

# The genus *Holothele* Karsch, 1879: the identity of the type species (Mygalomorphae, Theraphosidae)

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## ABSTRACT

The genus *Holothele* Karsch, 1879 has a confusing taxonomic history, mainly due to a imprecise and outdated generic diagnosis, perpetuated since its original description. In this work, we propose a new diagnosis for the genus, redescribe the type species *Holothele recta* Karsch, 1879 and propose a few taxonomic changes. *Holothele longipes* is here considered as a senior synonym of *Holothele recta* Karsch, 1879, *Stichoplastus sanguiniceps* F. O. P.-Cambridge, 1898, *Dryptopelmides rondoni* Lucas & Bücherl, 1972, *Dryptopelmides ludwigi* Strand, 1907. We also provide updated geographic distribution records for *Holothele longipes* and propose the revalidation of *Scopelobates* Simon, 1903.

## RÉSUMÉ

*Le genre Holothele Karsch 1879: l'identité de l'espèce type (Mygalomorphae, Theraphosidae).*

Le genre *Holothele* Karsch, 1879 a une histoire taxonomique assez confuse, essentiellement due à sa diagnose imprécise et dépassée, qui se perpétue depuis sa description originale. Dans ce travail, nous proposons une nouvelle diagnose pour le genre, redécrivons l'espèce type *Holothele recta* Karsch, 1879 et proposons quelques changements taxonomiques. *Holothele longipes* est ici considéré un synonyme senior de *Holothele recta* Karsch, 1879, *Stichoplastus sanguiniceps* F. O. P.-Cambridge, 1898, *Dryptopelmides rondoni* Lucas & Bücherl, 1972 et *Dryptopelmides ludwigi* Strand, 1907. Nous présentons aussi des signalisations nouvelles pour *Holothele longipes*, et proposons de revalider *Scopelobates* Simon, 1903.

## KEY WORDS

Ischnocolinae,  
spider,  
tarantula,  
South America,  
new records,  
new synonyms.

## MOTS CLÉS

Ischnocolinae,  
araignée,  
tarentule,  
Amérique du Sud,  
signalisations nouvelles,  
synonymes nouveaux.

## INTRODUCTION

The genus *Holothele* Karsch, 1879 (Theraphosidae) can be considered a major taxonomic confusion, mainly due to the lack of a precise diagnosis. As a result, several species have been improperly included. The genus, originally established as monotypic, was described based on a female from Caracas, Venezuela, named *H. recta* Karsch, 1879 as type-species. The inclusion of all other species currently within the genus is due to subsequent transfers or descriptions, along with other species that have already been removed from *Holothele* in the past years (Guadanucci *et al.* 2007; Guadanucci & Weinmann 2014, 2015).

Raven (1985) considered *Holothele* as a senior synonym of *Schismatothele* Karsch, 1879, *Euthycaelus* Simon, 1889, *Hemiercus* Simon, 1903, *Scopelobates* Simon, 1903 and *Dryptopelmides* Strand, 1907. Although Raven (1980) brought up the possibility of *Stichoplastus* Simon, 1889 as junior synonym of *Holothele*, he did not establish this change. As a result of Raven's proposals, the genus *Holothele* included eleven species at that time. Subsequently, Rudloff (1997) proposed the following combinations: the Caribbean *H. culebrae* (Petrunkevitch, 1929), *H. denticulata* (Franganillo, 1930) and *H. shoemakeri* (Petrunkevitch, 1926) were transferred to *Holothele* from *Ischnocolus* Ausserer, 1871; *H. incei* (F. O. Pickard-Cambridge, 1898) from *Hapalopus* Ausserer, 1875; *H. longipes* (L. Koch, 1875) from *Chaetopelma*; *H. vellardi* Rudloff, 1997 and *H. rondoni* (Lucas & Bücherl, 1972) from *Cyclosternum* Ausserer, 1871. Moreover, Rudloff (1997) also revalidated *Schismatothele* and *Euthycaelus*. The revalidation of *Euthycaelus* was not followed in Platnick's catalog (2013) since it did not provide a detailed diagnosis for the genus. Finally, Rudloff (1997) also considered the genus *Stichoplastus* as junior synonym of *Holothele*. Recently, Guadanucci & Weinmann (2014) removed the genera *Schismatothele* and *Euthycaelus* from the synonym with *Holothele*.

Regarding its familial relationships, Raven (1980) removed the genus *Holothele* from Dipluridae Simon, 1889 and placed it in Theraphosidae Thorell, 1869. Raven (1985) later included it in Theraphosinae subfamily, from where it was finally transferred to Ischnocolinae Simon, 1892 by Pérez-Miles *et al.* (1996). Guadanucci (2014) considered *Holothele* as closely related to representatives of *Trichopelma* Simon, 1888, *Reichlingia* Rudloff, 2001 and *Ischnocolus* within Ischnocolinae sensu stricto. *Holothele* currently comprises 10 species from northern South America, southern Central America and the West Indies (World Spider Catalog 2016).

In this paper, based on the examination of type material and extensive collection specimens, we present a redescription of the type species of the genus, propose a few taxonomic rearrangements, report color variation of specimens from distinct localities and present a distribution map for the species.

## MATERIAL AND METHODS

Specimens from the following institutions were examined. Abbreviations, cities, countries and curator are as follows:

AMNH American Museum of Natural History, New York, (N. I. Platnick);

BMNH	British Museum of Natural History, London (J. Becaloni);
IBSP	Instituto Butantan, São Paulo (D. B. Battesti);
ICN	Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá (E. Flórez);
MNHN	Muséum national d'Histoire naturelle, Paris (C. Rollard);
MZSP	Museu de Zoologia da Universidade de São Paulo, São Paulo (R. Pinto-da-Rocha);
NMW	Naturhistorisches Museum Wien, Vienna, (J. Gruber);
RMNH	Nationaal Natuurhistorische Museum ("Naturalis"), Leiden (L. Willemse);
ZMB	Museum für Naturkunde der Humboldt-Universität, Berlin (J. Dunlop);
ZMUH	Universität von Hamburg, Zoologisches Institut und Zoologisches Museum, Hamburg (H. Dastych);
ZSM	Zoologische Staatssammlung, Munich (R. Melzer).
Collection coll. DW	Private collection, D. Weinmann, Stuttgart.

## MEASUREMENTS

All measurements are in millimetres and were taken with a micrometer ocular lens. The length of legs segments was measured between the joints in dorsal view. The length and width of carapace, eye tubercle, labium and sternum are the maximum values obtained. The total body length includes the chelicerae and opistosoma but not the spinnerets. Number and disposition of spines follows the terminology of Petrunkevitch (1925).

All drawings were made with drawing tube (Leica MZ APO). Pictures were taken with a Nikon Coolpix 5400 attached to the microscope. The spermathecae were cleared with carnation oil and illustrated from dorsal view. Left palpal bulbs were removed from the cymbium and illustrated in dorsal, pro- and retrolateral views. The setae of the male tibia I were removed to expose the tibial spur.

The geographic coordinates and altitude data (meters above sea level: m a.s.l.) were referenced by GPS, Datum WGS84, or determined using the Instituto Geográfico Agustín Codazzi Gazetter (<http://www.igac.gov.co/digeo/app/index.html>) and Global Gazetter version 2.3 (<http://www.fallingrain.com/world/index.html>). The distribution map was produced using SimpleMappr (Shorthouse 2010).

## SYSTEMATICS

Classe ARACHNIDA Lamarck, 1801  
 Order ARANEAE Clerck, 1757  
 Suborder MYGALOMORPHAE Pocock, 1892  
 Family THERAPHOSIDAE Thorell, 1869

Genus *Holothele* Karsch, 1879

*Holothele* Karsch, 1879: 544. — Simon 1892: 182. — Raven 1980: 254. — Rudloff 1997: 7.

*Stichoplastus* Simon, 1889: 208; 1892: 141; (type species: *Stichoplastus ravidus* Simon, 1889, from Corosal, San Esteban, Venezuela).

*Drytopelmides* Strand, 1907: 18 (type species: *Drytopelmides rondoni* Lucas & Bücherl, 1972, from Puerto Cabello, Venezuela).

TYPE SPECIES. — *Holothele recta* Karsch, 1879, by monotypy.

DIAGNOSIS. — Representatives of the genus are distinguished by the combination of the following features: absence of urticating setae; tarsus IV pseudosegmented; tarsal claws with a median row of teeth; labium trapezoid, with approximately 90 cuspules or fewer; sigillae close to sternal margin.

EMENDED DESCRIPTION

Chelicerae without rastellum. Males with intercheliceral intumescence. Cephalic region slightly raised. Eye tubercle weakly raised, wider than long. Anterior eye row procurved, posterior recurved. Thoracic fovea, deep, slightly recurved. Labium trapezoid, with 50-90 cuspules. Maxilla with produced anterior lobe, several cuspules on the inner angle (more than 80). Labium-sternal sigilla well marked, oval, mounds raised. Anterior sternal sigillae marginal, posterior sternal sigilla submarginal. Metatarsal scopula present on all legs, I totally occupied, II distal ¾, III around distal half, IV less than distal half. Tarsal scopula I-IV divided by a band of stout setae. Tarsus IV straight (contra Raven 1985) and pseudosegmented. Clavate tarsal trichobothria in two rows, interspersed with filiform trichobothria. Proximal lateral faces of tibia with thickened trichobothria, dorsal face with filiform. Retrolateral scopula on femur IV absent. Stridulatory setae absent. Superior tarsal claws with single median row of teeth, inferior tarsal claws absent, claw tufts well developed. Urticating setae absent. Posterior lateral spinnerets three-segmented, long, apical segment digitiform. Cymbium longer than wide, bilobed. Palpal bulb with elongate embolus, increasingly filiform towards tip, without keels, subtegulum short. Male tibial apophysis present, formed by two branches, metatarsus I bends laterally to the retrolateral branch. Spermathecae formed by two elongate, narrow base, and flat receptacles, swollen distally, and with or without lobes on the inner ventral face.

*Holothele longipes* (L. Koch, 1875)  
(Figs 1-5)

*Chaetopelma longipes* L. Koch in Ausserer, 1875: 174, pl. 6, figs 20, 21.

*Holothele recta* Karsch, 1879: 544. — Rudloff 1997: 10, n. syn.

*Stichoplastus ravidus* Simon, 1889: 208. — Rudloff 1997: 10, figs 1, 2.

*Stichoplastus sanguiniceps* F. O. P.-Cambridge, 1898: 895, n. syn.

*Drytopelmides rondoni* Lucas & Bücherl, 1972: 234, figs 1-4, n. syn.

*Drytopelmides ludwigi* Strand, 1907: 19, n. syn.

*Holothele longipes* – Rudloff 1997: 9.

*Holothele rondoni* – Rudloff 1997: 10.

TYPE MATERIAL. — Holotype ♀ of *Holothele recta* (ZMB 457), from Caracas, Venezuela, Gollmar 1879, examined. — Syntypes, 1 ♂, 2 ♀ and 2 juveniles of *Stichoplastus ravidus* (MNHN-AR-AR4625),

from San Esteban, Venezuela, examined (note: there are several places named San Esteban in Venezuela. Simon (1889) explored within the limits of the provinces of Carabobo and Guzman Blanco, that includes to date Aragua, Guárico, Miranda, Nueva Esparta and Federal District. He further mentions that San Esteban is two hours from Puerto Cabello, Carabobo, and that he explored the forest at the banks of San Esteban River, near Puerto Cabello). — Holotype ♂ of *Chaetopelma longipes* (BMNH 19.9.18.5728), from Puerto Cabello, Carabobo, Venezuela, examined. — Holotype ♀ of *Stichoplastus sanguiniceps* (BMNH 1895.5.3.1), from Trinidad, J. H. Hart, examined. — Holotype ♂ and paratype ♀ of *Drytopelmides rondoni* (IBSP 4090), from Iauaretè, Amazonas, Brazil, A. R. Hoge, F. Saliba and N. P. Santos, Jan.1971, examined. — Holotype ♀ of *Drytopelmides ludwigi*, from Puerto Cabello, Venezuela, not examined, presumably lost.

ADDITIONAL MATERIAL EXAMINED. — **Bolivia.** La Paz, Coroico, 4532 m a.s.l., 1 ♂, NMW.

**Brazil.** Amazonas: Iauaretè: 1 ♂, 1 juv., IBSP 4090; Manaus: Rio Jacaré, 1 ♂, IBSP 168490, 17.XI.1996, N. Gordon; Santa Maria: 1 ♀, MZSP 21504; 1 ♀, MZSP 21507; Mato Grosso: Apicás: 1 ♂, MZSP 18046, 10-15.II.1997, G. Skuk, V. X. Da Silva.

**Colombia.** Amazonas: La Pedrera, Quebradon, El Ayo, 1°35'S, 69°31'W, 85 m a.s.l., 1 ♂, ICN-Ar 6852, V.2002, J. Pinzón. Atlántico: Barranquilla, 10°57'50"N, 74°47'47"W, 30 m a.s.l., 1 ♂, ICN-Ar 042, X.1963. — Bolívar: Turbaco: Finca El Huerto, 10°22'19"N, 75°20'58.8"W, 102 m a.s.l., 1 ♀, ICN-Ar 8049; Jardín Botánico, 10°21'14"N, 75°25'41.5"W, 131 m a.s.l., 1 ♀, ICN-Ar 8053, 7.VII.2015, A. Sabogal & C. Cantor. — Cesar: Valledupar, Ecoparque Los Besotes: Monte Puma, 10°34'0.6"N, 73°17'2"W, 950 m a.s.l., 1 ♀, ICN-Ar 8051, 19.VII.2015, Grupo Carbio; Los Zainos, 1 ♂, ICN-Ar 8052, 18.VII.2015, Grupo Carbio. — Cundinamarca: La Calera, El Manzano, PNN Chingaza, Río Blanco, Palacio, Laguna Blanca, 4°41'24"N, 73°51'21"W, 2930 m a.s.l., 1 ♂, lavH, 19-21. XI.2003, E. González; Mesitas del Colegio, Santa Cecilia, Finca El Naranjal, 4°45'28"N, 73°24'27"W, 1000 m a.s.l., 1 ♂, ICN-Ar 8047, 23-30.XII.2011, A. García & J. Díaz. — Guaviare: San José de Guaviare, Playa Guio, 2°34'22"N, 72°38'45"W, 213 m a.s.l.: 2 ♂, ICN-Ar 8048, 28.X.2012, N. Téllez; 1 ♂, ICN-Ar 8050, 10.X.2013, E. Flórez. — Meta: Acacias, La Esmeralda, Finca Versalles, 3°25'47"N, 74°5'3"W, 515 m a.s.l., 1 juv., 21.IX.2004, E. Flórez; Guamal, 1 ♂, coll. DW KS286; Puerto Gaitán, Carimagua, 4°18'48"N, 72°4'54"W, 160 m a.s.l., 22.IV.2012, D. Martínez; San Juan de Arama, Reserva La Macarena, 3°22'12"N, 73°52'22"W, 450 m a.s.l., 1 juv., 18.I.1992, F. Guzmán & S. Espinoza. — Norte de Santander: La Donjuana: 1 ♂, MZSP 28381, 19.XI.2001, D. Weinmann; Pamplonita: 1 ♀, MZSP 28380, 2.X.1998, D. Weinmann; 1 ♂, MZSP 28382; 1 ♀, MZSP 28384; 1 ♀, MZSP 28383, 2.X.1998, D. Weinmann; San Jose de Avila: 1 ♂, SMF 10101. — Santander: Bolívar, Portachuelo, Verbeo, Cueva La Olla, 5°59'22"N, 73°46'13"W, 2050 m a.s.l., 2 juv., ICN-Ar 6960, 19.VII.2008, M. Hoyos; Cabrera, Cueva del Indio de Doña Joaquina, 6°35'36"N, 73°14'52"W, 1000 m a.s.l., ICN-Ar 6957: 2 ♀, ICN-Ar 6958, 1 ♀, 14.VII.2007, Grupo de Bioespeleología; Villanueva, Agua Fría, Cueva del Nitro, 6°40'19"N, 73°10'29"W, 1500 m a.s.l., 1 ♀, 6 juv., ICN-Ar 6961, 13.VII.2007, Grupo de Bioespeleología; Zapatoaca, Cueva, 6°48'54"N, 73°16'6"W, 1 ♀, ICN-Ar 8054, V.2008, C. Perafán & F. Pérez Miles. — Sucre: La Garita: 1 ♀ juv., ZMUH, W. Fritsche, 26.IX.1912; San Marcos, Bocapuerta, 8°39'35"N, 75°7'41"W, 35 m a.s.l., 1 ♀, ICN-Ar 6838, 19.X.2004, Estudiantes Sistemática Animal. — Vaupés: Taraira, Bajo Río Apaporis, Lago Taraira, Estación Biológica Caparú, 0°29'38"N, 69°40'1"W, 200 m a.s.l., 2 ♂, ICN-Ar 2003, J. Pinzón.

**French Guiana.** Montsinery-Tonnegrande: Emerald Jungle Village, 1 ♂, IBSP 168520, 4°47'5"N, 52°25'21"W, 9.IV.1999, R. C. West. **Peru.** Loreto: Río Momón, Amazon Camp: 1 ♀, IBSP 168508; 1 ♀, IBSP 168524; 1 ♂, IBSP 168523, 8.XI.1993, R. C. West; 1 juv., IBSP 168521, 6.X.1993, W. Lamar; 1 ♀, IBSP 168525, II.1993, T. Mason.

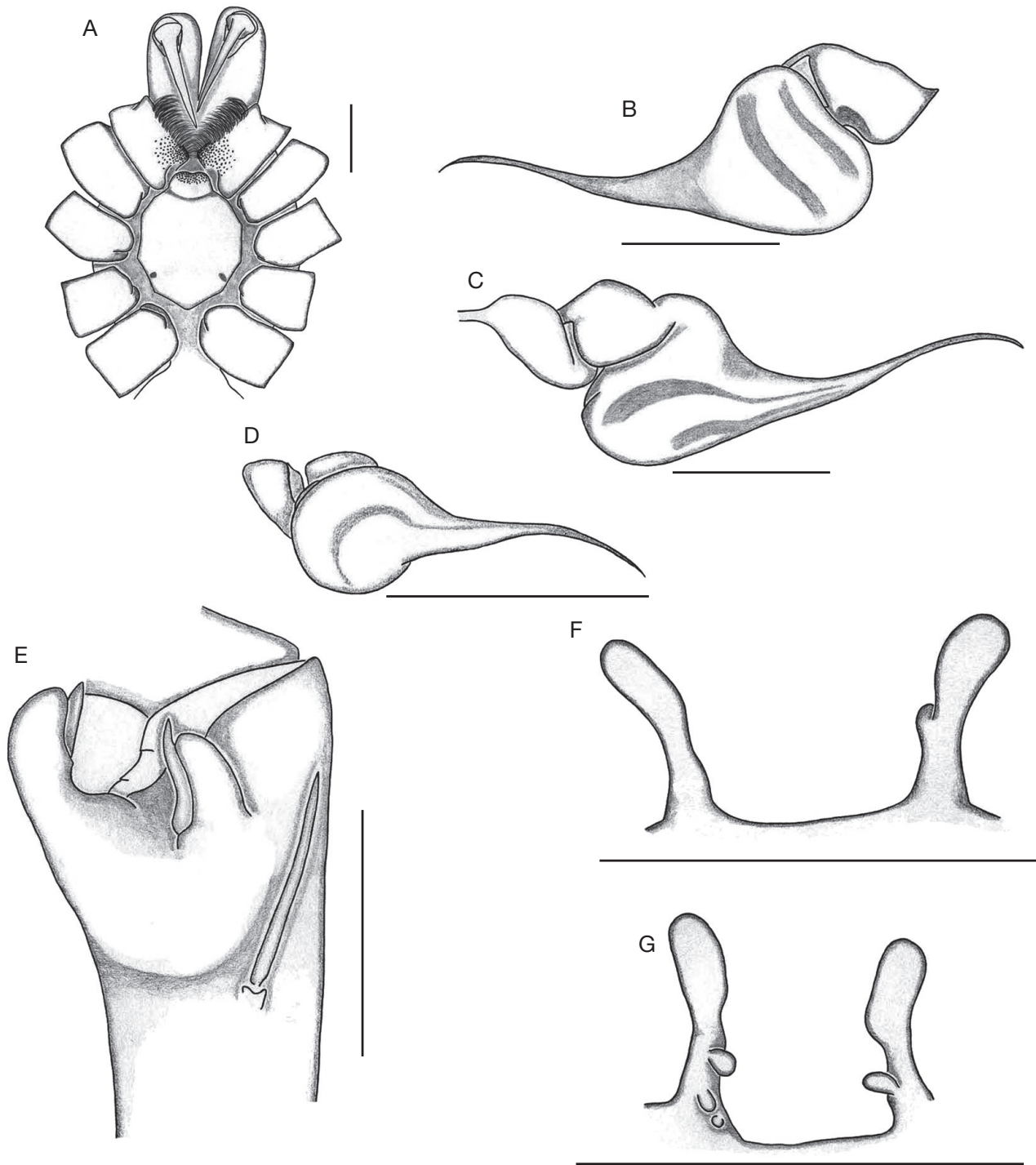


FIG. 1. — *Holothele longipes* (L. Koch, 1875): **A-E**, ♂ (MNHN 9501); **A**, cephalotorax, ventral view; **B**, palpal bulb, retrolateral view; **C**, palpal bulb, prolateral view; **D**, palpal bulb, ventral view; **E**, ♂ tibial apophysis, prolateral-ventral view; **F, G**, ♀ (MNHN 950): **F**, spermathecae receptacles, dorsal view; **G**, spermathecal receptacles, ventral view. Scale bars: 1 mm.

**Surinam.** Wanica: Lelydorp, 1 ♀, AMNH, 1.XII.1938, Geiskes.  
**Trinidad & Tobago.** Arima: 1 ♀, AMNH, 23.VII.1979, R. Mendez; 1 juv., AMNH, 23.VII.1979, L. N. Sorkin. — Caparo: 1 ♀, AMNH, 15.III.1910, P. B. Whelpley; 2 ♀, AMNH, 16.II.1910, P. B. Whelpley. — Port-of-Spain: 1 ♀, AMNH, 2.VII.1965, Erik N. Kjellesvig-Waering. — Tamana: Deep Park Tamana Cave: 1 ♀,

BMNH 1971/296, 19.I.1968, Darlington; 1 ♀, 1 juv., BMNH 1971/231, 13.XII.1968, Darlington; 1 ♂, BMNH 1971/298, 5.III.1968, Darlington; 1 ♂, BMNH 1971/293, 21.X.1968, Darlington; 1 ♂, BMNH 1971/294, 16.XII.1968, Darlington; 2 juv., BMNH 1971/297, 16.X.1968, Darlington. — Toco: 1 ♂, AMNH, 14.II.1965, Erik N. Kjellesvig-Waering.

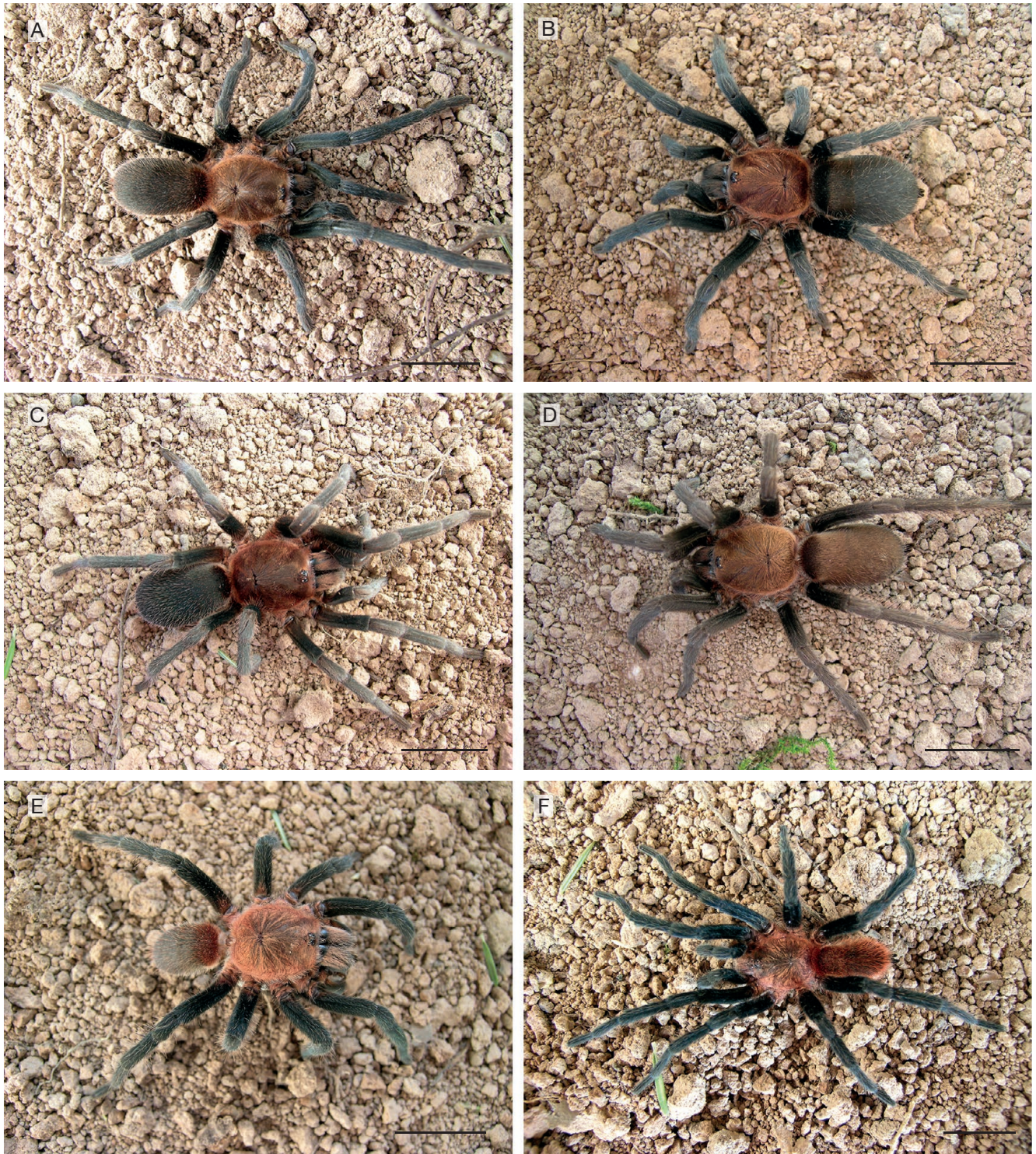


FIG. 2. — *Holothele longipes* (L. Koch, 1875), showing color variation: **A**, ♀, from Caracas, Venezuela; **B**, ♀, from Trinidad; **C**, ♀, from Meta, Colombia; **D**, ♀, from Puerto Cabello, Venezuela; **E**, ♀, from Pamplonita, Colombia; **F**, ♂, from Pamplonita, Colombia. Scale bars: 10 mm. Photographs: José P. Guadanucci.

**Venezuela.** Amazonas: San Pedro: 1 ♂, IBSP 168491, 2.X.1991, R. C. West. — Aragua: Parque Nacional Henri Pittier: 1 ♂, NRS, 12-30.XI.1997, T. Pape; Maracay: 3 ♂, ZSM, 1939, C. Vogl. Anzoátegui: Romerito: 1 ♂, MZSP 28387; 2 ♀ MZSP 28388-28389; 1 ♂, MZSP 28385. — Distrito Federal: Caracas: 1 ♀, coll. DW KS73. — Bolívar: Las Trincheras: 1 ♀, ZMUC 595; 1 ♂, 1 juv.,

ZMUC 243, C. Levinsen, 18.XII.1991. — Carabobo: Puerto Cabello: 1 ♀, ZMUH, Lievers, X.1993; 1 ♀, NMW, R. Riemann, 1-5.II.1989; 1 ♂, IBSP 168506, 5.X.1998, H. Bauer; Rancho Grande, 1 ♂, MZSP 28386. — Falcon: San Esteban: 1 ♂, 2 ♀, 1 juv., MNHN; San Luis: 1 ♀, MZSP 28390, 11°07'66.5"N, 69°40'66.4"W, 21.IX.2002, D. Weinmann & F. Pribik. — Mé-

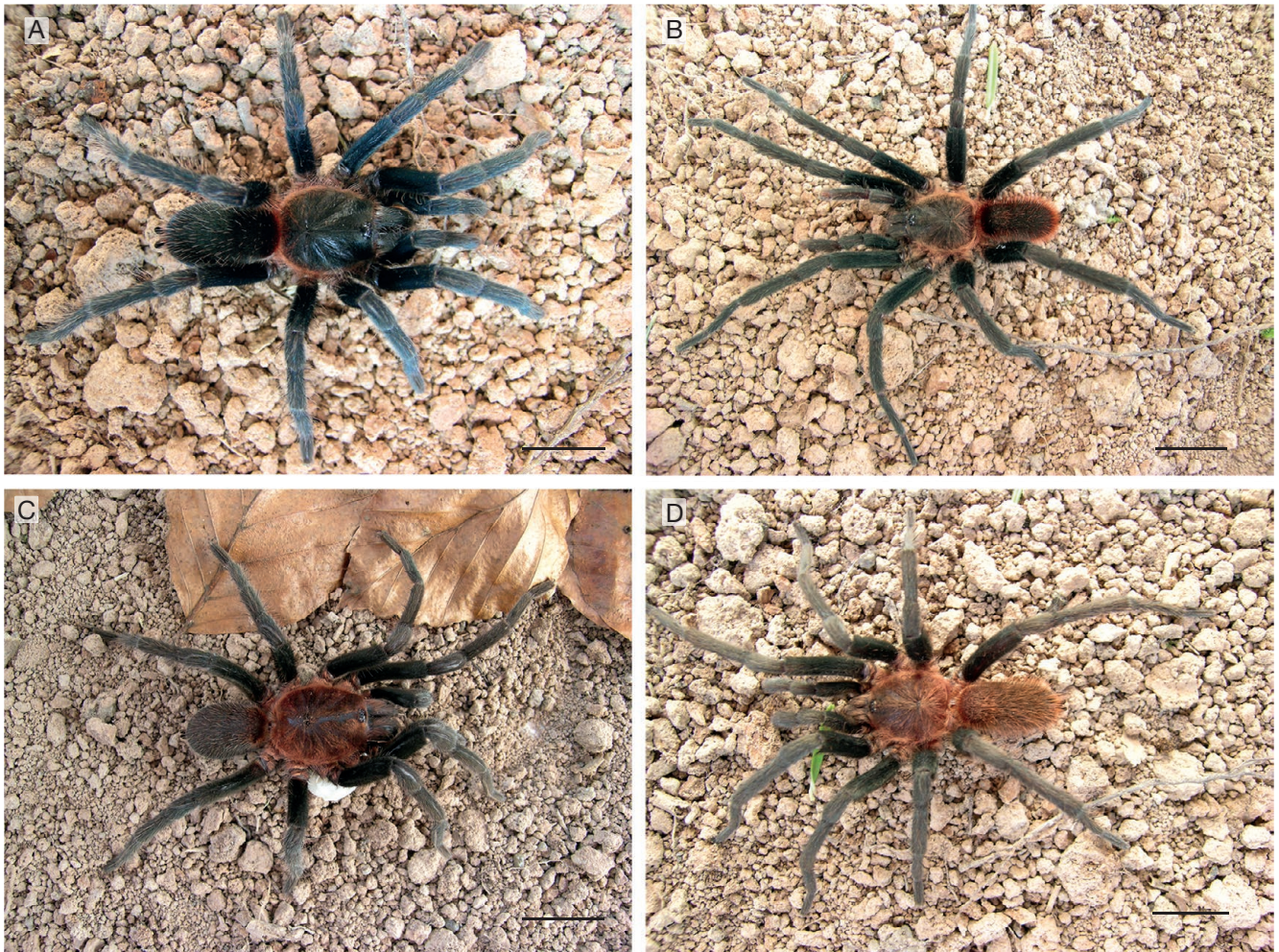


Fig. 3. — *Holothele longipes* (L. Koch, 1875), showing color variation: **A**, ♀, from Romerito, Venezuela; **B**, ♂, from Romerito, Venezuela; **C**, ♀, from Táchira, Venezuela; **D**, ♂, from Táchira, Venezuela. Scale bars: 10 mm. Photographs: José P. Guadanucci.

rida: Mérida: 7 ♂, 3 ♀, 1 juv., MNHN-AR-AR4626; 1 ♂, BMNH 03.7.1.130; 1 ♂, BMNH 1905.3.31.24-26; La Azulita: 1 ♂, MZSP 28391, 26.IX.2002, D. Weinmann; 1 ♀, MZSP 28392, 26.IX.2002, D. Weinmann; Parque Nacional Sierra de la Culata, 3000 m a.s.l., 1 ♂, 1 ♀, BMNH 03.7.1.128-129; 1 ♂, BMNH 05.3.31.61-70. — Monagas: Caripito: 3 ♀, AMNH, 15-31.III.1942, NY Zool. Soc.; 1 ♀, AMNH, No. 4220; 1 ♀, AMNH, 10-20.V.1945, W. Beebe *et al.* — Táchira: San Juan de Colón: 1 ♂, MZSP 28393, 08°07'52.8"N, 70°14'10.4"W, 23.IX.2002, D. Weinmann, F. Pribik; 1 ♀, MZSP 28394; 1 ♀, MZSP 28395.

TYPE LOCALITY. — **Venezuela**. Puerto Cabello, Estado Carabobo.

DIAGNOSIS. — Females can be distinguished by the spermathecae receptacula elongate, with a narrow base, slightly swollen at the apical end, bearing or not lobes on the inner ventral face, these lobes may vary in size and number (Figs 1F, G; 4A-F). Males are distinguished by the morphology of the palpal bulb, which is long, thin, and slightly curved (Fig. 1B-D), by the morphology of the tibial apophysis, formed by two branches, retrolateral with a tapering tip (Fig. 1E), and by the presence of a intercheliceral intumescence. Males differ from the small species from the Caribbean (*H. sulfurensis* Maréchal, 2005, *H. culebrae*, *H. denticulata* and *H. shoemakeri*) by the absence of a twisted embolus with small keels. Females differ from those species by the shape of spermathecae, which bear lobes (except the specimens inhabiting caves).

COLORATION. — Males and females with legs and palps black; carapace covered with setae that may vary from red to black, setae around carapace red; abdomen covered with setae that vary from black to red; chelicerae covered with setae of the same color as those on carapace (Figs 2, 3).

DISTRIBUTION. — *H. longipes* occupies a wide geographic range of northern South America. It is distributed from the 0 m a.s.l. in Trinidad and Tobago, along the Caribbean coast of Colombia and Venezuela, and the Atlantic coast of Surinam, to above 2000 m a.s.l. on the eastern cordillera of Colombia. It is registered for Bolivia, Peru, Brazil, Colombia, Venezuela and Suriname (Fig. 5).

NATURAL HISTORY. — This species has managed to conquer different environments within a wide altitudinal gradient. It inhabits humid forests of the Brazilian and Colombian Amazon, Andean forests and grasslands, and coastal savannahs of Colombia and Venezuela. They have been found especially under rocks and logs, and also within human constructions. So its ecological plasticity is evident. Additionally, some specimens have been found inside the caves from Santander, Colombia. These specimens are only few females and juveniles, and show no troglomorphic adaptations. Therefore, it is possible to assume that these specimens are using caves as temporary refuge.

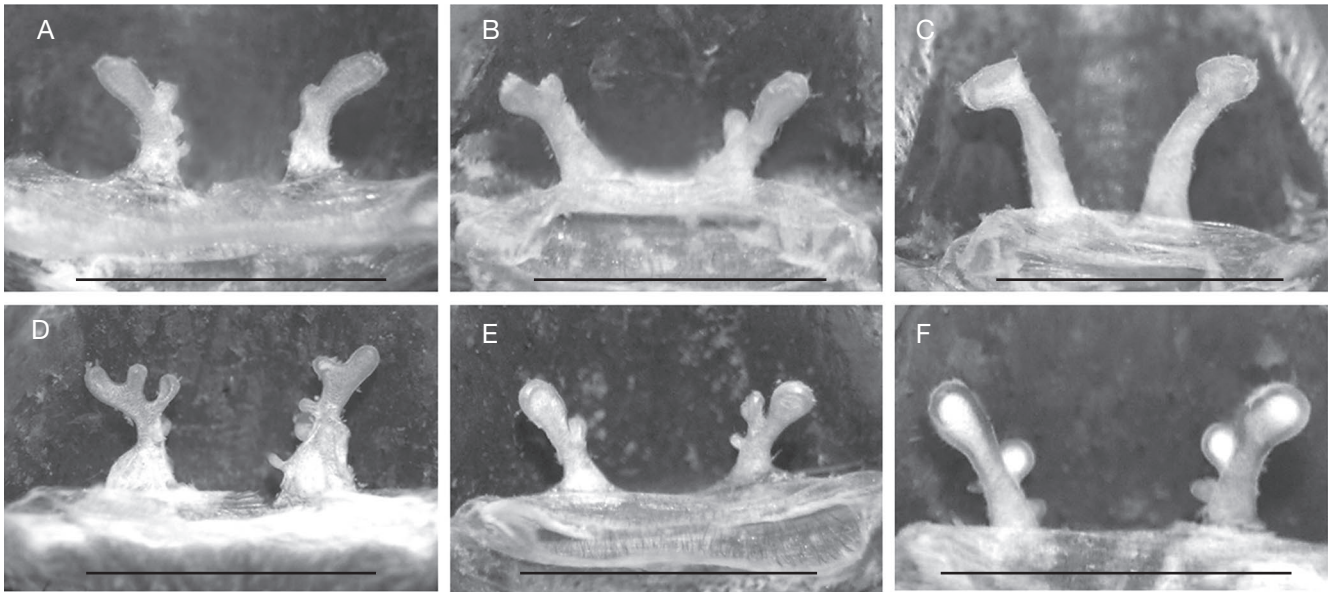


FIG. 4. — *Holothele longipes* (L. Koch, 1875), spermathecal morphology variation, dorsal view: **A**, ♀ from Romerito, Aragua, Venezuela; **B**, ♀ from Colón, Táchira, Venezuela; **C**, ♀ from Altamira, Venezuela; **D**, ♀ from Pamplonita, Santander, Colombia; **E**, ♀ from La Azulita, Táchira, Venezuela; **F**, ♀ from Santa María, Amazonas, Brazil. Scale bars: 1 mm.

EMENDED DESCRIPTION

*Female (holotype ♀ of H. recta)*

Total length 16. Carapace: length 6.7; width 5.6. Eye tubercle: length 0.9; width 1.3. Labium: length 0.8; width 1.3. Sternum: length 3; width 2.9. Cheliceral basal article with 14-15 teeth. Labium nearly as wide as long bearing more than 50 cuspules. Maxilla with more than 100 cuspules. Sternum rounded, sigilla one diameter from margin. Thoracic furrow slightly recurved. Palpal and legs segments lengths: palp: femur 3.9/ patella 2.4/ tibia 2.9/ tarsus 2.8/ total 12. Leg I: femur 4.4/ patella 2.5/ tibia 3.6/ metatarsus 2.9/ tarsus 2.2/ total 15.6. II: 4.7/ 2.8/ 3.7/ 3.2/ 2.4/ 16.8. III: 4.4/ 2.4/ 3.2/ 4/ 2.4/ 16.4. IV: 5.7/ 2.7/ 5.1/ 6/ 3/ 22.5. Spines: tarsi without spines. Palp: femur (d) 0-0-p1, tibia (v) 1-2-ap3, (p) 0-1-0. Legs: I: femur (d) 0-0-p1, tibia (v) 0-1-ap1, metatarsus (v) 1-1-ap1. II: femur (d) 0-0-p1, tibia (v) 0-1-ap2, (p) 1-1-0, metatarsus (v) 1-1-ap1. III: femur (d) 0-0-2, patella (p) 1, (r) 1, tibia (v) 2-2-ap3, (p) 1-1-0, (r) 1-1-0, metatarsus (v) 3-1-2+ap3, (p) 1-1-1, (r) 1-1-1. IV: femur (d) 0-0-2, tibia (v) 2-2-ap3, (p) 0-1-0, (r) 1-1-1, metatarsus (v) 2-2-2+ap3, (p) 0-1-1, (r) 1-1-1. Spermathecae formed by two receptacula longer than wide, without lobes. Scopula on metatarsi: I totally occupied, II ¾ occupied, III half occupied and IV less than half occupied. Tarsal scopula I-IV divided. Tarsal claws with a median row of small teeth, clavate trichobothria in tow rows, divided by a central row of thin long setae. Tarsus IV cracked. Eyes: anterior row procurved, posterior slightly recurved, clypeus absent (note: the holotype specimen described above is a juvenile ♀, as already noted by Rudloff (1997), because it does not have well sclerotized genital opening and the division of the anterior tarsal scopula is very wide. Moreover, the size of the specimen is very small, unlike the adult representatives of this species. Although it presents a spermathecae, it

is well known that juvenile theraphosids have undeveloped receptacula (Schiapelli & Gerschman de Pikelin 1962). We, therefore, present a description based on the type material of *Stichoplastus ravidus* (junior synonym of *H. longipes*), in order to provide a description based on an adult specimen.

*Male (MNHN-AR-AR4625, Syntype adult male of Stichoplastus ravidus)*

Total length 28.8. Carapace: length 12.6; width 10.9. Eye tubercle: length 1.4; width 1.7. Labium: length 1.2; width 2.1. Sternum: length 5.2; width 4.7. Cheliceral basal article with 15 teeth, intercheliceral intumescence present. Labium nearly as wide as long bearing fewer than 90 cuspules. Maxilla with more than 100 cuspules. Sternum rounded, sigilla one diameter from margin. Thoracic furrow slightly recurved. Palpal and legs segments lengths: Palp: femur 6.8/ patella 4.2/ tibia 5.8/ cymbium 2/ total 18.8. Leg I: femur 11.7/ patella 6.2/ tibia 10.8/ metatarsus 8.8/ tarsus 6/ total 43.5. II: 10.9/ 5.6/ 9.6/ 9/ 5.5/ 40.6. III: 10/ 4.8/ 8.2/ 10.8/ 5.2/ 39. IV: 12.4/ 5.1/ 11.2/ 14.8/ 7/ 50.5. Spines: Tarsi without spines. Palp: femur (d) 0-1-p1, patella (p) 1, tibia (v) 2-1-0, (p) 0-1-1. Leg I: femur (d) 0-2-1, tibia (v) 2-2-ap1, (p) 1-1-2, metatarsus (v) 1-1-ap1. II: femur (d) 0-1-2, patella (p) 1, tibia (v) 2-2-ap3, (p) 1-1-0, metatarsus (v) 2-1-ap1, (p) 0-1-0. III: femur (d) 3-3-4, patella (p) 1, (r) 1, tibia (v) 3-3-ap3, (p) 1-1-0, (r) 1-1-0, metatarsus (v) 2-2-2+ap3, (p) 1-1-1, (r) 1-1-1. IV: femur (d) 3-4-4, patella (p) 1, (r) 1, tibia (v) 2-1-ap3, (p) 1-1-1, (r) 1-1-2, metatarsus (v) 3-3-ap3, (p) 1-1-1, (r) 1-1-2. Male palpal bulb with long, thin, and slightly curved embolus. Tibial apophysis formed by two branches. Retrolateral long, tapered, bearing a spine on its midlength. Prolateral short bearing spines on the base. Metatarsus I bends laterally to the prolateral branch. Scopula on metatarsi: I totally occupied,



FIG. 5. — Geographical distribution records for *Holothele longipes* (L. Koch, 1875). Symbols ○ indicate specimens found in caves.

II  $\frac{3}{4}$  occupied, III nearly more than half occupied, IV less than half occupied. Scopula on tarsi I-IV divided. Tarsal claws with a median row of small teeth, clavate trichobothria in two rows, divided by a central row of long and thin setae. Tarsus IV cracked. Eyes: anterior row procurved, posterior slightly recurved, clypeus absent.

*Female* (MNHN-AR-AR4625 Syntype adult ♀ of *Stichoplastus ravidus*)

Total length 46.8. Carapace: length 14.8; width 12. Eye tubercle: length 2.3; width 1.7. Labium: length 1.8; width 2.5. Sternum: length 5.8; width 5.6. Cheliceral basal article with 17-19 teeth. Labium nearly as wide as long, bearing more than 80 cuspules. Maxilla with more than 100 cuspules. Sternum rounded, sigilla one diameter from margin. Thoracic fovea slightly recurved. Palpal and legs segments lengths: palp: femur 8.1/ patella 4.8/ tibia 6.1/ tarsus 5.4/ total 24.4. Leg I: femur 11.1/ patella 6.9/ tibia 9.1/ metatarsus 7.5/ tarsus 4.9/ total 39.5. II: 9.7/ 6/ 7.8/ 7.3/ 4.8/ 35.6. III: 9.4/ 5.2/ 6.9/ 9.4/ 4.8/ 30.9. IV: 12.4/ 6/ 10.8/ 14.2/ 5.5/ 48.9. Spines: Tarsi without spines. Palp: femur (d) 0-0-p1, tibia (v) 1-2-ap3, (p) 1-1-0. Leg I: femur (d) 0-0-p1, tibia (v) 1-1-ap3, metatarsus (v) 1-1-ap1. II: femur (d) 0-0-p1, tibia (p) 1-1-0, (v) 1-1-ap3, metatarsus (v) 1-1-ap1. III: femur (d) 0-0-2, patella (p) 1, (r) 1, tibia (v) 1-2-ap3, (p) 1-1-0, (r) 1-1-0, metatarsus (v) 3-3-ap3, (p) 1-1-1, (r) 1-1-1. IV: femur (d) 0-0-2, patella (r) 1, tibia (v) 2-3-ap3, (p) 1-1-0, (r) 1-1-0, metatarsus (v) 2-4-ap3, (p) 1-1-1, (r) 1-1-1. Spermathecae formed by two receptacula longer than wide bearing small lobed on the inner basal portion (note: in some specimens, these lobes may be located on the ventral side of the receptaculum). Scopula on metatarsi: I totally occupied, II  $\frac{3}{4}$  occupied, III more than half occupied,

IV less than half occupied. Tarsal scopula I-IV divided. Tarsal claws, clavate trichobothria, tarsus IV and eyes as in male.

#### MISPLACED SPECIES

Genus *Scopelobates* Simon, 1903 nom. rest.

*Scopelobates* Simon, 1903: 928.

*Holothele* – Raven, 1985: 159. — Pérez-Miles *et al.* 1996: 60.

TYPE SPECIES. — *Scopelobates sericeus* Simon, 1903, comb. rest., by monotypy.

#### *Scopelobates sericeus* Simon, 1903

*Scopelobates sericeus* Simon, 1903: 928.

*Holothele sericea* – Raven 1985: 159. — Pérez-Miles *et al.* 1996: 60. — Rudloff 1997: 11, fig. 8-11.

TYPE MATERIAL. — Holotype ♀ (MNHN-AR-AR5032) from Ins. Santo Domingo, Dominican Republic, examined.

#### REMARKS

The examination of the holotype revealed the presence of a conspicuous dorsal abdominal patch of urticating setae type I and III, which clearly makes it a representative of the subfamily Theraphosinae. Interestingly, this feature had not been noticed before. This species is very similar to representatives of the genus *Stichoplastoris* Rudloff, 1997. The type specimen does not possess any stridulating setae, and therefore, the two Dominican genera *Phormictopus* Pocock, 1901 and *Cyrtopholis* Simon, 1892 could not accommodate it. However, without a comprehensive examination of the type material of the species currently included in the genus *Stichoplastoris*, any taxonomic rearrangement should not be proposed. Therefore, as a useful step towards revised nomenclature we remove this species from *Holothele* and revalidate *Scopelobates*. In this way, a taxonomic survey including Theraphosinae species from West Indies would clarify this issue.

#### DISCUSSION

Within Theraphosidae, the position of the genus *Holothele*, as well as some other Theraphosidae genera (e.g., *Dolichothele* Mello-Leitão, 1923; *Chaetopelma* Ausserer, 1871; *Heterothele* Karsch, 1879; *Ischnocolus* Ausserer, 1871; *Plesiophrictus* Pocock, 1899) have been under debate for the last three decades, since Raven (1985) revised the whole infraorder Mygalomorphae. Guadanucci (2014), using morphological characters in a phylogeny including spiders from all subfamilies of Theraphosidae placed *Holothele rondoni* new synonym of *H. longipes* in a group named Ischnocolinae sensu stricto. Other species formerly included in *Holothele* fell into a group named Schismatothelinae Guadanucci, 2014, which led to some taxonomic transfers and descriptions by Guadanucci & Wienmann (2014, 2015).



A previous revision of the genus *Holothele*, by Rudloff (1997), considered as important characters to distinguish among species the following features: shape of fovea, eyes disposition, spermathecae morphology and spination. Having examined extensive material from various localities, we did not recognize any pattern to warrant species distinction, due to high level of morphological variation. Spination shows great variation in number and disposition even between right and left legs. Concerning the spermathecae, we also observed some variation, but within a morphological pattern, in which the lobes vary in number among the specimens examined (Fig. 4).

Considering all taxonomic synonymies proposed here, the genus *Holothele* now comprises five species: *H. longipes*; *H. culebrae* (Petrunkevitch, 1929); *H. denticulata* (Franganillo, 1930); *H. shoemakeri* (Petrunkevitch, 1926) and *H. sulfurensis* Maréchal, 2005. *Holothele longipes* is a widespread species with records in northern South America (Fig. 5), and the remaining species are present in different Caribbean islands (as listed above, respectively from Puerto Rico, Cuba, United States, Virgin Islands and Guadeloupe). These latter Caribbean species share with *Holothele longipes* the trapezoidal shape of labium, number and disposition of maxillary and labial cuspules, presence of maxillary heel, cracked tarsi and tibial thickened trichobothria (Guadanucci 2014). According to the description of *H. sulfurensis* Maréchal, 2005, and the examination of additional specimens attributable to the genus from Antigua, Saint John, Saint Martín, Grenada, West Antigua, Hans Lock Island and Guana Island (deposited at AMNH, MCZ and RMNH, pers. obs. JPLG), all Caribbean specimens differ from *H. longipes* by the twisted embolus of palpal bulb and the presence of a ventral notch at the base of metatarsus I in males and by the non-lobed, flat spermathecal receptacles in females.

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### REFERENCES

- AUSSERER A. 1875. — Zweiter Beitrag zur Kenntniss der Arachniden-Familie der Territelariae Thorell (Mygalidae Autor). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 25: 125-206.
- GUADANUCCI J. P. L. 2014. — Theraphosidae phylogeny: relationships of the "Ischnocolinae" genera (Araneae, Mygalomorphae). *Zoologica Scripta* 43 (5): 508-518. <https://doi.org/10.1111/zsc.12065>
- GUADANUCCI J. P. L. & WEINMANN D. 2014. — The spider genera *Euthycaelus* Simon and *Schismatothele* Karsch (Mygalomorphae, Theraphosidae). *Zootaxa* 3795 (3): 275-288. <https://doi.org/10.11646/zootaxa.3795.3.3>
- GUADANUCCI J. P. L. & WEINMANN D. 2015. — Description of *Neoholothele* gen. nov. (Araneae, Theraphosidae, Schismatothelinae). *Studies on Neotropical Fauna and Environment* 50 (3): 221-228. <https://doi.org/10.1080/01650521.2015.1110309>
- GUADANUCCI J. P. L., LUCAS S. M., INDICATTI R. P. & YAMAMOTO F. U. 2007. — Description of *Guyruita* gen. nov. and two new species (Ischnocolinae, Theraphosidae). *Revista Brasileira de Zoologia* 24 (4): 991-996. <https://doi.org/10.1590/S0101-81752007000400015>
- KARSCH F. 1879. — Arachnologische Beiträge. *Zeitschrift für die gesammten Naturwissenschaft* 52: 534-562.
- LUCAS S. & BÜCHERL W. 1972. — Redescricão de *Dryptopelmides* Strand 1907 (Araneae, Orthognatha, Theraphosidae, Ischnocolinae) e descrição de *Dryptopelmides rondoni* sp. n. *Memórias do Instituto Butantan* 36: 233-241.
- PÉREZ-MILES F., LUCAS S. M., DA SILVA JR. P. I. & BERTANI R. 1996. — Systematic revision and cladistic analysis of Theraphosinae (Araneae: Theraphosidae). *Mygalomorph* 1: 33-68.
- PETRUNKEVITCH A. 1925. — Arachnida from Panama. *Transactions of the Connecticut Academy of Arts and Sciences* 27: 51-248.
- PICKARD-CAMBRIDGE F. O. 1899. — On new species of spiders from Trinidad, West Indies. *Proceedings of the Zoological Society of London* 66 (4, for 1898): 890-900, Pl. LIV. [published in April 1899, after Duncan 1937].
- RAVEN R. J. 1980. — The evolution and biogeography of the mygalomorph spider family Hexathelidae (Araneae, Chelicerata). *Journal of Arachnology* 8: 251-266.
- RAVEN R. J. 1985. — The spider infraorder Mygalomorphae (Araneae): Cladistics and systematics. *Bulletin of the American Museum of Natural History* 182: 1-180.
- RUDLOFF J. P. 1997. — Revision der Gattung *Holothele* Karsch, 1879 nebst Aufstellung einer neuen Gattung *Stichoplastoris* gen. nov. (Araneae, Theraphosidae) und Wiedereinsetzung einiger weiterer Gattungen der Mygalomorphae. *Arachnologische Magazin* 5 (2): 1-19.
- SCHIAPELLI R. D. & GERSCHMAN DE PIKELIN B. S. 1962. — Importancia de las espermatecas en la sistemática de las arañas del Sudordem Mygalomorphae (Araneae). *Physis* 64: 69-75.
- SHORTHOUSE D. P. 2010. — SimpleMappr, an online tool to produce publication-quality point maps. [Retrieved from <http://www.simplemappr.net>]
- SIMON E. 1889. — Voyage de M. E. Simon au Venezuela (décembre 1887-avril 1888). Arachnides. 4<sup>e</sup> mémoire. *Annales de la Société Entomologique de France* 6 (9): 169-220.
- SIMON E. 1892. — *Histoire naturelle des araignées* (Tome 1). Paris, Roret, 552 p. <https://doi.org/10.5962/bhl.title.51973>
- SIMON E. 1903. — *Histoire naturelle des araignées* (Tome 2). Paris, Roret, 1102 p. <https://doi.org/10.5962/bhl.title.51973>
- STRAND E. 1907. — Aviculariidae und Atypidae des Kgl. Naturhistorischen Museums in Stuttgart. *Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg* 63: 1-100.
- THORELL T. 1869. — On European spiders. Part I. Review of the European genera of spiders, preceded by some observations on zoological nomenclature. *Nova Acta Regiae Societatis Scientiarum Upsaliensis* 7 (3): 1-108.
- WORLD SPIDER CATALOG. 2016. — World Spider Catalog. Natural History Museum of Bern, online at <http://wsc.nmbe.ch>, version 17.5, accessed on October, 16<sup>th</sup>, 2016.

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