park (208–209) (left; ZFMK Ar 21864) and *L. curimagua* Huber sp. nov.; from Falcón, Curimagua (right; ZFMK Ar 21867) (210–211). **208, 210.** Male chelicerae, frontal views. **209, 211.** Cleared female genitalia, dorsal views (arrows: pair of posterior protrusions in females from Falcón and Yaracuy; absent in females from Táchira). Scale lines: 0.2 mm.

anterior median receptacle connected posteriorly to heavily sclerotized structure. Females from Falcón and Yaracuy with pair of posterior protrusions on epigynal plate (arrows in Fig. 211); females from Táchira without such protrusions, i.e., in this respect more similar to females of *L. aerius* (but internally like females from Falcón and Yaracuy); specimens from Táchira are thus assigned tentatively; tibia 1 in two females from Táchira: 4.4, 4.8.

Distribution

Known from the Venezuelan states Falcón, Yaracuy, and Táchira (Fig. 1041); specimens from Táchira are assigned tentatively.

Natural history

At the type locality, the spiders were found in a well-preserved humid forest where they built their rather flat, exposed webs among the vegetation at ~1–2 m above the ground. Males were constantly swinging in slow movements; females were not seen moving and were often hidden under a leaf rather than exposed like males. In Yurubi National Park, the spiders were abundant along the stream, and males were easy to spot from a distance due to the white sections on their legs and the swinging movement. Females were also able to swing but they usually ran away on the web when disturbed. Most webs with males were at ~20–50 cm above the ground, while webs of solitary females used to be higher above the ground. At Guaquirá, there was also a distinct difference between webs with males (close to the ground, often only ~10 cm) and webs with females only or with juveniles (often at 1–2 m above the ground).

Litoporus uncatus (Simon, 1893)

Coryssocnemis uncata Simon, 1893a: 321.

Litoporus abrahami Mello-Leitão, 1947: 164, fig. 11. Synonymized in Huber (2000).

Tonoro multispinae González-Sponga, 2009: 8, figs 4a–i. Synonymized in Huber *et al.* (2014a).

Coryssocnemis uncata – Simon 1893b: 479, fig. 472. — Huber 1997d: 582, figs 6a–e, 7a–b.

Litoporus uncatus – Huber 2000: 300, figs 1207–1211.

Notes

We have reexamined the type material of *Tonoro multispinae* González-Sponga, 2009 and confirmed its synonymy with *Litoporus uncatus*. Contrary to the original description, the holotype is not separated from the other material: 5 ♂♂, and 2 ♀♀ (?) prosomata (not 3 ♂♂, 4 ♀♀, as in original description), MIZA 105684 (MAGS 1177), “Carapo, base del Guaiquinima”, 480 m a.s.l., 17 Feb. 1990 (L. Sanabria, M.A. González S.). The type locality is approximately at 5.73° N, 63.53° W.

Precise coordinates are also unknown for the other two previously published Venezuelan records (Huber 2000): “upper Rio Yaciba” and “camp #3”. Both records are from Dec. 1953, suggesting that both are from the Rio Yaciba area, but we were not able to locate this river. The published coordinates we found vary widely (e.g., 1.484° N, 66.527° W in Carico 2008; 0.833° N, 66.167° W in Carico & Silva 2010).

New record

VENEZUELA – **Bolívar** • 1 ♂, CAS (9027306), Río Caura, Campamento Cecilia Magdalena [approximately 6.3° N, 64.5° W, 250 m a.s.l.], 30 Apr. 1957 (D. Robayna).

Distribution

Widely distributed in the Amazonian basin (Huber 2000: 302); in Venezuela only in the states of Bolívar and Amazonas (Fig. 1041).

Mecolaesthus Simon, 1893

- Mecolaesthus* / *Mecoloesthus* Simon 1893b: 482. Type species: *M. longissimus* Simon, 1893.
- Falconia* González-Sponga, 2003: 94. Name preoccupied, replaced by *Ayomania* González-Sponga, 2005 and by *Venezuela* Koçak & Kemal, 2008. Type species: *F. multidenticulata* González-Sponga, 2003. Synonymized in Huber *et al.* (2014a).
- Queliceria* González-Sponga, 2003: 96. Type species *Q. discrepantis* González-Sponga, 2003. **New synonymy.**
- Sanluisi* González-Sponga, 2003: 100. Type species: *S. puntiaguda* González-Sponga, 2003. Synonymized in Huber *et al.* (2014a).
- Ayomania* González-Sponga, 2005: 108. Replacement name for *Falconia* González-Sponga, 2003; see *Falconia* above.
- Venezuela* Koçak & Kemal, 2008: 4. Unjustified replacement name for *Falconia* González-Sponga, 2003; see *Falconia* above.
- Carbonaria* González-Sponga, 2009: 2. Type species: *C. cordiformis* González-Sponga, 2009. Synonymized in Huber *et al.* (2014a).
- Maimire* González-Sponga, 2009: 4. Type species: *M. tuberculosa* González-Sponga, 2009. Synonymized in Huber *et al.* (2014a).
- Nasuta* González-Sponga, 2009: 6. Type species: *N. grandis* González-Sponga, 2009. Synonymized in Huber *et al.* (2014a).
- Moraia* González-Sponga, 2011b: 43. Type species: *M. niquitanus* González-Sponga, 2011. Synonymized in Huber *et al.* (2014a).

Mecoloesthus – Bonnet 1957: 2742. — Huber 2000: 255.

Justification of synonymy

The type material of *Queliceria discrepantis* González-Sponga, 2003 was reexamined, as well as new material collected at the type locality. Morphologically, this species strongly resembles several geographically close species of *Mecolaesthus* (*M. cornutus* Huber, 2000; *M. tabay* Huber, 2000; *M. mucuy* Huber, 2000) in its general habitus and carapace coloration (distinctive lateral dark marks restricted to anterior half), and males show the principal putative synapomorphy of the genus (inflated carapace). Preliminary molecular data (J.J. Astrin, B.A. Huber, unpubl. data) also support a close relationship with the congeners listed above and show *Queliceria discrepantis* as deeply nested among other Venezuelan *Mecolaesthus*.

Notes

With now 30 Venezuelan species (14 previously described+ 16 new), *Mecolaesthus* is the most species-rich pholcid genus in Venezuela. Only six species have been described from neighboring countries and regions: Trinidad (1), Lesser Antilles (3), Colombia (1), and Brazil (1). This suggests that Venezuela is the distributional center of *Mecolaesthus*, but at least the Colombian pholcid fauna is poorly known and may include a large number of species.

Of the 14 Venezuelan species described previously, eleven are treated below. For the remaining three Venezuelan species we do not have new data:

Mecolaesthus azulita Huber, 2000; type locality “20 km SE Azulita (ULA Biol. Res. La Carbonera), Mérida, Venezuela” (Huber 2000) [approximately 8.633° N, 71.366° W]; see Notes under *M. cordiformis* below.

Mecolaesthus hoti Huber, 2000; type locality only roughly known: “Rio Baria, Dept. Amazonas, Venezuela” (Huber 2000) [between 0.85° N, 66.43° W and 1.47° N, 66.52° W].

Mecolaesthus puntiagudus (González-Sponga, 2003), type locality Falcón, Sierra de San Luis, Curimagua [approximately 11.172° N, 69.668° W]. The type specimens (2 ♂♂, 8 ♀♀, 1 juv.; MAGS 1432) have been on loan to another researcher and could not be examined.

The ZFMK collection includes material of six further Venezuelan species, from the states La Guaira, Mérida, Trujillo, and Lara. They are not described here because specimens of only one sex are available.

Operational species groups

Venezuelan *Mecolaesthus* are here divided into three operational species groups, explicitly based on similarity rather than cladistic analysis. In some cases the specific similarities probably reflect phylogenetic relationships, in others not. Such operational species groups provide a preliminary structure for the known species and they facilitate taxon selection in future phylogenetic analyses.

The *cornutus* group includes the ten species shown in Fig. 1042. Most species in this group look identical in the field (Figs 212–219, 306–311); the lateral dark carapace marks are limited to the anterior part; males do not have a longer abdomen than females; male chelicerae are not provided with modified hairs. Within this group, *M. peckorum* Huber, 2000; *M. tabay* Huber, 2000; *M. azulita* Huber, 2000; and *M. cordiformis* (González-Sponga, 2009) have extremely similar male chelicerae and female internal genitalia (female of *M. azulita* unknown). The two species *M. chicha* Huber sp. nov. and *M. parchita* Huber sp. nov. fit this group in their morphology but are unusual for their lighter coloration (Figs 277–282). The two species share strongly banded legs, almost identical procursi and genital bulbs, similar distal cheliceral apophyses and internal female genitalia.

The *grandis* group includes the eleven species shown in Figs 1043–1044. Males in this group usually have slightly longer abdomens than females (e.g., Figs 429–432); male chelicerae are provided with modified hairs; procursi are distally often bifid, divided into a sclerotized and a membranous part (e.g., Figs 348–350, 390–392); males of several species share sclerotized plates anteriorly on the abdomen, ventrally and/or dorsally (Figs 338, 430). Within this group, *M. grandis* (González-Sponga, 2009); *M. multidenticulatus* (González-Sponga, 2003); and *M. tuberculatus* (González-Sponga, 2009) are almost indistinguishable even by details of their genitalia. The three species were originally described in three different genera but are likely to be closely related. These three species share with three further species [*M. niquitanus* (González-Sponga, 2011); *M. longipes* Huber sp. nov.; *M. bienmesabe* Huber sp. nov.] a distinctive arrangement of male cheliceral apophyses and modified hairs: a pair of large apophyses and a pair of low elevations, both provided with small modified hairs (e.g., Figs 354, 396, 416). A similar arrangement but with much stronger hairs occurs in *M. trampa* Huber sp. nov. and *M. lechosa* Huber sp. nov. (Figs 441, 450). The remaining three species (*M. arepa* Huber sp. nov., *M. pusillus* Huber sp. nov., *M. alegria* Huber sp. nov.), share modified hairs on the male chelicerae but do otherwise not easily fit into this group. The two latter species have identical procursi, very similar male chelicerae and genital bulbs, and they share a pair of dark sclerites in the female internal genitalia (Figs 473, 476).

The *longissimus* group includes the remaining nine Venezuelan species shown in Figs 1045–1046. This group is certainly polyphyletic, and some species may eventually end up in other or new genera (e.g., *M. fallax* Huber sp. nov., *M. limon* Huber sp. nov.). Some species (*M. longissimus* Simon, 1893; *M. guasacaca* Huber sp. nov.; *M. yerbatero* Huber sp. nov.) share with representatives of the *grandis* group a bifid procursus tip (Figs 500, 536, 560), but the male chelicerae lack modified hairs. The type species *M. longissimus* also shares with representatives of the *grandis* group a longer male than female abdomen. The two species with extremely inflated male prosoma (*M. graphorn* Huber sp. nov., *M. cachapa* Huber sp. nov.) remind of congeners in Trinidad and the Lesser Antilles [*M. arima* Huber, 2000; *M. nigrifrons* (Simon, 1894); *M. lemniscatus* (Simon, 1894); *M. taino* Huber, 2000] but extremely

inflated prosomata are also known from undescribed Colombian species (F. Cala Riquelme, pers. comm. 20 Jul. 2017). In addition, the strong intraspecific variability of carapace inflation (e.g., Figs 510–511) makes this a problematic character for phylogeny. The highly aberrant *M. fallax* is tentatively assigned to *Mecolaesthus* for the lack of a better solution. Preliminary molecular data (J.J. Astrin, B.A. Huber, unpubl. data) place this species among *Mecolaesthus*, so it seemed premature to designate a new genus for this species. Finally, *M. limon* Huber sp. nov. and *M. hoti* males share the main synapomorphy of the genus (inflated prosoma; Fig. 583) but otherwise the two species appear unique and isolated (male genitalia; in *M. limon* Huber sp. nov. also female genitalia and spines on male femur 1).

***Mecolaesthus cornutus* Huber, 2000**
Figs 212–214, 220–228, 245–247, 254, 1042

Mecolaesthus cornutus Huber, 2000: 262, figs 1044–1047 (♂).

Priscula ulai (misidentification) – González-Sponga 1999: 160, figs 74–75 (♀ only; see Note below).

Note

The female of *M. cornutus* has not been known previously, but numerous males and females newly collected together at various localities (listed below) unambiguously show that the female paratype of *Priscula ulai* González-Sponga, 1999 is a misidentified *M. cornutus*.

Diagnosis (amendments; see Huber 2000)

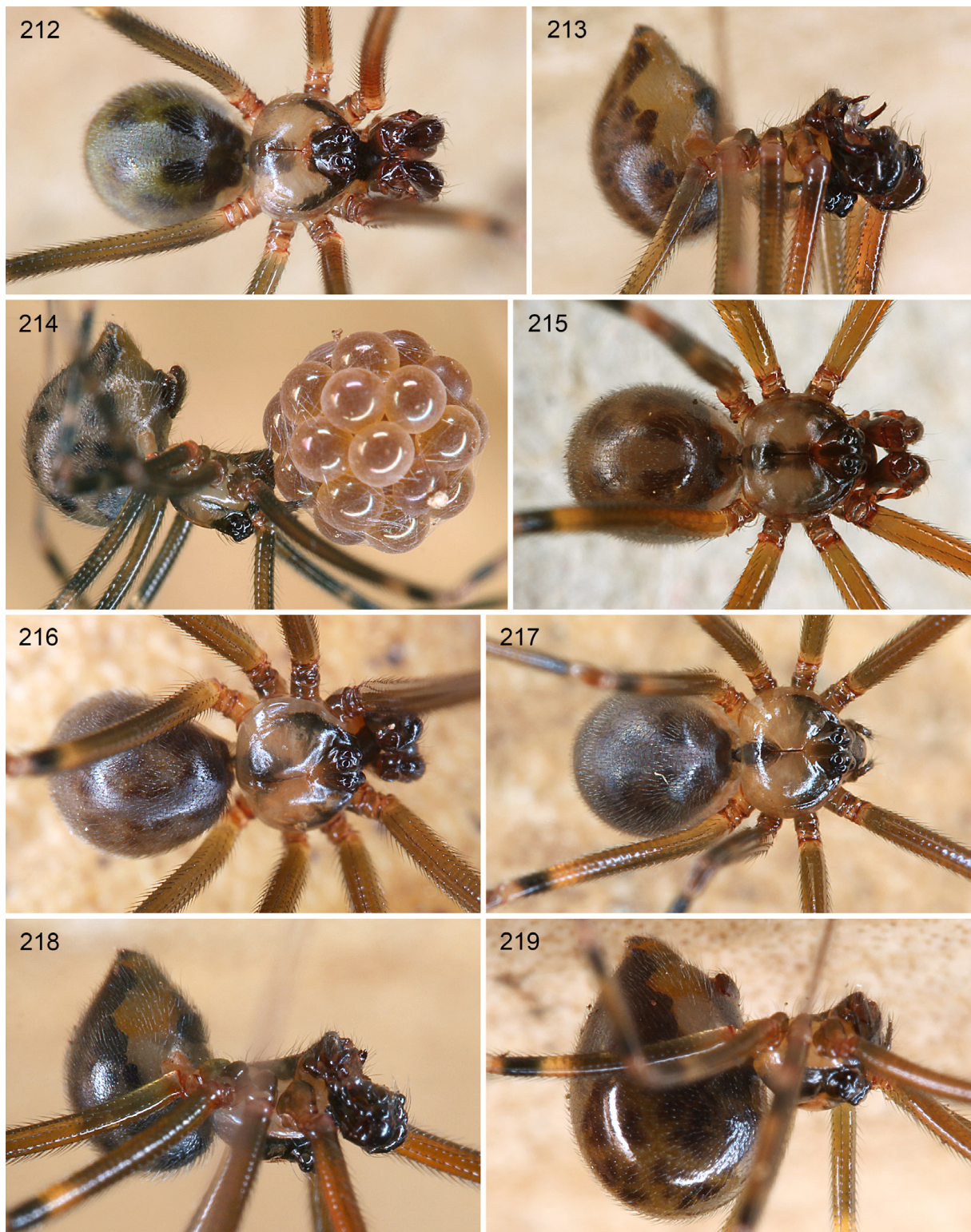
Females are easily distinguished from most known congeners by strongly protruding epigynum longer than wide and posteriorly narrowing (Figs 245, 254); similar only in *M. tabay* Huber, 2000, but epigynum in *M. tabay* rather triangular and smaller (width: ~420 µm, vs 580 µm in *M. cornutus*). The female of *M. azulita* Huber, 2000 is unknown.

New records

VENEZUELA – **Mérida** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21872), El Valle, forest above road (8.700° N, 71.094° W), 2430 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 3 ♀♀, ZFMK (Ar 21873), and 3 ♀♀ in pure ethanol, ZFMK (Ven18-219), near Escaguey, NE Mérida (8.6918° N, 70.9950° W), 2220 m a.s.l., 23 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 5 ♂♂, 5 ♀♀, ZFMK (Ar 21874), and 1 ♂, 5 ♀♀ in pure ethanol, ZFMK (Ven18-222), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), 2200–2300 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♂♂, 11 ♀♀, ZFMK (Ar 21875–76), and 1 ♂, 4 ♀♀ in pure ethanol, ZFMK (Ven18-230), Monte Zerpa, forest above La Hechicera (8.634° N, 71.163° W – 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.) • 1 ♂, ZFMK (Ar 21877), same locality, 14–21 Jun. 2014 (N. Sánchez, M. Fernández).

Redescription of male (amendments; see Huber 2000)

Eye measurements (male from El Valle): distance PME–PME 160 µm; diameter PME 110 µm; distance PME–ALE 100 µm; distance AME–AME 25 µm; diameter AME 25 µm. Carapace mostly pale gray, only ocular area and anterior margins brown to black (Fig. 212); clypeus also brown; sternum mostly pale gray, with small brown median mark anteriorly including labium; abdomen pale bluish gray, with dark bluish marks dorsally and laterally, lung plates brown, large dark gray mark at gonopore area and dark bluish median mark behind gonopore. Thoracic furrow shallow but distinct; carapace in some males not inflated posteriorly, in other males weakly inflated. Long cheliceral apophyses slightly closer together than shown in the original publication (Huber 2000: fig. 1044; the apophyses were probably slightly moved by the pressure of the cover slide); distance between tips in three newly studied males:



Figs 212–219. *Mecolaesthus* Simon, 1893; live specimens. **212–214.** *M. cornutus* Huber, 2000; male from Mérida, Mucuy, female with egg sac from Mérida, Escaguey. **215.** *M. cordiformis* (González-Sponga, 2009); male from Mérida, forest near La Carbonera. **216–217.** *M. mucuy* Huber, 2000; male and female from Mérida, Mucuy. **218–219.** *M. tabay* Huber, 2000; male and female from Mérida, El Valle.

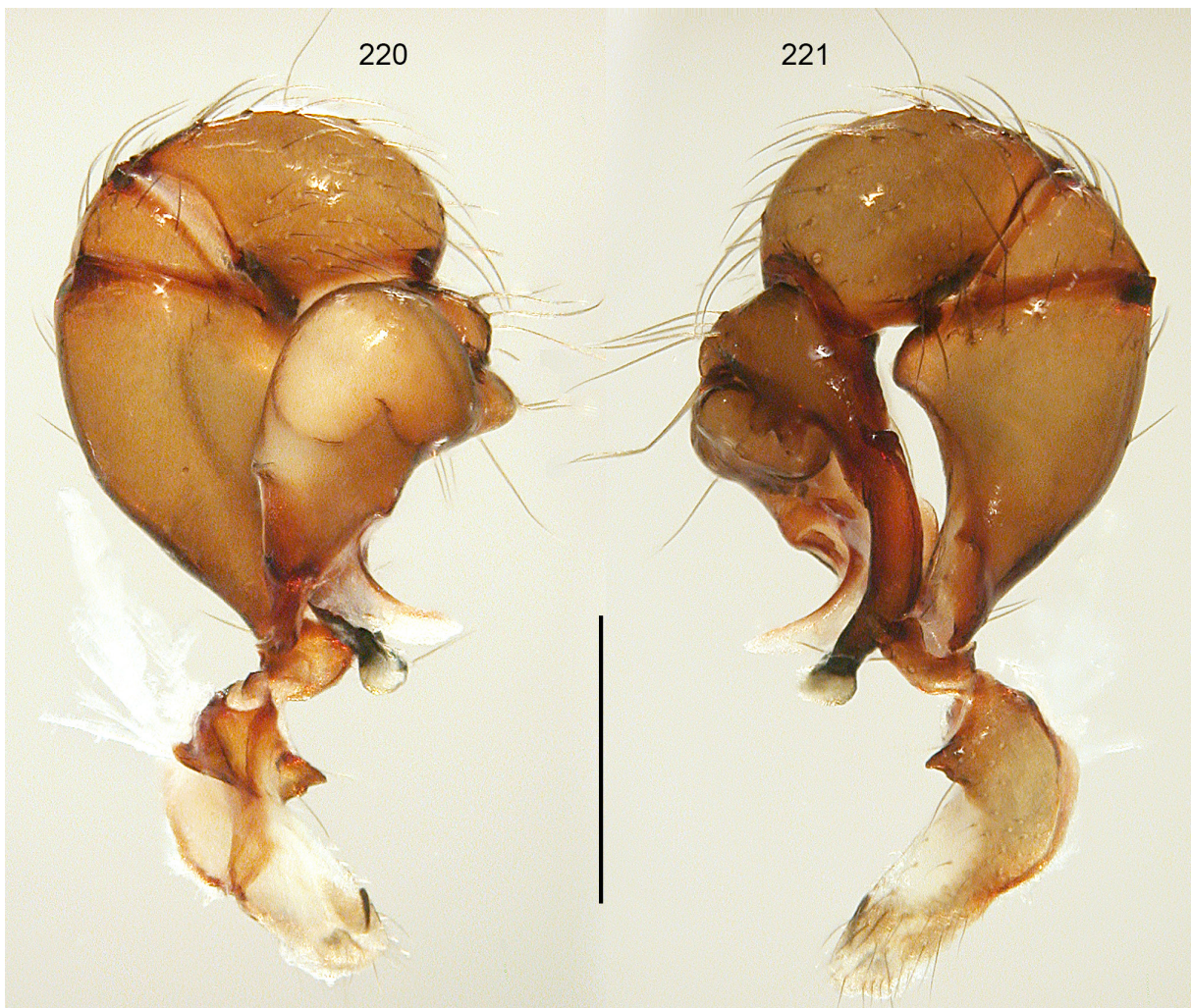
230–250 μm . Pedipalps, procurus, and genital bulb as in Figs 220–227. Prolateral trichobothrium present on tibia 1. Tibia 1 in 17 males (including the three males measured in Huber 2000): 5.0–6.5 (mean 5.7).

Description of female

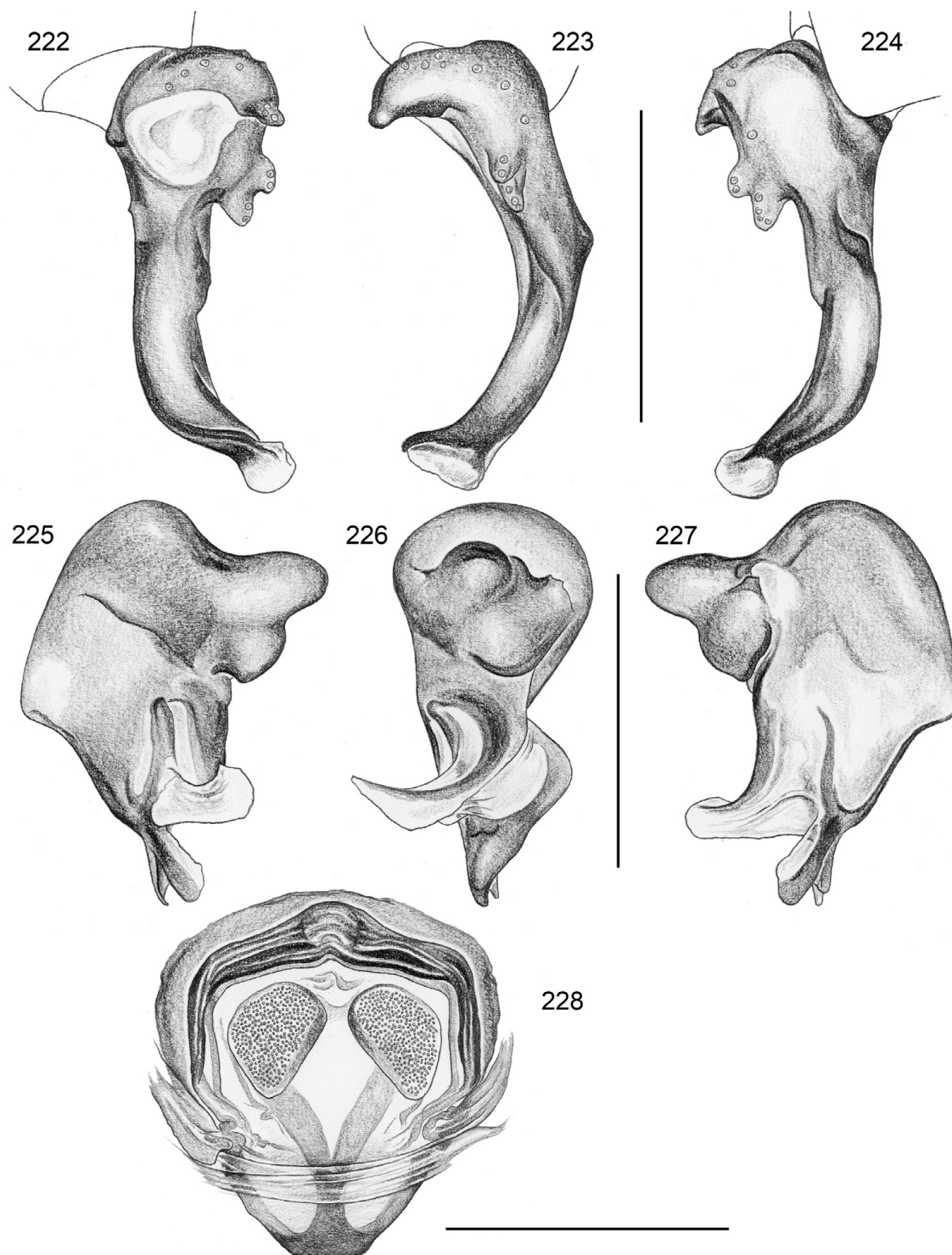
Females in general similar to males (Fig. 214) but dark mark on sternum larger, covering anterior half of sternum. Dark and light rings on legs more distinct. Epigynum (Figs 245, 254) strongly protruding, longer than wide and posteriorly narrowing. Internal genitalia (Figs 228, 246–247) with strong anterior arc, pair of large pore plates and V-shaped sclerite on ventral wall of uterus externus. Tibia 1 in 19 females: 3.4–4.4 (mean 4.1).

Distribution

Known from several neighboring localities in the Venezuelan state Mérida (Fig. 1042). All localities are at about 2000–2690 m a.s.l.



Figs 220–221. *Mecolaesthus cornutus* Huber, 2000; from Mérida, El Valle (ZFMK Ar 21872); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 222–228. *Mecolaesthus cornutus* Huber, 2000; from Mérida, El Valle (ZFMK Ar 21872). **222–224.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **225–227.** Left genital bulb, prolateral, dorsal, and retrolateral views. **228.** Cleared female genitalia, dorsal view. Scale lines: 0.5 mm.

Natural history

At Escagüey, the spiders were found in small webs in hollow logs on the ground. In Mucuy, this species shared the habitat with several other species of *Mecolaesthus*, but at different altitudes and in slightly different microhabitats: *M. cornutus* was found at lower altitude (~2200–2300 m a.s.l.) in small cavities in the ground; *M. tabay* was found at the same altitude but in hollow logs; *M. mucuy* was found at higher altitude (~2500–2700 m a.s.l.) and mostly in bromeliads ~1–2 m above the ground; *M. longipes* Huber sp. nov. occupied large sheltered spaces at ~2400–2600 m a.s.l.; and *M. fallax* was found at all altitudes (~2200–2700 m a.s.l.) but in a very different microhabitat (undersides of live leaves). Two egg sacs contained approximately 20–40 eggs.

Mecolaesthus peckorum Huber, 2000
Figs 229–237, 248–250, 255, 1042

Mecolaesthus peckorum Huber, 2000: 261, figs 1038–1039 (♂).

Diagnosis (amendments; see Huber 2000)

Females are easily distinguished from most known congeners by oval epigynum slightly protruding (Figs 248, 255), by internal genitalia with pore plates in almost vertical position and contiguous anteriorly, and by distinctive shape of anterior arc [Figs 237, 249–250, similar in *M. tabay* Huber, 2000 and in *M. cordiformis* (González-Sponga, 2009)]. Note, however, that the female of *M. azulita* Huber, 2000 is unknown.

New records

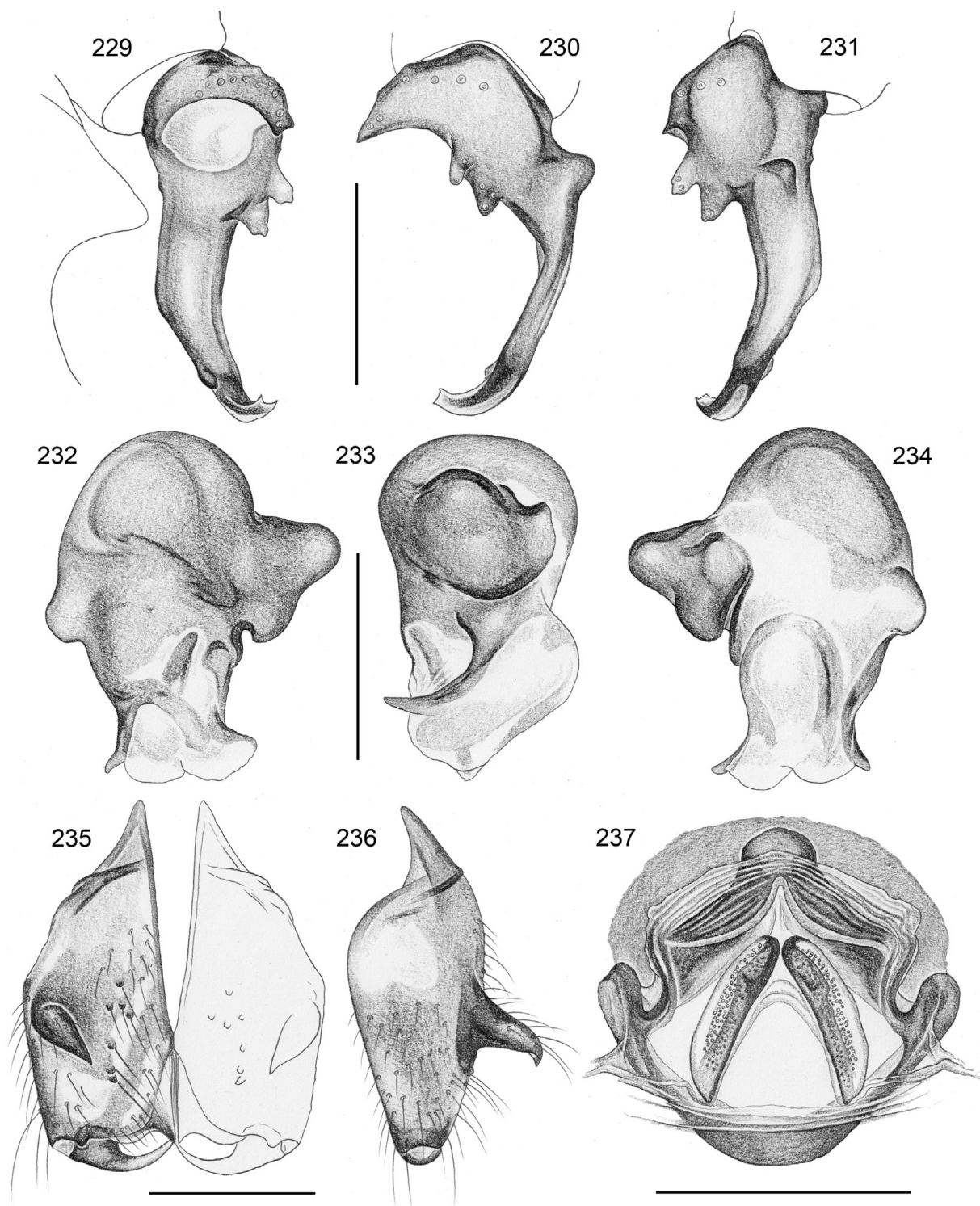
VENEZUELA – **Mérida** • 1 ♂, 1 ♀, ZFMK (Ar 21878–79), Monte Zerpa, forest above La Hechicera (8.634° N, 71.163° W – 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.) • 3 ♂♂, ZFMK (Ar 21880), same locality, 14–21 Jun. 2014 (N. Sánchez, M. Fernández) • 2 ♂♂, ZFMK (Ar 21881), same locality, 30 Mar. 2013 (D. Meta) • 1 ♂, ZFMK (Ar 21882), same locality, 5–12 Apr. 2016 (M. Fernández) • 1 ♂, ZFMK (Ar 21883), El Valle, cloud forest along river (8.703° N, 71.077° W), 2650 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Redescription of male (amendments; see Huber 2000)

Measurements (male from Monte Zerpa): carapace width: 1.4; leg 1: 23.1 (5.2+0.5+5.5+9.7+2.2); tibia 2: 3.5, tibia 3: 2.9, tibia 4: 3.5; tibia 1 L/d: 32; distance PME–PME 120 µm; diameter PME 100 µm; distance PME–ALE 100 µm; distance AME–AME 15 µm; diameter AME 30 µm. Carapace mostly light brown, ocular area and anterior lateral margins dark brown, clypeus also dark brown; abdomen pale greenish gray, with dark bluish marks dorsally and laterally, lung plates brown, large dark ochre mark at gonopore area and dark bluish median band behind gonopore. Thoracic furrow shallow but distinct; carapace slightly inflated posteriorly, without median hump. Prolateral trichobothrium present on tibia 1. Coxa 4 unmodified. Chelicerae (Figs 235–236) with several small cone-shaped processes at bases of hairs (more proximal than indicated by arrow in Huber 2000: fig. 1034). Procurus and genital bulb as in Figs 229–234. Tibia 1 in five males (including the male measured in Huber 2000): 5.2–5.7 (mean 5.4).

Description of female

Females in general similar to males. Legs without dark rings like in males. Epigynum oval plate, slightly protruding, internal arc visible in uncleaned specimen (Figs 248, 255). Internal genitalia (Figs 237, 249–250) with large pore plates in almost vertical position, converging and contiguous anteriorly; anterior arc with median receptacle. Tibia 1 in one female: 4.1.



Figs 229–237. *Mecolaesthus peckorum* Huber, 2000; from Mérida, Monte Zerpa (male, ZFMK Ar 21882; female, ZFMK Ar 21879). **229–231.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **232–234.** Left genital bulb, prolateral, dorsal, and retrolateral views. **235–236.** Male chelicerae, frontal and lateral views. **237.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Distribution

Known from several neighboring localities in the Venezuelan state Mérida (Fig. 1042). All localities are at about 2050–2650 m a.s.l.

Natural history

This species occurs in close proximity to several very similar and putatively closely related species, i.e., *M. mucuy*, *M. tabay*, and *M. cornutus*. At Monte Zerpa there were no obvious microhabitat differences among these species: all seemed to live in very similar sheltered spaces close to the ground.

Mecolaesthus mucuy Huber, 2000

Figs 216–217, 238–244, 251–253, 256, 1042

Mecolaesthus mucuy Huber, 2000: 258, figs 1024–1033 (♂).

Diagnosis (amendments; see Huber 2000)

Females are easily distinguished from most known congeners by strongly protruding epigynum only medially sclerotized, laterally whitish (Figs 251, 256). Note, however, that the female of *M. azulita* Huber, 2000 is unknown.

New records

VENEZUELA – **Mérida** • 4 ♂♂, 2 ♀♀, ZFMK (Ar 21884–85), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-223), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), 2500–2690 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀ in pure ethanol, ZFMK (Ven18-232), Monte Zerpa, forest above La Hechicera (8.634° N, 71.163° W – 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.).

Redescription of male (amendments; see Huber 2000)

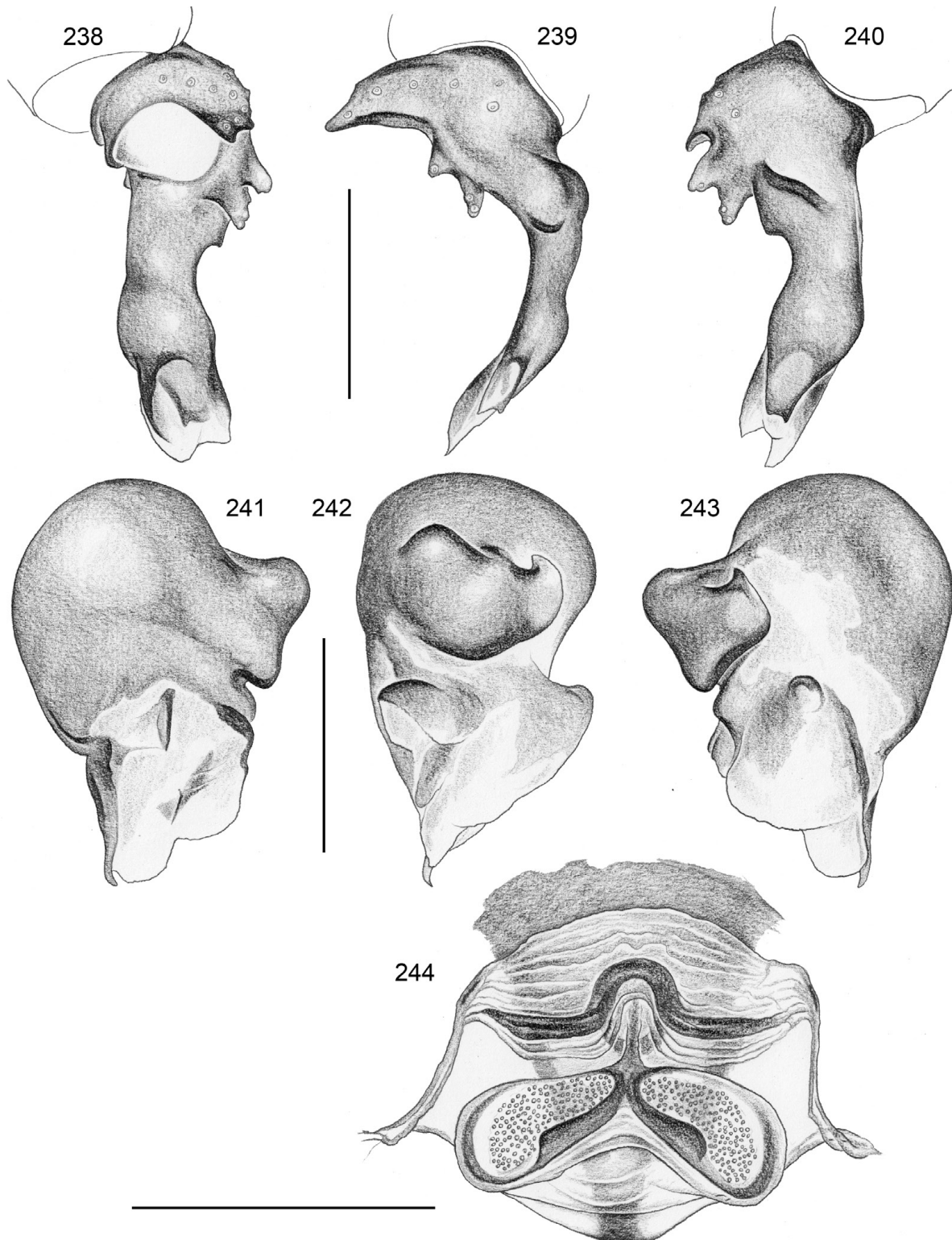
Habitus as in Fig. 216. Eye measurements (male from Mucuy): distance PME–PME 120 µm; diameter PME 130 µm; distance PME–ALE 120 µm; distance AME–AME 15 µm; diameter AME 30 µm. Carapace mostly pale ochre-gray, anteriorly brown, ocular area and clypeus also brown; sternum brown; abdomen pale bluish gray, with dark bluish marks dorsally and laterally, lung plates brown, large dark gray mark at gonopore area and dark bluish median mark behind gonopore. Thoracic furrow shallow but distinct; carapace slightly inflated posteriorly. Prolateral trichobothrium present on tibia 1. Procursus and genital bulb as in Figs 238–243. Tibia 1 in nine males (including the five males measured in Huber 2000): 4.7–5.6 (mean 5.3).

Description of female

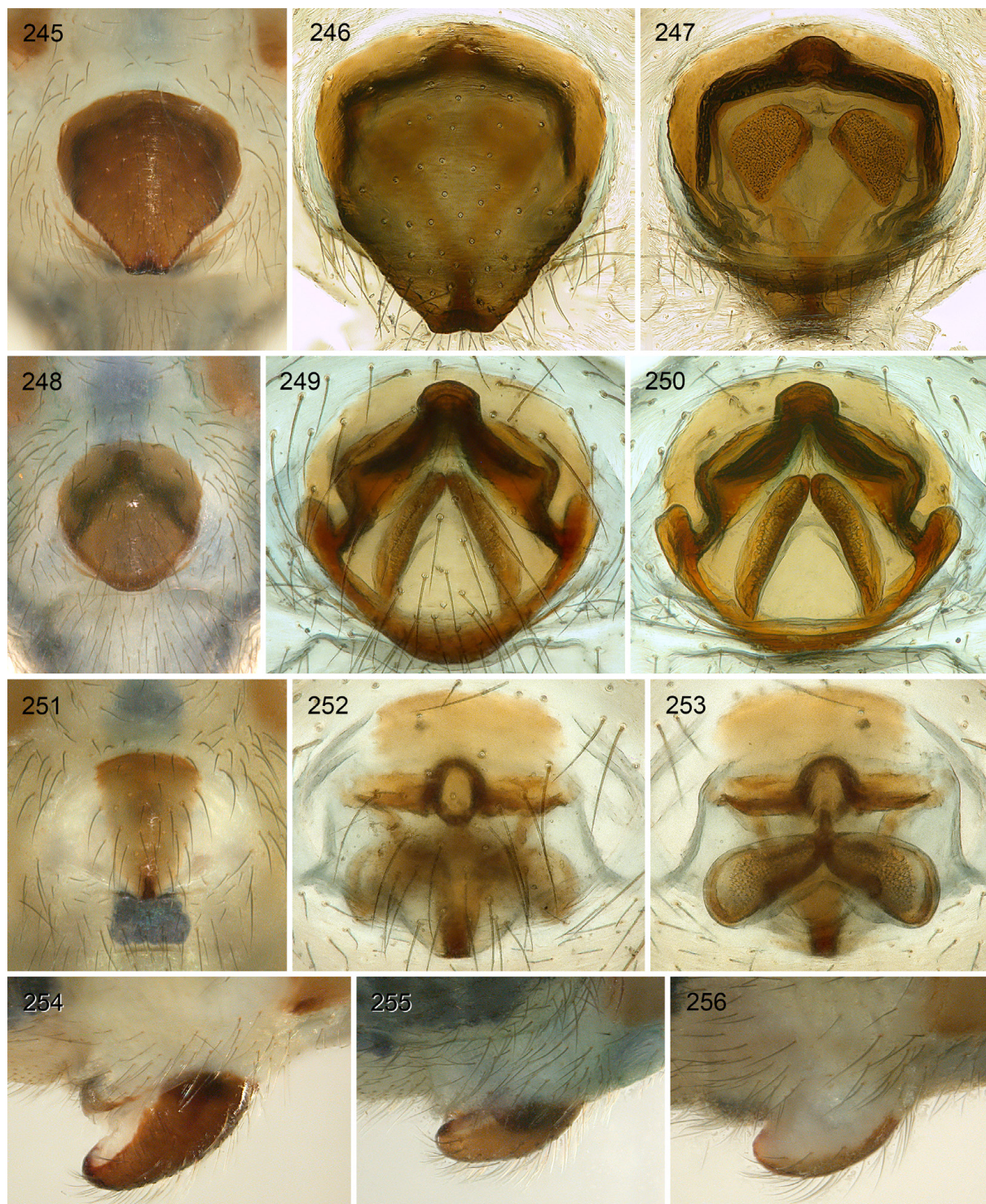
Females in general similar to males (Fig. 217). Epigynum (Figs 251, 256) strongly protruding, laterally whitish, medially brown band widening anteriorly. Internal genitalia (Figs 244, 252–253) with distinctive anterior arc, oval receptacle between arc and ventral external body wall; pore plates converging and contiguous anteriorly. Tibia 1 in five females: 3.9–4.3 (mean 4.1).

Distribution

Known from two neighboring localities in the Venezuelan state Mérida (Fig. 1042), between about 2050 and 2690 m a.s.l.



Figs 238–244. *Mecolaesthus mucuy* Huber, 2000; from Mérida, Mucuy (type locality; ZFMK Ar 21884–85). **238–240.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **241–243.** Left genital bulb, prolateral, dorsal, and retrolateral views. **244.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.



Figs 245–256. *Mecolaesthus* Simon, 1893; epigyna, ventral and lateral views and cleared female genitalia, ventral and dorsal views. **245–247, 254.** *M. cornutus* Huber, 2000; from Mérida, El Valle (ZFMK Ar 21872). **248–250, 255.** *M. peckorum* Huber, 2000; from Mérida, Monte Zerpa (ZFMK Ar 21879). **251–253, 256.** *M. mucuy* Huber, 2000; from Mérida, Mucuy (type locality; ZFMK Ar 21885).

Natural history

This species occurs in close proximity to several very similar and putatively closely related species, i.e., *M. tabay*, *M. peckorum*, and *M. cornutus*. In the field there were sometimes no obvious microhabitat differences among these species (e.g., in Monte Zerpa): all seemed to live in very similar sheltered spaces close to the ground. In Mucuy, different species of *Mecolaesthus* seemed to prefer slightly different microhabitats and/or different altitudes (see under *M. cornutus* above).

Mecolaesthus tabay Huber, 2000
Figs 218–219, 257–265, 271–273, 1042

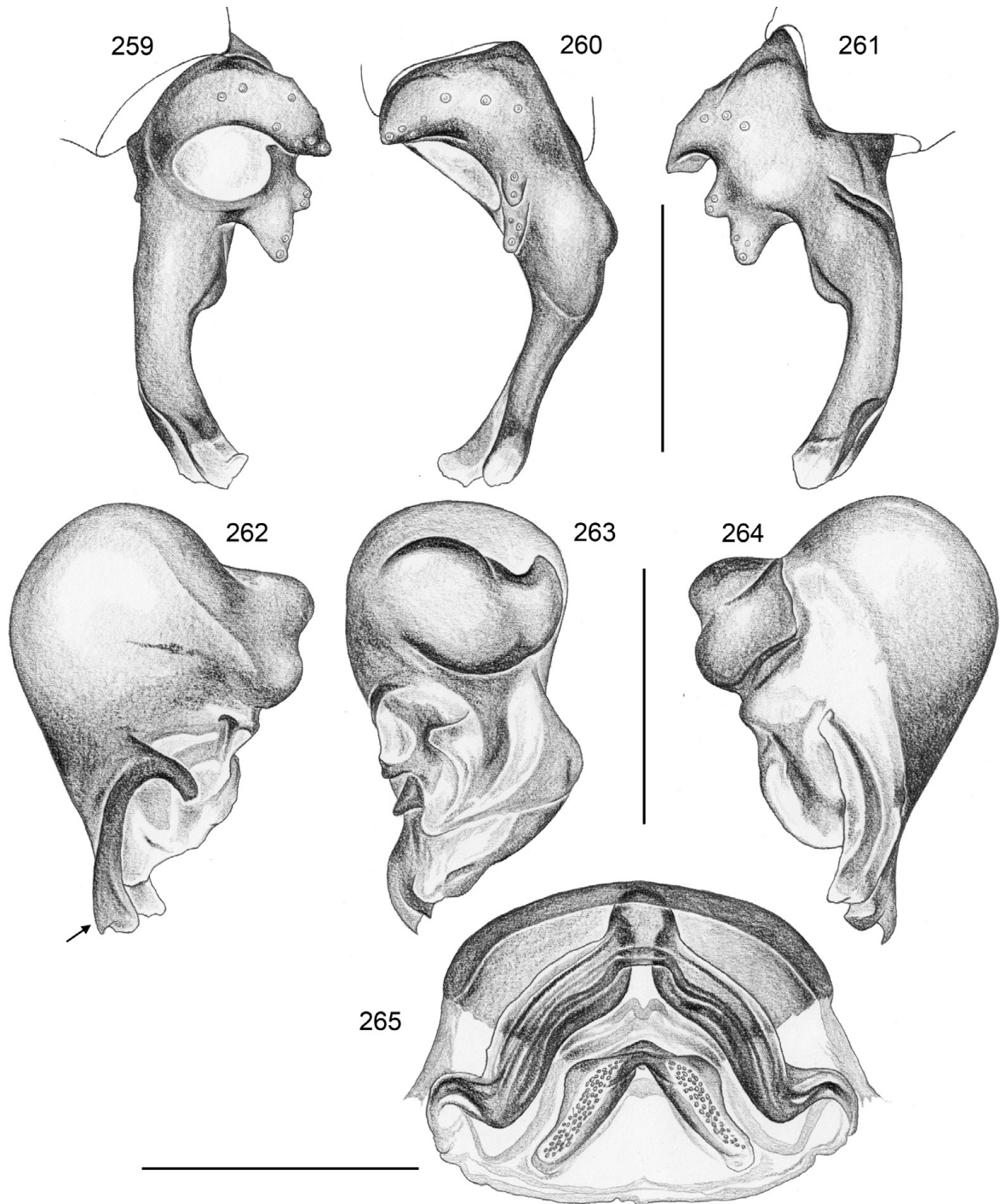
Mecolaesthus tabay Huber, 2000: 261, figs 1040–1043 (♂).

Diagnosis (amendments; see Huber 2000)

Females are easily distinguished from most known congeners by strongly protruding epigynum (similar *M. cornutus* Huber, 2000); from *M. cornutus* by triangular and much smaller epigynum (Fig. 271; width: ~420 µm, vs 580 µm in *M. cornutus*); from *M. peckorum* Huber, 2000 also by triangular rather than oval epigynal plate. Note, however, that the female of *M. azulita* Huber, 2000 is unknown.



Figs 257–258. *Mecolaesthus tabay* Huber, 2000; from Mérida, Mucuy (ZFMK Ar 21886); left male pedipalp, prolateral and retrolateral views. Scale line: 0.3 mm.



Figs 259–265. *Mecolaesthus tabay* Huber, 2000; from Mérida, Mucuy (male, ZFMK Ar 21886) and from Mérida, El Valle (female, ZFMK Ar 21888). **259–261.** Left palpal tarsus and procurcus, prolateral, dorsal, and retrolateral views. **262–264.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: distal prolateral sclerite, shorter and with more slender tip in males from El Valle). **265.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

New records

VENEZUELA – Mérida • 1 ♂, ZFMK (Ar 21886), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), ~2200–2300 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, 3 ♀♀, ZFMK (Ar 21887–88), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven18-228, 229), El Valle, cloud forest along river (8.703° N, 71.077° W), 2650 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀, ZFMK (Ar 21889), Monte Zerpa, forest above La Hechicera (8.634° N, 71.163° W – 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.).

Redescription of male (amendments; see Huber 2000)

Habitus as in Fig. 218. Eye measurements (male from Mucuy): distance PME–PME 120 µm; diameter PME 120 µm; distance PME–ALE 110 µm; distance AME–AME 20 µm; diameter AME 30 µm. Carapace mostly pale ochre-gray, anteriorly brown, ocular area and clypeus also brown; sternum light brown; abdomen pale bluish gray, with dark bluish marks dorsally and laterally, lung plates brown, large dark gray mark at gonopore area and dark bluish median mark behind gonopore. Thoracic furrow shallow but distinct; carapace barely inflated posteriorly. Prolateral trichobothrium present on tibia 1. Pedipalp, procurus, and genital bulb as in Figs 257–264. Bulb and procurus slightly different in males from El Valle: distal prolateral sclerite of bulb (arrow in Fig. 262) slightly shorter and with more slender tip; distal prolateral flap of procurus slightly larger. Tibia 1 in five males (including the two males measured in Huber 2000): 4.6–5.3 (mean 5.0).

Description of female

Females in general similar to males (Fig. 219). Epigynum strongly protruding, in ventral view triangular (Fig. 271). Internal genitalia (Figs 265, 272–273) very similar to *M. cordiformis* (González-Sponga, 2009) (compare Figs 273 and 276), with distinctive arc anteriorly protruding (with receptacle) and posteriorly protruding beyond epigynum (thus visible in ventral view); pore plates in almost vertical position, converging and contiguous anteriorly. Tibia 1 in six females: 3.4–3.7 (mean 3.6).

Distribution

Known from several neighboring localities in the Venezuelan state Mérida (Fig. 1042). All localities are at about 2050–2700 m a.s.l.

Natural history

This species occurs in close proximity to several very similar and putatively closely related species; see under *M. mucuy* and *M. cornutus* above.

Mecolaesthus cordiformis (González-Sponga, 2009)

Figs 215, 266–270, 274–276, 1042

Carbonaria cordiformis González-Sponga, 2009: 2, figs 1a–j (♂♀).

Mecolaesthus cordiformis – Huber *et al.* 2014a: 417.

Notes

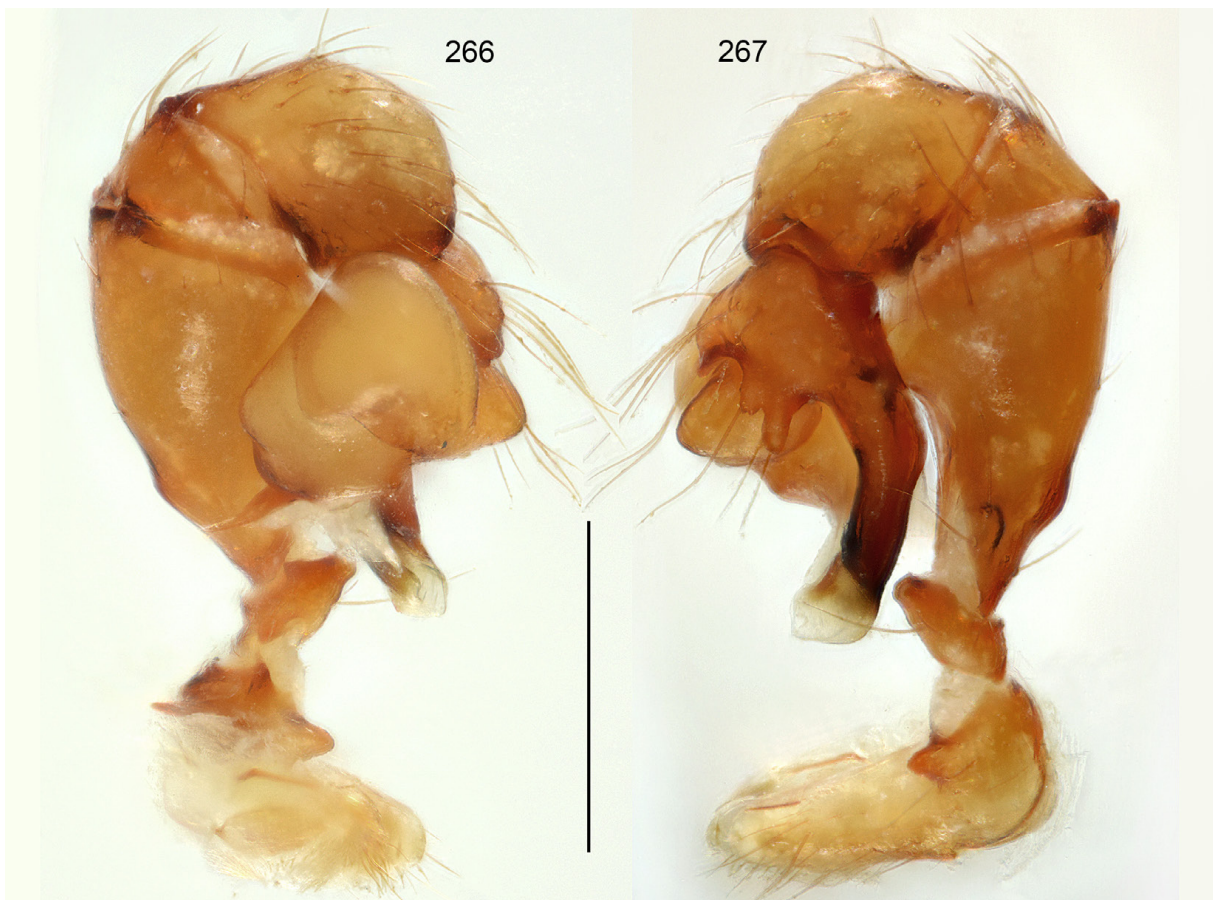
The types of this species seem to originate from the same locality as those of the very similar *M. azulita* Huber, 2000. We do not have precise coordinates of this locality, but we assume that the actual collecting spots of the types of both nominal species are within ~1 km from the coordinates given for

the *M. cordiformis* type specimens below; the coordinates given in the original description are certainly wrong (~370 km N).

The newly collected material listed below is from very close to the type locality, presumably less than 1 km SW, at almost the same altitude. Nevertheless, there seem to be small morphological differences between these new specimens and the types of both *M. cordiformis* and *M. azulita* as well as between the two described species. The two described species are known from very small samples (2 ♂♂ and 1 ♂, 1 ♀, respectively), and we were not able to directly compare the specimens under the microscope. As a result, we consider the available data insufficient to decide on the species status of the two described species and the newly collected specimens. We chose a conservative approach in leaving both described species as valid and tentatively assign the newly collected specimens to *M. cordiformis*. Future collecting should cover several forest patches in the area and combine morphological and molecular data to reevaluate this unsolved complex.

Diagnosis

Distinguished from very similar *M. azulita* by male chelicerae (indistinct humps below main apophyses rather than small but distinct apophyses; median distal area without distinct sclerotized plates), by genital bulb distal dorsal part straight (curved toward dorsal in *M. azulita*), and by larger procurrus (distal part beyond ventral ‘knee’ longer); female of *M. azulita* unknown.



Figs 266–267. *Mecolaesthus cordiformis* (González-Sponga, 2009); holotype from Mérida, La Carbonera (MIZA 105601; MAGS 1064); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.

Type material

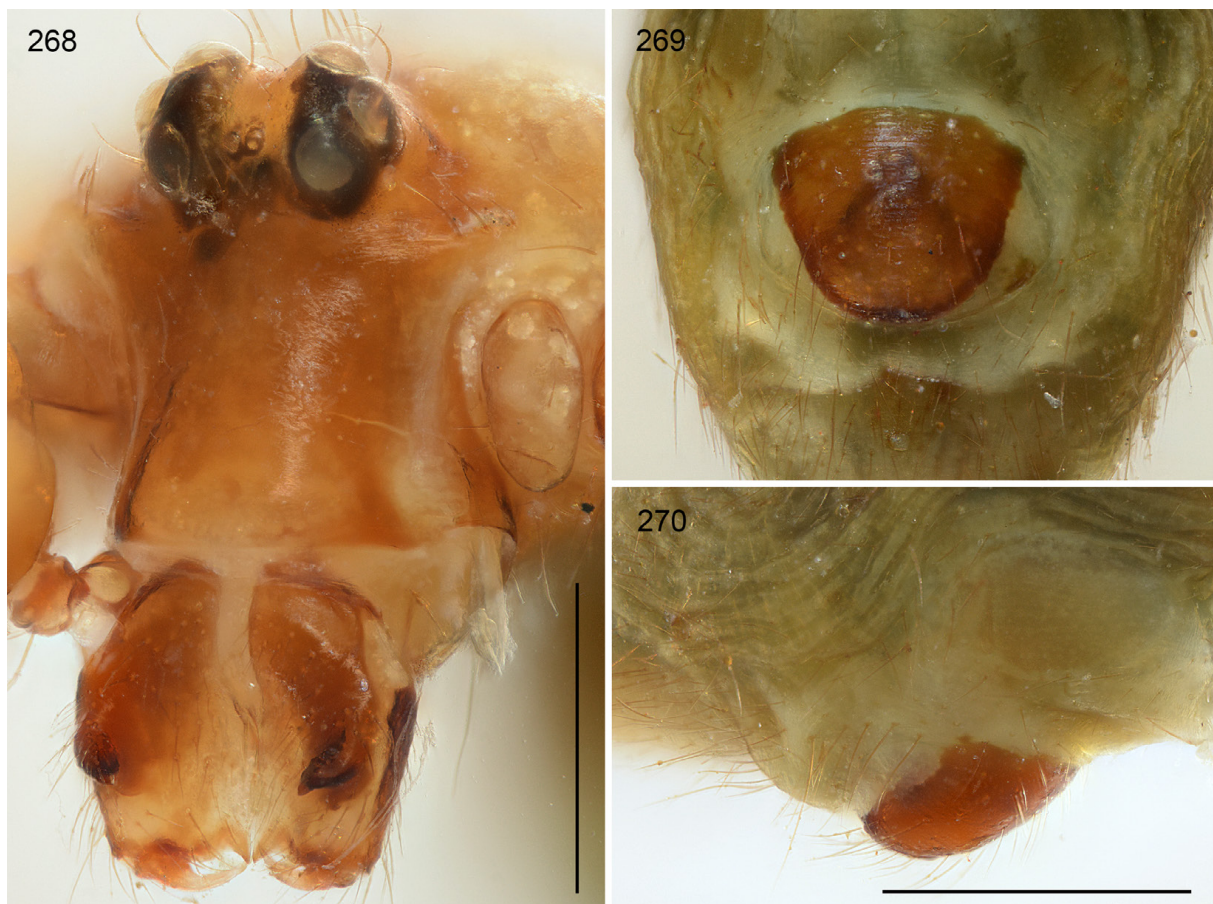
VENEZUELA – Mérida • ♂ holotype, 1 ♀ paratype, MIZA 105601 (MAGS 1064), La Carbonera (“frente a el Hato La Carbonara, carretera Mérida-Jaji”) [approximately 8.633° N, 71.366° W], 19 Jun. 1987 (A.R. Delgado, M.A. González S.); examined.

New record/material assigned tentatively

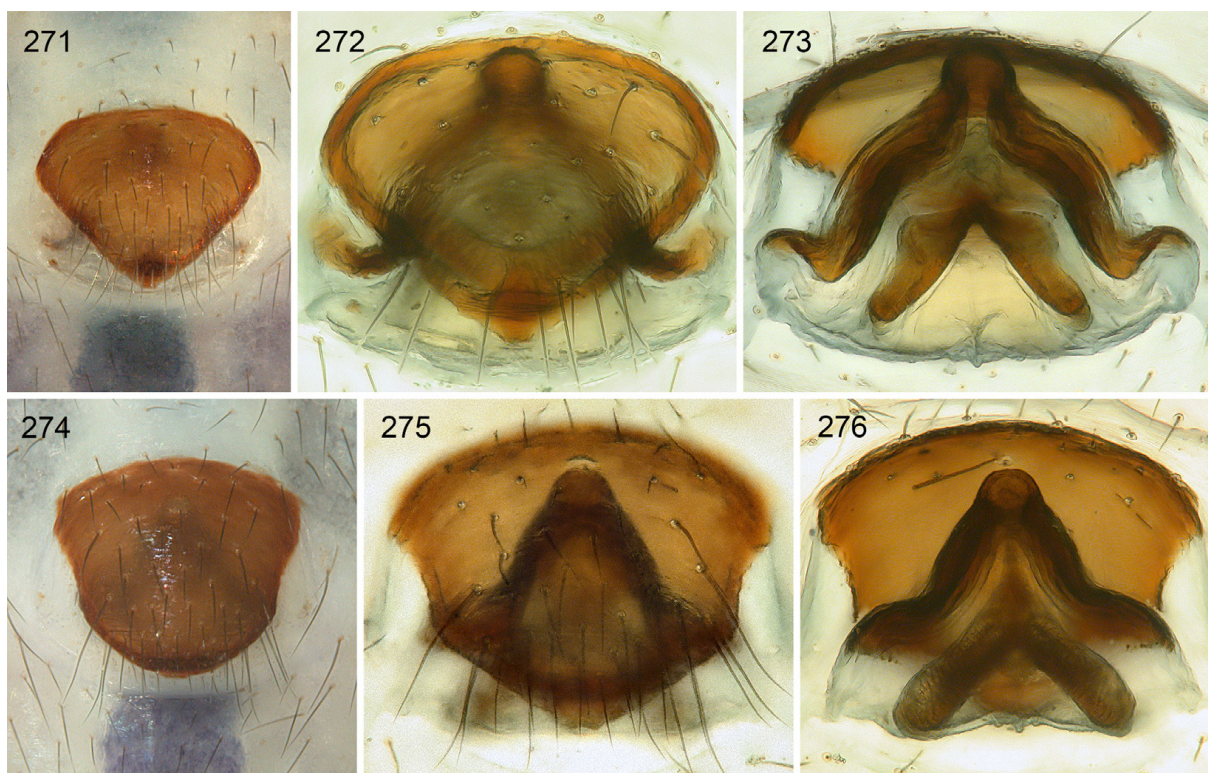
VENEZUELA – Mérida • 5 ♂♂, 3 ♀♀, ZFMK (Ar 21890), and 1 ♀ in pure ethanol, ZFMK (Ven20-111), forest near La Carbonera (8.6276° N, 71.3688° W), 2380 m a.s.l., 8 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Notes on newly collected specimens

As indicated above, the newly collected specimens do neither fit perfectly *M. cordiformis* nor *M. azulita*. Complicating the situation further, they also resemble *M. tabay* in certain aspects. In particular, the male chelicerae seem indistinguishable from those of *M. tabay* (cf. Huber 2000: fig. 1040). The procurrus also resembles *M. tabay* (cf. Figs 259–261) but there is only a single dorsal process proximally at the transition between tarsus and procurrus. The genital bulb lacks the curved dorsal sclerite of *M. azulita* and it lacks the distinctive prolateral sclerite of *M. tabay*. The epigynum appears identical to that of the paratype of *M. cordiformis* (compare Figs 269 and 274), i.e., it is not triangular like that of *M. tabay* but



Figs 268–270. *Mecolaesthus cordiformis* (González-Sponga, 2009); holotype and paratype from Mérida, La Carbonera (MIZA 105601; MAGS 1064). **268.** Male ocular area, clypeus, and chelicerae, oblique frontal view. **269–270.** Epigynum, ventral and lateral views. Scale lines: 0.5 mm.



Figs 271–276. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **271–273.** *M. tabay* Huber, 2000; from Mérida, El Valle (ZFMK Ar 21888). **274–276.** *M. cordiformis* (González-Sponga, 2009); from Mérida, near La Carbonera (ZFMK Ar 21890).

rather evenly curved posteriorly; the internal female genitalia resemble those of *M. tabay* but the lateral sclerites are not strongly bent at their lateral extremes (compare Figs 273 and 276). Tibia 1 in five males: 4.6–5.1 (mean 4.8); in three females: 3.1, 3.3, 3.5.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1042).

Natural history

According to González-Sponga (2009) the type specimens were collected in rotten tree trunks. Most newly collected specimens were taken from the trunks of (alive) tree ferns.

Mecolaesthus chicha Huber sp. nov.

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Figs 277–279, 283–290, 300–302, 1042

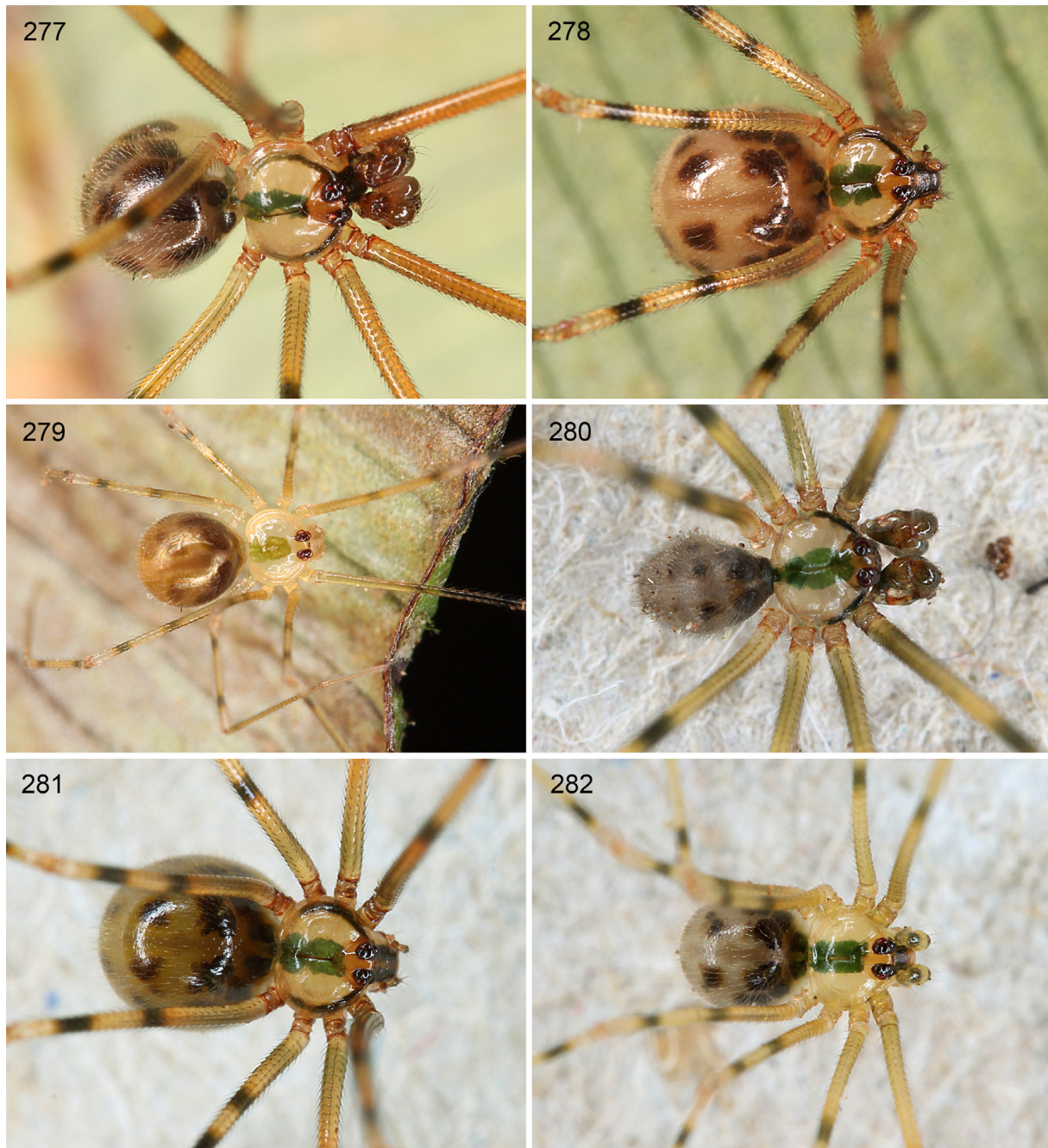
Diagnosis

Easily distinguished from known congeners (including the otherwise very similar *M. parchita* Huber sp. nov.) by armature of male chelicerae (Fig. 289; pair of pointed apophyses proximally arising from round humps and pair of blunt processes more distally) and by epigynum (Fig. 300; only median area sclerotized, widening posteriorly, not divided into two median sclerites as in *M. parchita* Huber sp. nov.).

From most congeners (except *M. parchita* Huber sp. nov.) also by two dark rings on leg femora (instead of only one or none).

Etymology

The species name refers to *chicha*, a Latin American beverage. In Venezuela it is made of boiled rice, milk, and sugar, has the consistency of eggnog, and contains no alcohol as it is not fermented; noun in apposition.



Figs 277–282. *Mecolaesthus* Simon, 1893; live specimens. **277–279.** *M. chicha* Huber sp. nov.; male, female, and juvenile from Mérida, between Bailadores and Pregonero. **280–282.** *M. parchita* Huber sp. nov.; male, female, and juvenile from Mérida, between Tovar and Guaraque.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21891), between Bailadores and Pregonero (8.1701° N, 71.8990° W), 2960 m a.s.l., forest along stream, 9 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 5 ♂♂, 7 ♀♀, 5 juvs, ZFMK (Ar 21892–93), and 1 ♂, 5 ♀♀, 7 juvs in pure ethanol, ZFMK (Ven20-116), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.8, carapace width 1.2. Distance PME–PME 120 µm; diameter PME 110 µm; distance PME–ALE 90 µm; diameter AME 25 µm; distance AME–AME 20 µm. Leg 1: 25.6 (6.0+0.5+6.1+10.8+2.2), tibia 2: 3.9, tibia 3: 3.0, tibia 4: 3.5; tibia 1–4 diameters: 120 µm, 130 µm, 140 µm, 135 µm; tibia 1 L/d: 51.

COLOR (in ethanol). Carapace pale gray, lateral margins and ocular area darker brown, indistinct posterior internal triangular dark mark (in live specimens with large greenish central mark; Fig. 277); clypeus dark brown; sternum whitish; legs ochre-yellow, with distinct dark rings on femora (centrally and subdistally) and tibiae (subproximally and subdistally); abdomen pale greenish-gray, dorsally and laterally with dark bluish marks, ventrally with brown mark in gonopore area, light brown book lung covers, and large bluish median marks in front and behind gonopore; without dark mark above pedicel.

BODY. Habitus as in Fig. 277. Ocular area distinctly raised. Carapace anteriorly with distinct but shallow thoracic groove; not visibly inflated. Clypeus unmodified. Sternum wider than long (0.76/0.58). Abdomen oval, pointed at spinnerets.

CHELICERAE. As in Fig. 289, with pair of pointed apophyses proximally arising from round humps and pair of blunt processes more distally.

PALPS. In general similar to *M. mucuy* (cf. Huber 2000: figs 1028–1029) and *M. tabay* (cf. Figs 257–258); largely indistinguishable from *M. parchita* Huber sp. nov.; coxa with retrolateral apophysis, trochanter with small rounded ventral process, femur proximally with large retrolateral process, distally with short obtuse ventral process (arrow in Fig. 283), retrolateral trichobothrium of tibia in very distal position; procurus (Figs 283–285) at basis with bifid dorsal process, with distinct retrolateral process, simple tip partly membranous; genital bulb complex (Figs 286–288), distally mostly membranous/whitish but with distinctive distal sclerites (largely identical to *M. parchita* Huber sp. nov.; similar *M. peckorum*).

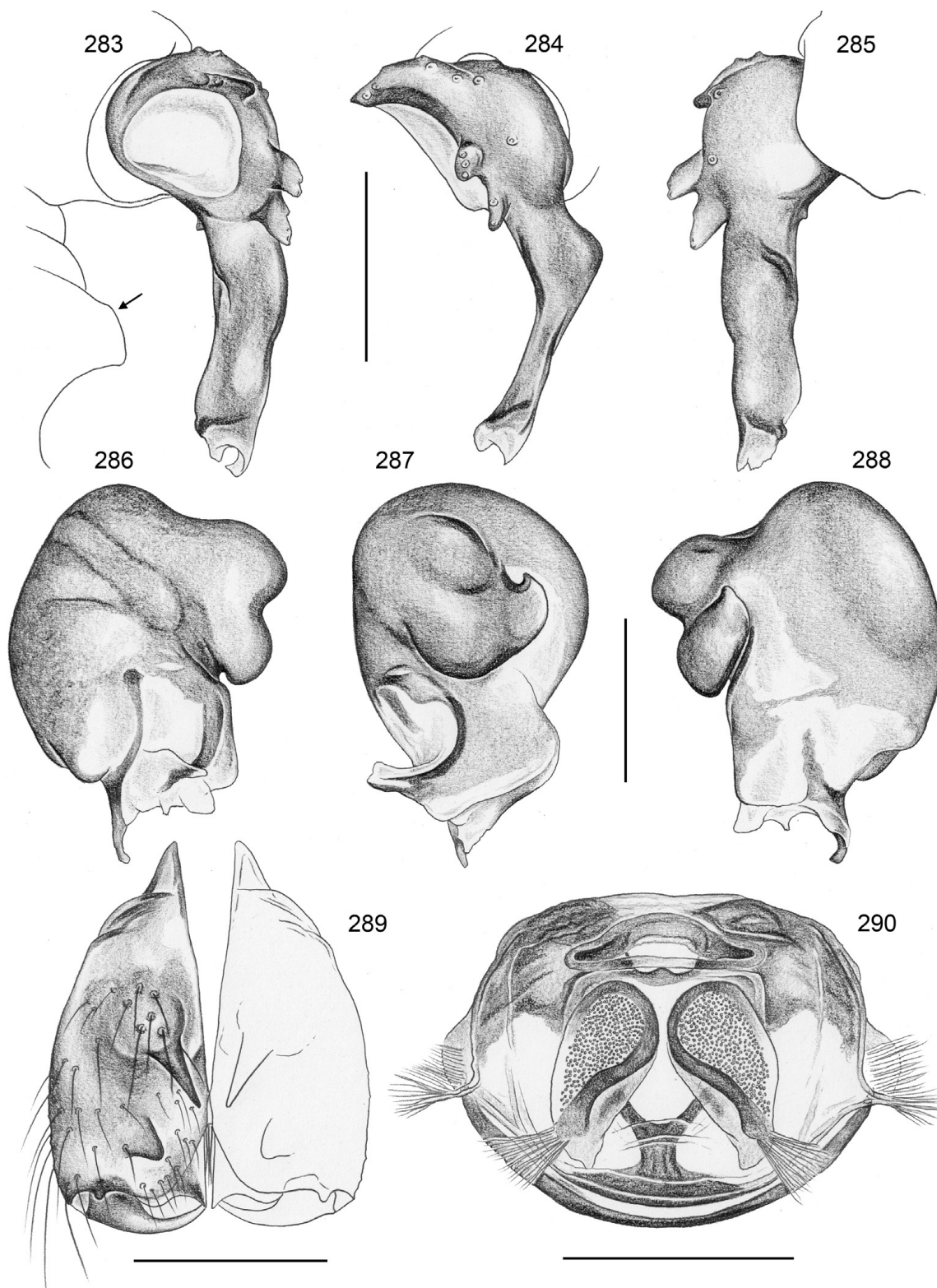
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~40 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in six males (incl. holotype): 6.1–6.3 (mean 6.2); posterior internal mark on carapace sometimes absent.

Female

In general similar to male (Fig. 278). Tibia 1 in seven females: 4.4–5.1 (mean 4.7). Epigynum (Fig. 300) slightly protruding, only median area sclerotized, laterally whitish, sclerotized area widening posteriorly; posterior plate short and wide. Internal genitalia (Figs 290, 301–302) with Y-shaped sclerite connected



Figs 283–290. *Mecolaesthus chicha* Huber sp. nov.; from Mérida, between Bailadores and Pregonero (type locality; ZFMK Ar 21892–93). **283–285.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **286–288.** Left genital bulb, prolateral, dorsal, and retrolateral views. **289.** Male chelicerae, frontal view. **290.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

to median posterior sclerite, pore plates tilted into almost vertical position and converging dorsally and anteriorly; with complex system of anterior folds and arcs.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1042).

Natural history

Most adult specimens were found close to the ground, by beating overhanging mosses growing on the rocks or overhanging masses of leaf litter near a small forest stream. They lived in small, relatively flat sheet webs with a diameter of ~10 cm. Juveniles were much lighter than adults (Fig. 279) and were mostly found higher in the vegetation, on trunks of tree ferns or even on the undersides of green leaves.

Mecolaesthus parchita Huber sp. nov.

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Figs 280–282, 291–299, 303–305, 1042

Diagnosis

Easily distinguished from known congeners (including the otherwise very similar *M. chicha* Huber sp. nov.) by armature of male chelicerae (Figs 297–298; pair of weakly sclerotized, strongly protruding processes and pair of heavily sclerotized processes near median line) and by epigynum (Fig. 303; protruding, mostly whitish, small anterior oval sclerite not connected to transversal sclerite at posterior rim). From most congeners (except *M. chicha* Huber sp. nov.) also by two dark rings on leg femora (instead of only one or none).

Etymology

The species name refers to *parchita*, the Venezuelan name for passion fruit; noun in apposition.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21894), between Tovar and Guaraque (8.2578° N, 71.7184° W), 2490 m a.s.l., forest along stream, 11 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

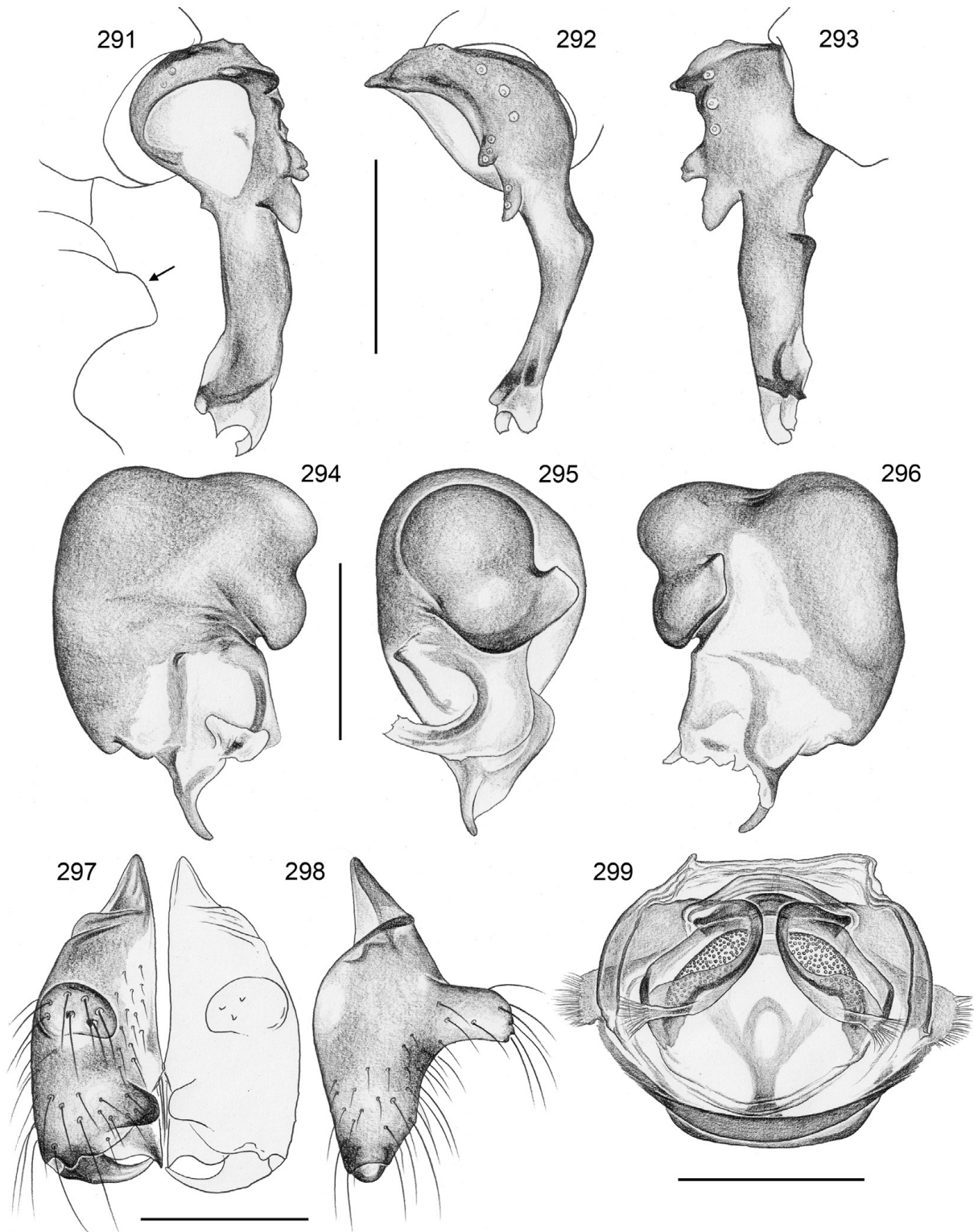
VENEZUELA – Mérida • 3 ♂♂, 3 ♀♀, 3 juvs, ZFMK (Ar 21895–96), and 2 ♀♀, 6 juvs in pure ethanol, ZFMK (Ven20-129), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 3.0, carapace width 1.3. Distance PME–PME 120 µm; diameter PME 120 µm; distance PME–ALE 80 µm; diameter AME 30 µm; distance AME–AME 25 µm. Leg 1: 31.5 (7.2+0.5+7.3+13.4+3.1), tibia 2: 4.4, tibia 3: 3.4, tibia 4: 4.0; tibia 1–4 diameters: 125 µm, 140 µm, 150 µm, 140 µm; tibia 1 L/d: 58.

COLOR (in ethanol). Carapace pale gray (distinct greenish median mark of live specimens lost in ethanol), lateral margins darker brown, ocular area light brown; clypeus dark brown; sternum whitish; legs ochre-yellow, with distinct dark rings on femora (centrally and subdistally) and tibiae (subproximally and subdistally); abdomen pale greenish-gray, dorsally and laterally with dark bluish marks, ventrally with large brown mark in gonopore area and bluish median mark behind gonopore; book lung covers barely darkened; without dark mark above pedicel.



Figs 291–299. *Mecolaesthus parchita* Huber sp. nov.; from Mérida, between Tovar and Guaraque (type locality; ZFMK Ar 21895–96). **291–293.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **294–296.** Left genital bulb, prolateral, dorsal, and retrolateral views. **297–298.** Male chelicerae, frontal and lateral views. **299.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

BODY. Habitus as in Fig. 280. Ocular area distinctly raised. Carapace with distinct but shallow thoracic groove; not visibly inflated. Clypeus unmodified. Sternum in holotype slightly deformed. Abdomen oval, pointed at spinnerets.

CHELICERAE. As in Figs 297–298, with pair of weakly sclerotized, strongly protruding processes proximally and pair of heavily sclerotized processes near median line more distally.

PALPS. In general similar to *M. mucuy* (cf. Huber 2000: figs 1028–1029) and *M. tabay* (cf. Figs 257–258); largely indistinguishable from *M. chicha* Huber sp. nov., even procurus and genital bulb (Figs 291–296) barely distinguishable.

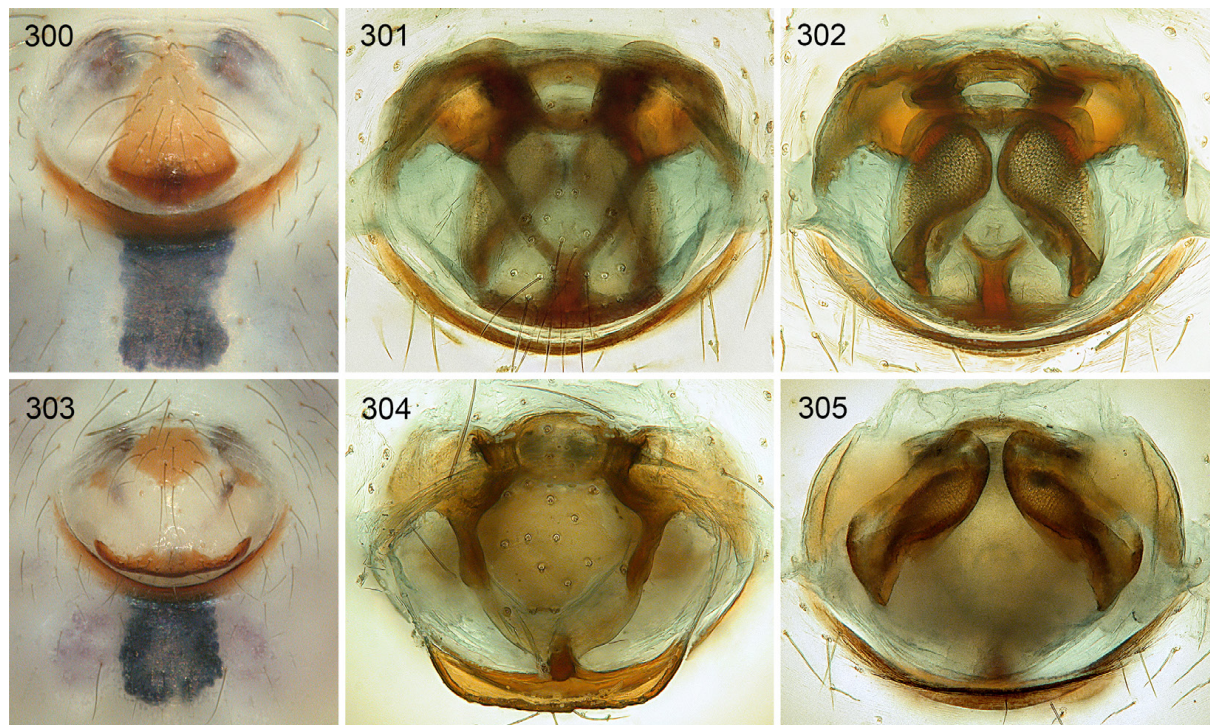
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 4%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~40 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in three other males: 7.0, 7.3, 7.3.

Female

In general similar to male (Fig. 281). Tibia 1 in four females: 5.1, 5.1, 5.3, 5.3. Epigynum (Fig. 303) protruding, mostly whitish, small anterior oval sclerite not connected to strong transversal (vertical) sclerite at posterior rim, internal Y-shaped sclerite variably visible in uncleared specimens; posterior plate short and wide. Internal genitalia (Figs 299, 304–305) with Y-shaped sclerite connected to transversal posterior sclerite, pore plates tilted into almost vertical position and converging dorsally and anteriorly, wider apart posteriorly than in *M. chicha* Huber sp. nov.; with complex system of anterior folds and arcs.



Figs 300–305. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **300–302.** *M. chicha* Huber sp. nov.; from Mérida, between Bailadores and Pregonero (type locality; ZFMK Ar 21893). **303–305.** *M. parchita* Huber sp. nov.; from Mérida, between Tovar and Guaraque (type locality; ZFMK Ar 21896).

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1042).

Natural history

Adult specimens were collected from weakly domed sheet webs (diameter ~20 cm) that on one side disappeared in mosses growing on tree trunks or in masses of leaf litter trapped on tree trunks about 0.5–1.5 m above the ground. Both males and females were hiding in the substrate rather than hanging freely in the webs. By contrast, juveniles were lighter and usually found on live leaves, even on fern leaves.

Mecolaesthus piedras Huber sp. nov.

urn:lsid:zoobank.org:act:CF40549A-34A3-4C69-834A-17B965CE9216

Figs 306–308, 312–320, 331–333, 1042

Diagnosis

Distinguished from known congeners by armature of male chelicerae (Figs 318–319; pair of strong pointed frontal processes), by two distinctive flat elements distally on procurus (Figs 312–314), by genital bulb with distinctive ventral and dorsal sclerites on embolar division (arrows in Fig. 315), by long epigynum widening anteriorly (Fig. 331), and by internal female genitalia (Figs 320, 332–333; strong median sclerite, pore plates on distinctively curved sclerite).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21897), Las Piedras, ‘site 1’ (8.8939° N, 70.6448° W), 1710 m a.s.l., forest remnant, 7 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material

VENEZUELA – Mérida • 1 ♀ in pure ethanol, ZFMK (Ven20-106), same collection data as for holotype; abdomen moved to holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 3.0, carapace width 1.25. Distance PME–PME 130 µm; diameter PME 100 µm; distance PME–ALE 110 µm; diameter AME 25 µm; distance AME–AME 25 µm. Leg 1: 24.6 (5.7+0.6+5.7+10.3+2.3), tibia 2: 3.6, tibia 3: 2.7, tibia 4: 3.3; tibia 1–4 diameters: 170 µm, 185 µm, 190 µm, 190 µm; tibia 1 L/d: 34.

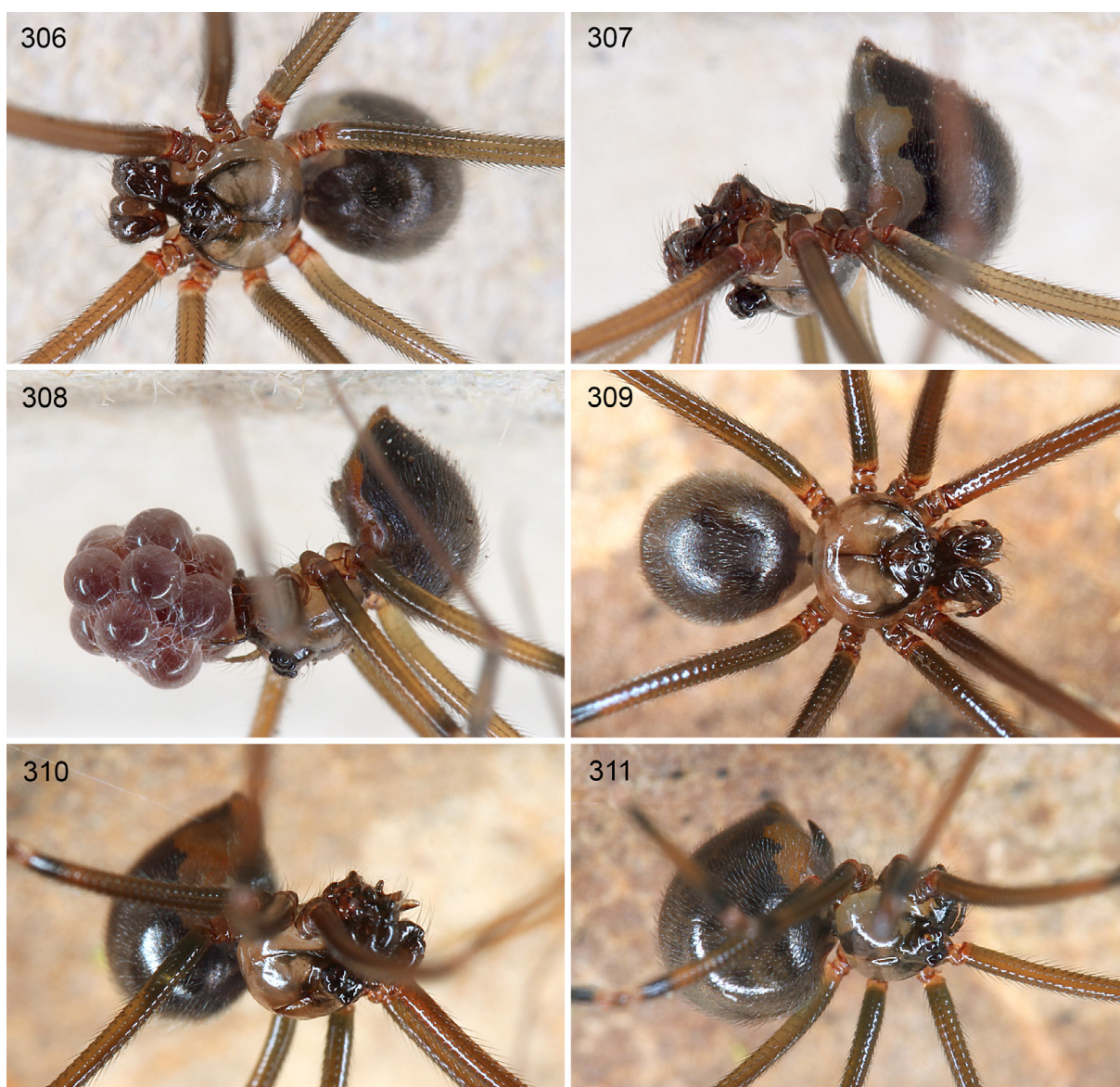
COLOR (in ethanol). Carapace pale gray, darker brown frontally including ocular area and clypeus, lateral dark bands in anterior part only, median dark mark with radiating lines; sternum dark brown; legs light brown, with darker rings on femora subdistally and on tibiae proximally and subdistally, femora and tibiae with light tips; abdomen pale bluish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with large brown mark in gonopore area, brown book lung covers, and bluish marks in front of and behind gonopore; without ventral or dorsal anterior brown plates.

BODY. Habitus as in Figs 306–307. Ocular area distinctly raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly without groove, not inflated. Clypeus unmodified. Sternum wider than long (0.84/0.68). Abdomen slightly elongated and pointed at spinnerets.

CHELICERAE. As in Figs 318–319, with pair of strong pointed frontal processes, tips slightly diverging.

PALPS. Proximal segments as in *M. discrepantis* (González-Sponga, 2003) comb. nov. (cf. Figs 321–322); coxa with strong retrolateral apophysis, trochanter with rounded ventral process, femur proximally with retrolateral process, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 312–314) proximally simple, without retrolateral process, small dorsal processes, distally with two distinctive flat elements; genital bulb (Figs 315–317) with distinctive ventral and dorsal sclerites on embolar division, with slender prolateral pointed process.

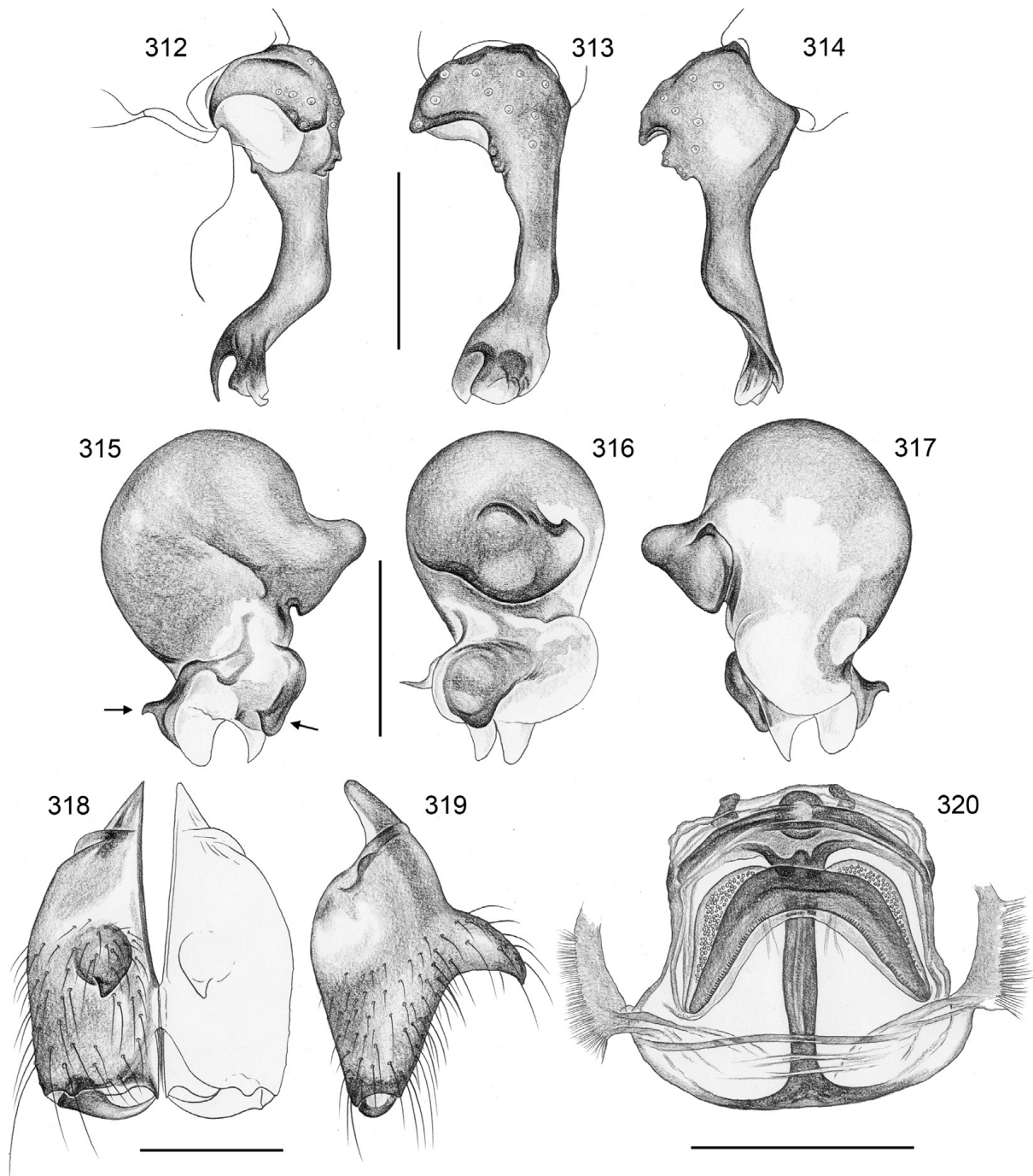
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly distinct. Coxa 4 not modified.



Figs 306–311. *Mecolaesthus* Simon, 1893; live specimens. **306–308.** *M. piedras* Huber sp. nov.; male and female with egg sac from Mérida, Las Piedras. **309–311.** *M. discrepantis* (González-Sponga, 2003); male and female from Trujillo, Laguna Negra.

Female

In general similar to male (Fig. 308). Tibia 1 missing. Epigynum (Fig. 331) longer than wide, widening anteriorly, posterior margin strongly sclerotized, internal sclerites partly visible in uncleared specimens. Internal genitalia (Figs 320, 332–333) with strong median sclerite on ventral wall of uterus externus



Figs 312–320. *Mecolaesthus piedras* Huber sp. nov.; from Mérida, Las Piedras (type locality; ZFMK Ar 21897). **312–314.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **315–317.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrows: distinctive ventral and dorsal sclerites on embolar division of genital bulb). **318–319.** Male chelicerae, frontal and lateral views. **320.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

(not on epigynal plate), pore plates on distinctively curved sclerite, with small round anterior median receptacle.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1042).

Natural history

The two specimens were collected from holes in the ground near an almost dried up stream in a small forest remnant.

Mecolaesthus discrepantis (González-Sponga, 2003) comb. nov.

Figs 309–311, 321–330, 334–337, 1042

Queliceria discrepantis González-Sponga, 2003: 98, figs 4a–j (♂♀).

Diagnosis

Easily distinguished from known congeners by armature of male chelicerae (Fig. 329; pair of large frontal processes, each with subdistal ventral branch) and epigynum with pair of large pointed posterior processes (Figs 334–337); also by two distinctive elements distally on procurus (Figs 323–325) and genital bulb with distinctive prolateral distal apophysis and membranous distal elements (Figs 326–328).

Type material

VENEZUELA – **Trujillo** • 3 ♂♂, 4 ♀♀, and 3 juvs (+ 3 ♀♀, misidentified) types (see Notes below), MIZA 105754 (MAGS 1383), Boconó, Laguna Negra [approximately 9.305° N, 70.177° W], 28 Feb. 1993 (A.R. Delgado, M.A. González S.); examined.

New record

VENEZUELA – **Trujillo** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21898), and 3 ♀♀ in pure ethanol, ZFMK (Ven18-206), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Notes

The original description mentions 1 ♂ holotype (MAGS 1383a) and 1 ♀, 6 juvs paratypes (MAGS 1383b), i.e., eight specimens. However, the MIZA has only one vial numbered “1383” (i.e., the holotype is not separated) and the vial contains 13 specimens: 3 ♂♂, 7 ♀♀, 3 juvs. Since there is no doubt about the identity of this species there is no need for a lectotype, and the type specimens are treated as ‘types’. Three females in the type vial are misidentified *Canaima loca* Huber sp. nov.

The coordinates in the original description are wrong, i.e., ~15 km SW of Laguna Negra. Figures 4i–j in the original publication show the *female* abdomen (contrary to the legend of this figure).

Redescription

Male (ZFMK Ar 21898)

MEASUREMENTS. Total body length 2.9, carapace width 1.3. Distance PME–PME 120 µm; diameter PME 115 µm; distance PME–ALE 100 µm; diameter AME 30 µm; distance AME–AME 15 µm. Leg 1: 23.2 (5.2+0.4+5.5+10.1+2.0), tibia 2: 3.3, tibia 3: 2.5, tibia 4: 3.1; tibia 1–4 diameters: 135 µm, 150 µm, 165 µm, 160 µm; tibia 1 L/d: 41.

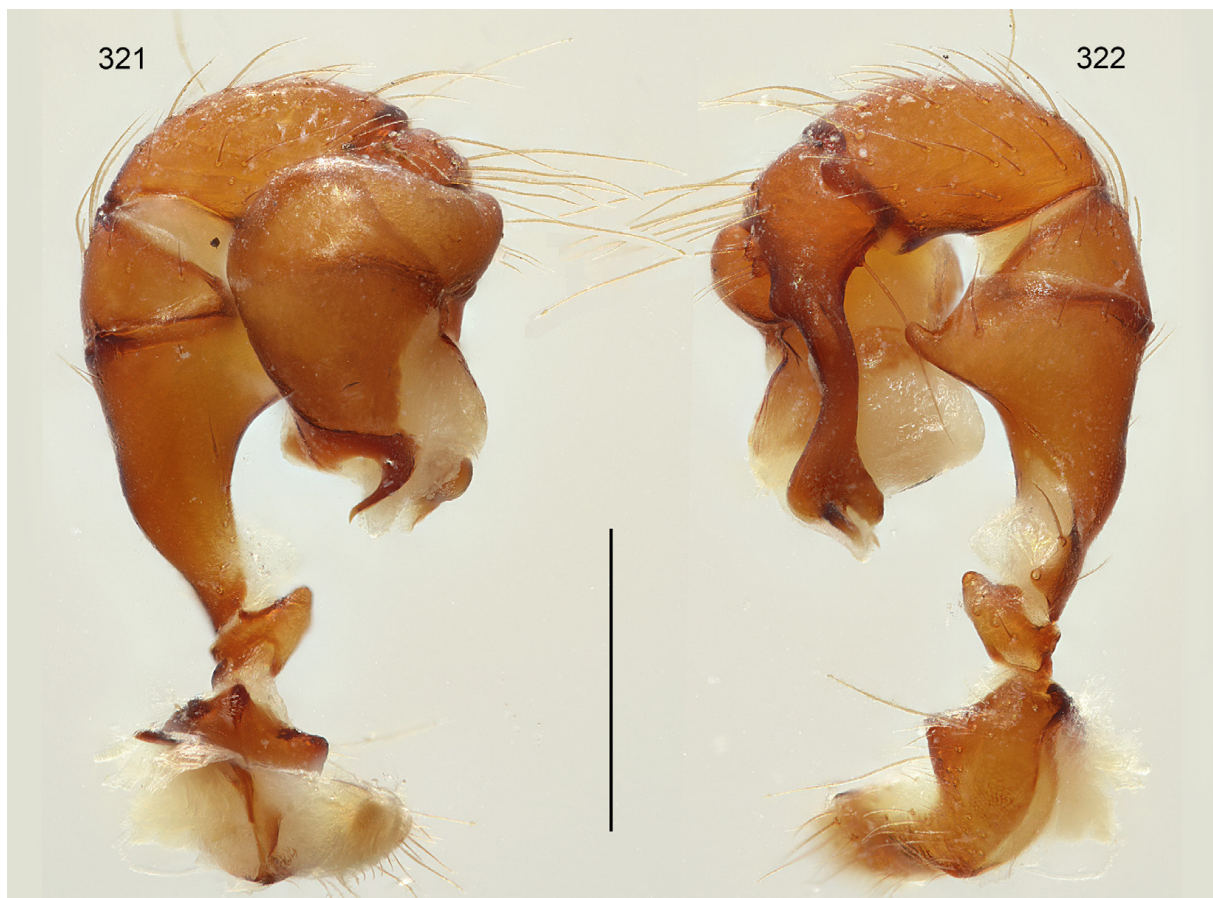
COLOR (in ethanol). Carapace ochre, darker brown frontally including ocular area and clypeus; sternum dark brown; legs ochre to light brown, with darker rings on femora subdistally and on tibiae proximally and subdistally, femora and tibiae with light tips; abdomen pale bluish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area, brown book lung covers, and bluish mark behind gonopore.

BODY. Habitus as in Figs 309–310. Ocular area distinctly raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.88/0.60). Abdomen slightly elongated and pointed at spinnerets.

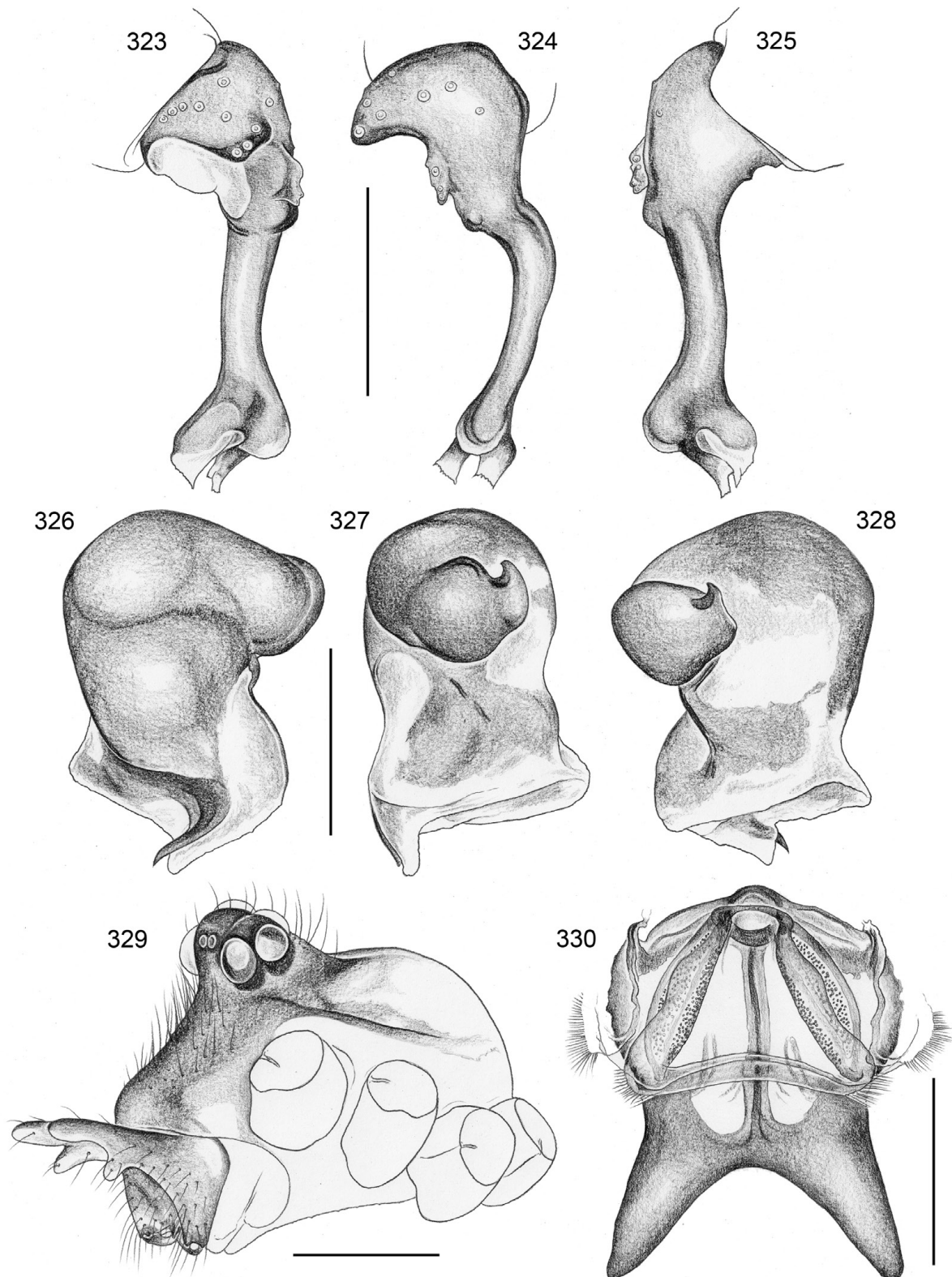
CHELICERAE. As in Fig. 329, with pair of large frontal apophyses, each with subdistal ventral branch; processes dark on dorsal side, whitish on ventral side.

PALPS. As in Figs 321–322; coxa with strong retrolateral apophysis, trochanter with rounded ventral process, femur proximally with retrolateral process, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 323–325) proximally very simple, distally with two distinctive elements; genital bulb (Figs 326–328) large, with distinctive prolateral distal apophysis and membranous distal elements.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~30 pseudosegments, mostly distinct.



Figs 321–322. *Mecolaesthus discrepantis* (González-Sponga, 2003); type from Trujillo, Laguna Negra (MIZA 105754; MAGS 1383); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 323–330. *Mecolaesthus discrepantis* (González-Sponga, 2003); from Trujillo, Laguna Negra (type locality; ZFMK Ar 21898). **323–325.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **326–328.** Left genital bulb, prolateral, dorsal, and retrolateral views. **329.** Male prosoma, lateral view. **330.** Cleared female genitalia, dorsal view. Scale lines: 323–328, 330=0.3 mm; 329=0.5 mm.

Male (variation)

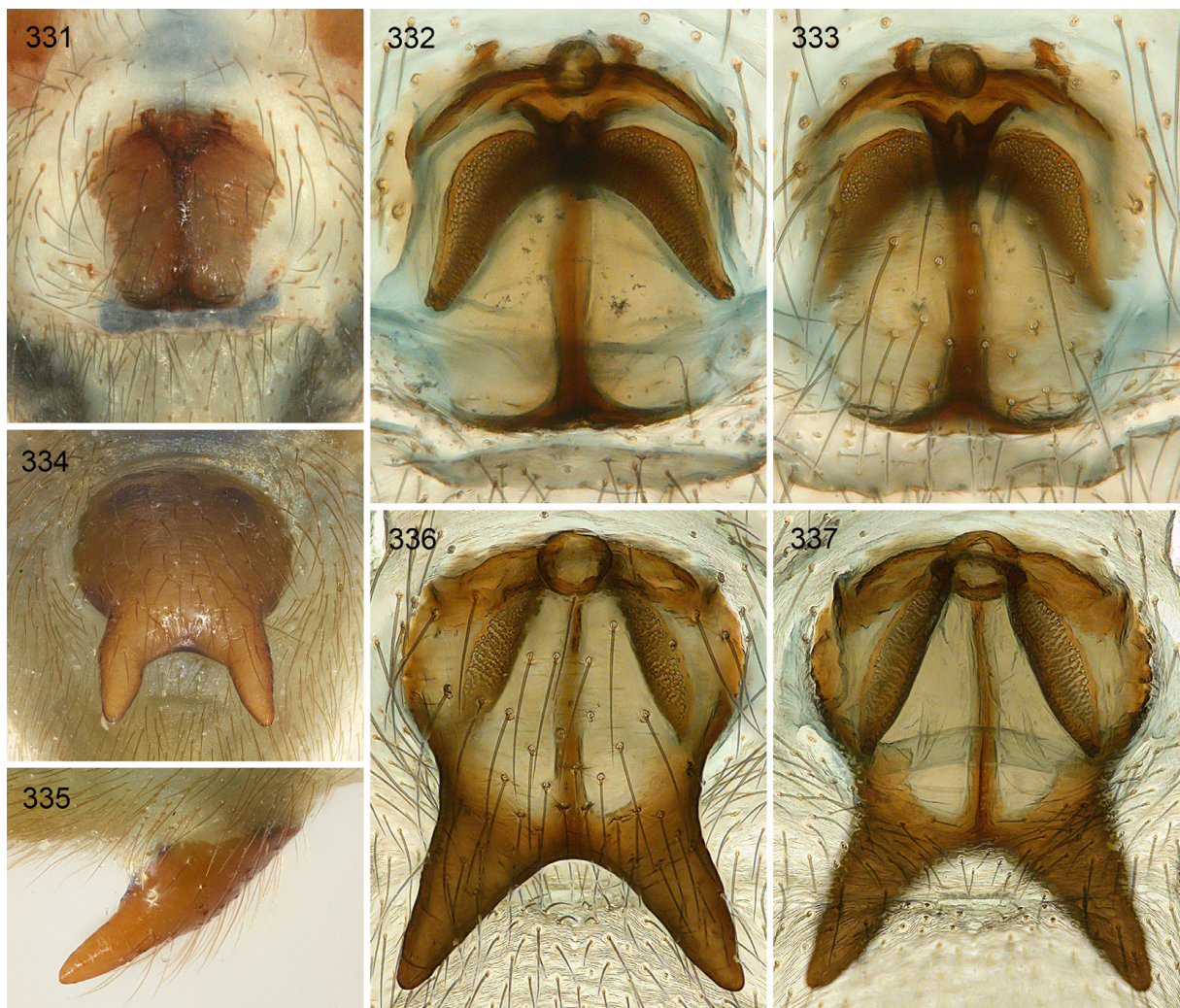
Tibia 1 in one other measured male: 5.5.

Female

In general similar to male (Fig. 311). Tibia 1 in two females (newly collected specimens): 3.9, 4.1. Epigynum large, heavily sclerotized, with pair of large pointed posterior processes; angle between processes slightly variable (compare Figs 334 and 336). Internal genitalia (Figs 330, 336–337) with pair of anterior sclerites extending towards lateral, median receptacle, pair of large pore plates converging anteriorly and tilted into almost vertical position, and narrow median sclerite connecting anterior structures with posterior processes.

Distribution

Known from type locality only, in Venezuela, Trujillo (Fig. 1042).



Figs 331–337. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **331–333.** *M. piedras* Huber sp. nov.; from Mérida, Las Piedras (type locality; ZFMK Ar 21897). **334–337.** *M. discrepantis* (González-Sponga, 2003); from Trujillo, Laguna Negra (type locality; epigyna: MIZA 105754 / MAGS 1383; cleared female genitalia: ZFMK Ar 21898).

Natural history

In the original description, González-Sponga (2003) mentions the underside of petioles of dead palm leaves as microhabitat of this species. We found only one female in this microhabitat. All other specimens were collected from small webs at the bases of sedges (Cyperaceae) in the forest, very close to the ground.

Mecolaesthus grandis (González-Sponga, 2009)
Figs 338–340, 346–355, 367, 373–375, 1043

Nasuta grandis González-Sponga, 2009: 6, figs 3a–j (♂♀).

Mecolaesthus grandis – Huber *et al.* 2014a: 417.

Diagnosis

Distinguished from most congeners [except *M. multidenticulatus* (González-Sponga, 2003) and *M. tuberculosus* (González-Sponga, 2009)] by armature of male chelicerae (Fig. 354; pair of large frontal processes curved downwards and set with ~5 modified hairs each, and two small modified hairs more distally on weakly sclerotized area), by shape of main bulbal process (Figs 351–353; two large sclerites visible in prolateral view), by transparent process on procurus distally bent toward retrolateral (Fig. 349), and by shape of epigynum (Fig. 373; short but wide plate, pair of anterior internal sclerites extending towards lateral); from the very similar *M. multidenticulatus* and *M. tuberculosus* by male cheliceral apophysis with conspicuous projection towards median (arrow in Fig. 367); from *M. tuberculosus* also by absence of conspicuous lateral process on male cheliceral apophysis and by larger distance between pair of rounded sclerites in female internal genitalia (arrows in Fig. 374).

Type material

VENEZUELA – **La Guaira** • ♂ holotype, 4 ♀♀, 7 juvs (see Notes below), MIZA 105663 (MAGS 1215), Hacienda El Limón (10.475° N, 67.283° W), 1200 m a.s.l. (see Notes below), 27 Oct. 1990 (A.R. Delgado de G., M.A. González-S.); examined.

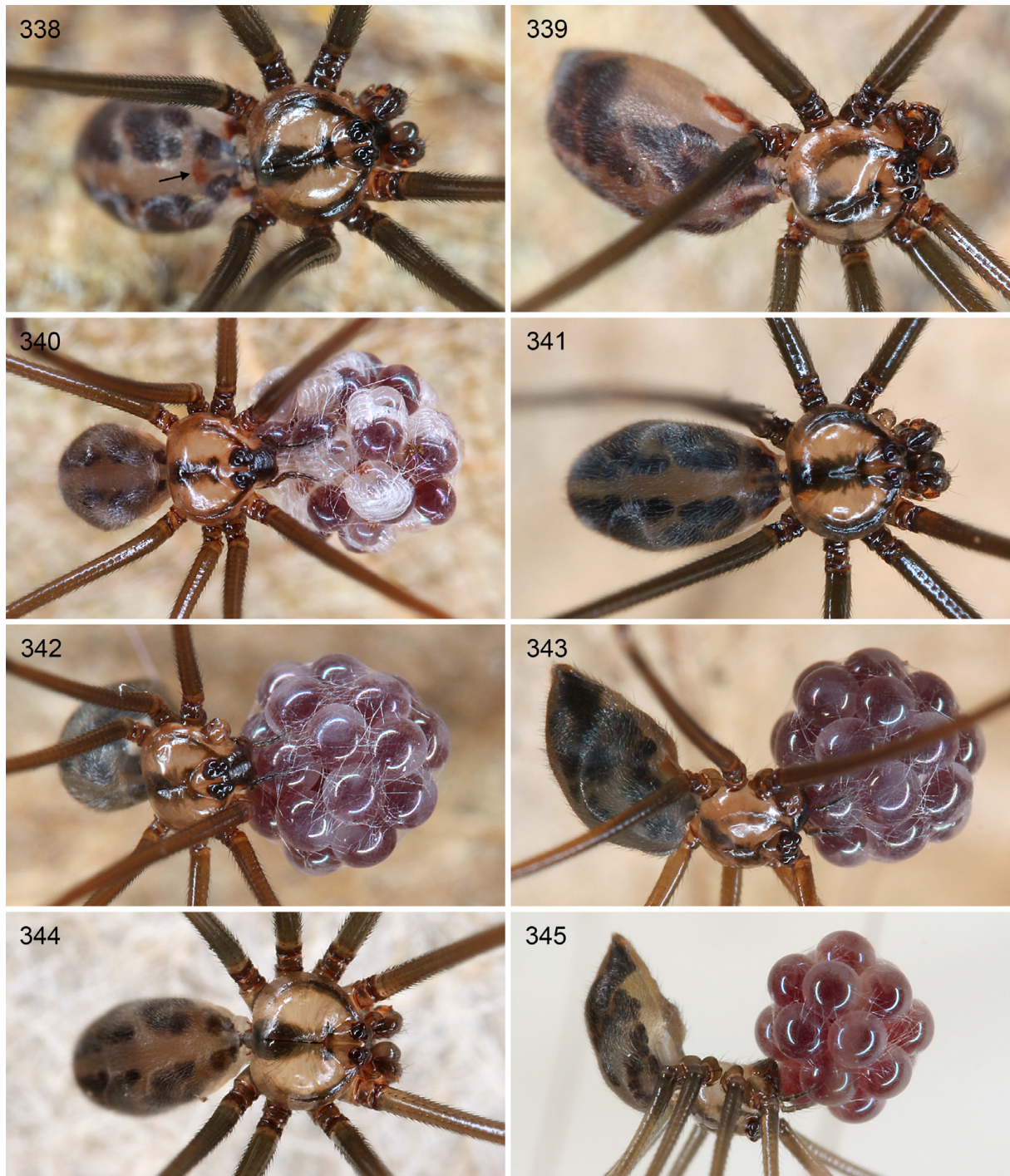
New records

VENEZUELA – **La Guaira** • 3 ♂♂, 5 ♀♀, ZFMK (Ar 21899–21900), and 3 ♀♀, 2 juvs in pure ethanol, ZFMK (Ven18-155), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, ZFMK (Ar 21901), and 1 ♀ in pure ethanol, ZFMK (Ven20-173), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Aragua** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21902), and 2 ♂♂, 2 juvs in pure ethanol, ZFMK (Ven02/100-32), Henri Pittier National Park, “site 2” (10.350° N, 67.692° W), ~1000 m a.s.l., 11 Dec. 2002 (B.A. Huber) • 1 ♂, 1 ♀, ZFMK (Ar 21903), Henri Pittier National Park, “site 3” (10.360° N, 67.720° W), ~730 m a.s.l., 11 Dec. 2002 (B.A. Huber).

Notes

The original description mentions 11 specimens: 1 ♂ holotype, 1 ♀ paratype, eight (non-type) females, and 1 juvenile. The 12 specimens listed under ‘Type material’ above are all joined in one vial, so it is no longer possible to distinguish the female paratype from the other females.

The original coordinates are probably accurate or close to accurate. We were not able to exactly identify the original collecting site. Our 2020 collecting site above (“El Limón, site 2”) is within 300 m from the coordinates in the original publication.



Figs 338–345. *Mecolaesthus* Simon, 1893; live specimens. **338–340.** *M. grandis* (González-Sponga, 2009); male and female with egg sac from La Guaira, El Limón (arrow: brown plate above pedicel opposing carapace inflation). **341–343.** *M. multidenticulatus* (González-Sponga, 2003); male and female with egg sac from Falcón, Curimagua. **344–345.** *M. tuberculatus* (González-Sponga, 2003); male and female with egg sac from Yaracuy, Yurubi National Park.

Redescription

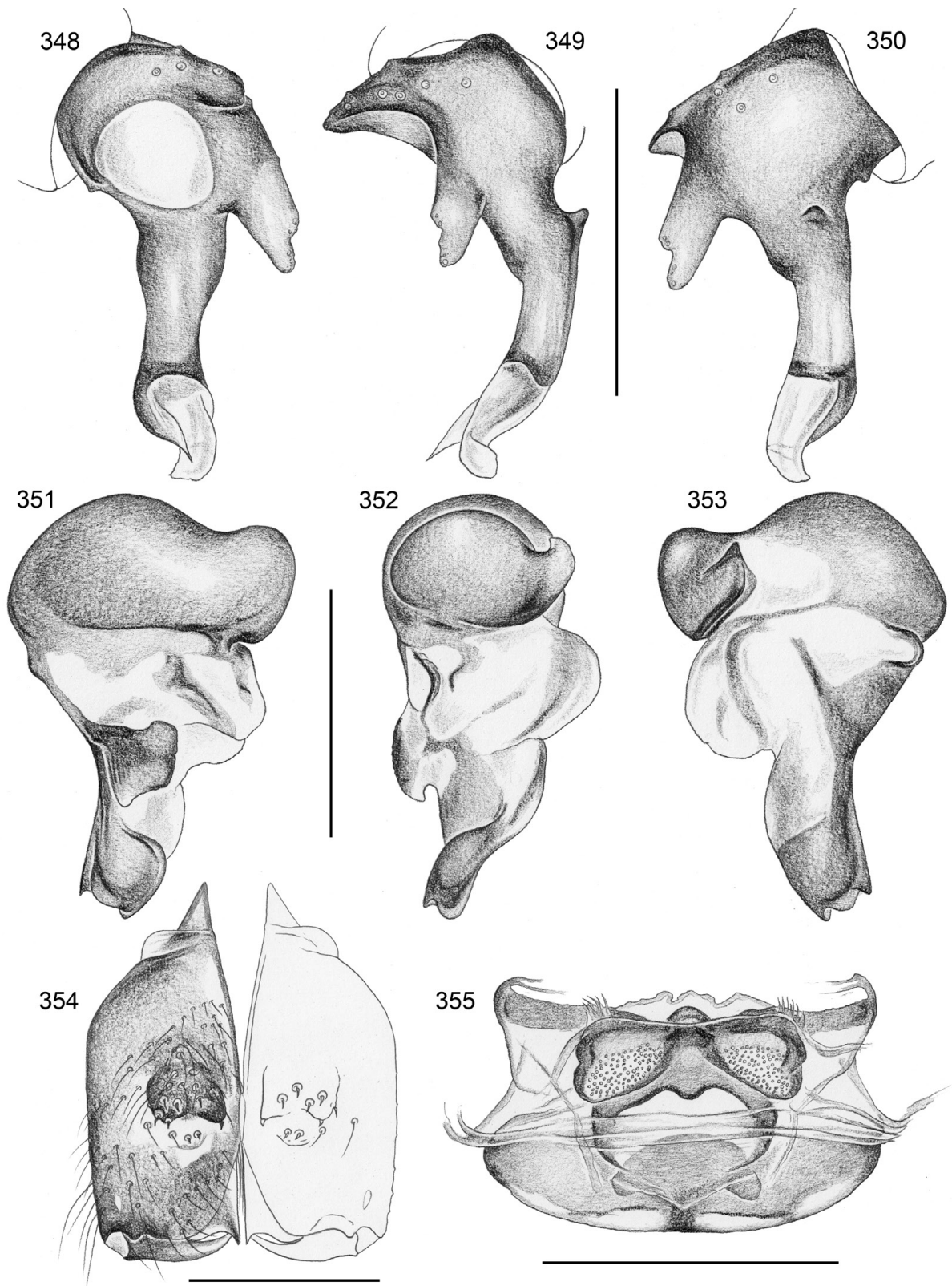
Male (ZFMK Ar 21899)

MEASUREMENTS. Total body length 4.3, carapace width 1.5. Distance PME–PME 100 μ m; diameter PME 120 μ m; distance PME–ALE 100 μ m; diameter AME 30 μ m; distance AME–AME 20 μ m. Leg 1: 37.9 (9.0+0.6+9.3+16.6+2.4), tibia 2: 5.8, tibia 3: 4.7, tibia 4: 5.1; tibia 1–4 diameters: 120 μ m, 155 μ m, 180 μ m, 160 μ m; tibia 1 L/d: 78.

COLOR (in ethanol). Carapace pale ochre-gray with wide median and lateral marginal dark bands, ocular area mostly not darkened, clypeus with wide dark brown mark; sternum pale ochre-grey; legs ochre to light brown, with barely visible darker rings on femora subdistally and on tibiae proximally and subdistally, femora and tibiae with light tips; abdomen pale bluish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area, brown book lung covers, pair of lateral anterior brown plates opposing fourth coxae, and large bluish marks in front and behind gonopore; with light brown plate above pedicel opposing carapace inflation (arrow in Fig. 338).



Figs 346–347. *Mecolaesthus grandis* (González-Sponga, 2009); holotype from La Guaira, Hacienda El Limón (MIZA 105663; MAGS 1215); left male pedipalp, prolateral and retrolateral views. Scale line: 0.3 mm.



Figs 348–355. *Mecolaesthus grandis* (González-Sponga, 2009); from La Guaira, El Limón (type locality; ZFMK Ar 21899–21900). **348–350.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **351–353.** Left genital bulb, prolateral, dorsal, and retrolateral views. **354.** Male chelicerae, frontal view. **355.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

BODY. Habitus as in Figs 338–339. Ocular area distinctly raised. Carapace anteriorly with distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.95/0.75). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Figs 354 and 367, with pair of large frontal apophyses set with ~5 slightly hooked short hairs, with two additional short hairs on whitish area below main apophysis, and small unsclerotized ridge.

PALPS. AS in Figs 346–347; coxa with retrolateral apophysis, trochanter with very small ventral process, femur proximally with large retrolateral process, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 348–350) at basis with bifid dorsal process with branches of unequal length, with small retrolateral apophysis, distally with pair of membranous processes: retrolateral process distally bent towards retrolateral, prolateral process with pointed tip; genital bulb complex (Figs 351–353), distally mostly membranous/whitish but with distinctive distal sclerites (very similar *M. multidenticulatus*).

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3.5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in nine males: 8.7–10.5 (mean 9.5); most males with light to dark brown book lung covers, but anterior brown plates opposing fourth coxae indistinct or absent in some males, unrelated to body size. Brown plate above pedicel also absent in some males.

Female

In general similar to male (Fig. 340), also with variably dark book lung covers but never with brown plates opposing fourth coxae and never with brown plate above pedicel. Tibia 1 in nine females: 5.7–6.6 (mean 6.3). Epigynum (Fig. 373) small, light brown, wider than long, internal sclerites partly visible in uncleared specimens (possibly indistinguishable from *M. multidenticulatus* and *M. tuberculosus*). Internal genitalia (Figs 355, 374–375) with pair of anterior sclerites extending towards lateral, median receptacle, pair of pore plates tilted into almost vertical position, and pair of round ventral sclerites (arrows in Fig. 374).

Distribution

Known from several localities in the Venezuelan states La Guaira and Aragua (Fig. 1043).

Natural history

González-Sponga (2009) found the species under decaying logs. The new specimens from El Limón were collected in a forest fragment from strongly curved webs close to the ground. When disturbed, the spiders ran away rather than shaking or vibrating their bodies.

Mecolaesthus multidenticulatus (González-Sponga, 2003)

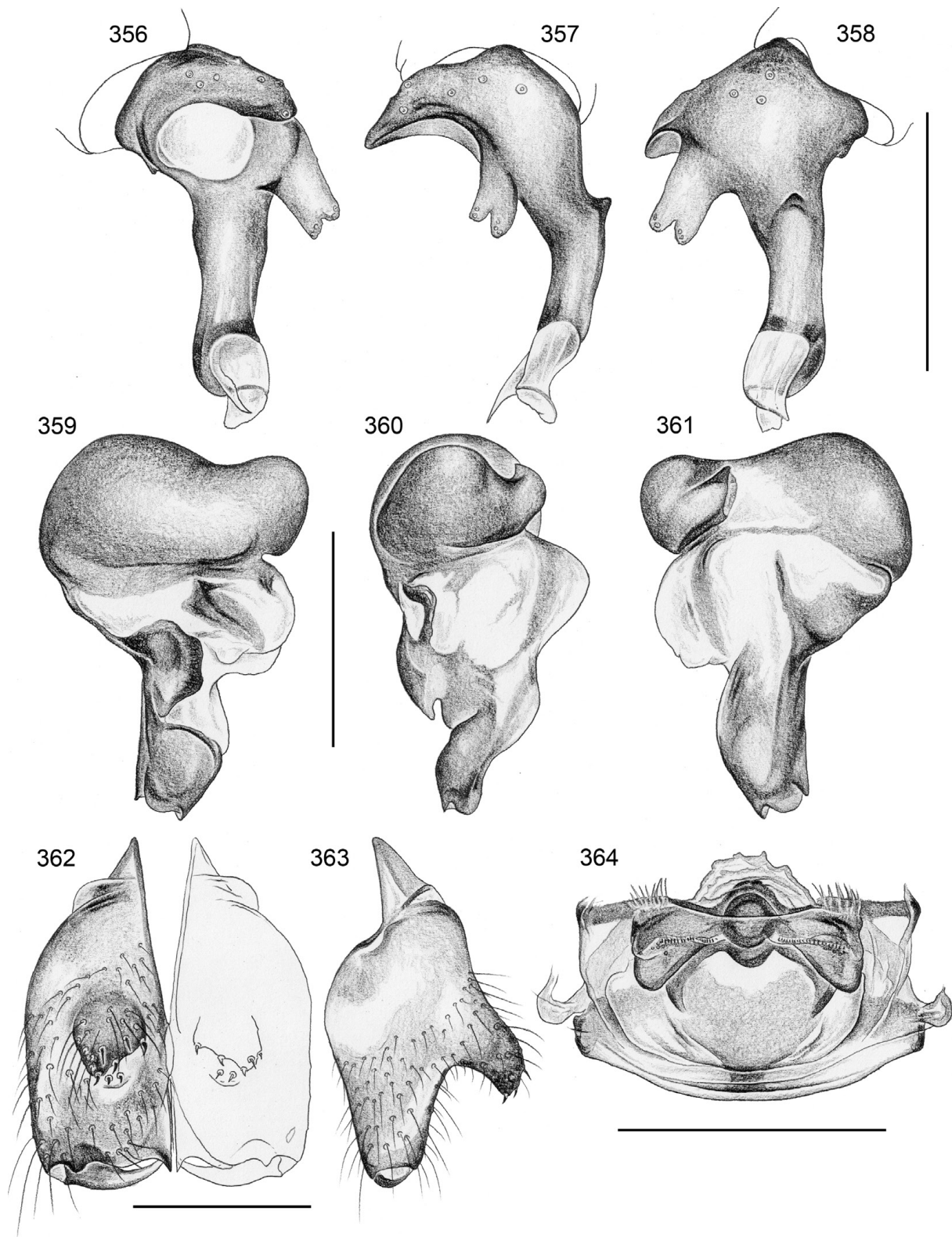
Figs 341–343, 356–364, 368, 376–378, 1043

Falconia multidenticulata González-Sponga, 2003: 96, figs 3a–j (♂♀).

Ayomania multidenticulata – González-Sponga 2005: 108.

Venezuela multidenticulata – Koçak & Kemal 2008: 4.

Mecolaesthus multidenticulatus – Huber *et al.* 2014a: 417.



Figs 356–364. *Mecolaesthus multidenticulatus* (González-Sponga, 2003); from Falcón, Curimagua (type locality; ZFMK Ar 21904–05). **356–358.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **359–361.** Left genital bulb, prolateral, dorsal, and retrolateral views. **362–363.** Male chelicerae, frontal and lateral views. **364.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Diagnosis

Distinguished from most congeners [except *M. grandis* (González-Sponga, 2009) and *M. tuberculosus* (González-Sponga, 2009)] by armature of male chelicerae (Figs 362–363, 368; pair of large frontal processes curved downwards and set with 3–4 modified hairs each, and two small modified hairs more distally on weakly sclerotized area), by shape of main bulbal process (Figs 359–361; two large sclerites visible in prolateral view), by transparent process on procurus distally bent toward retrolateral (Fig. 357), and by shape of epigynum (Fig. 376; short but wide plate, pair of anterior internal sclerites extending towards lateral); from the very similar *M. grandis* and *M. tuberculosus* by male cheliceral apophyses: without conspicuous projection towards median (Fig. 368; in contrast to *M. grandis*) and without conspicuous lateral process (Fig. 362; in contrast to *M. tuberculosus*). From *M. tuberculosus* also by larger distance between pair of rounded sclerites in female internal genitalia (arrows in Fig. 377).

Type material

VENEZUELA – **Falcón** • ♂ holotype, 1 ♀, 1 juv. paratypes, Curimagua, Sierra de San Luis (11.172° N, 69.668° W), “550 m s.n.m.” (see Notes below), 10 Sep. 1998 (A.R. Delgado, M.A. González-S.); not examined (the types were on loan to another researcher).

New record

VENEZUELA – **Falcón** • 11 ♂♂, 12 ♀♀, ZFMK (Ar 21904–05), and 3 ♂♂, 6 ♀♀ in pure ethanol, ZFMK (Ven18-195), Sierra de San Luis, E Curimagua (11.1748° N, 69.6273° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Notes

The type series of this species has been on loan to another researcher and could not be examined. The newly collected material below originates from near Curimagua in the Sierra de San Luis, but it is not clear how far the new collecting site is from the actual type locality. The coordinates in the original publication are very precise and 4.5 km W of our new collecting site, but judging from other coordinates in González-Sponga’s papers they may not be accurate. The spot identified by the coordinates lies at ~1050 m a.s.l., not at 550 m as indicated in the original publication.

There seems to be no reasonable doubt that the new material below is correctly identified. However, contrary to González-Sponga’s (2003) statement, the male palp of this species has two trichobothria, as usual in Pholcidae, not one (the single known pholcid species with only one palpal trichobothrium is *Arenita fazendinha* Huber & Carvalho, 2019).

Several measurements in the original publication are obviously wrong (e.g., male femur 3 longer than femur 4; female femur 1 shorter than femur 2; female tibia 1 shorter than tibia 2; female metatarsus 2 shorter than tibia 2).

Redescription

Male (ZFMK Ar 21904)

MEASUREMENTS. Total body length 3.6, carapace width 1.3. Distance PME–PME 90 µm; diameter PME 110 µm; distance PME–ALE 90 µm; diameter AME 20 µm; distance AME–AME 20 µm. Leg 1: 38.0 (9.0+0.5+9.1+16.9+2.5), tibia 2: 5.8, tibia 3: 4.5, tibia 4: 5.0; tibia 1–4 diameters: 110 µm, 130 µm, 150 µm, 140 µm; tibia 1 L/d: 83.

COLOR (in ethanol). Carapace pale ochre-gray with wide median and lateral marginal dark bands, ocular area mostly not darkened, clypeus with wide dark brown mark; sternum pale ochre-grey; legs ochre to light brown, with indistinct darker rings on femora subdistally and on tibiae proximally and subdistally, femora and tibiae with light tips; abdomen pale bluish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area, brown book lung covers, pair of lateral

anterior brown plates opposing fourth coxae, and large bluish marks in front and behind gonopore; with barely visible dark mark above pedicel opposing carapace inflation.

BODY. Habitus as in Fig. 341. Ocular area distinctly raised. Carapace anteriorly with distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.95/0.60). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Figs 362–363, 368, with pair of large frontal apophyses set with 3–4 slightly hooked short hairs and ~2 straight strong hairs in addition to regular setae, with two additional short hairs on whitish area below main apophyses, and small unsclerotized ridge.

PALPS. In general as in *M. grandis* (cf. Figs 346–347); coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral process, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 356–358) at basis with bifid dorsal process with branches of equal length, with small retrolateral apophysis, distally with pair of membranous processes: retrolateral process bent towards retrolateral, with slightly sclerotized ring-shaped element, prolateral process with pointed tip; genital bulb complex (Figs 359–361), distally mostly membranous/whitish but with distinctive distal sclerites (very similar *M. grandis*).

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in ten males: 7.5–9.5 (mean 8.9); most males with light to dark brown book lung covers, but anterior brown plates opposing fourth coxae absent in some males, unrelated to body size. Brown plate above pedicel also absent in some males. Sternum in some males with light brown lateral marginal bands. Rings on legs in some males barely visible.

Female

In general similar to male (Figs 342–343), also with variably dark book lung covers but never with brown plates opposing fourth coxae and never with brown plate above pedicel. Tibia 1 in nine females: 5.7–6.8 (mean 6.2). Epigynum (Fig. 376) small, light brown, wider than long, internal sclerites partly visible in uncleared specimens (very similar *M. grandis* and *M. tuberculosus*). Internal genitalia (Figs 364, 377–378) with pair of anterior sclerites extending towards lateral, median receptacle, pair of pore plates tilted into almost vertical position, and pair of round ventral sclerites.

Distribution

Known from Sierra de San Luis only, in Venezuela, Falcón (Fig. 1043).

Natural history

This species was abundant at the bases of trees (often in close proximity to *Mesabolivar eberhardi* Huber, 2000), and in protected spaces close to the ground. The domed sheet webs were mostly very strongly curved. According to González-Sponga (2003), the type specimens were collected in crevices of rotting tree trunks.

Mecolaesthus tuberculosus (González-Sponga, 2003)
Figs 344–345, 365–366, 369–372, 379–381, 1043

Maimire tuberculosa González-Sponga, 2009: 4, figs 3a–j (♂♀).

Mecolaesthus tuberculosus – Huber *et al.* 2014a: 417.

Diagnosis

Distinguished from most congeners [except *M. grandis* (González-Sponga, 2009) and *M. multidenticulatus* (González-Sponga, 2003)] by armature of male chelicerae (Figs 369–371; pair of large frontal processes curved downwards and set with 3–4 modified hairs each, and 1–2 small modified hairs more distally on weakly sclerotized area), by shape of main bulbal process (two large sclerites visible in prolateral view; cf. *M. grandis* and *M. multidenticulatus*, Figs 351, 359), by transparent process on procurus distally bent toward retrolateral (cf. *M. grandis* and *M. multidenticulatus*, Figs 349, 357), and by shape of epigynum (Fig. 379; short but wide plate, pair of anterior internal sclerites extending towards lateral); from the very similar *M. grandis* and *M. multidenticulatus* by male cheliceral apophysis with conspicuous lateral process (arrow in Fig. 369) and bifid in lateral view (Fig. 371), and by smaller distance between pair of rounded sclerites in female internal genitalia (arrows in Fig. 380); from *M. grandis* also by male cheliceral apophysis without conspicuous projection towards median (Fig. 370).

Type material

VENEZUELA – **Yaracuy** • 4 ♂♂, 1 ♀, 3 juvs types (see Notes below), MIZA 105694 (MAGS 111), Maimire (see Notes below), 15 Apr. 1981 (N. & T. Quiroz); examined.

New records

VENEZUELA – **Yaracuy** • 15 ♂♂, 7 ♀♀, ZFMK (Ar 21906–07), and 1 ♂, 4 ♀♀ in pure ethanol, ZFMK (Ven18-154), Yurubi National Park (10.4913° N, 68.6564° W), 140 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, 1 ♀, ZFMK (Ar 21908), Guaquira, ‘site 1’ (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 3 ♂♂, 3 ♀♀, ZFMK (Ar 21909), Guaquira, ‘site 2’ (10.2807° N, 68.6530° W), 150 m a.s.l., forest along stream, 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Assigned tentatively

VENEZUELA – **Falcón** • 1 ♂, 1 ♀, 1 juv., ZFMK (Ar 21910), and 1 juv. in pure ethanol, ZFMK (Ven18-148), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.)

Notes

The type series includes 4 ♂♂, 1 ♀, 3 juvs rather than 2 ♂♂, 4 ♀♀, 1 juv. as in the original description. Since all specimens are joined in one vial (contrary to the original description), it is not clear which of the four males is the holotype. Thus, all specimens are simply treated as types. The four males appear identical, so there is currently no need to designate a lectotype.

We were not able to exactly identify the type locality. The longitude in the original publication (11.017° W) is obviously wrong, and the file card gives an altitude of 1200 m while the original description says 1100 m. The collecting site was probably approximately at 10.205° N, 69.016° W. In 2020, the site was not accessible due to security reasons. Our two new sites in Yaracuy are ~40 km ENE and ~50 km NE of the type locality, respectively.

Redescription**Male** (ZFMK Ar 21906)

MEASUREMENTS. Total body length 3.4, carapace width 1.2. Distance PME–PME 90 µm; diameter PME 110 µm; distance PME–ALE 80 µm; diameter AME 30 µm; distance AME–AME 20 µm. Leg 1: 42.2 (9.9+0.5+10.1+19.4+2.3), tibia 2: 6.0, tibia 3: 4.5, tibia 4: 5.4; tibia 1–4 diameters: 100 µm, 120 µm, 130 µm, 125 µm; tibia 1 L/d: 101.

COLOR (in ethanol). Carapace ochre-yellow with wide median and lateral marginal dark bands not connected posteriorly, ocular area mostly not darkened, clypeus with wide dark brown mark; sternum pale ochre-yellow, labium brown; legs ochre to light brown, with indistinct darker rings on femora subdistally and on tibiae proximally, femora and tibiae with light tips; abdomen pale greenish-gray, dorsally and laterally with dark bluish marks, ventrally with light brown mark in gonopore area, dark brown book lung covers, pair of lateral anterior brown plates opposing fourth coxae, and large bluish median marks in front and behind gonopore; with small light brown mark above pedicel opposing carapace inflation.

BODY. Habitus as in Fig. 344. Ocular area distinctly raised. Carapace anteriorly with distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.86/0.60). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Figs 369–371, with pair of large frontal apophyses, each with prominent lateral process; each apophysis with ~3 slightly hooked short hairs and 2–3 straight strong hairs in addition to

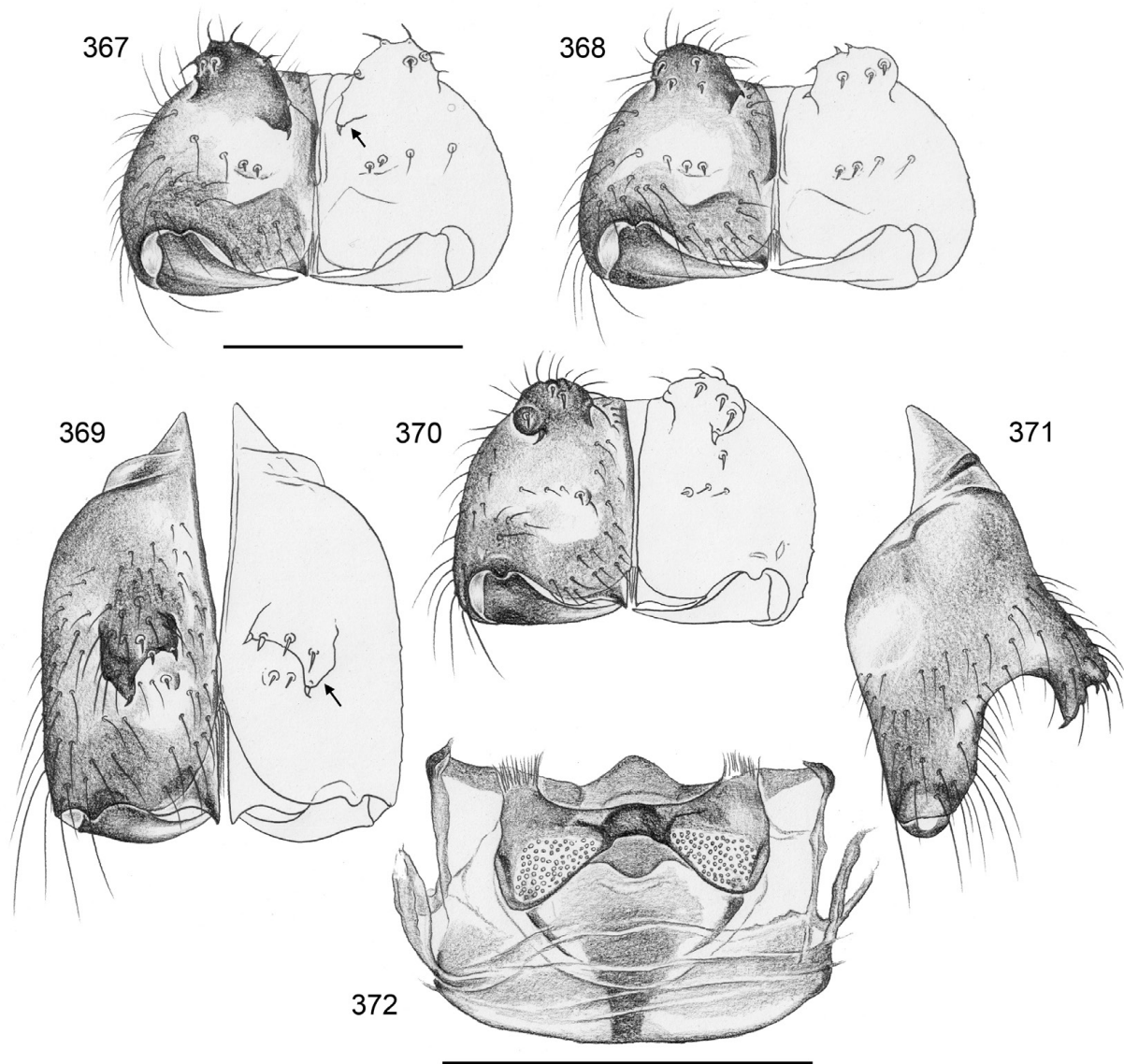


Figs 365–366. *Mecolaesthus tuberculosus* (González-Sponga, 2003); type from Yaracuy, Maimire (MIZA 105694; MAGS 111); left male pedipalp, prolateral and retrolateral views. Scale line: 0.3 mm.

regular setae, with 1–2 additional short hairs on whitish area below each apophysis, and tiny weakly sclerotized ridge.

PALPS. Apparently indistinguishable from *M. grandis* and *M. multidenticulatus* (cf. Figs 346–353, 356–361). The simultaneous comparison of two specimens from each species suggested that the variation within localities is comparable to the variation among species.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 2%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly distinct.



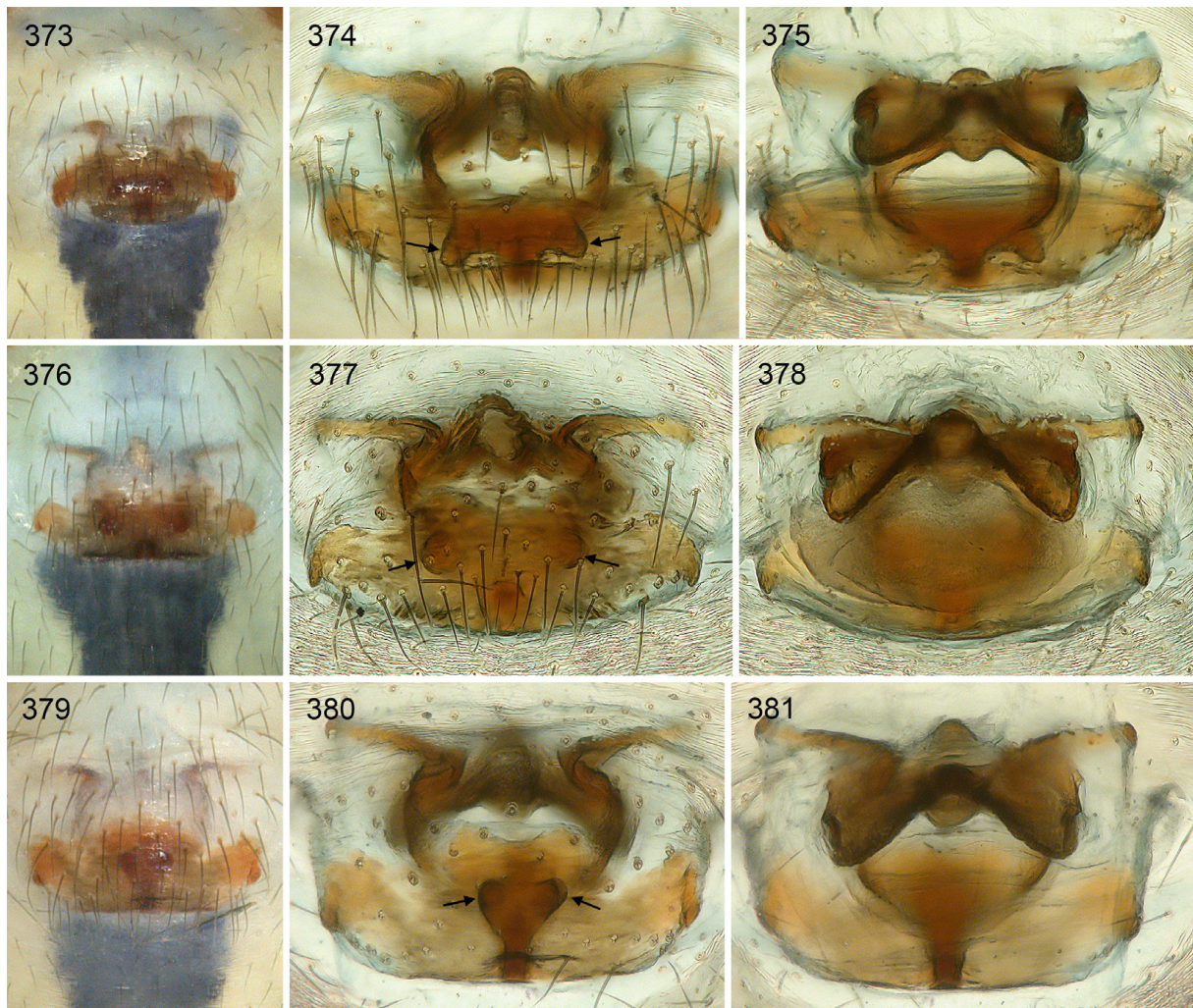
Figs 367–372. *Mecolaesthus* Simon, 1893; male chelicerae, distal, frontal and lateral views; cleared female genitalia, dorsal view. **367.** *M. grandis* (González-Sponga, 2009); from La Guaira, El Limón (type locality; ZFMK Ar 21899) (arrow: distinctive projection towards median). **368.** *M. multidenticulatus* (González-Sponga, 2003); from Falcón, Curimagua (type locality; ZFMK Ar 21904). **369–372.** *M. tuberculatus* (González-Sponga, 2003); from Yaracuy, Yurubi National Park (ZFMK Ar 21906–07) (arrow: distinctive lateral process). Scale lines: 0.3 mm (all chelicerae at same scale).

Male (variation)

Tibia 1 in 15 males from Yaracuy: 8.3–10.2 (mean 9.4); book-lung covers in some males barely darkened; some males without or with indistinct pair of anterior ventral abdominal plates and without plate above pedicel; carapace in some males not or barely inflated. In the male from Santa Cruz de La Alegría the lateral process on the cheliceral apophysis is less distinct. Specimens from this locality are therefore assigned tentatively; tibia 1: 9.1.

Female

In general similar to male (Fig. 345), but never with brown plates opposing fourth coxae, never with brown plate above pedicel, and carapace never inflated. Tibia 1 in eight females: 5.0–6.6 (mean 5.9). Epigynum and internal genitalia (Figs 372, 379–381) very similar to those of *M. grandis* and *M. multidenticulatus* but pair of internal rounded sclerites closer together (arrows in Fig. 380). Internal sclerites variably visible in uncleared specimens. The small differences between Figs 355, 364, and 372 may in part result from preparation artifacts.



Figs 373–381. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views (arrows: internal rounded sclerites). **373–375.** *M. grandis* (González-Sponga, 2009); from La Guaira, El Limón (type locality; ZFMK Ar 21900). **376–378.** *M. multidenticulatus* (González-Sponga, 2003); from Falcón, Curimagua (type locality; ZFMK Ar 21905). **379–381.** *M. tuberculosus* (González-Sponga, 2003); from Yaracuy, Yurubi National Park (ZFMK Ar 21907).

Distribution

Known from three localities in the Venezuelan state Yaracuy, and from specimens assigned tentatively from Falcón (Fig. 1043).

Natural history

Both in Yurubi National Park and in Santa Cruz de La Alegría this species shared the microhabitat with *Mesabolivar eberhardi* Huber, 2000, i.e., large spaces among rocks and trunks near the ground. The spiders hang in their relatively large webs that were not particularly hidden and vibrated strongly when disturbed.

Mecolaesthus niquitanus (González-Sponga, 2011)
Figs 382–383, 388–398, 418–420, 1043

Moraia niquitanus González-Sponga, 2011b: 43, pl. 5, figs 1–10 (♂♀).

Mecolaesthus niquitanus – Huber *et al.* 2014a: 417.

Diagnosis

Distinguished from congeners by armature of male chelicerae (Figs 396–397; pair of large frontal processes narrowing towards tip and set with 2–4 modified hairs each, and pair of sclerotized bulging plates slightly more distally with 3–5 modified hairs each); also by shape of distal bulbal process (distinctively curved towards prolateral in dorsal view, Fig. 394), by shape of epigynum (Fig. 418; large whitish area with small brown plate narrowing posteriorly and pair of lateral sclerites), and by internal female genitalia (Figs 398, 419–420; wing-shaped lateral sclerites and rounded pore plates); from the similar *M. longipes* Huber sp. nov. also by much shorter legs (male tibia 1 length ~6–8 versus ~10–12 in *M. longipes* Huber sp. nov.).

Type material

VENEZUELA – **Trujillo** • 3 ♂♂, 5 ♀♀, types (see Notes below), MIZA 105788 (MAGS 1289), Niquitao (9.117° N, 70.398° W), 2000 m a.s.l. (see Notes below), 16 Feb. 1991 (A.R. Delgado de G., E. González S., A. González S., M.A. González S.); examined.

Other material examined

VENEZUELA – **Trujillo** • 6 ♂♂, 10 ♀♀, ZFMK (Ar 21911–12), and 3 ♀♀ in pure ethanol, ZFMK (Ven18-213), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♀♀, 3 juvs, MIZA 105580 (MAGS 1414), Dtto. Boconó, Guaramacal National Park, Laguna de los Cedros [9.245° N, 70.220° W, 1840 m a.s.l.], 13 Sep. 1996 (A.R. Delgado, J.A. González D., M.A. González). – **Lara** • 6 ♂♂, 12 ♀♀, ZFMK (Ar 21913–14), and 2 ♂♂, 2 ♀♀ in pure ethanol, ZFMK (Ven02/100-60), Yacambú National Park, Sendero Ecológico (9.709° N, 69.580° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi).

Notes

Contrary to the original description, the holotype is not physically separated from the paratypes; the specimens above are thus simply treated as types. The three males appear indistinguishable, so there is currently no need to designate a lectotype.

The coordinates in the original publication are probably accurate or close to accurate but this point is at about 1870 m a.s.l. rather than at 2000 m a.s.l. The actual collecting site was possibly on the mountain

slope SE of Niquitao, at approximately 9.104° N, 70.394° W. The two closest new localities above (Laguna Negra, Laguna de los Cedros) are at approximately 32 km and 24 km, respectively, NE of the type locality.

Redescription

Male (ZFMK, Ar 21911)

MEASUREMENTS. Total body length 4.8, carapace width 1.6. Distance PME–PME 100 µm; diameter PME 130 µm; distance PME–ALE 100 µm; distance AME–AME 25 µm; diameter AME 25 µm. Leg 1: 32.5 (7.6+0.6+7.7+14.1+2.5), tibia 2: 4.6, tibia 3: 3.6, tibia 4: 4.2; tibia 1 L/d: 55; tibia 1-4 diameters: 140 µm, 190 µm, 220 µm, 240 µm.



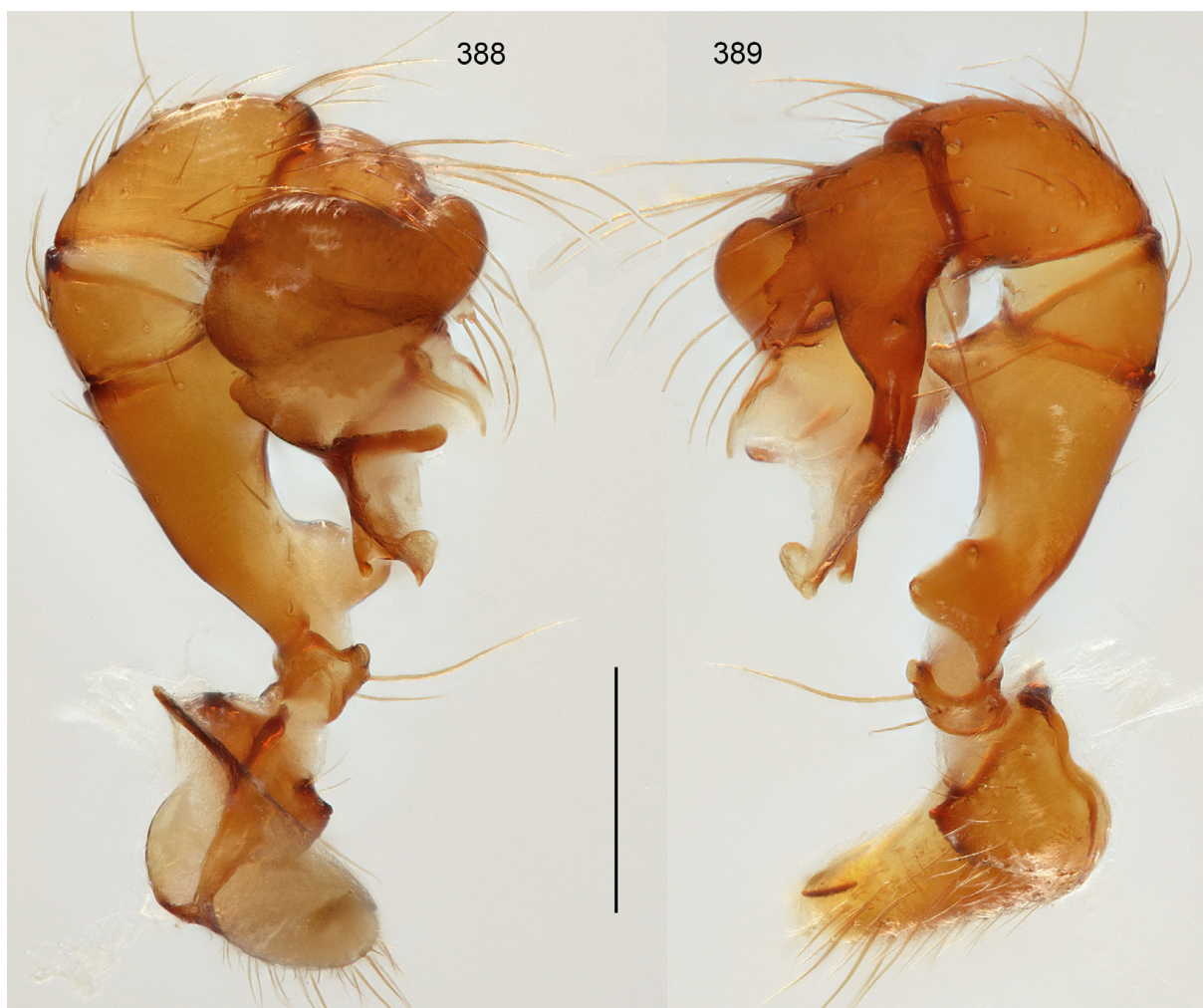
Figs 382–387. *Mecolaesthus* Simon, 1893; live specimens. **382–383.** *M. niquitanus* (González-Sponga, 2011); male and female with egg sac from Trujillo, Laguna Negra. **384–385.** *M. longipes* Huber sp. nov.; male and female from Mérida, Mucuy. **386–387.** *M. bienmesabe* Huber sp. nov.; male and female from Lara, between Barquisimeto and Boconó.

COLOR (in ethanol). Carapace pale gray with wide median dark band including ocular area and pair of wide lateral marginal dark bands; clypeus with wide median brown band; sternum ochre-yellow, anteriorly light brown; legs ochre, with darker rings on femora subdistally and tibiae proximally; abdomen pale greenish gray, dorsally and laterally with many dark bluish marks, anteriorly above pedicel with brown plate (opposing inflation of carapace), ventrally with small dark mark in gonopore area, dark brown book lung covers, brown plate anteriorly close to pedicel, and bluish internal marks in front and behind gonopore area.

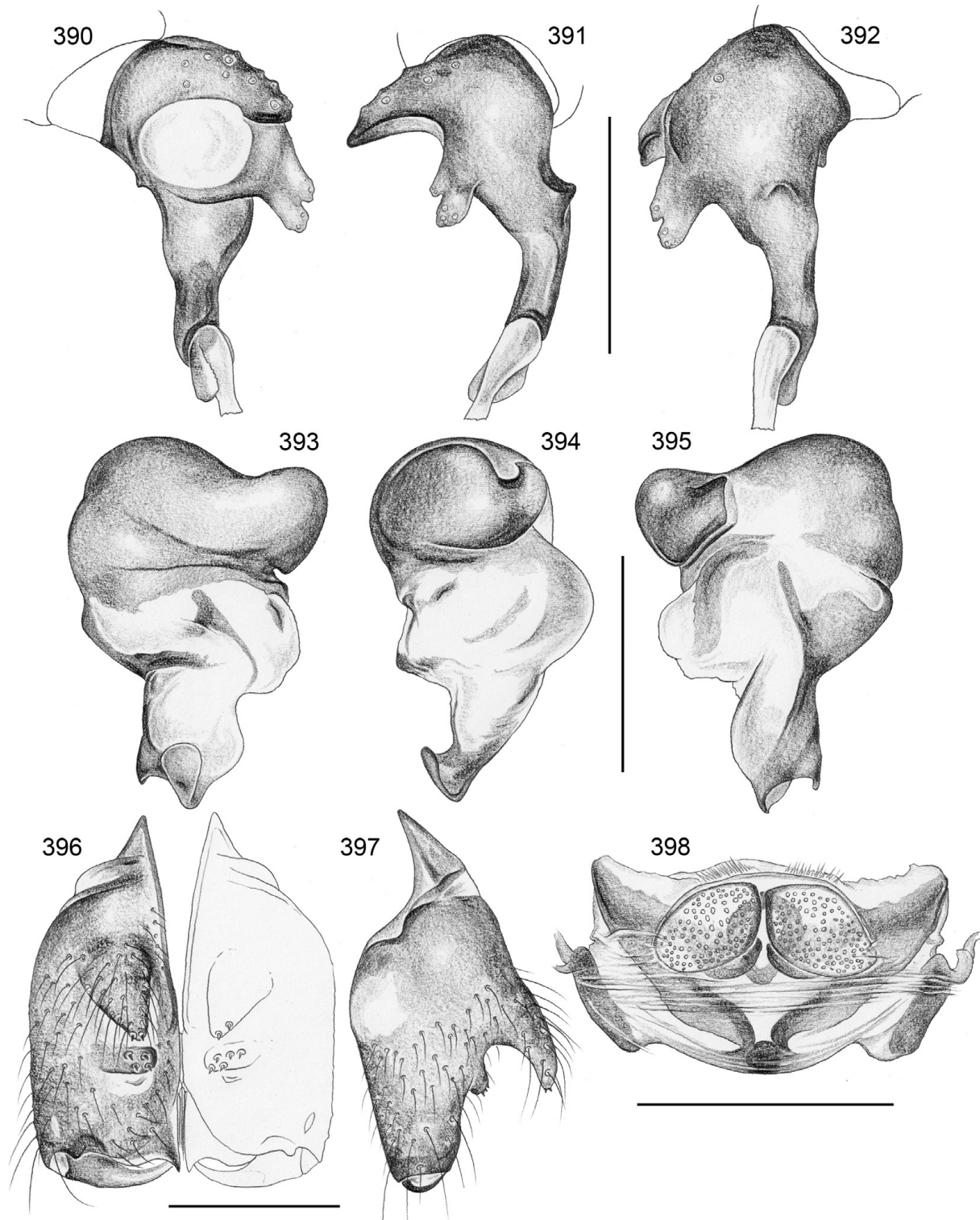
BODY. Habitus as in Fig. 382. Ocular area moderately raised. Carapace inflated posteriorly, with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.90/0.80), unmodified. Abdomen slightly elongate, pointed at spinnerets.

CHELICERAE. As in Figs 396–397, with pair of large frontal processes curved downwards and set with 2–4 modified hairs each, and pair of bulging plates slightly more distally with 3–5 modified hairs each.

PALPS. As in Figs 388–389; coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral apophysis, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 390–392) at basis with



Figs 388–389. *Mecolaesthus niquitanus* (González-Sponga, 2011); type from Trujillo, Niquitao (MIZA 105788; MAGS 1289); left male pedipalp, prolateral and retrolateral views. Scale line: 0.3 mm.



Figs 390–398. *Mecolaesthus niquitanus* (González-Sponga, 2011); from Trujillo, Laguna Negra (ZFMK Ar 21911–12). **390–392.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **393–395.** Left genital bulb, prolateral, dorsal, and retrolateral views. **396–397.** Male chelicerae, frontal and lateral views. **398.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

bifid dorsal process, with small retrolateral apophysis, distally with pair of processes, dorsal process membranous, ventral process slightly sclerotized; genital bulb complex (Figs 393–395), distally mostly membranous/whitish, with distinctive distal sclerite curved towards prolateral.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~40 pseudosegments, mostly very distinct.

Male (variation)

Tibia 1 in 11 males: 6.4–7.7 (mean 7.1); anterior dark plates ventrally and dorsally on abdomen sometimes indistinct or barely visible. Large anterior cheliceral apophyses in males from Laguna Negra slightly wider at basis than in types and in males from Yacambú, both in frontal and lateral views; otherwise apparently indistinguishable.

Female

In general similar to male (Fig. 383), never with anterior brown plates ventrally and dorsally on abdomen; tibia 1 also in females thinner than other tibiae (e.g., in one female measured: tibiae 1 and 4 diameters: 110 µm, 140 µm). Tibia 1 in 21 females: 4.5–5.3 (mean 4.9). Epigynum (Fig. 418) large whitish area with distinctive pair of lateral sclerites and small brown plate narrowing posteriorly to narrow median sclerite. Internal genitalia (Figs 398, 419–420), with wing-shaped lateral sclerites and large oval pore plates.

Distribution

Known from four localities in the Venezuelan states Trujillo and Lara (Fig. 1043).

Natural history

At Laguna Negra, this species was abundant; it was found in relatively small, strongly curved domed webs close to the ground, usually in small sheltered spaces under logs or large dead leaves on the ground.

Mecolaesthus longipes Huber sp. nov.

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Figs 384–385, 399–409, 421–423, 1043

Diagnosis

Distinguished from congeners by combination of: armature of male chelicerae (Figs 407–408; pair of large, rounded frontal processes set with many hairs, 5–7 of them very short and strong, and 3–4 small modified hairs more distally on weakly sclerotized area; very similar to *M. bienmesabe* Huber sp. nov.); by shape of procurus (Figs 401–403; small but distinct retrolateral process; distinctive pair of membranous distal processes, wider than in *M. bienmesabe* Huber sp. nov. and curved); by shapes of distal bulbal sclerites (short and wide median sclerite; arrow in Fig. 404); by epigynum (Fig. 421; large whitish area with small brown plate narrowing posteriorly) and internal female genitalia (Figs 409, 422–423; frame-like sclerite; wing-like anterior sclerites).

Etymology

The species name (Latin: long-legged) refers to the long legs of this species compared with other congeners at the same localities; adjective.

Type material

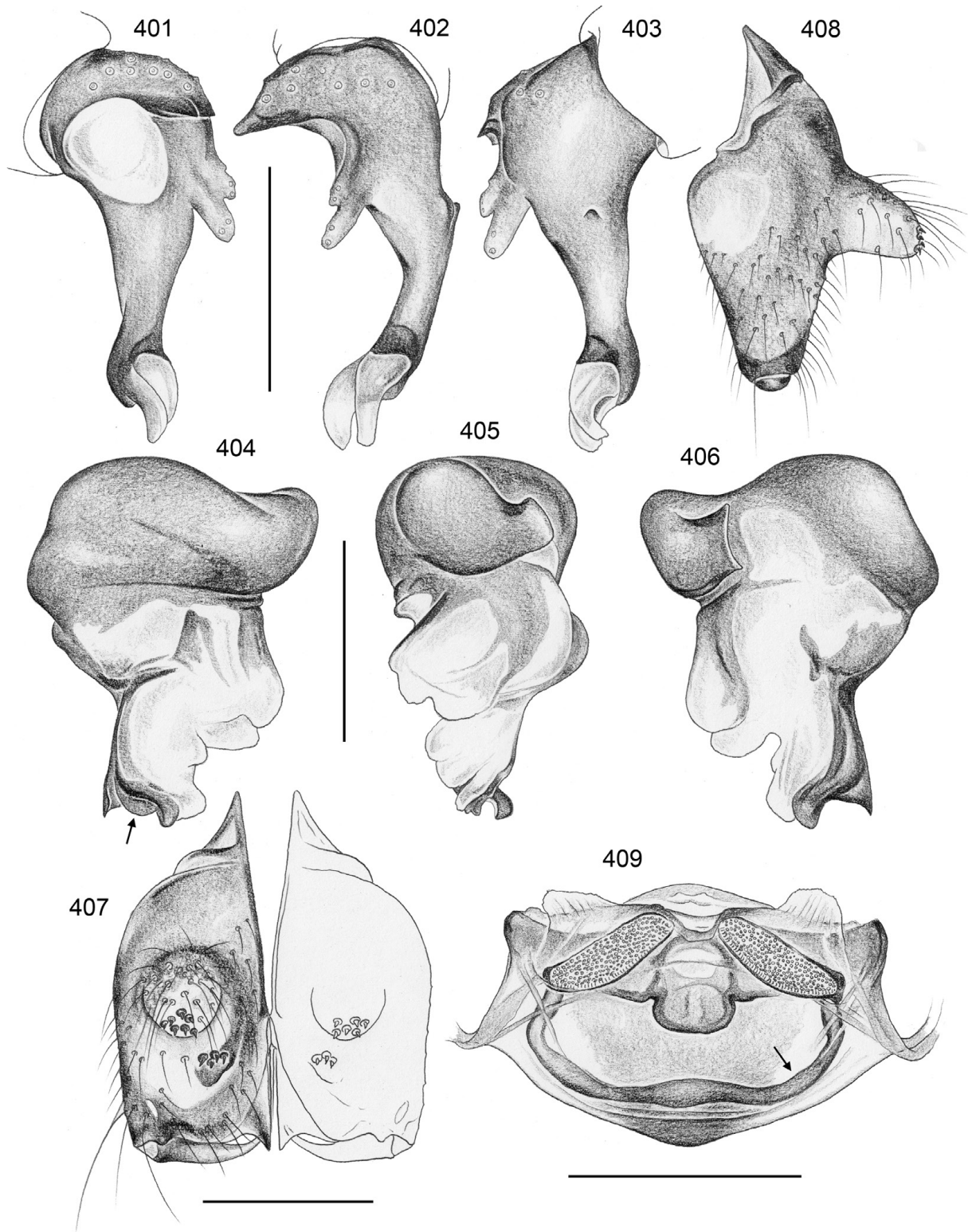
VENEZUELA – **Mérida** • ♂ holotype, ZFMK (Ar 21915), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), ~2400–2600 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Mérida** • 3 ♂♂, 1 ♀, and 1 ♀ abdomen, ZFMK (Ar 21916), and 1 ♂, 2 ♀♀ (1 ♀ abdomen transferred to ZFMK, Ar 21916) in pure ethanol, ZFMK (Ven18-224), same collection data as for holotype • 1 ♀, ZFMK (Ar 21917), and 1 ♂ in pure ethanol, ZFMK (Ven18-231), Monte Zerpa, forest above La Hechicera (between 8.634° N, 71.163° W and 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.) • 1 ♀, ZFMK (Ar 21918), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven18-227), El Valle, cloud forest along river (8.703° N, 71.077° W), 2650 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 5 ♂♂, 6 ♀♀, 1 juv., ZFMK (Ar 21919-20), and 1 ♂, 2 ♀♀ in pure ethanol, ZFMK (Ven20-113), forest near La Carbonera (8.6276° N, 71.3688° W), 2380 m a.s.l., 8 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, 1 ♀, 1 juv., ZFMK (Ar 21921), and 1 ♀, 2 juvs in pure ethanol, ZFMK (Ven20-128), between Tovar and Guaraque (8.2578° N, 71.7184° W), 2490 m a.s.l., forest along stream, 11 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).



Figs 399–400. *Mecolaesthus longipes* Huber sp. nov.; from Mérida, Mucuy (type locality; ZFMK Ar 21916); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 401–409. *Mecolaesthus longipes* Huber sp. nov.; from Mérida, Mucuy (type locality; ZFMK Ar 21916). **401–403.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **404–406.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: median sclerite on bulbal process). **407–408.** Male chelicerae, frontal and lateral views. **409.** Cleared female genitalia, dorsal view (arrow: frame-like sclerite). Scale lines: 0.3 mm.

Description

Male (holotype)

MEASUREMENTS. Total body length 4.7, carapace width 1.8. Distance PME–PME 140 μm ; diameter PME 130 μm ; distance PME–ALE 110 μm ; distance AME–AME 30 μm ; diameter AME 20 μm . Leg 1: 50.5 (12.4+0.5+12.0+22.3+3.3), tibia 2: 7.3, tibia 3: 5.9, tibia 4: 6.8; tibia 1 L/d: 92; tibia 1-4 diameters: 130 μm , 170 μm , 180 μm , 160 μm .

COLOR (in ethanol). Carapace pale gray with wide median dark band including ocular area and pair of wide lateral marginal dark bands; clypeus with wide median brown band; sternum ochre with brown marginal bands; leg 1 brown, legs 2–4 ochre, with very indistinct darker bands on femora subdistally and tibiae proximally; abdomen pale greenish gray, dorsally and laterally with many dark bluish marks, ventrally with small dark mark in gonopore area, dark brown book lung covers, brown plate anteriorly close to pedicel, and bluish internal marks in front and behind gonopore area.

BODY. Habitus as in Fig. 384. Ocular area moderately raised. Carapace slightly inflated posteriorly, with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (1.00/0.85), unmodified. Abdomen slightly elongate, pointed at spinnerets.

CHELICERAE. As in Figs 407–408, with pair of large, partly whitish frontal processes set with 6–7 modified hairs each, and pair of sclerotized plates slightly more distally with 3–4 modified hairs each.

PALPS. As in Figs 399–400; coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral apophysis, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 401–403) at basis with bifid dorsal process, with small retrolateral apophysis, distally with pair of membranous processes; genital bulb complex (Figs 404–406), distally mostly membranous/whitish, with distinctive distal sclerites.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~45 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in nine males (incl. holotype): 10.7–12.3 (mean 11.4); carapace inflation varying from indistinct to moderate; color of sternum variable, sometimes monochromous pale to whitish; anterior plate ventrally on abdomen sometimes absent, indistinct, or divided into two distinct plates.

Female

In general similar to male (Fig. 385) but smaller, carapace never inflated, abdomen never with anterior ventral plate, leg 1 not brown but same color as other legs, dark rings on legs slightly more distinct. Tibia 1 in 12 females: 7.6–8.9 (mean 8.2). Epigynum (Fig. 421) large whitish area with small brown plate narrowing posteriorly. Internal genitalia (Figs 409, 422–423) with distinctive frame-like sclerite, pore plates and median receptacle tilted towards the front.

Distribution

Known from several localities in the Venezuelan state Mérida (Fig. 1043).

Natural history

At Mucuy and Monte Zerpa, this species was found in large sheltered spaces such as hollow tree trunks. Near La Carbonera and between Tovar and Guaraque the large weakly domed webs (diameter ~40 cm) were more exposed, attached to large rocks or tree trunks. When disturbed, the spiders started to vibrate.

Mecolaesthus bienmesabe Huber sp. nov.

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Figs 386–387, 410–417, 424–426, 1043

Diagnosis

Distinguished from congeners by combination of: armature of male chelicerae (Fig. 416; pair of large, rounded frontal processes set with many hairs, 5–7 of them slightly stronger, and 2–3 small modified hairs more distally on weakly sclerotized area; very similar to *M. longipes* Huber sp. nov.); by shape of procurus (Figs 410–412; very indistinct retrolateral process; distinctive pair of membranous distal processes, more slender than in *M. longipes* Huber sp. nov. and straight), by shapes of distal bulbal sclerites (relatively long and slender median sclerite; arrow in Fig. 413); by epigynum (Fig. 424; wider than long trapezoidal to semicircular brown plate), and by internal female genitalia (Figs 417, 425–426; Y-shaped sclerite connected to median posterior sclerite, pore plates on strong sclerite tilted into vertical position, wing-like anterior sclerites).

Etymology

The species name refers to bienmesabe (Spanish: it tastes good to me), a sweet Venezuelan dessert prepared with honey, egg yolk, and coconut; noun in apposition.

Type material

VENEZUELA – Lara • ♂ holotype, ZFMK (Ar 21922), ~5 km SW of Guarico, between Barquisimeto and Boconó (9.5906° N, 69.8343° W), 1370 m a.s.l., 20 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – Lara • 7 ♂♂, 8 ♀♀, ZFMK (Ar 21923–24), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven18-204), same collection data as for holotype • 1 ♂, ZFMK (Ar 21925), Yacambú National Park, Sendero Ecológico (9.708° N, 69.583° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi).

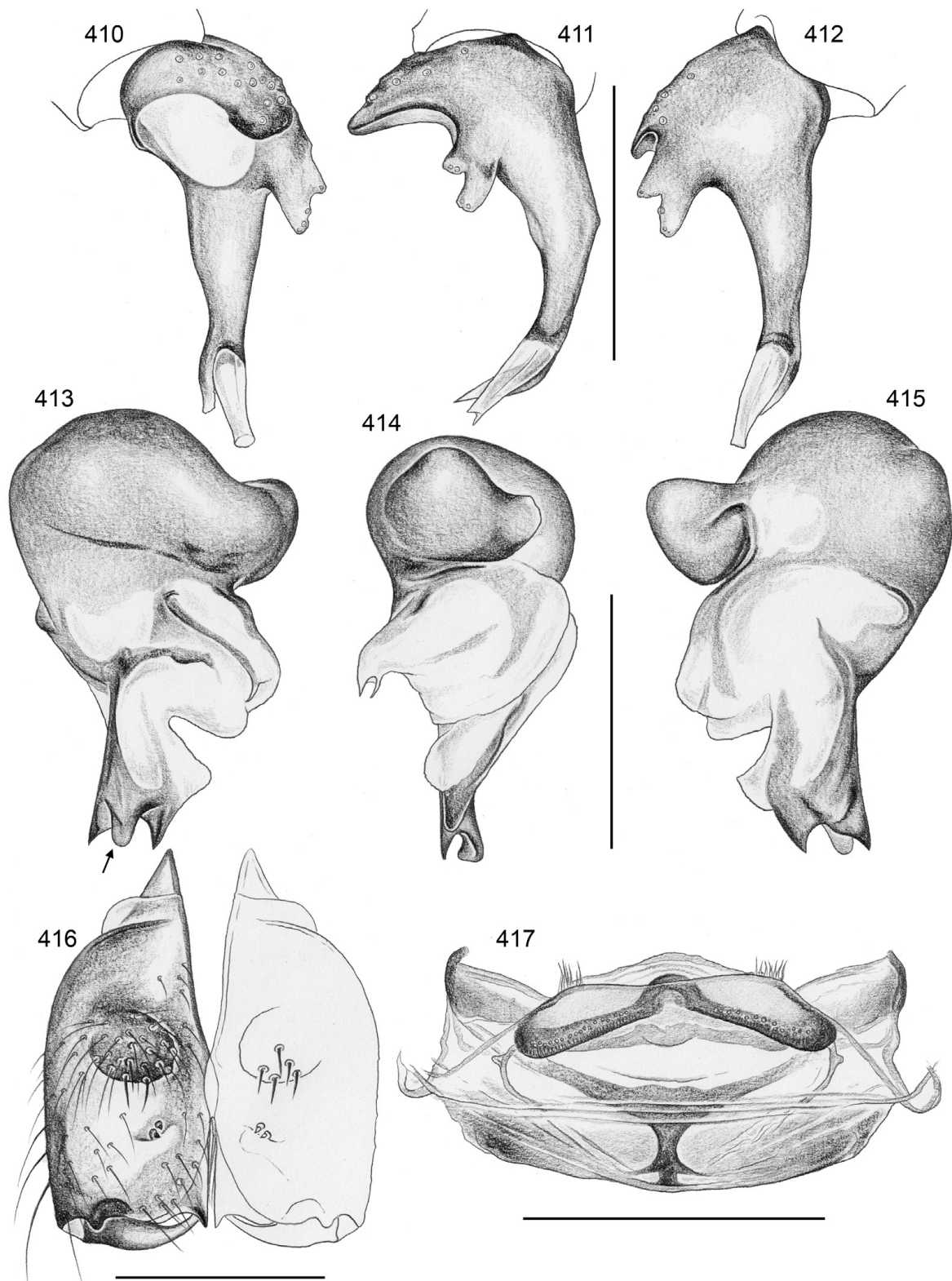
Description

Male (holotype)

MEASUREMENTS. Total body length 3.6, carapace width 1.25. Distance PME–PME 80 µm; diameter PME 130 µm; distance PME–ALE 100 µm; diameter AME 25 µm; distance AME–AME 25 µm. Leg 1: 44.1 (10.3+0.5+10.7+20.1+2.5), tibia 2: 6.3, tibia 3: 4.7, tibia 4: 5.7; tibia 1–4 diameters: 100 µm, 120 µm, 130 µm, 140 µm; tibia 1 L/d: 107.

COLOR (in ethanol). Carapace pale ochre-gray with wide median and lateral marginal dark bands, ocular area medially not darkened, clypeus with wide dark brown mark; sternum pale ochre-yellow; legs ochre to light brown, without darker rings; abdomen pale bluish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area, brown book lung covers, pair of lateral anterior brown plates opposing fourth coxae, and large bluish marks in front and behind gonopore; without dark mark above pedicel.

BODY. Habitus as in Fig. 386. Ocular area distinctly raised. Carapace anteriorly with distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.80/0.60). Abdomen elongated, pointed at spinnerets.



Figs 410–417. *Mecolaesthus bienmesabe* Huber sp. nov.; from Lara, between Barquisimeto and Boconó (type locality; ZFMK Ar 21923–24). **410–412.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **413–415.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: median sclerite on bulbal process). **416.** Male chelicerae, frontal view. **417.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

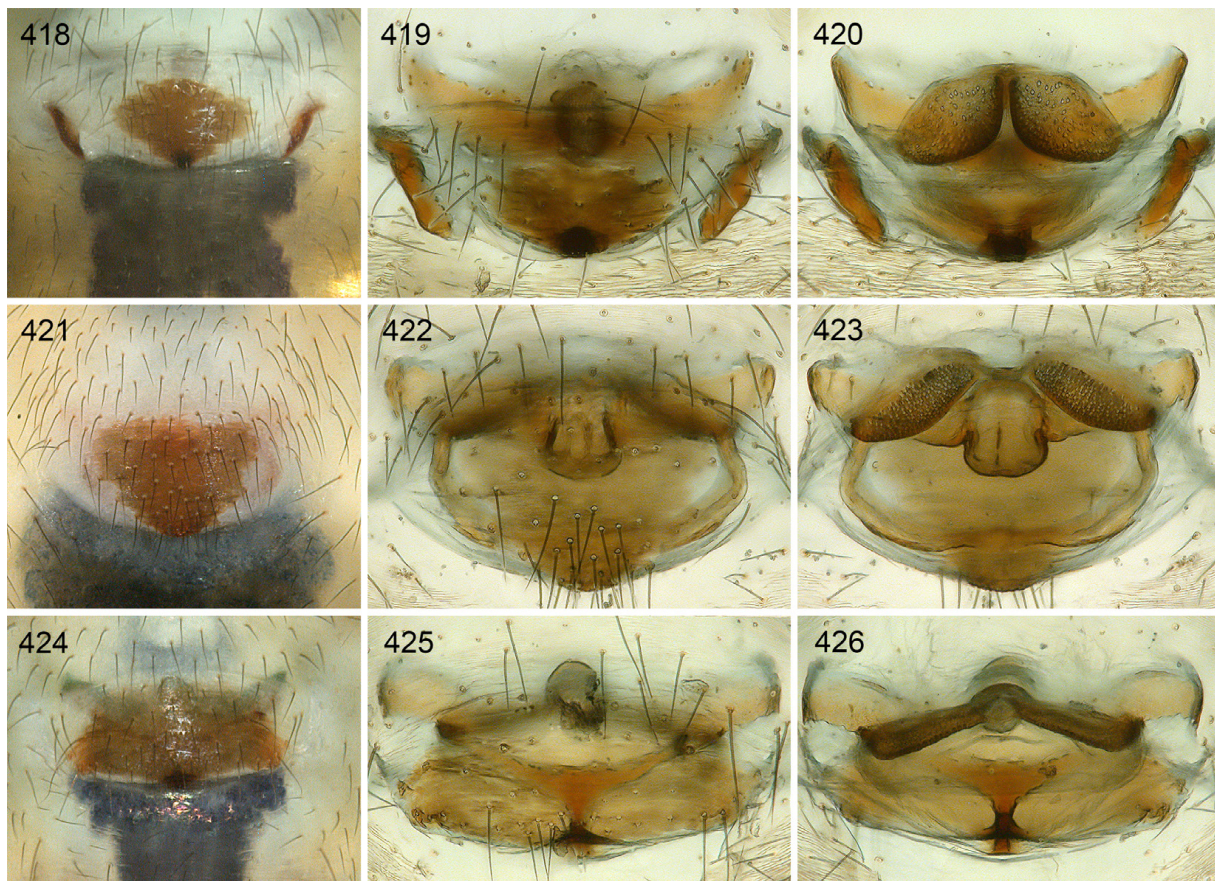
CHELICERAE. As in Fig. 416, lateral view as in *M. longipes* Huber sp. nov. (cf. Fig. 408), rounded frontal processes set with many hairs, five of them slightly stronger, and two small modified hairs more distally on weakly sclerotized area.

PALPS. In general similar to *M. longipes* Huber sp. nov. (cf. Figs 399–400); coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral process, distally with prominent rounded ventral process (shorter than in *M. longipes* Huber sp. nov.), retrolateral trichobothrium of tibia in very distal position; procurus (Figs 410–412) at basis with bifid dorsal process with branches of unequal length, with very indistinct retrolateral process, distally with membranous dorsal process and proximally slightly sclerotized, distally pointed ventral process; genital bulb complex (Figs 413–415), distally mostly membranous/whitish but with distinctive distal sclerites.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3.5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~40 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in seven males (incl. holotype): 9.6–10.7 (mean 10.1); most males with light to dark brown book lung covers, but anterior brown plates opposing fourth coxae absent in some males. Number of modified hairs on chelicerae slightly variable (5–7 on large rounded processes; 2–3 distally).



Figs 418–426. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **418–420.** *M. niquitanus* (González-Sponga, 2011); from Trujillo, Laguna Negra (ZFMK Ar 21912). **421–423.** *M. longipes* Huber sp. nov.; from Mérida, Mucuy (type locality; ZFMK Ar 21916). **424–426.** *M. bienmesabe* Huber sp. nov.; from Lara, between Barquisimeto and Boconó (type locality; ZFMK Ar 21924).

Female

In general similar to male (Fig. 387), also with variably dark book lung covers but never with brown plates opposing fourth coxae. Tibia 1 in five females: 6.3–7.4 (mean 6.9). Epigynum (Fig. 424) wider than long, trapezoidal to semicircular brown plate, internal structures and posterior median dark sclerite variably visible in uncleared specimens. Internal genitalia (Figs 417, 425–426) with Y-shaped sclerite connected to median posterior sclerite, pore plates on strong sclerite tilted into vertical position, and wing-like anterior sclerites.

Distribution

Known from two localities in the Venezuelan state Lara (Fig. 1043).

Natural history

At the type locality the spiders built their strongly curved dome-shaped webs close to the ground in a forest fragment along a small stream.

Mecolaesthus trampa Huber sp. nov.

urn:lsid:zoobank.org:act:CC180E54-0102-4D0A-9FD3-21EE30ED7698

Figs 427–428, 435–443, 462–464, 1044

Diagnosis

Distinguished from similar congeners (*M. grandis* group) by armature of male chelicerae (Figs 441–442; pair of large frontal processes divided into lateral apophysis with 3–5 modified hairs each and frontal ridge with 4–5 modified hairs each; small process more distally, with 3–4 modified hairs each), by shape of main bulbal process (Figs 438–440; distinctive transversal prolateral sclerite), by shape of epigynum (Figs 462–463; triangular plate with pair of additional low sclerotized processes laterally), and by internal female genitalia (Figs 443, 463–464; distinctive pair of anterior processes).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Táchira** • ♂ holotype, ZFMK (Ar 21926), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

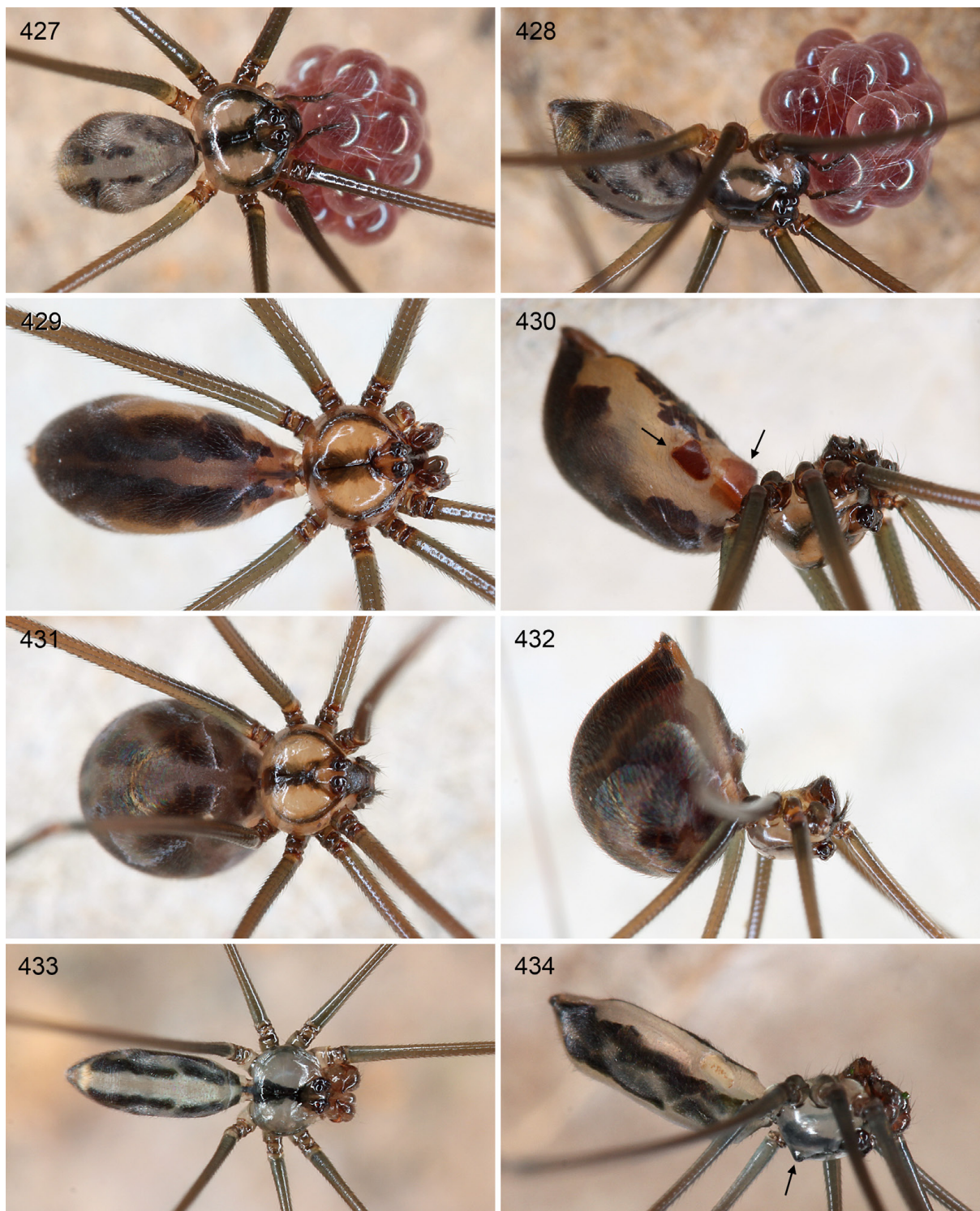
VENEZUELA – **Táchira** • 2 ♂♂, 3 ♀♀, ZFMK (Ar 21927–28), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven20-122), same collection data as for holotype.

Description

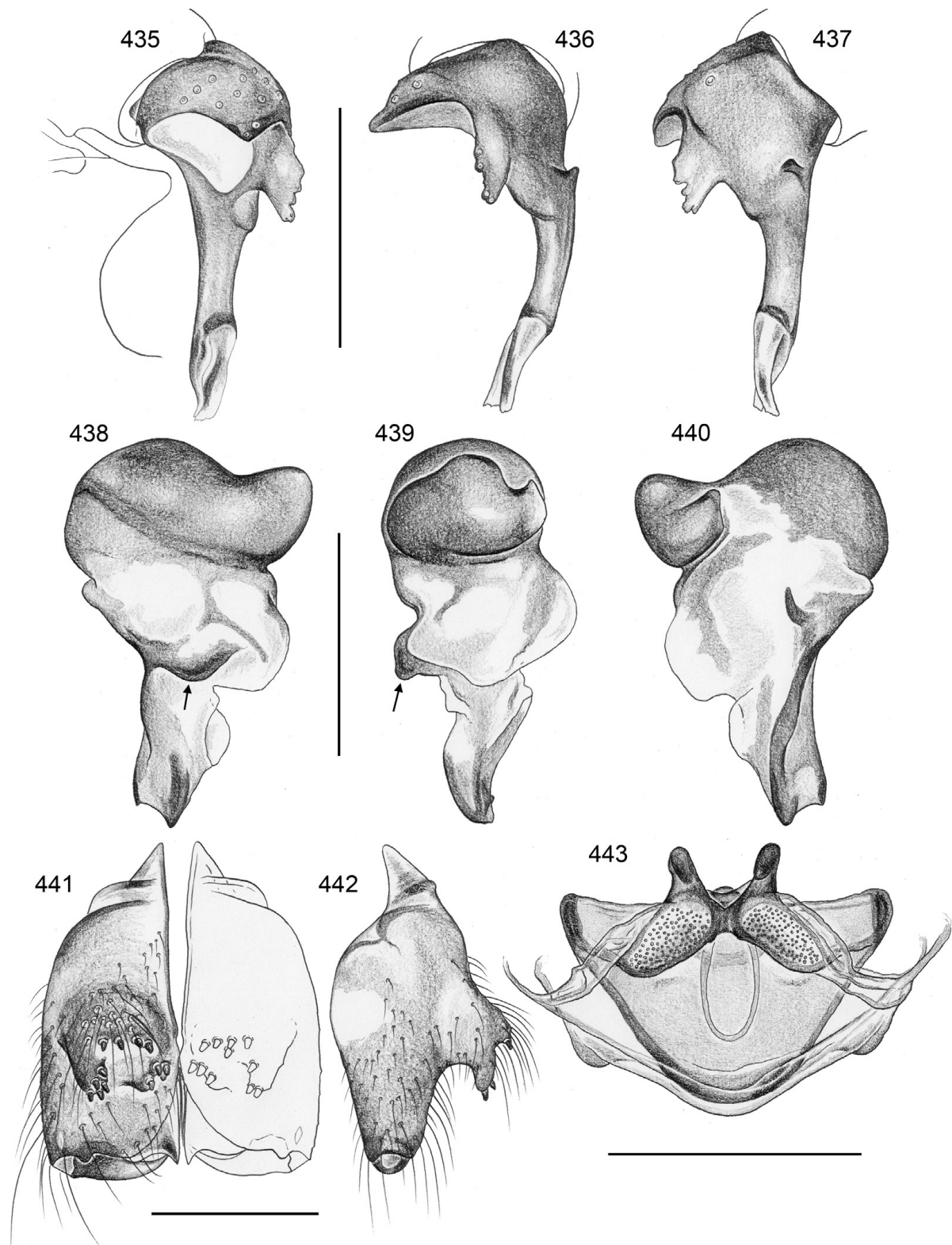
Male (holotype)

MEASUREMENTS. Total body length 3.5, carapace width 1.3. Distance PME–PME 110 µm; diameter PME 120 µm; distance PME–ALE 120 µm; diameter AME 25 µm; distance AME–AME 20 µm. Leg 1: 50.7 (12.0+0.6+12.1+23.1+2.9), tibia 2: 7.9, tibia 3: 6.0, tibia 4: 6.9; tibia 1–4 diameters: 120 µm, 140 µm, 150 µm, 150 µm; tibia 1 L/d: 101.

COLOR (in ethanol). Carapace pale ochre-gray with wide median dark band and lateral marginal dark bands, ocular area and clypeus also darkened; sternum pale ochre-grey, labium darker brown; legs pale ochre, without darker rings; abdomen pale greenish-gray, dorsally and laterally with dark bluish marks,



Figs 427–434. *Mecolaesthus* Simon, 1893; live specimens. **427–428.** *M. trampa* Huber sp. nov.; female with egg sac from Táchira, near La Trampa. **429–432.** *M. lechosa* Huber sp. nov.; male and female from Mérida, Mesa Bolívar (arrows: dark brown book-lung cover and light brown plate close to pedicel). **433–434.** *M. arepa* Huber sp. nov.; males from Táchira, near La Trampa (arrow: median process on carapace).



Figs 435–443. *Mecolaesthus trampa* Huber sp. nov.; from Táchira, near La Trampa (type locality; ZFMK Ar 21927–28). **435–437.** Left palpal tarsus and procurcus, prolateral, dorsal, and retrolateral views. **438–440.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrows: distinctive prolateral transversal sclerite). **441–442.** Male chelicerae, frontal and lateral views. **443.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

ventrally with small brown mark in gonopore area, light brown book lung covers, with large median bluish mark; without lateral anterior plates opposing fourth coxae and without plate above pedicel opposing carapace inflation.

BODY. Habitus similar to *M. lechosa* Huber sp. nov. (cf. Figs 429–430). Ocular area distinctly raised. Carapace anteriorly with distinct thoracic groove, posteriorly slightly inflated. Clypeus unmodified. Sternum wider than long (0.90/0.75). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Figs 441–442, with pair of large frontal processes divided into lateral apophysis with 3–5 modified (short conical) hairs each and frontal ridge with 4–5 modified hairs each; with pair of small processes more distally, each with 3–4 modified hairs.

PALPS. In general very similar to putative close relatives [e.g., *M. tuberculatus* (González-Sponga, 2009); cf. Figs 365–366]; coxa with retrolateral apophysis, trochanter with very small ventral process, femur proximally with large retrolateral process, distally with prominent rounded ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 435–437) at basis with bifid dorsal process with branches of unequal length, with small retrolateral apophysis, distally with pair of partly membranous processes; genital bulb complex (Figs 438–440), distally mostly membranous/whitish but with distinctive prolateral transversal sclerite (arrows in Figs 438–439).

LEGS. Without spines and curved hairs; few vertical hairs; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~40–45 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in two other males: 10.1, 11.7; other males with indistinct darker rings on leg femora (subdistally).

Female

In general similar to male (Figs 427–428) but without carapace inflation, book lung covers not darkened. Tibia 1 in three females: 8.0, 8.1, 8.1. Epigynum (Fig. 462) relatively small, triangular, anterior margin straight, with pair of low sclerotized posterior processes laterally (arrows in Fig. 463); anterior part of internal receptacle visible in uncleared specimens; without posterior plate. Internal genitalia (Figs 443, 463–464) with pair of distinctive anterior processes arising from sclerite with pore plates, with additional pair of anterior sclerites extending towards lateral and large median receptacle.

Distribution

Known from type locality only, in Venezuela, Táchira (Fig. 1044).

Natural history

Most specimens were collected in sheltered spaces near the ground, in similar webs but less exposed than *M. arepa* Huber sp. nov. at the same locality.

Mecolaesthus lechosa Huber sp. nov.

urn:lsid:zoobank.org:act:E8FAEE68-A35E-4FA6-9EDF-65B2FD22C164

Figs 429–432, 444–452, 465–467, 1044

Diagnosis

Distinguished from congeners by armature of male chelicerae (Figs 450–451; pair of frontal lateral apophyses set with 3 modified hairs each, 1–2 modified hairs more medially, and pair of low apophyses more distally without modified hairs); also by shape of procurus (Figs 444–446; without retrolateral

process; prolateral-ventral distal process sclerotized, with rounded tip), by shape of epigynum (Fig. 465; simple rectangular plate, wider than long), and by internal female genitalia (Figs 452, 466–467; large round pore plates close together); from many congeners also by long legs (male tibia 1 >10.0, female tibia 1 >7.0).

Etymology

The species name refers to *lechosa*, the Venezuelan name for papaya; noun in apposition.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21929), forest above Mesa Bolívar (8.467° N, 71.614° W), 1300 m a.s.l., 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 8 ♂♂, 5 ♀♀, 2 juvs, ZFMK (Ar 21930–31), and 3 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-132), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 5.0, carapace width 1.7. Distance PME–PME 130 µm; diameter PME 130 µm; distance PME–ALE 110 µm; distance AME–AME 30 µm; diameter AME 25 µm. Leg 1: 49.6 (11.7+0.7+11.7+22.4+3.1), tibia 2: 7.1, tibia 3: 5.3, tibia 4: 6.0; tibia 1 L/d: 84.

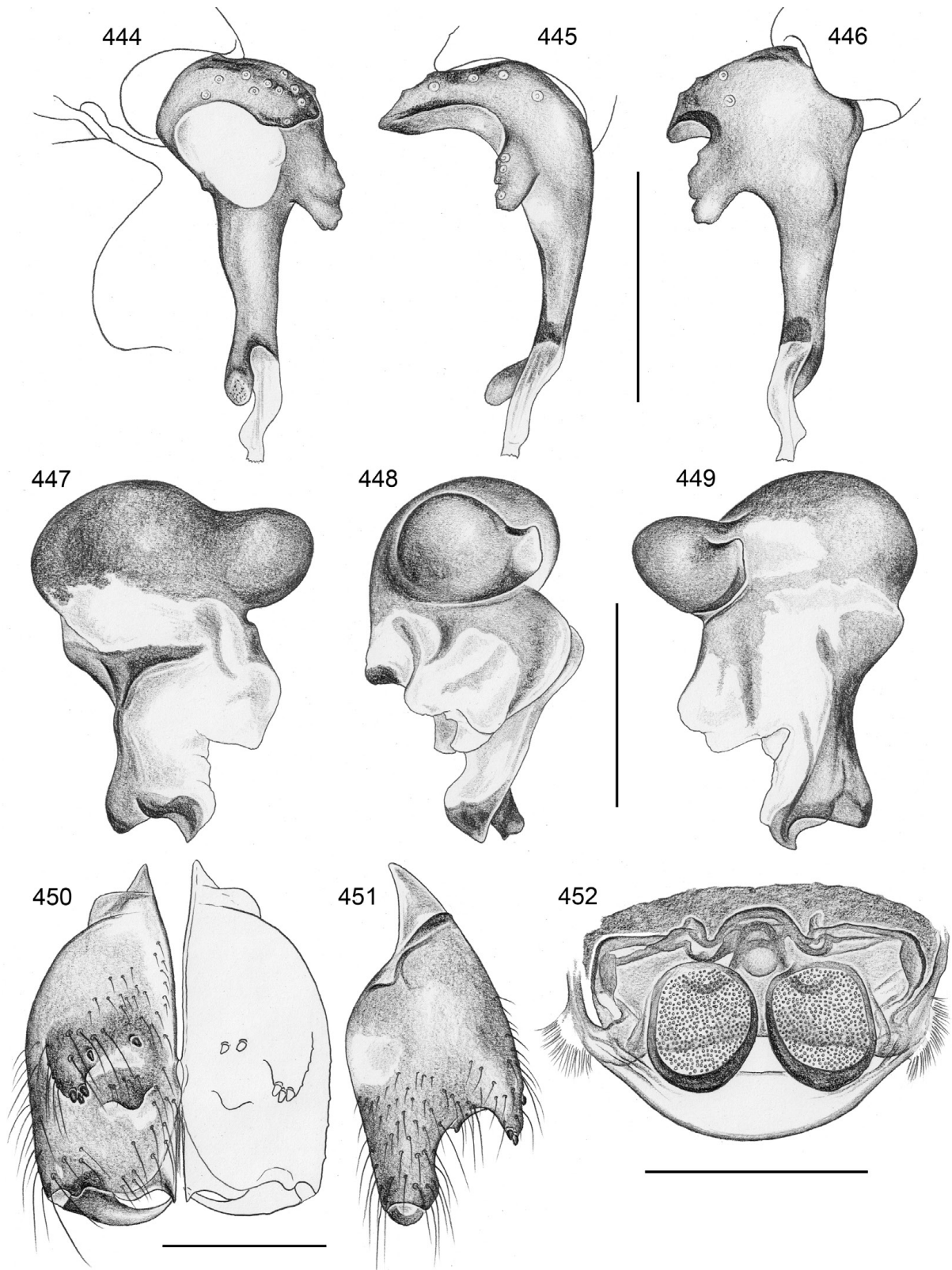
COLOR (in ethanol). Carapace ochre-yellow with wide median dark band including ocular area and pair of wide lateral marginal dark bands, median and lateral bands not connected posteriorly; clypeus with wide median brown band; sternum yellowish to light brown; legs ochre, with indistinct darker bands on femora subdistally and tibiae proximally; abdomen pale greenish gray, dorsally and laterally with dark bluish marks, ventrally with small dark mark in gonopore area, large bluish internal median mark, dark brown book lung covers and brown plate anteriorly close to pedicel (arrows in Fig. 430), very indistinct plate above pedicel.

BODY. Habitus as in Figs 429–430. Ocular area moderately raised. Carapace inflated posteriorly, with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (1.1/0.7), unmodified. Abdomen slightly elongate, pointed at spinnerets; ventral anterior plate on abdomen slightly raised, opposing sternum (corresponding area of sternum not visibly modified).

CHELICERAE. AS in Figs 450–451, with pair of frontal lateral apophyses set with 3 modified hairs each, 2 modified hairs more medially, and pair of low apophyses more distally without modified hairs.

PALPS. In general very similar to other species of the *M. grandis* group [e.g., *M. grandis* (González-Sponga, 2009) and *M. longipes* Huber sp. nov.; cf. Figs 346–347, 399–400]; coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral apophysis, distally with ventral process, retrolateral trichobothrium of tibia in very distal position; procurus (Figs 444–446) at basis with weakly bifid dorsal process, without retrolateral apophysis, distally with pair of processes: prolateral-ventral process sclerotized, with rounded tip, retrolateral-dorsal process transparent; genital bulb complex (Figs 447–449), distally partly membranous/whitish, with distinctive sclerites.

LEGS. Without spines and curved hairs; few vertical hairs; with rows of very short hairs dorsally on tibiae (length ~10 µm; for comparison: short vertical hairs ~70 µm, regular mechanoreceptors ~150–200 µm, trichobothria >300 µm); retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present



Figs 444–452. *Mecolaesthus lechosa* Huber sp. nov.; from Mérida, Mesa Bolívar (type locality; ZFMK Ar 21930–31). **444–446.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **447–449.** Left genital bulb, prolateral, dorsal, and retrolateral views. **450–451.** Male chelicerae, frontal and lateral views. **452.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

on all leg tibiae; tarsus 1 with ~45 pseudosegments, distally distinct. Femora proximally of similar width (proximal diameters femora 1–4: 310 µm, 330 µm, 350 µm, 320 µm), distally variably narrowing (diameters at half-length femora 1–4: 240 µm, 300 µm, 350 µm, 300 µm). Tibiae 1–4 diameters at half length: 140 µm, 190 µm, 230 µm, 210 µm. Coxa 4 not modified.

Male (variation)

Tibia 1 in eight males (incl. holotype): 10.4–11.9 (mean 11.3); anterior dark plate ventrally on abdomen strongly variable, from invisible to heavily sclerotized plate with distinct elevation; book lung covers also from not darkened to dark brown; plate above pedicel from invisible to small light brown plate; carapace inflation from absent to conspicuous; palps and chelicerae very consistent.

Female

Coloration similar to that of male (Figs 431–432), smaller with shorter abdomens, leg femora and tibiae same diameters, carapace not inflated, without ventral and dorsal anterior plates on abdomen, book lung covers consistently light brown. Tibia 1 in six females: 7.1–7.7 (mean 7.5). Epigynum (Fig. 465) simple rectangular transversal brown plate, without posterior plate. Internal genitalia (Figs 452, 466–467) with large round pore plates close together, complex anterior system of folds and small median receptacle.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1044).

Natural history

This species was abundant at the type locality and was found in differently shaped webs (rather flat sheet webs and strongly domed webs) at different elevations above the ground (from very close to the ground up to 2 m above the ground on rock walls).

Mecolaesthus arepa Huber sp. nov.

urn:lsid:zoobank.org:act:77421E73-7EA7-4540-BE34-E3E2042A2783

Figs 433–434, 453–461, 468–470, 1044

Diagnosis

Distinguished from congeners by armature of male chelicerae (Figs 459–460; two pairs of patches of short modified hairs and pair of low distal apophyses), by shapes of procurus and genital bulb (Figs 453–458; retrolateral element distally on procurus sclerotized and bent toward dorsal; bulbal process with several distinctive sclerites), by shape of epigynum (Fig. 468; anterior plate narrowing toward posterior, with pair of dark internal sclerites visible in uncleared specimens), and by internal female genitalia (Figs 461, 469–470; semicircular sclerite, pore plates in lateral position).

Etymology

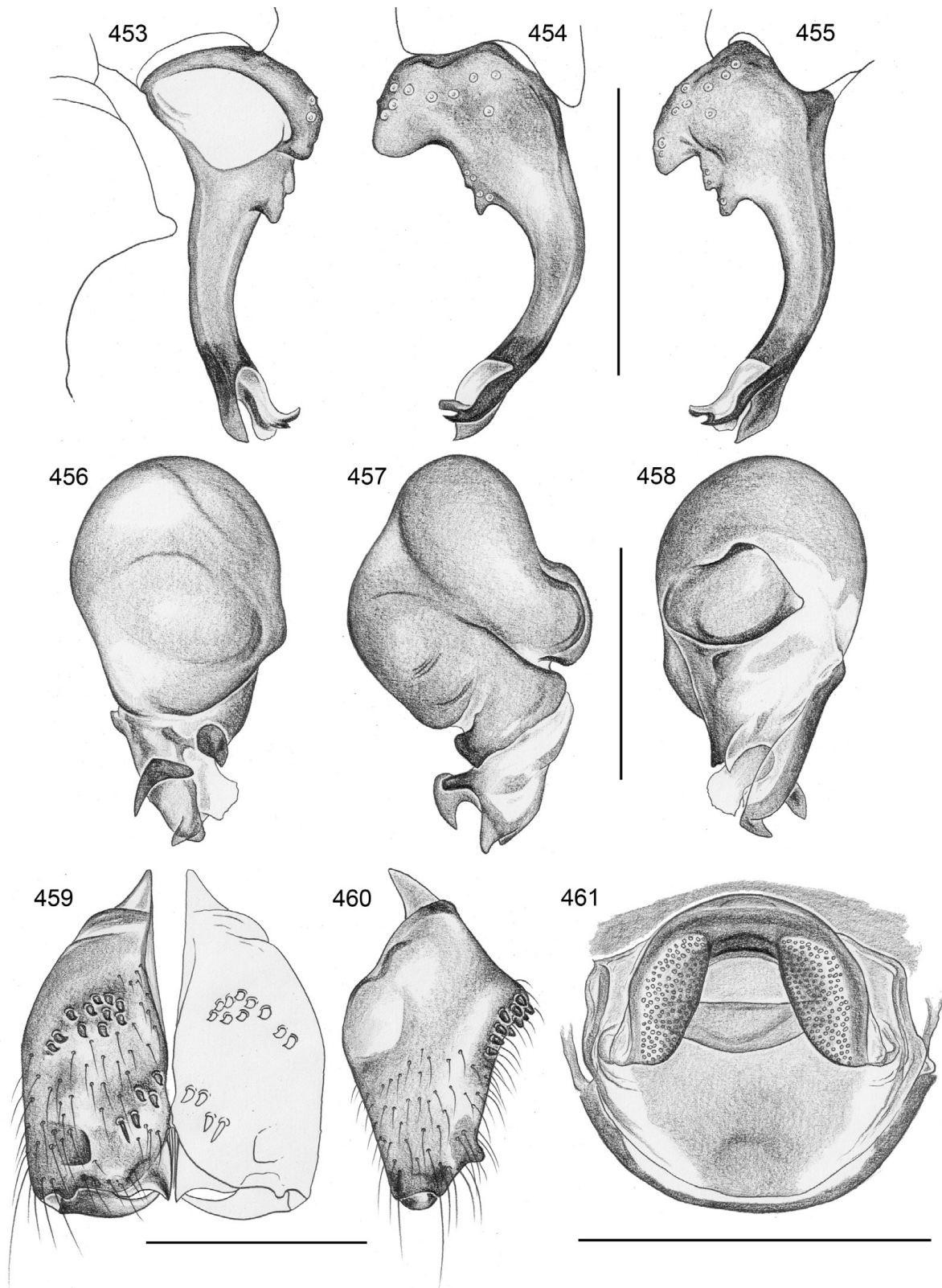
The species name refers to *arepa*, a type of food made of ground maize dough, notable in the cuisine of Venezuela; noun in apposition.

Type material

VENEZUELA – **Táchira** • ♂ holotype, ZFMK (Ar 21932), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – **Táchira** • 5 ♂♂, 2 ♀♀, ZFMK (Ar 21933–34), same collection data as for holotype.



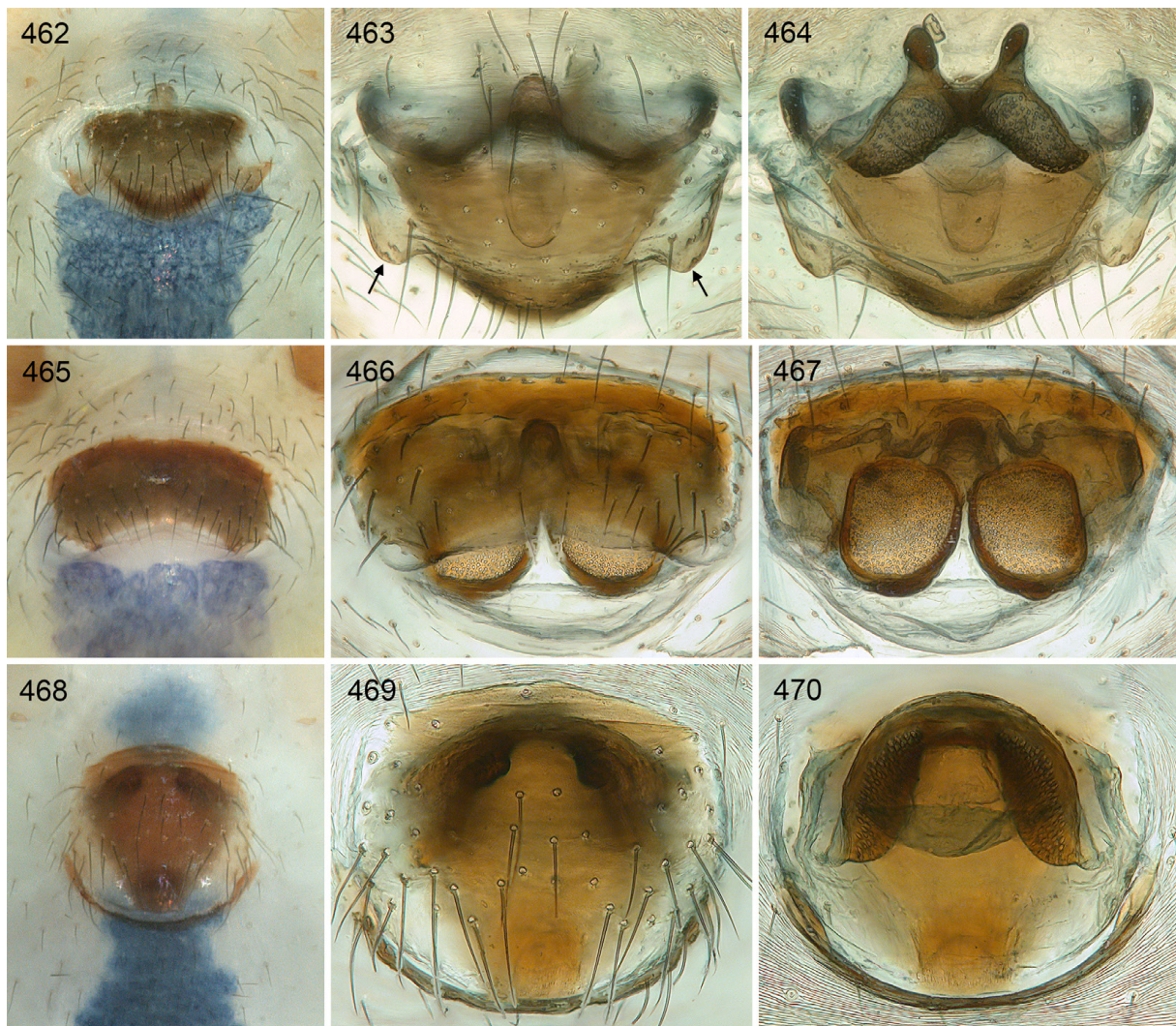
Figs 453–461. *Mecolaesthus arepa* Huber sp. nov.; from Táchira, near La Trampa (type locality; ZFMK Ar 21933–34). **453–455.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **456–458.** Left genital bulb, prolateral, dorsal, and retrolateral views. **459–460.** Male chelicerae, frontal and lateral views. **461.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Description

Male (holotype)

MEASUREMENTS. Total body length 3.0, carapace width 0.9. Distance PME–PME 90 μm ; diameter PME 90 μm ; distance PME–ALE 80 μm ; distance AME–AME 15 μm ; diameter AME 20 μm . Leg 1: 40.7 (9.5+0.4+9.6+18.9+2.3), tibia 2: 5.6, tibia 3: 4.2, tibia 4: 5.2; tibia 1 L/d: 113; all femora/tibiae approximately same diameters.

COLOR (in ethanol). Carapace whitish to pale gray, with median dark band including posterior part of ocular area; clypeus with pair of brown marks; sternum light brown, with triangular whitish area posteriorly; legs light brown, with indistinct darker bands on femora subdistally and tibiae proximally, tips of femora and tibiae whitish; abdomen pale bluish, dorsally and laterally with dark bluish marks



Figs 462–470. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **462–464.** *M. trampa* Huber sp. nov.; from Táchira, near La Trampa (type locality; ZFMK 21928) (arrows: pair of posterior lateral processes). **465–467.** *M. lechosa* Huber sp. nov.; from Mérida, Mesa Bolívar (type locality; ZFMK 21931). **468–470.** *M. arepa* Huber sp. nov.; from Táchira, near La Trampa (type locality; ZFMK 21934).

arranged in longitudinal bands, ventrally with small brown mark in gonopore area and large median dark bluish band; book lung covers not darkened; without dark plate above pedicel.

BODY. Habitus as in Figs 433–434. Ocular area moderately raised. Carapace not inflated posteriorly but with distinct median process (arrow in Fig. 434), with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.68/0.40), unmodified. Abdomen cylindrical, pointed at spinnerets.

CHELICERAE. As in Figs 459–460, with two pairs of patches of short modified hairs, proximal patch on low ridge, modified hairs mostly slightly hooked (bent toward median); with pair of low distal apophyses.

PALPS. In general very similar to other species of the *M. grandis* group (e.g., *M. longipes* Huber sp. nov.; cf. Figs 399–400); coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with retrolateral process, distally with prominent rounded ventral process; retrolateral trichobothrium of tibia in very distal position; procurus (Figs 453–455) at basis with small bifid dorsal process, without retrolateral apophysis, distally with pair of processes, retrolateral process distally sclerotized and bent toward dorsal; genital bulb (Figs 456–458) complex, with several distinctive sclerites.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 2%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~45 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in three other males: 9.3, 9.4, 10.6; small males without or with very low median process posteriorly on carapace.

Female

In general similar to male but carapace without median process. Tibia 1 in two females: 6.8, 7.0. Epigynum (Fig. 468) weakly curved plate, anterior plate narrowing toward posterior, with pair of dark internal sclerites visible in uncleared specimens; posterior plate very short, wide. Internal genitalia (Figs 461, 469–470) with semicircular sclerite, pore plates in lateral position.

Distribution

Known from type locality only, in Venezuela, Táchira (Fig. 1044).

Natural history

Most specimens were collected at a large humid rock wall in the forest, where they hang in their domed sheets ~0.5 m above the ground. Webs had a diameter of ~30 cm and were rather exposed.

Mecolaesthus pusillus Huber sp. nov.

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Figs 471–475, 479–487, 1044

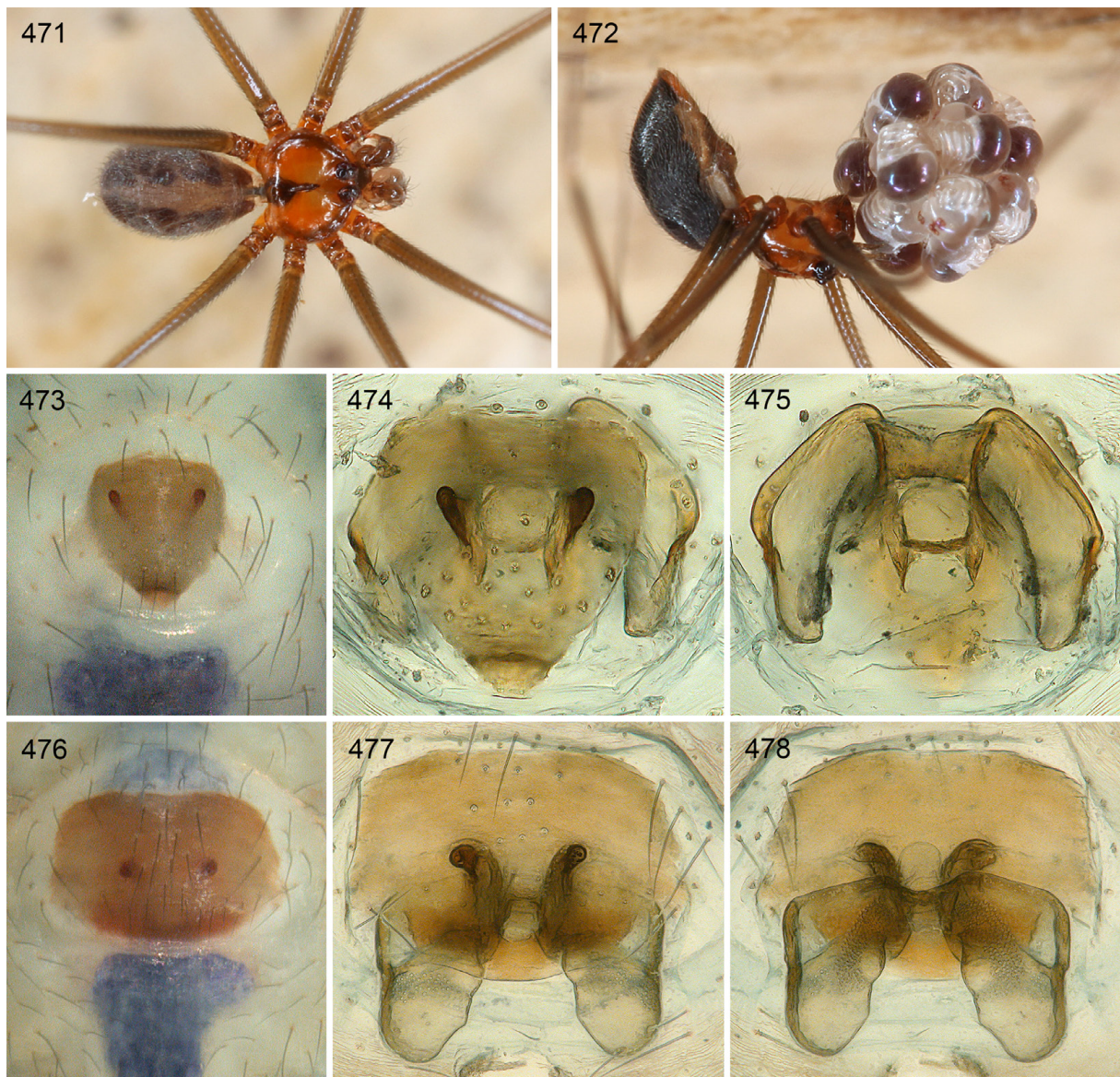
Diagnosis

Easily distinguished from most known congeners (except *M. alegria* Huber sp. nov.) by armature of male chelicerae (Figs 485–486; pair of large frontal apophyses set with large modified hairs and pair of simple distal apophyses), by shape of procurus (Figs 479–481; without retrolateral process; tip with pair of dark sclerites connected by transparent membrane), and by epigynum with pair of dark internal structures distinct in uncleared specimens (Fig. 473). From very similar *M. alegria* Huber sp. nov. by details of male cheliceral armature (large frontal apophyses directed downward rather than forward; simple distal apophyses without accompanying globular hairs), by shape of bifid distal bulbal sclerite

(Figs 482–484; dorsal sclerite much narrower in dorsal view), by shape of epigynum (Fig. 473; longer than wide, narrowing posteriorly), and by internal female genitalia (Figs 474–475, 487; shape of large lateral ear-shaped structures). From most known congeners (except *M. alegria* Huber sp. nov., *M. arepa* Huber sp. nov., and *M. guasacaca* Huber sp. nov.) also distinguished by distinct median process posteriorly on male carapace.

Etymology

The species name (Latin: small) refers to the small size of this species compared to known congeners; adjective.



Figs 471–478. *Mecolaesthus* Simon, 1893; live specimens; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **471–475.** *M. pusillus* Huber sp. nov.; male from Aragua, Puerto Colombia and female with egg sac from between Maracay and Puerto Colombia; epigynum and cleared female genitalia from Aragua, Puerto Colombia (type locality; ZFMK Ar 21936). **476–478.** *M. alegria* Huber sp. nov.; from Falcón, Santa Cruz de La Alegría (type locality; ZFMK Ar 21938).

Type material

VENEZUELA – **Aragua** • ♂ holotype, ZFMK (Ar 21935), Puerto Colombia (10.5025° N, 67.6057° W), 25 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Aragua** • 1 ♂, 2 ♀♀ (and one female abdomen transferred from pure ethanol), ZFMK (Ar 21936), and 3 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-238) (one female abdomen transferred to ZFMK, Ar 21936), same collection data as for holotype • 1 ♀, ZFMK (Ar 21937), and 1 ♀ in pure ethanol, ZFMK (Ven18-240), between Maracay and Puerto Colombia (10.4304° N, 67.5998° W), 380 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, MIZA 105581 (MAGS 1546), Chuao [10.494° N, 67.527° W], 30 Mar. 2000, collector not known.

Description**Male** (holotype)

MEASUREMENTS. Total body length 2.1, carapace width 0.8. Distance PME–PME 80 µm; diameter PME 80 µm; distance PME–ALE 60 µm; diameter AME 20 µm; distance AME–AME 15 µm. Leg 1: 23.5 (5.5+0.3+5.8+10.4+1.5), tibia 2: 3.6, tibia 3: 2.8, tibia 4: 3.3; tibia 1 L/d: 89.

COLOR (in ethanol). Carapace pale ochre with brown lateral marginal bands and posterior triangular mark, ocular area not darkened, clypeus brown; sternum light brown, laterally with indistinct light marks; legs pale ochre, without dark rings; abdomen pale greenish gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area and bluish median marks in front and behind gonopore; book lung covers light brown; without dark plate above pedicel.

BODY. Habitus as in Fig. 471. Ocular area slightly raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly not inflated but with distinct median process. Clypeus unmodified. Sternum wider than long (0.60/0.40), unmodified. Abdomen slightly elongated, pointed at spinnerets.

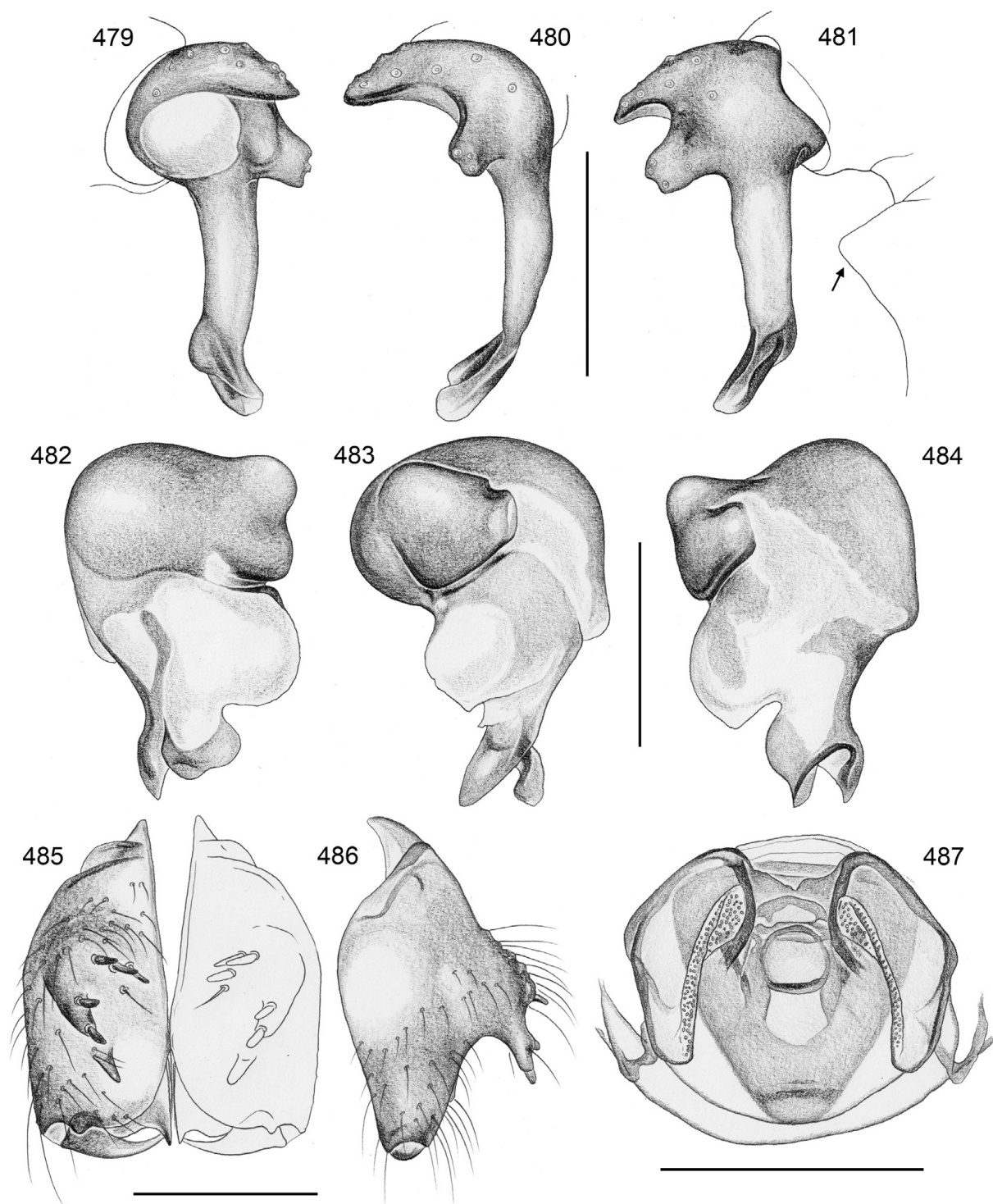
CHELICERAE. As in Figs 485–486, with pair of large frontal apophyses, each provided with two large modified hairs near tip and three large modified hairs proximally, and pair of simple distal apophyses.

PALPS. In general similar to *M. niquitanus* (González-Sponga, 2011) (cf. Figs 388–389); coxa with retrolateral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral process, dorsally with low hump, distally with ventral conical process (arrow in Fig. 481); retrolateral trichobothrium on tibia very distal; procurus (Figs 479–481) at basis with dorsal process with obtuse tip, without retrolateral process, with pair of distal sclerites connected by transparent membrane; genital bulb (Figs 482–484) with large process partly membranous/whitish, with distinctive distal sclerite divided into two lobes.

LEGS. Without spines and curved hairs; few vertical hairs; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 3.5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, indistinct.

Female

In general similar to male (Fig. 472), but carapace posteriorly without median process. Tibia 1 in three females: 3.6, 3.9, 4.2. Epigynum (Fig. 473) relatively small dark brown plate, only slightly protruding, anterior margin straight, posteriorly narrowing, with pair of dark internal structures distinct in uncleared specimens; without posterior plate. Internal genitalia (Figs 474–475, 487) with large lateral ear-shaped structures, pore plates in vertical lateral position.



Figs 479–487. *Mecolaesthus pusillus* Huber sp. nov.; from Aragua, Puerto Colombia (type locality; ZFMK Ar 21936). **479–481.** Left palpal tarsus and procurcus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **482–484.** Left genital bulb, prolateral, dorsal, and retrolateral views. **485–486.** Male chelicerae, frontal and lateral views. **487.** Cleared female genitalia, dorsal view. Scale lines: 0.2 mm.

Distribution

Known from three neighboring localities in the Venezuelan state Aragua (Fig. 1044).

Natural history

In Puerto Colombia, the spiders were found in small webs slightly above the very dry leaf litter of a degraded forest near the town. The locality was shared by only one other pholcid (*Mesabolivar eberhardi* Huber, 2000). The forest at the second locality (between Maracay and Puerto Colombia) was also disturbed but more humid, and was home to three further pholcid species (*Mesabolivar eberhardi*, *Metagonia latigo* Huber sp. nov., *Priscula salmeronica* González-Sponga, 1999).

One female had a very large whitish genital plug.

Mecolaesthus alegria Huber sp. nov.

urn:lsid:zoobank.org:act:DB90E250-72DE-47EB-ACB1-4A4D1C11E22D

Figs 476–478, 488–493, 1044

Diagnosis

Easily distinguished from most known congeners (except *M. pusillus* Huber sp. nov.) by armature of male chelicerae (Figs 491–492; pair of large frontal apophyses set with large modified hairs and pair of simple distal apophyses), by shape of procurus (identical to *M. pusillus* Huber sp. nov., cf. Figs 479–481; without retrolateral process; tip with pair of dark sclerites connected by transparent membrane), and by epigynum with pair of dark internal structures distinct in uncleared specimens (Fig. 476). From very similar *M. pusillus* Huber sp. nov. by details of male cheliceral armature (large frontal apophyses directed forward rather than downward; simple distal apophyses with accompanying globular hairs), by shape of bifid distal bulbal sclerite (Figs 488–490; dorsal sclerite much wider in dorsal view), by shape of epigynum (Fig. 476; wider than long), and by internal female genitalia (Figs 477–478, 493; shape of large lateral ear-shaped structures). From most known congeners (except *M. pusillus* Huber sp. nov., *M. arepa* Huber sp. nov., and *M. guasacaca* Huber sp. nov.) also distinguished by distinct median process posteriorly on male carapace.

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21938), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – **Falcón** • 1 ♀ in pure ethanol (abdomen transferred to male holotype), ZFMK (Ven20-147), same collection data as for holotype.

Description

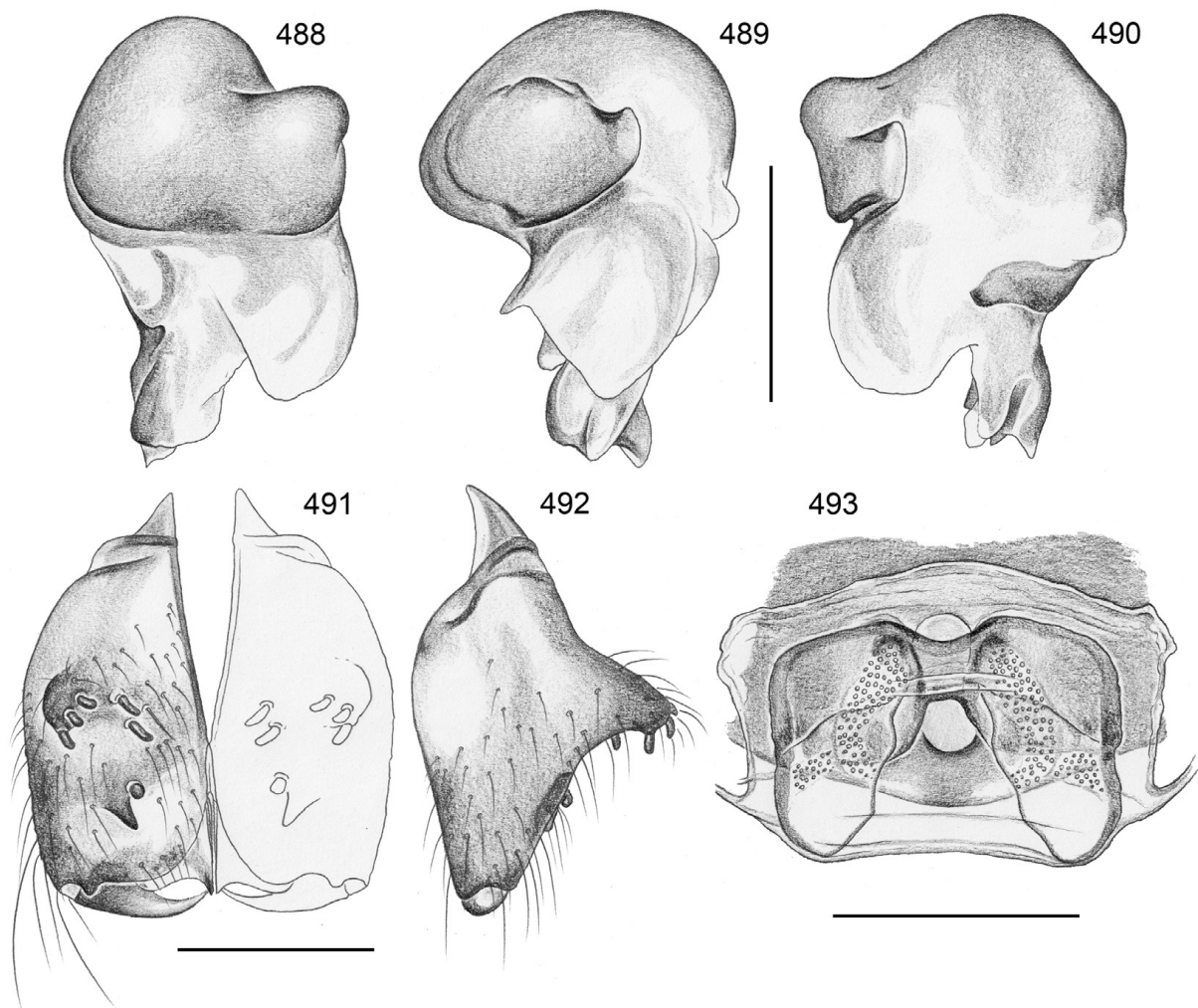
Male (holotype)

MEASUREMENTS. Total body length 2.8, carapace width 0.95. Distance PME–PME 90 µm; diameter PME 90 µm; distance PME–ALE 50 µm; diameter AME 20 µm; distance AME–AME 20 µm. Leg 1: 31.1 (7.4+0.4+7.6+13.8+1.9), tibia 2: 4.9, tibia 3: 3.9, tibia 4: 4.5; tibia 1 L/d: 95.

COLOR (in ethanol). Carapace pale ochre with darker median band and lateral marginal bands not connected posteriorly, ocular area and clypeus dark ochre; sternum ochre-yellow; legs ochre-yellow to light brown, without dark rings; abdomen pale greenish gray, dorsally and laterally densely covered with dark bluish marks, ventrally with small brown mark in gonopore area and bluish median band behind gonopore; book lung covers light brown; with small light brown plate above pedicel.

BODY. Habitus as in *M. pusillus* Huber sp. nov. (cf. Fig. 471). Ocular area slightly raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly not inflated but with distinct median process. Clypeus unmodified. Sternum wider than long (0.62/0.40), unmodified. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Figs 491–492, similar to *M. pusillus* Huber sp. nov. but larger, with pair of large frontal apophyses, each provided with three large modified hairs near tip and two large modified hairs proximally, and pair of simple distal apophyses, each accompanied by globular hair.



Figs 488–493. *Mecolaesthus alegria* Huber sp. nov.; from Falcón, Santa Cruz de La Alegría (type locality; ZFMK Ar 21938). **488–490.** Left genital bulb, prolateral, dorsal, and retrolateral views. **491–492.** Male chelicerae, frontal and lateral views. **493.** Cleared female genitalia, dorsal view. Scale lines: 0.2 mm.

PALPS. In general as in *M. pusillus* Huber sp. nov.; coxa with retrolateral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral process, dorsally with low hump, distally with ventral conical process; retrolateral trichobothrium on tibia very distal; procurus apparently indistinguishable from *M. pusillus* Huber sp. nov. (cf. Figs 479–481), at basis with dorsal process with obtuse tip, without retrolateral process, with pair of distal sclerites connected by transparent membrane; genital bulb (Figs 488–490) with large process partly membranous/whitish, with distinctive distal sclerite divided into two lobes.

LEGS. Without spines and curved hairs; few vertical hairs; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, fairly distinct.

Female

In general similar to male but carapace posteriorly without median process, abdomen shorter. Tibia 1: 5.1. Epigynum (Fig. 476) simple rectangular plate, anteriorly straight, posteriorly weakly curved, pair of dark internal structures distinct in uncleared specimens; no posterior plate. Internal genitalia (Figs 477–478, 493) with large lateral ear-shaped structures, pore plates in lateral position.

Distribution

Known from type locality only, in Venezuela, Falcón (Fig. 1044).

Mecolaesthus longissimus Simon, 1893
Figs 494–505, 1021, 1045

Mecolaesthus longissimus Simon, 1893a: 320.

Mecolaesthus longissimus – Simon 1893b: 479–482. — Caporiacco 1955: 299. — Huber 1997d: 588, figs 12a–e, 13a–d; 2000: 256, figs 79, 136, 180, 1014–1023; 2005a: 573–581, figs 1–8. — González-Sponga 2010: 18, pl. 4, figs 1–11.

Notes

In a first redescription of the species (Huber 1997d), a lectotype was chosen from the type series (MNHN, E. Simon collection number 11024). In this vial, specimens from two localities (Colonia Tovar and Corosal) had been joined by E. Simon, without specifying the numbers of specimens from each locality. This vial contains 13 ♂♂, one of which deviates in its cheliceral armature (by the presence of an additional pair of apophyses, cf. Huber 1997d: fig. 12e; Huber 2000: fig. 1018; González-Sponga 2010: pl. 4, fig. 3). Extensive new material from near Colonia Tovar (Huber 2005a and below) suggests that the majority of the males in the type vial (including the lectotype) are from Colonia Tovar and that the deviating male is from Corosal. The type locality can therefore be specified more precisely as Colonia Tovar.

Whether or not males with the additional pair of apophyses represent a distinct species remains an open question. The redescrptions in Huber (2000) and González-Sponga (2010) are based on such specimens. A comparison of the illustrations in Huber (2000: figs 1019–1023) with Figs 499–505 (made from topotypical specimens) suggests that additional morphological differences exist. No fresh material is available of the ‘deviating morph’, but we predict that a detailed morphological comparison combined with molecular data may eventually justify a formal split of this species.

The material published by González-Sponga (2010) is present in the MIZA collection but the respective collection cards are missing so it is not clear which vial represents which locality listed in González-

Sponga (2010). The following seven vials are thought to represent this material (specimen counts partly approximate): 9 ♂♂, MIZA 105702 (MAGS 244); 2 ♂♂, 4 ♀♀, MIZA 105740 (MAGS 964); 1 ♀, MIZA 105688 (MAGS 965); 1 ♂, 1 ♀, 1 juv., MIZA 105610 (MAGS 1023); 9 ♂♂, 3 ♀♀, 12 juvs, MIZA 105597 (MAGS 1039); 4 ♂♂, 4 ♀♀, MIZA 105631 (MAGS 1088); 4 ♂♂, 6 ♀♀, 5 juvs, MIZA 105635 (MAGS 1091). This material supposedly originates from the following localities:

La Guaira: Hacienda El Limón [10.475° N, 67.283° W]

Miranda: Hacienda Santa Rosa, 8 km N Guatire [approximately 10.53° N, 66.56° W]

Miranda: Hacienda Salmerón [approximately 10.483° N, 66.367° W]

Miranda: Guatopo National Park, Boca de Cura [10.20° N, 66.30° W]

Miranda: Guatopo National Park, Panaquire [10.216° N, 66.239° W]

Miranda: Guatopo National Park, Macanilla [locality not identified]

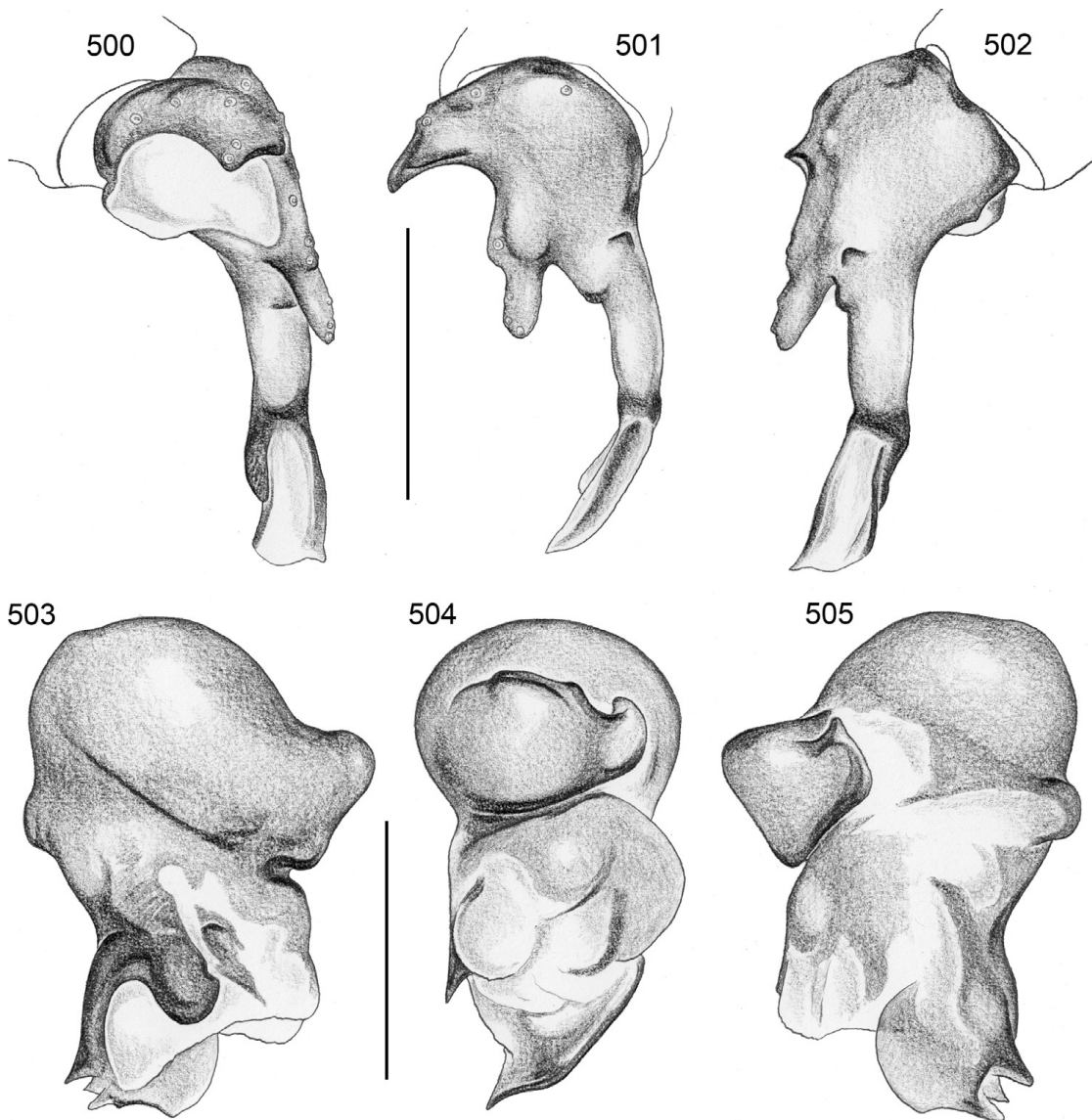


Figs 494–499. *Mecolaesthus longissimus* Simon, 1893; from Aragua, Colonia Tovar-Junquito; live males (large and small specimens) and female with egg sac; epigynum, ventral view; cleared female genitalia, ventral and dorsal views (female genitalia: ZFMK Ar 21941).

We have not checked Caporiacco's (1955) female specimen. However, a male from the same locality (Rancho Grande, Aragua) was studied in Huber (2000), so we consider Caporiacco's record as possibly correct.

New records

VENEZUELA – **Aragua** • 9 ♂♂, 9 ♀♀, 1 juv., ZFMK (Ar 21939), and 2 ♂♂, 1 ♀ in pure ethanol, ZFMK (Ven20-162), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 18 ♂♂, 13 ♀♀, 4 juvs, ZFMK (Ar 21940–41), and 4 ♂♂, 3 ♀♀, 2 juvs in pure ethanol, ZFMK (Ven18-161), between Colonia Tovar and El Junquito (10.4230° N, 67.2381° W), 1960 m a.s.l., 10 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 3 ♀♀, 4 juvs, MIZA 105691 (MAGS 992), Arco de la Colonia Tovar [10.421° N, 67.242° W], 22 Nov. 1986 (A.R. Delgado, M.A. González S.) • 1 ♀, ZFMK (Ar 21942), El Limón,



Figs 500–505. *Mecolaesthus longissimus* Simon, 1893; from Aragua, Colonia Tovar (type locality; ZFMK Ar 21940). **500–502.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **503–505.** Left genital bulb, prolateral, dorsal, and retrolateral views. Scale lines: 0.2 mm.

‘site 1’ (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Anzoátegui** • 2 ♂♂, 1 juv., MIZA 105596 (MAGS 1035), near Sabana de Uchire [approximately 10.02° N, 65.52° W], 2 Mar. 1987 (A.R. Delgado de G., M.A. González S., M. Ruedas). – **Miranda** • 1 ♀, MIZA 105811 (MAGS 313), Turgua [10.370° N, 66.756° W], 25 Jul. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 1 ♀, MIZA 105671 (separated from MAGS 1169), “rio Aricagua, Dtto. Brión” [approximately 10.621° N, 66.203° W], 10 m a.s.l., 27 Aug. 1989 (M.A. González S.) • 1 ♀, MIZA 105669 (separated from MAGS 1165), Los Amarillos, old road Caracas-Charallave [10.367° N, 66.945° W], Jul. 1989 (A.R. Delgado, M.A. González-S.) • 1 ♂, MIZA 105638 (separated from MAGS 1098), Boca de Cura [10.205° N, 66.291° W], 11 Oct. 1987 (A.R. Delgado, M.A. González S.) • 1 ♀, MIZA 105727 (MAGS 1017), Salmerón [approximately 10.468° N, 66.376° W], 250 m a.s.l., 10 Jan. 1987 (A.R. Delgado, M.A. González S.) • 1 ♂, 1 ♀, MIZA, El Volcán, Topotepuy [10.417° N, 66.851° W, ~1450 m a.s.l.], 11–13 Nov. 2019 (O. Villarreal, J. Rodríguez).

Description (amendments; see Huber 1997d, 2000, 2005a)

Eye measurements (male from Colonia Tovar): distance PME–PME 130 µm; diameter PME 120 µm; distance PME–ALE 80 µm; diameter AME 35 µm; distance AME–AME 20 µm. Tibia 1 measurements (specimens from Colonia Tovar in Huber 2005a and specimens listed below) in 56 males: 10.3–12.8 (mean 11.5); in 33 females: 6.6–8.5 (mean 7.5).

All males from Colonia Tovar with dark median band on carapace and dark ochre to black ocular area and clypeus, without lateral dark bands; legs in males without or with very indistinct dark rings, in females with dark rings on femora subdistally and on tibiae proximally and subdistally; abdomen without brown anterior plate(s), book-lung covers in males variable (not darkened to brown), in females never brown. Coxa 4 unmodified. Prolateral trichobothrium present on all leg tibiae. Procurus (Figs 500–502) with large dorsal process proximally, small retrolateral apophysis, and distinctive tip with dorsal and ventral sclerites connected by transparent membrane and prolateral process with tiny scales. Genital bulb (Figs 503–505) with large distal process partly membranous/whitish, partly with distinctive sclerites.

Epigynum (Fig. 497) consisting of small brown plate surrounded by whitish membranous cuticle, with distinctive pair of anterior internal structures visible in uncleared specimens; posterior plate slender transversal sclerite widening laterally. Internal genitalia complex and difficult to understand, with pair of semispherical pore plates, possible median duct and receptacle (Figs 498–499).

Distribution

Common in – and apparently restricted to – the Coastal Ranges in Venezuela (Fig. 1045).

Natural history

In Colonia Tovar, the spiders were found in a well-preserved forest above the town; between Colonia Tovar and El Junquito they were found in a forest remnant close to a small stream. At both localities, the distribution appeared to be very patchy. During our second visit to Colonia Tovar in 2018 we tried to revisit the spot from the 2002 trip but could not locate it and did not find a single specimen of *M. longissimus* (even though the forest looked exactly as in 2002). Between Colonia Tovar and El Junquito, the species was abundant in a small area at the stream but apparently absent from nearby parts of the forest. The spiders were collected from strongly domed webs with a diameter of ~20 cm, between about 20 cm to 150 cm above the ground. When disturbed the spiders vibrated vigorously in their webs but did not drop to the ground.

In Henri Pittier National Park the species was abundant, often in exposed webs up to 1.5 m above the ground. One large male was introduced to the web of another large male. Within a minute, the two males started to fight, first with their front legs only. Then each male made a few vigorous jerks with the

abdomen, flexing it strongly and rapidly toward ventral, but without contacting the opponent. After this, one male left toward the periphery of the web and both males remained silent. This observation supports the idea than males of this species use their extremely elongated (and positively allometric) abdomens in male-male fights (Huber 2005a).

Mecolaesthus graphorn Huber sp. nov.

urn:lsid:zoobank.org:act:8A390CA7-EF0A-4271-A9B7-FAC11977C0C3

Figs 506–507, 510–522, 545–547, 1046

Diagnosis

Easily distinguished from known congeners by details of male pedipalp (Figs 512–519; procurus slender and simple, with distinct limit between black and transparent sections; genital bulb with complex and distinctive embolar division), by armature of male chelicerae (Figs 520–521; frontal apophyses with pointed tip), by epigynum (Fig. 545; small rectangular anterior plate, no posterior plate), and by internal female genitalia (Figs 522, 547; large oval pore plates connected posteriorly to rounded sclerites).

Etymology

Named for the graphorn, a large, extremely dangerous humpbacked creature which lives in the mountains of Europe; noun in apposition.

Type material

VENEZUELA – **Aragua** • ♂ holotype, ZFMK (Ar 21943), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Aragua** • 3 ♂♂, 5 ♀♀, ZFMK (Ar 21944), and 2 ♂♂, 3 ♀♀ in pure ethanol, ZFMK (Ven20-160), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 3.8, carapace width 1.8. Distance PME–PME 90 µm; diameter PME 140 µm; distance PME–ALE 90 µm; distance AME–AME 15 µm; diameter AME 20 µm. Leg 1: 42.9 (10.2+0.5+9.9+18.4+3.9), tibia 2: 5.8, tibia 3: 4.5, tibia 4: 5.6; tibia 1 L/d: 83.

COLOR (in ethanol). Carapace mostly dark ochre to black, with pair of pale greenish-gray marks behind ocular area, rear side of carapace inflation also pale, with black median line; sternum light, with dark brown lateral marginal bands widening and connected posteriorly; legs ochre to light brown, with indistinct darker rings on femora (subdistally) and tibiae (proximally), tips of femora and tibiae light; abdomen gray, dorsally and laterally with dark bluish marks, ventrally with small ochre mark in gonopore area and dark bluish median band behind gonopore; book lung covers not darkened; abdomen without ventral and dorsal anterior modifications.

BODY. Habitus as in Fig. 506. Ocular area moderately raised. Carapace strongly inflated, with deep thoracic groove. Clypeus unmodified. Sternum wider than long (0.92/0.76 – slightly deformed), unmodified. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Figs 520–521, with frontal apophyses with pointed tip; indistinct dark ridge distally between fang joint and lamina.

PALPS. AS in Figs 512–513; coxa with retrolateral-ventral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral process whitish on prolateral side, dorsally with low hump, distally with distinct ventral process; retrolateral trichobothrium on tibia not very distal; tarsus with short trilobed dorsal process; procurus (Figs 514–516) slender and simple, with distinct limit between black and transparent sections; genital bulb (Figs 517–519) with small prolateral-ventral process (arrow in Fig. 517), complex embolar division apparently forming furrow for procurus.

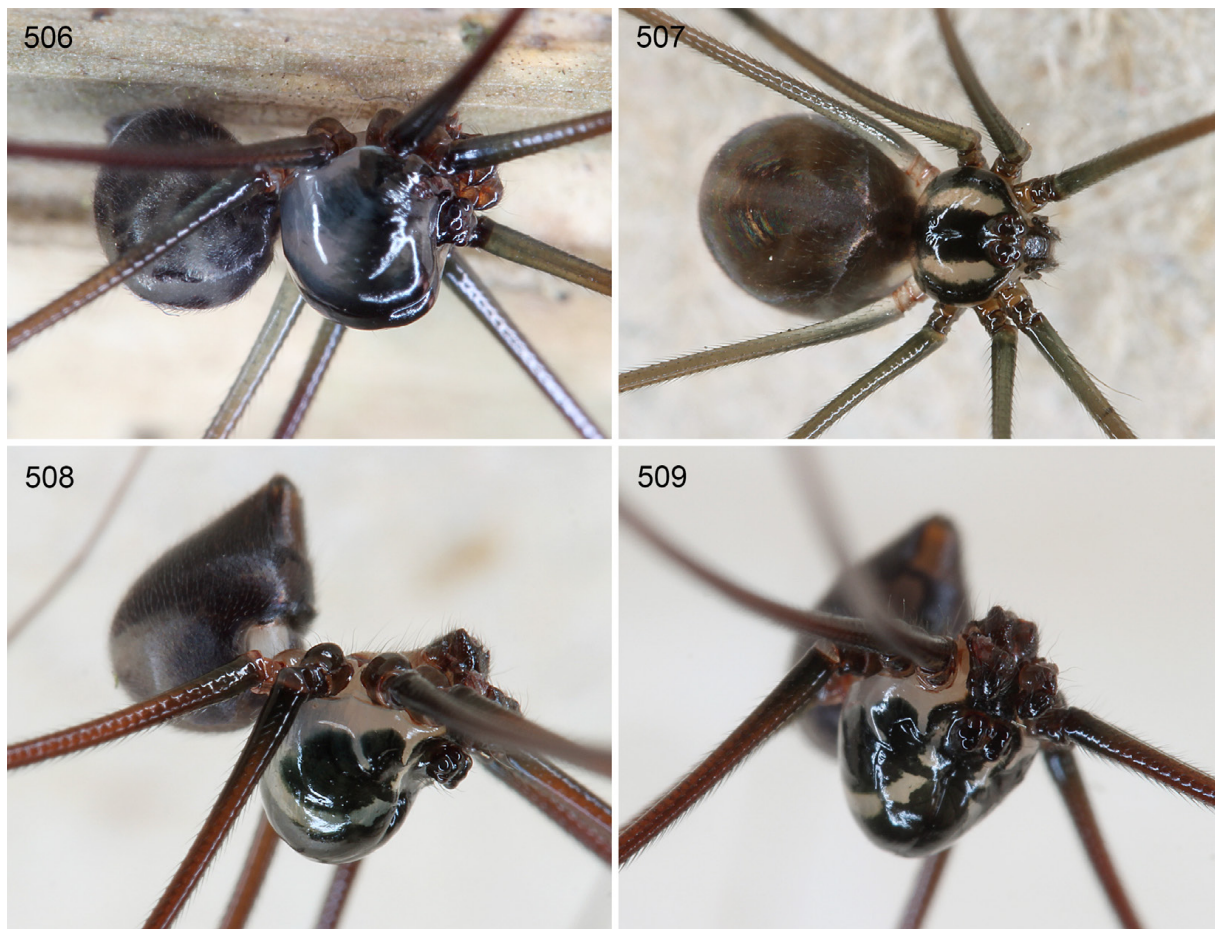
LEGS. Without spines and curved hairs; few vertical hairs; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~65 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in five males (including holotype): 8.5–9.9 (mean 9.4). One male with carapace strongly inflated like in holotype (Fig. 510), three males intermediate, one male with barely inflated carapace (Fig. 511).

Female

Similar to male (Fig. 507) but carapace not inflated, considerably smaller and with shorter legs (tibia 1 in four females: 6.4, 6.8, 6.9, 7.2). Epigynum (Fig. 545) relatively small, flat rectangular plate, without



Figs 506–509. *Mecolaesthus* Simon, 1893; live specimens. **506–507.** *M. graphorn* Huber sp. nov.; male and female from Aragua, Henri Pittier National Park, near La Cumbre. **508–509.** *M. cachapa* Huber sp. nov.; male from Aragua, Henri Pittier National Park, near La Cumbre.

posterior plate. Internal genitalia (Figs 522, 547) with large oval pore plates connected posteriorly to rounded sclerites.

Distribution

Known from type locality only, in Venezuela, Aragua (Fig. 1046).

Natural history

The spiders were collected in a well-preserved humid forest near a small stream. The weakly domed sheet webs had a diameter of ~30 cm and were built in sheltered spaces provided by rocks or logs. At disturbance the spiders started to swing/vibrate.

Mecolaesthus cachapa Huber sp. nov.

urn:lsid:zoobank.org:act:D71C641C-65D5-4019-9FF0-F8167340859A

Figs 508–509, 523–531, 548–550, 1046

Diagnosis

Distinguished from known congeners by details of male pedipalp (Figs 523–528; procurus slender and simple, with widened transparent tip; embolar division of genital bulb distally with large flat sclerite and three small ventral processes), by armature of male chelicerae (Figs 529–530; pair of small frontal apophyses), by epigynum (Fig. 548; anterior plate small, narrowing posteriorly with strong lateral margins; posterior plate wide but short), and by internal female genitalia (Figs 531, 550): pore plates on distinctively shaped sclerite with pair of rounded anterior sclerites (similar *M. trampa* Huber sp. nov.); lateral wing-shaped structures.

Etymology

The species name refers to *cachapa*, a Venezuelan dish made from maize flour, traditionally eaten with a soft, mozzarella-like cheese; noun in apposition.

Type material

VENEZUELA – Aragua • ♂ holotype, ZFMK (Ar 21945), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Other material examined

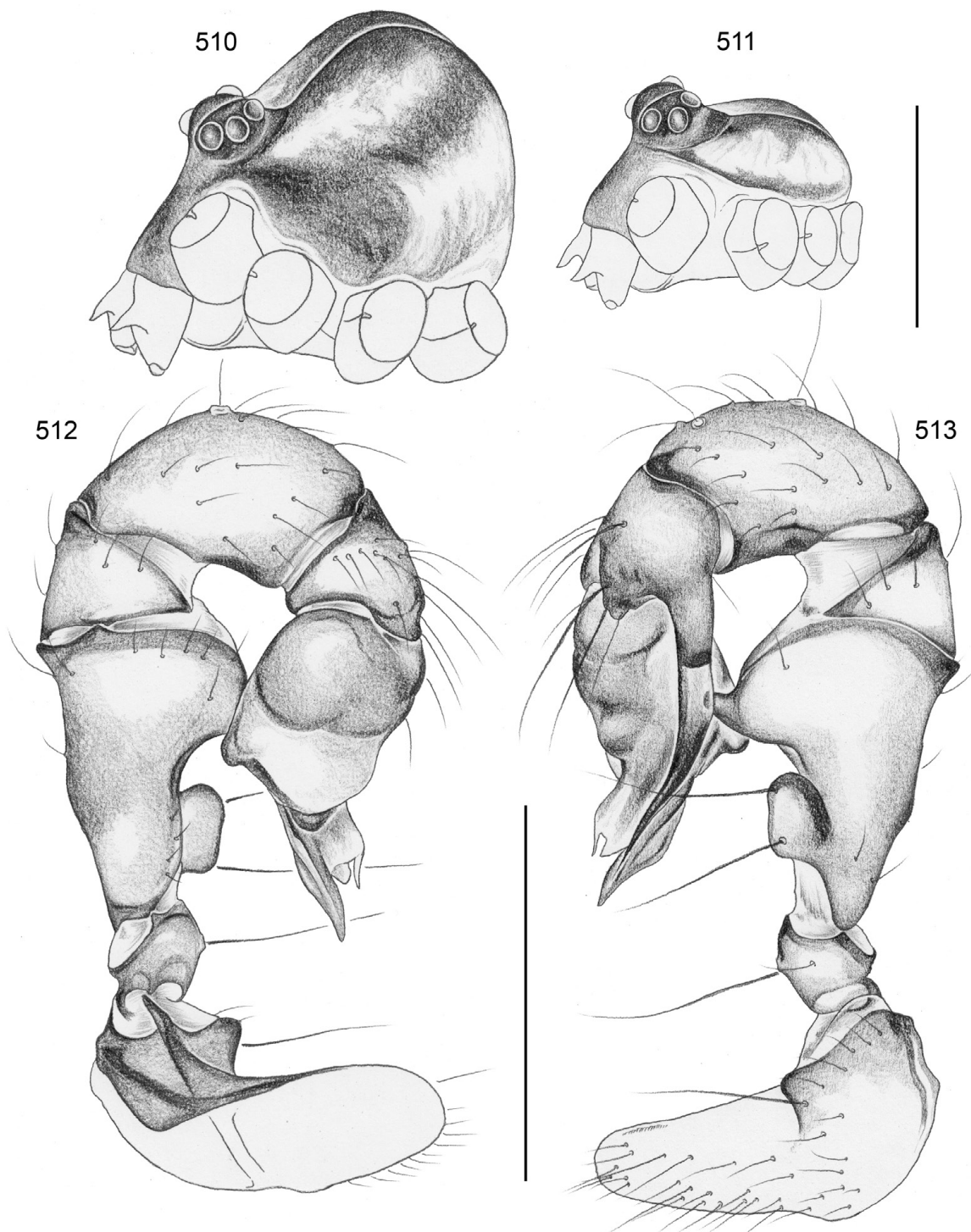
VENEZUELA – Aragua • 2 ♀♀, together with holotype, ZFMK (Ar 21945), same collection data as for holotype • 1 ♀, ZFMK (Ar 21946), Henri Pittier National Park, NW of Rancho Grande (10.358° N, 67.695° W), ~1100 m a.s.l., 11 Dec. 2002 (B.A. Huber).

Description

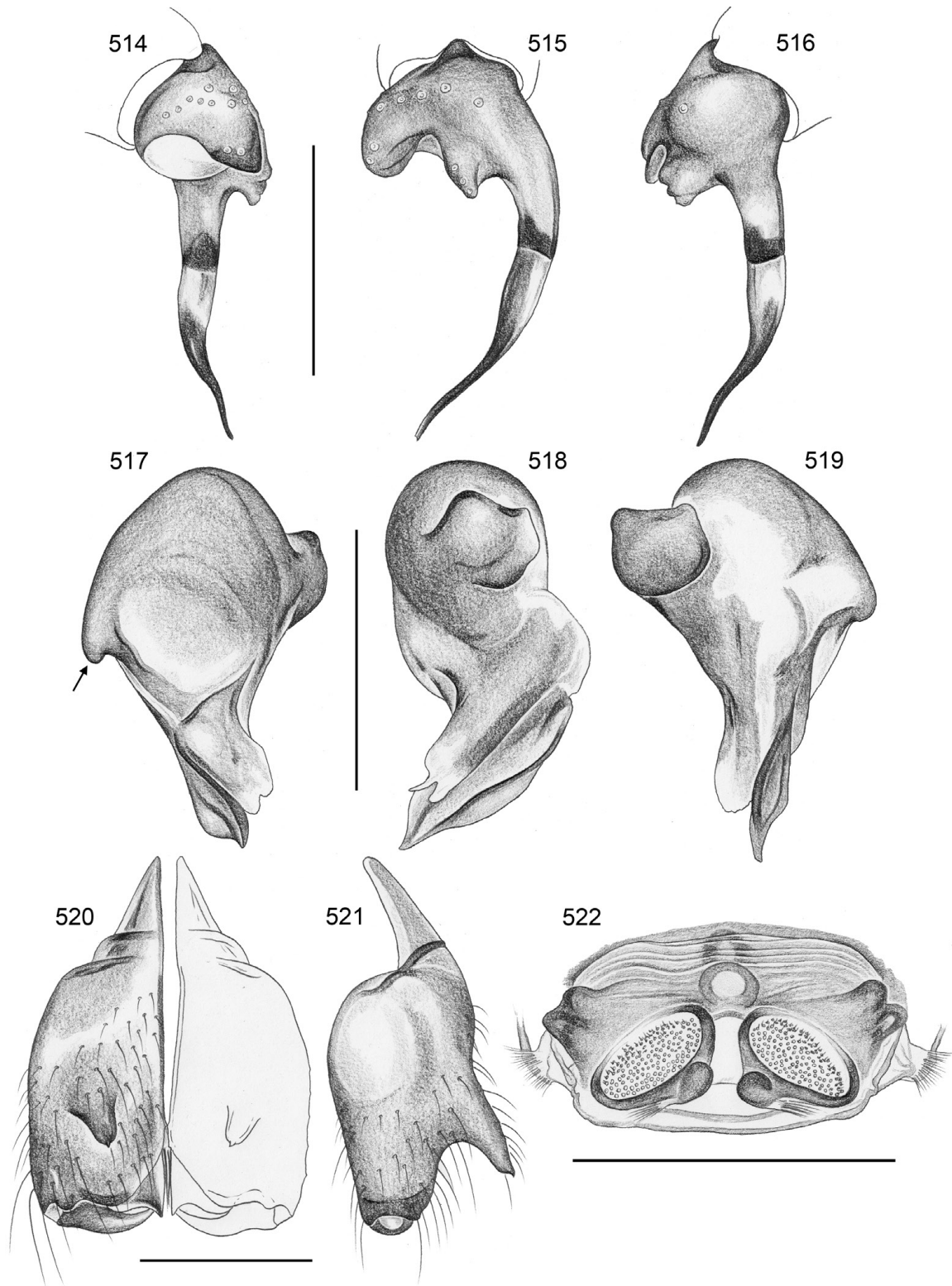
Male (holotype)

MEASUREMENTS. Total body length 3.6, carapace width 1.6. Distance PME–PME 140 µm; diameter PME 140 µm; distance PME–ALE 130 µm; distance AME–AME 20 µm; diameter AME 30 µm. Leg 1: 45.7 (10.7+0.5+10.7+19.7+4.1), tibia 2: 6.2, tibia 3: 4.7, tibia 4: 6.1; tibia 1 L/d: 82.

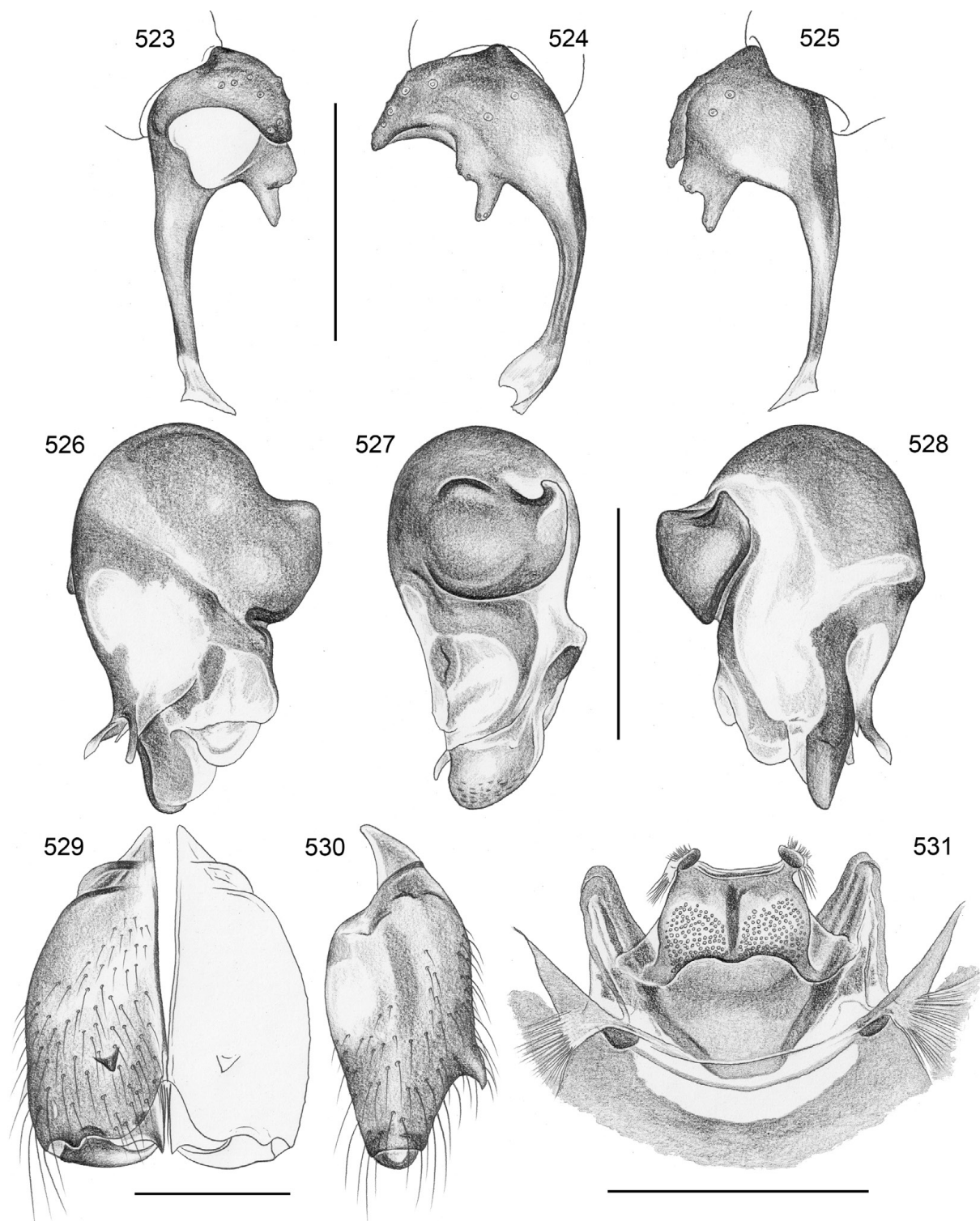
COLOR (in ethanol). Carapace mostly dark ochre to black, with pair of pale bands from behind ocular area to posterior margin; sternum light, with dark brown lateral marginal bands widening and connected posteriorly; legs brown, with darker rings on femora (subdistally) and tibiae (proximally, subdistally), tips of femora and tibiae light; abdomen gray, dorsally and laterally with dark bluish marks, ventrally



Figs 510–513. *Mecolaesthus graphorn* Huber sp. nov.; from Aragua, Henri Pittier National Park, near La Cumbre (type locality; ZFMK Ar 21943–44). **510–511.** Prosomata of large and small males (at same scale). **512–513.** Left male pedipalp, prolateral and retrolateral views. Scale lines: 510–511=1 mm; 512–513=0.5 mm.



Figs 514–522. *Mecolaesthus graphorn* Huber sp. nov.; from Aragua, Henri Pittier National Park, near La Cumbre (type locality; ZFMK Ar 21943–44). **514–516.** Left palpal tarsus and procurcus, prolateral, dorsal, and retrolateral views. **517–519.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: prolateral-ventral process). **520–521.** Male chelicerae, frontal and lateral views. **522.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.



Figs 523–531. *Mecolaesthus cachapa* Huber sp. nov.; from Henri Pittier National Park, near La Cumbre (type locality; ZFMK Ar 21945). **523–525.** Left palpal tarsus and procursus, prolateral, dorsal, and retrolateral views. **526–528.** Left genital bulb, prolateral, dorsal, and retrolateral views. **529–530.** Male chelicerae, frontal and lateral views. **531.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

with dark mark in gonopore area and dark bluish median mark behind gonopore widening posteriorly; book lung covers not darkened; abdomen without ventral and dorsal anterior modifications.

BODY. Habitus as in Figs 508–509. Ocular area moderately raised. Carapace strongly inflated, only anteriorly with deep thoracic groove. Clypeus unmodified. Sternum wider than long (1.1/0.75), unmodified. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Figs 529–530, with pair of small frontal apophyses.

PALPS. In general similar to *M. longipes* Huber sp. nov. (cf. Figs 399–400); coxa apophysis slightly less prominent; small ventral projection on trochanter slightly wider; distal ventral process of femur slightly more slender; retrolateral trichobothrium on tibia not in very distal position; tarsal dorsal process bifid, proximal part indistinct; procurus (Figs 523–525) slender and simple, with widened transparent tip; embolar division of genital bulb complex, distally with large flat sclerite and three small ventral processes (Figs 526–528).

LEGS. Without spines and curved hairs; with short vertical hairs in higher than usual density on all femora and tibiae; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~60 pseudosegments, mostly distinct.

Female

In general similar to male but carapace not inflated, leg femora and tibiae with low density of short vertical hairs, sternum lateral dark margins less distinct; tibia 1 in three females: 7.1, 7.6, 8.5. Epigynum (Fig. 548) anterior plate relatively small, narrowing posteriorly, with strong lateral margins; posterior plate wide but short. Internal genitalia (Figs 531, 549–550) with pore plates on distinctively shaped sclerite, pair of rounded anterior sclerites, and lateral wing-shaped structures.

Distribution

Known from two localities in Henri Pittier National Park, Venezuela, Aragua (Fig. 1046).

Natural history

At La Cumbre, this species could not be distinguished in the field from the more abundant *M. graphorn* Huber sp. nov.; the observations described there may thus also apply to this species.

Mecolaesthus guasacaca Huber sp. nov.

urn:lsid:zoobank.org:act:29447A47-88C3-4BBE-97CC-FA235EF12591

Figs 532–544, 551–553, 1045

Diagnosis

Distinguished from congeners by combination of: armature of male chelicerae (Figs 542–543; pair of long frontal processes slightly converging at tips); shape of procurus (Figs 536–538; distinct retrolateral apophysis; distinctive pair of distal processes, dorsal process dark with obtuse tip, ventral process transparent with pointed tip); shapes of distal bulbal sclerites (Figs 539–541; ventral sclerite with three distinctive elements); median process posteriorly on male carapace; epigynum (Fig. 551; relatively small dark brown plate, roundish and protruding); and internal female genitalia (Figs 544, 552–553; complex pore plate, transversal anterior sclerite, lateral wing-like sclerites).

Etymology

The species name refers to *guasacaca*, a savory sauce in Venezuelan cuisine, made from avocados, citrus juice, parsley, garlic, coriander, and chili peppers.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21947), Sierra de San Luis, E Curimagua (11.1748° N, 69.6273° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 3 ♀♀, ZFMK (Ar 21948), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 3.7, carapace width 1.4. Distance PME–PME 140 µm; diameter PME 115 µm; distance PME–ALE 80 µm; diameter AME 40 µm; distance AME–AME 20 µm. Leg 1: 46.4 (11.5+0.5+11.3+20.3+2.8), tibia 2: 7.1, tibia 3: 5.5, tibia 4: 6.8; tibia 1 L/d: 84.

COLOR (in ethanol). Carapace pale ochre-gray with light brown median mark, radial lines, and lateral margins, ocular area and clypeus light brown, clypeus with whitish median marks below AME and at distal margin; sternum pale ochre-yellow, slightly darker anteriorly; legs ochre to light brown, without dark rings, tips of femora and tibiae lighter; abdomen pale gray, dorsally and laterally densely covered with dark bluish marks, ventrally with brown mark in gonopore area, light brown book lung covers, and bluish median mark behind gonopore; without dark plate above pedicel.

BODY. Habitus as in Fig. 532. Ocular area moderately raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly not inflated but with distinct median process. Clypeus unmodified. Sternum wider than long (0.95/0.65). Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. AS in Figs 542–543, with pair of long frontal apophyses slightly converging distally, without modified hairs.

PALPS. AS in Figs 534–535; coxa with retrolateral apophysis, trochanter with small ventral process, femur proximally with large retrolateral-ventral process, distally with large rounded ventral process; procurus (Figs 536–538) at basis with short dorsal process with obtuse tip, with distinct retrolateral process, with distinctive pair of distal processes, dorsal process dark with obtuse tip, ventral process transparent with pointed tip; genital bulb complex (Figs 539–541), large distal process partly membranous/whitish, with distinctive ventral sclerite consisting of three elements (arrows in Fig. 539).

LEGS. Without spines and curved hairs; few vertical hairs; coxa 4 with median ventral process set with small tubercles (apparently not opposing any abdominal structure; arrow in Fig. 533); retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, mostly distinct.

Female

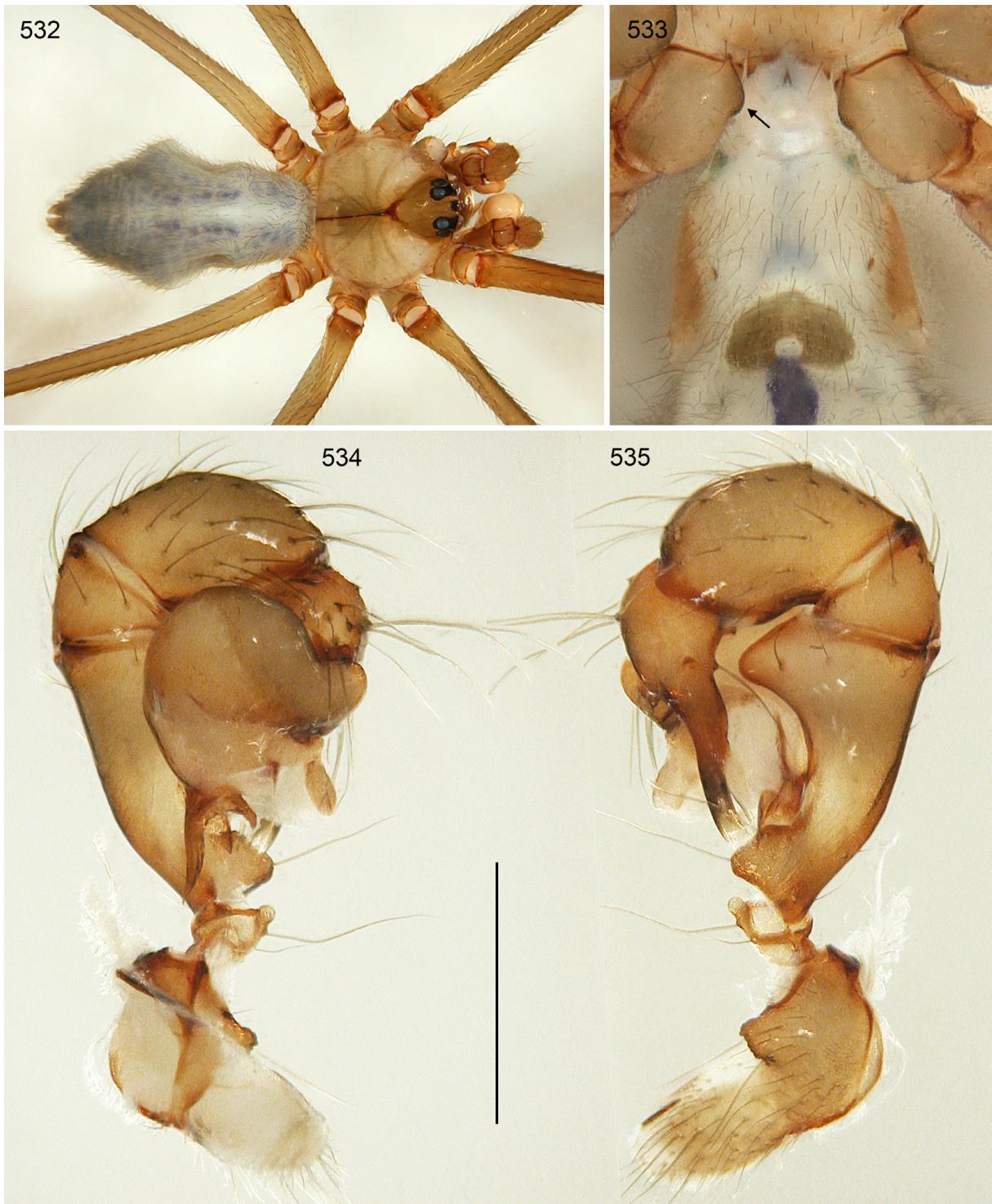
In general similar to male but carapace posteriorly without median process and coxa 4 without median ventral process. Tibia 1 in three females: 9.4, 9.4, 10.7. Epigynum (Fig. 551) relatively small dark brown plate, roundish and protruding, whitish area in front of epigynum; posterior plate short but wide. Internal genitalia (Figs 544, 552–553) with complex pore plates that appear twisted or divided into two parts each; with transversal anterior sclerite and lateral wing-shaped sclerites.

Distribution

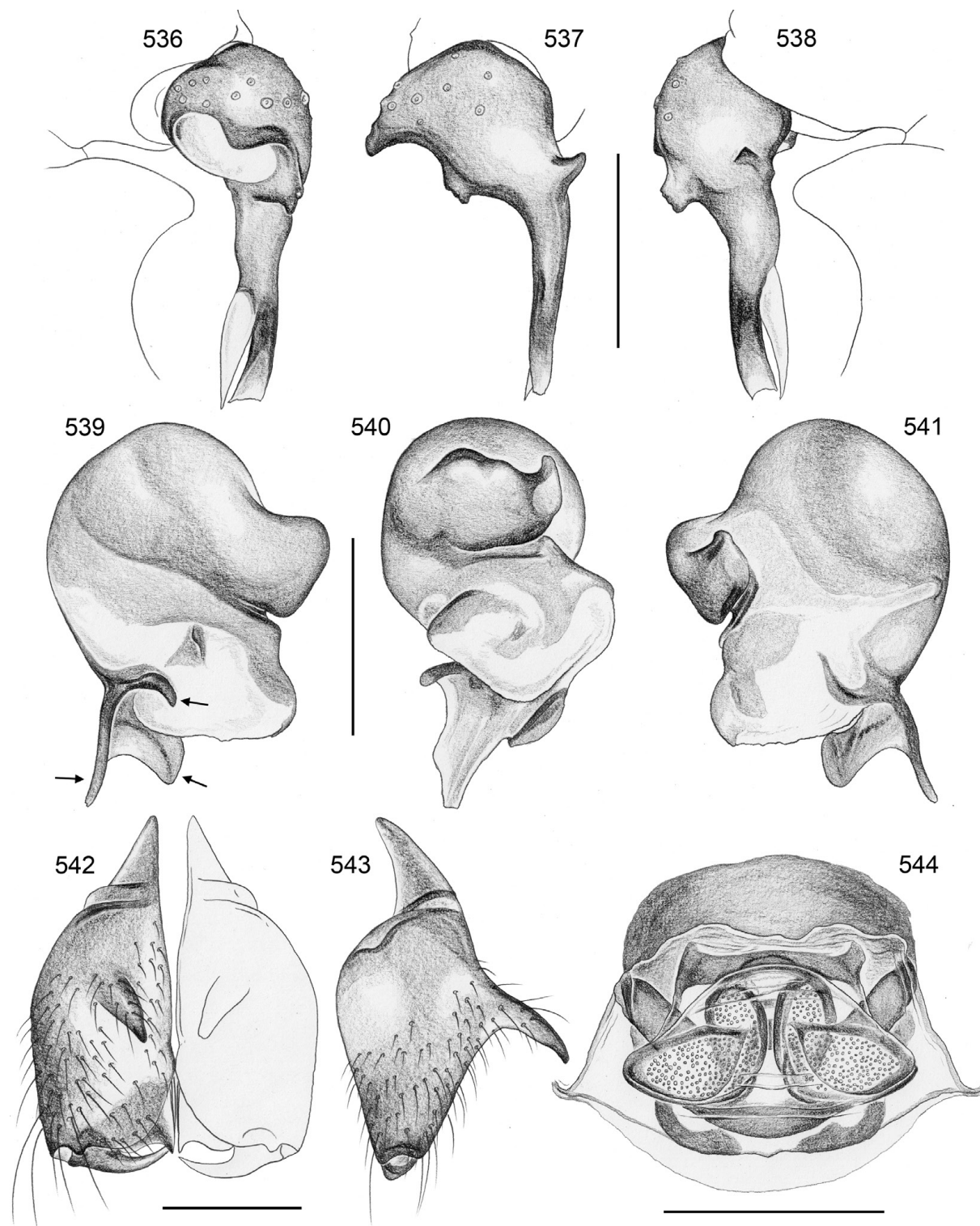
Known from type locality only, in Venezuela, Falcón (Fig. 1045).

Natural history

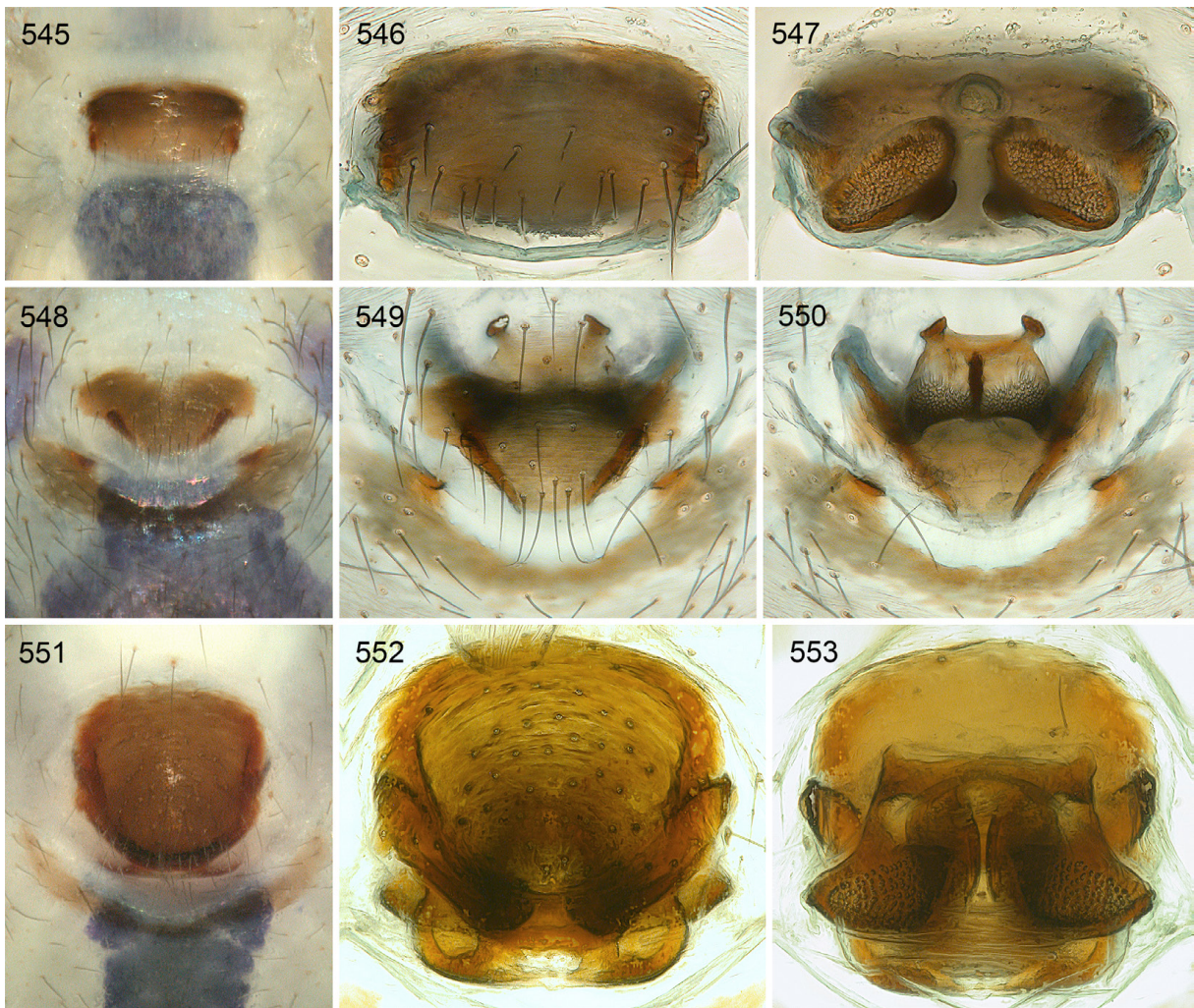
The species was found among rocks near the ground in a well preserved humid forest.



Figs 532–535. *Mecolaesthus guasacaca* Huber sp. nov.; male holotype from Falcón, Curimagua (ZFMK Ar 21947). **532.** Habitus, dorsal view. **533.** Coxae 4 and anterior part of abdomen, ventral view (arrow: median ventral process on coxa 4). **534–535.** Left pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 536–544. *Mecolaesthus guasacaca* Huber sp. nov.; from Falcón, Curimagua (type locality; ZFMK Ar 21947–48). **536–538.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **539–541.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrows: three distinctive elements of ventral bulbal sclerite). **542–543.** Male chelicerae, frontal and lateral views. **544.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.



Figs 545–553. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **545–547.** *M. graphorn* Huber sp. nov.; from Aragua, Henri Pittier National Park, near La Cumbre (type locality; ZFMK Ar 21944). **548–550.** *M. cachapa* Huber sp. nov.; from Aragua, Henri Pittier National Park, near La Cumbre (type locality; ZFMK Ar 21945). **551–553.** *M. guasacaca* Huber sp. nov.; from Falcón, Curimagua (type locality; ZFMK Ar 21948).

Mecolaesthus yerbatero Huber sp. nov.

urn:lsid:zoobank.org:act:69C90207-D2BA-4DA2-9F06-54A7AC298AF4

Figs 554–555, 560–568, 576–578, 1045

Diagnosis

Easily distinguished from similar pale leaf-dwelling Venezuelan pholcids (*Mecolaesthus fallax* Huber sp. nov.; *Systemita prasina* Simon, 1893; *Metagonia* spp.) by presence of AME, by distinctive pair of apophyses distally on male chelicerae (Figs 566–567; directed towards median), by shape of simple procurus with bifid tip (Figs 560–562), and by epigynum and female internal genitalia (Figs 568, 576–578): slightly longer than wide weakly sclerotized plate; tube-like internal structure ending at posterior margin of plate (arrow in Fig. 568); distinctive position of pore plates.

Etymology

Named for “Yerbatero” of Colombian singer-songwriter Juanes, in which the protagonist has remedies to offer for almost any suffering; noun in apposition.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 21949), between Mérida and Barinas, ‘site 2’ (8.8645° N, 70.6182° W), 1650 m a.s.l., 27 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material

VENEZUELA – Mérida • 2 ♂♂, 1 ♀, 3 juvs, ZFMK (Ar 21950), and 1 ♀, 6 juvs in pure ethanol, ZFMK (Ven18-235), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.6, carapace width 1.0. Distance PME–PME 130 µm; diameter PME 80 µm; distance PME–ALE 70 µm; distance AME–AME 35 µm; diameter AME 20 µm. Leg 1: 37.2 (8.9+0.5+8.9+16.0+2.9), tibia 2: 5.3, tibia 3: 3.9, tibia 4: 4.8; tibia 1 L/d: 89.

COLOR (in ethanol). Carapace pale ochre-gray (with greenish internal mark in live specimens), with thin dark median line; ocular area with light brown V-mark; clypeus light brown; sternum whitish; palps ochre-yellow (reddish in live specimens); legs ochre-yellow, with dark rings on tibiae proximally and subdistally, femur 1 proximally darkened; abdomen pale greenish gray, with few darker bluish marks dorsally, monochromous ventrally.

BODY. Habitus as in Fig. 554. Ocular area slightly raised. Carapace very weakly inflated posteriorly, with shallow thoracic groove in anterior part. Clypeus unmodified. Sternum wider than long (0.80/0.55), unmodified. Abdomen slightly elongated, widest in posterior third, pointed at spinnerets.

CHELICERAE. As in Figs 566–567, with pair of proximal anterior humps provided distally with transversal ridges, and distinctive pair of distal apophyses directed towards median.

PALPS. In general similar to *M. guasacaca* Huber sp. nov. (cf. Figs 534–535) but trochanter with larger ventral process and femur proximally with lower retrolateral process; procurus (Figs 560–562) simple, proximally with indistinct dorsal process, distally with bifid tip; genital bulb (Figs 563–565) with large distal process mostly membranous.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 2.5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~45 pseudosegments, mostly distinct.

Male (variation)

Tibia 1 in two other males: 9.0, 9.2.

Female

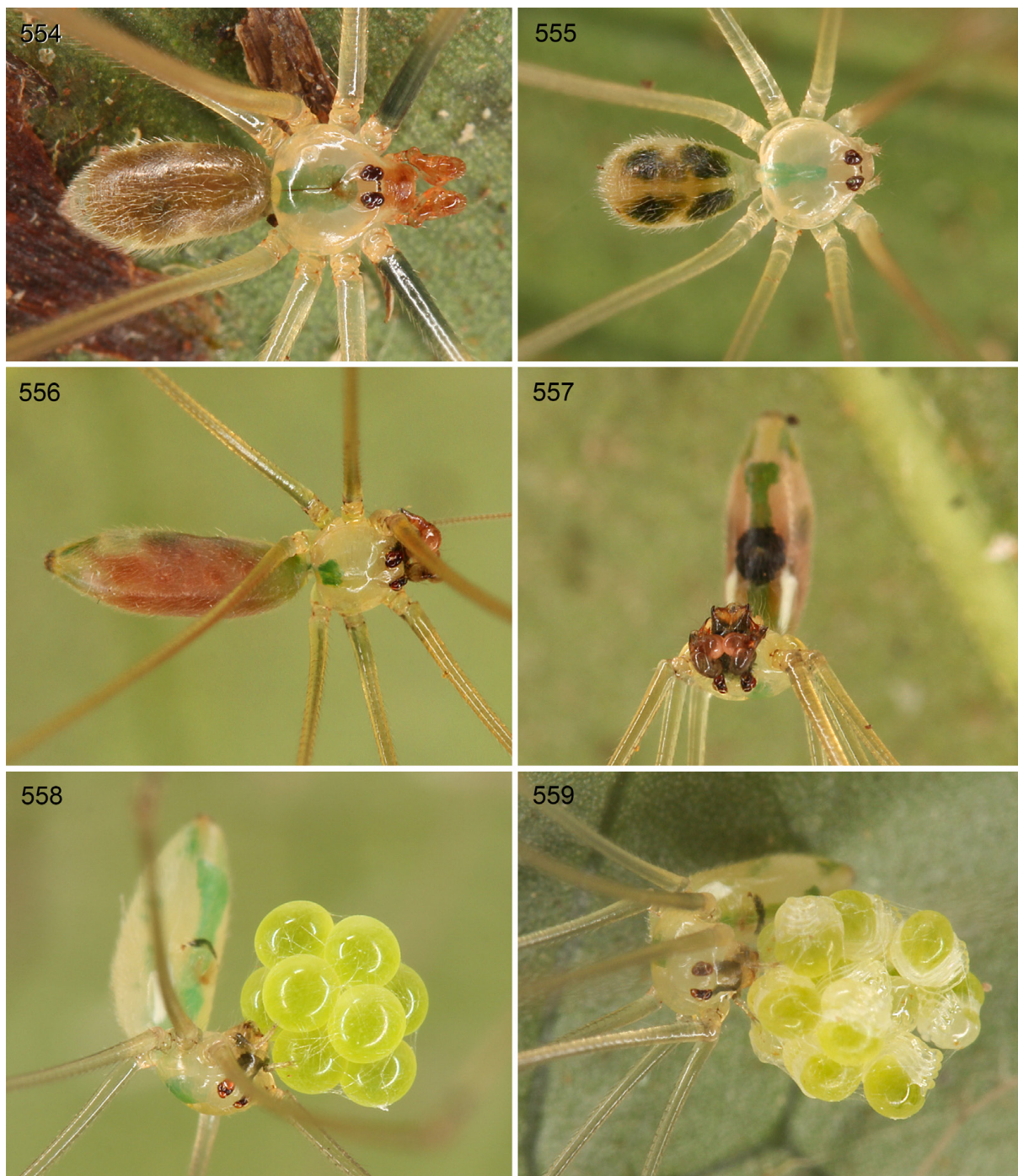
In general similar to male (Fig. 555) but paler (recently molted?), entire prosoma whitish, femur 1 proximally not darkened. Tibia 1 in two females: 5.4, 6.0. Epigynum (Fig. 576) weakly sclerotized, slightly longer than wide, posteriorly weakly bulging, internal structures partly visible in uncleared specimens. Internal genitalia (Figs 568, 577–578) with tube-like structure ending at posterior margin of epigynal plate (arrow in Fig. 568); distinctive position of pore plates; anterior ‘valve’ with median receptacle.

Distribution

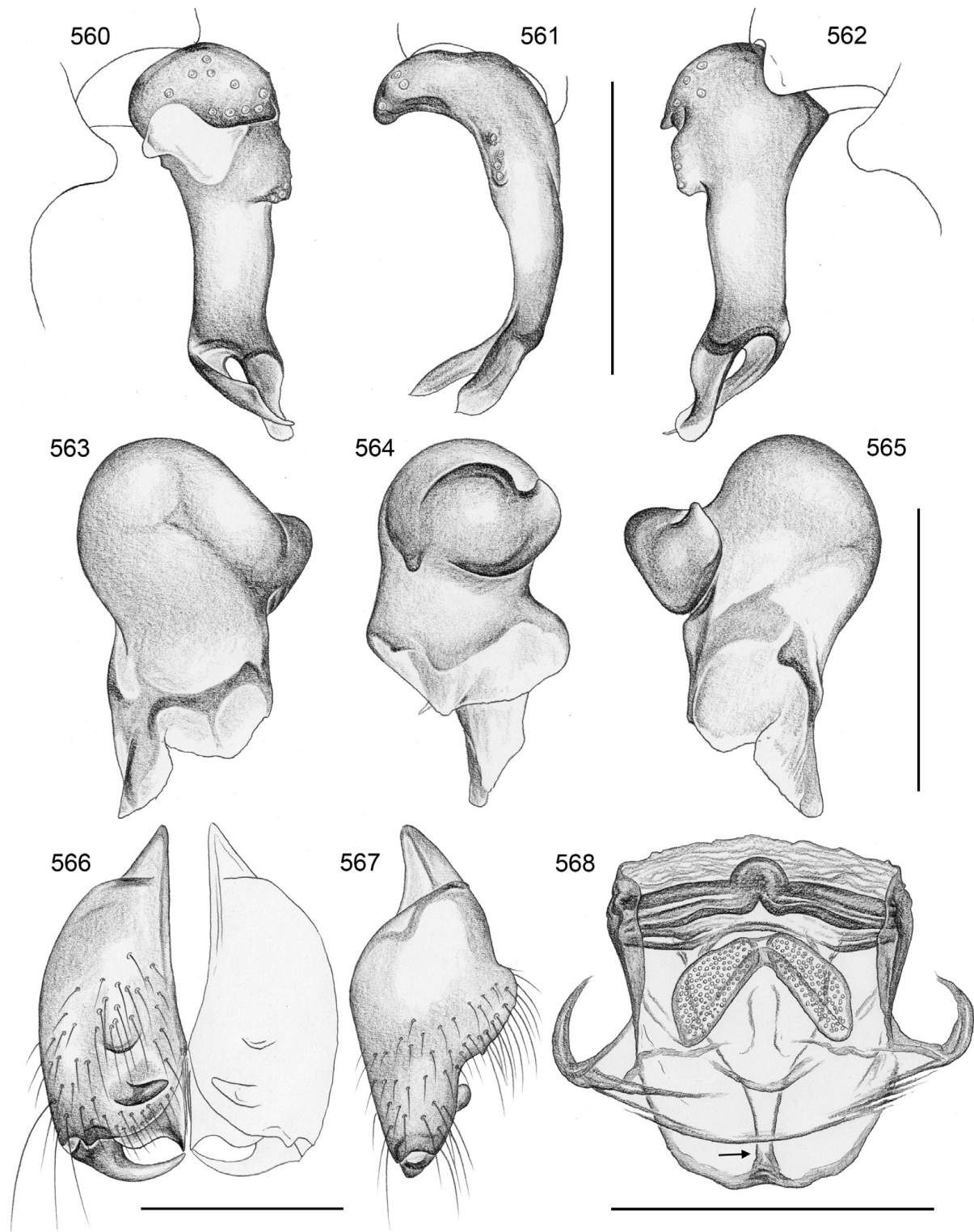
Known from type locality only, in Venezuela, Mérida (Fig. 1045).

Natural history

The spiders were found in a forest along a mountain stream. Their slightly domed sheet webs were attached to the undersides of leaves ~0.5–1.5 m above the ground, with the spider resting in the apex of the dome directly under the leaf. Most specimens were found in a ‘regular’ position, i.e., ventral side of abdomen facing upwards; one specimen was found in an inverted resting position (abdomen dorsal side upwards).



Figs 554–559. *Mecolaesthus* Simon, 1893; live specimens. **554–555.** *M. yerbatero* Huber sp. nov.; male and female from Mérida, between Mérida and Barinas. **556–559.** *M. fallax* Huber sp. nov.; males from Mérida, Mucuy and females from Trujillo, Laguna Negra.



Figs 560–568. *Mecolaesthus yerbatero* Huber sp. nov.; from Mérida, between Mérida and Barinas (type locality; ZFMK Ar 21950). **560–562.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views. **563–565.** Left genital bulb, prolateral, dorsal, and retrolateral views. **566–567.** Male chelicerae, frontal and lateral views. **568.** Cleared female genitalia, dorsal view (arrow: tube-like internal structure). Scale lines: 0.3 mm.

Mecolaesthus fallax Huber sp. nov.

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Figs 556–559, 569–575, 579–581, 1045

Mecolaesthus Ven02/80-12 – Eberle *et al.* 2018 (molecular data). — Huber *et al.* 2018: fig. 5.

Diagnosis

Easily distinguished from similar pale six-eyed pholcids (*Systemita prasina* Simon, 1893; *Metagonia* spp.) by distinctive pair of apophyses distally on genital bulb (Figs 569, 571), by shape of simple procurus with bifid tip (Figs 573–574), by armature of male chelicerae (Fig. 572; pair of distal lateral apophyses), and by epigynum and female internal genitalia (Figs 575, 579–581; pair of sclerotized lateral pockets; brown posterior plate; oval median receptacle).

Etymology

The species name (Latin: misleading, deceiving) refers to the intriguing superficial similarity of this species with *Systemita prasina*; adjective.

Type material

VENEZUELA – **Trujillo** • ♂ holotype, ZFMK (Ar 21951), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

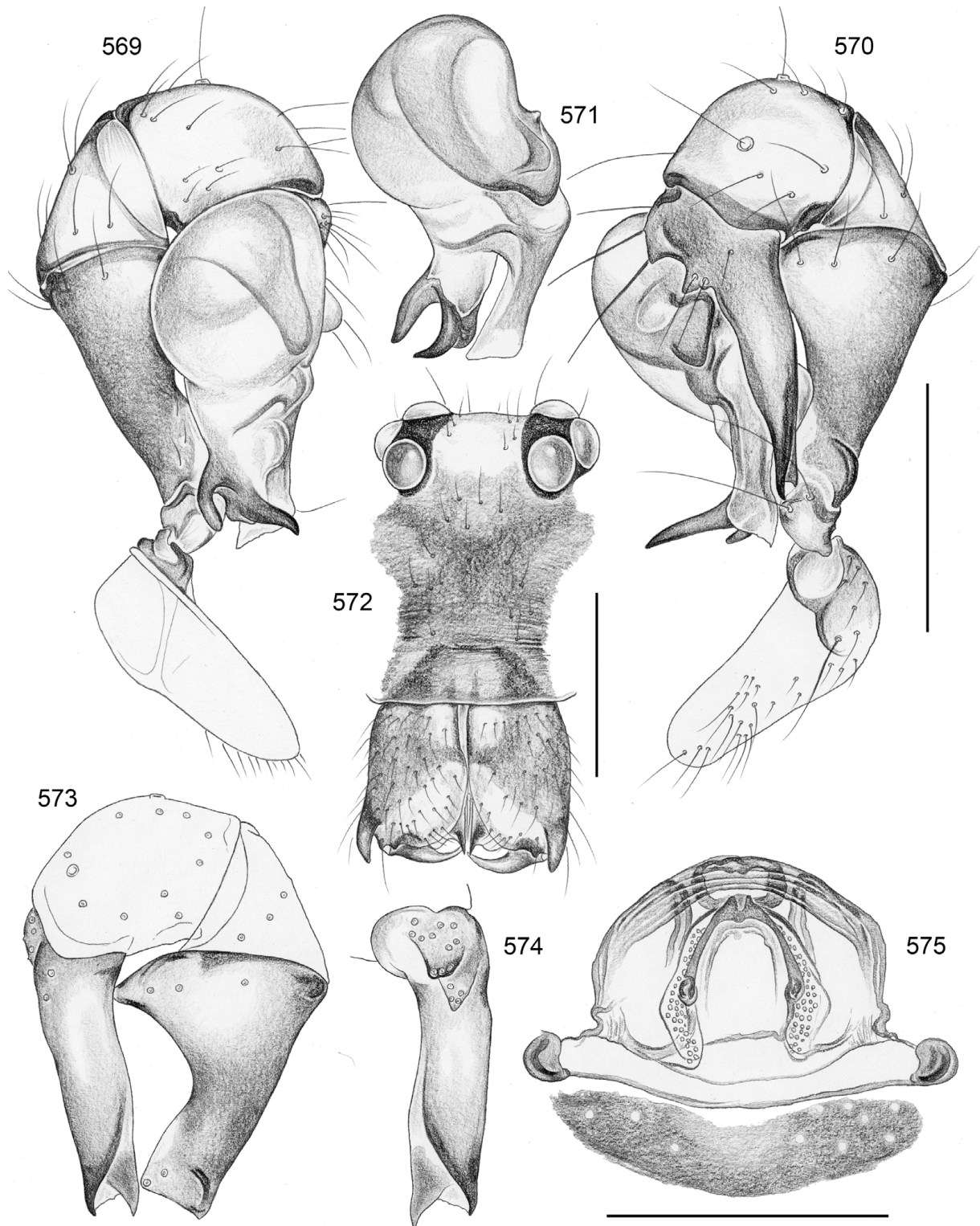
VENEZUELA – **Trujillo** • 11 ♂♂, 6 ♀♀, 1 juv., ZFMK (Ar 21952–53), and 4 ♀♀, 2 juvs in pure ethanol, ZFMK (Ven18-211), same collection data as for holotype • 1 ♂, MIZA 105578 (MAGS 1415), same locality, 13 Sep. 1996 (A.R. Delgado, J.A. González D., M.A. González S.) • 2 ♂♂, 1 ♀, 1 juv., ZFMK (Ar 21954), and 2 juvs in pure ethanol, ZFMK (Ven18-217), between Boconó and Burbusay (9.3945° N, 70.2674° W), 1820 m a.s.l., 22 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Mérida** • 13 ♂♂, 12 ♀♀, ZFMK (Ar 21955–56), and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven18-221), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), 2270–2690 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♂♂, 4 ♀♀, ZFMK (Ar 21957), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven18-233), Monte Zerpa, forest above La Hechicera (8.634° N, 71.163° W – 8.639° N, 71.167° W), 2050–2180 m a.s.l., 26 Nov. 2018 (B.A. Huber, O. Villarreal M., N.A. Sánchez G.) • 4 ♂♂, 3 ♀♀, ZFMK (Ar 21958), and 1 ♂, 2 ♀♀, 5 juvs in pure ethanol, ZFMK (Ven20-112), forest near La Carbonera (8.6276° N, 71.3688° W), 2380 m a.s.l., 8 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, ZFMK (Ar 21959), Chorrera Las González (8.5860° N, 71.2989° W), 1750 m a.s.l., 8 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Lara** • 10 ♂♂, 6 ♀♀, 3 juvs, ZFMK (Ar 21960), and 1 ♂, 3 ♀♀, 7 juvs in pure ethanol, ZFMK (Ven02/100-61), Yacambú National Park, Sendero Ecológico (9.708° N, 69.583° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi).

Description

Male (holotype)

MEASUREMENTS. Total body length 2.9, carapace width 0.85. Distance PME–PME 130 µm; diameter PME 70 µm; distance PME–ALE 50 µm; AME absent. Leg 1: 34.1 (8.2+0.4+7.9+15.5+2.1), tibia 2: 5.1, tibia 3: 3.5, tibia 4: 4.3; tibia 1 L/d: 99.

COLOR (in ethanol). Carapace and ocular area whitish, clypeus dark brown, sternum whitish; legs pale ochre-yellow with slightly darker rings on patella, subdistally on tibia, and at tibia-metatarsus joint; abdomen greenish-gray, with large brown mark in gonopore area.



Figs 569–575. *Mecolaesthus fallax* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21952–53). **569–570.** Left male pedipalp, prolateral and retrolateral (slightly dorsal) views. **571.** Left genital bulb, dorsal view. **572.** Male ocular area, clypeus, and chelicerae, frontal view. **573.** Left palpal segments, retrolateral view. **574.** Left procurrus, dorsal view. **575.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm (all palpal elements at same scale).

BODY. Habitus as in Figs 556–557. Ocular area barely raised. Carapace not inflated posteriorly, with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.65/0.50), unmodified. Abdomen elongate, pointed at spinnerets.

CHELICERAE. As in Fig. 572, with pair of strong distal lateral apophyses.

PALPS. As in Figs 569–570; coxa with retrolateral apophysis, trochanter slightly protruding ventrally, femur proximally with retrolateral apophysis and small ventral projection, distally strongly widened, with large ventral process; procurus (Figs 573–574) simple, with strongly sclerotized dorsal pointed tip and flat ventral triangular process; genital bulb (Figs 569, 571) distally with weakly sclerotized dorsal process (presumably carrying the sperm duct) and distinctive ventral process with two sclerotized apophyses.

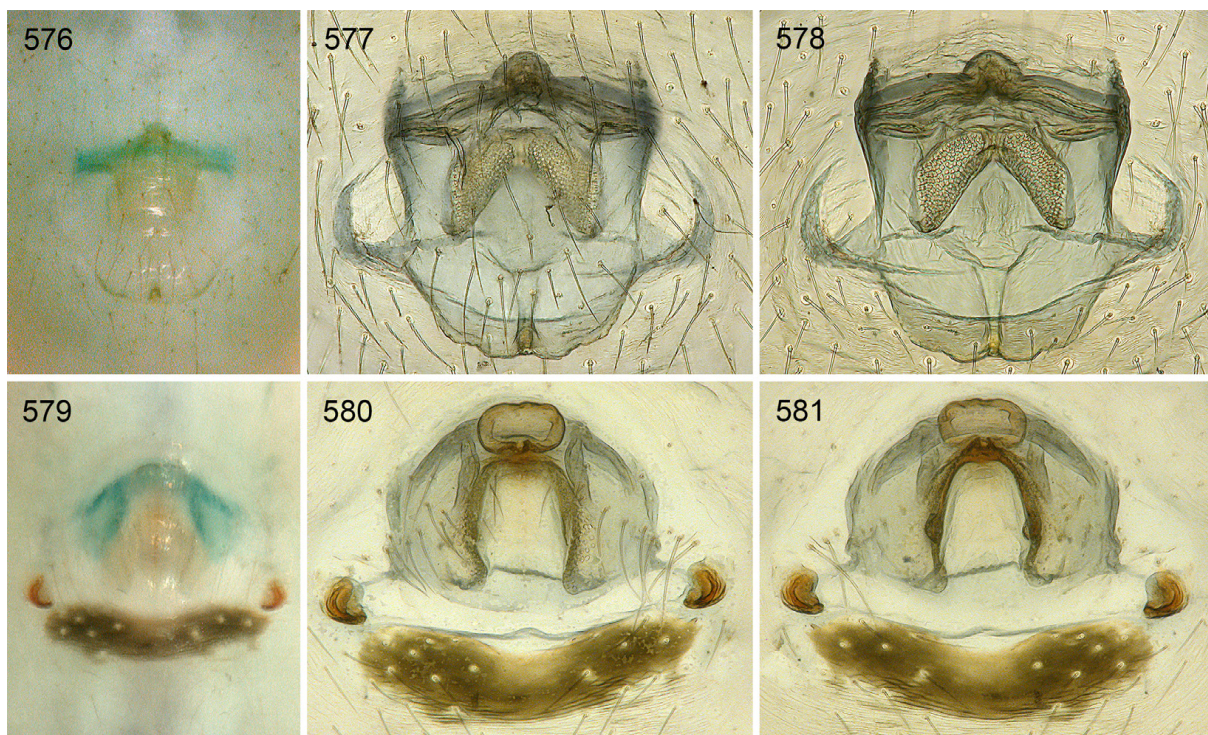
LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 3%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~35 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in 31 other males: 6.7–8.4 (mean 7.7); abdomen color variable, from pale gray to greenish and bluish; some males with wide, bluish or purple median band behind brown mark in gonopore area.

Female

In general similar to male (Figs 558–559), clypeus mark lighter and medially divided. Tibia 1 in 21 females: 5.0–6.1 (mean 5.6). Epigynum (Fig. 579) weakly sclerotized and weakly bulging, internal structures partly visible in uncleared specimens; with pair of dark brown lateral pockets (distance



Figs 576–581. *Mecolaesthus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **576–578.** *M. yerbatero* Huber sp. nov.; from Mérida, between Mérida and Barinas (type locality; ZFMK Ar 21950). **579–581.** *M. fallax* Huber sp. nov.; from Trujillo, Laguna Negra (type locality; ZFMK Ar 21953).

~360 µm); posterior plate large and dark brown. Internal genitalia (Figs 575, 580–581) with strongly curved median arc, anteriorly with oval median receptacle and pair of lateral V-shaped membranous structures; pore plates contiguous to median arc.

Distribution

Known from several localities in the Andean Venezuelan states Trujillo, Mérida, and Lara (Fig. 1045).

Natural history

In the field, this species is indistinguishable from *Systemita prasina*: apart from having the same size and habitus, it builds the same weakly domed webs attached at their apex to the undersides of leaves and has the same partly inverted resting position (abdomen dorsal side upwards). At most sampling sites, this was a relatively abundant species. However, the distribution was sometimes patchy; for example, most specimens in the forest near La Carbonera were collected within a few meters.

Mecolaesthus limon Huber sp. nov.

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Figs 582–593, 1046

Diagnosis

Easily distinguished from known congeners by details of male pedipalp (Figs 589–590; procurus slender and simple; genital bulb with prolateral process and complex embolar division), by armature of male chelicerae (Figs 591–592; two pairs of frontal apophyses), by presence of spines ventrally on male femur 1, and by unique shape of epigynum (Fig. 586; very short but wide anterior plate, large posterior plate slightly protruding and with whitish median area anteriorly).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – La Guaira • ♂ holotype, ZFMK (Ar 21961), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – La Guaira • 5 ♂♂, 5 ♀♀, ZFMK (Ar 21962–63), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven20-174), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.7, carapace width 1.05. Distance PME–PME 90 µm; diameter PME 120 µm; distance PME–ALE 80 µm; AME absent (distinct dark mark but no lenses). Leg 1: 35.7 (8.4+0.5+8.1+15.6+3.1), tibia 2: 5.0, tibia 3: 3.6, tibia 4: 4.7; tibia 1 L/d: 81.

COLOR (in ethanol). Carapace pale gray, with wide dark brown lateral marginal bands connected posteriorly with wide dark brown median mark widened behind ocular area; ocular area and clypeus light reddish-brown; sternum light ochre-yellow, with dark brown margins; legs brown, with black rings on femora (subdistally) and tibiae (proximally, subdistally), tips of femora, tibiae, and metatarsi light; abdomen greenish gray, dorsally and laterally with dark bluish marks, ventrally with light brown mark

in gonopore area and dark bluish median band behind gonopore; book lung covers not darkened; without dark plate above pedicel.

BODY. Habitus as in Figs 582–583. Ocular area moderately raised. Carapace anteriorly with shallow but distinct thoracic groove, posteriorly strongly inflated. Clypeus unmodified. Sternum wider than long (0.86/0.60), unmodified. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Figs 591–592, with two pairs of pointed frontal apophyses, distal pair overhanging fangs.

PALPS. As in Figs 589–590; coxa with strong retrolateral-ventral apophysis, trochanter barely modified, femur proximally with large retrolateral-ventral process, dorsally with low hump, distally with long and tapering ventral process and with prolateral protrusion; procurus slender and very simple; genital bulb with prolateral process densely set with small tubercles, complex embolar division apparently forming furrow for procurus.

LEGS. With single row of ~18–20 very short spines on femur 1, restricted to proximal third of femur, with elevated sockets; without curved hairs; few vertical hairs; coxa 4 unmodified; retrolateral trichobothrium of tibia 1 at 2%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~55–60 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in six males (including holotype): 7.7–9.0 (mean 8.4). Smallest male with fewer spines on femur 1 (~7 on each side), carapace barely inflated, without lateral dark marks (as in females). Some males with tiny AME lenses.

Female

Unusually different from male (Figs 584–585), considerably smaller and with shorter legs (tibia 1 in five females: 5.2–5.6; mean 5.4), carapace not inflated and without lateral dark bands, ocular area dark brown, clypeus pale gray, femur 1 without spines, AME present in all females. Epigynum (Fig. 586) consisting of short but wide anterior plate and large posterior plate slightly protruding and with whitish median area anteriorly. Internal genitalia (Figs 587–588, 593) small relative to epigynum, oval pore plates close together on central sclerite.

Distribution

Known from type locality only, in Venezuela, La Guaira (Fig. 1046).

Natural history

The spiders were collected in a well preserved humid forest near a small stream. The weakly domed sheet webs had a diameter of ~30 cm and were built ~20–50 cm above the ground, in sheltered spaces provided by rocks or logs.

Mesabolivar González-Sponga, 1998

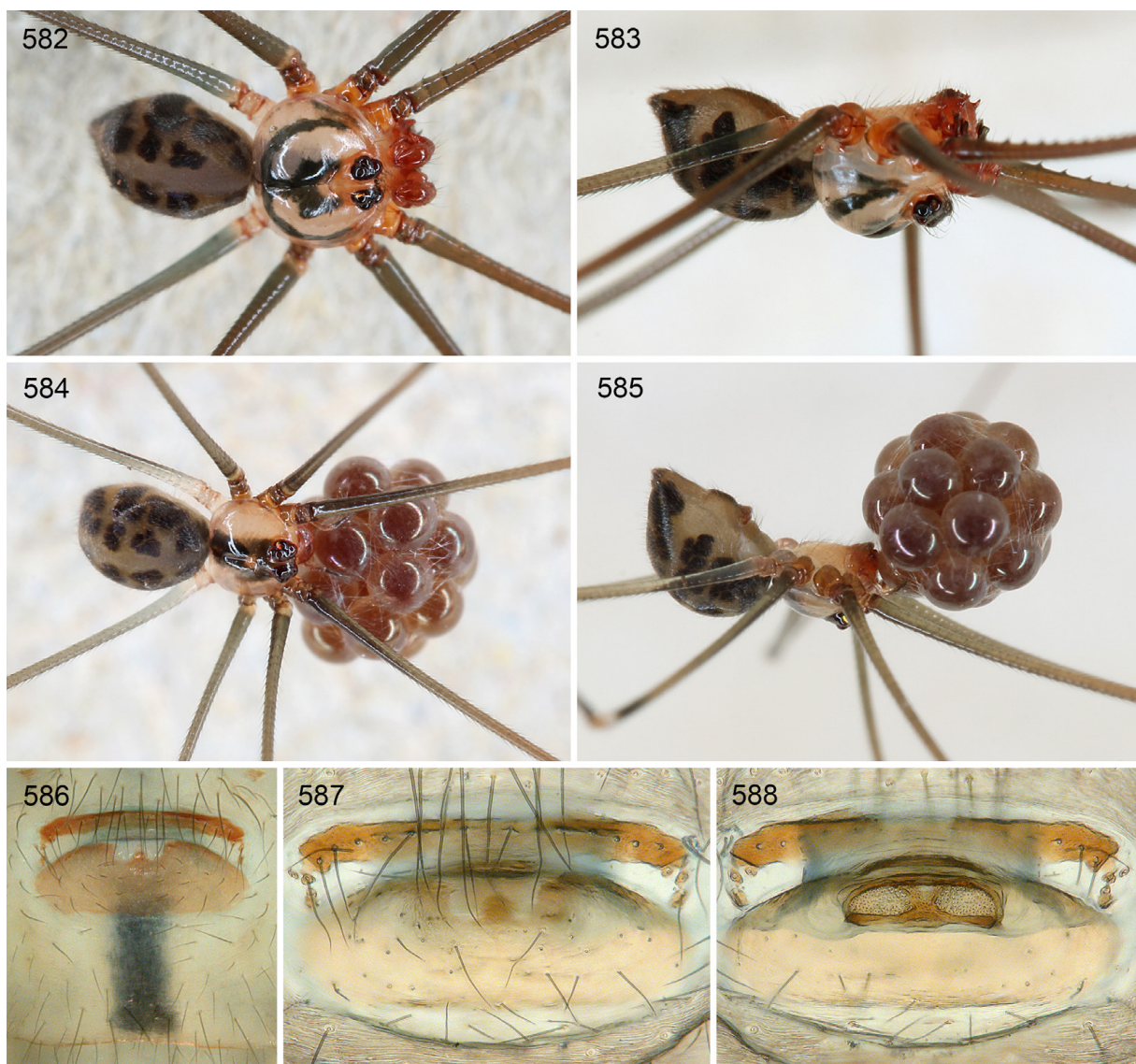
Notes

Mesabolivar is among the most species-rich Neotropical pholcid genera, with currently 94 described species and many undescribed species present in collections (B.A. Huber, L.S. Carvalho, unpubl. data). A recent revision of the genus proposed nine species groups (Huber 2018). Only two of these are present in Venezuela:

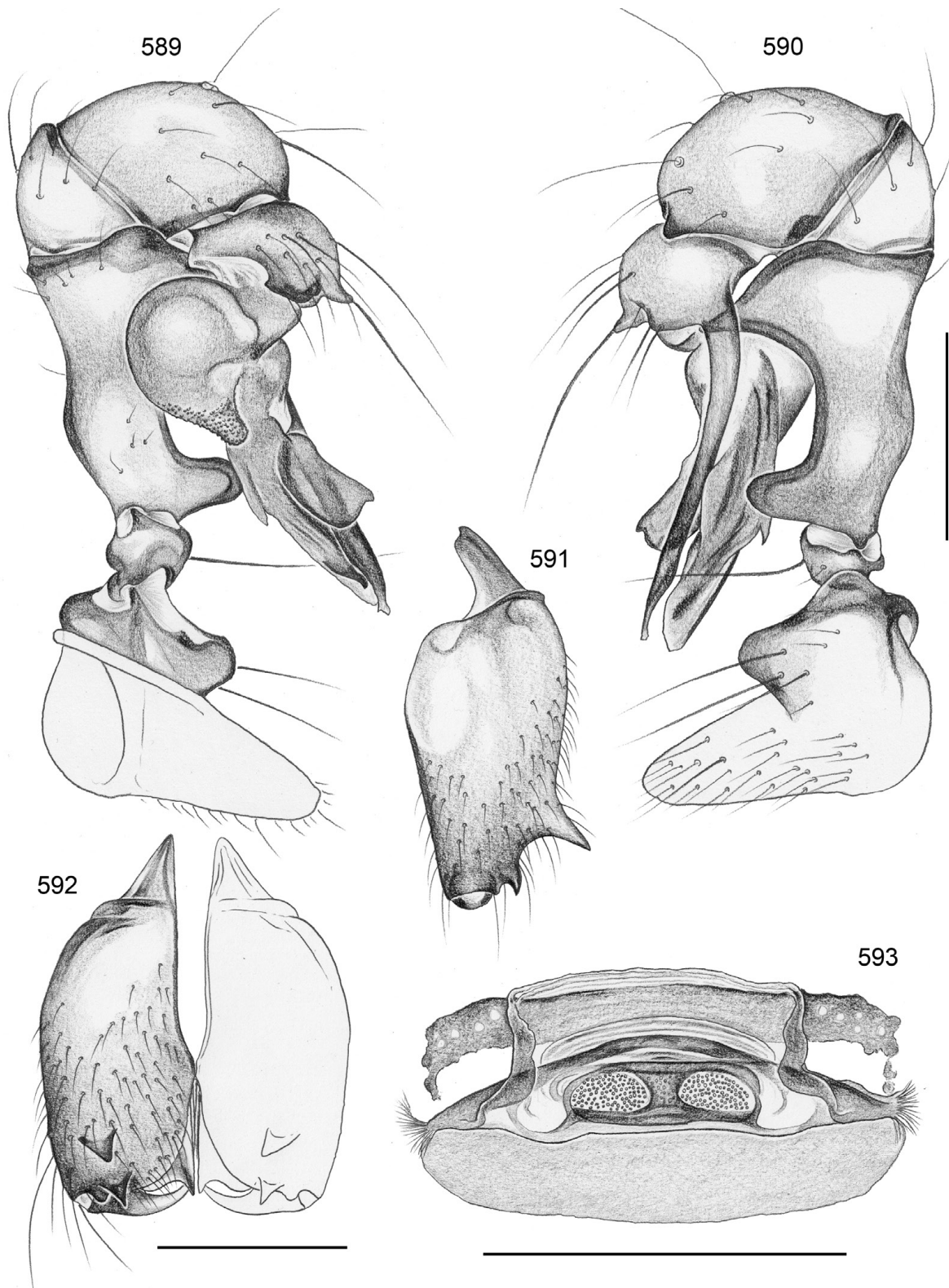
The *pseudoblechroscelis* group with the type species *M. pseudoblechroscelis* González-Sponga, 1998 and an unidentified species represented by a single female and 2 juveniles from Bolívar, km 44 from El Dorado (6.417° N, 61.642° W), ~200 m a.s.l., 2 Dec. 2002 (B.A. Huber), female abdomen deposited in ZFMK (Ar 21964), other specimens in pure ethanol (ZFMK, Ven02/100-39).

The *aurantiacus* group with six species: *M. anseriformis* (González-Sponga, 2011); *M. aurantiacus* (Mello-Leitão, 1930); *M. cyaneus* (Taczanowski, 1874); *M. eberhardi* Huber, 2000; *M. macushi* Huber, 2018; and *M. spinosus* (González-Sponga, 2005).

An eighth Venezuelan species is among those that could not be assigned to any species group: *M. yuruani* (Huber, 2000). Of the eight described Venezuelan species, only three are treated below. For the other species, see the recent revision in Huber (2018). Here, only a few amendments are given concerning the two species described by González-Sponga not further treated herein:



Figs 582–588. *Mecolaesthus limon* Huber sp. nov.; from La Guaira, El Limón (type locality). **582–585.** Live male and female with egg sac. **586–588.** Epigynum, ventral view and cleared female genitalia, ventral and dorsal views (ZFMK Ar 21963).



Figs 589–593. *Mecolaesthus limon* Huber sp. nov.; from La Guaira, El Limón (type locality; ZFMK Ar 21962–63). **589–590.** Left male pedipalp, prolateral and retrolateral views. **591–592.** Male chelicerae, lateral and frontal views. **593.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

The type locality of *M. anseriformis* (González-Sponga, 2011), Salto Caruay (= Salto El Hueso, Salto Karwai) is at 5.653° N, 61.896° W, i.e., 75 km NE of the coordinates given in González-Sponga (2011b) (and copied in Huber 2018).

The MIZA has more material of *M. spinosus* (González-Sponga, 2005) than indicated in the original description and in Huber (2018): two vials with the same MAGS number 1176 (MIZA 105708/9), with a total of 4 ♂♂, 2 ♀♀, 2 juvs types, Cerro Guaiquinima, “Camp 1” [approximately 5.956° N, 63.495° W?], 1340 m a.s.l., 21 Feb. 1990 (M.A. González S.); one vial MAGS 1179 (MIZA 105707), with 2 ♂♂, 3 ♀♀, types, Cerro Guaiquinima, “Campamento 4” [approximately 5.808° N, 63.538° W?], 920 m a.s.l., 5 Feb. 1990 (E. Toro, L. Jaspe); and one vial with 3 ♀♀, misidentified paratypes of *Carapoia paraguaensis* González-Sponga, 1998, MAGS 1178 (MIZA 105736), “Carapo, base del Guaiquinima” [approximately 5.730° N, 63.533° W], 480 m a.s.l., 17 Feb. 1990 (L. Sanabria, M.A. González S.).

Mesabolivar aurantiacus (Mello-Leitão, 1930)

Figs 594–596, 1047

Synonymy, see Huber 2018: 29.

Notes

In a recent revision of the genus *Mesabolivar*, the female paratypes of *Mesabolivar pseudoblechroscelis* González-Sponga, 1998 were said to be misidentified *M. aurantiacus* (Huber 2018: 29). This was an error. In fact the females are *M. eberhardi* Huber, 2000 (as already noted by Machado 2011; see below).

The male holotype of *Autana autanensis* González-Sponga, 2011 (synonymized with *M. aurantiacus* in Huber *et al.* 2014a) was reexamined, MIZA 105667 (MAGS 1162). The coordinates in the original publication specify a locality at approximately 800 m a.s.l., while the publication gives an altitude of 250 m. The Rio Autana joins the Rio Sipapo at 4.745° N, 67.698° W, at approximately 100 m a.s.l. The collecting site was thus probably further upstream, maybe at approximately 4.75° N, 67.65° W.

New records

VENEZUELA – **Bolívar** • 4 ♂♂, 4 ♀♀, ZFMK (Ar 21965), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven18-170), La Neverita (8.0970° N, 62.6727° W), 225 m a.s.l., 13 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 6 ♂♂, 6 ♀♀, CAS (9027301, 311, 320), Río Caura, Campamento Cecilia Magdalena [approximately 6.3° N, 64.5° W, 250 m a.s.l.], 12 Apr. 1957 (collector not given), 30 Apr. 1957 (C. Sincole, D. Robayna).

Distribution

This species is widespread in northern South America (cf. fig. 724 in Huber 2018); in Venezuela only in the states Amazonas and Bolívar. The map in Fig. 1047 suggests that the species is also present in Delta Amacuro.

Mesabolivar eberhardi Huber, 2000

Figs 597–598, 1021–1022, 1025, 1048

Synonymy, see Huber 2018: 34.

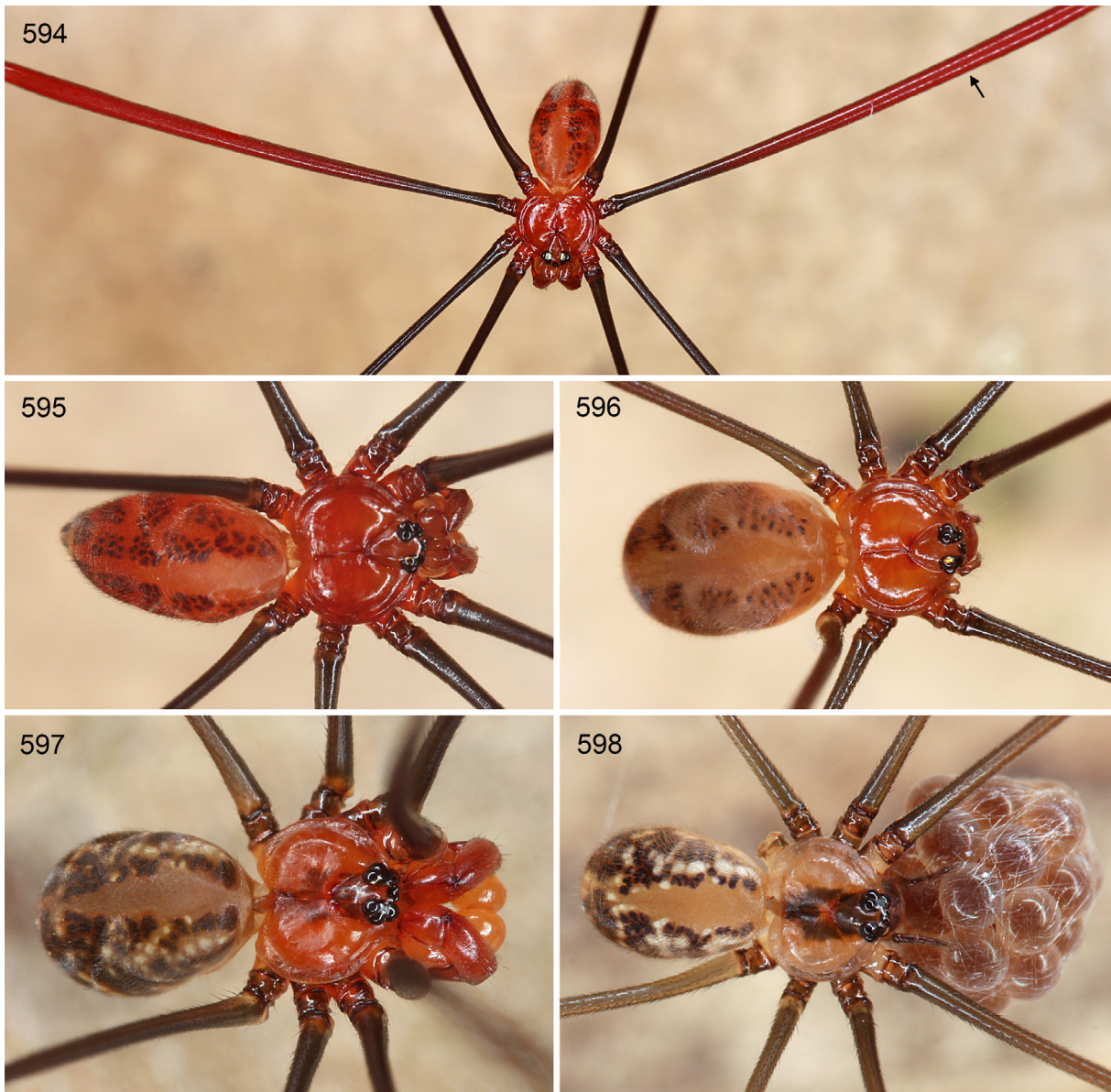
Mesabolivar pseudoblechroscelis (misidentification) – González-Sponga 1998: 27, figs 40–41 (♀ only).

Notes

Mesabolivar eberhardi is a common inhabitant of native and disturbed habitats in much of northern South America and one the most ubiquitous pholcids in Venezuela. Variation in the details of genitalic

shape has been noted long ago (Huber 2000), but this referred to specimens from Peru, Brazil, and Colombia, far from the type locality in Venezuela (Monagas). All Venezuelan specimens seen in this and previous studies (Huber 2000, 2018) are unproblematic representatives of this species. This is also true of the six species described by González-Sponga (2011a) under *Blechnoscelis* Simon, 1893. They have been synonymized with *M. eberhardi* before (Huber *et al.* 2014a), and the reexamination of all types in Nov. 2018 confirmed the synonymies. However, a few errors in González-Sponga's (2011a) work remain to be corrected:

For “*Blechnoscelis araguanus*”, only 1 ♂ holotype is mentioned in the original description, but the female is also described and illustrated. We assume that this is based on MAGS 1393 (MIZA 105765), 2 ♀♀, 3 juvs from the same locality (La Montaña; corrected coordinates: 10.213° N, 67.176° W).



Figs 594–598. *Mesabolivar* González-Sponga, 1998; live specimens. **594–596.** *M. aurantiacus* (Mello-Leitão, 1930); males and female from Bolívar, La Neverita (arrow: enlarged and red male femur 3). **597–598.** *M. eberhardi* Huber, 2000; male from La Guaira, El Limón and female with egg sac from Bolívar, Ciudad Guayana.

The coordinates of the type locality of “*Blechnoscelis blechnoscelis*”, Cerro Guaiquinima, are approximately 5.758° N, 63.567° W (instead of 10.758°N).

The coordinates of the type locality of “*Blechnoscelis copeyensis*”, Cerro Copey National Park, are probably 11.047° N, 63.891° W (rather than 11.033°N).

Most of the measurements are probably correct, but some are obviously wrong, casting doubt on the precision in general. For example, metatarsus 4 is given as shorter than metatarsus 3 in the holotype of “*B. blechnoscelis*”; femur 3 is given as longer than femora 2 and 4 in the female of “*B. andinensis*”; and carapace shape is given as highly variable among ‘species’ (width = 1.0–1.7 × length), while in fact is it highly consistent but heavily dependent on the angle of view.

Material examined

VENEZUELA – **Amazonas** • 1 ♂, 1 ♀, MIZA 105616 (MAGS 1100), San Juan de Manapiare [5.324° N, 66.055° W], Jul. 1987 (A. González). – **Anzoátegui** • 3 ♂♂, 1 ♀, 4 juvs, MIZA 105776 (MAGS 1036), near Sabana de Uchire [approximately 10.02° N, 65.52° W], 2 Mar. 1987 (A.R. Delgado, M.A. González-S.). – **Aragua** • 1 ♀, ZFMK (Ar 21966), Puerto Colombia (10.5025° N, 67.6057° W), 25 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, ZFMK (Ar 21967), between Maracay and Puerto Colombia (10.4304° N, 67.5998° W), 380 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♀♀, 3 juvs, MIZA 105765 (MAGS 1393), La Montañita, carretera Tejerías-Tiara [10.213° N, 67.176° W], 28 Feb. 1994 (A.R. Delgado, M.A. González S.) • 1 ♀, 1 juv., MIZA 105642 (MAGS 161), Colonia Tovar [approximately 10.405° N, 67.303° W], 2 May 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 2 ♀♀, 1 juv., CAS (9027227), Henri Pittier National Park, Rancho Grande [10.349° N, 67.684° W], cloud forest, 29 Dec. 1970 (W.B. Peck). – **Bolívar** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21968), and 1 ♂, 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven18-162), Ciudad Guayana, Parque La Llovizna (8.3130° N, 62.6724° W), 50 m a.s.l., 11 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 4 ♀♀, ZFMK (Ar 21969), and 1 ♂ in pure ethanol, ZFMK (Ven18-174), same locality but 8.3112° N, 62.6742° W, 30 m a.s.l., 14 Nov. 2018 • 1 ♂, MIZA 105628 (MAGS 1369), Los Pijiguaos [approximately 6.57° N, 66.81° W], May 1992 (J.M. Ayala L.) • 1 ♂, MIZA 105696 (MAGS 1322), Guri [7.77° N, 63.04° W], 9 Oct. 1991 (A.R. Delgado, M.A. González-S.) • 2 ♂♂, MIZA 105717 (MAGS 1191), Camp 4, Cerro Guaiquinima (Las cuevas), 980 m a.s.l., 18 Jan. 1990 (C. Toro). – **Capital** • 1 ♀, 1 juv., MIZA 105592 (MAGS 1028), near Hotel Humboldt [10.542° N, 66.875° W], 17 Jan. 1987 (C.E. Avila). 6 ♂♂, 2 ♀♀, 7 juvs, MIZA 105672 (MAGS 1167), El Ávila National Park, Quebrada Quintero [10.518° N, 66.851° W], 19 Aug. 1989 (A.R. Delgado, E. González, M.A. González-S.) • 1 ♂, 1 ♀, 1 juv., MIZA 105728 (MAGS 1171), El Ávila National Park, Los Venados [10.536° N, 66.898° W], 9 Sep. 1989 (E. González-S., M.A. González-S.) • 6 ♂♂, 5 ♀♀, 3 juvs (with one parasitized egg-sac), MIZA 105699 (MAGS 1374), Las Canoas [10.547° N, 66.932° W], 1200 m a.s.l., 12 Oct. 1992 (E. González L., E. González S., M.A. González-S.). – **Carabobo** • 1 ♀, MIZA 105605 (MAGS 336), San Esteban [10.425° N, 68.013° W], 4 Aug. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 4 ♂♂, 1 juv., MIZA 105749 (MAGS 333), same data. – **Falcón** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21970), and 1 ♂ in pure ethanol, ZFMK (Ven18-177), Península de Paraguaná, Cueva del Guano (11.9000° N, 69.9479° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21971), and 1 ♀ in pure ethanol, ZFMK (Ven18-180), Península de Paraguaná, near Cueva del Guano (11.9026° N, 69.9456° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 6 ♂♂, 4 ♀♀, 1 juv., ZFMK (Ar 21972), and 1 ♀ in pure ethanol, ZFMK (Ven18-185), Península de Paraguaná, Cerro Santa Ana (11.8177° N, 69.9468° W), 480 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, 1 ♀, ZFMK (Ar 21973), Medanos de Coro (11.5690° N, 69.7147° W), 3 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 1 ♀, ZFMK (Ar 21974), and 1 ♀ in pure ethanol, ZFMK (Ven18-191), Sierra de San Luis, E Curimagua (11.1748° N, 69.6273° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♀♀, MIZA 105621 (MAGS 1132), Paraguaná, Cerro Capuchino, Montecano [approximately 11.94° N, 69.97° W], 27 Jan. 1988 (R. Ramirez) • 1 ♀, MIZA 105795 (MAGS 738), San Juan de los Cayos

[11.173° N, 68.408° W], 3 Oct. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 1 ♀, MIZA 105796 (MAGS 711), Riecito [10.906° N, 68.767° W], 30 Sep. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21975), and 1 ♂, 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven20-151), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Guárico** • 1 ♂, 1 ♀, MIZA 105695 (MAGS 988), El Morrito, road Altagracia de Orituco to San Francisco de Macaira [9.916° N, 66.283° W], 10 Apr. 1982 (R. Torrealba) • 1 ♀, 1 juv., MIZA 1808, Agua Salada [approximately 9.163° N, 65.775° W], 540 m a.s.l., “sistema cuevas y cañones”, 22 Nov. 1997 (O. Villarreal). – **Lara** • 4 ♂♂, 5 ♀♀, ZFMK (Ar 21976), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven18-198), between Coro and Barquisimeto, El Rodeo (10.7240° N, 69.3008° W), 400 m a.s.l., 19 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 1 ♀, ZFMK (Ar 21977), and 1 ♀ in pure ethanol, ZFMK (Ven18-201), between Barquisimeto and Boconó (9.5906° N, 69.8343° W), 1370 m a.s.l., 20 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Mérida** • 2 ♀♀, (paratypes of *M. pseudoblechroscelis*), MIZA 105737 (MAGS 986 part), near Mesa Bolívar [8.474° N, 71.598° W], 25 Dec. 1981 (A.R. Delgado, J.A. González D., M.A. González-S.) • 1 ♂, MIZA 105611 (MAGS 1053), Mesa Bolívar [8.474° N, 71.598° W], 21 Dec. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 6 ♂♂, 3 ♀♀, 2 juvs, MIZA 105744 (MAGS 835), Represa General J.A. Páez [8.900° N, 70.617° W], 5 Sep. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 2 ♀♀, 1 juv., MIZA 105683 (MAGS 838), Dtto Rivas Dávila, between La Playa and San Pablo [8.28° N, 71.80° W, ~1350 m a.s.l.], 4 Sep. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 1 ♂, 1 ♀, 1 juv., ZFMK (Ar 21978), Las Piedras, ‘site 1’ (8.8939° N, 70.6448° W), 1710 m a.s.l., forest remnant, 7 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 7 ♂♂, 3 ♀♀, ZFMK (Ar 21979–80), and 1 ♂, 2 ♀♀ in pure ethanol, ZFMK (Ven20-108), Las Piedras, ‘site 2’ (8.9002° N, 70.6279° W), 1700 m a.s.l., 7 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 6 ♂♂, 1 ♀, ZFMK (Ar 21981), forest above Caño Azul (8.8543° N, 71.3651° W), 280 m a.s.l., 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Miranda** • 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven18-149), El Ávila National Park, between Sabas Nieves and La Silla (10.5245° N, 66.8566° W), 1600 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.) • approximately 4 ♂♂, 10 ♀♀, 10 juvs, MIZA 105595 (MAGS 1022), Boca de Cura [10.20° N, 66.30° W], 17 Jan. 1987 (A.R. Delgado, M.A. González-S.) • approximately 10 ♂♂, 2 ♀♀, 2 juvs, MIZA 105598 (MAGS 1021), same data • 1 ♀, MIZA 105619 (separated from MAGS 1111), road Carenero-Chirimena [approximately 10.57° N, 66.15° W], 9 Feb. 1988 (A.R. Delgado, M.A. González-S.) • 1 ♀, MIZA 105623 (MAGS 1121), Hacienda Santa Rosalia, alrededores de Aragüita [approximately 11.215° N, 66.458° W], 16 Jul. 1988 (A.R. Delgado, M.A. González-S.) • 3 ♂♂, 3 juvs, MIZA 105633 (MAGS 1087), Zamora, Salmerón [approximately 10.472° N, 66.369° W], 15 Aug. 1987 (A.R. Delgado, M.A. González-S.) • 1 ♂, MIZA 105686 (MAGS 966), 10 km N de Guatire [approximately 10.55° N, 66.58° W], Hacienda Santa Rosa, 19 Feb. 1982 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 1 ♂, 3 ♀♀, MIZA 105697 (MAGS 845), near Tacarigua de Mamporal (“a 1 km de Tacarigua de Mamporal en la via a Rio Chico”) [10.382° N, 66.147° W], 31 Oct. 1981 (A.R. Delgado de G., M.A. González S.) • 3 ♂♂, MIZA 105747 (MAGS 1441), San Antonio de los Altos [10.369° N, 66.973° W], “Urb. Las Minas, Ed. Altair”, 1998 (M. García) • 2 ♂♂, 6 ♀♀, 4 juvs, MIZA 105704 (MAGS 242), El Castaño, carretera a Aragüita [10.283° N, 66.400° W], 27 Jun. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 1 ♀, MIZA 105721 (MAGS 1093), Guatopo National Park, Macanilla, 5 Sep. 1987 (A.R. Delgado, M.A. González-S.) • 1 ♂, 1 ♀, MIZA 105690 (MAGS 506), El Ávila National Park (“estribaciones del Avila”), El Paraiso [10.530° N, 66.819° W], ~1500 m a.s.l., 16 Aug. 1981 (J.A. González D.) • 1 ♂, 1 juv., MIZA 105617 (MAGS 1109), La Julia, via Pico Naiguatá [between 10.50° N, 66.81° W and 10.54° N, 66.78° W], 15 Oct. 1987 (H. Bird) • 1 ♀, ZFMK (Ar 21982), El Ávila National Park, near La Julia, ‘site 3’ (10.5066° N, 66.8119° W), 1090 m a.s.l., forest near dry brook bed, 22 Feb. 2020 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, ZFMK (Ar 21983), El Ávila National Park, near La Julia, trail to Rancho Grande (10.5164° N, 66.8089° W), 1460 m a.s.l., degraded forest along small stream, 22 Feb. 2020 (B.A. Huber, O. Villarreal M.) • 1 ♂, 1 ♀, MIZA 105670 (MAGS 1169), Rio Aricagua [10.583° N, 66.234° W], 27 Aug. 1989 (M.A. González-S.) • 1 ♀, MIZA 105800 (MAGS 985), Dtto. Brión, Hacienda La Maravilla, 6 Jun. 1981 (A. Utrera) • 7 ♂♂, 3 ♀♀,

3 juvs, MIZA 105594 (MAGS 1030), Estanque Ayala [10.505° N, 66.763° W], 25 Jan. 1987 (A.R. Delgado de G., E.S.S., E.G.L., M.A. González S.) • 1 ♂, 2 ♀♀, 2 juvs, MIZA 105668 (MAGS 1165), old road Caracas-Charallave, Los Amarillos [10.367° N, 66.945° W], Jul. 1989 (A.R. Delgado, M.A. González-S.) • 2 ♂♂, 1 ♀, CAS (9027359), Caracas, Hacienda La Trinidad [approximately 10.42° N, 66.85° W, 1100 m a.s.l.], 28 Dec. 1970 (W.B. Peck) • 1 ♀, 1 juv., MIZA, El Volcán, Topotepuy [10.417° N, 66.851° W, ~1450 m a.s.l.], 11–13 Nov. 2019 (O. Villarreal, J. Rodriguez). – **Monagas** • 1 ♂, 8 juvs, MIZA 105710 (MAGS 1318), Cueva del Guácharo [10.174° N, 63.552° W], 12 Oct. 1991 (A.R. Delgado, M.A. González-S.) • 1 ♂, 2 ♀♀, 3 juvs, MIZA 105752 (MAGS 1313), same locality, 14 Oct. 1991 (M. de García, A.R. Delgado, M.A. González S.). – **Nueva Esparta** • 1 ♀, MIZA 105780 (MAGS 1007), Cerro Copei [11.047° N, 63.891° W], Dec. 1986 (C.E. Contreras A.). – **Portuguesa** • 1 ♂, 1 ♀, MIZA 105574 (MAGS 1400), Paez, Acarigua (Pozo Blanco) [approximately 9.52° N, 69.15° W], 7 Jul. 1995 (A.R. Delgado, M.A. González-S.). – **Táchira** • 5 ♂♂, 2 ♀♀, 1 juv., ZFMK (Ar 21984), and 1 ♀ in pure ethanol, ZFMK (Ven20-123), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Trujillo** • 7 ♂♂, 3 ♀♀, ZFMK (Ar 21985–86), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-216), between Boconó and Burbusay (9.3945° N, 70.2674° W), 1820 m a.s.l., 22 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀, 1 juv., MIZA 105762 (MAGS 1386), Boconó, Miticún [9.235° N, 70.264° W], 26 Dec. 1993 (E. González S., M.A. González S.) • 1 ♂, 1 ♀, MIZA 105778 (MAGS 1011), near Boconó, Hacienda La Encomienda [9.284° N, 70.317° W], 27 Dec. 1986 (R. Manzanilla) • 1 ♂ (palps missing), MIZA 1809, route to Buena Vista via La Gira, 650 m a.s.l., 14 May 2005 (O. Villarreal M., H. Escalona) • 1 ♂, ZFMK (Ar 21987), and 1 juv. in pure ethanol, ZFMK (Ven20-140), near El Encanto (9.7562° N, 70.7418° W), 150 m a.s.l., among rocks, 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **La Guaira** • 3 ♂♂, 1 ♀, ZFMK (Ar 21988), and 1 ♂ in pure ethanol, ZFMK (Ven18-159), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♂♂, 2 ♀♀, 3 juvs, MIZA 105742 (MAGS 993), Hacienda El Limón [approximately 10.475° N, 67.283° W], 26 Nov. 1986 (A.R. Delgado, M.A. González-S.) • 3 ♂♂, 2 ♀♀, 1 juv., MIZA 105777 (MAGS 983), same locality, 12 Feb. 1982 (M.A. González S.) • 2 ♀♀, ZFMK (Ar 21989), El Limón, ‘site 1’ (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 2 ♀♀, 1 juv., ZFMK (Ar 21990), and 1 ♀ in pure ethanol, ZFMK (Ven20-171), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.) • 1 ♀, 1 juv., MIZA 105583 (MAGS 1412), Galipán [approximately 10.55° N, 66.89° W], 26 Jun. 1996 (J.A. González D.). – **Yaracuy** • 1 ♂, MIZA 105641 (MAGS 1085), Yurubi National Park [approximately 10.48° N, 68.66° W], 11 Sep. 1986 (E. Yustiz) • 1 ♀, MIZA 1810, Minas de Aroa [approximately 10.422° N, 68.878° W], “tunel de la casa de montaña”, 22 Dec. 1998 (O. Villarreal) • 6 ♂♂, 3 ♀♀, ZFMK (Ar 21991), and 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-157), Yurubi National Park (10.4913° N, 68.6564° W), 140 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 2 ♂♂, ZFMK (Ar 21992), Guaquira, ‘site 1’ (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 3 ♂♂, 4 ♀♀, ZFMK (Ar 21993), Guaquira, ‘site 2’ (10.2807° N, 68.6530° W), 150 m a.s.l., forest along stream, 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Distribution

This species is widespread in northern South America (cf. Huber 2018: fig. 724). The map in Fig. 1048 shows only the known Venezuelan records and those in neighboring regions.

Mesabolivar pseudoblechroscelis González-Sponga, 1998
Figs 599–613, 1049

Mesabolivari pseudoblechroscelis González-Sponga, 1998: 27, figs 33–39 (♂ only) (♀, figs 40–41, not conspecific, see Notes below).

Misidentification (see Notes below)

Mesabolivar pseudoblechroscelis – Machado 2007: 88, figs 171–180.

Notes

As already noted by Machado (2011: 26), the 2 ♀♀ paratypes described by González-Sponga (1998) are not conspecific with the male holotype but are *Mesabolivar eberhardi* Huber, 2000 [not *M. aurantiacus* (Mello-Leitão, 1930) as erroneously noted in Machado 2007: 88 and Huber 2018: 29].

The specimens described as *M. pseudoblechroscelis* in Machado (2007) originated from the type locality of *M. acrensis* Huber, 2018 in Brazil, Acre, and probably represent that species. In his later work, Machado (2011) no longer listed the Brazilian specimens as *M. pseudoblechroscelis* but correctly as an undescribed species.

We do not have precise coordinates of the type locality. In 2020, we collected at Mesa Bolívar but did not find this species. However, we only collected in a forest above the town, at ~1300 m a.s.l., while the types originate (according to González-Sponga 1998) from 1095 m a.s.l., i.e., the altitude of the town. We thus assume that the types were collected closer to the town, at approximately 8.474° N, 71.597° W. Our new specimens below originate from a much lower site (280 m a.s.l.) ~50 km NE of the type locality.

Diagnosis

Distinguished from most known congeners by general shape of procurus (Figs 609–610; distinctively widened and strongly curved distal element); from two most similar known congeners (*M. acrensis* Huber, 2018; *M. maraba* Huber, 2018) by details of procurus (Figs 609–610; larger proximal dorsal process; ventral part of distal sclerite larger than in *M. maraba*, in prolateral view smaller than in *M. acrensis*; tip wider than in *M. acrensis*; subdistal dorsal process more prominent than in *M. maraba*); by tip of bulbal process (Figs 612–613; distal pointed sclerite longer than in *M. acrensis*, wider than in *M. maraba*; dorsal process bifid like in *M. maraba*, unlike *M. acrensis*); by shape of epigynum (Figs 605–606; lateral processes directed towards lateral rather than ventral, in lateral view shorter than posterior median process); from both species apparently also by larger size and longer legs (male carapace width >1.5; male tibia 1 length >11.0; female tibia 1 length >6.0), and by strongly widened male femur 3 (barely wider than other femora in *M. acrensis* and *M. maraba*).

Type material

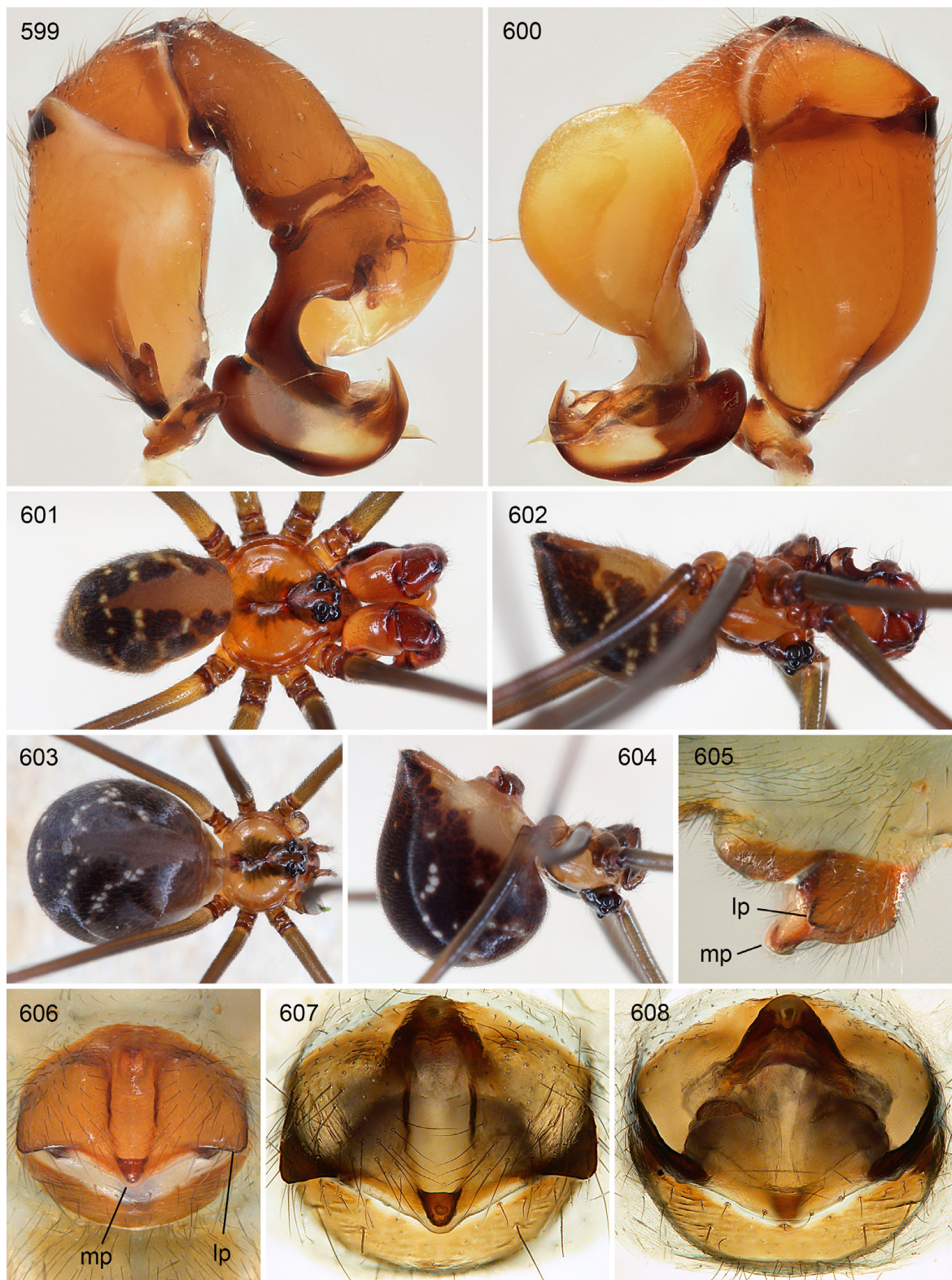
VENEZUELA – Mérida • ♂ holotype, and 2 ♀♀ misidentified paratypes (see Notes above), MIZA 105737 (MAGS 986), Mesa Bolívar [approximately 8.474° N, 71.597° W], 25 Dec. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.); examined.

New record

VENEZUELA – Mérida • 2 ♂♂, 2 ♀♀, ZFMK (Ar 21994), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven20-137), forest above Caño Azul (8.8543° N, 71.3651° W), 280 m a.s.l., 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Redescription of male (Caño Azul, ZFMK Ar 21994)

MEASUREMENTS. Total body length 3.4, carapace width 1.7. Distance PME–PME 150 µm, diameter PME 130 µm, distance PME–ALE 120 µm, distance AME–AME 65 µm, diameter AME 60 µm. Sternum width/length: 1.10/0.74. Leg 1: 58.9 (14.1+0.5+14.1+27.1+3.1), tibia 2: 9.9, tibia 3: 7.1, tibia 4: 9.6; tibia 1 L/d: 104. Femora 1–4 width (at half length): 0.19, 0.21, 0.34, 0.20; tibiae 1–4 width (at half length): 0.14, 0.14, 0.15, 0.15.



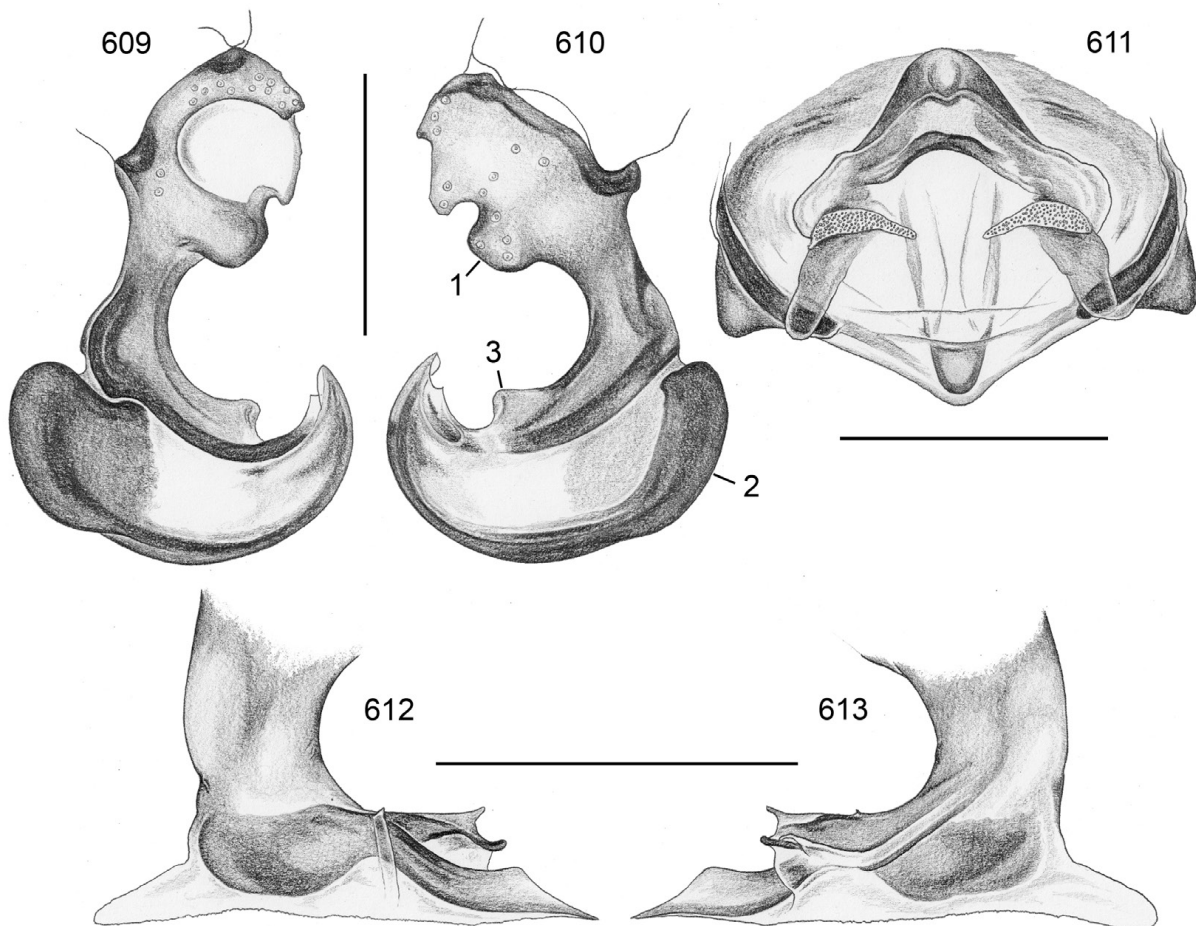
Figs 599–608. *Mesabolivar pseudoblechroscelis* González-Sponga, 1998. **599–600.** Right pedipalp of male holotype (MIZA 105737; MAGS 986), retrolateral and prolateral views. **601–604.** Live male and female from Mérida, Caño Azul. **605–608.** Epigynum, lateral and ventral views, and cleared female genitalia, ventral and dorsal views, female from Mérida, Caño Azul (ZFMK Ar 21994). Abbreviations: lp= lateral process; mp= median process.

COLOR (in ethanol). Carapace ochre-yellow to orange, with darker median mark, ocular area posteriorly also darkened; clypeus only at rim dark brown; sternum orange; legs ochre to light brown, with indistinct darker rings on femora (subdistally) and tibiae (proximally; subdistal rings barely visible), tips of femora and tibiae lighter; abdomen greenish-gray, densely covered with many black and few white internal marks dorsally and laterally, without ventral mark.

BODY. Habitus as in Figs 601–602; ocular area distinctly raised (higher than usual in genus); carapace with distinct median furrow; clypeus slightly swollen, with sclerotized margin; sternum unmodified. Abdomen slightly longer than high, pointed at spinnerets.

CHELICERAE. Shape as in *M. acrensis* and *M. maraba* (cf. Huber 2018: figs 18–19) but larger than in *M. acrensis* (maximum width 0.67, versus 0.53 in *M. acrensis*); with pair of long, slender apophyses, straight in lateral view.

PALPS. As in Figs 599–600, in general very similar to *M. acrensis* and *M. maraba* (cf. Huber 2018: figs 13–14) but larger (femur length: 1.20, versus 1.14 in *M. maraba* and 0.86 in *M. acrensis*); coxa with conical retrolateral apophysis; trochanter with retrolateral apophysis; femur very large, proximally



Figs 609–613. *Mesabolivar pseudoblechroscelis* González-Sponga, 1998; from Mérida, Caño Azul (ZFMK Ar 21994). **609–610.** Left male palpal tarsus and procurrus, prolateral and retrolateral views. **611.** Cleared female genitalia, dorsal view. **612–613.** Process of left genital bulb, prolateral and retrolateral views. 1=proximal dorsal process; 2=ventral part of distal sclerite; 3=subdistal dorsal process. Scale lines: 0.5 mm.

with retrolateral apophysis and prolateral hump set with short hairs; tarsus with one small and one large dorsal processes, with some hairs bent towards dorsal; procurus (Figs 609–610) distally widened and strongly curved towards dorsal, with large ventro-distal sclerite separated from proximal part by whitish area; bulbal process with distinctive distal structures (Figs 612–613).

LEGS. Without spines and curved hairs, few vertical hairs; retrolateral trichobothrium on tibia 1 at 2%; prolateral trichobothrium present on tibia 1; tarsus 1 with ~30 pseudosegments, mostly distinct.

VARIATION. Tibia 1 in other male: 11.7 (first legs missing in third male). Femora 1–4 width (at half length) in this male: 0.18, 0.19, 0.28, 0.19.

Description of female

In general similar to male (Figs 603–604) but carapace ochre-brown rather than yellow to orange, with larger brown median mark; ocular area slightly lower than in males; dark rings and whitish tips of femora and tibiae slightly more distinct; clypeus not swollen and margin not sclerotized. Tibia 1 in six females: 6.4–7.5 (mean 7.1). Epigynum (Figs 605–606) anterior plate with large median depression ending posteriorly in large pocket; pair of conical lateral processes directed towards lateral and posterior; posterior plate large, simple. Internal genitalia (Figs 607–608, 611) with small elongated pore-plates in transversal position, distinctive median dark anterior structure.

Distribution

Known from two localities in the Venezuelan state Mérida (Fig. 1049).

Natural history

At Caño Azul, the spiders were collected in a forest remnant along a small stream. This species shared the microhabitat (low vegetation and sheltered spaces near the ground) with the similar but larger (and more abundant) *M. eberhardi*; the webs of *M. pseudoblechroscelis* were smaller (~20–30 cm diameter) and closer to the ground. González-Sponga (1998) collected the types in a cloud forest with coffee, among the buttress roots of trees.

Metagonia Simon, 1893

Notes

Eight species of *Metagonia* are listed here for Venezuela. They represent only two of the seven species groups proposed in Huber *et al.* (2018): the *delicata* group [*M. beni* Huber, 2000; *M. latigo* Huber sp. nov.; *M. mariguitarensis* (González-Sponga, 1998); *M. guianesa* Huber sp. nov.], with apparent affinities to the Amazonian fauna; and the *rica* group [*M. conica* (Simon, 1893); *M. juliae* González-Sponga, 2010; *M. triocular* (González-Sponga, 2011); *M. guttata* Huber sp. nov.], with apparent affinities to the Central American fauna (and probably the Colombian fauna which is essentially unknown).

Compared to relatively well-studied countries like Mexico (25 described+2 undescribed species available to the first author) and Brazil (18+21) this is a low number of species, suggesting that the Venezuelan fauna may still be seriously undersampled. However, much of the diversity in Mexico is the result of extensive radiations in caves (Gertsch 1986), and much of the diversity in Brazil is in three species groups of *Metagonia* that are restricted to the Atlantic Forest and are not present in Venezuela: the *bifida*, *furcata*, and *petropolis* groups (according to the classification in Huber *et al.* 2018). Thus, while there are certainly numerous species of *Metagonia* that remain to be discovered in Venezuela, the diversity may be relatively low indeed.

The remaining two species groups proposed in Huber *et al.* (2018) (*potiguar* and *taruma* groups) might be present in Venezuela but have not yet been found.

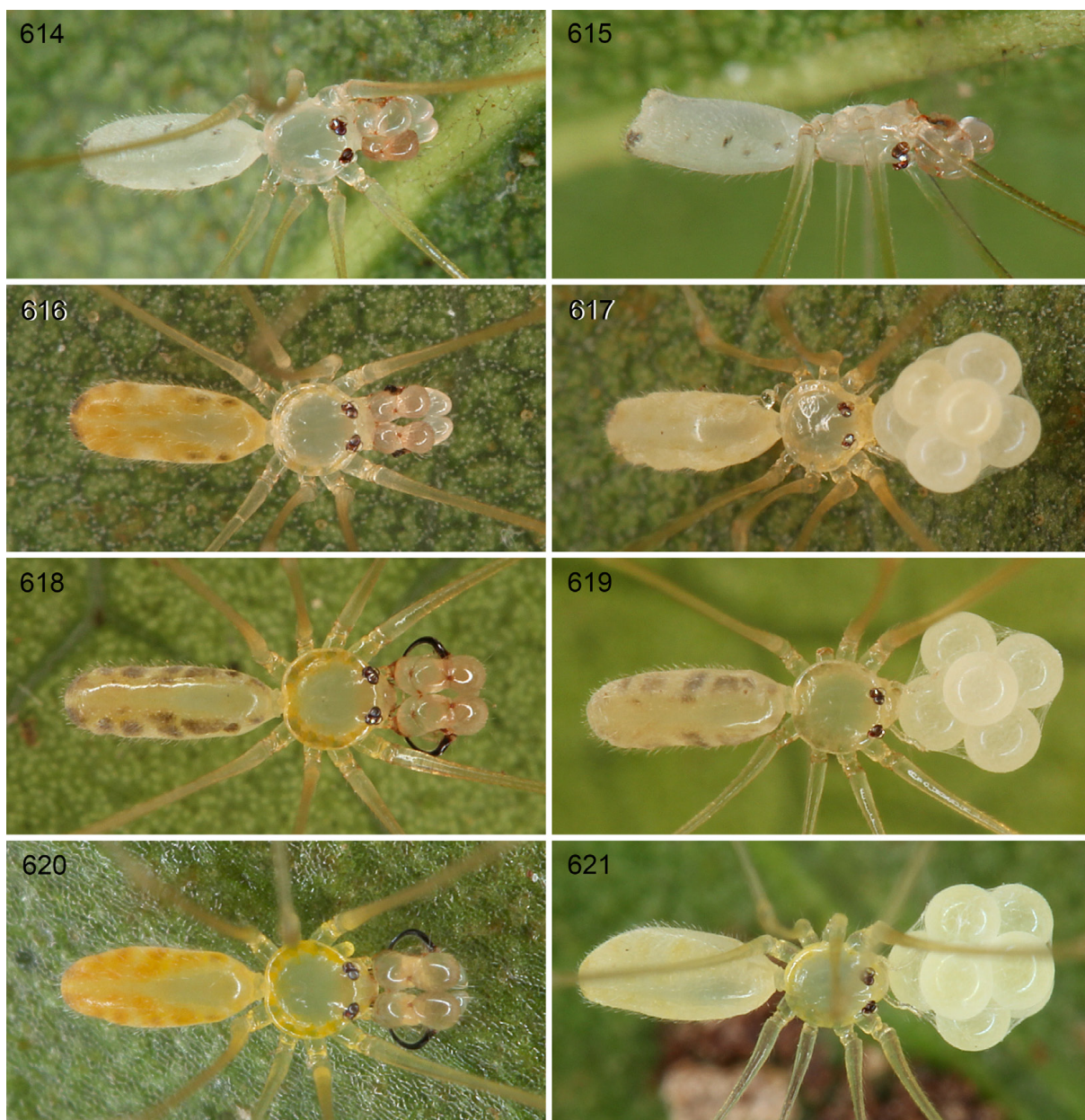
Metagonia beni Huber, 2000
Figs 614–617, 622–632, 1051

Metagonia beni Huber, 2000: 76, figs 249–255.

Metagonia beni – Carvalho *et al.* 2010: 433. — Huber & Rheims 2011: 282. — Huber 2014: 140.

Notes

The Venezuelan specimens listed below are assigned to *Metagonia beni* with some hesitation. The types of this species are from Bolivia, Beni, approximately 2500 km from the two Venezuelan localities.



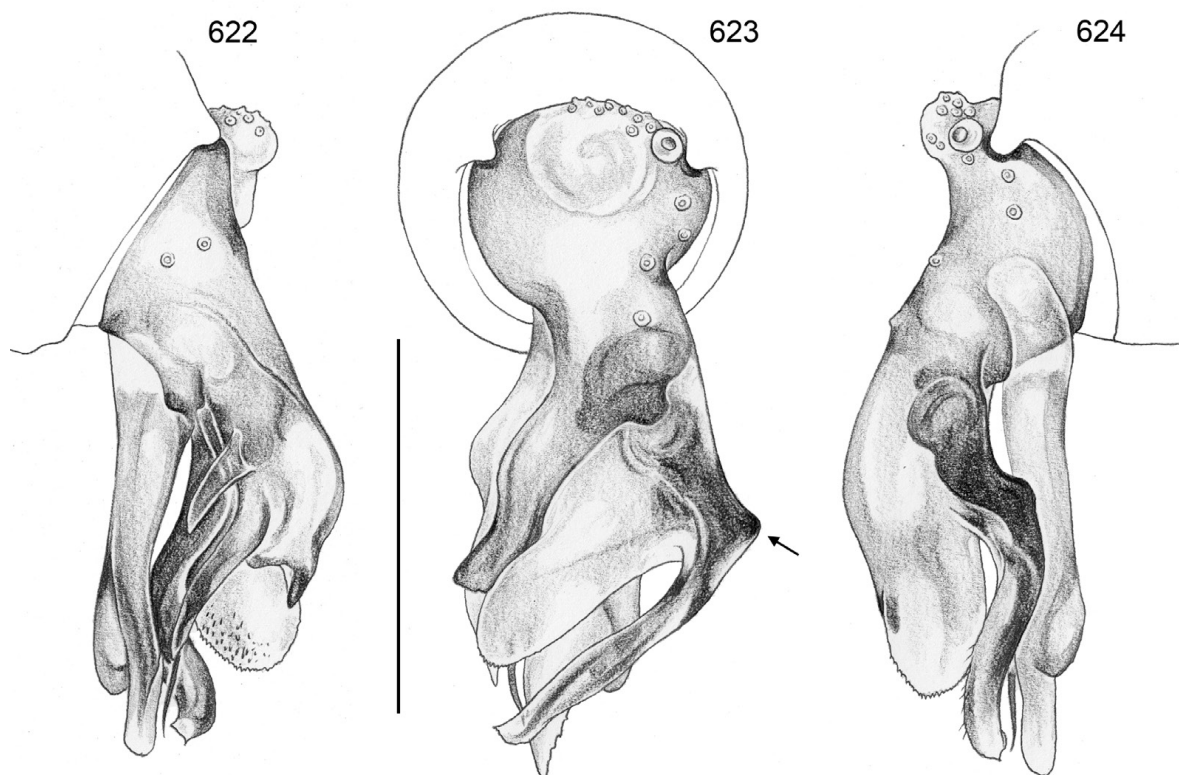
Figs 614–621. *Metagonia* Simon, 1893; live specimens. **614–617.** *M. beni* Huber, 2000; whitish and yellowish males and female with egg sac from Bolívar, La Neverita. **618–621.** *M. latigo* Huber sp. nov.; male and female with egg sac from Falcón, Cerro Santa Ana (618–619), male and female with egg sac from Falcón, Curimagua (620–621).

Previous records further include Peru, Brazil, and Argentina (Huber 2000, 2014; Carvalho *et al.* 2010; Huber & Rheims 2011) but in some cases the assignment was explicitly tentative (e.g., Huber & Rheims 2011).

In the context of the present paper, paratypes of *M. beni* and of the very similar *M. uvita* Huber, 1997 (from Costa Rica) were reexamined, together with a large number of specimens of ‘*Metagonia cf. beni*’ from numerous localities (mostly Brazil; in ZFMK). The conclusion is that several undescribed species seem to exist in this group, but species limits are far from obvious.

The Venezuelan specimens listed below are almost identical to Amazonian specimens originating from the Brazilian states of Acre, Amazonas, Rondônia, and Pará. Males appear largely identical, with a procurcus as shown in Figs 622–624. Cleared female genitalia of two specimens from each country revealed some slight differences: in females from Venezuela, the posterior border of the epigynum was evenly curved (Figs 627–628), while in females from Brazil it had a low median protrusion (arrows in Figs 631, 632); in addition, the internal genitalia were relatively longer in Brazilian specimens (width/length ~1.1–1.2, versus 1.4–1.5 in two females from Venezuela). The interpretation of these differences is not obvious since there is also variation among specimens from the same locality, for example in the shape and distance of the pore plates in Figs 627–628 and 631–632.

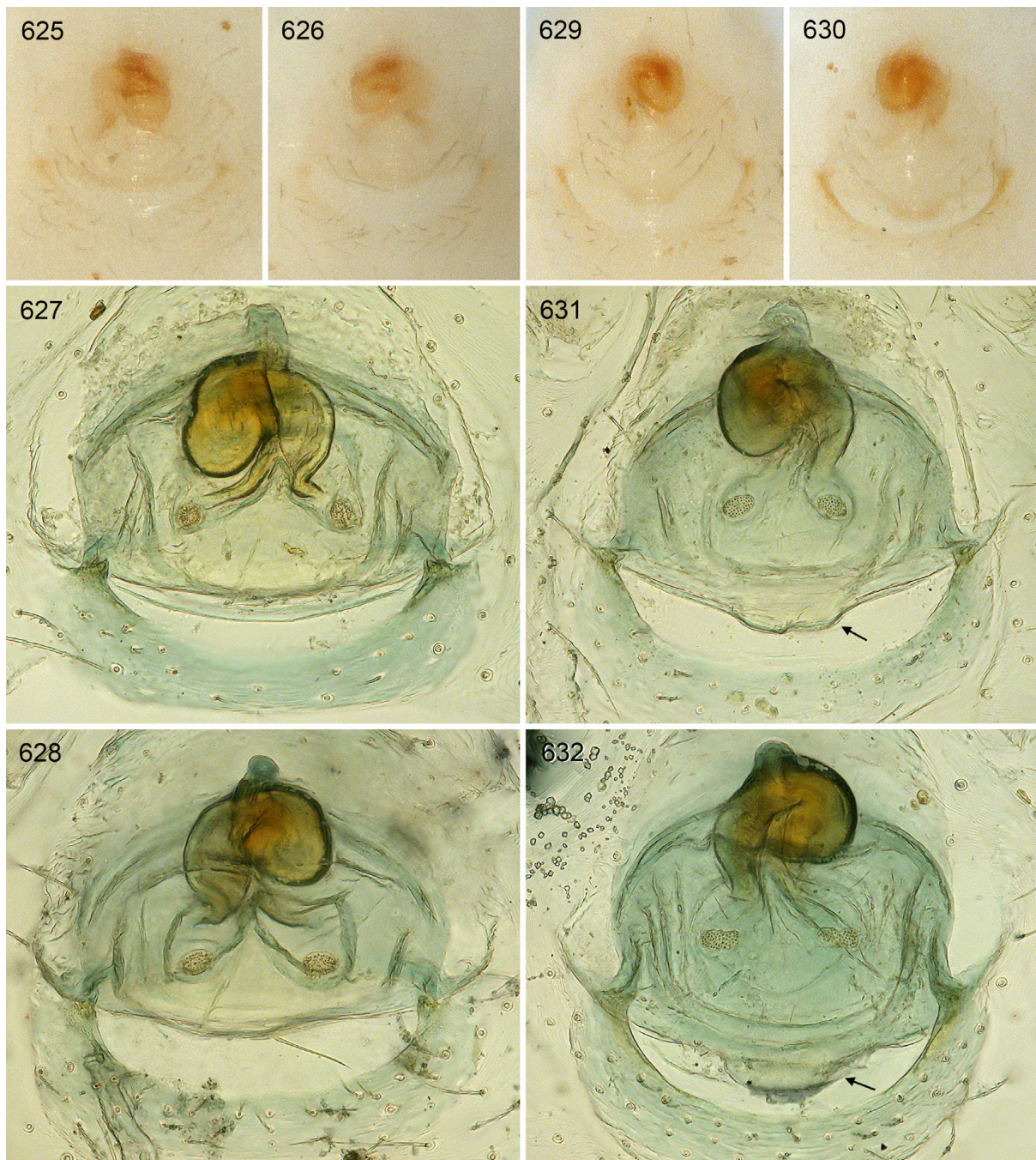
Both the Venezuelan and the Brazilian Amazonian specimens differ from ‘true’ Bolivian *M. beni* (paratypes) by slightly smaller male palps and by slightly more angular procurcus in dorsal view (arrow in Fig. 623; compare with Huber 2000: fig. 252). Females of *M. beni* from Bolivia resemble those



Figs 622–624. *Metagonia beni* Huber, 2000; male from Bolívar, La Neverita (ZFMK Ar 21995); left palpal tarsus and procurcus, prolateral, dorsal, and retrolateral views (arrow: retrolateral process of procurcus that is more angular in dorsal view than in ‘true’ Bolivian *M. beni*). Scale line: 0.2 mm.

from Brazil more than those from Venezuela (posterior border of epigynum not evenly curved; internal genitalia width/length ~ 1.1 ; see Huber 2000: fig. 255).

Specimens of *M. uvita* Huber, 1997 and specimens from the Brazilian Atlantic Forest (and NE Argentina) differ more clearly from 'true' Bolivian *M. beni* specimens in the shape of the procurus and are both



Figs 625–632. *Metagonia beni* Huber, 2000; epigyna, ventral views and cleared female genitalia, dorsal views. **625–628.** 'Left-sided' and 'right-sided' females from Bolívar, La Neverita (ZFMK Ar 21996). **629–632.** 'Left-sided' and 'right-sided' females from Brazil, Cruzeiro do Sul (ZFMK) (arrows: low protrusion on posterior epigynal border).

considered to represent separate species. Previous records of *M. beni* from the Brazilian Atlantic Forest (Huber & Rheims 2011; Huber 2014) are thus likely mistaken.

The conclusion here is that the ‘*Metagonia beni* complex’ needs considerably more study and the problem clearly goes beyond the scope of the present paper. We chose a conservative approach in assigning the Venezuelan specimens to *M. beni* but the morphological differences suggest that this needs to be reevaluated in a more focused study.

New records

VENEZUELA – **Bolívar** • 7 ♂♂, 13 ♀♀, 1 juv., ZFMK (Ar 21995–96), and 1 ♂, 9 ♀♀ in pure ethanol, ZFMK (Ven18-173), La Neverita (8.0970° N, 62.6727° W), 225 m a.s.l., 13 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, 3 ♀♀, 1 juv., ZFMK (Ar 21997), and 1 ♀ in pure ethanol, ZFMK (Ven02/100-38), at km 44 from El Dorado (6.417° N, 61.642° W), ~200 m a.s.l., 2 Dec. 2002 (B.A. Huber).

Measurements

Specimens from Venezuela: tibia 1 in eight males: 3.6–4.1 (mean 3.9); in 14 females: 2.9–3.4 (mean 3.2).

Distribution

Possibly widely distributed in northern South America (see Notes above); in Venezuela known from only two localities in the state Bolívar (Fig. 1051).

Natural history

At both Venezuelan localities, specimens were collected from the undersides of leaves in humid forests. The webs were closely attached to the leaf surface and barely visible, apparently identical to those described in some detail for *M. uvita* Huber, 1997 (Huber & Schütte 2009).

Metagonia latigo Huber sp. nov.

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Figs 618–621, 633–635, 639, 650–653, 1051

Metagonia Ven02 – Eberle *et al.* 2018 (molecular data). — Huber *et al.* 2018: 71.

Diagnosis

Distinguished from similar congeners with long S-shaped or whip-shaped sclerite on procurus [*M. delicata* (O. Pickard-Cambridge, 1895); *M. talamanca* Huber, 1997] by details of procurus (Figs 633–635; curvature of main sclerite; shape of ventral hinged process; small dorsal membranous process) and by female internal genitalia (Figs 639, 652–653; pore plates close together; specific configuration of receptacle and ducts).

Etymology

The species name (Spanish: whip) refers to the shape of the procurus; noun in apposition.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 21998), Península de Paraguaná, Cerro Santa Ana (11.8177° N, 69.9468° W), 480 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 2 ♂♂, 4 ♀♀, ZFMK (Ar 21999), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-187), same collection data as for holotype • 3 ♂♂, 1 juv., ZFMK (Ar 22000), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-193), Sierra de San Luis, E Curimagua (11.1748° N, 69.6273° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 5 ♂♂, 4 ♀♀, ZFMK (Ar 22001), and 1 ♂, 4 ♀♀ in pure ethanol, ZFMK (Ven20-146), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Yaracuy** • 6 ♂♂, 14 ♀♀, 3 juvs, ZFMK (Ar 22002), and 2 ♀♀ in pure ethanol, ZFMK (Ven20-156), Yurubi National Park (10.4913° N, 68.6564° W), 140 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 2 ♂♂, 5 ♀♀, ZFMK (Ar 22003), and 1 ♀ in pure ethanol, ZFMK (Ven20-159), Guaquira, ‘site 1’ (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 3 ♀♀, ZFMK (Ar 22004), Guaquira, ‘site 2’ (10.2807° N, 68.6530° W), 150 m a.s.l., forest along stream, 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Aragua** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 22005), and 4 ♀♀ in pure ethanol, ZFMK (Ven18-241), between Maracay and Puerto Colombia (10.4304° N, 67.5998° W), 380 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 1 ♀, 1 juv., ZFMK (Ar 22006), Henri Pittier National Park at 10.360° N, 67.720° W, ~730 m a.s.l., 11 Dec. 2002 (B.A. Huber) • 1 ♂, 1 ♀, ZFMK (Ar 22007), Henri Pittier National Park near Hacienda la Trilla (10.390° N, 67.747° W), ~130 m a.s.l., 12 Dec. 2002 (B.A. Huber). – **La Guaira** • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22008), and 2 ♀♀ in pure ethanol, ZFMK (Ven20-167), El Limón, ‘site 1’ (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Táchira** • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22009), and 3 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-121), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Bolívar** • 6 ♂♂, 3 ♀♀, ZFMK (Ar 22010), and 4 ♂♂, 12 ♀♀ in pure ethanol, ZFMK (Ven02/100-2), small forest at Laguna in Canaima (6.241° N, 62.848° W), ~400 m a.s.l., 8 Dec. 2002 (B.A. Huber).

Description**Male** (holotype)

MEASUREMENTS. Total body length 2.0, carapace width 0.60. Distance PME–PME 160 µm; diameter PME 55 µm; distance PME–ALE 15 µm; AME absent. Leg 1: 11.8 (3.1+0.2+3.1+4.5+0.9), tibia 2: 1.8, tibia 3: 1.0, tibia 4: 2.0; tibia 1 L/d: 52; all femora approximately same diameter.

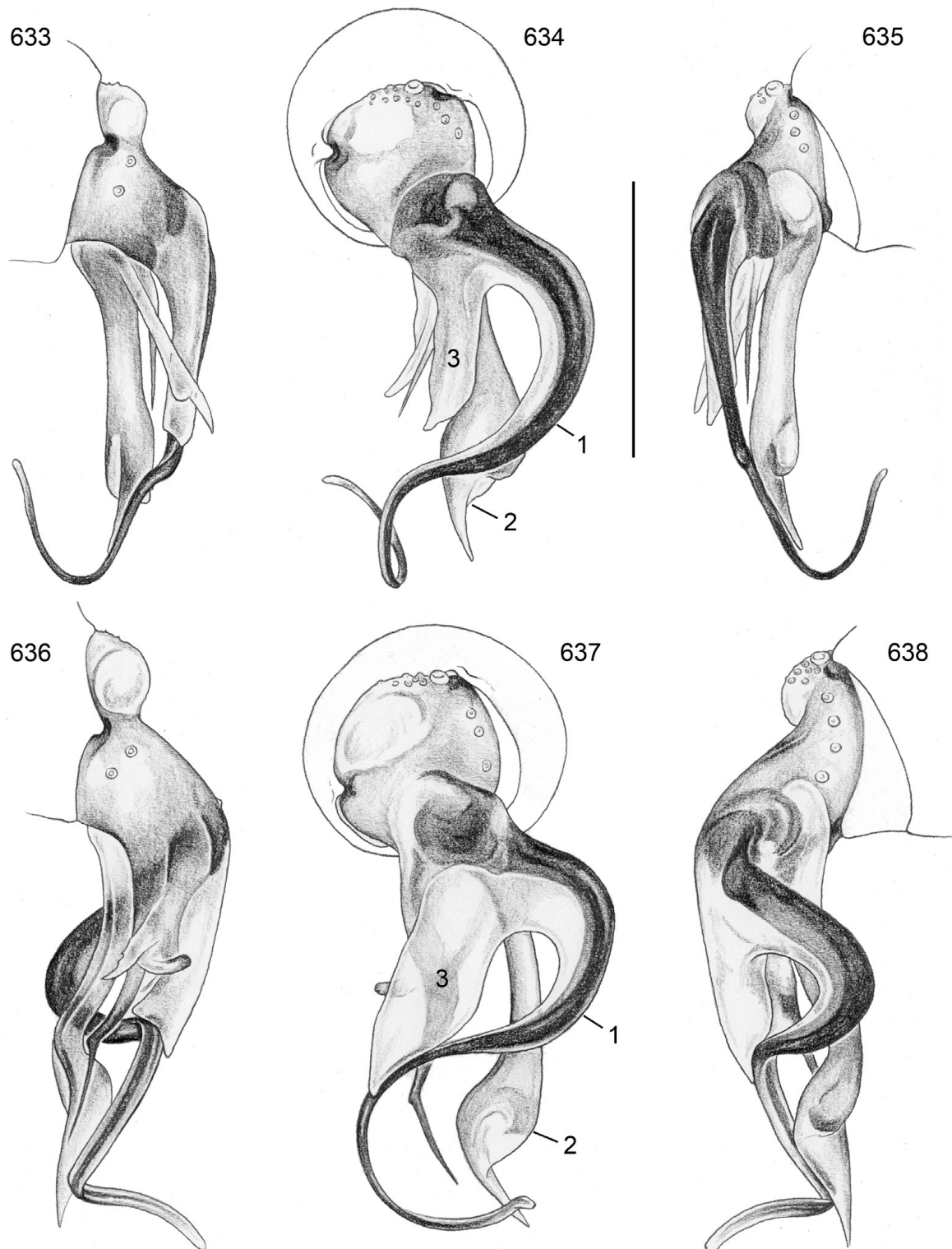
COLOR (in ethanol). Entire prosoma whitish; legs ochre-yellow, without darker rings; abdomen whitish, with darker marks dorsally in pair of rows.

BODY. Habitus as in Fig. 618. Ocular area barely raised. Carapace without thoracic groove. Clypeus unmodified. Sternum slightly wider than long (0.44/0.40), unmodified. Abdomen elongate.

CHELICERAE. As in *M. delicata* and *M. talamanca* (cf. Huber 1997c: fig. 6), each side with patch of modified (globular) hairs and with distal apophysis close to fang.

PALPS. In general as in *M. delicata* and *M. talamanca* (cf. Huber 1997c: figs 4, 10); coxa unmodified, trochanter with short ventral apophysis; femur short, strongly widened, with indistinct prolateral-ventral process; retrolateral trichobothrium on tibia not in very distal position; procurus complex (Figs 633–635), ventral hinged process attached proximally; main part of procurus retrolaterally with apparently hinged strong sclerite, prolaterally with several semitransparent elements.

LEGS. Without spines and curved hairs, few vertical hairs; retrolateral trichobothrium of tibia 1 at 6%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~15 pseudosegments, poorly visible in dissecting microscope.



Figs 633–638. *Metagonia* Simon, 1893; left palpal tarsi and procursi, prolatateral, dorsal, and retrolateral views. **633–635.** *M. latigo* Huber sp. nov.; from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21999). **636–638.** *M. delicata* (O. Pickard-Cambridge, 1895); from Mexico, Oaxaca, S María Lombardo (ZFMK). 1=main whip-shaped or S-shaped sclerite; 2=ventral hinged process; 3=dorsal membranous process. Scale line: 0.3 mm (all figures at same scale).

Male (variation)

Tibia 1 in 35 males (including holotype): 2.9–4.0 (mean 3.4). Some males with fewer or without dark marks on abdomen (Fig. 620).

Female

In general similar to male (Figs 619, 621). Tibia 1 in 40 females: 2.6–3.6 (mean 3.0). Epigynum (Figs 650–651) unsclerotized except posterior rim, internal receptacle and ducts visible in uncleared specimens. Internal genitalia (Figs 639, 652–653) asymmetric (antisymmetric; of 41 females, 22 were ‘left-sided’, 19 ‘right-sided’), with complex system of ducts/folds, receptacle, and large membranous pouch; pore plates oval, close together.

Distribution

Widespread in Venezuela, known from the states Falcón, Yaracuy, Aragua, La Guaira, Táchira, and Bolívar (Fig. 1051).

Natural history

All specimens were collected from the undersides of leaves in humid forests. No strong preference for monocot or dicot plants seemed to exist, but at some localities most specimens were found on a single species of plant (e.g., on palm leaves at La Trampa, Táchira). The webs were closely attached to the leaf surface and barely visible, apparently identical to those described in some detail for *M. uvita* Huber, 1997 (Huber & Schütte 2009).

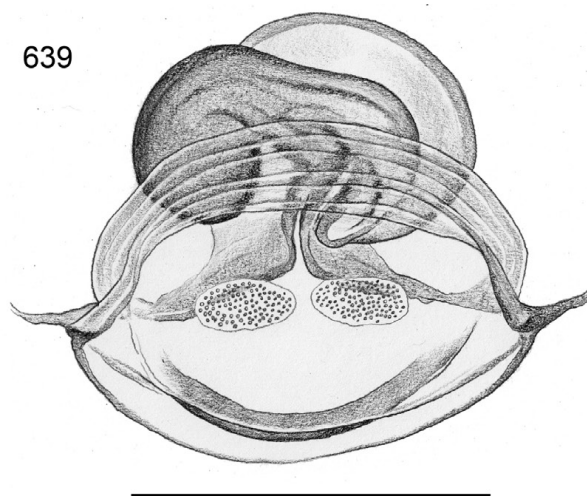


Fig. 639. *Metagonia latigo* Huber sp. nov.; female from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21999), cleared female genitalia, dorsal view. Scale line: 0.2 mm.

Metagonia mariguitarensis (González-Sponga, 1998)
Figs 640–643, 1052

Anomalaia mariguitarensis González-Sponga, 1998: 25, figs 21–32 (fig. 28 missing).

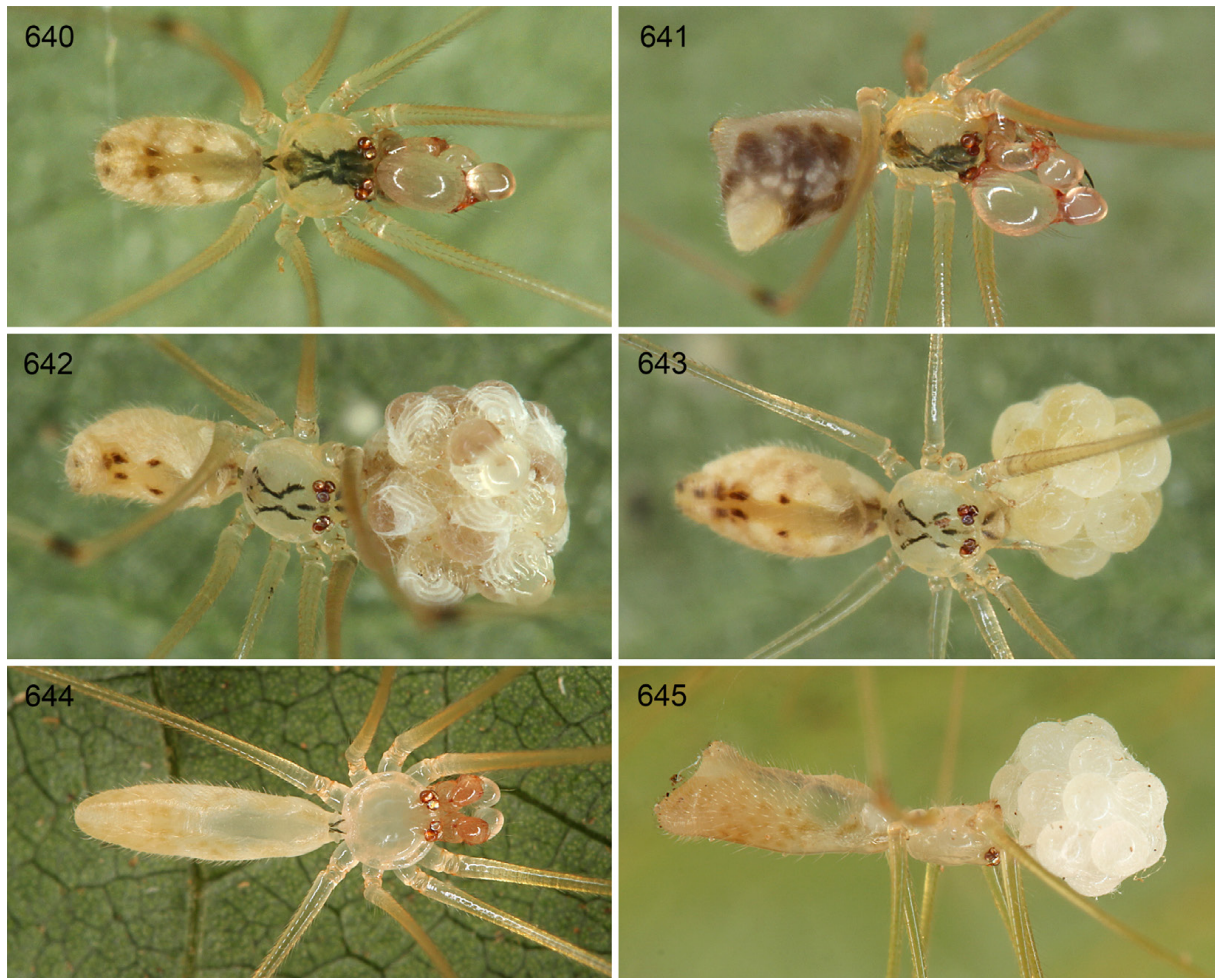
Metagonia mariguitarensis – Huber 2000: 67, figs 256–267; 2004: 318, figs 1–35. — Carvalho *et al.* 2017: 13.

Type material

VENEZUELA – **Sucre** • 5 ♂♂, ~10 ♀♀, 2 juvs types (see Note below), MIZA 105768 (MAGS 1004), Marigüitar [10.445° N, 63.905° W], 22 Dec. 1986 (A. Campos); examined.

New records

VENEZUELA – **Sucre** • 1 ♂, 2 ♀♀, 1 juv., ZFMK (Ar 22011), Marigüitar (10.445° N, 63.905° W), ~5 m a.s.l., underside of palm leaves in hotel garden, 28 Nov. 2002 (B.A. Huber) • 3 ♀♀, ZFMK (Ar 22012), Cascada el Chorro (10.392° N, 63.633° W), ~160 m a.s.l., 30 Nov. 2002 (B.A. Huber). – **Falcón** • 1 ♀, ZFMK (Ar 22013), and 4 ♀♀ in pure ethanol, ZFMK (Ven20-149), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Bolívar** • 1 ♂, 2 ♀♀, ZFMK (Ar 22014), and 3 ♀♀ in pure ethanol, ZFMK (Ven18-163), Ciudad Guayana, Parque La Llovizna (8.3130° N, 62.6724° W), 50 m a.s.l., 11 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♀♀, 3 juvs, ZFMK (Ar 22015), Parque La Llovizna (8.3112° N, 62.6742° W), 30 m a.s.l., 14 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♀♀, ZFMK (Ar 22016), between Canaima and Ucaima camp (6.2426° N, 62.8551° W), ~400 m a.s.l., 5 Dec. 2002 (B.A. Huber). 2 ♀♀, ZFMK (Ar



Figs 640–645. *Metagonia* Simon, 1893; live specimens. **640–643.** *M. mariguitarensis* (González-Sponga, 1998); males and females with egg sacs from Bolívar, Ciudad Guayana. **644–645.** *M. sp.* 'Br16-216' (undescribed); from Brazil, Manaus, Reserve Ducke; this species is very similar to *M. guianesa* Huber sp. nov.; of which no live photos are available.

22017), forest near Salto El Sapo at Canaima (6.254° N, 62.848° W), ~400 m a.s.l., 8 Dec. 2002 (B.A. Huber).

Note

In the original description (González-Sponga 1998), the male holotype and a female paratype are said to be separated from the other specimens and labeled as “MAGS-1004a” and “MAGS-1004b”, respectively. This is not the case. All specimens are joined in a vial with the label “1004”. Since there is no doubt that all males are indeed the same species, there is no need to select a lectotype and all specimens are here simply treated as ‘types’.

Distribution

Apparently widely distributed in northern South America (Huber 2000), but specimens from Peru were explicitly assigned tentatively and may not be conspecific (Huber 2000, 2004). In Venezuela, the species has been recorded in the states Sucre, Falcón, and Bolívar (Fig. 1052).

Natural history

All specimens were collected from the undersides of leaves, and mostly in disturbed rather than well-preserved areas. The type series was collected in “jardines de áreas urbanas” (urban gardens); the specimens from the type locality reported in Huber (2004) were from a small banana plantation near a degraded forest near the town of Marigüitar; the specimens from Cascada el Chorro were also from banana plants at the margin of a disturbed forest; the newly collected specimens from Parque La Llovizna were collected from dicot plants in a semi-natural forest within the large park area. The specimens from Santa Cruz de La Alegría were collected in a well-preserved forest but close to the forest margin; two further species of *Metagonia* shared this locality, one of them (*M. guttata* Huber sp. nov.) seemed to prefer the same large dicot plant leaves.

Metagonia guianesa Huber sp. nov.

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Figs 646–649, 654–656, 1052

Metagonia Ven54 – Eberle *et al.* 2018 (molecular data). — Huber *et al.* 2018: 71.

Diagnosis

Distinguished from most congeners by unmodified male chelicerae, by modifications of male clypeus (Fig. 648; two pairs of light rounded processes at rim), and by female internal genitalia (Figs 649, 655–656; elongate median receptacle). From a very similar closely related undescribed relative from Brazil (“*M.* Br16-216” in Eberle *et al.* 2018; Huber *et al.* 2018) by minor details of procurus and clypeus shape.

Etymology

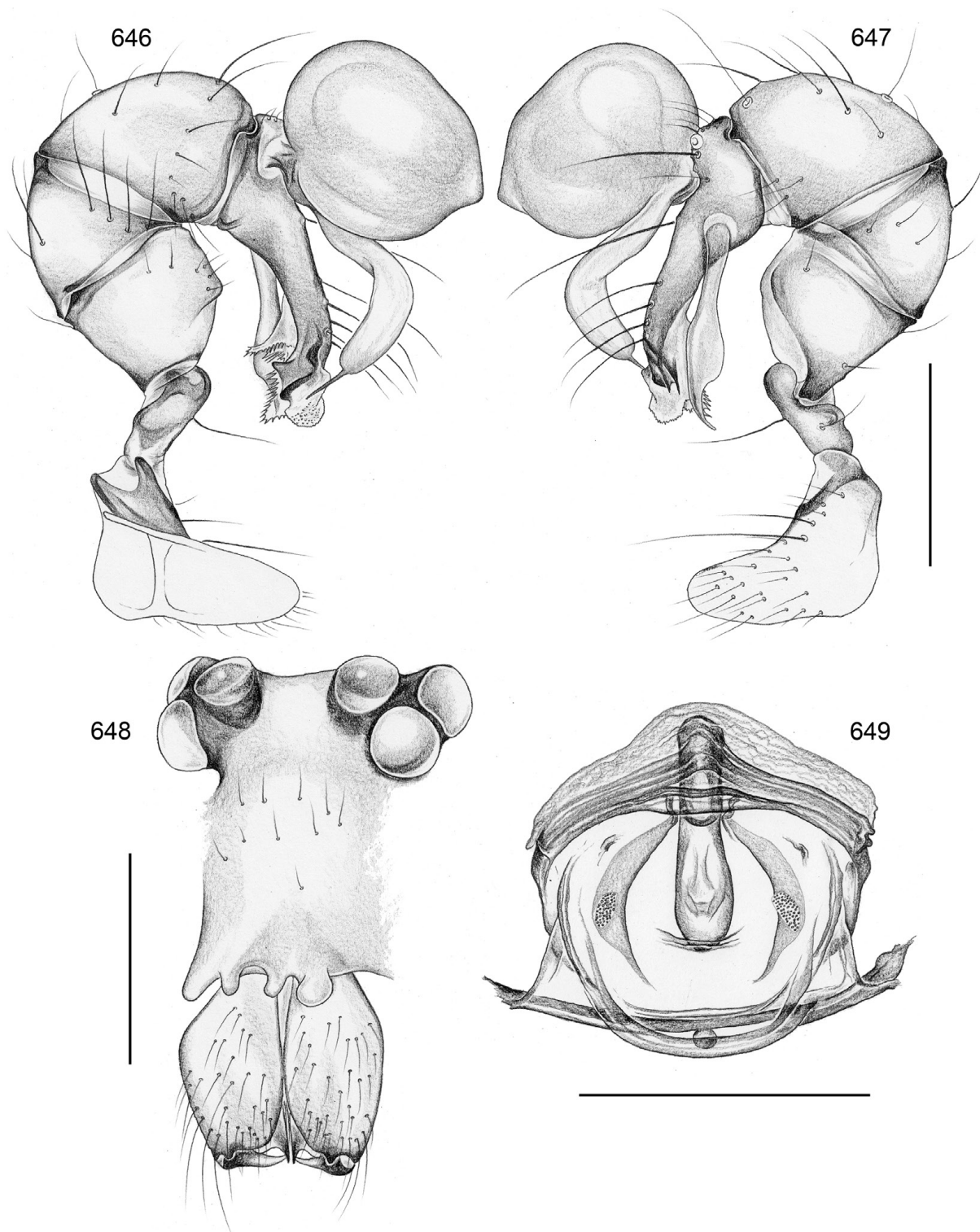
The species name refers to the type locality of this species in the Guiana Highlands; adjective.

Type material

VENEZUELA – Bolívar • ♂ holotype, ZFMK (Ar 22018), at km 109 from El Dorado (6.013° N, 61.391° W), ~800 m a.s.l., 3 Dec. 2002 (B.A. Huber).

Other material examined

VENEZUELA – Bolívar • 1 ♂, 4 ♀♀, ZFMK (Ar 22019), 1 ♀, 13 juvs in pure ethanol, ZFMK (Ven02/100-54), same collection data as for holotype • 2 ♀♀, ZFMK (Ar 22020), at km 102 from El Dorado (6.063° N, 61.400° W), ~500 m a.s.l., 2 Dec. 2002 (B.A. Huber).

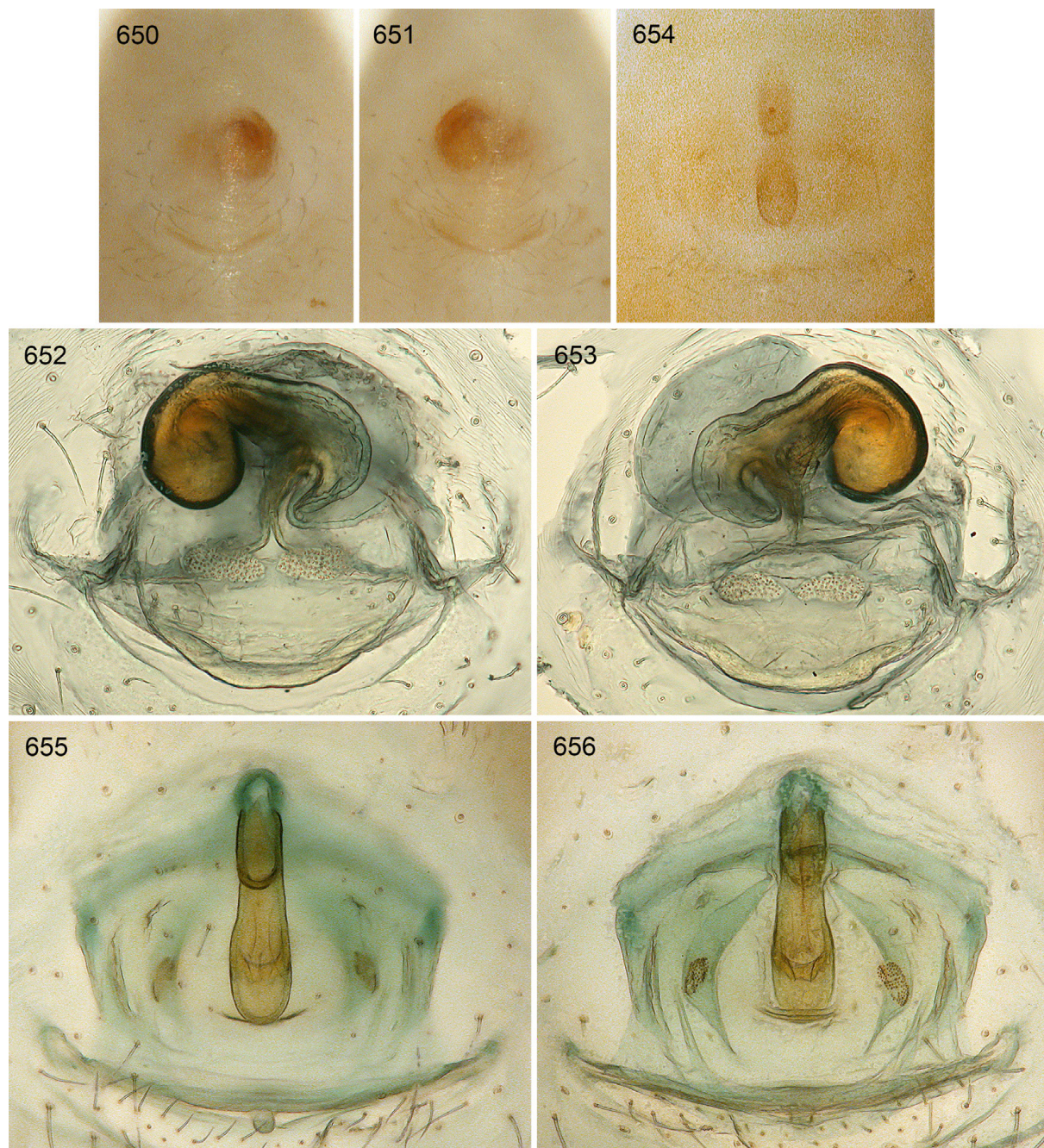


Figs 646–649. *Metagonia guianesa* Huber sp. nov.; from Bolívar, km 109 from El Dorado (type locality; ZFMK Ar 22019). **646–647.** Left male pedipalp, prolateral and retrolateral views. **648.** Male ocular area, clypeus, and chelicerae, oblique frontal view. **649.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.7, carapace width 0.87. Distance PME–PME 135 μ m; diameter PME 90 μ m; distance PME–ALE 15 μ m; AME absent. Leg 1: 27.9 (6.8+0.4+6.6+12.4+1.7), legs 2 and 4 missing, tibia 3: 2.7; tibia 1 L/d: 73.



Figs 650–656. *Metagonia* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **650–653.** *M. latigo* Huber sp. nov.; ‘left-sided’ and ‘right-sided’ females (both cleared genitalia in dorsal views) from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 21999). **654–656.** *M. guianesa* Huber sp. nov.; from Bolívar, km 109 from El Dorado (type locality; ZFMK Ar 22019).

COLOR (in ethanol). Entire prosoma pale ochre-yellow to whitish; legs ochre-yellow, with darker (brown to black) patellae and tibia-metatarsus joints; abdomen monochromous whitish.

BODY. Habitus as in Brazilian *Metagonia* ‘Br16-216’ (cf. Fig. 644). Ocular area barely raised. Carapace without thoracic groove. Clypeus with two pairs of light rounded processes at rim (Fig. 648). Sternum slightly wider than long (0.58/0.50), unmodified. Abdomen elongate, dorsally projecting beyond spinnerets.

CHELICERAE. Unmodified (except indistinct widening proximally laterally; Fig. 648).

PALPS. AS in Figs 646–647; coxa unmodified; trochanter with rounded retrolateral ventral apophysis; femur with pair of low ventral humps; retrolateral trichobothrium on tibia in very distal position; procurus with simple pale ventral hinged process, main branch divided distally into retrolateral and prolateral sclerites connected by complex membranous elements; retrolateral part distinctively bent toward ventral, prolateral part with short subdistal branch; genital bulb with indistinct dorsal cone-shaped hump, embolus simple, with distal spine.

LEGS. Without spines and curved hairs, few vertical hairs; retrolateral trichobothrium of tibia 1 at 8%; prolateral trichobothrium absent on tibia 1; tarsus 1 with >20 pseudosegments, poorly visible in dissecting microscope.

Male (variation)

Legs 1 missing in second male.

Female

In general similar to male (cf. Fig. 645). Tibia 1 in five females: 5.3–5.7 (mean 5.5). Epigynum (Fig. 654) unsclerotized simple plate, with small knob-shaped structure at posterior rim, internal receptacle visible in uncleared specimens. Internal genitalia (Figs 649, 655–656) apparently symmetric, with elongate median receptacle, small pore plates far apart.

Distribution

Known from two neighboring localities in the Venezuelan state Bolívar (Fig. 1052).

Natural history

All specimens were collected from the undersides of leaves.

Metagonia conica (Simon, 1893)
Figs 657–676, 1021–1022, 1029, 1053

Micromerys conica Simon, 1893b: 472 (♂).

Metagonia conica – Huber 1997c: 342, figs 1a–d, 2a–b (♂).

Notes

The original ‘description’ (Simon 1893b) is based on two males and consists of a single line describing the shape of the abdomen; it offers neither illustrations nor diagnostic characters. The male was redescribed in Huber (1997c) based on the type material, but the females continued to be unknown. The redescription below is based on 303 newly collected adult males and females from numerous localities, including the type locality.

Preliminary molecular data (J.J. Astrin, B.A. Huber, unpublished) show a relatively deep split between eastern specimens (Aragua, La Guaira, Miranda) and western specimens (Lara, Trujillo). This split is congruent with the limit between two biogeographic regions, the Venezuelan Andes and the Coastal Ranges. However, specimens from all these localities are extremely similar morphologically and they are thus tentatively considered conspecific. The male palps and chelicerae appear identical; the female internal genitalia show minimal differences but these may partly be artifacts of preparation. The most consistent difference refers to the male clypeus (see Variation below).

Diagnosis

Males differ from known congeners by morphology of clypeus (Fig. 666; two pairs of semitransparent frontal processes and pair of sclerotized apophyses directed downward), by male chelicerae (Fig. 666; 3–5 globular hairs on each side), by shape of procurus (Figs 663–665; strongly curved, with distinctive retrolateral S-shaped apophysis), and by female internal genitalia (Figs 667–668; asymmetric receptacle with duct directed toward anterior; pair of pockets; pore plates very narrow, transversal, and medially fused).

Type material

VENEZUELA – **Aragua** • ♂ lectotype (designated in Huber 1997c) and 1 ♂ paralectotype, MNHN (10502), E. Simon collection number 11022, Colonia Tovar [approximately 10.409° N, 67.294° W], Jan.–Feb. 1888 (E. Simon), examined (Huber 1997c).

New records

VENEZUELA – **Aragua** • 4 ♂♂, 2 ♀♀, ZFMK (Ar 22021), Colonia Tovar, forest above town (10.4144° N, 67.3005° W), 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 3 ♀♀, 1 juv., ZFMK (Ar 22022), and 1 ♂, 2 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven02/100-8), same locality, 26 Nov. 2002 (B.A. Huber) • 3 ♂♂, 4 ♀♀, ZFMK (Ar 22023), Colonia Tovar, forest at Cerro Picacho (10.4085° N, 67.3088° W), ~2250 m a.s.l., 27 Nov. 2002 (B.A. Huber) • 6 ♂♂, 11 ♀♀, 2 juvs, ZFMK (Ar 22024–25), Henri Pittier National Park, forest near Rancho Grande (10.350° N, 67.684° W), ~1150 m a.s.l., 12 Dec. 2002 (B.A. Huber) • 4 ♂♂, 5 ♀♀, 1 juv., ZFMK (Ar 22026–27), and 3 ♀♀ in pure ethanol, ZFMK (Ven02/100-31), Henri Pittier National Park, ~1 km W Rancho Grande (10.350° N, 67.692° W), 11 Dec. 2002 (B.A. Huber) • 2 ♀♀, ZFMK (Ar 22028), Henri Pittier National Park, ~1.5 km NW Rancho Grande (10.358° N, 67.695° W), ~1100 m a.s.l., 11 Dec. 2002 (B.A. Huber) • 5 ♂♂, 4 ♀♀, ZFMK (Ar 22029), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 4 ♂♂, 5 ♀♀, 3 juvs, ZFMK (Ar 22030), between Colonia Tovar and El Junquito (10.4230° N, 67.2381° W), 1960 m a.s.l., 10 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 12 ♂♂, 10 ♀♀, ZFMK (Ar 22031–32), and 3 ♂♂, 6 ♀♀ in pure ethanol, ZFMK (Ven18-158), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 3 ♀♀, ZFMK (Ar 22033), and 2 ♀♀ in pure ethanol, ZFMK (Ven20-172), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Miranda** • 14 ♂♂, 2 ♀♀, ZFMK (Ar 22034–35), and 2 ♂♂, 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-145), El Ávila National Park, between Sabas Nieves and La Silla (10.5288° N, 66.8546° W), 1850 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 28 ♂♂, 12 ♀♀, 1 juv., ZFMK (Ar 22036–37), and 1 ♂, 1 ♀ in pure ethanol, ZFMK (Ven02/100-4), same locality, 25 Nov. 2002 (B.A. Huber) • 6 ♂♂, 4 ♀♀, ZFMK (Ar 22038), El Ávila National Park, near La Julia, trail to Rancho Grande (10.5164° N, 66.8089° W), 1460 m a.s.l., degraded forest along small stream, 22 Feb. 2020 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 5 ♀♀, 1 juv., MIZA, El Volcán, Topotepuy [10.417° N, 66.851° W, ~1450 m a.s.l.], 11–13 Nov. 2019 (O. Villarreal, J. Rodriguez). – **Lara** • 30 ♂♂, 33 ♀♀, 5 juvs, ZFMK (Ar 22039–42), and 3 ♂♂, 7 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven02/100-63), Yacambú National Park, Sendero Ecológico (9.709° N,

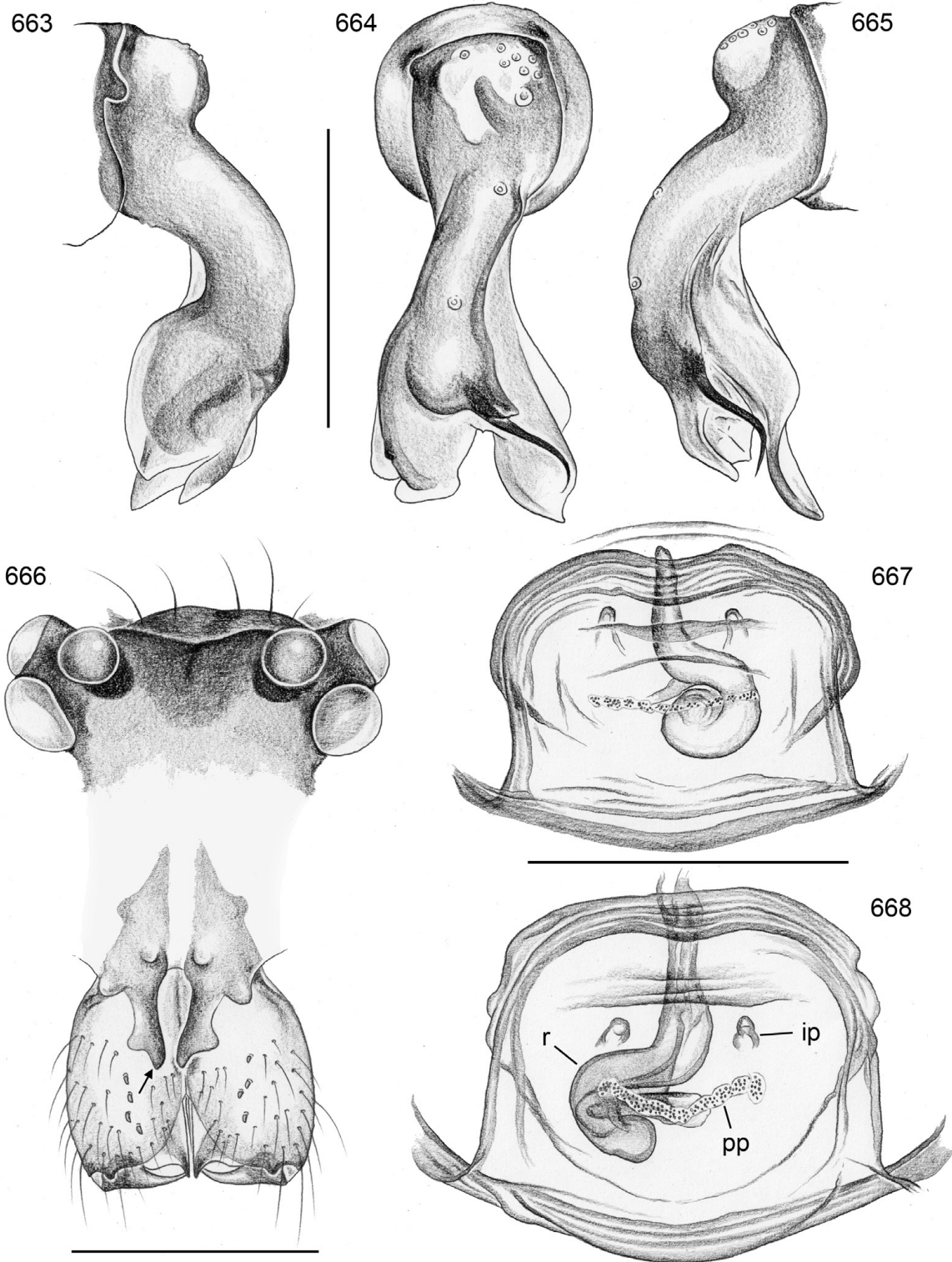
69.580° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi) • 8 ♂♂, 4 ♀♀, ZFMK (Ar 22043), and 1 ♂, 4 ♀♀ in pure ethanol, ZFMK (Ven18-203), between Barquisimeto and Boconó (9.5906° N, 69.8343° W), 1370 m a.s.l., 20 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Trujillo** • 16 ♂♂, 14 ♀♀, 1 juv., ZFMK (Ar 22044–45), and 1 ♀ in pure ethanol, ZFMK (Ven18-212), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Redescription of male (type locality, ZFMK, Ar 22021)

MEASUREMENTS. Total body length 2.8, carapace width 0.85. Distance PME–PME 170 µm; diameter PME 90 µm; distance PME–ALE 20 µm; AME absent. Leg 1: 29.8 (7.2+0.4+7.3+13.3+1.6), tibia 2: 4.7, tibia 3: 2.7, tibia 4: 4.4; tibia 1 L/d: 81; all femora approximately same width.



Figs 657–662. *Metagonia conica* (Simon, 1893); live males and females from Aragua, Colonia Tovar (type locality; 657–659), Lara, Barquisimeto-Boconó (660–661), and Trujillo, Laguna Negra (662). Note inter- and intra-sexual polymorphism in carapace color pattern.



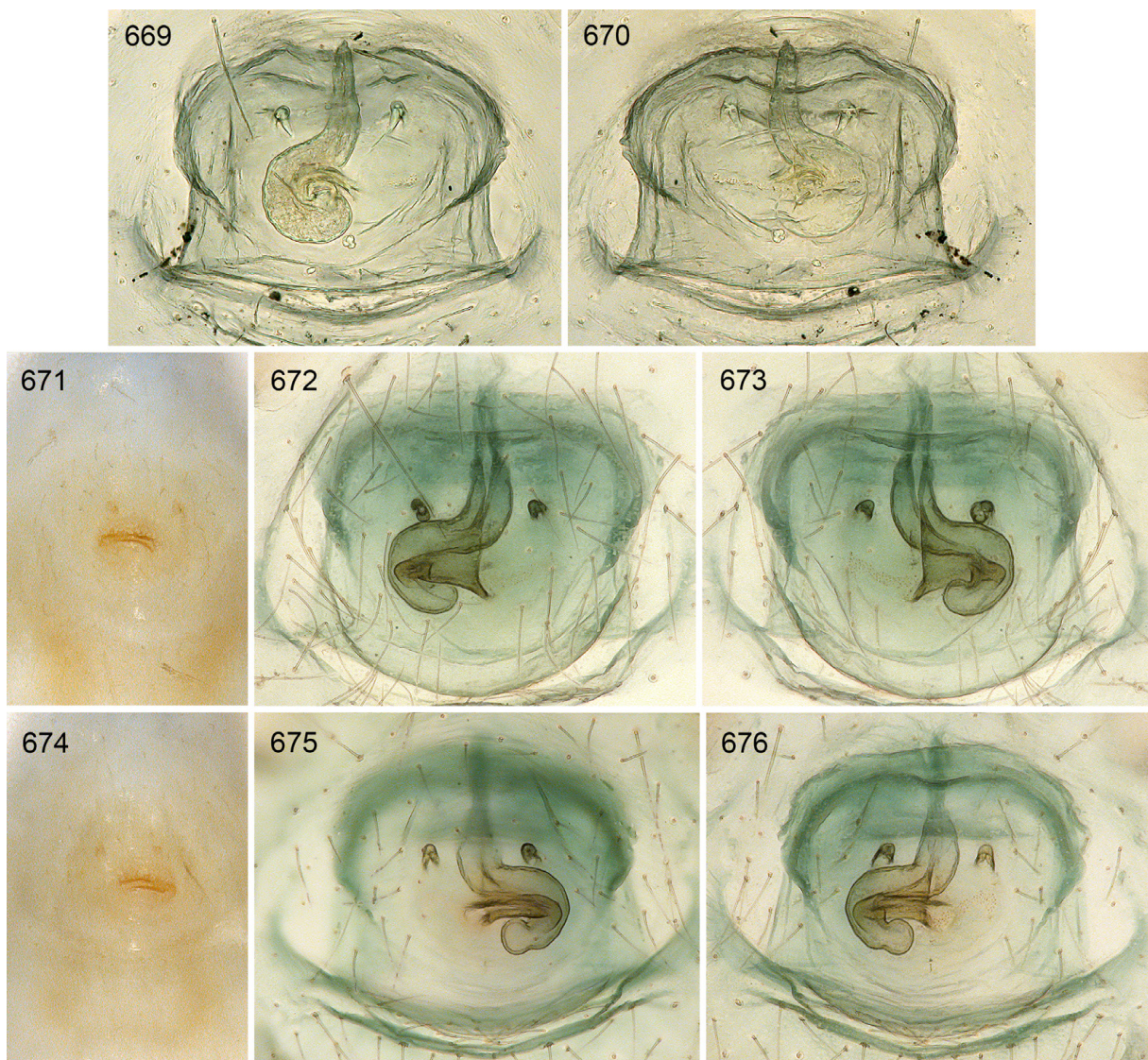
Figs 663–668. *Metagonia conica* (Simon, 1893); male from Aragua, Colonia Tovar (type locality; ZFMK Ar 22021), females from Miranda, El Ávila National Park (667; ZFMK Ar 22037) and from Trujillo, Laguna Negra (668; ZFMK Ar 22045). **663–665.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **666.** Male ocular area, clypeus, and chelicerae, frontal view (arrow: inner branch of main clypeus apophysis). **667–668.** Cleared female genitalia, dorsal views. Abbreviations: ip=internal pocket; pp=pore plate; r=receptacle. Scale lines: 0.3 mm.

COLOR (in ethanol). Prosoma pale ochre-yellow to whitish, only ocular area black; legs pale ochre-yellow, patellae and tibia-metatarsus joints black; abdomen whitish with pale bluish marks dorsally.

BODY. Habitus as in Fig. 658. Ocular area barely raised, each triad on low hump. Carapace without thoracic groove. Clypeus with two pairs of semitransparent frontal processes and pair of sclerotized apophyses directed downward (Fig. 666). Sternum slightly wider than long (0.60/0.54), unmodified. Abdomen slightly elongate, projecting beyond spinnerets.

CHELICERAE. With four small modified (globular) hairs on each side (Fig. 666).

PALPS. For general shape, see Huber (1997c: figs 2a–b); coxa unmodified, trochanter with short rounded retrolateral-ventral process; femur short, strongly widened (especially on prolateral-ventral side) but



Figs 669–676. *Metagonia conica* (Simon, 1893); epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **669–670.** ‘Right-sided’ female from Miranda, El Ávila National Park (ZFMK Ar 22037). **671–676.** ‘Right-sided’ and ‘left-sided’ females from Trujillo, Laguna Negra (ZFMK Ar 22045).

without processes; tibia with retrolateral trichobothrium in very distal position; procurus complex (Figs 663–665), strongly curved, ventral hinged process distally flat, main part of procurus distally bifid, retrolateral part with short and slender S-shaped apophysis, prolateral part mostly weakly sclerotized and membranous; genital bulb whitish, globular, with embolus ending in transparent spine.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 8%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~30 pseudosegments, poorly visible in dissecting microscope.

VARIATION. Prosoma dorsal coloration polymorphic (rather than just variable): of 148 males, 88 (59%) with black ocular area as described above ('morph 1'; Figs 658, 662), 58 (39%) with black ocular area and black median band ('morph 2', Figs 657, 661), and two males without any dark mark (like females). Percentages of different morphs slightly different at eastern and western localities (percentages of 'morph 1' in 91 males from eastern localities: 64%; in 54 males from western localities: 50%). Tibia 1 in 120 males: 5.8–8.2 (mean 6.7) (identical mean lengths in males from eastern and western populations). Modified hairs on male chelicerae slightly variable (3–5 on each side, often asymmetric). Clypeus variable: in eastern specimens, inner branch of large apophyses (arrow in Fig. 666) longer than outer branch, in western specimens both branches very similar in length.

Description of female

In general similar to male (Figs 659–660) but prosoma never with dark dorsal mark. Tibia 1 in 100 females: 4.0–5.3 (mean 4.7) (identical mean lengths in females from eastern and western populations). Epigynum unsclerotized (Figs 671, 674), only roundish internal receptacle and indistinct pair of small internal pockets visible in uncleared specimens. Internal genitalia asymmetric (Figs 667–670, 672–673, 675–676), receptacle at posterior end of duct either directed toward right or left side (antisymmetric; both morphs at approximately same frequency); with pair of internal pockets, narrow pore plates in transversal position, medially fused.

Distribution

Known from several localities in the Venezuelan states Aragua, La Guaira, Miranda, Lara, and Trujillo (Fig. 1053).

Natural history

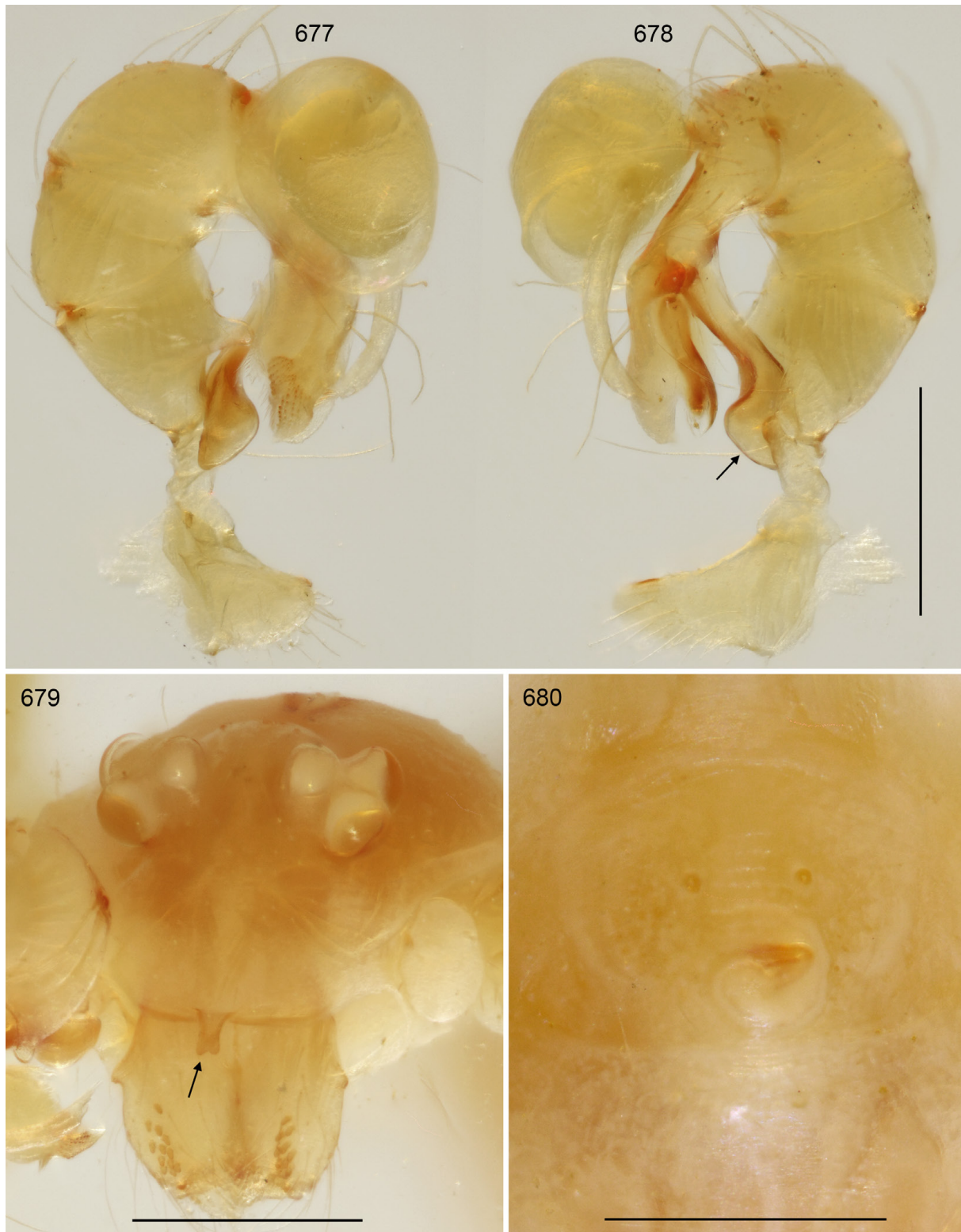
All specimens were collected from the undersides of leaves in humid forests, both on native and introduced plants (e.g., banana). During the day the spiders were pressed against the leaf, and webs were either invisible or limited to a sparse and fine layer of silk closely attached to the leaf surface.

Metagonia juliae González-Sponga, 2010
Figs 677–680, 1054

Metagonia juliae González-Sponga, 2010: 20, pl. 5, figs 1–9.

Diagnosis

Easily distinguished from known congeners by modification of male clypeus (arrow in Fig. 679, slender process with bifid tip), by modification of male chelicerae (Fig. 679; pair of lateral processes and distal patches of ~10–12 globular hairs on each side), and by long and distally widened ventral hinged process on procurus (arrow in Fig. 678).



Figs 677–680. *Metagonia juliae* González-Sponga, 2010; male holotype and female paratype (MIZA 105770; MAGS 279). **677–678.** Left male pedipalp, prolateral and retrolateral views (arrow: ventral hinged process). **679.** Male prosoma, oblique frontal view (arrow: clypeus process). **680.** Female genitalia, ventral view. Scale lines: 0.3 mm.

Type material

VENEZUELA – **Miranda** • ♂ holotype and 1 ♀ paratype, MIZA 105770 (MAGS 279), El Ávila National Park, Estación de Guardaparques ‘La Julia’ [10.5054° N, 66.8116° W, 1140 m a.s.l.], 17 Jul. 1981 (J.A. González D.); examined.

Distribution

Known from type locality only, in Venezuela, Miranda (Fig. 1054).

Natural history

According to González-Sponga (2010), the two specimens were not collected from leaves but from crevices in road cuts.

Metagonia triocular (González-Sponga, 2011)

Figs 681–682, 687–697, 702–704, 1054

Porteña triocular González-Sponga, 2011b: 42, pl. 4, figs 1–9.

Metagonia triocular – Huber *et al.* 2014a: 419.

Diagnosis

Easily distinguished from known congeners by strong ventral hinged process on procurus distally sclerotized and directed toward prolateral (Figs 688, 694); also by pair of processes on male clypeus (Figs 690, 696), by modifications of male chelicerae (Fig. 696; pair of proximal lateral ridges, pair of small frontal processes, and pair of distal patches of globular hairs); and by tongue-shaped posterior sclerite of epigynum (Figs 691–692, 702) and elongate pore plates (Fig. 697).

Type material

VENEZUELA – **La Guaira** • ♂ holotype and 1 ♀ paratype, MIZA 105645 (MAGS 1349), Hacienda El Limón [approximately 10.475° N, 67.283°E, see Note below], 1100 m a.s.l., 25 Jan. 1992 (A.R. Delgado, M.A. González S.); examined.

New record

VENEZUELA – **Aragua** • 4 ♂♂, 4 ♀♀, ZFMK (Ar 22046), and 5 ♀♀ in pure ethanol, ZFMK (Ven20-164), Henri Pittier National Park, NE El Castaño (10.3475° N, 67.5850° W), 990 m a.s.l., bamboo litter, 20 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Note

The exact coordinates of the type locality are unknown to us but the coordinates given above are probably within ~1 km of the collecting site. González-Sponga’s (2011b) coordinates of Hacienda El Limón are ~20 km S, in the state of Aragua.

Redescription

Male (NE El Castaño, ZFMK Ar 22046)

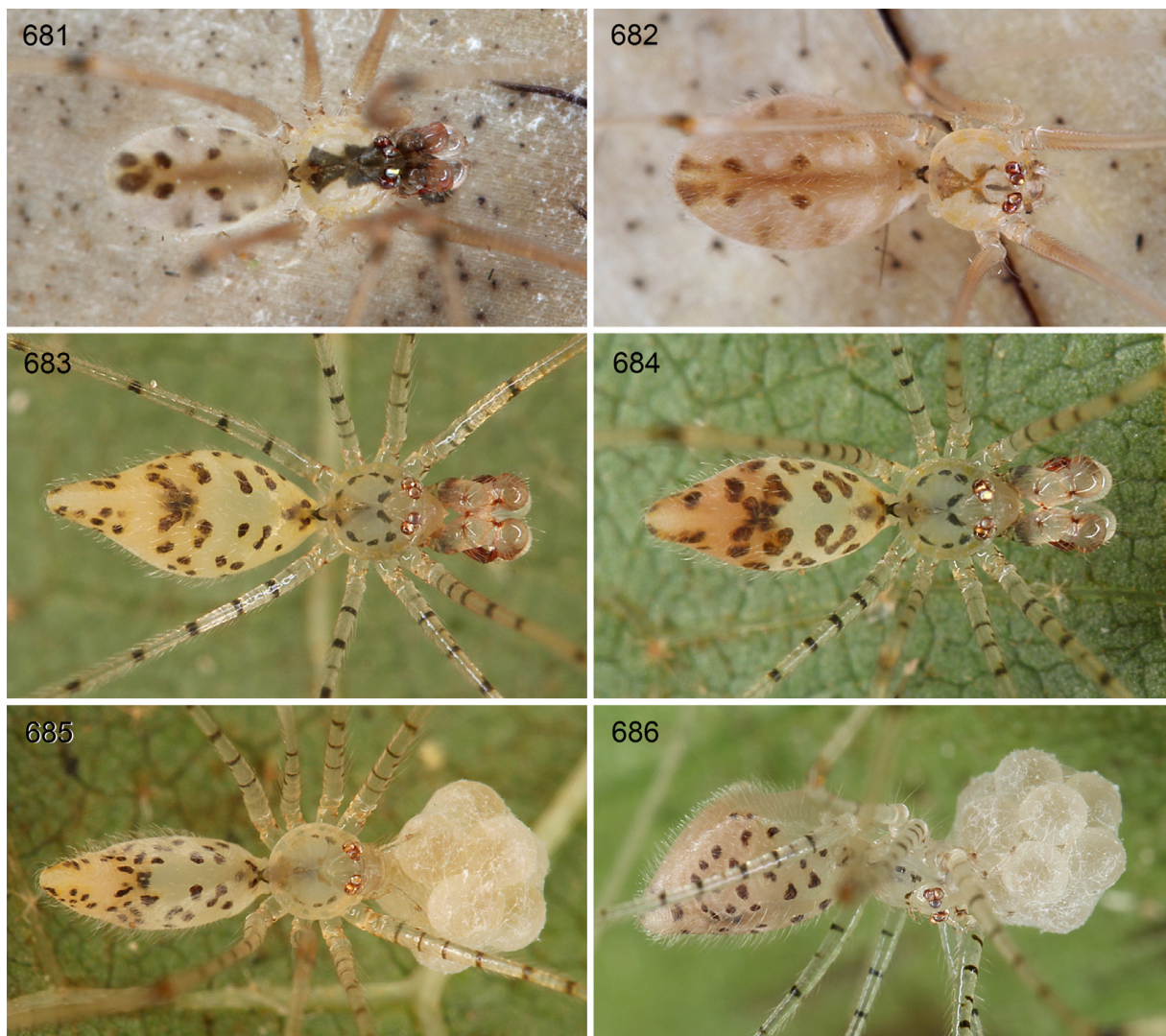
MEASUREMENTS. Total body length 2.2, carapace width 0.70. Distance PME–PME 70 µm; diameter PME 80 × 100 µm; distance PME–ALE 30 µm; AME absent. Leg 1: 14.5 (3.8+0.3+3.5+5.9+1.0), tibia 2: 2.2, tibia 3: 1.5, tibia 4: 2.2; tibia 1 L/d: 50; all femora approximately same diameter.

COLOR (in ethanol). Carapace pale ochre yellow, with brown median mark of distinctive shape including ocular area and clypeus; sternum whitish; legs ochre-yellow, patellae and tibia-metatarsus joints dark brown; abdomen pale grey, with some black marks dorsally, ventrally monochromous.

BODY. Habitus as in Fig. 681. Ocular area barely raised. Carapace without thoracic groove. Clypeus with pair of weakly sclerotized conical processes $\sim 70\ \mu\text{m}$ long (Fig. 696). Sternum slightly wider than long (0.50/0.46), unmodified. Abdomen with rounded conical elongation above spinnerets.

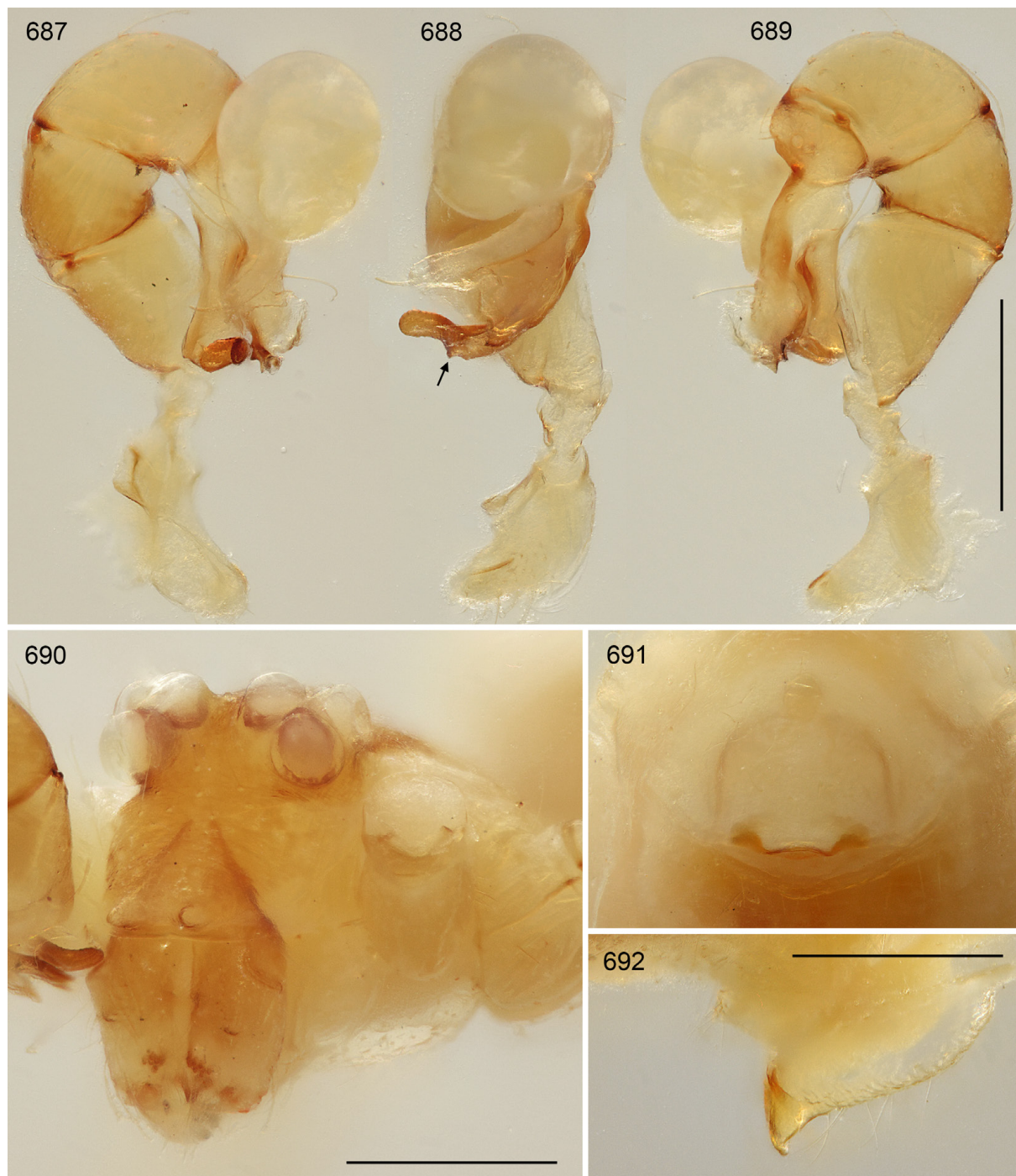
CHELICERAE. As in Fig. 696, with pair of proximal lateral ridges, pair of small frontal processes, and pair of distal patches of 9–10 globular hairs on each side.

PALPS. As in Figs 687–689; coxa unmodified, trochanter with short ventral apophysis; femur distally widened, without process; retrolateral trichobothrium on tibia in very distal position (not absent as stated



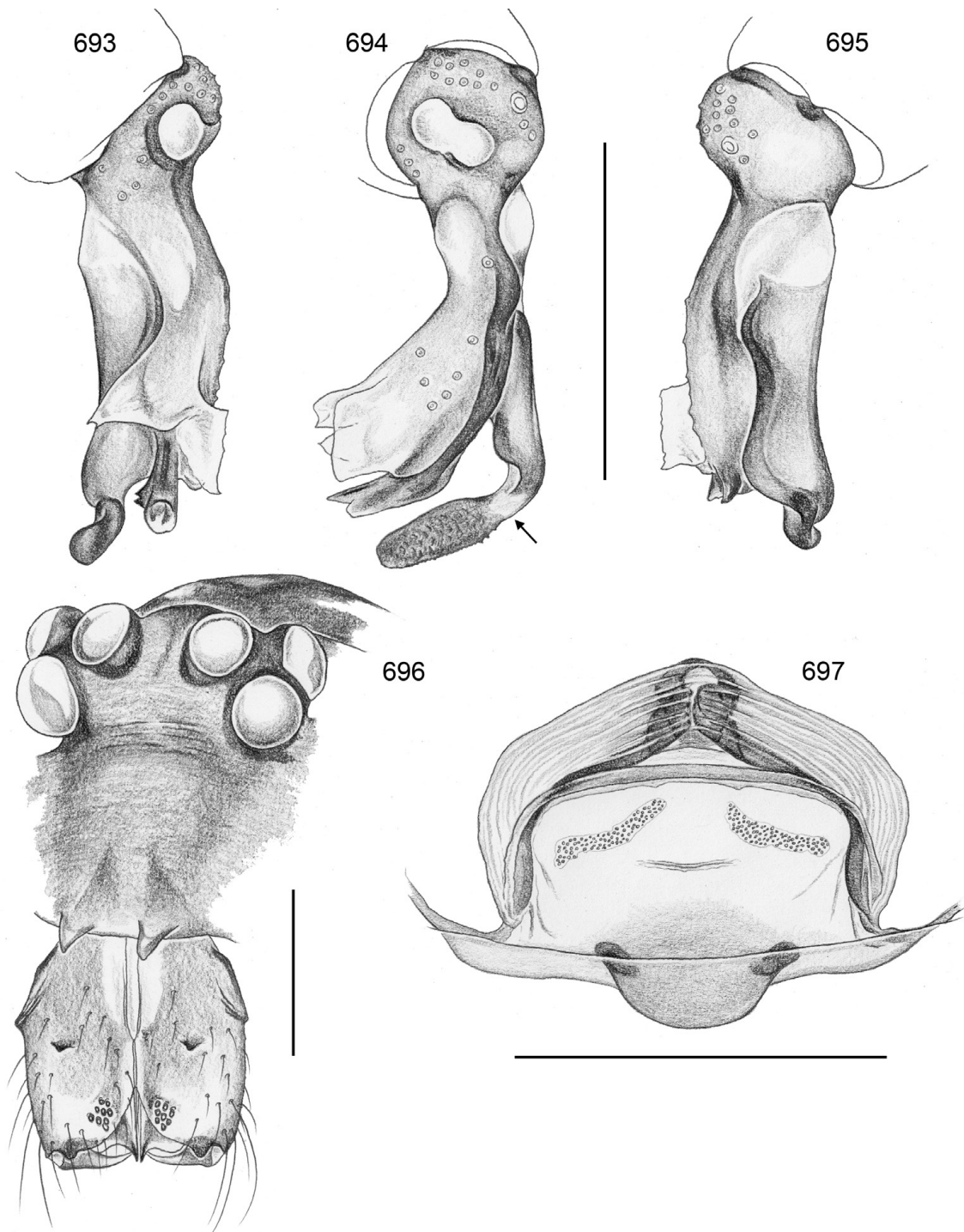
Figs 681–686. *Metagonia* Simon, 1893; live specimens. **681–682.** *M. triocular* (González-Sponga, 2011); male and female from Aragua, Henri Pittier National Park, NE El Castaño. **683–686.** *M. guttata* Huber sp. nov.; males and female with egg sac from Lara, Coro-Barquisimeto (683–685) and female with egg sac from Falcón, Curimagua (686).

in original description); procurus (Figs 693–695) with large ventral hinged process distally strongly curved toward prolateral and ending in sclerotized flap with small scales on ventral face; main branch of procurus distally bifid, one part sclerotized, other part membranous and transparent; genital bulb globular, with tubular embolus ending in spine.



Figs 687–692. *Metagonia triocular* (González-Sponga, 2011); male holotype and female paratype (MIZA 105645; MAGS 1349). **687–689.** Left male pedipalp, prolateral, dorsal, and retrolateral views (arrow: ventral hinged process). **690.** Male prosoma, oblique frontal view. **691–692.** Female genitalia, ventral and lateral views. Scale lines: 0.3 mm.

LEGS. Without spines and curved hairs, few vertical hairs; retrolateral trichobothrium of tibia 1 at 13%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~20 pseudosegments, only distally fairly distinct.



Figs 693–697. *Metagonia triocular* (González-Sponga, 2011); from Aragua, Henri Pittier National Park, NE El Castaño (ZFMK Ar 22046). **693–695.** Left male palpal tarsus and procursus, prolateral, dorsal and retrolateral views (arrow: ventral hinged process). **696.** Male ocular area, clypeus, and chelicerae, oblique frontal view. **697.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

Male (variation)

Tibia 1 in three other males 3.1, 3.3, 3.7. Number of modified hairs on chelicerae slightly variable.

Female

In general similar to male (Fig. 682) but clypeus unmodified and not darkened, ocular area with median and lateral marginal dark marks, otherwise light, posterior triangular mark similar to male but lighter; sternum in some females darker. Tibia 1 in nine females: 2.8–3.3 (mean 3.1). Epigynum (Figs 691–692, 702) mostly unsclerotized except posterior tongue-shaped sclerite (strongly raised in paratype), internal median receptacle and arc visible in uncleared specimens. Internal genitalia (Figs 697, 703–704) symmetric, with simple anterior arc and narrow pore plates.

Distribution

Known from two localities in the Venezuelan states La Guaira and Aragua (Fig. 1054).

Natural history

According to González-Sponga (2011b), the type specimens were collected from dead *Cecropia* leaves in the understory of a forest with coffee. Near El Castaño the spiders were found in dead bamboo culm sheaths on the ground. They were extremely well camouflaged and did not react to disturbance, i.e., were difficult to spot but easy to collect.

Metagonia guttata Huber sp. nov.

urn:lsid:zoobank.org:act:29B79A55-8F08-4D20-84B2-7D4AB9AE17E8

Figs 683–686, 698–701, 705–707, 1053

Diagnosis

Easily distinguished from known congeners (including the otherwise very similar *M. reventazona* Huber, 1997 from Costa Rica) by dark marks on femora in males and females (Figs 683–686); also by unique process on genital bulb (arrow in Fig. 699; present but shorter in *M. reventazona*: 60 vs 110 μ m), by shape of procurus (Figs 698–699; all distal elements longer than in *M. reventazona*), by small median process on male clypeus (Fig. 700), by modifications of male chelicerae (whitish proximal processes frontally; pattern of modified globular hairs), and by female internal genitalia (Figs 701, 706–707; symmetric ventral receptacle; dorsal pair of sclerites; pore plates far apart and large).

Etymology

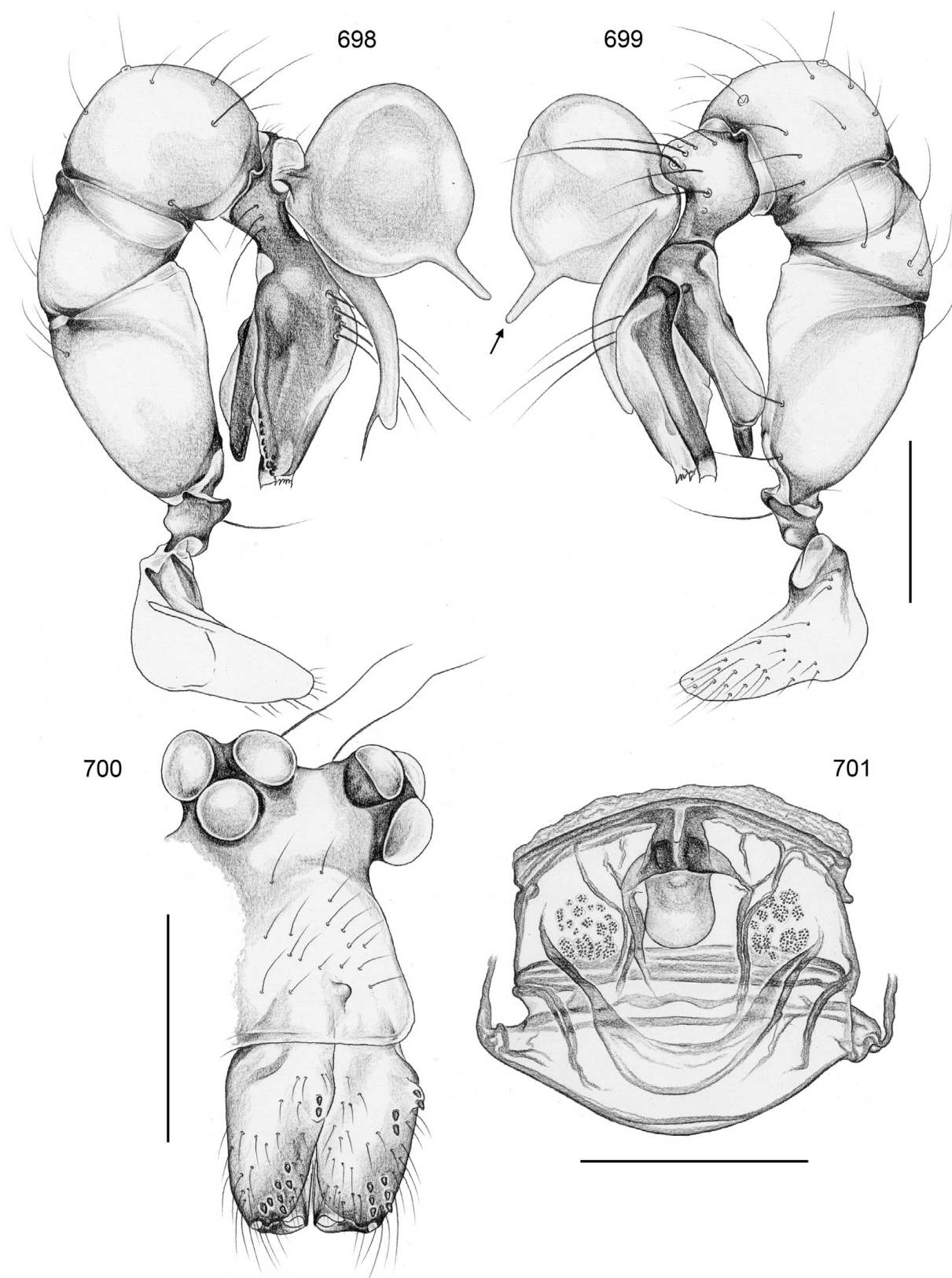
The species name (Latin: speckled, dotted) refers to the vividly patterned body and legs of this species; adjective.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 22047), Sierra de San Luis, E Curimagua (11.1716° N, 69.6266° W), 970 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 1 ♂, 4 ♀♀, 1 juv., ZFMK (Ar 22048), and 1 ♂, 5 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-194, 246), same collection data as for holotype • 2 ♀♀ in pure ethanol, ZFMK (Ven20-153), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Lara** • 2 ♂♂, 4 ♀♀, 3 juvs, ZFMK (Ar 22049), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-199), between Coro and Barquisimeto, El Rodeo (10.7240° N, 69.3008° W), 400 m a.s.l., 19 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Yaracuy** • 1 ♂, ZFMK (Ar



Figs 698–701. *Metagonia guttata* Huber sp. nov.; from Falcón, Curimagua (type locality; ZFMK Ar 22048). **698–699.** Left male pedipalp, prolateral and retrolateral views (arrow: distinctive process of genital bulb). **700.** Male ocular area, clypeus, and chelicerae, oblique frontal view. **701.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

22050), Guaquira, 'site 1' (10.2951° N, 68.6535° W), 120 m a.s.l., forest along stream, 16 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **La Guaira** • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22051), and 4 ♀♀ in pure ethanol, ZFMK (Ven20-165), El Limón, 'site 1' (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Description

Male (holotype)

MEASUREMENTS. Total body length 2.4, carapace width 0.80. Distance PME–PME 140 µm; diameter PME 100 µm; distance PME–ALE 15 µm; AME absent. Leg 1: 18.4 (4.9+0.4+4.9+6.9+1.3), tibia 2: 2.8, tibia 3: 1.7, tibia 4: 2.8; tibia 1 L/d: 58; all femora approximately same diameter.

COLOR (in ethanol). Carapace pale ochre yellow, with four pairs of dark marks along lateral margins and one pair behind ocular area, indistinct median pair posteriorly; clypeus not darkened; sternum mostly dark ochre, lighter at margins; legs ochre-yellow, femora with 4–8 black ventral marks (in live specimens clearly visible also in dorsal view), patellae black, tibiae distally and metatarsi proximally black, also hairs on tibiae distally darker; abdomen whitish, with numerous dark marks dorsally, monochromous ventrally.

BODY. Habitus as in Figs 683–684. Ocular area barely raised, each triad on low hump. Carapace without thoracic groove. Clypeus with small conical process (Fig. 700). Sternum slightly wider than long (0.60/0.50), unmodified. Abdomen with conical elongation above spinnerets.

CHELICERAE. As in Fig. 700, with pair of low whitish processes proximally frontally set with 2 and 3 hairs, respectively, and 7 and 9 modified (globular) hairs, respectively, on frontal face more distally.

PALPS. As in Figs 698–699; coxa unmodified, trochanter with short ventral apophysis; femur relatively long, without process; retrolateral trichobothrium on tibia not in very distal position; procurus with ventral hinged process, main branch of procurus apparently also hinged against proximal part, divided into rod-shaped retrolateral sclerite and mostly membranous prolateral element set with series of ~10 small dark knobs; genital bulb with distinctive light process (arrow in Fig. 699) and simple embolus ending in spine.

LEGS. Without spines and curved hairs, few vertical hairs; retrolateral trichobothrium of tibia 1 at 11%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~15 pseudosegments, distally fairly distinct.

Male (variation)

Tibia 1 in seven males (incl. holotype): 4.0–4.9 (mean 4.4). Number of modified hairs on chelicerae slightly variable. Posterior median mark on carapace sometimes absent.

Female

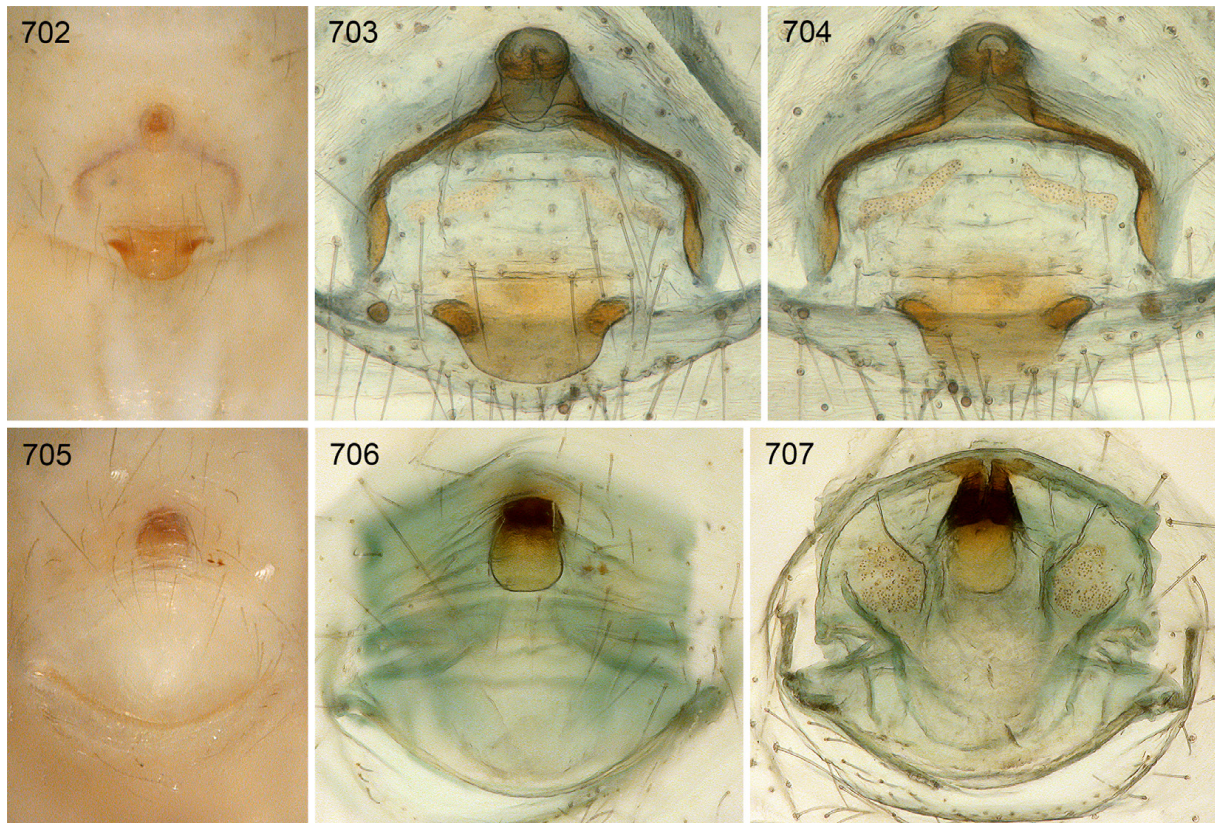
In general similar to male (Figs 685–686). Tibia 1 in 12 females: 3.3–4.0 (mean 3.6). Epigynum (Fig. 705) unsclerotized except posterior rim, internal median receptacle visible in uncleared specimens. Internal genitalia (Figs 701, 706–707) with large ventral symmetric receptacle, dorsal pair of sclerites forming triangular structure, pore plates far apart, large, and fragmented into isles of pores.

Distribution

Known from several localities in the Venezuelan northwest (states Falcón, Lara, Yaracuy, and La Guaira) (Fig. 1053).

Natural history

In the Sierra de San Luis, the specimens were collected from the undersides of leaves, mostly banana leaves, in a fairly well-preserved forest. The spiders were resting close to the main median leaf vein, tightly pressed against the leaf. At El Rodeo and El Limón, the spiders were found in dryer, more degraded forest fragments, on dicot leaves. At Santa Cruz de La Alegría the spiders shared the same species of dicot plant with *M. mariguitarensis* (González-Sponga, 1998). In all cases the webs consisted of two layers: one layer closely attached to the leaf surface and a second layer above the spider, apparently similar to the webs described by Huber & Schütte (2009) for *M. rica* Gertsch, 1986.



Figs 702–707. *Metagonia* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **702–704.** *M. triocular* (González-Sponga, 2011); from Aragua, Henri Pittier National Park, NE El Castano (ZFMK Ar 22046). **705–707.** *M. guttata* Huber sp. nov.; from Falcón, Curimagua (type locality; ZFMK Ar 22048).

Micropholcus Deeleman-Reinhold & Prinsen, 1987

Notes

In addition to the introduced, synanthropic type species, *M. fauroti* (Simon, 1887), *Micropholcus* is represented in the New World by several native species, mainly in the Greater Antilles and in semi-arid regions of Brazil (Huber *et al.* 2014b; L.S. Carvalho, unpubl. data). In Venezuela, only one such native species has been found, *M. evaluna* (Huber, Pérez González & Baptista, 2005) from near the coast in Sucre (Huber *et al.* 2005).

Micropholcus fauroti (Simon, 1887)

Notes

Micropholcus fauroti is common in buildings in tropical countries around the world. In Venezuela, it has been collected at numerous localities in the states Bolívar, Falcón, Mérida, Nueva Esparta, Sucre, Táchira, and Zulia (González-Sponga 2004, under various names – see Huber 2009; Colmenares 2008; Huber 2011; below; Fig. 1055).

González-Sponga (2004) described four species in his new genus *Mariguitaia* that were all synonymized with *Micropholcus fauroti* without seeing the types (Huber 2009). Our reexamination of all types in Nov. 2018 confirmed these synonymies. As usual, González-Sponga did not separate the holotype from the paratypes if originating from the same locality, so they are here simply treated as ‘types’ (except for *Mariguitaia museorum* and *M. sucrensis*, each with only one male specimen).

MIZA 105783 (MAGS 1302), 3 ♂♂, 3 ♀♀, types of *Mariguitaia divergentis* González-Sponga, 2004 from Bolívar, Los Pijiguaos [6.570° N, 66.810° W].

MIZA 105784 (MAGS 1320), ♂ holotype, 7 ♀♀ paratypes of *Mariguitaia museorum* González-Sponga, 2004 from Bolívar, Museo Etnológico de Ciudad Bolívar [approximately 8.143° N, 63.551° W].

MIZA 105588 (MAGS 1156), 3 ♂♂, 4 ♀♀, 4 juvs types of *Mariguitaia neoespartana* González-Sponga, 2004 from Nueva Esparta, La Asunción (11.034° N, 63.863° W).

MIZA 105772 (MAGS 1003), ♂ holotype of *Mariguitaia sucrensis* González-Sponga, 2004 from Sucre, Marigüitar [approximately 10.445° N, 66.902° W].

New records

VENEZUELA – **Bolívar** • 1 ♀ in pure ethanol, ZFMK (Ven18-169), Ciudad Guayana, in building (8.3859° N, 62.6217° W), 50 m a.s.l., 12 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Mérida** • 2 ♂♂, 1 ♀, 1 juv., ZFMK (Ar 22052), Santa Elena de Arenales (8.8232° N, 71.4631° W), 70 m a.s.l., in building, 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Sucre** • 1 ♀, MIZA 105791 (separated from MAGS 1173), Carúpano, Guayacan de las Flores [10.632° N, 63.264° W], Jan. 1990 (X. Moya). – **Táchira** • 1 ♀, ZFMK (Ar 22053), Pregonero (8.0179° N, 71.7651° W), 1250 m a.s.l., in building, 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Micropholcus evaluna (Huber, Pérez González & Baptista, 2005)

Figs 708–716, 1056

Leptopholcus evaluna Huber, Pérez González & Baptista, 2005: 103, figs 6–7, 12–13, 24–28.

Micropholcus evaluna – Huber *et al.* 2014b: 435.

Notes

The newly collected specimens below slightly deviate from the types and are thus assigned tentatively to this species. In particular, the main sclerotized processes of the genital bulb (uncus and appendix) have a slightly different shape, and the slender transparent process is slightly shorter (compare Figs 715 and 716). The pore plates in the female internal genitalia are round rather than oval (Fig. 714) and the large lateral elements in the female internal genitalia seem to be slightly different in shape (however, this may partly be an artifact of preparation). Most newly collected males with complex dark mark in posterior half of carapace (Figs 708–709), but this character is variable. Females with less ‘complete’ mark on carapace (Fig. 710). Tibia 1 in nine newly collected males: 4.8–6.3 (mean 5.8); in six newly collected females: 4.6–5.3 (mean 4.8).

New record

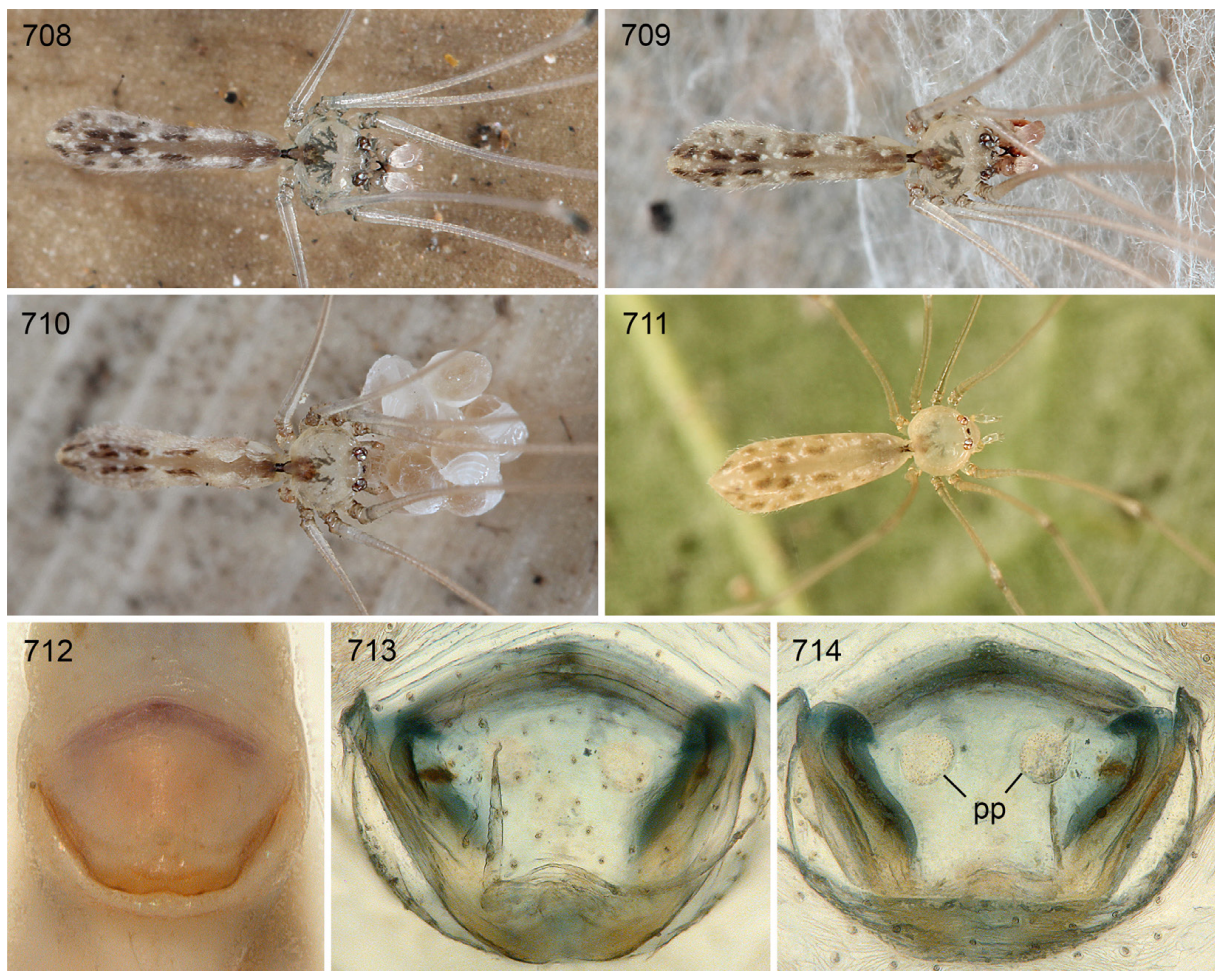
VENEZUELA – **Miranda** • 9 ♂♂, 4 ♀♀, ZFMK (Ar 22054), and 2 ♀♀, 8 juvs in pure ethanol, ZFMK (Ven20-178), El Ávila National Park, near La Julia, ‘site 1’ (10.5012° N, 66.8111° W), 960 m a.s.l., bamboo litter and decaying trunks, 22–23 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Distribution

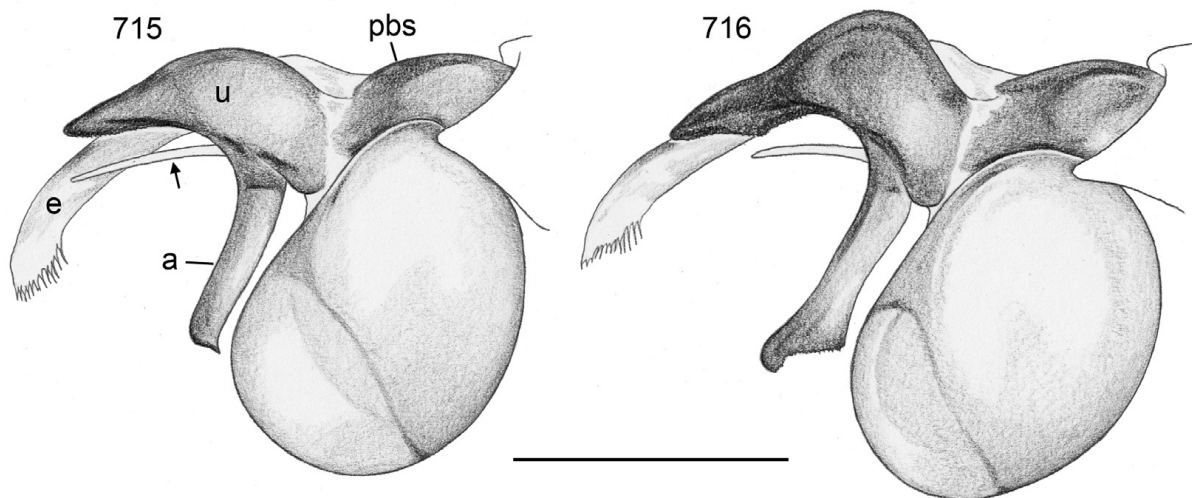
Known from two localities in the Venezuelan states Sucre and Miranda (Fig. 1056). Specimens from Miranda are assigned tentatively (see Notes above).

Natural history

Most new specimens were collected in a very limited, strongly disturbed, and arid area near the entrance to El Ávila National Park. At two superficially similar neighboring localities no or very few specimens were found. The spiders were resting either in dead bamboo culm sheaths on the ground or in rotten bamboo trunks. A single bamboo trunk sometimes contained several adult specimens. A single juvenile specimen (Fig. 711) was found on a live leaf in a neighboring site, close to a small stream.



Figs 708–714. *Micropholcus evaluna* (Huber, Pérez González & Baptista, 2005); from Miranda, El Ávila National Park. **708–711.** Live males, female with egg sac, and juvenile. **712–714.** Epigynum, ventral view and cleared female genitalia, ventral and dorsal views (ZFMK, Ar 22054). Abbreviation: pp = pore plates.



Figs 715–716. *Micropholcus evaluna* (Huber, Pérez González & Baptista, 2005); left genital bulbs, prolateral views (at same scale). **715.** Sucre, Marigüitar (holotype, ZFMK Ar 22086); arrow: slender transparent process. **716.** Miranda, El Ávila National Park (ZFMK Ar 22054). Abbreviations: a=appendix; e=embolus; pbs=proximal bulbal sclerite; u=uncus. Scale line: 0.2 mm.

Modisimus Simon, 1893

Notes

The genus *Modisimus* is species rich in Mexico, Central America and the Antilles. Unpublished data suggest that the 79 extant species formally described from this region are just a small fraction of the actual diversity. For example, a recent collecting trip in Mexico (Oct. 2019) resulted in ~33 species of *Modisimus*, of which ~28 (i.e., 85%) are considered new (B.A. Huber, A. Valdez M., unpubl. data); extensive collections in the Caribbean (mostly 2011–2014) resulted in ~98 species, of which ~72 (i.e., 73%) are considered new (B.A. Huber, I. Agnarsson, G. Binford, unpubl. data).

By contrast, available data suggest that *Modisimus* is poorly represented in South America. Only three species have previously been reported from mainland South America: the pantropical *M. culicinus* (Simon, 1893); *M. simoni* Huber, 1997 from Venezuela [including its junior synonym *M. minimus* (González-Sponga, 2009); see below]; and *M. globosus* Schmidt, 1956 from Colombia. A fourth species is newly described below. The faunal turnovers seem to lie somewhere in the Darien Gap linking Panama and Colombia and between the Lesser Antilles (which have a rich unpublished fauna) and Trinidad (with no representative of *Modisimus* except *M. culicinus* known to exist in collections).

To some degree, this marked turnover is probably artificial. The pholcid fauna of Colombia is very poorly known, and the near-coastal regions of Venezuela may also be home to further species. It is unknown whether *Modisimus* has been largely replaced by other taxa in South America or whether it has colonized South America via Panama and the Lesser Antilles. The apparent absence of relict species (e.g., in caves and arid regions of Brazil) suggests that the second scenario is more likely.

***Modisimus culicinus* (Simon, 1893)**

Figs 717–718, 1032, 1057

Hedypsilus culicinus Simon, 1893a: 322 (♂, Venezuela, “Orinoco”)

Hedypsilus lawrencei Lessert, 1938: 434, figs 15–17. Synonymized in Huber 1997b.

Hedypsilus culicinus – Simon 1893b: 484, figs 483–484, 486. — Gertsch & Peck 1992: 1192, figs 20–26. — Huber 1997a: 95, figs 1–3.

Modisimus culicinus – Huber 1997b: 233, figs 2–4; 1998a: 592, figs 6a–b, 7e–f, 8d; 1998b: 1594, figs 94–96, 101; 2000: figs 89, 143, 188; 2001: 137; 2019: 52. — Saaristo 1999: 2; 2001: 24, figs 56–60; 2010: 165, figs 25.31–37. — Huber & Benjamin 2005: 3306. — Beatty *et al.* 2008: 14, figs 5–6, 32–33, 64. — Tong & Li 2009: 25, figs 13–15, 54–59. — Huber *et al.* 2010: 287; 2014c: 8; 2017: 13, figs 1–2. — Huber & Warui 2012: 9. — Huber & Kwapong 2013: 10. — Tong 2013: 64, figs 32m–o, 83.

Hedypsilus simoni Huber, 1997 (misidentification) – González-Sponga 2010: 12, pl. 2, figs 1–11.

Notes

This is the only representative of *Modisimus* that has attained a pantropical distribution, with most records from between the Tropics of Cancer and Capricorn (23.4°N and 23.4°S) (Huber *et al.* 2017). It is usually found in buildings, but several records suggest that it easily invades disturbed and even seemingly undisturbed habitats. Several of the new records below are from relatively natural habitats, and the species was recently found to have massively invaded natural habitats on Galapagos (B.A. Huber, A. Acurio, unpubl. data).

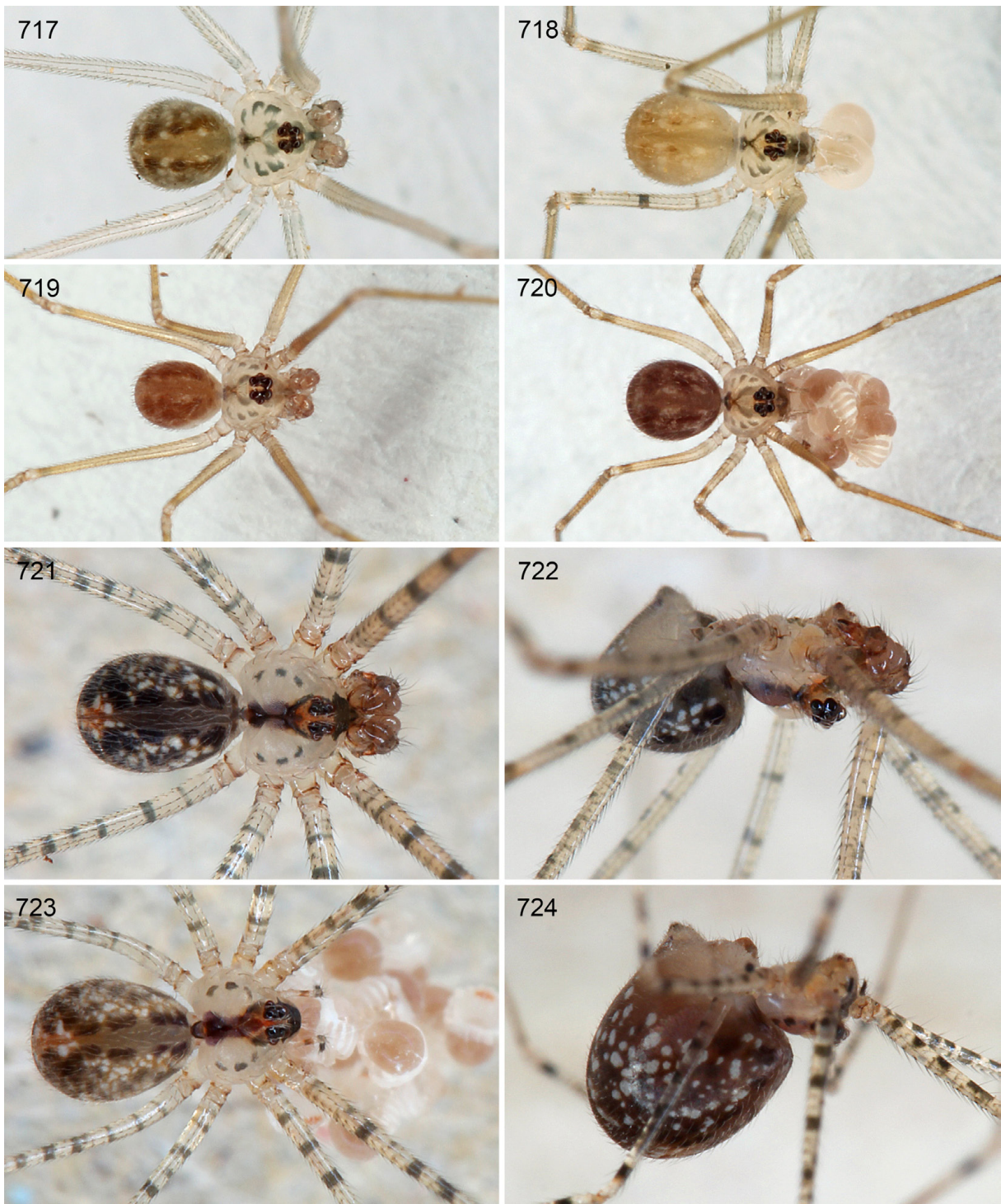
We have reexamined the specimens identified by González-Sponga (2010) as *Hedypsilus simoni*; they are deposited in MIZA 105602 (MAGS 1134), and originate from a building in eastern Caracas, Urb. El Marqués, Calle Cuyuni [10.498° N, 66.804° W] (~14 E of the coordinates in González-Sponga 2010). These specimens are unambiguous *M. culicinus*, which is unique among described species in having a cuticular lobe frontally on the male ocular turret (cf. Huber 1997a: fig. 1; also illustrated by González-Sponga 2010: pl. 2, fig. 3).

New records

VENEZUELA – **Aragua** • 1 ♂ (abdomen missing), MIZA 105767 (MAGS 1388), Pico Codazzi [approximately 10.411° N, 67.303° W], 22 Jan. 1994 (A.R. Delgado, M.A. González S.). – **Falcón** • 2 ♀♀, ZFMK (Ar 22055), Península de Paraguaná, Cerro Santa Ana (11.8120° N, 69.9474° W), 300 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.). • 1 juv. in pure ethanol, ZFMK (Ven18-184), Península de Paraguaná, near Cueva del Guano (11.9026° N, 69.9456° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.). • 2 ♂♂, 3 ♀♀, 4 juvs, ZFMK (Ar 22056), and 1 ♀, 2 juvs in pure ethanol, ZFMK (Ven20-143), SE Bariro (10.7304° N, 70.6957° W), 360 m a.s.l., under rocks on arid hill, 14 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **La Guaira** • 8 ♂♂, 28 ♀♀, ZFMK (Ar 22057), and 2 ♀♀, 5 juvs in pure ethanol, ZFMK (Ven18-243), Catia La Mar (10.6092° N, 67.0064° W), 50 m a.s.l., 10 Dec. 2018 (B.A. Huber). – **Trujillo** • 1 ♀, MIZA 105792 (MAGS 1308), Mosquei, near Boconó (“Mosquei, alrededores de Boconó”) [approximately 9.287° N, 70.207° W], 20 Feb. 1991 (M.A. González S.).

Distribution

Pantropical species (Huber *et al.* 2017). In Venezuela, the species has been found in the states Aragua, Bolívar, Falcón, Miranda, Trujillo, and La Guaira (Fig. 1057).



Figs 717–724. *Modisimus* Simon, 1893; live specimens. **717–718.** *M. culicinus* (Simon, 1893); male and female with egg sac from La Guaira, Catia La Mar. **719–720.** *M. simoni* Huber, 1997; male and female with egg sac from Bolívar, Ciudad Guayana. **721–724.** *M. repens* Huber sp. nov.; male and females from Falcón, Cerro Santa Ana.

Natural history

The newly collected specimens above (Falcón, La Guaira) were found in arid environments. In Catia La Mar, the species was found in the same microhabitat as *Chisosa caquetio* Huber, 2019 (dry leaf litter among cacti); on the Península de Paraguaná, it was found together with *Chisosa caquetio* and *Galapa spiniphila* Huber sp. nov. in dead basal leaves of spiny ground-dwelling bromeliads. Near Bariro, it shared the microhabitat (undersides of rocks) with an unidentified Ninetinae (only females available), and the locality with *Ibotyporanga bariro* Huber sp. nov. and *Physocyclus globosus* (Taczanowski, 1874).

Modisimus simoni Huber, 1997
Figs 719–720, 725–729, 736–738, 1058

Modisimus simoni Huber, 1997b: 235, figs 5–7 (♂).

Hedypsillus [sic] *minimus* González-Sponga, 2009: 10, figs 5a–i (1–9). **New synonymy.**

Misidentification

Hedypsilus simoni – González-Sponga 2010: 12 (see *Modisimus culicinus* above).

Notes

The species was originally described from a single poorly preserved male from a poorly specified type locality (“Orinoco”) that Eugène Simon had erroneously identified as *Hedypsilus* (= *Modisimus*) *culicinus* and that he had joined with the holotype of *M. culicinus* in a single vial. Part of the newly collected material below is from Ciudad Guayana, close to Ciudad Bolívar, which, given its historical importance, may well have been the collecting site of the type specimen in the late 19th century. Collecting date and collector of the holotype are unknown (the material was not collected by E. Simon as erroneously stated in Huber 1997b).

The newly collected specimens were compared with the male holotype and with the types of *Modisimus minimus*. All relevant structures (male palp, male chelicerae, epigynum) were found to be identical.

Diagnosis

Males differ from similar tiny congeners [*M. culicinus* (Simon, 1893); *M. chiapa* Gertsch, 1977; *M. cienaga* Huber & Fischer, 2010; *M. david* Huber, 1997] by dorsal process of procurus (Figs 726–728); from *M. culicinus* also by absence of cuticular lobe frontally on ocular area (cf. Huber 1997a: fig. 1); from *M. cienaga* and *M. david* also by pair of apophyses frontally on chelicerae (Huber 1997b: fig. 7; chelicerae unmodified in *M. cienaga* and *M. david*). Male of *M. tzotzile* Brignoli, 1973 unknown. Females differ from *M. david* and *M. tzotzile* (and probably also from *M. chiapa*) by presence of three pairs of marks on carapace (Fig. 720); from *M. cienaga* by shape of internal valve (Fig. 729; apparently very different in *M. cienaga*, but this might be an artifact, Huber *et al.* 2010: fig. 184); from *M. culicinus* by medially fused pore plates (Figs 729, 738; cf. Huber 1998a: fig. 7f).

Type material

M. simoni: ♂ holotype, MNHN (10529), Venezuela, “Orinoco”, E. Simon collection number 9629, date and collector unknown, examined.

M. minimus: ♂ holotype and 1 ♀ paratype, MIZA 105575 (MAGS 1405), Venezuela, Portuguesa, “Acarigua (Pozo Blanco)” [approximately 9.533° N, 69.176° W], 7 Jul. 1995 (A.R. Delgado, M.A. González S.), examined.

New records

VENEZUELA – **Bolívar** • 6 ♂♂, 8 ♀♀, 1 juv., ZFMK (Ar 22058), and 7 ♀♀ in pure ethanol, ZFMK (Ven18-175), Ciudad Guayana, Parque La Llovizna (8.3111° N, 62.6755° W), 40 m a.s.l., 14 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, 1 ♀, ZFMK (Ar 22059), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-165), same locality at 8.3130° N, 62.6724° W, 50 m a.s.l., 11 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Mérida** • 1 ♂, 4 ♀♀, ZFMK (Ar 22060), and 6 ♀♀ in pure ethanol, ZFMK (Ven20-114), near Las González (8.5066° N, 71.3183° W), 780 m a.s.l., leaf litter in dry forest near small stream, 9 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Trujillo** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 22061), and 3 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-138), near El Encanto (9.7599° N, 70.7329° W), 250 m a.s.l., forest near stream, 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Redescription

Male (Ciudad Guayana, ZFMK, Ar 22058)

MEASUREMENTS. Total body length 1.1, carapace width 0.53. Distance PME–PME 50 µm; diameter PME 60 µm; distance PME–ALE 60 µm; AME absent. Leg 1: 5.35 (1.55+0.20+1.40+1.75+0.45), tibia 2: 1.10, tibia 3: 0.75, tibia 4: 1.25; tibia 1 L/d: 28; all femora approximately same width.

COLOR (in ethanol). Carapace pale ochre-grey, with three pairs of dark marks and dark V-mark on posterior border of ocular area; clypeus also darkened; sternum whitish; legs monochromous ochre-yellow; abdomen pale greenish-gray, with darker internal marks dorsally and white mark above spinnerets.

BODY. Habitus as in Fig. 719. Ocular area distinctly raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.36/0.26), unmodified. Abdomen globular.

CHELICERAE. With pair of small frontal apophyses (Huber 1997b: fig. 7).

PALPS. AS in Figs 725–726; coxa with small retrolateral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally with strong ventral apophysis; procurus (Figs 727–728) with distinctive dorsal spine, prolateral-distal pointed sclerite, and complex membranous elements; genital bulb with prominent curved apophysis and dorsal membranous protrusion.

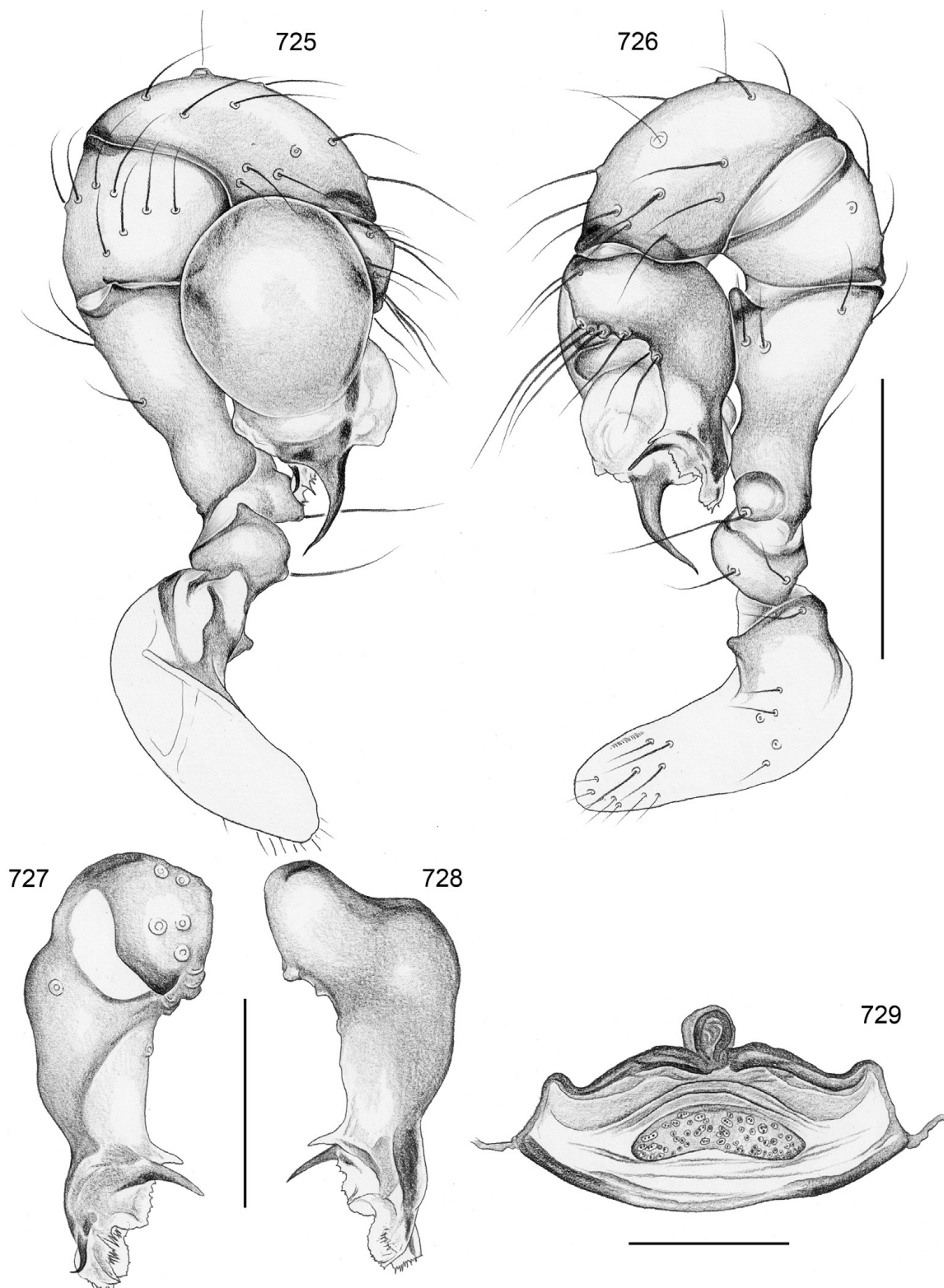
LEGS. Without spines and curved hairs; with vertical hairs in high density on all femora; retrolateral trichobothrium of tibia 1 at 22%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~8 pseudosegments, fairly distinct.

Male (variation)

Tibia 1 in ten newly collected males: 1.20–1.40 (mean 1.31). Male holotype of *M. minimus*, total body length: 1.1 (not 1.93 as in original description), tibia 1: 1.50, tibia 4: 1.35 (not 1.72 as in original description). Several drawings of the *M. minimus* holotype in González-Sponga (2009) are wrong: the male ocular area is wider (PLE more lateral), the posterior border of the sternum is not concave (but straight), and the male chelicerae do not have two pairs of processes (but only one).

Female

In general similar to male (Fig. 720) but femora without (or very few) vertical hairs and legs with indistinct darker rings on femora (subdistally) and tibiae (proximally and subdistally). Tibia 1 in 15 newly collected females: 0.85–1.05 (mean 0.92). Epigynum (Fig. 736) simple trapezoidal plate, internal bluish ‘valve’ variably visible in uncleared specimens. Internal genitalia (Figs 729, 737–738) with medially fused pore plates and prominent frontal ‘valve’ with median receptacle. Female paratype of *M. minimus*, tibia 1: 1.05, metatarsus 1: 1.25 (not 0.98 as in original description).



Figs 725–729. *Modisimus simoni* Huber, 1997; from Bolívar, Ciudad Guayana (ZFMK Ar 22058). **725–726.** Left male pedipalp, prolateral and retrolateral views. **727–728.** Left palpal tarsus and procurrus, prolateral (slightly dorsal) and retrolateral views. **729.** Cleared female genitalia, dorsal view. Scale lines: 725–726=0.2 mm; 727–729=0.1 mm.

Distribution

Apparently widespread in Venezuela, recorded from the states Bolívar, Portuguesa, Trujillo, and Mérida (Fig. 1058). The map in Fig. 1058 gives Ciudad Bolívar as type locality, but this is speculative (see Notes above).

Natural history

At Ciudad Guayana, the newly collected specimens were mostly found in relatively dry leaf litter (a thick layer of palm leaves and dicot leaves) in a strongly altered area of the Park. Few specimens were collected from pieces of bark on the ground in a more natural forested area of the Park, together with *Blancoa piacoa* Huber, 2000. Near Las González, the spiders were abundant in dry leaf litter in a forest fragment near a small stream at the base of an arid hill; the species did not seem to occur under rocks higher up the hill. Near El Encanto the spiders were collected under rocks in a forest; they ran rapidly as soon as the rock was moved. Some females had a large, whitish genital plug. Three egg sacs contained ~5–8 eggs each.

Modisimus repens Huber sp. nov.

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Figs 721–724, 730–735, 739–741, 1023, 1058

Diagnosis

Distinguished from known congeners by morphology of procurus (Figs 733–734; widened in mid-section, with slender dorsal process and membranous distal fringes), by strong, weakly curved bulbal apophysis (Figs 730–731), by armature of male chelicerae (Fig. 732; patch of 6–8 stronger hairs on each side on low elevation), and by shape of epigynum and internal female genitalia (Figs 735, 739–741; rectangular epigynum with semicircular whitish area posteriorly; pair of spherical pore plates). From many congeners also by strongly marked femora in males and females (Figs 721–724; many ventral dots rather than just subdistal dark rings).

Etymology

The species name (Latin: unexpected) refers to our surprise in finding this ‘regular’ long-legged *Modisimus* in Venezuela; adjective.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 22062), Península de Paraguaná, Cerro Santa Ana (11.8080° N, 69.9452° W), 220 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.).

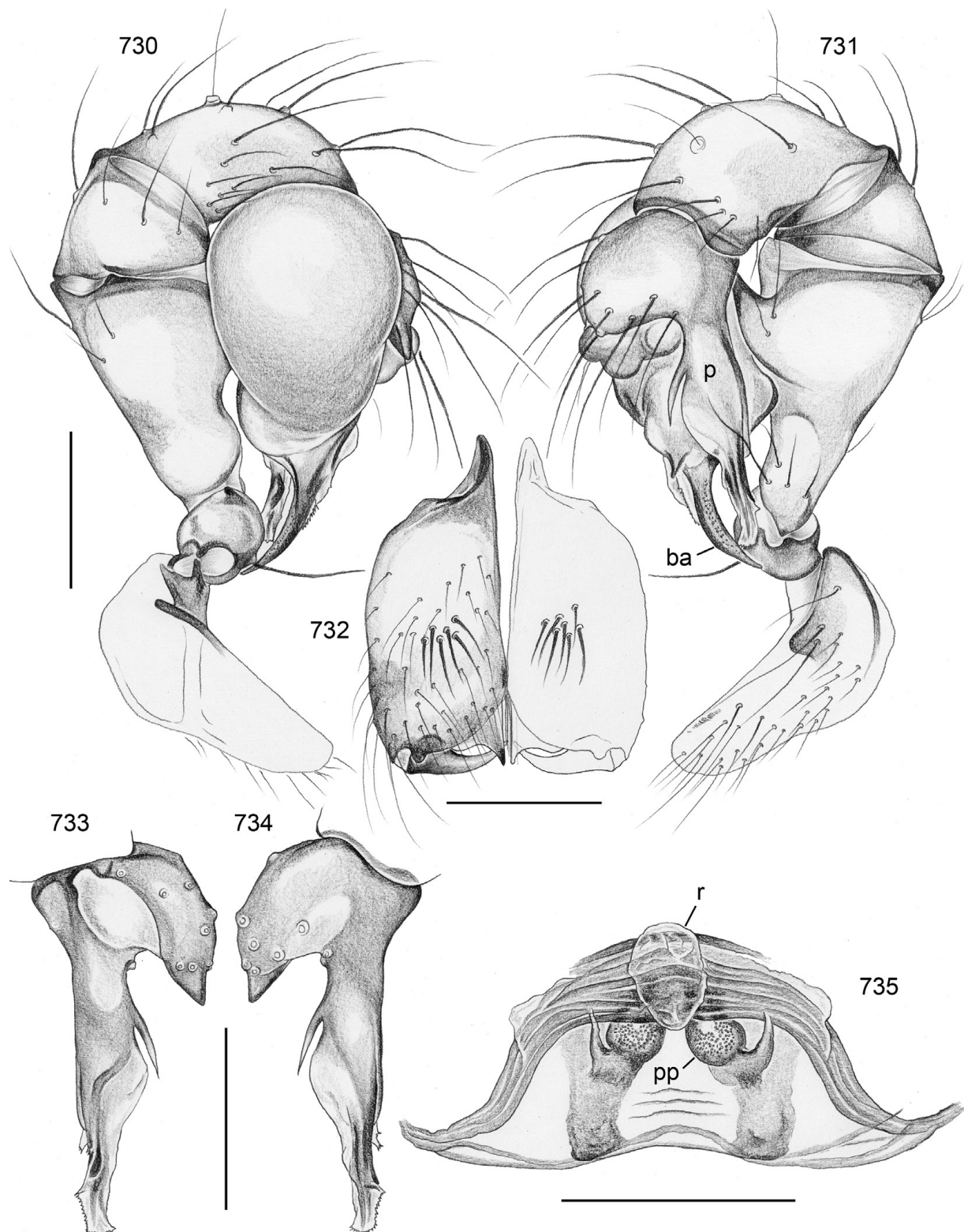
Other material examined

VENEZUELA – **Falcón** • 4 ♂♂, 4 ♀♀, ZFMK (Ar 22063), and 3 ♂♂, 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-189), same collection data as for holotype.

Description**Male** (holotype)

MEASUREMENTS. Total body length 1.9, carapace width 0.85. Distance PME–PME 70 µm; diameter PME 70 µm; distance PME–ALE 80 µm; AME absent. Leg 1: 14.7 (3.9+0.4+3.7+5.7+1.0), tibia 2: 2.4, tibia 3: 1.9, tibia 4: 2.3; tibia 1 L/d: 41; all femora approximately same width.

COLOR (in ethanol). Carapace pale ochre-yellow, with three pairs of brown marks and brown median band including ocular area; clypeus dark brown; sternum light brown laterally, whitish medially; legs



Figs 730–735. *Modisimus repens* Huber sp. nov.; from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 22063). **730–731.** Left male pedipalp, prolateral and retrolateral views. **732.** Male chelicerae, frontal view. **733–734.** Left male palpal tarsus and procurus, prolateral and retrolateral views. **735.** Cleared female genitalia, dorsal view. Abbreviations: ba=bulbal apophysis; p=procurus; pp=pore plate; r=receptacle. Scale lines: 0.2 mm.

ochre-yellow, femora with numerous dark ventral marks (in live specimens clearly visible also in dorsal view) and subdistal dark ring, tibiae with proximal and subdistal dark rings; abdomen pale bluish, with many darker bluish and white marks dorsally and laterally, ventrally with light brown mark in gonopore area.

BODY. Habitus as in Figs 721–722. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.58/0.38), unmodified. Abdomen oval.

CHELICERAE. As in Fig. 732, with patch of 6–8 stronger hairs on each side on low elevation.

PALPS. As in Figs 730–731; coxa with retrolateral apophysis; trochanter barely modified; femur with low retrolateral process proximally and strong ventral apophysis distally; tarsus with conical dorsal process, procurus (Figs 733–734) widened in mid-section, with slender dorsal process and distal membranous fringes; genital bulb with strong, weakly curved distal apophysis.

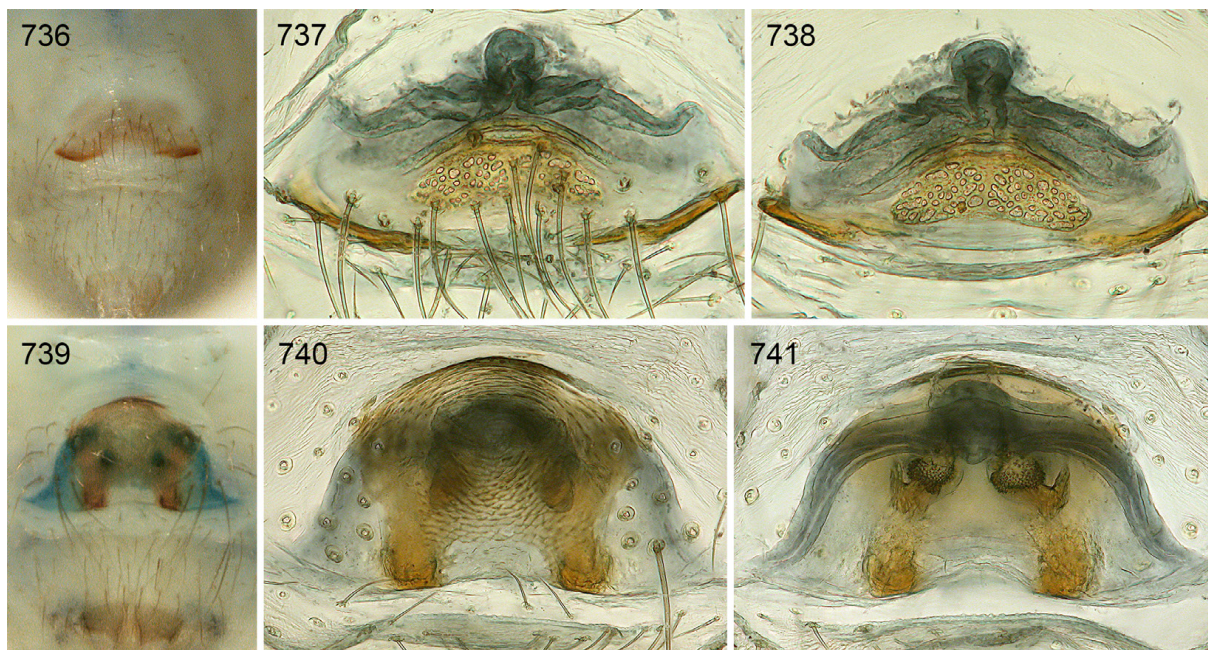
LEGS. Without spines; with curved hairs on tibiae and metatarsi 1–2; with vertical hairs in high density on all femora; retrolateral trichobothrium of tibia 1 at 19%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~15 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in seven males (including holotype): 3.6–4.4 (mean 3.9). Some males with curved hairs also on metatarsus 3.

Female

In general similar to male (Figs 723–724) but without (or very few) vertical hairs on femora and with lighter sternum (only laterally anteriorly slightly darker brown). Tibia 1 in six females: 2.4–2.8 (mean 2.6). Epigynum (Fig. 739) relatively small, rectangular brown plate with pair of dark marks and



Figs 736–741. *Modisimus* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **736–738.** *M. simoni* Huber, 1997; from Bolívar, Ciudad Guayana (ZFMK Ar 22058). **739–741.** *M. repens* Huber sp. nov.; from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 22063).

semicircular whitish area posteriorly; internal bluish ‘valve’ variably visible in uncleaned specimens. Internal genitalia (Figs 735, 740–741) with median receptacle and pair of spherical pore plates, each connected to tapering lateral process.

Distribution

Known from type locality only, in Venezuela, Falcón (Fig. 1058).

Natural history

The spiders were found under rocks near the basis of Cerro Santa Ana, in an area dominated by small trees and bushes (Fig. 1023).

Pemona Huber, 2019

Note

Pemona is a monotypic genus and the type species *P. sapo* Huber, 2019 is only known from its type locality, Canaima in the Venezuelan state Bolívar (Huber & Carvalho 2019; Fig. 1040). *Pemona* was previously the only known representative of Ninetinae in Venezuela. We have no new data about this genus, except that it is apparently not closely related to the other Venezuelan Ninetinae described herein (*Galapa spiniphila* Huber sp. nov.; *Ibotyporanga bariro* Huber sp. nov.). Neither morphology nor our preliminary molecular data suggest a close relationship between *Pemona*, *Galapa*, and *Ibotyporanga*, but the sister groups remain unknown for all three genera.

Physocyclus Simon, 1893

Note

Physocyclus is endemic to North and Central America, with the single exception of the pantropical *P. globosus* (Taczanowski, 1874) (Valdez-Mondragón 2010). Caporiacco’s (1955) records of *P. dugesi* Simon, 1893 from Miranda (1 ♀) and Caracas (1 juv.) are dubious and presumably based on *P. globosus* or a species of *Priscula* Simon, 1893.

Physocyclus globosus (Taczanowski, 1874)

Notes

This pantropical species is ubiquitous in Venezuela (Fig. 1059) and easy to identify using published illustrations (e.g., Petrunkevitch 1929; Brignoli 1981; Huber & Eberhard 1997; Valdez-Mondragón 2010; Saaristo 2010). The MIZA collection has numerous vials with this species, including the type series of the five species that González-Sponga (2007) described and that were all synonymized with *P. globosus* without seeing the type specimens (Huber 2009). We reexamined all these types and confirmed the synonymies. As usual, González-Sponga did not separate the holotypes from the paratypes, so they are here simply treated as ‘types’ (except for *P. boconoensis*, with only one male specimen in the series):

MIZA 105781 (MAGS 1290), ♂ holotype, 2 ♀♀, 5 juvs paratypes (not 1 ♂, 5 ♀♀, 1 juv. as in original publication) of *P. boconoensis* González-Sponga, 2007, from Trujillo, Boconó (9.244° N, 70.263° W).

MIZA 105786 (MAGS 1208), approximately 10 ♂♂, 50 ♀♀, types of *P. borburatensis* González-Sponga, 2007, from Carabobo, Borburata (10.447° N, 67.961° W) (the collection card gives the locality “Goaigoaza” but all other details are as in the original publication).

MIZA 105692 (MAGS 221), 3 ♂♂, 5 ♀♀, 9 juvs types (not 3 ♂♂, 13 ♀♀, 1 juv. as in original publication) of *P. cariacensis* González-Sponga, 2007, from Sucre, Marigüitar (10.452° N, 63.896° W).

MIZA 105745 (MAGS 95), 3 ♂♂, 2 ♀♀, 10 juvs types (not 3 ♂♂, 11 ♀♀, as in original publication) of *P. guatirensis* González-Sponga, 2007, from Miranda, Guatire (10.475° N, 66.542° W).

MIZA 105750 (MAGS 846), only the remains of some totally destroyed types of *P. monaguensis* González-Sponga, 2007, from Monagas, Hato San Antonio (9.396° N, 63.014° W).

New records

VENEZUELA – **Anzoátegui** • 4 ♂♂, 5 ♀♀, 7 juvs, MIZA 105689 (MAGS 1390), Sabana de Uchire, Municipio Bruzual [10.018° N, 65.520° W], 13 Feb. 1994 (M.E. Flores L., D.R. Delgado, M.A. González-S.). – **Apure** • 2 ♀♀, 3 juvs, MIZA 105582 (MAGS 1438), 10 km N Trinidad de Arichuna, Hato Mata Zarga [approximately 7.20° N, 69.78° W], 4 Jan. 1999 (J.A. González D.). – **Aragua** • approximately 8 ♂♂, 8 ♀♀, MIZA 105743 (MAGS 1356), Departamento Sucre, Granja “La Caridad” (Duragua), Santa Cruz de Mora [10.183° N, 67.237° W], 17 Jul. 1992 (M.A. González) • 4 ♂♂, and approximately 10 ♀♀, 20 juvs, MIZA 105821 (MAGS 1300), Maracay [~10.25° N, 67.60° W], 4 Jun. 1991 (J. Muñoz) • 1 ♂, 2 ♀♀, 3 juvs, MIZA 1906, Maracay, UCV [10.273° N, 67.611° W], 24 Aug. 1999 (O. Villarreal) • 1 ♂, 1 ♀, MIZA 1905, Maracay-El Limón, UCV [10.273° N, 67.611° W], 20 Aug. 1999 (O. Villarreal, H. Escalona) • 1 ♀, MIZA 1806, Maracay, UCV., Fac. Agronomía [10.273° N, 67.611° W], 28 Jan. 2003 (C. Rodríguez) • 2 ♂♂, 1 ♀, 5 juvs, MIZA 105646 (MAGS 1343), Cagua [10.18° N, 67.45° W], 7 Jan. 1992 (M. Pabique, M.T. González D.) • 4 ♂♂, 5 ♀♀, and approximately 10 juvs, MIZA 105713 (MAGS 1396), San Casimiro [10.00° N, 67.01° W], 24 Jun. 1994 (A.R. Delgado, E. González-S., M.A. González-S.) • 1 ♀, MIZA 1893, Carretera Choroni, Sector Los Cerritos (10.453° N, 67.598° W), 200 m a.s.l., 20–21 Dec. 2008 (P. Romero) • 3 ♂♂, 4 juvs, MIZA 1907, Henry Pittier National Park, 23 Aug. 1999 (O. Villarreal). – **Bolívar** • 1 ♂, 1 ♀, 1 juv., ZFMK (Ar 22064), Canaima, at building (6.242° N, 62.850° W), ~400 m a.s.l., 8 Dec. 2002 (B.A. Huber) • 1 ♀, MIZA 105636 (MAGS 1321), Museo Etnológico de Ciudad Bolívar [8.152° N, 63.525° W], 8 Oct. 1991 (A.R. Delgado, M. García, M.A. González-S.) • 2 ♂♂, 2 juvs, MIZA 105753 (MAGS 1316), in front of Parque Cachamai, Puerto Ordaz, Municipio Caroní [approximately 8.30° N, 62.70° W], 10 Oct. 1991 (M.A. González D., M.A. González-S.) • 3 ♂♂, 3 ♀♀, 4 juvs, MIZA 105655 (MAGS 1306), Los Pijiguaos, Municipio Cedeño [6.57° N, 66.81° W], Jul. 1991 (J.M. Ayala D.) • 4 ♂♂, and approximately 12 ♀♀, 10 juvs, MIZA 105715 (MAGS 1312), Central Hidroeléctrica “Raul Leóni” (Guri) [7.76° N, 63.00° W], 8 Oct. 1991 (M. García, A.R. Delgado, M.A. González-S.). – **Capital** • 1 ♂, 1 ♀, MIZA 105657 (MAGS 1336), IPC building [10.488° N, 66.932° W], 1991 (M.A. González-S.). – **Falcón** • 2 ♂♂, ZFMK (Ar 22065), and 1 ♂ in pure ethanol, ZFMK (Ven18-176), Península de Paraguaná, Cueva del Guano (11.9000° N, 69.9479° W), 140 m a.s.l., 16 Nov. 2018 (B.A. Huber, O. Villarreal M.) • approximately 200 specimens (2 jars), MIZA 105733–34 (MAGS 1416), El Recreo, 10 km from Coro [11.351° N, 69.815° W], Jul.–Aug. 1996 (V. Wall) • 1 ♀, MIZA 105622 (ex. MAGS 1132), Paraguaná, Cerro Capuchino, Montecano [approximately 11.94° N, 69.97° W], 27 Jan. 1988 (R. Ramírez) • 1 ♀, ZFMK (Ar 22066), and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven20-144), SE Bariro (10.7304° N, 70.6957° W), 360 m a.s.l., under rocks on arid hill, 14 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **La Guaira** • 1 ♀, ZFMK (Ar 22070), and 1 juv. in pure ethanol, ZFMK (Ven18-244), Catia La Mar (10.6092° N, 67.0064° W), 50 m a.s.l., 10 Dec. 2018 (B.A. Huber). – **Mérida** • 4 juvs (identification tentative) in pure ethanol, ZFMK (Ven20-115), near Las González (8.5070° N, 71.3194° W), 800 m a.s.l., under rocks on arid hill, 9 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, 3 juvs, ZFMK (Ar 22067), Santa Elena de Arenales (8.8232° N, 71.4631° W), 70 m a.s.l., in building, 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Miranda** • 4 ♂♂, 4 ♀♀, 1 juv., MIZA 105764 (MAGS 1380), Municipio Sucre, Urb. Terrazas del Ávila [10.500° N, 66.794° W], 20 Oct. 1992 (M. García de G.) • approximately 8 ♂♂, 20 ♀♀, MIZA 105820 (MAGS 43), Quinta Ninina, Calle Cuyuní, Urb. El Marqués [10.498° N, 66.804° W], 11 Apr. 1981 (J.A. González S., M.A. González-S.) • 3 ♀♀, and approximately 15 juvs, MIZA 105665 (MAGS 1170), Higuerote, Municipio Brión [10.469° N, 66.106° W], 27 Aug. 1989 (M.A. González-S.) • 2 ♂♂, and approximately 25 ♀♀, 10 juvs, MIZA 105654 (MAGS 1335), basement of building “Aloa”, Av. Romulo Gallegos, Municipio Sucre [10.494° N, 66.815° W], 1991 (J. Muñoz R.) • 1 ♀, 1 juv., MIZA 105639 (MAGS 1089), 2 km from Los Alpes “vía Altagrancia de Orituco” (Guatopo National Park) [10.161° N, 66.503° W], 29

Aug. 1987 (A.R. Delgado, M.A. González-S.) • 6 ♂♂, 6 ♀♀, 3 juvs, MIZA 105685 (MAGS 239), Las Naranjas Guaranas, Departamento Plasal, 27 May 1981 (A.E. Rodríguez) • 3 ♀♀, 8 juvs, MIZA 105600 (MAGS 1561), Club Monte Claro [10.36° N, 66.89° W], Caracas-Tejerías, 20 Apr. 2000 (W. García, A.R. Delgado, M.A. González-S.). – **Monagas** • approximately 20 ♂♂, 30 ♀♀, MIZA 105712 (MAGS 1271), Caripe [10.172° N, 63.504], Jan. 1991 (A. García). – **Nueva Esparta** • 8 ♂♂, 10 ♀♀, and approximately 5 juvs, MIZA 105711 (MAGS 1331), Manzanillo, Urb. Puerto Real [11.157° N, 63.891° W], Sep. 1991 (J. Muños R.) • 1 ♀, 1 juv., MIZA 105629 (MAGS 1122), Los Robles, Cerro La Ermita [10.989° N, 63.835° W], Dec. 1987 (Carlos) • 5 ♂♂, 4 ♀♀, 2 juvs, MIZA 105662 (MAGS 1141), Porlamar, Avenida 4 de Mayo [10.966° N, 63.841° W], 7 Jan. 1989, Mar. 1990 (C. Avila, J.M. Ayala L.) • approximately 20 ♂♂, 20 ♀♀, MIZA 105751 (MAGS 1157), La Asunción [11.03° N, 63.86° W], Jun. 1989, Oct. 1990, Oct. 1991 (D. de García, M. García). – **Sucre** • 1 ♀, ZFMK (Ar 22068), and 1 ♂, 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven02/100-41), Marigüitar (10.437° N, 63.909° W), ~30 m a.s.l., at rocks along riverbed, 29 Nov. 2002 (B.A. Huber) • 1 ♂, ZFMK (Ar 22069), and 1 ♂, 4 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven02/100-48), Marigüitar (10.449° N, 63.912° W), ~5 m a.s.l., at buildings, 28 Nov. 2002 (B.A. Huber) • 2 ♂♂, 4 ♀♀, 6 juvs, MIZA 105714 (MAGS 1311), Casanay, Poza Azul [10.488° N, 63.467° W], 17 Oct. 1991 (A.R. Delgado, M. García de G., M.A. González-S.) • 1 ♂, MIZA 105648 (MAGS 1358), Carúpano [10.64° N, 63.25° W], Jun. 1991 (X. Moya) • 3 ♂♂, 5 ♀♀, 3 juvs, MIZA 105790 (MAGS 1173), Guayacan de las Flores, Carupano [10.632° N, 63.264° W], Jan. 1990 (X. Moya). – **Yaracuy** • 1 ♀, ZFMK (Ar 22071), Guaquira, in building (10.2947° N, 68.6577° W), 110 m a.s.l., 17 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Dubious material

The following two vials contain the same MAGS number. The specimens in one of them are thus possibly from a different locality.

VENEZUELA – **Falcón** • 1 ♂, 1 ♀, 2 juvs, MIZA 105682 and 1 ♀, MIZA 105797 (MAGS 989), Guanapa, Municipio Cárdenas (Andrés Bello), Sep. 1986 (E. Delacruz).

Pisaboa Huber, 2000

Notes

The South American genus *Pisaboa* previously included four species, three of them in Peru and Bolivia (including the type species *P. silvae* Huber, 2000), one in Venezuela. The Venezuelan species *P. laldea* Huber, 2000 appeared isolated not only geographically but also morphologically in having a modified male sternum. *Pisaboa marcuzzii* (Caporiacco, 1955) comb. nov. and the three newly described Venezuelan species below support the assignment of *P. laldea* to *Pisaboa*: for example, *P. marcuzzii* comb. nov. is almost indistinguishable from *P. silvae* in its male palp morphology, and it shares the modified male sternum with *P. laldea*; *P. fombonai* Huber sp. nov. and *P. lionzae* Huber sp. nov. share the articulated male cheliceral apophyses with *P. silvae* and the modified male sternum with *P. laldea*. Our preliminary molecular data (J.J. Astrin, B.A. Huber, unpubl. data) also support the close relationship between *P. silvae*, *P. marcuzzii* comb. nov. and *P. retracta* Huber sp. nov. Collecting in Colombia will most likely show that the geographic gap is artificial.

One of the characters that were originally thought to be diagnostic (Huber 2000) is not shared by *P. marcuzzii* comb. nov. and *P. retracta* Huber sp. nov.: articulated male cheliceral apophyses. All other diagnostic characters in Huber (2000) are shared by all known species: female internal genitalia with arched pore plates and membranous putative receptacle; long and slender procurus; male palpal femur with finger-shaped ventral apophysis.

Nothing has previously been known about the biology of species of *Pisaboa*. Data from recent expeditions document considerable microhabitat diversity. Two of the new species below were collected

from leaf litter, the other three species in retreats among vegetation 0.5–2 m above the ground (see details below). At Tabatinga (Brazil), we collected *P. silvae* from the extremely spiny stems of Tucumá trees (*Astrocaryum vulgare*), with the spiders and their small webs well protected at the bases of the long spines (B.A. Huber & L.S. Carvalho, unpubl. data).

***Pisaboa fombonai* Huber sp. nov.**

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Figs 742–744, 750–757, 764–766, 1063

Diagnosis

Distinguished from known congeners by shape of procurus (Figs 750–752; wide in lateral view, narrow and bent in dorsal view; with distinctive distal elements; straight in lateral view rather than S-shaped as in very similar *P. lionzae* Huber sp. nov.), by shape of genital bulb (Figs 754–756; large retrolateral whitish process; very similar to *P. lionzae* Huber sp. nov.), and by shape of epigynal plate (Fig. 764; anterior plate roundish with pair of deep pockets close to posterior margin; with pair of whitish processes in front of epigynum), and by internal female genitalia (Figs 753, 765–766; evenly curved elongated pore plates; shape of anterior putative receptacle). From very similar *P. lionzae* Huber sp. nov. also by more distal position of male cheliceral apophyses (Fig. 757).

Etymology

This species is named for Rufino Blanco Fombona (1874–1944), Venezuela-born writer, nominated six times for the Nobel Prize in Literature between 1928 and 1935.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 22072), forest above Caño Azul (8.8543° N, 71.3651° W), 280 m a.s.l., 13 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 1 ♂, 5 ♀♀, ZFMK (Ar 22073), and 4 ♀♀ in pure ethanol, ZFMK (Ven20-136), same collection data as for holotype.

Description

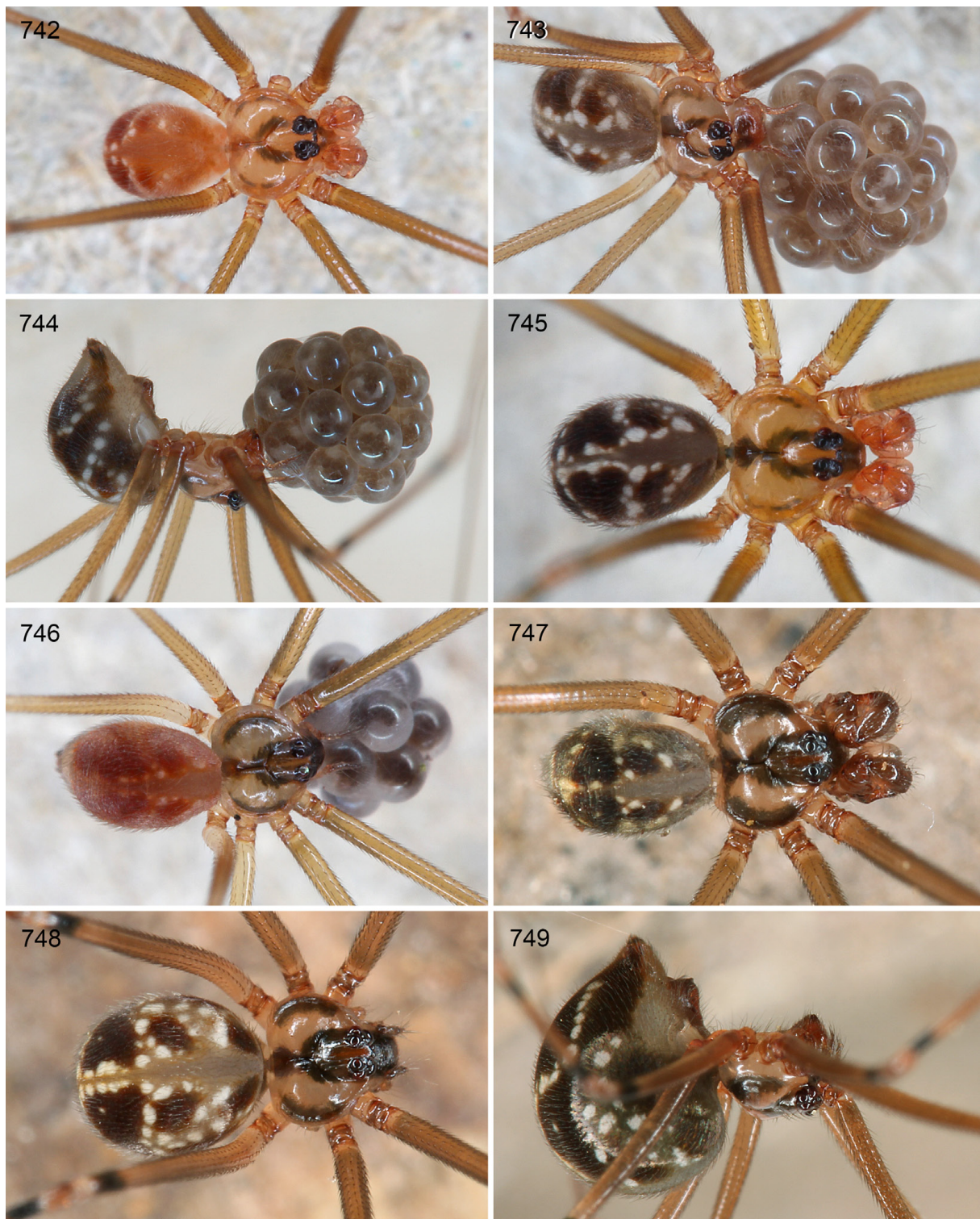
Male (holotype)

MEASUREMENTS. Total body length 1.9, carapace width 0.85. Distance PME–PME 65 µm; diameter PME 90 µm; distance PME–ALE 60 µm; distance AME–AME 20 µm; diameter AME 25 µm. Leg 1: 19.1 (4.3+0.4+4.5+8.4+1.5), tibia 2: 2.7, tibia 3: 2.2, tibia 4: 2.6; tibia 1 L/d: 64; femora 1–4 approximately same maximum diameter (0.16–0.17).

COLOR (in ethanol). Carapace pale ochre-yellow to orange, with dark ochre median V-mark and three pairs of dark ochre lateral marks; ocular area light; clypeus ochre-yellow with dark mark below ocular area; sternum ochre-yellow, slightly darker medially; legs ochre-yellow, with indistinct dark rings on femora (subdistally) and tibiae (proximally, subdistally); abdomen pale gray, with indistinct dark and whitish internal marks, ventrally with light brown plate in front of gonopore.

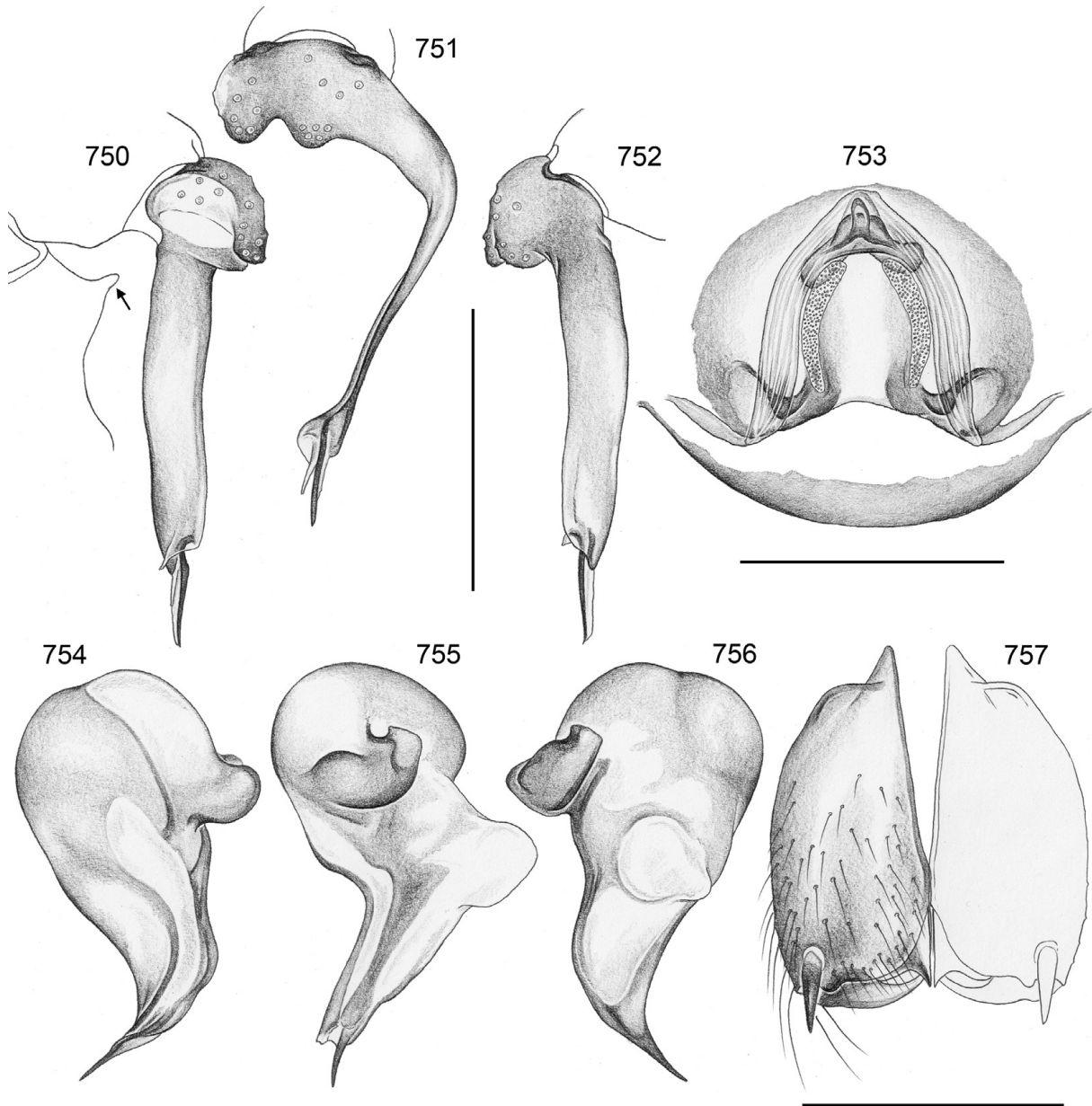
BODY. Habitus as in Fig. 742. Ocular area moderately raised. Carapace with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.58/0.40), with pair of very low whitish and elongate humps anteriorly. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Fig. 757, with pair of articulated apophyses distally.



Figs 742–749. *Pisaboa* Huber, 2000; live specimens. **742–744.** *P. fombonai* Huber sp. nov.; male and females with egg sacs from Mérida, Caño Azul. **745–746.** *P. lionzae* Huber sp. nov.; male and female with egg sac from Mérida, Mesa Bolívar. **747–749.** *P. laldea* Huber, 2000; male and females from Táchira, La Trampa.

PALPS. In general very similar to *P. silvae* Huber, 2000 and *P. mapiri* Huber, 2000 (cf. Huber 2000: figs 1137, 1143, 1146); coxa with large retrolateral-ventral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally widening, with short finger-shaped ventral process; tarsus with two short rounded processes dorsally; procurus (Figs 750–752) wide and straight in lateral view, narrow and bent in dorsal view, with distinctive distal elements; genital bulb (Figs 754–756) distally tapering, with large retrolateral whitish process.



Figs 750–757. *Pisaboa fombonai* Huber sp. nov.; from Mérida, Caño Azul (type locality; ZFMK Ar 22072–73). **750–752.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **753.** Cleared female genitalia, dorsal view. **754–756.** Left genital bulb, prolateral, dorsal, and retrolateral views. **757.** Male chelicerae, frontal view. Scale lines: 0.3 mm.

LEGS. Without spines and curved hairs; with vertical hairs in high density on all tibiae; retrolateral trichobothrium of tibia 1 at 7%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~20 pseudosegments, distally fairly distinct.

Male (variation)

Other male paler but otherwise identical; tibia 1: 5.2.

Female

In general similar to male (Figs 743–744) but general coloration ochre rather than orange, sternum medially dark brown, dark rings on legs more distinct, abdomen with more distinct brown marks; sternum without humps but with longer hairs than in male, especially posteriorly; vertical hairs on tibiae in usual low density. Tibia 1 in nine females: 3.5–4.1 (mean 3.9). Epigynum (Fig. 764) roundish light brown plate, posteriorly weakly protruding, with pair of deep pockets close to posterior margin; internal structures partly visible in uncleared specimens; with short but wide posterior plate and pair of whitish processes in front of epigynum. Internal genitalia (Figs 753, 765–766) with evenly curved elongated pore plates, anterior putative receptacle V-shaped.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1063).

Natural history

The spiders were collected in a forest remnant along a small stream where they built their small domed webs (diameter ~10 cm) close to the ground, mostly hidden under dead leaves. No specimen was found higher in the vegetation (as was the case in *P. lionzae* Huber sp. nov.; *P. laldea* Huber, 2000; and *P. retracta* Huber sp. nov.).

Pisaboa lionzae Huber sp. nov.

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Figs 745–746, 758–762, 767–769, 1063

Diagnosis

Distinguished from known congeners by shape of procurus (Figs 758–760; wide in lateral view, narrow and strongly bent in dorsal view; with distinctive distal elements; more S-shaped in lateral view than in very similar *P. fombonai* Huber sp. nov.), by shape of genital bulb (very similar to *P. fombonai* Huber sp. nov.; cf. Figs 754–756), and by shape of epigynal plate (Fig. 767; anterior plate oval with pair of deep pockets in anterior half; with pair of whitish processes in front of epigynum), and by internal female genitalia (Figs 762, 768–769; long narrow pore plates; distinctive shape of anterior putative receptacle). From very similar *P. fombonai* Huber sp. nov. also by more proximal position of male cheliceral apophyses (Fig. 761).

Etymology

This species is named for María Lionza, a central figure in one of the most widespread indigenous religions in Venezuela that blends African, indigenous, and Catholic beliefs.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 22074), forest above Mesa Bolívar (8.467° N, 71.614° W), 1300 m a.s.l., 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

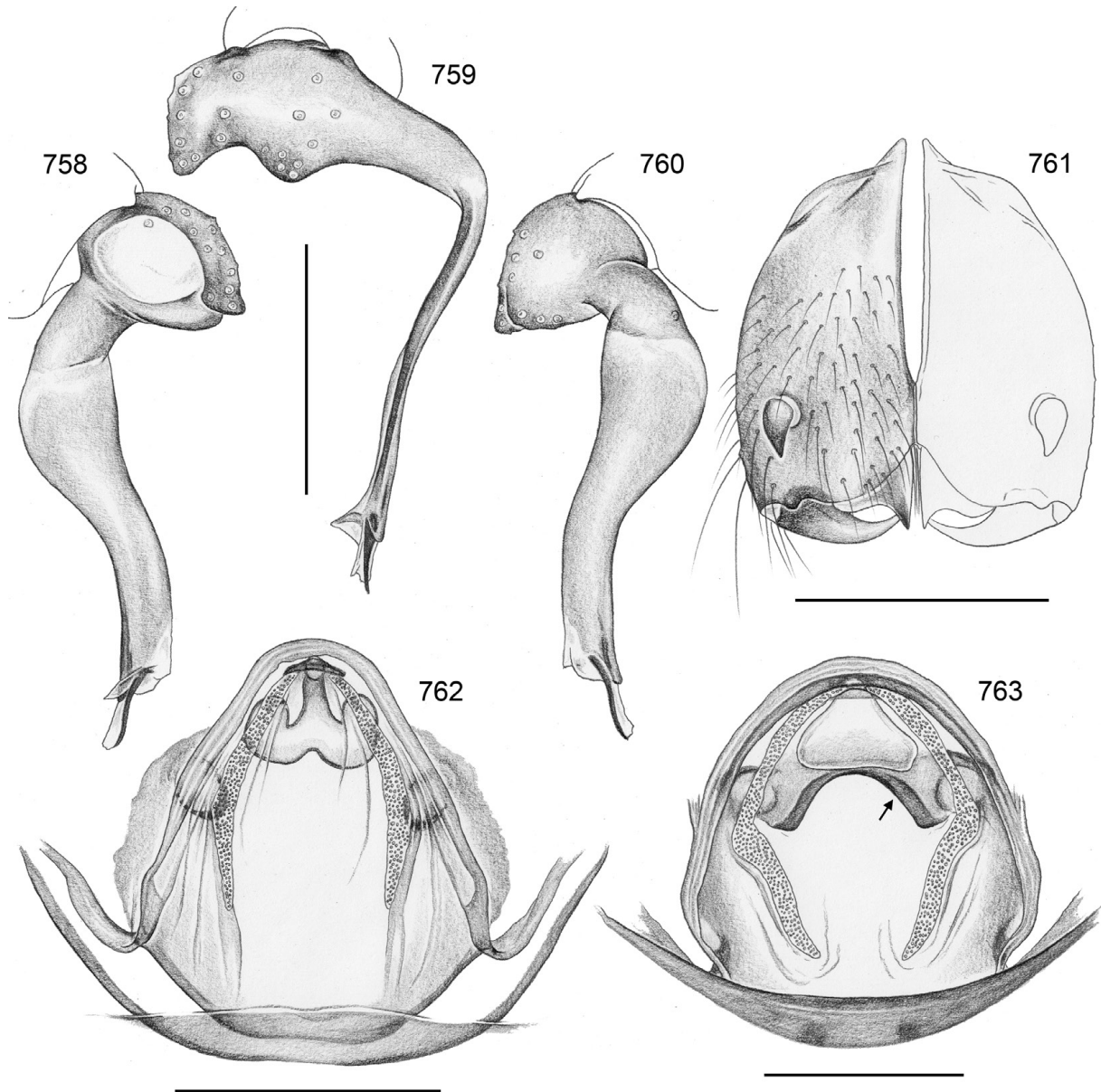
Other material examined

VENEZUELA – Mérida • 6 ♀♀, ZFMK (Ar 22075), and 3 ♀♀ in pure ethanol, ZFMK (Ven20-133), same collection data as for holotype.

Description

Male (holotype)

MEASUREMENTS. Total body length 2.3, carapace width 1.0. Distance PME–PME 80 μ m; diameter PME 100 μ m; distance PME–ALE 80 μ m; distance AME–AME 20 μ m; diameter AME 25 μ m. Leg 1: 25.9 (6.0+0.4+6.2+11.5+1.8), tibia 2: 3.6, tibia 3: 2.7, tibia 4: 3.4; tibia 1 L/d: 69; femora 1–4 approximately same maximum diameter (0.20–0.22).



Figs 758–763. *Pisaboa lionzae* Huber sp. nov.; from Mérida, Mesa Bolívar (758–762; type locality; ZFMK Ar 22074–75) and *P. laldea* Huber, 2000; from Táchira, La Trampa (763; ZFMK Ar 22076). **758–760.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **761.** Male chelicerae, frontal view. **762–763.** Cleared female genitalia, dorsal views (arrow: distinctive anterior arc). Scale lines: 0.3 mm.

COLOR (in ethanol). Carapace pale ochre-yellow, with dark ochre median mark behind ocular area and two pairs of dark ochre lateral marks; ocular area medially light, posterior lateral margins dark ochre; clypeus with large dark mark below ocular area; sternum medially ochre-yellow, laterally with pair of darker ochre marks, anteriorly whitish; legs ochre-yellow, with indistinct dark rings on femora (subdistally) and tibiae (proximally, subdistally); abdomen greenish-gray, with dark and whitish internal marks, ventrally with light brown plate in front of gonopore.



Figs 764–772. *Pisaboa* Huber, 2000; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **764–766.** *P. fombonai* Huber sp. nov.; from Mérida, Caño Azul (type locality; ZFMK Ar 22073). **767–769.** *P. lionzae* Huber sp. nov.; from Mérida, Mesa Bolívar (type locality; ZFMK Ar 22075). **770–772.** *P. laldea* Huber, 2000; from Táchira, La Trampa (ZFMK Ar 22076).

BODY. Habitus as in Fig. 745. Ocular area moderately raised. Carapace with shallow but distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.72/0.44), with pair of very low whitish and elongate humps anteriorly. Abdomen slightly elongated, pointed at spinnerets.

CHELICERAE. As in Fig. 761, with pair of articulated apophyses frontally.

PALPS. In general very similar to *P. silvae* and *P. mapiri* (cf. Huber 2000: figs 1137, 1143, 1146); largely indistinguishable from *P. fombonai* Huber sp. nov. but larger (femur length: 400 vs 310 μm ; tibia length: 380 vs 300 μm ; bulb length: 640 vs 440 μm); coxa with large retrolateral-ventral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally widening, with short finger-shaped ventral process; tarsus with two short rounded processes dorsally; procurus (Figs 758–760) wide and slightly S-shaped in lateral view, narrow and strongly bent in dorsal view, with distinctive distal elements; genital bulb largely identical to *P. fombonai* Huber sp. nov. (cf. Figs 754–756).

LEGS. Without spines and curved hairs; with vertical hairs in high density on all tibiae; retrolateral trichobothrium of tibia 1 at 6%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~25 pseudosegments, distally fairly distinct.

Female

In general similar to male (Fig. 746) but sternum dark brown, dark rings on legs more distinct; sternum without humps but with longer hairs than in male, especially posteriorly; vertical hairs on tibiae in usual low density. Tibia 1 in nine females: 3.9–4.8 (mean 4.3). Epigynum (Fig. 767) oval light brown plate, posteriorly weakly protruding, with pair of deep pockets in anterior half; internal structures partly visible in uncleared specimens; with short but wide posterior plate and pair of low whitish processes in front of epigynum. Internal genitalia (Figs 762, 768–769) with long narrow pore plates, distinctive shape of anterior putative receptacle (W-shaped).

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1063).

Natural history

The spiders were collected in a well-preserved forest along a small stream. All specimens were found ~1–2 m above the ground, in masses of dead leaves suspended among the twigs or lianas, one specimen in a dead *Heliconia* leaf, one specimen on a tree trunk. Adults and juveniles looked similar and occupied the same microhabitat.

Pisaboa laldea Huber, 2000
Figs 747–749, 763, 770–772, 1063

Pisaboa laldea Huber, 2000: 285, figs 1151–1158 (♂).

Diagnosis (amendments; see Huber 2000)

Females are distinguished from known congeners by shape of epigynum (Fig. 770; anterior plate roughly square-shaped, without pockets, with distinctive internal arc visible in uncleared specimens) and by internal genitalia (Figs 763, 771–772; unique shape of pore plates; distinctive anterior arc).

New record

VENEZUELA – **Táchira** • 2 ♂♂, 2 ♀♀, ZFMK (Ar 22076), and 4 ♀♀ in pure ethanol, ZFMK (Ven20-119), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Note

We were not able to exactly locate the type locality, “Camp. Siberia, Laldea”, but Campamento Siberia is at 3 km from our new collecting site, suggesting that the new site is within a few km from the type locality.

Redescription of male (amendments; see Huber 2000)

Habitus as in Fig. 747. Eye measurements (male from La Trampa): distance PME–PME 100 μm ; diameter PME 110 μm ; distance PME–ALE 80 μm ; distance AME–AME 20 μm ; diameter AME 50 μm . Abdomen with dark and white marks. Prolateral trichobothrium absent on tibia 1. Femora 1–4 approximately same maximum diameter. All tibiae with many short vertical hairs. Tibia 1 in two newly collected males: 5.7, 6.0.

Description of female

Females in general similar to males (Figs 748–749) but sternum without anterior humps and leg tibiae with few short vertical hairs. Tibia 1 in five females: 4.1–4.4 (mean 4.3). Epigynum (Fig. 770) anterior plate roughly square-shaped, posteriorly slightly elevated and with slightly protruding rim, distinctive anterior internal arc visible in uncleared specimens; posterior plate short but wide. Internal genitalia (Figs 763, 771–772) with uniquely shaped pore plates, elongated and bent in mid-section, with distinctive anterior arc (arrow in Fig. 763) and anterior median receptacle.

Distribution

Known from two neighboring localities in the Venezuelan state Táchira (Fig. 1063).

Natural history

The spiders were found ~0.5–1.5 m above the ground, in small webs that led into hollow branches or into shelters of dead leaves suspended among the vegetation.

Pisaboa marcuzzii (Caporiacco, 1955) comb. nov.
Figs 773–774, 779–784, 787–789, 1024, 1063

Psilochorus marcuzzii Caporiacco, 1955: 299, figs 9a–b (σ^7).

Diagnosis

Easily distinguished from most known congeners (except *P. retracta* Huber sp. nov.) by male chelicerae (Figs 781–782; apophyses in proximal rather than distal position, not hinged) and by shape of epigynal plate (Fig. 787; wider anteriorly than posteriorly); from *P. retracta* Huber sp. nov. by shape of procurus (strongly curved, i.e., S-shaped; compare Figs 783 and 785), by smooth epigynal plate (compare Figs 788, 791), by internal female genitalia smaller relative to epigynal plate (compare Figs 789, 792), and by weakly annulated legs (each femur with only one subdistal dark ring versus three dark rings in *P. retracta* Huber sp. nov.; compare Figs 773–774 and 775–776). From all known congeners also distinguished by thickened male leg femur 2 (in large males only).

Type material

VENEZUELA – **Falcón** • σ^7 holotype, supposedly in Museo de Biología, Universidad Central de Venezuela, Caracas (# 563) (see Notes below), Santa Ana [approximately 11.78° N, 69.95° W], Sep. 1948 (G. Marcuzzi); not examined.

New records

VENEZUELA – **Falcón** • 7 ♂♂, 4 ♀♀, ZFMK (Ar 22077), and 2 ♂♂, 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-186), Península de Paraguaná, Cerro Santa Ana (11.8177° N, 69.9468° W), 480 m a.s.l., 17 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀, MIZA 105802 (MAGS 749), Dtto. Acosta, Agua Salada, El Pozón [approximately 10.98° N, 68.71° W], 3 Oct. 1981 (A.R. Delgado de G., J.A. González D., M.A. González S.) • 5 ♂♂, 2 ♀♀, ZFMK (Ar 22078), and 3 ♀♀ in pure ethanol, ZFMK (Ven20-145, 152), forest near Santa Cruz de La Alegría (10.8795° N, 68.4949° W), 100 m a.s.l., 15 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Notes

There are several “Santa Ana” in Falcón, including the state capital Coro which is officially “Santa Ana de Coro”. However, according to Marcuzzi (1954; text and maps), he collected on the Península de Paraguaná, suggesting that the type locality is at approximately 11.78° N, 69.95° W.

The holotype could not be found at the Museo de Biología, Universidad Central de Venezuela but it remains unclear if it is lost or on loan (Edmundo Guerrero, pers. comm.). Nevertheless, the specimens below appear very likely conspecific with the holotype for three reasons: (1) the new series from Cerro Santa Ana is from very close to the type locality (probably less than 5 km); (2) The shape of the procurus (Fig. 783) is fairly identical to Caporiacco’s (1955) figure 9a. (3) The specimens below share the distinctively thickened male femur 2 with the holotype in the original description (femora “II valde incrassata”).

Description**Male** (ZFMK, Ar 22077)

MEASUREMENTS. Total body length 2.0, carapace width 0.95. Distance PME–PME 60 µm; diameter PME 90 µm; distance PME–ALE 40 µm; distance AME–AME 10 µm; diameter AME 30 µm. Leg 1: 15.2 (3.7+0.4+3.9+6.1+1.1), tibia 2: 2.5, tibia 3: 1.9, tibia 4: 2.3; tibia 1 L/d: 49; femur 1–4 maximum diameter: 0.22, 0.28, 0.25, 0.23.

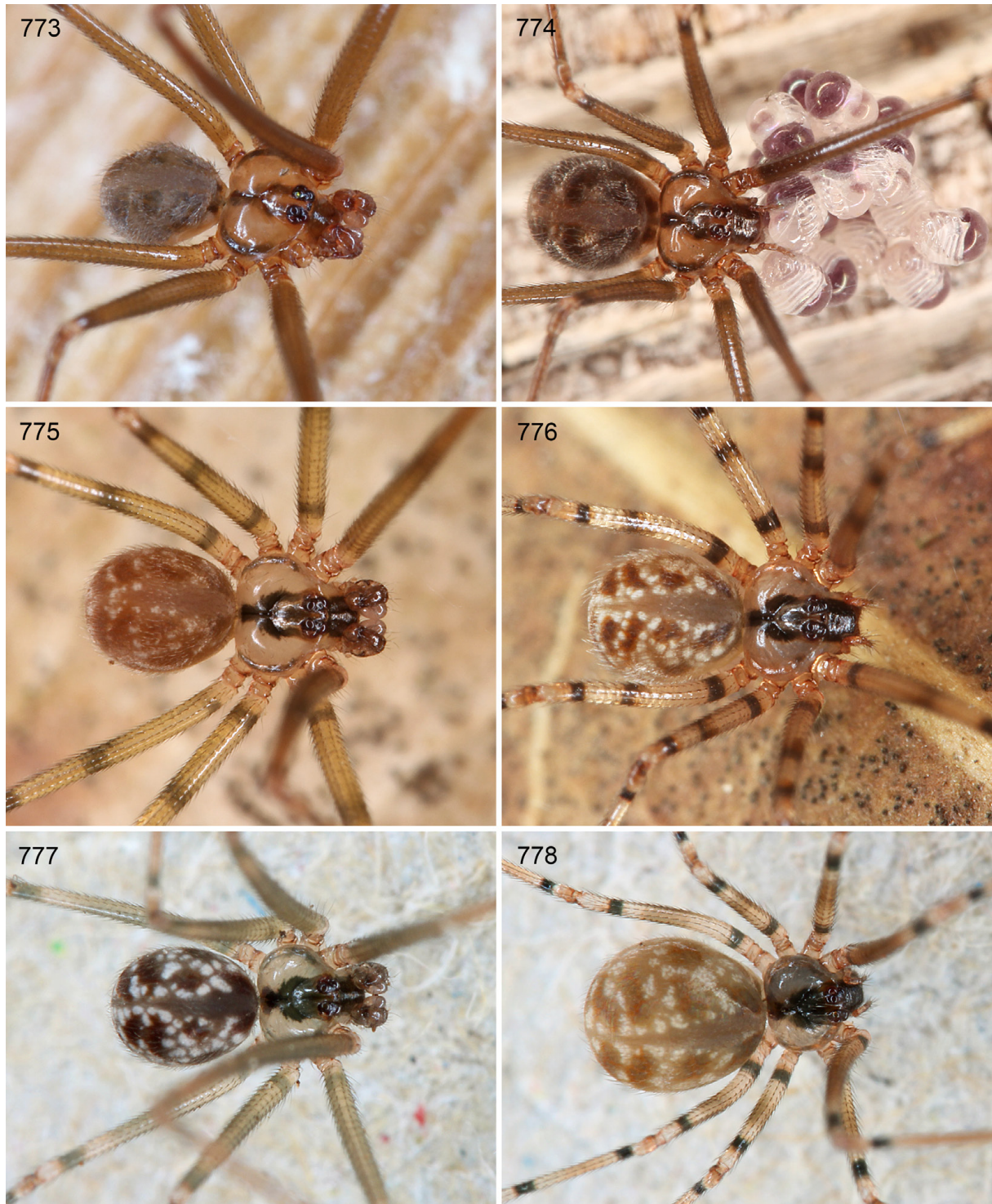
COLOR (in ethanol). Carapace pale ochre-yellow, with light brown lateral marginal bands and median band including ocular area; clypeus also light brown; sternum light brown, anteriorly whitish; legs ochre-yellow to light brown, with indistinct dark rings subdistally on femora; abdomen pale bluish, with darker bluish internal marks, ventrally with large light brown plate in front of gonopore.

BODY. Habitus as in Fig. 773. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.66/0.50), with pair of low humps frontally. Abdomen globular.

CHELICERAE. As in Figs 781–782, with pair of proximal apophyses that do not appear articulated.

PALPS. As in Figs 779–780, almost indistinguishable from those of *P. silvae* Huber, 2000 and *P. estrecha* Huber, 2000 (cf. Huber 2000: figs 1133–1137); coxa with large rounded retrolateral apophysis, trochanter barely modified, femur proximally with retrolateral process, distally widening, with finger-shaped retrolateral-ventral process; procurus very simple, S-shaped (Fig. 783); genital bulb with mostly membranous processes distally tapering, with pointed process on prolateral side (arrow in Fig. 779).

LEGS. Without spines and curved hairs; with vertical hairs in high density on all tibiae; retrolateral trichobothrium of tibia 1 at 11%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~20 pseudosegments, distally fairly distinct.



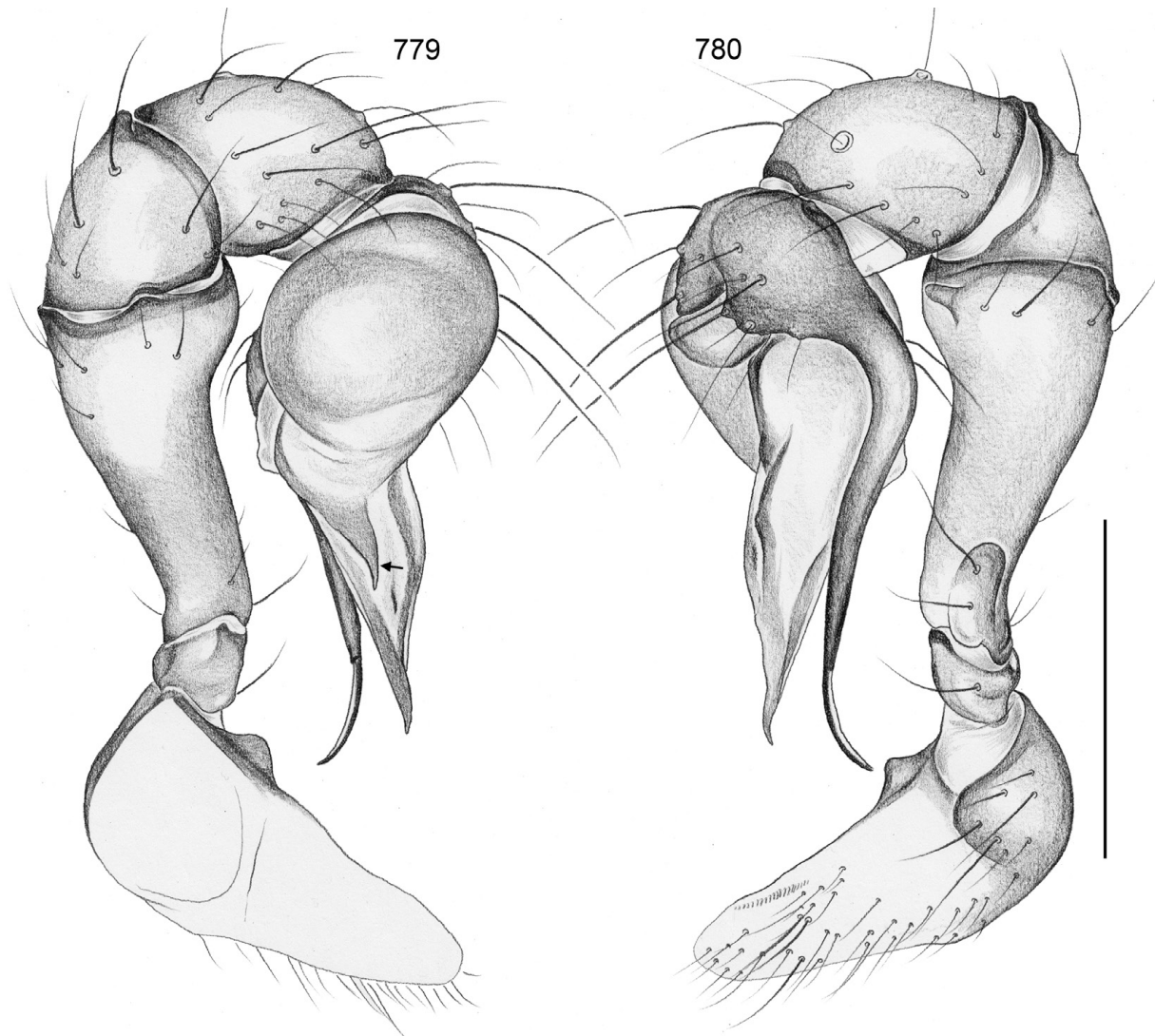
Figs 773–778. *Pisaboa* Huber, 2000; live specimens. 773–774. *P. marcuzzii* (Caporiacco, 1955); male and female with egg sac from Falcón, Cerro Santa Ana. 775–778. *P. retracta* Huber sp. nov.; male and female from Lara, between Barquisimeto and Boconó (type locality; 775–776), and male and female from La Guaira, El Limón (777–778).

Male (variation)

Tibia 1 in 13 males: 3.2–4.1 (mean 3.7). Second and third femora variably thickened, sometimes barely thicker than other femora (e.g., male with tibia 1 length 3.2: 0.18, 0.19, 0.18, 0.17), sometimes much thicker (e.g., male with tibia 1 length 3.8: 0.24, 0.35, 0.28, 0.22). Some males with indistinct dark rings also on tibiae (proximally and subdistally). Dark median band on carapace variably wide and variably distinct.

Female

In general similar to male (Fig. 774) but all femora of approximately same diameter, sternum without humps, dark rings on legs slightly more distinct, vertical hairs on tibiae in barely higher than usual density. Tibia 1 in 11 females: 2.5–3.0 (mean 2.8). Epigynum (Fig. 787) large trapezoidal light brown plate, anteriorly wider than posteriorly, weakly protruding, smooth, with pair of shallow pockets at anterior margin, greenish internal arc distinct in uncleared specimens; with short but wide posterior plate; without whitish humps in front of epigynum. Internal genitalia (Figs 784, 788–789), very small



Figs 779–780. *Pisaboa marcuzzii* (Caporiacco, 1955); from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 22077); left male pedipalp, prolateral and retrolateral views (arrow: prolateral process of genital bulb). Scale line: 0.3 mm.

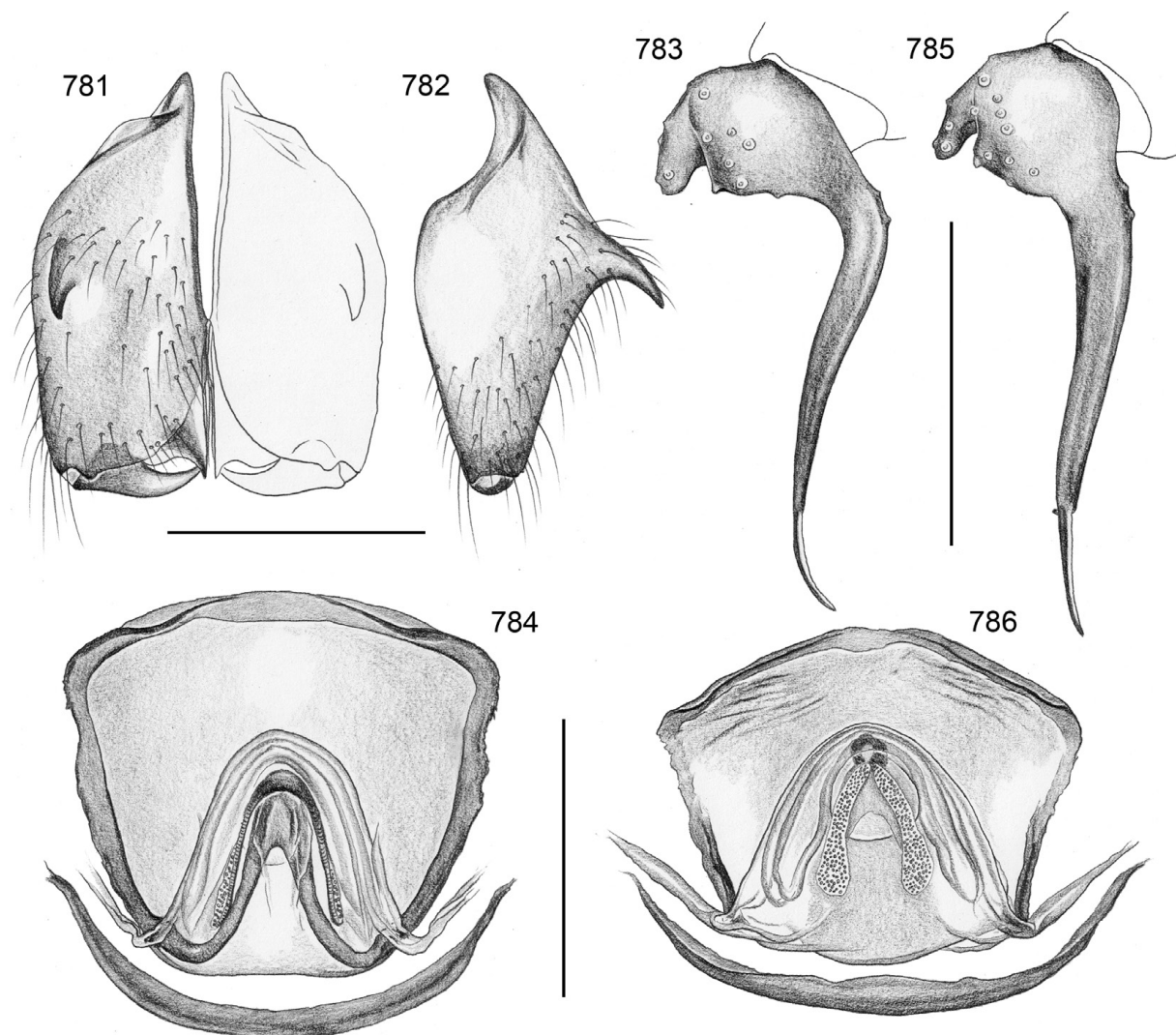
relative to epigynal plate, pore plates in lateral vertical position, with membranous oval receptacle between internal genitalia and epigynal plate.

Distribution

Known from three localities in the Venezuelan state Falcón (Fig. 1063).

Natural history

At Cerro Santa Ana, the spiders were collected in a humid part of the forest where the small webs were built in the leaf litter, often at the basis of ground-dwelling bromeliads (Fig. 1024). In the well preserved forest fragment near Santa Cruz de La Alegría the spiders occupied the same microhabitat, but their small webs (diameter ~10 cm) were only found in an area where the leaves appeared particularly dry.



Figs 781–786. *Pisaboa marcuzzii* (Caporiacco, 1955); from Falcón, Cerro Santa Ana (781–784; type locality; ZFMK Ar 22077) and *P. retracta* Huber sp. nov.; from Lara, between Barquisimeto and Boconó (785–786; type locality; ZFMK Ar 22080). **781–782.** Male chelicerae, frontal and lateral views. **783, 785.** Left palpal tarsi and procursi, retrolateral views. **784, 786.** Cleared female genitalia, dorsal views. Scale lines: 0.3 mm.

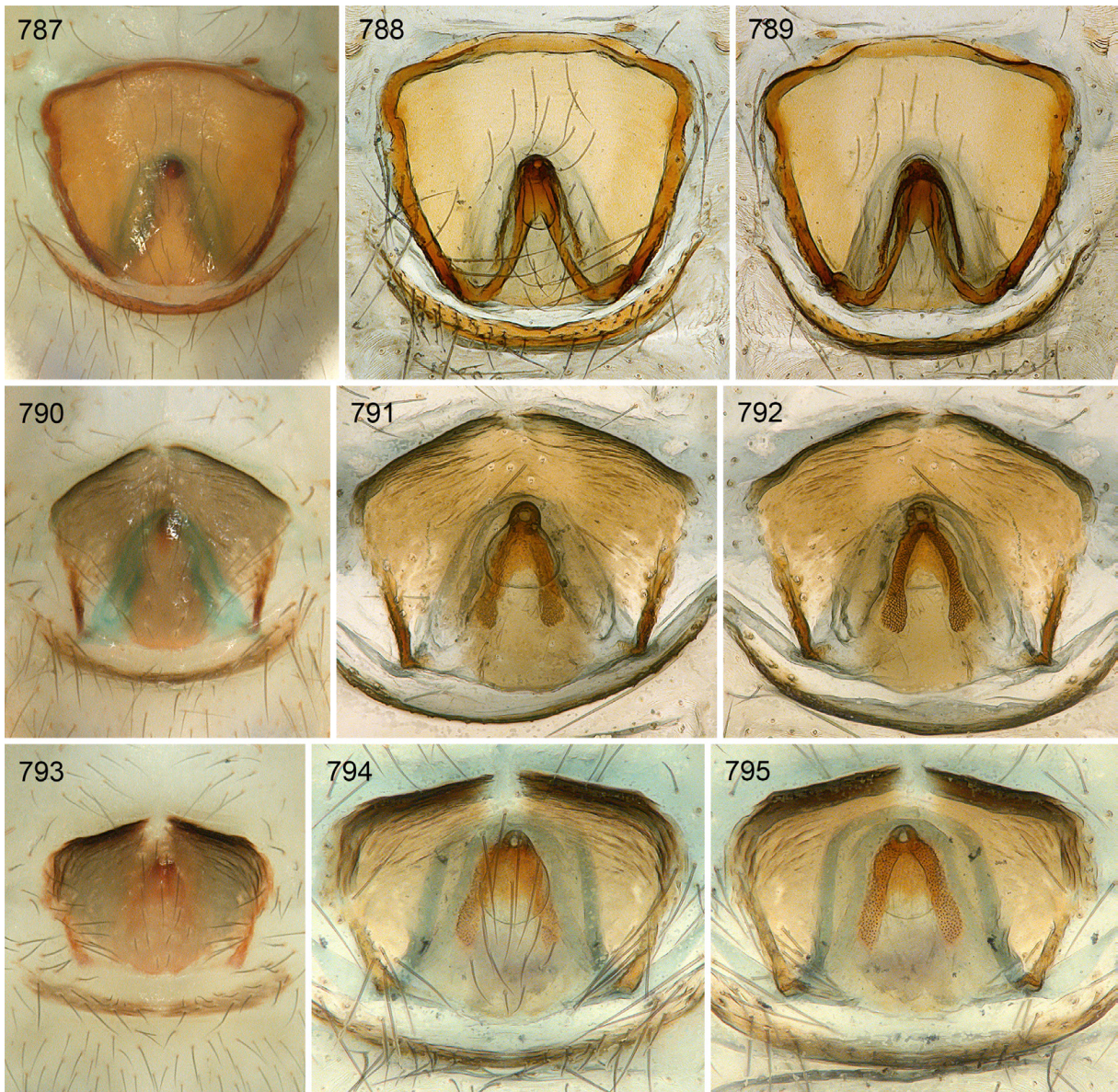
Pisaboa retracta Huber sp. nov.

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Figs 775–778, 785–786, 790–795, 1063

Diagnosis

Easily distinguished from most known congeners [except *P. marcuzzii* (Caporiacco, 1955) comb. nov.] by male chelicerae (cf. Figs 781–782; apophyses in proximal rather than distal position, not hinged) and by shape of epigynal plate (Fig. 790; wider anteriorly than posteriorly); from *P. marcuzzii* comb. nov. by shape of procurus (weakly curved, i.e., not S-shaped; compare Figs 783 and 785), by epigynal plate



Figs 787–795. *Pisaboa* Huber, 2000; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **787–789.** *P. marcuzzii* (Caporiacco, 1955); from Falcón, Cerro Santa Ana (type locality; ZFMK Ar 22077). **790–792.** *P. retracta* Huber sp. nov.; from Lara, between Barquisimeto and Boconó (type locality; ZFMK Ar 22080). **793–795.** *P. retracta* Huber sp. nov.; specimen assigned tentatively from La Guaira, El Limón (ZFMK Ar 22082).

not smooth but with ridges (compare Figs 788 and 791), by internal female genitalia larger relative to epigynal plate (compare Figs 784 and 786), and by more strongly annulated legs (each femur with proximal dark ring in addition to subdistal ring, sometimes also with dark ring at half length; compare Figs 773–774 and 775–776).

Etymology

The species name (Latin: retired, reclusive, withdrawn) refers to the retreats in which the spiders were hiding during the day; adjective.

Type material

VENEZUELA – **Lara** • ♂ holotype, ZFMK (Ar 22079), between Barquisimeto and Boconó (9.5906° N, 69.8343° W), 1370 m a.s.l., 20 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Lara** • 3 ♂♂, 2 ♀♀, 1 juv., ZFMK (Ar 22080), and 1 ♂, 4 ♀♀ in pure ethanol, ZFMK (Ven18-202), same collection data as for holotype • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22081), Yacambú National Park, Sendero Ecológico (9.709° N, 69.580° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi).

Assigned tentatively

VENEZUELA – **La Guaira** • 2 ♂♂, 1 ♀, ZFMK (Ar 22082), and 2 ♀♀ in pure ethanol, ZFMK (Ven20-168) (one abdomen moved to ZFMK, Ar 22082), El Limón, ‘site 1’ (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Description

Male (holotype)

MEASUREMENTS. Total body length 2.1, carapace width 0.95. Distance PME–PME 70 µm; diameter PME 90 µm; distance PME–ALE 60 µm; distance AME–AME 15 µm; diameter AME 25 µm. Leg 1: 15.3 (3.7+0.4+3.8+6.2+1.2), tibia 2: 2.3, tibia 3: 1.8, tibia 4: 2.1; tibia 1 L/d: 40; femur 1–4 maximum diameter: 0.21, 0.22, 0.21, 0.20.

COLOR (in ethanol). Carapace pale ochre, with indistinct light brown lateral marginal bands and median band including ocular area; clypeus also light brown; sternum light brown medially, whitish laterally; legs pale ochre-yellow to light brown, femora and tibiae with dark rings proximally, medially (indistinct), and subdistally; abdomen pale gray, with dark bluish and white internal marks dorsally and laterally, ventrally with transversal brown plate in front of gonopore.

BODY. Habitus as in Fig. 775. Ocular area moderately raised. Carapace with distinct thoracic groove. Clypeus unmodified. Sternum wider than long (0.72/0.48), with very indistinct pair of humps frontally. Abdomen globular.

CHELICERAE. As in *P. marcuzzii* comb. nov. (cf. Figs 781–782), with pair of proximal apophyses that do not appear articulated.

PALPS. In general very similar to *P. marcuzzii* comb. nov. (cf. Figs 779–780), but procurus less curved and slightly wider (Fig. 785); genital bulb without prolateral pointed process.

LEGS. Without spines and curved hairs; with vertical hairs in high density on all tibiae; retrolateral trichobothrium of tibia 1 at 8%; prolateral trichobothrium absent on tibia 1; tarsus 1 with ~20 pseudosegments, distally distinct.

Male (variation)

Tibia 1 in eight males from Lara (including holotype): 3.0–4.1 (mean 3.6). Second and third femora never much thicker than other femora. Dark lateral margins on carapace barely visible in some males.

Males from La Guaira (Fig. 777) with apparently identical male palps but cheliceral apophyses slightly shorter; they are therefore assigned tentatively (see also female below); tibia 1 in male from La Guaira: 4.1 (missing in second male).

Female

In general similar to male (Fig. 776) but sternum without humps and uniformly dark brown, dark rings on legs more distinct, vertical hairs on tibiae in barely higher than usual density. Tibia 1 in seven females from Lara: 2.6–2.9 (mean 2.8). Epigynum (Fig. 790) large trapezoidal light brown plate, anteriorly wider than posteriorly, weakly protruding, with pair of shallow pockets at anterior margin, greenish internal arc distinct in uncleared specimens; with short but wide posterior plate. Internal genitalia (Figs 786, 791–792) small relative to epigynal plate, pore plates in V-shaped position, with membranous receptacle between internal genitalia and epigynal plate.

Females from La Guaira (Fig. 778) with slightly smaller epigynal plates but with apparently identical internal genitalia (i.e., internal genitalia larger relative to epigynal plate; Figs 794–795); also with less distinct dark rings at half length of femora and tibiae; they are therefore assigned tentatively (see also male above); tibia 1 in three females from La Guaira: 2.3, 2.4, 2.7.

Distribution

Known from two localities in the Venezuelan state Lara and from specimens assigned tentatively from the Venezuelan state La Guaira (Fig. 1063).

Natural history

At the type locality, all specimens were collected from ~1–2 m above the ground, where the domed sheet webs consistently led into a retreat. The retreats were formed by dead leaves but the webs did never contain additional particles to serve as camouflage. All specimens were sitting in the retreats. At El Limón, the specimens were also found up to 1.5 m above the ground, in small webs leading into retreats among the vegetation.

Priscula Simon, 1893

Notes

Priscula is a largely Andean genus, with 13 of the now 20 described species endemic to Venezuela. However, at least Peru and Colombia are known to have numerous undescribed species present in collections (B.A. Huber, B. Rodríguez-Anillo, unpubl. data), so the actual species richness is certainly much higher.

Most Andean records are from mid to high altitudes (~1000–2700 m a.s.l.), and the genus has rarely been found on the lower slopes of the Andes towards the Amazon basin [e.g., *P. binghamae* (Chamberlin, 1916) near Yucumo, Bolivia, at 500 m a.s.l.] or in low Andean valleys (e.g., *P. paeza* Huber, 2000 in Depto del Valle, Colombia, at 400 m a.s.l.) (Huber 2000). In Venezuela, most western species (in the states of Táchira, Mérida, Trujillo, Lara) are from mid to high altitudes, while in the east (Miranda, Monagas, Sucre), *Priscula* can commonly be found below 500 m a.s.l.

Of the now 13 nominal species in Venezuela, 12 are treated below. For *Priscula tunebo* Huber, 2000 we have no new data except for rough locality coordinates: Táchira, Pregonero, Camp. Siberia

[approximately 7.89° N, 71.72° W], “Laldea”. In 2020 we collected very close to this place (probably less than 5 km) but the only *Priscula* we found was *P. andinensis* González-Sponga, 1999.

Priscula andinensis González-Sponga, 1999
Figs 796–799, 804–813, 818, 820–822, 1027, 1060

Priscula andinensis González-Sponga, 1999: 128, figs 1–9 (♂♀).

Priscula andinensis – Huber 2000: 139, figs 536–538 (♂).

Notes

This species is very similar to and possibly a synonym of *P. piedraensis* González-Sponga, 1999 (see Notes under *P. piedraensis* below). The MAGS collection has three vials with this species:

MAGS 955 (MIZA 105738), containing the types (not separated into 955a and 955b as indicated in the original description), 2 ♂♂, 8 ♀♀, 4 juvs (not 4 ♂♂, 5 ♀♀, 5 juvs), Mérida, La Cuchilla [8.634° N, 71.356° W, i.e., 4.5 km SW of the locality indicated in the original description), 2260 m a.s.l., 12 Dec. 1981 (A.R. Delgado de G., J.A. González D., M.A. González-S.).

MAGS 812 (MIZA 105693), with 1 ♂, 1 ♀, 3 juvs, Mérida, “Valle Grande” [= El Valle, approximately 8.68° N, 71.09° W], 1 Sep. 1981 and 18 Jun. 1987 (A.R. Delgado de G., J.A. González D., M.A. González-S.).

MAGS 1069 (MIZA 105774), with 2 ♂♂, 3 juvs, Mérida, Monumento Natural Chorrera de las González [8.586° N, 71.299° W], 1750 m a.s.l., 19 Jun. 1987 (A.R. Delgado, M.A. González-S.).

The two males in MAGS 955 appear identical, so there is currently no need to specify which is the holotype and which the paratype. The measurements in the original description are at least partly wrong (e.g., tibia 3 length in holotype: 1.76; should be ~5).

The four males described in Huber (2000) (deposited in AMNH; not reexamined) are from along Laguna El Suero trail in Mucuy, near Tabay, i.e., from the same locality as the newly collected specimens from Laguna El Suero trail listed below.

Diagnosis (amendments; see Huber 2000)

Females of *P. andinensis* and *P. piedraensis* appear indistinguishable (Figs 820–825). Females of *P. piapoco* with dark areas at posterior epigynal margin more distinct and closer together and pore plates slightly more angular anteriorly laterally (Figs 819, 828).

New records

VENEZUELA – **Mérida** • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22083), and 1 ♀ in pure ethanol, ZFMK (Ven18-218), near Escaguey, NE Mérida (8.6918° N, 70.9950° W), 2220 m a.s.l., 23 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 5 ♂♂, 5 ♀♀, 1 juv., ZFMK (Ar 22084–85), and 2 ♂♂, 2 ♀♀ in pure ethanol, ZFMK (Ven18-220), Mucuy, along Laguna El Suero trail (between 8.629° N, 71.039° W and 8.623° N, 71.034° W), 2270–2690 m a.s.l., 24 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 3 ♂♂, 2 ♀♀, ZFMK (Ar 22087), El Valle, along road cut (8.6512° N, 71.1184° W), 1970 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀ in pure ethanol, ZFMK (Ven18-226), El Valle, cloud forest along river (8.703° N, 71.077° W), 2650 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, ZFMK (Ar 22088), El Valle, forest above road (8.700° N, 71.094° W), 2430 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀, ZFMK (Ar 22089), and 1 juv. in pure ethanol, ZFMK (Ven20-125), between Tovar and Guaraque (8.2578° N, 71.7184° W), 2490 m a.s.l., forest along stream, 11 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♂, 1 ♀, ZFMK (Ar 22090), and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven20-

131), forest above Mesa Bolívar (8.467° N, 71.614° W), 1300 m a.s.l., 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Táchira** • 1 ♂, 3 ♀♀, 1 juv., ZFMK (Ar 22091), and 1 ♂, 1 ♀, 2 juvs in pure ethanol, ZFMK (Ven20-118), SE Pregonero, forest near La Trampa (7.9236° N, 71.7152° W), 1300 m a.s.l., 10 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.). – **Trujillo** • 1 ♂, 2 ♀♀, ZFMK (Ar 22092), and 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-207), near Boconó, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.). • 2 ♂♂, 6 ♀♀, 3 juvs, ZFMK (Ar 22093–94), and 2 ♀♀, 2 juvs in pure ethanol, ZFMK (Ven18-215), between Boconó and Burbusay (9.3945° N, 70.2674° W), 1820 m a.s.l., 22 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Lara** • 4 ♂♂, 7 ♀♀, 2 juvs, ZFMK (Ar 22095), and 1 ♀ in pure ethanol, ZFMK (Ven02/100-58), Yacambú National Park, Sendero Ecológico (9.708° N, 69.583° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal, B. Striffler, A. Giupponi) • 3 juvs in pure ethanol (identity confirmed by CO1 data), ZFMK (Ven18-205), between Barquisimeto and Boconó (9.5906° N, 69.8343° W), 1370 m a.s.l., 20 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Redescription (amendments; see González-Sponga 1999 and Huber 2000)

Eye measurements in male from near Escagüey: distance PME–PME 340 µm; diameter PME 230 µm; distance PME–ALE 230 µm; diameter AME 80 µm; distance AME–AME 60 µm. ALE and PLE larger than PME (diameter ALE 310 µm). All specimens with pair of brown marks (sometimes touching medially) ventrally on abdomen anterior of spinnerets. Male ocular area without hump on posterior side. Thoracic furrow deep, reaching posterior carapace margin. Male (but not female) chelicerae with distinct white area laterally, bordered distally by sclerotized rim. Posterior margin of sternum in males and females slightly indented (but not as strongly as in *P. lagunosa* González-Sponga, 1999 females). Femur-patella joints in male palp in dorsal position (i.e., not shifted toward one side). Procurus (Figs 808–810) with distinctive bifid apophysis distally, dorsal part strongly curved toward prolateral. One or both parts of bifid apophysis broken in some males. Genital bulb (Figs 811–813) with small proximal sclerite connecting to tarsus, strong main apophysis with dorsal sclerotized ridge, with large whitish area ventrally between strong ventral proximal sclerite and main apophysis. Legs with more than usual short vertical hairs (but not in high density). Prolateral trichobothrium present on all leg tibiae. Tibia 1 in 25 males (including the 4 ♂♂ in Huber 2000): 8.8–11.1 (mean 10.1).

Females also with curved hairs on all legs (femora, tibiae, metatarsi). Epigynum (Figs 806–807, 820) large oval plate slightly bulging, with small anterior extensions, short posterior plate widened laterally. Internal genitalia (Figs 818, 821–822) simple, with pair of large pore plates and distinctive pair of partly sclerotized lateral posterior elements (asterisk in Fig. 818). Tibia 1 in 28 females: 6.8–8.9 (mean 7.6).

Distribution

Known from several localities in the Venezuelan states Mérida, Táchira, Trujillo, and Lara (Fig. 1060). All localities are at about 1300–2700 m a.s.l.

Natural history

Near Escagüey, the spiders were found in a disturbed forest, in large almost flat webs that transformed into a funnel that led into some hole or crevice in a rock, log, or fern thicket. At Mucuy, the species was abundant both in large webs near the ground leading into hollow trees or logs, and (at higher elevation) in large bromeliads about 1–2 m above the ground (Fig. 1027; together with *Mecolaesthus mucuy* Huber, 2000). In El Valle, the species was collected both in a very pristine environment (cloud forest) and along the paved road outside the forest, under overhangs (the kind of habitat also described for the type specimens; González-Sponga 1999). At Laguna Negra, the spiders were found in sheet webs that transformed into funnels leading into dense organic material on a live tree-trunk (exactly the same microhabitat as the smaller *Priscula lagunosa* González-Sponga, 1999 in the same locality). Between Boconó and Burbusay the spiders were collected among roots and under overhangs, from weakly domed webs that transformed into funnels. In Yacambú, the spiders were found along the trail in sheet webs

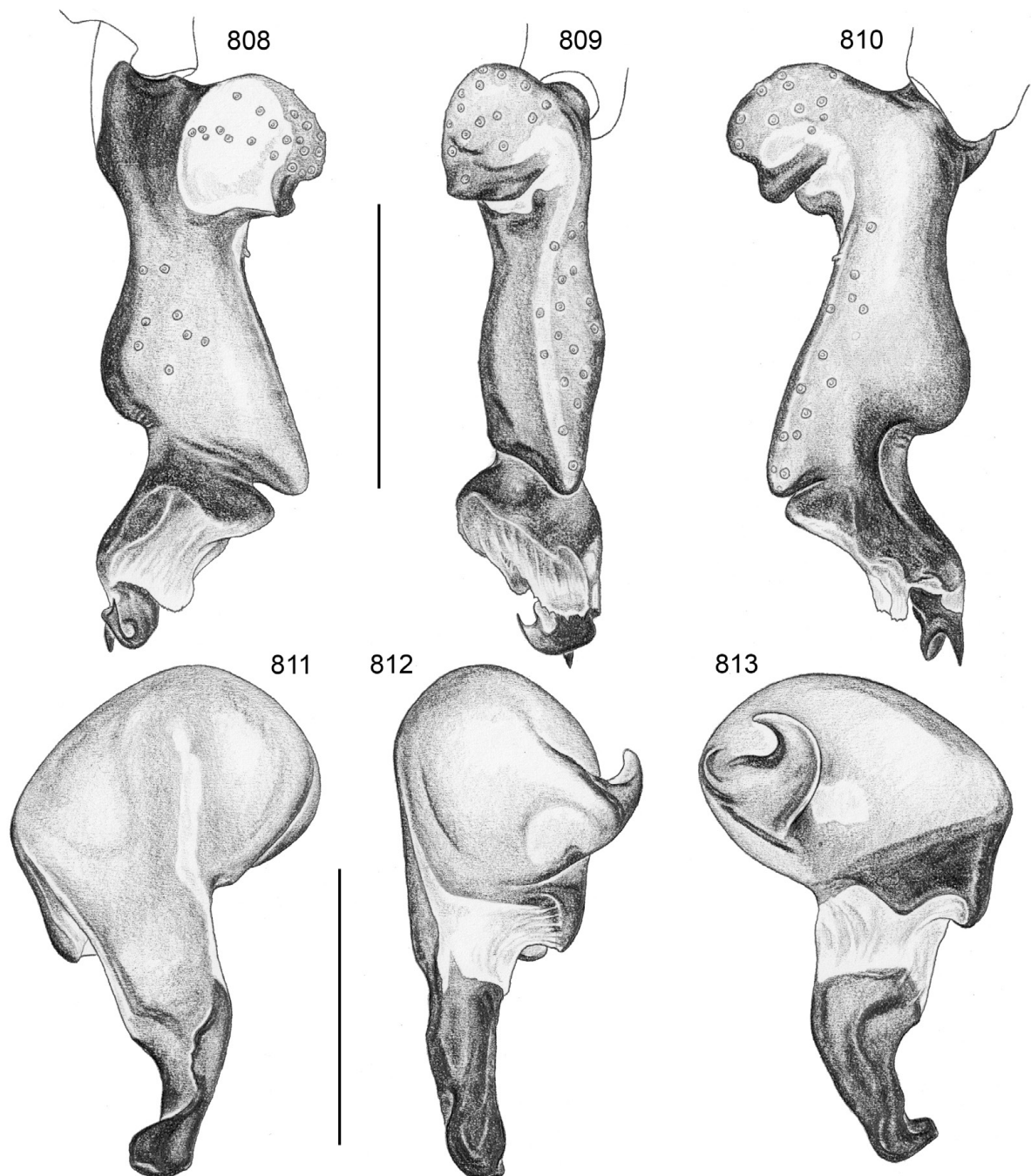


Figs 796–803. *Priscula* Simon, 1893; live specimens. **796–799.** *P. andinensis* González-Sponga, 1999; male and female from Mérida, Mucuy (796, 797), female with egg sac from Trujillo, between Boconó and Burbusay (798), light juvenile from Lara, between Barquisimeto and Boconó (799, ZFMK Ven18-205). **800–801.** *P. piedraensis* González-Sponga, 1999; females from Mérida, Las Piedras. **802–803.** *P. piapoco* Huber, 2000; females with egg sacs from Mérida, La Carbonera.



Figs 804–807. *Priscula andinensis* González-Sponga, 1999; types from Mérida, La Azulita (MIZA 105738; MAGS 955). **804–805.** Left male pedipalp, prolateral and retrolateral views (arrow: distinctive ventral protrusion of procurus; compare Fig. 815). **806–807.** Epigynum, ventral and lateral views. Scale lines: 1 mm.

that transformed into funnels that led back and up into the ground and under logs. Between Tovar and Guaraque the species seemed to be abundant (judging by the webs at the rock walls) but the spiders were mostly hidden deep in rock crevices and difficult to collect. At Mesa Bolívar, the spiders were found ~1–2 m above the ground, in large webs funneling into a retreat, while the syntopic *P. bolivari* Huber sp. nov. lived in holes and cavities in the ground. At La Trampa, adult specimens lived in the typical large webs that transformed into funnels leading into shelters, while juveniles were lighter and more exposed, sometimes even on the undersides of live leaves.



Figs 808–813. *Priscula andinensis* González-Sponga, 1999; from Mérida, Mucuy (ZFMK Ar 22084). **808–810.** Left procursus, prolateral, dorsal, and retrolateral views. **811–813.** Left genital bulb, dorsal, retrolateral, and ventral views. Scale lines: 1 mm.

Some epigynal plates with pair of small perforations, possibly resulting from the male cheliceral apophyses during mating. Egg sacs large, relatively densely covered by silk (Fig. 798), in one case with approximately 50 eggs.

***Priscula piedraensis* González-Sponga, 1999**

Figs 800–801, 814–817, 823–825, 1060

Priscula piedraensis González-Sponga, 1999: 145, figs 38–46 (♂♀).

Notes

The exact type locality is unclear. According to the collection card, it is between Santo Domingo and Las Piedras (i.e., approximately 8.88° N, 70.66° W); according to the original description it is in the surroundings of Las Piedras (i.e., approximately 8.89° N, 70.64° W). Each of our two new collecting sites below is close to one of the two possible original collecting sites.

The male palp of the male holotype is very similar to that of *P. andinensis* González-Sponga, 1999, but the procurus is ventrally weakly curved rather than equipped with a strong protrusion (arrows in Figs 805 and 815). Some males herein assigned to *P. andinensis* (e.g., from Mesa Bolívar, SE Pregonero, etc.) are somewhat intermediate, though closer to the types of *P. andinensis*. It is thus unclear if the single male specimen known of *P. piedraensis* is just a morphologically unusual specimen of *P. andinensis* or if it represents a separate species indeed.

Females of the two species appear indistinguishable, both externally and internally (Figs 816–817; the epigynum of the female paratype of *P. piedraensis* was not cleared; Figs 823–825 are from a newly collected specimen). The female specimens listed below are assigned to this species (rather than to *P. andinensis*) only because of the geographic proximity to the type locality. Tibia 1 in four newly collected females: 6.6, 6.7, 6.9, 7.2.

Types

VENEZUELA – Mérida • ♂ holotype, 1 ♀ paratype, 1 juv., MIZA 105603 (MAGS 1067), between Santo Domingo and Las Piedras [approximately 8.88° N, 70.66° W; see Notes above], 21 Jun. 1987 (A.R. Delgado, M.A. González S.); examined.

New records

VENEZUELA – Mérida • 2 ♀♀, ZFMK (22096), and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven20-107), Las Piedras, ‘site 2’ (8.9002° N, 70.6279° W), 1700 m a.s.l., at rocks near river, 7 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.) • 1 ♀, 1 juv., ZFMK (22097) (one leg transferred into pure ethanol, Ven18-234), between Santo Domingo and Las Piedras (8.8765° N, 70.6553° W), 1760 m a.s.l., 27 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Distribution

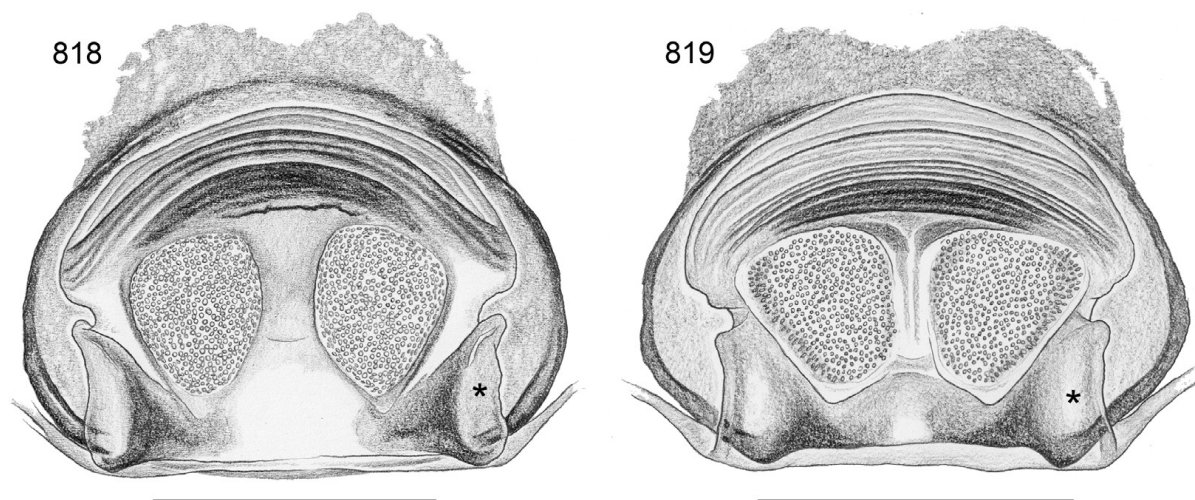
Known from near Las Piedras only, in Venezuela, Mérida (Fig. 1060).

Natural history

The types were collected from cavities formed by erosion in road cuts (González-Sponga 1999). The newly collected specimens were found in small cavities on an exposed, vertical rock wall at the riverside.



Figs 814–817. *Priscula piedraensis* González-Sponga, 1999; male holotype and female paratype from Mérida, between Santo Domingo and Las Piedras (MIZA 105603; MAGS 1067). **814–815.** Left male pedipalp, prolateral and retrolateral views (arrow: distinctive ventral protrusion of procurus; compare Fig. 805). **816–817.** Epigynum, ventral and lateral views. Scale lines: 1 mm.



Figs 818–819. *Priscula* Simon, 1893; cleared female genitalia, dorsal views (asterisks: distinctive lateral posterior elements). **818.** *P. andinaensis* González-Sponga, 1999; from Mérida, Mucuy (ZFMK Ar 22085). **819.** *P. piapoco* Huber, 2000; from Mérida, La Carbonera (type locality; ZFMK Ar 22098). Scale lines: 1 mm.

Priscula piapoco Huber, 2000
Figs 802–803, 819, 826–828, 1060

Priscula piapoco Huber, 2000: 141, figs 539–540 (♂).

Notes

This species was previously known from three male specimens originating from two localities in Mérida state: the type locality “20 km SE Azulita, ULA Biol. Res. La Carbonera” [approximately 8.632° N, 71.367° W], and “Teleferico Estación La Montaña” [8.575° N, 71.116° W]. Here we newly describe the female from specimens originating from less than 1 km from the type locality. The male accompanying these females died while moulting, but the chelicerae and palps are fully moulted and appear identical to the types.

Diagnosis (amendments; see Huber 2000)

Females barely distinguishable from *P. andinaensis* González-Sponga, 1999 and *P. piedraensis* González-Sponga, 1999 but main epigynal plate with pair of dark areas at posterior margin more distinct and closer together and pore plates slightly more angular anteriorly laterally (Figs 819, 828).

New record

VENEZUELA – Mérida • 1 ♂, 5 ♀♀, 1 juv., ZFMK (Ar 22098), and 1 ♀ in pure ethanol, ZFMK (Ven20-110), forest near La Carbonera (8.6276° N, 71.3688° W), 2380 m a.s.l., 8 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Description of female

Females in general similar to males, also with curved hairs on all legs (femora, tibiae, metatarsi). Dark rings on legs more distinct, with indistinct third ring on femora at half length. Brown mark anterior of spinnerets medially divided. Tibia 1 in five females: 6.8–7.4 (mean 7.1). Epigynum (Fig. 826) simple oval plate slightly bulging, very similar to *P. andinaensis* and *P. piedraensis* but main epigynal plate

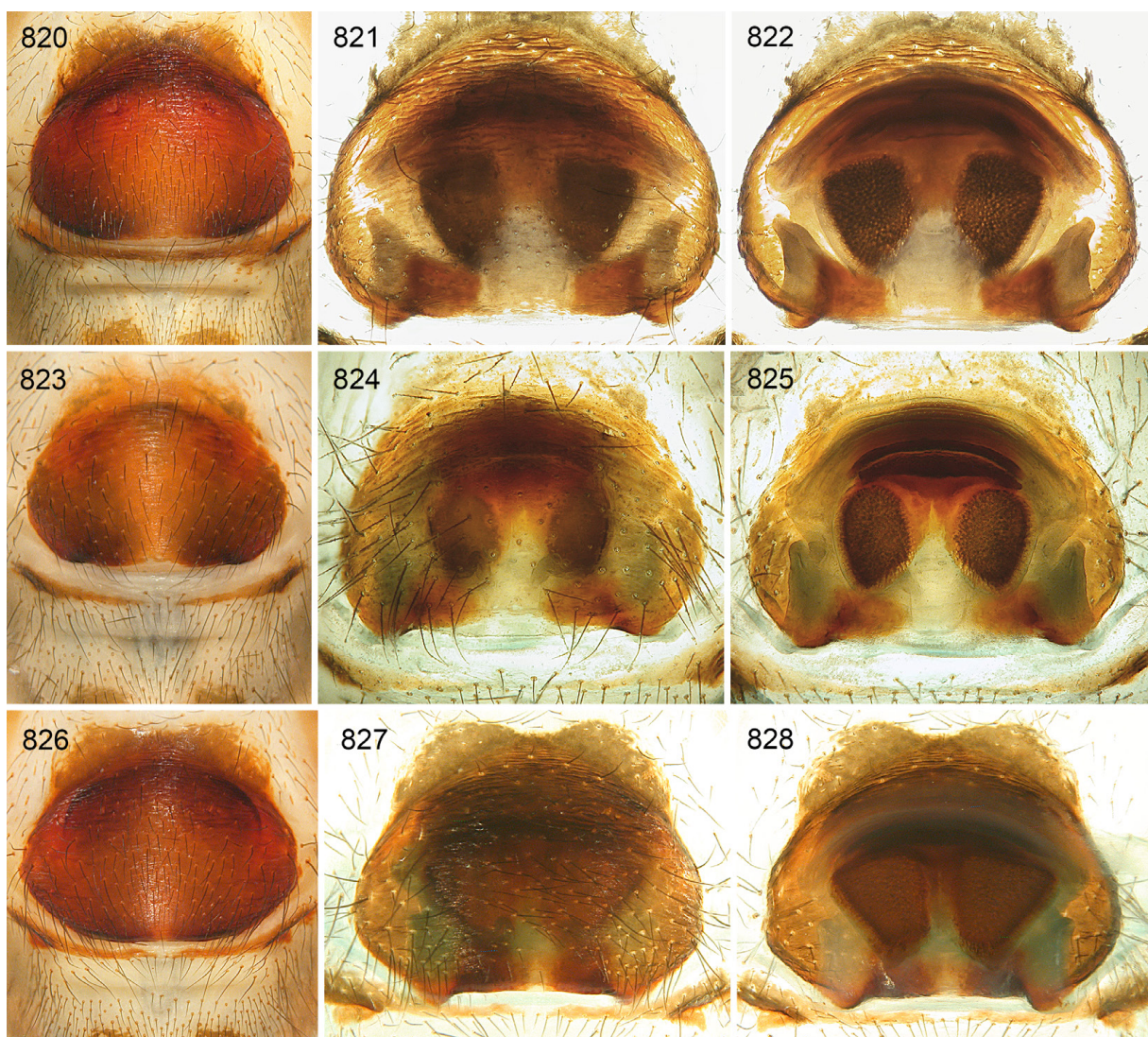
with pair of dark areas at posterior margin more distinct and closer together; posterior plate very short but wide. Internal genitalia (Figs 819, 828) with pair of large pore plates and distinctive pair of partly sclerotized lateral posterior elements (asterisk in Fig. 819).

Distribution

Known from three neighboring localities in the Venezuelan state Mérida (Fig. 1060). All localities are at about 2300–2450 m a.s.l.

Natural history

The newly collected specimens were found in a well-preserved forest fragment, in large, rather flat webs that transformed into a funnel that led into some hole or crevice in a rock, hollow tree, or log.



Figs 820–828. *Priscula* Simon, 1893; epigyna, ventral views and cleared female genitalia, ventral and dorsal views. **820–822.** *P. andinensis* González-Sponga, 1999; from Mérida, Mucuy (ZFMK Ar 22085). **823–825.** *P. piedraensis* González-Sponga, 1999; from Mérida, Las Piedras (type locality; ZFMK Ar 22096). **826–828.** *P. piapoco* Huber, 2000; from Mérida, La Carbonera (type locality; ZFMK Ar 22098).

Priscula ulai González-Sponga, 1999
Figs 829–830, 835–843, 861–863, 1027, 1061

Priscula ulai González-Sponga, 1999: 160, figs 66–73 (♂ only; see Notes below).

Priscula ulai – Huber 2000: 141, figs 96, 166, 541–546 (♂).

Notes

The type vial (MIZA 105576; MAGS 1110) contains the ♂ holotype and 1 ♀ paratype, and the specimens agree with González-Sponga's (1999) description and illustrations. The female is not conspecific with the male but represents the previously unknown female of *Mecolaesthus cornutus* Huber, 2000 (see above). The true female of *P. ulai* is newly described below.

In the original description, the coordinates of the type locality (Monte Zerpa near Mérida city) are entirely wrong (~6500 km E); the correct coordinates are approximately 8.63° N, 71.16° W. At least some of the measurements in the original description are also wrong, for example male femur 4 longer than femur 1 (it is only ~70% of femur 1).

Diagnosis (amendments; see Huber 2000)

Females are distinguished from most known congeners (except *P. salmeronica* González-Sponga, 1999) by combination of small size (body length < 4 mm) and absence of AME; also by distinctive membranous structure (tubes?) in internal genitalia (arrow in Fig. 843). Also by combination of legs with numerous dark rings (as in male, see below) and posterior epigynal plate limited to pair of brown marks (Fig. 861).

New records

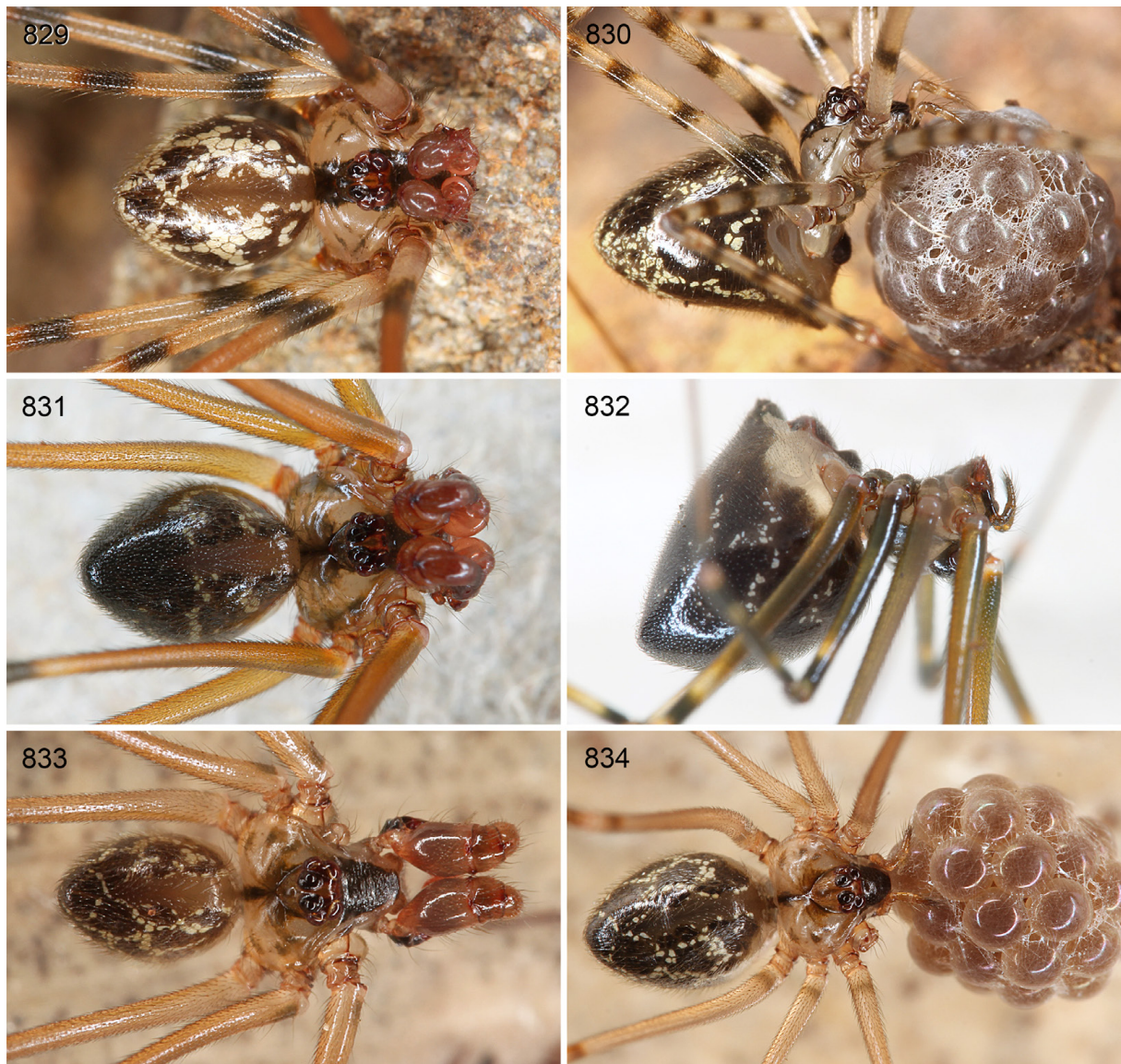
VENEZUELA – **Mérida** • 2 ♂♂, 6 ♀♀, ZFMK (Ar 22099), and 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven18-225), El Valle, cloud forest along river (8.703° N, 71.077° W), 2650 m a.s.l., 25 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♂♂, ZFMK (Ar 22100), and 1 juv. in pure ethanol, ZFMK (Ven20-126), between Tovar and Guaraque (8.2578° N, 71.7184° W), 2490 m a.s.l., forest along stream, 11 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Redescription of male (amendments; see González-Sponga 1999 and Huber 2000)

Habitus as in Fig. 829. Eye measurements: distance PME–PME 230 µm; diameter PME 100 µm; distance PME–ALE 120 µm; AME absent. ALE and PLE larger than PME (diameter ALE 210 µm). Abdomen ventrally with large brown genital plate and brown mark in front of spinnerets. Thoracic furrow deep, reaching posterior carapace margin. Chelicerae with distinct pair of white areas laterally, bordered distally by sclerotized rim. Femur-patella joints in male palp dorsally (i.e., not shifted toward one side). Palpal femur distally protruding on ventral side (Fig. 835). Procurus (Figs 837–839) with large dorsal (slightly retrolateral) projection and smaller prolateral process; distally pointed in lateral view, widened in dorsal view. Genital bulb (Figs 840–842) with small proximal sclerite connecting bulb to tarsus, strong main apophysis with dorsal sclerotized serrated ridge, with large whitish area ventrally between strong ventral transversal sclerite and main apophysis. Legs with more than usual short vertical hairs (but not in high density). Prolateral trichobothrium present on all leg tibiae. Tibia 1 in four newly examined males: 8.8, 9.5, 9.8, 10.0; in 13 males (including nine males measured in Huber 2000): 8.8–10.6 (mean 9.8).

Description of female

Females in general similar to males (Fig. 830), also with curved hairs on all legs (femora, tibiae, metatarsi), also with hump on posterior side of ocular area. Dark rings on legs more distinct: four rings on femora and four rings on tibiae. Some females with black pigment in AME region, but without lenses. Brown mark anterior of spinnerets sometimes medially divided. Chelicerae either without lateral whitish area or with indistinct paler area without sclerotized rim on distal side. Epigynum (Fig. 861) simple oval plate slightly bulging, posterior plate limited to pair of light brown marks. Internal genitalia (Figs 843, 862–863) small relative to epigynal plate, with pair of oval pore plates converging anteriorly, with distinctive membranous structures (tubes?) at posterior margin. Tibia 1 in six females: 4.7–5.2 (mean 4.9).



Figs 829–834. *Priscula* Simon, 1893; live specimens. **829–830.** *P. ulai* González-Sponga, 1999; male and female with egg sac from Mérida, El Valle. **831–832.** *P. bolivari* Huber sp. nov.; male and female from Mérida, Mesa Bolívar. **833–834.** *P. salmeronica* González-Sponga, 1999; male and female with egg sac from Aragua, between Maracay and Puerto Colombia.

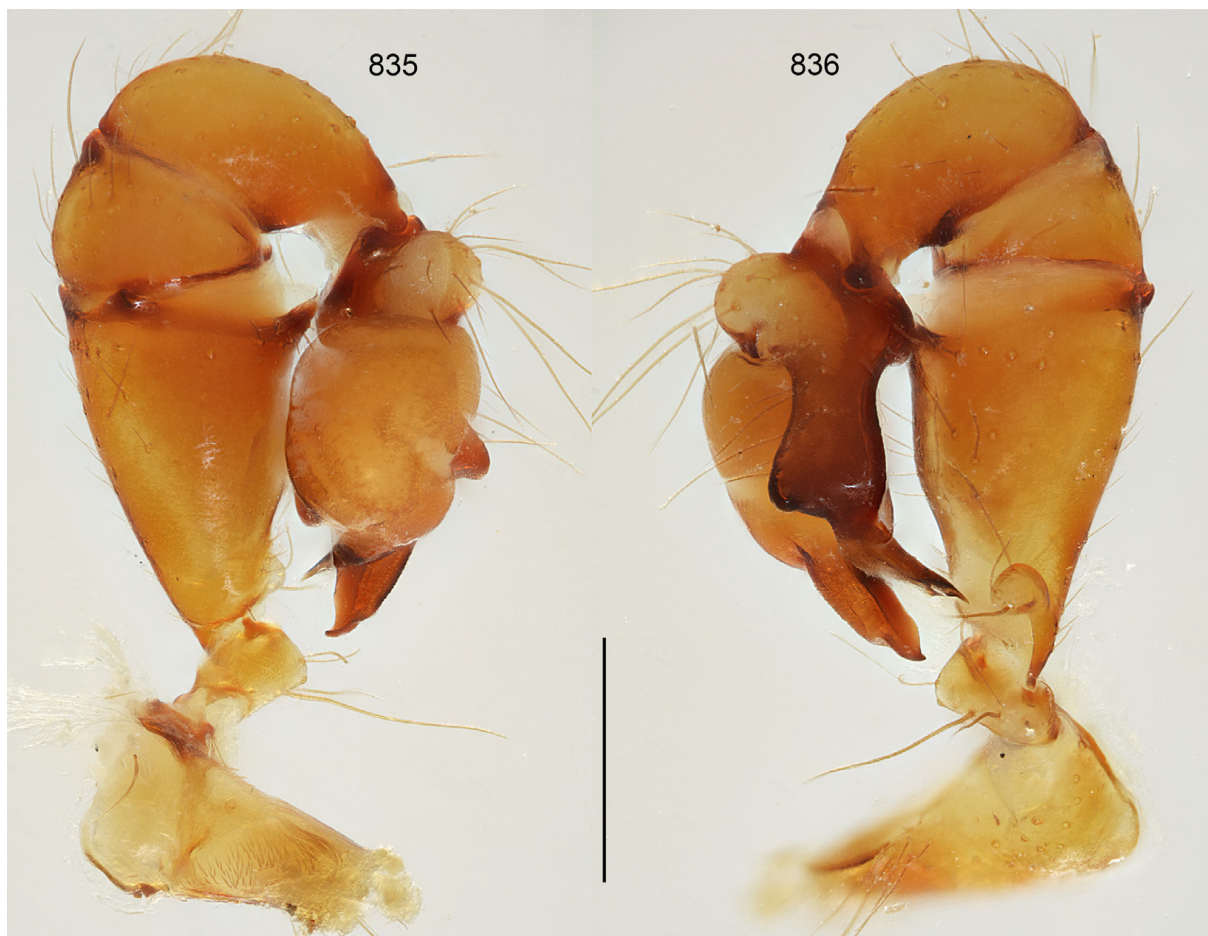
Distribution

Known from several localities in the Venezuelan state Mérida (Monte Zerpa, Mucuy, El Valle, between Tovar and Guaraque) (Fig. 1061). All localities are between 1650–2650 m a.s.l.

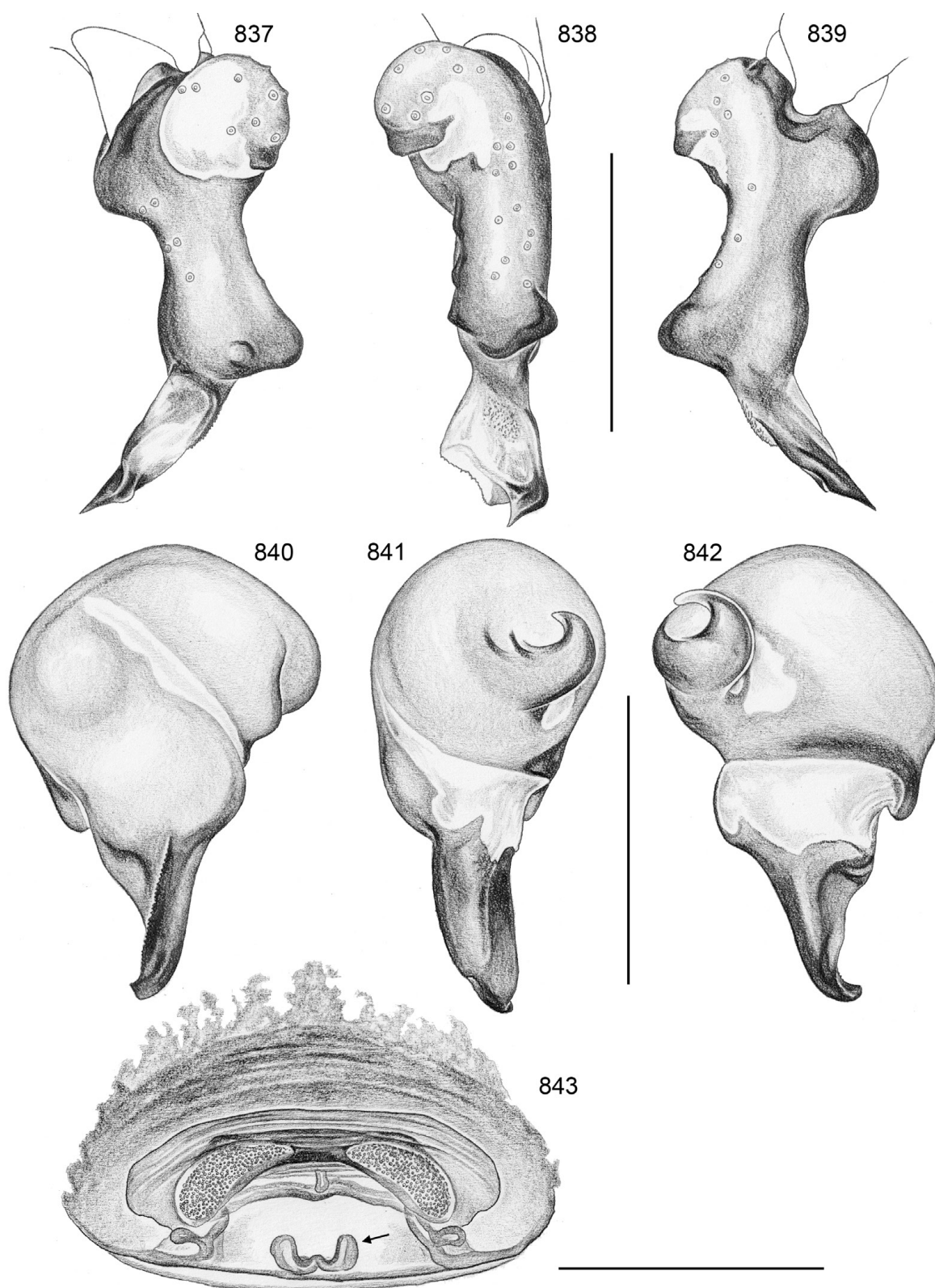
Natural history

In El Valle, the spiders were found in a well preserved humid forest, both in mosses growing on trees and rocks and directly on overhanging rocks. There was no obvious difference in microhabitat between males and females that might explain the strong sexual dimorphism in leg length (cf. *Litoporus iguassuensis*; Huber *et al.* 2013). The males from between Tovar and Guaraque were also found on a rock wall in a humid forest.

Egg sacs were relatively densely covered with silk (Fig. 830) and contained approximately 20–25 eggs each (N=2).



Figs 835–836. *Priscula ulai* González-Sponga, 1999; holotype from Mérida, Monte Zerpa (MIZA 105576; MAGS 1110); left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



Figs 837–843. *Priscula ulai* González-Sponga, 1999; from Mérida, El Valle (ZFMK Ar 22099). **837–839.** Left palpal tarsus and procursus, prolateral, dorsal, and retrolateral views. **840–842.** Left genital bulb, dorsal, retrolateral, and ventral views. **843.** Cleared female genitalia, dorsal view (arrow: distinctive tube-like membranous structure). Scale lines: 0.5 mm.

Priscula bolivari Huber sp. nov.

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Figs 831–832, 844–851, 864–867, 1061

Diagnosis

Distinguished from known congeners by shapes of procurus (Figs 844–846; wide proximal element, distal element apparently hinged, with distinctive sclerotized and membranous distal processes), genital bulb (Figs 848–850; strong distal apophysis bent towards ventral, with subdistal prolateral pointed process), and by long epigynal plate with distinct process in anterior part (Figs 864, 867).

Etymology

The species is named for Venezuelan military and political leader Simón Bolívar. Not having a single Venezuelan pholcid named for *El Libertador* would be inexcusable.

Type material

VENEZUELA – Mérida • ♂ holotype, ZFMK (Ar 22101), forest above Mesa Bolívar (8.467° N, 71.614° W), 1300 m a.s.l., 12 Feb. 2020 (B.A. Huber, O. Villarreal M., Q. Arias C.).

Other material examined

VENEZUELA – Mérida • 2 ♂♂, 6 ♀♀, ZFMK (Ar 22102–03), and 1 ♂, 2 ♀♀ in pure ethanol, ZFMK (Ven20-130), same collection data as for holotype.

Description

Male (holotype)

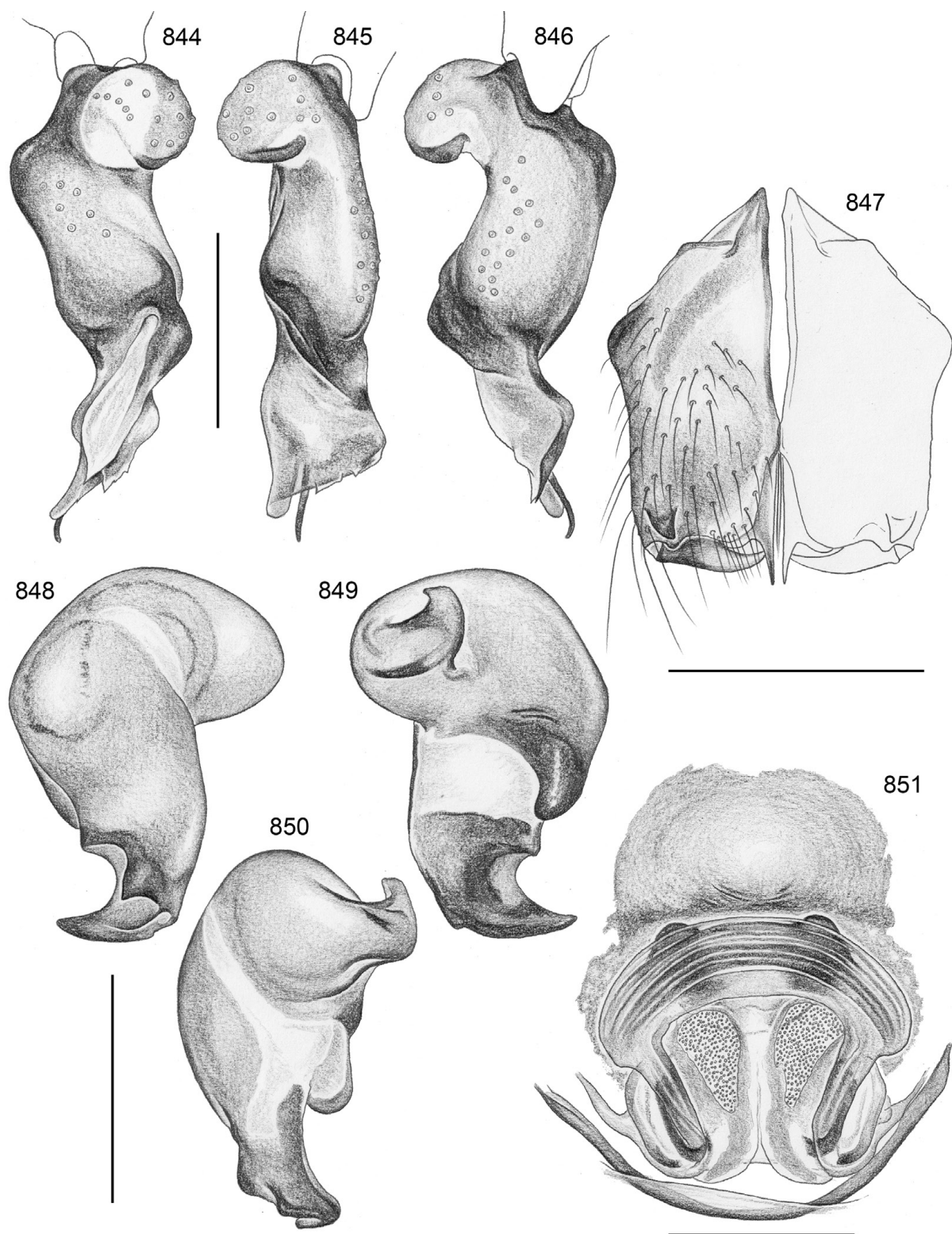
MEASUREMENTS. Total body length 3.6, carapace width 1.75. Distance PME–PME 150 µm; diameter PME 150 µm; distance PME–ALE 100 µm; diameter AME 35 µm; distance AME–AME 35 µm. ALE and PLE larger than PME (diameter ALE 250 µm). Leg 1: 36.6 (9.4+0.8+9.3+14.8+2.3), tibia 2: 6.3, tibia 3: 4.4, tibia 4: 5.8; tibia 1 L/d: 55.

COLOR (in ethanol). Carapace ochre-yellow with dark ochre lateral marginal bands, wide median mark, and radial marks; ocular area and clypeus brown to dark ochre; sternum dark ochre; legs ochre-yellow, with darker rings on femora subdistally, on tibiae proximally and subdistally, and on metatarsi proximally; abdomen ochre-gray, dorsally and laterally densely covered with small black marks and with small white marks arranged in lines and small groups; ventrally grey with dark ochre marks in gonopore area and in front of spinnerets; book lung covers light brown.

BODY. Habitus as in Fig. 831. Ocular area moderately raised, with small hump on posterior side. Deep thoracic groove. Clypeus slightly bulging and with sclerotized rim. Sternum wider than long (1.10/0.85), unmodified. Abdomen higher than long, dorso-posteriorly pointed.

CHELICERAE. As in Fig. 847, with short entapophyses, pair of small frontal apophyses, and pair of sclerotized lateral humps proximally; without stridulatory ridges; with pair of small whitish areas laterally, proximal of lateral humps.

PALPS. In general similar to *P. acarite* Huber sp. nov. (cf. Figs 877–879); coxa unmodified, trochanter with short conical ventral process, femur long, with retrolateral process proximally, distal ventral rim sclerotized and strongly protruding; patella ventrally reduced; retrolateral trichobothrium on tibia in very proximal position; procurus (Figs 844–846) with wide proximal element, distal element apparently hinged, with pair of distinctive distal processes; genital bulb (Figs 848–850) with small proximal sclerite



Figs 844–851. *Priscula bolivari* Huber sp. nov.; from Mérida, Mesa Bolívar (ZFMK Ar 22102–03). **844–846.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **847.** Male chelicerae, frontal view. **848–850.** Left genital bulb, prolateral, retrolateral, and dorsal views. **851.** Cleared female genitalia, dorsal view. Scale lines: 0.5 mm.

connecting to tarsus, strong distal main apophysis bent towards ventral, with subdistal prolateral pointed process; whitish area between strong retrolateral transversal sclerite and main apophysis.

LEGS. Without spines, with curved hairs on femora (distally), tibiae, and metatarsi; with more than usual short vertical hairs (but not in high density); retrolateral trichobothrium of tibia 1 at 6%; prolateral trichobothrium present on all leg tibiae; tarsi without distinct pseudosegments but rather with many small platelets.

Male (variation)

Tibia 1 in three other males 8.6, 9.6, 10.3.

Female

In general similar to male (Fig. 832) but clypeus rim not sclerotized, chelicerae laterally without sclerotized humps and whitish areas. Tibia 1 in seven females: 5.3–5.8 (mean 5.5). Epigynum (Figs 864, 867) with long main epigynal plate with distinct process in anterior part, with pair of dark internal structures visible in uncleared specimens; posterior epigynal plate short but wide. Internal genitalia (Figs 851, 865–866) with elongate pore-plates narrowing posteriorly.

Distribution

Known from type locality only, in Venezuela, Mérida (Fig. 1061).

Natural history

The spiders were found in holes in the ground near a stream in the forest. They built small domed webs and were usually hiding deep in the hole, often male and female together. At the same locality, *P. andinensis* González-Sponga, 1999 was found much higher above the ground.

Priscula salmeronica González-Sponga, 1999
Figs 833–834, 852–860, 868–870, 1060

Priscula salmeronica González-Sponga, 1999: 155, figs 56–65 (♂♀).

Notes

The MAGS collection has four vials with this species, all originating from Miranda state:

MAGS 1014 (MIZA 105589), containing the ♂ holotype and 2 ♀♀ paratypes (not separated into 1014a and 1014b), Miranda, Salmerón, 250 m a.s.l., 10 Jan. 1987 (A.R. Delgado de G., M.A. González-S.). According to the original publication, this is at 10.461° N, 66.379° W, which is at ~420 m a.s.l. The town of Salmerón is at 640 m a.s.l., but the valley between the two places lies below 300 m a.s.l., which is thus possibly the true collecting site (10.469° N, 66.376° W).

MAGS 1041 (MIZA 105591), with 1 ♂, with the same collection data as the holotype above but 12 Mar. 1987. This is possibly not a paratype since the date is not mentioned in the original publication.

MAGS 1166 (MIZA 105664), with 3 ♂♂, 5 ♀♀, 7 juvs paratypes, Miranda, El Ávila National Park, Quebrada Quintero [10.517° N, 66.852° W, ~1200 m a.s.l.], 19 Aug. 1989 (A.R. Delgado de G., E. González, M.A. González-S.).

MAGS 1006 (MIZA 105615), with 2 ♂♂, 1 ♀, 2 juvs; the collection card for this vial is lost, but it seems reasonable to assume that these are the paratypes from Miranda, Guatopo National Park [approximately 10.06° N, 66.46° W, ~400 m a.s.l.] mentioned in the original publication.

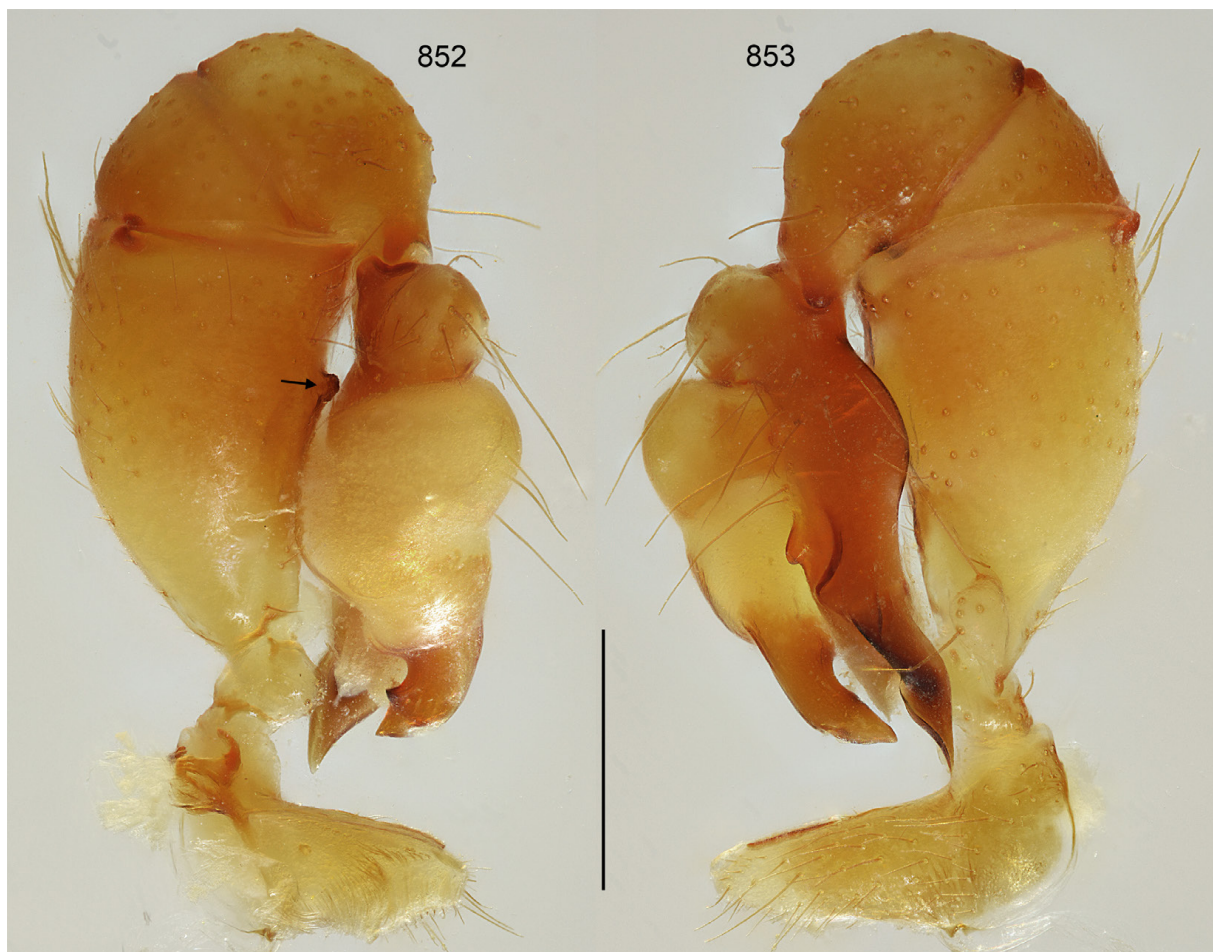
The three type vials together thus contain 6 ♂♂, 8 ♀♀, 9 juvs, which is very close to the numbers indicated in the original description (7 ♂♂, 9 ♀♀, 10 juvs).

Diagnosis

Distinguished from most known congeners (except *P. ulai* González-Sponga, 1999) by combination of small size (body length <4 mm) and absence of AME; also by distinctive shape of procurus (Figs 854–856; retrolateral ridge with shallow pocket, distally with ventral flat sclerite and dorsal membranous element), by bulbal apophysis with distinctive subdistal pointed process (arrow in Fig. 858), by male palpal femur with ventral apophysis (arrow in Fig. 852; similar but smaller than in *P. acarite* Huber sp. nov.), by epigynum about as long as wide, with angular line close to anterior border (Fig. 868), and by internal female genitalia with pair of dark lateral sclerites posteriorly and median sclerite between pore plates (Figs 857, 870).

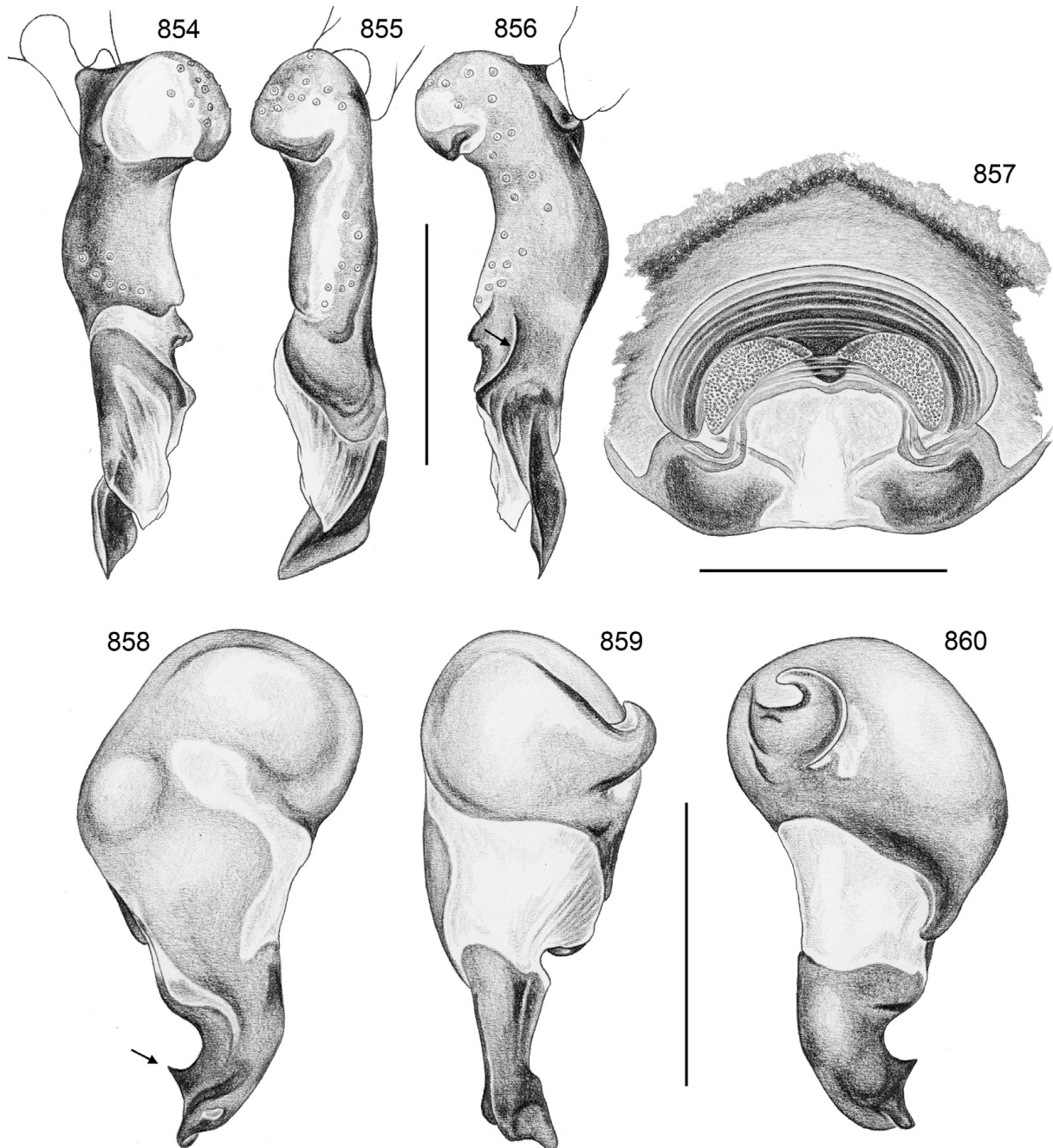
New records

VENEZUELA – **Miranda** • 1 ♀, ZFMK (Ar 22104), and 2 ♀♀, 2 juvs in pure ethanol, ZFMK (Ven20-181), El Ávila National Park, near La Julia, ‘site 1’ (10.5012° N, 66.8111° W), 960 m a.s.l., in decaying bamboo trunks, 23 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 1 ♂, 2 ♀♀, ZFMK (Ar

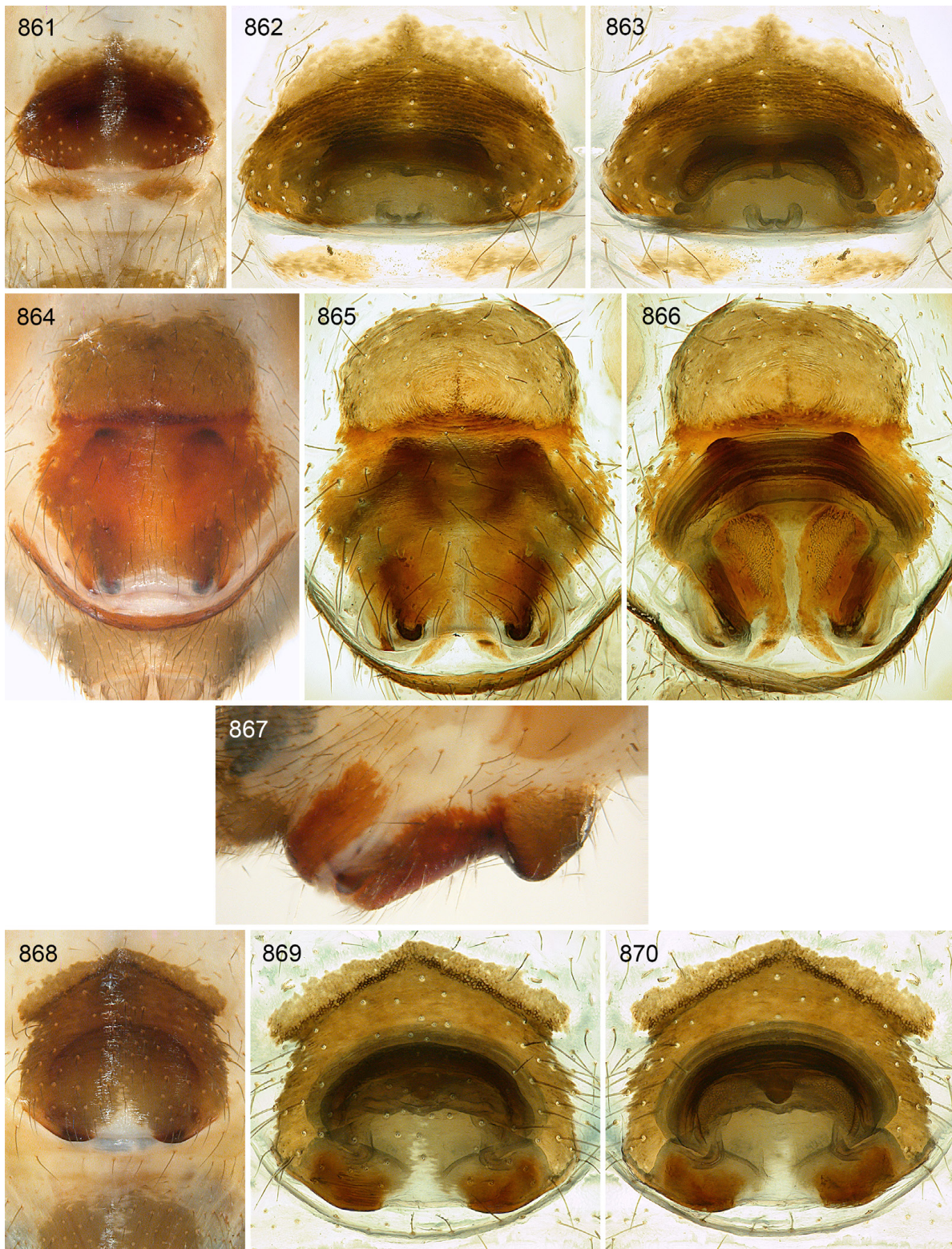


Figs 852–853. *Priscula salmeronica* González-Sponga, 1999; holotype from Miranda, Salmerón (MIZA 105589; MAGS 1014); left male pedipalp, prolateral and retrolateral views (arrow: ventral femur apophysis). Scale line: 0.5 mm.

22105), and 1 ♂, 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven20-166), El Limón, ‘site 1’ (10.4788° N, 67.3010° W), 600 m a.s.l., forest remnant along small stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – Aragua • 2 ♂♂, 4 ♀♀, ZFMK (Ar 22106), and 1 ♂, 3 ♀♀, 4 juvs in pure ethanol, ZFMK (Ven18-239, 245), between Maracay and Puerto Colombia (10.4304° N, 67.5998° W), 380 m a.s.l., 2 Dec. 2018 (B.A. Huber, O. Villarreal M.).



Figs 854–860. *Priscula salmeronica* González-Sponga, 1999; from Aragua, between Maracay and Puerto Colombia (ZFMK Ar 22106). **854–856.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: retrolateral ridge with shallow pocket). **857.** Cleared female genitalia, dorsal view. **858–860.** Left genital bulb, dorsal, retrolateral, and ventral views (arrow: subdistal prolateral process). Scale lines: 0.5 mm.



Figs 861–870. *Priscula* Simon, 1893; epigyna, ventral (and lateral) views and cleared female genitalia, ventral and dorsal views. **861–863.** *P. ulai* González-Sponga, 1999; from Mérida, El Valle (ZFMK Ar 22099). **864–867.** *P. bolivari* Huber sp. nov.; from Mérida, Mesa Bolívar (ZFMK Ar 22103). **868–870.** *P. salmeronica* González-Sponga, 1999; from Aragua, between Maracay and Puerto Colombia (ZFMK Ar 22106).

Redescription**Male** (ZFMK, Ar 22106)

MEASUREMENTS. Total body length 3.5, carapace width 1.7. Distance PME–PME 180 μm ; diameter PME 110 μm ; distance PME–ALE 110 μm ; AME absent. ALE and PLE larger than PME (diameter ALE 210 μm). Leg 1: 39.4 (9.8+0.7+9.6+17.5+1.8), tibia 2: 6.6, tibia 3: 4.5, tibia 4: 6.1; tibia 1 L/d: 66.

COLOR (in ethanol). Carapace ochre-yellow with dark mark medially and three pairs of radial marks, with pair of whitish marks beside ocular area; ocular area light brown with darker median and lateral bands, clypeus dark brown; sternum brown, with three pairs of small light spots near bases of coxae 2–4; legs ochre-yellow, with darker rings on femora subdistally, on tibiae proximally and subdistally, and on metatarsi proximally; abdomen dorsally and laterally densely covered with black and white spots, ventrally grey with large brown marks in gonopore area and in front of spinnerets.

BODY. Habitus as in Fig. 833. Ocular area distinctly raised, with hump on posterior side. Deep thoracic groove reaching posterior margin. Clypeus strongly protruding but otherwise unmodified. Sternum wider than long (0.95/0.75), unmodified. Abdomen higher than long, dorso-posteriorly pointed.

CHELICERAE. With pair of short apophyses near fang joints (cf. González-Sponga 1999: figs 59–60), without stridulatory ridges, with pair of distinct white areas laterally that are distally bordered by sclerotized rim.

PALPS. As in Figs 852–853; coxa unmodified, trochanter slightly protruding ventrally, femur long, with distinct retrolateral process proximally, distinctive sclerotized ventral process at $\sim\frac{2}{3}$ of length (arrow in Fig. 852), and sclerotized protruding ventral rim distally; patella ventrally reduced to strongly sclerotized narrow rim; tibia small relative to femur; procurus (Figs 854–856) with distinctive distal elements: retrolateral ridge with shallow pocket (arrow in Fig. 856), distally with ventral flat sclerite and dorsal membranous element; genital bulb (Figs 858–860) with small proximal sclerite connecting to tarsus, strong main apophysis with distinctive subdistal pointed process (arrow in Fig. 858), with large whitish area ventrally between strong proximal transversal sclerite and main apophysis.

LEGS. Without spines and curved hairs; few short vertical hairs; retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsi without distinct pseudosegments but rather with many small platelets.

Male (variation)

Tibia 1 in other newly collected males: 7.3, 8.0, 8.9. In male holotype (according to original description; not checked): 7.3.

Female

In general similar to male (Fig. 834), also with hump on posterior side of ocular area, also without curved hairs on legs. Some newly collected females with dark pigment in place of AME but never with lenses. Tibia 1 in 11 newly collected females: 4.0–5.4 (mean 4.7). In female paratype measured in original description (not checked): 4.3. Epigynum (Fig. 868) large dark brown plate, with dark angular line close to anterior border, posterior margin with whitish triangular area; internal large arc visible in uncleared specimens. Without posterior epigynal plate. Internal genitalia relatively small (compared to epigynal plate; Figs 857, 869–870), with pair of dark sclerites posteriorly and median sclerite between pore plates; pore plates semicircular.

Distribution

Known from several localities in the Venezuelan states Miranda, La Guaira, and Aragua (Fig. 1060). All localities are at about 250–1200 m a.s.l.

Natural history

The newly collected specimens from between Maracay and Puerto Colombia were found in a degraded forest close to the road, mostly on overhanging rocks, but also on the undersides of large live leaves and under large dead leaves on the ground. At El Limón, the spiders were collected in a small degraded forest remnant along a small stream. Adult specimens were found on rock walls, usually in small cavities or under trapped leaf litter; juveniles were also found in the vegetation and even on live leaves. In El Ávila National Park the spiders were found in a very dry habitat, hiding in decaying bamboo trunks on the ground [together with *Micropholcus evaluna* (Huber, Pérez González & Baptista, 2005)]. Two egg-sacs contained approximately 30–40 eggs each.

Priscula acarite Huber sp. nov.

urn:lsid:zoobank.org:act:633EF73A-111D-4F21-92EC-238E38F65C2E

Figs 871–873, 877–897, 1026, 1061

Diagnosis

Easily distinguished from known congeners by shapes of procurus (Figs 886–889; distal ventral spine proximally undulating, large prolateral membranous structure), genital bulb (Figs 892–897; distinctive shape of apophysis, with large whitish area on retrolateral-ventral side), and by female internal genitalia (Fig. 891; distinctive transversal sclerite in front of whitish triangular area; pore plates long and narrow, in vertical position). From most species also by ventral process on male palpal femur (Fig. 879; present but smaller in *P. salmeronica* González-Sponga, 1999).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Falcón** • ♂ holotype, ZFMK (Ar 22107), Sierra de San Luis, E Curimagua, Cuevas de Acarite (11.1737° N, 69.6280° W), 960 m a.s.l., 18 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Falcón** • 7 ♂♂, 9 ♀♀, ZFMK (Ar 22108–09), and 2 ♂♂, 1 ♀ in pure ethanol, ZFMK (Ven18-196), same collection data as for holotype, from same cave and from neighboring caves (11.1716° N, 69.6266°E, 970 m a.s.l.; 11.1706° N, 69.6296°E, 1040 m a.s.l.). – **Lara** • 3 ♂♂, and 1 ♀ abdomen, ZFMK (Ar 22110), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-197) (one abdomen transferred to ZFMK Ar 22110), between Coro and Barquisimeto, El Rodeo (10.7240° N, 69.3008° W), 400 m a.s.l., 19 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Description

Male (holotype)

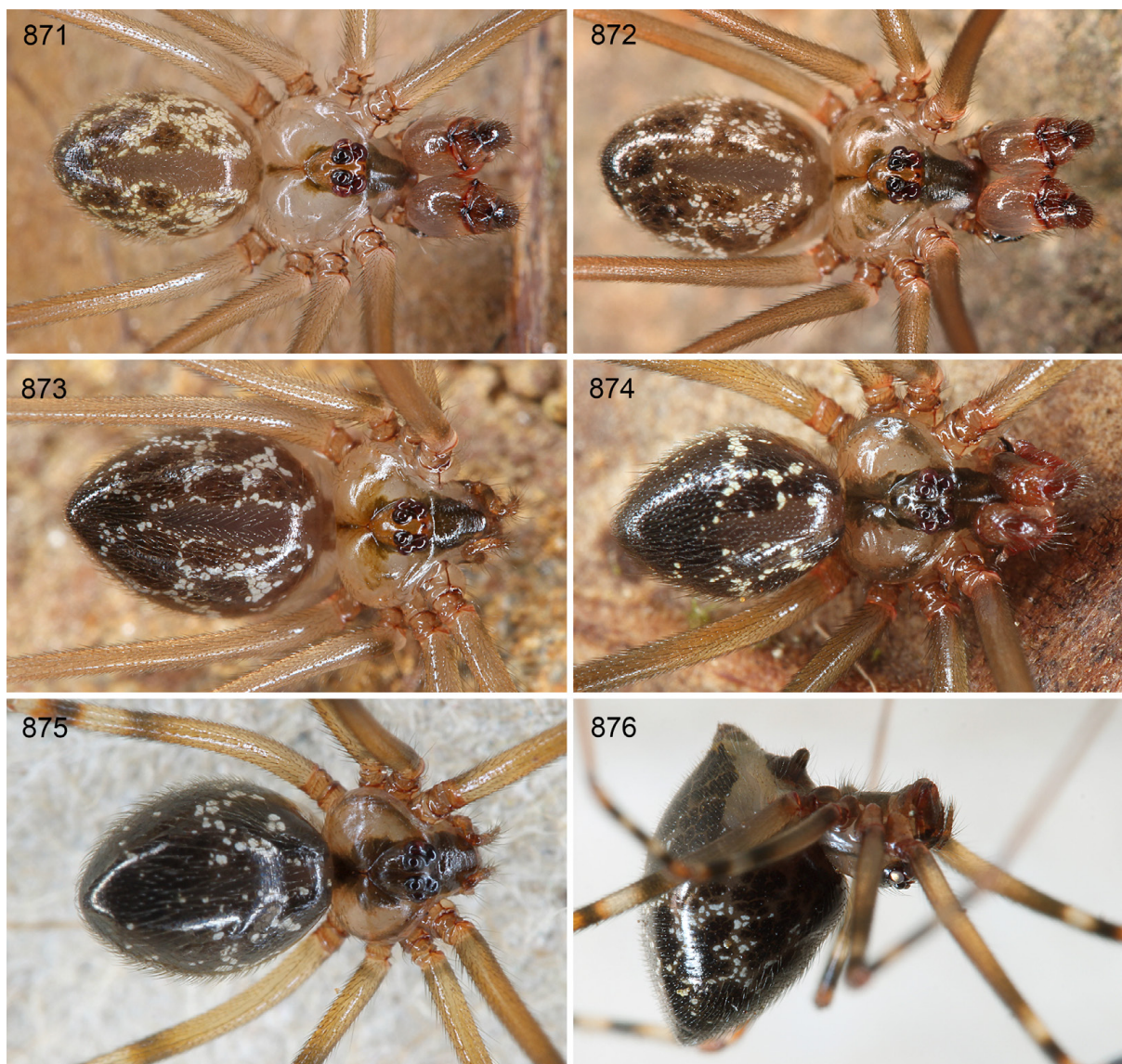
MEASUREMENTS. Total body length 4.9, carapace width 2.0. Distance PME–PME 220 µm; diameter PME 140 µm; distance PME–ALE 100 µm; diameter AME 25 µm; distance AME–AME 30 µm. ALE and PLE larger than PME (diameter ALE 220 µm). Leg 1: 43.9 (10.9+0.8+11.2+18.5+2.5), tibia 2: 8.1, tibia 3: 5.9, tibia 4: 7.5; tibia 1 L/d: 59.

COLOR (in ethanol). Carapace pale ochre with light brown radial marks, ocular area slightly orange, clypeus with large brown mark narrowing towards chelicerae; sternum ochre to light brown; legs ochre-yellow, with darker rings on femora subdistally and on tibiae proximally and subdistally; abdomen

ochre-gray, dorsally and laterally densely covered with large indistinct dark marks and many small distinct white marks; ventrally grey with darker ochre marks in gonopore area and in front of spinnerets.

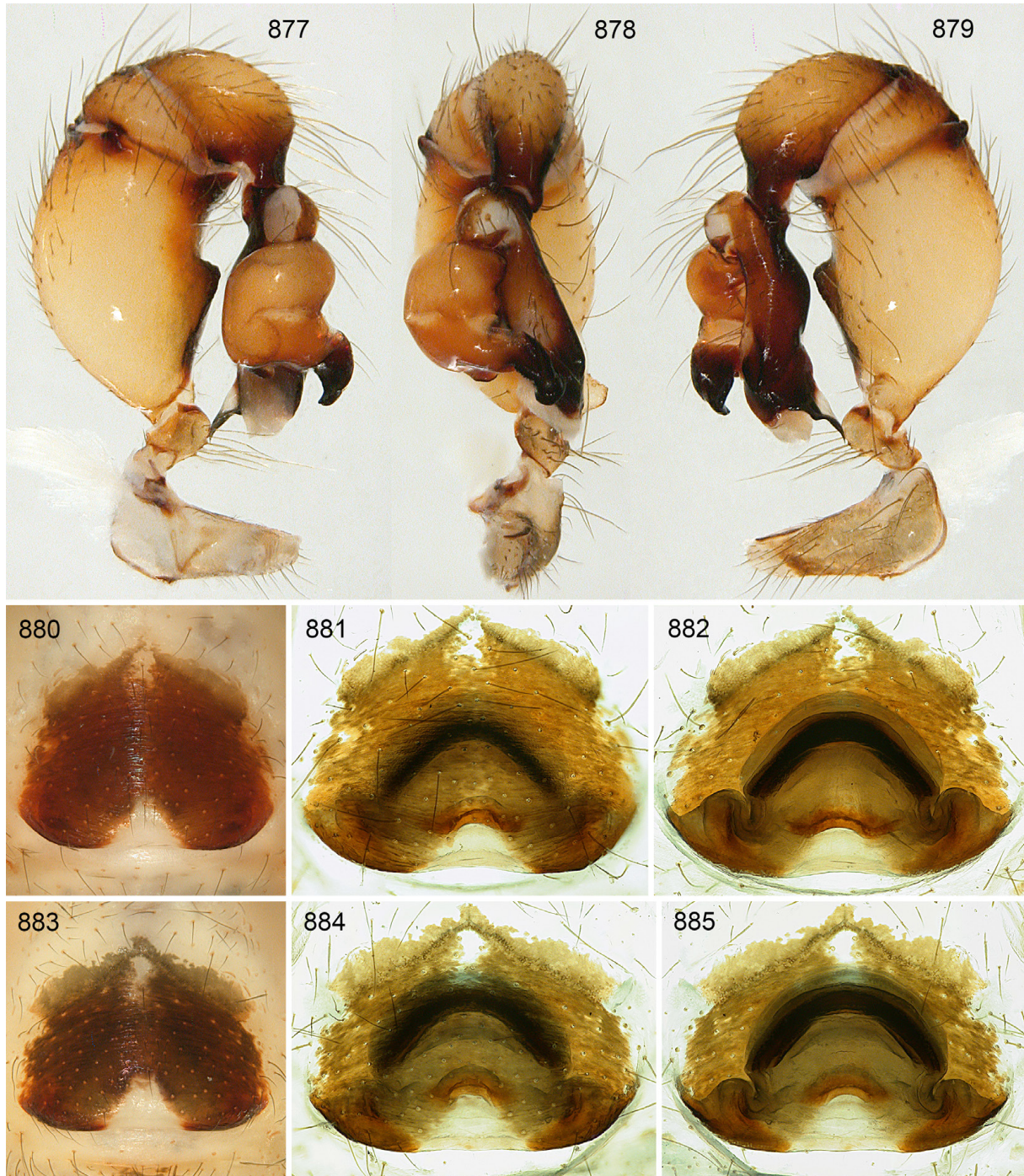
BODY. Habitus as in Fig. 871. Ocular area distinctly raised, with hump on posterior side. Deep thoracic groove. Clypeus strongly protruding, with brown mark at rim. Sternum wider than long (1.25/0.95), unmodified. Abdomen higher than long, dorso-posteriorly pointed.

CHELICERAE. As in Fig. 890, with short entapophyses, pair of short apophyses close to fang joints, without stridulatory ridges.



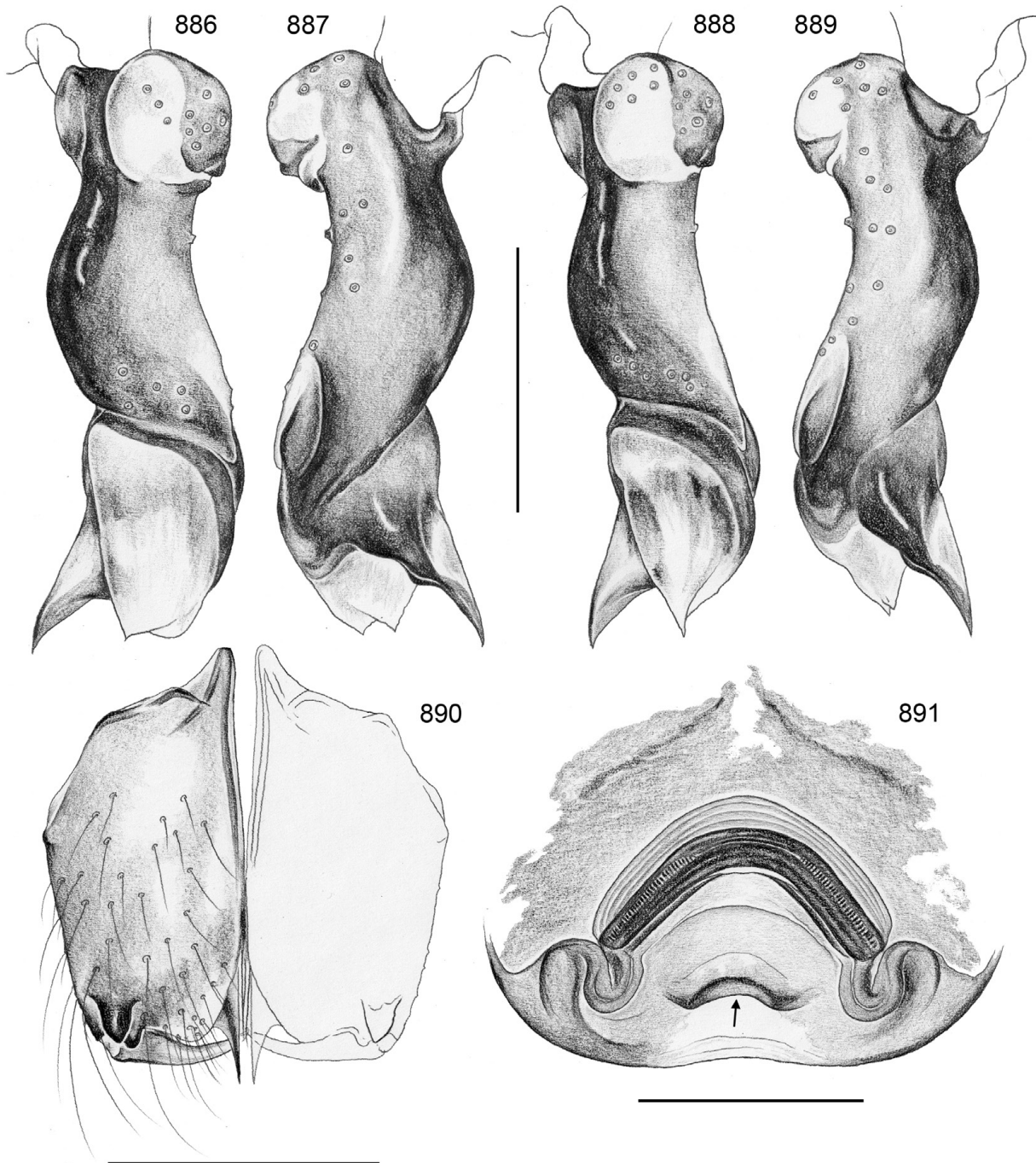
Figs 871–876. *Priscula* Simon, 1893; live specimens. **871–873.** *P. acarite* Huber sp. nov.; male from Falcón, Curimagua, and male and female from Lara, between Coro and Barquisimeto. **874.** *P. lagunosa* González-Sponga, 1999; male from Trujillo, Laguna Negra. **875–876.** *P. limonensis* González-Sponga, 1999; females from La Guaira, El Limón.

PALPS. As in Figs 877–879; coxa unmodified, trochanter slightly protruding ventrally, femur very large, with unsclerotized retrolateral process proximally, distinctive sclerotized ventral process at half length, and sclerotized protruding ventral rim distally; patella ventrally reduced to strongly sclerotized narrow



Figs 877–885. *Priscula acarite* Huber sp. nov. **877–879.** Left male pedipalp, prolateral, dorsal, and retrolateral views, male from Falcón, Curimagua (type locality; ZFMK Ar 22108). **880–885.** Epigyna, ventral views, and cleared female genitalia, ventral and dorsal views, females from Falcón, Curimagua (880–882; type locality; ZFMK Ar 22109) and from Lara, between Coro and Barquisimeto (883–885; ZFMK Ar 22110).

rim; tibia small relative to femur; procurus (Figs 886–887) with distinctive distal elements: ventral spine proximally undulating, retrolateral-dorsal sclerotized rim, and large prolateral membranous element; genital bulb (Figs 892–894) with small proximal sclerite connecting to tarsus, strong curved



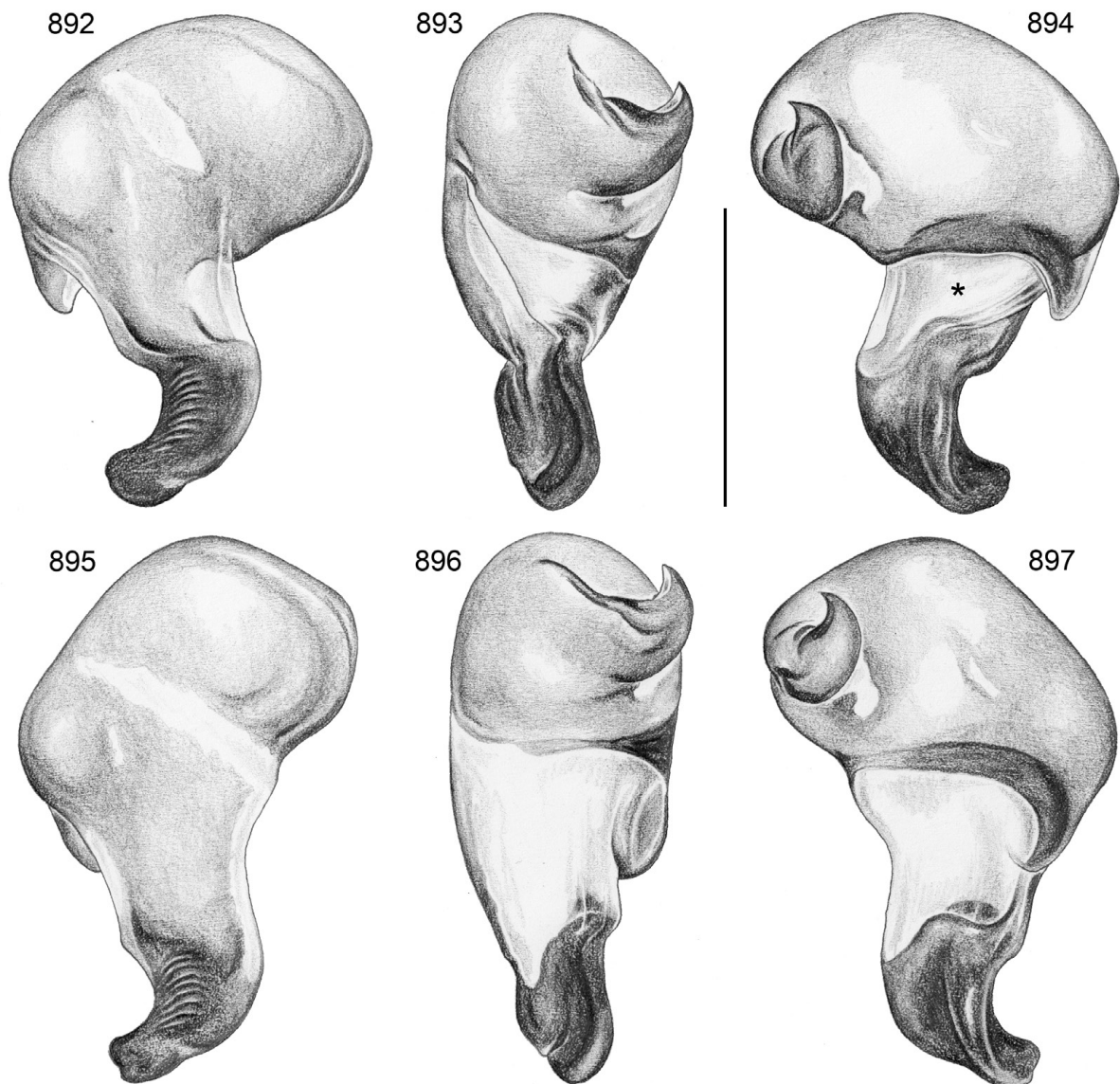
Figs 886–891. *Priscula acarite* Huber sp. nov. **886–889.** Left procurus, prolateral and retrolateral views, males from Falcón, Curimagua (886–887; type locality; ZFMK Ar 22108) and from Lara, between Coro and Barquisimeto (888–889; ZFMK Ar 22110). **890.** Male chelicerae, frontal view, male from Falcón, Curimagua (ZFMK Ar 22108). **891.** Cleared female genitalia, dorsal view, female from Falcón, Curimagua (ZFMK Ar 22109) (arrow: distinctive internal transversal sclerite). Scale lines: 0.5 mm.

main apophysis with strongly sclerotized transversal ridges on prolateral side, with large whitish area on retrolateral-ventral side.

LEGS. Without spines and curved hairs; with more than usual short vertical hairs (but not in high density); retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsi without distinct pseudosegments but rather with many small platelets.

Male (variation)

Tibia 1 in nine males from type locality (incl. holotype): 9.9–11.2 (mean 10.5); in three males from Lara: 8.7, 9.2, 9.5. Apart from being slightly smaller, males from Lara appear indistinguishable in all relevant



Figs 892–897. *Priscula acarite* Huber sp. nov.; genital bulbs in dorsal, retrolateral, and ventral views, males from Falcón, Curimagua (892–894; type locality; ZFMK Ar 22108) and from Lara, between Coro and Barquisimeto (895–897; ZFMK Ar 22110). Note that bulbal membrane (asterisk) in upper row is slightly collapsed. Scale line: 0.5 mm (all figures at same scale).

aspects (preliminary molecular data show an unusually deep split; J.J. Astrin, B.A. Huber, unpubl. data). Only dark mark ventrally in front of spinnerets apparently consistently larger in males from Lara, and AME slightly more reduced in males from Lara (one male with only one AME lens, two males with black spot but without AME lenses). Large whitish area on genital bulb (asterisk in Fig. 894) collapsed in some males (in two males only on one side), giving the bulb a very different appearance (compare Figs 892–894 and 895–897); this was observed both in males preserved in 80% ethanol and in males preserved in pure ethanol. One male from type locality with darker (brown) book-lung covers.

Female

In general similar to male (Fig. 873), clypeus rim without brown mark. Some females with pair of tiny AME, some with black spot but without AME lenses, one with only one AME lens. One female without black eye pigment. Tibia 1 in 12 females from type locality: 6.5–8.4 (mean 7.7); in two females from Lara: 5.7, 5.9. Epigynum (Figs 880, 883) large trapezoidal plate, posterior margin with whitish triangular area; internal large arc and smaller arc-shaped transversal sclerite in front of whitish area (arrow in Fig. 891) visible through cuticle. Without posterior epigynal plate. Internal genitalia (Figs 881–882, 884–885, 891) small relative to epigynum; simple partly sclerotized ‘valve’ connected laterally to thick but weakly sclerotized cuticular folds; pore plates long and narrow, in vertical position (above dark arc and thus barely visible in Fig. 891).

Distribution

Known from two localities in the Venezuelan states Falcón and Lara (Fig. 1061).

Natural history

At the type locality, the spiders were collected in cave entrances where they were resting in a flat position directly on the rock surface. In Lara, the spiders were found on large rocks along a small creek. They were resting on the rock surface and had domed sheet webs that appeared very small compared to the size of the spider.

Priscula lagunosa González-Sponga, 1999

Figs 874, 898–910, 916–919, 1061

Priscula lagunosa González-Sponga, 1999: 137, figs 20–28 (♂ only, see Notes below).

Priscula sp.1 – Bruvo-Madarić *et al.* 2005: 663 (molecular data, partly dubious, see Notes below).

Diagnosis

Easily distinguished from known congeners by shapes of procurus (Figs 900–901; finger-shaped dorsal process, retrolateral ridge, and strong distal spine embedded in membrane), genital bulb (Figs 905–907; distinctive shape of main apophysis, with large whitish area on retrolateral-ventral side), and by female external and internal genitalia (Figs 908–910, 916–919; distinctive median process on epigynal plate; smaller than in *P. limonensis* González-Sponga, 1999). From most species also by male chelicerae strongly protruding laterally (Fig. 902; shared by *P. paila* Huber sp. nov.).

Type material

VENEZUELA – Trujillo • ♂ holotype, 7 juvs paratypes, MIZA 105761 (MAGS 1382), near Boconó, near Laguna Negra (“alrededores de la Laguna Negra”) [approximately 9.305° N, 70.175° W], ~1850 m a.s.l., 28 Feb. 1993 (A.R. Delgado de G., M.A. González-S.), examined (see Notes below).

Other material examined

VENEZUELA – **Lara** • 9 ♂♂, 6 ♀♀, ZFMK (Ar 22112–13), and 2 ♀♀ in pure ethanol, ZFMK (Ven02/100-59), Yacambú National Park, Sendero Ecológico, at Cascada (9.710° N, 69.582° W), ~1580 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi). – **Trujillo** • 1 ♂, ZFMK (Ar 22111) (2 legs transferred to pure ethanol, ZFMK Ven18-214), from type locality, Laguna Negra (9.3054° N, 70.1752° W), 1870 m a.s.l., 21 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Notes

The type series was reexamined; it has the number 1382 (not 1383 as stated in the original description – 1383 is the number of the type series of *Queliceria discrepantis* González-Sponga, 2003). It contains 1 ♂, and 7 juveniles (not 1 ♂, 5 ♀♀, 3 juvs); thus, González-Sponga's (1999) description of the female and his figures 27–28 refer to juveniles. In the original description, the coordinates are wrong (~25 km W of Laguna Negra), and the altitude is ~150 m too high. Contrary to the original description, the male chelicerae have a pair of (tiny) frontal apophyses (Fig. 902).

The molecular data of “*Priscula* sp.1” in Bruvo-Madarić *et al.* (2005) (12S, 16S, and 28S) are partly dubious. The voucher specimen used in that study was reexamined (ZFMK, Ven02/100-59) and its identification as *P. lagunosa* is beyond doubt. Nevertheless, a confusion of sequences seems to have occurred. This was already noted by Astrin *et al.* (2007: 26) for the 28S sequence, which seems to originate from a species of *Mesabolivar* González-Sponga, 1998. The 12S tree in Bruvo-Madarić *et al.* (2005: fig. 3) places “*Priscula* sp.1” among *Mesabolivar*, suggesting that the 12S sequence is also from a species of *Mesabolivar*. The most similar 16S sequence in Genbank is from a *Priscula venezuelana* Simon, 1893 specimen from Rancho Grande (ZFMK, Ven02/100-28), suggesting that at least the 16S sequence might indeed originate from *P. lagunosa*.

Redescription of male (type locality; ZFMK Ar 22111)

MEASUREMENTS. Total body length 4.0, carapace width 2.0. Distance PME–PME 100 µm; diameter PME 120 µm; distance PME–ALE 150 µm; diameter ALE 25 µm; distance ALE–AME 30 µm. ALE and PLE larger than PME (diameter ALE 190 µm). Leg 1: 24.9 (6.6+0.8+6.5+9.5+1.5), tibia 2: 4.6, tibia 3: 3.2, tibia 4: 4.1; tibia 1 L/d: 31.

COLOR (in ethanol). Carapace pale ochre with darker marginal lateral bands and wide median band including ocular area, clypeus also with wide dark band; sternum ochre-yellow with indistinct darker marks; legs ochre-yellow, with darker rings on femora subdistally and on tibiae proximally and subdistally, with light rings on both sides of subdistal rings and on distal side of proximal dark rings on tibiae; abdomen ochre-gray, dorsally and laterally densely covered with small black marks, with small white marks arranged in lines and small groups; ventrally grey with large brown marks in gonopore area and in front of spinnerets.

BODY. Habitus as in Fig. 874. Ocular area distinctly raised, with small hump on posterior side. Deep thoracic groove. Clypeus unmodified. Sternum wider than long (1.25/0.85), with shallow invagination on posterior side. Abdomen higher than long, dorso-posteriorly pointed.

CHELICERAE. As in Fig. 902, with short entapophyses, strongly protruding laterally, with pair of tiny frontal apophyses, without stridulatory ridges.

PALPS. As in Figs 898–899; coxa unmodified (very low retrolateral hump), trochanter with short ventral process, femur large, with unsclerotized retrolateral process proximally, ventral distal rim slightly projecting; patella ventrally reduced to strongly sclerotized narrow rim; tibia small relative to femur,

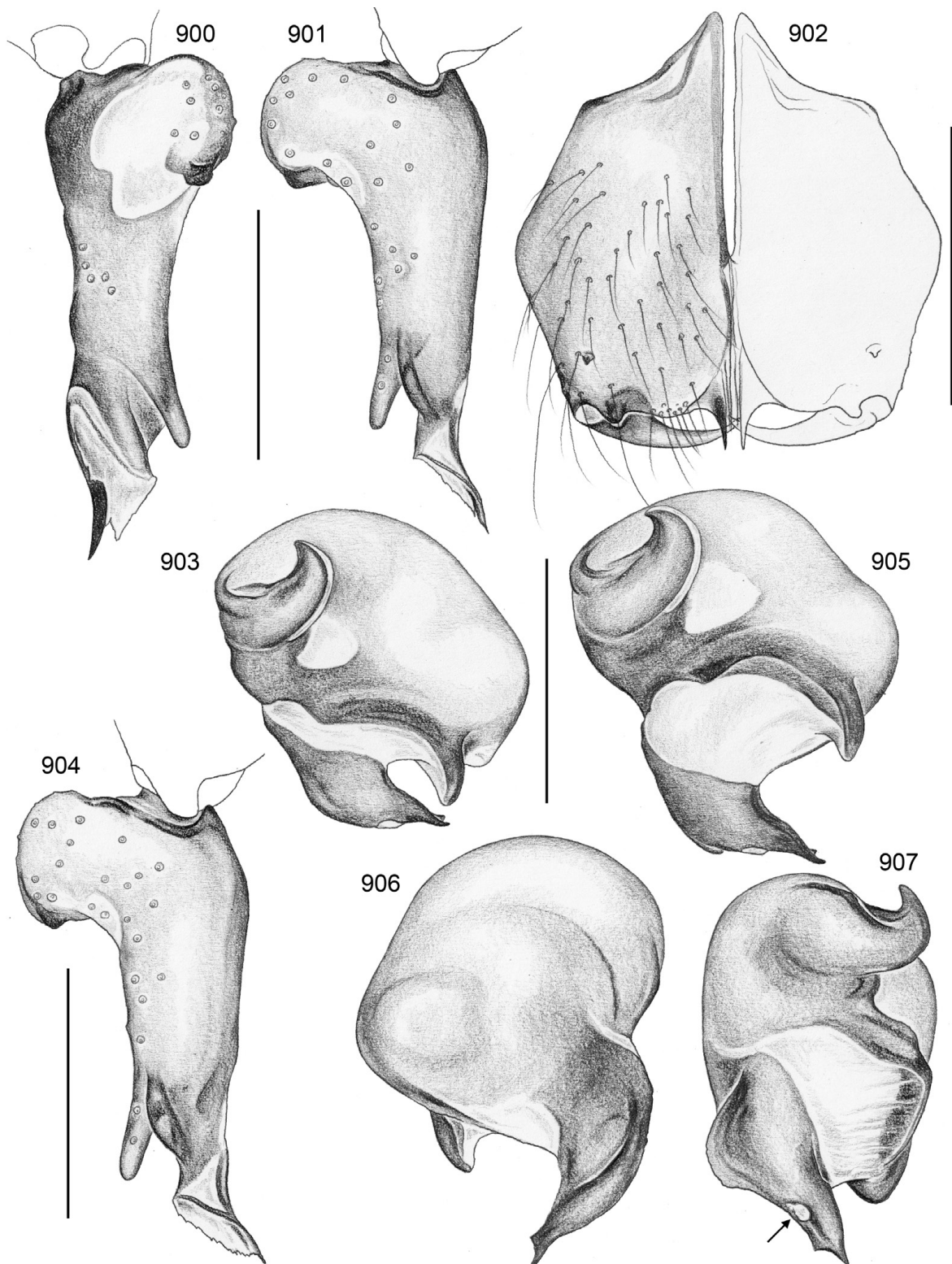
with both trichobothria in relatively proximal position; procurus (Figs 900–901) with distinctive distal elements: finger-shaped dorsal process, sclerotized retrolateral ridge, and black ventral spine embedded in membranous transparent cuticle; genital bulb (Fig. 903) with small proximal sclerite connecting to tarsus, strong main apophysis with bifid tip and sperm duct opening, transversal ventral sclerite ending on one side in small process, with large whitish area between transversal sclerite and main apophysis.

LEGS. Without spines; with weakly curved hairs on all legs (femora, tibiae, metatarsi); with more than usual short vertical hairs (but not in high density); retrolateral trichobothrium of tibia 1 at 7%; prolateral trichobothrium present on all leg tibiae; tarsi without distinct pseudosegments but rather with many small platelets.

VARIATION. Tibia 1 in seven males from Lara: 5.3–6.4 (mean 5.8); males from Lara appear indistinguishable in all relevant aspects (preliminary molecular data show an unusually deep split; J.J. Astrin, B.A. Huber, unpubl. data). Large whitish area on genital bulb collapsed in some males (compare Figs 903 and 905; cf. *Priscula acarite* Huber sp. nov.). AME sometimes in asymmetric position, at slightly varying distances.



Figs 898–899. *Priscula lagunosa* González-Sponga, 1999; holotype from Trujillo, Laguna Negra (MIZA 105761; MAGS 1382), left male pedipalp, prolateral and retrolateral views. Scale line: 0.5 mm.



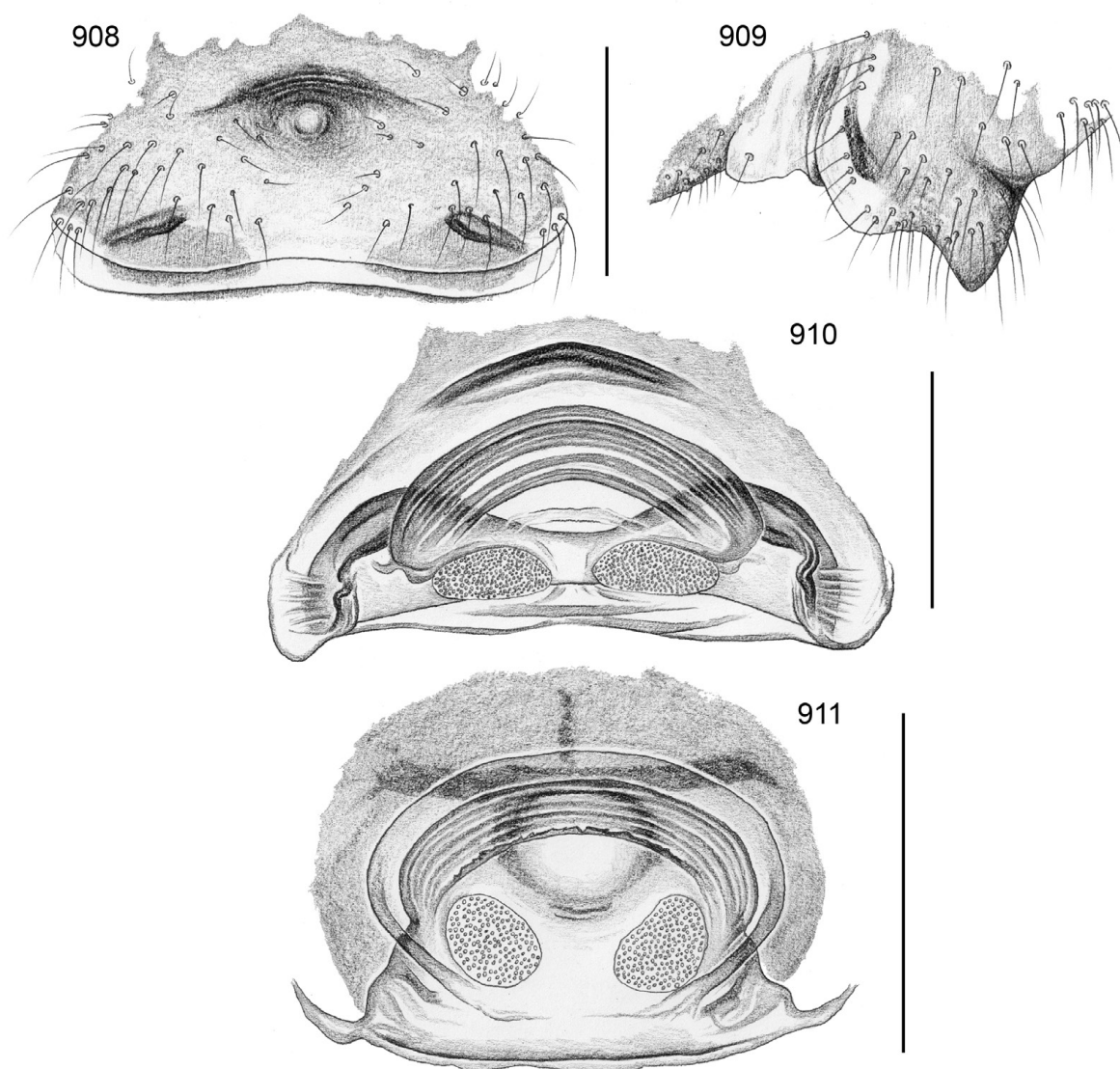
Figs 900–907. *Priscula lagunosa* González-Sponga, 1999. **900–903.** Left procurus, prolateral and retrolateral views, male chelicerae, frontal view, and left genital bulb, ventral view, male from Trujillo, Laguna Negra (type locality; ZFMK Ar 22111). **904–907.** Left procurus, retrolateral view, and left genital bulb, ventral, dorsal, and retrolateral views, male from Lara, Yacambú National Park (ZFMK Ar 22112) (arrow: sperm duct opening). Scale lines: 0.5 mm.

Description of female

In general similar to male, posterior invagination of sternum deeper. Tibia 1 in six females from Lara: 3.3–3.6 (mean 3.5). Epigynum (Figs 908–909, 916–917) large transversal plate with distinctive median process, posterior plate very narrow, barely visible. Internal genitalia (Figs 910, 918–919) with pair of lateral sclerites connected to heavily sclerotized transversal structures visible in uncleared specimens; simple ‘valve’ and pair of oval pore plates.

Distribution

Known from two localities in the Venezuelan states Trujillo and Lara (Fig. 1061).



Figs 908–911. *Priscula* Simon, 1893; epigynum, ventral and lateral views, and cleared female genitalia, dorsal views. **908–910.** *P. lagunosa* González-Sponga, 1999; from Lara, Yacambú National Park (ZFMK, Ar 22113). **911.** *P. limonensis* González-Sponga, 1999; from La Guaira, El Limón (type locality; ZFMK Ar 22114). Scale lines: 0.5 mm.

Natural history

The type specimens were collected under decaying logs on the ground (González-Sponga 1999). The single male newly collected at the type locality was found in a sheet web that transformed into a funnel leading to the resting place among dense plant-parts and detritus on a live tree-trunk (exactly the same microhabitat as the larger *Priscula andinensis* González-Sponga, 1999 at the same locality). In Yacambú, the spiders were found in crevices and under overhangs at a small waterfall.

Priscula limonensis González-Sponga, 1999
Figs 875–876, 911–915, 920–923, 1061

Priscula limonensis González-Sponga, 1999: 141, figs 29–37 (♂ only, see Notes below).

Notes

González-Sponga (1999) did not separate the male holotype from the other specimens, i.e., there is no MAGS 1214a and 1214b. In addition, the vial MAGS 1214 contains two males rather than just one, so it is not obvious which specimen is the holotype. Since there is no reasonable doubt that both males are conspecific, there is currently no need for selecting a lectotype and they are simply treated as types.

González-Sponga (1999: figs 36–37) obviously used a juvenile for his drawings of the ‘female’. The female has a highly distinctive rounded process on the epigynum (Figs 876, 915, 921) that reminds of *P. lagunosa* González-Sponga, 1999 (cf. Figs 909, 917) but is larger and rounder. Females of two further similar undescribed species are available in collections: The MIZA has two females of a species with similar epigynal process, but in that case the process is directed more towards the front (MIZA 105757, MAGS 1389, from Pico Codazzi); the ZFMK has a female with a similar but much lower epigynal process (ZFMK, Ven20-182, from El Ávila National Park, near La Julia, trail to Rancho Grande).

Type material

VENEZUELA – **La Guaira** • 2 ♂♂, 1 ♀, 6 juvs types (rather than 1 ♂, 6 ♀♀, 2 juvs), MIZA 105760 (MAGS 1214) Hacienda “El Limón”, carretera a Puerto Cruz [approximately 10.475° N, 67.283° W] (rather than 10.45° N, 67.25° W), 27 Oct. 1990 (A.R. Delgado de G., M.A. González-S.); examined.

New record

VENEZUELA – **La Guaira** • 1 ♀ abdomen (transferred from ZFMK, Ven20-175), ZFMK (Ar 22114), and 2 ♀♀ in pure ethanol, ZFMK (Ven20-175), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Description of female

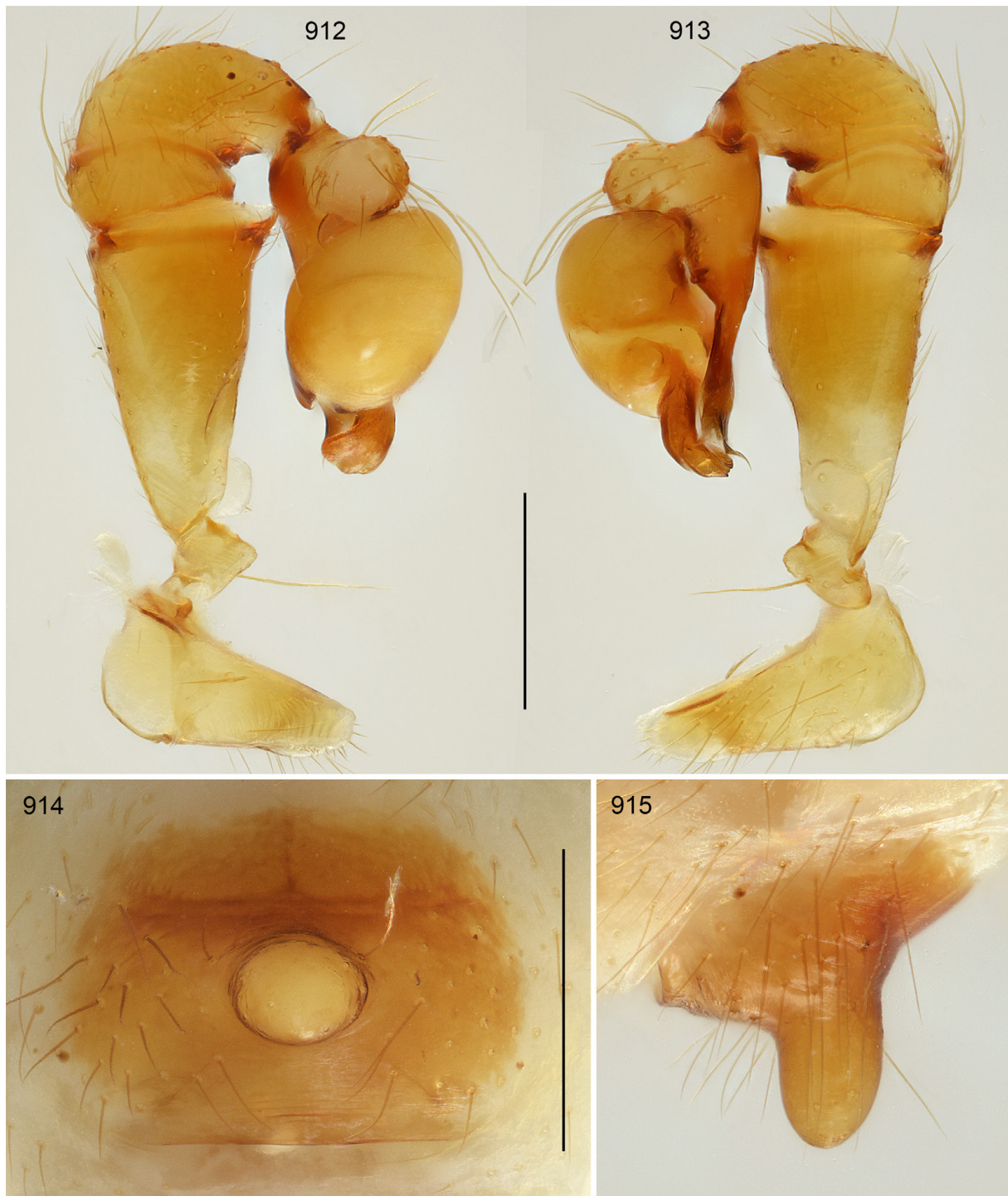
Habitus as in Figs 875–876. Carapace with dark median mark and lateral bands, without radial marks; sternum dark brown, medially slightly lighter. AME either tiny (diameter in paratype: 20 µm), or with dark pigment but without lenses (one of the newly collected females). Legs with dark rings on femora (incomplete ring proximally, complete rings at half-length and subdistally), on tibiae (proximally, at half length, and subdistally), and metatarsi (proximally). Tibia 1 in two newly collected females: 3.8, 4.2. Epigynum with distinctive rounded process (Figs 914–915, 920–921), with dark transversal band separating anterior hairless area from hairy rest of epigynal plate. Internal genitalia (newly collected female; Figs 911, 922–923), with pair of oval pore plates, simple evenly rounded anterior ‘valve’.

Distribution

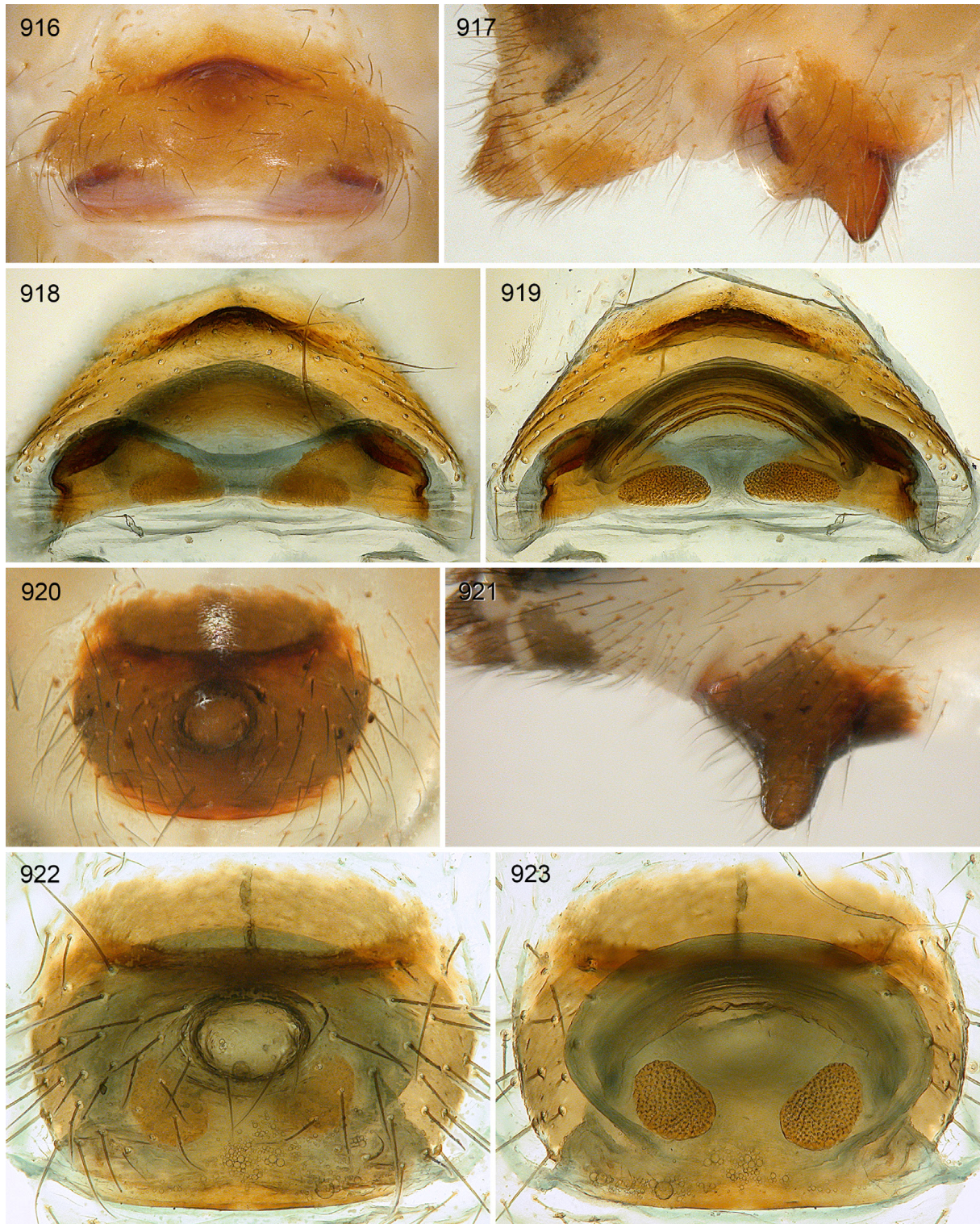
Known from El Limón area only, in Venezuela, La Guaira (Fig. 1061).

Natural history

The types were collected from overhanging road cuts composed of grasses, leaf litter and soil, in a secondary forest with coffee and banana plants (González-Sponga 1999). The newly collected specimens were found in small holes and cavities in the ground in a well preserved humid forest fragment.



Figs 912–915. *Priscula limonensis* González-Sponga, 1999; types from La Guaira, El Limón (MIZA 105760; MAGS 1214). **912–913.** Left male pedipalp, prolateral and retrolateral views. **914–915.** Epigynum, ventral and lateral views. Scale lines: 0.5 mm.



Figs 916–923. *Priscula* Simon, 1893; epigyna, ventral and lateral views, and cleared female genitalia, ventral and dorsal views. **916–919.** *P. lagunosa* González-Sponga, 1999; from Lara, Yacambú National Park (ZFMK, Ar 22113). **920–923.** *P. limonensis* González-Sponga, 1999; from La Guaira, El Limón (type locality; ZFMK Ar 22114).

Priscula paila Huber sp. nov.

urn:lsid:zoobank.org:act:6A90714E-64BE-4B7E-AF3F-449F6DA2D45D

Figs 924–938, 1062

Priscula sp. – Astrin *et al.* 2006: 445 (molecular data).

Priscula sp.1 – Astrin *et al.* 2007: 21 (molecular data).

Priscula Ven02/80-85 – Eberle *et al.* 2018 (molecular data). — Huber *et al.* 2018: 59.

Diagnosis

Distinguished from known congeners by shapes of procurus (Figs 931–933; distally in lateral view slender and curved towards ventral, with distinctive prolateral pointed process), genital bulb (Figs 934–936; distinctive shape of main process, slightly spiraling and pointed), and by large epigynum with distinct transversal dark band separating anterior third from rest of plate (Fig. 927).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Monagas** • ♂ holotype, ZFMK (Ar 22115), along trail from Cueva del Guácharo to Salto la Paila (10.175° N, 63.558° W), ~1100 m a.s.l., 30 Nov. 2002 (B.A. Huber).

Other material examined

VENEZUELA – **Monagas** • 5 ♂♂, 11 ♀♀, 2 juvs, ZFMK (Ar 22116–17), and 1 ♂, 6 ♀♀ in pure ethanol, ZFMK (Ven02/100-24), same collection data as for holotype. – **Sucre** • 1 ♂, ZFMK (Ar 22118), Cascada el Chorro (10.392° N, 63.633° W), ~160 m a.s.l., near ground at river, 30 Nov. 2002 (B.A. Huber).

Description

Male (holotype)

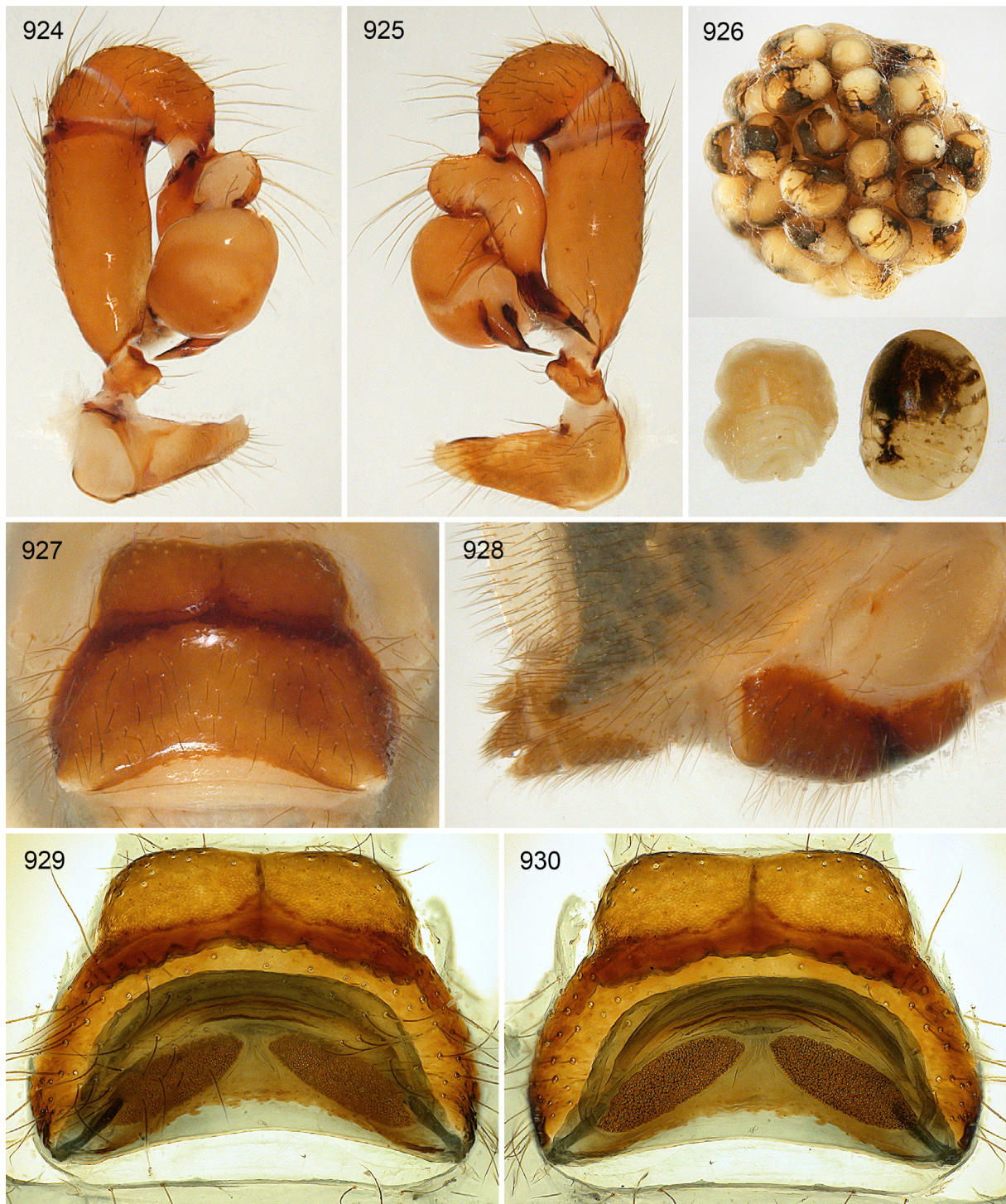
MEASUREMENTS. Total body length 4.1, carapace width 1.9. Distance PME–PME 160 µm; diameter PME 150 µm; distance PME–ALE 160 µm; diameter AME 30 µm; distance AME–AME 30 µm. ALE and PLE larger than PME (diameter ALE 220 µm). Leg 1: 33.4 (8.7+0.8+8.6+13.5+1.8), tibia 2: 6.3, tibia 3: 4.3, tibia 4: 5.7; tibia 1 L/d: 48.

COLOR (in ethanol). Carapace ochre-yellow with brown lateral marginal bands and wide median mark including ocular area, clypeus with large brown mark narrowing towards chelicerae; sternum light brown with slightly lighter and darker marks near bases of anterior coxae; legs ochre-yellow to light brown, with darker rings on femora subdistally and on tibiae proximally and subdistally; abdomen ochre-gray, dorsally and laterally densely covered with small black marks, with small white marks arranged in lines and small groups; ventrally grey with large brown marks in gonopore area and in front of spinnerets.

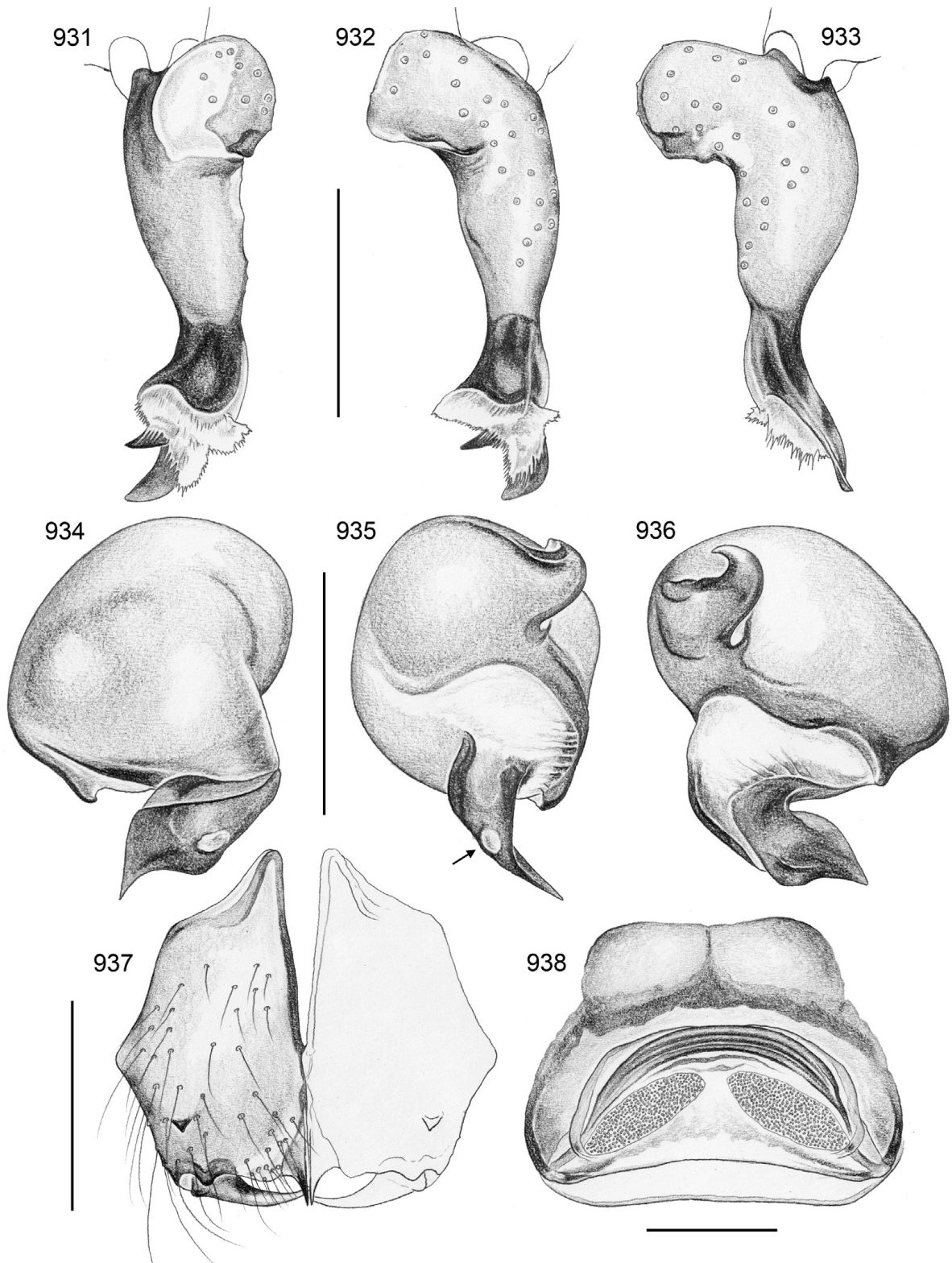
BODY. Habitus similar to *P. lagunosa* González-Sponga, 1999 (cf. Fig. 874). Ocular area moderately raised, with small hump on posterior side. Deep thoracic groove. Clypeus unmodified. Sternum wider than long (1.15/0.90), unmodified. Abdomen higher than long, dorso-posteriorly pointed.

CHELICERAE. As in Fig. 937, with short entapophyses, strong lateral projections, and pair of small frontal apophyses; without stridulatory ridges.

PALPS. As in Figs 924–925; coxa unmodified, trochanter with short ventral process, femur very long, with small unsclerotized retrolateral process proximally, distally on ventral side strongly sclerotized



Figs 924–930. *Priscula paila* Huber sp. nov.; from Monagas, near Cueva del Guácharo (type locality; ZFMK Ar 22116–17). **924–925.** Left male pedipalp, prolateral and retrolateral views. **926.** Parasitized egg sac and two separated eggs; left egg non-parasitized, showing developing spiderling; right egg parasitized, showing early instar insect larva. **927–928.** Epigynum, ventral and lateral views. **929–930.** Cleared female genitalia, ventral and dorsal views.



Figs 931–938. *Priscula paila* Huber sp. nov.; from Monagas, near Cueva del Guácharo (type locality; ZFMK Ar 22116–17). **931–933.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **934–936.** Left genital bulb, dorsal, retrolateral, and ventral views (arrow: sperm duct opening). **937.** Male chelicerae, frontal view. **938.** Cleared female genitalia, dorsal view. Scale lines: 0.5 mm.

and slightly protruding; patella ventrally reduced to narrow rim; tibia short relative to femur; procurus (Figs 931–933) with distinctive distal elements: flat ventral process, heavily sclerotized prolateral pointed process, and extensive fringed membranous structures; genital bulb (Figs 934–936) with small proximal sclerite connecting to tarsus, main apophysis slightly spiraling, flat and pointed, with sperm duct opening on retrolateral-dorsal side (arrow in Fig. 935), with strongly sclerotized transversal ridge on ventral side and whitish area between transversal ridge and main apophysis.

LEGS. Without spines, with curved hairs mainly on tibiae and metatarsi 1–3, few distally on femora 1–3 and on tibiae 4; with more than usual short vertical hairs (but not in high density); retrolateral trichobothrium of tibia 1 at 6%; prolateral trichobothrium present on all leg tibiae; tarsi without distinct pseudosegments but rather with many small platelets.

Male (variation)

Tibia 1 in seven males (incl. holotype): 7.0–8.6 (mean 8.1). Some males with additional indistinct dark rings at about half length of femora and tibiae.

Female

In general similar to male. Tibia 1 in 11 females: 4.6–5.4 (mean 5.0). Epigynum (Figs 927–928) very large relative to abdomen, with distinct transversal dark band separating anterior third from rest of plate; lateral posterior corners whitish and slightly protruding. Without posterior epigynal plate. Internal genitalia (Figs 929–930, 938) simple, with pair of oval pore plates converging anteriorly.

Distribution

Known from two localities in the Venezuelan states Monagas and Sucre (Fig. 1062).

Natural history

The spiders were found in a humid forest, where they built their small webs in cavities of the ground and in rock crevices. At Cascada el Chorro the male was found close to the stream, in a small cavity. Three egg-sacs contained about 30–50 eggs each. In one of them, 48 of the 49 eggs were parasitized (presumably by a wasp; Fig. 926); the only non-parasitized egg was one in the center of the egg-sac.

Priscula venezuelana Simon, 1893

Figs 939–942, 945–966, 1021–1022, 1062

Priscula venezuelana Simon, 1893b: 477–478, fig. 466.

Priscula ranchograndensis González-Sponga, 1999: 150, figs 47–55. Synonymized in Huber 2000: 136.

Priscula venezuelana – Huber 1997d: 601, figs 20a–b, 21a–d; 2000: 136, figs 527–529. — González-Sponga 1999: 164, figs 76–85.

Physocyclus venezuelanus – Brignoli 1981: 96.

Notes

In a previous redescription of the species (Huber 2000), González-Sponga's (1999) "*Priscula venezuelana*" was considered "probably misidentified". This was based on the observation that his "*Priscula ranchograndensis*" was a synonym of 'true' *P. venezuelana*, and on the assumption that he would not describe the same species under two names in a single publication. However, our reexamination of González-Sponga's specimens revealed that the two 'species' in his publication are indeed the same, i.e., his *Priscula venezuelana* was correctly identified.

González-Sponga (1999) reported *P. venezuelana* (under this name) from two localities: “Alto de Ño León, carretera El Junquito-Colonia Tovar” [10.432° N, 67.166° W, ~2060 m a.s.l., i.e., ~6 km W of the coordinates indicated in the original publication], 2 ♀♀, 2 juvs, MIZA 105681 (MAGS 849), collected 14 Nov. 1981; and “San Antonio de los Altos” [approximately 10.37° N, 66.97° W, ~1400 m a.s.l.], 1 ♂, MIZA 105701 (MAGS 230), collected 16 May 1981.

Type material

Priscula venezuelana: ♂ lectotype, 3 ♀♀ paralectotypes and 9 juvs, MNHN (10923), from two localities: Capital, Caracas [approximately 10.5° N, 66.9° W] and Aragua, Colonia Tovar [approximately 10.41° N, 67.29° W]; collected by E. Simon in 1888. For a redescription of this material, see Huber (1997d).

Priscula ranchograndensis: ♂ holotype, 2 ♀♀ paratypes, MIZA 105789 (MAGS 1054), Aragua, Henri Pittier National Park, Estación Biológica [= Rancho Grande, 10.350° N, 67.684° W] (the coordinates in the original publication are about 4 km SW of the biological station building), 29 Mar. 1987 (C. Avila); examined.

New records

VENEZUELA – **Aragua** • 1 ♂, 1 juv., ZFMK (Ar 22119), and 4 juvs in pure ethanol, ZFMK (Ven18-153), Colonia Tovar, forest above town (10.4144° N, 67.3005° W), 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♀ in pure ethanol, ZFMK (Ven02/100-9), same locality, 26 Nov. 2002 (B.A. Huber). 7 juvs in pure ethanol (identity confirmed by CO1), ZFMK (Ven02/100-44), Colonia Tovar, forest at Cerro Picacho (10.408° N, 67.308° W), ~2200 m a.s.l., 27 Nov. 2002 (B.A. Huber) • 2 ♂♂, 9 ♀♀, ZFMK (Ar 22120), and 1 ♂, 3 ♀♀ in pure ethanol, ZFMK (Ven02/100-28, 29, 30), Henri Pittier National Park, Rancho Grande (10.350° N, 67.684° W), ~1150 m a.s.l., in building, 12 Dec. 2002 (B.A. Huber) • 1 ♀, ZFMK (Ar 22121), and 1 juv. in pure ethanol, ZFMK (Ven20-163), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Lara** • 1 ♂, ZFMK (Ar 22125), Yacambú National Park (9.707° N, 69.577° W), ~1550 m a.s.l., at building, 15–16 Dec. 2002 (B.A. Huber, A. Giupponi) • 2 ♂♂, 1 ♀, ZFMK (Ar 22126), Yacambú National Park, Sendero Ecológico (9.709° N, 69.578–69.582° W), ~1550 m a.s.l., 15–16 Dec. 2002 (B.A. Huber, A. Pérez González, O. Villarreal M., B. Striffler, A. Giupponi). – **La Guaira** • 1 ♂, 2 ♀♀, ZFMK (Ar 22122), and 5 juvs in pure ethanol, ZFMK (Ven18-160), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), mostly on banana plants in forest clearing, 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 1 ♂, 1 ♀, ZFMK (Ar 22123), and 1 ♀, 1 juv. in pure ethanol, ZFMK (Ven20-170), El Limón, ‘site 2’ (10.4774° N, 67.2819° W), 1235 m a.s.l., forest along stream, 21 Feb. 2020 (B.A. Huber, O. Villarreal M.). – **Miranda** • 1 ♂, 1 ♀ abdomen (♀ abdomen transferred from ZFMK, Ven18-147), ZFMK (Ar 22124), and 1 ♀, 3 juvs in pure ethanol, ZFMK (Ven18-147, 148) (♀ abdomen transferred to ZFMK, Ar 22124), El Ávila National Park, between Sabas Nieves and La Silla (10.5245° N, 66.8566° W), 1600 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 4 ♂♂, 2 ♀♀, MIZA, El Volcán, Topotepuy [10.417° N, 66.851° W, ~1450 m a.s.l.], 11–13 Nov. 2019 (O. Villarreal, J. Rodriguez).

Dubious record

VENEZUELA – **Amazonas** • 1 ♂, MIZA 1840, Cerro Yari (5.717° N, 65.900° W), 2200 m a.s.l., 23–28 Feb. 1995 (I.L. García).

Redescription (amendments; see Huber 1997d; González-Sponga 1999; Huber 2000)

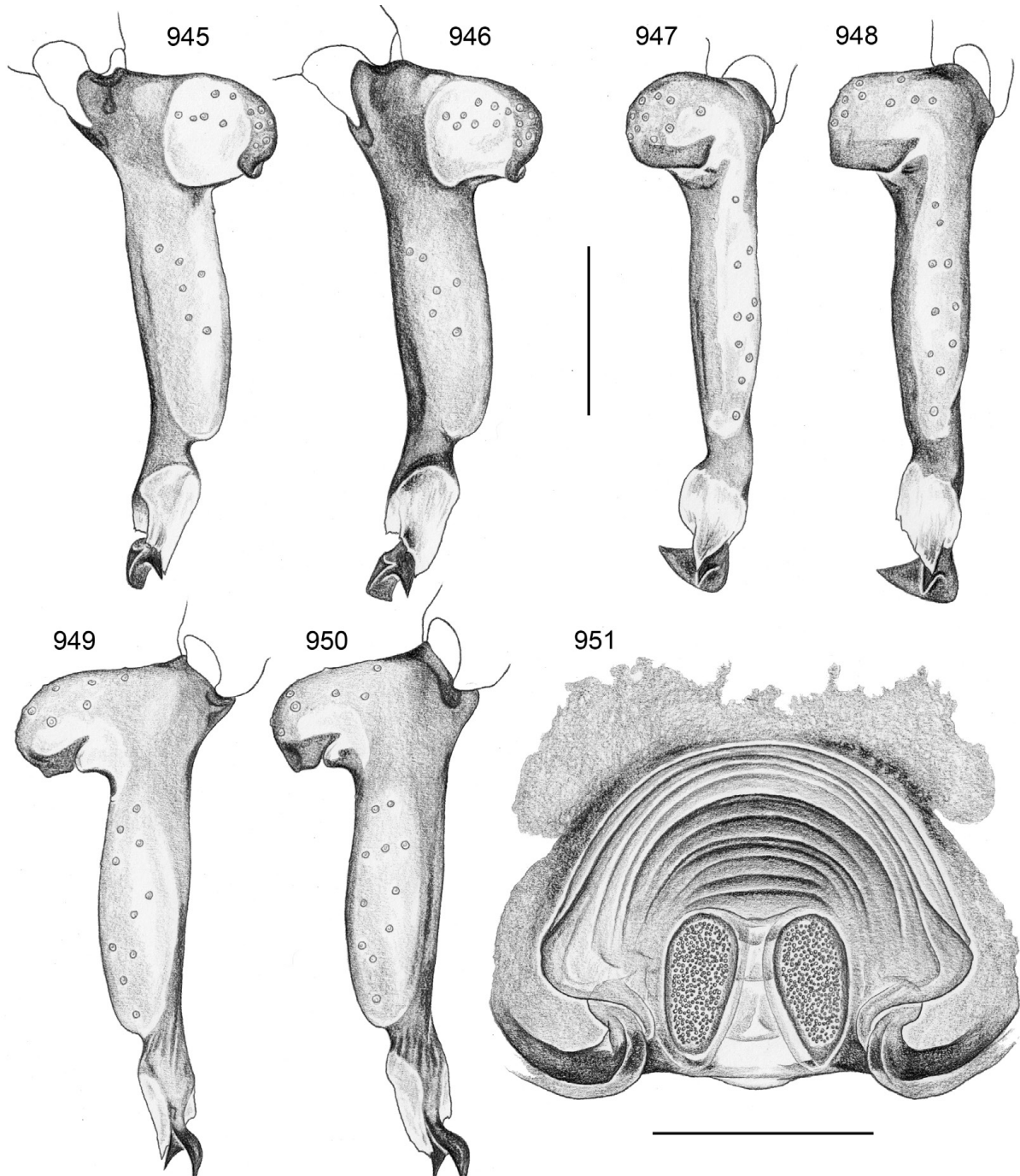
Eye measurements in male from El Ávila National Park: distance PME–PME 260 µm; diameter PME 200 µm; distance PME–ALE 180 µm; diameter AME 60 µm; distance AME–AME 60 µm. ALE and PLE larger than PME (diameter ALE 300 µm). Male ocular area without or with very low hump on posterior

side. Thoracic furrow deep, reaching posterior carapace margin. Male (but not female) chelicerae with pair of distinct white areas laterally, bordered distally by sclerotized rim. Posterior margin of sternum in males and females straight (also in specimens from Rancho Grande, contra González-Sponga 1999: fig. 48). Femur-patella joints in male palp dorsally, i.e., not shifted towards one or the other side. Ventral distal margin of palpal femur sclerotized but barely protruding. Procursus (Figs 945–950) with distinctive bifid apophysis distally, dorsal part pointed and conical, ventral part flat and directed toward prolateral. Genital bulb (Figs 952–957) with small proximal sclerite connecting to tarsus, strong apophysis slightly spiraling, with large whitish area ventrally between strong proximal transversal sclerite and main



Figs 939–944. *Priscula* Simon, 1893; live specimens. **939–942.** *P. venezuelana* Simon, 1893; dark male from Miranda, El Ávila National Park; light male, female and penultimate instar male from La Guaira, El Limón. **943–944.** *Priscula* sp. indet., juveniles from Trujillo, Laguna Negra (ZFMK Ven18-208) and from Mérida, between Mérida and Barinas (ZFMK Ven18-237).

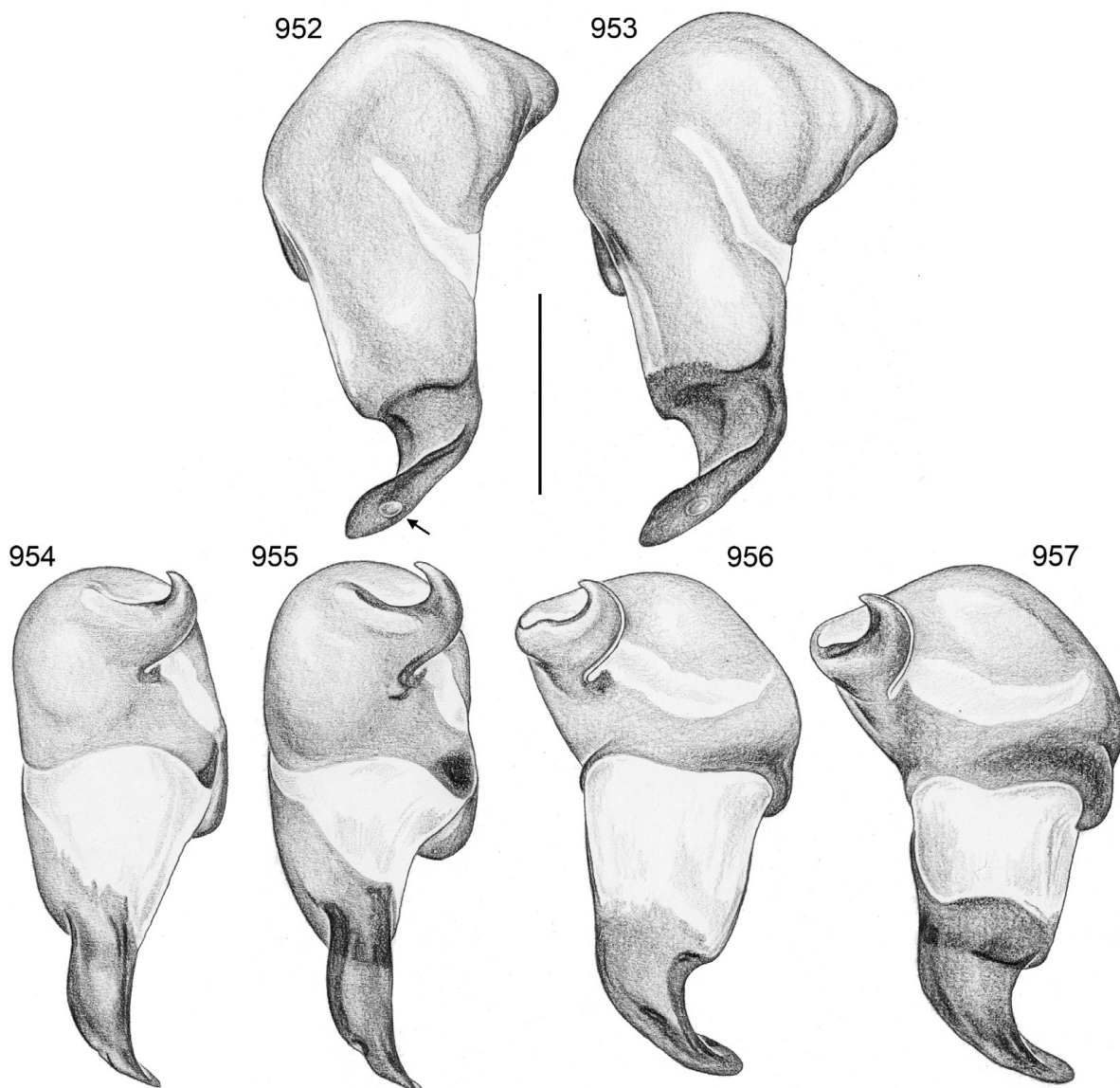
apophysis. Legs with strongly curved hairs mainly on legs 1–2 (femora, tibiae, and metatarsi), also on tibiae 3–4; with more than usual short vertical hairs (but not in high density). Prolateral trichobothrium present on all leg tibiae. Tibia 1 in 16 males (including the three males in Huber 2000): 11.5–17.7 (mean 14.9); in male lectotype: 12.1. Leg 1 length in largest specimen: 73.0.



Figs 945–951. *Priscula venezuelana* Simon, 1893; light male from Aragua, Colonia Tovar (left figure in each pair; ZFMK Ar 22119), dark male from Aragua, Rancho Grande (right; ZFMK Ar 22120), female from Miranda, El Ávila National Park (ZFMK Ar 22124). **945–950.** Left palpal tarsus and procurrus, prolateral, dorsal, and retrolateral views. **951.** Cleared female genitalia, dorsal view. Scale lines: 0.5 mm.

There is considerable color variation (both in males and females) that seems to be correlated with microhabitat: ground-dwelling specimens tend to be dark (Fig. 939), with many dark marks on abdomen; with median and radial dark marks on carapace; with distinct dark rings on legs; with rather dark sternum. By contrast, leaf-dwelling specimens (in particular juveniles, rarely also adults; Figs 940–942) tend to be light-colored, in particular abdomen with many white marks but without or with few dark marks; carapace with median dark mark but often without or with indistinct dark radial marks; legs without or with indistinct dark rings; sternum largely light colored.

Females with slightly variable shape of epigynum: some but not all females from Yacambú National Park and Henri Pittier National Park with slightly wider epigynum (compare Figs 958, 961, 964). Posterior plate always divided medially by whitish area. Internal genitalia (Figs 951, 960, 963, 966) with pair of



Figs 952–957. *Priscula venezuelana* Simon, 1893; light male from Aragua, Colonia Tovar (left figure in each pair; ZFMK Ar 22119), dark male from Aragua, Rancho Grande (right; ZFMK Ar 22120); left genital bulbs, dorsal, retrolateral, and ventral views (arrow: sperm duct opening). Scale line: 0.5 mm.

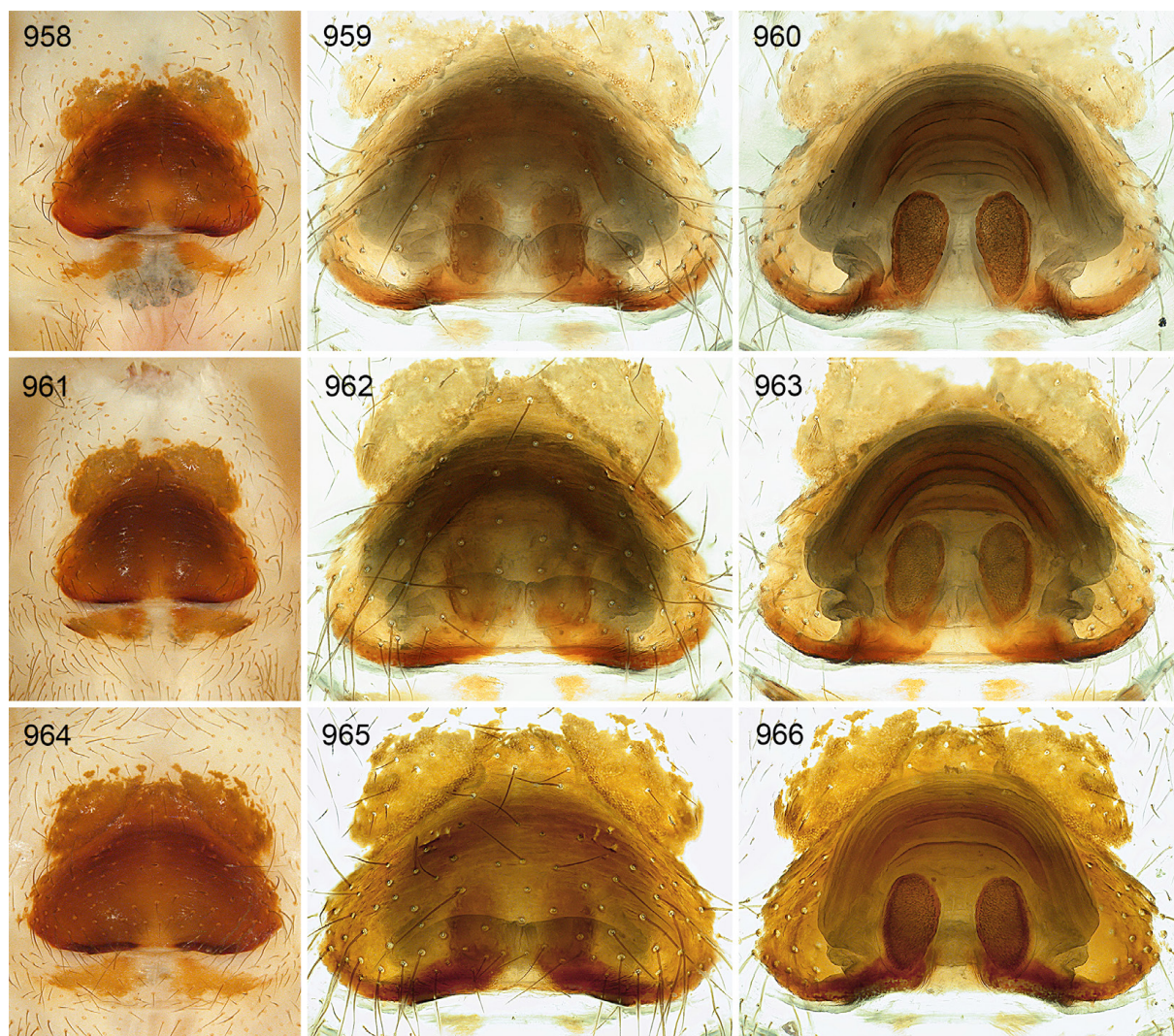
elongate pore plates in roughly parallel position, and large anterior arc. Tibia 1 in 15 females (including female from Rancho Grande in Huber 2000): 9.5–14.0 (mean 11.9). In two paralectotypes: 9.9, 10.6.

Distribution

Apparently widespread in the Coastal Ranges in northern Venezuela (Fig. 1062). All localities are at about 1150–2200 m a.s.l. The dubious record from Amazonas state is not shown in Fig. 1062.

Natural history

This species occurs both in natural habitats and in weakly to strongly altered habitats, but is much easier to find in the latter. Numerous specimens were collected in the abandoned building at Rancho Grande where *P. venezuelana* shared the rooms with *Mesabolivar eberhardi* Huber, 2000. While *M. eberhardi* was hanging in webs in corners, *P. venezuelana* was resting flat on the wall. Some specimens were collected from banana leaves in a small forest clearing at El Limón.



Figs 958–966. *Priscula venezuelana* Simon, 1893; epigyna, ventral views, and cleared female genitalia, ventral and dorsal views. **958–960.** Miranda, El Ávila National Park (ZFMK Ar 22124). **961–963.** La Guaira, El Limón (ZFMK Ar 22122). **964–966.** Aragua, Rancho Grande (ZFMK Ar 22120).

Within forests, specimens occur both in protected spaces near the ground (e.g., in a large palm sheath at La Cumbre) and higher among the vegetation on green leaves. Each microhabitat seems to have its ecomorph, with dark specimens on the ground and light specimens on leaves (see above). At El Ávila and Yacambú, both ecomorphs were found to be present. Adult leaf-dwelling specimens seemed to prefer large monocot leaves, while juveniles were also found on dicot leaves, with their flat webs often spanning several leaves. When disturbed, the leaf-dwellers did not vibrate or bounce but eventually moved away slowly and reluctantly on their webs.

Egg sacs were large and relatively densely covered with silk (Fig. 941). A relatively small egg-sac from El Limón contained ~70 eggs; a large egg-sac from La Cumbre contained ~110 eggs. González-Sponga (1999) reported two egg-sacs with 70 and 162 eggs, respectively.

Priscula chejapi González-Sponga, 1999
Figs 967–971, 1062

Priscula chejapi González-Sponga, 1999: 132, figs 10–19 (♂♀).

Misidentification

Priscula chejapi – Huber 2000: 139, figs 533–535 (♂).

Notes

We reexamined the type material: ♂ holotype, 1 ♀ paratype, MIZA 105653 (MAGS 1362), “Central Hidroeléctrica General José Antonio Paez” [approximately 8.883° N, 70.635° W], 10 Jul. 1992 (A.R. Delgado de G., M. García, M.A. González S.). The palp of the holotype is shown in Figs 967–968; the procurus differs clearly from the figures in Huber (2000: figs 533–534), which are thus based on a misidentified specimen (of a formally undescribed species). The palp of the holotype appears identical to that of *P. venezuelana* Simon, 1893. The two species are not synonymized here because the epigynum of the paratype of *P. chejapi* (Figs 970–971) appears slightly rounder (less triangular) in ventral view and is not flanked by a pair of dark anterior sclerites like that of *P. venezuelana*.

Distribution

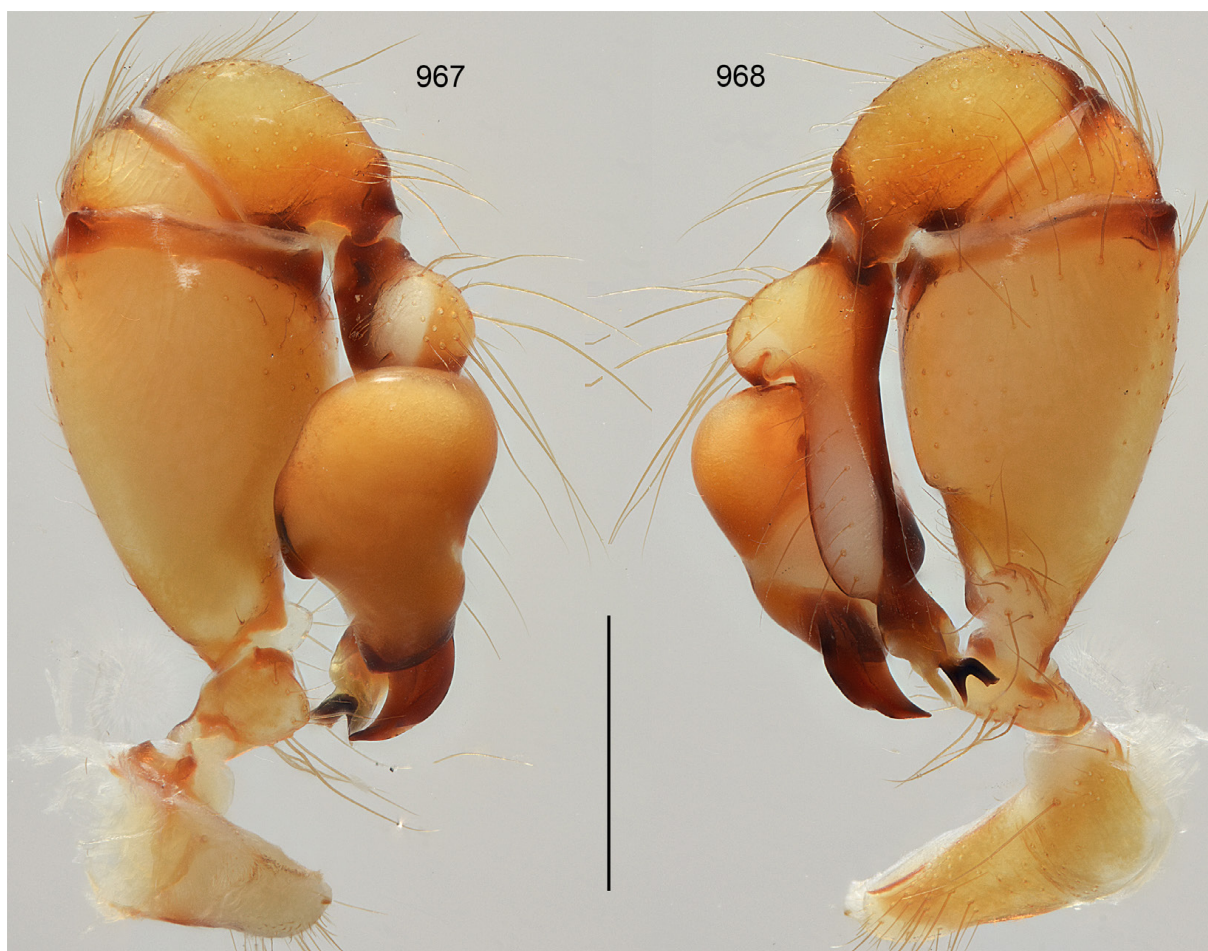
Known from type locality only, in Venezuela, Mérida (Fig. 1062).

Stenosfemuraia González-Sponga, 1998

Notes

This genus has been revised recently (Huber & Arias 2017). It seems to be restricted to the Coastal Ranges in Venezuela (Fig. 1064). The ZFMK collection has at least one further species from this region, but it is not formally described here because no males are available: *Stenosfemuraia* ‘Ven18-10’, 2 ♀♀, 1 juv., ZFMK (Ar 22127), and 1 ♀ in pure ethanol, ZFMK (Ven18-154), Aragua, Colonia Tovar, forest above town (10.4144° N, 67.3005° W), 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.). The epigynum of this species is shown in Fig. 1003.

For notes on natural history see Huber & Arias (2017). Several species may share a single locality. In the forest above Colonia Tovar, three species were found within a few meters: the relatively long-legged *S. cuadrata* González-Sponga, 2005 in domed webs among dead palm leaves and other objects close to the ground; the smaller *S. pilosa* (González-Sponga, 2005) in small cavities in the ground; and the tiny undescribed *Stenosfemuraia* ‘Ven18-10’ on the undersides of leaves in the leaf litter.



Figs 967–968. *Priscula chejapi* González-Sponga, 1999; holotype from Mérida, Central Hidroeléctrica General José Antonio Páez (MIZA 105653; MAGS 1362); left male pedipalp, prolateral and retrolateral views. Scale line: 1 mm.

Diagnosis and description (amendments; see Huber & Arias 2017)

The newly described *S. exigua* Huber sp. nov. is smaller than previously described species and lacks curved hairs on legs, which requires the following amendments: male body length: 2.3–3.5; male leg 1 length: 12–24; male tibia 1 length: 2.9–5.7; male legs with or without curved hairs.

Stenosfemuraia quadrata González-Sponga, 2005

Figs 972, 1064

Synonymy and redescription, see Huber & Arias (2017).

Notes

Previously published coordinates of the type locality Hacienda Limón (González-Sponga 2005; Huber & Arias 2017) were wrong. We assume that the true collecting site was at approximately 10.475° N, 67.283° W. Our new site below is at a higher elevation and approximately 3.7 km SE of the type locality.



Figs 969–971. *Priscula chejapi* González-Sponga, 1999; male holotype and female paratype from Mérida, Central Hidroeléctrica General José Antonio Paez (MIZA 105653; MAGS 1362). **969.** Male ocular area, clypeus, and chelicerae, oblique frontal view. **970–971.** Epigynum, ventral and lateral views. Scale lines: 1 mm.

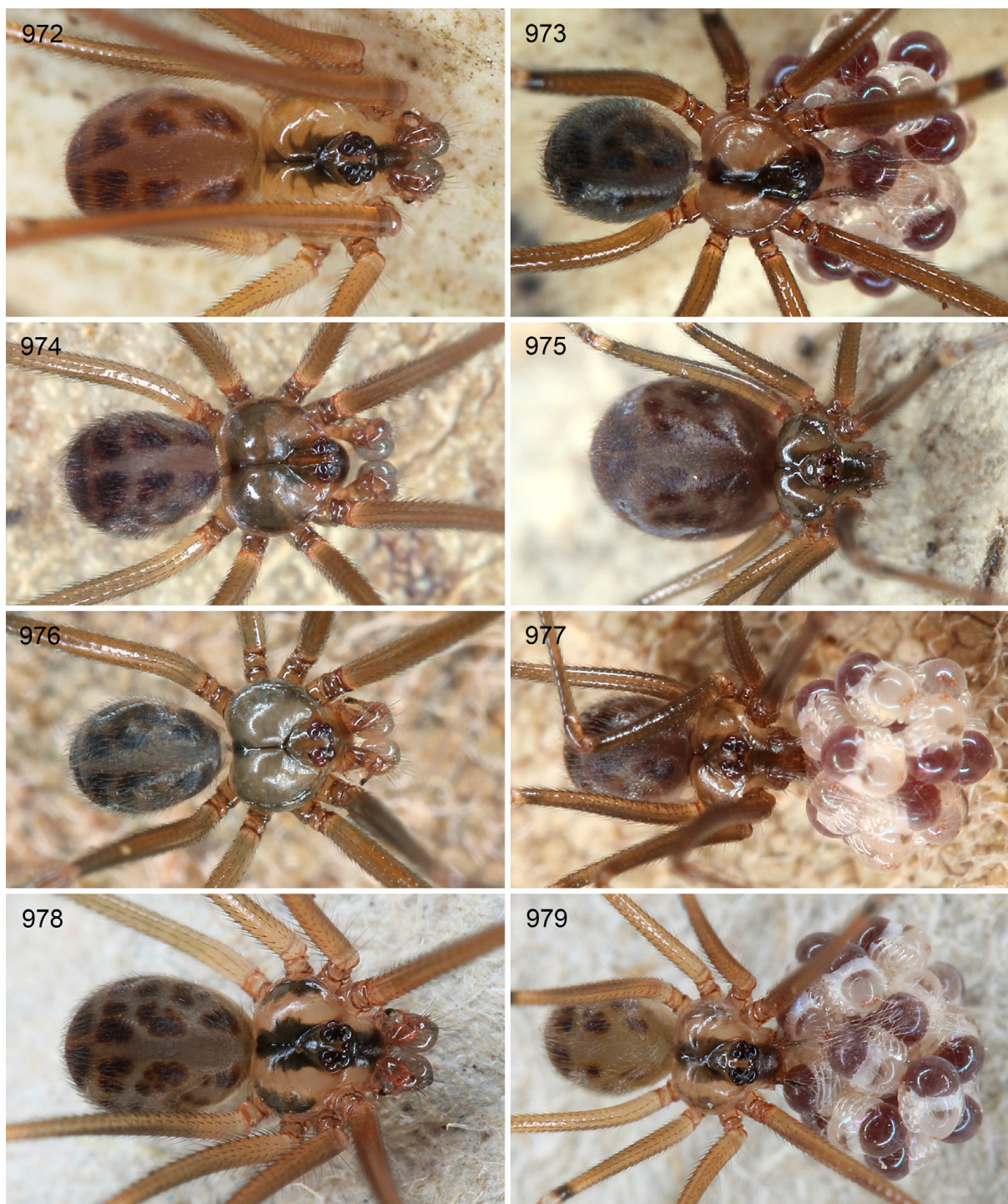
González-Sponga's (2005) record of *S. cuadrata* from Galipán (El Ávila National Park) is probably based on 1 ♂, 1 ♀, MIZA 105577 (MAGS 1422). However, the specimens in this vial are *S. parva* González-Sponga, 1998 (see below). The only other *Stenosfemuraia* specimens from Galipán in the MAGS collection are also *S. parva* (and correctly identified as such by González-Sponga): 3 ♂♂, 2 ♀♀, MIZA 105674 (MAGS 1172) (see under *S. parva* below). Since there are no unambiguous records of *S. cuadrata* from El Ávila National Park, we consider González-Sponga's (2005) record as erroneous.

New records

VENEZUELA – **Aragua** • 3 ♂♂, 2 ♀♀, 1 juv., ZFMK (Ar 22128), and 1 ♂ in pure ethanol, ZFMK (Ven18-150), Colonia Tovar, forest above town (10.4144° N, 67.3005° W), 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 1 ♂, ZFMK (Ar 22129), and 1 ♀ in pure ethanol, ZFMK (Ven18-156), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Distribution

Known from El Limón (La Guaira; type locality) and Colonia Tovar area (Aragua) (Fig. 1064).



Figs 972–979. *Stenosfemuraia* González-Sponga, 1998; live specimens. **972.** *S. quadrata* González-Sponga, 2005; male from Aragua, Colonia Tovar. **973.** *S. pilosa* (González-Sponga, 2005); female with egg sac from Aragua, Colonia Tovar. **974–975.** *S. parva* González-Sponga, 1998; male and female from Miranda, El Ávila National Park. **976–977.** *S. exigua* Huber sp. nov.; male and female with egg sac from La Guaira, El Limón. **978–979.** *S. cumbre* Huber sp. nov.; male and female with egg sac from Aragua, Henri Pittier National Park.

Stenosfemuraia pilosa (González-Sponga, 2005)

Figs 973, 1064

Synonymy and redescription, see Huber & Arias (2017).

Note

For the junior synonym of this species (*Chichiriviche costanero*) González-Sponga (2011b) reports a second locality in addition to the type locality: Henri Pittier National Park (in the diagnosis of the genus). This national park is indeed home to a species of *Stenosfemuraia* (*S. cumbre* Huber sp. nov.) but we found no *Stenosfemuraia* from Henri Pittier National Park in the MAGS collection. We conclude that *S. pilosa* has not been collected in Henri Pittier National Park.

New record

VENEZUELA – **Aragua** • 1 ♂, 1 ♀, ZFMK (Ar 22131), and 1 ♀, 2 juvs in pure ethanol, ZFMK (Ven18-151), Colonia Tovar, forest above town (10.4144° N, 67.3005° W), 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Distribution

Known from Colonia Tovar area (Aragua; type locality), and Portachuelo (La Guaira) (Fig. 1064).

Stenosfemuraia parva González-Sponga, 1998

Figs 974–975, 1022, 1064

Synonymy and redescription, see Huber & Arias (2017).

Note

A reexamination of González-Sponga's (2005) *Stenosfemuraia* specimens from Galipán revealed that all of them represent *S. parva*, i.e., not only those correctly identified as *S. parva* (MAGS 1172) but also those misidentified as *S. cuadrata* (MAGS 1422). Both records are listed below even though they are technically no new records.

New records

VENEZUELA – **Miranda** • 2 ♂♂, 3 ♀♀, ZFMK (Ar 22130), and 3 ♂♂, 1 ♀ in pure ethanol, ZFMK (Ven18-146), El Ávila National Park, between Sabas Nieves and La Silla (10.5288° N, 66.8546° W), 1850 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **La Guaira** • 1 ♂, 1 ♀, MIZA 105577 (MAGS 1422), El Ávila National Park, Galipán [approximately 10.55° N, 66.89° W], 30 Aug. 1997 (D. de García, M.A. González S.). • 3 ♂♂, 2 ♀♀, MIZA 105674 (MAGS 1172), El Ávila National Park, Picacho de Galipán [10.563° N, 66.909° W, ~1930 m a.s.l.], 29 Jan. 1990 (A.R. Delgado, E. González, M.A. González S.). – **Aragua** • 3 ♂♂, 3 ♀♀, misidentified types of *Stenosfemuraia pilosa*, MIZA 105756 (separated from MAGS 1387), Pico Codazzi [10.411° N, 67.303° W], 22 Jan. 1994 (A.R. Delgado, M.A. González S.).

Distribution

Known from El Junquito area (La Guaira; type locality), El Limón (La Guaira), Colonia Tovar area (Aragua), and El Ávila National Park (Miranda, La Guaira) (Fig. 1064).

Stenosfemuraia exigua Huber sp. nov.

urn:lsid:zoobank.org:act:CE653834-FE5E-4243-BDB1-7156B1DB8B06

Figs 976–977, 980–987, 999–1002, 1064

Diagnosis

Distinguished from congeners by combination of: armature of male chelicerae (Fig. 986; two pairs of small frontal processes, shorter and closer together than in *S. parva* González-Sponga, 1998); shape of procurus [Figs 980–982; with subdistal transparent process as in *S. pilosa* (González-Sponga, 2005) but tip not strongly bent against proximal part]; shapes of distal bulbal sclerites (Figs 983–985; ventral distal sclerite straight as in *S. pilosa*); epigynum (Figs 999, 1002; small trapezoidal plate on large protruding whitish area, large posterior plate); internal female genitalia (Figs 987, 1000–1001; shape of contiguous pore plates); and absence of curved hairs on legs.

Etymology

The species name (Latin: small) refers to the small size of this species compared to congeners; adjective.

Type material

VENEZUELA – **La Guaira** • ♂ holotype, ZFMK (Ar 22132), El Limón, above road Colonia Tovar-Puerto Cruz (10.4566° N, 67.2548° W), 1535 m a.s.l., 9 Nov. 2018 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **La Guaira** • 1 ♂, 5 ♀♀, 1 juv., ZFMK (Ar 22133–34), and 2 ♀♀ in pure ethanol, ZFMK (Ven18-157), same collection data as for holotype.

Description

Male (holotype)

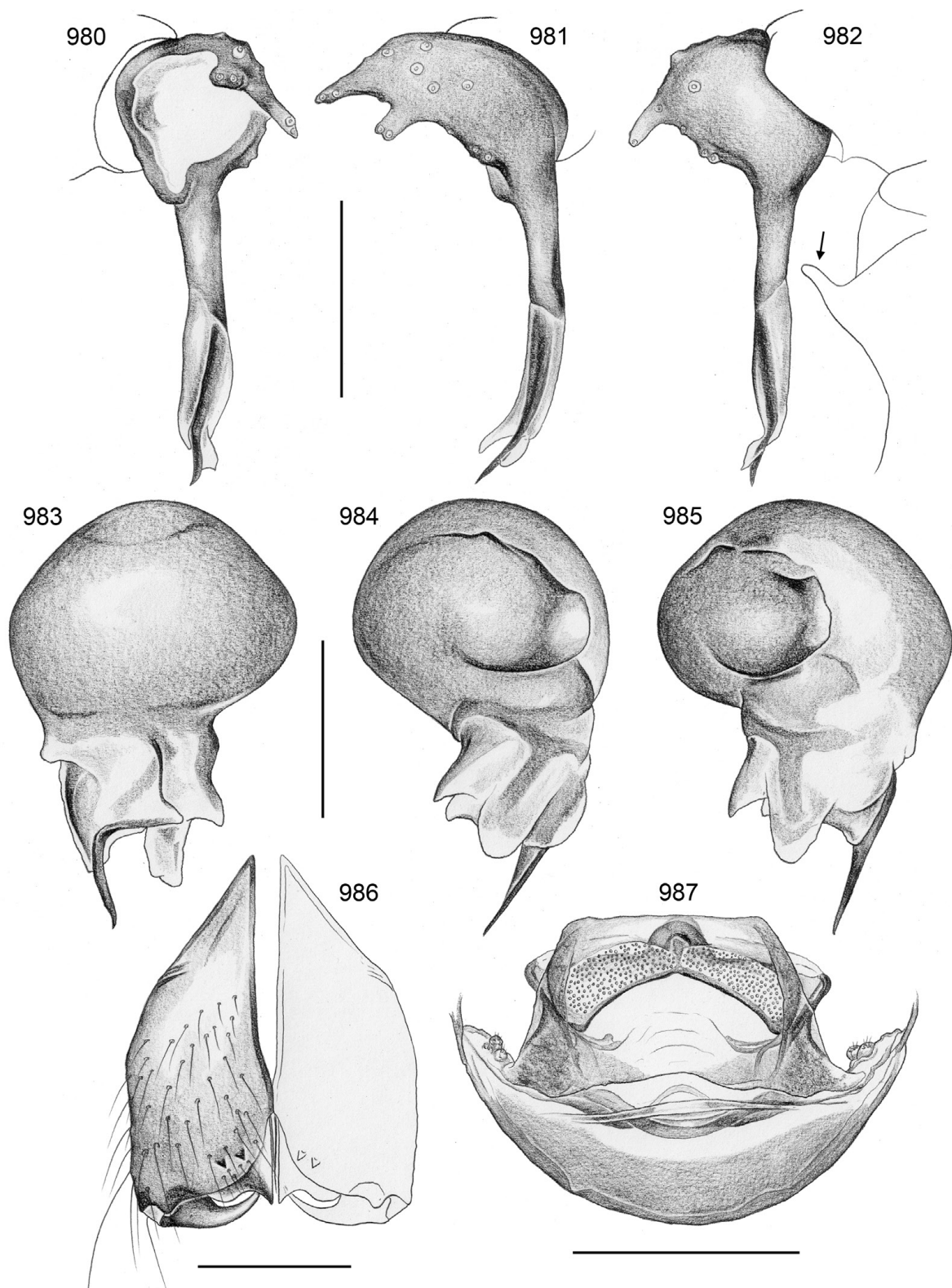
MEASUREMENTS. Total body length 2.3, carapace width 1.0. Distance PME–PME 70 µm; diameter PME 90 µm; distance PME–ALE 60 µm; diameter AME 20 µm; distance AME–AME 20 µm. Leg 1: 12.2 (2.9+0.4+2.9+4.8+1.2), tibia 2: 1.9, tibia 3: 1.6, tibia 4: 2.1; tibia 1 L/d: 32. Femora 1–4 width (at half length): 0.22, 0.21, 0.20, 0.20.

COLOR (in ethanol). Carapace pale ochre with darker ochre median and lateral marginal bands and indistinct radial lines, ocular area and clypeus also darker ochre; sternum monochromous brown; legs ochre to light brown, without dark rings; abdomen pale greenish-gray, dorsally and laterally densely covered with dark bluish marks, ventrally with dark ochre mark in gonopore area and bluish median mark behind gonopore; book lung covers not darkened.

BODY. Habitus as in Fig. 976. Ocular area moderately raised. Carapace high, with deep thoracic groove, posteriorly not inflated. Clypeus unmodified. Sternum wider than long (0.64/0.48), unmodified. Abdomen globular, pointed at spinnerets.

CHELICERAE. As in Fig. 986, with two pairs of small frontal conical apophyses, without modified hairs.

PALPS. In general very similar to congeners (see, e.g., Huber & Arias 2017: figs 35–36); coxa with retrolateral-ventral apophysis; trochanter barely modified; femur with retrolateral-ventral process proximally and large ventral apophysis distally (arrow in Fig. 982); procurus with subdistal transparent process like *S. pilosa* but tip not strongly bent against proximal part (Figs 980–982); genital bulb with complex distal process, distal ventral apophysis almost straight (Figs 983–985).



Figs 980–987. *Stenosfemuraia exigua* Huber sp. nov.; from La Guaira, El Limón (type locality; ZFMK Ar 22133–34). **980–982.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **983–985.** Left genital bulb, prolateral, dorsal, and retrolateral views. **986.** Male chelicerae, frontal view. **987.** Cleared female genitalia, dorsal view. Scale lines: 0.2 mm.

LEGS. Without spines and curved hairs; few vertical hairs; retrolateral trichobothrium of tibia 1 at 8%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~20 pseudosegments, mostly distinct.

Female

In general similar to male (Fig. 977), but carapace slightly less high. Tibia 1 in four females: 2.0, 2.0, 2.0, 2.1. Epigynum (Figs 999, 1002) very small trapezoidal plate on large protruding whitish area; large posterior plate. Internal genitalia (Figs 987, 1000–1001) with contiguous pore plates, median anterior receptacle, and pair of lateral anteriorly diverging sclerites.

Distribution

Known from type locality only, in Venezuela, La Guaira (Fig. 1064).

Natural history

The species was found in the leaf litter in a fairly well preserved humid forest. The spiders ran very quickly when disturbed and then stopped abruptly, especially males.

Stenosfemuraia cumbre Huber sp. nov.

urn:lsid:zoobank.org:act:E3129849-E737-4A50-9E57-FF43BC4F6DB9

Figs 978–979, 988–998, 1004–1007, 1064

Stenosfemuraia sp. – Huber & Arias 2017: 497, fig. 1.

Diagnosis

Distinguished from congeners by combination of: armature of male chelicerae (Fig. 994; two pairs of frontal processes in distinctive arrangement); shape of procurus [Figs 991–993; with subdistal transparent process as in *S. pilosa* (González-Sponga, 2005) and *S. exigua* Huber sp. nov., but slightly S-shaped in lateral view]; wide distal bulbal sclerite with subdistal side-branch (Figs 995–997); and epigynum (Fig. 1004–1005; relatively large anterior plate on large protruding whitish area, sclerotized part of posterior plate restricted to median half); from most known congeners (except *S. quadrata* González-Sponga, 2005) also by long legs (male tibia 1 > 5.0, female tibia 1 > 3.0).

Etymology

The species name refers to the type locality; noun in apposition.

Type material

VENEZUELA – **Aragua** • ♂ holotype, ZFMK (Ar 22135), Henri Pittier National Park, forest near La Cumbre (10.3575° N, 67.5771° W), 1450 m a.s.l., 20 Feb. 2020 (B.A. Huber, O. Villarreal M.).

Other material examined

VENEZUELA – **Aragua** • 4 ♂♂, 3 ♀♀, ZFMK (Ar 22136), and 1 ♂, 1 juv. in pure ethanol, ZFMK (Ven20-161), same collection data as for holotype • 1 ♂, ZFMK (Ar 18256) Henri Pittier National Park, Rancho Grande (10.349° N, 67.684° W), ~1150 m a.s.l., in building, 12 Dec. 2002 (B.A. Huber) • 2 ♂♂, assigned tentatively (examined in 1999; not reexamined), AMNH, Rancho Grande, 1200 m a.s.l., cloud forest, 1–10 Aug. 1987 (Bordan & Peck). – **Carabobo** • 1 ♂, 1 ♀, MNHN (Ar 10556), with Eugène Simon's labels "14651. Psil. San Esteban!" and "La Cumbre" [presumably La Cumbre between San Esteban and Maracay, 10.33° N, 68.00° W, i.e., not the homonymous type locality!], Mar. 1888 (E. Simon).

Description

Male (holotype)

MEASUREMENTS. Total body length 3.2, carapace width 1.3. Distance PME–PME 100 μm ; diameter PME 120 μm ; distance PME–ALE 90 μm ; diameter AME 35 μm ; distance AME–AME 20 μm . Leg 1: 22.6 (5.6+0.5+5.6+8.9+2.0), tibia 2: 3.5, tibia 3: 2.6, tibia 4: 3.3; tibia 1 L/d: 45. Femora 1–4 width (at half length): 0.23, 0.23, 0.24, 0.21.

COLOR (in ethanol). Carapace pale ochre-yellow with dark ochre median and lateral marginal bands, ocular area and clypeus also dark ochre; sternum ochre-yellow; legs ochre-yellow to light brown, with black rings on femora (subdistally), tibiae (proximally, subdistally) and metatarsi (indistinct proximal ring); abdomen pale greenish-gray, dorsally and laterally with dark bluish marks, ventrally with dark ochre transversal mark in gonopore area; book lung covers barely darkened.

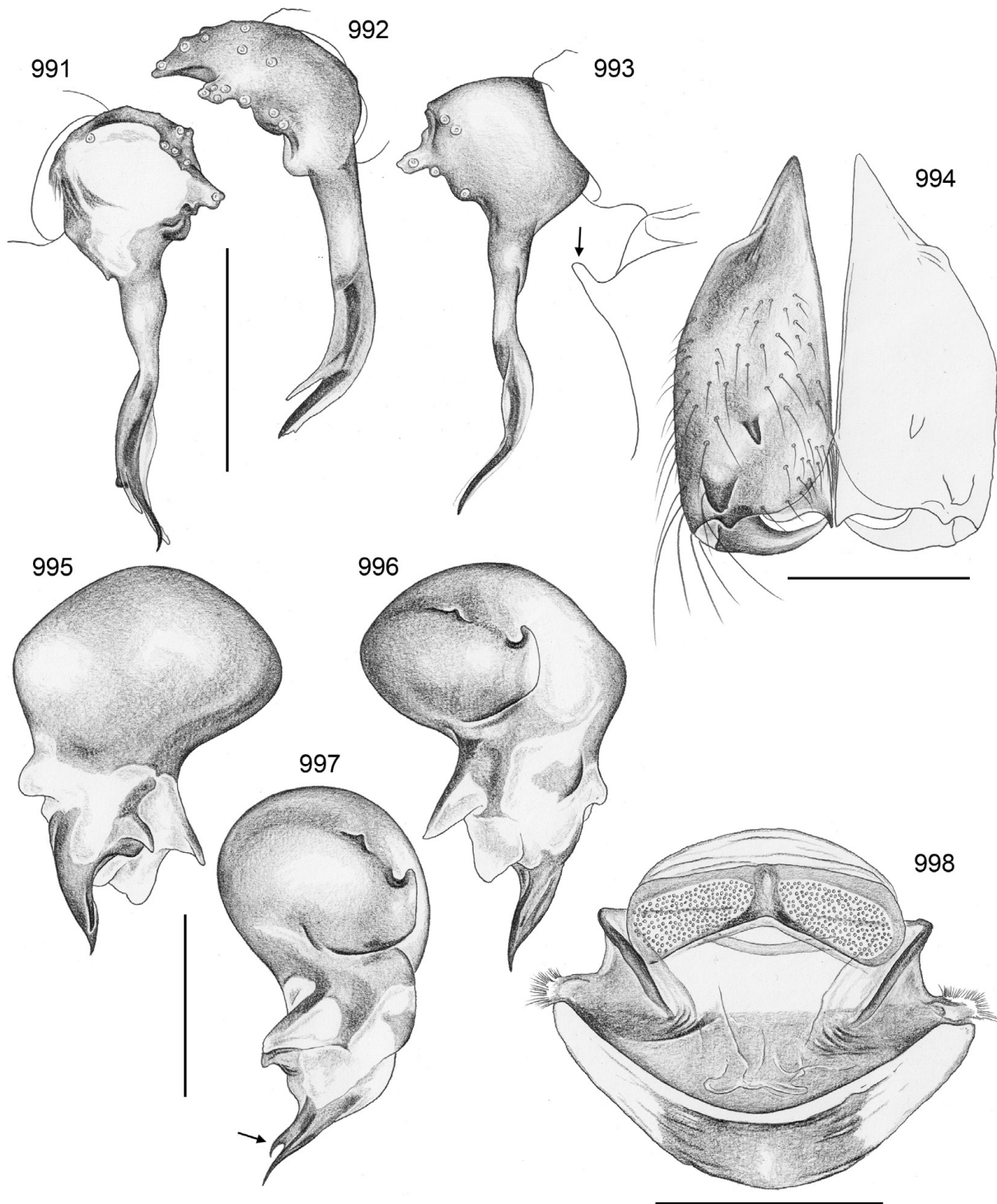
BODY. Habitus as in Fig. 978. Ocular area moderately raised. Carapace high, with deep thoracic groove, posteriorly not inflated. Clypeus unmodified. Sternum wider than long (0.86/0.60), unmodified. Abdomen globular, pointed at spinnerets.

CHELICERAE. As in Fig. 994, with two pairs of frontal processes in distinctive arrangement, without modified hairs.

PALPS. As in Figs 988–990, in general very similar to congeners (see, e.g., Huber & Arias 2017: figs 35–36); coxa with retrolateral-ventral apophysis; trochanter barely modified; femur with retrolateral-ventral process proximally and large ventral apophysis distally (arrow in Fig. 993); procurus (Figs 991–993) slightly S-shaped, with subdistal transparent process like *S. pilosa* and *S. exigua* Huber sp. nov.; genital bulb (Figs 995–997) with complex distal process, wide ventral sclerite with subdistal side-branch.



Figs 988–990. *Stenosfemuraia cumbre* Huber sp. nov.; from Aragua, Henri Pittier National Park (type locality; ZFMK Ar 22136); left male pedipalp, prolateral, dorsal, and retrolateral views. Scale line: 0.5 mm.



Figs 991–998. *Stenosfemuraia cumbre* Huber sp. nov.; from Aragua, Henri Pittier National Park (type locality; ZFMK Ar 22136). **991–993.** Left palpal tarsus and procurus, prolateral, dorsal, and retrolateral views (arrow: ventral femur apophysis). **994.** Male chelicerae, frontal view. **995–997.** Left genital bulb, prolateral, dorsal, and retrolateral views (arrow: distinctive subdistal side branch of bulbal sclerite). **998.** Cleared female genitalia, dorsal view. Scale lines: 0.3 mm.

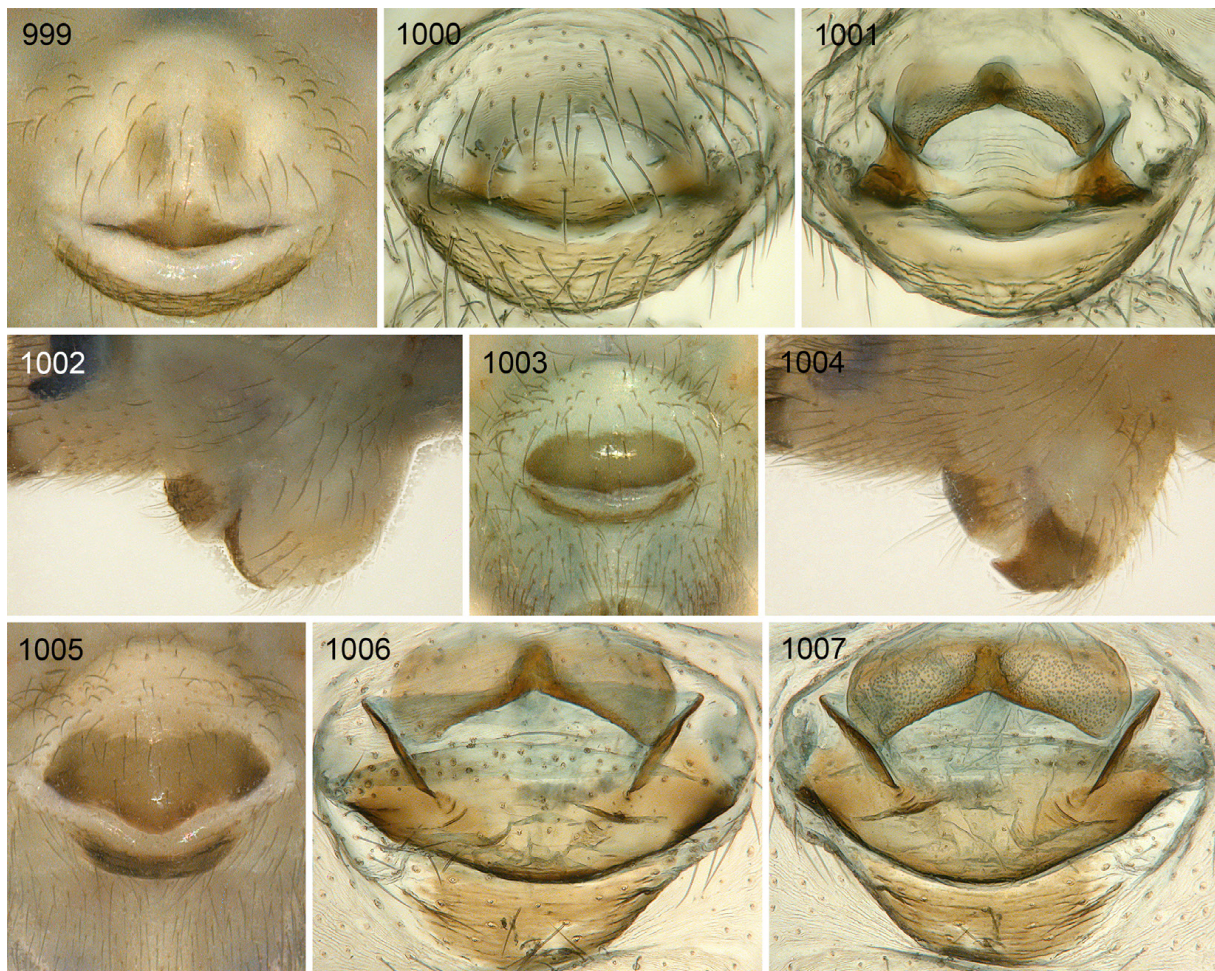
LEGS. Without spines, with curved hairs on legs 1 (femur, tibia, metatarsus) and 2 (tibia, metatarsus); vertical hairs in higher than usual density on femora (ventrally) and tibiae; retrolateral trichobothrium of tibia 1 at 5%; prolateral trichobothrium present on all leg tibiae; tarsus 1 with ~25 pseudosegments, mostly distinct.

Female

In general similar to male (Fig. 979), carapace slightly less high, legs with few vertical hairs, without curved hairs. Tibia 1 in four females: 3.5, 3.7, 3.8, 3.8. Epigynum (Figs 1004–1005) with relatively large plate on large protruding whitish area; sclerotized part of posterior plate restricted to median half. Internal genitalia (Figs 998, 1006–1007) with contiguous pore plates, median anterior receptacle, and pair of lateral anteriorly diverging sclerites (very similar *S. exigua* Huber sp. nov.).

Distribution

Known from three localities in the western Coastal Range of Venezuela, in the states Aragua and Carabobo (Fig. 1064).



Figs 999–1007. *Stenosfemuraia* González-Sponga, 1998; epigyna, ventral and lateral views and cleared female genitalia, ventral and dorsal views. **999–1002.** *S. exigua* Huber sp. nov.; from La Guaira, El Limón (type locality; ZFMK Ar 22134). **1003.** *Stenosfemuraia* sp. ‘Ven18-10’ from Aragua, Colonia Tovar (ZFMK Ar 22127). **1004–1007.** *S. cumbre* Huber sp. nov.; from Aragua, Henri Pittier National Park (type locality; ZFMK Ar 22136).

Natural history

Most specimens were collected from small webs that were protruding from accumulations of leaves or in dense mosses and ferns up to one meter above the ground; some specimens were hiding under large leaves on the ground (e.g., dead palm leaves).

Systemita Simon, 1893

Notes

Systemita continues to be a monotypic genus. The newly described *Mecolaesthus fallax* Huber sp. nov. is superficially extremely similar (indistinguishable in the field) but fundamentally different in many details of genital morphology. Our preliminary molecular data (J.J. Astrin, B.A. Huber, unpubl.data) place *Systemita prasina* closer to the new genus *Boconita* Huber gen. nov. and to *Coryssocnemis* Simon, 1893 than to *Mecolaesthus fallax* Huber sp. nov. The superficial similarity with *Mecolaesthus fallax* Huber sp. nov. is thus most probably a result of convergent evolution due to microhabitat change and adaptation to the same microhabitat (underside of live leaves).

Systemita prasina Simon, 1893
Figs 1008–1020, 1021–1022, 1065

Systemita prasina Simon, 1893a: 318.

Systemita prasina – Simon 1893b: 479–483. — Brignoli 1975: 36, fig. 2g. — Huber 1997d: 608, figs 28a–d, 29a–f. — González-Sponga 2010: 23, pl. 6, figs 1–9.

Misidentification

Systemita prasina – Caporiacco 1955: 299, fig. 8 (see Huber 1997d).

Notes

Brignoli's (1975) drawing of the palp of this species was probably prepared from a type specimen in MNHN. He did not specify the origin of his specimen(s).

González-Sponga's (2010) material was reexamined and is correctly identified: 1 ♂, 1 ♀, MIZA 105656 (MAGS 1347), La Guaira, “carretera El Junquito – Carayaca” (file card), “El Junquito – vía Carayaca” (publication) [approximately 10.445° N, 67.147° W], 11 Jan. 1992 (A.R. Delgado, M.A. González S.).

Diagnosis

Easily distinguished from similar pale six-eyed pholcids (*Mecolaesthus fallax* Huber sp. nov., *Metagonia* spp.) by distinctive armature of male chelicerae (Huber 1997d: figs 29e–f; two large club-shaped hairs on each side), by very slender procurus partly lodged in groove of large bulbal process (Huber 1997d: fig. 29b), and by epigynum and female internal genitalia (Figs 1012–1020; small light brown sclerite, tiny globular pore plates attached to median sclerite).

Type material

VENEZUELA – Aragua • ♂ lectotype (designated in Huber 1997d), 8 ♂♂, 16 ♀♀ paralectotypes and 7 juvs, MNHN (Ar 10527), Eugène Simon collection number 11023, Colonia Tovar [approximately 10.41° N, 67.29° W], Jan.–Feb. 1888 (E. Simon); examined (see Huber 1997d).

New records

VENEZUELA – **Aragua** • 9 ♂♂, 15 ♀♀, ZFMK (Ar 22137–38), and 2 ♂♂, 2 ♀♀, 3 juvs in pure ethanol, ZFMK (Ven02/100-11), forest above Colonia Tovar (10.414° N, 67.301° W), ~2100 m a.s.l., 26 Nov. 2002 (B.A. Huber) • 9 ♂♂, 11 ♀♀, ZFMK (Ar 22139–40), and 1 ♂, 5 ♀♀ in pure ethanol, ZFMK (Ven18-152), same locality, 2140 m a.s.l., 8 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 9 ♂♂, 7 ♀♀, ZFMK (Ar 22141–43), and 1 ♂, 2 ♀♀, 1 juv. in pure ethanol, ZFMK (Ven02/100-45), near Colonia Tovar, forest at Cerro Picacho (= Pico Codazzi) (10.408° N, 67.308° W), ~2200 m a.s.l., 27 Nov. 2002 (B.A. Huber). – **La Guaira** • 1 ♂, 2 ♀♀, ZFMK (Ar 22144), between Colonia Tovar and El Junquito (10.4230° N, 67.2381° W), 1960 m a.s.l., 10 Nov. 2018 (B.A. Huber, O. Villarreal M.). – **Miranda** • 15 ♂♂, 14 ♀♀, ZFMK (Ar 22145–46), El Ávila National Park, between Sabas Nieves and La Silla (10.529° N, 66.854° W), ~2100 m a.s.l., 25 Nov. 2002 (B.A. Huber) • 21 ♂♂, 6 ♀♀, 2 juvs, ZFMK (Ar 22147–48), and 3 ♂♂, 1 ♀ in pure ethanol, ZFMK (Ven18-143), same locality (10.5288° N, 66.8546° W), 1850 m a.s.l., 7 Nov. 2018 (B.A. Huber, O. Villarreal M.) • 2 ♀♀, 1 juv., MIZA 105805 (MAGS 561), El Ávila National Park, El Paraíso [10.530° N, 66.819° W], ~1500 m a.s.l., 16 Aug. 1981 (J.A. González D.).

Redescription (amendments, see Huber 1997d)

Male

Habitus as in Figs 1008–1009. Eye measurements (male from Colonia Tovar): distance PME–PME 210 µm; diameter PME 80 µm; distance PME–ALE 70 µm. Carapace monochromous whitish, clypeus variable, from pale grey to light brown to black; legs pale ochre yellow, femora 2 and 3 dorsally proximally with long dark mark, coxae 2 and 3 ventrally with dark mark; patellae and tibia-metatarsus joints dark; abdomen monochromous pale gray to pale bluish. Legs without curved hairs; retrolateral trichobothrium on tibia 1 at 1.5%; prolateral trichobothrium present on tibia 1. Tibia 1 in 56 newly examined males: 6.5–8.1 (mean 7.3).

Female

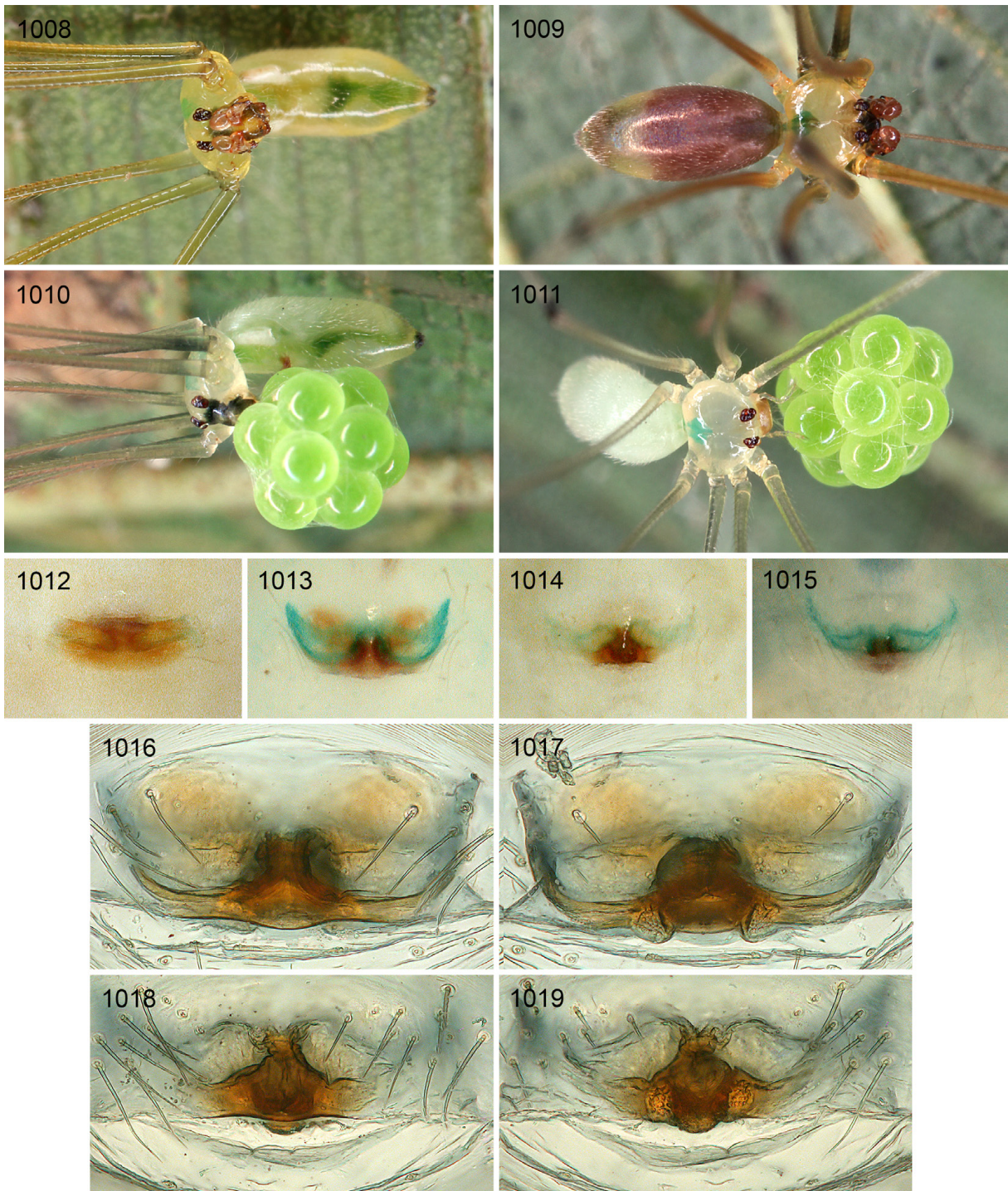
Colors as in male (Figs 1010–1011), but femora 2 and 3 dorsally without dark mark and coxae 2 and 3 ventrally without dark mark; color of clypeus variable as in male. Tibia 1 in 50 newly examined females: 4.9–6.1 (mean 5.4). Epigynum (Figs 1012–1015) very simple, ventral view variable depending on visibility of internal (often greenish or bluish) structures. Internal genitalia (Figs 1016–1020) with tiny globular pore plates attached to median sclerite.

Distribution

Known from several localities in the Coastal Ranges (between 1850 and 2200 m a.s.l.) in the Venezuelan states Aragua, La Guaira, and Miranda (Fig. 1065).

Natural history

The spiders were collected from their relatively large webs attached to the undersides of leaves at ~1–2 m above the ground. They rested in an inverted position (dorsal side of the abdomen facing the underside of the leaf, frontal side of prosoma facing the forest floor; Figs 1008, 1010) at the apex of the domed web where it was closely attached to the leaf. When disturbed, the spiders moved away and bobbed or vibrated but were easy to catch. Egg sacs were often greenish (Figs 1010–1011).



Figs 1008–1019. *Systemita prasina* Simon, 1893. **1008–1011.** Live male from Aragua, Colonia Tovar (1008) and male and females with egg sacs from Miranda, El Ávila National Park (1009–1011). **1012–1019.** Epigyna, ventral views and cleared female genitalia, ventral and dorsal views, females from Miranda, El Ávila National Park (1012–1013, 1016–1017; ZFMK Ar 22146) and from Aragua, Colonia Tovar (1014–1015, 1018–1019; ZFMK Ar 22140).

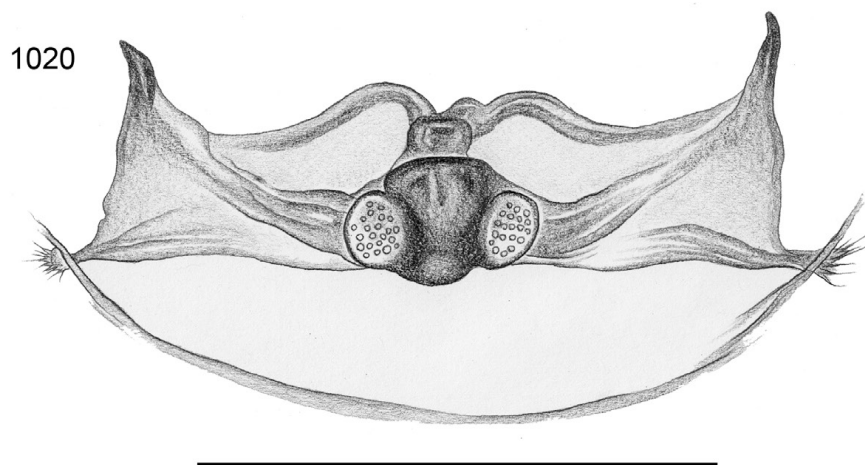
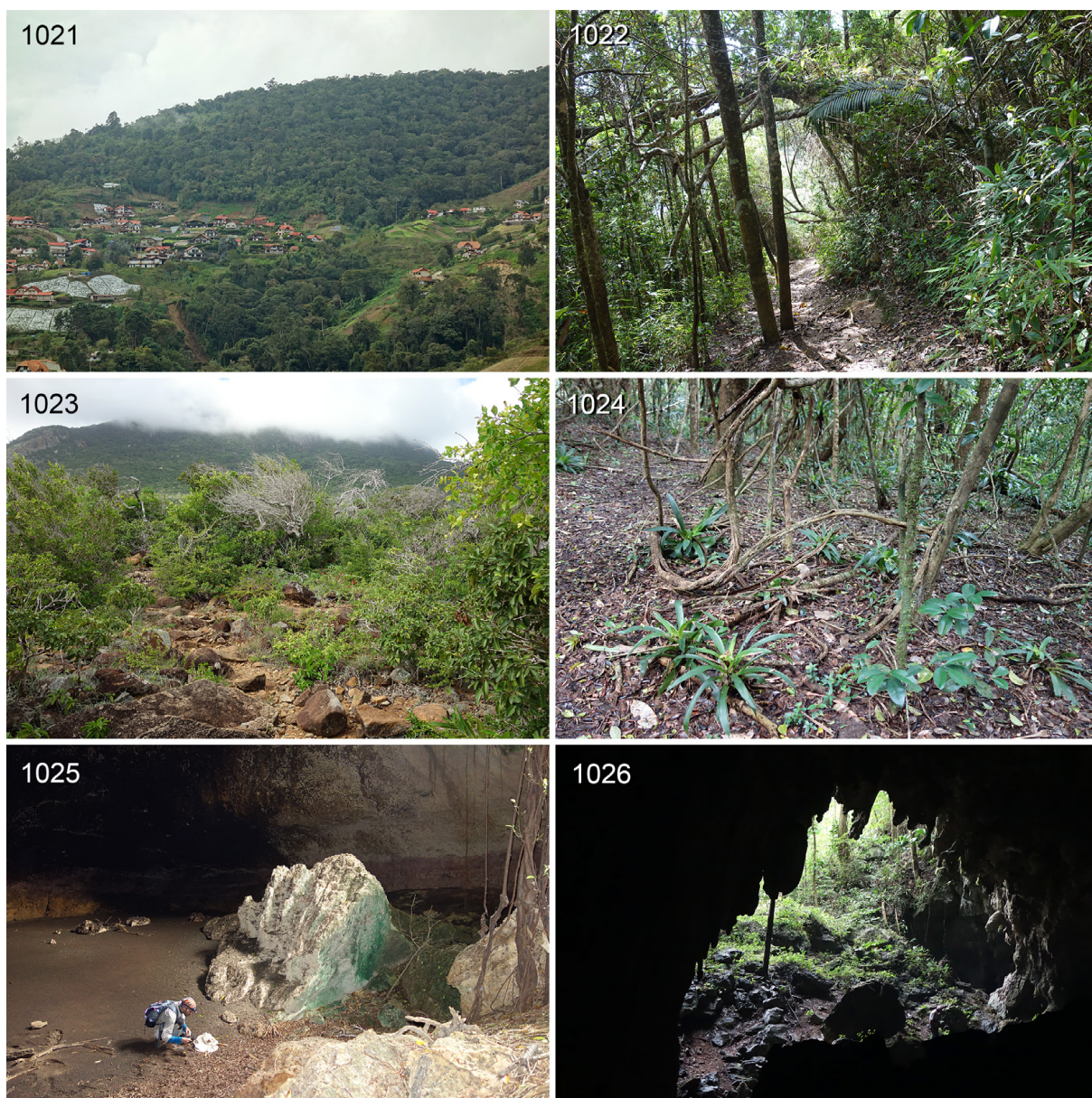


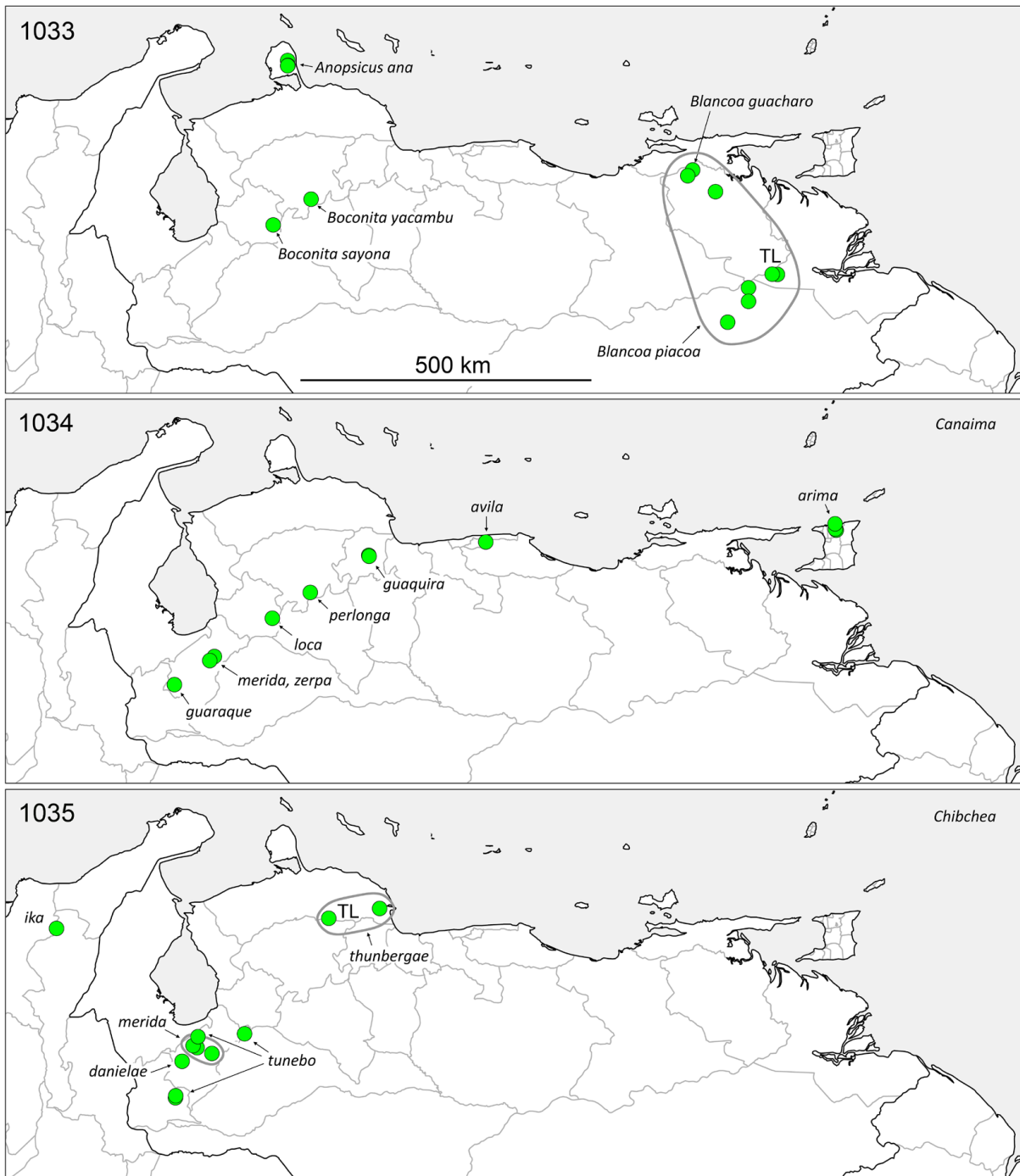
Fig. 1020. *Systemita prasina* Simon, 1893; from Aragua, Colonia Tovar (type locality; ZFMK Ar 22140); cleared female genitalia, dorsal view. Scale line: 0.2 mm.



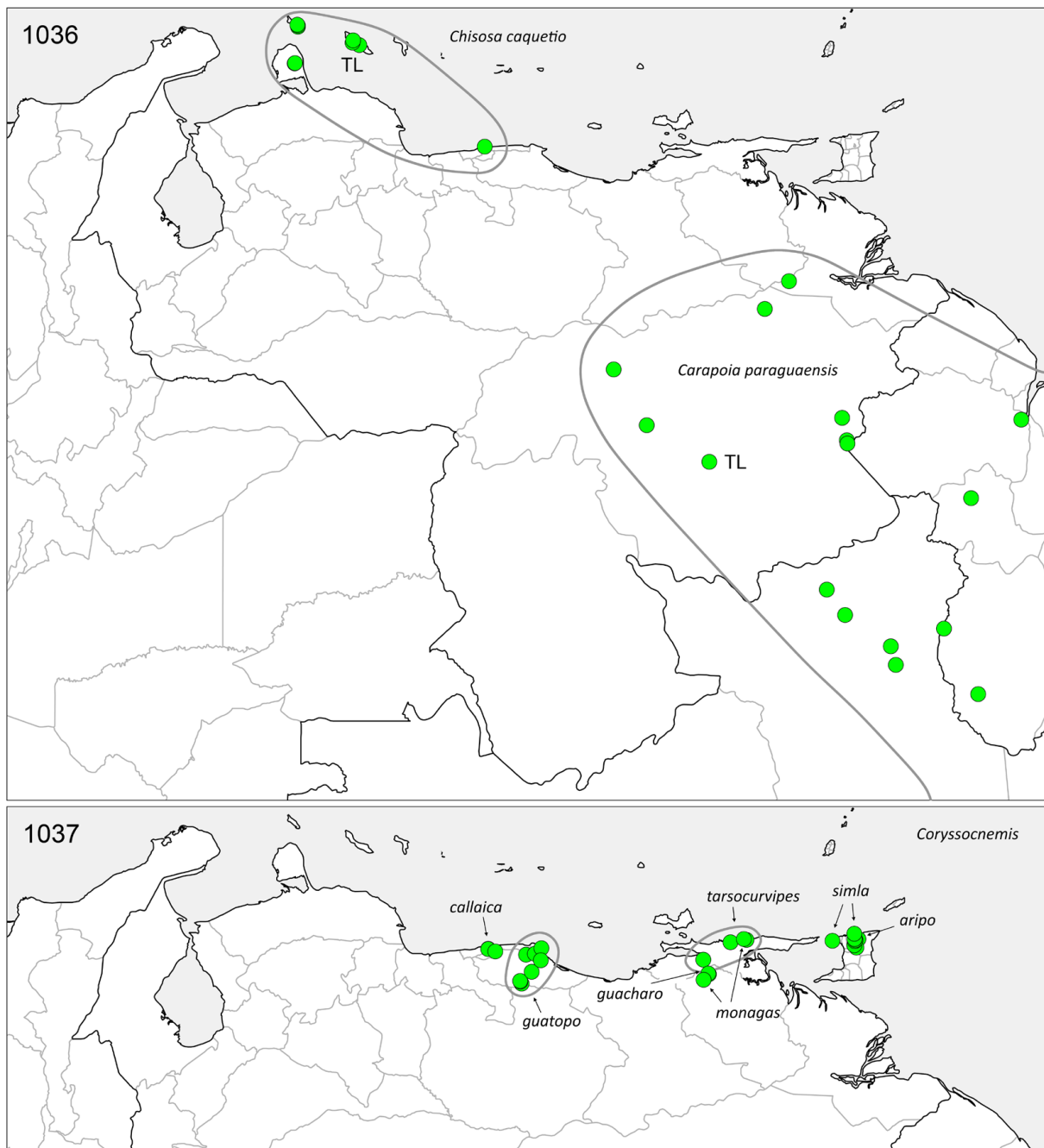
Figs 1021–1026. Selection of collecting sites. **1021.** Aragua, Colonia Tovar, one of Eugène Simon’s main collecting sites in 1888 (background: forest with *Mecolaesthus longissimus* Simon, 1893; *Mesabolivar eberhardi* Huber, 2000; *Metagonia conica* (Simon, 1893); *Priscula venezuelana* Simon, 1893; *Stenosfemuraia* spp.; *Systemita prasina* Simon, 1893). **1022.** Miranda, El Ávila National Park [*Litoporus aerius* Simon, 1893; *Mesabolivar eberhardi*; *Metagonia conica*; *Stenosfemuraia parva* González-Sponga, 1998; *Systemita prasina*; *Priscula venezuelana*]. **1023.** Falcón, Península de Paraguaná, basis of Cerro Santa Ana (*Modisimus repens* Huber sp. nov.). **1024.** Falcón, Península de Paraguaná, highest parts of Cerro Santa Ana [*Pisaboa marcuzzii* (Caporiacco, 1955) comb. nov.]. **1025.** Falcón, Península de Paraguaná, Cueva del Guano [*Anopsicus ana* Huber sp. nov.; *Chisosa caquetio* Huber, 2019; *Mesabolivar eberhardi*; *Physocyclus globosus* (Taczanowski, 1874)]. **1026.** Falcón, Curimagua, Cuevas de Acarite (*Priscula acarite* Huber sp. nov.).



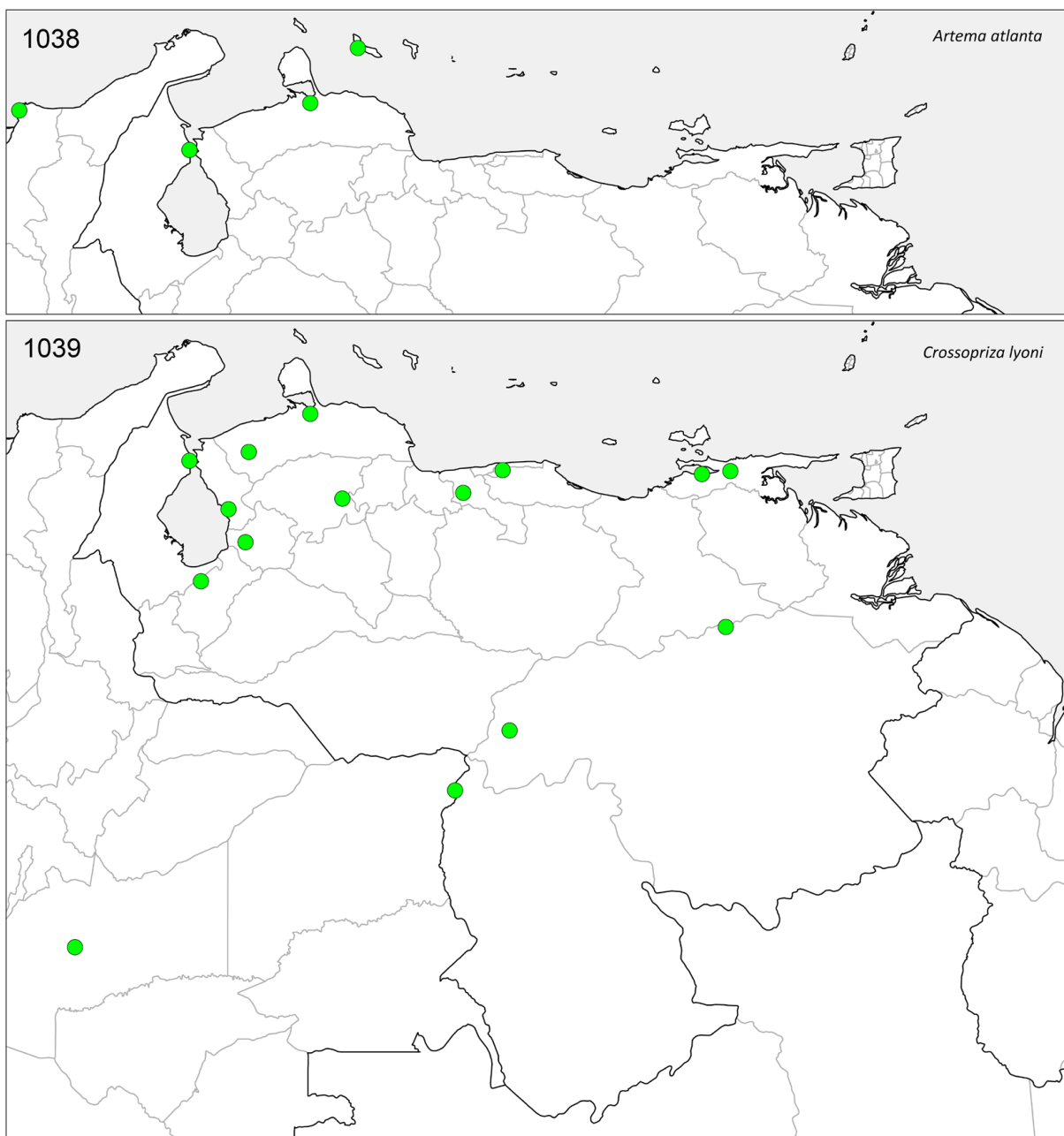
Figs 1027–1032. Selection of collecting sites. **1027.** Mérida, Mucuy, along Laguna El Suero trail (*Mecolaesthus* spp.; *Priscula andinensis* González-Sponga, 1999; *P. ulai* González-Sponga, 1999). **1028.** Mérida, between Mérida and Barinas, ‘site 2’ (*Mecolaesthus yerbatero* Huber sp. nov.). **1029.** Trujillo, Laguna Negra [*Canaima loca* Huber sp. nov.; *Boconita sayona* Huber sp. nov.; *Mecolaesthus* spp.; *Metagonia conica* (Simon, 1893); *Priscula* spp.]. **1030.** Delta Amacuro, between El Triunfo and Piacoa (*Blanca piacoa* Huber, 2000; *Carapoia paraguaensis* González-Sponga, 1998). **1031.** Falcón, Bariro (*Ibotyporanga bariro* Huber sp. nov.). **1032.** La Guaira, Catia La Mar [*Chisosa caquetio* Huber, 2019; *Modisimus culicinus* (Simon, 1893)].



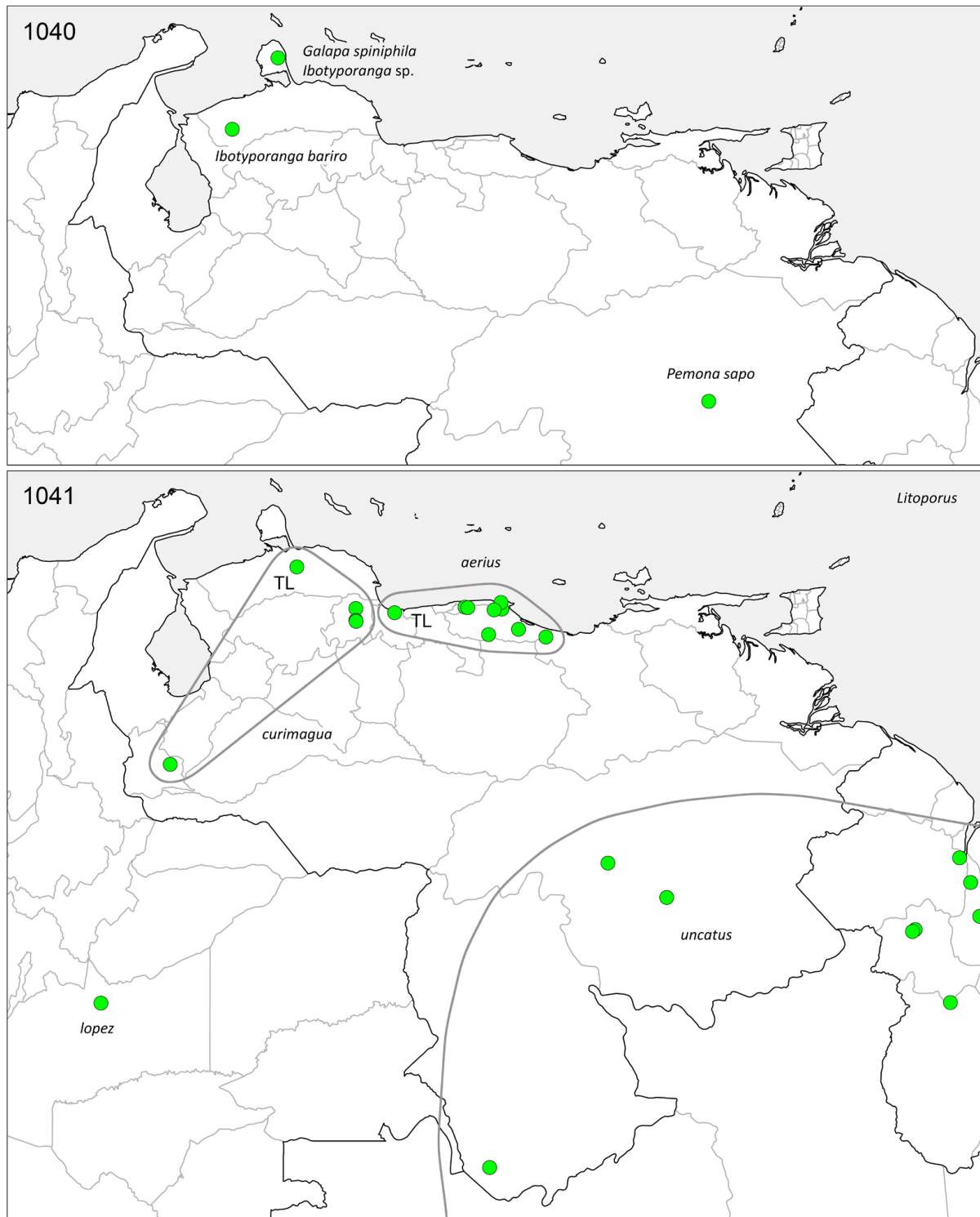
Figs 1033–1035. Distribution maps. **1033.** Known distributions of *Anopsicus* Chamberlin & Ivie, 1938; *Boconita* Huber gen. nov.; and *Blancoa* Huber, 2000 in Venezuela (and neighboring areas); *Anopsicus* is species-rich in Central America, Mexico, and the Caribbean (Gertsch 1982); *Boconita* gen. nov. and *Blancoa* are known only from the localities shown in the map. **1034.** Known distribution of *Canaima* Huber, 2000; the map shows all known species. **1035.** Known distribution of *Chibchea* Huber, 2000 in Venezuela (and neighboring areas); *Chibchea* is widespread in the Andes and ranges south to Argentina and Chile (Huber 2000). TL, type locality.



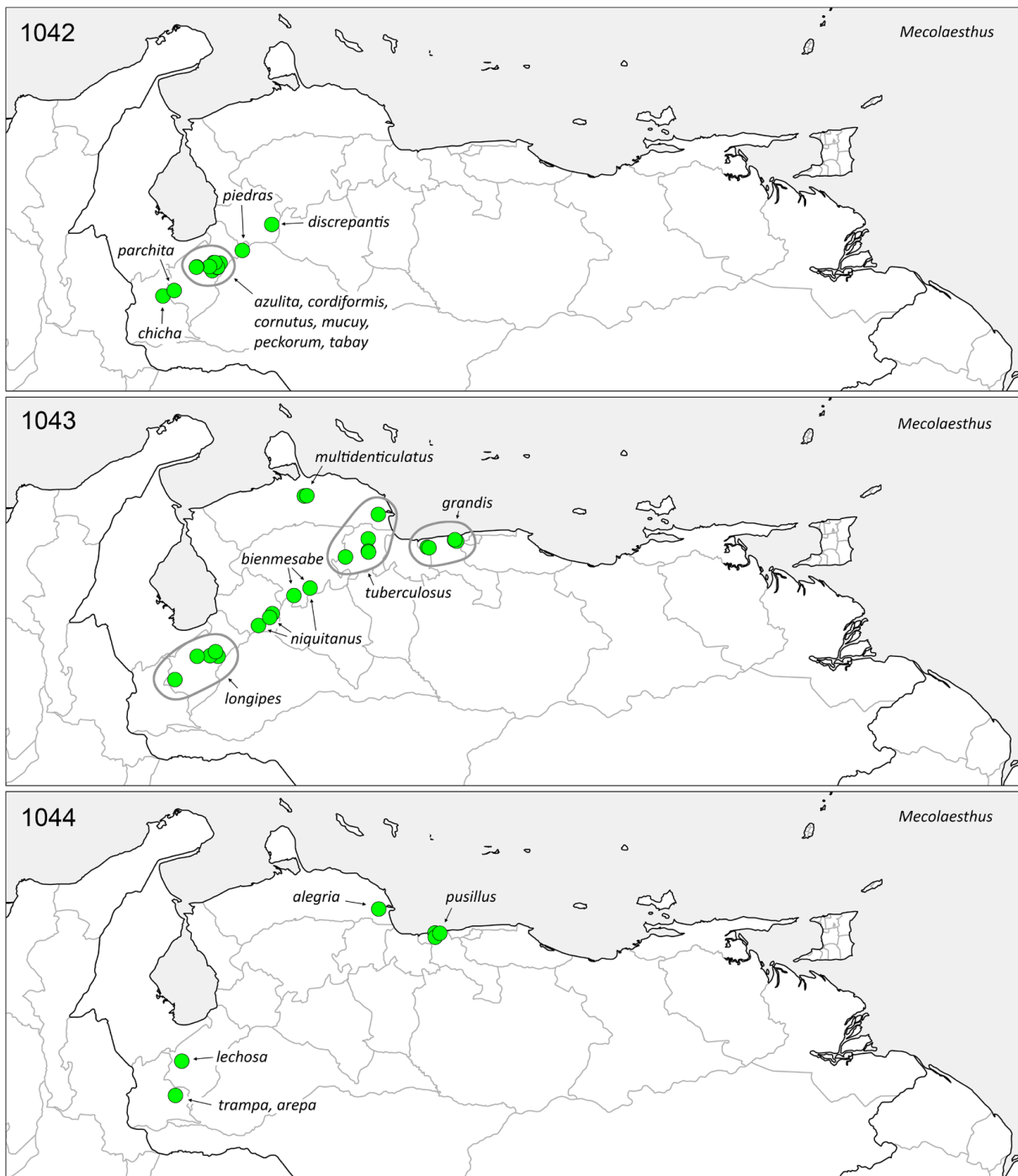
Figs 1036–1037. Distribution maps. **1036.** Known distributions of *Chisosa* Huber, 2000 and *Carapoia* González-Sponga, 1998 in Venezuela (and neighboring areas); *Chisosa* is known from two further species in Texas and Baja California Norte (Huber 2000). *Carapoia* is widespread in South America (Huber 2016, 2018); the only Venezuelan species *C. paraguaensis* González-Sponga, 1998 ranges further south than shown on the map. **1037.** Known distribution of *Coryssocnemis* Simon, 1893. The map shows all known species (except for the misplaced Mexican and Brazilian species; see text). TL, type locality.



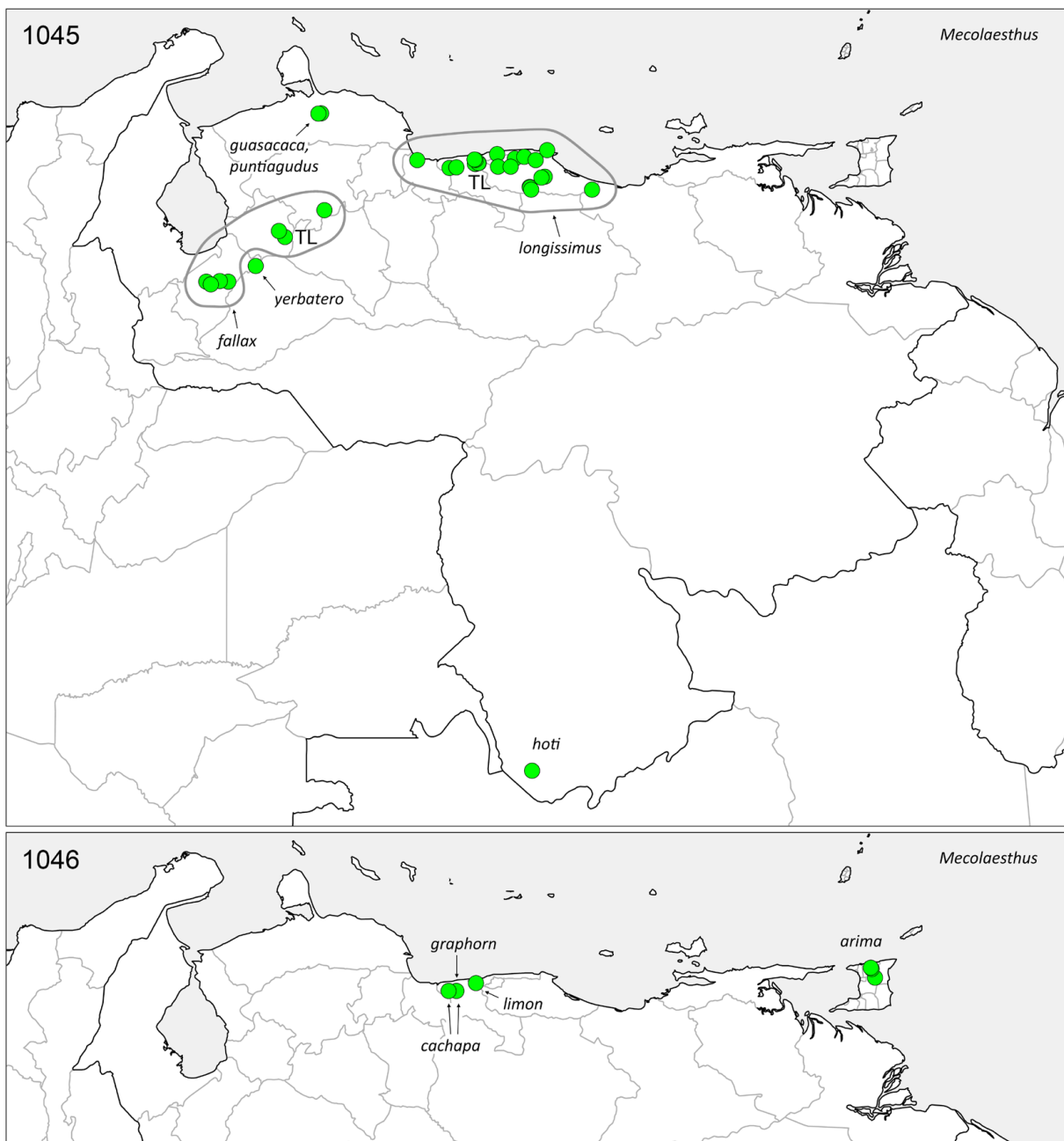
Figs 1038–1039. Distribution maps. **1038.** Known distribution of *Artema* Walckenaer, 1837 in Venezuela and neighboring areas; *Artema* is in the New World only represented by the introduced pantropical *A. atlanta* Walckenaer, 1837 (Aharon *et al.* 2017). **1039.** Known distribution of *Crossopriza* Simon, 1893 in Venezuela and neighboring areas. *Crossopriza* is in the New World only represented by the introduced pantropical *C. lyoni* (Blackwall, 1867) (Huber *et al.* 1999).



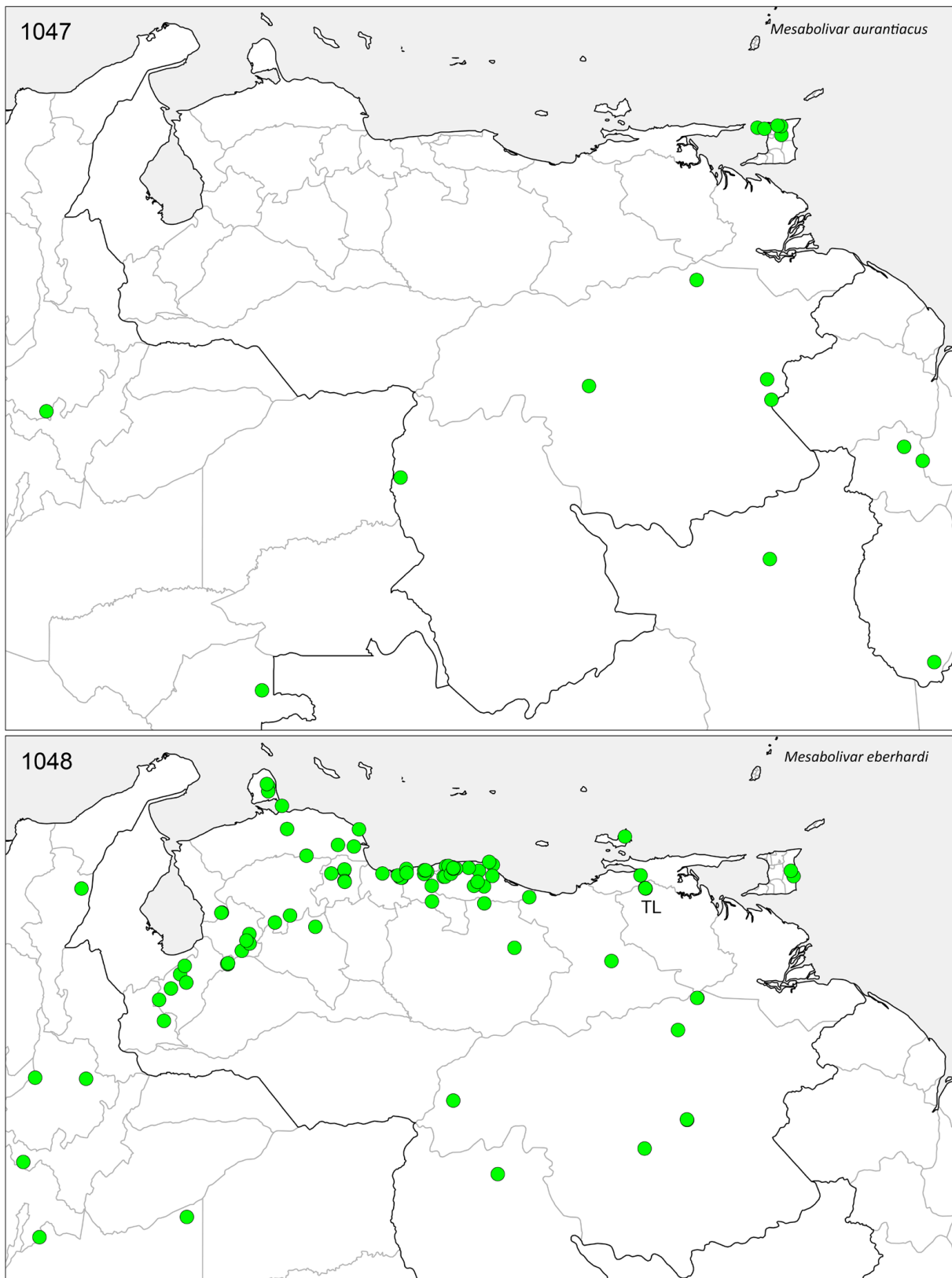
Figs 1040–1041. Distribution maps. **1040.** Known distribution of Ninetinae (*Galapa* Huber, 2000; *Ibotyporanga* Mello-Leitão, 1944; *Pemona* Huber, 2019) in Venezuela (and neighboring areas); *Galapa* is also known from Galapagos (Huber 2000; Baert 2014) and an undescribed species in Costa Rica (B.A. Huber, unpubl. data); *Ibotyporanga* is widespread in northern South America (B.A. Huber & L.S. Carvalho, unpubl. data); *Pemona* is a monotypic genus known only from the locality shown. **1041.** Known distribution of *Litoporus* Simon, 1893 in Venezuela (and neighboring areas); *Litoporus* is widespread in northern South America (Huber 2000; B.A. Huber & L.S. Carvalho, unpubl. data). TL, type locality.



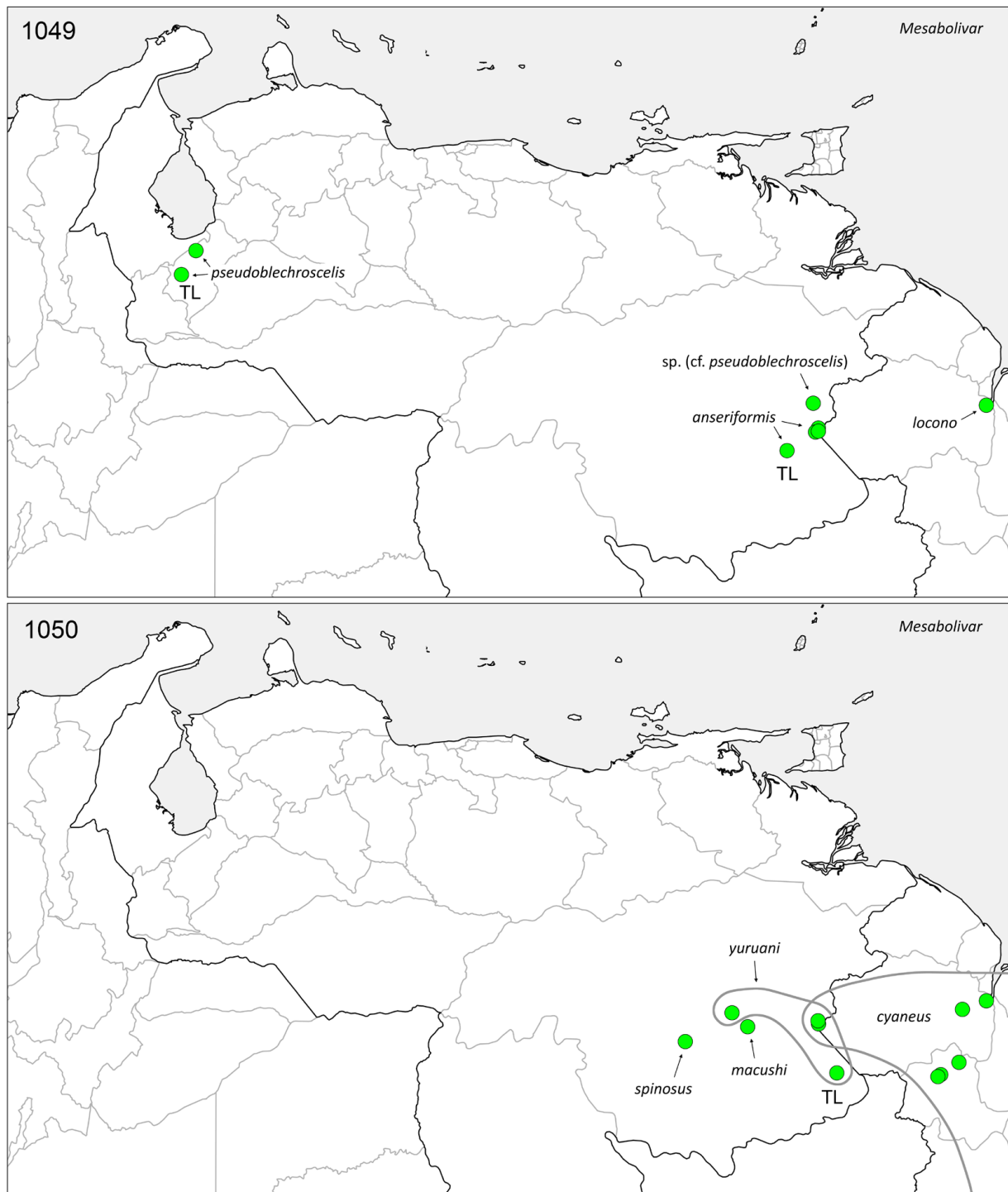
Figs 1042–1044. Known distributions of the *Mecolaesthus cornutus* group (1042) and the *M. grandis* group (1043–1044). Both species groups are known from Venezuela only.



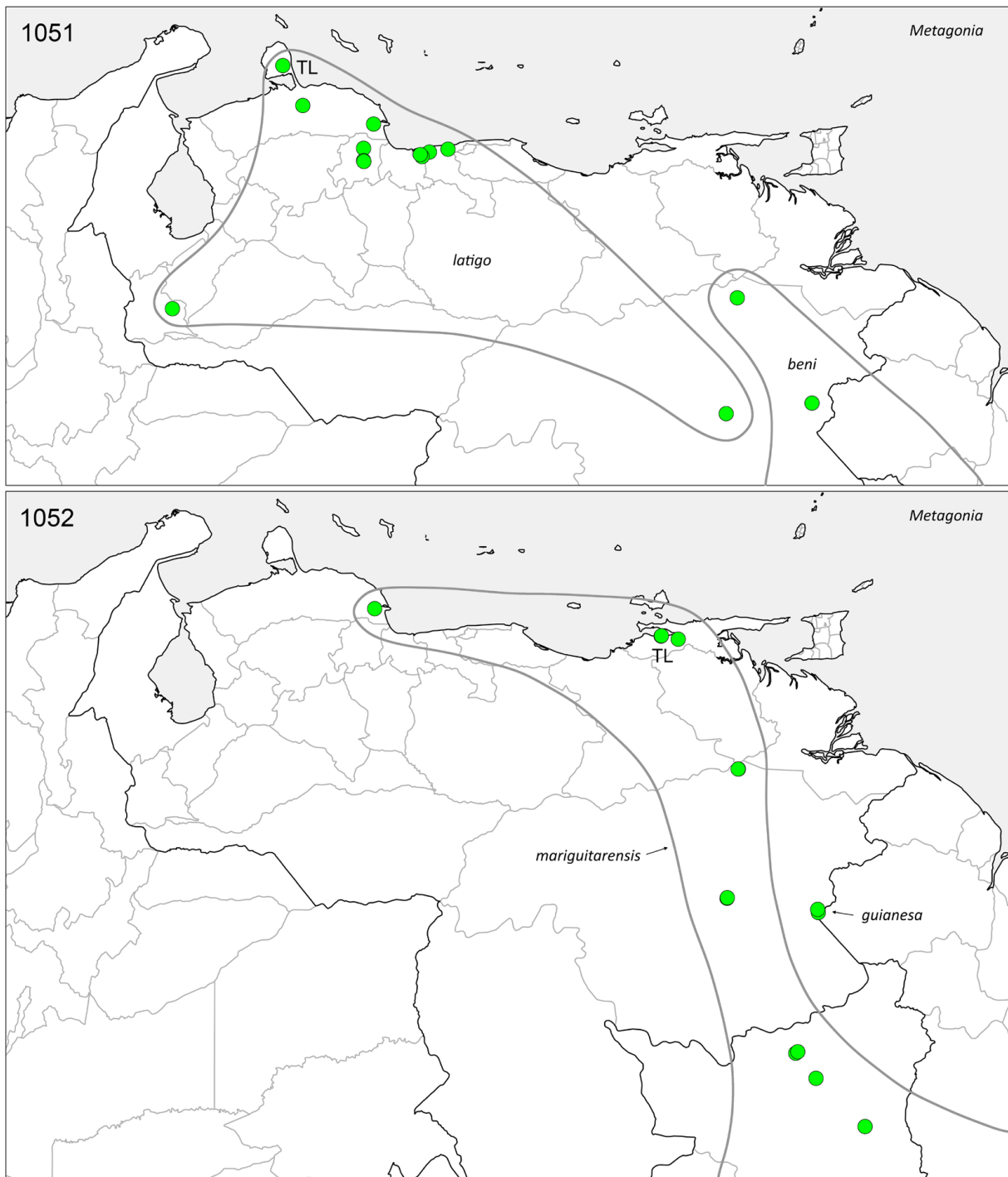
Figs 1045–1046. Known distribution of *Mecolaesthus* Simon, 1893 (except *cornutus* and *grandis* groups) in Venezuela (and neighboring areas). Outside of the map area, the genus includes only five further described species in the Lesser Antilles (3), Colombia (1), and Brazil (1). TL, type locality.



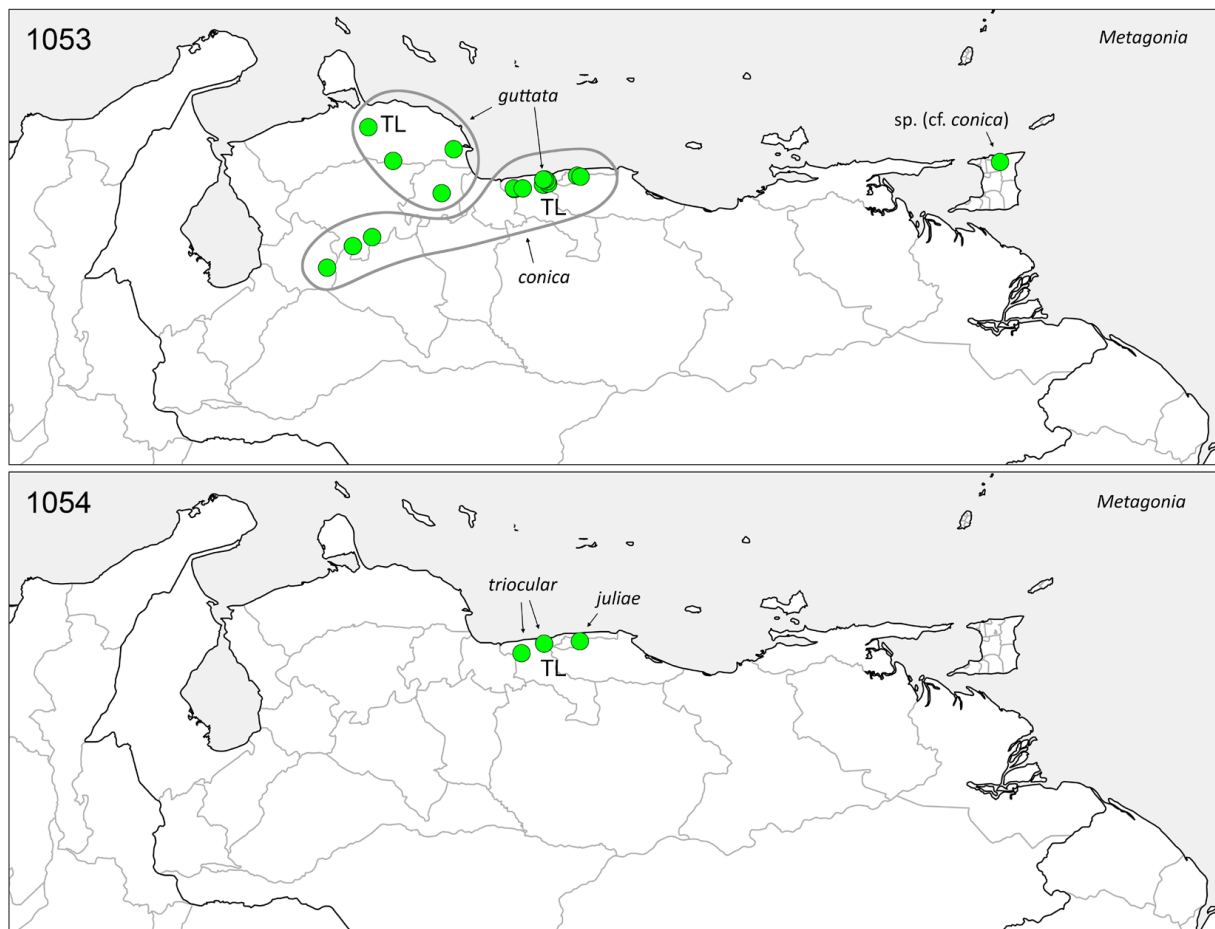
Figs 1047–1048. Known distributions of *Mesabolivar aurantiacus* (Mello-Leitão, 1930) and *M. eberhardi* Huber, 2000 in Venezuela (and neighboring areas). Both species are widespread in northern South America (Huber 2018), but none of them seems to reach Panama or the Lesser Antilles. TL, type locality.



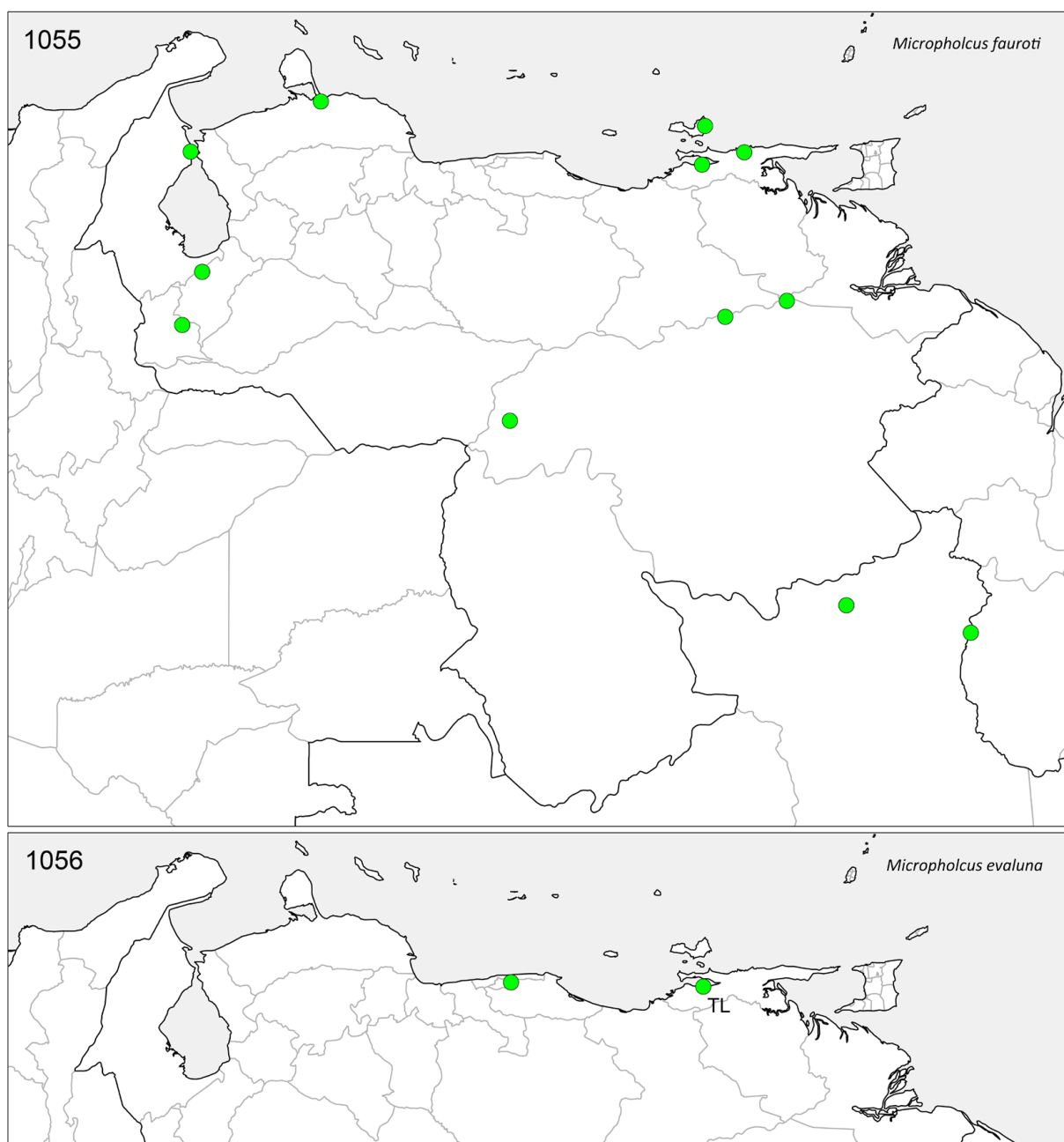
Figs 1049–1050. Known distribution of *Mesabolivar* González-Sponga, 1998 [except *M. aurantiacus* (Mello-Leitão, 1930) and *M. eberhardi* Huber, 2000] in Venezuela (and neighboring areas). *M. cyaneus* (Taczanowski, 1874) has a wider distribution than shown in the map, covering the entire Guyana Region (Huber 2018); some Guyana localities published in Huber (2000) may be located within the map but their exact coordinates are not known to us. TL, type locality.



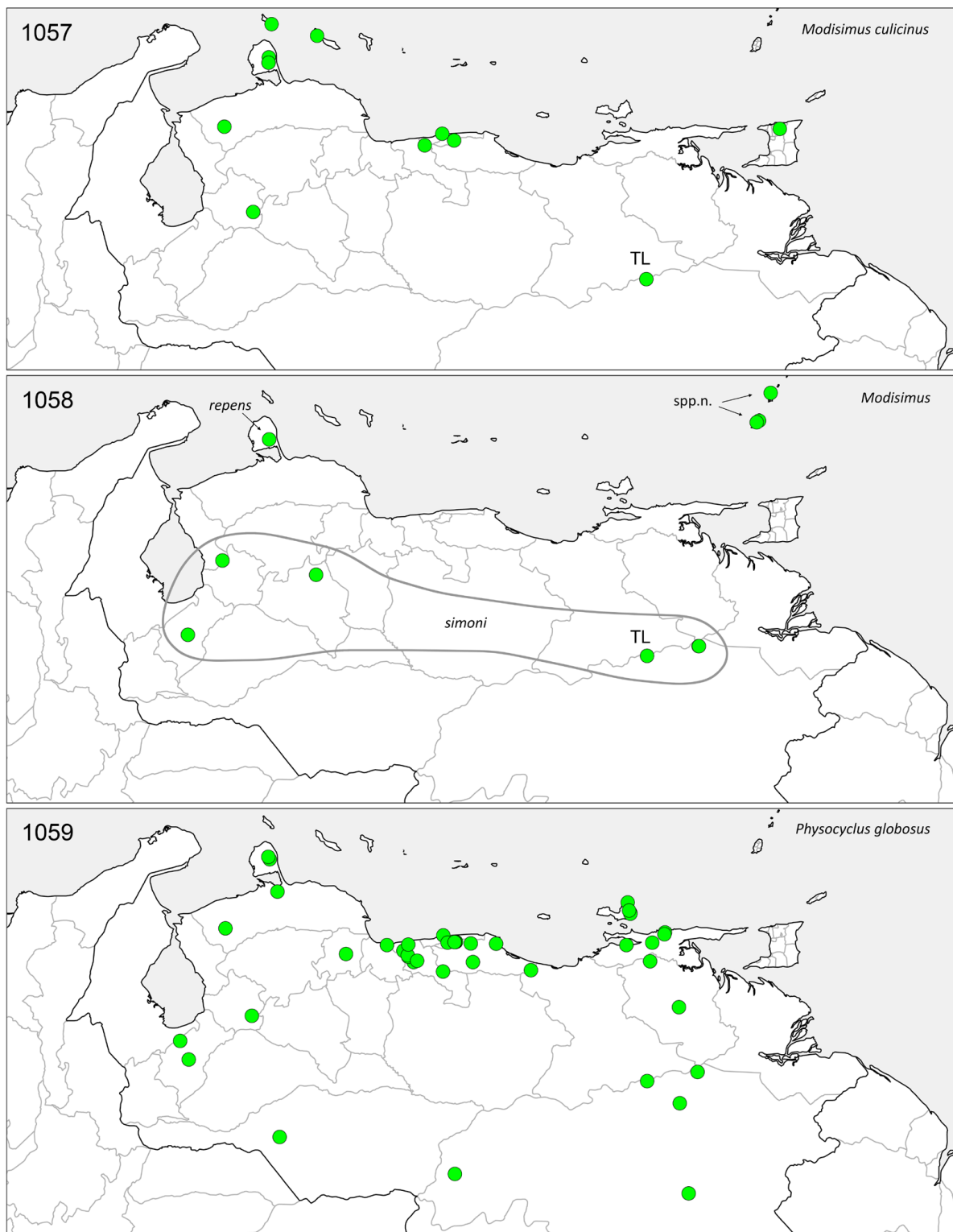
Figs 1051–1052. Known distribution of the *Metagonia delicata* group in Venezuela (and neighboring areas). This group ranges from Mexico to northern Argentina; *M. beni* Huber, 2000 and *M. mariguitarensis* (González-Sponga, 1998) have wider distributions than shown in the maps: they are widespread in the Amazon Region (Huber 2000; B.A. Huber, unpublished data). TL, type locality.



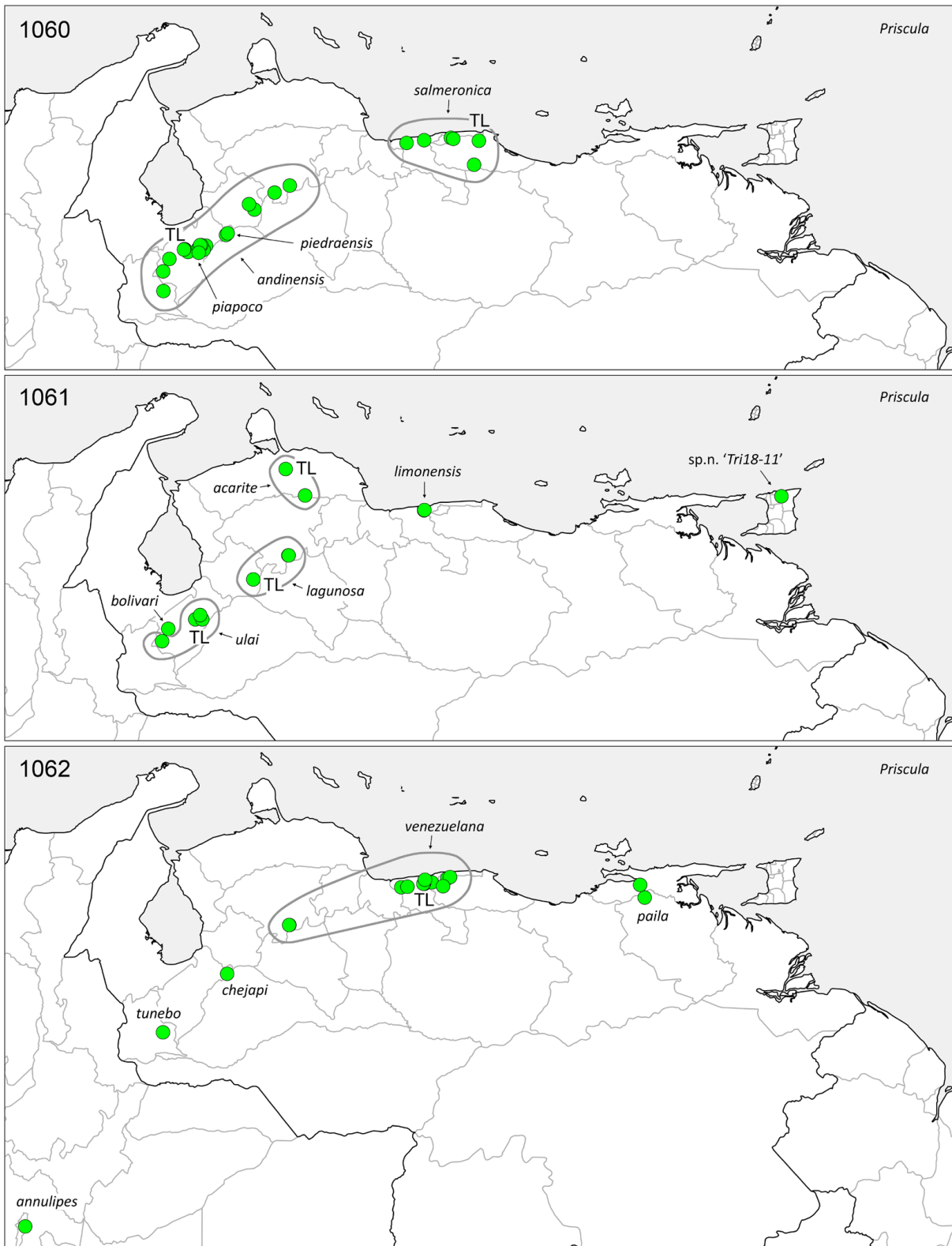
Figs 1053–1054. Known distribution of the *Metagonia rica* group in Venezuela (and neighboring areas). This group is species-rich in Mexico and Central America and reaches into northern South America. TL, type locality.



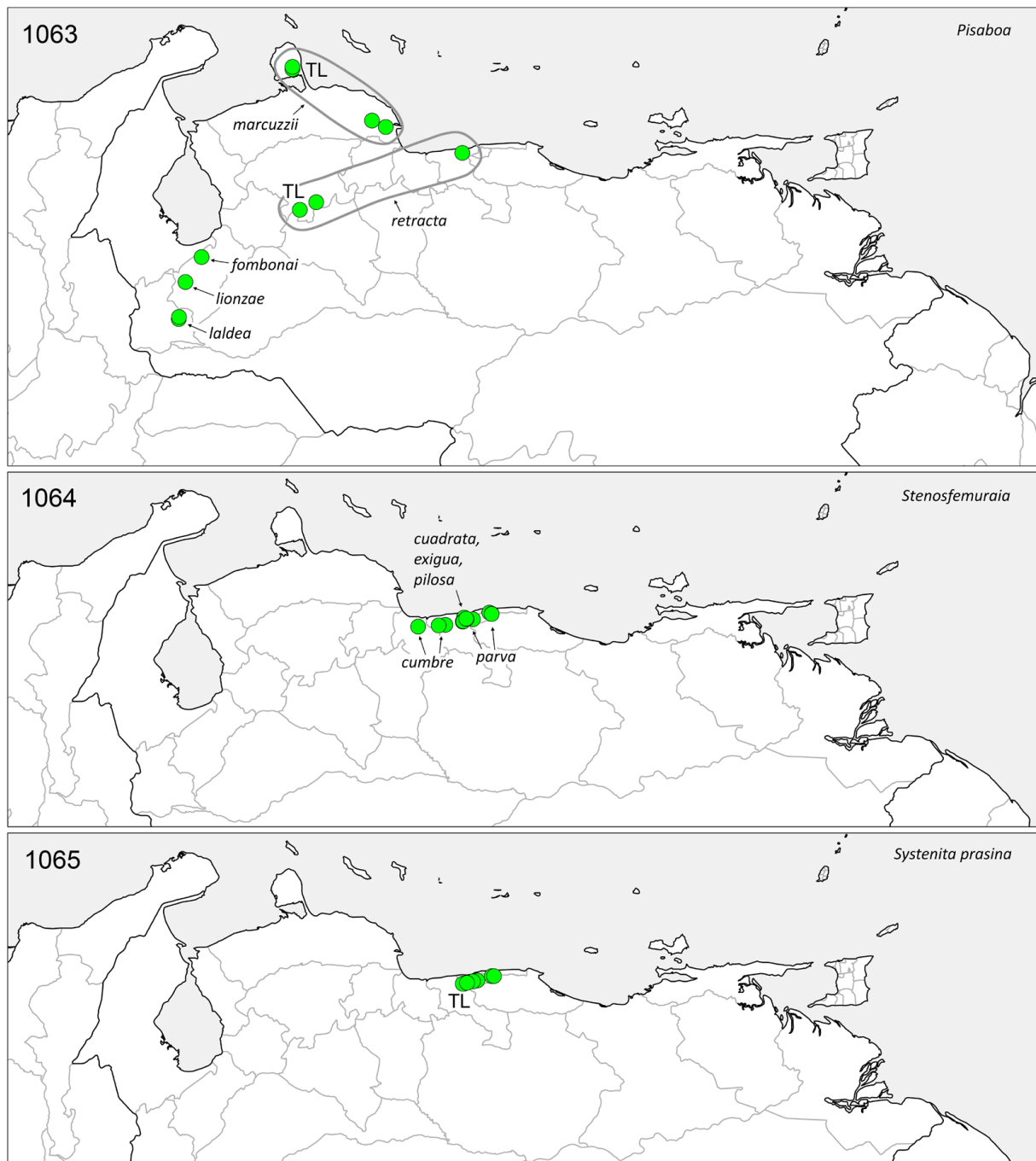
Figs 1055–1056. Known distribution of *Micropholcus* Deeleman-Reinhold & Prinsen, 1987 in Venezuela (and neighboring areas); *Micropholcus fauroti* (Simon, 1887) is an introduced pantropical species (Huber *et al.* 2017); indigenous representatives of *Micropholcus* are widespread in Brazil and the Caribbean (Huber 2000; Huber *et al.* 2005, 2014b) but in Venezuela represented only by *M. evaluna* (Huber, Pérez González & Baptista, 2005). TL, type locality.



Figs 1057–1059. Distribution maps. **1057–1058.** Known distribution of *Modisimus* Simon, 1893 in Venezuela (and neighboring areas). *Modisimus* is species-rich in Mexico, Central America, and the Caribbean, but poorly represented in South America. **1059.** Known distribution of *Physocyclus* Simon, 1893 in Venezuela; *Physocyclus* is in South America represented only by the introduced pantropical *P. globosus* (Taczanowski, 1874); the map does not show records from neighboring areas. TL, type locality.



Figs 1060–1062. Known distribution of *Priscula* Simon, 1893 in Venezuela (and neighboring areas). The genus ranges south along the Andes to Argentina and with one species east into Guyana (Huber 2000). TL, type locality.



Figs 1063–1065. Distribution maps. **1063.** Known distribution of *Pisaboa* Huber, 2000 in Venezuela; further species of *Pisaboa* have been described from Peru and Bolivia (Huber 2000). **1064.** Known distribution of *Stenosfemuraia* González-Sponga, 1998; the genus is restricted to the area shown. **1065.** Known distribution of the monotypic genus *Systemita* Simon, 1893. TL, type locality.

Discussion

Species diversity

A recent statistical analysis of megatranssect collecting data has concluded that only about 25–40% of the total global Pholcidae species richness is formally described (Huber & Chao 2019). Applying this percentage to the currently 114 Venezuelan native species available to us (102 described+12 undescribed), this would mean a total of approximately 280–570 species in Venezuela. However, it is not known if the global percentage is a good estimate for this particular country. Circumstantial evidence suggests that species richness in Venezuela is likely to be at the higher rather than the lower extreme.

First, collecting has been limited almost exclusively to relatively easily accessible regions, and vast areas remain essentially unexplored. This is particularly true of the states Amazonas and Bolívar, but also of the states Anzoátegui, Barinas, Cojedes, Guárico, Portuguesa, Táchira, and Zulia. Of the 4100 adult specimens available with coordinate data, 1420 are from within 50 km of the cities of Caracas and Mérida; this means that 35% of the specimens are from ~1.5% of the country's land surface area.

Second, the available data suggest that species turnover among localities is extremely high, especially in the Venezuelan Andes and Coastal Range. Few species seem to have wide distributions while the large majority of species seem to be restricted to small geographic areas. Table 1 lists the species found at the localities with more than eight species of Pholcidae. The distances between these localities range from 7 km (Colonia Tovar-El Limón; 6 of 21 species shared, i.e., 29%) to 610 km (El Ávila-La Trampa; 1 of 20 species shared, i.e., 5%). Of the 54 species in Table 1, 40 were found at only one of the seven localities.

Third, similar congeners often share a locality, usually in slightly to conspicuously different microhabitats. This is particularly evident in *Mecolaesthus*, where up to seven species were found per locality, apparently with slightly different preferences not only for microhabitats but also for altitudes (e.g., in Mérida, Mucuy). A similar level of fine-scale niche partitioning coupled with high species diversity is known from Brazil's Atlantic Forest, where different genera have apparently gone through an analogous process of explosive speciation (mainly *Carapoia* González-Sponga, 1998; *Mesabolivar* González-Sponga, 1998; *Tupigea* Huber, 2000; and *Metagonia* Simon, 1893; Huber 2015, 2016, 2018; B.A. Huber & L.S. Carvalho, unpublished data).

Fourth, compared to Brazil and Mexico, the only comparably megadiverse New World countries where pholcid taxonomy has received a moderate degree of scientific attention, Venezuela has a very high genus level diversity. Ignoring introduced and dubious species, Venezuela currently counts 21 genera, Brazil 19, Mexico ten (Table 2). This need not necessarily translate into a high species diversity but together with the evident sampling gaps and the high levels of species turnover and niche partitioning mentioned above it supports the view that the currently 102 named native Venezuelan pholcid species are just a small fraction of the actual species richness.

Biogeography

Unsurprisingly, Venezuela shares more genera with Brazil (nine) than with Mexico (four) (Table 2; ignoring introduced species). The difference is probably even more pronounced because the Amazonian fauna in Venezuela is poorly known and may contain several further genera known from the Brazilian Amazon (e.g., *Kairona* Huber & Carvalho, 2019; *Otavaioa* Huber, 2000; *Saciperere* Huber & Carvalho, 2019). Despite this superficial similarity between Venezuela and Brazil, pholcid species diversity in the two countries is based on different genera. While *Mesabolivar* González-Sponga, 1998 and *Carapoia* González-Sponga, 1998 seem to be the most species-rich pholcid genera in Brazil, they are much less diverse in Venezuela: 79 vs 8 described species in *Mesabolivar*; 45 vs 1 species in *Carapoia*. A similar pattern seems to exist in *Metagonia* Simon, 1893, with 39 species available to us from Brazil

Table 1 (continued on next page). Venezuelan localities with more than eight species of Pholcidae. EL=La Guaira; El Limón (17 species); Ya=Lara, Yacambú (12); Av=Miranda, El Ávila National Park (12); LN=Trujillo, Laguna Negra (11); To=Aragua, Colonia Tovar (10); MZ=Mérida, Monte Zerpa (9); Tr=Táchira, La Trampa (9). Grey=40 of the 54 species are known from only one of the seven localities, suggesting a high species turnover.

	EL	Ya	Av	LN	To	MZ	Tr	Reference/voucher
<i>Boconita sayona</i>				x				herein
<i>Boconita yacambu</i>		x						herein
<i>Canaima avila</i>			x					herein
<i>Canaima loca</i>				x				herein
<i>Canaima perlonga</i>		x						herein
<i>Canaima zerpa</i>						x		herein
<i>Chibchea tunebo</i>							x	herein
<i>Litoporus aerius</i>			x					herein
<i>Litoporus curimagua</i>							x	herein
<i>Mecolaesthus arepa</i>							x	herein
<i>Mecolaesthus cornutus</i>						x		Huber 2000; herein
<i>Mecolaesthus discrepantis</i>				x				González-Sponga 2003; herein
<i>Mecolaesthus fallax</i>		x		x		x		herein
<i>Mecolaesthus grandis</i>	x							González-Sponga 2009; herein
<i>Mecolaesthus bienmesabe</i>		x						herein
<i>Mecolaesthus limon</i>	x							herein
<i>Mecolaesthus longipes</i>						x		herein
<i>Mecolaesthus longissimus</i>	x		x		x			Huber 1997d; González-Sponga 2010; herein
<i>Mecolaesthus mucuy</i>						x		herein
<i>Mecolaesthus niquitanus</i>		x		x				herein
<i>Mecolaesthus peckorum</i>						x		Huber 2000; herein
<i>Mecolaesthus tabay</i>						x		herein
<i>Mecolaesthus trampa</i>							x	herein
<i>Mecolaesthus</i> sp. ‘Ven02/80-18’		x						ZFMK, Ar 22151
<i>Mecolaesthus</i> sp. ‘Ven18-16b’	x							ZFMK, Ar 22149
<i>Mecolaesthus</i> sp. ‘Ven20-169’	x							ZFMK, Ven20-169
<i>Mecolaesthus</i> sp. ‘Ven18-93’				x				ZFMK, Ar 22152

Table 1 (continued).

	EL	Ya	Av	LN	To	MZ	Tr	Reference/voucher
<i>Mecolaesthus</i> sp. 'Ven18-94'				x				ZFMK, Ar 22153
<i>Mecolaesthus</i> sp. 'ZFMK230'						x		ZFMK, Ar 22150
<i>Mesabolivar eberhardi</i>	x	x	x		x		x	Huber 2018; herein
<i>Metagonia conica</i>	x	x	x	x	x			Huber 1997c; herein
<i>Metagonia guttata</i>	x							herein
<i>Metagonia juliae</i>			x					González-Sponga 2010
<i>Metagonia latigo</i>	x						x	herein
<i>Metagonia triocular</i>	x							González-Sponga 2011b
<i>Micropholcus evaluna</i>			x					herein
<i>Pisaboa laldea</i>							x	Huber 2000; herein
<i>Pisaboa retracta</i>	x	x						herein
<i>Priscula andinensis</i>		x		x			x	herein
<i>Priscula lagunosa</i>		x		x				González-Sponga 1999; herein
<i>Priscula limonensis</i>	x							González-Sponga 1999; herein
<i>Priscula salmeronica</i>	x		x					González-Sponga 1999; herein
<i>Priscula tunebo</i>							x	Huber 2000; herein
<i>Priscula ulai</i>						x		González-Sponga 1999
<i>Priscula venezuelana</i>	x	x	x		x			Huber 1997d; herein
<i>Priscula</i> sp. (cf. <i>limonensis</i>)					x			MIZA 105757 (MAGS 1389)
<i>Priscula</i> sp. 'Ven18-208'				x				ZFMK, Ven18-208
<i>Priscula</i> sp. 'Ven20-182'			x					ZFMK, Ven20-182
<i>Stenosfemuraia quadrata</i>	x				x			González-Sponga 2005; Huber & Arias 2017
<i>Stenosfemuraia exigua</i>	x							herein
<i>Stenosfemuraia parva</i>	x		x		x			González-Sponga 1998; Huber & Arias 2017
<i>Stenosfemuraia pilosa</i>					x			González-Sponga, 2005; Huber & Arias 2017
<i>Stenosfemuraia</i> sp. 'Ven18-10'					x			ZFMK, Ar 22127, Ven18-154
<i>Systemita prasina</i>			x		x			Huber 1997d; herein

Table 2. List of genera of Pholcidae known from Brazil, Venezuela, and Mexico. Shared genera are highlighted in grey (except dubious and introduced taxa).

Brazil	Venezuela	Mexico
	1. <i>Anopsicus</i>	1. <i>Anopsicus</i>
1. <i>Arenita</i>		
2. <i>Aymaria</i>		
	2. <i>Blancoa</i>	
	3. <i>Boconita</i>	
	4. <i>Canaima</i>	
3. <i>Carapoia</i>	5. <i>Carapoia</i>	
4. <i>Chibchea</i>	6. <i>Chibchea</i>	
	7. <i>Chisosa</i>	2. <i>Chisosa</i>
	8. <i>Coryssocnemis</i>	3. “ <i>Coryssocnemis</i> ” ¹
	9. <i>Galapa</i>	
5. <i>Guaranita</i>		
6. <i>Ibotyporanga</i>	10. <i>Ibotyporanga</i>	4. <i>Ixchela</i>
7. <i>Kairona</i>		
8. <i>Kambiwa</i>		
9. <i>Litoporus</i>	11. <i>Litoporus</i>	
10. <i>Mecolaesthus</i>	12. <i>Mecolaesthus</i>	
11. <i>Mesabolivar</i>	13. <i>Mesabolivar</i>	
12. <i>Metagonia</i>	14. <i>Metagonia</i>	5. <i>Metagonia</i>
13. <i>Micropholcus</i> ²	15. <i>Micropholcus</i> ²	
	16. <i>Modisimus</i> ³	6. <i>Modisimus</i> ³
14. <i>Otavaloa</i>		
	17. <i>Pemona</i>	
		7. <i>Pholcophora</i>
		8. <i>Physocyclus</i>
15. <i>Pinocchio</i>		
16. <i>Pisaboa</i>	18. <i>Pisaboa</i>	
	19. <i>Priscula</i>	
		9. <i>Psilochorus</i> ⁴
17. “ <i>Psilochorus</i> ” ⁴		
18. <i>Saciperere</i>		
	20. <i>Stenosfemuraia</i>	
	21. <i>Systemita</i>	
		10. <i>Tolteca</i>
19. <i>Tupigea</i>		
Dubious and introduced		
<i>Artema</i>	<i>Artema</i>	<i>Artema</i>
“ <i>Coryssocnemis</i> ” ¹		
<i>Crossopriza</i>	<i>Crossopriza</i>	<i>Crossopriza</i>
		<i>Micropholcus</i> ²
<i>Modisimus</i> ³		
<i>Pholcus</i>		
<i>Physocyclus</i>	<i>Physocyclus</i>	
<i>Smeringopus</i>		
“ <i>Spermophora</i> ” ⁵		

¹ Mexican “*Coryssocnemis*” is counted as a separate genus because the three Mexican species seem to represent an undescribed genus (Huber 2000: 344). By contrast, Brazilian “*Coryssocnemis*” is listed as dubious because the three poorly known species (Huber 2000: 344) probably belong in other genera (such as *Mesabolivar*).

² Brazil and Venezuela both have native species of *Micropholcus*, while Mexico has only the introduced *M. fauroti*.

³ Mexico and Venezuela both have native species of *Modisimus*, while Brazil has only the introduced *M. culicinus*.

⁴ ‘True’ Mexican *Psilochorus* and Brazilian “*Psilochorus*” are here considered to be separate genera, but their relationships continue to be unclear (Huber *et al.* 2018).

⁵ The only Brazilian “*Spermophora*”, *S. maculata*, is very probably misplaced and possibly not even a pholcid (Huber 2000: 345).

(18 described+21 undescribed) but only eight from Venezuela. This contrasts sharply with *Mecolaesthus* Simon, 1893 that currently counts only one species in Brazil but 36 in Venezuela (30 described+six undescribed).

Much of the similarity between the Venezuelan and Brazilian pholcid fauna is due to the shared Amazonian region. Of the eight pholcid species known to be shared between Venezuela and neighboring countries (again ignoring introduced species), five are widespread Amazonian taxa [*Litoporus uncatus* (Simon, 1893); *Mesabolivar aurantiacus* (Mello-Leitão, 1930) and *M. eberhardi* Huber, 2000; *Metagonia beni* Huber, 2000 and *M. mariguitarensis* (González-Sponga, 1998)]. Two species are widespread in the Guiana Highlands [*Carapoia paraguaensis* González-Sponga, 1998; *Mesabolivar cyaneus* (Taczanowski, 1874)]; the eighth shared species occurs in the dry coastal regions of Venezuela and the Netherlands Antilles (*Chisosa caquetio* Huber, 2019). The large majority of Venezuelan species from the Andes and the Coastal Ranges are currently known from Venezuela only.

Given the fragmentary knowledge of Venezuelan pholcids in general and of their distributions in particular it is certainly too early to draw more far-reaching conclusions. Here, we draw attention to three observations that seem particularly worth of further investigation.

First, if species currently thought to be endemic to individual biogeographic regions are counted, the results are very similar to those of better studied groups with similar habitat requirements. For example, Barrio-Amorós (1999), studying amphibians, divided the country into seven regions, of which the Venezuelan Andes had the highest percentage of endemic species (59% of species present in the region), followed by the Coastal Range (43%) and the Guayana Highlands (36%). Using the same regions for Pholcidae results in exactly the same sequence (Table 3): Venezuelan Andes (85%), Coastal Range (81%), and Guayana Highlands (44%). The other four regions lacked endemics in Barrio-Amorós’s (1999) study; in Pholcidae they either lack endemics (Delta Region, Llanos Region, Maracaibo Basin) or count one species (Amazonian Region, i.e., 25%).

Second, our data support the status of the Falcón Region as a distinct biogeographic region. This is in contrast with Barrio-Amorós (1999) whose “Cordillera de la Costa” is a combination of Rivero’s (1961) Falcón Region and Coastal Range. In Pholcidae, each region counts several endemic species (nine of 19 species in the Falcón Region, i.e., 47%; 26 of 37 species in the Coastal Range, i.e., 70%).

Third, our data support the at first sight paradoxical idea of a biogeographic relation between the Falcón Region and the Guayana Highlands via the Coastal Ranges, supported mainly by data on plants, birds, and amphibians (Mijares-Urrutia *et al.* 1999 and references therein). A pholcid taxon that seems to support this idea is *Metagonia mariguitarensis* (González-Sponga, 1998) (Fig. 1052). The connection between Falcón and the Guyana Highlands may date back to the Middle Miocene, when the proto-Orinoco supposedly ended in northwestern Falcón (Díaz de Gamero 1996). However, the Falcón region has a complex biogeography and our data reflect this mosaic: some species are closely related to Andean taxa [e.g., *Chibchea thunbergae* Huber sp. nov.; *Pisaboa marcuzzii* (Caporiacco, 1955) comb. nov.; *Priscula acarite* Huber sp. nov.), others have their closest relatives in the Coastal Ranges [e.g.,

Table 3. Biogeographic regions in Venezuela according to Barrio-Amorós (1999) and numbers of total species and endemic species per region for Amphibia and Pholcidae. The regions are sorted from highest to lowest percentage of endemism (bold numbers); note that the identical sequence is valid for Amphibia and Pholcidae.

Biogeographic regions	Amphibia (Barrio-Amorós 1999)			Pholcidae (herein)		
	Species per region	# endemics	% endemics	Species per region	# endemics	% endemics
Venezuelan Andes	79	47	59	46	39	85
Coastal Range	75	31	43	48	39	81
Guayana Highlands	164	60	36	16	7	44
Amazonian Region	55	0	0	4	1	25
Llanos	33	0	0	2	0	0
Maracaibo Basin	18	0	0	0	0	0
Delta Region	25	0	0	0	0	0

Mecolaesthus multidenticulatus (González-Sponga, 2003)], or appear closely related to Caribbean taxa (e.g., *Anopsicus ana* Huber sp. nov.; *Chisosa caquetio* Huber, 2019; *Metagonia guttata* Huber sp. nov.; *Modisimus repens* Huber sp. nov.).

Microhabitat shifts

Pholcids occupy a range of different microhabitats, and the preferred microhabitat is usually clearly reflected in the spiders' general morphology and coloration (e.g., Huber 2000, 2012, 2018; Huber *et al.* 2010, 2015, 2016b, 2019; Eberle *et al.* 2018). For example, leaf litter and ground-dwellers are usually small, short-legged, and dark; species that occupy large sheltered spaces tend to be large, long-legged, and dark; species that live on the undersides of live leaves are either small or long and slender, have very thin long legs, and a whitish to pale greenish background color. Behavioral differences are less well studied, but include defense behavior (e.g., swinging in long-legged species, running in short-legged species) and web building (e.g., partially reduced webs in leaf litter and leaf-dwelling species).

Evolutionary shifts among microhabitats have occurred in all possible directions, and a recent study has revealed over 90 shifts among the three major habitats listed above (Eberle *et al.* 2018). Such shifts among microhabitats may allow for the coexistence of closely related species in a given habitat and may thus have contributed to the species richness of Pholcidae in general (as compared to other spider families) and of some genera in particular (such as *Carapoia* González-Sponga, 1998; *Mesabolivar* González-Sponga, 1998; *Metagonia* Simon, 1893; *Modisimus* Simon, 1893; Huber *et al.* 2010; Huber 2015, 2016, 2018).

The present study is the first to document such microhabitat shifts in the genera *Mecolaesthus* Simon, 1893 and *Priscula* Simon, 1893. The majority of the Venezuelan species in *Mecolaesthus* occupy near-ground habitats, which probably represents the plesiomorphic condition. One species (*M. longipes* Huber sp. nov.) has shifted to large sheltered spaces, probably explaining the larger body size and longer legs; another species (*M. longissimus* Simon, 1893) has shifted to exposed webs among the low vegetation, probably explaining the slender body and the thin legs; two species (*M. fallax* Huber sp. nov., *M. yerbatero* Huber sp. nov.) have shifted to the undersides of live leaves, probably explaining

their pale coloration and (in *M. fallax* Huber sp. nov. only) the unusual inverted resting position that has independently evolved in leaf-dwelling species in other genera as well [e.g., *Carapoia lutea* (Keyserling, 1891) and *C. viridis* Huber, 2016; see Huber 2016, 2018; *Smeringopus cylindrogaster* (Simon, 1907); see Huber 2009], and apparently independently also in *Systemita prasina* Simon, 1893.

In *Priscula* Simon, 1893, the large majority of species seem to occupy dark sheltered spaces; in agreement with this microhabitat, they are large dark pholcids. In Venezuela, we repeatedly found light specimens on the undersides of live leaves. In a few cases these light specimens were all juveniles, and we either failed to find adults or found only dark adults in sheltered spaces, suggesting an ontogenetic change of color coupled with a shift of microhabitat. In *P. andinensis* González-Sponga, 1999 we could confirm this idea by sequencing a light juvenile (Fig. 799) that unexpectedly grouped with the other sequenced (dark adult) *P. andinensis* specimens (J.J. Astrin, B.A. Huber, unpubl. data). In *P. venezuelana* Simon, 1893 we found both dark specimens (Fig. 939) in sheltered spaces and light specimens on green leaves (Fig. 940), sometimes both ecomorphs at a single locality. Such a polymorphism has not been documented in Pholcidae before. However, from the perspective of evolutionary theory, such a polymorphism was probably involved in the origin of most if not all evolutionary microhabitat shifts.

Sexual color dimorphism

In most pholcids, males and females are generally similar in body shape and coloration, but sexual color dimorphism has evolved many times independently. Males are sometimes more yellowish/orange compared to the ochre/light brown females, for example in some species of *Carapoia* González-Sponga, 1998 and *Mesabolivar* González-Sponga, 1998 (Huber 2018: figs 5–6, 593–594; see also Figs 102–105, 597–598); light and dark leg bandings are often more distinct in females than in males, for example in some species of *Metagonia* Simon, 1893; *Pisaboa* Huber, 2000; *Otavaioa* Huber, 2000; etc. (Huber 2000); dark carapace patterns are sometimes larger and more distinct in males, for example in some species of *Metagonia* (Huber 2000; see also Figs 640–643, 681–682).

In some cases, the sexual dimorphism involves an intrasexual dimorphism or polymorphism. Usually, one morph of the polymorphic sex resembles the other sex, for example in *Pholcus soukous* Huber, 2011 and *Mesabolivar serrapelada* Huber, 2018, where some females have an orange sternum like males, while other females have a brown sternum (Huber 2011, 2018); in other species it is the male that is polymorphic, for example in *Teranga domingo* (Huber, 2016) where all females have a brown sternum, but males have either a brown or a whitish sternum (Huber *et al.* 2016b). Polymorphisms that are present in both sexes are rare, but have been reported for *Uthina hylobatea* Huber *et al.*, 2019 and may also exist in *Cantikus sabah* (Huber, 2011) (Huber *et al.* 2016a, 2019).

The newly discovered case of *Metagonia conica* (Simon, 1893) involves three male color morphs and monomorphic females. Very few males resemble females in having a monochromous light carapace; all other males have either a black ocular area or a black ocular area and a black median band (Figs 657–658, 661–662).

The biological significance of pholcid sexual color dimorphisms has never been studied. Most color-dimorphic species live on leaves or in exposed microhabitats rather than in the leaf litter or in dark sheltered spaces. This is in agreement with the idea that color polymorphisms are often a result of negative frequency-dependent selection by visual predators such as gleaning birds (Cotoras *et al.* 2017 and references therein). However, cases where male and female pholcids are obviously differently exposed to visual predators are rare. The only known example seems to be *Litoporus iguassuensis* Mello-Leitão, 1918, where females live in retreats while males hang in the exposed webs among the vegetation. Surprisingly, it is the females that are color-polymorphic in this species, not the males (Huber *et al.* 2013).

Egg parasitism

Egg parasitism is apparently relatively rare in Pholcidae. Females carry their egg-sacs with their mouthparts and this direct protection may be responsible for the widespread lack of protective silk layers that in other spiders are thought to have coevolved with specialized parasitoids and predators (Austin 1985; Hieber 1992). Several cases of egg parasitism by *Idris* Förster, 1856 wasps have recently been discovered in Southeast Asia (Johnson *et al.* 2018), but in the New World only two cases have been published, one involving an unidentified *Baeus* Haliday wasp and two closely related species of *Leptopholcus* (now in *Micropholcus*) on Hispaniola (Huber & Wunderlich 2006), the other an unidentified *Baeus* wasp and *Carapoia alagoas* Huber, 2016 from the Brazilian Atlantic Forest (Huber 2016). A third, unpublished case involves an unidentified wasp (still within the spider eggs) and *Mesabolivar spinulosus* (Mello-Leitão, 1939) from Rio Grande do Norte in Brazil; in that case, all eggs visible from outside are parasitized (deposited in ZFMK, Br15-276).

Here, we report two further New World cases. The first involves *Mesabolivar eberhardi* Huber, 2000 and an unidentified parasitoid (MIZA 105699). The second is remarkable as it involves *Priscula* Simon, 1893, a genus that is unusual among Pholcidae for its tendency to build relatively dense egg-sac covers (see Figs 798, 941). In one of three egg-sacs accompanying the *Priscula paila* Huber sp. nov. females from the type locality, 48 of the 49 eggs were parasitized by an unidentified wasp (early instar larvae still within the spider eggs; Fig. 926).

Web retreats

Web retreats provide protection from the physical environment and from predation (Manicom *et al.* 2008). They are common in some spider groups (e.g., Theridiidae, Araneidae; Cloudsley-Thompson 1995; Scharff & Coddington 1997; Eberhard *et al.* 2008) but rare in pholcids. Pholcid spider retreats can be divided into three types, reflecting their constructional sophistication.

The first type is a simple extension of the domed web into the substrate that provides some protection. In some cases the web extension is a closed funnel that leads deep into the substrate, for example into the leaf litter or into holes in the ground, rock, or bark. Such retreats have been described for *Ixchela furcula* (F.O. Pickard-Cambridge, 1902) (Huber 1998c), for some species of *Carapoia* González-Sponga, 1998 (e.g., *C. jiboia* Huber, 2016; *C. alagoas* Huber, 2016; Huber 2016), and were newly observed in some Venezuelan representatives of *Priscula* Simon, 1893 (e.g., *P. andinensis* González-Sponga, 1999; *P. lagunosa* González-Sponga, 1999; *P. venezuelana* Simon, 1893).

The second type of retreat makes use of a specific non-silken structure (often a dead leaf) that protects the resting spider in an otherwise exposed web. Such retreats have been described in several species of *Carapoia* González-Sponga, 1998 (e.g., *C. maculata* Huber, 2018; *C. pulchra* Huber, 2018; *C. suassunai* Huber, 2018), where the domed sheets are built among the vegetation but the funnel at one side of the web leads into a folded or curled leaf in which the spider rests (Huber 2018). This kind of retreat is here newly described for *Mecolaesthus parchita* Huber sp. nov. and for several representatives of *Pisaboa* Huber, 2000 (*P. lionzae* Huber sp. nov.; *P. laldea* Huber, 2000; *P. retracta* Huber sp. nov.). It was not seen in the two other known Venezuelan representatives of *Pisaboa* [*P. fombonai* Huber sp. nov.; *P. marcuzzii* (Caporiacco, 1955) comb. nov.].

The third and most sophisticated type has been found in only one species of Pholcidae, the Brazilian *Litoporus iguassuensis* Mello-Leitão, 1918. Females (but not males) of this species build sac-like silken retreats that are camouflaged with small particles of plant detritus (Huber *et al.* 2013). Such camouflaged retreats appear to be rare also among the closest relatives of Pholcidae (e.g., Nuessly & Goeden, 1984 on Diguetaeidae), while they are not uncommon in the more distantly related entelegyne spiders (e.g., Scharff & Coddington 1997; Eberhard *et al.* 2008).

Remarkably, all pholcid retreats listed here occur in only one of the five subfamilies, the Modisiminae.

Morphology

The taxonomic descriptions above provide a wealth of new data for future revisions and morphological cladistic analyses. Here, we will discuss three details of potentially wider interest.

First, we observed several cases of broken sclerites at the tip of the procurus of *Priscula andinensis* González-Sponga, 1999. Similar cases have been reported rarely in Pholcidae, for example in *Smeringopus carli* Lessert, 1915 (Huber 2012). We do not know whether these are just cases of accidental damage during collection, fixation, and preparation, or if these are biologically more interesting cases of genital mutilation. The latter has been reported mainly in entelegyne spiders (araneids, theridiids, nephilids) and may be related to phenomena such as mating barriers and sperm competition (Uhl *et al.* 2010). In Pholcidae, male genital structures have never been found within female genital tracts. The phenomenon may thus be biologically irrelevant but it draws attention to one of the potential pitfalls in the taxonomic use of singleton specimens, where it is sometimes difficult to see if a specific structure is truly absent or just missing.

A related second observation also refers to *Priscula*, where the male genital bulb is often provided with a large membranous area on the prolateral-ventral side. This membrane allows for a certain movement of the main bulbal sclerite, which in preserved specimens may result in considerable superficial differences in the appearance of the genital bulb among conspecific specimens (compare, e.g., Figs 894 and 897; 903 and 905). In entelegyne spiders, such positional variation of sclerites is ubiquitous and well known, but in pholcids and other haplogyne spiders the phenomenon is much rarer and may more easily lead to erroneous taxonomic conclusions.

Third, the sperm storage site in pholcid females is thought to be partly or mainly the uterus externus. This is in contrast to most other spiders where specific containers (receptacles) provide space for sperm storage slightly removed from the main genital tract. However, this idea is based largely on the study of *Pholcus phalangioides* (Fuesslin, 1775), where secretions from large glands that discharge into the uterus externus are thought to provide a matrix for the stored sperm (Uhl 1993, 1994). Similar glands are present in almost all pholcids studied, leading to the speculation that a similar mode of sperm storage may be common in the family. However, in contrast to *P. phalangioides*, many pholcids have receptacle-like structures. Such putative receptacles have been described long ago (e.g., Huber 1994, 1997c and references therein), and have since been found in many species, including representatives of Ninetinae (Huber 2000), Modisiminae (Huber 2000, 2018; Huber & Rheims 2011), and Pholcinae (Huber 2004; Huber & Warui 2012; Huber *et al.* 2015). Here, we report many new cases of such structures in Modisiminae (e.g., Figs 18, 130, 167, 201, 580, 768) and at least for this subfamily such organs seem to be plesiomorphic. However, these sac-like structures are usually not provided with glands (an exception is, e.g., *Metagonia rica* Gertsch, 1986; Huber 1997c) and their function in the context of sperm storage is not proven. Thus, the structures called receptacles throughout the taxonomic section may in fact function in a different context.

Outlook

This section outlines some of the possible next steps regarding research on Venezuelan Pholcidae, including knowledge gaps that appear either especially necessary to close or that appear awarding and feasible topics for short to mid-term projects.

From a taxonomic/systematic point of view, our results point to numerous problems that need to be studied in more detail, ideally based on further more focused collecting. Several species may justify a split into two or more species, for example *Metagonia conica* (Simon, 1893); *Metagonia beni* Huber, 2000; and *Mecolaesthus longissimus* Simon, 1893. The case of *M. conica* is particularly interesting because it involves a geographic barrier between the Andean and Coastal Range Regions. At the level of

genera, Venezuelan representatives of *Chibchea* Huber, 2000 may justify a new genus, but this requires inclusion of material from other countries, especially Colombia; the generic assignment of *Galapa spiniphila* Huber sp. nov. needs to be tested by including it, together with ‘true’ *Galapa* from Galapagos, in the molecular phylogeny; and the relationships between *Canaima* Huber, 2000 and *Blancoa* Huber, 2000 need to be explored using a combination of morphological and molecular data.

Taxonomic gaps are too numerous to list, but the most rewarding collecting would probably be in regions that count as centers of endemism (Brown & Fernández 1984) but are particularly poorly sampled. Outstanding examples are the Catatumbo center of endemism (Sierra de Perijá) in Zulia, and the Imataca and Pantepui centers of endemism (Sierra de Imataca, Sierra de Lema, Roraima-Tepui, etc.) in Bolívar; easier to reach are unexplored regions of the Lara-Falcón biogeographic region, of the Sucre center of endemism, and of the Andean biogeographic region in Táchira.

Several species and species-groups might provide rewarding objects for ecological and natural history studies. For example, *Mecolaesthus longissimus* is easy to find near Caracas and our new observations support the idea (Huber 2005a) that males use their elongate abdomens for fights. Several closely related species of *Mecolaesthus* share the easily accessible forests around Mérida, but it is largely unknown to which degree they have specialized to specific microhabitats and altitudes.

Finally, much remains to be learned about Venezuelan pholcids by studying those of neighboring countries, in particular Colombia. This is especially true for biogeographic aspects, many of which rely on the concept of endemism.

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