

Two new genera, ten new species and new records of Amazonian Stygnidae Simon, 1879 (Opiliones: Laniatores)

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Abstract

As a result of recent expeditions to two mountains in the Amazon basin, Tapirapecó and Pico da Neblina, two new genera of Stygnidae, *Imeri* **g. nov.** (type species *Imeri lomanhungae* **sp. nov.**) and *Jime* **g. nov.** (type species *Jime chifrudo* **sp. nov.**), and ten new species are described: *Auranus hehu* **sp. nov.**, *Auranus tepui* **sp. nov.**, *Imeri lomanhungae* **sp. nov.**, *Jime chifrudo* **sp. nov.**, *Stygnoplus ianomami* **sp. nov.**, *Stygnus magalhaesi* **sp. nov.**, *Stygnoplus neblina* **sp. nov.**, *Stygnoplus tapirapeco* **sp. nov.**, *Stygnus nogueirai* **sp. nov.**, *Stygnus kuryi* **sp. nov.**. Additionally, new distributional records in Amazonas (Brazil) are presented for *Stygnidius guerinii* Soerensen, 1932, *Minax tetraspinosus* Pinto-da-Rocha, 1997 and *Protimesius longipalpis* (Roewer, 1943). Keys for genera of Heterostygninae and Stygninae are provided.

Key words: Heterostygninae, Neblina Mountain, Stygninae, Tapirapecó Mountain, tepui

Introduction

Stygnidae is a well-known group of Opiliones with modest diversity within the order (29 genera and 87 species) and stable taxonomy (Pinto-da-Rocha 1997), and constituent species are endemic to the Neotropics, with the peak of their diversity occurring in the north and northeast regions (Pinto-da-Rocha 2007). In the last 10 years, this family has received considerable attention from scientists and has been the subject of both taxonomic revisions and phylogenetic studies; 15 new species and one genus have been described from South American localities (Villarreal-Manzanilla 2004; Villarreal & Rodríguez 2004, 2006; Villarreal-Manzanilla & Pinto-da-Rocha 2006; Villarreal *et al.* 2007; Hara & Pinto-da-Rocha 2008; Pinto-da-Rocha & Carvalho 2009; Pinto-da-Rocha & Villarreal 2009; Kury & Pinto-da-Rocha 2008; Kury 2009). However, stygnid diversity remains underestimated, as many new species are anticipated to be discovered in unexplored areas in northern South America.

In this paper we present descriptions of ten new species and two new genera of Stygnidae collected by Andre Nogueira and colleagues (see Nogueira *et al.* 2011) in two mountains in Brazilian Amazonia, the Tapirapecó and the Pico-da-Neblina Mountain. Harvestmen of both mountains have never been sampled before and we suspect that some of these species and even genera are exclusive to higher altitudes in these localities.

Material and methods

Harvestmen in both mountains were collected during the “dry” season (Serra do Tapirapecó: September/October 2006 – Pico da Neblina: September/October 2007). Sampling methods used were beating, and tray and nocturnal manual searching. At Pico da Neblina they were sampled in six different altitudes (100, 400, 860, 1,550, 2,000 and 2,400 m.a.s.l.) and four sampled altitudes at the Serra do Tapirapecó (180, 400, 800 and 1,200 m.a.s.l.). More details on collecting methods and sites can be obtained in Nogueira *et al.* (2011).

All measurements were obtained with a binocular microscope equipped with an ocular micrometer and are

given in millimeters. Measurements acronyms are: DSL = dorsal scutum length; PL = prosoma length; DSW = dorsal scutum maximal width; PW = prosoma width at ocularium; ID = interocular distance. Illustrations were prepared with the aid of camera lucida. The preparation of the genitalic pieces for the scanning electron microscope followed Pinto-da-Rocha (1997). The acronyms of the depositories are IBUT = Instituto Butantan, São Paulo, Brazil, INPA = Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil, MNRJ = Museu Nacional, Rio de Janeiro, Brazil, MPEG = Museu Paraense Emílio Goeldi, Belém, Brazil, MZSP = Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil.

Systematics

Stygnidae Simon, 1879

Heterostygninae Roewer, 1913

Key to genera of the Heterostygninae (adapted from Pinto-da-Rocha 1997):

- | | | |
|---|---|------------------------|
| 1 | Prosoma with one median spine (Pinto-da-Rocha 1997, fig 150; Fig. 2A–B) | <i>Stygnoplus</i> |
| - | Prosoma with one median eminence or with small tubercles (Pinto-da-Rocha 1997, figs. 50, 74; Fig. 1A–B) | 2 |
| 2 | Area III unarmed (Pinto-da-Rocha 1997, fig. 42) | <i>Innoxius</i> |
| - | Area III with two spines (Pinto-da-Rocha 1997, figs. 9, 17; Fig. 1A–B) | 3 |
| 3 | Area I with two large spines (Pinto-da-Rocha 1997, fig. 26) | <i>Minax</i> |
| - | Area I smooth or with small tubercles (Fig. 1A–B) | 4 |
| 4 | Dorsal scutum with white spots or regions (Pinto-da-Rocha 1997, figs. 49, 57, 73) | 5 |
| - | Dorsal scutum without white spots or regions | 7 |
| 5 | Cheliceral segment I with one large retrolateral tubercle (Pinto-da-Rocha 1997, fig 73), legs III–IV short and thick, tibia IV clavate (Pinto-da-Rocha 1997, figs. 79–80) | <i>Stenostygnellus</i> |
| - | Cheliceral segment I without large retrolateral tubercle, legs III–IV cylindrical and long, tibia IV cylindrical (Fig. 1D–E) | 6 |
| 6 | Prosoma with wide and high central eminence | <i>Eutimesius</i> |
| - | Prosoma without eminence (Fig. 1A–B) | <i>Imeri g. nov.</i> |
| 7 | Dorsal scutum with three areas (Pinto-da-Rocha 1997, fig. 9), patella and tibia IV with small tubercles | 8 |
| - | Dorsal scutum with four areas (Pinto-da-Rocha 1997, figs. 39–40), patella and tibia IV with large tubercles | <i>Yapacana</i> |
| 8 | Area III with geminate spines (Pinto-da-Rocha 1997, fig. 556), basitarsus III swollen | <i>Timesius</i> |
| - | Area III with separate spines (Pinto-da-Rocha 1997, fig. 9), basitarsus III not swollen | <i>Stygnidius</i> |

Imeri g. nov.

Diagnosis: Dorsal scutum with convex lateral margins. Prosoma tuberculate. Posterior margin with white spots. Area III with two spines. Chelicera smooth. Pedipalps elongated. Apex of basal socket of pedipalpal tibia straight (not bifid). Penis: ventral plate with distal U-shaped cleft; narrow and long basally; with setae placed medially and ventrally; truncus with five pairs of setae; basal half of glans membranous, without dorsal process.

Remarks. This genus is similar to *Yapacana* Pinto-da-Rocha, 1997 and *Stygnidius* Simon, 1879 based on lack of spines or a large eminence on the prosoma, and differs from them due to the very long pedipalp (prosoma/pedipalp length ratio 0.32 in *Imeri g. nov.*, 0.47–0.56 in other two genera). It shares two synapomorphic features, dorsal scutum lateral margins convex and claws pectinate, with *Stygnidius*, *Yapacana*, *Eutimesius*, and *Stygnoplus*.

Type species: *Imeri lomanhungae sp. nov.* by present designation.

Etymology: Masculine gender. The Serra do Imeri is a Brazilian formation located in the Guiana shield in South America. Serra do Imeri hosts the highest Brazilian mountains, including Pico da Neblina (2,994 m.a.s.l.) and Pico 31 de Março (2,973 m.a.s.l.).

Imeri lomanhungae sp. nov.

(Figs 1A–E, 12A–C)

Diagnosis: see the genus diagnosis.

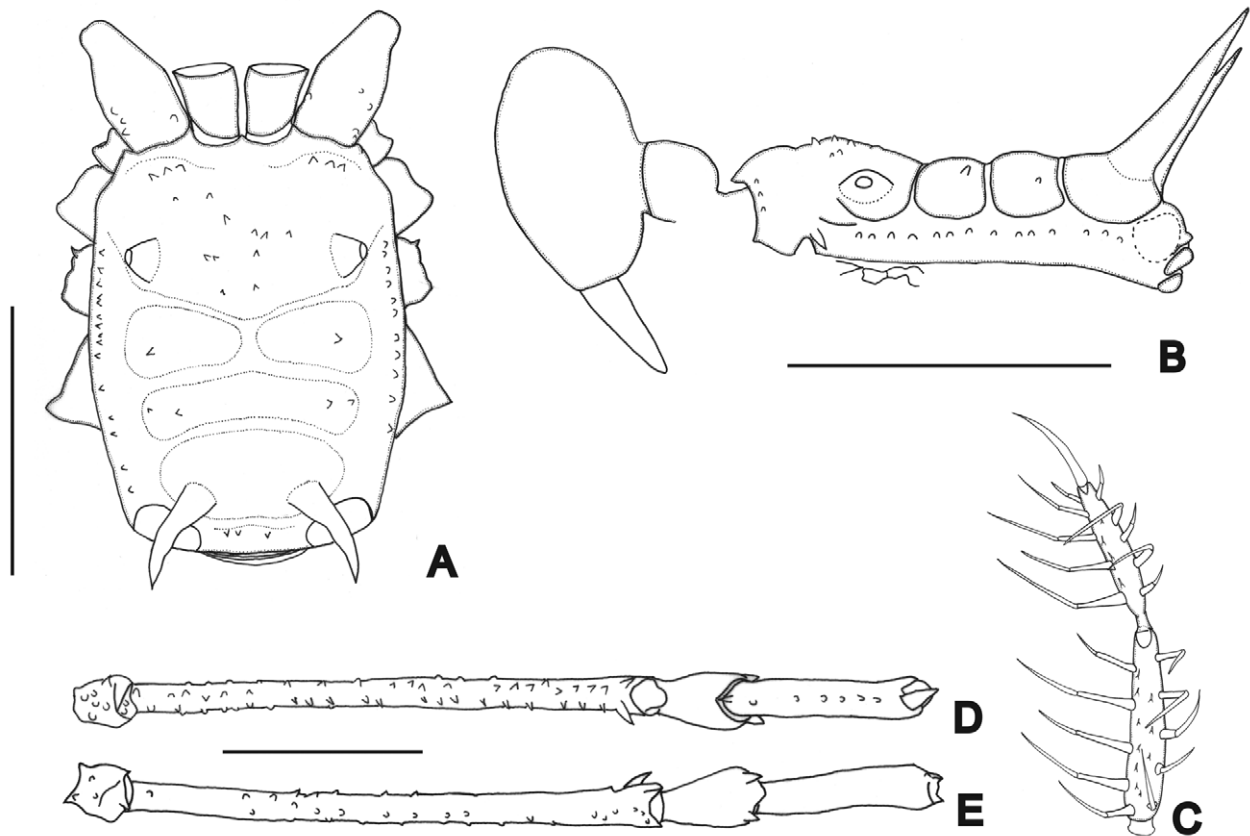


FIGURE 1. *Imeri lomanhungae* gen. et sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Type locality: Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina, 860 m.a.s.l.),

Type material: All material collected in Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina mountain). Holotype, 860 m.a.s.l., 28.IX.2007, N. Lo Man Hung *leg.*, male (INPA-OP 916). Paratype: idem, 860 m.a.s.l. male (MZSP-36523); 860 m.a.s.l., 30.IX.2007, N. Lo Man Hung *leg.*, female (MZSP-36525); idem, 860 m.a.s.l., 28.IX.2007, female (MZSP-36535); idem, 860 m.a.s.l., D. Candiani *leg.*, female (MZSP-36534); idem, 860 m.a.s.l., female (INPA-OP 917); idem, 860 m.a.s.l., 30.IX.2007, female (INPA-OP 928); idem, 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 929); idem, 860 m.a.s.l., 29.IX.2007, A. Nogueira *leg.*, female (INPA-OP 930); idem, 860 m.a.s.l., 29.IX.2007, 2 males (INPA-OP 331); idem, 860 m.a.s.l., 30.IX.2007, female (INPA-OP 332); idem, 400 m.a.s.l., 26.IX.2007, female (INPA-OP 333).

Etymology: In honor of the Brazilian arachnologist Nancy Lo Man Hung who has sampled and enriched Brazilian arachnid collections with Amazonian specimens from many new localities.

Male description (holotype): Measurements: DSL 2.5; PL 1.2; DSW 2.1; PW 2.0; ID 1.4; chelicera II 2.1; III 0.9; pedipalpus 7.9; leg I 8.6; II 18.8; III 11.6; IV 13.4.

Dorsum (Fig. 1A–B): Anterior margin with three tubercles each side. Prosoma with 10 tubercles between eye mounds. Lateral margin with one row of 11–15 tubercles from coxa II to posterior margin. Area I with one tubercle each side; II with two each side; III with two very long and divergent spines backwards. Posterior margin with four minute tubercles. Free tergite I–II with eight minute tubercles; III with 12. Anal operculum with one anterior row of minute tubercles and some on posterior margin.

Venter: Coxa I with six large tubercles in median row, one small posterior; II with one median row of large tubercles, one anterior row of 10 small tubercles, one posterior row of seven small tubercles; III with one median row of seven small tubercles; IV irregularly tuberculate. Posterior margin with one row of small tubercles, some scattered. Anal operculum with small scattered tubercles.

Chelicera: Bulla of segment I smooth; II–III with one large basal tubercle, three small distal. With interchelar space.

Pedipalpus: Coxa with four ventral tubercles (two larger), four dorsal tubercles. Trochanter with two ventral tubercles. Femur with one small ventral basal tubercle, slightly swollen at distal seventh. Patella swollen at distal fifth. Tibia and tarsus slender. Tibia (Fig. 1C): ectal IIiIi, mesal IIIiIi, with four small ventral tubercles. Tarsus (Fig. 1C): ectal iIiIi, mesal IiIII, with nine ventral tubercles.

Legs: Coxa I with two tubercles; II with one anterior, one posterior; III with one anterior fused with one of coxa IV; IV smooth dorsal and ventrally. Trochanter I smooth dorsally; II with one ventral tubercle, one dorsal; III with two ventral, one retrolateral apical, one dorsal; IV with three dorsal tubercles, five ventral. Femora I–III with small tubercles; II–IV with two dorsoapical tubercles (retrolateral much larger); IV (Fig. 1D–E) with one retrolateral, one prolateral and one dorsal row of small tubercles, two ventral rows of tubercles increasing in size at distal third. Patella IV triangular-shaped, with six ventral tubercles, one ventroapical larger. Claws with six teeth. Tarsal segmentation: 7, 13, 7, 7.

Penis (Fig. 12A–C): Truncus with five pairs of lateral setae, plus two pairs on the base of the stylus. Ventral plate slender, slightly elliptical, distal margin with U-cleft; base elongated; with three pairs of setae and with papillae on dorsal side and, one pair of setae on ventral side; six pairs of basal setae. Dorsal process absent. Basal part of glans long and membranous.

Color: Dark-brown on scutal areas, reticulate on prosoma, dorsal femur apex, patella and tibia IV. Pedipalpus yellowish with some small black patches. Anterior and posterior margins with one black stripe each. Posterior margin with two large white patches on corners. Coxa-tibia IV orange-brown.

Female description (MZSP-36525): Measurements: DSL 2.9; PL 1.2; DSW 2.3; PW 2.0; ID 1.6; chelicera II 1.2; III 0.8; pedipalpus 8.0; leg I 8.6; II 17.8; III 11.8; IV 15.7.

Anterior margin of dorsal scutum with two–three tubercles each side. Prosoma with 14 tubercles. Area I with one tubercle each side; II with one–two tubercles each side. Lateral margin with 11–12 tubercles. Patella IV with two dorsoapical tubercles. Tibia with minute tubercles. Pedipalpus: tibia ectal IIiIi, mesal IIIiIi, six ventral tubercles; tarsus ectal iIiIi, mesal IiIiIi, five ventral tubercles. Femur IV with two rows of small tubercles. Patella IV with two dorsal apical tubercles half size of male ones. Tibia IV with small tubercles. Claws with seven teeth. Tarsal segmentation: 7, 17, 6, 7.

Distribution: Recorded only from the type locality, from 400 to 860 m.a.s.l.

Stygnidius Simon, 1879

Stygnidius guerinii Soerensen, 1932

New records: BRAZIL. Amazonas: Parque Nacional do Jaú (01-54'16"S-61-25'48"W), male and female (MZSP); Rio Juruá, Lago Tamanigua, 25.IX.2003, Felipe Rego leg. female (INPA-158); Interflúvio Madeira-Purus, Careiro, Campina Tupana close to the Tupana river, 4°54'51" S 61°06'33" W, GEOMA2, area 2, 10.VII.2007, E.H. Wienkoski leg, males 6 females (INPA-OP 785); idem GEOMA2, area 2, E.H.Wienkoski leg, female (INPA-OP 784); idem, GEOMA2 area 2, 17.VII.2007, E.H.Wienkoski leg, female (INPA-OP 782); idem, GEOMA2, area2, 15.VII.2006, E.H.Wienkoski leg., male, 9 females (INPA-OP 787); idem, GEOMA2, area2, 15.VII.2006, E.H.Wienkoski leg., 3 females (INPA-OP 783).

Distribution: Until this report, *S. guerinii* has been recorded only in the type locality (Cayenne, French Guiana). The new records here presented extend the distribution to northern Brazil (Rio Negro basin, Rio Juruá Basin).

Minax Pinto-da-Rocha, 1997

Minax tetraspinosus Pinto-da-Rocha, 1997

Material examined: Brazil, Amazonas, São Gabriel da Cachoeira (pico da Neblina, 400 m.a.s.l.), 25.IX.2007, A. Nogueira & D. Candiani leg., male and female (INPA-OP 915).

Note. This species is recorded for the first time in Brazil. However, it has been recorded in the same mountain chain on the Venezuelan side.

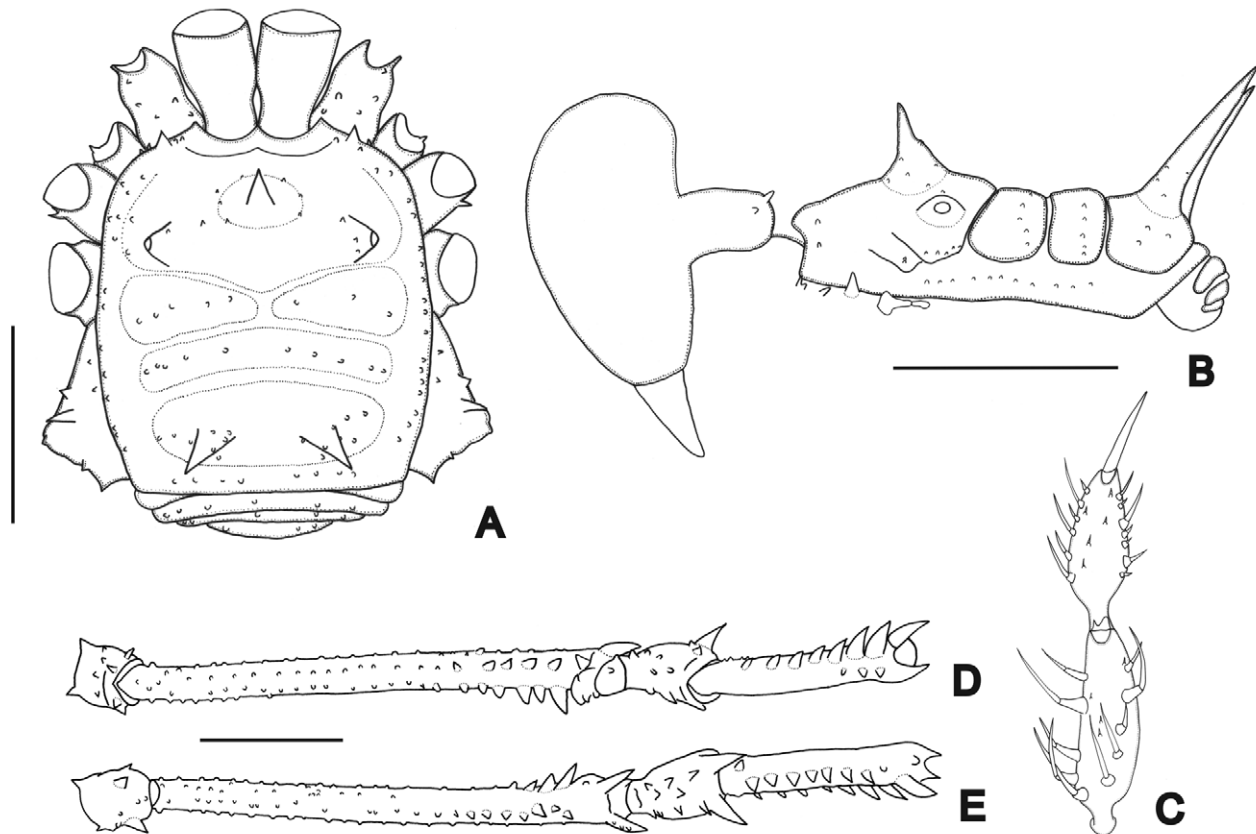


FIGURE 2. *Stygnoplus ianomami* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Stygnoplus Simon, 1879

Stygnoplus ianomami sp. nov.

(Figs. 2A–E, 12D–F)

Diagnosis: The male of this species is similar to those of *Stygnoplus clavotibialis* (Goodnight & Goodnight 1947) and *S. meinerti* Soerensen 1932 in the absence of large tubercles/spines on the dorsum of tibia IV. It differs from both by having a tuberculate spine on prosoma, and a straight tibia IV that is not swollen subdistally.

Type locality: Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina, 860 m.a.s.l.).

Type material: All material was collected in Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina).

Holotype 860 m.a.s.l., 29.X.2007, A. Nogueira leg. (INPA-OP 934). Paratypes: 860 m.a.s.l., 29.IX.2007, A. Nogueira leg., 3 males (INPA-OP 935); 860 m.a.s.l., 29.IX.2007, A. Nogueira leg., male (INPA-OP 937); 860 m.a.s.l., 29.IX.2007, A. Nogueira leg., 2 males (INPA-OP 938); 860 m.a.s.l., 30.IX.2007, A. Nogueira leg., female (INPA-OP 939); 860m, 28.IX.2007, D. Candiani leg., 3 males (MZSP-36572); 860 m.a.s.l., 29.IX.2007, A. Nogueira leg., 2 males, female (INPA-OP 940); 860 m.a.s.l., 29.IX.2007, D. Candiani leg., male, female (MZSP-36524); 860 m.a.s.l., 29.IX.2007, D. Candiani leg., male, 2 females (MZSP-36526); 860 m.a.s.l., 29.IX.2007, D. Candiani leg., female (INPA-OP 941); idem, 860 m.a.s.l., female (INPA-OP 943); 860 m.a.s.l., 28.IX.2007, N. Lo Man Hung leg., 2 males, 2 females (INPA-OP 946); 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung leg., female (MZSP-36532); 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung leg., male, 3 females (INPA-OP 947); 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung leg., 2 males, 2 females (INPA-OP 1012); 860 m.a.s.l., 30.IX.2007, A. Nogueira leg., female (INPA-OP 1013); 860 m.a.s.l., 30.IX.2007, N. Lo Man Hung leg., male (INPA-OP 1014); 1,550 m.a.s.l., 3.X.2007, N. Lo Man Hung leg., male, female (INPA-OP 1015); 2,000 m.a.s.l., X.2007, Nogueira, Hung & Candiani leg., male (MZSP-36530).

Etymology: Ianomami is the name of the tribe that lives in the northern region of Brazilian Amazonia and Southern Venezuelan Amazonia, encompassing the type locality of *S. ianomami*.

Male description (holotype): Measurements: DSL 3.5; PL 1.7; DSW 3.2; PW 3.1; ID 1.9; chelicera II 3.7; III 1.6; pedipalpus 6.8; leg I 13.3; II 25.3; III 16.5; IV 22.3.

Dorsum (Fig. 2A–B): Anterior margin with three–four tubercles each side (one larger). Prosoma with one large spine slightly frontwards, with tuberculate base, one tubercle close each eye mound. Lateral margin with one row of tubercles from coxa II to groove IV. Area I with three–five tubercles each side; II with five each side; III with two divergent spines backwards, with tuberculate base, one tubercle behind and three on side of each spine. Posterior margin with a row of eight tubercles. Free tergite I with six tubercles; II–III with six tubercles. Anal operculum with one anterior row of small tubercles, some scattered.

Venter: Coxa I with six large tubercles in a median row, two anterior, one posterior, two apical; II with one median row of six tubercles, two anterior, five posterior, four apical tubercles; III with five scattered tubercles, four apical; IV irregularly tuberculate. Posterior margin with one row of small tubercles, some scattered. Anal operculum with small scattered tubercles.

Chelicera: Segment I with four tubercles on bulla; II one large basal tubercle, four small distal; III two large basal, two small distal. With interchelar space.

Pedipalpus: Coxa with four ventral tubercles (apical larger), two dorsal tubercles. Trochanter with two ventral tubercles (one large); one dorsal. Femur with seven small ventral tubercles, slightly swollen at distal fifth. Patella swollen at distal third. Tibia (Fig. 2C): ectal IiIiI, mesal IiIiI, with five ventral tubercles. Tarsus (Fig. 2C): ectal iIiIiI, mesal IiIiI, with six ventral tubercles.

Legs: Coxa I with two tubercles, anterior bifid; II with one anterior, one posterior; III with one anterior fused with one of coxa II, one posterior fused with one of IV; IV with two large tubercles close to dorsal scutum margin, one dorsoapical small spine. Trochanter I with three ventral, one retrolateral tubercle; II with six ventral, two prolateral, four dorsal (one large); III with four ventral, five retrolateral (apical larger), one dorsal large; IV with six ventral, four dorsal tubercles, one dorsoapical spine (larger), two prolateral tubercles and two retrolateral tubercles (apical larger). Femur I–II with small tubercles; I–IV with one dorsoapical anterior small tubercle, one dorsoapical posterior large tubercle; III–IV with two ventral rows of tubercles increasing in size on distal third; IV (Fig. 2D–E) with one dorsal row of tubercles at distal third. Patella IV (Fig. 2D–E) with two dorsodistal strong tubercles, several dorsal large tubercles, ventrally with three tubercles, one apical and larger. Tibia IV (Fig. 2D–E) with one dorsal row of large tubercles, one ventral row of tubercles increasing in size distally, two ventroapical tubercles. Metatarsus IV with dorsobasal large tubercle. Claws with five teeth. Tarsal segmentation: 7, 17, 6, 7. First two segments of tarsus I swollen.

Penis (Fig. 12D–F): Ventral plate thin, slightly concave on distal margin, with long base, two dorsal setae, and one ventral seta each side. Glans long, with two pairs of setae on base; stylus with ventroapical projection. Truncus with six pairs of lateral setae.

Color: Dark-brown, reticulate on prosoma and chelicera, dorsal femur apex, patella and tibia IV darker. Border of grooves black. Pedipalpus yellowish. Margins of dorsal scutum, grooves II–IV and free tergites yellowish.

Female description (MZSP-36532): Measurements: DSL 3.7; PL 1.7; DSW 3.1; PW 2.7; ID 1.6; chelicera II 1.8; III 0.9; pedipalpus 7.1; leg I 11.1; II 23.9; III 15.8; IV 21.9.

Anterior margin with three tubercles each side; prosomal spine smaller than male. Area I with four tubercles each side; II with three tubercles each side. Posterior margin and free tergites with one row of minute tubercles. Pedipalpus: tarsus: ectal iIiIiI, mesal IIIiI, with 17 ventral tubercles. Coxa IV with small dorsoapical tubercle. Leg I–IV with small tubercles, except femur apex with dorsoapical tubercles similar in size to male. Tarsal segmentation: 7, 17, 6, 7.

Distribution: Recorded only from the type locality, from 860 to 2,000 m.a.s.l.

Stygnoplus neblina sp. nov.

(Figs. 3A–E, 12G–I)

Diagnosis: The male of this species differs from other *Stygnoplus* by the combination of following characteristics: Absence of white patches on body; presence of retrolateral apical tubercle on femur IV (longer than segment

width); absence of dorsal tubercles on anterior-median tibia IV; tibia IV with one retrolateral long and one ventroapical long tubercles.

Type locality: São Gabriel da Cachoeira (Pico da Neblina, 860 m.a.s.l.).

Type material: All material collected in Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina). Holotype male, 860 m.a.s.l., 28.IX.2007, A. Nogueira *leg.* (INPA-OP 1016); Paratypes: 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung *leg.*, male (MZSP-36566); female (INPA OP 1017); 2,000 m.a.s.l., 6.X.2007, N. Lo Man Hung *leg.*, female (INPA OP 1018); 7.X.2007, A. Nogueira *leg.*, male (INPA OP 1019); female (INPA OP 1020); 2,400 m.a.s.l., 11.X.2007, female (MZSP-36565).

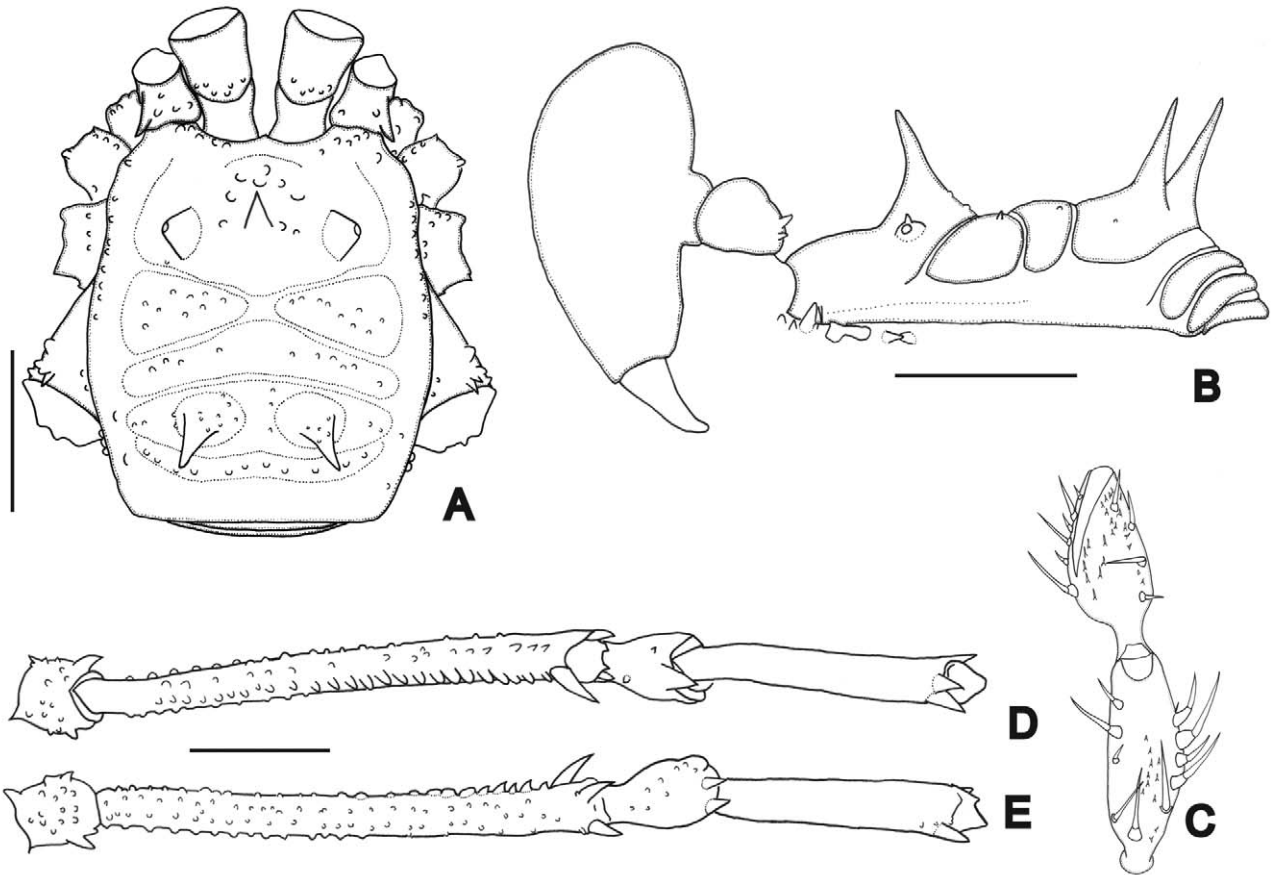


FIGURE 3. *Stygnoplus neblina* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Etymology: Noun in apposition, in reference to the type locality.

Male description (holotype): Measurements: DSL 4.3; PL 2.0; DSW 3.6; PW 3.3; ID 1.9; chelicera II 3.9; III 1.60; pedipalpus 9.4; leg I 11.6; II 26.1; III 17.9; IV 24.1.

Dorsum (Fig. 3A–B): Anterior margin with four–five tubercles each side. Prosoma with with five tubercles scattered, with one tuberculate elevation next to anterior margin. Lateral margin with one row of tubercles from coxa II to area I. Area I with nine–ten tubercles each side; II with four–six each side; III with two divergent spines backwards, with tuberculate base, two tubercles each spine side; IV with one row of 10 tubercles. Posterior margin and free tergites with minute tubercles. Anal operculum with one anterior row of small tubercles, some scattered.

Venter: Coxa I with six–seven large tubercles, one anterior, three apical; II with one median row of nine tubercles, two anterior, one posterior row of eight small tubercles; III with one median row of nine small tubercles, three anterior, seven posterior, four apical; IV irregularly tuberculate. Posterior margin with one row of minute tubercles, some scattered. Anal operculum with minute tubercles scattered.

Chelicera: Segment I with six tubercles on bulla; II with one large basal tubercle, four small distal; III with one large basal followed by one small, one median, two small distal tubercles. Without interchelar space.

Pedipalpus: Coxa with one ventral large tubercle, three dorsal tubercles on base. Trochanter with two ventral, two dorsal tubercles. Femur with four small ventral tubercles. Patella swollen at distal third. Tibia (Fig. 3C): ectal

IIIi, mesal IIIiI, with 10 ventral tubercles. Tarsus (Fig. 3C): ectal IIIiIIIi, mesal IIIiI, with 15 ventral setiferous tubercles.

Legs: Coxa I with two tubercles; II with one anterior, one posterior; III with one anterior fused with one of coxa II, one posterior fused with one of coxa IV; IV with two tubercles close to dorsal scutum margin, some on lateral side, one dorsoapical small spine. Trochanter I with two ventral tubercles; II with three ventral, two retrolateral, four dorsal; III with six ventral, one prolateral, four retrolateral, five dorsal; IV with 13 dorsal tubercles, one prolateral large and one retrolateral apical large, 13 ventral. Femora I–II with small tubercles; III with two ventral rows of tubercles (anterior larger), two large dorsoposterior tubercles; IV (Fig. 3D–E) with two ventral rows of tubercles increasing in size at subapical fifth; one retrolateral, one prolateral, one dorsal row of small tubercles, two large dorsodistal spines. Patella IV (Fig. 3D–E) with one dorsoapical large tubercle, one ventroapical large tubercle, minute tubercles scattered. Tibia IV (Fig. 3D–E) with one retrolateral apical large and two ventroapical large tubercles. Claws with five teeth. Tarsal segmentation: 6, 12, 6, 7, basal segment of tarsus I swollen.

Penis (Fig. 12G–I): Ventral plate thin, with long base, U-cleft on distal margin, two dorsal setae, one ventral setae each side. Glans long, with two pairs of setae on base; stylus with ventroapical projection. Truncus with three pairs of lateral setae.

Color: Dark-brown, reticulate on central prosoma and dorsal femur apex. Patellae and tibiae darker. Border of grooves and lateral margins black. Chelicerae black reticulated. Pedipalpus yellowish with some small black patches. Posterior margin and free tergites yellow with some black patches.

Female description (MZSP-36565): Measurements: DSL 4.9; PL 1.9; DSW 3.9; PW 2.9; ID 1.8; chelicera II 2.9; III 1.8; pedipalpus 9.6; leg I 16; II 21; III 16; IV 18.

Anterior margin with three tubercles each side. Prosoma with one high spine upwards, without tubercles. Area I with one tubercle on each half; II with two tubercles; IV with two tubercles. Posterior margin and free tergites I–III with very much scattered tubercles. Coxa IV with one or two dorsoapical spines. Trochanter IV with one dorsal high tubercles (longer than segment width), with one retrolateral apical tubercle. Femur IV with few scattered on retrolateral and ventral sides. Patella-tibia IV with small tubercles. Tarsal segmentation: 6, 16, 7, 8.

Distribution: Recorded only from the type locality, from 860 to 2,400 m.a.s.l.

Stygnoplus tapirapeco sp. nov.

(Figs. 4A–E, 13A–C)

Diagnosis: The male of this species is similar to those of *Stygnoplus forcipatus* (C.L. Koch, 1845), *S. biguttatus* Pinto-da-Rocha, 1997, *S. dominicanus* (Roewer, 1943), *S. flavitarsis* (Simon, 1879), *S. granulatus* Mello-Leitão, 1940, *S. lomion* Villarreal, 2006 and *S. triacanthus* (Kollar, 1839) based on the presence of two large apical tubercles on male patella IV and ventroapical rows of tubercles on femur and tibia IV. It differs from them in the absence of dorsal strong tubercles on femur-tibia and venter of male tibia IV.

Type locality: Brazil, Amazonas, Barcelos (Tapirapecó mountain)

Type material: All material collected in Brazil, Amazonas, Barcelos (Tapirapecó mountain), by A.A. Nogueira & R. Braga Neto. Holotype, 14.X.2007, 700 m.a.s.l., male (INPA-OP 0954). Paratypes: same data as holotype, female (INPA); 14.X.2006, 700 m.a.s.l., female (INPA); 6.X.2006, 700 m.a.s.l., 2 females (INPA-OP 958); 10.X.2006, 750 m.a.s.l., 2 males (INPA-OP 953); 13.X.2006, 800 m.a.s.l., female (INPA-OP 955); 13.X.2006, 800 m.a.s.l., 2 females (INPA-OP 963); 13.X.2006, 1,200 m.a.s.l., 2 males, 3 females (MZSP-36553); 14.X.2006, 700 m.a.s.l., male (INPA-OP 954); 14.X.2006, 700m, female (MNRJ); 14.X.2006, 1,200 m.a.s.l., female (MPEG-OPI 02505); 16.X.2006, 1,200 m.a.s.l., female (MPEG-OPI 02506); 16.X.2006, 1,200 m.a.s.l., male, female (INPA-OP 961); 16.X.2006, 1200 m.a.s.l., male (MNRJ 19362); 14.X.2006, 700 m.a.s.l., female (MNRJ 19363); 16.X.2006, 1,200 m.a.s.l., male and female (MZSP-36554); 16.X.2006, 1,200 m.a.s.l., female (MZSP-36555); idem, 1,200 m.a.s.l., female (INPA-OP 964); 17.X.2006, 1,200 m.a.s.l., female (MZSP-36552); idem, 1,200 m.a.s.l., female (INPA-OP 959); idem, 1,200 m.a.s.l., male, 2 females (INPA-OP 966); idem, 1,200 m.a.s.l., 2 males, 3 females (INPA-OP 957); idem 1,200 m.a.s.l., 4 males, female (MZSP-36541); Barcelos (Pedra Comprida, rio Mariri), female (INPA-OP 956).

Etymology: A noun in apposition, in reference to the type locality.

Male description (holotype): Measurements: DSL 3.6; PL 2.0; DSW 3.0; PW 2.9; ID 1.9; chelicera II 3.9; III 2.0; pedipalpus 7.6; leg I 10.5; II 22; III 15; IV 18.

Dorsum (Fig. 4A–B): Anterior margin with four–six tubercles each side. Prosoma with one large spine slightly frontwards, with tuberculate base. Lateral margin with one row of tubercles from coxa II to posterior margin. Area I with three tubercles each side; II with two–four tubercles each side; III with two divergent spines backwards, with tuberculate base, one tubercle behind each spine. Posterior margin with a row of 11 minute tubercles. Free tergite I with 12 minute tubercles; II with 13; III with 12. Anal operculum with one anterior row of small tubercles, some scattered.

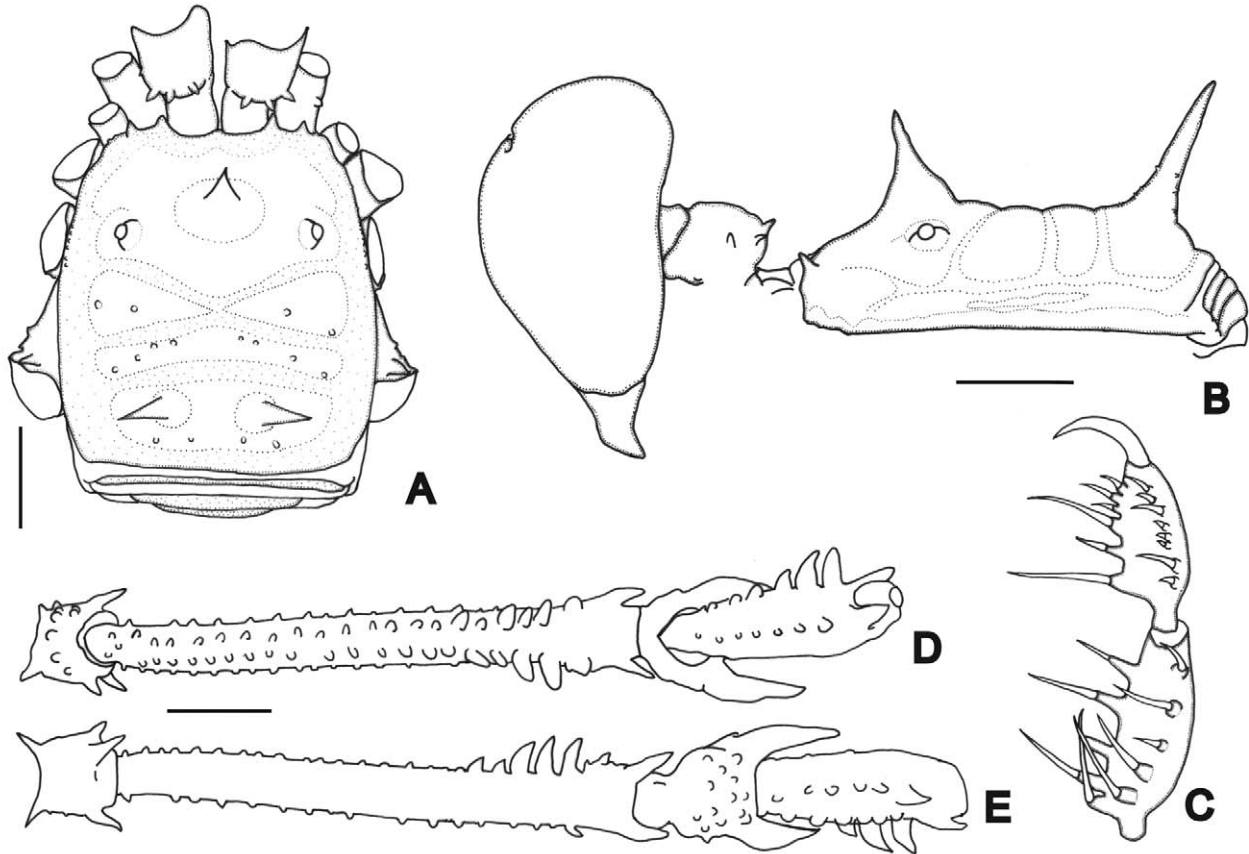


FIGURE 4. *Stygnoplus tapirapeco* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Venter: Coxa I with six large tubercles; II with one median row of large tubercles, one anterior row of 10 small tubercles, one posterior row of seven small tubercles; III with one median row of seven small tubercles, four anterior, 10 posterior; IV irregularly tuberculate. Posterior margin with one row of small tubercles, some scattered. Anal operculum with small scattered tubercles.

Chelicera: Segment I with six–seven tubercles on bulla; II with one large basal tubercle, three small distal; III two large basal, two small distal. Without interchelar space.

Pedipalpus: Coxa with six ventral tubercles (apical larger), four dorsal tubercles (two large). Trochanter three ventral tubercle (one large); one dorsal. Femur with five small ventral tubercles, slightly swollen at distal fifth. Patella swollen at distal third. Tibia (Fig. 4C): ectal IiIi, mesal IiIi, with eight ventral tubercles. Tarsus (Fig. 4C): ectal iIiIi, mesal IiIiIi, with nine ventral tubercles.

Legs: Coxa I with two tubercles; II with one anterior, one posterior bifid; III with one anterior fused with one of coxa II; IV with four large tubercles close to dorsal scutum margin, one dorsoapical small spine. Trochanter I with three ventral tubercles; II with five ventral, two prolateral, one dorsal large; III with six ventral, one retrolateral apical larger, one dorsal large; IV with one dorsoapical spine (large), one prolateral tubercle and one retrolateral spine, several small tubercle scattered on dorsal and ventral sides. Femora I–II with small tubercles; III with two ventral rows of tubercles increasing in size on distal half, one large dorsoposterior tubercle; IV (Fig. 4D–E) with two ventral rows of tubercles increasing in size at apical third; one retrolateral, one prolateral, two dorsal rows of small tubercles, two large dorsodistal spines. Patella IV (Fig. 4D–E) with two dorsodistal strong spines (external

larger), one prolatero-apical tubercle, with scattered tubercles. Tibia IV (Fig. 4D–E) with one dorsal row of tubercles, one retrolateral row of small tubercles, one prolatral row of small tubercles, two ventral rows of tubercles (internal larger), one retrolateral large tubercle on apex. Claws with five–six teeth. Tarsal segmentation: 7, 15, 6, 7.

Penis (Fig. 13A–C): Ventral plate thin, with long base, slightly concave on distal margin and convex on lateral sides, two dorsal setae, one ventral setae each side. Glans long, with three pairs of setae on base; stylus slightly swollen subdistally. Truncus with five pairs of lateral setae.

Color: Dark-brown, reticulate on prosoma, dorsal femur apex, patella and tibia IV. Border of grooves black. Pedipalpus yellowish with some small black patches. Posterior margin and free tergites yellow with some green patches.

Female description (INPA OP-955): Measurements: DSL 4.0; PL 1.7; DSW 3.3; PW 2.8; ID 1.7; chelicera II 2.0; III 1.0; pedipalpus 8.2; leg I 1.1; II 2.5; III 1.5; IV 20.5.

Area I–II with two tubercles each side. Posterior margin with 11 minute tubercles. Free tergite I with 14 minute tubercles; II with 13; III with nine. Pedipalpus: Tibia: ectal IIIiIi, mesal IIIiIi, with four ventral tubercles. Tarsus: ectal iIIIiIII/iIIIiIi, mesal IiIIiIII/IiIIiIi, with five ventral tubercles. Femur IV with four apical tubercles on ventral internal row, external row of small tubercles. Patella IV with two dorsal apical tubercles half size of male ones. Tibia IV with small tubercles. Claws with six teeth. Tarsal segmentation: 7, 17, 6, 7.

Distribution: Recorded only from the type locality, from 700 up to 1,200 m.a.s.l.

Stygninae Simon, 1879

Key to genera of the Stygninae (adapted from Pinto-da-Rocha 1997)

1	Area III smooth, with small tubercles, or with two wide tubercles	2
-	Area III with two spines (Fig. 5A)	6
2	Areas II–III with two wide tubercles (Pinto-da-Rocha 1997, fig. 424)	<i>Iguarassua</i>
-	Areas II–III with small tubercles or smooth	3
3	Prosoma with one wide anterior eminence (Pinto-da-Rocha 1997, figs. 435–436) or spine (Fig. 8B)	4
-	Prosoma smooth (Fig. 6B)	5
4	Prosoma with one wide anterior eminence; free tergite I smooth (Pinto-da-Rocha 1997, figs. 435–436)	<i>Planophareus</i>
-	Prosoma with one spine; free tergite I with two spines (Kury 2009, fig. 1)	<i>Ricstygnus</i>
5	Area I divided by a median groove, pedipalpal coxa with several dorsal tubercles (Pinto-da-Rocha 1997, fig. 432)	<i>Paraphareus</i>
-	Area I undivided, pedipalpal coxa with one wide dorsal tubercle (Pinto-da-Rocha 1997, fig. 559)	<i>Kaapora</i>
6	Prosoma with one spine, free tergite III with one pair of enlarged tubercles (Fig. 8A)	7
-	Prosoma smooth or with one eminence, free tergites with tubercles similar in size (Fig. 7A)	9
7	Prosomal spine placed on anterior margin, directed anteriorly, ocularium tuberculate (Pinto-da-Rocha 1997, fig. 168)	<i>Sickesia</i>
-	Prosomal spine central, ocularium smooth (Fig. 8A)	8
8	Pedipalpal femur as long as dorsal scutum length, spines of area III close each other (Fig. 7A)	<i>Jime g. nov.</i>
-	Pedipalpal femur much shorter than dorsal scutum length, spines of area III apart each other by three or more base spine diameter	<i>Stygnus</i>
9	Pedipalpal femur and patella longer than dorsal scutum	10
-	Pedipalpal femur and patella shorter than dorsal scutum	12
10	Tarsal process absent, small sized species (dorsal scutum length = 2.3–2.8 mm)	11
-	Tarsal process well developed, median to large sized species (dorsal scutum length = 3.08–5.7 mm)	<i>Protimesius</i>
11	Male patella IV without apical enlarged tubercles (Fig. 5E)	<i>Auranus</i>
-	Male patella IV with two dorsal large apical tubercles (Pinto-da-Rocha 1997, fig. 347)	<i>Pickeliana</i>
12	Prosoma with one rounded median or long bifid eminence	13
-	Prosoma smooth or with small tubercles	15
13	Prosoma with one bifid eminence (Pinto-da-Rocha 1997, fig. 557)	<i>Niceforoiellus</i>
-	Prosoma with one rounded eminence	14
14	Dorsal scutal areas with white spots around tubercles, ocularium smooth (Pinto-da-Rocha 1997, fig. 427)	<i>Metaphareus</i>
-	Dorsal scutal areas without white spots, ocularium tuberculate	<i>Phareus</i>
15	Dorsal scutum wider at groove II, coxa IV with one dorsoapical tubercle (Pinto-da-Rocha 1997, fig. 438)	<i>Stenophareus</i>
-	Dorsal scutum rectangular, coxa IV without dorsoapical tubercle	16
16	Dorsal scutum densely tuberculate (Pinto-da-Rocha 1997, fig. 325)	<i>Verrucastygneus</i>
-	Dorsal scutum with tubercles scattered on areas and lateral margins (Pinto-da-Rocha 1997, fig. 333)	17

- 17 Anterior margin smooth, lateral and posterior margins with one row of tubercles (Pinto-da-Rocha 1997, fig. 333) *Stenostygnoides*
 - Anterior margin tuberculate, lateral and posterior margins less tuberculate (Pinto-da-Rocha 1997, fig. 421) *Actinostygnoides*

Auranus Mello-Leitão, 1941

Auranus hehu sp. nov.

(Figs. 5A–E, 13D–F)

Diagnosis: Similar to *A. parvus* Mello-Leitão, 1941 based on low size of tubercles on dorsal scutum and free sternites (higher on *A. hoeferscovitorum* Pinto-da-Rocha, 1997) and penis (shape of ventral plate and enlarged apex of truncus). It differs from *A. parvus* in the presence of a spine projecting upwards on area III that is longer than the area length (instead of shorter and backwards in *A. parvus*) and apex of femur IV with two tubercles (absent in *A. parvus*).

Type locality: Brazil, Amazonas, Barcelos (Tapirapecó Mountain).

Type material: Brazil, Amazonas, Barcelos (Tapirapecó Mountain), collected by A.A. Nogueira. Holotype, 29.X.2006, 180 m.a.s.l., male (INPA-OP 0983); Paratypes: 29.X.2006, 180 m.a.s.l., female (INPA-OP 0984); 29.X.2006, 180 m.a.s.l., male (INPA); A.A. Nogueira, 2.X.2006, 450 m.a.s.l., female (MZSP-36543); 13.X.2006, 800 m.a.s.l., female (INPA-OP 951); 29.IX.2006, 180 m.a.s.l., female (MZSP-36540); 2.X.2006, 450 m.a.s.l., 2 females (INPA-OP 952).

Etymology: Noun in apposition, “*hehu*” in the Yanomani language meaning mountain. The Yanomami are native to the region where the material was collected.

Male description (holotype): Measurements: DSL 2.8; PL 1.1; DSW 2.3; PW 2.2; ID 1.6; chelicera III 3.0; III 1.4; pedipalpus 6.6; leg I 9.3; II 15.3; III 11.1; IV 13.8.

Dorsum (Fig. 5A–B): Anterior margin with one tubercle each side or smooth. Prosoma with 14 central tubercles. Lateral margin with one row of tubercles from coxa II to groove II. Areas I–II with two tubercles each side; III with two parallel and very large spines with apex backwards, three–four tubercles on external side of each spine. Posterior margin with one tubercle. Free tergite I with 11 tubercles; II with 10; III with nine tubercles. Anal operculum with one row of three median tubercles, five small tubercles on posterior border.

Venter: Coxa I with one median row of six large tubercles, one anterior, five posterior, three apical; II with one median row of 10 tubercles, seven posterior, three apical; III with one row of 11 tubercles, five anterior, seven posterior, four apical; IV with tubercles scattered. Posterior margin with one row of small tubercles each side. Anal operculum with one row of minute tubercles on posterior margin, six tubercles scattered.

Chelicera: Segment I with three tubercles on bulla; II with four tubercles; III with one basal large tubercle, three small distal. With interchelar space.

Pedipalpus: Coxa with one large ventral tubercle, two–three dorsal tubercles. Trochanter with two ventral tubercle (one large), one dorsal. Femur smooth ventrally, slightly swollen at distal third. Patella swollen at distal third. Tibia (Fig. 5C): ectal IiIi, mesal IiIiii, with seven ventral tubercles. Tarsus (Fig. 5C): ectal IiIi, mesal IiIiIi, with two ventral rows of small setae.

Legs: Coxa I with two tubercles; II with one anterior, one posterior; III with one anterior fused with one of coxa II; IV with one large apical tubercle and one small lateral. Trochanter I with four ventral tubercles, two dorsal, one retrolateral; II with four ventral, one prolateral, one retrolateral, two dorsal (one larger); III with eight ventral, two retrolateral, two prolateral, two dorsal; IV with three dorsal tubercles (one central larger), two retrolateral, five ventral. Femora II–IV with five dorsoapical tubercles; IV (Fig. 5D–E) with two rows of ventral tubercles, with one ventroapical tubercle larger. Patella IV (Fig. 5D–E) tuberculate (two dorsoapical larger). Tibia IV (Fig. 5D–E) with two ventral rows of large tubercles equal-sized in all extension. Tarsal segmentation: 6, 11/12, 6, 7.

Penis (Fig. 13D–F): Truncus swollen apically. Ventral plate wide (thinner on lateral margins), distal margin forming a calyx (dorsal apex with a pair of separate triangular, ventral apex projected and bifid), with four distal pairs of cylindrical short setae, four pairs of cylindrical long setae, without intermediate pair of setae.

Color: Dark-brown, dark reticulate on median part of prosoma, chelicera and pedipalpal femur and patella.

Female description (INPA-OP 0984): Measurements: DSL 2.9; PL 1.1; DSW 2.2; PW 2.0; ID 1.4; chelicera II 1.8; III 0.9; pedipalpus; leg I; II; III; IV.

Prosoma with 18 central tubercles. Area III with one tubercle on external side of each spine. Posterior margin smooth. Free tergite I with eight tubercles; II with nine tubercles; III with seven tubercles. Anal operculum with one row of four median tubercles, six small tubercles on posterior border. Cheliceral segment I with two tubercles on bulla; II with four tubercles; III with three small distal. Pedipalpal tarsus: ectal IiIi, mesal IiIiii. Legs: trochanter I with four ventral tubercles, three dorsal, one retrolateral; II with five ventral, one prolateral, one retrolateral, four dorsal; III with seven ventral, three retrolateral, two prolateral, smooth dorsally; IV with three dorsoapical tubercles (one central larger), four small dorsal, one prolateral tubercle and two retrolateral (apical larger), five ventral (central larger). Femora I–IV with two dorsoapical tubercles; IV with two rows of ventral tubercles, with one apical tubercle larger on each row. Patella IV with small tubercles. Tibia IV with small tubercles. Tarsal segmentation: 6, 10, 6, 7.

Distribution: Recorded in northern Amazonas, upper Negro river, (Tapirapécó) from 180 m.a.s.l. up to 800 m.a.s.l.

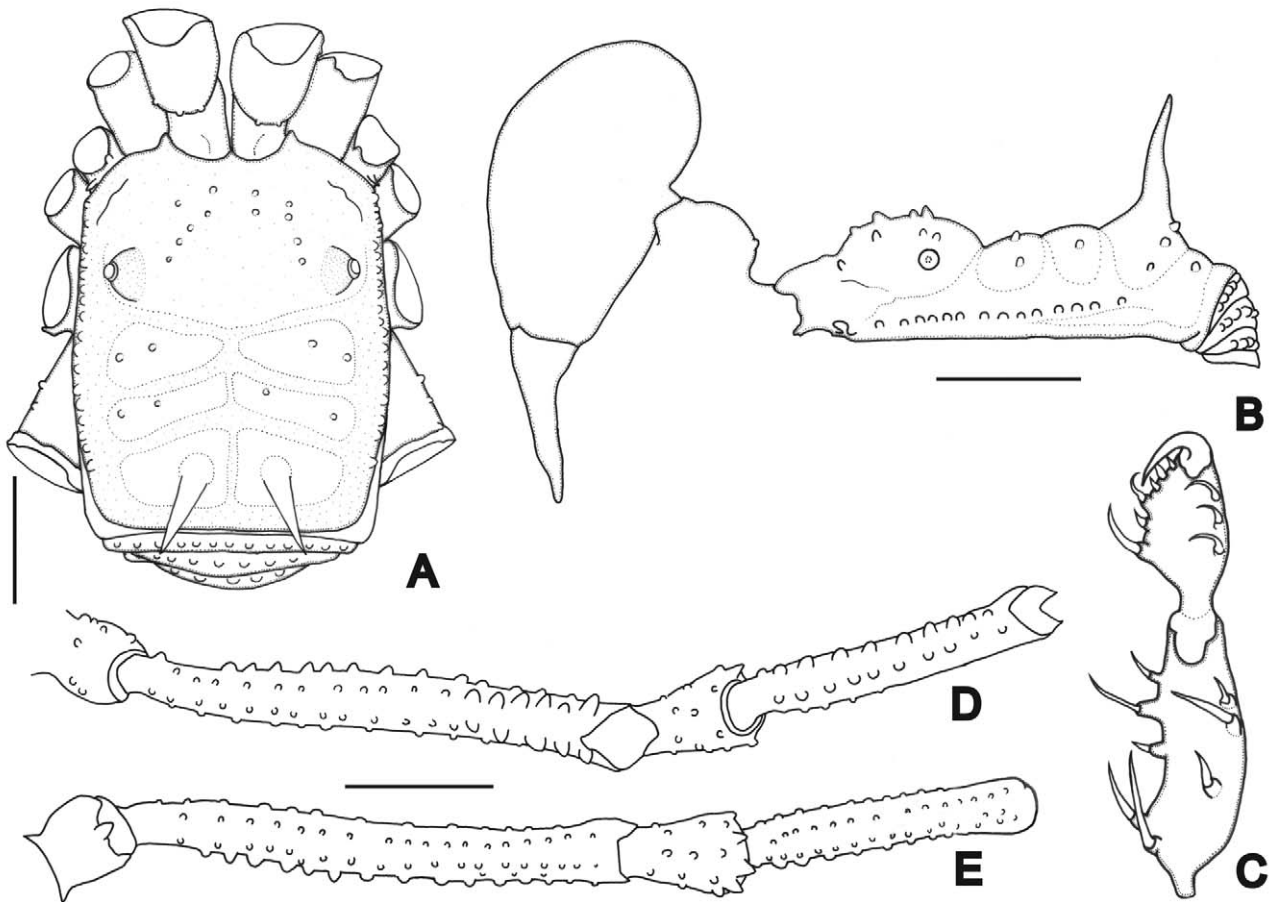


FIGURE 5. *Auranus hehu* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

***Auranus tepui* sp. nov.**

(Figs. 6A–F, 14A–C)

Diagnosis: Similar to *Auranus parvus* Mello-Leitão, 1941 and *A. hehu* sp. nov. by size of tubercles on dorsal scutum and free tergites, by presence of several tubercles on prosoma and two tubercles on areas I and II. It differs from both by presence of only one tubercle on area III and posterior margin smooth. The male femur IV has larger tubercles on retrolateral and ventral faces than any other species of the genus.

Type locality: Brazil, Amazonas, São Gabriel da Cachoeira, Pico da Neblina.

Type material: Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina), 400 m.a.s.l., 13.X.2007, D.

Candiani *leg.*, Holotype male (INPA-OP 1032); Paratypes: same locality as holotype, 100 m.a.s.l., 24.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 1030); 400 m.a.s.l., 25.IX.2007, D. Candiani *leg.*, male, female (MZSP-36567); 400 m.a.s.l., 26.IX.2007, A. Nogueira *leg.*, 2 males (INPA-OP 1031); 400 m.a.s.l., 27.IX.2007, N. Lo Man Hung *leg.*, male (INPA-OP 1033); 400 m.a.s.l., 27.IX.2007, D. Candiani *leg.*, male (MZSP-36568); 400 m.a.s.l., 27.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1034); 400 m.a.s.l., IX.2007, A. Nogueira, D. Candiani & N. Lo Man Hung *leg.*, female (INPA-OP 1035).

Etymology: A noun in apposition, in reference to the type locality. Tepui is a table-top mountain or mesa found in the Guiana Highlands of South America. The word tepui means "house of the gods" in the native tongue of the Pemon, the indigenous people who inhabit the Gran Sabana of Venezuela.

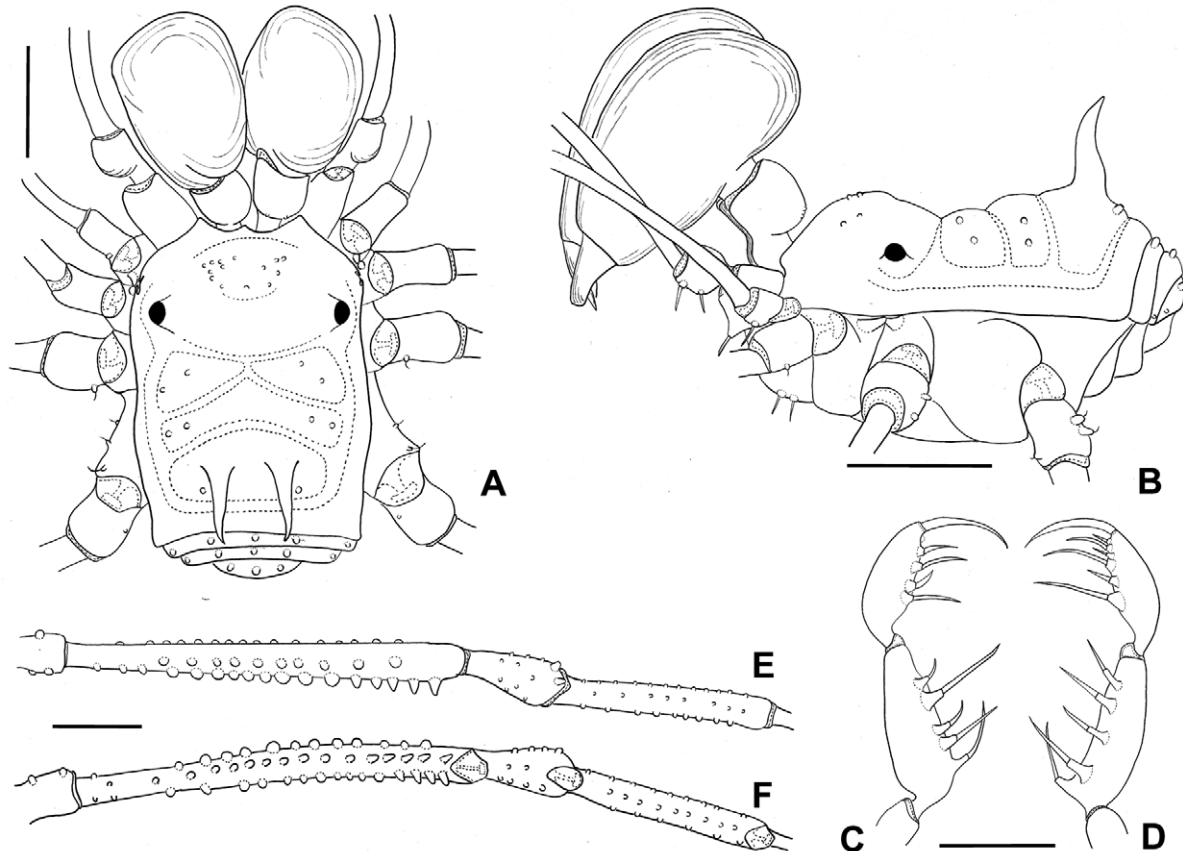


FIGURE 6. *Auranus tepui* sp. nov. A, habitus, dorsal view; B, lateral view; C, right and left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Male description (holotype): Measurements: DSL 2.6; PL 1.1; DSW 2.0; PW 1.9; ID 1.4; chelicera II 2.4; III 1.1; pedipalpus 5.9; leg I 8.9; II 14.8; III 10.7; IV 14.2.

Dorsum (Fig. 6A–B): Anterior margin smooth. Prosoma with 14 central tubercles. Lateral margin with one row of tubercles from coxa II to area III. Areas I–II with two tubercles each side; III with two parallel and very large spines with apex twisted posteriorly, one tubercle behind each spine. Posterior margin smooth. Free tergites I–III with five tubercles each. Anal operculum with two central tubercles, five small tubercles on posterior border.

Venter: Coxa I with one median row of five large tubercles, three anterior, four posterior, three apical; II with one median row of six tubercles, three posterior, three apical; III with one row of five tubercles, three anterior, four posterior, four apical; IV with tubercles scattered. Posterior margin with one row of small tubercles each side. Anal operculum with one row of minute tubercles on posterior margin, six tubercles scattered.

Chelicera: Segment I with four tubercles on bulla; II with four tubercles; III with one basal large tubercle, three large median-distal. With interchelar space.

Pedipalpus: Coxa with one large dorso-basal tubercle, one large ventral tubercle. Trochanter with two ventral tubercles, smooth dorsally. Femur smooth ventrally, slightly swollen at distal third. Patella swollen at distal third. Tibia (Fig. 6C–D): ectal-mesal IiIi, two ventral tubercles. Tarsus (Fig. 6C–D): ectal IiIi, mesal IiIiIi.

Legs: Coxa I with two tubercles; II with one anterior, one posterior; III with one anterior fused with one of coxa II; IV with eight tubercle (one large apical). Trochanter I with three ventral tubercles, three dorsal, one prolateral, one retrolateral; II with four ventral, one retrolateral, two dorsal; III with four ventral tubercles, two retrolateral, two prolateral, two dorsal; IV with four dorsal tubercles (one central and apical), two retrolateral, five ventral. Femora I–III with small tubercles; IV (Fig. 6E–F) with two rows of ventral tubercles increasing in size apically, one retrolateral row of tubercles. Patella IV (Fig. 6E–F) tuberculate (two dorsoapical larger). Tibia IV (Fig. 6E–F) with two ventral rows of large tubercles equal-sized in all extension. Tarsal segmentation: 7, 14, 6, 7.

Penis (Fig. 14A–C): Truncus swollen apically, with huge dorsal projection. Ventral plate wide (thinner on lateral margins), distal margin forming a calyx (ventrally straight, dorsally apex projected and bifid) with four distal pairs of cylindrical short setae, five pairs of cylindrical long setae, one intermediate pair of setae (size similar basal of distal group).

Female description (INPA-OP 1030): Measurements: DSL 3.0; PL 1.1; DSW 2.1; PW 1.8; ID 1.2; chelicera II 1.2; III 0.7; pedipalpus 6.1; leg I 7.9; II 16.5; III 12.2; IV 16.1.

Prosoma with two central tubercles. Area III with two tubercles on external side of each spine. Area IV with six tubercles. Posterior margin with nine tubercles. Free tergite I with 12 tubercles, one enlarged on each corner; II with 12; III with 10 tubercles. Anal operculum with one row of four median tubercles, six small tubercles on posterior border. Cheliceral segment I with one retrolateral tubercle on bulla; II with four tubercles; III with five tubercles. Pedipalpal tarsus: ectal IiIii, mesal IiIii. Legs: trochanter I with three ventral tubercles; II with five ventral, one prolateral; III with five ventral, one retrolateral, two prolateral, smooth dorsally; IV with three dorsoapical tubercles (one central larger), three small, one prolateral tubercle and two retrolateral, five ventral. Femora III–IV with two dorsoapical tubercles; Legs I–IV with small tubercles. Tarsal segmentation: 7, 13, 6, 7.

Distribution: Recorded only from the type locality (Pico da Neblina), from 100 to 400 m.a.s.l.

Jime g. nov.

Diagnosis: Dorsal scutum wider at prosoma (near coxa II). Prosoma with one median spine. Eye mound smooth. Area I divided by median groove; III with two spines. Free tergites with tubercles of similar size. Pedipalpal femur very large, approximately same length as dorsal scutum (relation DSL/femur = 0.9–1.1, n=4); tibial sockets apex straight (without projections). Penis: ventral plate with three pairs of distal setae (one on ventral side) and three pairs of basal setae; glans without dorsal process.

Remarks. This genus is similar to *Sickesia* H. Soares, 1970 and *Stygnus* Perty, 1833 based on the presence of spines on prosoma and area III, and it differs from them in the lack of the tarsal process, the outline of the dorsal scutum (wider at prosoma), and male genitalia without dorsal process and with a peculiar ventral plate shape. It shares three synapomorphies (pedipalpal patella moderately long, male patella IV with one large ventroapical anterior tubercle, and distal setae of ventral plate penis wide and compressed), with *Pickeliana*, *Phareus*, *Sickesia*, *Stygnus* and *Ricstygnus*.

Type species: *Jime chifrudo* sp. nov. by present designation.

Etymology: Masculine gender. *Cerro Jimé* is how the Pico da Neblina Mountain was called by Venezuelans. The mountain was known and named in Venezuela before it was “discovered” in Brazil in 1954.

Jime chifrudo sp. nov.

(Figs. 7A–E, 13G–I)

Diagnosis: see the genus diagnosis.

Type locality: Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina, 2400 m.a.s.l.).

Type material: All material collected in Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina). Holotype, male, 400 m.a.s.l., 27.IX.2007, N. Lo Man Hung *leg.* (INPA-OP 1021). Paratypes: 400 m.a.s.l., 26.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1022); 2,000 m.a.s.l., 26.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1023); 400 m.a.s.l., 13.X.2007, D. Candiani *leg.*, male (MZSP-36521); 2,400 m.a.s.l., X.2007, N. L.M. Hung, A. Nogueira & D. Candiani *leg.*, female (MZSP-36531); 1,550 m.a.s.l., 2.X.2007, N. L.M. Hung, male (INPA-OP 1024).

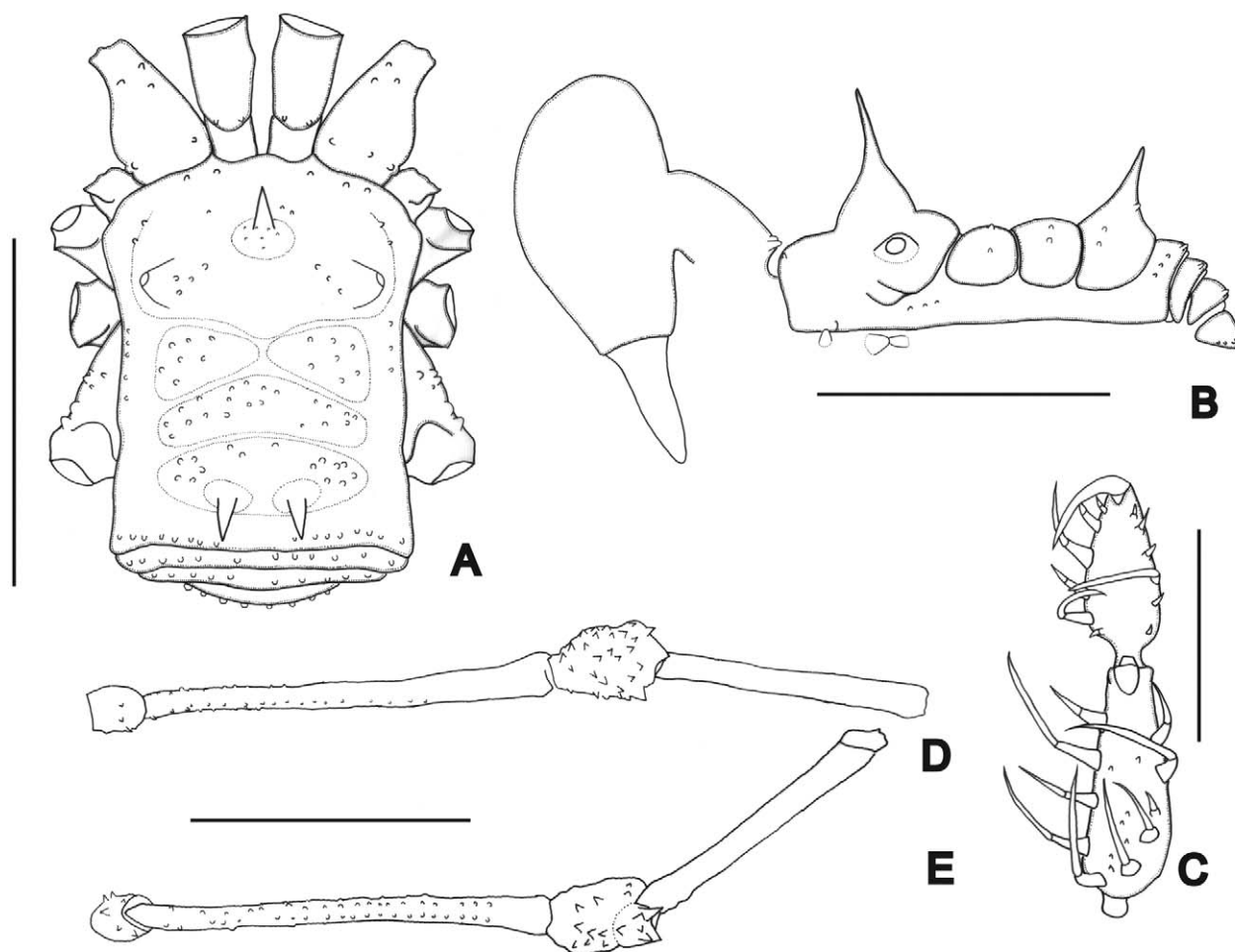


FIGURE 7. *Jime chifrudo* gen. et sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, dorsal view; E, ventral view. Scale bars: 2 mm.

Etymology: Noun in apposition, from the Portuguese “*chifrudo*” or “long horn”, in reference to the huge length of prosomal spine.

Male description (holotype): Measurements: DSL 2.0; PL 0.8; DSW 1.5; PW 1.6; ID 1.2; chelicera II 2.1; III 1.2; pedipalpus 6.2; leg I 7.2; II 10.4; III 8.4; IV 10.6.

Dorsum (Fig. 7A–B): Anterior margin with two–three small tubercles each side. Prosoma with one long spine slightly directed frontally, with tuberculate base. Lateral margin with one row of small tubercles from groove I to IV. Eye mounds smooth, with three–four small tubercles close each other. Area I with seven tubercles each side; II with 21 tubercles; III with two divergent spines backwards, with smooth base, 15 tubercles scattered. Posterior margin with one row of 16 tubercles. Free tergite I with 12 tubercles; II with 10 tubercles; III with eight tubercles. Anal operculum with two central tubercles, one row of tubercles on posterior margin.

Venter: Coxa I with three anterior tubercles, one median row of four, one posterior row of five, three apical; II with one median row of seven tubercles, seven posterior, three apical; III with three anterior tubercles, one median row of five, seven posterior; IV irregularly tuberculate. Posterior margin with one row of small tubercles. Anal operculum with small scattered tubercles.

Chelicera: Segment I with two tubercles on bulla; II with one median large, two distal small tubercles; III with three small tubercles on distal half. With large interchelar space.

Pedipalpus: Coxa with one ventral tubercle, six dorsal tubercles. Trochanter with two ventral tubercles; one dorsal. Femur smooth, slightly swollen at distal fifth. Patella swollen at distal third. Tibia (Fig. 7C): ectal IIIi, mesal IIIi, with one ventral tubercle. Tarsus (Fig. 7C): ectal iiIiii, mesal IIiIi, one ventral tubercle.

Legs: Coxa I with two tubercles; II with one anterior, one posterior fused with one of coxa III; IV with some sparse tubercles on lateral. Trochanter I with three ventral tubercles, one retrolateral, one dorsal; II with three ven-

tral, one retrolateral, three dorsal; III with four ventral, four retrolateral, three dorsal; IV with three dorsal, four ventral and four retrolateral tubercles. Femora I–III minute tuberculate; IV (Fig. 7D–E) with one dorsal and two ventral rows of small tubercles. Patella IV (Fig. 7D–E) irregularly tuberculate, with one dorsodistal large tubercle, one ventral row of tubercles ending in a large and tuberculate projection. Tibia IV (Fig. 7D–E) smooth. Tarsal segmentation: 6, 12, 6, 7. Without tarsal process.

Penis (Fig. 13G–I): Ventral plate thick, with divergent lateral sides, distal margin slightly straight; with three pairs of large setae on middle of ventral plate, being two pairs on dorsal side, and one pair on ventral side, one pair of small intermediary setae and three pairs of large (than distal margin) setae on basal region. Stylus long and thin, basal third membranous.

Color: Reddish-brown; margins of dorsal scutum and border of areas I–II darker, area III almost entirely blackish. Chelicerae not reticulate. Legs with black minute patches more concentrated distad. Pedipalpus yellowish with some small black patches.

Female description (INPA-OP 1023): Measurements: DSL 2.5; PL 1.1; DSW 1.9; PW 1.7; ID 1.3; chelicera II 1.4; III 0.6; pedipalpus 5.7; leg I 7.0; II 11.4; III 9.2; IV 10.1.

Anterior margin with two tubercles each side. Prosomal spine smaller than that of male. Area I with two tubercles each side; II with two small tubercle each side; III with one tubercle each side and one behind each spine. Legs I–IV minute tuberculate. Patella IV normal. Tarsal segmentation: 6, 15, 6, 7.

Distribution: Recorded only from the type locality, from 400 to 2400 m.a.s.l.

Protimesius Roewer, 1913

Protimesius longipalpis (Roewer, 1943)

New records: Brazil. Amazonas: Manaus, PDBFF-A073, female (INPA-91); idem, F. Rego *leg.*, male (IBUT-5768); idem, female (IBUT-5769); idem, male (IBUT-5770); idem, male (IBUT-5747); male (INPA-053); female (INPA-79); RDS Uacari (right margin Rio Juruá, near rio Bauana), F. Röhe, 1–16.XI.2006, male, female (INPA); Interflúvio Madeira-Purus, Careiro, Campina Tupana close to the Tupana river, (4°54'51" S; 61°06'33" W), 16.VII.2007, 2 males, female (INPA-OP 774); the same, 17.VII.2007, female (INPA-OP 0778); the same, 15.VII.2006, E.H.Wienkoski *leg.*, female (INPA-OP 0777); the same, 23.VII.2006, E.H.Wienkoski *leg.*, female (INPA-OP 0776); the same, 8.VII.2006, E.H.Wienkoski *leg.*, female (INPA-OP 0775); São Francisco, Cacual (Rio Solimões), -3,902 S -63,415 W, F. Rego *leg.*, 23.IX.2003, female (INPA-221); female (INPA-98); Rio Preto da Eva, T7P1, km98 AM010, 12.I.2006, A.L.Tourinho, R. Saturnino & F. Röhe (INPA-OP 1079);

Distribution: *P. longipalpis* has been recorded only in the city of Manaus (Brazil, Amazonas); the present records extend the distribution to Rio Solimões/Amazonas.

Stygnus Perty, 1833

Stygnus kuryi sp. nov.

(Figs. 8A–E, 15A–C)

Diagnosis: Similar to *S. aggerum* Soerensen, 1932, *S. mediocris* (Roewer, 1931), *S. simplex* (Roewer, 1913) and *S. weyrauchi* (Roewer, 1963) with respect to free tergites with a pair of long tubercles, large, cylindrical and straight femur and tibia IV, femur IV short and with retrolateral row of strong tubercles. The males and females distinguished from all other *Stygnus* species by the presence of a few tubercles on areas I–III (two–three on each side of area).

Type locality: Brazil, Amazonas, Barcelos (Tapirapecó mountain)

Type material: BRAZIL: Amazonas, Barcelos (Tapirapecó mountain), A.A. Nogueira & R. Braga Neto *leg.* Holotype, 28.IX.2006, 180 m.a.s.l., male (INPA-OP 982). Paratypes: same data as holotype; 28.IX.2006, 130 m.a.s.l., male (INPA-OP 970); 28.IX.2006, 130 m.a.s.l., female (INPA-OP 979); 29.IX.2006, 180 m.a.s.l., 2 males, 6 females (INPA-OP 972); 29.IX.2006, 180 m.a.s.l., 2 females (INPA-OP 980); 29.IX.2006, 180 m.a.s.l., 2 males,

2 females (INPA-OP 973); 30.IX.2006, 180 m.a.s.l., 2 female (INPA-OP 971); 30.IX.2006, 180 m.a.s.l., female (MZSP-36558); 2.X.2006, 2 males, 6 females (MZSP-36544); 2.X.2006, 450 m.a.s.l., male, female (MZSP-36556); 2.X.2006, 450 m.a.s.l., 3 females (INPA-OP 968); 3.X.2006, 450 m.a.s.l., 2 females (INPA-OP 974); 3.X.2006, 450 m.a.s.l., male, 2 females (MZSP-36557); 3.X.2006, 450 m.a.s.l., female (MPEG-OP 02501); 4.X.2006, 450 m.a.s.l., 2 males, 6 females (MZSP-36559); 4.X.2006, 2 females (INPA-OP 976); 6.X.2006, 800 m.a.s.l., 2 females (INPA-OP 977); 6.X.2006, 800m, female (INPA-OP 978); 14.X.2006, 700 m.a.s.l., 3 females (INPA-OP 975); 14.X.2006, 800 m.a.s.l., female (MNRJ 19359); 21.X.2006, 450 m.a.s.l., female (MZSP-36560). Paratypes from São Gabriel da Cachoeira (Pico da Neblina): 100 m.a.s.l., 22.IX.2007, A. Nogueira *leg.*, male, 3 females (INPA-OP 1041); 100 m.a.s.l., 22.IX.2007, A. Nogueira *leg.*, 2 males, female (MZSP-36528); 100 m.a.s.l., 22.IX.2007, D. Candiani *leg.*, males, 3 females (MZSP-36569); 100 m.a.s.l., 22.IX.2007, A. Nogueira *leg.*, 3 females (INPA-OP 1042); 100 m.a.s.l., 22.IX.2007, N. Lo Man Hung *leg.* 8 females (INPA-OP 1043); 100 m.a.s.l., 22.IX.2007, N. Lo Man Hung *leg.* female (INPA-OP 1044); 100 m.a.s.l., 23.IX.2007, A. Nogueira *leg.*, male, female (MZSP-36527); 100 m.a.s.l., 23.IX.2007, A. Nogueira *leg.*, 2 females (INPA-OP 1045); 100 m.a.s.l., 23.IX.2007, A. Nogueira *leg.*, 2 females (INPA-OP 1046); 100 m.a.s.l., 23.IX.2007, N. Lo Man Hung *leg.*, 2 males, 4 females (MZSP-36522); 100 m.a.s.l., 23.IX.2007, D. Candiani *leg.*, 2 females (INPA-OP 1047); 100 m.a.s.l., 23.IX.2007, D. Candiani *leg.*, male (INPA-OP 1048); 100 m.a.s.l., 24.IX.2007, A. Nogueira *leg.*, male, 6 females (MZSP-36570); 100 m.a.s.l., 24.IX.2007, N. Lo Man Hung *leg.* 2 females (INPA-OP 1049); 100 m.a.s.l., 24.IX.2007, N. Lo Man Hung *leg.* female (INPA-OP 1050); 100 m.a.s.l., 24.IX.2007, A. Nogueira *leg.*, 3 females (INPA-OP 1051); 100 m.a.s.l., 24.IX.2007, D. Candiani *leg.*, female (INPA-OP 1052); 100 m.a.s.l., 24.IX.2007, D. Candiani *leg.*, 2 females (INPA-OP 1053); 100 m.a.s.l., 24.IX.2007, D. Candiani *leg.*, female (INPA-OP 1054); 100 m.a.s.l., 28.IX.2007, N. Lo Man Hung *leg.*, 2 females (INPA-OP 1055); 400 m.a.s.l., 25.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 1056); 400 m.a.s.l., 25.IX.2007, D. Candiani *leg.*, female (INPA-OP 1047); 400 m.a.s.l., 25.IX.2007, A. Nogueira *leg.*, male, 2 females (INPA-OP 1058); 400 m.a.s.l., 25.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1059); 400 m.a.s.l., 25.IX.2007, A. Nogueira *leg.*, 2 males, 2 females (MZSP-36533); 400 m.a.s.l., 26.IX.2007, N. Lo Man Hung *leg.*, 2 females, juvenile (INPA-OP 1060); 400 m.a.s.l., 26.IX.2007, D. Candiani *leg.*, female (INPA-OP 1061); 400 m.a.s.l., 26.IX.2007, D. Candiani *leg.*, 2 females (INPA-OP 1062); 400 m.a.s.l., 26.IX.2007, A. Nogueira *leg.*, 2 males, female (INPA-OP 1063); 400 m.a.s.l., 26.IX.2007, N. Lo Man Hung *leg.*, 2 females (INPA-OP 1064); 400 m.a.s.l., 26.IX.2007, N. Lo Man Hung *leg.*, male (INPA-OP 1065); 400 m.a.s.l., 26.IX.2007, N. Lo Man Hung *leg.*, male, 2 females (MZSP-36573); 400 m.a.s.l., 27.IX.2007, D. Candiani *leg.*, 2 males, female (INPA-OP 1066); 400 m.a.s.l., 27.IX.2007, A. Nogueira *leg.*, male, 3 females (INPA-OP 1067); 860 m.a.s.l., 28.IX.2007, N. Lo Man Hung *leg.*, male, 2 females (MZSP-36536); 860 m.a.s.l., 28.IX.2007, N. Lo Man Hung *leg.*, male (MZSP-36538); 860 m.a.s.l., 29.IX.2007, A. Nogueira *leg.*, 2 females (INPA-OP 1068); 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 1069); 860 m.a.s.l., 29.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 1070); 860 m.a.s.l., 29.IX.2007, D. Candiani *leg.*, male, female (MZSP-36537); 860 m.a.s.l., 29.IX.2007, D. Candiani *leg.*, 2 females (INPA-OP 1071); 860 m.a.s.l., 30.IX.2007, D. Candiani *leg.*, female (INPA-OP 1072); 860 m.a.s.l., 30.IX.2007, N. Lo Man Hung *leg.*, female (INPA-OP 1073); 860 m.a.s.l., 30.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1074); 860 m.a.s.l., 30.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1075). Paratypes: Pico do Tapirapecó, Rio Paduari, 450 m.a.s.l., A. Nogueira *leg.* IX.2006, 800 m.a.s.l., male, male (MNRJ 19360); Rio Marari, Terra indígena Yanomammi, 450 m.a.s.l., 27.I.2006, male (MPEG-OPI 02502); Barcelos (Comunidade Acuquaea, rio Paduari, 450 m.a.s.l.), 23.IX.2006, female (INPA-OP 1076); the same, 2 females (INPA-OP 1077); (Rio Mariri, Terra Yanomami), 27.IX.2006, female (INPA-OP 1078).

Etymology: In honor of the arachnologist Adriano Brilhante Kury (MNRJ), for his significant contributions to the study of Opiliones.

Male description (holotype): Measurements: DSL 4.4; PL 1.7; DSW 3.7; PW 3.4; ID 1.7; chelicera II 3.6; III 1.6; pedipalpus 8.2; leg I 13; II 24; III 17.5; IV 22.

Dorsum (Fig 8A–B): Anterior margin with two large tubercles. Prosoma with one large spine slightly frontwards, with two tubercles close to each corner. Lateral margin with one row of small tubercles from coxa II to posterior margin. Area I with two tubercles each side (larger close to median groove); II with three tubercle; III with two divergent and very large spines backwards, base tuberculate with one large tubercle on back side, two tubercles each side of the area. Posterior margin with a row of 15 small tubercles. Free tergite I with 16 tubercles; II with three–six tubercles each side, one pair of spines, two tubercles between them; III with two spines, three tubercles between them, three on each corner. Anal operculum with five anterior tubercles, seven on posterior border.

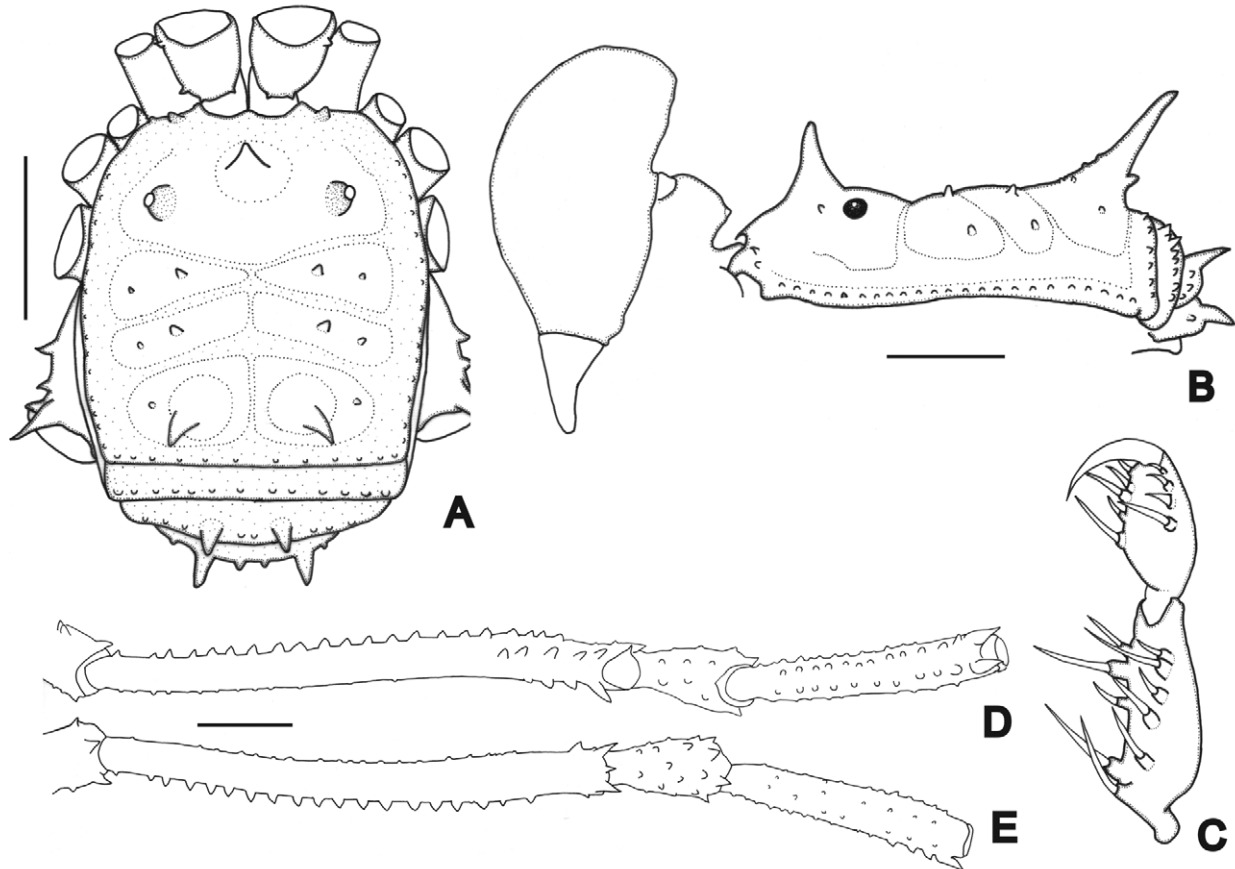


FIGURE 8. *Stygnus kuryi* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, dorsal view; E, ventral view; Scale bars: 2 mm.

Venter: Coxa I with one median row of four large tubercles, three–four anterior, two apical; II with one median row of seven large tubercles, two anterior, seven posterior small, two apical; III with two apical tubercles, with some scattered small tubercles; IV with scattered small tubercles. Posterior margin with one row of minute tubercles. Anal operculum with one row of seven median tubercles, 11 on posterior margin.

Chelicera: Segment I with four–five tubercles on bulla; II with one basal large tubercle, one median wide, four small distal tubercles; III with one median large, four small distal tubercles. With interchelar space.

Pedipalpus: Coxa with two ventral tubercles, one large dorsal tubercle, four dorsal tubercles (two large). Trochanter with three ventral tubercles (one large); one dorsal. Femur with five small ventral tubercles, slightly swollen at distal fifth. Patella swollen at distal third. Tibia (Fig. 8C): ectal *iiiIi*, mesal *IIIiIi*, five ventral tubercles, with small tubercles scattered dorsally. Tarsus (Fig. 8C): ectal *liiii*, mesal *liiii*, with two ventral rows of small setae.

Legs: Coxa I with two tubercles, posterior direct to coxa II; II with one anterior, one posterior bifid; III with one anterior fused with that of coxa II; IV with one long and sharp apical tubercle and three small lateral. Trochanter I with two ventral tubercles; II with seven ventral, one prolateral, one retrolateral, one dorsal; III with five ventral tubercles, one prolateral, one dorsal; IV with two apical tubercles (one larger), one retrolateroapical, 12 ventral. Femur II–III with small tubercles; II–III with two dorsoapical tubercles; III with three ventroapical tubercles; IV (Fig. 8D–E) with two ventral rows of tubercles increasing in size at distal third (internal larger); one retrolateral, row in all extension, one prolateral of small tubercles, two dorsal rows of small tubercles, two dorsoapical tubercles. Patella IV (Fig. 8D–E) tuberculate, apical tubercle larger. Tibia IV (Fig. 8D–E) with small tubercles, two dorsal rows of small tubercles, with two ventral rows increasing at distal third. Tarsal segmentation: 7, 10/11, 6, 7. Basitarsi I not inflated.

Penis (Fig. 15A–C): Ventral plate with convergent sides, distal margin straight, with three dorsal pairs of long setae, three pairs of intermediary small setae, three pairs on basal portion. Stylus long and slightly swollen distad, dorsal process shorter than stylus,

Color: Dark-brown, posterior margin and free tergites darker. Black reticulate on prosoma and patella IV. Leg I and pedipalp yellowish.

Female description (INPA-OP 979): Measurements: DSL 3.8; PL 1.6; DSW 3.4; PW 2.6; ID 1.5; chelicera II 1.9; III 1.1; pedipalpus 6.9; leg I 10.3; II 22.5 III 15.7; IV 20.7.

Anterior margin with two–three small tubercles each side. Prosomal spine smaller than male. Lateral margin with tubercles from retrolateral coxa II to posterior margin. Area I with two–three tubercles each side; II with two–three tubercles each side; III with one tubercle on each spine side. Posterior margin with 10 minute tubercles. Free tergite I with 15 minute tubercles; II with 12 minute tubercles and two large; III with 14 small tubercles and two large. Chelicera segment I with three tubercles on bulla; II with five small tubercles; III with four small tubercles. Pedipalpus: Coxa with one ventral tubercle, trochanter with two ventral; tibia ectal IIIiIi, mesal IIIiIi; tarsus: ectal IIIiIi, mesal IIIiIi. Femur IV with two ventral row of small tubercles. Patella IV with two dorsal apical tubercles smaller than male. Tibia IV with small tubercles. Tarsal segmentation: 7, 12, 6, 7.

Distribution: Recorded in northern Amazonas, upper Negro River, from 100 to 860 m.a.s.l. (Neblina) and 180 up to 860 m.a.s.l. (Tapirapecó).

Stygnus magalhaesi sp. nov.

(Figs. 9A–E, 15D–F)

Diagnosis: This species differs from other member of *Stygnus* by the small tubercles on free tergites (larger at least on III in all described species), and tarsus III–IV with scopulae (only present in *S. gertschi* (Roewer, 1963)), flattened and depressed (both characteristics convergent with Heterostygninae).

Type locality: Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina, 2,400 m.a.s.l.).

Type material: All material collected in Brazil, Amazonas, São Gabriel da Cachoeira (Pico da Neblina). Holotype, male, 2400 m.a.s.l., 11.X.2007, A. Nogueira *leg.* (INPA-OP 1025). Paratypes, same locality as holotype: 2400 m.a.s.l., 9.X.2007, D. Candiani *leg.*, male, female (INPA-OP 1026); 2000 m.a.s.l., 7.IX.2007, A. Nogueira *leg.*, female (INPA-OP 1027); 2000 m.a.s.l., 6.X.2007, A. Nogueira *leg.*, female (INPA-OP 1028); 2400 m.a.s.l., 9.X.2007, N. Lo Man Hung *leg.*, male (MZSP-36574); 2000 m.a.s.l., 6.X.2007, A. Nogueira *leg.*, male (INPA-OP 1029).

Etymology: Named after Célio Magalhães Filho, vice-curator of the invertebrates collection at INPA, who has been supporting and supervising the early arachnological group activities at INPA.

Male description (holotype): Measurements: DSL 4.6; PL 1.9; DSW 3.9; PW 3.3; ID 2.1; chelicera II 4.9; III 2.1; pedipalpus 9.2; leg I 10.3; II 20.6; III 14.9; IV 19.3.

Dorsum (Fig. 9A–B): Anterior margin with two small tubercles each side. Prosoma with one spine slightly frontwards, with smooth base. Lateral margin with one row of small tubercles from coxa II to groove IV. Eye mounds with one–two small tubercles. Area I with one tubercle each side; II smooth; III with two divergent spines backwards, with smooth base, one tubercle behind and one on the side of each spine. Posterior margin smooth. Free tergite I–III with two tubercles. Anal operculum with two central minute tubercles, one row on posterior margin.

Venter: Coxa I with median row of four large tubercles, three apical; II with one median row of four tubercles, five apical tubercles; III with one median row of five small tubercles, four minute posterior; IV irregularly tuberculate. Posterior margin with one row of small tubercles, some scattered. Anal operculum with small scattered tubercles.

Chelicera: Segment I with three tubercles on bulla; II with three tubercles; III one large basal, two small distal. With interchelar space.

Pedipalpus: Coxa with one ventral tubercle, three dorsal tubercles (retrolateral larger). Trochanter with two ventral tubercle; one dorsal. Femur with six ventral tubercles (basal larger), slightly swollen at distal fourth. Patella swollen at distal half. Tibia (Fig. 9C): ectal IIIiIi, mesal IIIiIi, with four ventral tubercles (with long setae) next to ectal side. Tarsus (Fig. 9C): ectal iiiiIi, mesal iiiiIi, with seven ventral tubercles next to ectal, four next to mesal side.

Legs: Coxa I with two tubercles; II with one anterior bifid, one posterior bifid tubercle; III with one anterior tubercle fused with one of coxa IV; IV with four large tubercles close to distal margin, some sparse tubercles, one dorsoapical spine. Trochanter I with three ventral tubercles, one retrolateral; II with three ventral, two retrolateral,

one dorsal large; III with three ventral, two retrolateral (apical larger); IV with one dorsoapical spine (larger), six dorsal small, six ventral, one prolateral tubercle and two retrolateral tubercles (apical larger). Femora I–II with small tubercles; III with two ventral rows of tubercles increasing in size at distal third, two dorsoapical tubercles; IV (Fig. 9D–E) swollen subdistad, with two ventral rows of tubercles increasing in size at apical third; two large dorsodistal spines. Patella IV (Fig. 9D–E) irregularly tuberculate, with one dorsodistal large tubercle, two ventroapical and one subdistal large tubercles. Tibia IV (Fig. 9D–E) with scattered tubercles on laterals and dorsal side, two ventral rows of tubercles (internal larger) increasing in size distad. Claws without teeth. Tarsal segmentation: 7, 16–17, 7, 7.

Penis (Fig. 15D–F): Ventral plate large, with apical and lateral sides concave, with four pairs of large basal setae, one pair of small intermediary setae and distal group five pairs of long (longer than distal margin) and flattened distal setae, two small setae behind distal group. Half of stylus membranous, with subapical setae.

Color: Dark-brown, margins of dorsal scutum and border of areas I–II blackish, area III almost entirely blackish. Chelicerae black reticulate. Femur and tibia IV reddish. Pedipalpus yellowish with some small black patches mainly on anterior of tibia and posterior half of tarsus.

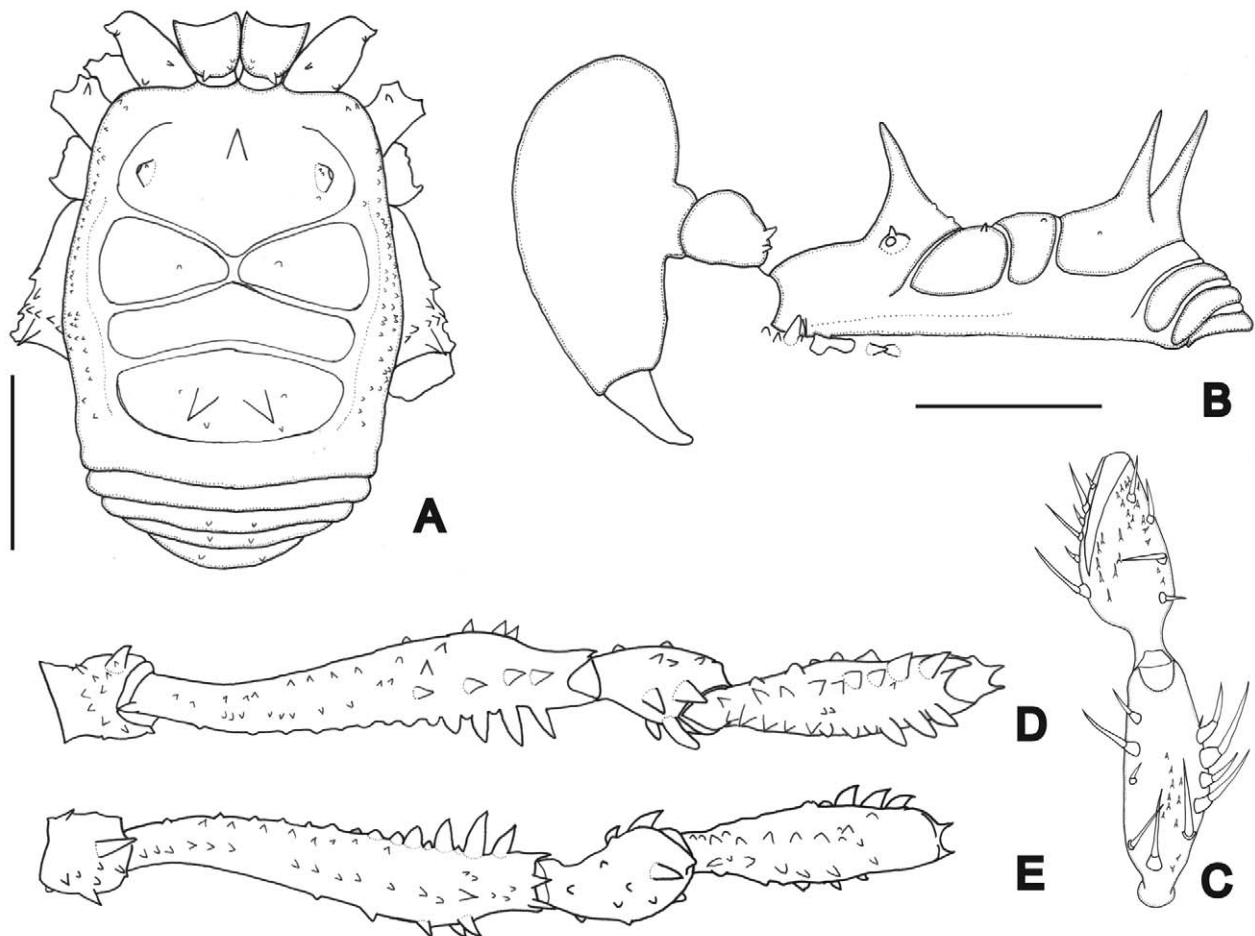


FIGURE 9. *Stygnus magalhaesi* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D–E, trochanter-tibia of the right leg IV, D, ventral view; E, dorsal view. Scale bars: 2 mm.

Female description (INPA-OP 1026): Measurements: DSL 4.8; PL 1.8; DSW 3.9; PW 3.3; ID 1.8; chelicera II 2.5; III 1.4; pedipalpus 9.4; leg I 10.2; II 20.6; III 15.4; IV 19.

Anterior margin smooth. Area II with one minute tubercle each side. Free tergite I–II with two tubercles; III with 3 tubercles. Pedipalpus: coxa with two dorsal tubercles, two retrolateral. Trochanter with two ventral tubercles. Femur with three ventral (basal larger) tubercles. Tibia: ectal *iiIiIi*, mesal *IiIiIi*, with seven ventral tubercles. Tarsus: ectal *iiIiIi*, mesal *IiIiIi*. Femur IV with two ventroapical tubercles, one retrolateral row with larger tubercles than other of the segment. Patella-tibia IV with small tubercles. Claws with six teeth. Tarsal segmentation: 6, 15, 7, 8.

Distribution: recorded only on Type locality from 2,000 to 2,400 m.a.s.l.

***Stygnus nogueirai* sp. nov.**

(Figs. 10A–E, 11, 15G–I)

Diagnosis: Male are similar to *S. grasshoffi* Pinto-da-Rocha, 1997, *S. kuryi* sp. nov., *S. klugi* (Goodnight & Goodnight, 1943), *S. mediocris* (Roewer, 1931), *S. peruvianus* (Roewer, 1957), *S. simplex* (Roewer, 1913) and *S. weyrauchi* (Roewer, 1963) based on large, cylindrical and straight femur and tibia IV. The males and females differ from all other *Stygnus* species by the abundant green tubercles on body and legs, and eye mounds tuberculate (Fig. 11).

Type locality: Brazil, Amazonas, Barcelos (Tapirapecó mountain)

Type material: BRAZIL: Amazonas, Barcelos (Tapirapecó mountain). Holotype, 2.X.2006, 450 m.a.s.l., male (INPA-OP 986). Paratypes: same locality as holotype, 30.IX.2006, 180 m.a.s.l., female (INPA-OP 985); 28.IX.2006, 180, male, 2 females (INPA-OP 987); 28.IX.2006, 130m, male (MZSP-36564); 30.IX.2006, 180 m.a.s.l., female (INPA-OP 989); 31.IX.2006, 180m, female (INPA-903); 2.X.2006, 450 m.a.s.l., male, female (INPA-OP 990); 2.X.2006, 450 m.a.s.l., 2 females (INPA-OP 993); 3.X.2006, 450 m.a.s.l., 2 male, 1 female (MZSP-36561); 3.X.2006, 450 m.a.s.l., female (INPA-OP 991); 3.X.2006, 450 m.a.s.l., 5 males, female (MZSP-36562); 4.X.2006, 450 m.a.s.l., R. Braga Neto leg., 5 males, 4 females (MZSP-36542); 4.X.2006, 450 m.a.s.l., male (MZSP-36563); 4.X.2006, 450 m.a.s.l., male, 3 females (INPA-901); 4.X.2006, 450 m.a.s.l., male, 2 female (INPA-OP 992); 4.X.2006, 450 m.a.s.l., 2 males (INPA-OP 988); 450 m.a.s.l., 04.X.2006. Paratypes: São Gabriel da Cachoeira (Pico da Neblina), A.Nogueira, 2 males, female (MNRJ 19361); the same 31.IX.2006, female (MPEG-OPI 02503), the same 04.x.2006, male, female (MPEG-OPI 02504); Barcelos, Serra Aracá, 4-7.VIII.2008, A. Nogueira leg., (INPA). Paratypes from São Gabriel da Cachoeira (Pico da Neblina), 100 m.a.s.l., 22.IX.2007, N. Lo ManHung leg., female (INPA-OP 1031); 100 m.a.s.l., 22.IX.2007, N. Lo ManHung leg., female (INPA-OP 1032); 100 m.a.s.l., 22.IX.2007, N. Lo ManHung leg., female (MZSP-36520); 100 m.a.s.l., 22.IX.2007, A. Nogueira leg., female (INPA-OP 1033); 100 m.a.s.l., 22.IX.2007, A. Nogueira leg., female (INPA-OP 1034); 100 m.a.s.l., 22.IX.2007, D. Candiani leg., male, female (MZSP-36571); 100 m.a.s.l., 23.IX.2007, A. Nogueira leg., female (INPA-OP 1035); 100 m.a.s.l., 23.IX.2007, D. Candiani leg., female (INPA-OP 1036); 100 m.a.s.l., 23.IX.2007, A. Nogueira leg., male (INPA-OP 1037); 100 m.a.s.l., 23.IX.2007, N. Lo ManHung leg., female (INPA-OP 1038); 100 m.a.s.l., 24.IX.2007, A. Nogueira leg., male, 3 females (MZSP-36529); 100 m.a.s.l., 23.IX.2007, D. Candiani leg., male, female (MZSP-36539); 100 m.a.s.l., 24.IX.2007, N. Lo ManHung leg., male (INPA-OP 1039); 100 m.a.s.l., 24.IX.2007, N. Lo ManHung leg., male (INPA-OP 1040).

Etymology: The species is named after the biologist Andre Nogueira, for his contribution to Arachnology by actively collecting data on spiders and harvestmen in São Paulo and Amazonas.

Male description (holotype): Measurements: DSL 3.3; PL 1.3; DSW 3.1; PW 2.7; ID 2.4; chelicera II 2.9; III 1.5; pedipalpus 6.5; leg I 11; II 28.0; III 19.5; IV 28.5.

Dorsum (Fig. 10A–B): Anterior margin with three–four large tubercles and several small on each corner. Prosoma with one large spine upwards, with tubercles from spine to eye mounds, with a group of tubercles on lateral of prosoma. Eye mounds with five tubercles each. Lateral margin with one row of tubercles from coxa III to posterior margin, and a group of tubercles from groove II to posterior margin. Area I with 45 tubercles on posterior half, one on anterior central part larger; II densely covered by equal-sized tubercles; III with two divergent and very large spines backwards, surrounded by tubercles. Posterior margin with a row of 14 tubercles, corners smooth. Free tergite I with 14 tubercles; II with 9; III with two spines, two tubercles between them, two on each corner. Anal operculum with two anterior tubercles, three close to posterior border.

Venter: Coxa I with one median row of large tubercles, one anterior, two apical; II with one median row of seven large tubercles, three anterior 10 small tubercles, three posterior small, two apical (one larger); III with four apical tubercles (one larger), with scattered small tubercles. Posterior margin with one row of minute tubercles. Anal operculum with one row of minute tubercles on posterior margin.

Chelicera: Segment I with 12–13 tubercles on bulla; II with a wide striate area opposite to another of movable finger, one small distal tubercle; III one large basal, three small distal. With interchelar space.

Pedipalpus: Coxa with two ventral tubercles, one large dorsal tubercle, four dorsal tubercles (two large). Trochanter with three ventral tubercle (one large); one dorsal. Femur with five small ventral tubercles, slightly swollen at distal fifth. Patella swollen at distal third. Tibia (Fig. 10C): ectal IIIiIi, mesal IIiIi, four ventral tubercles, with small tubercles scattered dorsally. Tarsus (Fig. 10C): ectal iIIiIi, mesal IIiIi, with two ventral rows of small setae.

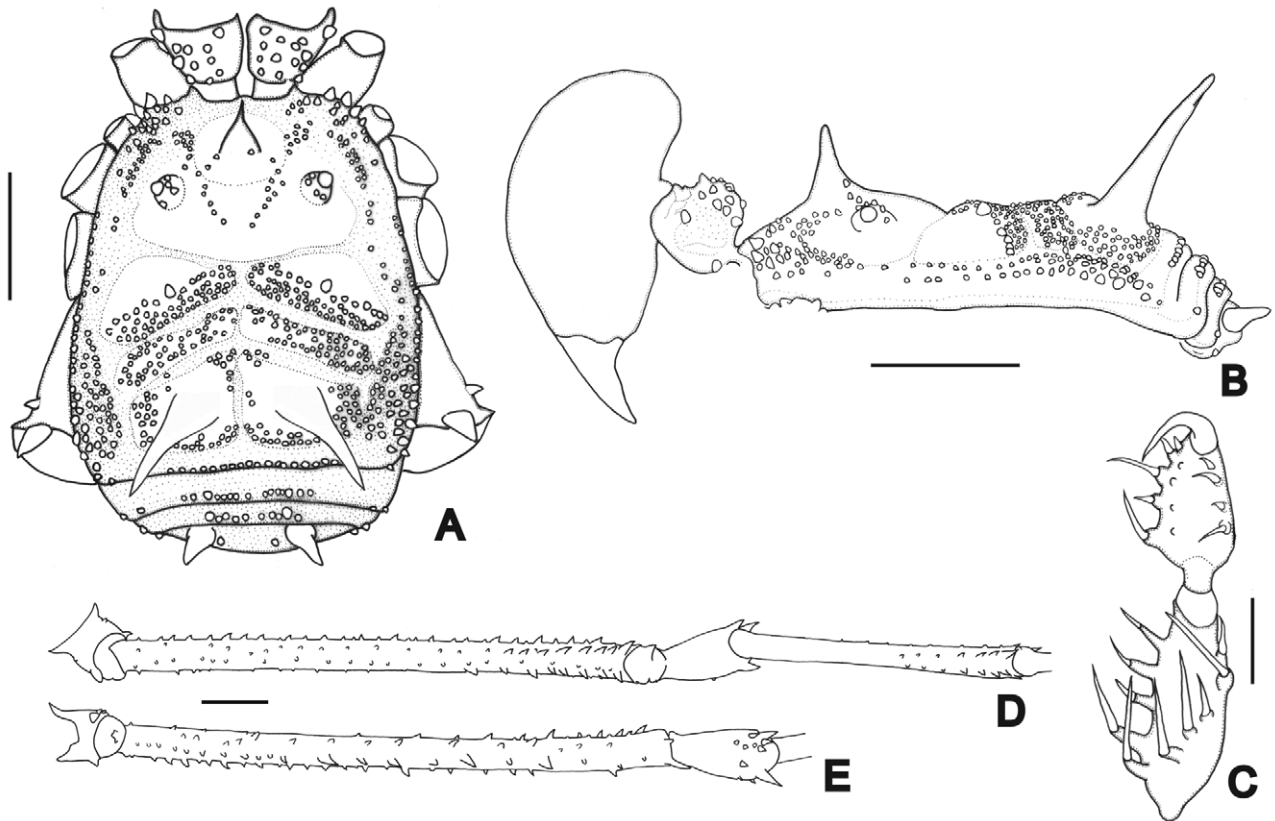


FIGURE 10. *Stygnus nogueirai* sp. nov. A, habitus, dorsal view; B, lateral view; C, left pedipalpal tibia and tarsus; D, trochanter-tibia of the right leg IV, ventral view; E, trochanter-patella IV dorsal view. Scale bars: 2 mm.



FIGURE 11. Live specimen of *Stygnus nogueirai* sp. nov. showing the camouflage. Photo: A.Nogueira.

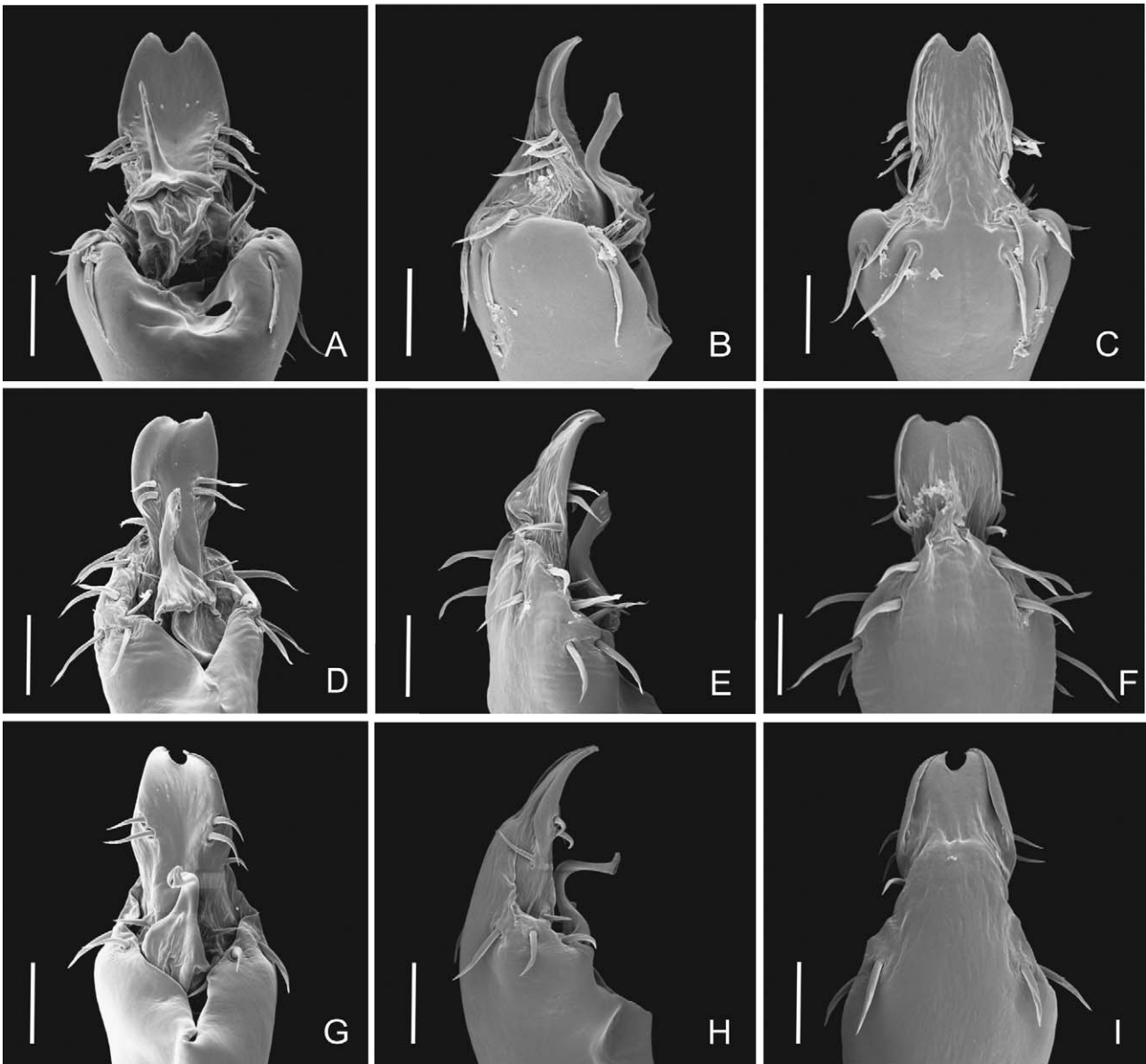


FIGURE 12. Penis (dorsal, lateral, ventral views, respectively) of some new species of Stygnidae: A–C, *Imeri lomanhungae* sp. nov.; D–F, *Stygnoplus ianomami* sp. nov.; *Stygnoplus neblina* sp. nov.. Scale bars: 0.1 mm.

Legs: Coxa I with two tubercles; II with one anterior, one posterior bifid; III with one anterior fused with that of coxa II; IV with one large apical tubercle and one small lateral. Trochanter I with two ventral tubercles; II with four ventral, one prolateral, one retrolateral, one dorsal small; III with five ventral, one retrolateral, one prolateral two dorsal; IV with three tubercles (one larger), one prolateral tubercle and one retrolateral, several small tubercle scattered on dorsal and ventral. Femora I–III with small tubercles; II–III with one dorsoapical tubercle; IV (Fig. 10D–E) with two ventral rows of tubercles increasing in size at distal fifth; one retrolateral, one prolateral, one dorsal row of tubercles with seven larger with small among them, two dorsoapical tubercles (external reduced). Patella IV (Fig. 10D–E) with 16 dorsal tubercles (apical larger), two retrolateral (dorsal larger). Tibia IV (Fig. 10D–E) with small tubercles, two dorsoapical larger, one retrolateroapical and one prolateroapical larger, three ventroapical tubercles. Tarsal segmentation: 7, 15, 6, 7. First two basitarsi I slightly inflated.

Penis (fig. 15G–I): Ventral plate with convergent sides, distal margin straight, with three dorsal pairs of long setae, two pairs of intermediary setae, three pairs on basal portion. Dorsal process elongated (almost reaching stylus apex), stylus long and slightly swollen distad.

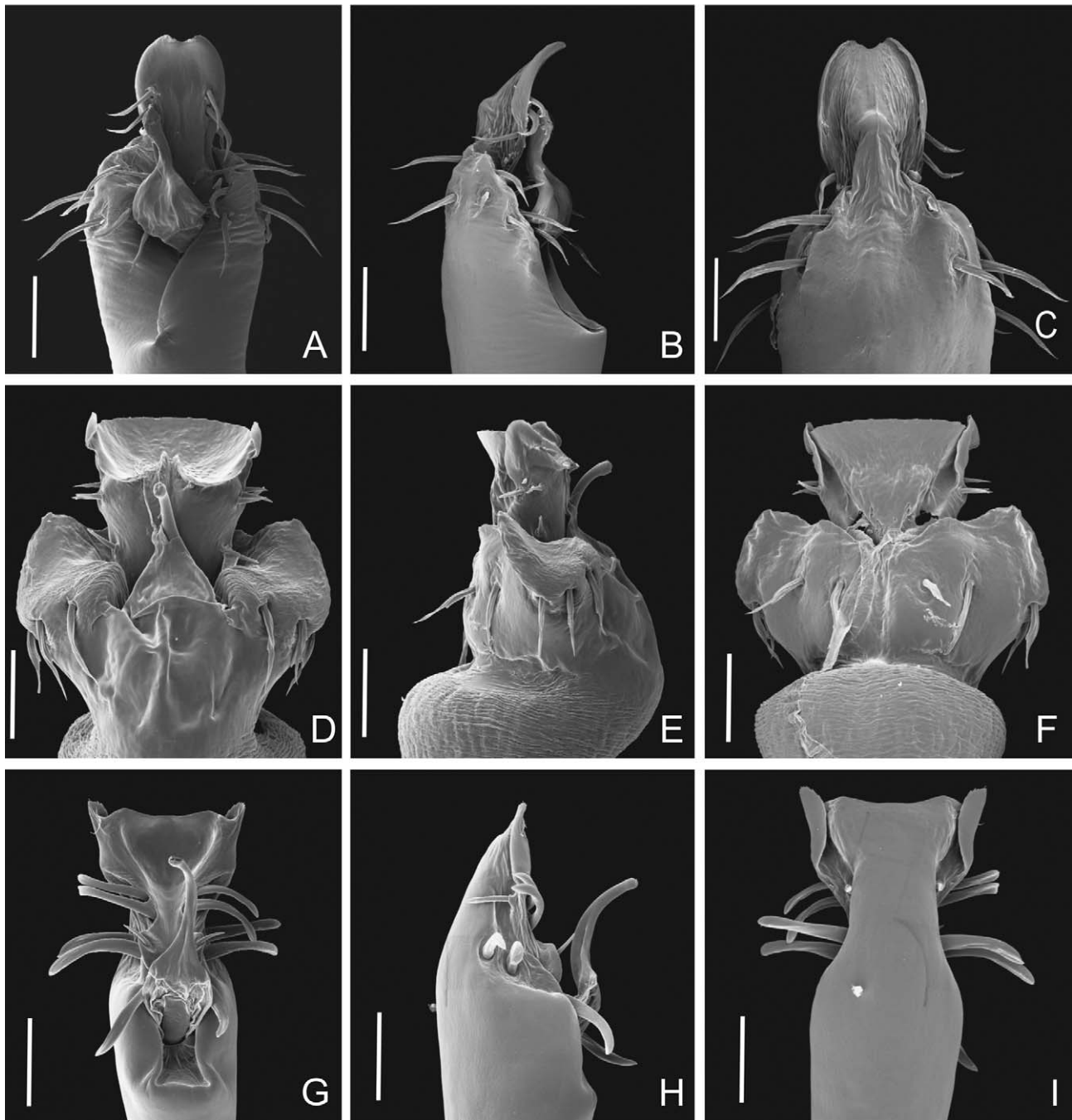


FIGURE 13. Penis (dorsal, lateral, ventral views, respectively) of some new species of Stygnidae: A–C, *Stygnoplus tapirapeco* sp. nov.; D–F, *Auranus hehu* sp. nov.; G–I, *Jime chifrudo* sp. nov.. Scale bars: 0.1 mm.

Color: Similar to female showed in figure 11. Dark-brown, reticulate on prosoma and patella. Green tubercles on dorsal scutum, cheliceral segment I, coxa IV, trochanters II–IV, patella IV (also with retrolateral apical tubercles brown) and ventroapical tubercle of coxae I–III. Pedipalpus yellow-greenish (except tarsus brownish) with some small black patches.

Female description (INPA-OP 985): Measurements: DSL 3.5; PL 1.3; DSW 3.4; PW 2.7; ID 1.3; chelicera II 1.7; III 1.1; pedipalpus 7.1; leg I 7.5; II 25.0; III 18.5; IV 25.5.

Eye mounds with four tubercles. Lateral margin with tubercles from coxa II to posterior margin. Area I with 52 tubercles; II–III more densely tuberculate than males. Posterior margin with 15 minute tubercles. Free tergite I with 13 minute tubercles; II with 11. Chelicera segment II with five small tubercles; III with four small tubercles. Pedipalpus: Coxa with one ventral tubercle, trochanter with two ventral. Tarsus: ectal iiii, mesal Iiii. Femur IV with

four larger tubercles on dorsal row. Patella IV with two dorsoapical tubercles (half size of male ones). Tibia IV with small tubercles. Tarsal segmentation: 7, 17, 6, 7. Color as in figure 11.

Distribution: Recorded in northern Amazonas, upper Negro river, in two mountains (Tapirapecó and Neblina) from 100 up to 1200 m.a.s.l. However, except for one record, all were collected between 100 and 450 m.a.s.l.

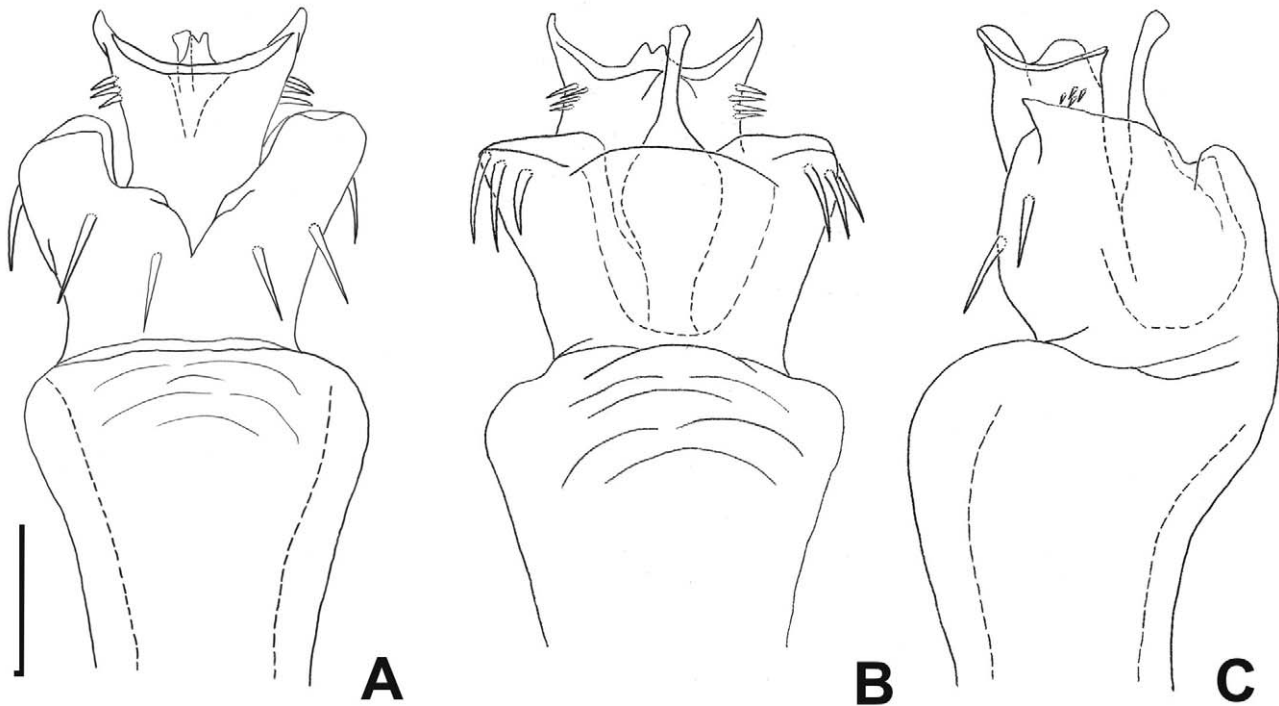


FIGURE 14. Penis of *Auranus tepui* sp. nov. A, ventral, B, dorsal, C, lateral view. Scale bar: 0.1 mm.

Notes on the Biotope

The Serra do Tapirapecó (1°17'N, 64°39'W) and the Pico da Neblina (0°15'N, 66°10'W) are located in the native reserve in Yanomami Region, northern Brazil, Amazonas State, in the Brazilian Pico da Neblina National Park (PARNA Pico da Neblina). The landscape in this region is predominantly mountainous, representing the boundary between Brazil and Venezuela, as well as the watershed between the Orinoco and Amazonas basins (RADAM 1978). These formations are nested in the Guyana Shield, a Precambrian formation (3.6 to 1.6 billion years ago) called tepui, which are characterized by the presence of sandstone mountains, with vertical cliffs and plateaus (Huber 1995). The Tapirapecó Mountain is formed by granitic rocks and its highest altitude reaches 2.400 m.a.s.l. (Pico do Tamacuari). Pico da Neblina is the highest Brazilian mountain (2.994 m.a.s.l.), and highest in non-Andean South America. It is mainly formed by sandstone rocks, with high plateaus (2000 to 2.400 m.a.s.l.).

The climate is tropical and humid, with annual average rainfall of 2.500–3.000 mm/year, an average temperature of 25°, and 85–90% average humidity. In the higher elevations (> 1.800 m.a.s.l.) rainfall decreases and is replaced by a mist, with humidity reaching almost 100% (RADAM 1978). Vegetation is composed of a high, evergreen forest, being gradually replaced by submontane (400 to 800 m.a.s.l.), montane (800 to 1.500 m.a.s.l.) and upper-montane forest (1.500 to 2.000 m.a.s.l.) (Huber 1995). Higher altitudes present more open types of vegetation, such as meadows and grasslands. Such formations are inhabited by a highly endemic flora (Berry *et al.* 1995), with several species presenting sclerophyllous characteristics. Some species of Rapateaceae and Bromeliaceae are dominant. These communities are also characterized by the presence of several species of the families Eriocaulaceae, Xyridaceae and Cyperaceae (Huber 1995).

Neblina Mountain had 25 harvestmen species recorded for 380 adults captured; and Tapirapeco Mountain, with a similar sampling effort (378 specimens) had 15 species recorded. It should be stressed that both inventories were carried out in one expedition and employed mainly nocturnal manual search (beating resulted in no harvestmen captured). Resampling these areas using more collecting methods such as use of Winklers or sifting

litter, is anticipated to add more species to the list. The diversity is comparable to the few inventoried areas in upland forests in the Amazonian region: Reserva Ducke-Amazonas with 21 species; Estação Científica Ferreira Penna-Pará with 34 species; Juruti-Pará with 28 species (Pinto-da-Rocha & Bonaldo 2006); Urucu-Amazonas with 30 species (S.C. Dias, pers. comm.); and Jari-Pará with 18 species (N. Lo Man-Hung, pers. comm.). The diversity in flooded forest is much lower, varying from one to 12 species in 24 sites located in Solimões-Amazonas River (Tourinho 2007).

The diversity of Stygnidae in the localities mentioned above varies from three to four species per site, comparable to Tapirapecó. However, the record of nine species in Neblina Mountain is impressive, being the globally richest site for the family. *Minax tetraspinosus* was the only species previously described (from the Venezuelan border with Brazil). Only *Stygnus nogueirai* sp. nov. and *S. kuryi* sp. nov. are shared by both mountains. It is remarkable that all species of Opiliones recorded in both mountains occur exclusively in this region, suggesting that uplift of these mountains drove the isolation and ensuing diversification of the endemic opilid fauna.

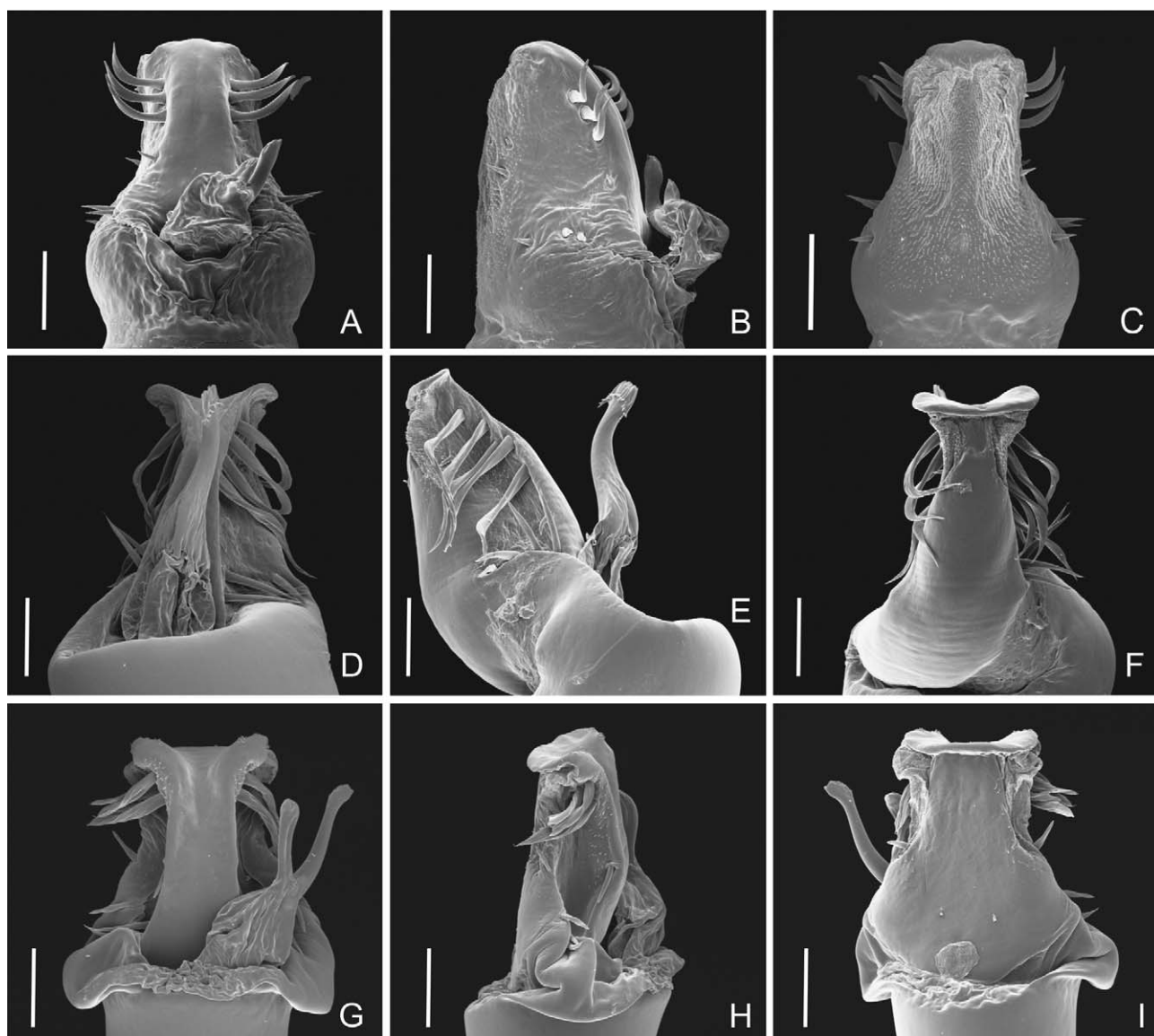


FIGURE 15. Penis (dorsal, lateral, ventral views, respectively) of some new species of Stygnidae: A–C, *Stygnus kuryi* sp. nov.; D–F, *Stygnus magalhaesi* sp. nov.; G–I, *Stygnus nogueirai* sp. nov.. Scale bars: 0.1 mm.

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