REVISTA IBÉRICA de Aracnología

ARTÍCULO:

A new genus of Gagrellinae from Brazil, with a comparative study of some of the subtropical and southernmost tropical South American genera (Opiliones, Eupnoi, Sclerosomatidae)

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Revista Ibérica de Aracnología
ISSN: 1576 - 9518.
Dep. Legal: Z-2656-2000.
Vol. **9**, 30-VI-2004
Sección: Artículos y Notas.
Pp: 157–177.

Edita:
Grupo Ibérico de Aracnología (GIA)
Grupo de trabajo en Aracnología de la Sociedad Entomológica Aragonesa (SEA)
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A NEW GENUS OF GAGRELLINAE FROM BRAZIL, WITH A COMPARATIVE STUDY OF SOME OF THE SUBTROPICAL AND SOUTHERNMOST TROPICAL SOUTH AMERICAN GENERA (OPILIONES, EUPNOI, SCLEROSOMATIDAE)

Ana Lúcia Tourinho-Davis

Abstract:

Abaetuba n. gen. and a new species, *A. lisei* n. sp., are described. *Holcobunus citrinus* Roewer, 1910; *Geaya bahiensis* Mello-Leitão, 1931 and *Prionostemma plaumanni* Roewer, 1953 are transferred to *Abaetetuba* n. gen. and three new combinations are formed. The three species are redescribed and *P. plaumanni* is designated as type species for the genus. A key to the species of *Abaetetuba* is provided. The importance of the color pattern as a diagnostic character for gagrelline species is discussed. Most of the southern tropical and subtropical South American genera of Gagrellinae – *Garleppa* Roewer, 1912, *Geaya* Roewer, 1910, *Guaranobunus* Ringuelet, 1959, *Holcobunus* Roewer, 1910, *Holmbergiana* Mello-Leitão, 1931, *Jussara* Mello-Leitão, 1935, *Munequita* Mello-Leitão, 1941, *Parageaya* Mello-Leitão, 1933, *Pectenobunus* Roewer, 1910, *Prionostemma* Pocock, 1903, *Psammogeaya* Mello-Leitão, 1946 – are studied. SEM of the genital apparatus are included, and a comparative analysis of the penis pattern, the genital and external diagnostic characters is provided.

Key words: Opiliones, Sclerosomatidae, Gagrellinae, comparative morphology, systematics, taxonomy, endemism, Neotropics, Brazilian Atlantic Forest.

Taxonomy: *Abaetetuba* gen. n., *Abaetetuba bahiensis* (Mello-Leitão, 1931) comb. n., *Abaetetuba citrina* (Pocock, 1903) comb. n., *Abaetetuba lisei* sp. n., *Abatetuba plaumanni* (Roewer, 1953) comb. n.

Un nuevo género de Gagrellinae de Brasil, con un estudio comparativo de algunos géneros del subtrópico y la porción sur del trópico de América del Sur (Opiliones, Eupnoi, Sclerosomatidae)

Resumen:

Se describen *Abaetuba* n. gen. y *A. lisei* n. sp. *Holcobunus citrinus* Roewer, 1910, *Geaya bahiensis* Mello-Leitão, 1931 y *Prionostemma plaumanni* Roewer, 1953 se transfieren a *Abaetetuba* n. gen., estableciéndose las tres nuevas combinaciones correspondientes. Se redescriben las tres especies y se designa a *Prionostemma plaumanni* como especie tipo del nuevo género. Se ofrece una clave para las especies de *Abaetetuba*. Se discute la importancia de los patrones de coloración como carácter diagnóstico para las especies de Gagrellinae. Se estudian la mayoría de los géneros de Gagrellinae del "sur tropical" y zona subtropical de Suramérica – *Garleppa* Roewer, 1912, *Geaya* Roewer, 1910, *Guaranobunus* Ringuelet, 1959, *Holcobunus* Roewer, 1910, *Holmbergiana* Mello-Leitão, 1931, *Jussara* Mello-Leitão, 1935, *Munequita* Mello-Leitão, 1941, *Parageaya* Mello-Leitão, 1933, *Pectenobunus* Roewer, 1910, *Prionostemma* Pocock, 1903, *Psammogeaya* Mello-Leitão, 1946. Se ofrecen fotografías de microscopía electrónica de barrido, así como un análisis de los patrones del pene y los caracteres diagnósticos externos y genitales.

Palabras clave: Opiliones, Sclerosomatidae, Gagrellinae, morfología comparada, sistemática, taxonomía, endemismo, Neotrópico, Bosque Atlántico Brasileño.

Taxonomia: *Abaetetuba* gen. n., *Abaetetuba bahiensis* (Mello-Leitão, 1931) comb. n., *Abaetetuba citrina* (Pocock, 1903) comb. n., *Abaetetuba lisei* sp. n., *Abatetuba plaumanni* (Roewer, 1953) comb. n.

Introduction

Gagrellinae is the largest family group in the order Opiliones, containing more than 950 species, about 250 for the New World and 700 for the Old World. In spite of the great number of species described, the knowledge about this subfamily is insufficient. The information available in the literature is poor, early descriptions (that make up the bulk of the literature) of Gagrellinae taxa are summary, usually without relevant systematical information or proper illustrations of the morphology of the species and the color pattern. In the last 20 years most studies have not focused on the confused systematic scenario of this group.

Studies about gagrelline, in both New and Old World, are usually limited to descriptions of new species, without a comparative approach on morphological patterns and diagnostic characters, or any reference to the critical systematics

situation of this subfamily. Some exceptions are the works of Capocasale (1967, 1976a) for the Uruguayan species and also species of *Parageaya* Mello-Leitão, 1933, Cokendolpher (1981, 1984) for *Trachyrhinus* Weed, 1892 and *Carmenia* Roewer, 1915, Cokendolpher & Hunt (1993) for *Pectenobunus* Roewer, 1910, Martens (1987) for the Himalayan species, Tourinho & Kury (2001), Tourinho-Davis (2003, in press) and Tourinho-Davis & Kury (2003) respectively for *Holcobunus*, *Bastioides* Mello-Leitão, 1931, *Pectenobunus* and *Jussara* Mello-Leitão, 1935.

An extensive project on the New World gagrelline species has been undertaken, resulting in systematical revisions of *Holcobunus*, *Jussara*, *Bastioides* and *Pectenobunus*, these works produced detailed and standardized terminology for external morphology, comparative diagnoses by using the genital and the external morphology plus the color pattern. As a result of this study, 17 species endemically distributed along the Atlantic Forest have been rearranged to form two natural groups, *Holcobunus* and *Jussara,* while the monotypic *Bastioides* has been considered a *nomen dubium*, and the monotypics *Caiza* Roewer, 1925 and *Paratamboicus* Mello-Leitão, 1940 junior subjective synonyms of *Pectenobunus and Holcobunus*. *Holcobunus* includes two species restricted to the southeastern Brazil (Rio de Janeiro + São Paulo) and *Jussara* 15 species, six of them previously described as *Holcobunus*, distributed in the Brazilian Atlantic forest. More than a half of the species included in *Prionostemma* should be transferred to another genus (Tourinho-Davis & Kury, in prep.).

Now in this paper, three species previously included in *Holcobunus*: *Holcobunus citrinus* Roewer, 1910, *Geaya*: *Geaya bahiensis* Mello-Leitão, 1931 and *Prionostemma*: *Prionostemma plaumanni* Roewer, 1953, are transferred to *Abatetuba* **n. gen.** A new species, *Abaetetuba lisei* **n. sp.**, is described totaling four species included in this new genus. *Abaetetuba bahiensis* is endemic of Northeastern (Bahia) and Southeastern (Espírito Santo), the same cacao farming region in Bahia where *Bastioides coxopunctatus* Mello-Leitão, 1931 was found. *Abaetetuba citrina*, *Abaetetuba lisei* **n**. **sp.**, *Abaetetuba plaumanni* are endemic of Southern Brazil, the same area where is distributed species of *Caiza* Roewer, 1925, *Holmbergiana* Mello-Leitão, 1931, *Jussara*, *Parageaya*, *Pectenobunus* and two species atributed to *Prionostemma*.

The inefficiency of the nodular number as diagnostic character was massively discussed and refuted in other publications, as the use of a set of potential genital and external characters for species of Gagrellinae was suggested (Tourinho & Kury, 2001; Tourinho-Davis, 2003; Tourinho-Davis & Kury, 2003). Therefore in this paper a comparison among the morphology of the penis of six valid genera for the Atlantic forest is given, and the characters are also discussed in a method that is consistent with the modern taxonomy treatment for Opiliones.

Material and Methods

Details about preparation of specimens for scanning electron microscope in Tourinho & Kury, 2001. Terminology for the external and genital morphology followed Tourinho & Kury (2001) and Tourinho-Davis & Kury (2003).

Acronyms of depositories are:

BMNH = Britsh Museum of Natural History, London, UK. Curator: Dr Janet Becalloni. IBSP = Instituto Butantan, Universidade de São Paulo, São Paulo, Brazil. Curator: Dr Antônio Domingos Brescovit. MCNP = Museu de Ciência e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul; Porto Alegre, Brazil. Curator: Dr Arno A. Lise. MLP = Museo de Plata, Facultad de Ciencias Naturales e Museo; La Plata, Buenos Aires, Argentina. Curator: Dr. Cristián Ituarte. MNRJ = Museu Nacional/UFRJ. Rio de Janeiro, Brazil. Curator: Dr Adriano B. Kury. MZSP = Museu de Zoologia, Universidade de São Paulo; São Paulo, Brazil. Curator: Dr Ricardo Pinto-da-Rocha. SMF = Naturmuseum Senckenberg, Frankfurt am Main, Germany Curator: Dr Peter Jäger. URMU = Museo de Historia Natural de Montevideo; Montevideo, Uruguay. Curator: Prof. Roberto M. Capocasale. ZMB = Museum für Naturkunde der Humboldt-Universität; Berlin, Germany. Curator: Dr Jason Dunlop.

Systematic accounts

Abaetetuba new genus

Prionostemma (part): Pocock, 1903: 433; Roewer, 1910: 168; 1923: 1073, 1953: 211; Mello-Leitão, 1932: 25; 1938: 324; Ringuelet, 1954: 298; Crawford, 1992: 39; Cokendolpher & Lee, 1993: 8.

Holcobunus (part): Roewer, 1910: 162; 1923: 1069; Mello-Leitão, 1932: 22; 1938: 333; Roewer, 1953: 243; Ringuelet, 1954: 291; Crawford, 1992: 24; Cokendolpher & Lee, 1993: 8.

Geaya (part): Roewer, 1910: 158; 1923: 1064; Mello-Leitão, 1932: 19; 1938: 322; Roewer, 1953: 187; Ringuelet, 1954: 289 Crawford, 1992: 2; Cokendolpher & Lee, 1993: 8.

TYPE SPECIES: *Prionostemma plaumanni* Roewer, 1953 by present designation.

ETYMOLOGY: from the Tupi Abaetetuba = place full of good people. The name refers to the Arachnology laboratory/Museu Nacional for its great atmosphere, their friendly and loyal staff (Abel Pérez González, Adriano Brilhante Kury, Alessandro Ponce de Leão Giupponi, Aline Pires de Melo, Amanda Cruz Mendes, Amazonas Chagas Júnior, César Augusto Rodríguez Torres, Cláudio Pires Ferreira, Deives Frota Almeida, Denis Rafael Pedroso, Eduardo Gomes Vasconcelos, Renner Cerqueira Baptista, Thiago da Silva Moreira). Femenine fgrammatical gender.

DIAGNOSIS: Eye mound armed with either blunt or sharp-pointed granules, arranged in two parallel longitudinal rows. Abdominal dorsal scute sub-hexagonal in the male with both anterior sides curved, the two lateral sides divergent and the two posterior sides sinuous, in

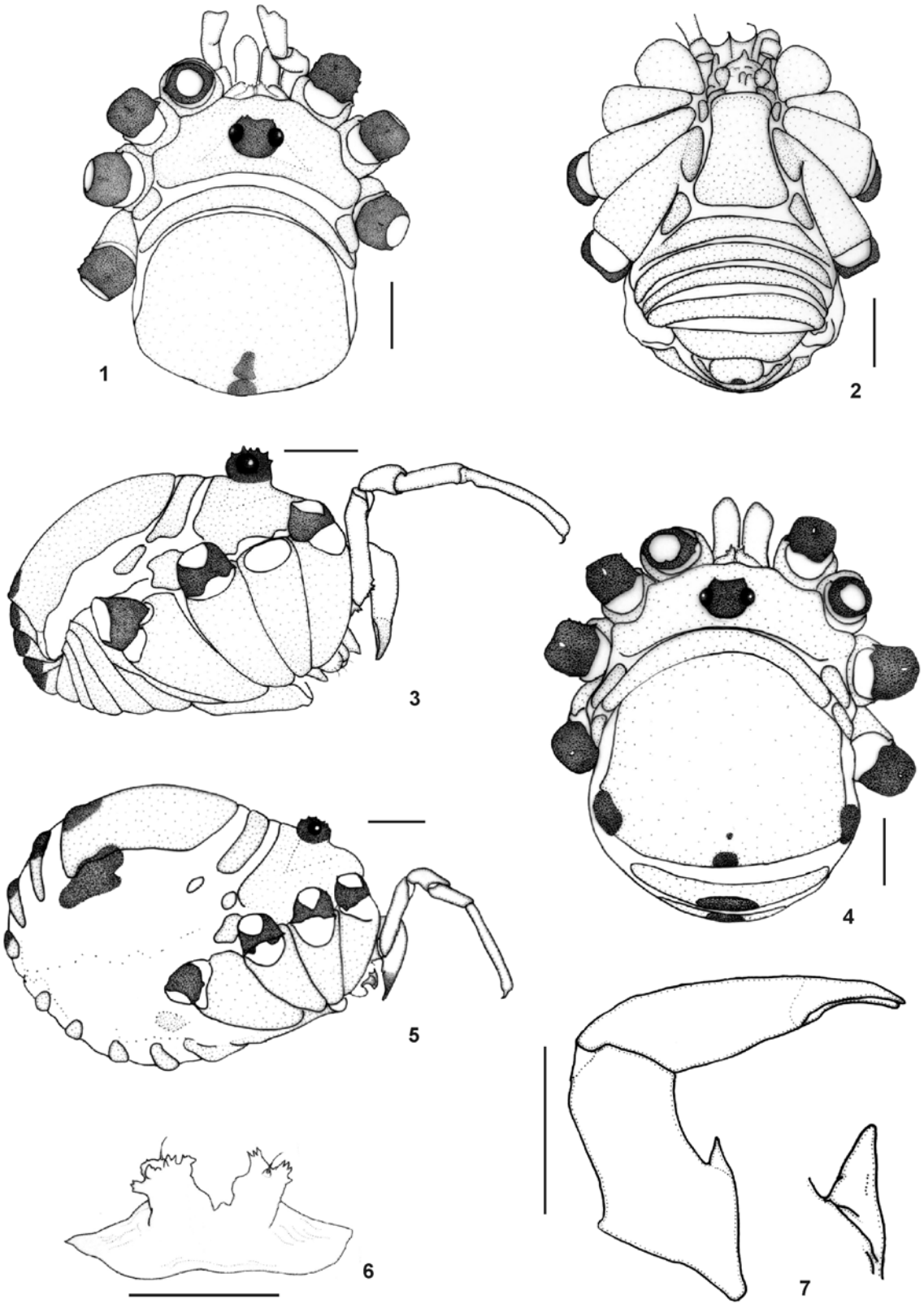


Fig. 1-7. *Abaetetuba bahiensis* Mello-Leitão. **1, 2, 3, 6, 7:** Male (MNRJ 5383). **1.** dorsal view. **2.** ventral view. **3.** lateral view. **6.** supracheliceral lamina; dorsal view. **7.** right chelicerae showing ventrobasal spine in the detail, lateral view. **4, 5:** Female (MNRJ 1358 holotype of *G. bahiensis*). **4.** dorsal view. **5.** lateral view. Scale bars = 1.0 mm for Figs 1-5; = 0.5 mm for Fig. 7; = 0.25 mm for Fig. 6.

the females much more rounded (Figs. 1-4). Femora of the legs I, III and IV usually with one pseudoarticular nodule, sometimes absent, femur of the legs II usually with three nodules. Femoral formula: 0-1/3/0-1/0-1. Noduli always placed in the middle portion of femora, up to the apical portion, never in the basal half of the femora. Winglets narrow (longer than wide), a little projected at its apical portion, left and right units not fused only in the middle of its anterior half in ventral view (Figs. 26, 46, 57). Shaft straight, inclined forming acute angle (less than 25º) only at glans (Figs. 12, 24, 42, 53). Glans three times narrower than the shaft, stylus short (10% of the length of the glans) (Figs. 34, 53, 64).

DISTRIBUTION: South America: Northeastern, Southeastern and Southern Brazil (Figs. 89-90).

INCLUDED SPECIES: *A. bahiensis* (Mello-Leitão) n. comb, *A. citrina* (Pocock) n. comb, *A. lisei* **n. sp.** and *A. plaumanni* (Roewer) n. comb.

Key to the species of *Abaetetuba* new genus

1 Lateral borders of abdominal dorsal scute with a wide and long black stain, never rounded or in the posterior margin of the abdominal dorsal scute, free tergites, anal operculum and lateral borders of carapace with a black stain (Figs. 14, 17, 29, 32, 47), at least one nodule present in the femora of all legs, legs I-V with at least one nodule **2**

– Posterior margin of carapace right behind the eye mound, posterior margin, free tergites and anal operculum and sometimes lateral borders of abdominal dorsal scute with a black rounded stain (Figs. 1, 3-5) nodules sometimes absent in the femora of legs I, III e IV . . . . . ***A. bahiensis***

2 Ventro-basal spine of basichelicerite sharp-pointed (Figs. 7, 51), anterior half of abdominal dorsal scute with no stains **3**

– Ventro-basal spine of basichelicerite blunt (Figs. 7, 35), anterior half of male abdominal dorsal scute sometimes with a pair of black transversal stains smaller than the lateral ones (Figs. 29, 31) . . . . . ***A. lisei***

3 Body color pale yellow, eye mound completely black (Fig. 14) . . . . . ***A. citrina***

– Body color green, eye mound with a light white stain X-shaped (Fig. 47) . . . . . ***A. plaumanni***

Abaetetuba bahiensis (Mello-Leitão) n. comb.

Figs. 1-13.

Geaya bahiensis Mello-Leitão, 1931: 115 fig. 1; 1932: 436 fig. 1; 1938: 323; Roewer, 1953: 193.

TYPE MATERIAL: & holotype MNRJ 1358 (G. bahiensis), Brazil, Bahia, Ilhéus, leg. E. May (examined).

MATERIAL EXAMINED: 1 & MNRJ 5970, Brazil, Bahia, Ilhéus; 5 %% 5 && MNRJ 5021, the same; 1 % MNRJ 5917, Brazil, Bahia, Itamarajú; 1 % MNRJ 5383, the same; 3 %% MNRJ 58845, the same; 3 %% MNRJ 5916, the same; 4 %% 1 & IBSP 1134, the same, 10-12. iv. 1998, leg. A.D. Brescovit, R. Bertani & R. Pinto-da-Rocha; 1 % MNRJ 58213, Brazil, Espírito Santo, Colatina, Mario Rosa, 1 & MNRJ 5913, the same; 1 % MNRJ 58827, Brazil, Bahia, Juçari, Fazenda Arizona; 3 %% 1 & MNRJ 58826, the same.

TYPE LOCALITY: Brazil; Bahia.

DISTRIBUTION: Brazil; Bahia and Espírito Santo (Fig. 90).

EMENDED DIAGNOSIS: Body, including all legs of coxae pale yellow, eye mound and legs black. Anterior margin of carapace rounded by small blackish-brown stains. Opisthosomatic tergites and anal operculum with a median black stain (Figs. 1-5). Lateral borders of abdominal dorsal scute with a pair of black stains on each side at its posterior half only in females (Figs. 4, 5). Femora of legs I, III (and also IV in females) without femoral nodules. Femoral formula 0/3/0/0-1.

REDESCRIPTION:

MALE. Measurements: body: 3.4 mm, carapace: 1.0 mm, abdominal dorsal scute: 2.0 mm, chelicerae: 1.6 mm, pedipalps: 3.9 mm, penis: 1.0 mm.

Color**.** Ventral face pale yellow. Pedipalps and chelicerae cream.

Dorsal view. Surface granular. Segments slightly separated one from the other (Figs. 1, 3). Supracheliceral Laminae armed with sharp granules and three-pointed granules (Fig. 6). Eye mound armed with two rows of sharp granules.

Ventral view. Surface granular. Opisthosomatic sternites slightly separated (Fig. 2). Lateral borders of operculum armed with a row of both blunt and sharp granules (Fig. 9). Inner border of arculi genitales III unarmed.

Chelicerae. Ventro-basal spine of basichelicerite blunt (Fig. 7).

Pedipalps. Ventral apophysis of trochanter armed with sharp-pointed granules irregularly disposed. Femur armed ventrally with one to three longitudinal rows of sharp-pointed granules. Patella armed with dorso-lateral sharp-pointed granules, inner apophysis of patella unarmed, as wide as long. Tibia densely armed with sharp-pointed granules disposed irregularly. Tarsus unarmed. (Fig. 8)

Legs. Femoral formula 0/3/0/1.

Penis. Shaft three times wider than glans (Fig. 11). Two pairs of lateral setae inserted in the same direction. Stylus straight in lateral view (Figs. 12).

FEMALE. Measurements: body: 4.1 mm, carapace: 1.0 mm; abdominal dorsal scute: 2.2 mm, chelicerae: 1.6 mm; pedipalps: 3.8 mm, ovipositor: 0.9 mm.

Color. As in the male except for the lateral borders of abdominal dorsal scute with a black rounded stain at its posterior half (Figs. 4, 5).

Dorsal and ventral view, chelicerae and pedipalps. As in the male.

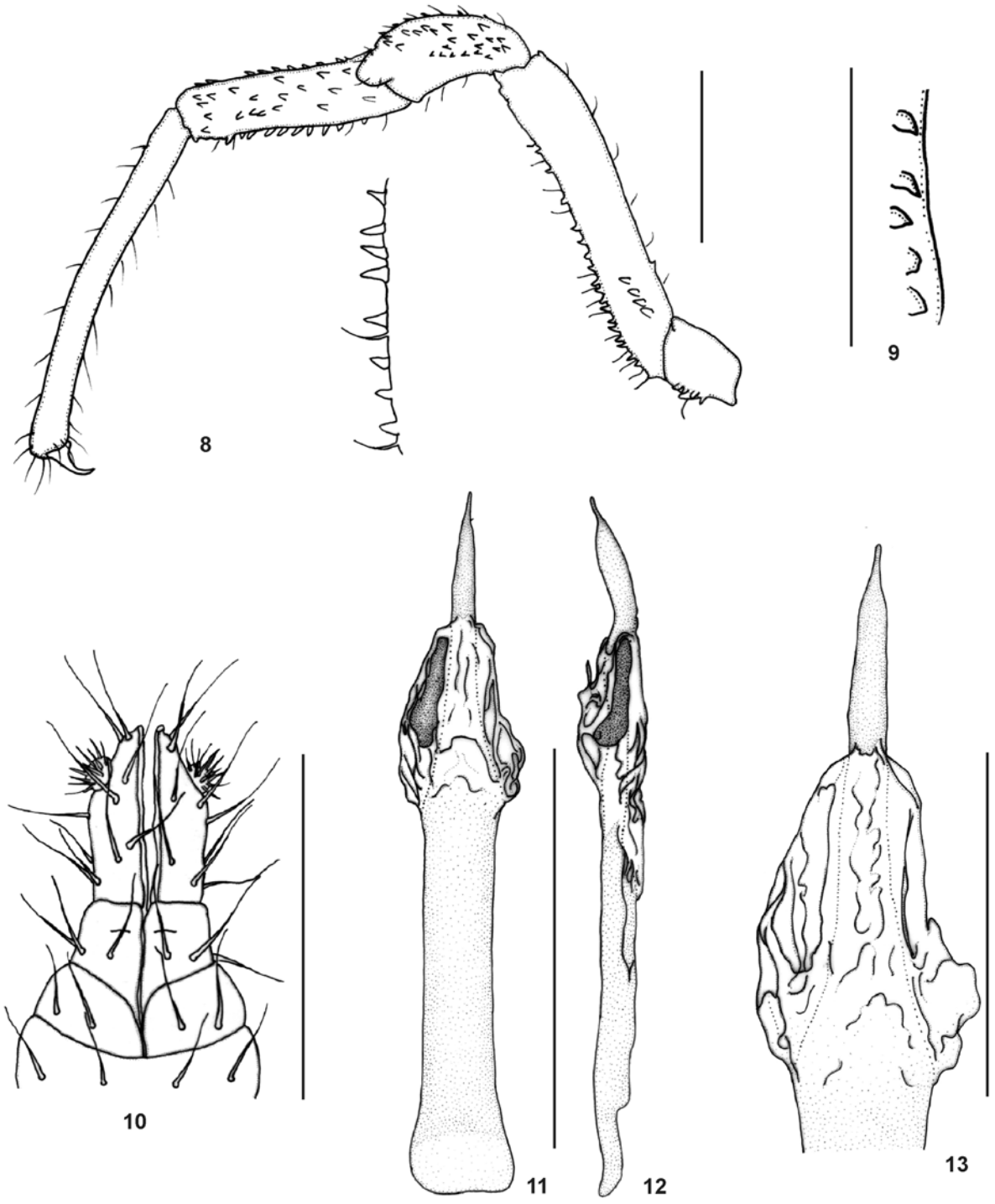


Fig. 8-13. *Abaetetuba bahiensis* Mello-Leitão. **8, 9, 11, 12, 13:** Male (MNRJ 5383). **8.** right pedipalp with armature in the detail, lateral view. **9.** armature of lateral border of genital opercle. **11.** penis, ventral view. **12.** penis, lateral view. **13.** anterior portion of the penis, ventral view. Female (MNRJ 5946). **10.** anterior region of ovipositor, dorsal view. Scale bars = 1.0 mm for Figs 11-12; = 0.5 mm for Fig 8-10; = 0.2 mm for Fig. 13.

Legs. Femoral formula 0/3/0/0.
Ovipositor. Second segment of the furca with a distal lirifissure (Fig. 10).

Abaetetuba citrina (Pocock) n. comb.

Figs. 14-28
Prionostemma citrinum Pocock 1903: 31.
Holcobunus citrinus: Roewer, 1910: 167; 1923: 1072, fig. 1176; Mello-Leitão, 1932: 25, fig. 14; Roewer, 1953: 245.

TYPE MATERIAL: % holotype Brazil, Santa Catarina, Lages BMNH (not examined).

MATERIAL EXAMINED: 1 % MNRJ 5751, Brazil, Paraná, Bituruna, leg. V. Stawiarski; 1 & MNRJ 5942

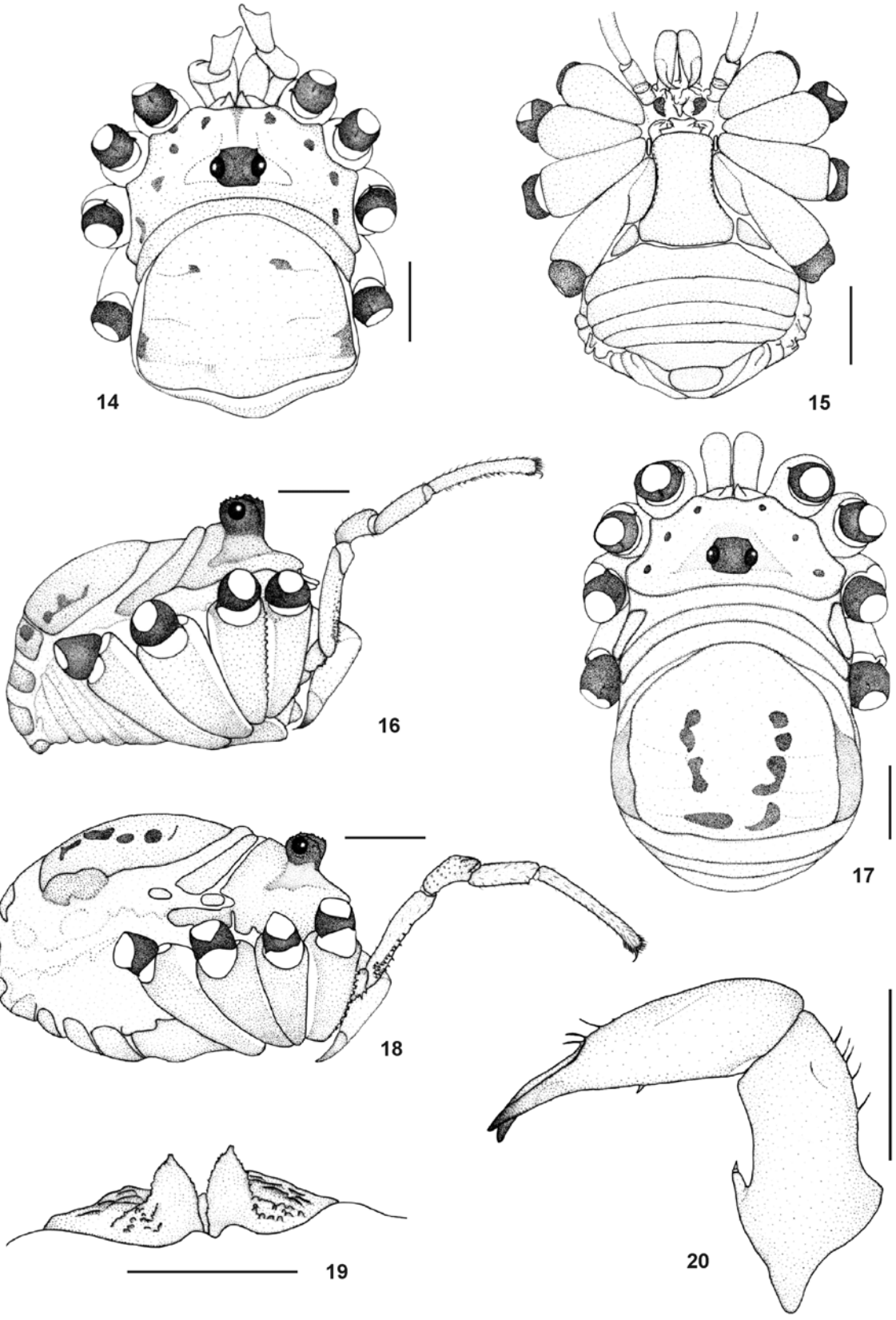


Fig. 14-20. *Abaetetuba citrina* Pocock. **14, 15, 16, 19, 20:** Male (MNRJ 5751). **14.** dorsal view. **15.** ventral view. **16.** lateral view. **19.** supracheliceral lamina, dorsal view. **20.** right chelicerae showing ventrobasal spine in the detail, lateral view. **17, 18:** Female (MNRJ 5751). **17.** dorsal view. **18.** lateral view. Scale bars = 1.0 mm for Figs. 14-18; = 0.5 mm for Fig. 20; = 0.25 mm for Fig. 19.

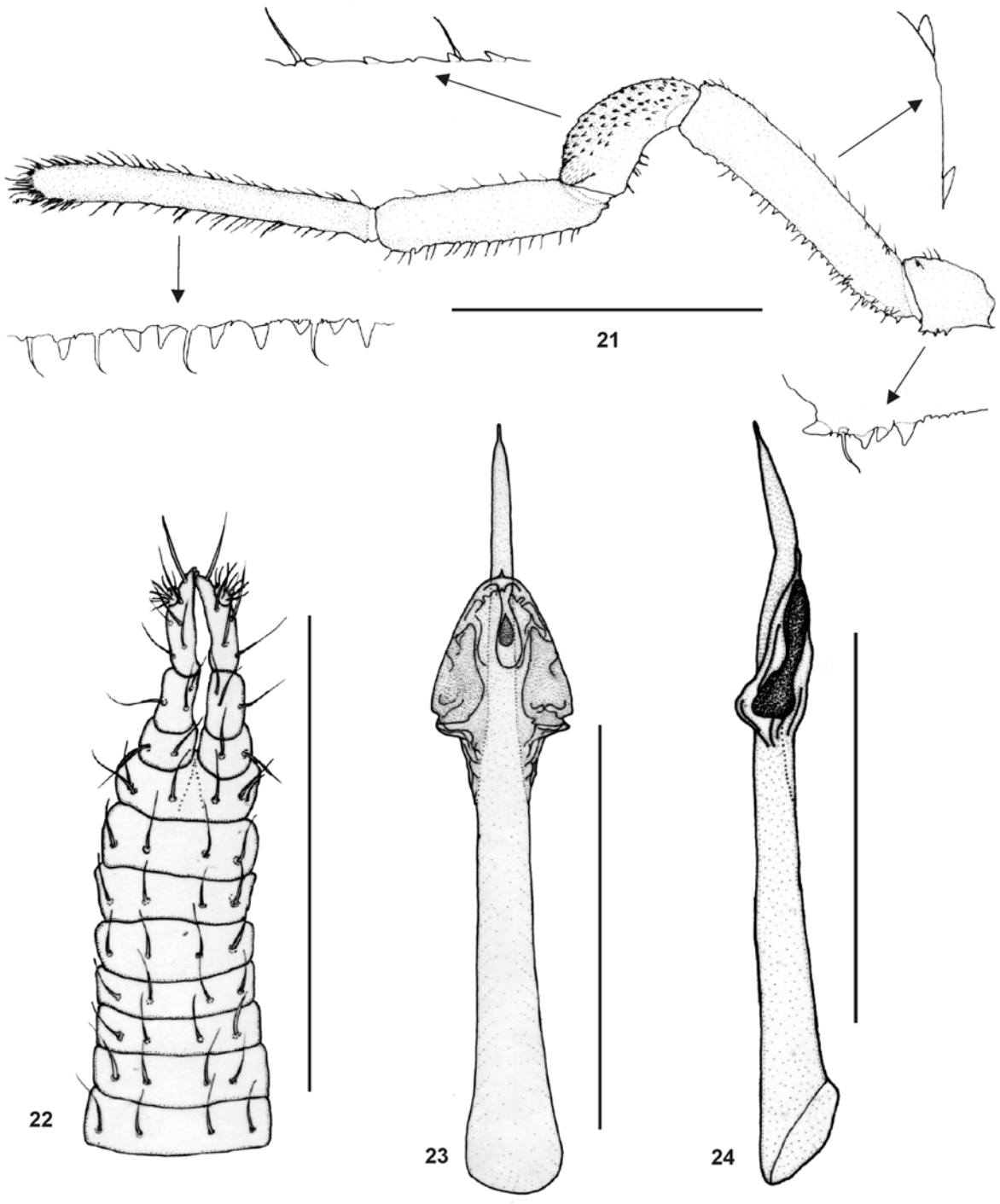


Fig. 21-24. *Abaetetuba citrina* Pocock. **21, 23, 24:** Male (MNRJ 5751). **21.** right pedipalp with armature in the detail, lateral view. **23.** penis, ventral view. **24.** penis, lateral view. Female (MNRJ 5751). **22.** ovipositor, dorsal view. Scale bars = 0.5 mm.

the same; 1 % MNRJ 5941, the same; 1 % MNRJ 5940, the same; 1 % MNRJ 5939, the same; 1 % MNRJ 5938, the same; 1 & MNRJ 5937, the same; 1 % MNRJ 5751, the same; 1 & MNRJ 5094, the same, 4 %% 2 && 14 juveniles MNRJ 58828, Brazil, Santa Catarina, Florianópolis: Ilha de Santa Catarina, 15-17.XII.1999, leg. Alessandro Giupponi & Denis Pedroso; 4 %% MNRJ 989, Brazil, Santa Catarina, Blumenau.

TYPE LOCALITY: Brazil; Santa Catarina, Lages.

DISTRIBUTION: Brazil; Santa Catarina and Paraná (Fig. 89).

EMENDED DIAGNOSIS: Body, including all legs of coxae pale yellow, eye mound and legs black, anterior margin of carapace rounded by small blackish-brown stains, lateral borders of abdominal dorsal scute with a

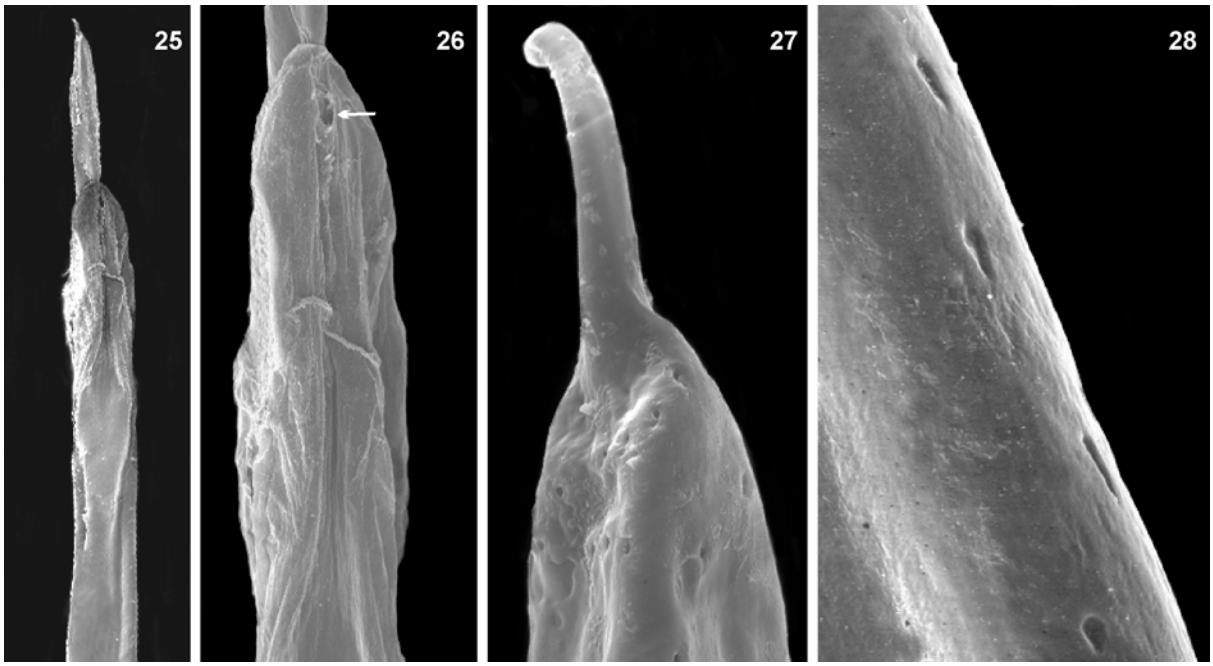


Fig. 25-28. *Abaetetuba citrina* Pocock. Male (MNRJ 5828). **25.** penis, ventral view. **26.** anterior portion of penis, glans and winglets, ventral view. **27.** alate portion showing the anterior half of winglets not fused, ventral view. **28.** lateral border of shaft right after the alate portion showing rift-shaped depressions, ventral view. Scales bars = 1.0 mm for Figs. 25; = 0.5 mm for Figs. 26-27; = 0.25 mm for Fig. 28.

pair of black stains on each side (Figs. 14, 16, 17, 18). Supracheliceral armed with a blunt grain in each branch (Fig. 19). Surface of glans irregular and wavy (Fig. 25). Apical portion of stylus bent in dorsal view (Fig. 27).

REDESCRIPTION:

MALE. Measurements: Body: 3.5 mm, carapace: 1.0 mm, abdominal dorsal scute: 2.0 mm, chelicerae: 1.7 mm, pedipalps: 3.9 mm, penis: 1 mm.
Color. Supracheliceral laminae creamy. Maxillary lobes of coxae I black, all other ventral segments pale yellow (Fig. 15). Pedipalps and chelicerae pale yellow. Trochanters and femora of the legs black, patella, tibia and tarsus chestnut.
Dorsal view. Surface granular. Eye mound armed with two rows of blunt granules (Figs. 16, 18).
Ventral view. Surface granular. Arculi genitales III unarmed.
Chelicerae. ventro-basal spine of basichelicerite sharp-pointed (Fig. 20).
Pedipalps. As on A. bahiensis (Fig. 21) except for the tarsus armed with sharp granules in ventral view.
Legs. Femoral formula 1/3/1/1.
Penis. Shaft three times wider than glans (Figs. 23, 25), dorsal-lateral surface of shaft covered with slit-shaped depressions, that can be distributed until the winglet area (Fig. 28). Surface of the glans densely covered with simple pores (Fig. 27), two pairs of lateral setae inserted in the same direction.

FEMALE. Measurements: body: 4.1 mm, carapace: 1 mm; abdominal dorsal scute: 2.3 mm, chelicerae: 1 mm; pedipalps: 4.5 mm, ovipositor: 1.3 mm.
Color. As in the male except for: abdominal dorsal scute with two parallel and longitudinal small black spots (Fig. 17), and two black stains in the lateral border even in the articular membrane (Fig. 18).
Dorsal and ventral surfaces. As in the male, except for body inflated dorso-ventrally, and (Fig. 18). Articular membrane very evident, broadly surpassing the sclerites (Figs. 17, 18).
Chelicerae, pedipalps and legs. As in the male.
Ovipositor. As in A. bahiensis. (Fig. 22).

REMARK: Roewer (1910) also described *Holcobunus luteipalpis* from Santa Catarina (margin of river Itapocu), with the very same color pattern of *A. citrina*. However, in the material examined from Southern Brazil, the only species identified from Santa Catarina bearing this color pattern was *A. citrina*. It is possible that *H. luteipalpis* and *A. citrina* are in fact the same species, then *H. luteipalpis*, described seven years later, would be a junior synonym of *A. citrina*. Also the new species *A. lisei* shares the same color pattern, and could even be identical to *H. luteipalpis*, but it was only found so far more to the south. These suppositions can only be verified by the examination of the type material of *H. luteipalpis*, unfortunately, it was not possible for this work. Due to the present Brazilian politics it is very difficult, at the moment, receiving loans of rare material from the museums and universities abroad.

Abaetetuba lisei n. sp.

Figs. 29-46.

ETYMOLOGY: The name lisei refers to the renowned arachnologist Dr. Arno Antônio Lise, curator and professor of Pontifícia Universidade Católica do Rio Grande do Sul; Porto Alegre, Brazil.

TYPE MATERIAL: 1 % holotype MCNP 698, Brazil, Rio Grande do Sul, Canela, 5.III.1977.

MATERIAL EXAMINED: 4 && paratype MNRJ 58056, Brazil, Rio Grande do Sul, São Francisco de Paula; 2 %% 1 & MNRJ paratype 6544, the same, leg. R. Gliesch; 5 %% 10 && paratype MCNP 1398, the same, 1-2.II.1999, leg. L. Moura. 1% 6 && paratype MCNP 718, the same, 23.I.1981; 7 %% 13 && paratype MCNP 1269, Brazil, Rio Grande do Sul, Cambará, 19-21.XII.1994, leg. E. A. Buckup.

DIAGNOSIS: Body, including all legs of coxae pale yellow, eye mound, legs and maxillary lobes of coxa I black, anterior margin of carapace rounded by small blackish-brown stains, lateral borders of abdominal dorsal scute with a pair of black stains on each side at its posterior half (Figs. 29-33), in males anterior half of abdominal dorsal scute sometimes with a pair of black transversal stains smaller than the lateral ones (Fig. 29). Winglets of penis slightly inflated dorso-ventrally (Figs. 44, 46).

TYPE LOCALITY: Brazil, Rio Grande do Sul, Canela.

DISTRIBUTION: Brazil; Rio Grande do Sul (Fig. 89).

DESCRIPTION:

MALE. Measurements: body: 3.7 mm, carapace: 1.1 mm, abdominal dorsal scute: 2.3 mm, chelicerae: 1.8 mm, pedipalps: 2.1 mm, penis: 1.2 mm.
Color. Pedipalps pale yellow, distal margin of tarsus brown. Legs, except coxae, black
Dorsal view. Surface granular. Supracheliceral laminae armed with two to four blunt granules in each branch (Fig. 34). Eye mound armed with two rows of blunt granules (Figs. 37, 38).
Ventral view. Surface granular. Lateral borders of genital operculum armed with a row of both one-pointed blunt granules and three-pointed sharp granules (Fig. 37). Inner border of *arculi genitales* III armed with three-pointed sharp granules (Fig. 38).
Chelicerae. Ventro-basal spine of basichelicerite blunt (Fig. 35).
Pedipalps. As in *A. citrina*: except for ventral apophysis of trochanter armed with sharp granules. Inner apophysis of patella unarmed, longer than wide. (Fig. 36).
Legs. Femoral formula 1/3/1/1.
Penis. Shaft three times wider than glans (Figs. 41, 44). Surface of the glans covered with simple pores two pairs of lateral the superior pair inserted posteriorlly (Fig. 45). Stylus straight (Figs. 41, 43, 46).

FEMALE. Measurements: body: 4.0 mm, carapace: 1 mm; abdominal dorsal scute: 2 mm, chelicerae: 1.5 mm; pedipalps: 4.5 mm, ovipositor: 1.2 mm.
Color. As in the male except for the absence of the pair of narrow stains in abdominal dorsal scute (Figs. 32, 33).
Dorsal and ventral surfaces, chelicera, pedipalp and legs. As in the male.
Ovipositor. As in *A. citrina* (Figs. 39, 40).

Abaetetuba plaumanni (Roewer) n. comb.

Fig. 47-57.
Prionostemma plaumanni Roewer, 1953: 240.

TYPE MATERIAL: % holotype SMF RII/8106/436, Brazil, Santa Catarina, Nova Teutônia (examined).

MATERIAL EXAMINED: BRAZIL. 2 %% 1 & MCNP 1000, Paraná, Estância Santa Clara, Guarapuava, 22.XII.1987, leg. Antônio D. Brescovit. 1 % MNRJ 6958, Santa Catarina, bridge on road 27º11.37'S 52º10.06'W, 30.I.19, leg. Alexandre Bonaldo, Adriano B. Kury & Ricardo Pinto-da-Rocha; 7 %% 1 & MZSP 14764, Brazil, Rio Grande do Sul, Derrubadas: Parque Estadual do Turvo 27°08.41'S - 53°52.96'W, 1.II.1996, leg. Alexandre Bonaldo, Adriano B. Kury & Ricardo Pinto-da-Rocha; 2 %% 2 && MCNP 694, Brazil, Rio Grande do Sul: Garruchos, São Borja, 8.XII.1975, leg. C.J. Becker; 8 %% 5 && MCNP 676, the same, 10.XII.1975, leg. Arno A. Lise.

TYPE LOCALITY: Brazil; Santa Catarina, Nova Teutônia.

DISTRIBUTION: Brazil; Santa Catarina e Rio Grande do Sul (Fig. 89).

EMENDED DIAGNOSIS: Body, including all legs of coxae green, eye mound black sometimes with a dorsal light white stain X-shaped and legs black, lateral borders of abdominal dorsal scute with a pair of black stains on each side (Figs. 47, 49). Inner apophysis of padipalpal tibiae armed (Fig. 50).

REDESCRIPTION:

MALE. Measurements: body: 3.5 mm, carapace: 1.2 mm, abdominal dorsal scute: 2.1 mm, chelicerae: 1.7 mm, pedipalps: 3.9 mm, penis: 1.2 mm.
Color. Legs and maxillary lobes of coxae I black (Fig. 46). Chelicerae and pedipalps creamy, just the median-distal portion of tarsus black.
Dorsal view. Surface granular. Supracheliceral laminae armed with a three-pointed granules in each branch. Eye mound armed with two rows of sharp granules (Fig. 49).
Ventral view. Surface granular. Lateral border of genital operculum armed with blunt granules *Arculi genitales* III unarmed.
Chelicerae. Ventro-basal spine of basichelicerite sharp-pointed (Fig. 51).
Pedipalps. As in *A. citrina* (Fig. 50).
Legs. Femoral formula 1/3/1/1.
Penis. Shaft three times wider than glans (Figs. 52, 55), Dorsal-lateral surface of shaft covered with slit-shaped depressions, they can be distributed up to the winglet

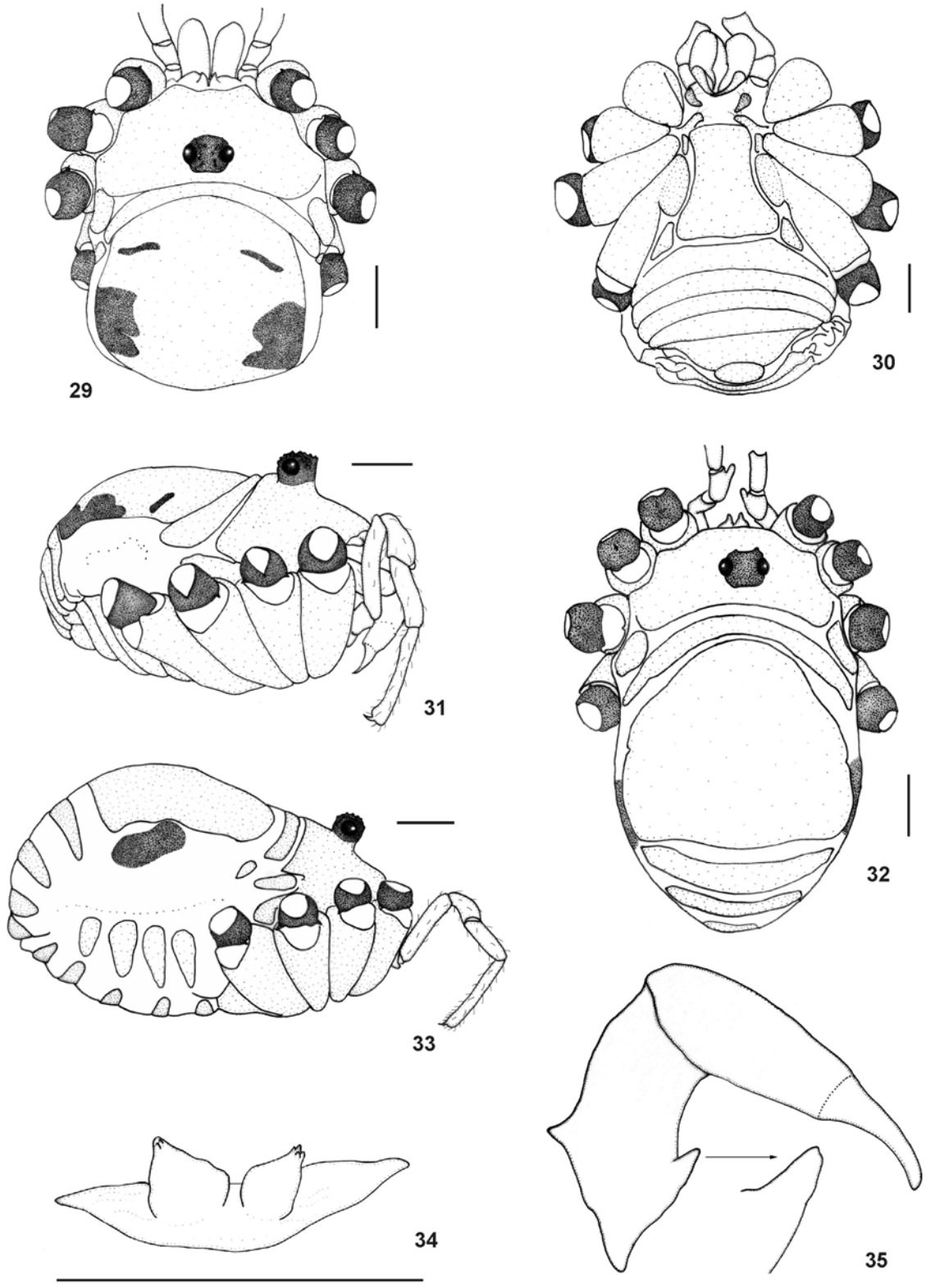


Fig. 29-35. *Abaetetuba lisei* **n. sp**. **29, 30, 31, 34, 35:** Male (MNRJ 6236). **29.** dorsal view. **30.** ventral view. **31.** lateral view. **34.** supracheliceral lamina, dorsal view. **35.** right chelicerae showing ventrobasal spine in the detail, lateral view. **32-33:** Female (MNRJ 6236). **32.** dorsal view. **33.** lateral view. Scale bars = 1.0 mm for Fig. 29-33; = 0.5 mm for Fig 35; = 0.25 mm for Fig. 34.

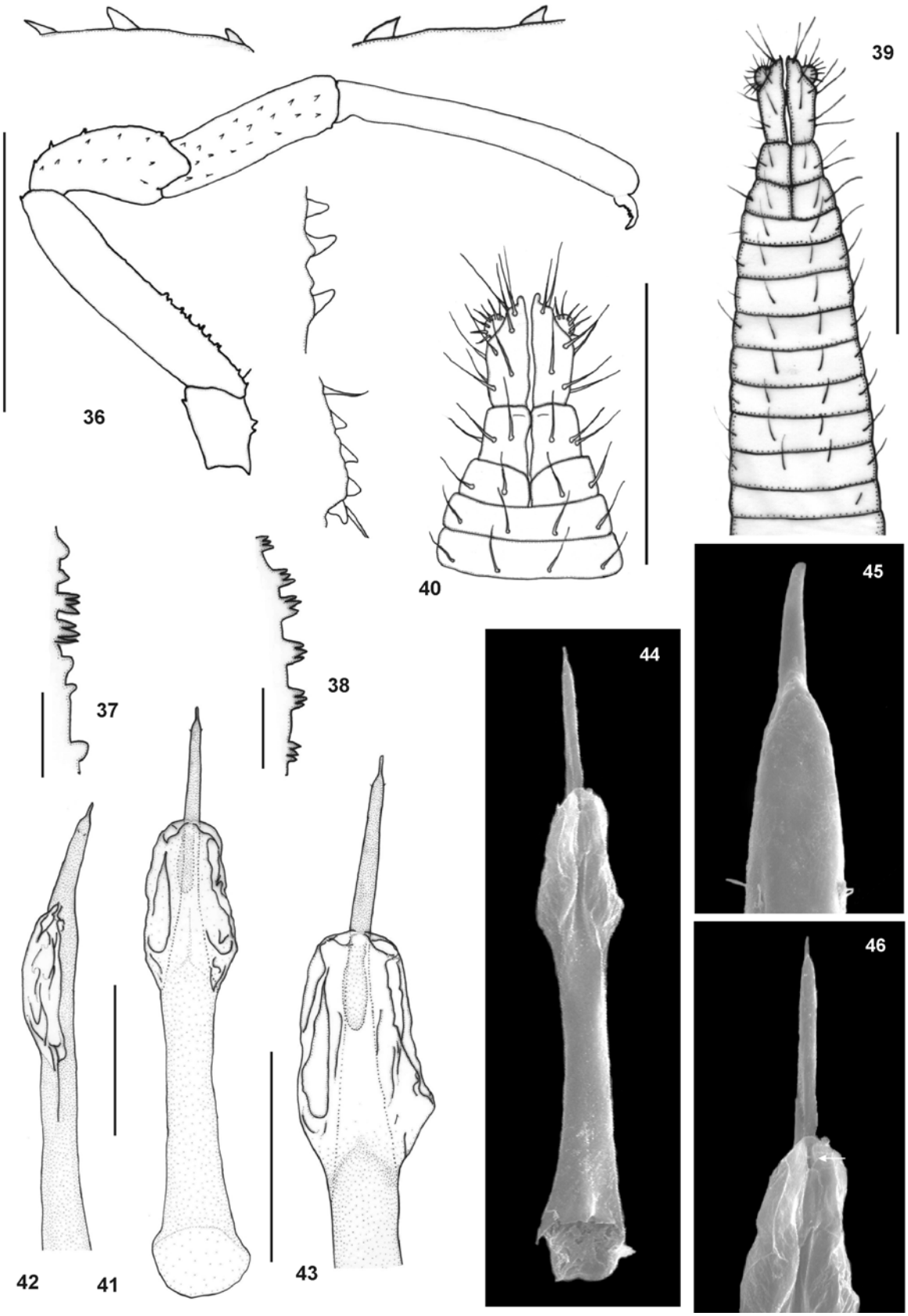


Fig. 36-46. *Abaetetuba lisei* n. sp. **36, 37, 38, 41, 42, 43, 44, 45, 46:** Male (MNRJ 6236). **36.** right pedipalp with armature in the detail, lateral view. **37.** armature of lateral border of genital opercle, ventral view. **38.** armature of inner border of *arculi genitales* III, ventral view. **41.** penis, ventral view. **42.** penis, lateral view. **43.** anterior portion of the penis, ventral view. **44.** penis, ventral view. **45.** anterior portion of penis, glans and winglets, ventral view. **46.** anterior portion of glans, ventral view. **39-40:** Female (MNRJ 6236). **39.** ovipositor, dorsal view. **40.** anterior region of ovipositor, dorsal view. Scale bars = 1.0 mm for Figs. 36, 41-42; = 0.5 mm for Fig. 39, 43; = 0.1 mm for Fig 37-38, 40.

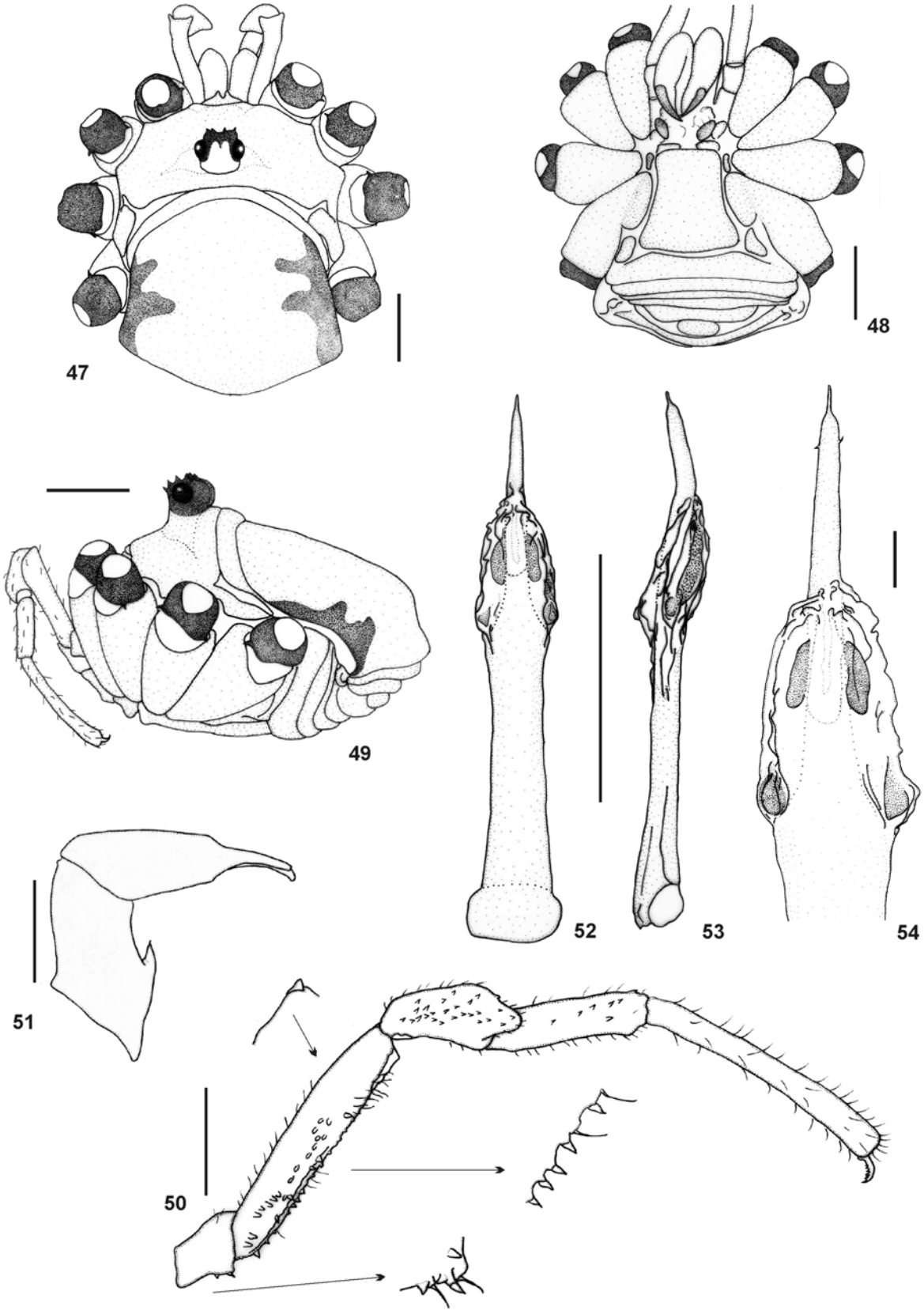


Fig. 47-54. *Abaetetuba plaumanni* Roewer. Male holotype (SMF RII/8106/436). **47.** dorsal view. **48.** ventral view. **49.** lateral view. **50.** right pedipalp with armature in the detail, lateral view. **51.** right chelicerae showing ventrobasal spine in the detail, lateral view. **52.** penis, ventral view. **53.** penis, lateral view. **54.** anterior portion of the penis, ventral view. Scale bars = 1.0 mm for Figs. 47-51; = 0.5 mm for Fig. 52-53; = 0.1 mm for Fig. 54.

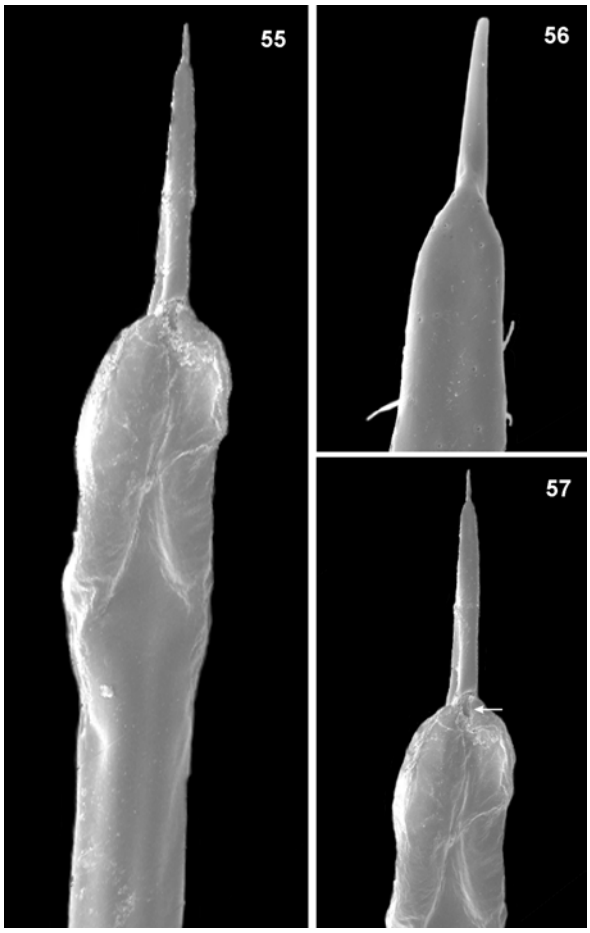


Fig. 55-57. *Abaetetuba plaumanni* Roewer. Male (MNRJ 6236). **55.** penis, ventral view. **56.** anterior portion of penis, glans and winglets, ventral view. **57.** anterior portion of glans, ventral view.

area. Surface of the glans covered with simple pores, two pairs of lateral setae the superior inserted more anteriorly (Fig. 56). Stylus straight (Figs. 54, 56).

REMARKS: It is not known why Roewer placed *P. plaumanni* in *Prionostemma* as the femoral formula for males and females of this group is 1/3/1/1.

OTHER MATERIAL EXAMINED: BRAZIL: Pernambuco: Jatobá, 2 %% 1 & MNRJ 42557, syntypes of *Parageaya corderoi* (Mello-Leitão, 1936), leg E. H. Cordero. Tocantins: Ilha do Bananal, 1 % MNRJ 286, holotype of *Parageaya vittata* (Mello-Leitão,1939). Paraná: São José do Iguaçu, 1 % MNRJ 45435, holotype of *Holcobunus iguassuensis* Mello-Leitão, 1935. Santa Catarina: Nova Teutônia, 1 & SMF RII/6447/427, holotype of *Holcobunus lineatus* Roewer, 1953; 1 & SMF RII/5915/418, holotype of *Prionostemma limbatum* Roewer, 1953; 1 & SMF RII/6448/428, holotype of *Holcobunus quadrimaculatus* Roewer, 1953. Paraná: Cachoeirinha [125º 26' S, 54º 02' W], 1 % MNRJ 26911, holotype of *Pectenobunus ruricola* (Mello-Leitão, 1933) leg. Flange de Morretes ARGENTINA: Misiones, Iguazú, 1 % MLP 24294, holotype of *Guaranobunus guaraniticus* Ringuelet, 1959. BOLIVIA: Chaco 1 % 1 & paratypes (Roewer identifyed both as females) SMF R II/346/144, paratypes of *Caiza colliculosa* Roewer, 1925. PARAGUAY: Rio Apa: 2 %% 5 && SMF R II/5918/422, *Pectenobunus paraguayensis* (Canestrini, 1888); San Bernardino: 3 (%, &) SMF R I/4/573. URUGUAY: Colonia: 1 % MNRJ 5518, *Pectenobunus paraguayensis* (Canestrini, 1888); leg. C. Carbonell; Montevideo: Punta Gorda, 1 & USNM, holotype of *Psammogeaya arenata* Mello-Leitão, 1946.

Comparative Morphology

If external morphology only is used for comparison, species of *Abaetetuba* (Fig. 59) resemble the species of *Jussara* (Fig. 58) and *Holcobunus* (Fig. 61). The differences in the external morphology of these three genera are very subtle (table I), they all have the eye mound armed with two rows of blunt or sharp small granules, in *Jussara* and *Abaetetuba* the male has the abdominal dorsal scute sub-hexagonal with both anterior sides curved, in *Holcobunus* it is trapezoid with margin convex, *Holcobunus* also has the pedipalpal tibia sinous at base, in *Jussara* and *Abaetetuba* the pedipalpal tibia is straight, the shape of abdominal dorsal scute in the females of the three genera is much more rounded with no difference among them, it is very hard to accert the genus of females just using the external characters, in this case the color pattern is a very useful tool.

Although, the only exceptions are the females of the genus *Munequita*, it is possible to diagnose at generic level even the females because of the following unique assemblage of external character: 1) At least one lateral spine of the throcanters of legs blunt-pointed (Fig. 70); 2) lateral borders of abdominal dorsal scute parallel (Fig. 62); 3) dorsal side of pedipalps femora forming angle in lateral view (Fig. 72). The eye mound in *Munequita* is armed with small granules either blunt or sharp-pointed (Fig. 64), in some species the eye mound is armed with three long sharp-pointed spines (Fig. 67), as long as the spines in *Pectenobunus* (Fig. 68) and *Holmbergiana* (Fig. 69) but in these genera the number of spines are usually more than three (a few specimens of *Pectenobunus* have only three), and each one of them are always tipped with three or four points.

The species of *Holmbergiana* (Fig. 63) (other figures in Capocasale, 1967), *Parageaya* (figures in Capocasale, 1976a and b) and *Pectenobunus* (Fig. 60, see also figures in Ringuelet, 1959, Capocasale, 1967 and Cokendolpher & Hunt, 1993), posses a quite different external morphology than the species of the three genera compared above (table I). They have shorter legs, eye mound armed with two rows of three or more long spines or shorter tubercles each one tipped with three to four points (table I) (in the genus *Parageaya* only *Parageaya corderoi* Mello-Leitão, 1936 and *Parageaya vittata* Mello-Leitão, 1939 have these long

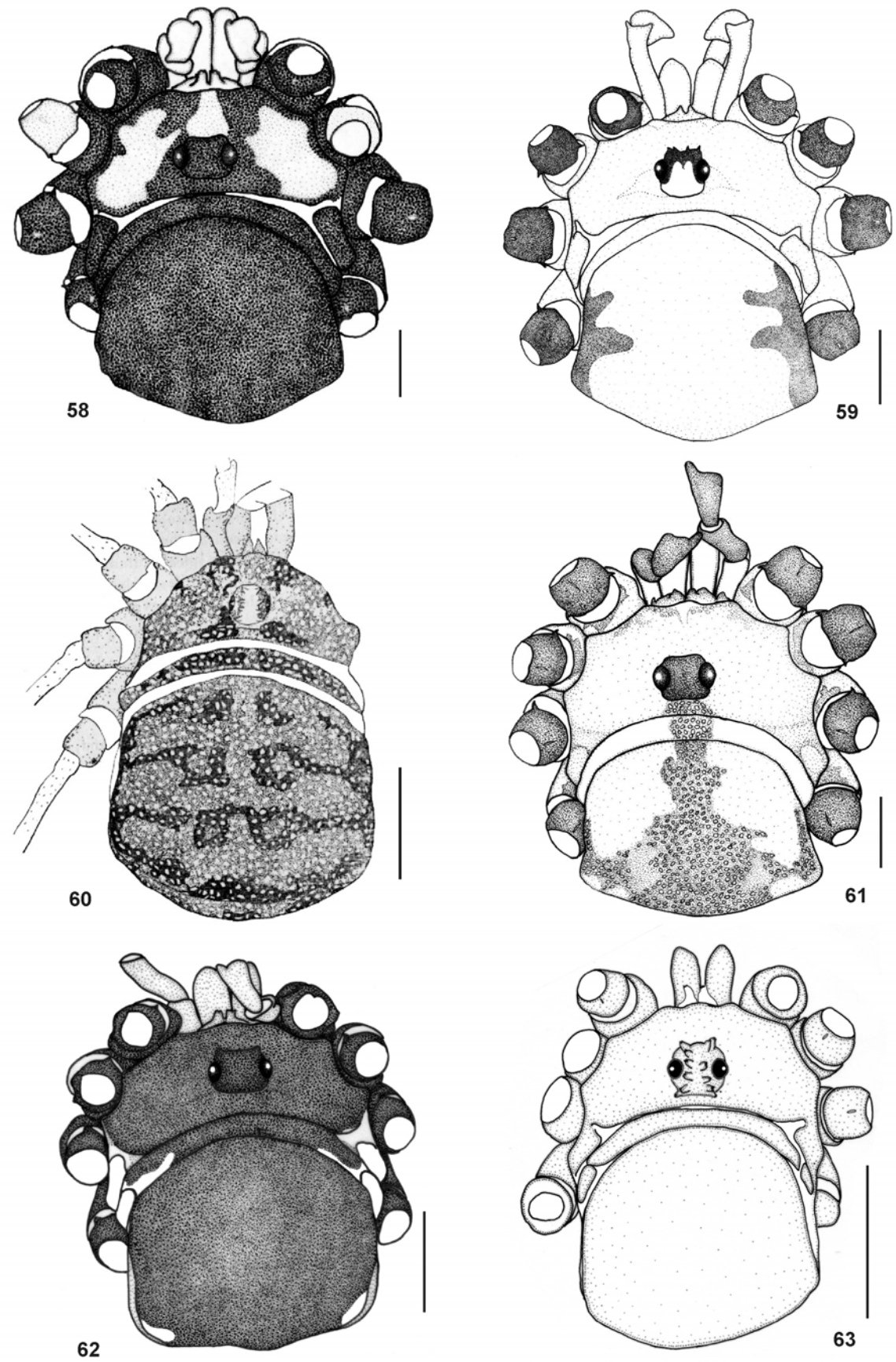


Fig. 58-63. Male dorsal view. **58.** *Jussara obesa* Mello-Leitão, 1935 (MNRJ 5947). **59.** *Abaetetuba plaumanni* (Roewer, 1953) (SMF RII/8106/436). **60.** *Pectenobunus paraguayensis*, fig. taken from Ringuelet (1959). **61.** *Holcobunus nigripalpis* Roewer, 1910 (MNRJ 5956). **62.** *Munequita pulchra* Mello-Leitão, 1941 (MNRJ 5922). **63.** *Guaranobunus guaraniticus* Ringuelet, 1959 (MLP 24294). Scale bars = 1.0 mm.

Table I. Comparative table of the external characters present in the species of the genera *Abaetetuba* new genus, *Holcobunus*, *Holmbergiana*, *Jussara*, *Munequita* and *Pectenobunus*

	Jussara / *Abaetetuba*	*Holcobunus*	*Munequita*	*Holmbergiana*	*Pectenobunus*
1. Armature of eye mound	Armed with two paralles rows of either blunt or sharp pointed low granules, each one always with one apical point. (Figs. 64-66).		As with *Jussara* or with two rows of three long sharp pointed spines, each one always with one apical point. (Fig. 67).	Armed with two parallels rows of long spines or small tubercles, with three or more apical points each. (Figs. 68-69).	
2. Armature of the thocanter of Legs	Spines of trocanter of the legs I-IV sharp (Fig. 71)		At least one spine of one of the trocanters of the legs I-IV blunt. (Fig. 70).	Spines of trocanter of the legs I-V sharp (Fig. 71).	
3. Shape of the pedipalp	Tibiae and femora of pedipalp straight (Fig. 75-76).	pedipalpal tibiae sinous at base (Fig. 73).	dorsal side of pedipalps femora forming angle in lateral view. (Fig. 72).	Tibiae and femora of pedipalp straight (Fig. 74).	
4. Dorsal scute	sub-hexagonal with both anterior sides curved in male, in females it is much more rounded. Whithout spines or protuberances (Figs. 58-59).	trapezoid with margin convex in males, females as with *Jussara* (Fig. 61).	lateral borders of dorsal scute parallel (Fig, 62).	With at least one protuberance present in dorsal scute. (Figs. 60, 63).	
5. Position of the nodules in the femora of Legs	First proximal nodule proximal to the middle of the femora	First proximal nodule closer to the base of the femora	First proximal nodule proximal to the middle of the femora	First proximal nodule proximal to apex of the femora	First proximal nodule proximal to the middle of the femora
6. Lenght of the legs I-V	Legs I-IV short (more than ten times longer than the body)			Legs I-IV long (from three to six times longer than the body)	
Sculpture of the tegument	With reticule forming granules (yellow species) or forming small alveoli (brown, yellowish brown and black)			With reticules forming larger alveoli	

Table II. Comparative morphology of the penis in four Gagrellinae genera, their respective morphological pattern are represented in this table by the characters and their states

Characters	*Abaetetuba* (Fig. 79, 87)	*Holcobunus* (Fig. 78, 88)	*Jussara* (Fig. 80-81)	*Munequita* (Fig. 77, 86)	*Pectenobunus* (Figs. 84-85)	*Holmbergiana* (Figs. 82-83)
1. Shape of winglets	Winglets narrow (longer than wide). In ventral view: a little projected at its apical portion, with a rounded outline instead of forming angle.	Winglets narrow (longer than wide). In ventral view: with anterior part of the winglets forming a collar. Borders of winglets crenulate.	Basal half of winglets broadened (wider than long). Outline of winglets rounded or truncate.	Winglets narrow (longer than wide) distal portion straighter, without projections. Winglets with strongly sinuous outline, not so sinuous in ventral view in *Pectenobunus*		Basal half of winglets broadened (wider than long). Outline of winglets rounded with lateral projection.
2. Fusion of winglets	Left and right units of winglets fused at its anterior half in ventral view, excepted for its apex.	Winglets totally fused in ventral view.	Winglets with different degrees of fusion (total or anterior half).	Winglets with different degrees of fusion, sometimes not fused in the middle in ventral view.	Winglets totally fused in ventral view in *P. paraguayensis*	
3. Shape of shaft (glans angle)	Shaft straight, in lateral view glans inclined forming acute angle (less than 25º).	Shaft strongly sinuous dorsoventrally, slightly bent but not forming angle at glans.	Shaft sinuous, not forming angle with glans.	Shaft straight, forming acute angle (that vary from less than 25º to more than 40°, in *Pectenobunus* less than 25º).		
4. Transverse section of glans	Circular with notch.	Crescent shaped.	Circular entire.	Elliptical.		
5. Stylus length	Stylus short (10% the length of glans).	Stylus long (40% the length of glans).	Stylus short (20% the length of glans).	Stylus short (10% the length of glans, in *Pectenobunus* 20%).		Stylus short (20% the length of glans).

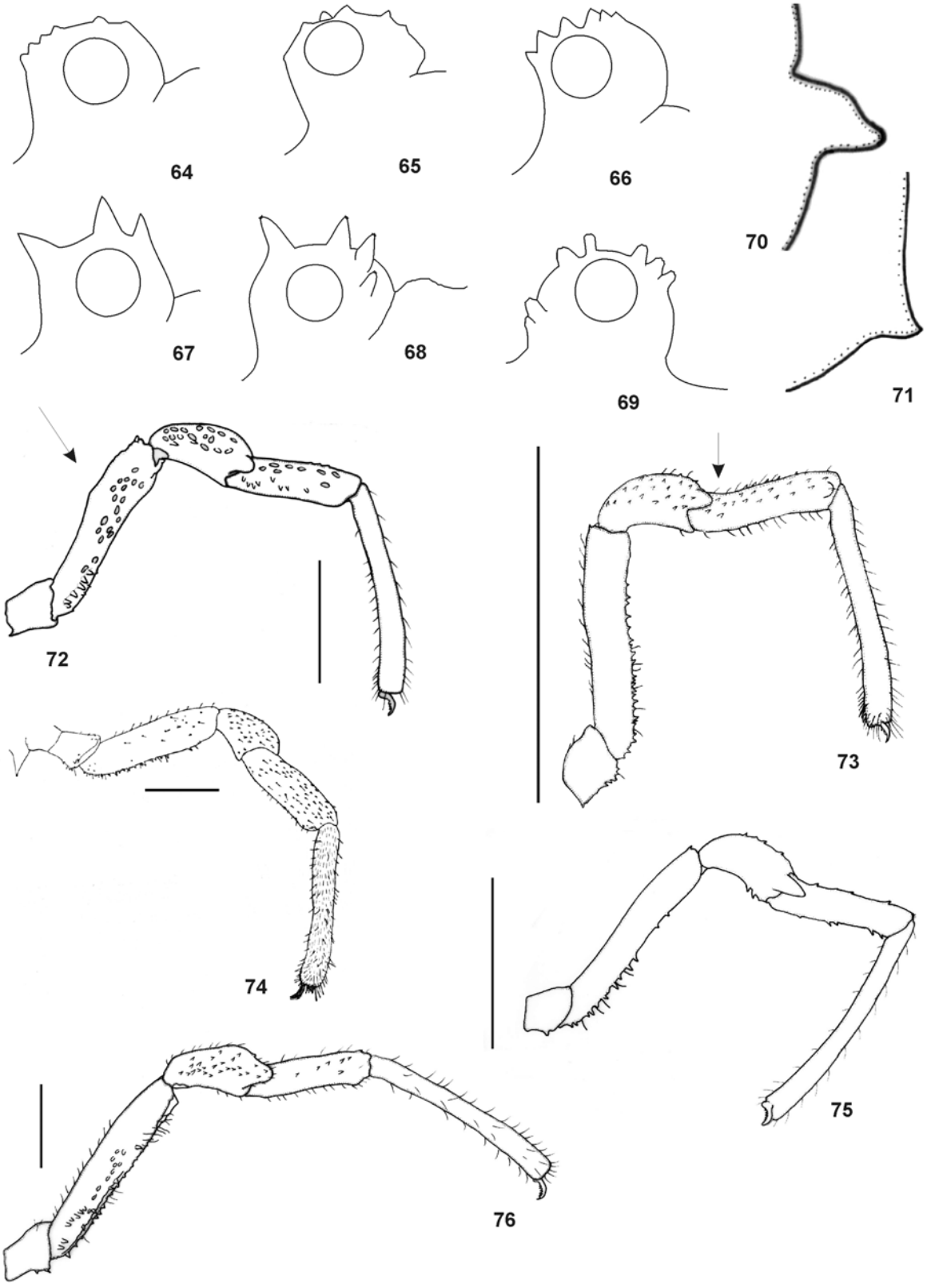


Fig. 64-69. Schematic view of the armature of the eye mound in Gagrellinae. **64.** *Jussara* Mello-Leitão, 1935 and *Munequita* Mello-Leitão, 1941. **65.** *Holcobunus* Roewer, 1910. **66.** *Abaetetuba* nov. gen. **67.** *Munequita* Mello-Leitão, 1941. **68.** *Pectenobunus*. **69.** *Holmbergiana* and *Pectenobunus*. **Fig. 70-71.** Schematic view of lateral spine of the trocanter of the legs. **Fig. 72-76.** Right pedipalp, lateral view. **72.** *Munequita pulchra* Mello-Leitão, 1941 (MNRJ 5822). **73.** *Holcobunus nigripalpis* Roewer (MNRJ 5956). **74.** *Pectenobunus paraguayensis* (Canestrini, 1888), fig. taken from Ringuelet (1959). **75.** *Jussara obesa* Mello-Leitão, 1935 (MNRJ 5947). **76.** *Abaetetuba plaumanni* (Roewer, 1953) (SMF RII/8106/436). Scale bars = 0.5 mm for Figs. 72; = 1.0 mm for Fig. 73, 75-76.

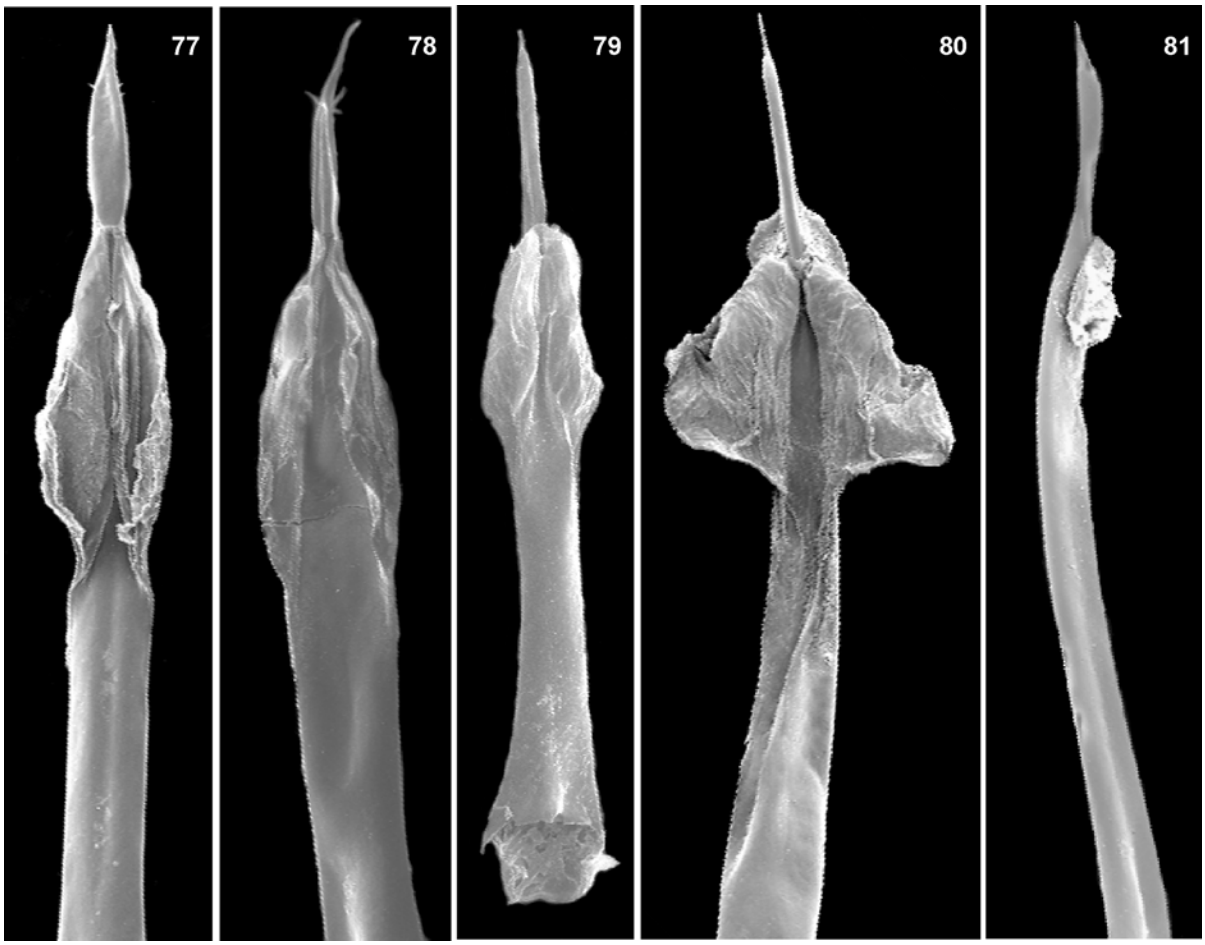


Fig. 77-81. Penis, ventral view. **77.** *Munequita sp.* (MNRJ 5910). **78.** *Holcobunus nigripalpis* Roewer (MNRJ 58835). **79.** *Abaetetuba lisei* n. sp. (MNRJ 6236). **80.** *Jussara luteovariata* (Mello-Leitão, 1932) (MNRJ 5849). **81.** *Jussara luteovariata*, lateral view (Mello-Leitão, 1932) (MNRJ 5782).

spines in the eye mound, however the spines are sharp-pointed and not tipped with small points as *Pectenobunus* and *Holmbergiana*. More on the unit of *Parageaya* on page 21), tegument with larger reticules forming alveoli and one or more small protuberances, higher tubercles/process on the abdominal dorsal scute (in *Parageaya* this character is only present in the Argentinean species *Parageaya cilliata* Mello-Leitão, 1933, following the descriptions presented in Mello-Leitão, 1933, Ringuelet, 1959 and Capocasale, 1976a). However, the species atributed to the six genera cited above can be positively diagnosed by the examination of the morphology of the male genitalia.

The penis of Gagrellinae has four areas, each one rich in diagnostic characters, Tourinho & Kury (2001) gave detailed terminology and description of these penis-areas. They are: 1) Shaft; 2) Winglets; 3) Glans; 4) Stylus. In Tourinho-Davis & Kury (2003) the morphology of the penis in *Holcobunus* and *Jussara* was compared, and discussed and the patterns for these two genera were suggested. In this paper it is proposed a comparative description of the distinct morphological patterns of the penis in six New World genera: *Holcobunus*, *Jussara*, *Abaetetuba*, *Munequita* Mello-Leitão, 1941 and *Pectenobunus* (table II).

Characters such as the shape of stylus apex, stylus bent or straight have been used also to diagnose species of *Jussara* and, in this paper, species of *Abaetetuba*. Some characters also can be shared just by a few species inside the same genus, such as presence of hooded-pores in *Jussara albiarcuata* Tourinho & Kury, 2003 and *Jussara taeniata* Tourinho-Davis & Kury, 2003, and the spine present in the stylus of *Holcobunus dentatus* Roewer, 1910, *Munequita pulchra* Mello-Leitão, 1941, *Prionostemma luteoscutum* Roewer, 1910 and *Prionostemma u-sigillatum* Mello-Leitão, 1938, by the way *H. dentatus*, *P. luteoscutum* and *P. u-sigillatum* will be transferred to *Munequita* (Tourinho-Davis & Kury, in prep.).

Capocasale (1967) sugested as diagnostic some external characters present in the Uruguayan species and described their penis, although he did not diagnose the penial characters or made any comparision among them at genus level. Cokendolpher & Hunt, mainly based upon the morphological characters of the penis, transferred the single species *Acropiliops ruricula* Melo-Leitão, from *Acropiliops* Mello-Leitão, 1933 to *Pectenobunus*. The morphology of the penis in *Munequita* (Fig. 77, 86) and *Pectenobunus* (Fig. 84, 85, see other figures in Capocasale, 1967 and Cokendolpher &

Hunt, 1993) is similar although the species of *Munequita* share a group of exclusive external characters cited above (table I).

The genera *Caiza*, *Garleppa*, *Geaya*, *Guaranobunus*, *Parageaya*, *Prionostemma*, and *Psammogeaya* were not cited or included in the comparisions above mainly because: the type species of the genus *Caiza*, *Caiza colliculosa* Roewer, 1925 was examined (external characters and genitalia). The morphology gave evidences for its tranfer to *Pectenobunus*, the taxonomic and nomenclatural acts and more discussion on the subject will be done in another paper (Tourinho-Davis, in press). The same explains the exclusion of the genus *Guaranobunus* Ringuelet, 1959, after the proper examination of the male holotype, the single species *Guaranobunus guaraniticus* Ringuelet, 1959 will be transferred to *Holmbergiana* in another paper (Tourinho-Davis, in prep.).

The former arrangement for *Parageaya* is artificial, and the four species grouped in this genus do not share similarities which support this unit in the phylogenetic sense, the genus is in need of a systematic revision, and just after the study of its genital and external morphology the patterns will be compared with the ones proposed for all the other revised genera of Gagrellinae (Tourinho-Davis, this paper). As *Parageaya* the generic groupings such as *Prionostemma*, *Garleppa* and *Geaya* are cluttered with great number of species with uncertain relationship, the arrangment for these genus is still supported by the counts of nodules in the femora of legs I-IV, discarding the genital morphology and other potential external characters. By the way species of these three genera distributted in tropical and subtropical South America are being transferred to *Abaetetuba* (Tourinho-Davis, this paper), *Jussara* (Tourinho-Davis & Kury, 2003) and *Munequita* (Tourinho-Davis & Kury, in prep.). The female holotype of the monotypic *Psammogeaya* has external morphology (armature of the eye mound, abdominal dorsal scute armed with groups of very small spines) closer to *Parageaya cilliata*, the type species of the genus *Parageaya*, both species are distributted in western Argentina.

The Color Pattern

The importance of the color pattern and its use as a diagnostic character in species of Gagrellinae has been shown in the revision of the genus *Jussara*. Although misidentifications may occur because certain species belonging to different genera have similar color pattern, such as the yellow females of *Jussara*, the female of *Holcobunus nigripalpis* and both males and females of *Abaetetuba* new genus. However, the character color combined with the morphology of the penis provides an accurate diagnosis for species included in these genera, specially for groups of species, as *Jussara* and *Abaetetuba*, without any diagnostic character evidenced by their external morphology.

From all the genera of Atlantic forest studied, *Abaetetuba* new genus is the one with most species sharing a very similar color pattern. Both males and females are usually yellow (only *A. plaumanni* is green) with trochanters I-IV and distal half of the tarsi I-IV black, and also a pair of black spots on the lateral sides of abdominal dorsal scute, the only exception, the male of *A. bahiensis*, do not have the pair of spots. In spite the same color pattern, some spots, stains and stripes can be absent and differently sized in males or females of the same species. The nodular variation present in females of *A. bahiensis* is a secondary sexual dimorphism, and it is also found in females of a new species of Gagrellinae (Tourinho-Davis, 2003).

Most females and males of *Abaetetuba* are yellow, only *A. plaumanni* is green, there are no green species in *Jussara* and no black species were found in *Abaetetuba*, *Holcobunus*, *Pectenobunus* and *Holmbergiana*. On the other hand numerous species of *Munequita* and *Jussara* are black or half black colored. In *Holmbergiana*, *Pectenobunus* and *Parageaya* the species are brown, darkish-brown, yellowish-brown with dark or lighter stains or spots, there spots are always opaque, never very lighter or shinny as the stains, spots and stripes present in *Jussara* and *Munequita*.

The yellow species of *Abaetetuba* resemble the yellow species of *Jussara* and *H. nigripalpis* (in this species only the female), though in *Abaetetuba* both males and females have yellow or green body with one lateral spot on each side of posterior half of abdominal dorsal scute. Differently from what happens with males of *Abaetetuba*, this character can be found just in the females of *H. nigripalpis* and some females of *Jussara*, but never in males. In the completely yellow species of *Jussara* (the ones similar to *Abaetetuba*) these lateral spots are never present. The yellow species *H. citrina*, *H. lisei* and the female of *H. nigripalpis* have very similar coloration, so that identification of these species at first may be confusing. Although species of *Holcobunus* are smaller in size than the two species of *Abaetuba*, both males and females have the femur, patela and proximal portion of the pedipalpal tibia black (that is why Roewer gave the name *nigripalpis*), while all the species of *Abaetetuba* have only the distal portion of the tarsi black.

Distribution and Endemism

As in many species of Laniatores (Kury, 2003a and b; Kury & Pérez, 2002; Pérez & Vasconcelos, 2003; Pinto-da-Rocha, 1997), the study of Brazilian Gagrellinae reveled a high endemism of its species. By the way Roewer's proposal of a widespread distribution for species belonging to *Holcobunus* is doubtful, since from the fourteen southern Brazilian species supposedly attributed to this genus eleven are being transferred to other genera and two are being synomnymized. The genus is actually represented in this region by only two

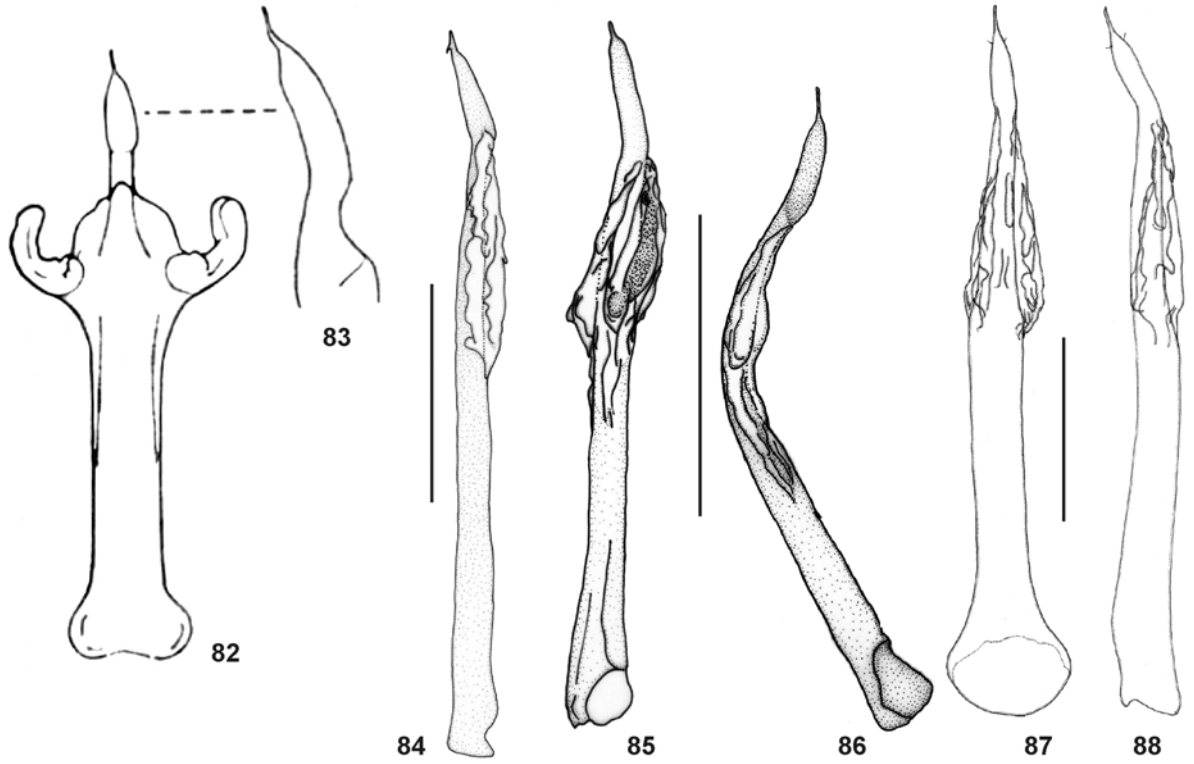


Fig. 82-88. 82, 84: Penis, ventral view. **82.** *Holmbergiana weyenberghii* (Holmberg 1876) fig. taken from Capocasale (1967). **84.** *Pectenobunus paraguayensis* (Canestrini, 1888) (SMF R I/4/573). **83, 85, 86, 87, 88:** Penis lateral view. **83.** *Holmbergiana weyenberghii* (Holmberg 1876) fig. taken from Capocasale (1967). **85.** *Pectenobunus paraguayensis* (Canestrini, 1888) (SMF R I/4/573). **86.** *Munequita pulchra* Melllo-Leitão, 1941 (MZSP 15838). **87.** *Abaetetuba plaumanni* (Roewer, 1953) (SMF RII/8106/436). **88.** *Holcobunus nigripalpis* Roewer, 1910 (MNRJ 5956). Scale bars = 1.0 mm for Figs. 87; = 0.5 mm for Figs. 84-86, 88.

species restricted to the Southeast Brazil, *Holcobunus bicornutus* (Mello-leitão, 1940) and *Holcobunus nigripalpis*, the type species of *Holcobunus*, this species can be found from Rio de Janeiro to São Paulo state. Even though, Roewer (1953) stated its type locality as South Brazil, the real type locality of it is Santos (southeastern Brazil).

Holcobunus nigripalpis was also recorded from Argentina: Missiones, Santa Maria (Ringuelet, 1959), where species of *Abaetetuba* are distributed, however it is doubtful that the species treated in that work is the same *Holcobunus nigripalpis* described by Roewer and redescribed by Tourinho & Kury in the revision of the genus *Holcobunus*. The male of the real *Holcobunus nigripalpis* has a singular color pattern (Fig. 61) and penial morphology (Fig. 6) not found in any other gagreline from New World studied until the present moment, see Tourinho & Kury (2001) for further information on the morphology and distribution of this genus.

Apparently, the distribution of species of *Abaetetuba* is disjunct with a larger group (three species) in the south Brazil and one species in the Northeast + Southeast Brazil. The distribution of *Abaetetuba* cannot be discussed in a deeper level, due to the poor knowledge and inexpressive representation of more central regions and the Northeastern fauna in scientific collections, it cannot be said if there are more species of *Abaetetuba* distributed in southern of Bahia and other areas in central Brazil.

Other endemic gagrellines can be found in the area where the species of *Abaetetuba* are distributed. In Brazil: Santa Catarina state: *Jussara quadrimaculata* (Roewer, 1953) and *Jussara lineata* (Roewer, 1953) from Nova Teutônia, *Prionostemma limbatum* Roewer, 1953, Nova Teutônia; from Paraná state: *Garleppa insperata* Soares, 1972 from Paraná, Morretes; *Jussara avati* Tourinho-Davis & Kury, 2003 from Guaratuba, *Pectenobunus ruricola* (Mello-Leitão, 1933) from Cachoeirinha, *Prionostemma iguassuensis* Mello-Leitão, 1935, São José do Iguaçu.

In Argentina: *Caiza argentina* Ringuelet 1959, from Provincia del Chaco, *Guaranobunus guaraniticus* Ringuelet, 1955, *Holcobunus dubius* Ringuelet, 1959, *Holcobunus missionicus* Ringuelet, 1959, *Holmbergiana tibialis* Ringuelet, 1959, *Parageaya ciliata* Mello-Leitão, 1933, from Misiones, *Holmbergiana weyemgberghi* (Holmberg, 1876), the type locality of this species is Buenos Aires but it was also recorded from Buenos Aires, Chaco, Corrientes, Formosa, Misiones,

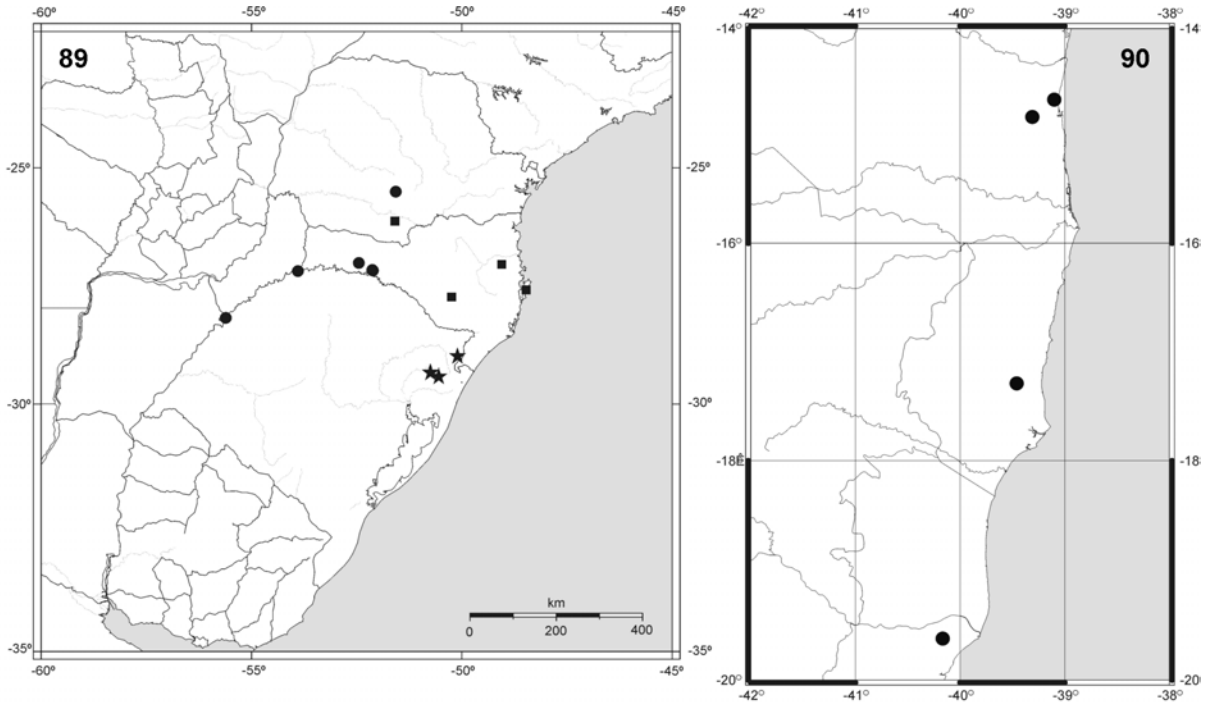


Fig. 89. Southern Brazil, showing distribution of *A. citrina* (Pocock) (square); *A. lisei* n. sp. (star); *A. plaumanni* (Roewer) (circle).
Fig. 90. Northeastern Brazil, Showing distribution of two species of *A. bahiensis* (Mello-Leitão) (circle). Relevant states for the species treated is Bahia and Espirito Santo.

Santiago del Estero, Santa Fé, Córdoba and Entre Ríos (Ringuelet, 1959). In Paraguay: *Pectenobunus paraguayensis* Roewer, 1910, type locality Porto Max. In Uruguay: *Holmbergiana orientalis* Ringuelet, 1963 from La Invernada, Sepulturas, Punta Arroyo, Laureles, Tacuarembó, and *Psammogeaya arenata* Mello-Leitão, 1946 from Punta Gorda (Colonia). *J. quadrimaculata*, *J. lineata* and *P. limbatum* and *A. plaumanni* are allopatrid.

Acknowledgements

I thank to Adriano B. Kury for revising the manuscript and Abél Pérez for helping writing the Spanish abstract and the arrangment of the loan of the type material from Museo de La Plata collection. Ricardo Pinto-da-Rocha kindly arranged the study of the specimens from Naturmuseum Senckenberg collection, which were on loan to him. Dr. Helene Santos Barbosa (FIOCRUZ) and Dr. Paulo Secchin Young (Museu Nacional/UFRJ) provided laboratory facilities. The Fundação Universitária José Bonifácio (FUJB) provided the laboratory of Arachnology of Museu Nacional with different grants.

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