



A new genus of Stygninae from a relictual rainforest in Ceará, northeastern Brazil (Opiliones, Laniatores, Stygnidae)

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Abstract

Ricstygnus quineti **gen. nov. sp. nov.** (Stygninae) is described from a "brejo de altitude" in Ceará state, northeastern Brazil, this being the first record of the family Stygnidae from the state. The new genus is characterized by the paired scutal armature in the form of acuminate tubercles increasing in size from area III to posterior margin of scutum, free tergite I with a pair of robust acuminate spiniform apophyses that are by far the stoutest of those on the dorsum, subtrapezoid scutum widest posteriorly with long carapace, and several unique genital features, as for example the presence of dorso-basal hollow in ventral plate containing a multiply folded haematodocha.

Key words: Arachnida, harvestmen, Grassatores, Neotropics, Caatinga, montane forests

Introduction

The small, Neotropical family Stygnidae includes harvestmen without a common ocularium, with a subrectangular dorsal scutum and usually with elongate pedipalps provided with a strong raptorial tibia + tarsus (Pinto-da-Rocha, 2007). The known species are mainly distributed in the Andes/Amazonia, also reaching the Lesser Antilles and Central and Northeastern Brazil (Kury 2003). On the Brazilian Atlantic coast they occur in Pará state and then in a continuum through Paraíba, Pernambuco and Bahia states, reaching as far south as northern Espírito Santo state, not crossing the River Doce (Kury 2003; Kury & Pinto-da-Rocha 2008). There are no previous records of Stygnidae from Ceará State.

The relictual rainforests in the Caatinga biome, known as "brejos de altitude", are isolated moist montane forest enclaves that occur above 500 m on the slopes and tops of plateaus and highlands of the semiarid Brazilian Caatinga. These forests have been regarded as refuges responsive to isolation and fragmentation (Vanzolini 1981; Andrade-Lima 1982). A semi-popular account of the "brejos de altitude" is provided by Cavalcante (2005). The opilionid fauna of these forests is largely unknown, and it is likely to reveal a wealth of new species when better studied.

In the present paper, a new species of Stygninae is described from one such "brejos de altitude" in Ceará. An impressive set of unique features indicates that it should be assigned to a new genus, closest to *Stygnus* Perty, 1833 and *Sickesia* H. Soares, 1979, which is described below.

The material studied here is deposited in the Museu Nacional, Universidade Federal do Rio de Janeiro, Brazil (MNRJ). All measurements are in mm. Abbreviations: AL, abdominal scutum length from scutal groove to posterior border of scutum; AW, abdominal scutum maximum width; CL, carapace length down to scutal groove; CW, carapace maximum width.

Ricstygnus gen. nov.

Etymology. The genus name is a composite of *Ric*, a homage to my friend Ricardo Pinto-da-Rocha, who published the only monographic treatment of the Stygnidae to date, plus *Stygnus*, the type genus of the family, and should be treated as being masculine in gender.

Type species. *Ricstygnus quineti* sp. nov.

Diagnosis. Differs from all other Stygnae by: (1) presence of dorso-basal hollow in ventral plate containing a multiply folded haematodocha (instead of absence); (2) distal part of ventral plate forming roof with 2 straight prongs (instead of smooth, without roof); (3) intermediate setae of ventral plate short and situated dorsally (instead of usually long and laterally placed, but see Pinto-da Rocha, 1997 figs. 574 and 577 for exceptions in *Sickesia* and *Protimesius*); (4) scutal armature consisting of 1 pair of paramedian acuminate tubercles on each area III to posterior margin (instead of 1 pair of tubercles on area III); (5) main armature consisting of 1 pair of paramedian acuminate spines on free tergite I (instead of armature of free tergites stouter at free tergite III); (6) scutum outline subtrapezoid, widest at posterior border with 2 constrictions (instead of subrectangular, narrowest at posterior border); (7) carapace as long as abdominal scutum (instead of clearly shorter); and (8) scutal groove deeply projected into area I separating it into 2 triangular halves and reaching groove II (instead of not reaching groove 2 and causing much smaller deformation of area I). The combination of (9) presence of cornute macrosetae, consisting of 3 pairs of large, flattened curved distal macrosetae of ventral plate and (10) basal setae of ventral plate clearly transverse instead of oblique, relates *Ricstygnus* gen. nov. to *Stygnus*, *Sickesia* (distal macrosetae normal) and *Pickeliana*. The presence of interocular stout spine (11) suggests that it is probably closest to *Stygnus* and *Sickesia*.

Ricstygnus quineti sp. nov.

(Figs 1–8)

Etymology. The species name is a tribute to the zoologist Yves Patric Quinet (Universidade Estadual do Ceará), who has made valuable contributions to our knowledge of Brazilian "brejos de altitude".

Distribution. Brazil, Ceará state, Serra de Baturité, Guaramiranga (860 m 04°16'S – 038°56'W) and Pacoti (850 m, 04°15'S – 038°55'W).

Type material. Brazil, Ceará state: ♂ holotype 1 ♀ paratype (MNRJ 02112; ♂ genitalia on stub BZ), Serra de Baturité, Guaramiranga (Parque das Trilhas) 860 m 04°16'S – 038°56'W, 23.vii.2002, Y. Quinet leg.; 2 ♀ paratypes (MNRJ 02125), same locality, Winkler extraction, 23.vii.2002, Y. Quinet leg.; 1 ♂ 2 ♀ paratypes (MNRJ 2162), same data, 25.vii.2002; 2 ♀ paratypes (MNRJ 02126), Pacoti, Serra de Baturité, 850 m, 04°15'S – 038°55'W, Winkler extraction, 15.iii.2001, Y. Quinet leg.; 1 juv. paratype (MNRJ 02127), same locality, Winkler extraction, 17.iii.2001, Y. Quinet leg.

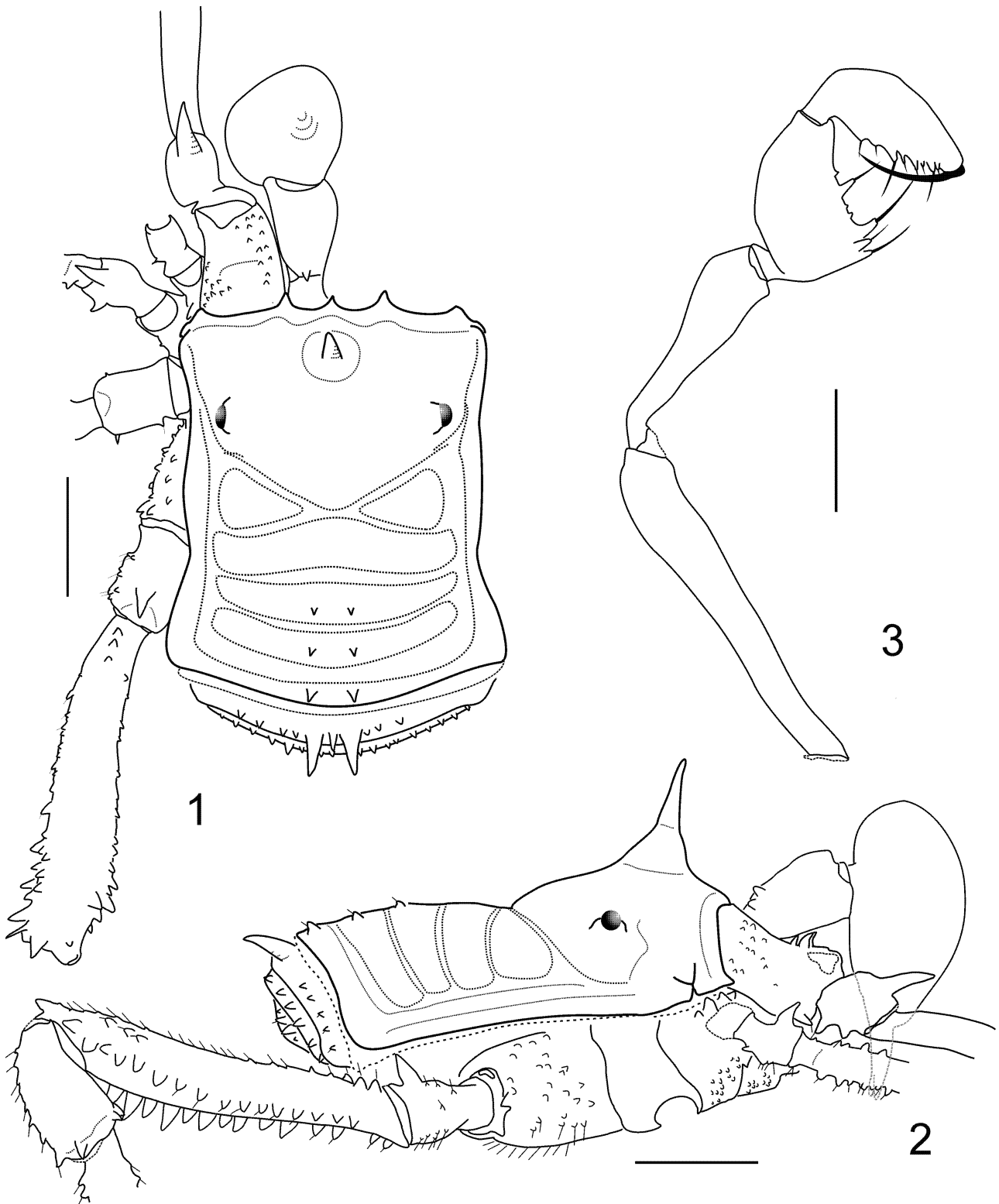
Diagnosis. As for the genus.

Description of male holotype.

Measurements. CL 1.6, AL 1.5, CW 2.4, AW 2.6. See Table 1 for measurements of appendages.

TABLE 1. Appendage measurements of male holotype of *Ricstygnus quineti* sp. nov. Abbreviations: claw, pedipalpal claw; Fe, femur; Mt, metatarsus; Pa, patella; Ta, tarsus; Ti, tibia; Tr, trochanter.

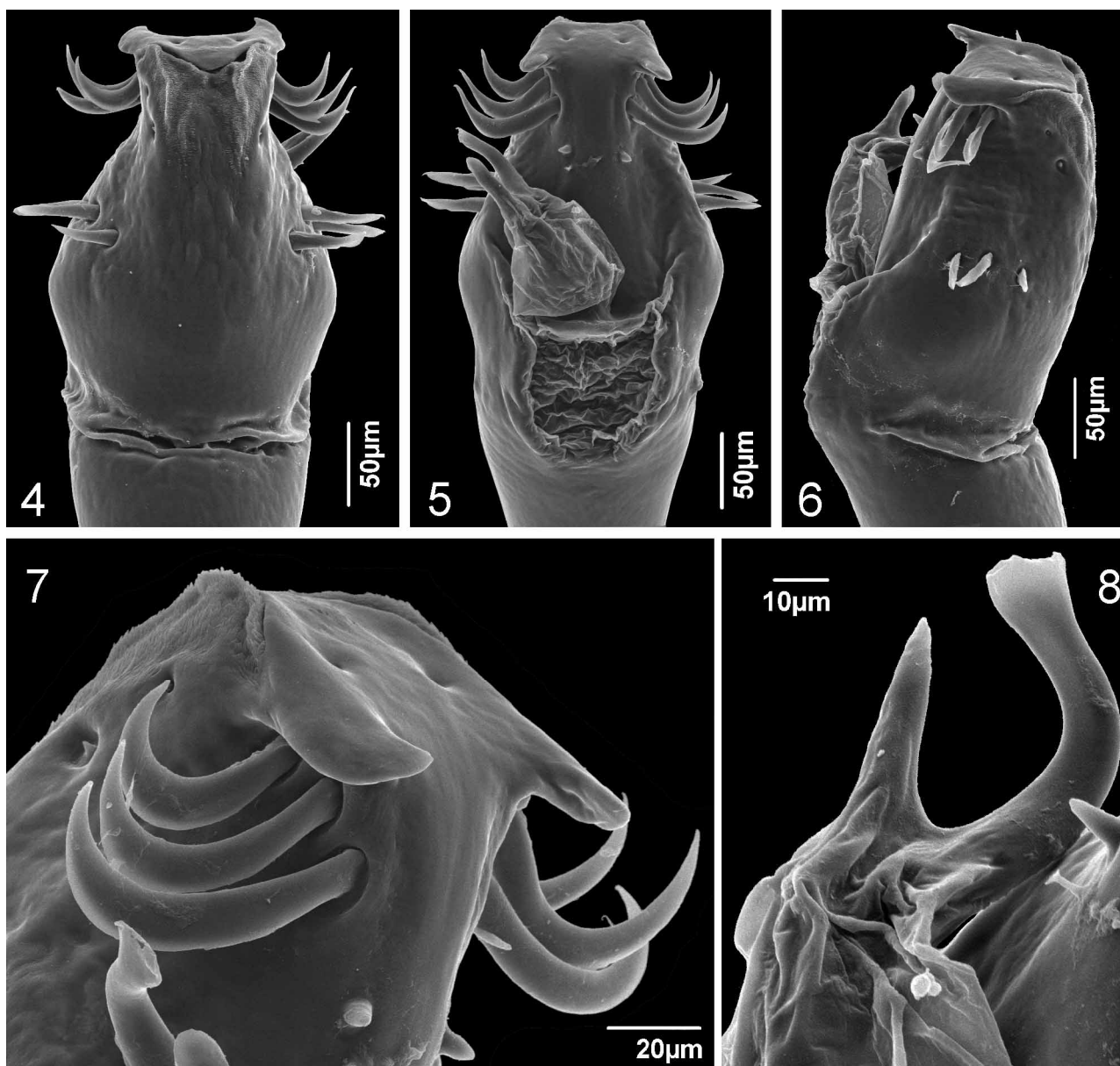
	Tr	Fe	Pa	Ti	Mt	Ta	claw
Pedipalpus	0.6	2.7	1.7	1.3	–	1.0	0.7
Leg I	0.6	2.1	0.8	1.6	2.1	1.1	–
Leg II	0.5	2.9	1.0	2.2	2.5	2.7	–
Leg III	0.6	2.3	0.8	1.7	2.7	1.6	–
Leg IV	0.7	3.0	1.1	2.1	3.4	1.9	–



FIGURES 1–3. *Ricstygnus quineti* sp. nov., male holotype from Guaramiranga, Ceará, Brazil. 1, habitus, dorsal view. 2, habitus, lateral view. 3, femur–tarsus of right pedipalpus, lateral view (same scale as fig. 2). Scale bars = 1 mm.

Dorsum (Figs 1–2). Dorsal scutum subtrapezoid, with 2 constrictions at eye-line and area II. Posterior margin sinuous and convex in middle. Stout interocular spiniform apophysis near anterior margin. Cheliceral sockets narrow and shallow. Eyes placed far from each other and far from anterior margin of carapace. Carapace wide V-shaped, its boundaries inserting deeply into area I until touching groove II. Four well-

defined mesotergal areas, area I bisected into two subtriangular halves by an extension of carapace. Areas III to posterior margin each with a pair of paramedian acuminate tubercles increasing in size posteriorly. Free tergites each with a row of granules. Free tergite I with a pair of robust, acuminate, spiniform apophyses that are by far the stoutest of all on dorsum.



FIGURES 4–8. *Ricstygnus quineti* sp. nov., penis, distal part, male holotype from Guaramiranga, Ceará, Brazil. 4, ventral view. 5, dorsal view, 6, lateral view. 7, detail of hood of ventral plate, dorso-lateral view. 8, glans, lateral view.

Chelicera (Figs 1–2). Basichelicerite not particularly robust or elongate, bulla attenuate, armed with a few dorsal tubercles. Cheliceral hand only moderately swollen.

Pedipalpus (Figs 1–3). Coxa enlarged, stout, truncate-conical, densely granular. Trochanter short, with dorsal mound armed with huge frontward pointed spine. Femur sinuous, a little longer than peltidium, thickening distally, entirely unarmed. Patella resembles a shorter version of femur, with distal thickening steeper. Tibia and tarsus forming a subchela with femur. Tibia heavily bent dorsally, ventro-ectal face with 4 and ventro-mesal face with 4 thin setiferous tubercles. Tarsus with 6 thin setiferous tubercles on each side.

Legs. Trochanter II and IV each with a robust, dorso-anterior, spiniform apophysis (Fig 2). Femora I–IV each with a ventro-prolateral and a ventro-retrolateral parallel row of acuminate tubercles, vestigial on I,

much larger on III and IV. Femora III–IV incrassate and with supplementary prolateral row of tubercles. Patella IV densely granular, with two larger dorso-apical tubercles. Tibia IV with 3 parallel rows of acuminate tubercles in same positions as on femora. Tarsal claws of legs III–IV unpectinate, subparallel. Scopula very sparse, tarsal process present. Tarsal counts: 6(3)/15(3)/6/7.

Color. Body and appendages dark orange brown, with sparse darker reticule. Noticeably darker are: free tergites and sternites, lateral and posterior borders of dorsal scutum. Pedipalps and chelicerae a little lighter. No spots or stripes.

Genitalia (Figs 4–8). Pars distalis of truncus sharply separated from pars basalis by a ventro-lateral articular fold ring (Figs 4–6). Ventral plate (VP) clearly pyriform in ventral/dorsal view (Figs 4–5). Thick subrectangular in lateral view (Fig. 6). Ventral plate dorso-basally with a large subcircular hollow containing a multiply folded haematodocha (Fig. 5). Apical border of VP truncate, roofed, with a pair of straight lateral prongs directed dorsally (Figs 6–7). VP also with a ventro-distal mat of microvilosities (Figs 4, 7). VP with four groups of macrosetae: 3 pairs of huge, cornute distally flattened macrosetae inserted dorso-laterally (Figs 5, 7); 3 pairs of somewhat smaller, straight, latero-medial spines, clearly transverse, forming a 90° angle to main axis of penis; 1 pair of short, stumpy, dorso-medial spines (Figs 5); and 2 pairs of very small, acuminate, ventro-lateral tubercles adjacent to mat and deeply buried in sockets (Fig. 6). Glans sac short, not rigid (Fig. 5). Glans dorsal process straight, tapering, a little shorter than stylus. Stylus strongly bent, apex only a little expanded apically (Fig. 8).

Variation. The only other male present in the type series is bleached by fixation. It is a little stouter than the holotype and the armature of legs III–IV more robust. Tarsalia of males (n = 2) 6–7(3)/15–16(3)/6/7.

Sexual dimorphism. Females with chelicerae clearly smaller, femora III–IV unarmed and not incrassate. Range of tarsalia in females (n = 7) 6–7(3)/13–15(3)/6/7.

Discussion

In pre-cladistic systems of Opiliones (e.g., Roewer 1923), the uniqueness of striking autapomorphies was often used to justify erecting higher taxa. Monotypic genera, exceedingly common in such systems, are undesirable in a classification because they are redundant with the species and add nothing to our understanding of relationships. In the case of *Ricstygnus quineti* **sp. nov.**, I tried to match it with *Stygnus*, *Sickesia* and *Pickeliana*, which present the most similar genitalic features (Pinto-da-Rocha 1997; Hara & Pinto-da-Rocha 2008), although there is no particularly compelling evidence to relate *Ricstygnus* **gen. nov.** to any of them. It should be noted that in the most recent phylogenetic analysis of the family (Pinto-da-Rocha 1997) *Pickeliana* is placed far from the other two genera, which are treated as closest to *Phareus* Simon, 1879. The structure of the male genitalia of *Phareus*, as illustrated somewhat schematically in Pinto-da-Rocha (1997, only glans is shown in a SEM photograph) and Villarreal & Rodríguez (2006), suggests that *Phareus* is not particularly close to *Stygnus* and *Sickesia*. It cannot be ruled out, however, that genitalia of *Phareus* could be extremely autapomorphically modified, resulting in the differences observed. This is in conflict with the published phylogeny, which presents a group *Stygnus* + *Sickesia* + *Phareus* (node 35 of Pinto-da-Rocha 1997, supported by three synapomorphies on pedipalpus and leg IV). *Stygnus* is a large genus with many available generic synonyms, but I have not been able to find any species with characters close to *Ricstygnus* **gen. nov.** that could form a larger group and justify the resurrection of a generic name. It is beyond the scope of this paper to reevaluate the existing phylogenetic hypothesis, but the features of *Ricstygnus* **gen. nov.** suggest that it occupies an isolated position in Stygninae, closest either to the lineage *Stygnus* + *Sickesia* or to *Pickeliana*. To further support the decision of creating a monotypic genus, it may be said that *Ricstygnus quineti* is probably a member of the biota of the relictual rainforest from Northeastern Brazil and related species probably still remain to be described from this poorly known region (if not destroyed first by anthropic activities).

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