

The false Cranainae of the Brazilian Atlantic Forest (Opiliones Gonyleptidae)

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Pseudotrogulus Roewer 1932, described from Amazonia as a cranaine Gonyleptidae, is newly reported from the Brazilian Atlantic Forest, where it is represented by the type species, *P. telluris* and *Pseudotrogulus mirim* new species, herein described. These, along with the two monotypic genera *Multumbo* Roewer 1927, and *Piassagera* Roewer 1928, are the only Cranainae recorded from the Brazilian Atlantic Forest. A review of these three presumed cranaine genera suggests they are only superficially similar to the Cranainae, and are instead related to the Gonyleptinae. Therefore they are newly referred to this subfamily. In the same way, *Stygnobates* Mello-Leitão 1927, also from the Brazilian Atlantic Forest, and currently included in the Andean Stygnicranainae, is shown to be more closely related to the Progonyleptoidellinae. A closer relationship among Gonyleptinae, Hernandariinae, Progonyleptoidellinae, Caelopyginae and Sodreaninae is suggested, based on genital morphology.

KEY WORDS: Opiliones, Gonyleptidae, Cranainae, Gonyleptinae, Stygnicranainae, Progonyleptoidellinae, Neotropics.

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INTRODUCTION

The typically Andean-Amazonian distribution of the subfamily Cranainae poses some problems as regards the isolated occurrence along the south-eastern coast of Brazil of three monotypic genera, referred to the subfamily by ROEWER (1932), from the biogeographic point of view. Assuming the sampling to be adequate, two possible explanations may be offered for their presence: (1) either they are relict representatives of a formerly widespread group; or (2) they are not true Cranainae. A closer study of the taxa involved has led me to choose the second hypothesis.

Stygnobates Mello-Leitão 1927 was originally described under the Gonyleptinae and later transferred to the Mitobatinae by ROEWER (1931: 120). MELLO-LEITÃO (1932: 128) subsequently moved the genus to the Stygnicranainae Roewer — a small subfamily endemic to the highlands of Colombia and Ecuador — which was generally accepted (SOARES & SOARES 1985: 195). However the similarities between *Stygnobates* and the Stygnicranainae are only superficial; whilst the latter is related to the Cranainae, *Stygnobates* shares some synapomorphic traits with the Progonyleptoidelinae, which is also distributed in the Brazilian Atlantic Forest.

A redescription follows of *Multumbo* Roewer 1927, *Piassagera* Roewer 1928, and *Pseudotrogulus* Roewer 1932 together with a reconsideration of subfamily allocation of these three genera on the one hand and of *Stygnobates* on the other. All measurements are in mm.

Abbreviations used: DZUFRJ = Departamento de Zoologia, Instituto de Biologia da Universidade Federal do Rio de Janeiro; IRSNB = Institut Royal des Sciences Naturelles de Belgique; MZUSP = Museu de Zoologia da Universidade de São Paulo; SMF = Senckenberg Museum, Frankfurt am Main.

THE PRESUMED CRANAINAE: NEW GONYLEPTINAE

Piassagera Roewer 1928

Piassagera ROEWER 1928: 123; GILTAY 1930: 242; ROEWER 1932: 322; MELLO-LEITÃO 1932: 115, 1935: 95; SOARES & SOARES 1948: 614.

Derivatio nominis. From the type-locality, Piassagüera, a railway station in the municipality of Cubatão, SP.

Type species. *Piassagera brieni* Roewer 1928, by monotypy.

Diagnosis. Gonyleptinae with free tergite III armed with an enormous curved spine; tegument densely granulous, but without dirt coat; all legs elongate and unarmed; ventral plate of penis with three pairs of helicoidal setae; tarsal segmentation: 6/10-13/7/8-9. Differs from all other Gonyleptinae by the very low eye mound, with median depression, the cephalothorax nearly as long as the abdomen, free tergites partially fused with dorsal scute and the foliaceous ventral process of glans.

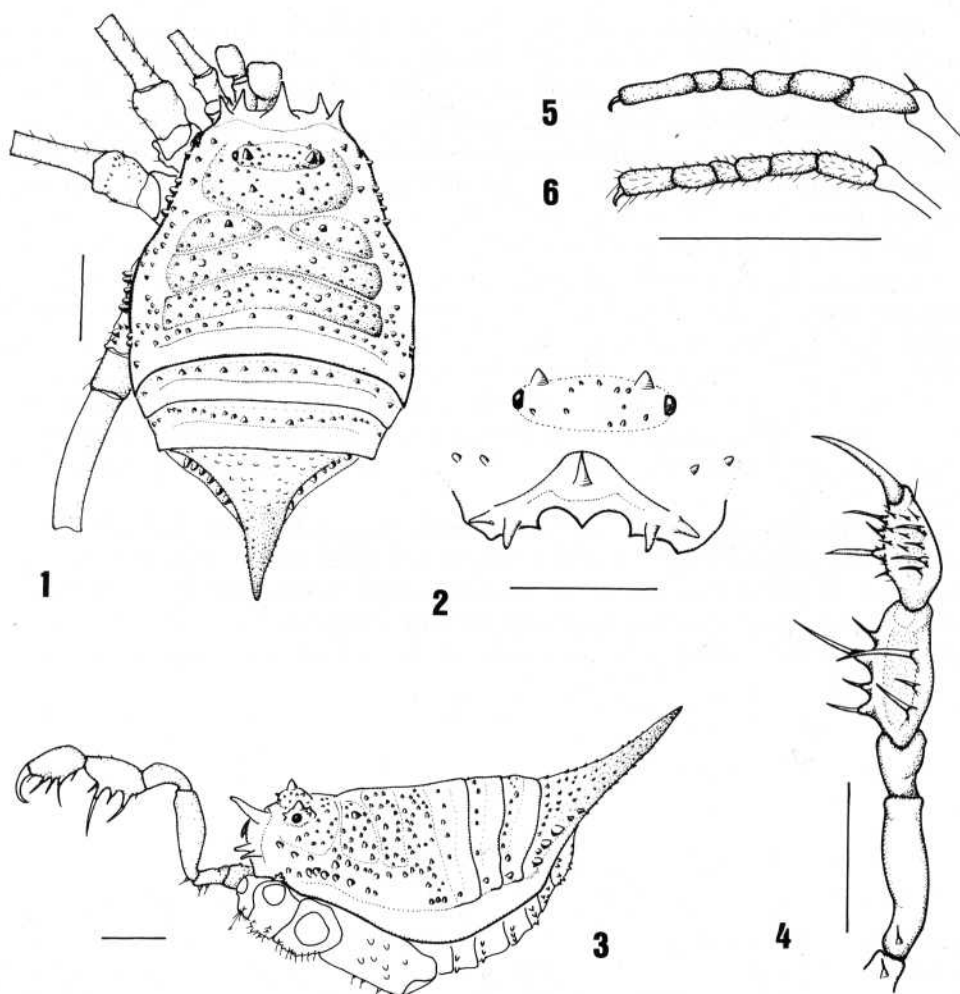
Piassagera brieni Roewer 1928 (Figs 1-6, 20-21)

Piassagera brieni ROEWER 1928: 123, figs 1-2; GILTAY 1930: 243, fig. 4; MELLO-LETTÃO 1932: 115, fig. 65; ROEWER 1932: 322, figs 38-39; SOARES & SOARES 1948: 614.

Derivatio nominis. The species is named after the collector, Paul Brien, zoologist, member of the Belgian Mission to Brazil.

Types. Piassagüera, SP, 23°50'41''S 46°22'16''W, 3 ♂♂ 1 ♀ (IRSNB and SMF 991/14) 2 October 1922, leg. P. Brien.

Material examined. SP: Boracéia, Salesópolis, 23°39'20''S 45°46'05''W, 3 ♂♂ 1 ♀ (MZUSP 10.592) 22-23 February 1961, leg. P. Biasi; 2 ♀♀ (MZUSP 10.599) 29 November 1951, leg. H. Camargo; 2 ♀♀ (MZUSP 10.610) 12 January 1961, leg. P. Biasi.



Figs 1-6. — *Piassagera brieni* Roewer 1928, female MZUSP 10.592. Fig. 1, habitus, dorsal view; Fig. 2, cephalothorax, frontal view; Fig. 3, habitus, lateral view; Fig. 4, left pedipalpus, ventral view; Fig. 5, male MZUSP 10.592, tarsus I; Fig. 6, female tarsus I. Scale bars = 1 mm.

Description. Male measurements: cephalothorax 2.12 wide, 1.64 long; abdomen 3.15 wide, 1.55 long.

Dorsum (Figs 1-3). Tiny animal; dorsal scute semi-oval, with posterior margin concave, abdomen extraordinarily short, little longer than the cephalothorax. Anterior margin of cephalothorax with deep cheliceral sockets and two robust spines in each side; anterior median elevation armed with a long spine (Figs 1-3). Eye mound very low and wide, with a median depression, armed with two small tubercles and a few granules. Cephalothorax beside and behind the eye mound provided with large granules. Mesotergum entirely covered with granules, no vestiges of area IV; posterior margin very short; all areas unarmed; lateral areas provided with a double row of large granules. Free tergites fused with the scute along their lateral margins, each with a single row of granules, I-II unarmed, III armed with an enormous conic granulous spine.

Venter. Anal operculum granulous; free sternites each provided with a row of granules; all coxae entirely covered with large granules; stigmatic area smooth, with three large tubercles; genital opercle with a group of large setiferous tubercles.

Pedipalpus. Relatively slender; trochanter with a setiferous tubercle, femur with one basal tubercle, otherwise unarmed; patella with a small mesal setiferous tubercle; tibia armed with four mesal (IiIi) and four ectal (IiIi) spines; tarsus with four mesal (IiIi) and three ectal (IiI) spines, plus a few ventral setae.

Legs. Long and slender. Basitarsus I (Fig. 5) only slightly thicker than distitarsus. Only apical portion of coxa IV surpassing dorsal scute (Fig. 1). All femora straight; all segments unarmed. Range of tarsal segmentation in males 6/11-13/7/8-9, among females 6/10-11/7/8. Ratio calcaneus: astragalus of metatarsi I-IV in male 0.15/0.11/0.08/0.04, in female 0.10/0.09/0.09/0.05. Measurements in Table 1.

Colour. Body reddish brown; free tergites lighter; posterior spine growing much darker distally until it turns black. All granules of scute and coxa IV sulphur yellow; all legs from trochanter light yellow with brown spots and rings, especially in the metatarsi.

Genitalia (Figs 20-21). Ventral plate roughly rectangular, with parabolic cleft on the distal margin; basal lobes detached, armed with three strong setae; there is also a distal group of three setae, long, with apex helicoidal. Ventral process of glans like a rhomboid lobe, acutely pointed and bordered with sharp sclerites; and with a median longitudinal groove; dorsal process absent. Stylus cylindrical, smooth, sinuous.

Table 1.
Piassagera brieni, male, appendages measurements.

	Tr	Fe	Pa	Ti	Mt	Ta	Total
Pedipalpus	0.40	1.41	0.48	0.84	—	1.54	4.67
Leg I	0.46	2.89	0.74	1.85	2.91	1.40	10.25
Leg II	0.58	7.74	1.29	5.83	7.48	4.54	27.46
Leg III	0.60	5.31	1.20	2.96	4.84	2.51	17.42
Leg IV	0.84	6.70	1.22	4.07	7.35	2.87	23.05

Multumbo Roewer 1927

Multumbo ROEWER 1927: 351, 1932: 278; MELLO-LEITÃO 1932: 112, 1935: 97; SOARES & SOARES 1948: 608.

Derivatio nominis. From the Latin *multum* = many + *umbo* = protuberance.

Type species. *Multumbo terrenus* Roewer 1927, by monotypy.

Diagnosis. Gonyleptinae with all leg segments unarmed; ventral plate of penis with four pairs of straight setae; tarsal segmentation: 6/10-13/7/8-9. Because of the unique structure of the pedipalpus, *Multumbo* can be easily distinguished from all other Gonyleptinae.

Multumbo terrenus Roewer 1927 (Figs 7-13)

Multumbo terrenus ROEWER 1927: 351, fig. 17, 1932: 317; MELLO-LEITÃO 1932: 118, 1935: 97; SOARES & SOARES 1948: 608; H. SOARES & BAUAB-VIANNA 1972: 204.

Derivatio nominis. From the Latin *terrenus* = made of earth, referring to the covering of the tegument.

Types. Parque Nac. Serra dos Órgãos, Teresópolis, RJ, 2 ♀♀ (SMF) 1914, leg. Bresslau; 1 ♂ 1 ♀ (SMF 259/4).

Material examined. RJ: Boca do Mato, Cachoeiras de Macacu, 22°25'23''S 42°37'22''W, 1 ♀ (DZUFJR 0316) 8 October 1988, leg. A. Kury/R. Rocha; Lumiar, Nova Friburgo, 22°22'01''S 42°12'46''W, 1 ♀ (DZUFJR 0642) 9 June 1990, leg. A. Kury/L. Souza; Faz. São João, Rio Grande de Cima Nova Friburgo, 1 ♀ (DZUFJR 0330) 10 October 1988, leg. A. Kury/R. Rocha; Parque Nac. S. Órgãos, Teresópolis, 22°24'S 42°50'W, 1 ♀ (DZUFJR 0565) 25 December 1989, leg. A. Kury; Faz. Vale da Revolta, Teresópolis, 1 ♂ (DZUFJR 0424) 11 February 1989, leg. R. Sachsse; 4 ♂♂ 4 ♀♀ (DZUFJR 0578) 18 January 1990, leg. A. Kury.

Description. Male DZUFJR 0578 measurements: cephalothorax 3.18 wide, 2.27 long; abdomen 5.36 wide, 3.45 long.

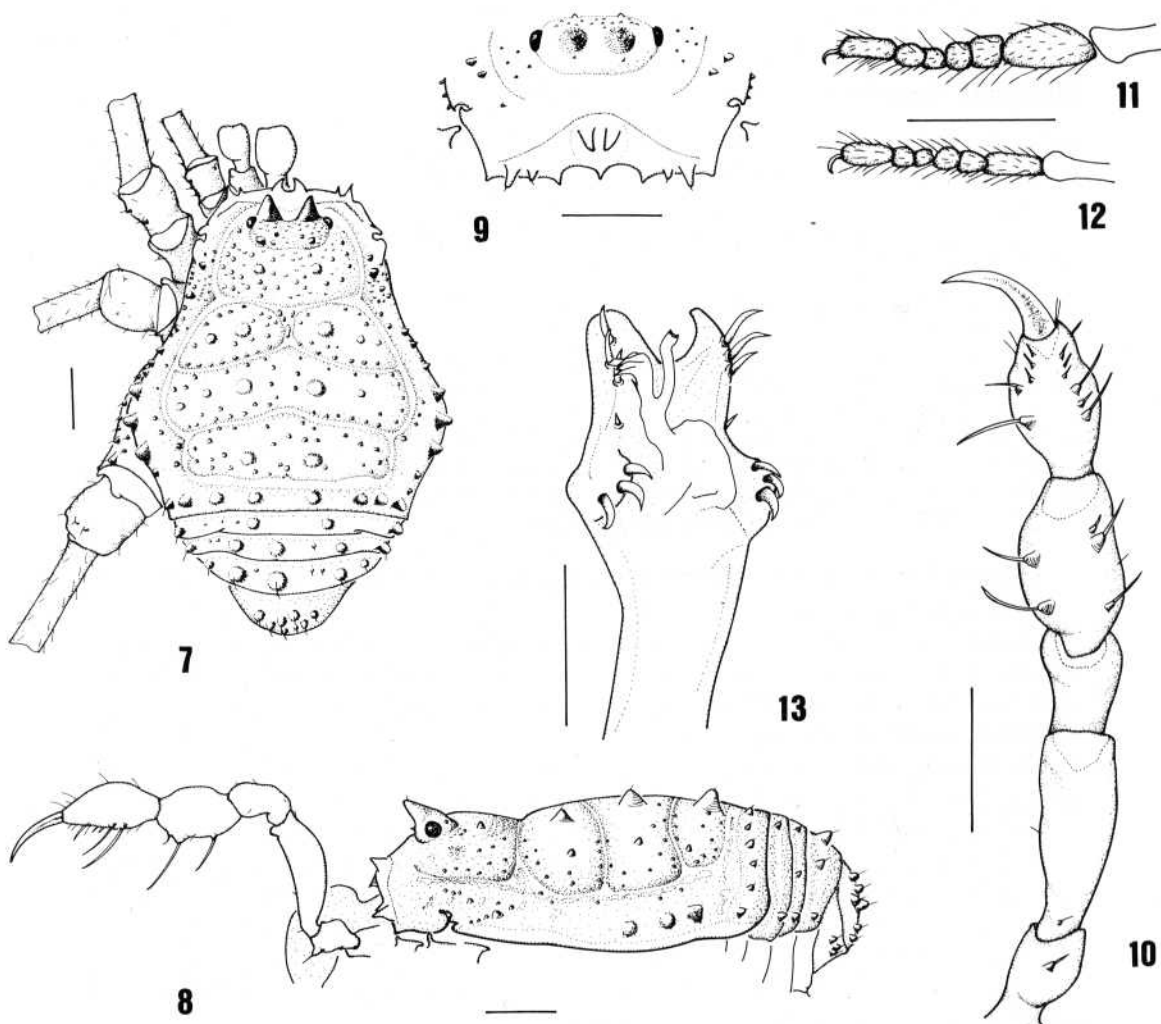
Dorsum (Figs 7-8). Body pyriform, widest at area II. Anterior margin of cephalothorax armed with two spines at each corner and median elevation low, ill-defined, with two paramedian stout convergent teeth. Eye mound (Fig. 9) not wide, low, granulous, armed with a pair of very robust forward pointing blunt spines. Cephalothorax densely granulous, with a pair of paramedian protuberances behind the eye mound. Mesotergum divided into three areas, with no trace of groove IV; area I divided by a median groove, area II projecting slightly into area I. Mesotergal areas coarsely granulous, with a pair of stout paramedian tubercles on each. Lateral margin of scute with a row of large, blunt tubercles, much stouter on area III, posterior margin and free tergites each with a row blunt, large tubercles. Dorsal anal opercle with large setiferous tubercles.

Venter. Free sternites with a row of setiferous tubercles. Coxae I-IV and genital opercle densely granulous. Stigmata clearly visible.

Pedipalpus (Figs 8, 10). All segments relatively short and thick. Trochanter with a dorsal hump and ventral setiferous tubercle; femur convex dorsally, with a small ventro-basal tubercle, elsewhere unarmed; patella unarmed; tibia and tarsus uniquely shaped, armed with extremely thin, weak spines; tibia widened in middle third

with two mesal (II) and three ectal (Iii) spines; tarsus strongly narrowed in distal part, armed with two mesal (Ii) and three ectal (Iii) spines and a few ventro-distal setae; tarsal claw robust, smooth. $Tr=0.62$; $Fe=1.71$; $Pa=0.86$; $Ti=1.19$; $Ta=1.40+1.00$.

Legs. All segments unarmed, all femora straight. Coxa IV, densely armed with setiferous tubercles, barely surpasses dorsal scute, basitarsus I swollen (Fig. 11). Variation of tarsal segmentation among males: 6/11/7/7. Ratio calcaneus/astragalus of metatarsi I-IV: 0.15/0.05/0.05/0.05. Measurements in Table 2.



Figs 7-13. — *Multumbo terrenus* Roewer 1927, male DZUFJRJ 0578. Fig. 7, habitus, dorsal view; Fig. 8, habitus, lateral view; Fig. 9, cephalothorax, frontal view; Fig. 10, left pedipalpus, ventral view; Fig. 11, male tarsus I; Fig. 12, female DZUFJRJ 0578, tarsus I; Fig. 13, distal part of penis. Scale bars = 1 mm for Figs 7-12 and = 0.15 mm for Fig. 13.

Table 2.
Multumbo terrenus, male, appendages measurements.

	Tr	Fe	Pa	Ti	Mt	Ta	Total
Pedipalpus	0.40	1.41	0.48	0.84	—	1.54	4.67
Leg I	0.46	2.89	0.74	1.85	2.91	1.87	10.72
Leg II	0.58	7.74	1.29	5.83	7.48	4.54	27.46
Leg III	0.60	5.31	1.20	2.96	4.84	2.51	17.42
Leg IV	0.84	6.70	1.22	4.07	7.35	2.87	23.05

Colour. Body, coxae and spines/tubercles coffee brown without contrast; less pigmented reticule on mesotergal boundaries and in median zone of posterior margin and free tergites. Legs light brown with dark reticule; calcanei, tarsi, pedipalpus and chelicera light yellow. Astragali ringed. Venter dark brown, coxae with lighter spots.

Genitalia (Fig. 13). Ventral plate provided with parabolic cleft; basal lobes detached, perpendicular to its plane, armed with three strong setae; lateral margins in the distal third armed with four (iIII) setae, short and straight. Stylus smooth, sub-sigmoid, cylindrical with truncate apex; ventral process like a fan of elongated flakes united at the base; dorsal process absent.

Pseudotrogulus Roewer 1932

Pseudotrogulus ROEWER 1932: 308; MELLO-LEITÃO 1935: 97; SOARES & SOARES 1948: 615.

Derivatio nominis. From the Greek *pseudo* = false + *Trogulus* = a preexisting generic name, referring to its resemblance to this European genus.

Type species. *Pseudotrogulus telluris* Roewer 1932, by monotypy.

Diagnosis. Gonyleptinae with coxae IV hidden under dorsal scute in both sexes; areas and free tergites provided with blunt protuberances; body covered with a dirt coat; tarsal segmentation 5/7-8/6/6. Distinguished from all other Gonyleptinae by the spines of eye mound convergent and fused at the apex.

Pseudotrogulus telluris Roewer 1932

Pseudotrogulus telluris ROEWER 1932: 309, fig. 25; MELLO-LEITÃO 1935: 97; SOARES & SOARES 1948: 615.

Derivatio nominis. From the Latin *telluris* = of earth.

Material examined. Caldeirão, Rio Madeira, Rondônia, 1 ♀ (not ♂ as stated in the original description) holotype (SMF 1.406/17), Parque Nac. Serra dos Órgãos, Teresópolis, RJ, 22°24'S 42°50'W, 2 ♀♀ (DZUFRJ 0567) 25 December 1989, under fallen logs, leg. A. Kury.

In his generic diagnosis, ROEWER (1932) stated (obviously a lapsus) that the pedipalpal tibia is entirely unarmed, while in the description of *P. telluris* it is correctly stated that the patella (and not the tibia) is unarmed. The reference of the

type locality is not very reliable, but should not be discarded until intensive collecting in that region confirms the absence of *Pseudotrogulus*.

***Pseudotrogulus mirim* n. sp.** (Figs 14-19, 22-23)

Derivatio nominis. From Tupi *mirim* = dwarf, referring to its small size, and to the name of the type locality.

Types. Parati-Mirim, Parati, RJ, 23°13'04''S 44°42'47''W, 10 June 1989, under stones, near a stream, leg. A. Kury; 1 ♂ holotype 1 ♀ paratype (MZUSP 11.850) 1 ♂ paratype (DZUFJR 0530) same data.

Diagnosis. Distinguished from *P. telluris* by its smaller size; protuberance of areas I-II large and white (instead of small and black); protuberance of area III black (instead of white); granulations of lateral margin of scute high and light (instead of low and dark).

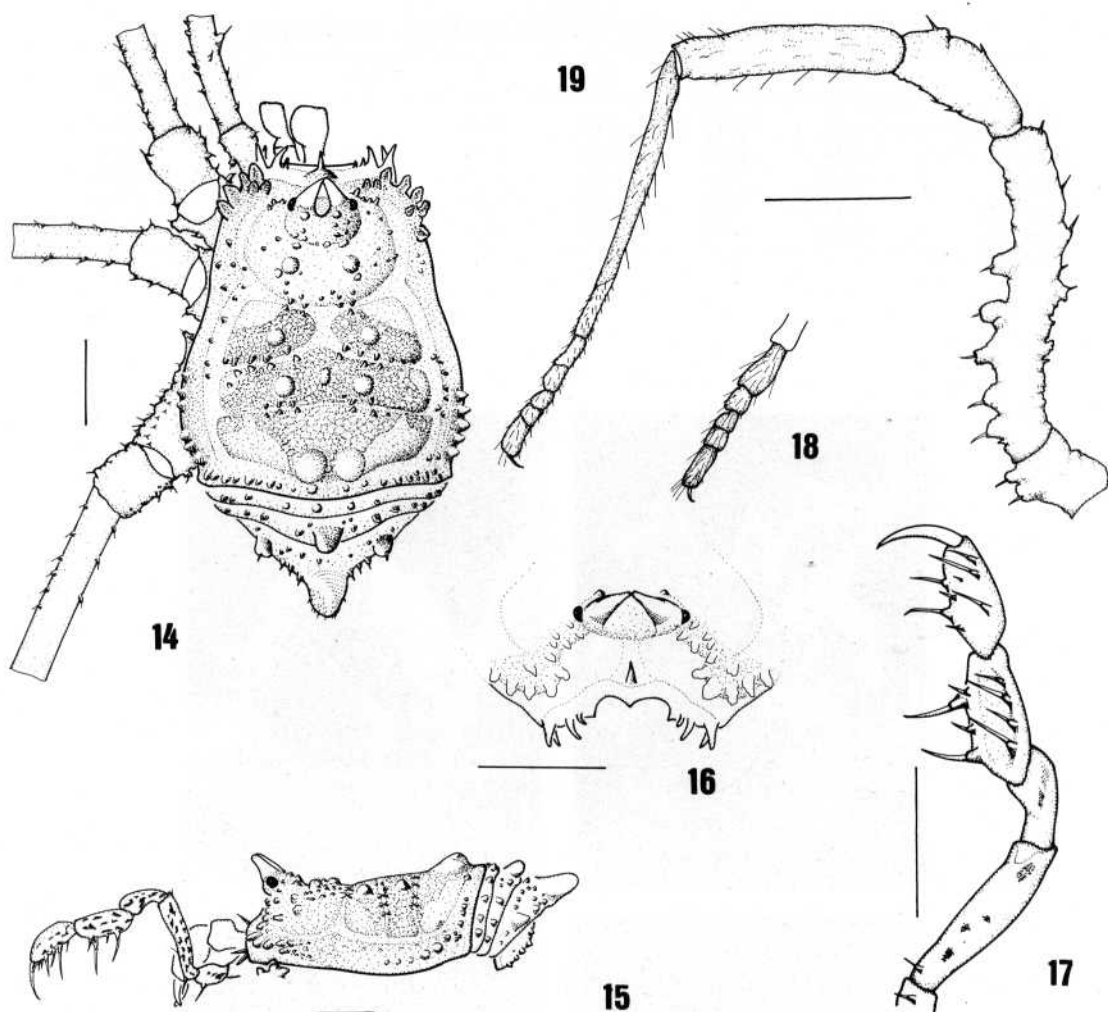
Description. Male holotype measurements: cephalothorax 2.38 wide, 1.94 long; abdomen 3.25 wide, 2.25 long.

Dorsum (Figs 14-15). Tiny animal. Dorsal scute roughly rectangular, widest at groove III. Anterior margin of scute smooth, with rounded cheliceral sockets and four robust spines on each side; anterior median elevation low, smooth and armed with a single spine (in the paratypes, the hump either has two partially fused spines or is unarmed). Eye mound not wide, moderately low, armed with a pair of spines that converge until they touch each other, and a few granules behind the spines (Fig. 16). Cephalothorax with a median elevation behind the eye mound, armed with a pair of rounded protuberances, surrounded by smaller tubercles. Mesotergum divided into three areas, with no vestige of area IV; boundaries of areas hidden under the dirt coat. Mesotergum densely wrinkled, except in the front corners of area I and hind corners of area III; each area armed with a pair of protuberances (in area III stouter and in a common elevation). Posterior margin of scute (area V) and free tergite I each provided with a row of round tubercles; free tergite II armed with a blunt protuberance, free tergite III with a larger median recurved protuberance and two smaller paramedian tubercles.

Venter. All coxae and free sternites covered with a crust. Only the mouth region, sternum and genital portion of stigmatic area are smooth, the latter armed with setiferous tubercles on the posterior margin.

Pedipalpus. Relatively slender, but not long. Coxa and trochanter armed with a pair of setiferous tubercles, femur with a basal setiferous tubercle, otherwise unarmed; patella unarmed; tibia armed with four mesal (IiIi) and four ectal (IiIi) robust spines; tarsus with four mesal (IiIi) and three ectal (IiI) spines and a few ventral setae, claw long and curved.

Legs. Robust, moderately long, trochanter I and femur I with strong setiferous tubercles; femur, tibia and metatarsus I provided with long setae (Fig. 19). All trochanters with a strong, ventro-basal setiferous tubercle. Coxa IV coarsely granulous, slightly surpassing abdominal scute in dorsal view, reaching its posterior border. Basitarsus I of male only slightly thicker than distitarsus (Fig. 18). All femora straight, leg I very short. Sexual dimorphism not observed. Ratio calcaneus/astragalus of metatarsi I-IV: 0.13/0.04/0.05/0.04. Tarsal segmentation 5/7-8/6/6. Coxa IV without



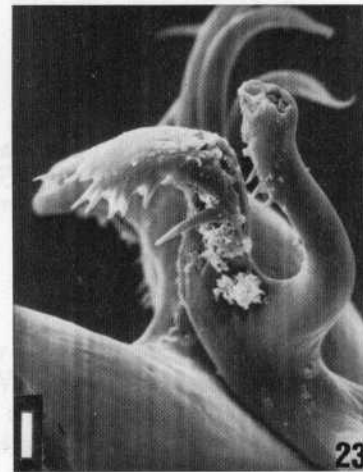
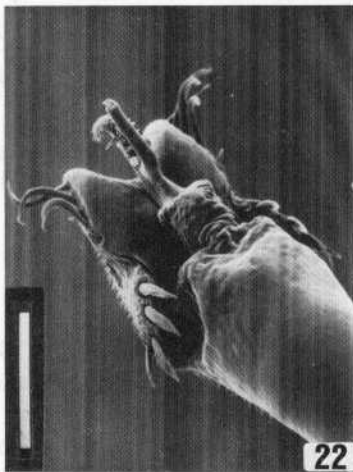
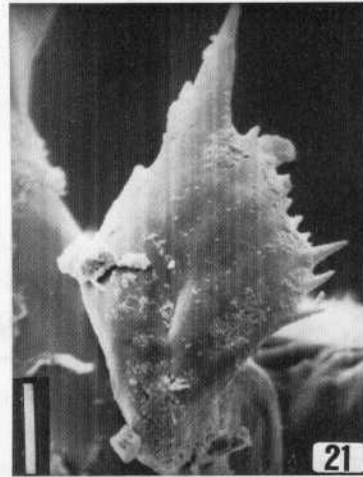
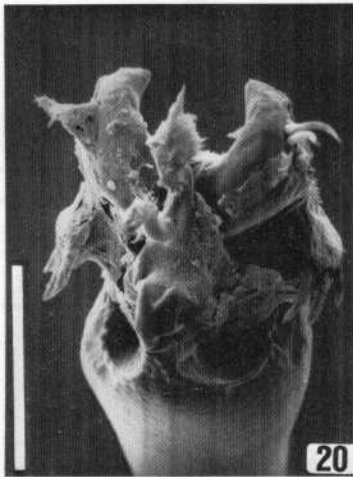
Figs 14-19. — *Pseudotrogulus mirim* n. sp., male holotype. Fig. 14, habitus, dorsal view; Fig. 15, habitus, lateral view; Fig. 16, cephalothorax, frontal view; Fig. 17, left pedipalpus, ventral view; Fig. 18, tarsus I, lateral view; Fig. 19, female paratype leg I, lateral view. Scale bars = 1 mm.

apophyses or spines, but densely covered with setiferous tubercles (Fig. 14). Distitarsus I and II with three segments. Legs I-IV (except tarsi) as well as body covered with a densely sculptured cuticle, except the cited corners of mesotergum, chelicerae, pedipalps and anterior margin of cephalothorax, which are entirely smooth. Measurements in Table 3.

Colour. Whole body coffee brown, frontal corners of area I and hind corners of area III black; the chelicerae, pedipalps, all calcanei and tarsi, the spines of eye mound and the granules of the posterior margin are pale yellow.

Table 3.
Pseudotrogulus mirim, male holotype, appendages measurements.

	Tr	Fe	Pa	Ti	Mt	Ta	Total
Pedipalpus	0.40	1.41	0.48	0.84	—	1.54	4.67
Leg I	0.46	2.89	0.74	1.85	2.91	1.26	10.11
Leg II	0.58	7.74	1.29	5.83	7.48	4.54	27.46
Leg III	0.60	5.31	1.20	2.96	4.84	2.51	17.42
Leg IV	0.84	6.70	1.22	4.07	7.35	2.87	23.05



Figs 20-23. — Male genitalia. Fig. 20, *Piassagera brieni* Roewer 1928 distal part of penis, dorsal view; Fig. 21, same, ventral branch of glans; Fig. 22, *Pseudotrogulus mirim* n. sp., distal part of penis, dorsal view; Fig. 23, same, glans, lateral view. Scale bars = 0.1 mm for Figs 20, 22 and = 0.01 mm for Figs 21, 23.

Genitalia (Figs 22-23). Ventral plate roughly rectangular, with a parabolic cleft on distal margin; basal lobe strongly developed and perpendicular to its plane, armed with four robust setae; distal corner armed with five setae; the first very short, the others long, with helicoidal apex. Stylus cylindrical, sinuous, with conic sclerites on the distal half; ventral process of glans lamellar, with strongly serrate margins; dorsal process absent.

THE PRESUMED STYGNICRANAINAE: NEW PROGONYLEPTOIDEINAE

Stygnobates Mello-Leitão 1927

Stygnobates MELLO-LEITÃO 1927: 14; ROEWER 1931: 128; MELLO-LEITÃO 1932: 128, 1939: 350; SOARES & SOARES 1946: 108, 1985: 195 (part).

Derivatio nominis. The name must be a combination of the pre-existing genera *Stygnus* Perty 1833 and *Mitobates* Sundevall 1833 respectively because of the very elongate pedipalps and the slender and weakly armed legs.

Type species. *Stygnobates barbiellini* Mello-Leitão 1927, by original designation.

Stygnobates barbiellini Mello-Leitão 1927

Stygnobates barbiellini MELLO-LEITÃO 1927: 14, 1932: 129, fig. 67; SOARES 1945: 92; SOARES & SOARES 1985: 196, figs 81-86.

Derivatio nominis. Named after the collector, the Count Amadeu Barbiellini.

Remarks. This taxon, earlier referred to three different subfamilies, is currently assigned to the Stygnicranainae Roewer 1913, a small Andean group, for the same reasons that *Multumbo*, *Piassagera* and *Pseudotrogulus* were considered Cranainae. Many putative synapomorphies suggest it should be included in the Gonyleptinae-like Gonyleptidae (see e.g. the penis in SOARES & SOARES 1985). Doubt remains whether it should be placed among the Sodreaninae or the Progonyleptoidellinae. Previous work supports the second alternative, although there is evidence to favour both placements. *Stygnobates* appears to represent a further step from the Sodreaninae-Progonyleptoidellinae groundplan towards the «typical» Progonyleptoidellinae.

Stygnobates barbiellini was redescribed by SOARES & SOARES (1985), who also referred *Zortalia inscripta* Mello-Leitão 1939 to *Stygnobates*. In spite of the very similar facies of both species (especially the females), the evidence presently available does not support their union in a monophyletic group.

DISCUSSION

Among the Atlantic Gonyleptidae, a group of five nominal subfamilies exists which forms a monophyletic unit characterized by the unique structure of the penis: (1) the distal margin of the ventral plate has a deep parabolic cleft; (2) the ventral

plate is pyriform, with the basal lobes directed dorsally (not laterally). These character states are synapomorphic for the Gonyleptinae, Caelopyginae, Sodreaninae, Progonyleptoidellinae and Hernandariinae.

The assignment of *Multumbo*, *Piassagera* and *Pseudotrogulus* by ROEWER to the Cranainae is based on no other evidence than the weak development of coxa IV. The alternative condition — hypertely of this podomere — is presumably a synapomorphy for the Cosmetidae and the Atlantic Gonyleptidae (= Gonyleptidae sensu stricto, excluding the subfamilies Cranainae, Manaosbiinae, Prostyginae, Heterocranainae and Stygnicranainae) (KURY 1992). According to the current hypothesis on phylogeny, however, among the «true» Gonyleptidae there is a putative reversal to the ancestral condition; in some groups coxa IV is reduced in both sexes. In the case of the more «advanced» Mitobatinae, such as *Mitobates* (see KURY 1990), this reduction is followed by a straightening of the abdominal scute, so the coxae can still be seen to amply surpass the scute in dorsal view. In the Gonyleptinae and closely related subfamilies, the coxae are reduced to various extent and also vary with the sex, but there does not seem to be any straightening of the scute so that the podomere is not visible dorsally (e.g. Progonyleptoidellinae). This condition, however, is only superficially similar to that found in the Cranainae on account of the associated character of the widening of the abdominal scute related to the hypertely of coxa IV, which must have occurred early in gonyleptid history. In short, this character state is symplesiomorphic for the Cranainae-like subfamilies, and synapomorphic (a secondary acquisition) for some genera in the Gonyleptinae-like assemblage.

The male genitalia also strongly supports the inclusion of the four genera discussed in this paper in the Gonyleptinae/Progonyleptoidellinae rather than in the Cranainae/Stygnicranainae. At least four apomorphic conditions may be cited (Figs 13, 20-23): (1) the margin of the ventral plate has a parabolic cleft (instead of being intact); (2) the ventral plate is pyriform with a protruded basal lobe (instead of rectangular with no basal lobe); (3) the presence (rather than absence) of a ventral process of the glans; (4) the distal setae of the ventral plate arise from the apical margin (and not from the distal-lateral margin). Character state 1-2 are synapomorphic for Gonyleptinae and their closest subfamilies (cited above), while 3-4 are synapomorphic for all the Atlantic Gonyleptidae, i.e. including the Goniosomatinae, Bourguiiinae and Mitobatinae.

Multumbo and *Pseudotrogulus* seem to be sister taxa. The convergent development of such a specialized structure in the two genera and in the Old World Trogulidae is truly remarkable, not only as regards the ocular «hood» of *Pseudotrogulus*, but also the earth covering. As ROEWER observed (1927: 352 and 1932: 309) in *Multumbo terrenus* and *Pseudotrogulus telluris*, their dark-brown body bears a coating of dirt adhering to the cuticular sculpture and only the light-yellow pedipalpi and chelicerae are entirely glossy. Some Amazonian «Gonyleptidae» of uncertain systematic position (*Ampycus* Simon 1879) also show a similar habitus.

CONCLUSIONS

The removal of *Multumbo*, *Piassagera* and *Pseudotrogulus* from the Cranainae and of *Stygnobates* from the Stygnicranainae to the Gonyleptidae sensu stricto offers more

support to the hypothetical dichotomy between the Andean/Amazonian subfamilies of the Gonyleptidae versus the Atlantic Forest/Chaco/Cerrado ones. A similar dichotomy perhaps occurs also within Cosmetidae, and offers a promising field for investigation.

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