



## Article

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### ***Licornus* Roewer, 1932: newly transferred to Ampycinae and first record of the family Gonyleptidae (Opiliones: Laniatores) from Venezuela**

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#### Abstract

*Licornus tama* **sp. nov.** is described from Táchira State in Venezuelan Andes. This is the first record of real Gonyleptidae from this country, although in the past some Venezuelan species, currently placed in other families, have been assigned to Gonyleptidae. The genus *Licornus* Roewer, 1932 had hitherto two species, both endemic to Ecuador. Male genital morphology of a species of *Licornus* is for the first time illustrated and described. Original placement of *Licornus* in the Cranidae: Cranainae is not supported by morphology of the included species and *Licornus* is here formally placed in Gonyleptidae: Ampycinae. An emended diagnosis is given to Ampycinae.

**Key words:** Arachnida, Ampycinae, false Cranidae, taxonomy, Neotropics

#### Resumen

Se describe *Licornus tama* **sp. nov.** del estado Táchira en los Andes venezolanos. Aunque en el pasado algunas especies venezolanas, actualmente ubicadas en otras familias, han sido asignadas a Gonyleptidae, este es el primer registro de un Gonyleptidae verdadero para Venezuela. El género *Licornus* Roewer, 1932 tenía hasta el presente dos especies, ambas endémicas de Ecuador. La morfología genital masculina de una especie de *Licornus*, es descrita e ilustrada por primera vez. La ubicación original de *Licornus* en Cranidae: Cranainae no es apoyada por la morfología de las especies incluidas y el género es aquí oficialmente ubicado en Gonyleptidae: Ampycinae. Se presenta una diagnosis enmendada para Ampycinae.

#### Introduction

The Venezuelan fauna of Opiliones is the second most diverse in South America with about 350 described species (Roewer 1953; González-Sponga 2003; Kury 2003). All the six families belonging to Gonyleptoidea have been recorded from this country, but with the removal of Cranidae Roewer, 1913, Manaosbiidae Roewer, 1943 and Stygnidae Simon, 1879 from the Gonyleptidae Sundevall, 1833 (see Kury 1994, 1997, 2003), the latter no longer has any record left from Venezuela. Gonyleptidae is the largest Neotropical family of Laniatores, with 16 subfamilies and 284 genera and 830 species (Kury 2003, Kury 2011). One of the less diverse subfamilies in Gonyleptidae is Ampycinae Kury, 2003, originally with two genera – *Ampycus* Simon, 1879 and *Hexabunus* Roewer, 1913 – and including only three described species (Kury 2003), but to which 10 genera and 21 species have been recently assigned: *Ampycella* Roewer, 1929, *Glysterus* Roewer, 1931, *Hernandarioides* Pickard-Cambridge, 1905, *Hutamaia* Soares & Soares, 1977, *Neopachyloides* Roewer, 1913, *Nesopachylus* Chamberlin, 1925, *Parahernandria* Goodnight & Goodnight, 1947, *Sibollus* Roewer, 1929 and *Thaumatopachylus* Roewer, 1929 (all transferred from Pachylinae by Kury & Alonso-Zarazaga, 2011) plus *Ceropachylinus peruvianus* Roewer, 1956 (combined in *Neopachyloides*) and the monotypic genus *Pirunipygus* Roewer, 1936 (Pinto-da-Rocha *et al.* 2012). They are distributed in Amazonia of Brazil, Ecuador and Peru (*Ampycus*, *Hexabunus*, *Hutamaia*,

*Sibollus*, *Thaumatopachylus*), Pacific forest of Ecuador (*Ampycella*), Central America (*Glysterus*, *Hernandarioides*, *Nesopachylus*, *Parahernandria*) and Ecuadorian/Peruvian montane forest of the Andes (*Neopachyloides*, *Pirunipygus*).

The Andean genus *Licornus* Roewer, 1932, originally assigned to Cranidae and not hitherto transferred to any other subfamily (Kury 2003) has been described to include a single species—*Licornus perfectus* Roewer, 1932—and posteriorly Roewer (1959) described a second species of the genus—*L. atroluteus* Roewer, 1959. Both species are from the highlands of Ecuador.

In this paper we describe a new species of *Licornus* from Venezuela, and comment about the familial assignment for this genus, assigning it to Gonyleptidae: Ampycinae, which makes it the first record of the family Gonyleptidae from Venezuela. In the past, some false cranids have been transferred to Gonyleptidae (Kury 1992, 1996), and presently we have another instance of this.

The nomenclature and description follow Kury and Pérez-González (2008) and Villarreal *et al.* (2007). Depository of material are Museo del Instituto de Zoología Agrícola, Universidad Central de Venezuela-Maracay (MIZA) and Museu Nacional de Rio de Janeiro (MNRJ). The measurements were made using a stereomicroscope and are in millimeters. Drawings were made using a *camera lucida* attached to a stereomicroscope and pictures taken using a Nikon digital camera Coolpix 5400 and Canon digital camera PowerShot S3IS. Drawings and pictures were processed using the software Gimp and Inkscape.

## TAXONOMY

### Ampycinae Kury, 2003

Ampycinae Kury 2003: 106. Type genus: *Ampycus* Simon, 1879.

**Included genera.** *Ampycella* Roewer, 1929, *Ampycus* Simon, 1879, *Glysterus* Roewer, 1931, *Hernandarioides* Pickard-Cambridge, 1905, *Hexabunus* Roewer, 1913, *Hutamaia* Soares & Soares, 1977, *Licornus* Roewer, 1932 **new assignment**, *Neopachyloides* Roewer, 1913, *Nesopachylus* Chamberlin, 1925, *Parahernandria* Goodnight & Goodnight, 1947, *Pirunipygus* Roewer, 1936, *Sibollus* Roewer, 1929 and *Thaumatopachylus* Roewer, 1929.

**Emended Diagnosis.** Medium-size to large gonyleptids (dorsal scutum plus tergites from 5 up to 10 mm); body background color light mahogany brown (*Neopachyloides*), dark brown (*Glysterus*, *Licornus*) or black to blackish brown (*Ampycus*, *Hexabunus*), occasionally with strongly contrasting black/yellow patches (*Licornus* in part); tegument finely granular (*Glysterus*, *Licornus*, *Neopachyloides*) or covered by huge rounded warts (*Ampycus*, *Hexabunus* and *Pirunipygus*). Eye mound well-defined, with paired small acuminate tubercles, occasionally oblique frontwards (*Ampycus*); mesotergum with either 3 or 4 areas; area I always divided into 2 broadly joined halves; free tergite II either unarmed (*Licornus*) or with single median spiniform apophysis (*Hernandarioides*); free tergite III with single median stout spiniform apophysis, which may be more or less curved and reach huge size (*Ampycus*, *Glysterus*); coxa IV of male with dorso apical single apophysis directed backwards; trochanter IV of male with retrolateral-distal apophysis variable in development; femur IV of male slightly curved, variedly covered with tubercles and armed with isolated spines. Lateral borders of VP either convex (widest in the middle) or strongly concave (*Licornus*); distal border of ventral plate either with a shallow V-shaped (*Hutamaia*, *Licornus*) or deep elongate U-shaped cleft (*Ampycus*, *Pirunipygus*); glans penis either without any process (*Ampycus*, *Hutamaia*, *Pirunipygus*) or with thumb-shaped dorsal process (*Licornus*); stylus surpassing ventral plate *in situ* because situated atop long glans complex.

### *Licornus* Roewer, 1932

*Licornus* Roewer 1932: 321; Mello-Leitão 1935: 96; Soares & Soares 1948: 605; Roewer 1959: 74; Kury 2003:94 (type species *Licornus perfectus* Roewer, 1932, by monotypy).

**Diagnosis** (genital morphology known only for *L. tama* **sp. nov.**). Mesotergum divided into 4 well-marked areas, area I divided into left and right halves by longitudinal straight groove. Mesotergum granular with inconspicuous

paired armature in areas I and II, a pair of small acuminate tubercles in area III. Free tergite II entirely unarmed. Free tergite III with single spiniform apophysis, immense in male, much smaller in female. Prolateral-apical region of coxa IV of male with very large oblique spiniform apophysis, much reduced in female. Retrolateral-distal region of male trochanter IV with stout hooked apophysis. Ventral plate of penis much elongate trapezoid with small V-shaped cleft. Stylus surpassing ventral plate *in situ* because situated atop long glans complex. Dorsal process of glans penis present. Stylus C-shaped. Setae of ventral plate located in two continuous longitudinal lines on the lateral margins of the plate.

**Species included:** *Licornus atroluteus* Roewer, 1959 (Fig 20) —Ecuador, Pichincha; *Licornus perfectus* Roewer, 1932 (Fig 21) —Ecuador, Chimborazo, *Licornus tama* **sp. nov.**—Venezuela, Táchira.

**Remarks.** The genus *Licornus*, originally located in Cranaidae, is here transferred to Gonyleptidae: Ampycinae, **new familial assignment** (see discussion).

**TABLE 1.** Appendage measurements of type specimens of *Licornus tama* **sp. nov.** Measurements are in millimeters.

	Co	Tr	Fe	Pa	Ti	Mt	Ta	Total
<b>male holotype</b>								
Pedipalp	0.4	0.6	1.3	0.7	1.0	–	0.9	4.9
Leg I	–	0.8	2.7	1.1	1.8	2.9	1.6	10.9
Leg II	–	0.6	5.4	1.5	3.8	5.0	2.8	19.1
Leg III	–	0.9	4.2	1.3	2.6	3.7	1.8	14.5
Leg IV	–	1.0	5.3	1.8	5.0	6.0	1.9	21.0
<b>female paratype</b>								
Pedipalp	0.2	0.5	1.4	0.7	1.0	–	0.0	3.8
Leg I	–	0.6	2.0	1.0	1.6	2.5	1.3	9.0
Leg II	–	0.6	3.8	1.4	3.3	4.1	2.9	16.1
Leg III	–	0.5	3.4	1.4	2.2	3.6	1.7	12.8
Leg IV	–	1.0	4.2	1.7	3.7	4.7	1.7	17.0

***Licornus tama* sp. nov.**

(Figs 1–19; Table 1)

**Type material.** Holotype male (MIZA 1723), Venezuela, Táchira State, Parque Nacional Tamá, sector Río Negro-Moretón, vía Media Libra, 7°33'50.05" N 72°12'1.04" W, 528 m; I.2010 (Villarreal M.O., Arias Q., Escalona H.). Paratypes: male and 3 females (MIZA 1723). 1 female (MNRJ 19386). All collected with the holotype.

**Diagnosis.** General color dark brown with lateral margin of dorsal scutum with row of yellowish white flattened tubercles extending and growing in size from carapace to area III, following outline of scutum. Stigmatic area of male with 2 heavy posterolateral acuminate projections. Ventral plate of penis much elongate trapezoid with small V-shaped cleft. Lateral margins straight, subparallel, tapering slightly at distal part. With 1 small mesodorsal macroseta, a row of 5 medial aligned macrosetae — distal ones smaller, and 3 macrosetae aligned in a ventral row. Stylus surpassing ventral plate *in situ* because situated atop long glans complex. Dorsal process of glans penis present. Stylus C-shaped.

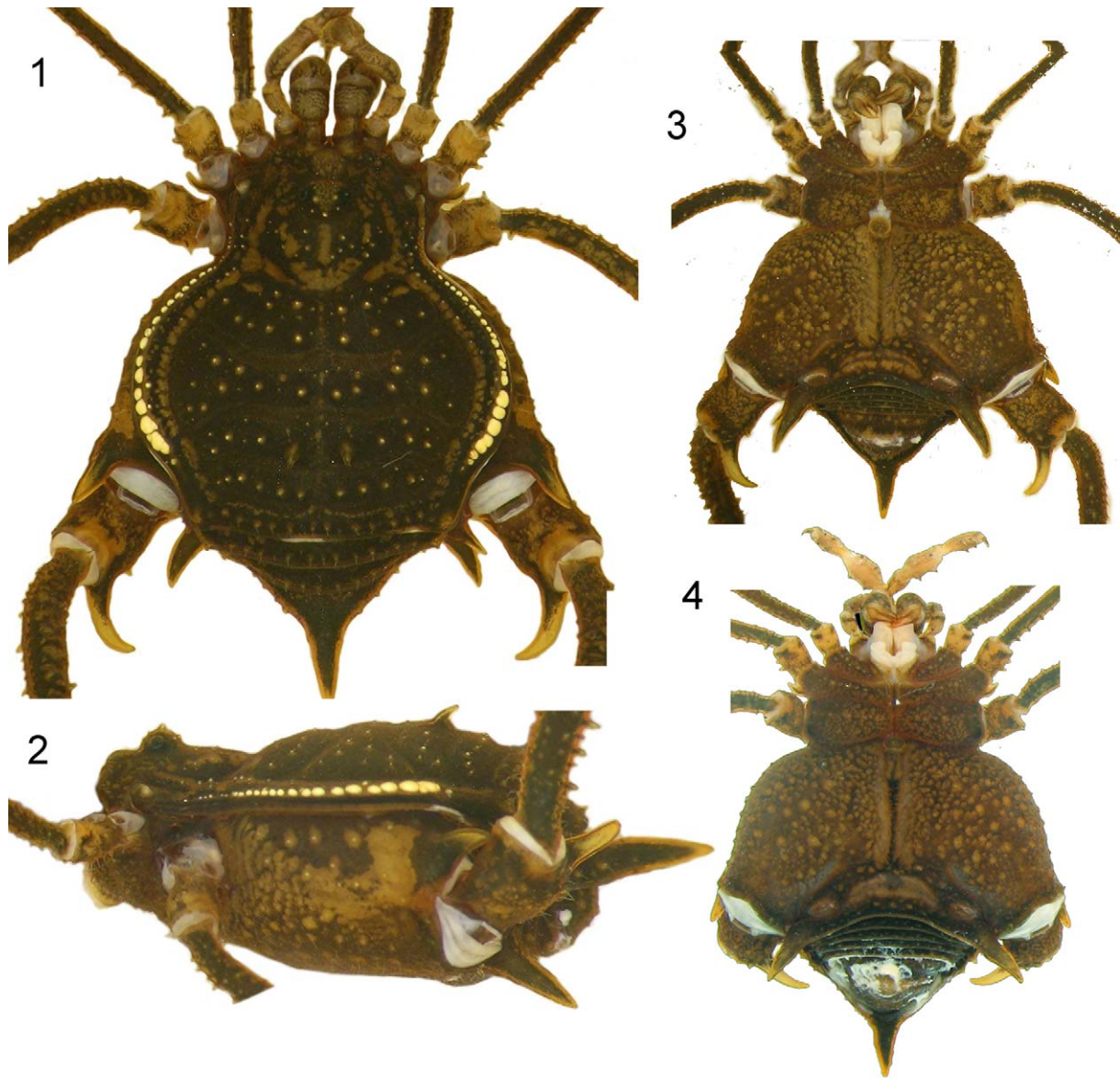
**Description of male (holotype).** Measurements. Dorsal scutum length 6.1, Prosomal length 2.4, Anterior prosomal 5.7, Median dorsal width 2.9, Interocular distance 0.8. Chelicera: Basichelecerite 0.9, Hand 1.6, Movable finger 0.6.

Dorsum (Figs 1–4). Outline of dorsal scutum in dorsal view bell-shaped. Mesotergum divided into 4 well-marked areas, area I divided into left and right halves by longitudinal straight groove. Ocularium low, armed with a dorsal pair of larger tubercles and some smaller granules. Carapace much smaller than abdominal scutum, with some granules arranged in two rows in the anterior margin, and some disperse granules in the posterior area. Lateral margin of dorsal scutum with row of yellowish white flattened tubercles extending and growing in size

from carapace to area III, following outline of scutum. Scutal area I with some anterior granules and a posterior row of 4–5 yellowish white granules; II with approximately 2 rows of yellowish white granules and some additional granules; III with 2 large spines (spiniform tubercles) and some granules in lateral and mesoanterior area; IV with a row of about 13 granules. Posterior margin and free tergites each with a transverse row of granules; III with a posterior medial projection.

Venter (Fig. 3). Stigmatic area elongate, with 2 heavy posterolateral acuminate projections, in the holotype a teratologic projection was observed in the right side. Free sternites each with a transverse row of granules.

Chelicera (Figs 1, 3). Chelicera neither swollen nor elongate, with well-marked bulla with a little ectoproximal tubercle.

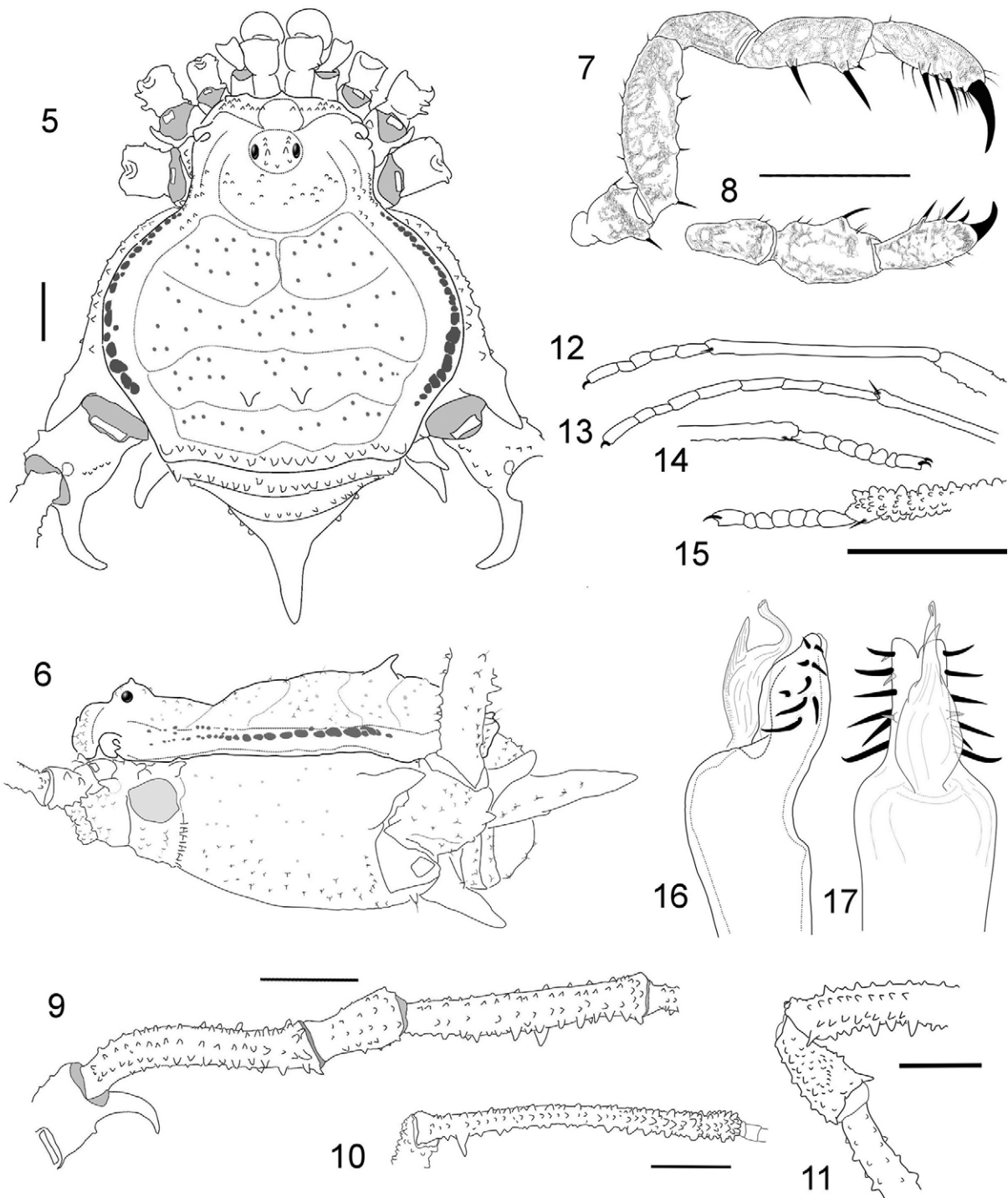


**FIGURES 1–4.** *Licornus tama* sp. nov. 1–3. Male holotype: 1. Dorsal view. 2. Lateral view. 3. Ventral view. 4. Male paratype. Ventral view, showing no teratological condition.

Pedipalpus (Figs 7–8). Coxa with a ventral setiferous tubercle. Trochanter with 1 dorsal and 2 ventral setiferous tubercles. Femur with 1 ventroproximal setiferous tubercle, 1 mesodistal and a row of 3 ventroectal. Patella smooth and unarmed. Tibia: ectal and mesal with 2 large setiferous tubercles and 1 small distal (III). Tarsus: ectal with 4 conspicuous setiferous tubercles (IiIi); mesal with 5 (iIiI) and some very small lateral setae.

Legs (Figs 9–15). Coxa I with 2 dorsal tubercles; II with 1 dorsal tubercle, 1 retrolateral very large spiniform process and 1 small tubercle fused to coxa III; coxa IV, in dorsal view, surpassing dorsal scutum, with numerous granules and 1 large tubercle posteriorly projected. Trochanter I unarmed; II–III with 2 retrolateral tubercles; IV

with some little tubercles in both sides and 1 prolateral distal very large and curved tubercle. Femora I-III with 6 longitudinal rows of granules (2 ventral, 1 retrolateral, 1 prolateral and 2 dorsal), the ventral rows more conspicuous; II with the retrolateral and proximal tubercles larger; III curved with the retrolateral tubercles larger; IV with 7 longitudinal rows of granules (2 ventral, 1 retrolateral, 2 prolateral and 2 dorsal), the ventral and dorsodistal larger and 1 prolateral distal curve tubercle. Patellae I-II unarmed; III with some granules and 1 conspicuous ventrodistal tubercle; IV with some tubercles ad 1 ventrodistal larger. Tibiae I-III with 7 longitudinal rows of granules, IV with 7 rows of tubercles of diverse sizes (2 ventral, 1 retrolateral, 2 prolateral and 2 dorsal), the 3 retrolateral ventral larger and rounded. Metatarsi I-III straight and inconspicuous; IV with row of tubercles which increase their size to the distal portion, and 1 distinctive retrolateral and proximal tubercle, larger than others. Tarsal formula (Figs 12-15). 5(2) / 8(3) / 7 / 7.



**FIGURES 5-17.** *Licornus tama* sp. nov. Male holotype: 5. Schematic dorsal view. 6. Schematic lateral view. 7-8. Pedipalps: 7. Ectal view. 8. Mesal view. 9-11. Leg IV: 9. Femur, patella and tibia, dorsal view. 10. Metatarsi, dorsal view. 11. Patella, prolateral



view. 12–15. Tarsal formula, legs I – IV. 16–17. Distal portion of the penis: 16. Lateral view. 17. Dorsal view. Scale bar: 1 mm.

Penis (Figs 16–17). Laterally with convex dorsal margin and ventral margin straight, with a concave ventral basal plate, which is facing the same direction as the shaft of the penis. Ventral plate long, with lateral margins straight, subparallel, tapering slightly at distal part. Distal border with small V-shaped cleft. With 1 small mesodorsal macroseta, a row of five medial aligned macrosetae—distal ones smaller, and three macrosetae aligned in a ventral row. Glans elongate distally surpassing ventral plate, with the final portion strongly curved posteriorly, at a straight angle and the presence of great and sharp stylus, with slightly swollen apex.

Coloration (Figs 1–4). Dorsal scutum dark brown, with reticulated in carapace and lateral groove, with yellow spots between prosomal groove and groove III, and some little spots irregularly distributed. Chelicerae, pedipalps and trochanters yellowish brown reticulated; rest of the legs dark with few slight spots.

**Differential characters of the female.** Measurements. Dorsal scutum length 5.7, Prosomal length 2.2, Anterior prosomal width 5.4, Median dorsal width 2.7, Interocular distance 0.9. Chelicera: Basichelicerite 0.8, Hand 1.4, Movable finger 0.5.

Dorsal tubercles of area III smaller. Free tergite III without apophysis. Distal tubercles of coxa IV smaller. Retrolateral spiniform apophysis of trochanter IV smaller and not curved. Ventral and conspicuous spines of tibia IV absent. Proximal spine of metatarsus IV absent. Live male and female paratypes are illustrated in Figs 18–19.

**Etymology.** *Tama* is a name in apposition referring to the type-locality of the species.

**Comparisons.** The penes of congeneric species have not been described, however, *Licornus tama* **sp. nov.** can be distinguished by external characters. Males of *L. atroluteus* (Fig. 20) are not known, but the females present a differential pattern of coloration with areas I and III obscured and the shape of the dorsal scutum, not sharply widened. An accurate placement of this species must wait until males are studied in the future. *Licornus perfectus* (Fig. 21) seems to be most closely related to the new species, however can be differentiated by the size and shape of the trochanteral tubercles in the leg IV, size of the posterior projection, and absence of coxal tubercles in *L. perfectus*.



FIGURES 18–19. *Licornus tama* **sp. nov.** alive: 18. Male holotype. 19. Female paratype.

## Discussion

In the classical Roewerian system (*e.g.* Roewer 1913), among the families of Laniatores with first distitarsus trimerous, the ones bearing a pseudonychium (tarsal process) among posterior tarsal claws belong in the Gonyleptidae. This concept included what is today a group of families, such as Stygnidae, Cranidae, and Manosbiidae. In the Roewer/Mello-Leitão/Soares scheme, the only difference between what we now call Cranidae and *sensu stricto* Gonyleptidae would be the development of coxae IV, which in the latter should surpass the dorsal scutum in dorsal view. However, this simplistic scheme created distortions in the cases where: (1) secondary weakening of leg IV created a “cranid effect” in some Gonyleptidae (*e.g.*, *Pseudotrogulus* Roewer, 1932, see Kury 1992) and (2) for especially robust species, a secondary strengthening of leg IV created a “gonyleptid effect” in some Craninae (*Phalangodus* Gervais, 1842, see Kury 1996). By present standards, family pertinence is verified by a much larger set of characters, mandatorily including genital morphology.

Male genitalia of the *Licornus* species as described here does not match any of the known cranaid patterns (see Orrico & Kury 2009 and Kury 2012a, b); on the other hand it neither matches perfectly the two published ampycine genitalia, *i.e.*, *Ampycus telifer* (Butler, 1873) (Kury & Pinto-da-Rocha 2007: 200, fig. 4.30b), *Hutamaia caramaschii* Soares & Soares, 1977 (Soares & Soares, 1977: 220, figs. 6–7), *Neopachyloides peruvianus* (Roewer, 1956) and *Pirunipygus paradoxus* Roewer, 1936 (Pinto-da-Rocha *et al.*, 2012, figs 4–5).

The morphology of *Licornus tama* **sp. nov.** with a columnar erect glans sac, ventral plate in the same plane as truncus, well-developed dorsal process of glans, some macrosetae shifted to dorsal, all point to generalized Gonyleptoidea, which are found basally in many families of this superfamily. Two features of *L. tama* **sp. nov.** penis resemble *Hutamaia caramaschii*: the multiplication of lateral setae of ventral plate and the extremely elongate stylus, largely surpassing length of ventral plate (this also occurs in *Ampycus telifer*). The assignment of this genus to Gonyleptidae thus relies mostly on external features. The scutal shape, free tergite armature and leg sculpture all point to a close relationship with ampycines such as *Glysterus* and *Nesopachylus*.



**FIGURES 20–21.** Type material of other species of *Licornus*. 20. *Licornus atroluteus* Roewer, male holotype; 21. *Licornus perfectus* Roewer, female holotype (pictures courtesy R. Pinto-da-Rocha).

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