

## DESCRIPTION OF *CUBANANA CRISTINAE*, A NEW GENUS AND SPECIES OF THERAPHOSINE TARANTULA (ARANEAE: THERAPHOSIDAE) FROM THE ISLAND OF CUBA

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**Abstract:** *Cubanana cristinae* gen. et sp. nov. is described from eastern Cuba and its phylogenetic relationships are discussed. Males are characterized by presenting a denticulate subapical keel on the palpal bulbs, a nodule in the retrolateral side of the palpal tibiae and two-branched tibial spurs on legs I. Both sexes lack stridulating apparatus, possess urticating hairs of types I and III and the retrolateral side of the femora IV covered by a pad of ciliate hairs, in addition to the Theraphosinae synapomorphies. A list of currently recognized 49 genera of Theraphosinae is given, as well as data on its composition and depository institutions of type specimens of type species. *Mygale nigrum* Walckenaer 1837 is recovered as the type species of *Homoeomma* Ausserer 1871.

**Key words:** Mygalomorphae, Theraphosinae, Cubanana, Homoeomma, new genus, taxonomy, phylogenetic analysis, ciliate hairs, West Indies, Cuba.

### Descripción de *Cubanana cristinae*, nuevos género y especie de tarántula terafósina (Araneae: Theraphosidae) de la isla de Cuba

**Resumen:** Se describe *Cubanana cristinae* gen. et sp. nov. de la región oriental de Cuba y se analizan sus relaciones cladísticas. Los machos se caracterizan por presentar una quilla subapical denticulada en los bulbos de los pedipalpos, un nódulo en la zona retrolateral de las tibiae de los mismos y apófisis tibiales birramiadas en las patas I. Ambos sexos carecen de aparato estridulatorio, poseen pelos urticantes tipos I y III y cubierta de pelos ciliados en la zona retrolateral de los fémures IV, además de las sinapomorfias de Theraphosinae. Se ofrece una lista actualizada de los 49 géneros de Theraphosinae, así como datos acerca de su composición e instituciones depositarias de los ejemplares tipo de sus especies tipo. Se repone a *Mygale nigrum* Walckenaer 1837 como especie tipo de *Homoeomma* Ausserer 1871.

**Palabras clave:** Mygalomorphae, Theraphosinae, Cubanana, Homoeomma, nuevo género, taxonomía, análisis filogenético, pelos ciliados, Antillas, Cuba.

**Taxonomy/Taxonomía:** *Cubanana* gen. n.  
*Cubanana cristinae* sp. n.

## Introduction

The New World theraphosid spider fauna is constituted by the subfamilies Theraphosinae, Ischnocolinae, Aviculariinae and Selenocosmiinae (Raven, 1985). Of them, the Theraphosinae is undoubtedly the most diverse and best studied and is also endemic to the region.

In 1979, Schiapelli & Gerschman de Pikelin published the first revision of this subfamily, where they diagnosed and offered identification keys for the 10 genera that were included. Later, Raven (1985), as part of his revision of the Infraorder Mygalomorphae, by considering the Grammostolinae as a junior synonym of the Theraphosinae and transferring several Ischnocoline genera to this subfamily, he expanded it to include 31 genera. In what constitutes the most comprehensive work on the subfamily systematics, Pérez-Miles *et al.* (1996), diagnosed 30 genera after the examination of the type specimens and additional material of the type species of most genera and offered a new identification key. They also carried out a cladistic analysis that illuminated for the first time the phylogeny within the group and opened a way for deeper and more orderly studies of it. Since then, 10 new genera have been described and further eight have been revalidated and/or transferred to this subfamily.

Besides those above papers that have had a global impact on the systematics of the Theraphosinae, several partial or total revisions have been carried out on genera, e.g., as *Acanthoscurria* Ausserer 1871 (Schiapelli & Gerschman de Pikelin, 1964), *Aphonopelma* Pocock, 1901 (Prentice, 1997), *Citharacanthus* Pocock, 1901 (Rudloff, 1998), *Cyriocosmus* Simon, 1903 (Pérez-Miles, 1998b; Fukushima *et al.*, 2005), *Hemirrhagus* Simon, 1903 (Pérez-Miles & Locht, 2003), *Phormictopus* Pocock, 1901 (Rudloff, 2008), *Tmesiphantes* Simon, 1892 (Yamamoto *et al.*, 2007) and *Vitalius* Lucas, Silva & Bertani, 1993, *Nhandu* Lucas, 1983, *Proshapalopus* Mello-Leitão, 1923, *Theraphosa* Thorell, 1870, *Eupalaestrus* Pocock, 1901 and *Lasiodora* C. L. Koch, 1850 (Bertani, 2001).

In this paper a new genus of Theraphosinae spider is described and some considerations about its phylogenetic relationships are posed.

## Materials and methods

All measurements were taken along the central axis of structures, with an ocular micrometer on a stereomicroscope and are given in millimeters; the extension of the metatarsal

scopulae relative to the length of the segment was evaluated at plain view.

The photographs of the figures 7–12 were taken of specimens in ethanol with a Canon Power Shot A610 digital camera manually coupled to a stereomicroscope. Figures 13–16 and 24–27 were first made in the computer software Corel Draw 12, by drawing on images of the structures. After tracing on the main lines of the objects, the Interactive Contour Tool was used to simulate the shape of the structures. Further processing of images was performed using the software Adobe Photoshop CS in order to fix the remaining differences between the digitally created images and the photographs. Processing and photographs of the spermathecae were done following Ortiz & Bertani (2005).

Cladistic analyses were carried out using WinClada 1.00.08 (Nixon 2002) and Nona 2.0 (Goloboff, 1998). The objectives of such analyses were merely trying to evaluate the relationships of this new genus in the light of the previously published analyses of Theraphosinae, not reexamine the relationships of all the genera included or perform a criticism of the data sets. Searches were done with the option *heuristics* and the methodology *Multiple TBR+TBR (mult\*max\*)*, which constitutes the most potent procedure that WinClada offers (Nixon, 2002). 1000 replications were performed with 20 starting trees and holding 100 trees in memory. The data of the new taxon that is described in this paper were added to the matrixes of Pérez-Miles (2000) and Bertani (2001). In both analyses, the multistate characters were considered as ordered, to keep the original methodology.

The matrix of Pérez-Miles (2000) was created by coding 30 characters for 30 genera of Theraphosinae, but only those that resulted in this analysis phylogenetically nearest to the taxon that is herein described are represented in the figure 1. The characters states were coded for this new taxon as follow (character/state): 0/?; 1/1; 2/0; 3/1; 4/?; 5/1; 6/0; 7/0; 8/0; 9/1; 10/0; 11/0; 12/0; 13/0; 14/1; 15/1; 16/0; 17/0; 18/1; 19/1; 20/0; 21/0; 22/0; 23/0; 24/0; 25/0; 26/0; 27/0; 28/0; 29/0. The characters 0 and 4 were coded as “?” (missing) due to the uncertainty in the methodology that the original author of the matrix used to determine the states.

The matrix of Bertani (2001) was created by coding 35 characters for 30 species (14 genera) of Theraphosinae. Since, in the present analysis all the genera resulted monophyletic, in figures 2–4 only the position of each genus in the tree is represented, not the position of all the species used in the analysis. The characters states were coded for this new taxon following the original methodology (Bertani 2001) and resulted as follow (character/state): 1/0; 2/0; 3/0; 4/0; 5/0; 6/0; 7/0; 8/0; 9/0; 10/0; 11/1; 12/0; 13/0; 14/0; 15/0; 16/0; 17/0; 18/0; 19/0; 20/0; 21/0; 22/0; 23/1; 24/0; 25/0; 26/0; 27/0; 28/0; 29/0; 30/0; 31/1; 32/0; 33/0; 34/0; 35/0.

Comparisons between genera were made utilizing the data from Pérez-Miles *et al.* (1996), Pérez-Miles (2000) and Bertani (2001) for genera included in their studies. Data from the remaining genera were taken from their original descriptions. Geographical distribution of theraphosine genera (Table VI) was taken mainly from Platnick (2008).

The term allotype is here considered the fully described paratype female which assures an easy identification of the specimen, although it is a term not regulated by the current International Code of Zoological Nomenclature (I.C.Z.N., 1999).

Terminology for urticating hairs was taken from Cooke *et al.* (1972); that of tarsal scopulae, from Pérez-Miles (1994); that of spination patterns, from Petrunkevitch (1925) and that of palpal bulbs keels, from Bertani (2000).

Abbreviations. Morphology. Palpal bulbs: apical keel (A), subapical keel (SA) and prolateral inferior keel (PI). Ocular patterns: anterior median eyes (AME), anterior lateral eyes (ALE), posterior median eyes (PME) and posterior lateral eyes (PLE). PLS: Posterior lateral spinnerets. Cladistics: length (L), consistency index (CI) and retention index (RI).

Material examined will be deposited in the following collections: Instituto de Ecología y Sistemática, La Habana, Cuba (IES), David Ortiz personal collection, La Habana, Cuba (CDO); Museo de Historia Natural Carlos de la Torre y Huerta, Holguín, Cuba (MHNCT); Instituto Butantan, São Paulo, Brazil (IBSP); American Museum of Natural History, New York, U.S.A. (AMNH); Natural History Museum, London, United Kingdom (BMNH); Senckenberg Museum, Frankfurt-am-Main, Germany (SMF).

Other institutions: Muséum National d’Histoire Naturelle, Paris, France (MNHN); Museum für Naturkunde der Humboldt Universität zu Berlin, Berlin, Germany (ZMB); Museum of Comparative Zoology, Cambridge, U.S.A. (MCZ); Naturhistorisches Museum, Vienna, Austria (NMW); Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, Argentina (MACN); Museo de Zoología, Universidad de Costa Rica, San José, Costa Rica (UCR); Institut Royal des Sciences Naturelles, Brussels, Belgium (IRSN); Instituto Nacional de Pesquisas Amazônicas, Manaus, Brazil (INPA); Museu Nacional, Universidade Federal do Rio de Janeiro, Brazil (MNRJ); Museu de Zoologia da Universidade de São Paulo, Brazil (MZSP).

## Systematics

### Family THERAPHOSIDAE Thorell 1870

#### Subfamily THERAPHOSINAE Thorell 1870

Theraphosoidae Thorell 1870: 164.

Crypsidromeae Simon 1889: 204. (Synonymised by Raven, 1985: 118)

Lasiadoreae Simon 1903: 919, 937 (Synonymised by Bonnet, 1959: 4427)

Grammostoleae Mello-Leitão 1923: 129, 171 (Synonymised by Raven, 1985: 118)

Theraphosinae Schiapelli & Gerschman de Pikelin, 1979: 289.

Theraphosinae Raven, 1985: 118.

Theraphosinae Pérez-Miles *et al.*, 1996: 39.

**TYPE GENUS:** *Theraphosa* Thorell, 1870

**INCLUDED GENERA.** Table VI.

#### DIAGNOSIS.

Male palpal bulbs with extended subtegula and keels. Urticating hairs types I and/or III and/or IV on the abdomen.

#### *Cubanana* gen. nov.

**TYPE SPECIES:** *Cubanana cristinae* sp. nov.

## ETYMOLOGY

The gender of the genus is a feminine word composed by: *Cuba*, the country of its occurrence and *Nana*, in allusion to its small size, relative to the other Cuban theraphosid spiders.

## DIAGNOSIS

Theraphosine spider that lacks stridulatory apparatus. Retrolateral side of the femora IV covered by pad of ciliate hairs. Urticating hairs types I and III on abdomen of males and females. Male palpal bulbs with smooth A and PI keels and serrated SA keel. Retrolateral zone of male palpal tibiae with nodule and tibiae I spurs formed by two branches on a common base. Females with two independent spermathecae.

## COMPARISONS

*Cubanana* differs from most Theraphosinae by adult males presenting a nodule in the retrolateral zone of the palpal tibiae and a serrated bulbal SA keel. Both sexes also possess urticating hairs types I and III. It differs from *Citharacanthus*, *Acanthoscurria*, *Phormictopus*, *Nesipelma* Schmidt & Kovarik 1996, *Cyrtopholis* Simon 1892 and *Thrixopelma* Schmidt 1994 by the absence of stridulatory plumose hairs and setae. These are present on trochanters of *Citharacanthus*, *Acanthoscurria*, *Nesipelma* and *Cyrtopholis*, on coxae of *Thrixopelma* and in both segments of *Phormictopus*. It further differs from *Acanthoscurria*, *Nesipelma*, *Cyrtopholis*, *Eupalaestrus*, *Pamphobeteus* Pocock 1901, *Lasiadora*, *Nhandu*, *Vitalius* and *Xenesthis* Simon 1891, in that the retrolateral pad of the femora IV is composed by ciliate hairs, instead of plumose. It differs from *Eupalaestrus* and *Crassicrus* Reichling & West 1996, in that the tibiae IV are not thickened. Females further differ from those of *Lasiadora*, *Nhandu*, *Vitalius*, *Sphaerobothria* Karsch 1879, *Xenesthis*, *Chromatopelma* Schmidt 1995, *Bonnetina* Vol 2000 and other genera by having spermathecal receptacles completely separated, instead of totally or partially fused. For a summary of the main differences between *Cubanana* and the closest genera, see Table I.

## PHYLOGENETIC RELATIONSHIPS

From the data matrix of Pérez-Miles (2000), 26 equally parsimonious trees were obtained, of Length=85, Consistency Index=42 and Retention Index=70. The strict consensus (Fig. 1) recovered *Cubanana* as the sister group of the South American genus *Eupalaestrus* and the presence of thickened femora III is the character that supports this clade. This character is among the most homoplasious of the matrix as in 12 trees: L=3, CI=33 and RI=60. In the remaining 14 trees: L=4, CI=25 and RI=40.

On the other hand, from the data matrix of Bertani (2001), two equally parsimonious trees were obtained, of L=87, CI=50 and RI=77. One tree recovered *Cubanana* as sister to the clade (*Phormictopus*+*Acanthoscurria*) (Fig. 2). The presence of retrolateral process on male palpal tibia (L=1, CI=100, RI=100) and of subapical row of denticles on male palpal bulb (L=3, C=33, RI=50) support this clade. The other tree recovered *Cubanana* as sister to a clade formed by various genera, of which the most basal is also the clade (*Phormictopus*+*Acanthoscurria*) (Fig. 3). The presence of subapical row of denticles on male palpal bulb also supports this clade (L=3, CI=33, RI=50). The strict consensus (Fig. 4) recovered *Cubanana* in an unresolved tetratomy with *Cyrtopholis*, (*Phormictopus* + *Acanthoscurria*) and a clade formed by various genera.

## *Cubanana cristinae* sp. nov.

(Fig. 1–15, 17–29; Tables II–V)

**HOLOTYPE.** ♂ (IES-3.3270); CUBA: Holguín Province: El Yaya (3 Km S of Holguín city): N 20°50'14" – W 76°14'24": 212 m osl; 5/IX/2005; David Ortiz, col.; recently molted, under stone.

**ALLOTYPE.** ♀ (IES-3.3273); Same locality as holotype; 7/IX/2005; D. Ortiz & Alejandro Fernández; under stone.

**PARATYPES.** CUBA: Holguín province: El Yaya (3 Km S of Holguín city). 1 ♂ (IES-3.3271); 6/IX/2005; D. Ortiz; under fallen log. 1 ♂ (AMNH); collected alive 30/IV/2006, killed 5/VIII/2006; D. Ortiz; under stone. 1 ♀ (IES-3.3272); 31/III/2005; D. Ortiz, Fernando Balseiro & Darío Miguel; under stone. 3 ♀♀ (MHNCT, IBSP, SMF); 7/IX/2005; D. Ortiz & Alejandro Fernández; under stones. 3 ♀♀ (IES-3.3274, AMNH, BMNH); 30/IV/2006; D. Ortiz & A. Fernández; under stones.

Holguín province: Rafael Freyre municipality: playa Blanca: N 21°05' – W 76°00': 5 m osl. 1 ♂ (IES-3.3275); 14/VIII/2006; Tomás Michel Rodríguez; in Sea Grape (*Coccoloba uvifera* L.) coastal forest.

Holguín province: Báguanos municipality: near to Rejonones de Báguanos settlement: N 20°44' – W 76°03'. 1 ♀ (IES-3.3276); 24/VIII/2006; T.M. Rodríguez; under stone.

**OTHER MATERIAL EXAMINED** (non paratypes). CUBA: Holguín province: El Yaya (3 Km S of Holguín city). 1 ♀ juvenile & 2 ♂♂ juveniles (IES-3.3277 to 3.3279); 7/IX/2005; D. Ortiz & A. Fernández; under stones and in leaf litter. 5 ♂♂ juveniles (CDO); same data.

## ETYMOLOGY

The specific name is a matronym in honor to my mother, María Cristina Martínez Piloto, who died in January 2003 at the early age of 44 years, victim of cancer. For her love and teachings, for being the forger of what I am, all my work is dedicated to her memory.

## DESCRIPTION

### Male holotype:

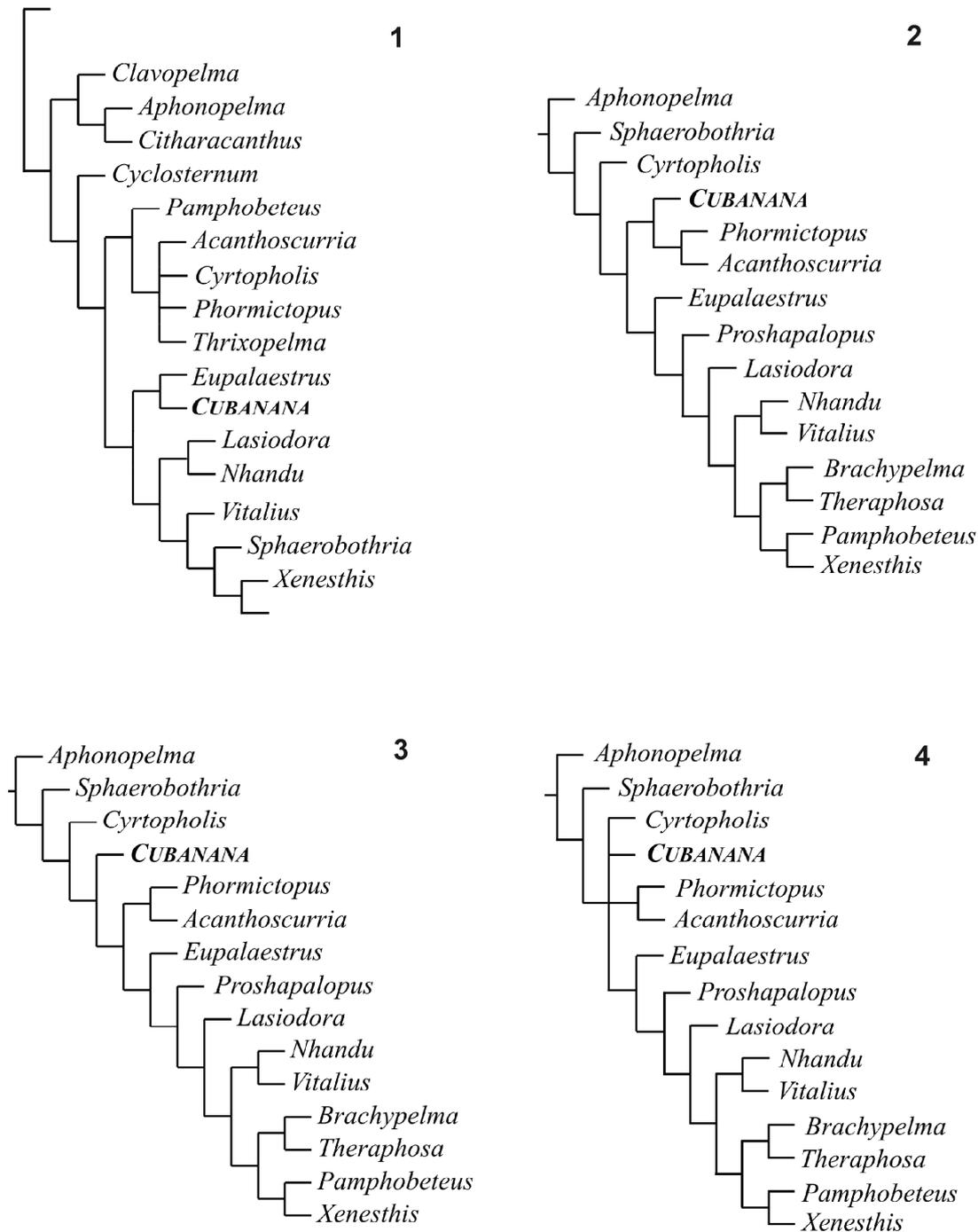
Some quantitative characters are shown in Table II.

Coloration and pilosity: The carapace is covered by dense reddish-brown pubescence with some yellowish and greenish tones that masks partially dark brown color of the integument (Fig. 5). It is bordered by a thick layer of stiff marginal hairs, pointing ahead. Legs and palps are also covered by pilosity of the same colors, although darker in tibiae, metatarsi and tarsi than in the other segments. Integument of sternum, labium, coxae and maxillae, reddish-yellowish-brown. Abdomen is dark brown with long reddish setae in the dorsal side and light brown in the ventral side.

Carapace with low only slightly elevated caput. Fovea broad and procurved. Ocular area: eight eyes disposed in two rows on a tubercle; anterior eye row straight or only slightly procurved; posterior row, recurved (Fig. 8). Ocular quadrangle width, 1.29; length, 0.54. Clypeus, 0.14 wide. AME circular, diameter, 0.24; ALE ovoid, greater diameter, 0.34; PME ovoid, greater diameter, 0.17; PLE ovoid, greater diameter, 0.27.

Chelicerae with 10 (left appendage) and nine (right) teeth parallel to the promargin of the ventral side.

Sternum flat, covered uniformly by erect thick hairs and with three pairs of sigillae, placed at opposite coxae I, II



**Fig. 1-4.** *Cubanana cristinae* gen. et sp. nov. Phylogenetic relationships. **1.** Strict consensus tree obtained from the matrix of Pérez-Miles (2000). The less related genera are not represented. Length=85, Consistency Index=42, Retention Index=70. **2-4.** Trees (2 & 3) and strict consensus tree (4) obtained from the matrix of Bertani (2001). Only the generic positions are represented. Length=87, Consistency Index=50, Retention Index=77.

and III (Fig. 7). Labiosternal groove shallow. Labium wider than longer and with a subtrapezoid shaped (Fig. 9).

Leg formula. Leg IV>I>II>III.

Appendage segment lengths. Palp: femur, 3.6; patella, 2.3; tibia, 2.9; total, 8.8. Leg I: femur, 6.3; patella, 3.4; tibia, 4.8; metatarsus, 4.1; tarsus, 2.9; total, 21.5. Leg II: femur, 5.8; patella, 3.1; tibia, 4.2; metatarsus, 4.1; tarsus, 2.7; total, 19.9. Leg III: femur, 5.1; patella, 2.7; tibia, 3.6; metatarsus, 4.8; tarsus, 2.9; total, 19.1. Leg IV: femur, 6.5; patella, 2.9; tibia, 5.4; metatarsus, 7.2; tarsus, 3.3; total, 25.3.

Palpal bulbs (Figs. 13, 14) pyriforms; in the apical half, the embolus takes a marked curve in the dorsal (upward in resting living position) direction. A, SA and PI keels present. A and PI keels smooth. SA keel serrated. Cymbium fist-shaped, with a conic nodule in the prolateral face and is about  $\frac{3}{4}$  of the length of the palpal bulb. It is covered by very abundant erect long hairs pointing to apex, except in the ventral zone and is divided longitudinally in the apical fourth part of its length.



5



6

**Fig. 5-6.** *Cubanana cristinae* gen. et sp. nov. Habitus. **5.** Male holotype. **6.** Female allotype. Scale:  $\approx 3X$ . Photos by Nils Navarro.

Retrolateral face of palpal tibiae with round nodule (Fig. 12). Tibiae I spurs formed by two branches that emerge from common base and tend to converge distally (Figs. 10, 11): prolateral branch short, wide and flat at its apex; retrolateral branch much longer, narrower and with acute apex. Both with a megaspine in internal border of subapical zone. When flexed, the straight metatarsus I makes contact with the external border of retrolateral branch.

Prolateral femora of palps and legs I and II covered by pad of ciliate hairs, which are denser on femora I. Retrolateral zone of femora IV with dense pad of ciliate hairs (Fig. 15).

Retrolateral palpal coxae and trochanters with long simple covering hairs. Prolateral coxae I with only some long, thick and curved hairs. Prolateral trochanters I covered by abundant and more or less uniformly distributed long and thin non-plumose hairs.

Scopulae. On metatarsi, not very dense as it does not hide the underlying integument. They cover the entire segment in legs I, apical 2/3 in legs II, distal half of segment in legs III and there is only a small tuft of hairs in the apical zone in legs IV. On tarsi, also not very dense. They are integral, although with few dispersed type B hairs in legs I; in legs II, they are slightly divided by an irregular row of fine type B hairs full length; in legs III, they are divided completely by a band of two to three thick hairs. Tarsi IV divided full length by very wide band of very thick hairs.

Two tarsal claws and claw tuft in every leg.

Femora III spindle-shaped, considerably thickened in central region (Fig. 24).

Abdominal urticating hairs. Types I, III and others with intermediate morphology. Type III hairs very scarce, because the posterior dorsal region of abdomen, which in other genera is normally the most abundant in them, was almost bald after the specimen was fed in captivity.

Spination pattern. Palp: femur p0-0-1; tibia p0-0-3. Leg I: femur p0-0-1; tibia v0-1-1 p0-0-1; metatarsus v0-0-3 p0-1-0. Leg II: femur p0-0-1; tibia v0-1-2 p1-1-0; metatarsus v0-2-3 p0-1-0. Leg III: femur r0-0-1; tibia v1-2-2 p1-1-0 r0-1-2; metatarsus v2-2-4 p2-1-1 r0-1-1. Leg IV: femur r0-0-1; tibia v0-2-2 p0-0-1 r1-0-2; metatarsus v11 p2-1-1 r0-1-1.

#### Allotype female:

Some quantitative characters are shown in Table II.

Coloration and pilosity: As for holotype, but the carapace pubescence is less dense and the general color pattern lacks yellowish and greenish tones (Fig. 6).

Carapace with caput elevated. Fovea procurved. Anterior eye row clearly procurved; posterior row, recurved. Ocular quadrangle width, 1.40; length, 0.68. Clypeus, 0.24 wide. AME circular, diameter, 0.27; ALE ovoid, greater diameter, 0.34; PME ovoid, greater diameter, 0.24; PLE ovoid, greater diameter, 0.27.

Sternum, labium and maxillae as in the holotype.

Appendage segment lengths. Palp: femur, 3.9; patella, 2.8; tibia, 2.6; tarsus, 2.5; total, 11.8. Leg I: femur, 5.1; patella, 3.5; tibia, 4.1; metatarsus, 2.7; tarsus, 2.2; total, 17.6. Leg II: femur, 4.6; patella, 3.1; tibia, 3.3; metatarsus, 2.7; tarsus, 2.1; total, 15.8. Leg III: femur, 4.1; patella, 2.7; tibia, 2.7; metatarsus, 3.3; tarsus, 2.0; total, 14.8. Leg IV:

femur, 5.4; patella, 2.9; tibia, 4.4; metatarsus, 5.6; tarsus, 2.6; total, 20.9.

Two independent spermathecae (Fig. 17) with a wide base, a narrow neck and a semicircular fundus. A fusiform heavily sclerotized plate is near to the base of each receptacle.

Tarsal and metatarsal scopulae and femoral pad as in holotype, but the femoral pad less dense. Palpal tarsi scopulated with only few scattered type B hairs. Coxae and trochanters of palps and legs I and II as in holotype, covered by non-plumose hairs.

Femora III with central region thicker than ends (Fig. 26), but not so distinct as in holotype.

Abdominal urticating hairs. Type I and very small patch of type III and intermediate morphology in dorsal median to dorsal posterior region.

Spination pattern. Palp: femur, p0-0-1; tibia, v0-0-3. Leg I: femur, p0-0-1; metatarsus, v0-0-1. Leg II: femur, p0-0-1; metatarsus, v1-0-2. Leg III: tibia, v0-1-2 p0-1-0 r0-1-1; metatarsus, v0-2-3 p1-1-1 r0-1-1. Leg IV: tibia, v0-1-2 r0-1-1; metatarsus, v13 p0-1-1 r0-1-1.

#### VARIATION:

Some characters that show little variation in adults and late juveniles are: labium shape, position and relative size of the sternal sigillae, extent of the metatarsal scopulae, shape of the tarsal scopulae and of the retrolateral nodule on the male palpal tibiae.

Plumose setae and hairs in the coxae and trochanters were not found in any specimens. The ocular anterior row (AME+ALE) varies from completely straight to clearly procurved. The femoral pads are formed by ciliate hairs in all specimens and are denser in the adult males than in the rest. Some females and juvenile males possess those pads reduced to such a point that consist of only very scarce hairs concentrated in the apex of the segment.

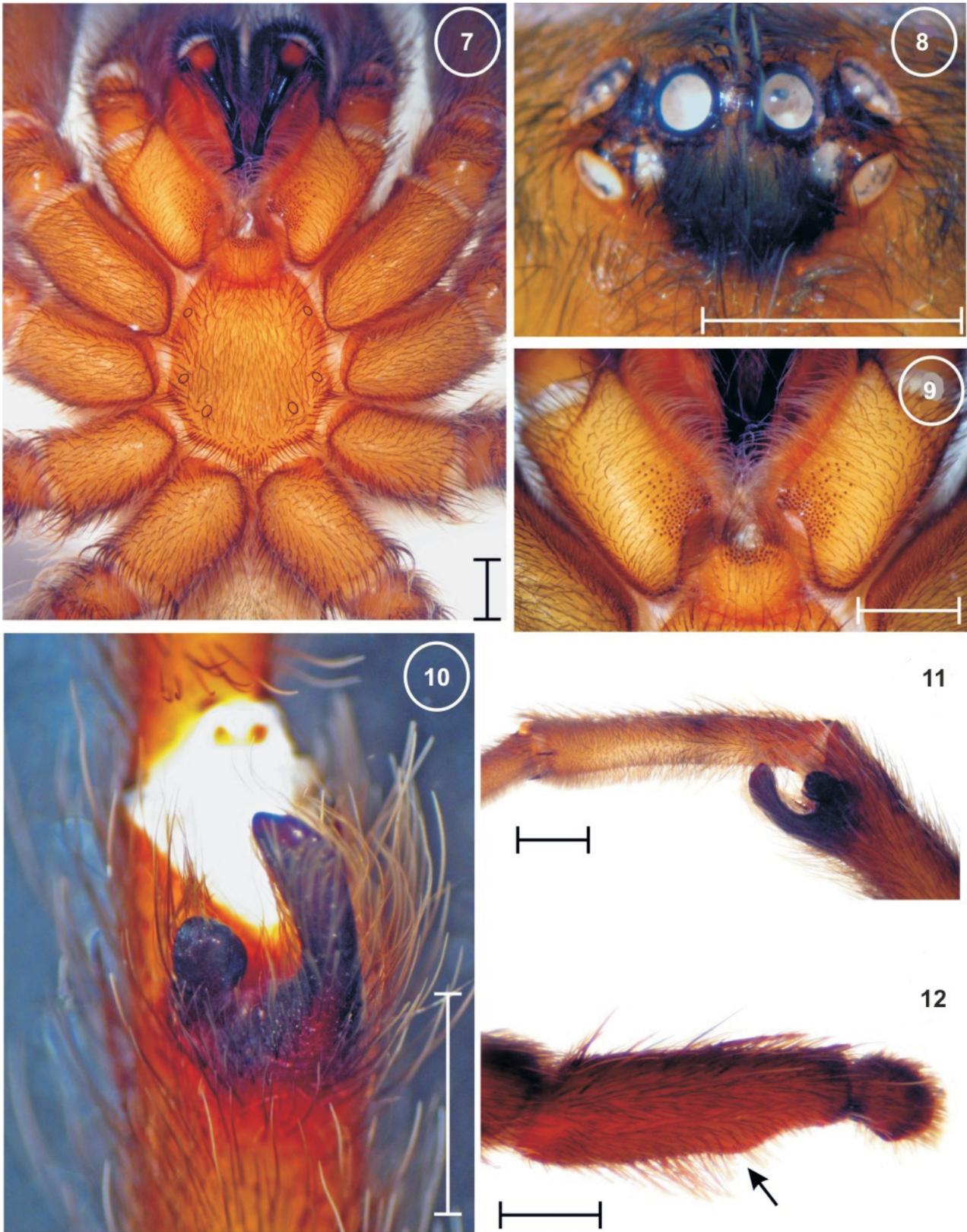
Spermathecae are very variable (Figs. 17–23). Nevertheless, all are in the common form in Theraphosinae of a wide base, a well defined narrow neck and a semicircular fundus. In the base of each spermatheca, a plate is located that is very sclerotized and also variable in shape.

Femora III are thicker in a mid-length than in the ends (Figs. 24–27), although the greatest contrast is in the males. This happens to such an extent that the variation ranges of both sexes in the studied sample are not superimposed (Table II). In the four adult males and in some females the described difference in width is so pronounced that the incrassated femora have a well defined spindle-shape.

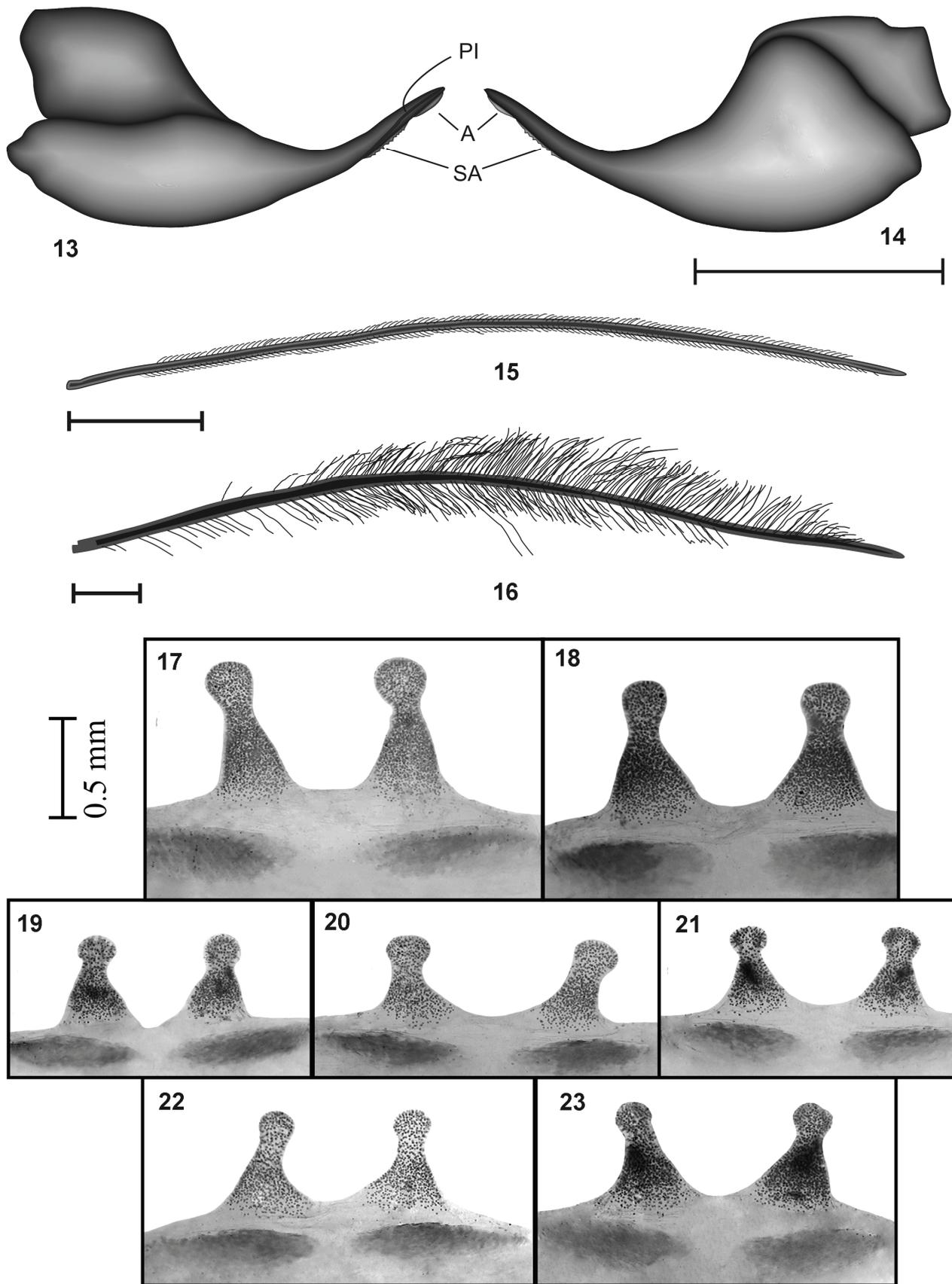
The three paratype males have a wide patch of urticating type III hairs covering the dorso-posterior fifth part of the abdomen. So, its scarcity in the holotype male should be a consequence of being released.

The pubescence of the carapace is much denser in males than in females. Its coloration is reddish-brown in both sexes, but males also have some yellowish and greenish iridescent tones. The abdomen of all specimens has long thick emergent red hairs (the longest in adult males) overlying a dense matt of dark brown hairs. The variation of some quantitative characters is represented in the Tables II–IV.

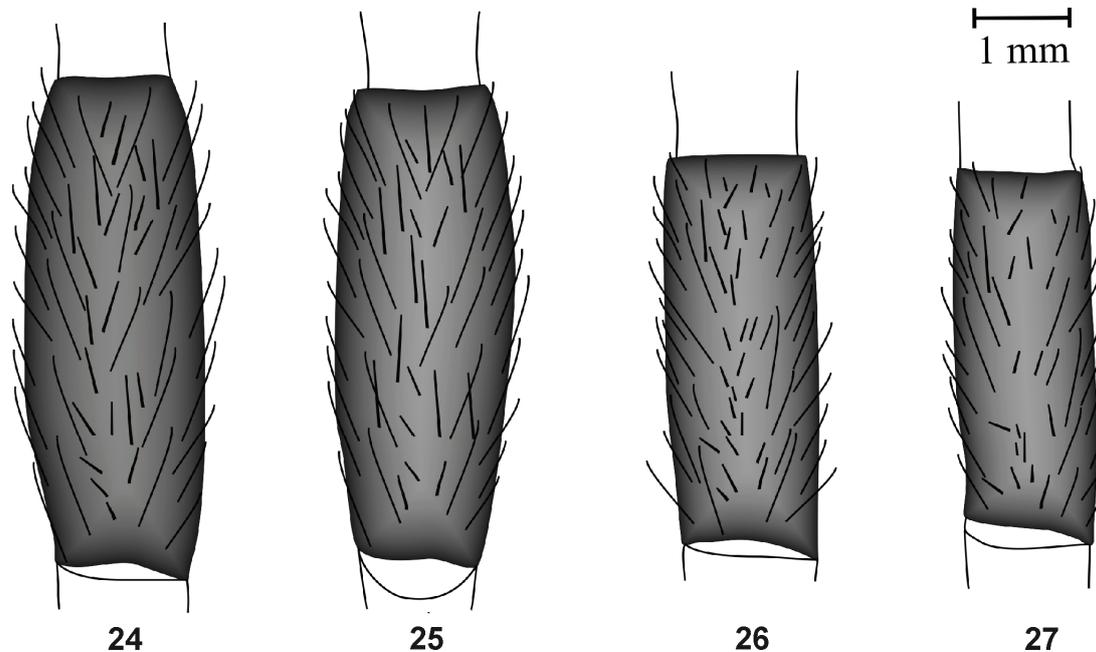
The dimensions and other quantitative characters of a male varied considerably before and after the last molt (Table V).



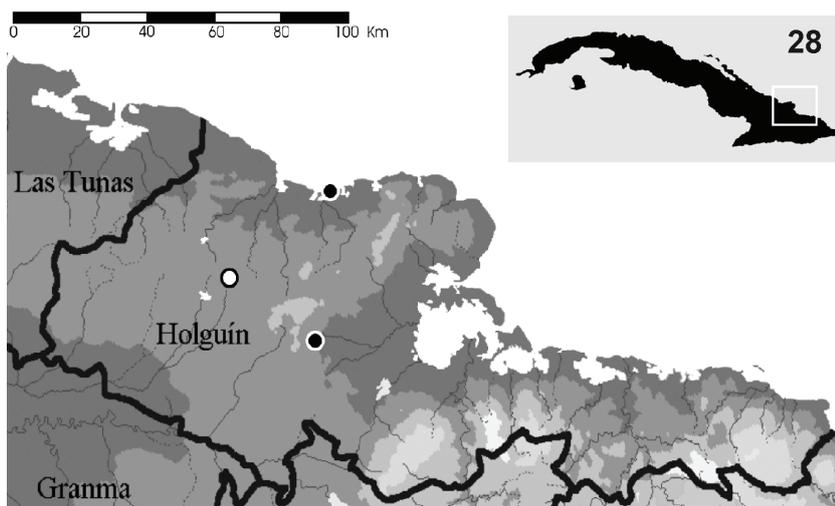
**Fig. 7-12.** *Cubanana cristinae* gen. et sp. nov. Male holotype. 7. Prosoma, ventral view with sigillae circled in black. 8. Ocular area. 9. Labium and maxillae. 10. Left tibia I spur. 11. Right tibia and metatarsus I, prolateral view. 12. Right palpal tibia, dorso-retrolateral view, showing nodule. Scale lines: 1mm.



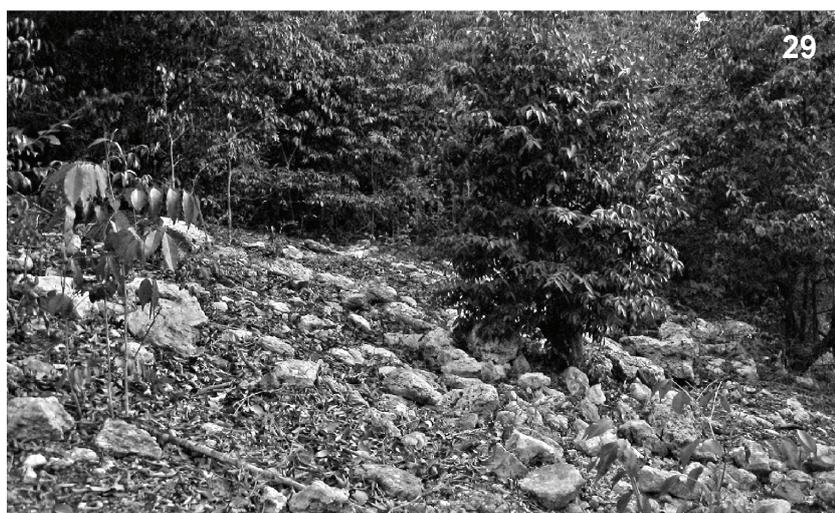
**Fig. 13-14.** *Cubanana cristinae* gen. et sp. nov. Male holotype, left pedipalpal bulb. **13.** Prolateral view. **14.** Retrolateral view. Keels: A=apical, SA=subapical, PI=prolateral inferior. Scale line: 1mm. **Fig. 15-16.** Hairs of the retrolateral femora IV pad. **15.** *Cubanana cristinae* gen. et sp. nov., male holotype showing ciliate morphology. (In both figures, the apparent opposite distribution of hair filaments is an artifact of the mounting in slides. They are located around the hair trunk). Scale lines: 0.1mm. **16.** *Phormictopus cubensis* Chamberlin 1917, male from Havana, Cuba showing plumose morphology. Scale lines: 0.1mm. **Fig. 17-23.** *Cubanana cristinae* gen. et sp. nov. Spermathecae. **17.** Allotype. **18.** IBSP. **19.** AMNH. **20.** BMNH. **21.** IES-3.3274. **22.** SMF. **23.** IES-3.3272.



**Fig. 24-27.** *Cubanana cristinae* gen. et sp. nov. Femora III. 24. Male holotype. 25. Male paratype AMNH. 26. Female allotype. 27. Female paratype IBSP.



**Fig. 28.** *Cubanana cristinae* gen. et sp. nov. Geographic records. (○): Type locality. (●): Other localities.



**Fig. 29.** *Cubanana cristinae* gen. et sp. nov. Type locality (El Yayal: Holguín province: Cuba).

## DISTRIBUTION

*Cubanana cristinae* sp. nov. is known from three localities, all in Holguín province (Fig. 28). El Yayal (Fig. 29) and Rejondones de Báguanos pertain to the Grupo Maniabón, a system of karstic hills always below 300 m over sea level, which extends between the east of Las Tunas province and the north-west of Holguín province. Playa Blanca is on a coastal plain, north of this hilly system.

## NATURAL HISTORY

The only well-located population of this species (El Yayal) lives under stones, in semi-deciduous forest and the adult female from Rejondones de Báguanos was found in a similar habitat. The adult male from Playa Blanca, however, was collected in a sea grape (*Coccoloba uvifera* L. [Polygonaceae]) forest, a few meters from the coastline, in a sandy environment.

A female (IES-3.3272) was collected on 31/III/2005 with an egg sac that contained 48 larvae. Other two females (IES-3.3274 and AMNH) were collected on 30/IV/2006 with egg sacs that contained 31 and 49 larvae, respectively. The three adult males collected on 5/IX/2005, 6/IX/2005 and 14/VIII/2006 and one (AMNH) that molted to adulthood in captivity on 1/VI/2006, show that the breeding season of this species at least partially takes places during the warm season (May to November).

*Cubanana cristinae* sp. nov. lives in sympatry with three other theraphosids: *Cyrtopholis ramsi* Rudloff 1996, *Phormictopus cochleasvorax* Rudloff 2008 and *Phormictopus auratus* Ortiz & Bertani 2005 in El Yayal. *P. auratus* adults reach about four times the size of those of *C. cristinae* and have also lapidicolous habits. Nevertheless, *C. cristinae* seems to prefer hiding under rocks between 10–20 cm diameter while *P. auratus*, being much larger, usually takes refuge under rocks bigger than 50 cm diameter (pers. obs.). However, the interactions that are necessarily established between these species and the way in which *C. cristinae* survives and is abundant in the presence of such a powerful potential competitor and predator will remain unknown until detailed research is conducted.

## Discussion

The phylogenetic relationships between the theraphosine genera still remain unclear. Even though some cladistic analyses have illuminated many points (Pérez-Miles *et al.*, 1996; Pérez-Miles, 2000; Bertani, 2000, 2001; Fukushima *et al.*, 2005), different approaches in those analyses, as treating characters as ordered or unordered, granting more importance to some structures over the others (by using more characters to describe them), the different included taxa, or even the use of characters of doubtful legitimacy (e.g. some bulbal characters used by Pérez-Miles *et al.* [1996] and Pérez-Miles [2000] seem to be uninformative after Bertani [2000, 2001]), have result in phylogenetic trees with quite different structures. As knowledge and understanding of the group have increased, revisions of certain characters have been carried out, including urticating hairs (Cooke *et al.*, 1972), tarsal scopulae (Pérez-Miles, 1994), palpal bulbs (Bertani, 2000) and labial and maxillary cusps (Pérez-Miles & Montes de Oca, 2005). Such character revisions are critical to help distinguish between homology and homoplasy, between taxonomically valid and non-valid (e.g.

invariable or completely overlapped variation between the studied taxa, secondary effect of another character state expression) characters and allow others to objectively score the character states consistently.

Generic revisions, some of which have been carried out, are also indispensable to determine how wide is the intrageneric variation and which of the characters that have been utilized in the cladistic analysis to subfamily level, are really invariable at generic level or in case of not being, which is the plesiomorphic state for each genus. These elements are not only causing great changes in the taxonomy of the Theraphosinae, but are also causing a shift on regards to which concepts are being used for elaborating such taxonomy, from the mainly descriptive towards the deeply analytical.

The results obtained herein are inconclusive regarding the phylogenetic relationships of *Cubanana* gen. nov., because the cladograms obtained utilizing both data matrixes were different at lower level. The analysis based on the matrix of Pérez-Miles (2000) categorically suggests that *Cubanana* is the sister group of *Eupalaestrus*. Nevertheless, the one that was based on the matrix of Bertani (2001) in none of its variants locates *Cubanana* in that same position, but rather as strongly related to *Phormictopus*, *Acanthoscurria* and *Cyrtopholis*, without arriving to higher resolution. Until further research on the relationships of Theraphosinae lead with confidence to higher resolution, it can be only concluded that *Cubanana* is near to these four closely related genera.

New phylogenetic analyses should be carried out, in which the characters proposed by Pérez-Miles (2000) and Bertani (2001) are revised and also in which more characters and taxa are added. Only this way, more reliable results will be obtained concerning the relationships between the genera of the subfamily and this might enable to propose its subdivision in tribes, what already constitutes a necessity due to its wide diversity in genera and species.

On the other hand, besides of improving the morphological focus that have traditionally had the studies of this group, phylogenetic approaches based on molecular data would undoubtedly increase our understanding and probably help clarify dark spots in which morphology have proven to have a discrete usefulness.

With *Cubanana*, the composition of the subfamily Theraphosinae is increased to 49 valid genera (Table VI).

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**Table I. States of some taxonomically informative characters in *Cubanana* gen. nov. and closely related genera.** Characters: 1) Coxal stridulatory plumose hairs and/or bristles; 2) Trochanteral stridulatory hairs and/or bristles; 3) Subapical denticulate row in male palpal bulbs; 4) Retrolateral keel in male palpal bulbs; 5) Retrolateral nodule in male palpal tibiae; 6) Number of branches in male tibiae I spurs; 7) Type of hairs of retrolateral femora IV pad; 8) Curvature of metatarsi I of males; 9) Spermathecae shape; 10) Femora III width; 11) Tibiae IV width; 12) Coxal spinules. 13) Number of differences respecting to *Cubanana*. \*: possible intrageneric variation as the states were coded differently in Pérez-Miles (2000) and Bertani (2001). ?: missing.

Characters	<i>Cubanana</i>	<i>Eupalaestrus</i>	<i>Cyrtopholis</i>	<i>Phormictopus</i>	<i>Acanthoscurria</i>	<i>Thrixopelma</i>
1	absent	absent	absent	present	absent	present
2	absent	absent	present	present	present	absent
3	present	present	absent	*	*	absent
4	absent	present	absent	absent	absent	?
5	present	absent	*	present	present	present
6	2	2	2	2	1	2
7	ciliate	plumose	plumose	plumose	plumose	plumose
8	straight	straight	straight	curved	straight	?
9	not subspheric	not subspheric	not subspheric	not subspheric	subspheric	not subspheric
10	thickened	thickened	not thickened	not thickened	not thickened	not thickened
11	not thickened	thickened	not thickened	not thickened	not thickened	not thickened
12	absent	absent	absent	absent	absent	present
13		4	4 or 5	5 or 6	5 or 6	5–7

**Table II. *Cubanana cristinae* gen. et sp. nov. Variation of some quantitative characters in the specimens of the type series (four ♂♂ and nine ♀♀). Measurements in mm. In smaller letters, Mean±Standard Deviation. In columns of male holotype and female allotype, the hyphen represents the separation between the value of character in the left extremity (at left) and the right one. PLS: Posterior-lateral spinnerets. PB/RB: Length of the proteral/retrolateral branch of the tibial spurs. MW/BW: Maximum width / Base width.**

Measurements/ Specimens	♂ holotype	Variation ♂♂	♀ allotype	Variation ♀♀
Total length	16.0	16.0–20.1 / 18.1±2.2	20.9	16.4–20.9 / 18.7±1.5
Carapace length	6.5	6.5–7.4 / 7.0±0.4	7.2	5.6–7.3 / 6.5±0.6
Carapace width	5.7	5.7–6.5 / 6.2±0.4	6.5	5.0–6.5 / 5.5±0.5
Carapace Width/Length	0.87	0.86–0.93 / 0.88±0.03	0.90	0.80–0.91 / 0.86±0.04
Sternum length	3.1	3.1–3.5 / 3.4±0.2	3.7	2.7–3.9 / 3.2±0.4
Sternum width	2.7	2.7–3.0 / 2.9±0.1	3.3	2.4–3.3 / 2.9±0.3
Sternum Width/Length	0.87	0.80–0.87 / 0.84±0.03	0.89	0.74–0.97 / 0.90±0.07
PLS length	3.3	3.3–3.6 / 3.5±0.1	4.0	2.7–4.0 / 3.3±0.5
Cheliceral teeth	10–9	9–11	9–10	9–11
Labial cusps	33	33–45 / 40±6	54	18–58 / 45±13
Maxillary cusps	111–105	105–127 / 116±9	156–155	107–156 / 124±17
PB/RB	0.41–0.48	0.41–0.48 / 0.45±0.03	–	–
Femur III MW/BW	1.35	1.35–1.41 / 1.38±0.02	1.20	1.05–1.28 / 1.15±0.07

**Table III. *Cubanana cristinae* gen et sp. nov. Variation (mm) of palp and leg segment lengths of the four adult males of the type series. In smaller letters, Mean±Standard Deviation.**

Segment	Palp	Leg I	Leg II	Leg III	Leg IV
Femur	3.6–4.2 / 3.9±0.3	6.3–6.8 / 6.5±0.2	5.8–6.4 / 6.1±0.3	5.0–5.6 / 5.3±0.3	6.5–7.0 / 6.7±0.2
Patella	2.0–2.7 / 2.3±0.3	3.4–3.8 / 3.6±0.2	3.1–3.4 / 3.2–0.1	2.7–3.0 / 2.8±0.1	2.9–3.1 / 3.0±0.1
Tibia	2.9–3.7 / 3.3±0.3	4.8–5.8 / 5.3±0.4	4.2–4.8 / 4.5±0.3	3.6–4.1 / 3.8±0.2	5.4–6.1 / 5.7±0.3
Metatarsus	–	4.1–5.0 / 4.6±0.4	4.1–5.0 / 4.5±0.4	4.8–5.6 / 5.1±0.3	7.2–8.3 / 7.7±0.5
Tarsus	–	2.9–3.0 / 3.0±0.1	2.7–3.2 / 2.9±0.2	2.9–3.1 / 3.0±0.1	3.2–3.3 / 3.3±0.1

**Table IV. *Cubanana cristinae* gen et sp. n. Variation (mm) of palp and leg segment lengths of the nine adult females of the type series. In smaller letters, Mean±Standard Deviation.**

SEGMENT	Palp	Leg I	Leg II	Leg III	Leg IV
Femur	3.1–4.1 / 3.5±0.3	4.1–5.1 / 4.6±0.3	3.5–4.6 / 4.0±0.4	3.2–4.1 / 3.5±0.3	4.3–5.4 / 4.8±0.4
Patella	2.1–2.8 / 2.3±0.3	2.8–3.6 / 3.2±0.3	2.1–3.1 / 2.7±0.3	2.2–2.9 / 2.4±0.3	2.4–3.1 / 2.7±0.3
Tibia	2.0–2.7 / 2.4±0.3	2.9–4.1 / 3.5±0.5	2.3–3.4 / 2.8±0.4	1.8–2.7 / 2.3±0.3	3.5–4.5 / 3.9±0.3
Metatarsus	–	1.9–2.7 / 2.3±0.3	1.8–2.7 / 2.2±0.3	2.7–3.7 / 3.1±0.4	4.5–5.6 / 5.1±0.4
Tarsus	1.8–2.5 / 2.0±0.3	1.4–2.2 / 1.8±0.3	1.4–2.2 / 1.8±0.3	1.5–2.1 / 1.8±0.2	2.0–2.6 / 2.3±0.2

**Table V. *Cubanana cristinae* gen et sp. n. Increment in the dimensions (mm) and other quantitative characters in a male (AMNH) from his last molt. L: Length; W: width.**

Character	Carapace L.	Carapace W.	Sternum L.	Sternum W.	Palp Femur
Juvenile	6.8	6.3	3.2	2.8	3.7
Adult	7.4	6.5	3.5	3	4.2
Increment	8.8 %	3.2 %	9.4 %	7.1 %	13.5 %
Character	Patella Palp	Tibia Palp	Femur I	Patella I	Tibia I
Juvenile	2.2	3.1	5.4	3.5	3.9
Adult	2.7	3.3	6.8	3.8	5.3
Increment	22.7 %	6.5 %	25.9 %	8.6 %	35.9 %
Character	Metatarsus I	Tarsus I	Femur II	Patella II	Tibia II
Juvenile	3.9	2.3	4.8	2.8	3.3
Adult	4.5	3	6.2	3.4	4.6
Increment	15.4 %	30.4 %	29.2 %	21.4 %	39.4 %
Character	Metatarsus II	Tarsus II	Femur III	Patella III	Tibia III
Juvenile	2.7	2.1	4.1	2.5	2.9
Adult	4.3	2.9	5.5	3	3.9
Increment	59.3 %	38.1 %	34.1 %	20.0 %	34.5 %
Character	Metatarsus III	Tarsus III	Patella IV	Tibia IV	Metatarsus IV
Juvenile	3.6	1.8	2.6	4.4	5.6
Adult	5	3	3.1	5.8	7.3
Increment	38.9 %	66.7 %	19.2 %	31.8 %	30.4 %
Character	Tarsus IV	Teeth Left Chelicera	Teeth right Chelicera	Labial Cusps	Right maxilla Cusps
Juvenile	2.4	11	10	37	105
Adult	3.2	11	10	38	114
Increment	33.3 %	0 %	0 %	2.7 %	8.6 %

**Table VI. Composition of the subfamily Theraphosinae.** DEP.: Depository institution of the name-bearing types of the type species (They were determined by recent bibliographic references of authors who examined the specimens and [only in underlined cases] additionally by contacting the institutions personnel in charge of the collections). The number of taxa is expressed as: *number of species* [number of subspecies (without the nominal one)]. \*: distribution of the type species (in the necessary cases). Updated: 30/XII/2007.

Genus	Type species	Dep.	N° Taxa	Distribution	Current location in the Theraphosinae
<i>Acanthoscurria</i> Ausserer 1871	<i>Mygale geniculata</i> C. L. Koch 1841	ZMB	39	Guatemala, Lesser Antilles, South America (Brazil*)	Ausserer (1871)
<i>Aenigmarachne</i> Schmidt 2005	<i>Aenigmarachne sinapophysis</i> Schmidt 2005	SME	1	Costa Rica	Schmidt (2005a)
<i>Aphonopelma</i> Pocock 1901	<i>Eurypelma seemanni</i> F. O. P. - Cambridge 1897	BMNH	90	South of North America, Central America*, Chile, Brazil	Raven (1985) included <i>Rhechosifca</i> Simon 1892, junior synonym of <i>Aphonopelma</i> , in the Theraphosinae. I.C.Z.I.N. Opinion 1637 (1991) gave priority to <i>Aphonopelma</i> over <i>Rhechosifca</i>
<i>Bonnetina</i> Vol 2000	<i>Bonnetina cyaneifemur</i> Vol 2000	MNHNP	2	Mexico	Vol (2000)
<i>Brachypelma</i> Simon 1891	<i>Mygale emilia</i> White 1856	MNHNP <sup>1</sup>	20	U.S.A., Central America (Mexico*)	Schmidt (1992) eliminated the synonymy <i>Brachypelma</i> = <i>Euathlus</i> and included it in the Theraphosinae
<i>Cardiopelma</i> Vol 1999	<i>Cardiopelma mascatum</i> Vol 1999	Lost <sup>2</sup>	1	Unknown	Vol (1999)
<i>Chromatopelma</i> Schmidt 1995	<i>Eurypelma cyaneopubescens</i> Strand 1907	Lost <sup>3</sup>	1	Venezuela	Schmidt (1995)
<i>Citharacanthus</i> Pocock 1901	<i>Eurypelma longipes</i> F. O. P. - Cambridge 1897	BMNH	8	Central America*, Cuba, Hispaniola	Raven (1985)
<i>Clavopelma</i> Chamberlin 1940	<i>Eurypelma tamaulipeca</i> Chamberlin 1937	AMNH	1	Mexico	Prentice (1997) eliminated the synonymy <i>Clavopelma</i> = <i>Aphonopelma</i> and Pérez-Miles (2000) included it formally in the Theraphosinae
<i>Crassicrus</i> Reichling & West 1996	<i>Crassicrus lamanai</i> Reichling & West 1996	AMNH	1	Belize	Reichling & West (1996)
<i>Cubanana</i> Ortiz 2008	<i>Cubanana cristinae</i> Ortiz 2008	IES	1	Cuba	Described in this paper
<i>Cyclosternum</i> Ausserer 1871	<i>Cyclosternum schmardae</i> Ausserer 1871	MNHNP <sup>1</sup>	14	Mexico, Costa Rica, South America (Colombia*, Ecuador*)	Raven (1985)
<i>Cyriocosmus</i> Simon 1903	<i>Hapalopus sellatus</i> Simon 1889	MNHNP	11	Trinidad, Tobago, South America (Perú*, Brazil*)	Raven (1985)
<i>Cyrtopholis</i> Simon 1892	<i>Cyclosternum cursor</i> Ausserer 1875	BMNH	28	Bahamas Islands, Antilles (Hispaniola*), Brazil	Raven (1985)
<i>Davus</i> O. P.-Cambridge 1892	<i>Davus fasciatus</i> O. P.-Cambridge 1892	?	4	Mexico, Guatemala, Costa Rica *	Schmidt (2005b) eliminated the synonymy <i>Davus</i> = <i>Cyclosternum</i> and included it in the Theraphosinae
<i>Euathlus</i> Ausserer 1875	<i>Euathlus truculentus</i> L. Koch 1875 (in Ausserer 1875)	BMNH	4 [1]	Ecuador, Chile*, Argentina*	Raven (1985)
<i>Eupalaestrus</i> Pocock 1901	<i>Eupalaestrus pugilator</i> Pocock 1901 (= <i>Eurypelma campestratum</i> Simon 1891)	BMNH	3	Brazil*, Paraguay*, Uruguay, Argentina*	Pocock (1901)
<i>Grammostola</i> Simon 1892	<i>Eurypelma pulchripes</i> Simon 1891 (= <i>Eurypelma mollicornum</i> Ausserer 1875)	MNHNP	19	Central-South of South America (Brazil*, Uruguay*, Paraguay*, Argentina*)	Schmidt (1996) eliminated the synonymy <i>Grammostola</i> = <i>Phrixotrichus</i> and included it in the Theraphosinae

Genus	Type species	Dep.	N° Taxa	Distribution	Current location in the Theraphosinae
<i>Hapalopus</i> Ausserer 1875	<i>Hapalopus formosus</i> Ausserer 1875	<u>NMW</u>	8	Mexico, north of South America (Colombia*)	Raven (1985)
<i>Hapalotremus</i> Simon 1903	<i>Hapalotremus albipes</i> Simon 1903	<u>MNHNP</u>	6	Bolivia*, Peru, Brazil	Raven (1985)
<i>Hemiercus</i> Simon 1903	<i>Hapalopus inflatus</i> Simon 1889	<u>MNHNP</u>	5	Venezuela*, Colombia, Brazil	Rudloff (1997) eliminated the synonymy <i>Hemiercus = Holothele</i> and located it in the Theraphosinae
<i>Hemirrhagus</i> Simon 1903	<i>Cratorrhagus cervinus</i> Simon 1891	<u>MNHNP</u>	15	Mexico	Pérez-Miles (1998a) transferred <i>Hemirrhagus</i> from <i>Ischnocolinae</i> to Theraphosinae
<i>Homoomma</i> Ausserer 1871	<i>Mygale nigrum</i> Walckenaer 1837 <sup>4</sup>	BMNH	14	South America (Brazil*)	Ausserer (1871)
<i>Lasiadora</i> C. L. Koch 1850	<i>Mygale klugi</i> C. L. Koch 1841	ZMB <sup>5</sup> <u>BMNH</u>	38 [1]	South of Central America, Trinidad, South America (Brazil*)	Ausserer (1871)
<i>Lasiadorides</i> Schmidt & Bischoff 1997	<i>Lasiadorides polycuspulatus</i> Schmidt & Bischoff 1997	SMF ? <sup>6</sup>	4	Ecuador, Peru*	Schmidt & Bischoff (1997)
<i>Maraca</i> Pérez-Miles 2005	<i>Iracema cabocla</i> Pérez-Miles 2000	INPA	2	Venezuela, Brazil*	Pérez-Miles (2005)
<i>Megaphoberma</i> Pocock 1901	<i>Lasiadora robusta</i> Ausserer 1875	BMNH	5	Costa Rica, Colombia*, Ecuador, Brazil	Pocock (1901)
<i>Melloleitaoina</i> Gerschman de Pikelin & Schiapelli 1960	<i>Melloleitaoina crassifemur</i> Gerschman de Pikelin & Schiapelli 1960	<u>MACN</u>	1	Argentina	Pérez-Miles <i>et al.</i> (1996) eliminated the synonymy <i>Melloleitaoina = Dryptopelma</i> and included it in the Theraphosinae
<i>Metriopelma</i> Becker 1878	<i>Sericopelma breyeri</i> Becker 1878	<u>IRSN</u>	9	Central America (Mexico*), north of South America	Pérez-Miles <i>et al.</i> (1996) eliminated the synonymy <i>Metriopelma = Crypsidromus</i> and included it in the Theraphosinae
<i>Neostenotarsus</i> Pribik & Weinmann 2004	<i>Stenotarsus scissistylus</i> Tesmoingt & Schmidt 2002	<u>MNHNP</u> <sup>7</sup>	1	French Guiana	Pribik & Weinmann (2004)
<i>Nesipelma</i> Schmidt & Kovarik 1996	<i>Nesipelma insulare</i> Schmidt & Kovarik 1996	<u>SME</u>	1	Nevis island	Schmidt & Kovarik (1996)
<i>Nhandu</i> Lucas 1983	<i>Nhandu carapoensis</i> Lucas 1983	IBSP	5	Brazil*, Paraguay*	Lucas (1983)
<i>Pamphobeteus</i> Pocock 1901	<i>Lasiadora nigricolor</i> Ausserer 1875	BMNH	10	Colombia*, Peru, Bolivia*, Ecuador	Pocock (1901)
<i>Paraphysa</i> Simon 1892	<i>Paraphysa manicata</i> Simon 1892 (= <i>Aranea scrofa</i> Molina 1788)	<u>MNHNP</u>	2	Chile*, Argentina*	Raven (1985)
<i>Phormictopus</i> Pocock 1901	<i>Mygale cancerides</i> Latreille 1806	BMNH	19 [2] <sup>8</sup>	U.S.A., Honduras, Cuba, Hispaniola*, Venezuela, Brazil, Argentina	Pocock (1901)
<i>Plesiofelma</i> Pocock 1901	<i>Plesiofelma myodes</i> Pocock 1901	BMNH	10	Venezuela, Brazil, Paraguay, Uruguay*, Argentina	Pérez-Miles <i>et al.</i> (1996) eliminated the synonymy <i>Plesiofelma = Citharacanthus</i> and included it in the Theraphosinae
<i>Proshapalopus</i> Mello-Leitão 1923	<i>Proshapalopus anomalus</i> Mello-Leitão 1923	MNRJ	3	Brazil	Rudloff (1997) eliminated the synonymy <i>Proshapalopus = Holothele</i> and included it in the Theraphosinae

Genus	Type species	Dep.	N° Taxa	Distribution	Current location in the Theraphosinae
<i>Pseudhappalopus</i> Strand 1907	<i>Pseudhappalopus aculeatus</i> Strand 1907	Lost <sup>9</sup>	2	Colombia, Bolivia*	Schmidt & Weimann (1997) eliminated the synonymy <i>Pseudhappalopus</i> = <i>Paraphysa</i> and included it in the Theraphosinae
<i>Reversopelma</i> Schmidt 2001	<i>Reversopelma petersi</i> Schmidt 2001	<u>SME</u>	1	Ecuador or Peru	Schmidt (2001)
<i>Schismatothele</i> Karsch 1879	<i>Schismatothele lineata</i> Karsch 1879	<u>ZMB</u>	1	Venezuela	Rudloff (1997) eliminated the synonymy <i>Schismatothele</i> = <i>Holothele</i> and included it in the Theraphosinae
<i>Schizopelma</i> F. O. P.- Cambridge 1897	<i>Schizopelma bicarinatum</i> F. O. P.- Cambridge 1897	<u>BMNH</u>	3	Central America	Raven (1985)
<i>Sericopelma</i> Ausserer 1875	<i>Sericopelma rubronitens</i> Ausserer 1875	<u>NMW</u>	11	Central America*, Venezuela, Brazil	Lucas <i>et al.</i> (1991) eliminated the synonymy <i>Sericopelma</i> = <i>Mygalarachne</i> and included it in the Theraphosinae
<i>Sphaerobothria</i> Karsch 1879	<i>Sphaerobothria hoffmanni</i> Karsch 1879	<u>ZMB</u>	1	Costa Rica	Raven (1985)
<i>Stichoplastoris</i> Rudloff 1997	<i>Stichoplastus obelix</i> Valerio 1980	UCR	8	El Salvador, Costa Rica*, Panama	Rudloff (1997)
<i>Theraphosa</i> Thorell 1870	<i>Mygale blondi</i> Latreille 1804	MNHNP	2	Venezuela*, Guyana*, Brazil*	Thorell (1870)
<i>Thrixopelma</i> Schmidt 1994	<i>Thrixopelma ockerti</i> Schmidt 1994	<u>SME</u>	3	Peru*, Chile	Schmidt (1994)
<i>Tmesiphantes</i> Simon 1892	<i>Tmesiphantes nubilus</i> Simon 1892	<u>MNHNP</u>	5	Venezuela, Brazil*	Pérez-Miles <i>et al.</i> (1996) eliminated the synonymy <i>Tmesiphantes</i> = <i>Dryptopelma</i> and included it in the Theraphosinae
<i>Vitalius</i> Lucas, Silva & Bertani 1993	<i>Pamphobeteus sorocabae</i> Mello-Leitão 1923	MZSP	9	Brazil*, Argentina	Lucas <i>et al.</i> (1993)
<i>Xenesthis</i> Simon 1891	<i>Xenesthis colombiana</i> Simon 1891 (= <i>Lasiadora immanis</i> Ausserer 1875)	MNHNP	3	Panama*, Venezuela*, Colombia*	Pocock (1901)

<sup>1</sup> Pérez-Miles *et al.* (1996) declared that the type specimens of this species were deposited at the MNHNP. Nevertheless, their referred specimens are part of Simon's collection (Elise-Anne Leguin [MNHNP] pers. comm. 2008) and are labeled with data that are absent in the original description of the species. As a result, it is possible that the real types remain still unlocated.

<sup>2</sup> This species was described by Vol (1999) based upon an adult female of unknown origin and its exuvia. Contrary to what was said in the paper, neither the specimen nor the exuvia were preserved (Fabian Vol pers. comm. 2007).

<sup>3</sup> The type specimens of this species were deposited at the Königliches Naturhistorisches Museum, Stuttgart, Germany (Strand 1907b). According to Renner (1988) this collection was destroyed in 1944 during the World War II, although his list of the lost type specimens does not include this species.

<sup>4</sup> The type species of *Homoeomma* was fixed by Ausserer (1871) as *Mygale versicolor* Walckenaer 1837. Pocock (1903) perceived that the original fixation was based on the erroneous identification of the specimens that Ausserer (1871) used to make the genus description. He concluded that those specimens really belong to *Mygale nigrum* Walckenaer 1837, to which he then considered as the new type species of *Homoeomma*. This decision is currently supported by the Article 70.3 of the International Code of Zoological Nomenclature (I.C.Z.N. 1999). Gerschman de Pikelin & Schiapelli (1972), in a decision that lacks of nomenclatural support, imposed *Homoeomma stradlingi* O. P.-Cambridge 1881, a currently considered junior synonym of *M. nigrum*, as the type

species of this genus. Because the only valid type species fixations are those that were made by Ausserer (1871) and Pocock (1903) (Articles 70.2 and 70.3 of the Code), the last decision is unacceptable.

<sup>5</sup> According to Pérez-Miles *et al.* (1996), Janet Beccaloni (BMNH) (pers. comm. 2007) and the online database of type specimens of the ZMB (<http://www.biologie.uni-ulm.de/systax/>), it seems that one male syntype of this species is deposited at the BMNH and two female syntypes, at the ZMB. Schmidt & Bischoff (1997) declared that the holotype of this species was going to be deposited at the SMF. Some specimens labeled as *Lasiadorides polycephalus* are deposited there but it is not clear if they are the types or not (Julia Altmann [SMF] pers. comm. 2008; on-line database of type specimens of the SMF [<http://sesam.senckenberg.de/page/>] [accessed May 20, 2008]).

<sup>7</sup> Tesmoingt & Schmidt (2002) declared that the holotype of this species was going to be deposited at the MNHNP. However, that still has not happen (Elise-Anne Leguin [MNHNP] pers. comm. 2008).

<sup>8</sup> From Rudloff (2008), only the newly described species were followed, as most of his nomenclatural changes are highly unsupported (in. prep.).

<sup>9</sup> The type specimen of this species was deposited at the Museum Lübeck, Germany (Strand 1907a). The types of this collection were destroyed during the World War II. Raven (1985) considered them as lost and Schmidt & Weimann (1997) neither located them.