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REVISION, CLADISTIC ANALYSIS, AND ZOOGEOGRAPHY OF *VITALIUS*, *NHANDU*, AND *PROSHAPALOPUS*; WITH NOTES ON OTHER THERAPHOSINE GENERA (ARANEAE, THERAPHOSIDAE)

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ABSTRACT

The 16 species of the South American theraphosine genera Vitalius *Lucas, Silva Junior & Bertani, 1993;* Nhandu *Lucas, 1981; and* Proshapalopus *Mello-Leitão, 1923 are described, keyed, illustrated, diagnosed, and a cladistic analysis using 30 terminals and 35 characters is provided.* Vitalius *comprises nine species of which 4 are newly described:* Vitalius paranaensis, V. longisternalis, V. buecherli, *and* V. lucasae. Pterinopelma dubium Mello-Leitão, 1923 *and* P. vellutinum *Mello-Leitão, 1923 are removed from the synonymy of* P. wacketi *and these three species are transferred to Vitalius.* Pamphobeteus communis *Piza, 1939 is removed from the synonymy of* Vitalius sorocabae *Mello-Leitão, 1923 and placed in the synonymy of* Vitalius dubius *(Mello-Leitão, 1923);* Pamphobeteus insularis *Mello-Leitão, 1923,* Pamphobeteus masculus *Piza, 1939 and* Pamphobeteus litoralis *Piza, 1976 are removed from the synonymy of* Vitalius platyomma *(Mello-Leitão, 1923) and placed in the synonymy of* Vitalius wacketi *(Mello-Leitão, 1923);* Pamphobeteus cucullatus *Mello-Leitão, 1923,* Pamphobeteus urbanicolus *Soares, 1941,* Pamphobeteus ypirangensis *Soares, 1941,* Pamphobeteus mus *Piza, 1944, and* Pamphobeteus cesteri *(Mello-Leitão, 1923) are placed in the synonymy of* Vitalius dubius *(Mello-Leitão, 1923);* Pamphobeteus cephalopheus *Piza, 1944 is removed from the synonymy of* Vitalius roseus *(Mello-Leitão, 1923) and placed in the synonymy of* Vitalius vellutinus *(Mello-Leitão, 1923).* Pamphobeteus rondoniensis *Mello-Leitão, 1923;* Pamphobeteus tetracanthus *Mello-Leitão, 1923;* Pamphobeteus exsul *Mello-Leitão, 1923; and* Pamphobeteus platyomma *Mello-Leitão, 1923 are considered* "nomina dubia". *The male of* V. roseus *Mello-Leitão, 1923 is described for first time.*

The genus Nhandu *comprises 4 species of which one is newly described:* Nhandu cerradensis. Nhandu vulpinus *(Schmidt, 1998) is transferred from* Vitalius *and the monotypic genus* Brazilopelma *Schmidt is synonymized with* Nhandu; *thus the new combination* Nhandu coloratovillosus *(Schmidt, 1998) is established.* Nhandu tripartitus *Schimdt, 1997 is considered* "nomen dubium".

The genus Proshapalopus *Mello-Leitão, 1923 comprises 3 species.* Proshapalopus multicuspidatus *(Mello-Leitão, 1929) is transferred from* Cyclosternum *Ausserer; and* Proshapalopus amazonicus, nomem novum *for* Pamphobeteus anomalus *Mello-Leitão, 1923, is transferred from* Eupalaestrus. Proshapalopus variegatus *Caporiacco, 1955 is transferred to* Metriopelma variegatum. *The females of* P. anomalus, P. multicuspidatus, *and* P. amazonicus *are described for the first time.*

Other new combinations are proposed: Lasiodora benedenii *Bertkau, 1880, from* Pamphobeteus; Lasiodora cristata *(Mello-leitão, 1923) from* Pamphobeteus. Eupalaestrus spinosissimus *Mello-Leitão, 1923, previously considered a "nomen dubium", is considered a senior synonym of* Eupalaestrus tarsicrassus *Bücherl, 1947 and* Pamphobeteus holophaeus *Mello-Leitão, 1923.* Pseudotheraphosa *Tinter is synonymized with* Theraphosa *Thorell.*

Urticating hair types were found to be segregated into distinct areas on the spiders' abdomen;

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and, relation between the different regions where urticating hairs were sampled and their length, was found. Sexual dimorphism was found in some species, where the males have urticating hair of the types I and III, while the females have only the type I. Hairs with intermediate morphology between the types I and III were found in some males.

Two cases of structural anomalies involving eyes and toracic fovea are reported.

Locality records, distribution maps and area cladograms are presented. Twelve areas of endemism were found for forest environments and four for open environments.

Keywords: Cladistic analysis; systematics; zoogeography; neotropics; araneae; theraphosidae; theraphosinae; *Vitalius*; *Nhandu*; *Proshapalopus*; *Lasiodora*; *Eupalaestrus*; *Theraphosa*; urticating hair; area cladogram; endemism; structural anomaly.

1 - Introduction

Theraphosidae is a large spider family with 800 described species, comprising more than one third of the mygalomorph species (Coddington & Levi, 1991). It is distributed throughout all tropical and many subtropical areas in all continents and includes many of the largest spider species. Though some groups of arboreal species are well known, the majority are terrestrial, living inside burrows or under rocks or logs. Very little is known on the biology of Theraphosidae, and its taxonomy is in a chaotic state (Raven, 1990). The morphological monotony of this group, the traditional small number of researchers working on it, and its wide geographic distribution, are some factors responsible for this taxonomic chaos. Taxonomic revisions are imperative to solve this problem (Raven, 1990), but, unfortunately, revisionary papers on Theraphosidae are very rare. Furthermore, some of these few available papers were neither based on type material analysis, nor in the examination of a representative number of specimens housed in scientific collections, nor in a detailed comparative morphological analysis that could introduce reliable characters into the taxonomy and systematics. Besides the taxonomic problem, the geographical distribution of the species and genera of Theraphosidae are restricted to only a few records and there is almost nothing in the literature concerning its zoogeography.

It was the former goal of this work to revise the genus *Vitalius* Lucas, Silva Junior & Bertani, and to test its monophyly, since it lacks a clear synapomorphy. Furthermore, its phylogenetic relationship is dubious, because it appeared in a polytomy with *Lasiodora* C. L. Koch, *Nhandu* Lucas, and a branch with twelve genera, in the cladistic analysis of theraphosine genera carried out by Pérez-Miles *et al.* (1996). Then, some representative species of these closely related genera were also included in the cladistic analysis, as well as some species that did not fit in any of the previous diagnosis for the genera *Vitalius*, *Nhandu*, *Eupalaestrus*, and *Lasiodora*, though undoubtedly related to them. Thus, this work was considerably ampliate and deals also with species of the genera *Nhandu*, *Lasiodora*, *Eupalaestrus* Pocock, *Proshapalopus* Mello-Leitão, and *Theraphosa* Thorell.

Some new characters are introduced as a result of comparative morphological studies carried out on these species and their morphological variability was studied in 3,500 specimens. Distribution records and biological area cladograms are presented.

Historical Review of the genera *Vitalius* Lucas, Silva Junior & Bertani; *Nhandu* Lucas and *Proshapalopus* Mello-Leitão.

The genus *Vitalius*

Pocock (1901) described the genus *Pamphobeteus* selecting *Lasiodora nigricolor* Ausserer, 1875 as type species. This author diagnosed this genus by the absence of stridulating hairs on the prolateral side of the coxa I and on the retrolateral side of the coxa of the palp; absence of scopula on the retrolateral side of the femur I; metatarsus I in males closing between the male spur branches; femur III not thickened; and patella + tibia IV only slightly longer than the first, which, at least in the female, falls short of the fourth by only about the length of the tarsus of the latter. The geographic distribution was cited as Colombia, Ecuador, and Bolivia.

Three other species were described by Pocock (1903) in *Pamphobeteus*, *P. antinous*, *P. insignis*, and *P. ornatus*. He also transferred *Lasiodora ferox* Ausserer, 1875, *Lasiodora fortis* Ausserer 1875, *Lasiodora augusti* Simon, 1888 and *L. vespertinum* Simon, 1888 to *Pamphobeteus*. The transference of *L. augusti* and *L. vespertinum* were also corroborated by Simon (1903). The inclusion of these species did not change the geographical distribution previously assigned to the genus.

Mello-Leitão (1923) described twelve new species of *Pamphobeteus* from Brazil: *P.*

platyomma, *P. melanocephalus*, *P. cesteri*, *P. rondoniensis*, *P. roseus*, *P. sorocabae*, *P. cucculatus*, *P. tetracanthus*, *P. exsul*, *P. holophaeus*, *P. insularis* and *P. anomalus*. He also transferred *Crypsidromus isabellinus* Ausserer, 1875 and *Lasiodora benedenii* Bertkau 1880, to *Pamphobeteus*. The original geographic distribution of the genus was considerably changed, because of the inclusion of Brazilian species.

Piza (1933) described *P. piracicabensis*; in 1939, *P. masculus* and *P. communis;* and in 1944, *P. cephalophoeus* and *P. mus*. Soares (1941) described two more species, *P. urbanicolus* and *P. ypiranguensis*. All seven species are from Brazil.

Bücherl (1947; 1949) revised the species described by Mello-Leitão, Piza, and Soares and synonymized many of them. He considered as valid *P. roseus*, *P. cesteri*, *P. sorocabae*, *P. platyomma*, *P. rondoniensis*, *P. anomalus* and *P. tetracanthus*. Bücherl (1947a) also suggested that *P. cesteri* was a junior synonym of *P. isabellinus* and cited that *P. benedenii* (Bertkau, 1880), "seems to be a *Lasiodora* species", as originally described; but, since he did not examined the types, he did not make the transference, keeping them in *Pamphobeteus* in agreement with Mello-Leitão (1923).

Bonnet (1956) did not consider the dubious transference of *Crypsidromus isabellinus* to *Pamphobeteus* made by Mello-Leitão (1923) because this is the type species of *Crypsidromus* and this genus has priority over *Pamphobeteus*.

Bücherl (1957) illustrated the male bulbs and spurs of the species *P. sorocabae*, *P. cesteri*, *P. isabellinus*, *P. platyomma*, *P. roseus* and *P. tetracanthus* which were known formerly only by females. However, he did not describe any of the males of the species above.

Schiapelli & Gerschman de Pikelin (1964) revised the genus *Acanthoscurria* and transferred *Acanthoscurria cristata* Mello-Leitão, 1923, from Ceará, Brazil, to *Pamphobeteus*.

Piza (1976) described one more species, *P. litoralis*, from Brazil.

Schiapelli & Gerschman de Pikelin (1979) redescribed *Pamphobeteus nigricolor* after examining the types and presented illustrations of the male palpal bulbs and spermathecae.

Lucas *et al.* (1993) transferred the Brazilian species of *Pamphobeteus* to the new genus *Vitalius*. They diagnosed it by the male palpal bulb and spermathecae shape and by the way the metatarsus closes over the spur branches. They also transferred *P. anomalus* to *Eupalaestrus* and synonymized *V. litoralis* (Piza, 1976) with *V. platyomma*.

Pérez-Miles *et al.* (1996) revised and presented a cladogram for the relationship of the theraphosine genera. In this analysis *Vitalius* appears in a polytomy with *Lasiodora*, *Nhandu*, and a branch with twelve other theraphosine genera. The holotype of *Crypsidromus isabellinus* was examined and this species transferred to the genus *Lasiodora*.

Schmidt (1998b) described one more species, *Vitalius vulpinus*, from Northern Brazil.

The genus *Nhandu*

Lucas (1981) described the genus *Nhandu* and its only species *N. carapoensis* from Caarapó, Mato Grosso do Sul, Brazil. It was diagnosed by the absence of stridulatory hairs; extension of the scopula on metatarsus, that reaches the basis in the metatarsus I and II, 4/5 of apical length in metatarsus III and 1/3 of apical length on metatarsus IV; absence of male spurs; male palpal bulb with short embolus; and shape of spermathecae.

Raven (1985) synonymized *Nhandu* and *Sericopelma* Ausserer, 1875 with *Mygalarachne* Ausserer, 1871. Lucas, Schmidt, Silva Junior & Bertani, (1991) considered *Mygalarachne* as "*incertae sedis*", restoring *Sericopelma*. Thus, *Nhandu* became a junior synonym of *Sericopelma*.

Schmidt (1989) suggested that *Nhandu* was a valid genus.

In the cladystic analysis of Pérez-Miles *et al.* (1996), *Nhandu* was shown to be distinct from *Sericopelma*.

Platnick (1997) considered *Nhandu* a junior synonym of *Sericopelma*. However, his catalog does not deal with papers published after 1995, thus the Pérez-Miles *et al.* (1996) paper was not considered.

The genus *Proshapalopus*

The genus *Proshapalopus* and its only species *P. anomalus* were described based only on the male from Pinheiro (now Pinheiral), Rio de Janeiro, Brazil by Mello-Leitão (1923). It was included in Ischnocolinae because the holotype has the scopula of tarsi IV divided by a longitudinal band of setae. This character was considered diagnostic for Ischnocolinae until being dismissed in Raven's (1985) and Pérez-Miles' (1994) papers. Mello-Leitão (1923) thought *Proshapalopus* to be closer to *Hapalopus* Ausserer, 1875; and, the main differences between them were the presence, in *Proshapalopus*, of a recurved fovea, sternal sigillae located a little apart from the margin, and the male palpal tibia with the rastellum located on the internal side.

Caporiacco (1955) described one more species, *P. variegatus*, from Venezuela.

Raven (1985) considered *Proshapalopus* a junior synonym of *Stichoplastus* Simon, 1889, because of the similarities in shape of the male bulb, male spur and tarsal scopulae. However, Pérez-Miles (1992a) transferred *Stichoplastus* to the subfamily Ischnocolinae after examining the holotype of the type species, *S. ravidus* Simon, 1889, which did not have the theraphosine synapomorphies. Rudloff (1997) also examined the holotype of *S. ravidus* and revalidated *Proshapalopus* because of the presence of a retrolateral scopula on femur IV in *Proshapalopus*, a character found only in some Theraphosine genera. In the same paper *P. variegatus* was considered *nomem dubium*.

2 - Material and Methods

2.1 - Material

Almost 3,500 specimens were examined, the majority from the Instituto Butantan mygalomorph collection. The abbreviation of the collections, cities and curators are listed below.

ESALQ	Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba (A. D. Paschoal).
IBSP	Instituto Butantan, São Paulo (R. Bertani).
MCN	Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E. H. Buckup).
MNRJ	Museu Nacional, Rio de Janeiro (A. B. Kury).
MUCV	Museo de Biologia, Universidad Central de Venezuela, Caracas (R. Candia).
MZSP	Museu de Zoologia da Universidade de São Paulo, São Paulo (R. Pinto-da-Rocha).
MCTP	Museu de Ciência e Tecnologia da Pontifícia Universidade Católica, Porto Alegre (A. A. Lise).
RCW	R. C. West private collection, Victoria.
SMNK	Staatliches Museum für Naturkunde Karlsruhe, Karlsruhe (H. Höfer).

2.2 - Abbreviations - morphology – follows Bertani (in press) for male palpal bulb; Coyle, (1995) for spermatheca; and Raven (1985) for somatic characters: A, male palpal bulb apical keel; AC, male palpal bulb prolateral accessory keel of *Proshapalopus*; ALE, anterior lateral eyes; AME, anterior median eyes; D, male palpal bulb ventral median depression; PI, male palpal bulb prolateral inferior keel; PLE, posterior lateral eyes; PLS, posterior lateral spinnerets; PME, posterior median eyes; PMS, posterior median spinnerets; PS, male palpal bulb prolateral superior keel; R, male palpal bulb retrolateral keel; SA, male palpal bulb subapical keel; SB, spermatheca bulb; SS, spermatheca stalk; STC, superior tarsal claws.

2.3 - Measurements – All measurements are presented in millimeters. The lengths of the articles of legs, carapace and the total length were obtained with a caliper. All appendage articles were measured from the left appendages and the measurements were performed between the dorsal points of articulation. The carapace was measured from the clypeus margin to the posterior margin, which is slightly concave. Total length includes the chelicerae. The lengths of eye tubercle, labium and sternum were obtained with a Wild M-8 stereomicroscope with 10 x eyepiece lenses and an eyepiece micrometer scale, recording the maximum diameter of these structures, with the exception of the sternum, measured from its anterior margin, which is slightly concave.

2.4 - Leg spination – The terminology of spines is based on Petrunkevitch (1925), with modifications. The total number of spines were expressed for basal, median and distal regions on each article side. In descriptions, spines on edges of distal sides are identified as "ap" to differentiate these spines, commonly concentrated on the distal article edges, from other spread over the distal area. The patella spines were expressed in total numbers for each face, due the small dimension of the article. Spines on ventral metatarsus IV were also expressed in their total number, because of the high quantity of spines present, which do not allow of a careful definition of the planes Petrunkevitch (*l. c.*).

2.5 - Scanning electron microscopy – The material was examined in a scanning electron microscope JEOL JSM840A from the "Laboratório de Microscopia Eletrônica do Departamento de Física Geral, do Instituto de Física da Universidade de São Paulo".

2.6 - Urticating hairs - The classification of urticating hair types follows Cooke *et al.*, 1972. They were taken from specimens preserved in alcohol 80% with the aid of a small forceps and put in a vial with 1 ml of alcohol 80%. Through vigorous hand movements the liquid was homogenized and one drop was collected and mounted on slides. Afterwards they were examined and measurements were obtained with a microscope, using an eyepiece micrometer scale. Four hairs from six distinct abdominal areas were measured (Fig. 1): median region, comprising an anterior, median, and posterior areas; and, left la-

teral region, comprising an anterior, median, and posterior areas.

Material examined for urticating hairs:

Acanthoscurria geniculata (C. L. Koch, 1842) – 1♂ 1♀, IBSP 7022 and 7023, both from U. H. E. Tucuruí, Tucuruí, Pará, Brazil; *Acanthoscurria sternalis* Pocock, 1903 – 1 ♂ 1♀, MNRJ, Jujui, Argentina; *Aphonopelma seemani* (F. O P.-Cambridge, 1897) - 1 ♂ 1 ♀, IBSP 7020 and IBSP 7019, both from Central America; *Brachypelma emilia* (White, 1856) – 1 ♀ 1 ♂ IBSP 7028; 7027, both from Mexico; *Cyrtopholis portoricae* Chamberlin, 1917 - 1 ♂ RCW, NW Guayama, Puerto Rico; *Eupalaestrus campestratus* (Simon, 1891) - 1 ♀ IBSP 2346, 1 ♀ Palmeiras; 1 ♀ IBSP 2830, Brilhante, Mato Grosso do Sul, Brazil; 1 ♀ IBSP 4149, Coxim; 1 ♂ IBSP 4302, Nova Andradina; all in Mato Grosso do Sul, Brazil; *Eupalaestrus spinosissimus* Mello-Leitão, 1923 - 1 ♀ IBSP 593, São José dos Campos, São Paulo, Brazil; *Eupalaestrus weijenberghi* (Thorell, 1894) - 1 ♂ 1♀ IBSP 7979 and IBSP 7980, Montevideo, Uruguay; *Lasiodora* sp. - 1 ♀ IBSP 6357, Salvador, Bahia, Brazil; 1 ♀ IBSP 6417, Guararema, São Paulo, Brazil; 1 ♂ IBSP 6451, Vitória, Espírito Santo, Brazil; 1 ♂ IBSP 6422, Jambeiro, São Paulo, Brazil; 1 ♂ IBSP 6416, Caruarú, Pernambuco, Brazil; 1 ♂ IBSP 7034, Centralina, Minas Gerais, Brazil; *Nhandu carapoensis* Lucas, 1981 - 1 ♀ IBSP 1434, Aquidauana, Mato Grosso do Sul, Brazil; 1 ♀ IBSP 2780, Campo Grande, Mato Grosso do Sul, Brazil; 1 ♂ IBSP 4553, Caarapo, Mato Grosso do Sul, Brazil; 1 ♂ IBSP 6555, Piraputanga, Mato Grosso do Sul, Brazil; 1 ♂ IBSP 6559, Araras, São Paulo, Brazil; 1 ♂ IBSP 6556, Dourados, Mato Grosso do Sul, Brazil; *Nhandu vulpinus* - 1 ♀ 1 ♂, IBSP 6568 and IBSP 6577, both from U. H. E. Tucuruí, Tucuruí, Pará, Brazil; 1 ♂ IBSP 4245, Belém, Pará, Brazil; *Nhandu coloratovillosus* - 1 ♀ IBSP 512, Agachi, Mato Grosso do Sul, Brazil; 1 ♀ 2959, same locality; 1 ♂ IBSP 4078, Barra do Garças, Mato Grosso, Brazil; 1 ♂ IBSP 2748, Between Rivers Culuene and Sete de Setembro, Mato Grosso, Brazil; *Nhandu cerradensis* - 1 ♀ IBSP 2716, Bahia, Brazil; 1 ♀ IBSP 4108, Formoso, Goiás, Brazil; 1 ♂ IBSP 3809, Porangatú, Goiás, Brazil; *Pamphobeteus* sp. - 1 ♀ IBSP 7025, U. H. E. Samuel, Porto Velho, Rondônia, Brazil; 1 ♂ IBSP 7024, Medellín, Colombia; *Phormictopus cancerides* (Latreille, 1806) - 1 ♀ IBSP 7021, Haití; 1 ♂ RCW, Republica Dominicana; *Proshapalopus anomalus* Mello-Leitão, 1923 - 1 ♀ IBSP 6858, Domingos Martins, Espírito Santo, Brazil; 1 ♂ IBSP 6857, same locality; *Proshapalopus multicuspidatus* (Mello-Leitão, 1929) - 1 ♀ IBSP 6846, Porto Seguro, Bahia, Brazil; 1 ♂ IBSP 6848, same locality; *Proshapalopus amazonicus* - 1 ♀ IBSP 6915, Alta Floresta, Mato Grosso, Brazil; 1 ♂ 4747, same locality; *Theraphosa apophysis* (Tinter, 1991) - 1 ♂. IBSP 7049, Brazil/Venezuela boundary area; *Theraphosa blondi* (Latreille, 1804) - 1 ♀ IBSP 7032, U. H. E. Balbina, Presidente Figueiredo, Amazonas, Brazil; 1 ♂ IBSP 7031, same locality; *Vitalius dubius* (Mello-Leitão, 1923) - 1 ♀ IBSP 5544, Jundiaí, São Paulo, Brazil; 1 ♀ IBSP 5590, Aguaí, São Paulo, Brazil; 1 ♀ IBSP 5589, Santa Bárbara d'Oeste, São Paulo, Brazil, 1 ♂ IBSP 5920, Mogi-Mirim, São Paulo, Brazil; 1 ♂ IBSP 5907, Pirassununga, São Paulo, Brazil; 1 ♂ IBSP 5898, São Roque, São Paulo, Brazil; *Vitalius roseus* (Mello-Leitão, 1923) - 1 ♀ IBSP 6729, Tuparendí, Rio Grande do Sul, Brazil; 1 ♀ IBSP 6730, same locality; 1 ♀ 6726, same locality; 1 ♂ 6727, same locality; 1 ♂ IBSP 6728, same locality, 1 ♂ IBSP 6743, same locality; *Vitalius sorocabae* (Mello-Leitão, 1923) - 1 ♀ IBSP 6926, Sorocaba, São Paulo, Brazil; 1 ♀ IBSP 6943, São Manuel, São Paulo, Brazil; 1 ♂ IBSP 4978, Cezário Lange, São Paulo, Brazil; 1 ♂ IBSP 5073, Ibiúna, São Paulo, Brazil; *Vitalius vellutinus* (Mello-Leitão, 1923) - 1 ♀ IBSP 5687, Cândido Mota, São Paulo, Brazil; 1 ♀ IBSP 5678, Assis, São Paulo, Brazil; 1 ♀ IBSP 6984, Assis, São Paulo, Brazil; 1 ♂ IBSP 6342, Palmital, São Paulo, Brazil; 1 ♂ IBSP Teodoro Sampaio, São Paulo, Brazil, 1 ♂ IBSP 6346, Assis, São Paulo, Brazil; *Vitalius wacketi* (Mello-Leitão, 1923) - 1 ♀ IBSP 6955, Itanhaém, São Paulo, Brazil; 1 ♀ IBSP 6957, Serra de Santos, São Paulo, Brazil; 1 ♀ IBSP 6958, Praia Grande, São Paulo, Brazil; 1 ♂ IBSP 6833, Angra dos Reis, Rio de Janeiro, Brazil; *Vitalius longisternalis* - 1 ♀ IBSP 6754, U. H. E. Segredo, Candói, Paraná, Brazil; 1 ♀ IBSP 6764, same locality; 1 ♀ IBSP 6776, same locality; 1 ♂ IBSP 6771, same locality; 1 ♂ IBSP 6775, same locality; 1 ♂ IBSP 3939, Guarapuava, Paraná, Brazil; *Vitalius lucasae* - 1 ♀ IBSP 4392, Curitiba, Paraná, Brazil; 1 ♂ IBSP 6829, Iratí, Paraná, Brazil; 1 ♂ IBSP 3939, Paraná, Brazil; *Vitalius buecherli* - 1 ♀ IBSP 6647, Piedade, São Paulo, Brazil; 1 ♀ IBSP 6630, Juquitiba, São Paulo, Brazil; 1 ♀ IBSP 6646, same locality; 1 ♂ IBSP 6586, same locality; 1 ♂ IBSP 6594, same locality; 1 ♂ IBSP 6600, São Paulo, São Paulo, Brazil; *Vitalius paranaensis* - 1 ♀ IBSP 6663, Rolândia, Paraná, Brazil; 1 ♀ IBSP 6672, U.H.E. Itaipú, Foz do Iguaçú, Paraná, Brazil; 1 ♀ IBSP 6672, same locality; 1 ♂ IBSP 6678, same locality; 1 ♂ jovem IBSP 4327, Rolândia, Paraná, Brazil, 1 ♂ IBSP 1359, Arapongas, Paraná, Brazil; *Xenesthis immanis* (Ausserer, 1875) - 1 ♀ IBSP 4267, Venezuela; 1 ♂ IBSP 7026, no locality.

2. 7 – Cladistic analysis – The cladistic analysis was carried out using three phylogenetic packages using equal, successive, and implied character weighting: Hennig 86 version 1.5 (Farris, 1988), Nona version 1.6 (Goloboff, 1993), and Pee-Wee version 2.6 (Goloboff, 1997). For Hennig 86 it was used the combination of the approximate

algorithms mh* and bb* since it was not possible to use the exact algorithm "implicity enumeration, ie" which allows to find the most parsimonious cladogram. For Nona and Pee-Wee it was used mult*15 and when recommended by the program the trees were swapped using max* branch-swapping algorithm. Searches were done using both amb= and amb- options and for Pee-Wee it the *K* value (constant of concavity) from 1 to 6. The data matrix with 30 taxa and 35 characters was analyzed both with all characters unordered and with some characters ordered, depending if there was indication of connection among different character states or not. The outgroups and sister groups were chosen based on the cladogram presented by Pérez-Miles *et al.* (1996) for Theraphosinae. As proposed by Nixon & Carpenter (1993), the outgroups were considered as terminals, as a way of testing the ingroup monophyly. Branch support indices (Bremer, 1994) were calculated with Nona using h100, find*, bsupport14 (for cladogram with characters 2, 4, 8, 17 ordered) or bsupport4 (for cladogram with characters unordered).

Outgroup material examined:

Aphonopelma seemani (F. O. P.-Cambridge, 1897) 1 ♂ IBSP 7019, Central America, 1 ♀ IBSP 7020, no locality; *Sphaerobothria hoffmani* Karsch, 1879 - 1 ♂. RCW, Moraña, San José, Costa Rica; *Phormictopus cancerides* (Latreille, 1806) - 1 ♂ RCW, Barahona, Republica Dominicana; *Phormictopus cubensis* Chamberlin, 1917 - 1 ♂ MNRJ 13264, Cuba; *Acanthoscurria sternalis* Pocock, 1903 - 3 ♂, 1 ♀ MNRJ, Jujui, Argentina; *Acanthoscurria geniculata* (C. L. Koch, 1842) - 1 ♂ IBSP 7022, U. H. E. Tucuruí, Pará, Brazil; 1 ♀ IBSP 7023, same locality.

Sister group material examined:

Pamphobeteus sp. - 1 ♂ IBSP 7024, Medellím, Colombia; 1 ♀ IBSP 7025, U. H. E. Samuel, Porto Velho, Rondônia, Brazil; *Brachypelma emilia* (White, 1856) - 1 ♂ IBSP 7027, México; 1 ♀ IBSP 7028, Mexico; *Theraphosa blondi* (Latreille, 1804)- 1 ♂ IBSP 7029, U. H. E. Tucuruí, Pará, Brazil; 1 ♀ IBSP 7030, same locality; *Theraphosa apophysis* (Tinter, 1991) - 1 ♂. IBSP 7049, Brazil/Venezuela boundary area; *Xenesthis immanis* (Ausserer, 1875)- 1 ♂ IBSP 7026, no locality; 1 ♀ IBSP 4267, Venezuela.

3. Results and Discussion

3.1 - Morphology

Most of the characters traditionally used in theraphosid systematics were studied here, such as fovea shape, differences in the proportions between leg articles and other body parts, number of cheliceral teeth, size and disposition of the eyes and scopula, color patterns, stridulatory hairs, spine patterns, male spur (Simon, 1892; Pocock, 1903; Mello-Leitão, 1923; Bücherl, 1947a; Schiapelli & Gerschman de Pikelin, 1979; Raven, 1985; Smith, 1995; Prentice, 1997); spermathecae shape (Schiapelli and Gerschman de Pikelin, 1962b); urticating hair type (Cooke *et al.* 1972; Perez-Miles *et al.* 1996); and male palpal bulb keels (Bertani, in press).

The characters fovea shape, number of cheliceral teeth, size and disposition of the eyes and of the scopula on legs; showed only small variations, which are found among almost all species studied and thus they can rarely be used either to characterize species or in the cladistic analysis. Genitalia characters are more widely used here than before. This is in part due to a new approach carried out on male palpal bulb structures (Bertani, in press) which yielded some characters never previously used.

A more detailed discussion concerning urticating hair morphology and spine patterns is given below:

3.1.1 – Urticating hairs

Cooke *et al.* (1972) described four morphological urticating hair types for Theraphosinae and proposed their utilization in taxonomy. After this paper, the citation of urticating hair type in descriptions of new theraphosine species became usual, as well as their utilization in cladistic analysis (Pérez-Miles *et al.* 1996). Type II urticating hair is exclusive for some avicullariine genera (Lucas, Silva Junior & Bertani, 1991; Bertani & Marques, 1996). Types I, III and IV occur only in Theraphosinae (Cooke *et al.* 1972) and the presence of type III is considered a synapomorphy of this group (Pérez-Miles *et al.* 1996). Marshall & Uetz (1990) described for the genus *Ephebopus* (Aviculariinae) the type V urticating hair which is located on the prolateral apex of the palpal femur, differing from the other species that have urticating hairs only on the abdomen dorsum. Pérez-Miles (1998) described the type VI which is apparently exclusive of the theraphosine species *Hemirrhagus cervinus* Simon, 1903.

In Theraphosinae, urticating hair types I and III or III and IV can occur simultaneously in the same individual (Cooke *et al.* 1972). These authors proposed that they are segregated into distinct areas on the spiders abdomen. Figs. 1-5 present the results of a comparative study dealing with the relation between type of urticating hair and the area on

spider abdomen. These results confirm Cooke *et al.* (1972) segregation hypotheses, i. e., type I urticating hair (Fig. 3) is always present on the lateral regions, as well as in median-anterior and median regions, while type III (Fig. 2) is always present on median and median-posterior regions (fig. 1). These results are particularly important for specimen analysis in taxonomical studies. It is necessary to pick up at least two urticating hair samples from two different abdominal areas, and, one of them should obligatorily include the median-posterior region. The absence of urticating hair in this region is frequent because the hairs on this region are the first to be throw by the spider during its defensive behavior. If this area is found to be bald, it will be impossible to obtain information about the presence of type III urticating hair.

Cooke *et al.* (1972) also suggested that variation in type I urticating hair morphology could be specific, and thus this could be used as characters in theraphosid taxonomy. Type I urticating hair has four distinct regions (Fig. 3) which they named "A" the distal region, which presents no barbs; "main barbs" the next region presenting barbs which are directed to the basal region; "B" another region without barbs; and, "C" or "reversed barbs" the basal hair region, shorter than the "main barbs" region and presenting barbs directed to the opposite direction of the "main barbs". They suggested that hair length and proportions between the different hair regions are constant for each species, but it was not performed any study to confirm this hypothesis. However, the results obtained in this study do not confirm their proposal (Fig. 4). In all studied specimens there is a great variation in total hair length according to the region where they were picked up. There is always an increase in total length towards the antero-posterior direction and latero-median direction, i. e. hairs from the median-posterior region are always the longest, sometimes three times longer than the hairs from the median-anterior region. Thus, the utilization of urticating hair detailed morphology in taxonomy can be done only after a careful analysis of these variations on each species and taking into account the region from where the hairs were picked-up. In the cladist analysis carried out here, type I urticating hair morphology was used only once, because of the great morphological differences found, when comparing to the hairs from other related species (Fig. 3). This hair presents the "A" region very short and the "B" region long, the opposite of other analyzed hairs.

Another feature to be considered in taxonomical studies involving urticating hairs is sexual dimorphism. Cooke *et al.* (1972) concluded that both sexes have the same urticating hair type, though some slight morphological differences between males and females could be found. However, this study found differences concerning the urticating hair type presented in males and females of the same species. In this case, males have type I and III urticating hairs and females only type I. One hair having an intermediate morphology between types I and III was found for some males (Fig. 5). This hair does not have the "B" region, which, together with the presence of many short barbs, gives it a type III resemblance. However, there is a distal reversed barb region which occurs only in type I urticating hair.

3.1.2 – Leg spines

In Theraphosinae, leg spines are present on femora, patellae, tibiae, and metatarsi. They show high variation in number and disposition and, even in the same individual, there is variation between the spines of the legs of right and left sides (Bücherl, 1947a). This author also stated that the number of leg spines increase towards the rear and become numerous (more than 20) on the metatarsus IV. Table II shows the minimum and maximum spine numbers found on the tibiae and metatarsi in species of the genera *Nhandu*, *Lasiodora*, *Proshapalopus*, and *Eupalaestrus*. These data confirm the proposition of Bücherl (*l. c.*) and show the existence of sexual dimorphism in this group, since the number of spines found in males is always higher than in females.

Despite the found variation on the quantity of spines, some patterns are apparent. It is possible to propose basic positions for this group as follows:

Femur - 1 apical prolateral spine – they range from 0 to 2 (one specimen with 5).

Apical retrolateral spines – they are less frequent than the anterior ones, being more common on posterior legs. They range from 0 to 2.
Patella – The majority of the species examined do not have patella spines, mainly on the palpus and legs I and II. Sometimes, they can present 1 or 2 prolateral spines. The legs III and IV can have from 0 to 3 prolateral spines and 0 to 2 retrolaterals. *Vitalius sorocabae* females have from 2 to 5 retrolaterals and are common specimens with 3 retrolateral spines. This could be an apomorphy of this species. Some males of *Nhandu carapoensis* and *N. cerradensis* have from 0 to 4 ventral spines.
Tibia – There is a great variation in the number and disposition of palpal spines. Some species have one apical prolateral group of spines (fig. 25) and others a row of dorsal apical spines (fig. 24), constituting apomorphies for some taxa.

In legs, mainly the III and IV, there is normally one prolateral and one retrolateral spaced row of spines, almost dorsal, constituted by one basal spine, one median spine, and one apical spine. The variation found here concerns the number of

spines on each position, but the pattern is constant in all studied specimens.

Ventrally, the variation is great in the number and position. However, the presence of at least one apical marginal spine in all tibiae is constant. Some specimens showed 8 apical marginal spines on the tibia.

Metatarsus – The same pattern found on the tibia can be recognized for the prolateral and retrolateral metatarsal spines. The same is true for the great variation found on the ventral tibia, mainly for the metatarsus IV which is long and has many spines. The ventral apical marginal spines are also present on the metatarsi of all legs.

3.2 - Cladistic Analysis

List of characters used in cladistic analysis. Multistate characters were both treated as unordered and as ordered, in this case when there was an indication of morphological contiguity between the states. Ordered characters are indicated in each item. Discussions refer to the best resolved tree (fig. 164) obtained with ordered characters. L = character steps on tree; CI = consistence index; RI = retention index; Wt= weight (Hennig86); and Fit= Fit (Pee-Wee, concavity 3); the first number refers to fig. 164, the second to fig. 165. A "+" means that the referred group of taxa is monophyletic.

1 – Embolus length (L = 4/4; CI = 0.25/0.25; RI = 0.76/0.76; Wt= 1/1; Fit=5.0/5.0):
0, long, embolus 2,5 times longer than its width (Figs. 85-86).
1, short, embolus length less than 2,5 times its width (Figs. 131-132).

This character has interspecific variation in many theraphosine genera. For example, some *Acanthoscurria* species have a long and narrow embolus (*A. sternalis* Figs. 43-44) while others have the embolus short and thickened (*A. geniculata* Figs. 46-47); other examples are *Pamphobeteus* (*P. nigricolor* and *P. antinous* Pocock, 1903) and *Vitalius* (*V. wacketi* (Figs. 85-86) and *V. dubius* (Figs. 91-96)). Some parallel transformation series seem to occur among species of distinct theraphosine genera leading to an increase in the embolus diameter and a reduction of the embolus length from the primitive condition long/narrow. This character is a synapomorphy of *Nhandu* + *Vitalius* with a reversion in the clade *V. wacketi* + *V. longisternalis* and parallelism in *P. anomalus* + *P. multicuspidatus* and in *A. geniculata*.

2 – Apical keel (A) (L = 2/2; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, small, restricted to the embolus apex (Figs. 52-53).
1, intermediate, extending slightly backwards (Figs. 76-77), reaching or not the subapical keel.
2, very long, extending backwards by almost all ventral embolus edge (Figs. 147-148).

The apical keel is always small, restricted to the embolus apex in the outgroups. The development backward is considered here as a synapomorphy of the clade *Nhandu* + *Vitalius* + its sister-group, represented by the genera *Pamphobeteus*, *Xenesthis*, *Brachypelma*, and *Theraphosa*. The state 2 is a synapomorphy of the sister-group of *Nhandu* + *Vitalius*. Ordered.

3 – Embolus apex diameter (L = 2/2; CI = 0.5/0.5; RI = 0.8/0.8; Wt= 4/4; Fit= 7.5/7.5):
0, slender (Figs. 76-77).
1, thick (Figs. 93-94).

Synapomorphy of *Nhandu* with parallelism in the clade *V. dubius* + *V. buecherli*. In these groups, the embolus apex, above the retrolateral keel, has a diameter increase due to the size of the prolateral superior keel which surpasses the embolus plan.

4 – Retrolateral keel (R) (L = 4/3; CI = 0.5/0.66; RI = 0.9/0.91; Wt= 4/6; Fit= 6.0/7.5):
0, absent.
1, present, not pronounced, slightly rounded (Figs. 8-9, 50).
2; present, pronounced, sharp (Figs. 10-13, 76).

The state 1 is a synapomorphy of *Eupalaestrus* + *Proshapalopus* + *Lasiodora* + *Nhandu* + *Vitalius* + the sister group of *Nhandu* + *Vitalius*. The state 2 is a synapomorphy of *Lasiodora* + *Nhandu* + *Vitalius* + the sister group of *Nhandu* + *Vitalius*. A reversion to the plesiomorphic state occurs in some genera of the sister group of *Nhandu* + *Vitalius*, like *Brachypelma* + *Theraphosa* and other genera not included in the analysis, but belonging to this group, like *Megaphobema* and *Sericopelma*. Ordered.

5 - Subapical keel (SA) (L = 2/1; CI = 0.5/1.0; RI = 0.91/1.0; Wt= 4/10; Fit= 7.5/10.0):
0, absent.
1, present (Figs. 60-61).

Synapomorphy of the clade *Proshapalopus* + *Lasiodora* + *Nhandu* + *Vitalius* + the sister group of *Vitalius* + *Nhandu*, with reversion to state 0 in the sister group of *Nhandu* + *Vitalius*.

6 – Prolateral accessory keel, under the prolateral inferior keel (AC) (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, absent.
1, present (Fig. 73).

Autapomorphy of *Proshapalopus*.

7 – Denticulate row in the prolateral inferior keel (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, absent.
1, present (Figs. 30-31).

Sphaerobothria hoffmani and some *Aphonopelma* species, like *A. seemani*, have a denticulate row in the basal half of prolateral inferior keel. This was not considered here as homologous to the denticulate row present in *Eupalaestrus*, *Phormictopus* and *A. sternalis* (character 11) because they are located in distinct regions on the male palpal bulb (Bertani, in press).

8 – Distal embolus shape (L = 2/2; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, embolus apex with a conical shape, retrolateral region slightly convex (Figs. 6-7).
1, embolus apex slightly laterally flattened, the retrolateral region is slightly concave under and above the retrolateral keel (Figs. 8-9).
2, embolus apex very flattened laterally, giving it a concave/convex general appearance; retrolateral side very concave under and above the retrolateral keel (Figs. 10-13), or only one concave region when the retrolateral keel is absent (Figs. 14-15).

Theraphosinae has plesiomorphically the embolus conical. In the clade *Eupalaestrus* + *Proshapalopus* + *Lasiodora* + *Nhandu* + *Vitalius* the embolus apex is slightly latterally flattened, characterized by concave areas above and under the retrolateral keel. In the sister-group of *Nhandu* + *Vitalius* this region becomes flatter, resulting in a concave/convex, spoon-like shape. Ordered.

9 – Prolateral inferior keel (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, present (Fig. 75).
1, absent (Fig. 159).

Prolateral keels are present in all theraphosine genera, with the exception of *Euathlus* (Bertani, in press). The prolateral superior keel is normally well developed, constituting the superior embolus edge. In contrast, the prolateral inferior keel is normally diminute and, in *Theraphosa*, it is completely absent (Bertani, in press).

10 – Male palpal bulb ventral median area (L = 3/3; CI = 0.33/0.33; RI = 0/0; Wt= 0/0; Fit= 6.0/6.0):
0, normal, or with a slight depression at ventral median area.
1, male palpal bulb with a pronounced depression at the ventral median area (D) (Figs. 68-69).

This character is considered here a synapomorphy of *Proshapalopus* with a reversion in *P. anomalus* and an homoplasy in *Vitalius lucasae*, instead of independent gains in *P. amazonicus*, *P. multicuspidatus*, and *Vitalius lucasae*, a similar parsimonious possibility. Thus, it was considered a ACCTRAN (procedure that ACCelerates the evolutionary TRANsformation of a character, Swoford & Maddison, 1987), optimization which priorizes an anterior appearance of the apomorphic condition and reversions to the plesiomorphic condition. It occurs also out of the group of study, as for example, in *Thrixopelma pruriens* Schmidt 1998.

11 – Male palpal bulb with long subapical row of denticles (SA), reaching more than half of the bulb embolus length. (L = 3/3; CI = 0.33/0.33; RI = 0.33/0.33; Wt= 1/1; Fit= 6.0/6.0):
0, absent.
1, present (Fig. 50-51).

This denticulate row has the same position of the subapical keel, and was considered its primary homologous (Bertani, in press). However, because of the morphological differences between them, they were codified separately as a way of testing its secundary homology. According to the results, the most parsimonious option is to consider it as a synapomorphy of the species of *Eupalaestrus* and of the clade *Phormictopus* + *Acanthoscurria*, with reversion in *Acanthoscurria geniculata*. It could be considered also an independent acquision in *Phormictopus cancerides* and in *Acanthoscurria sternalis*. However, the majority of *Acanthoscurria* species has a very modified male palpal bulb, suggesting a basal position of *A. sternalis* in relation to the other *Acanthoscurria* species and thus the denticulate row absence is probably a derivated character of other *Acanthoscurria* species.

12 - Male palpal bulb with prolateral superior keel and apical keel apically fused. (L=1/1; CI=1.0/1.0; RI=1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, Prolateral superior keel and apical keel not completely fused.
1, Prolateral superior keel and apical keel completely fused (Figs. 158-159).
Synapomorphy of *Theraphosa*.

13 – Male spur shape (L = 4/4; CI = 0.75/0.75; RI = 0.88/0.88; Wt= 6/6; Fit= 7.5/7.5):
0, Two straight branches originate from a common base, the retrolateral branch is slightly narrow in its median region (Fig. 141).
1, Two convergent branches originate from a common base, tapering distally, the prolateral branch is thickened (Fig. 97).
2, Two straight branches originate from a common base, the retrolateral lacks a median narrowing (Fig. 153).
3, Two convergent branches which do not originate

from a common base, the retrolateral having a median narrowing (Fig. 38).

Extremelly homoplasious character. State 1 is a synapomorphy of the clade with all *Vitalius* species except *V. lucasae*, occuring also as a homoplasy in *Proshapalopus multicuspidatus*. State 2 is a synapomorphy of the sister group of *Nhandu* + *Vitalius*. State 3 is an autapomorphy of *Cyrtopholis portoricae*. In the species *N. carapoensis*, *V. vellutinus*, *V. roseus*, and *Theraphosa blondi* the spurs are absent or reduced and thus this character was codified as "non-comparable".

14 – Male spur (L = 3/3; CI = 0.66/0.66; RI = 0.50/0.50; Wt= 3/3; Fit= 7.5/7.5):
0, present, normal size (Fig. 97).
1, present, very reduced (Fig. 108-111).
2, absent (Fig. 129).

In Theraphosinae the condition "males with a well-developed two branch spur" seems to be primitive, because it is present in all basal theraphosine genera according to the cladogram of Pérez-Miles *et al.* 1996. They are absent in some species such as *Theraphosa blondi*, *Nhandu carapoensis*, *Sericopelma* spp. and, only one branch is present in other species such as *Acanthoscurria* spp. and *Schizopelma bicarinatum* F. O. P. -Cambridge, 1897.

In *V. vellutinus* and *V. roseus* these spurs suffer variation, from weakly developed to vestigial (Figs. 108-111). They are always small and normally are not easily seen for they are covered by long tibial hairs which project themselves over the spurs. Surely it was this reduced size that led Bücherl (1957) to identify specimens of these species as pertaining to *Sericopelma*, genus which does not have male spurs. He identified other specimens, showing slightly larger spurs, as *Pamphobeteus roseus* (sensu Bücherl, 1947a). Many specimens of *Vitalius vellutinus* with vestigial spurs housed in the IBSP collection were identified by Bücherl as "*Sericopelma* sp.".

Because of the "generic value" assigned to this structure by some authors such as Bücherl (1957), many species were considered distinct from some close forms and included in distinct genera. Thus, the genera *Theraphosa* and *Nhandu* were diagnosed mainly because of the absence of spurs. However, as a result of the present analysis it is clear that the absence of spurs are only autapomorphies of the species *N. carapoensis* and *T. blondi*.

15 – Flexion of metatarsus I of males (L = 7/7; CI = 0.28/0.28; RI = 0.28/0.28; Wt= 0/0; Fit= 3.7/3.7):
0, touching the side of the retrolateral branch (Fig. 83).
1, touching the apex of the retrolateral branch (Fig. 58).
2, closing between the two branches, thus contacting the inner face of both branches (Fig. 145).

This character shows variation in almost all analyzed groups. The state 0 is a plesiomorphy of the studied group and the state 1 is a synapomorphy of the clade *Proshapalopus* + *Lasiodora* + *Nhandu* + *Vitalius* + sister group of *Nhandu* + *Vitalius*. There is parallelism in *S. hoffmani* and a reversion, constituting a synapomorphy of *Vitalius* with parallelism in *Proshapalopus multicuspidatus*, *Nhandu vulpinus*, and *Theraphosa apophysis*. State 2 is a synapomorphy of *Pamphobeteus* + *Xenesthis*, as previously shown by Pérez-Miles *et al.* (1996), with some parallelisms in other groups not included in this study, as *Homoeomma* Ausserer, 1871 and *Plesiopelma* Pocock, 1901. For the species lacking spur, with reduced spur, or with one-branched spur, this character was codified as "non-comparable".

16 – Number of male spur branches (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, two branches (Fig. 34).
1, one branch (Fig. 41).

Synapomorphy of *Acanthoscurria*, with homoplasies in other genera not included in the analysis, as *Schizopelma*. For species lacking spur it was codified as "non-comparable".

17 – Fusion of the spermathecae (L = 3/3; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, spermathecae separated (Fig. 54).
1, spermathecae fused in a small area (Fig. 59).
2, spermathecae widely fused, but still presenting vestiges of the two spermathecae in the distal region (Fig. 146).
3, spermathecae completely fused, there is no vestige of the two spermathecae (Fig. 154).

The semicircular spermathecae of *Brachypelma* was considered to be primitive (Smith, 1995), perhaps, due to its "simplicity". However, the semicircular spermathecae is clearly a result of fusion, as can be seen in Pérez-Miles *et al.* 1996 cladistic analysis of Theraphosinae. In this paper it was showed that a transformation series occurs from the primitive condition of two separated spermathecae, to widely fused spermathecae, to single semicircular spermathecae, to single oval spermathecae. This was followed here with some modifications. Distinctions were made between species presenting fused spermathecae in a small area and widely fused spermathecae.

State 1 is a synapomorphy of the clade *Lasiodora* ((*Nhandu* + *Vitalius*) ((*Pamphobeteus* + *Xenesthis*) (*Brachypelma* + *Theraphosa*))). State 2 is a synapomorphy of the clade ((*Pamphobeteus* + *Xenesthis*) (*Brachypelma* + *Theraphosa*)) and state 3 is a synapomorphy of *Brachypelma* + *Theraphosa*. Ordered.

18 – Spermatheca shape (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, not subspheric.
1, subspheric (Fig. 42).

The subspheric spermathecae shape seems to be a synapomorphy of *Acanthoscurria* (Pérez-Miles *et al.* 1996), with some possible reversions, such as in *A. gomesiana* (pers. obs.).

19 – Spermathecae length (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, short.
1, long, at least twice as long as the heavily sclerotized area (Fig. 138).

State 1 is a synapomorphy of the species *N. vulpinus* and *N. coloratovillosus*. In other theraphosine species there is some variation in the spermathecae length but they never reach the dimensions found in the derived condition.

20 – Spermathecae stalk (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, stalk narrower than spermathecae bulb (Fig. 134).
1, stalk as wide as spermathecae bulb (Fig. 130).

Synapomorphy of *Nhandu carapoensis* + *N. vulpinus* + *N. coloratovillosus*.

21 – Trochanteral stridulatory hairs (L = 1/2; CI = 1.0/0.5; RI = 1.0/0.66; Wt= 10/10; Fit= 10.0/10.0):
0, absent.
1, present (Fig. 26).

Synapomorphy of the genera *Cyrtopholis* + *Phormictopus* + *Acanthoscurria*.

22 – Coxal stridulatory hairs (L = 3/3; CI = 0.33/0.33; RI = 0.33/0.33; Wt= 1/1; Fit= 6.0/6.0):
0, absent.
1, present (Fig. 27).

Stridulatory hairs on the prolateral side of coxa are present in species of theraphosine genera *Lasiodora*, *Grammostola*, *Phormictopus*, and *Theraphosa*. However, based on Pérez-Miles *et al.* (1996) cladogram, this presence is an independent acquisition. In *Lasiodora* these hairs are present on the prolateral face of the coxae, in the area of the converging sutures, being more visible on the coxae I and II. The hairs are reddish and surpass other short, slender, and more numerous hairs (fig. 27). In the other taxa examined, other hairs were found in the same position, which are, however, shorter and less numerous. Another more elaborated morphological analysis between these two kinds of hairs should be necessary to confirm the homology between them. The great hair development is considered in this study as a derived character, as occurs in species of *Lasiodora*, *Grammostola*, *Theraphosa*, and *Phormictopus*.

23 – Type III urticating hair in females (L = 4/4; CI = 0.25/0.25; RI = 0.75/0.75; Wt= 1/1; Fit= 5.0/5.0):
0, present (Fig. 2).
1, absent.

The presence of type III urticating hair was considered by Pérez-Miles *et al.* (1996) one of the theraphosine synapomorphies. It is present in the majority of theraphosine genera, including the basal ones, like *Euathlus* Ausserer 1875, *Plesiopelma* Pocock 1901, *Homoeomma* Ausserer 1871, *Grammostola* Simon, 1892, *Paraphysa* Simon, 1892, and *Tmesiphantes* Simon 1892.

In the analysis carried out here, type III urticating hair is considerd a synapomorphy of the clade with all analyzed genera, except for *Aphonopelma* and *Sphaerobothria*. However, the genus used to root the tree was *Aphonopelma*, that does not have this hair type, causing a inversion in the character polarity. The absence of type III urticating hair in females of *Vitalius* species is a synapomorphy of this genus, with parallelisms in *Nhandu carapoensis* and *Proshapalopus amazonicus*.

24 – Type I urticating hair morphology (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, "A" region longer or as long as the "B" region (Fig. 4).
1, "A" region shorter than "B" region (Fig. 3).

Synapomorphy of *Proshapalopus anomalus* and *P. multicuspidatus*. Codified as "non-comparable" for *Theraphosa* because it lacks type I urticating hair.

25 - Type I urticating hair (L=1/1; CI=1.0/1.0; RI=1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, present (Fig. 3).
1, absent.

The presence of type I urticating hair is a plesiomorphy for the studied group and its absence is a synapomorphy of *Theraphosa*.

26 – Tibiae IV (L = 3/3; CI = 0.33/0.33; RI = 0.33/0.33; Wt= 1/1; Fit= 6.0/6.0):
0, normal.
1, thickened (Fig. 20).

Character tradicionally considered a synapomorphy of *Eupalaestrus* (Pocock, 1901). Some homoplasies occur in other non-related taxa from other theraphosid subfamilies (Pérez-Miles, 1992b).

It was considered here a synapomorphy of *Eupalaestrus* with parallelisms in *Proshapalopus amazonicus* and *Vitalius lucasae*.

27 – Color pattern (L = 2/2; CI = 0.5/0.5; RI = 0.66/0.66; Wt= 3/3; Fit= 7.5/7.5):
0, variable, commonly a homogeneous black or dark brown.
1, carapace dark brown with the thoracic region gradually lighter, femure black, patellae, tibiae, and metatarsi I and II laterally pinkish (Fig. 184, 185).

Synapomorphy of *Vitalius paranaensis* + *V. roseus* + *V. vellutinus* with parallelism in *P. multicuspidatus*.

28 – Male leg length and diameter (L = 3/3; CI = 0.33/0.33; RI = 0.33/0.33; Wt= 1/1; Fit= 6.0/6.0):
0, normal legs (Fig. 23).
1, long and narrow legs (Fig. 22).

Synapomorphy of *Proshapalopus anomalus* + *P. multicuspidatus* with parallelism in *V. buecherli* and *Cyrtopholis portoricae*.

29 – Female carapace marginal hairs (L = 2/2; CI = 0.5/0.5; RI = 0.75/0.75; Wt= 3/3; Fit= 7.5/7.5):
0, covered with short marginal stiff hairs, pointing out (Fig. 16).
1, covered by long marginal soft hairs, many pointing to the inner carapace region (Fig. 17).

Synapomorphy of *Nhandu*, with parallelism in *V. sorocabae*.

30 – Female carapace hair covering (L = 2/2; CI = 0.5/0.5; RI = 0.75/0.75; Wt= 3/3; Fit= 7.5/7.5):
0, short hairs, mainly on the cephalic region (Fig. 16).
1, very long, curly, scattered hairs, mainly on the cephalic region (Fig. 18).

The morphology of hairs covering theraphosid body have not been extensely studied yet and thus they have been poorly used in taxonomy and systematics. The carapace of the studied species is covered by hairs that exhibit distinct morphology and which are, probably, non-homologous. On the cephalic region many short hairs were found in almost all studied species. Females of some species, however, have some long, scattered, curly hairs sometimes reaching more than 5 mm in length. The great development of these hairs in females is considered a synapomorphy of *Nhandu* with parallelism in *P. amazonicus*.

31 – Male palpal tibia retrolateral process (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, absent.
1, present.

Synapomorphy of *Acanthoscurria* + *Phormictopus*. Considered a synapomorphy of *Cyrtopholis* + *Phormictopus* + *Acanthoscurria* by Pérez-Miles *et al.* (1996), this retrolateral process was not found on the examined specimen of *Cyrtopholis portoricae*. Because only one species was examined it is possible that a interspecific variation on this character occurs among other *Cyrtopholis* species.

32 – Spine row on the male dorsal palpal tibia apex (L = 1/1; CI = 1.0/1.0; RI = 1.0/1.0; Wt= 10/10; Fit= 10.0/10.0):
0, male dorsal palpal tibia apex without a row of spines.
1, male dorsal palpal tibia apex with a row of 5 or more spines (Fig. 24).

Synapomorphy of *Proshapalopus anomalus* + *Proshapalopus multicuspidatus*.

33 – Spines on the male palpal tibia apex (L = 6/6; CI = 0.16/0.16; RI = 0.28/0.28; Wt= 0/0; Fit= 3.7/3.7):
0, 1 to 3 scattered apical prolateral spines.
1, 5 or more apical prolateral closely positioned spines (Fig. 25).

Homoplasious character, it is a synapomorphy of *Eupalaestrus* and *Nhandu vulpinus* + *Nhandu coloratovillosus*, with a parallelism in *Acanthoscurria sternalis*, *Proshapalopus amazonicus*, *Vitalius roseus*, and *Vitalius longisternalis*.

34 – Male metatarsus I (L = 6/6; CI = 0.16/0.16; RI = 0.28/0.28; Wt= 0/0; Fit= 3.7/3.7):
0, straight.
1, curved.

Male metatarsus I curved is a synapomorphy of the clade *Lasiodora* + *Nhandu* + *Vitalius* + sister group of *Vitalius* + *Nhandu*, with parallelism in *Phormictopus cancerides* and reversions in *Nhandu carapoensis*, *Pamphobeteus* sp. and *Theraphosa*. The reversion to the plesiomorphic state is a synapomorphy of the clade *Vitalius* except for *Vitalius lucasae*.

35 - Scopulae on the retrolateral femora IV face (L=3/3; CI= 0.33/0.33; RI= 0.33/0.33; Wt= 1/1; Fit= 6.0/6.0):
0, absent.
1, present.

This character is considered here a synapomorphy of the clade with all analyzed genera except for *Aphonopelma* and *Sphaerobothria*, with reversions in *Cyrtopholis* and *Brachypelma*. Another equally parsimonious option is independent gains in *Phormictopus* + *Acanthoscurria* and in the clade *Eupalaestrus* + *Proshapalopus* + *Lasiodora* + *Vitalius* + *Nhandu*

+ the sister group of *Vitalius* + *Nhandu* and reversion in *Brachypelma* (ACCTRAN optimization, Swoford & Maddison, 1987).

Discussion

Searches having characters 2, 4, 8, and 17 ordered yielded 2 trees under equal weights (Hennig 86 and Nona), 1 tree under successive weights (Hennig 86) and 1 tree under implied weights (Pee-Wee, concavities 3 to 6); for Nona and Pee-Wee it was used both Amb= and Amb- options. The tree showed in fig. 164 (length 87, ci 50, ri 76) was found as one of the options by Hennig86 and Nona as well as the only tree found by Pee-Wee (length 86, fits 275.6 for k=3, 286.8 for k=4, 295.2 for k=5, and 301.4 for k=6) . The only tree found under successive weights in Hennig86 (length 306, ci 83, ri 94) differs only in the resolution of the clade having the "spoon-like" embolus species, where *Xenesthis* and *Pamphobeteus* collapsed in a 3-tomy with a clade having *Brachypelma* + *Theraphosa*. The other two trees found by Nona and Hennig86 show *Cyrtopholis* as the sister group of all taxa except *Aphonopelma* + *Sphaerobothria* in Nona, or collapsed in a 3-tomy with the clade with *Phormictopus* + *Acanthoscurria* and the clade with all other genera in Hennig86. Pee-Wee at concavity functions of 1 and 2 found 24 trees with amb- option (length 89, fits 230.3 and 258.1) and 41 trees with amb= option (length 89, fits 230.3 and 258.1). The strict consensus tree is equal to the tree showed in fig. 164, except by the clade having *Vitalius* + *Nhandu* species. This clade resulted totally collapsed except by the clade *N. cerradensis* (*N. carapoensis* (*N. vulpinus* + *N. coloratovillosus*))) and the clade *V. paranaensis* (*V. roseus* + *V. vellutinus*). In all resolutions *Vitalius* was shown as paraphyletic.

For all characters unordered 18 trees were found using Hennig 86 under equal weights (length 85, ci 51, ri 75), 7 trees in Hennig 86 under successive weights (length 310, ci 85, ri 95) and 4 trees in Nona under equal weights (length 85, ci 51, ri 75). Pee-Wee at concavity functions from 3 to 6 found 1 tree under "amb-" setting and 6 trees under "amb=" setting (length 84, fits 279.6 for k=3, 290.2 for k=4, 298.1 for k=5, and 303.9 for k=6). At concavity functions 1 and 2, 24 trees were found under "amb-" setting (length 87, fits 263.1 to k=2 and 237.0 to k=1). Under "amb=" setting and concavity function 1, more than 139 trees were found; and, at concavity function 2, more than 179 trees were found (length 87, fits 263.1 for k=2 and 237.0 for k=1). Diferences in tree topologies found under equal weights (Hennig86 and Nona), successive weights (Hennig86) and implied weights (Pee-Wee at concavity functions 3 to 6) involved the position of *Cyrtopholis*, the *Phormictopus* + *Acanthoscurria* clade, and the "spoon-like" embolus clade. In some trees *Cyrtopholis* appeared as sister group of all taxa except *Aphonopelma* + *Sphaerobothria* (Hennig86, Nona) or as sister group of *Phormictopus* + *Acanthoscurria* (Hennig86, Nona), swapping this position with the "spoon-like embolus" group. Other resolutions refers to diferent rearrangements inside the "spoon-like" embolus group clade. The strict consensus of the trees differed only in the position of *Cyrtopholis* which appear either in a monophyletic group together with *Phormictopus* and *Acanthoscurria* when using successive or implied weights or collapsed in a 4-tomy when using equal weights (fig.165).

The Pee-Wee at concavity functions 1 and 2 had a similar effect as to the ordered analysis, i.e., *Nhandu* and *Vitalius* appeared as paraphyletic in an almost totally collapsed clade. Otherwise the topology is the same as the one found with concavity functions from 3 to 6.

Thus, the main differences found in the present analysis are those concerning ordering or not the characters 2, 4, 8 and 17. If considering them as ordered, the clade with *Theraphosa*, *Brachypelma*, *Pamphobeteus* and *Xenesthis* appear as sister group of *Nhandu* + *Vitalius* (fig. 164), otherwise it is collapsed in a 4-tomy with *Cyrtopholis* and the clades having *Phormictopus* + *Acanthoscurria* and the one having *Eupalaestrus*, *Proshapalopus*, *Lasiodora*, *Vitalius* and *Nhandu* (fig. 165).

Decisions in ordering or not a multistate character has not reached yet a consensus among cladists. In one of these approaches Hauser & Presch (1991) analyzed the effect of ordering or not the characters in 27 published cladograms for different organisms, from plants to turtles, then concluding: "It has been suggested that hypotheses of character state order are more informative than hypotheses of unorder and may restrict the number of equally parsimonious trees as well as increase resolution. Our results indicate that ordered characters can produce more, equal or less equally parsimonious trees and can increase, decrease or have no effect on tree resolution". However, these authors made their study on multistate characters considering them either totally ordered or unordered without taking into account indication of connection among the diferent states or not. In so doing, they ordered characters that probably have no indication of connection between the different states, perhaps even characters with weak evidence of primary homology (*sensu* Pinna, 1991). The analysis carried out here resulted in a more resolved cladogram when considering multistate characters as ordered than when considering them as unordered, because more information, based on

evidences of homologies, are available and compatible with the trees topologies. Discarding that information would be as unjustified as would be discarding any other kind of evidence, including discarding the evidence about the homology of all the states included in that multistate characters (N. I. Platnick, pers. comm.).

Anyway, to make things clear, the trees with ordered and unordered multistate characters are presented in figs. 164 and 165, though the discussion about relationship and zoogeography below is made based on the more resolved cladogram presented in fig. 164.

The genus *Vitalius* is considered monophyletic based on the following synapomorphies: absence of type III urticating hair on the dorsum of the abdomen in females; and metatarsus I, in males, laterally touching the retrolateral branch of the male spur when flexed. These characters show parallelism with species in other close genera, and it was clear from the beginning of the analysis a conflict involving the clade with *Nhandu* and the one with *Vitalius* species. There is a parallelism of the character 3 (synapomorphy of *Nhandu*) with the clade *V. dubius* + *V. buecherli*; of the character 29, also a synapomorphy of *Nhandu*, with *V. sorocabae*; and, a reversion of the character 1 (synapomorphy of *Vitalius* + *Nhandu*) in the branch *V. wacketi* + *V. longisternalis*.

Vitalius species are morphologically very homogeneous. The lack of available characters to be used in the cladistic analysis resulted in an unresolved internal 4-tomy. The only species which distinguishes easily from the others, *Vitalius lucasae*, is the sister group of all other species in this genus. It shares some homoplasies with species of other genera, as for example, an accentuated ventral median depression on the male palpal bulb and thickened tibia IV. The species *V. roseus*, *V. vellutinus* and *V. paranaensis* were considered formerly to be one species (*V. roseus*, Bücherl, 1947a). It is separated here into three species, based on differences in male genitalia and geographic distribution. Females are virtually identical. Ironically, the only synapomorphy supporting the clade (*V. paranaensis* (*V. vellutinus* + *V. roseus*)) is the color pattern, that is, while the basal species *V. paranaensis* suffered only small morphological changes, the species *V. vellutinus* and *V. roseus* had more conspicuous changes in male spur and male palpal bulb morphology. The relationship between these two species, however, is weakly supported since they only share the character "male spur very reduced".

Nhandu, the sister group of *Vitalius*, has, as synapomorphies, the male palpal bulb embolus tip thickened and the hair type covering the female carapace. The two genera share the shortened embolus and a well-developed subapical keel.

The sister group of *Vitalius* + *Nhandu* comprises species very distinct morphologically and geographically. This group, represented here by four genera, *Brachypelma*, *Theraphosa*, *Pamphobeteus*, and *Xenesthis*, is distributed from México to the north of South America and has great morphological modifications, mainly in genitalia, such as the loss of subapical keel, the laterally very flattened embolus, the well-developed apical keel, and the spermathecae receptacles widely fused. This clade shares with *Nhandu* + *Vitalius* a well-developed apical keel.

The sister group of this clade is *Lasiodora*, which has as synapomorphy the presence of stridulatory hairs on the prolateral side of coxae I and II. *Lasiodora* shares with the previous clade the characters receptacles fused in a narrow area and the retrolateral keel well-developed, sharp.

The monophyly of *Proshapalopus* is based on the presence of a prolateral accessory keel and, probably, in the presence of an accentuated ventral median depression on the male palpal bulb, with reversion in the species *P. anomalus*. *Proshapalopus* is the sister group of the clade *Lasiodora* + *Vitalius* + *Nhandu* + sister group of *Vitalius* + *Nhandu*, sharing the synapomorphies presence of a small subapical keel having triangular shape and metatarsus I touching the apex of the retrolateral branch when flexed.

The monophyly of *Eupalaestrus* is based on the presence of a thickened tibia IV (with homoplasies in *P. anomalus* and *V. lucasae*); and presence of a denticulated row on male palpal bulb (with homoplasies in *Acanthoscurria* and *Phormictopus*). *Eupalaestrus* shares with its sister group the presence of retrolateral keel and an embolus slightly flattened distally.

3.3 - Zoogeography

Large series of theraphosids housed in scientific collections are rare, perhaps because of the difficulty in collecting cryptic animals that live mainly inside burrows or under rocks or logs, and only under special conditions it is possible to collect more than a few individuals. Thus, reports on geographic distribution of theraphosid species have only very fragmented information and in the majority of papers only the type localities were recorded. On the other hand, some wide distributions cited for some species or genera are in general based on the examination of a few misidentified individuals or on erroneous published

records. Thus, the high number of specimens examined in this work, comprising mainly areas of southeastern Brazil which were thoroughly sampled, can furnish valuable data for understanding theraphosid zoogeography. The species studied here show high endemism, and geographic distributional overlapping (or geographic paralogous distribution Nelson & Ladiges, 1996) occured only in species of *Eupalaestrus* and *Proshapalopus* with *Lasiodora*, *Vitalius*, and *Nhandu* (compare Figs. 172 and 174). In the clade *Lasiodora* + *Vitalius* + *Nhandu* + sister group of *Vitalius* + *Nhandu*, here represented by *Pamphobeteus* + *Xenesthis* + *Brachypelma* + *Theraphosa*, there was overlapping only on marginal distribution of the areas (Fig. 174).

The following areas of endemism were found (Figs. 166-174):

Forest environments: *Amazon Forest* - extreme northeast of State of Pará together with the northwest of the State Maranhão (*N. vulpinus*) (Fig. 168); river Araguaia Valley, from State of Mato Grosso do Sul to south of State of Pará (*N. coloratovillosus*) (Fig. 168); north of State of Mato Grosso together with south of State of Pará (*P. amazonicus*) (Figs. 166; 172). *Atlantic Forest* - south of State of Bahia to State of Paraíba (*P. multicuspidatus*) (Figs. 166; 172); mountain range, from south of State of Rio de Janeiro to Rio Doce area, in State of Espírito Santo, including extreme east of State of Minas Gerais (*P. anomalus*) (Figs. 166; 172); "planalto ocidental" of State of São Paulo (*V. vellutinus*) (Figs. 171; 173); "Serra da Mantiqueira" (*V. dubius*) (Figs. 170; 173); "Serra da Paranapiacaba" (*V. buecherli*) (Figs. 170; 173); coastal range, from south of State of Rio de Janeiro to south and center of State of Paraná together with center and south of State of Santa Catarina (*V. wacketi*) (Figs. 169; 173); center and west of State of Rio Grande do Sul (*V. roseus*) (Figs. 171; 173).

Open environments (corresponding to the savanna-like environment "cerrado" and open field "campo"): north of State of Goiás (*N. cerradensis*) (Fig. 168); peripheric depression in east boundary of Paraná basin (*V. sorocabae*) (Figs. 169; 173); Uruguay, together with extreme southwest of State of Rio Grande do Sul in Brazil and northeast of Argentina (*E. weijenberghi*) (Figs. 166; 172). The distribution of *N. carapoensis* (Fig. 168) and *E. campestratus* (Figs. 166; 172) overlaps in Paraguay, and in the Brazilian State of Mato Grosso do Sul, extreme south of State of Mato Grosso, and State of São Paulo. *E. campestratus* has a wider distribution through northeast of Argentina and Brazilian States of Paraná, Santa Catarina, and Rio Grande do Sul.

Some biogeographical patterns found here are in agreement with published data found for other neotropical faunal elements, as for example, a clear disjunction separating a larger northwestern track versus a southeastern track (Amorim & Pires, 1996). The northern track is a region including Central America, the northwestern portion of South America, and the east of the Amazon east of Amazonas River in State of Pará, Brazil (Fig. 174) (Amorim & Pires, *l. c.*). This agrees with the geographical distribution of the sister group of *Vitalius* + *Nhandu*, represented here by the genera *Theraphosa*, *Pamphobeteus*, *Xenesthis*, and *Brachypelma* but also including *Megaphobema* and *Sericopelma*. Surprisingly, none of the species included in this group seem to occur in the southeastern track including the Atlantic Forest as well as the Amazon Forest of east of Rondônia to the east following the right margin of the Amazon River to the south of the State of Pará, which agrees with Amorim & Pires (1996). The vicariation event responsible for such a separation seems to have been the division of Amazon by a lake along the Amazonas/Madeira/Mamoré Rivers in Late Cretaceous (Amorim & Pires, 1996).

The southeastern track comprises the clade *Vitalius* + *Nhandu* which are distributed on the Atlantic Forest from the southeastern Brazil (*Vitalius*) or on Amazonian Forest of southeastern State of Pará together with western State of Maranhão and to the south following the ciliary vegetation along the Araguaia River valley (*Nhandu*). Besides these, there are two other *Nhandu* species from open areas of central western Brazil and Paraguay.

Lasiodora, the sister group of the clade ((*Vitalius* + *Nhandu*) ((*Xenesthis* + *Pamphobeteus*) (*Brachypelma* + *Theraphosa*))) is also found only in the Atlantic Forest of northeast and part of southeast and central western Brazil, or if in open areas, following ciliary vegetation along rivers (pers. obs.) (Fig. 174). This pattern is also shared with other faunal elements, but there is no agreement about the event responsible for such division (Amorim & Pires, 1996).

The *Vitalius* species distribution (Fig. 173) seems to be related with historical geological events which took place in Brazilian south and southeastern regions in the past, i. e. the formation of the Serra do Mar and Serra da Mantiqueira mountain systems through tectonic activity from the Oligocene to the Pleistocene and the formation of the "peripheric depression in east boundary of Paraná basin" along the Terciary and Quaternary (Ross, 1996). Fig. 173 shows a west-east view of the State of São Paulo where geomorphology, vegetation and geographic distribution of *Vitalius* species are superimposed and is congruent with this hypothesis. Some slight dispersal events seem to have occurred posteriorly because of presence of marginal sympatry occurring between these species.

The genera *Proshapalopus* and *Eupalaestrus* have a similar distribution to the genera *Vitalius*, *Nhandu* and *Lasiodora* because they also only occur on the southeastern track (Fig. 172). *P. amazonicus* shows a very disjunct distribution from the sister group formed by *P. anomalus* + *P. multicuspidatus*. The area between these two disjunct distributions is presently covered by a corridor of open vegetation. There is some agreement that this area suffered climatic oscillations between xeric and mesic climates associated to glacial and interglacial periods during the Quaternary (Ab' Sáber, 1977; Vivo, 1997) and thus the Atlantic Forest was sometimes connected with the Amazon. Then, it is possible that the absence of specimens of *Proshapalopus* in this area is due to extinction which resulted from environmental changes in the present open environment.

Eupalaestrus campestratus and *E. weijenberghi* have overlapping distributions with *N. carapoensis* in some open areas of Paraguay and of States of Mato Grosso do Sul and São Paulo, Brazil (Figs. 172; 174). There is overlapping also with *Vitalius longisternalis*, *Vitalius roseus*, and *V. paranaensis* (compare Figs. 172 and 174) in southern Brazil. However, southern Brazil is a mosaic of open and forested areas (IBGE, 1977), and *Eupalaestrus* species seem to be restricted to open areas, while the three *Vitalius* species above live in forested regions. It is possible that, during the climatic oscillations of Quarternary described above, an ancestral *Eupalaestrus* species dispersed through this region during drier periods. The posterior expansion of the Atlantic Forest in more recent periods could have been followed by an ancestral *Vitalius* species dispersion, and thus, the species from these genera had different evolutionary stories and live, nowadays, in very close distinct regions.

4 - Systematics

Eupalaestrus Pocock

Eurypelma: Keyserling, 1891:21 (*in part, E. vitiosum*). - Simon, 1891:311 (*in part, E. campestratum*); 1892:167 (*in part, E. mollicomum*); 1903:937 (*in part, E. vitiosum*); Petrunkevitch, 1911:62 (*in part*). - Roewer, 1942:238 (*in part*).

Eupalaestrus Pocock, 1901:543; type species: *E. pugilator* Pocock, 1901 (= *E. campestratus* Simon, 1891) by original designation and monotypy. - Simon, 1903:937. - Petrunkevitch, 1911:62. - Mello-Leitão, 1923:220. - Vellard, 1936:144. - Roewer, 1942:250. - Bücherl, 1947b:297 (*in part*). - Bonnet, 1956:1813. - Lucas & Bücherl, 1973:246. - Schiapelli & Gerschman de Pikelin, 1979:294, figs. 17-24. - Brignoli, 1983:137. - Raven, 1985:119. - Smith, 1986:154. - Schmidt, 1986:56. - Platnick, 1989:102. - Pérez-Miles, 1992:27-35. - Pérez-Miles *et al.*, 1996:48. - Platnick, 1997:159-160.

Pterinopelma Pocock, 1901:551; type species: *E. vitiosum* Keyserling, 1891. - 1903:110. - Mello-Leitão, 1923:183 (*in part*). - Bonnet, 1958:3827. - Gerschman de Pikelin & Schiapelli, 1978: 86. - Smith, 1986:66. - Pérez-Miles, 1992:28 (syn.).

Rhechostica; Raven, 1985:158 (*in part*). - Platnick, 1989:108.

Phormictopus; Smith, 1986:165 (*in part*).

Diagnosis - Males and females of *Eupalaestrus* can be distinguished from species of other theraphosine genera except *Proshapalopus amazonicus* and *Vitalius lucasae* by the presence of thickened tibiae IV (Fig. 20). Males can be distinguished from *P. amazonicus* and *V. lucasae* by the presence of a denticulate row on the male palpal bulb (Figs. 50-51) instead of a subapical triangular keel (Figs. 60-61); females can be distinguished from these species by the presence of type III urticating hair (Fig. 2) (*Eupalaestrus campestratus* and *Eupalaestrus weijenberghi*) or by the presence of thickened metatarsus IV dorsally covered by many stiff setae (Fig. 19) (*Eupalaestrus spinosissimus*).

Description - The genus was redescribed by Pérez-Miles (1992a).

Constitution: three South-American species.

Eupalaestrus campestratus (Simon)
Figs. 48, 50-51, and 54

Eurypelma campestratum Simon, 1891: 311 (lectotype male and paralectotype female from Paraguay in the Museum National d'Histoire Naturelle, Paris, designation of Pérez-Miles, 1992a:31, not examined).

Lasiodora campestratus; Simon, 1897:1.

Eupalaestrus campestratus; Simon, 1903:939. - Roewer, 1942:250. - Bücherl, 1947b:297. - Bonnet, 1956:1813. - Schiapelli & Gerschman de Pikelin, 1979:294, figs. 17-22 - Smith, 1986:153. - Pérez-Miles, 1992:30, figs. 2,4. - Platnick, 1997:160.

Eupalaestrus pugilator Pocock, 1901:547 (holotype female from South America in the British Museum of Natural History, not examined). - Mello-Leitão, 1923:220. - Roewer, 1942:250. - Bücherl, 1947b:297. - Bonnet, 1956:1813. - Schiapelli & Gerschman de Pikelin, 1979:294, figs. 23-24. - Smith, 1986:154. - Pérez-Miles, 1992a:30 (syn.).

Eupalaestrus tennuitarsus Bücherl, 1947b:301, figs. 1-3 (holotype female IBSP 612, paratypes females IBSP 86, 90, 91, 110, 653 and males IBSP 502 and 607 from Taunay, Mato Gros-

so do Sul, Brazil, examined). - Lucas & Bücherl, 1973:247, figs. 9-11. - Schiapelli & Gerschman de Pikelin, 1979:294. - Brignoli, 1983:137. - Schmidt, 1986:56. - Platnick, 1989:102. - Pérez-Miles, 1992a:30 (syn.).

Phormictopus teuitarsus (sic); Smith, 1986:165. - Pérez-Miles, 1992a:30.

Diagnosis - Males and females can be distinguished from other species by the dorsoventrally thickened femur III (Pérez-Miles, 1992a).

Description - Male (IBSP 1911) - Total length: 44,7 Carapace: length 26,5, width 15,5. Eye tubercle: length 2,40, width 2,65. Labium: length 2,65, width 3,57. Sternum: length 10,62, width: 8,46. Fovea short, deep, recurved. Cheliceral basal segments with 11-13 teeth. Legs I : femur 15,7 / patella 8,2 / tibia 11,7 / metatarsus 11,1 /tarsus 7,5 / total 54,2 / II: 14,2 / 7,9 / 10,0 / 11,2 / 7,3 / 50,6 / III: 13,3 / 7,3 / 9,2 / 12,9 / 7,3 / 50,0 / IV: 16,5 / 8,1 / 13,3 / 19,5 / 9,3 / 66,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p2, tibia v1-2-1ap, p1-4-7(5ap), r0-1-2; legs I femur 0-0-2, patella 0, tibia v1-2-1ap, p1-1-1, r1-2-0, metatarsus v1-0-3ap, p0-1-0, r0-1-0; II femur p0-0-2, patella 0, tibia v1-2-2ap, p1-1-1, metatarsus v2-0-3ap, p-0-1-0, r0-1-0; III femur p0-0-1, r0-0-1, patella 0, tibia v1-3-3ap, p0-2-1, r0-3-0, metatarsus v3-2-4ap, p1-1-2, r0-1-1; IV femur r0-0-1, patella 0, tibia v0-2-2ap, p1-1-1, r1-1-1, metatarsus v=18, p0-1-1, r0-1-1. Male spur branches straight, originating from a common base, the retrolateral constricted in the middle (Fig. 48). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus long, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. Prolateral accessory keel absent. R present, not pronounced. A small. SA represented by a denticulate row extending by more than half of the embolus length (Figs. 50-51). Types I and III urticating hairs present (Figs. 2,4). Tibia IV thickened (Fig. 20). Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Sternum, coxae, and legs ventrally covered by many long hairs. Carapace and legs black, with many whitish hairs. Sternum and coxae grayish. Leg rings very distinct on the apex of femora, patellae and tibiae. Longitudinal stripes on the patellae and tibiae very distinct.

Female (IBSP 1863) - Total length: 50,7. Carapace: length 19,4, width 16,4. Eye tubercle: length 2,07, width 2,98. Labium: length 2,65, width 3,32. Sternum: length 11,28, width: 9,13. Fovea short, deep, slightly recurved. Cheliceral basal segments with 10-10 teeth. Legs I: femur 13,5 / patella 8,2 / tibia 9,2 / metatarsus 8,4 / tarsus 5,6 / total 44,9 / II: 12,3 / 7,2 / 7,5 / 7,5 / 4,5 / 39,0 / III: 11,4 / 7,1 / 7,3 / 9,0 / 5,6 / 40,4 / IV: 14,9 / 8,1 / 10,9 / 14,6 / 6,5 / 55,0. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-3ap, p0-2-2; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, metatarsus v0-0-3ap; II femur p0-0-1, patella 0, tibia v0-0-2ap, p1-1-0, metatarsus v1-0-3ap, p0-0-1; III femur p0-0-1, r0-0-1, patella p2, r1, tibia v4-1-2ap, p1-2-1, r0-1-1, metatarsus v4-1-3ap, p1-2-1, r0-1-1; IV femur r0-0-1, patella r1, tibia v0-2-3ap, p0-1-1, r1-1-1, metatarsus v19, p0-1-1, r0-1-1. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 54). Type I and III urticating hairs present (Figs. 2,4). Tibiae IV strongly thickened (Fig. 20). Color and hair pattern as in male.

Distribution: Brazil: Brazilian "pantanal matogrossense" and Brazilian "campos" and "cerrados" from the States of Mato Grosso, Mato Grosso do Sul, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul. Paraguay: Chaco; and probably northeastern Argentina (Fig. 166, 172).

Records: Brazil, *Mato Grosso*: Rondonópolis, 1 ♀ (IBSP 6890); *Mato Grosso do Sul*: Coxim, 1 ♂ (IBSP 4149), 1 ♂ (IBSP 6539); Albuquerque, 1 ♂ (IBSP 6541); Agachi, 2 ♀ (IBSP 201), 3 ♀ (IBSP 225), 4 ♀ (IBSP 292), 4 ♀ (IBSP 357), 4 ♀ (IBSP 360), 4 ♀ (IBSP 391), 3 ♀ (IBSP 401), 4 ♀ 9IBSP 407), 2 ♀ (IBSP 1063A), 1 ♀ 1 J (IBSP 1203), 1 J (IBSP 2939), 1 J (IBSP 2941), 1 ♀ (IBSP 2942), 1 ♀ (IBSP 2943), 1 ♀ (IBSP 2944), 1 J (IBSP 2945), 1 J (IBSP 2946), 1 J (IBSP 2947), 1 J (IBSP 2948), 1 ♀ (IBSP 2949), 1 J (IBSP 2950), 1 ♀ (IBSP 2951), 1 ♀ (IBSP 2952), 1 ♀ (IBSP 2953), 1 ♀ (IBSP 2954), 1 ♀ (IBSP 2955), 2 ♀ (IBSP 2964), 2 ♀ (IBSP 2967), 1 ♀ 3 J (IBSP 2969), 2 ♀ (IBSP 2970), 1 ♀ (IBSP 2971), 4 ♀ (IBSP 2978), 1 ♀ (IBSP 2984), 3 ♀ (IBSP 2979), 1 ♀ (IBSP 2981), 1 ♀ (IBSP 2985), 1 ♀ (IBSP 2986), 1 ♀ (IBSP 2987), 1 ♀ (IBSP 2993), 1 ♀ (IBSP 2994), 4 ♀ (IBSP 2999), 2 ♀ (IBSP 3000), 1 J (IBSP 3026); Miranda, Duque Estrada, 1 ♀ (IBSP 2977); Taunay, 1 ♀ (IBSP 90), 1 J (IBSP 139), 1 ♀ (IBSP 653), 1 ♀ (IBSP 1862), 1 ♀ (IBSP 1863), 1 ♂ (IBSP 1864), 1 ♂ (IBSP 1865), 1 ♂ (IBSP 1911), 1 ♀ (IBSP 1912), 1 ♂ (IBSP 1913), 1 ♀ (IBSP 2271), 1 J (IBSP 2982); Aquidauana, 1 ♀ (IBSP 1172), 1 ♂ (IBSP 2462), 1 ♂ (IBSP 6540); Palmeiras, 1 ♀ (IBSP 2062), 1 ♀ (IBSP 2063), 1 ♀ (IBSP 2064), 1 ♀ (IBSP 2065), 1 ♀ (IBSP 2252), 1 ♂ (IBSP 2255), 1 ♀ (IBSP 2346), 1 J (IBSP 2347), 1 ♂ (IBSP 3165), 1 ♂ (IBSP 3166); Campo Grande, 1 ♀ (IBSP 1675), 4 ♂ (IBSP 4037A), 1 ♂ (IBSP 4037B), 1 ♂ (IBSP 4094), 1 ♂ (IBSP 4111), 1 ♂ (IBSP 4578), 1 ♂ (IBSP 4816), Campo Grande, InduBrazil, 1 ♀ (IBSP 2933), 1 ♀ (IBSP 2934); Bodoquena, 1 ♀ (IBSP 2650); Bonito, 3 ♀ (IBSP 115); Nioaque, 1 ♂ (IBSP 2540), 2 ♂ (IBSP 4761), 1 ♂ (IBSP 4777); Bela Vista, 1 J (IBSP 3810); Rio Brilhante, 1 ♀ (D 2824), 1 ♀ (IBSP 2825), 1 ♀ (IBSP 2826), 1 ♀ (IBSP 2830), 1 ♀ (IBSP 2831), 1 ♀ (IBSP

2997); Nova Andradina, 3 ♂ (IBSP 4302); *São Paulo*: Araraquara, Motuca, 1 ♂ (IBSP 3460); Monte Alegre do Sul (Ibiti), 1 ♂ (IBSP 2249); Guarantã, 3 ♀ (IBSP 3001); Tupã, 1 ♂ (IBSP 2721); Duartina, ♂ (IBSP 1180); Fernão, 1 ♀ (IBSP 2906); Monte Serrat, 1 ♂ (IBSP 1429); *Paraná*: Maringá, 1 ♀ (IBSP 138); Marechal Rondon, 1 ♀ (IBSP 6547); Foz do Iguaçú, Reserva do Iguaçú, 1 ♂ (MZSP 15785); Foz do Iguaçú - U. H. E. Itaipú - 1 ♀ (IBSP 6538); Laranjeiras do Sul, 1 ♂ (IBSP 4248); Guarapuava, 1 ♂ (IBSP 4372); Teixeira Soares, 1 ♂ (IBSP 2896), 1 ♀ (IBSP 3850); Ponta Grossa, 1 ♂ (IBSP 2655), 1 ♂ (IBSP 3418); Paula Freitas, 4 ♀ (IBSP 342); *Santa Catarina*: Porto União, 1 ♂ (IBSP 6226); Serra Alta, 1 ♀ (IBSP 2359); Lages, 1 ♂ (IBSP 6545), 1 ♂ (IBSP 6891); São Joaquim, 1 ♂ (IBSP 6550); *Rio Grande do Sul*: Tuparendí, 1 ♂ (IBSP 6543), 2 ♂ (IBSP 6546), 1 ♂ (IBSP 6549); Ijuí, 2 ♂ (IBSP 2735); Cruz Alta, 1 ♂ (IBSP 2596); Passo Fundo, 1 ♂ (IBSP 3292); Vacaria - 1 ♂ (IBSP 19); Tupanciretã, 1 ♂ (IBSP 2633), 1 ♂ (IBSP 2634); Bento Gonçalves - 2 J (IBSP 1119); Cachoeira do Sul, 1 J (IBSP 1489), 1 ♀ (IBSP 1490), 1 ♀ (IBSP 1491); São Leopoldo, 1 ♂ (MZSP 4752); Porto Alegre; 1 ♂ (IBSP 2734), 1 ♂ (IBSP 3612), 1 ♂ (IBSP 6542); Bagé, 1 ♂ (IBSP 6548); Pelotas, 2 ♂ (IBSP 4544). Paraguai: Philadélfia, Gran Chaco, 2 ♂ (IBSP 3611)

Eupalaestrus weijenberghi (Thorell)
Figs. 49, 52-53, and 55

Lasiodora weijenberghi Thorell, 1894:31 (three syntypes males from Córdoba, Argentina, in the Naturhistoriska Rikmuseet, Estocolmo, not examined). - Roewer, 1942:251. - Bonnet, 1957:2357. - Smith, 1986:158.

Pterinopelma weijenberghi; Gerschman de Pikelin & Schiapelli, 1978:86.

Pterinopelma saltator Pocock, 1903:108 (holotype male and paratype female from Soriano, Uruguay in the BMNH, not examined). - Simon, 1903:937. - Bonnet, 1958:3828. - Smith, 1986:66. - Gerschman de Pikelin & Schiapelli, 1978:86 (syn. with *L. weijenberghi*).

Eurypelma saltator; Roewer, 1942:241.

Eupalaestrus weijenberghi; Pérez-Miles, 1992a:33, figs. 3,6. - Platnick, 1997:160.

Diagnosis - Can be distinguished from *E. campestratus* by the non-thickened femur III and from *E. spinosissimus* by the slender metatarsus IV (Pérez-Miles, 1992a).

Description - Male (IBSP 7979) - Total length: 32,8 Carapace: length 13,6, width 11,9. Eye tubercle: length 1,57, width 2,16. Labium: length 1,76, width 2,40. Sternum: length 7,36, width: 4,48. Fovea short, deep, recurved. Cheliceral basal segments with 11-11 teeth. Legs I : femur 12,7 / patella 6,0 / tibia 9,4 / metatarsus 9,3 /tarsus 5,7 / total 43,1 / II: 11,5 / 5,5 / 8,0 / 9,2 / 5,4 / 39,6 / III: 10,8 / 5,3 / 6,9 / 10,4 / 5,8 / 39,2 / IV: 13,3 / 5,8 / 11,8 / 16,0 / 6,7 / 40,3. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia v2-1-0, p4-7-5, r0-1-3(1ap); legs I femur 0-0-1, patella 0, tibia v1-1-3(1ap), p0-1-0, metatarsus v1-0-4ap, p0-1-1, r0-1-0; II femur p0-0-1, patella 0, tibia v1-3-2ap, p1-1-1, metatarsus v1-1-3ap, p-0-0-2, r0-1-1; III femur p0-0-1, r0-0-1, patella p2, r1, tibia v4-2-4(2)ap, p1-1-2, r0-3-1, metatarsus v4-4-5ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella r1, tibia v8-2-4(2ap), p1-1-1, r1-1-1, metatarsus v=31, p0-1-1, r0-1-1. Male spur branches straight, originating from a common base, the retrolateral constricted in the middle (Fig. 49). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus long, slightly flattened laterally at the distal region . Prolateral keels present, the PS forming the embolus edge distally. Prolateral accessory keel absent. R present, not pronounced. A small. SA represented by a denticulate row extending for more than half of the embolus length (Figs. 52-53). Types I and III urticating hairs present (Figs. 2,4). Tibia IV slightly thickened. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs covered by many red short hairs. Carapace and legs dark brown, trochanters light brown. Sternum and coxae grayish. Leg rings distinct on the apex of femora, patellae and tibiae. Longitudinal stripes on the patellae and tibiae hardly distinct.

Female (IBSP 7980) - Total length: 37,1. Carapace: length 12,7, width 10,5. Eye tubercle: length 1,32, width 1,82. Labium: length 1,90, width 3,32. Sternum: length 7,2, width: 5,6 Fovea short, deep, recurved. Cheliceral basal segments with 13-12 teeth. Legs I: femur 9,6 / patella 5,9 / tibia 6,8 / metatarsus 6,0 / tarsus 3,7 / total 32,0 / II: 8,6 / 5,0 / 5,6 / 5,5 / 3,7 / 28,4 / III: 7,6 / 4,6 / 4,6 / 6,2 / 3,9 / 26,9 / IV: 10,3 / 5,5 / 8,2 / 10,6 / 4,3 / 38,9. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-2ap, p1-2-0; legs I femur 0, patella 0, tibia 0, metatarsus v0-0-1ap; II femur 0, patella 0, tibia 0, metatarsus v0-0-3ap; III femur 0, patella r1, tibia v0-0-1ap, p1-1-1, r0-1-0, metatarsus v0-2-2ap, p1-2-1, r0-1-1; IV femur 0, patella 0, tibia v0-1-1, r0-2-1, metatarsus v21, p0-1-1, r0-2-1. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 55). Type I and III urticating hairs present (Figs. 2, 4). Tibiae IV slightly thickened. Color and hair pattern as in male.

Distribution: Brazil: Brazilian "campos" from the extreme southwestern State of Rio Grande do Sul; Uruguay; central and eastern Argentina (Figs. 166, 172).

Records: Brazil, *Rio Grande do Sul*: Bororé,

1 J (IBSP 1593), 1 J (IBSP1594), 1 J (IBSP 1595), 1 J (IBSP1596), 1 J (IBSP 1597), 1 J (IBSP 1598), 1 J (IBSP 1599), 1 J (IBSP 1600), 1 J (IBSP 1601), 1 J (IBSP 1602), 1 J (IBSP 1603), 1 J (IBSP 1604), 1 J (IBSP 1605), 1 J (IBSP 1606),, 1 J (IBSP 1608), 1 J (IBSP 1609), 1 J (IBSP 1610); Uruguaiana - 1 ♀ (IBSP 2307); Uruguai, Montevidéo, 1 ♂ (IBSP 7979), 1 ♀ (IBSP 7980).

Eupalaestrus spinosissimus Mello-Leitão
Figs. 19, 56-57

Eupalaestrus spinosissimus Mello-Leitão, 1923:221 (holotype female from Pinheiro (= Pinheiral), Rio de Janeiro, Brazil, not examined, should be in MNRJ, not located). - Vellard, 1936:144. - Petrunkevitch, 1939:238. - Roewer, 1942:250. - Bücherl, 1947b:297. - Bonnet, 1956:1813. - Schiapelli & Gerschman de Pikelin, 1979:294. - Smith, 1986:154. - Pérez-Miles, 1992a:34 (nom. dub.). - Platnick, 1997:160.

Pamphobeteus holophaeus Mello-Leitão, 1923:239 (holotype female from Piracicaba, São Paulo, Brazil, MZSP N°129-A, E. Garbe col., examined). - Petrunkevitch, 1939:243. - Roewer, 1942:252. - Bücherl, 1947a:258 (syn. with *Pamphobeteus cesteri*). - Bonnet, 1958:3314. - Platnick, 1993:111. - Lucas *et al.*, 1993:241. *Syn. n.*

Eupalaestrus tarsicrassus Bücherl, 1947b:298 (holotype female from São José dos Campos, São Paulo, Brazil, IBSP N° 593, 05.VIII.47, Fábrica de Louças leg., examined). - Lucas & Bücherl, 1973:246, fig. 8.- Schiapelli & Gerschman de Pikelin, 1979:294. - Brignoli, 1983:137. - Platnick, 1989:102. - Pérez-Miles, 1992:32, fig. 5. - Platnick, 1997:160. *Syn. n.*

Diagnosis - Females can be distinguished from other species by lacking type III urticating hair; by the presence of thickened tibia and metatarsus IV which is covered dorsally by many stiff setae (Fig. 19); and, by the presence of many black spines on the prolateral coxa IV and retrolateral coxae II and III.

Male unknown.

Female (IBSP 593) - Total length: 51,2. Carapace: length 17,4, width 13,8. Eye tubercle: length 2,49, width 3,07. Labium: length 2,24, width 3,40. Sternum: length 7,88, width: 6,89. Fovea short, deep, slightly recurved. Cheliceral basal segments with 14-11 teeth. Legs I: femur 10,4 / patella 6,1 / tibia 7,7 / metatarsus 7,3 / tarsus 4,8 / total 36,3 / II: 10,4 / 6,3 / 7,4 / 7,8 / 5,0 / 36,9 / III: 9,8 / 6,2 / 7,0 / 7,7 / 4,8 / 35,5 / IV: 12,8 / 6,6 / 10,8 / 12,1 / 5,1 / 47,4. Spines: tarsi lacking spines. Palpal femur 0, patella 0, tibia v0-0-4ap, p0-0-1; legs I femur p0-0-1, patella 0, tibia v0-0-3ap, metatarsus 0; II femur p0-0-2, patella 0, tibia v0-0-2ap, p0-0-1, metatarsus v0-0-1ap; III femur r0-0-1, patella 0, tibia v0-0-2ap, p1-1-0, r1-1-1, metatarsus v2-0-2ap, p0-1-1, r1-1-1; IV femur r0-0-1, patella 0, tibia v1-1-3ap, p1-1-1, r1-1-1, metatarsus v19(3ap), p1-0-1, r1-0-1. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 56-57). Type I urticating hair present (Figs. 2, 4). Many black spines on prolateral coxa IV and retrolateral coxae II and III. Distal tibia IV and metatarsus IV thickened (Fig. 19). Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs covered by many long hairs dorsal and ventrally, mainly the dorsal face of the tibia and metatarsus IV. Coxae and sternum covered by many short hairs. Carapace and legs dark brown, trochanters light brown. Sternum and coxae grayish. Leg rings hardly distinct on the apex of femora, patellae and tibiae. Longitudinal leg stripes on the patellae and tibiae hardly distinct.

Remarks - Pérez-Miles (1992a) considered *Eupalaestrus spinosissimus* a *nomen dubium* due to Mello-Leitão's brief description and also because the type is probably lost. This species is revalidated here based on specimens collected near the type locality of *E. spinosissimus* that agrees with the original description regarding the many conspicuous black spines present on the prolateral coxa IV and retrolateral coxae II and III; presence of thickened metatarsus IV; and tibia and metatarsus IV dorsally covered by many stiff setae (Fig. 19). These conspicuous characters were emphasized by the author and are absent in other species with similar geographic distribution. Contrary to Pérez-Miles (1992a), the examined specimens have only type I urticating hair. This species was not included in the cladistic analysis because only the female is known and the analysis was carried out mainly on male characters.

Distribution: Brazil: southeastern State of Minas Gerais, southern State of Rio de Janeiro, central and eastern State of São Paulo (Fig. 166).

Records: Brazil, *Mato Grosso*: Chapada dos Guimarães, 1 ♀, II/83, A. T. da Costa col. (MNRJ 13.263); *Minas Gerais*: Além Paraíba, 1 ♀, 12/74, A. T. Costa col. (MNRJ 13.256); *Rio de Janeiro*: Santa Maria Madalena, Pque. Estadual do Desengano, 2 ♀ (IBSP 6882); *São Paulo*: Piracicaba, 1 ♀ (MZUSP 129-A, holotype of *Pamphobeteus holophaeus* Mello-Leitão, 1923), São José dos Campos, 1 ♀ (IBSP 593, holotype of *Eupalaestrus tarsicrassus*, Bücherl, 1947), 1 ♀ (IBSP 1102).

Lasiodora C. L. Koch
Figs 58-61

Mygale C. L. Koch, 1842:25 (*in part M. klugii*).

Lasiodora C. L. Koch, 1850:72; type species: *M. klugii* C. L. Koch, 1842, designation of Simon, 1892:160 - Ausserer, 1871:209. - Simon, 1892:160. - Pocock, 1901:544. - Mello-Leitão, 1921:337; 1923:242; 1943:257. - Roewer, 1942:1040. - Bonnet, 1957:2354. - Schiapelli & Gerschman de Pikelin, 1967:487, figs. 9-15 [misidentification with *Theraphosa apophysis* (Tinter)] - Schiapelli & Gerschman de Pikelin, 1979:294, figs. 1-7. - Brignoli, 1983:755. - Raven, 1985:119. - Smith, 1986:158. - Schmidt, 1986:57. - Smith, 1987:158. - Pérez-Miles *et al.*, 1996:52, fig. 27. - Platnick, 1997:163.

Eurypelma Ausserer, 1871:212 (*in part* only *E. striatipes*).

Crypsidromus Ausserer, 1871:193; type species: *C. isabellinus* Ausserer, 1871, Pérez-Miles *et al.*, 1996:52 (syn.). - Platnick, 1997:156.

Diagnosis – Males can be distinguished from species of other theraphosine genera by the presence of stridulatory hairs on the superior region of the prolateral coxae I and II (Fig. 27) together with the presence of a subapical triangular keel in the male palpal bulb (Fig.60-61). Females can be distinguished by the presence of stridulatory hairs in the same position as in males together with the spermathecae separated by a weakly sclerotized area (Fig. 59).

Distribution (Figs. 167, 174): Brazil: Atlantic Forest from the northeastern, southeastern, and central-western Brazil.

Records: Brazil, *Pará*: Irituia, 1 ♂ (IBSP 2604); *Ceará*: 1 ♀ (IBSP 6358), 1 ♀, holotype of *A. cristata* (= *L. cristata*), MNRJ s/nr.) ; Serra do Baturité, 1 ♂ (IBSP 910), 1 ♂ (IBSP 911); *Paraíba*: João Pessoa, 1 ♂ (IBSP 4675), 1 ♂ (IBSP 6359), 1 ♂ (IBSP 6457); Areia, 1 ♀ (IBSP 6455); *Pernambuco*: Olinda, 1 ♂ (IBSP 6385); Caruarú, 1 ♂ (IBSP 6416), 1 ♂ (IBSP 7013); *Alagoas*: Maceió, 1 ♂ (IBSP 4663); *Mato Grosso*: Sinop, 1 ♀ (IBSP 4378-A); Barra do Garças, 1 ♀ (IBSP 2586); *Goiás*: São Domingos, Gruta do Córrego/Malhada, 1 ♀ (IBSP 4865-A); Minuaçú, U. H. E. Serra da Mesa, 1 ♀ (IBSP 6444); Alvorada do Norte, 2 ♂ (IBSP 4194); Goiás, 1 ♀ (IBSP 4133-A); Corumbá de Goiás, 1 ♀ (IBSP 4865-D); Brasília, 1 ♀ (IBSP 3796); Planaltina, Rio Preto, 2 ♂ (IBSP 4884); Bela Vista de Goiás, 1 ♀ (IBSP 4865-C); Caldas Novas, 1 ♀ (IBSP 6430); Ipameri, 1 ♀ (IBSP 4865-B); Itumbiara, 1 ♀ (IBSP 6356); *Bahia*: Bahia, 1 ♂ 1 ♀ 1 J (IBSP 4001), 1 ♂ (IBSP 4703), 1 ♀ (IBSP 6357); Juazeiro, 2 ♂ (IBSP 4866); Paulo Afonso, 1 ♀ 1 J (IBSP 4458); Morro do Chapéu, 1 ♂ (IBSP 4377); Morro do Chapéu, Gruta dos Brejões - 1 ♀ (IBSP 2828); São Sebastião do Passé, 1 ♂ (IBSP 6367); Itaberaba, 1 ♀ (IBSP 4464); Castro Alves, 1 ♀ (IBSP 4552); São Félix, U. H. E. Pedra do Cavalo, 1 ♂ (IBSP 4559); Salvador, Itapoã, 1 J (IBSP 2362); Jequié, 1 ♀ (IBSP 6442); Caetité, 1 ♂ (IBSP 6901); Brumado, 2 ♂ (IBSP 4127A), 1 ♂ (IBSP 4127B); Manoel Vitorino, 1 ♂ (IBSP 4383); Vitória da Conquista, 1 ♀ (IBSP 3813); Maetinga/Vitória da Conquista, 1 ♀ (IBSP 6402); Itabuna, 1 ♂ (IBSP 6439); Ilhéus, 1 ♂ (IBSP 6403), 1 ♀ (IBSP 6419); Buerarema, 1 ♀ (IBSP 4513); Porto Seguro, 1 ♀ (IBSP 4621), 1 ♂ (IBSP 6361), 1 ♂ (IBSP 6362); Porto Seguro, Arraial d'Ajuda, 1 ♀ (IBSP 4769); Alcobaça, 1 ♂ (IBSP4615), 1 ♂ (IBSP 4616), 1 ♂ (IBSP 4617), 1 ♂ (IBSP 4618); Caravelas, 1 ♀ (IBSP 4785), 1 ♂ (IBSP 6401), 1 ♀ (IBSP 7035); Abrolhos, Arquipélago, 1 ♀ (IBSP 4579); Abrolhos, Arquipélago, Ilha de Santa Bárbara - 1 ♂ (IBSP 6536), 1 ♂ (IBSP 6537); Teixeira de Freitas, 1 ♀ (IBSP 6360), 1 ♀ (IBSP 6366), 1 ♀ (IBSP 6368), 1 ♀ (IBSP 6370); *Mato Grosso do Sul*: Terenos, 1 ♀ (IBSP 1697), 1 ♀ (IBSP 1698), 1 ♀ (IBSP 3086); Bodoquena, 1 ♀ (IBSP 2676); *Minas Gerais*: 1 ♂ (IBSP 3221); Unaí, 1 ♀ (IBSP 4927); São Romão, 1 ♂ (IBSP 4153); Jequitaí, 1 ♂ (IBSP 6374); Montes Claros - 2 ♂ (IBSP 4815); Grão Mogol; 1 ♂ (IBSP 6447); Itinga, 1 ♂ (IBSP 4786); Itaobim, 1 ♀ (IBSP 4340); João Pinheiro, 1 ♂ (IBSP 4862); Várzea da Palma, 1 ♂ (IBSP 6396); Lassance (Porto Faria), 1 ♂ (IBSP 1899); Centralina, 1 ♂ (IBSP 7034); Cascalho Rico, 1 ♀ (IBSP 2163B); Corinto, 2 ♂ (IBSP 4236); Uberlândia, 1 ♂ (IBSP 6377), 1 ♂ (IBSP 6423), 1 ♂ (IBSP 6424); Santana do Riacho (Serra do Cipó), 1 ♂ (IBSP 6453); Uberaba, 3 ♀ (IBSP 4161); Uberaba, U. H. E. Água Emendada, 1 ♂ (IBSP 4122); Vargem Alegre, 2 ♀ (IBSP 3967); Inhapim, 3 ♀ (IBSP 6436), 1 ♀ (IBSP 6437), 1 ♀ (IBSP 6438); Santo Antonio do Monte, 1 ♂ (IBSP 6405), 1 ♂ (IBSP 6406), 1 ♂ (IBSP 6412); Belo Horizonte, 1 ♀ (IBSP 6354); Bom Jesus do Galho, 1 ♀ 1 J (IBSP 4294); Caratinga, 1 ♂ (IBSP 4197); Ouro Preto, 1 ♂ (IBSP 2525); Manhumirim, 1 ♀ (IBSP 4057); Passos, 1 ♂ (IBSP 6392); Furnas, 1 ♂ (IBSP 4276), 1 ♂ (IBSP 6432); São João Del Rey, 1 ♀ (IBSP 4026); Viçosa, 1 ♀ (IBSP 1296), 1 ♀ (IBSP 1312), 1 ♂ (IBSP 1394), 1 ♂ (IBSP 1470); Dona Euzébia, 1 ♀ (IBSP 2995); Pedra do Sino, 1 ♀ (IBSP 349), 1 ♀ (IBSP 350), 1 ♂ (IBSP 351), 1 ♂ (IBSP 1401), 1 ♂ (IBSP 1922); Sereno, 1 ♀ (IBSP 2004), 1 ♂ (IBSP 2476), 1 ♂ (IBSP 2477); Juiz de Fora, 1 ♀ (IBSP 3991), 2 ♀ (IBSP 4365A), 2 ♀ (IBSP 4365B), 2 ♀ (IBSP 4365C), 2 ♀ (IBSP 4574A), 2 ♀ (IBSP 4574B), 1 ♀ (IBSP 4588), 1 ♂ 1 ♀ (IBSP4595), 2 ♂ 1 ♀ (IBSP 4599A), 2 ♀ (IBSP 4633A), 1 ♂ (IBSP 4859), 1 ♀ (IBSP 6363), 1 ♀ (IBSP 6369), 1 ♀ (IBSP 6409); Caiana, 1 ♀ (IBSP 3062); Santana do Deserto, 1 ♂ (IBSP 4773); Santana do Deserto, Sossego, 1 ♀ (IBSP 1046), 1 ♀ (IBSP 2230), 1 ♀ (IBSP 2231), 1 ♀ (IBSP 2515), 1 ♂ (IBSP 3190), 1 ♀ (IBSP 3207), 1 ♂ (IBSP 3225); Três Corações, 1 ♀ (IBSP 4397); Três Ilhas, 1 ♀ (IBSP 294), 1 J (IBSP 1893), 1 ♀ (IBSP 1894), 1 ♂ (IBSP 1895), 1 ♀ (IBSP 1997), 1 ♂ (IBSP 2207)

1 ♂ (IBSP 2208); *Espírito Santo*: 1 ♂ (IBSP 3499), 1 ♂ (IBSP 6389), 1 ♂ (IBSP 6456); São Mateus, 2 ♀ (IBSP 4601), 1 ♀ (IBSP 6398), 1 ♀ (IBSP 6399); Colatina, 1 ♂ (IBSP 3847), 1 ♂ 1 ♀ (IBSP 4597); Aracruz - 1 ♂ (IBSP 6376); Aracruz/Coqueiral - 1 ♀ (IBSP 4868); Vitória - 1 ♂ (IBSP 6387), 1 ♀ (IBSP 6451); Vila Velha - 2 ♂ (IBSP 4758); Iconha - 1 ♂ (IBSP 6380), 1 ♂ (IBSP 6382), 1 ♂ (IBSP 6383), 1 ♂ (IBSP 6386); *Rio de Janeiro*: Paraoquena, 1 ♀ (IBSP 3192), 1 ♂ (IBSP 3193); Campos, 1 ♀ (IBSP 6355); Campos, Vila Saco da Anta, 1 ♀ (IBSP 4451); Engenheiro Carvalhães, 1 ♀ (IBSP 6391); Piracema, 1 ♀ (IBSP 23), 1 ♀ (IBSP 53), 1 ♂ (IBSP 164), 1 ♀ (IBSP 176), 1 ♀ (IBSP 303), 1 ♀ 2 J (IBSP 304), 1 ♀ (IBSP 353), 1 ♀ (IBSP 538), 1 ♂ (IBSP 2536), 1 ♂ (IBSP 2548), 1 ♀ (IBSP 2834); Três Rios, 1 ♂ (IBSP 4605); Afonso Arinos, 1 ♂ 1 ♀ 1 J (IBSP 117); Paraíba do Sul, 1 ♀ (IBSP 270), 1 ♀ (IBSP 2972); Barão de Juparanã, 1 ♂ (IBSP 2017); Nova Friburgo, 1 ♀ (IBSP 4693); Visconde de Mauá, 1 ♂ (IBSP 4409); Barra do Piraí, 1 ♂ (IBSP 3264), 1 ♀ (IBSP 4885), 1 ♀ (IBSP 6443); Vassouras, 1 ♂ (IBSP 1363), 3 ♂ (IBSP 1925), 1 ♀ (IBSP 2572), 1 ♂ (IBSP 3375), 1 ♀ (IBSP 3836), 1 ♂ (IBSP 4028); Paty do Alferes, 1 ♀ (IBSP 4840); Teresópolis, 1 ♂ (IBSP 6440); Barra Mansa, 1 ♀ (IBSP 1733); Volta Redonda, 2 ♀ (IBSP 694); Vargem Alegre, 1 ♂ (IBSP 4128), 3 ♀ (IBSP 4206); Mendes - 1 ♀ (IBSP 65), 1 ♀ (IBSP 308), 1 ♀ (IBSP 1135), 1 ♀ (IBSP 1153), 1 ♀ (IBSP 2654), 1 ♀ (IBSP 3374); Rio de Janeiro, 1 ♀ (IBSP 4572), 2 ♂ (IBSP 6394), 3 ♀ (IBSP 6902); *São Paulo*: Buritizal, 1 ♂ (IBSP 6421); Pontal, 1 ♀ (IBSP 2319); Ribeirão Preto, 1 ♂ (IBSP 6388); Catanduva, 1 ♀ (IBSP 1437), 1 ♀ (IBSP 6365); Toriba, 1 ♂ (IBSP 2291); Guarantã, 1 ♂ (IBSP 2244); Araraquara, 1 ♀ (IBSP 1235); Presidente Venceslau, 1 ♂ (IBSP 1244); Santa Cruz do Rio Pardo, 1 ♂ (IBSP 345); Monteiro Lobato, 1 ♂ (IBSP 6441); Pindamonhangaba, 1 ♀ (IBSP 1113), 1 ♀ (IBSP 2357), 1 ♀ (IBSP 2733), 1 ♀ (IBSP 6379); Moreira Cesar, 1 ♀ (IBSP 2580), 1 ♀ (IBSP 2614); Guaratinguetá, 1 ♀ (IBSP 3352), 1 ♂ (IBSP 4914); Cruzeiro, 2 ♂ (IBSP 4753); Queluz, 1 ♂ 1 ♀ (IBSP 34); São José do Barreiro, 1 ♂ (IBSP 6411); Bananal, 1 ♀ (IBSP 4512); Botucatú, 1 ♂ (IBSP 4634B); Capivarí, 1 ♀ (IBSP 185); Valinhos, 1 ♀ (IBSP 6434); Monte Serrat, 1 ♀ (IBSP 255); Jundiaí, 1 ♂ (IBSP 4873); Igaratá, 1 ♀ (IBSP 4170A), 1 ♂ (IBSP 6400); São José dos Campos, 1 ♀ (IBSP 2800), 1 ♂ (IBSP 4312), 2 ♀ (IBSP 4878), 1 ♂ (IBSP 6445), 1 ♂ (IBSP 6446); Caçapava, 1 ♂ (IBSP 960), 1 ♂ 1 ♀ (IBSP 2594), 2 ♀ (IBSP 4570); Taubaté, 1 ♀ (IBSP 1980), I ♂ 1 ♀ (IBSP 4189A), 1 ♀ (IBSP 4189B), 1 ♂ 1 ♀ (IBSP 4825), 1 ♂ (IBSP 6375), 1 ♀ (IBSP 6378), 1 ♂ (IBSP 6395), 1 ♀ (IBSP 6410), 1 ♀ (IBSP 6415); São Silvestre, 1 ♂ (IBSP 297), Bom Jesus - 1 ♀ (IBSP 2233); Jacareí, 1 ♂ (IBSP 4170B), 2 ♀ (IBSP 4821), 1 ♀ (IBSP 6393), 1 ♂ (IBSP 6413), 1 ♀ (IBSP 6414); Jambeiro, 1 ♂ (IBSP 6422), 1 ♀ (IBSP 6428), 1 ♂ (IBSP 6431); Osasco, 1 ♀ (IBSP 4339); São Paulo, 1 ♀ (IBSP 17), 1 ♀ (IBSP 2306), 1 ♀ (IBSP 4300), 1 ♂ (IBSP 4882), 1 ♀ (IBSP 6353), 1 ♀ (IBSP 6404), 1 ♀ (IBSP 6407), 1 ♀ (IBSP 6408), 1 ♂ (IBSP 6420), 1 ♂ (IBSP 6426), 1 ♀ (IBSP 6429); Guarulhos, 1 ♀ (IBSP 6372); Guararema, 2 ♂ 1 ♀ (IBSP 352), 1 ♀ 2 ♂ (IBSP 4682), 1 ♀ (IBSP 6390), 1 ♀ (IBSP 6417), 1 ♀ (IBSP 6433); Paraibuna, 2 ♀ (IBSP 2225A), 2 ♂ (IBSP 4754A), 4 ♀ (IBSP 4754B), 1 ♀ (IBSP 6364), 1 ♀ (IBSP 6371), 1 ♂ (IBSP 6381), 1 ♂ (IBSP 6384), 1 ♂ (IBSP 6425), 1 ♂ (IBSP 6427); Cotia, 1 ♂ (IBSP 6435); Santo André, 1 J (IBSP 559); Caraguatatuba, 1 ♂ (IBSP 6418); *Paraná*: Araucária, 1 ♂ (IBSP 2260)

Constitution: twenty one species known only from Brazil.

Lasiodora cristata (Mello-Leitão) comb. n.

Acanthoscurria cristata Mello-Leitão, 1923:297 (holotype female from Ceará, in MNRJ, examined). - Roewer, 1942:246. - Bonnet, 1955:136. - Petrunkevitch, 1939:233.

Pamphobeteus cristatus; Schiapelli & Gerschman de Pikelin, 1964:393, T. III, fig. 22. - Platnick, 1993: 111.

Vitalius cristatus; Baumgarten, 1998:1-8, figs. 1-3 (descr. male; misidentification).

Remarks: After examining the holotype of *Acanthoscurria cristata*, Schiapelli & Gerschman de Pikelin (1964) concluded that this species should be transferred to the genus *Pamphobeteus* (= *Vitalius*). They argumented that the holotype did not have stridulatory hairs on the retrolateral side of trochanter, character that is present in *Acanthoscurria* species, and the spermathecae shape was very similar to that of *Vitalius* species. However, they failed to note the presence of stridulatory hairs on the prolateral face of the anterior coxae of the holotype, which is a synapomorphy of the genus *Lasiodora*. Furthermore, the spermathecae shape could not be used alone to assign this species into the genus *Vitalius*, because of the very similar spermathecae shape of some *Lasiodora* and *Vitalius* species, as can be seen in figs. 59 and 81. Besides, *Vitalius* species have not been recorded yet from the type locality, the State of Ceará, Brazil, which, however, is part of the geographical distribution of species of *Lasiodora*.

The male described by Baumgarten (1998) is a undescribed species of a probable new genus.

Lasiodora benedenii Bertkau comb. rev.

Lasiodora benedenii Bertkau, 1880:34, Figs. 10, 10a, b (holotype female from Chapéu d'Uvas, Brazil, not examined).

Pamphobeteus benedenii; Mello-Leitão, 1923:229. - Roewer, 1942:252. - Bücherl, 1947a:264. - Lucas *et al.*, 1993:241-245.

Remarks – The holotype of *L. benedenii* is probably lost, as the majority of the non-european types of Bertkau (Levi, 1991:203). However, based on the author's description, this seems to be a *Lasiodora* species as formarly described. The spermathecae shape, which was well-illustrated by the author, indicates it is either a *Lasiodora* or *Vitalius* species. By the type locality, Chapéu d'Uvas, State of Minas Gerais, Brazil, the only possible *Vitalius* species occuring in this area is *V. dubius* which has a very distinct spermathecae shape (Figs. 98-100). Thus, the species is transferred back to *Lasiodora.*

Proshapalopus Mello-Leitão

Proshapalopus Mello-Leitão, 1923:145, Figs 60-62, 186 and 190; type species: *Proshapalopus anomalus* Mello-Leitão, 1923, by original designation and monotypy. - Petrunkevitch, 1928:79. - Roewer, 1942:236. - Caporiacco, 1955:281. - Bonnet, 1958:3780 . - Brignoli, 1983:140. - Platnick, 1989:96.

Stichoplastus: Raven, 1985:157 (senior synonym of *Proshapalopus*).

Proshapalopus: Rudloff, 1997:2 (revalidated).

Diagnosis - Males can be distinguished from species of other theraphosine genera by the presence of an AC under the PI, on the male palpal bulb (Fig. 65). Females can be distinguished by having a thickened tibiae IV together with the absence of type III urticating hair (*P. amazonicus*); or by having type I urticating hair (Fig. 3) with the region "a" shorter than the region "b" (*P. anomalus* and *P. multicuspidatus*).

Description - Cephalothorax longer than wide, cephalic region slightly raised, convex. Cephalic and thoracic striae distinct. Fovea short; deep; straight, slightly recurved or procurved. Chelicerae without rastellum, basal segments with 10 to 13 teeth. Eye tubercle distinct, wider than long. Clypeus absent. Anterior eye row procurved, posterior recurved. AME rounded, the same size as ALE and PLE that have an oval shape. PME small, oval. Labium subquadrate, slightly wider than long, with numerous (more than 100) cuspules on its anterior half. Maxila subrectangular, anterior lobe distinctly produced into conical process, inner angle bearing numerous cuspules (more than 100). Sternum longer than wide, anterior sigilla on the sternum/labium edge. Other sigilla submarginal, the second pair smaller than the third that is smaller than the fourth. PMS one-segmented, short; PLS three-segmented, basal segment longer than the apical, both longer than the median. Apical segment digitiform. Leg tarsi without spines, claw tufts present; STC with a median row of few small teeth. Tarsi I-IV and metatarsi I-II scopulated, metatarsus III scopulated along half its length, metatarsus IV apically scopulated. Femur IV with retrolateral scopula. Prolateral leg coxae and retrolateral palpus trochanter without stridulatory hairs. Male spur with converging branches originating from a common base, tapering distally, the prolateral branch thickened (*P. multicuspidatus*; fig. 66) or with straight branches originating from a common base, the retrolateral constricted in the middle (other species, figs. 62; 70). Metatarsus I straight, when flexed touches the retrolateral branch of the male spur laterally (*P. multicuspidatus*) or the apex of the retrolateral branch (other species). Male palpal bulb pyriform, embolus slightly flattened distally. Embolus long (*P. amazonicus*) (figs. 64, 65) or short (other species, figs. 68-69, 72-73). Prolateral keels present, the PS forming the embolus edge distally. AC present, under of the PI. R present, not pronounced. A small. SA small, triangular, bordered by small denticles. Male palpal bulb with accentuated (*P. multicuspidatus* and *P. amazonicus*) or slightly (*P. anomalus*) D. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 63). Type I and III urticating hair (Figs. 2, 3) present in males and females (*P. anomalus* and *P. multicuspidatus*) or type III urticating hair absent in females (*P. amazonicus*). Type I urticating hair (Fig. 3) with the region "a" shorter than the region "b" (*P. anomalus* and *P. multicuspidatus*) or with the region "a" longer or equal to region "b" (Fig. 4) (*P. amazonicus*). Carapace covered only by short slender hairs (*P. anomalus* and *P. multicuspidatus*), or also with some long scattered hairs (female *P. amazonicus*), bordered by numerous short hairs pointing out. Slender legs, covered dorsally and ventrally by few long hairs (*P. anomalus* and *P. multicuspidatus*), or thickened legs (mainly tibia IV) with abundant long hairs dorsally and ventrally (*P. amazonicus*). Coxae and sternum covered by long hairs (*P. amazonicus* female) or short hairs (other species).

Constitution: three species known only from Brazil.

Misplaced Species - The female holotype of *Proshapalopus variegatus* Caporiacco, 1955 from Sant'Ana, Falcón State, Venezuela, deposited in MUCV, examined, lacks type I urticating hair and retrolateral femur scopula, and has a fused spermatheca. Because these features are not found in *Proshapalopus*, but are present in species of the genus *Metriopelma*, this species is transferred to *Metriopelma variegatum* (Caporiacco) comb. n.

Key to *Proshapalopus* Species

Males

1. Male palpal bulb with an accentuated ventral median depression (Figs. 64-65 and 68-69) 2
- Male palpal bulb with a slight ventral median depression (Figs. 72-73).....*P. anomalus*

2(1). Tibia IV thickened (Fig. 20); metatarsus I touches the apex of the retrolateral branch of male spur when flexed; retrolateral branch of the male spur straight, medially constricted; prolateral branch not thickened (Fig. 62).....*P.amazonicus*
- Tibia IV normal; metatarsus I touches the retrolateral branch of the male spur laterally when flexed; male spur branches converging from a common base, tapering distally; prolateral branch thickened (Figs. 66) .....*P. multicuspidatus*

Females

1. Tibia IV thickened (Fig. 20); general collor pattern grayish.....*P. amazonicus*
- Tibia IV normal; general color pattern brownish or black with pinkish regions on the legs.....2

2(1). General color pattern brown; ventral face of the coxae, abdomen and sternum, light-brown.....*P. anomalus*
- General color pattern darkish with pinkish regions on the patellae, tibiae and metatarsi of legs I and II, sternum and coxae black .....*P. multicuspidatus*

Proshapalopus amazonicus nom. nov. comb. n.
Figs. 62-65, 175

Pamphobeteus anomalus Mello-Leitão, 1923: 343 (male lectotype, here designated, and three males paralectotypes from Santo Christo, Rio Tapajós, Pará, Brazil, MZSP 555, Garbe col., examined). - Petrunkevitch, 1939:242. - Roewer, 1942:252. - Bonnet, 1958:3313. Preoccupied by *Proshapalopus anomalus* Mello-Leitão, 1923.

Eupalaestrus anomalus; Lucas, Silva Junior & Bertani, 1993:245. - Platnick, 1997:160.

Diagnosis - Males and females can be distinguished from other species by the thickened tibiae IV (Fig. 20). Males can also be distinguished from *P. multicuspidatus* by the metatarsus I touching the apex of the retrolateral spur branch when flexed (Fig. 62) and from *P. anomalus* by the presence of an accentuated D (Fig. 64-65). Females can also be distinguished by the absence of type III urticating hair (Fig. 2).

Description - Male (IBSP 6913) - Total length: 48,0. Carapace: length 19,6, width 16,9. Eye tubercle: length 2,05, width 2,70. Labium: length 2,37, width 3,11. Sternum: length 8,2, width: 7,62. Fovea short, deep, slightly recurved. Cheliceral basal segments with 11-10 teeth. Legs I: femur 17,8 / patella 9,0 / tibia 13,7 / metatarsus 14,4 / tarsus 8,7 / total 63,6 / II: 16,0 / 8,2 / 11,9 / 13,7 / 7,6 / 57,4 / III: 14,7 / 7,6 / 10,9 / 15,8 / 7,1 / 56,1 / IV: 18,6 / 8,5 / 15,0 / 23,9 / 8,7 / 74,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia v0-2-0, p2-4-3, d0-0-8ap; legs I femur p0-0-1, patella 0, tibia v2-3-1, p1-1-1, metatarsus v0-0-3ap; II femur p0-0-1, patella 0, tibia v2-3-3ap, p1-1-1, metatarsus v2-0-4ap, p0-1-0; III femur p0-0-2, r0-1-1, patella r1, tibia v3-5-3ap, p1-1-1, r1-1-1, metatarsus v16, p1-1-1, r0-2-1; IV femur 0, patella r1, tibia 15, p0-1-1, r1-1-1, metatarsus v=35, p1-1-1, r0-1-1. Male spur branches straight, originating from a common base, the retrolateral constricted in the middle (Fig. 62). Metatarsus I straight, touches the apex of the retrolateral branch of the male spur when flexed. Male palpal bulb pyriform, embolus long, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. AC present, under the PI. R present, not pronounced. A small. SA small, triangular, bordered by small denticles. D very accentuated (Figs. 64-65). Types I and III urticating hairs present, type I with the region "a" longer than the region "b" (Fig. 4). Carapace covered only by short slender hairs; bordered by short hairs pointing out. Legs covered by many long hairs dorsal and ventrally. Tibia IV thickened (Fig. 20). Coxae and sternum covered by short slender hairs. Carapace and legs black, legs covered by long reddish hairs. Sternum, coxae and abdomen grayish ventrally. Leg rings and longitudinal stripes on femora, patellae, and tibiae hardly distinct.

Female (IBSP 6915) - Total length: 62,5. Carapace: length 28,1, width 23,3. Eye tubercle: length 2,37, width 3,28. Labium: length 3,85, width 4,92. Sternum: length 12,00, width: 11,25. Fovea short, deep, recurved. Cheliceral basal segments with 11-12 teeth. Legs I: femur 16,9 / patella 10,4 / tibia 11,8 / metatarsus 11,4 / tarsus 6,7 / total 57,2 / II: 15,1 / 9,9 / 10,2 / 11,2 / 6,1 / 52,5 / III: 14,4 / 9,6 / 10,3 / 13,6 / 5,5 / 53,4 / IV: 19,7 / 10,4 / 15,0 / 20,8 / 6,9 / 72,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-1ap, p0-2-1ap; legs I femur p0-0-1, patella 0, tibia v0-1-1ap, metatarsus v0-0-2ap; II femur p0-0-1, patella 0, tibia v0-1-3ap, p0-2-0, metatarsus v0-1-2ap, p0-1-0; III femur r0-0-1, patella 0, tibia v1-2-3(2ap), p1-2-2, r1-1-1, metatarsus v4-1-2ap, p2-2-1, r0-2-0; IV femur r0-0-1, patella r1, tibia v2-4-4(2ap), p0-1-0, r0-3-0, metatarsus v22(3ap), r1-0-0. Spermathecae short,

separated by a weakly sclerotized area. SS narrower than SB (Fig. 63). Type I urticating hair present, with the region "a" longer than the region "b" (Fig. 4). Tibia IV thickened (Fig. 20). Color and body hair pattern as in the male.

Distribution: Brazil: Amazon Forest, from northern State of Mato Grosso to south of State of Pará (Fig. 166, 172).

Records: Brazil, *Pará*: Santo Christo, Rio Tapajós, 4 ♂ (MZUSP 555, lectotype and paralectotypes of *Pamphobeteus anomalus* Mello-Leitão, 1923), *Mato Grosso*: Apiacás, 3 ♂ (IBSP 6910), 3 ♂ (IBSP 6911), 3 ♂ (IBSP 6912), 3 ♂ (IBSP 6913); Alta Floresta / Aripuanã, 3 ♂ (IBSP 4337); Alta Floresta, 1 mzcho (IBSP 4474), 1 ♂ (IBSP 4494), 1 ♂ (IBSP 4549), 2 ♂ (IBSP 4747), 1 ♀ (IBSP 6915); Parque Nacional do Xingú, 1 ,♂ (IBSP 33), 1 ♂ (MZSP 3916), 1♂ (MZSP 3917); Sinop - 1 ♀ (IBSP 6914), 1 ♀ (IBSP 6915), 1 ♀ (IBSP 6916); *São Paulo*: Iguape, 1 ♂ (IBSP 4704).

Proshapalopus multicuspidatus
(Mello-Leitão) comb. n.
Figs. 66-69, 176

Phormictopus multicuspidatus Mello-Leitão, 1929:91, Figs 1-2 (holotype male from Tapera, Pernambuco, Brazil, in MNRJ, Bento Pickel col., examined). - Petrunkevitch, 1939:246. -Roewer, 1942:249. - Bonnet, 1958:3627.

Cyclosternum multicuspidatum; Bücherl, Costa & Lucas, 1971:123, figs 21-24 (comb. n.). - Platnick, 1993:104.

Diagnosis - Males can be distinguished from other species by the metatarsus I touching the retrolateral spur branch laterally when flexed. They can also be distinguished from *P. anomalus* by the presence of an accentuated D (Figs. 68-69) and from *P. amazonicus* by the absence of a thickened tibia IV. Females can be distinguished from *P. amazonicus* by the absence of a thickened tibia IV, and from *P. anomalus* by the color pattern and distinct geographical distribution.

Description - Male (IBSP 6844) - Total length: 39,5. Carapace: length 16,1, width 13,7. Eye tubercle: length 1,88, width 2,37. Labium: length 2,13, width 2,46. Sternum: length 7,13, width: 6,31 Fovea short, deep, straight. Cheliceral basal segments with 11-12 teeth. Legs I: femur 14,9 / patella 7,8 / tibia 11,2 / metatarsus 12,4 /tarsus 8,1 / total 54,4 / II: 13,6 / 6,7 / 10,2 / 11,2 / 7,5 / 49,2 / III: 11,7 / 6,0 / 8,7 / 12,0 / 6,8 / 45,2 / IV: 14,1 / 6,8 / 11,6 / 15,8 / 6,9 / 55,2. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia p1-3-1, d0-0-9ap; legs I femur 0, patella 0, tibia v1-1-1, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v1-3-3ap, p1-1-1, metatarsus v1-0-3ap; III femur p0-0-1, r0-0-1, patella 0, tibia v0-3-2ap, p0-1-1, r1-1-1, metatarsus v1-2-3ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v0-3-2, p1-1-1, r1-1-0, metatarsus v=14, p0-1-1, r0-1-1. Male spur branches converging, originating from a common base, tapering distally, prolateral branch thickened (Fig. 66). Metatarsus I straight, when flexed touches the retrolateral branch of the male spur laterally. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. AC present, under the PI. D very accentuated. R present, not pronounced. A small. SA very small, triangular, bordered by small denticles (Figs. 68-69). Types I and III urticating hairs present, type I with the region "a" shorter than the region "b" (Fig. 3). Carapace covered only by short slender hairs; bordered by short hairs pointing out. Legs slender, dorsally and ventrally covered by few long hairs. Coxae and sternum covered by short slender hairs. Carapace and legs dark-brown, almost black; sternum, coxae and ventral abdominal region black. White rings at the apex of the femora, patellae and tibiae conspicuous. Longitudinal stripes on the patellae and tibiae hardly distinct.

Female (IBSP 7012) - Total length: 50,0. Carapace: length 19,1, width 17,0. Eye tubercle: length 2,10, width 2,80. Labium: length 2,40, width 3,40. Sternum: length 8,40, width: 7,60. Fovea short, deep, slightly procurve. Cheliceral basal segments with 13-13 teeth. Legs I: femur 15,6 / patella 8,8 / tibia 11,8 / metatarsus 10,7 / tarsus 6,4 / total 53,3 / II: 14,1 / 8,0 / 10,1 / 10,0 / 6,0 / 48,2 / III: 12,7 / 7,0 / 8,4 / 10,2 / 5,7 / 44,0 / IV: 15,9 / 7,3 / 11,9 / 15,6 / 6,2 / 56,9. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-4ap, p1-2-2, r0-1-0; legs I femur p0-0-1, patella p2, tibia v1-1-3ap, p0-1-0, metatarsus v0-0-1ap; II femur p0-0-1, patella p1, tibia v1-2-4ap, p1-1-1, metatarsus v1-0-3ap; III femur p0-0-1, r0-0-1, patella r1, tibia v0-2-2ap, p1-1-1, r0-1-1, metatarsus v3-0-4ap, p1-0-1, r0-1-0; IV femur r0-0-1, patella 0, tibia v2-2-3(2ap), r1-1-1, metatarsus v17(4ap), p0-1-1, r0-2-1. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 67). Types I and III urticating hairs present, type I with the region " a" shorter than the region "b" (Fig. 3). Hair pattern as in the male. Slender legs. Carapace dark brown, margin pinkish. Femora black. Patellae, tibiae, metatarsi and tarsi slightly pinkish-brown, pinkish more accentuated in patellae and tibiae I and II. Coxae, sternum, and abdomen ventrally black. Leg rings and longitudinal stripes on the patellae and tibiae distinct.

Distribution - Brazil: Atlantic Forest, from the State of Paraíba to south of the State of Bahia (Figs. 166, 172).

Records: Brazil, *Paraíba*: Mamanguape, 1 ♂, 22.VI.93, C. Arzabe col. (MCN-RS 24.481); 1 ♂, 11.VI.93, C. Arzabe col. (MCN-RS 24.486); Galante, 1 ♂ (IBSP 6844); *Pernambuco*: Tapera, 1 ♂ (MNRJ, holotype of *Phormictopus multicuspidatus*, Mello-Leitão, 1929); *Alagoas*: São Miguel dos Campos, Faz. Prata, Usina Sinimbú, 1 ♂, V.84, D. F. de Morais col. (MNRJ 13.261); *Sergipe*: São Cristóvão, 1 ♀ (IBSP 6853); Crasto, 1 ♀ (IBSP 6847); *Bahia*: Ipiaú, 1 ♂ (IBSP 6850), 1 ♂ (IBSP 6851); Ilhéus, 1 ♂ (IBSP 6845), 1 ♂ (IBSP 6849), 1 ♀ (IBSP7012); Porto Seguro, 1 ♀ (IBSP 6846), 1 ♂ (IBSP 6848), 1 ♀ (IBSP 6852); Teixeira de Freitas, 1 ♂ (IBSP 4614).

Proshapalopus anomalus Mello-Leitão
Figs. 70-73, 177

Proshapalopus anomalus Mello-Leitão, 1923:146, Figs. 60-62, 186; 190 (holotype male from Pinheiro (= Pinheiral), Rio de Janeiro, Brazil, in MNRJ, examined). - Petrunkevitch, 1928:79; 1939:281. - Roewer, 1942:236. - Bonnet, 1958:3780.

Stichoplastus anomalus; Raven, 1985:157 (comb. n.). - Platnick, 1989:110.

Proshapalopus anomalus; Rudloff, 1997:2 (comb. rev.).

Diagnosis - Males can be distinguished from other species by the absence of an accentuated D (Figs. 72-73). They can also be distinguished from *P. multicuspidatus* by the metatarsus I touching the apex of the retrolateral spur branch when flexed (Fig. 70) and from *P. amazonicus* by having slender tibiae IV. Females can be distinguished from *P. amazonicus* by having slender legs, mainly the tibiae IV and from *P. multicuspidatus*, by the distinct color pattern and geographical distribution.

Description - Male (IBSP 6857) - Total length: 40,0. Carapace: length 16,2, width 14,8. Eye tubercle: length 1,64, width 2,54. Labium: length 1,88, width 3,28. Sternum: length 7,38, width: 6,56. Fovea short, deep, straight. Cheliceral basal segments with 10-12 teeth. Legs I: femur 16,3 / patella 8,7 / tibia 13,8 / metatarsus 14,5 / tarsus 9,1 / total 62,4 / II: 15,4 / 7,4 / 12,2 / 13,7 / 8,2 / 56,9 / III: 13,5 / 6,7 / 10,7 / 14,1 / 7,0 / 52,0 / IV: 16,4 / 17,0 / 14,4 / 20,2 / 8,5 / 76,5. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia p1-2-3, d0-0-7ap; legs I femur p0-0-1, patella 0, tibia v1-1-1, metatarsus v0-0-1ap, p1-0-0; II femur p0-0-1, patella 0, tibia v2-2-3ap, p1-1-1, metatarsus v1-0-2ap, p1-1-0; III femur p0-0-1, r0-0-1, patella p1, tibia v1-2-2ap, p2-1-1, r1-1-1, metatarsus v1-2-2ap, p1-2-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v8 (2 ap), p1-1-1, r1-1-1, metatarsus v=18, p1-1-1, r0-1-1. Male spur branches straight originating from a common base, the retrolateral constricted in the middle (Fig. 70). Metatarsus I straight, touching the apex of the retrolateral branch of the male spur when flexed. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. AC present, under the PI. R present, not pronounced. A small. SA small, triangular, bordered by small denticles. D not pronounced (Figs. 72-73). Types I and III urticating hairs present, type I with the region "a" shorter than the region "b" (Fig. 3). Carapace covered only by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs slender, covered by few long hairs dorsally and ventrally. Coxae and sternum covered by short slender hairs. Carapace and legs light brown, femora slightly darker; sternum, coxae, and abdomen ventrally grayish, covered by short orange hairs. Leg rings hardly distinct on the femora, patellae and tibiae apex. Longitudinal stripes on the patellae and tibiae not pronounced.

Female (IBSP 6858) - Total length: 58,9. Carapace: length 22,0, width 18,5. Eye tubercle: length 2,21, width 3,28. Labium: length 3,03, width 3,93. Sternum: length 9,60, width: 8,25. Fovea short, deep, straight. Cheliceral basal segment with 11-12 teeth. Legs I: femur 16,0 / patella 9,5 / tibia 12,0 / metatarsus 10,8 / tarsus 6,8 / total 55,1 / II: 14,3 / 8,5 / 10,2 / 10,4 / 6,7 / 50,1 / III: 12,9 / 7,9 / 9,0 / 11,9 / 6,8 / 48,5 / IV: 16,2 / 8,4 / 12,0 / 17,1 / 7,3 / 61,0. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-1-3ap, p0-2-2ap; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, p1-1-0, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-1-2ap, p1-1-1, metatarsus v1-0-2ap, p1-1-0; III femur p0-0-1, r0-0-1, patella 0, tibia v1-2-2ap, p1-1-0, r1-1-1, metatarsus v1-2-2ap, p1-2-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v1-3-1ap, p1-1-1, r1-1-1, metatarsus v=16, p0-2-1, r0-1-1. Spermathecae short, separated by a weakly sclerotized area. SS narrower than SB (Fig. 71). Types I and III urticating hairs present, type I with the region "a" shorter than the region "b" (Fig. 3). Color and hair patterns like in male, except for the absence of orange hairs on the sternum, coxae and ventral abdominal area.

Distribution - Brazil: Atlantic Forest, from extreme southeast of the State of Minas Gerais to the States of Rio de Janeiro and Espírito Santo, south of Rio Doce River (Figs. 166, 172).

Records: Brazil, *Minas Gerais*: Ouro Preto, 1♀ (IBSP 1097); Lima Duarte, 1 ♀ (IBSP 3466); Juiz de Fora, 1 ♂ (IBSP 4599-B); *Espírito Santo*: Santa Teresa, 1 ♂ (IBSP 6854); Aracruz, 1 ♂ (MZSP

16508); Domingos Martins, 1 ♂ (IBSP 6857), 1 ♀ (IBSP 6858), 3 J (IBSP 6859), 1 ♀ (IBSP 6860), 1 ♀ (IBSP 6861), 1 ♀ (IBSP 6862), 1 ♀ (IBSP 6863); Cachoeiro do Itapemirim, 1 ♀ (IBSP 6856); *Rio de Janeiro*: Resende, 1 ♀ (IBSP 24), 1 ♀ (IBSP 6855); Teresópolis, 1 ♂, VII/80, A. T. Costa col. (MNRJ s/nr.); Pinheiral (= Pinheiro), 1 ♂ (holotype of *Proshapalopus anomalus*, Mello-Leitão, 1923); São Pedro da Aldeia, 1 ♀ (IBSP 344).

Vitalius Lucas, Silva Junior & Bertani

Pamphobeteus Pocock, 1901:545 (*in part*). - Mello-Leitão, 1923:225.

Vitalius Lucas, Silva Junior & Bertani, 1993:241, figs. 1-3; type species by original designation *Vitalius sorocabae* Mello-Leitão, 1923.- Pérez-Miles *et al.*, 1996:59, figs. 49-50. - Platnick, 1997:170.

Pterinopelma Pocock, 1901:551 (*in part*). - Mello-Leitão, 1923:185-189.

Rhechostica Simon, 1892:162 (*in part*). - Raven, 1985:158 (syn. *Pterinopelma*).

Aphonopelma Pocock, 1901:553 (*in part*). - Platnick, 1993:100.

Diagnosis - Males can be distinguished from species of other theraphosine genera except *Proshapalopus*, *Lasiodora*, and *Nhandu*, by the presence of a triangular SA on the male palpal bulb (Figs. 74-75). From *Lasiodora* they can be distinguished by the absence of stridulatory hairs on the superior region of the prolateral coxae I and II; from *Proshapalopus* by the absence of an AC in the male palpal bulb; and from *Nhandu*, except for *V. lucasae*, they can be distinguished either by the male spur with converging branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 83); or by small, almost vestigial, male spurs (Figs. 108-111, *V. roseus* and *V. vellutinus*). *V. lucasae* can be distinguished by the presence of an accentuated D (Figs. 127-128) and thickened tibiae IV. Females can be distinguished from species of other theraphosine genera, except *Lasiodora* and *Nhandu*, by the presence of spermathecae separated by a heavily sclerotized short area (Fig. 81); and, with the exception of *N. carapoensis*, by the absence of type III urticating hair. They can also be distinguished from all *Nhandu* species by the absence of many long, curly, scattered hairs over the carapace.

Description - Cephalothorax longer than wide, cephalic region slightly raised, convex. Cephalic and thoracic striae distinct (most species) or hardly distinct (*V. sorocabae*). Fovea short; deep; straight, slightly recurved or procurved. Chelicerae without rastellum, basal segments with 10 to 15 teeth. Eye tubercle distinct, wider than long. Clypeus absent. Anterior eye row procurved, posterior recurved. AME rounded, the same size as ALE and PLE which have an oval shape. PME small, oval. Labium subquadrate, slightly wider than long, with numerous (more than 100) cuspules on its anterior half. Maxila subretangular, anterior lobe distinctly produced into a conical process, inner angle bearing numerous cuspules (more than 100). Sternum longer than wide, anterior sigilla on the sternum/labium edge. Other sigilla submarginal, the second pair smaller than the third that is smaller than the fourth. PMS one-segmented, short; PLS three-segmented, basal segment longer than the apical, both longer than the median. Apical segment digitiform. Leg tarsi without spines, claw tufts present; STC with a median row of few small teeth. Tarsi I-IV and metatarsi I-II scopulated, metatarsus III scopulated along half its length, metatarsus IV apically scopulated. Femur IV with retrolateral scopula. Prolateral leg coxae and retrolateral palpal trochanter without stridulatory hairs. Male spur with converging branches originating from a common base, tapering distally, the prolateral branch thickened (most species) (Fig. 83); straight branches originating from a common base, the retrolateral constricted in the middle (*V. lucasae*) (Fig. 125); or, male spur vestigial (*V. roseus* and *V. vellutinus*) (Figs. 108-111). Metatarsus I curved (*V. lucasae*) or straight (other species), when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus slightly flattened distally. Embolus long (*V. wacketi* and *V. longisternalis*) or short (most species). Prolateral keels present, the PS forming the embolus edge distally, pronounced in *V. dubius* and *V. buecherli* (Fig. 93-94). AC absent. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles, or vestigial (*V. vellutinus*) (Figs. 101-106). Male palpal bulb with accentuated (*V. lucasae*) (Figs. 127-128) or slightly (other species) D. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB. Type I urticating hair present in males and females with the region "a" longer or equal to region "b". Type III vestigial in females, restricted to small areas in males. Carapace covered by short slender hairs; bordered by some longer hairs ponting to the carapace center (*V. sorocabae* female) (Fig. 17) or bordered by short hairs pointing out (*V. sorocabae* male and other species) (Fig. 16). Tibiae IV slightly thickened in male and female (*V. lucasae*) or tibiae IV not thickened (other species). Legs dorsally and ventrally covered by few long hairs (females of *V. vellutinus*, *V. roseus*, and *V. paranaensis*) or covered by many long hairs, mainly on the ventral face (other species). Coxae and sternum covered by long hairs (*V. buecherli* female) or short (other species).

Constitution: nine South-American species.

Key to *Vitalius* Species

Males

1. Male palpal bulb with an accentuated median ventral depression (Figs. 127-128); tibia IV slightly thickened; male spur with branches originating from a common base, almost straight, the retrolateral with a depression in the middle, the prolateral not thickened (Fig. 125) ..... *V. lucasae*
- Male palpal bulb without a median ventral depression; tibia IV not thickened; male spur with converging branches originating from a common base, the retrolateral tapering distally, the prolateral thickened (Fig. 83)..... 2

2(1). Sternum much longer than wide (Fig. 21), male palpal bulb with long embolus (Figs. 89-90)..... *V. longisternalis*
- Sternum slightly longer than wide; male palpal bulb with long or short embolus..... 3

3(2). Male palpal bulb with long embolus (Figs. 85-86)..... *V. wacketi*
- Male palpal bulb with short embolus..... 4

4(3). Male spur very small (Figs. 108-111)..... 5
- Male spur not small..... 6

5(4). Male palpal bulb with the subapical keel hardly developed, bulb tapering slightly distally (Figs. 101-106), palpal tibia with 1 or 2 prolateral apical spines..... *V. vellutinus*
- Male palpal bulb with the subapical keel well-developed, bulb tapering abruptly on its median region (Figs. 115-116); palpal tibia with five or more apical prolateral spines (Fig. 25)..... *V. roseus*

6(4). Male palpal bulb tip thickened (Figs. 93-94); general dorsal color pattern brownish, leg rings on the patellae and tibiae hardly distinct..... 7
- Male palpal bulb tip slender (Figs. 76-77); general dorsal color pattern blackish, leg rings on the patellae and tibiae distinct..... 8

7(6). Slender legs (Fig. 22)..... *V. buecherli*
- Not slender legs (Fig. 23)..... *V. dubius*

8(6). Sternum, coxae, and abdomen ventrally black..... *V. paranaensis*
- Sternum, coxae and abdomen ventrally grayish..... *V. sorocabae*

Females

1. Sternum much longer than wide (Fig. 21) ..... *V. longisternalis*
- Sternum slightly longer than wide..... 2

2(1). Carapace bordered by long hairs pointing to the carapace center (Fig. 17); general color pattern blackish, leg rings on the patellae and tibiae distinct, sternum and coxae grayish ..... *V. sorocabae*
- Carapace bordered by short hairs pointing out (Fig. 16); general color pattern variable..... 3

3(2). Tibia IV slightly thickened; general dorsal color pattern blackish..... *V. lucasae*
- Tibia IV normal; general dorsal color pattern variable..... 4

4(3). Spermathecae bulbs enlarged (Figs. 98-100)..... *V. dubius*
- Spermathecae bulbs not enlarged (Fig. 122)..... 5

5(4). Ventral femora face with few long hairs; carapace dark-brown on the anterior region, becoming gradually lighter backwards; legs pinkish laterally on the anterior patellae, tibiae, and metatarsi; leg rings on the patellae and tibiae distinct; sternum, coxae, and abdomen ventrally black 6
- Ventral femora face with many long hairs; general color pattern homogeneous, blackish or brownish; leg rings on the patellae and tibiae variables; sternum, coxae and abdomen ventrally black or brown..... 8

6(5). Coxae ventrally with long hairs; distribution: western State of Rio Grande do Sul, Brazil..... *V. roseus*
- Coxae ventrally with short hairs; distribution: States of Paraná, São Paulo, Minas Gerais, and Mato Grosso do Sul, Brazil; and Argentina..... 7

7(6). Distribution: western and central State of São Paulo, southern Minas Gerais and eastern Mato Grosso do Sul, Brazil..... *V. vellutinus*
- Distribution: northwestern State of Paraná, Brazil; and Missiones, Argentina..... ..... *V. paranaensis*

8(5). Sternum and coxae covered by short hairs; sternum, coxae, and abdomen ventrally black..... *V. wacketi*
- Sternum covered by long hairs; sternum, coxae, and abdomen ventrally brownish gray..... *V. buecherli*

Vitalius sorocabae (Mello-Leitão)
Figs. 74-82, 178

Pamphobeteus sorocabae Mello-Leitão, 1923:233 (holotype female from Sorocaba, São Paulo, Brazil, MZSP 123, X/1904, L. F. de Camargo col., examined). - Petrunkevitch, 1939:244. - Roewer, 1942:253. - Bücherl, 1947a:233-281. - Schmidt, 1986:59, figs. 98-99. - Platnick, 1989:107. - Platnick, 1993:111.

Pamphobeteus sorocabensis; Bonnet, 1958:3315 (unjustified emendation).

Pamphobeteus melanocephalus Mello-Leitão, 1923:234 (holotype female from São Paulo, Brazil MZSP N° 153, VII/1910, examined). - Petrunkevitch, 1939:243. - Bücherl, 1947a:263 (syn.). - Bonnet, 1958:3314.

Vitalius sorocabae; Lucas, Silva Junior & Bertani, 1993:243, figs. 1-3 (*comb. n.*). - Platnick, 1997:171.

Diagnosis - Males can be distinguished from all species, except *V. paranaensis*, by having metatarsus I straight, embolus short, non-slender legs, PS not pronounced, and male spur well-developed. Males can additionally be distinguished from *V. paranaensis* by the sternum and coxae grayish color pattern. Females can be distinguished by the carapace bordered by long hairs pointing to the carapace center (Fig. 17).

Description - Male (IBSP 4942) - Total length: 45,8 Carapace: length 18,5, width 17,3. Eye tubercle: length 2,13, width 2,54. Labium: length 2,37, width 3,11. Sternum: length 8,70, width: 7,95. Fovea short, deep, slightly procurved. Cheliceral basal segments with 12-12 teeth. Legs I: femur 16,3 / patella 8,8 / tibia 11,4 / metatarsus 10,7 / tarsus 7,3 / total 54,5 / II: 15,0 / 8,1 / 10,5 / 10,1 / 7,0 / 50,7 / III: 13,6 / 7,8 / 9,6 / 11,4 / 6,8 / 35,6 / IV: 16,6 / 7,7 / 13,2 / 18,2 / 7,8 / 63,5. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia p3-1-2ap; legs I femur p0-0-1, patella 0, tibia v2-2-1ap, p1-1-0, metatarsus v0-0-1ap; II femur p0-0-1, patella p1, tibia v3-4-3ap, p1-1-1, metatarsus v2-0-2ap, r0-1-0; III femur p0-1-1, r0-0-1, patella p1, r2; tibia v10(2ap), p1-1-1, r1-1-1, metatarsus v4-1-3ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella r2, tibia 12(3ap), p0-1-1, r1-1-1, metatarsus v20(2ap), p1-1-1, r1-1-1. Male spur branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 80). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 74-79). Types I and III urticating hairs (Figs. 2, 4) present, type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out. Legs covered by many long hairs ventrally. Coxae and sternum covered by short hairs. Carapace black, with the margin light brown. Legs black, except trochanters, which are light brown dorsally. Sternum, coxae, and abdomen ventrally grayish. Leg rings very distinct on the femora, patellae and tibiae apex. Longitudinal stripes on legs distinct.

Female (IBSP 5436) - Total length: 56,8. Carapace: length 20,3, width 17,7. Eye tubercle: length 2,54, width 2,87. Labium: length 2,87, width 3,60. Sternum: length 8,55, width: 7,80. Fovea short, deep, procurved. Cheliceral basal segments with 13-12 teeth. Legs I: femur 14,4 / patella 9,0 / tibia 10,1 / metatarsus 8,4 /tarsus 5,5 / total 47,4 / II: 13,0 / 7,5 / 8,1 / 7,9 / 5,3 / 41,8 / III: 11,8 / 6,9 / 8,0 / 8,9 / 6,2 / 41,8 / IV: 14,7 / 7,5 / 10,7 / 13,5 / 5,7 / 52,1. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-4ap, p1-2-2; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, metatarsus v0-0-1ap, p1-0-0; II femur p0-0-1, patella 0, tibia v0-1-1ap, p1-1-1, metatarsus v0-0-3ap; III femur p0-0-1, r0-0-1, patella p1, r1; tibia v0-2-2ap, p1-1-1, r1-1-1, metatarsus v2-0-3ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella r2, tibia v1-2-3(2ap), p1-1-1, r1-2-1, metatarsus v17(3ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Figs. 81-82). Type I urticating hair present (type III vestigial). Color and hair pattern as in the male, except for the presence of long hairs bordering the carapace pointing out and to the center of carapace (Fig. 17). Also, the longitudinal stripes on the patellae and tibiae are more conspicuous than in male.

Distribution: Brazil: Brazilian "campos" and "cerrados" of southern Minas Gerais, State of São Paulo, and northern Paraná, following the "peripheric depression of the eastern border of Paraná Basin" in the States of São Paulo and Paraná (Figs. 169, 173).

Records: Brazil, *Mato Grosso do Sul*: Paranaíba, 1 ♀ (IBSP 5396); Taunay, 1 ♀ (IBSP 118); *Minas Gerais*: Ibiaí, 1 ♂ (IBSP 2512); Sereno, 1 ♀ (IBSP 2241); Juiz de Fora, 1 ♂ (IBSP 4633B); Poços de Caldas, 1 ♀ (IBSP 1509); Andradas, 1 ♀ (IBSP 1029); Toledo, 1 ♂ (IBSP 6881); *Rio de Janeiro*: Itatiaia, 1 ♀ (IBSP 5334); *São Paulo*: 1 ♀ (MZUSP 153, holotype of *Pamphobeteus melanocephalus* Mello-Leitão, 1923), Restinga, 1 ♂ (IBSP 2884); Viradouro, 1 ♂ (IBSP 1253); Altinópolis, 1 ♂ (IBSP 180), 1 ♀ (IBSP 675); Vista Alegre do Alto (Vista Alegre), 1 ♀ (IBSP 161); Guararapes, 1 ♂ (IBSP 1449); Panorama - 1 ♂ (IBSP 4444); Novo Horizonte, 1 ♂ (IBSP 3146); Toriba - 1 ♀ J (IBSP 1446); Santa Lúcia, 1 ♀ (IBSP 477); Araraquara, 1 ♂ (IBSP

1262), 1 ♀ (IBSP 4875); São Manuel, 2 ♂ (IBSP 48), 2 ♂ (IBSP 49), 1 ♀ (IBSP 6943); Porto Ferreira; 1 ♂ (IBSP 235); Tamoio, 1 ♀ (IBSP 864); São Carlos, 1 ♀ (IBSP 80); Santo Anastácio, 1 ♂ (IBSP 541); Presidente Alves, 1 ♀ (IBSP 102); Leme, 1♂ (IBSP 264), 1♂ (IBSP 265), 1 ♂ (IBSP 480), 1 ♀ (IBSP 600), 1 ♂ (IBSP 604), 1 ♂ (IBSP 613), 1 ♂ (IBSP 620); Eleutério, 1 ♀ (IBSP 901); Rancharia, 1 ♂ (IBSP 537); Baurú, 1 ♂ (IBSP 516), 1♂ (IBSP 2269A); Dois Córregos, 1 ♂ 3 ♀ (IBSP 4398B); Barra Bonita, 1 ♀ (IBSP 1060), 1 ♂ (IBSP 3528); Limeira , 1 ♂ (IBSP 659), 1 ♂ (IBSP 793); Serra Negra, 1 ♂ (IBSP 1091), 1 ♀ (IBSP 1092); Cardoso de Almeida, 1 ♂ (IBSP 158); Lençóis Paulista, 1 ♀ (IBSP 4154); Tatú, 1 ♀ (IBSP 909); Assis, 1 ♀ (IBSP 2370), 1 ♀ (IBSP 2371), 1 ♀ (IBSP 4793B), 1 ♂ (IBSP 4916), 1 ♀ (IBSP 6999), 1 ♀ (IBSP 7000), 1 ♀ (IBSP 7004); Piracicaba, 1 ♀ (IBSP 432), 1 ♀ (IBSP 433), 1 ♀ (IBSP 435), 1 ♀ (IBSP 438), 1 ♂ (IBSP 505), 1 ♂ (IBSP 507), 1♂ (IBSP 513), 1 ♀ (IBSP 575), 1 ♀ (IBSP 583), 1 ♀ (IBSP 667); Americana, 1 ♀ (IBSP 4345B); Amparo, 1♀ (IBSP 359), 1 ♂ (IBSP 4774); Monte Alegre do Sul (Monte Alegre), 1 ♀ (IBSP 436), 1 ♀ (IBSP 437), 1 ♀(IBSP 574), 1 ♂ (IBSP 651), 1 ♀ (IBSP 687); Vitoriana, 1♂ (IBSP 211), 1 ♀ (IBSP 641), 1 ♂ (IBSP 643); Cândido Mota, 1 ♂ (IBSP 486); Serra D'Água, 1 ♂ (IBSP 1501); Botucatú, 2 ♀ (IBSP 462A), 1 ♂ (IBSP 524), 1 ♂ (IBSP 580B), 2 ♂ 2 ♀ (IBSP 4191), 1 ♀ (IBSP 4557), 1 ♀ (IBSP 4625), 2 ♂ (IBSP 4634A), 1 ♀ (IBSP 6939), 1 ♂ (MZSP 14939), 1 ♂ (MZSP 14962); Florínea, 1♂ (IBSP 119B); Santa Cruz do Rio Pardo, 1 ♂ (IBSP 636), 1 ♀ (IBSP 637), 1 ♀ (IBSP 2121), 1 ♂ (IBSP 4306), 3 ♀ (IBSP 4567); Águas de Santa Bárbara, 1 ♀ (IBSP 4121), 2 ♀1 ♂ (IBSP 4456A), 1 ♀ (IBSP 6998); Pirambóia, 1 ♀ (IBSP 2723); Juquiratiba, 1 ♀ (IBSP 2310); Capivarí, 1 ♀ (IBSP 92); Conchas, 1 ♀ (IBSP 107), 1 ♂ (IBSP 466), 1 ♂ (IBSP 484), 1 ♀ (IBSP 4466), 1 ♀ (IBSP 6918); Laranjal Paulista, 1 ♀ (IBSP 1199), 4 ♂ 1 ♀ (IBSP 4606); Cardeal, 1 ♂ (IBSP 3321); Itatiba, 1 ♀ (IBSP 975); Ourinhos, 1 ♀ (IBSP 322), 1♂ (IBSP 471), 1 ♂ (IBSP 492), 1 ♂ (IBSP 508), 1♂ (IBSP 511), 1 ♂ (IBSP 525), 1 ♀ (IBSP 546), 1 ♀ (IBSP 547), 1 ♀ (IBSP 598), 1 ♀ (IBSP 690), 1 ♂ (IBSP 737), 1 ♂ (IBSP 757), 2 ♀ (IBSP 840), 1 ♂ (IBSP 2855), 1 ♂ (IBSP 2885), 2 ♂ 2 ♀ (IBSP 4307), 1 ♀ (IBSP 6920); Chavantes, 1 ♂ (IBSP 4303), 3 ♀ 1 ♂ (IBSP 4702); Luiz Pinto, 1 ♀ (IBSP 1247), 1 ♀ (IBSP 1248), 1 ♂ (IBSP 1268); Ipauçú, 2 ♂ 1 ♀ (IBSP 1732); Bernardino de Campos, 1 ♀ (IBSP 263), 1♂ (IBSP 482), 1 ♀ (IBSP 560), 1 ♀ (IBSP 685), 1 ♀ (IBSP 6922); Cerqueira Cesar, 1 ♀ (IBSP 1628), 1 ♀ (IBSP 3590), 1 ♂ 1 ♀ (IBSP 4581); Bofete, 2 ♂ 1 ♀ (IBSP 4257); Pereiras, 1 ♂ (IBSP 4528); Tietê, 1 ♀ (IBSP 287), 1 ♂ (IBSP 489), 1♂ (IBSP 490), 2 ♂ (IBSP 495), 1♂ (IBSP 496), 1♂ (IBSP 497), 1 ♂ (IBSP 498), 1 ♂ (IBSP 527), 1 ♀ (IBSP 589), 1 ♀ (IBSP 590), 1 ♀ (IBSP 665), 3 ♂ (IBSP 1882), 1 ♂ (IBSP 3202), 1 ♀ (IBSP 4354A), 1 ♀ (IBSP 6000); Avaré, 1♀ (IBSP 142), 1 ♂ (IBSP 177), 1♀ (IBSP 348), 1 ♂ (IBSP 564), 1 ♂ (IBSP 623), 1 ♂ (IBSP 639), 1 ♂ (IBSP 663), 1 ♂ (IBSP 674), 1 ♀ (IBSP 942), 1 ♀ (IBSP 977), 1 ♀ (IBSP 1083), 1 ♀ (IBSP 1101), 1 ♀ (IBSP 1137), 1 ♂ (IBSP 1408), 1 ♂ (IBSP 1409), 1 ♀ (IBSP 1589), 1 ♂ (IBSP 2534), 2 ♂ 4 ♀ 1 J (IBSP 2575), 2 ♂ 1 ♀ (IBSP 4187A), 4 ♂ (IBSP 4187B), 1 ♀ (IBSP 6937), 1 ♀ (IBSP 7007), 1 ♀ (MZSP 14923); Avaré (U. H. E. Jurumirim), 1 ♀ (IBSP 6013); Porangaba, 2 ♂ 1 ♀ (IBSP 4352), 1 ♀ (IBSP 6930); Cesário Lange, 1 ♀ (IBSP 6921); Porto Feliz, 2 ♀ (IBSP 3980), 4 ♂ (IBSP 4347A), 1 ♀ (IBSP 7010); Salto, 1 ♂ (IBSP 2587); Jundiaí, 1 ♂ (IBSP 519), 1 ♂ (IBSP 847), 1 ♀ (IBSP 1476), 1 ♂ (IBSP 4628B); São José dos Campos, 1 ♀ (IBSP 4252B); Pirajú, 1 ♀ (IBSP 283), 1 ♂ (IBSP 284), 1 ♂ (IBSP 337), 1♂ (IBSP338), 1 ♀ (IBSP 361), 1 ♂ (IBSP 485), 1 ♂ (IBSP 530), 1 ♀ (IBSP 542), 1 ♀ (IBSP 551), 1 ♀ (IBSP 586), 1 ♀ (IBSP 644), 1 ♂ (IBSP 645), 1 ♀ (IBSP 655), 1 ♀ (IBSP 1045), 1 ♀ (IBSP 1103), 1 ♀ (IBSP 1260), 1 ♂ (IBSP 1342), 1 ♂ (IBSP 1419), 1♀ (IBSP 1420), 1 ♀ (IBSP 1422), 1 ♂ (IBSP 1423), 1 ♂ (IBSP 1438), 1 ♀ (IBSP 1439), 1 ♂ (IBSP 1442), 1 ♀ (IBSP 4841), 1 ♀ (IBSP 6007); Boituva, 1 ♂ (IBSP 195), 1 ♀ (IBSP 1006), 1 ♀ (IBSP 2632), 1 ♀ (IBSP 6003), 1 ♀ (IBSP 6925); Itú, 2 ♂ (IBSP 4468B); Tatuí, 2 ♂ (IBSP 4342A), 1 ♀ (IBSP 6005-A), 1 ♀ (IBSP 6008), 1 ♀ (IBSP 6012), 1 ♀ (IBSP 6919), 1 ♀ (IBSP 6933); Iperó, 1 ♀ (IBSP 5997); Caieiras, 1 ♂ (IBSP 880A); Paranapanema, 1 ♂ (IBSP 4653); Morro do Alto, 1♂ (IBSP 3278); Capela do Alto, 1 ♂ (IBSP 4351); Ipanema, 1♂ (IBSP 126); Itai, 1 ♂ (IBSP 4527), 1 ♀ (IBSP 4909); Angatuba, 3 ♂ 1 ♀ (IBSP 4290), 1 ♀ (IBSP 6927); Araçoiaba da Serra, 1 ♂ 1 ♀ (IBSP 4718A); Sorocaba, 1 ♀ (MZUSP 123, holotype of *Pamphobeteus sorocabae* Mello-Leitão, 1923)1 ♀ (IBSP 247A), 1 ♀ (IBSP 943), 1 ♂ (IBSP 3323), 2 ♀ (IBSP 4382A), 1 ♂ (IBSP 4942, alotype of *Vitalius sorocabae*), 1 ♀ (IBSP 6002), 1 ♀ (IBSP 6009), 1 ♀ (IBSP 6011), 1 ♀ (IBSP 5397), 1 ♂ (IBSP 6895), 1 ♀ (IBSP 6924), 1 ♀ (IBSP 6926), 1 ♀ (IBSP 6934), 1 ♀ (IBSP 7001), 1 ♀ (IBSP 7002), 1 ♀ (IBSP 7003); São Roque, 3 ♂ (IBSP 4636); Presidente Altino, 1 ♀ (IBSP 2195), 1 ♀ (IBSP 2644); Osasco, 1 ♀ (IBSP 299), 2 ♂ 1♀ (IBSP481A), 1♂ (IBSP 493), 1 ♀ (IBSP 2415A), 1 ♂ (IBSP 2565); Taboão da Serra, 1 ♂ (IBSP 4487B); São Paulo, 1 ♂ (IBSP 20), 1 ♀ (IBSP 441), 1 ♀ (IBSP 443), 1 ♀ (IBSP 458), 1 ♂ (IBSP 478), 1 ♀ (IBSP 1087), 1 ♂ (IBSP 1458A), 1 ♂ (IBSP 2257), 1 ♂ (IBSP 2258), 1 ♂ (IBSP 2259), 1 ♂ (IBSP 2882), 1 ♂ (IBSP 2883), 1 ♂ (IBSP 3156), 1 ♂ (IBSP 3316), 1 ♀ (IBSP 4217A), 1♂ (IBSP 4346), 1 ♂ (IBSP 4353B), 1 ♀ (IBSP 6936), 1 ♀ (IBSP 6938); São Sebastião, Barra do Una, 1 ♂ (MZSP 14919); Ubatuba, 1 ♀ (IBSP 4343B); Itapetininga, 1 ♀ (IBSP 434), 1 ♀ (IBSP 1493), 3 ♂ (IBSP 4186A), 2 ♀ (IBSP 4186B), 1 ♀ (IBSP 5436), 1 ♀ (IBSP 6010), 1 ♀ (IBSP 6942), 1

♀ (IBSP 7006); Votorantim, 1 ♀ (IBSP 4666); Votorantim (U. H. E. Itupararanga), 1 ♂ (IBSP 4563); Mairinque, 2 ♀ (IBSP 1050), 3 ♂ 1 ♀ (IBSP 2264), 1 ♂ 1 ♀ (IBSP 4357A), 2 ♂ (IBSP 4635), 1 ♀ (IBSP 4768); Campo Limpo Paulista, 1 ♂ (IBSP 4349); Salto de Pirapora, 1 ♀ (IBSP 1170), 1 ♂ (IBSP 4130); Vargem Grande Paulista, 2 ♂ 1 ♀ (IBSP 4341), 2 ♀ (IBSP 4850), 1 ♀ (IBSP 6905); Cotia, 3 ♂ 1 ♀ (IBSP 4139), 3 ♂ (IBSP 4362), 2 ♂ (IBSP 4627A), 1 ♀ (IBSP 4843), 1 ♀ (IBSP 6928); Sarapuí, 1 ♀ (IBSP 4710); Ibiúna, 1 ♂ (IBSP 1484), 1 ♂ (IBSP 1485), 2 ♀ (IBSP 1486), 2 ♀ (IBSP 1529), 1 ♂ 1♀ (IBSP 1564), 1 ♂ (IBSP 1565), 2 ♂ 1 ♀ (IBSP 2276), 1 ♀ (IBSP 2809), 5 ♂ 1 ♀ (IBSP 3931), 2 ♂ (IBSP 4416), 1 fgemea (IBSP 5998), 1 ♀ (IBSP 5999), 1 ♀ (IBSP 6001), 1 ♀ (IBSP 6004), 1 ♀ (IBSP 5415), 1 ♀ (IBSP 6929), 1 ♀ (IBSP 6931), 1 ♀ (IBSP 6932), 1 ♀ (IBSP 6935), 1 ♀ (IBSP 6941), 1 ♀ (IBSP 7005), 1 ♀ (IBSP 7008), 1 ♀ (IBSP 7009), 1 ♂ (MZSP 14926); Caucaia do Alto, 1 ♀ (IBSP 4393); Santo André, 1 ♂ (IBSP 666); Mauá, 1 ♂ (IBSP 587); Itapecerica da Serra, 1 ♀ (IBSP 6006); Pilar do Sul, 1 ♂ (IBSP 4447); Buri, 1♀ (IBSP 136), 1 ♂ (IBSP 4639); São Miguel Arcanjo, 3 ♂ (IBSP 4258), 1 ♀ (IBSP 6923); Juquitiba, 1 ♂ (IBSP 5067); Itaberá, 1 ♀ (IBSP 6005-B); Itapeva, 1♂ (IBSP 2669), 3 ♂ (IBSP 3960), 1 ♀ (IBSP 6940); Capão Bonito, 1 ♀ (IBSP 4587A), 1 ♂ (MZSP 4193); Santos, 1 ♂ (IBSP 767A); Praia Grande, 1 ♂ (IBSP 853A); Registro, 1 ♂ (IBSP 4232B); *Paraná*: 1 ♀ (IBSP 6880); Bandeirantes, 1 ♂ (IBSP 221), 1 ♀ (IBSP 1548); Castro, 1 ♂ (IBSP 1141); Curitiba, 1 ♂ (IBSP 2763); Araucária, 1 ♀ (IBSP 1682), 1 ♀ (IBSP 2283); *Rio Grande do Sul*: Santa Cruz do Sul, 1 ♀ (IBSP 1520).

Vitalius wacketi (Mello-Leitão), comb. n.
Figs. 83-86, 179-180

Pterinopelma wacketi Mello-Leitão, 1923: 185 (holotype male from "Raiz da Serra", São Paulo, Brazil, MZSP 147, 1900, M. Wacket col., examined). - Petrunkevitch, 1939:261. - Bonnet, 1958:3828. - Bücherl, Costa & Lucas, 1971:129. - Pérez-Miles, 1992: 30.

Eurypelma wacketi; Roewer, 1942:242.

Rhechostica wacketi; Raven, 1985:158.

Aphonopelma wacketi; ICZN ruling, 1991:166-167. - Platnick, 1993:100-101. - 1997:152.

Pamphobeteus platyomma; Bücherl, 1949:117-135, figs 1-3, T. 1-3 (misidentification).

Pamphobeteus insularis Mello-Leitão, 1923:241-242 (holotype female from Ilha Grande, Rio de Janeiro, Brazil, should be in MNRJ, not located). - Petrunkevitch, 1939:243. - Bücherl, 1949:126 (syn. with *Pamphobeteus platyomma*). - Bonnet, 1958:3314. - Platnick, 1993:111. - *Syn. n.*

Pamphobeteus masculus Piza, 1939:6 (holotype male from Ilha dos Alcatrazes, São Paulo, Brazil, MZLQ A0041, 1937, Lepage col., examined). - Bücherl, 1949:126 (syn. with *Pamphobeteus platyomma*). - Brignoli, 1983:139. - Platnick, 1989:126. - *Syn. n.*

Pamphobeteus litoralis Piza, 1976:3 (holotype male from Registro, São Paulo, Brazil, ESALQ A-0104, III/1974, E. S. Lopes col., examined). - Brignoli, 1983:139. - Lucas *et al.*, 1993:245 (syn. with *Vitalius platyomma*) - *Syn. n. Vitalius platyomma*; Lucas *et al.*, 1993:241-245, figs. 1-3 (*comb. n.*). - Platnick, 1997:171.

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. longisternalis*, by the long embolus (Figs. 85-86). They can be distinguished from *V. longisternalis* by the not much longer than wide sternum. Females can be distinguished together by having: tibiae IV not thickened; sternum not much longer than wide; carapace not bordered by long hairs pointing to the carapace center; SB not enlarged; femora with many long ventral hairs; and sternum and coxae black, covered by short hairs.

Description - Male (IBSP 6160) - Total length: 47,5 Carapace: length 18,7, width 17,1. Eye tubercle: length 2,37, width 2,87. Labium: length 2,62, width 3,03. Sternum: length 7,95, width: 7,65. Fovea short, deep, slightly procurved. Cheliceral basal segments with 13-11 teeth. Legs I: femur 17,9 / patella 9,3 / tibia 13,6 / metatarsus 13,0 /tarsus 8,5 / total 62,3 / II: 16,5 / 8,2 / 12,5 / 12,5 / 8,0 / 57,7 / III: 14,8 / 7,3 / 11,5 / 13,5 / 7,3 / 54,4 / IV: 17,7 / 7,9 / 15,8 / 20,9 / 8,4 / 70,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p3-3-3; legs I femur p0-0-1, patella 0, tibia v0-2-1ap, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v1-2-3ap, p0-1-1, metatarsus v2-0-3ap, p0-1-0; III femur r0-0-1; patella 0; tibia v4-3-3ap, p1-1-1, r1-1-1, metatarsus v5-0-4ap, p1-1-2, r0-1-0; IV femur r0-0-1, patella 0, tibia v2-3-3(2ap), p1-1-0, r1-1-1, metatarsus v21(2ap), p1-1-1, r0-1-1. Male spur branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 83). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus long, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 85-86). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs ventrally covered by many long hairs. Coxae and sternum covered by short hairs. Carapace and legs black, except trochanters, which are light brown dorsally.

Sternum, coxae, and abdomen ventrally black. Leg rings and longitudinal leg stripes hardly distinct.

Female (IBSP 6084) - Total length: 57,9. Carapace: length 22,6, width 19,4. Eye tubercle: length 2,37, width 3,36. Labium: length 3,03, width 4,26. Sternum: length 10,35, width: 9,00. Fovea short, deep, slightly procurved. Cheliceral basal segments with 11-12 teeth. Legs I: femur 17,3 / patella 10,2 / tibia 11,9 / metatarsus 10,7 /tarsus 6,0 / total 56,1 / II: 15,3 / 9,2 / 10,2 / 10,0 / 6,2 / 50,9 / III: 14,0 / 8,5 / 9,7 / 11,6 / 5,9 / 49,7 / IV: 17,2 / 8,9 / 13,2 / 17,6 / 6,9 / 63,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-4ap, p1-2-2; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, metatarsus v0-0-1ap, p1-0-0; II femur p0-0-1, patella 0, tibia v0-1-1ap, p1-1-1, metatarsus v0-0-3ap; III femur p0-0-1, r0-0-1, patella p1, r1; tibia v0-2-2ap, p1-1-1, r1-1-1, metatarsus v2-0-3ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella r2, tibia v1-2-3(2ap), p1-1-1, r1-2-1, metatarsus v17(3ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized area. SS narrower than SB (Figs. 84). Type I urticating hair present (type III vestigial). Color and hair pattern as in the male, except for the leg rings and longitudinal stripes being more distinct.

Variation: males from the northern coast of the State of São Paulo and southern of the State of Rio de Janeiro have many white hairs on the dorsal and ventral leg faces. Juveniles from all regions show a contrasting leg color pattern with wide whitish bands and the longitudinal stripes very distinct as well as the tibiae apex and the whitish basal and lateral metatarsi. These white areas and the longitudinal leg stripes become less evident in larger individuals, almost disappearing in adults.

Remarks - Bücherl (1949) synonymyzed the species described for the coast and islands of the State of São Paulo and south of Rio de Janeiro in Brazil, *P. masculus* and *P. insularis*, with *P. platyomma*, based on proportions between leg articles and carapace, color pattern and geographic distribution. The holotype of *P. platyomma*, however, is a juvenile male which has the carapace bordered by long hairs pointing to the carapace center, character not found in the *Vitalius* species from the coast, but present in *V. sorocabae* and all *Nhandu* species, that do not occur in the type locality, Ilha de São Sebastião (presently Ilhabela), São Paulo, Brazil. This could be due to locality misinformation or a labelling mistake. However, the specimen has the measurements given in the original description and surely is the holotype Mello-Leitão used to describe this species. Because Mello-Leitão described this species two years after the specimen was collected, it is possible that an earlier change of specimens or labels occured, thus *Vitalius platyomma* does not correspond to the species found in the coastal area with which this name has been used from the 1949's Bücherl revision. Because it is impossible to identify the juvenile male holotype of *Pamphobeteus platyomma*, this species is considered here "nomen dubium".

Distribution: Brazil: tropical latifoliated forest of "Serra do Mar" and coastal region, including many islands, from south of the State of Rio de Janeiro, southwards to States of São Paulo, Paraná, and Santa Catarina (Figs. 169, 173).

Records: Brazil, *Minas Gerais*: Janaúba, 1 ♂ (IBSP 1924); *Rio de Janeiro*: Angra dos Reis, 1 ♂ (IBSP 1918), 3 ♂ (IBSP 2523), 3 ♂ (IBSP 4155A), 1 ♂ 1 ♀ (IBSP 4155B), 1 ♂ (IBSP 4179), 1 ♂ (IBSP 6140), 1 ♂ (IBSP 6223), 1 ♂ (IBSP 6514), 1 J (IBSP 6830), 1 ♂ (IBSP 6833), 1 ♀ (IBSP 6842), 1 ♂ (IBSP 6960), 1 ♀ 1 juvenile (MZSP 14916), 2 ♂ (MZSP 14932), 1 juvenile (MZSP 14959), 1 ♀ (MZSP 14964), 1 ♀ (MZSP 14971), 1 juvenile (MZSP 14976); Ilha Grande, 1 ♂ (IBSP 3987); Ilha Grande, Abraão, praia Brava), 1 ♂ (IBSP 4631); Paratí, 1 ♀ (IBSP 6831), 1 ♂ 1 ♀ (IBSP 6832), 1 ♂ (IBSP 6834), 1 ♂ (IBSP 6836); *São Paulo*: "Raiz da Serra", 1 ♂ (MZUSP 147, holotype of *Pterinopelma wacketi*, Mello-Leitão, 1923), Serra de Santos, 1 ♀ (IBSP 6957); Serra do Mar, 1 ♂ (IBSP 6486); Estrada Rio-Santos; 1 ♀ (IBSP 6093), 1 ♀ (IBSP 6099); Estrada Rio-Santos Indaiá, 1 ♂ (IBSP 6516); Santo Anastácio, 1 ♂ 1 ♀ (IBSP 2820); São Carlos, 1 ♂ (IBSP 363B); Piracicaba, 1 ♀ (IBSP 450); Bragança Paulista, 1 ♀ (IBSP 4510); Santo Antonio do Pinhal, 1 ♂ (IBSP 2519); Atibaia, 1 ♂ (IBSP 6489); São José dos Campos, 1 ♀ (IBSP 4251A); Tatuí, 2 ♂ (IBSP 4342B); Itú, 1 ♂ (IBSP 4468); Paraibuna, 1 ♂ (IBSP 2225B); Osasco, 1 ♂ (IBSP 481B), 1 ♂ (IBSP 6168-A); Ubatuba, 2 ♂ 1 ♀ (IBSP 4317A), 1 ♂ (IBSP 4317B), 2 ♂ (IBSP 4343A), 1 ♀ (IBSP 6034), 1 ♀ (IBSP 6048), 1 ♀ (IBSP 6055), 1 ♀ (IBSP 6059), 1 ♀ (IBSP 6086), 1 ♀ (IBSP 6091), 1 ♀ (IBSP 6103), 1 ♀ (IBSP 6111), 1 ♂ (IBSP 6131), 1 ♂ (IBSP 6143), 1 ♂ (IBSP 6225), 1 ♂ (IBSP 6232), 1 ♂ (IBSP 6235), 1 ♂ (IBSP 6253), 1 ♂ (IBSP 6278), 1 ♂ (IBSP 6280), 1 ♂ (IBSP 6289), 1 ♂ (IBSP 6294), 1 ♂ (IBSP 6478), 1 ♂ (IBSP 6482), 1 ♂ (IBSP 6490), 1 ♂ (IBSP 6511), 1 ♂ (IBSP 6532), 1 ♂ (IBSP 6535), 1 ♀ (IBSP 6961); Ubatuba, praia do Lázaro, 1 ♂ 3 ♀ (IBSP 4123); São Paulo - 1 ♂ (IBSP 1458B), 1 ♀ (IBSP 1664), 1 ♀ (IBSP 2921), 1 ♂ (IBSP 3158), 1 ♀ (IBSP 3747), 1 ♀ (IBSP 3887), 1 ♀ (IBSP 4217B), 1 ♀ (IBSP 6045), 1 ♀ (IBSP 6077), 1 ♀ (IBSP 6081), 1 ♀ (IBSP 6106), 1 ♂ (IBSP 6125), 1 ♂ (IBSP 6129), 1 ♂ (IBSP 6139), 1 ♂ (IBSP 6237), 1 ♂ (IBSP 6275), 1 ♂ (IBSP 6507), 1 ♂ (IBSP 6521), 1 ♂ (IBSP 6529), 1 ♂ (IBSP 5280), 1 ♂ (IBSP 6123), 1 ♂ (IBSP 6501), 1 ♂ (MZSP 14898); Taboão da Serra, 1 ♂ (IBSP 6298); Caraguatatuba, 3 ♂ (IBSP

4144A), 2 ♂ (IBSP4323A), 2 ♂ (IBSP 4323B), 1 ♀ (IBSP 4426), 1 ♀ (IBSP 6028), 1 ♀ (IBSP 6046), 1 ♀ (IBSP 6062), 1 ♀ (IBSP 6065), 1 ♀ (IBSP 6067), 1 ♀ (IBSP 6070), 1 ♂ (IBSP 6130), 1 ♂ (IBSP 6138), 1 ♂ (IBSP 6188), 1 ♂ (IBSP 6196), 1 ♂ (IBSP 6211), 1 ♂ (IBSP 6221), 1 ♂ (IBSP 6466), 1 ♂ (IBSP 6469), 1 ♂ (IBSP 6472), 1 ♂ (IBSP 6485); Ibiúna, 1 ♂ (IBSP 6112); São Bernardo do Campo, 1 ♀ (IBSP 3804), 1 ♂ (IBSP 6240); São Caetano do Sul, 1 ♂ (IBSP 6115), 1 ♂ (IBSP 6124); Paranapiacaba; 1 ♂ (IBSP 1880), 1 ♂ (IBSP 6118); Bertioga, praia de Guaratuba, 1 ♂ (IBSP 6147), 1 ♂ (IBSP 6254); São Lourenço da Serra, 1 ♀ (IBSP 6108); Bertioga, 1 ♂ (IBSP 3533), 1 ♀ (IBSP 4144B), 3 ♂ 1 ♀ (IBSP 4181A), 2 ♀ 1 ♂ (IBSP 4181B), 2 ♂ 1 ♀ (IBSP 4412), 1 ♂ 1 ♀ (IBSP 4502), 1 ♀ (IBSP 6020), 1 ♀ (IBSP 6021), 1 ♀ (IBSP 6021), 1 ♀ (IBSP 6036), 1 ♀ (IBSP 6042), 1 ♀ (IBSP 6064), 1 ♀ (IBSP 6071), 1 ♂ (IBSP 6116), 1 ♂ (IBSP 6141), 1 ♂ (IBSP 6142), 1 ♂ (IBSP 6149), 1 ♂ (IBSP 6150), 1 ♂ (IBSP 6158), 1 ♂ (IBSP 6186), 1 ♂ (IBSP 6189), 3 ♂ (IBSP 6220), 1 ♂ (IBSP 6236), 1 ♂ (IBSP 6238), 1 ♂ (IBSP 6242), 1 ♂ (IBSP 6246), 1 ♂ (IBSP 6247), 1 ♂ (IBSP 6258), 1 ♂ (IBSP 6269), 1 ♂ (IBSP 6282), 1 ♂ (IBSP 6283), 1 ♂ (IBSP 6292), 1 ♂ (IBSP 6296), 1 ♂ (IBSP 6479), 1 ♂ (IBSP 6506), 1 ♂ (IBSP 6530), 1 ♂ (IBSP 6534); Bertioga, praia de Boracéia - 2 ♂ (IBSP 4060), 1 ♀ (IBSP 6060), 1 ♂ (IBSP 6151), 1 ♂ (IBSP 6153), 1 ♂ (IBSP 6165), 1 ♂ (IBSP 6197), 1 ♂ (IBSP 6241), 1 ♂ (IBSP 6249), 1 ♂ (IBSP 6256), 1 ♂ (IBSP 6274), 1 ♂ (IBSP 6525), 1 ♂ (IBSP 6526), 1 ♂ (IBSP 6956); São Sebastião - 1 ♂ (IBSP 4812), 1 ♀ (IBSP 6015), 1 ♀ (IBSP 6018), 1 ♀ (IBSP 6019), 1 ♀ (IBSP 6052), 1 ♀ (IBSP 6083), 1 ♀ (IBSP 6084), 1 ♀ (IBSP 6095), 1 ♂ (IBSP 6120), 1 ♂ (IBSP 6134), 1 ♂ (IBSP 6160), 1 ♂ (IBSP 6177), 1 ♂ (IBSP 6205), Pirituba - 1 ♂ (IBSP 6206), 1 ♂ (IBSP 6210), 1 ♂ (IBSP 6214), 1 ♂ (IBSP 6239), 1 ♂ (IBSP 6267), 1 ♂ (IBSP 6306), 1 ♂ (IBSP 6476), 1 ♂ (IBSP 6481), 1 ♂ (IBSP 6500), 1 ♂ (IBSP 6520), 1 ♀ (IBSP 6954); São Sebastião, praia de Maresias, 1 ♂ (IBSP 6213); São Sebastião, praia de Barra do Una, 1 ♂ (IBSP 1385B); São Sebastião, praia de Boiçucanga, 1 ♀ (IBSP 6088), 1 ♂ (IBSP 6488); São Sebastião, praia de Camburí, 1 ♀ (IBSP 6056), 1 ♀ (IBSP 6072); São Sebastião, praia de Juqueí, 1 ♂ (IBSP 6154), 1 ♂ (IBSP 6157), 1 ♂ (IBSP 6184); Ilha Bela, 1 ♀ (IBSP 1384), 1♀ (IBSP 1385A), 1 ♂ (IBSP 1983), 1 ♂ (IBSP 2642), 2 ♂ (IBSP 2696), 2 ♂ 2 ♀ (IBSP 4226), 3 ♂ (IBSP 4297A), 1 ♂ 1 ♀ (IBSP 4297B), 2 ♀ (IBSP 4459), 1 ♀ (IBSP 6029), 1 ♀ (IBSP 6107), 1 ♀ (IBSP 6110), 1 ♂ (IBSP 6119), 1 ♂ (IBSP 6172), 1 ♂ (IBSP 6222), 1 ♂ (IBSP 6461), 1 ♂ (IBSP 6462), 1 ♀ (MZSP 14899); Ilha dos Búzios, 6 juveniles (MZSP 14920), 1 ♀ (MZSP 14921), 1 ♀ (MZSP 14922), 1 ♀ (MZSP 14924), 1 ♀ 3 juveniles (MZSP 14927), 1 ♀ 5 juveniles (MZSP 14928), 4 ♀ (MZSP 14934), 3 juveniles (MZSP 14935), 2 juveniles (MZSP 14936), 1 ♀ (MZSP 14947), 2 juveniles (MZSP 14979), 7 ♂ 3 ♀ 2 juveniles (MZSP 18320); Juquitiba, 1 ♂ (IBSP 6287); Cubatão, 1 ♂ (IBSP 963), 1 ♀ (IBSP 4196), 1 ♀ (IBSP 6074), 1 ♂ (IBSP 6233); Praia Grande, 1 ♂ (IBSP 155), 1 ♂ (IBSP 163), 1 ♂ (IBSP 165), 1 ♂ (IBSP 853B), 1 ♂ (IBSP 2683), 1 ♂ (IBSP 2718), 1 ♂ (IBSP 3180), 2 ♂ 1 ♀ (IBSP 4554), 1 ♀ (IBSP 6023), 1 ♀ (IBSP 6098), 1 ♂ (IBSP 6135), 1 ♂ (IBSP 6163), 1 ♂ (IBSP 6179), 1 ♂ (IBSP 6200), 1 ♂ (IBSP 6475), 1 ♂ (IBSP 6484), 1 ♂ (IBSP 6487), 1 ♂ (IBSP 6491), 1 ♀ (IBSP 6946), 1 ♀ (IBSP 6958), 1 ♀ (MZSP 14969); Praia Grande, Cidade Ocian - 1 ♂ (IBSP 269); Praia Grande, Solemar - 1 ♂ (IBSP 2853), 1 ♂ (IBSP 2903), 1 ♂ (IBSP 2904), 1 ♂ (IBSP 3284); Praia Grande, Vila Caiçara, 2 ♀ (IBSP 2450), 1 ♂ (IBSP 6272); São Vicente, 1 J (IBSP 2382), 1 ♂ (IBSP 3222); São Vicente, Itararé, 1 ♂ (IBSP 6164); São Vicente, Paranapuã, 1 ♂ (IBSP 2812); São Vicente, Praia das Vacas, 1 ♂ (IBSP 2856), 1 ♂ (IBSP 6458); Santos, 1 ♂ (IBSP 212), 1 ♂ 1 ♀ (IBSP 767B), 1 ♂ 1 ♀ (IBSP 1099), 1 ♀ (IBSP 6087), 1 ♂ (IBSP 6114), 1 ♂ (IBSP 6122), 1 ♂ (IBSP 6145), 1 ♂ (IBSP 6161), 1 ♂ (IBSP 6195), 1 ♂ (IBSP 6212), 1 ♂ (IBSP 6271), 1 ♂ (IBSP 6276), 1 ♂ (IBSP 6279), 1 ♂ (IBSP 6471), 1 ♂ (IBSP 6483), 1 ♀ (IBSP 6949), 1 ♀ (IBSP 6951); Ilha Porchat, 1 ♂ (IBSP 6156); Guarujá, 2 ♂ (IBSP 3941), 2 ♂ (IBSP 3949A, 2 ♂ (IBSP 3949B), 1 ♀ 4 ♂ (IBSP 4320), 1 ♀ (IBSP 4669), 1 ♀ (IBSP 6057), 1 ♂ (IBSP 6146), 1 ♂ (IBSP 6159), 1 ♂ (IBSP 6185), 1 ♂ (IBSP 6201), 1 ♂ (IBSP 6202), 1 ♂ (IBSP 6203), 1 ♂ (IBSP 6204), 1 ♂ (IBSP 6219), 1 ♂ (IBSP 6300), 1 ♂ (IBSP 6464), 1 ♂ (IBSP 6473), 1 ♂ (IBSP 6493), 1 ♂ (IBSP 6515), 1 ♂ (IBSP 6519), 1 ♂ (IBSP 6533); Mongaguá, 1 ♂ (IBSP 3381), 1 ♂ (IBSP 4056A), 3 ♂, 1 ♀ (IBSP 4056B), 2 ♂ 2 ♀ (IBSP 4358)1 ♀ (IBSP 6014), 1 ♀ (IBSP 6027), 1 ♀ (IBSP 6035), 1 ♀ (IBSP 6053), 1 ♀ (IBSP 6054), 1 ♀ (IBSP 6068), 1 ♀ (IBSP 6069), 1 ♀ (IBSP 6094), 1 ♀ (IBSP 6100), 1 ♀ (IBSP 6105), 1 ♀ (IBSP 6109), 1 ♂ (IBSP 6117), 1 ♂ (IBSP 6133), 1 ♂ (IBSP 6144), 1 ♂ (IBSP 6208), 1 ♂ (IBSP 6229), 1 ♂ (IBSP 6255), 1 ♂ (IBSP 6465), 1 ♂ (IBSP 6497), 1 ♀ (IBSP 6948), 1 ♀ (IBSP 6950); Itanhaém, 1 ♀ (IBSP 3828), 3 ♂ (IBSP 4198A), 2 ♂ (IBSP 4198B), 2 ♂ (IBSP 4373A), 2 ♂ (IBSP 4373B), 1 ♂ 1 ♀ (IBSP 4711), 1 ♀ (IBSP 6016), 1 ♀ (IBSP 6026), 1 ♀ (IBSP 6058), 1 ♀ (IBSP 6073), 1 ♀ (IBSP 6076), 1 ♀ (IBSP 6101), 1 ♀ (IBSP 6102), 2 ♂ (IBSP 6136), 1 ♂ (IBSP 6176), 1 ♂ (IBSP 6193), 1 ♂ (IBSP 6217), 1 ♂ (IBSP 6243), 1 ♂ (IBSP 6261), 1 ♂ (IBSP 6270), 1 ♂ (IBSP 6290), 1 ♂ (IBSP 6467), 1 ♂ (IBSP 6474), 1 ♂ (IBSP 6502), 1 ♂ (IBSP 6518), 1 ♂ (IBSP 6523), 1 ♀ (IBSP 6944), 1 ♀ (IBSP 6955); Ilha dos Alcatrazes, 1 ♂ (MZLQ A-0041, holotype of *Pamphobeteus masculus*, Piza 1939), 1 ♂ J (IBSP 1281), 1 ♂ (IBSP 1282), 1 ♂ (IBSP 1283), 1 ♀ (IBSP 1284), 1 ♂ (IBSP 1286), 1 ♂ (IBSP 1287), 1 ♀ (IBSP 1288), 1 ♂ (IBSP 1290), 1 ♂ (IBSP 1291), 1 ♂ (IBSP 1292), 1 ♂ (IBSP 1293), 1 ♀ (IBSP 1295),

1 ♂ (IBSP 1298), 1 ♀ (IBSP 1299), 1 ♀ (IBSP 1300), 1 ♂ (IBSP 1301), 1 ♀ J (IBSP 1303), 1 J (IBSP 1305), 1 ♀ (IBSP 1306), 1 ♂ (IBSP 1347), 1 ♂ (IBSP 1348), 1 ♂ (IBSP 1500), ♂ (IBSP 2284), 1 ♂ (IBSP 2352), 1 ♀ (IBSP 6082), 1 ♂ (IBSP 6259), 1 ♂ (IBSP 6264), 1 ♂ (IBSP 6284), 1 ♂ (IBSP 6285), 1 ♂ (IBSP 6286), 1 ♀ (MZSP 15861); Juquiá, 1 ♂ (IBSP 4019), 1 ♀ (IBSP 4445), 1 ♀ (IBSP 6025), 1 ♀ (IBSP 6040), 1 ♂ (IBSP 6169), 1 ♀ (IBSP 6025), 1 ♀ (IBSP 6952); Itariri, 1 ♂ (IBSP 4414); Peruíbe, 1 ♀ (IBSP 2703), 2 ♂ (IBSP 4255), 1 ♂ (IBSP 4319), 1 ♀ (IBSP 6078), 1 ♂ (IBSP 6121), 1 ♂ (IBSP 6180), 1 ♂ (IBSP 6182), 1 ♂ (IBSP 6190), 1 ♂ (IBSP 6227), 1 ♂ (IBSP 6228), 1 ♂ (IBSP 6245), 1 ♂ (IBSP 6251), 1 ♂ (IBSP 6293), 1 ♂ (IBSP 6297), 1 ♂ (IBSP 6468), 1 ♂ (IBSP 6496), 1 ♂ (IBSP 6503), 1 ♀ (IBSP 6959); Sete Barras, 2 ♂ (IBSP 3882A); Barra do Una, 1 J (IBSP 4427), 1 ♂ (IBSP 6244); Registro, 1 ♂ (IBSP MZLQ A-0104, holotype of *Pamphobeteus litoralis*, Piza 1976), 1 ♂ (IBSP 3320), 1 ♂ (IBSP 4232A), 2 ♂ 1 ♀ (IBSP 4361), 2 ♂ (IBSP 4644), 1 ♀ (IBSP 4799), 1 ♀ (IBSP 6037), 1 ♀ (IBSP 6080), 1 ♂ (IBSP 6128), 1 ♂ (IBSP 6132), 1 ♂ (IBSP 6137), 1 ♂ (IBSP 6170), 1 ♂ (IBSP 6171), 1 ♂ (IBSP 6178), 1 ♂ (IBSP 6183), 1 ♂ (IBSP 6199), 1 ♂ (IBSP 6207), 1 ♂ (IBSP 6230), 1 ♂ (IBSP 6260), 1 ♂ (IBSP 6263), 1 ♂ (IBSP 6265), 1 ♂ (IBSP 6291), 1 ♂ (IBSP 6295), 1 ♂ (IBSP 6299), 1 ♂ (IBSP 6302), 1 ♂ (IBSP 6470), 1 ♂ (IBSP 6480), 1 ♂ (IBSP 6492), 1 ♂ (IBSP 6495), 1 ♂ (IBSP 6499), 1 ♂ (IBSP 6504), 1 ♂ (IBSP 6510), 1 ♂ (IBSP 6517), 1 ♀ (IBSP 6953); Vale do Ribeira, 1 ♀ (IBSP 6030); Juréia, 1 ♀ (IBSP 6096), 1 ♂ (IBSP 6273); Iporanga, 1 ♂ (IBSP 6215); Jacupiranga, 4 J (IBSP 4264); Pariquera-açú, 1 ♂ (IBSP 2690), 2 ♂ 1 ♀ (IBSP 4134), 1 ♀ (IBSP 6024), 1 ♀ (IBSP 6050), 1 ♀ (IBSP 6051), 1 ♀ (IBSP 6066), 1 ♂ (IBSP 6194), 1 ♂ (IBSP 6268), 1 ♂ (IBSP 6477); Iguape, 1 ♂ (IBSP 3550), 2 ♂, 1 ♀ (IBSP4180), 2 ♂ 2 ♀ (IBSP 4299), 2 ♂ (IBSP 4311), 2 ♂ (IBSP 4360A), 2 ♂ (IBSP 4360B), 1 ♂ (IBSP 4417), 1 ♀ (IBSP 6017), 1 ♀ (IBSP 6032), 1 ♀ (IBSP 6033), 1 ♀ (IBSP 6044), 1 ♀ (IBSP 6049), 1 ♀ (IBSP 6063), 1 ♀ (IBSP 6075), 1 ♀ (IBSP 6079), 1 ♀ (IBSP 6090), 1 ♂ (IBSP 6113), 1 ♂ (IBSP 6127), 1 ♂ (IBSP 6155), 1 ♂ (IBSP 6162), 1 ♂ (IBSP 6166), 1 ♂ (IBSP 6167), 1 ♂ (IBSP 6168-B), 1 ♂ (IBSP 6173), 1 ♂ (IBSP 6174), 1 ♂ (IBSP 6175), 1 ♂ (IBSP 6209), 1 ♂ (IBSP 6216), 1 ♂ (IBSP 6250), 1 ♂ (IBSP 6252), 1 ♂ (IBSP 6257), 1 ♂ (IBSP 6266), 1 ♂ (IBSP 6288), 1 ♂ (IBSP 6301), 1 ♂ (IBSP 6303), 1 ♂ (IBSP 6304), 1 ♂ (IBSP 6494), 1 ♂ (IBSP 6498), 1 ♂ (IBSP 6508), 1 ♂ (IBSP 6513), 1 ♂ (IBSP 6522), 1 ♂ (IBSP 6524), 1 ♂ (IBSP 6527), 1 ♂ (IBSP 6528); Ilha Comprida, 2 ♂ 1 ♀ (IBSP 4443A), 1 ♂ 1 ♀ (IBSP 4443B), 1 ♂ (IBSP 4608), 1 ♀ (IBSP 6043), 1 ♀ (IBSP 6104), 1 ♂ (IBSP 6231), 1 ♂ (IBSP 6234), 1 ♂ (IBSP 6505); Cananéia, 2 ♂ (IBSP 300), 2 ♂ (IBSP 355), 3 ♂ (IBSP 2539), 2 ♂ (IBSP 3963A), 2 ♂ (IBSP 3963B), 1 ♂ (IBSP 3989), 1 ♀ (IBSP 4791), 1 ♀ (IBSP 6031), 1 ♀ (IBSP 6038), 1 ♀ (IBSP 6039), 1 ♀ (IBSP 6041), 2 ♀ (IBSP 6047), 1 ♀ (IBSP 6061), 1 ♀ (IBSP 6089), 1 ♀ (IBSP 6092), 1 ♀ (IBSP 6097), 1 ♂ (IBSP 6148), 1 ♂ (IBSP 6181), 1 ♂ (IBSP 6187), 3 ♂ (IBSP 6191), 1 ♂ (IBSP 6192), 1 ♂ (IBSP 6198), 1 ♂ (IBSP 6248), 1 ♂ (IBSP 6277), 1 ♂ (IBSP 6281), 1 ♂ (IBSP 6305), 1 ♂ (IBSP 6459), 1 ♂ (IBSP 6460), 1 ♂ (IBSP 6509), 1 ♂ (IBSP 6531), 1 ♀ (IBSP 6893), 1 ♂ (IBSP 6894), 1 ♀ (IBSP 6945); Barra de Ipacará, close to Ilha do Papagaio, 1 ♂ (IBSP 4630); Ilha do Cardoso, 1 ♂ (IBSP 6262); Ilha Castilho, 1 J (IBSP 3307); Ilha do Bom Abrigo, 1 ♂ (IBSP 249), 1 ♂ (IBSP 327), 1 ♂ (IBSP 346), 1 ♂ (IBSP 3301), 1 ♂ (IBSP 3302), 1 ♂ (IBSP 3304), 1 ♀ (IBSP 3305), 1 ♂ (IBSP 3877); *Paraná*: Curitiba, 1 ♀ (IBSP 4392), 1 ♂ (IBSP 6840); Morretes, 1 ♂ (IBSP 2228), Paranaguá, 1 ♂ (MZSP 6602); Antonina, 1 ♂ (IBSP 3890); *Santa Catarina*: Itapoá, Balneário Volta ao Mundo, 1 ♂ (IBSP 6843); Joinville, 1 ♂ (IBSP 6835), 1 ♂ (IBSP 6838); Balneário Barra do Sul, 1 ♂ (IBSP 6218), 1 ♂ (IBSP 6841); Massaranduba, 1 ♂ (IBSP 6224); Jacinto Machado, 1 ♀ (IBSP 6839).

Vitalius longisternalis sp. n.
Figs. 87-90, 181

Holotype. Male, IBSP 6772, Candói, Paraná, Brazil, IV/1995, Faunal Rescue Team of Hydroelectric Power Station of Segredo/derivação do Rio Jordão, col. Paratype. Female, IBSP 7017, same data of holotype.

Etymology - The specific name refers to the very long sternum of this species.

Diagnosis - Males and females can be distinguished from the other *Vitalius* species by the presence of a much longer than wide sternum (Fig. 21).

Description - Male (Holotype) - Total length: 32,4 Carapace: length 13,9, width 12,1. Eye tubercle: length 1,39, width 1,96. Labium: length 1,80, width 2,87. Sternum: length 7,70, width: 5,33. Fovea short, deep, straight. Cheliceral basal segments with 11-11 teeth. Legs I: femur 13,0 / patella 6,6 / tibia 9,9 / metatarsus 9,5 /tarsus 6,0 / total 45,0 / II: 11,7 / 6,0 / 8,6 / 8,5 / 5,5 / 40,3 / III: 9,9 / 5,3 / 7,3 / 9,2 / 5,4 / 37,1 / IV: 12,2 / 5,7 / 10,7 / 14,1 / 6,2 / 48,9. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p1-2-4ap; legs I femur p0-0-1, patella 0, tibia v2-1-1ap, p0-1-0, metatarsus v0-0-2ap, p0-1-0; II femur p0-0-1, patella 0, tibia v3-3-3ap, p1-1-1, metatarsus v2-0-2(1ap), p0-1-0; III femur 0, r0-0-1, patella 0, tibia v10(2ap), p1-1-1, r1-1-1, metatarsus v12(4ap), p0-2-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v11(2ap), p0-1-0, r1-1-1, metatarsus v21(2ap), p0-1-1, r0-1-1. Male spur branches originating from a

common base, tapering distally, the prolateral branch thickened (Fig. 87). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus long, laterally flattened at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 89-90). Sternum much more longer than wide (Fig. 21). Types I and III urticating hairs present (Figs. 2, 4), the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs ventrally covered by many long hairs. Coxae and sternum covered by short hairs. Carapace dark, margin lighter. Legs dark. Sternum, coxae and abdomen ventrally dark. Leg rings on the apex of the femora, patellae and tibiae hardly distinct. Longitudinal leg stripes hardly distinct.

Female (Paratype) - Total length: 44,7. Carapace: length 17,1, width 14,1. Eye tubercle: length 1,72, width 2,46. Labium: length 2,13, width 3,60. Sternum: length 9,60, width: 7,05. Fovea short, deep, slightly recurved. Cheliceral basal segments with 15-14 teeth. Legs I: femur 11,7 / patella 7,4 / tibia 8,5 / metatarsus 6,6 /tarsus 4,5 / total 38,7 / II: 10,5 / 6,4 / 7,1 / 6,6 / 4,0 / 34,6 / III: 9,2 / 5,9 / 6,3 / 7,6 / 4,4 / 33,4 / IV: 11,7 / 6,6 / 8,4 / 11,6 / 4,4 / 42,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-2ap, p0-2-2ap; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-0-2ap, p0-1-0, metatarsus v0-0-2ap; III femur p0-0-1, patella r1, tibia v0-3-2ap, p1-1-1, r0-1-0, metatarsus v1-3-4ap, p0-1-1, r0-1-1; IV femur r0-0-1, patella r1, tibia v0-3-2(1ap), p1-1-0, r0-0-1, metatarsus v19(4ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Fig. 88). Sternum much more longer than wide (Fig. 21). Type I urticating hair present (type III vestigial). Color and hair patterns as in male.

Distribution: Brazil: subtropical subcaducifolious forest of States of Paraná and Santa Catarina, west of "Serra do Mar" (Figs. 169, 173).

Records: Brazil: *São Paulo*: Mogi-Guaçu, 1 ♂ (IBSP 6824); Piracicaba, 1 ♀ (IBSP 876); *Paraná*: 1 ♂ (IBSP 6810); Rio Iguaçu, 2 ♂ (IBSP 334); Ivaiporã, 1 ♀ (IBSP 4488); Pitanga, 1 ♂ 1 ♀ (IBSP 6809); Castro, 1 ♂ (IBSP 6814); Braganey / Cascavel, 1 ♀ (IBSP 6811); Ponta Grossa, 1 ♀ (IBSP 6817); Foz do Iguaçú, 1 ♂ (IBSP 6813), 1 ♀ (IBSP 6822); Foz do Iguaçú (U. H. E. Itaipú), 1 ♀ (IBSP 6806), 1 ♂ (IBSP 6820), 2 ♀ 2 J (IBSP 6823); Foz do Iguaçú, Reserva do Iguaçú, 2 ♂ (MZSP 15786); Guarapuava, 1 ♂ (IBSP 3939); Iratí, 1 ♀ (IBSP 1692), 1 ♀ (IBSP 1693), 1 ♀ (IBSP 6815); Iratí / Teixeira Soares, 3 ♂ (IBSP 6812); Curitiba, 1 ♂ 1 ♀ (IBSP 6803), 1 ♀ (IBSP 6804); Candói / Mangueirinha (U. H. E. Segredo / Rio Jordão), 1 ♀ (IBSP 6748), 1 ♀ (IBSP 6749), 1 ♀ (IBSP 6750), 1 ♀ (IBSP 6751), 1 ♀ (IBSP 6752), 1 ♀ (IBSP 6753), 1 ♀ (IBSP 6754), 1 ♀ (IBSP 6755), 1 ♀ (IBSP 6756), 1 ♀ (IBSP 6757), 1 ♀ (IBSP 6758), 1 ♀ (IBSP 6759), 1 ♀ (IBSP 6760), 1 ♀ (IBSP 6761), 1 ♀ (IBSP 6762), 1 ♀ (IBSP 6763), 1 ♀ (IBSP 6764), 1 ♀ (IBSP 6765), 1 ♀ (IBSP 6766), 1 ♀ (IBSP 6767), 1 ♀ (IBSP 6768), 1 ♀ (IBSP 6769), 1 ♂ (IBSP 6770), 1 ♂ (IBSP 6771), 1 ♂ (IBSP 6772), 1 ♂ (IBSP 6773), 1 ♂ (IBSP 6774), 1 ♂ (IBSP 6775), 1 ♀ (IBSP 6776), 1 ♀ 9IBSP 6777), 1 ♀ (IBSP 6778), 1 ♀ (IBSP 6779), 1 ♀ (IBSP 6780), 1 ♀ (IBSP 6781), 1 ♀ (IBSP 6782), 1 ♀ (IBSP 6783), 1 ♀ (IBSP 6784), 1 ♀ (IBSP 6785), 1 ♀ (IBSP 6786), 1 ♀ (IBSP 6787), 1 ♀ (IBSP 6788), 1 ♀ (IBSP 6789), 1 ♀ (IBSP 6790), 1 ♀ (IBSP 6791), 1 ♀ (IBSP 6792), 1 ♀ (IBSP 6793), 1 ♀ (IBSP 6794), 1 ♀ (IBSP 6795), 1 ♀ (IBSP 6796), 1 ♀ (IBSP 6797), 1 ♀ (IBSP 6798), 1 ♀ (IBSP 6799), 1 ♀ (IBSP 6800), 1 ♀ (IBSP 6801), 1 ♀ (IBSP 6802), 1 ♂ (IBSP 6808), 1 ♂ (IBSP 6899), 1 ♀ (IBSP 6909); U.H.E. Foz do Areia, Rio Iguaçú, 3 ♂ 2 ♀ (IBSP 6818), 1 J (IBSP 6819), 2 ♀ 1 J (IBSP 6821); Pato Branco, 1 ♀ (IBSP 6825); *Santa Catarina*: Lages, 1 ♂ (IBSP 6807); São Joaquim, 1 ♂ (IBSP 6805), 1 ♂ (IBSP 6816).

Vitalius dubius (Mello-Leitão) sp. rev., comb. n.
Figs. 91-100, 182-183

Pterinopelma dubium Mello-Leitão, 1923:188 (holotype male from Ypiranga (= Ipiranga), São Paulo, São Paulo, Brazil, MZSP 148, V/1910, H. Luederwaldt col., examined). - Petrunkevitch, 1939:260. - Bonnet, 1959:3828. - Bücherl, Costa & Lucas, 1971:129 (syn. with *P. wacketi*). - Pérez-Miles, 1992:30.

Pamphobeteus cesteri Mello-Leitão, 1923:236 (holotype female from Jundiaí, São Paulo, Brazil, MZSP 127, I/1908, J. Cester col., examined). - Petrunkevitch, 1939:242. - Bücherl, 1947a: 258 (misidentification). - Bonnet, 1958:3314. - Schmidt, 1986:59, fig. 95. - Platnick, 1989:107. - Platnick, 1993:111.- Platnick, 1997:171. *Syn.n.*

Pamphobeteus cucullatus Mello-Leitão, 1923:237 (holotype female from Mogi das Cruzes, São Paulo, Brazil, MZSP 144, IX/1916, examined). - Petrunkevitch, 1939:242. - Bücherl, 1947a:258 (syn. with *Pamphobeteus cesteri*). - Bonnet, 1958:3314. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus urbanicolus Soares, 1941:265 (holotype female from São Paulo, São Paulo, Brazil, MZSP C-69, V/1941, J. Damigo col., examined). - Bücherl, 1947a:258 (syn. with *P. cesteri*). - Brignoli, 1983:139. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus ypirangensis Soares, 1941:269 (holotype male from Ipiranga, São Pau-

lo, São Paulo, Brazil, MZSP C-70, V/1941, J. Damigo col.; and paratype female, MZSP C-71, examined). - Bücherl, 1947a:258 (syn. with *Pamphobeteus cesteri*). - Brignoli, 1983:139. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus piracicabensis Piza, 1933:119 (holotype female from Piracicaba, São Paulo, Brazil, should be in ESALQ, not located). - Petrunkevitch, 1939:244. - Bücherl, 1947a:258 (syn. with *Pamphobeteus cesteri*). - Bonnet, 1958:3315. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus mus Piza, 1944:274 (holotype female from Piracicaba, São Paulo, Brazil, MZLQ A-0051, 1942, A. Corrêa col., examined). - Bücherl, 1947a:257 (syn. with *Pamphobeteus tetracanthus*). - Brignoli, 1983:139. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus communis Piza, 1939:6 (13 syntypes males from Piracicaba, São Paulo, Brazil, MZLQ A-0042, examined). - Bücherl, 1947a:257 (syn. with *Pamphobeteus sorocabae*). - Brignoli, 1983:139. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus tetracanthus; Bücherl, 1947a:257 (misidentification).

Vitalius tetracanthus; Lucas, Silva Junior & Bertani, 1993: 241-245 (*comb. n.*). - Platnick, 1997:171.

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. buecherli*, by the male palpal bulb having the PS pronounced (Figs. 91-96). They can be distinguished from *V. buecherli* by not having slender legs (Fig. 23). Females can be distinguished by having enlarged SB (Figs. 98-100).

Description - Male (IBSP 5830) - Total length: 30,9. Carapace: length 13,8, width 13,2. Eye tubercle: length 1,80, width 2,05. Labium: length 1,88, width 2,46. Sternum: length 6,31, width: 6,23. Fovea short, deep, slightly recurved. Cheliceral basal segments with 10-10 teeth. Legs I: femur 12,9 / patella 7,0 / tibia 9,4 / metatarsus 8,7 / tarsus 6,9 / total 44,9 / II: 11,5 / 6,1 / 8,2 / 8,2 / 5,8 / 39,8 / III: 9,9 / 5,3 / 7,3 / 9,0 / 5,4 / 36,9 / IV: 12,2 / 5,8 / 10,2 / 13,4 / 6,2 / 47,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p2-3-3; legs I femur p0-0-1, patella 0, tibia v2-3-1ap, p0-1-1, r0-1-0, metatarsus v0-0-1ap, p0-1-0; II femur p0-0-1, patella 0, tibia v3-3-3ap, p2-1-1, metatarsus v0-0-3ap, p0-1-0, r0-1-0; III femur p1-1-1, r0-0-1, patella v1, p1; tibia v13(3ap), p1-1-2, r1-1-1, metatarsus v8-0-2ap, p2-1-1, r1-1-1; IV femur p0-0-1, r0-0-1; patella vi, r1, tibia v18(3ap), p2-1-1, r1-1-1, metatarsus v25(3ap), p1-1-1, r1-1-1. Male spur branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 97). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS pronounced, it forms the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 91-96). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs ventrally covered by many long hairs. Coxae and sternum covered by short hairs. Carapace dark brown, marginated by light brown. Legs dark brown, except trochanters, which are dorsally light brown. Sternum, coxae and abdomen ventrally grayish, sternum and coxae I and II slightly darker. Leg rings and longitudinal leg stripes hardly distinct.

Female (IBSP 5651) - Total length: 56,2. Carapace: length 19,7, width 17,4. Eye tubercle: length 2,21, width 2,78. Labium: length 2,87, width 3,85. Sternum: length 9,30, width: 8,25. Fovea short, deep, slightly procurved. Cheliceral basal segments with 11-12 teeth. Legs I: femur 14,2 / patella 9,1/ tibia 10,1 / metatarsus 8,5 /tarsus 5,4 / total 47,3 / II: 12,8 / 8,0 / 8,5 / 8,0 / 5,4 / 42,7 / III: 11,7 / 7,4 / 7,8 / 9,1 / 4,9 / 40,9 / IV: 14,6 / 7,9 / 10,6 / 13,9 / 5,3 / 52,3. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-2ap, p1-2-2; legs I femur p0-0-1, patella 0, tibia v0-0-2ap, p0-1-0; metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-1-2ap, p1-1-1, metatarsus v1-0-2ap; III femur p0-0-1, r0-0-1, patella r1; tibia v2-3-2ap, p1-1-1, r1-1-1, metatarsus v3-0-4ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella r1, tibia v2-3-2ap, p1-1-1, r1-1-1, metatarsus v22(5ap), p1-1-2(1ap), r1-1-2(1ap). Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB, which is enlarged (Figs. 98-100). Type I urticating hair present (type III vestigial). Color and hair pattern as in male, except for the leg rings and longitudinal stripes being slightly more distinct.

Remarks - Bücherl (1947a) synonymyzed some species that Mello-Leitão, Soares, and Piza described in *Pamphobeteus*, with *P. tetracanthus*, based on proportions between leg articles and carapace, and color pattern. After his revision this name has been used constantly in the literature but there are many doubts about this species' identity, since the holotype is apparently lost and Mello-Leitão's description is insufficient. However, the holotype of *Pterinopelma dubium* corresponds to the species Bücherl (*l. c.*) identified as *P. tetracanthus* which has page priority over all species described by Mello-Leitão (1923) in *Pamphobeteus*. Thus, the species *P. dubium* is removed from the synonymy of *P. wacketi* and considered valid.

Distribution: Brazil: tropical latifoliated forest of the south of the State of Minas Gerais, southwestern Rio de Janeiro and northern São Paulo ("Serra da

Mantiqueira" and vicinity) (Figs. 170, 173).

Records: Brazil, *Mato Grosso do Sul*: Taunay, 1 ♂ (IBSP 127); *Minas Gerais*: Santana do Riacho (Serra do Cipó), 1 ♀ (IBSP 2447); Barão de Cocais, 1 ♀ (IBSP 2598); Cascalho, 1 ♀ (IBSP 2163A); Paraguaçu, 1 ♂ (IBSP 6866); Sossego, 1 ♂ (IBSP 3191); Poços de Caldas, 1 ♀ (IBSP 1258), 1 ♂ (IBSP 1396), 1 ♂ (IBSP 1418), 1 ♂ (IBSP 1421), 1 ♀ (IBSP 4589), 1 ♂ (IBSP 5876), 1 ♂ (IBSP 6878); 1 ♀, O. Leoncini col. (MNRJ 13.105); Caldas, 1 ♀ (IBSP 2786); Jacutinga, 1 J (IBSP 6865); Munhoz, 1 ♀ (IBSP 6872); Toledo, 1 ♂ (IBSP 6867), 1 ♀ (IBSP 6873), 1 ♂ (IBSP 6875), 1 ♀ (IBSP 6876), 1 ♀ (IBSP 6879); Itapeva, 1 J (IBSP 6877); Extrema, 1 ♀ (IBSP 6868), 1 ♂ (IBSP 6874); Sul de Minas Gerais, 1 ♀ (IBSP 4660); *Rio de Janeiro*: Barra Mansa, 1 ♀ (IBSP 2417); Valença, 1 ♂, 1975, L. N. Garcia-Neto col. (MNRJ s/nr.); *São Paulo*: Terra Roxa, 1 ♀ (IBSP 1165), 1 ♀ (IBSP 1505), 1 ♀ (IBSP 1572), 1 ♀ (IBSP 1691); Viradouro, 1 ♀ (IBSP 1197), 1 ♀ (IBSP 1307), 1 ♀ (IBSP 1725), 1 ♂ (IBSP 1889), 1 ♂ (IBSP 2165), 1 ♂ (IBSP 2166), 1 ♂ (IBSP 2177), 1 ♂ (IBSP 2455), 1 ♀ (IBSP 2470), 1 ♀ (IBSP 2778), 1 ♀ (IBSP 3326); Andradina, 1 ♀ (IBSP 2373); Paraiso, 1 ♂ (IBSP 1427), 1 ♂ (IBSP 1428); Pitangueiras, 1 ♂ (IBSP 2202); Jaboticabal, 1 ♀ (IBSP 238), 1 ♀ (IBSP 1191), 1 ♂ (IBSP 1245), 1 ♀ (IBSP 2078), 1♂ (IBSP 3137); Irapuã, 1 ♀ (IBSP 4216); Monte Alto, 1 ♀ (IBSP 1848), 1 ♂ (IBSP 2213), 1 ♂ 1 ♀ (IBSP 2405), 1 ♀ (IBSP 2465), 1 ♂ (IBSP 5797); Cândido Rodrigues, 1 ♂ (IBSP 2443), 1 ♂ (IBSP 5711); Guariba, 1 ♂ (IBSP 4772); Hamond, 1 ♀ (IBSP 1811); Tapiratiba, 1 ♀ (IBSP 5980); Novo Horizonte, 1 ♀ (IBSP 3246), 1 ♀ (IBSP 3247), 1 ♀ (IBSP 3248), 1 ♀ (IBSP 3249), 1 ♀ (IBSP 3250), 1 ♂ (IBSP 3251), 1 ♀ (IBSP 3252), 1 ♀ (IBSP 3253); Ouro Verde, 1 ♀ (IBSP 1677); Itápolis, 1 ♂ (IBSP 1891); Toriba, 1 ♀ (IBSP 1345), 1 ♀ (IBSP 1445), 1 ♀ (IBSP 1464), 1 ♀ (IBSP 1635), 1 ♀ (IBSP 1656); Matão, 1 ♀ (IBSP 3176), 1 ♀ (IBSP 4872), 1 ♂ (IBSP 5744); Bueno de Andrade, 1 ♂ (IBSP 1223); Silvania, 1 ♀ (IBSP 1246), 1 ♀ (IBSP 1457), 1 ♂ (IBSP 3263); Rincão, 1 ♀ (IBSP 4253); Santa Lúcia, 1 ♀ (IBSP 289), 1 ♀ (IBSP 290), 1 ♀ (IBSP 442); São José do Rio Pardo, 1 ♀ (IBSP 2775), 1 ♂ (IBSP 5767); Ibitinga, 1 ♀ (IBSP 3213), 1 ♀ (IBSP 5939); Tabatinga, 1 ♀ (IBSP 376), 1 ♀ (IBSP 1084), 1 ♂ (IBSP 1236), 1 ♂ (IBSP 1239), 1 ♀ (IBSP 1311), 1 ♀ (IBSP 1416), 1 ♂ (IBSP 1859), 1 ♂ (IBSP 2194); Nova Europa, 1 ♀ (IBSP 2463), 1 ♂ (IBSP 3205); Gavião Peixoto, 1 ♀ (IBSP 2383); Araraquara, 1 ♀ (IBSP 1261), 1 ♀ (IBSP 1279), 1 ♀ (IBSP 1743), 1 ♂ (IBSP 2221), 1 ♀ (IBSP 4858), 1 ♂ (IBSP 5802), 1 ♂ (IBSP 5807), 1 ♂ (IBSP 5808), 1 ♂ (IBSP 5809), 1 ♂ (IBSP 5821), 1 ♂ (IBSP 5839), 1 ♂ (IBSP 5865); Américo Braziliense, 1 ♀ (IBSP 301), 1 J (IBSP 1333), 1 J (IBSP1334), 1 ♂ (IBSP 1335), 1 ♀ (IBSP 1559); Porto Ferreira, 1 ♀ (IBSP 233), 1 ♂ (IBSP 234), 1 ♀ (IBSP 325), 1 ♀ (IBSP 333), 1 ♀ (IBSP 467), 1 ♂ (IBSP 543), 1 ♀ (IBSP 550), 1 J (IBSP 562), 1 ♂ (IBSP 563), 1 ♂ (IBSP 3235), 1 ♂ (IBSP 3236); Casa Branca, 1 ♀ (IBSP 4063), 1 ♂ (IBSP 5820), 1 ♂ (IBSP 5859); Descalvado, 1 ♀ (IBSP 4637), 1 ♂ (IBSP 5704), 1 ♂ (IBSP 5732), 1 ♂ (IBSP 5927); Java, 1 ♂ (IBSP 2464); São Carlos, 3 ♀ (IBSP 80B), 1 ♀ (IBSP 363), 1 ♀ (IBSP 1390), 1 ♀ (IBSP 1391), 1 ♂ (IBSP 5763); Pirassununga, 1 ♀ (IBSP 4678), 1 ♂ (IBSP 5852), 1 ♂ (IBSP 5853), 1 ♂ (IBSP 5907); São João da Boa Vista, 2 ♀ (IBSP 2378), 1 ♀ (IBSP 2403), 1 ♂ (IBSP 5813); Boa Esperança do Sul, 1 ♀ (IBSP 898), 1 ♀ (IBSP 1523), 2 ♂ (IBSP 4855), 1 ♂ (IBSP 5743), 1 ♂ (IBSP 5796), 1 ♂ (IBSP 5799), 1 ♂ (IBSP 5804), 1 ♂ (IBSP 5851), 1 ♂ (IBSP 6871); Santa Clara, 1 J (IBSP 2559), 1 ♂ (IBSP 2560), 1 ♂ (IBSP 2841), 1 ♂ (IBSP 2842); Ribeirão Bonito, 1 ♀ (IBSP 578), 1 ♂ 1 ♀ (IBSP 1212), 1 ♀ (IBSP 1504), 1 ♀ (IBSP 1582), 1 ♂ (IBSP 2206), 1 ♀ (IBSP 2581), 1 ♀ (IBSP 2804), 1 ♂ (IBSP 2805); Presidente Alves, 1 ♀ (IBSP 2304); Marambaia, 1 ♂(IBSP 1210); Bariri, 1 ♀ (IBSP 1012), 1 ♀ (IBSP 2765), 1 ♀ (IBSP 2766), 1 ♀ (IBSP 2819), 1 ♂ (IBSP 5733); Dourado, 1 ♂ (IBSP 3173), 1 ♀ (IBSP 3174), 1 ♂ (IBSP 3175), 1 ♂ (IBSP 3983); Leme, 2 ♀ (IBSP 141), 1 ♂ (IBSP 358B), 1 ♀ (IBSP 4794); Espírito Santo do Pinhal, 2 ♂ (IBSP 5721); Presidente Prudente - 1 ♂ (IBSP 2160); Martinópolis, 1 ♂ (IBSP 108); Pederneiras, 1 ♀ (IBSP 1539), 1 ♀ (IBSP 1623), 1 ♂ (IBSP 2860); Jaú, 1 J (IBSP 2353), 1 ♂ (IBSP 5746), 1 ♂ (IBSP 5926), 1 ♀ (IBSP 5938), 1 ♀ (IBSP 5463); Lacerda Franco, 1 ♂ (IBSP 2468), 1 ♂ (IBSP 2797), 1 ♂ (IBSP 5885); Dois Córregos, 1 ♀ (IBSP 635), 1 ♀ (IBSP 3085), 1 ♂ 2 ♀ (IBSP 4185A), 2 ♀ (IBSP 4185B), 2 ♂ (IBSP 4398A), 1 ♂ (IBSP 5845); Ventania, 1 ♂ (IBSP 3933); Torrinha, 1 ♂ (IBSP 4415); Brotas, 1 ♂ (IBSP 5917); Itaqueri da Serra, 1 ♀ (IBSP 4350); Corumbataí, 2 fmea (IBSP 4429), 1 ♂ (IBSP 5904); Batovi, 1 ♀ (IBSP 2806), 1 ♂ (IBSP 2869), 1 ♂ (IBSP 2870); Rio Claro, 1 ♀ (IBSP 1188), 1 ♀ (IBSP 3141), 1 ♂ (IBSP 3240), 1 ♂ (IBSP 5814), 1 ♂ (IBSP 5815), 1 ♂ (IBSP 5891), 2 ♂ (IBSP 5892), 1 ♂ (IBSP 5922), 1 ♀ (IBSP 5934), 1 ♀ (IBSP 5987), 1 ♂ (MZSP 4515), 1 ♀ (MZSP 6492); Araras, 1 ♀ (IBSP 1567), 1 ♀ (IBSP 1799), 1 ♂ (IBSP 3886); Mogi Guaçú, 2 ♀ (IBSP 1588), 1 ♂ (IBSP 4329), 1 ♂ (IBSP 5810); Eleutério, 1 ♀ (IBSP 1580); Itapira, 1 ♀ (IBSP 4446); Mogi Mirim, 1 ♂ (IBSP 3345), 1 ♂ (IBSP 5816), 1 ♂ (IBSP 5840), 1 ♂ (IBSP 5842), 1 ♂ (IBSP 5912), 1 ♂ (IBSP 5920), 1 ♂ (IBSP 5921), 1 ♂ (IBSP 5923), 1 ♂ (IBSP 5929), 1 ♀ (IBSP 5977), 1 ♂ (IBSP 6896); Barra Bonita, 1 ♂ (IBSP 35), 1 ♀ (IBSP 252), 1 ♂ (IBSP 522), 1 J (IBSP 904), 1 ♀ (IBSP 1200), 1 ♂ (IBSP 1379), 1 J (IBSP 1399), 1 ♀ (IBSP 1465), 1 ♀ (IBSP 1694); Barra Bonita (U. H. E.), 1 ♂ (IBSP 4861); Falcão Filho, 1 ♀ (IBSP 191); Charqueada, 1 ♂ (IBSP 5871), 1 ♀ (IBSP 5992); Cordeirópolis, 1 ♀ (IBSP 2861); Li-

meira, 1 ♀ (IBSP 321), 1 ♀ (IBSP 946), 1 ♀ (IBSP 2858), 4 ♂ (IBSP 4188A), 2 ♀ (IBSP 4188B), 1 ♂ (IBSP 5757), 1 ♂ (IBSP 5758), 1 ♂ (IBSP 5764), 1 ♂ (IBSP 5806), 1 ♂ (IBSP 5866), 1 ♂ (IBSP 5910), 1 ♂ (IBSP 5914), 1 ♀ (IBSP 5993-B); São Pedro, 1 ♀ (IBSP 961), 1 ♂ (IBSP 1358), 3 ♂ (IBSP 5756), 1 ♂ (IBSP 5795), 1 ♂ (IBSP 5847), 1 ♂ (IBSP 5870), 1 ♀ (IBSP 5975), 1 ♀ (IBSP 5981); Santo Antonio de Posse (Posse Ressaca), 1 ♂ (IBSP 3529A); Águas de São Pedro, 1 ♂ (IBSP 5902), 1 ♂ (IBSP 5925); Iracemápolis, 1 ♂ (IBSP 5828); Tatú, 1 ♂ (IBSP 3241); Cosmópolis, 1 ♀ (IBSP 1652), 1 ♀ (MZSP 3038); Artemis, 1 ♀ (IBSP 149), 1 ♂(IBSP 171), 1 ♂ (IBSP 172), 1 ♂ (IBSP 1386), 1 ♂ (IBSP 1387), 1 ♀ (IBSP 1513)1 ♀ (IBSP 1640), 1 ♀ (IBSP 1641), 1 ♀ (IBSP 2377), 1 ♀ (IBSP 3167); Anhembi, 1 ♀ (MZSP 3171), 1 ♂ (MZSP 14960); Piracicaba, 13 ♂ (MZLQ A-0042, syntypes of *Pamphobeteus communis*, Piza 1939), 1 ♀ (MZLQ A-0051, holotype of *Pamphobeteus mus*, Piza 1944), 1 ♂ (IBSP 95), 1 ♂ (IBSP 469), 1 ♂ (IBSP 501), 1 ♂ (IBSP 521), 1 ♀ (IBSP 545), 1 ♀ (IBSP 688), 1 ♂ (IBSP 928), 1 ♀ (IBSP 1448), 1 ♂ (IBSP 2916), 1 ♂ (IBSP 3228), 1 ♂ (IBSP 5713), 1 ♂ (IBSP 5717), 1 ♂ (IBSP 5877), 1 ♂ (IBSP 5905), 1 ♂ (IBSP 5911), 1 ♂ (IBSP 5931), 1 ♀ (MZSP 3340), 1 ♀ (MZSP 14930), 1 ♀ (MZSP 14945), 1 ♀ (MZSP 14966), 1 ♂ (MZSP 14968), 1 ♀ (MZSP 14974); Santa Bárbara D'Oeste, 1 ♀ (IBSP 5982); Paulínia, 2 ♂ (IBSP 4767), 1 ♂ (IBSP 5714), 1 ♂ (IBSP 5861); Americana, 1 ♂ (IBSP 3203), 2 ♀ (IBSP 3946), 1 ♂ 1 ♀ (IBSP 4345A), 2 ♂ 1 ♀ (IBSP 4394), 1 ♂ (IBSP 5766), 1 ♂ (IBSP 5901), 1 ♂ (IBSP 5930), 1 ♀ (IBSP 5979), 1 ♀ (IBSP 5983), 1 ♀ (IBSP 5989), 1 ♀ (IBSP 6992), 1 ♀ (MZSP 14957); Monte Alegre do Sul (Monte Alegre), 1 ♀ (IBSP 448), 1 ♀ (IBSP 556), 1 ♂ (IBSP 677); Pedra Bela, 1 ♂ (IBSP 5850); Cândido Mota, 1 ♂ (IBSP 474); Sussui, 1 ♀ (IBSP 1570); Santa Cruz do Rio Pardo, 1 ♀ (IBSP 2273), 1 ♀ (IBSP 2274); Botucatú, 1 ♀ (IBSP 565), 1 ♂ (IBSP 580A), 1 ♂ (IBSP 5896); Rio das Pedras, 1 ♂ (IBSP 4334); Sumaré, 1 ♂ (IBSP 5856), 1 ♂ (IBSP 5722); Campinas, 1 ♀ (IBSP 244), 1 ♀ (IBSP 1202), 1 ♀ (IBSP 1571), 1 ♀ (IBSP 2311B), 2 ♂ (IBSP 4817), 1 ♂ (IBSP 5737), 1 ♂ (IBSP 5801), 1 ♂ (IBSP 5803), 1 ♂ (IBSP 5838), 1 ♂ (IBSP 5846), 1 ♂ (IBSP 5897), 1 ♂ (IBSP 5909), 1 ♀ (IBSP 5942), 1 ♀ (MZSP 14933); Morungaba, 1 ♀ (IBSP 4013), 1 ♀ (IBSP 4740); Ourinhos, 1 ♂ (IBSP 740); Capivarí, 1 ♂ (IBSP 146), 1 ♂ (IBSP 147), 1 ♂ (IBSP 186), 1 ♂ (IBSP 187), 1 ♀ (IBSP 218), 1 ♂ (IBSP 219), 1 J (IBSP 236), 1 ♀ (IBSP 274), 1 ♀ (IBSP 377), 1 ♀ (IBSP 908), 1 ♀ (IBSP 971), 1 ♂ (IBSP 989), 1 ♀ (IBSP 1319), 1 ♀ (IBSP 1346), 1 ♂ (IBSP 1352), 1 ♂ (IBSP 1355), 1 ♀ (IBSP 1425), 1 ♀ (IBSP 1451), 1 ♀ (IBSP 1717), 1 ♂ (IBSP 1920), 1 ♀ (IBSP 2179), 1 ♀ (IBSP 2407), 1 ♀ (IBSP 2635), 1 ♂ (IBSP 3189), 1 ♂ (IBSP 3239), 1 ♂ (IBSP 3269), 2 ♂ (IBSP 5728), 1 ♂ (IBSP 5878); Monte Mór, 1 ♂ (IBSP 5900); Elias Fausto, 1 ♂ (IBSP 5879); Bragança Paulista, 2 ♂ (IBSP 5899), 1 ♀ (IBSP 5985); Avaré, ♀ (IBSP 626); Monteiro Lobato, 1 ♂ (IBSP 5719); Tietê, 1 ♂ (IBSP 168), 1 ♀ (IBSP 169), 1 ♂ (IBSP 672), 1 ♂ (IBSP 790), 1 ♀ (IBSP 1777), 1 ♀(IBSP 3556), 1 ♂ (IBSP 4354B), 1 ♂ (IBSP 5903), 1 ♀ (IBSP 5948), 1 ♀ (IBSP 5970), Porto Feliz - 1 ♂ (IBSP 4347B); Cardeal, 1 ♂ (IBSP 3322); Salto, 1 J (IBSP 1852), 1 ♀ (IBSP 1853), 1 ♀ (IBSP 1855), 1 ♀ (IBSP 2795), 1 ♀ (IBSP 2897), 1 ♂ (IBSP 3133), 1 ♀♀ (IBSP 3134), 1 ♂ (IBSP 3138), 1 ♀ (IBSP 3139), 1 ♂ (IBSP 3218), 1 ♂ (IBSP 3229), 2 ♂ 1 ♀ (IBSP 4043), 1 ♂ (IBSP 5759), 1 ♂ (IBSP 5792), 1 ♂ (IBSP 5818), 1 ♂ (IBSP 5860), 1 ♂ (IBSP 5924); Indaiatuba, 1 ♂ (IBSP 5706), 1 ♂ (IBSP 5710), 1 ♂ (IBSP 5913), 1 ♂ (IBSP 5915); Monte Serrat, 1 ♀ (IBSP 913); Itupeva, 1 ♂ (IBSP 5895); Jundiaí, 1 ♀ (MZUSP 127, holotype of *Pamphobeteus cesteri*, Mello-Leitão, 1923), 1 ♂ (IBSP 85), 1 ♀ (IBSP 97), 1 ♀ (IBSP 144), 1 ♀ (IBSP 194), 1 ♂ (IBSP 217), 1 ♂ (IBSP 254), 1 ♀ (IBSP 261), 1 ♂ (IBSP 504), 1 ♂ (IBSP 520), 1 ♀ (IBSP 567), 1 ♀ (IBSP695), 1 ♀ (IBSP 1341), 1 ♀ (IBSP 1583), 1 ♂ (IBSP 1585), 1 ♀ (IBSP 1590), 1 ♀ (IBSP 1591), 1 ♀ (IBSP 2082), 1 ♀ (IBSP 2327), 2 ♀ (IBSP 2414), 1 ♀ (IBSP 2584), 1 ♂ (IBSP 3256), 1 ♂ (IBSP 3288), 1 ♂ (IBSP 3325), 1 ♂ 1 ♀ (IBSP 4333), 2 ♂ (IBSP 4628A), 1 ♀ (IBSP 5651), 1 ♂ (IBSP 5705), 1 ♂ (IBSP 5708), 1 ♂ (IBSP 5715), 1 ♂ (IBSP 5720), 1 ♂ (IBSP 5724), 1 ♂ (IBSP 5726), 1 ♂ (IBSP 5747), 1 ♂ (IBSP 5749), 1 ♂ (IBSP 5750), 1 ♂ (IBSP 5755), 1 ♂ (IBSP 5761), 2 ♂ (IBSP 5765), 1 ♂ (IBSP 5768), 1 ♂ (IBSP 5805), 2 ♂ (IBSP 5811), 3 ♂ (IBSP 5817), 1 ♂ (IBSP 5824), 1 ♂ (IBSP 5827), 1 ♂ (IBSP 5830), 1 ♂ (IBSP 5831), 1 ♂ (IBSP 5857), 1 ♂ (IBSP 5858), 1 ♂ (IBSP 5862), 1 ♂ (IBSP 5864), 5 ♂ (IBSP 5867), 1 ♂ (IBSP 5869), 1 ♂ (IBSP 5872), 1 ♂ (IBSP 5880), 1 ♂ (IBSP 5881), 1 ♂ (IBSP 5883), 1 ♂ (IBSP 5916), 1 ♂ (IBSP 5919), 1 ♀ (IBSP 5936), 1 ♀ (IBSP 5973), 1 ♀ (IBSP 5974), 1 ♀ (IBSP 5976), 1 ♀ (IBSP 5984), 1 ♀ (IBSP 5993-A), 1 ♀ (IBSP 5995), 1 ♀ (IBSP 6989); Várzea Paulista, 2 ♀ (IBSP 4218); Jarinú, 1 ♂ 1 ♀ 1 J (IBSP 4335), 1 ♂ (IBSP 4776), 1 ♂ (IBSP 5718), 1 ♂ (IBSP 5760), 1 ♂ (IBSP 5762), 1 ♂ (IBSP 5825), 1 ♂ (IBSP 5833), 1 ♂ (IBSP 5835), 1 ♂ (IBSP 5863), 1 ♂ (IBSP 5868), 1 ♂ (IBSP 5906), 1 ♂ (IBSP 5928), 1 ♀ (IBSP 5988); Atibaia, 1 ♂ (IBSP 5741), 1 ♂ (IBSP 5890); Piracaia, 1 ♂ (IBSP 5837), 1 ♂ (IBSP 5841); São José dos Campos, 1 J (IBSP 198), 1 J (IBSP 210), 1 ♂ (IBSP 4252C), 1 ♂ (IBSP 5834); Taubaté, 1 ♂ 1 ♀ (IBSP 202), 1 ♂ (IBSP 539); Pirajú, 1 ♀ (IBSP 1440), 1 ♀ (IBSP 1443); Francisco Morato, 1 ♂ (IBSP 5829); Tatuí, ♂ (IBSP 2473); Itú, 3 ♂ (IBSP 2576), 4 ♂ 1 ♀ (IBSP 2585), 4 ♂ 1 ♀ (IBSP 2588), 6 ♂ 1 ♀ 1 J (IBSP2589), 3 ♂ (IBSP 2667A), 1 ♂ (IBSP 2705), 1 ♂ (IBSP 3258), 1 ♀ (IBSP 3741), 2 ♂ 1 ♀ (IBSP 4468A), 1 ♂ (IBSP 4642), 2 ♂ (IBSP 4657A), 8 ♂ (IBSP 4915A), 4 ♂ 2 ♀ (IBSP 4915B), 1 ♂ (IBSP 5709), 5 ♂ (IBSP

5723), 1 ♂ (IBSP 5729), 1 ♂ (IBSP 5730), 6 ♂ (IBSP 5734), 1 ♂ (IBSP 5735), 1 ♂ (IBSP 5748), 1 ♂ (IBSP 5769), 1 ♂ (IBSP 5770), 10 ♂ (IBSP 5771), 5 ♂ (IBSP 5772), 1 ♂ (IBSP 5773), 10 ♂ (IBSP 5774), 2 ♂ (IBSP 5775), 4 ♂ (IBSP 5776), 7 ♂ (IBSP 5777), 2 ♂ (IBSP 5778), 1 ♂ (IBSP 5779), 1 ♂ (IBSP 5781), 1 ♂ (IBSP 5782), 6 ♂ (IBSP 5783), 1 ♂ (IBSP 5784), 1 ♂ (IBSP 5785), 3 ♂ (IBSP 5786), 1 ♂ (IBSP 5787), 3 ♂ (IBSP 5788), 1 ♂ (IBSP 5789), 1 ♂ (IBSP 5790), 1 ♂(IBSP 5794), 1 ♂IBSP 5798), 1 ♂ (IBSP 5800), 1 ♂ (IBSP 5812), 1 ♂ (IBSP 5826), 1 ♂ (IBSP 5843), 1 ♂ (IBSP 5848), 1 ♂ (IBSP 5849), 1 ♂ (IBSP 5873), 1 ♂ (IBSP 5875), 1 ♂ (IBSP 5882), 1 ♂ (IBSP 5884), 1 ♂ (IBSP 5887), 4 ♂ (IBSP 5888), 1 ♂ (IBSP 5889), 1 ♀ (IBSP 5932), 1 ♀ (IBSP 5940), 1 ♀ (IBSP 5941), 1 ♀ (IBSP 5943), 1 ♀ (IBSP 5944), 1 ♀ (IBSP 5949), 1 ♀ (IBSP 5950), 1 ♀ (IBSP 5951), 1 ♀ (IBSP 5952), 1 ♀ (IBSP 5953), 1 ♀ (IBSP 5954), 1 ♀ (IBSP 5955), 1 ♀ (IBSP 5956), 1 ♀ (IBSP 5957), 1 ♀ (IBSP 5958), 1 ♀ (IBSP 5960), 1 ♀ (IBSP 5961), 1 ♀ (IBSP 5962), 1 ♀ (IBSP 5963), 1 ♀ (IBSP 5964), 1 ♀ (IBSP 5966), 1 ♀ (IBSP 5968), 1 ♀ (IBSP 5969), 1 ♀ (IBSP 5986), 1 ♀ (IBSP 5994), 1 ♀ (IBSP 6906), 1 ♀ (IBSP 6990), 1 ♀ (IBSP 6991), 1 ♀ (IBSP 6993), 1 ♀ (IBSP 6994), 1 ♀ (IBSP 6995), 1 ♀ (IBSP 6996), 1 ♀ (IBSP 6997); Cabreúva, 1 ♂ (IBSP 5893); Franco da Rocha, 1 ♂ (IBSP 2474), 1 ♂ (IBSP 5753); Araçoiaba da Serra, 2 ♂ (IBSP 4718B), 1 ♂ (IBSP 5819); Sorocaba, 1 ♂ (IBSP 4382B), 1 ♂ (IBSP 5725), 1 ♂ (IBSP 5836), 1 ♂ (IBSP 5854), 1 ♂ (IBSP 5918); Votorantim, 1 ♂ (IBSP 5894); São Roque, 1 ♂ (IBSP 4005), 1 ♂ (IBSP 5898), 1 ♀ (IBSP 5945); Cajamar, 1 ♀ (IBSP 5946); Caieiras, 1 ♀ (IBSP 846); Carapicuíba, 1 ♂ (IBSP 5886); Osasco, 1 ♂ (IBSP 510), 1 ♂ (IBSP 647), 1 ♀ (IBSP 650), 1 ♀ (IBSP 872); São Paulo, 1 ♂ (MZUSP 148, holotype of *Pterinopelma dubium*, Mello-Leitão, 1923), 1 ♀ (MZUSP C-69, holotype of *Pamphobeteus urbanicolus*, Soares, 1941), 1 ♂ (MZUSP, holotype of *Pamphobeteus ypirangensis* Soares, 1941), 1 ♀ (MZUSP C-71, paratype of *P. ypirangensis* Soares, 1941), 1 ♂ (IBSP 397), 1 ♀ (IBSP 415), 1 ♀ (IBSP 426), 1 ♀ (IBSP 427), 1 ♀ (IBSP 451), 1 ♀ (IBSP 457), 1 ♀ (IBSP 464), 1 ♂ (IBSP 468), 1 ♂ (IBSP 518), 1 ♀ (IBSP 648), 1 ♂ (IBSP 950), 1 ♀ (IBSP 1065), 1 ♀ (IBSP 1082), 1 ♀ (IBSP 1460), 1 ♂ (IBSP 1478), 1 ♂ (IBSP 1502), 1 ♀ (IBSP 2048), 1 ♂ (IBSP 2551), 2 ♂ (IBSP 2689), 1 ♀ (IBSP 2784), 1 ♂ (IBSP 2880), 1 ♂ (IBSP 2881), 1 ♂ (IBSP 2921A), 1 ♂ (IBSP 2936), 1 ♀ (IBSP 3206), 1 ♀ (IBSP 3210), 1 ♀ (IBSP 4668), 1 ♂ (IBSP 5707), 1 ♂ (IBSP 5712), 1 ♂ (IBSP 5727), 1 ♂ (IBSP 5731), 1 ♂ (IBSP 5739), 1 ♂ (IBSP 5740), 1 ♂ (IBSP 5745), 1 ♂ (IBSP 5752), 3 ♂ (IBSP 5754), 1 ♂ (IBSP 5780), 1 ♂ (IBSP 5791), 1 ♂ (IBSP 5823), 1 ♂ (IBSP 5832), 1 ♂ (IBSP 5855), 1 ♂ (IBSP 5874), 1 ♀ (IBSP 5933), 1 ♀ (IBSP 5935), 1 ♀ (IBSP 5937), 1 ♀ (IBSP 5947), 1 ♀ (IBSP 5965), 1 ♀ (IBSP 5967), 1 ♀ (IBSP 5978), 1 ♀ (IBSP 5990), 1 ♀ (MZSP 3713), 1 ♀ (MZSP 4194), 1 ♀ (MZSP 3109), 1 juvenile (MZSP 3153), 1 ♀ (MZSP 3162), 1 ♀ (MZSP 3343), 1 ♀ (MZSP 4907), 1 ♂ (MZSP 11323), 1 ♀ (MZSP 14918), 1 ♂ (MZSP 14925), 1 ♀ (MZSP 14929), 1 ♀ (MZSP 14931), 1 ♀ (MZSP 14938), 1 ♀ (MZSP 14940), 1 ♀ (MZSP 14943), 1 ♂ 1 ♀ (MZSP 14944), 1 ♀ (MZSP 14949), 1 ♀ (MZSP 14951), 1 ♂ (MZSP 14952), 1 ♀ (MZSP 14954), 1 ♀ (MZSP 14955), 1 ♀ (MZSP 14956), 1 ♀ (MZSP 14961), 1 ♂ (MZSP 14972), 1 ♂ (MZSP 14973), 1 ♀(MZSP 14981); Mairinque, 1 ♂ (IBSP 4357B); Guarulhos, 1 ♂ (IBSP 2618); Natividade da Serra, 1 ♂ (IBSP 5822); Cotia, 1 ♂ (IBSP 4139B), 3 ♂ (IBSP 4627B), 1 ♂ (IBSP 5703); Taboão da Serra, 1 ♂ (IBSP 5738), 1 ♂ (IBSP 5751); Mogi das Cruzes, 1 ♀ (MZUSP 144, holotype of *Pamphobeteus cucculatus*, Melo-Leitão, 1923), 2 ♀ (IBSP 4310), 1 ♂ (IBSP 5736), 1 ♀ (IBSP 5458); Embú, 1 ♀ (IBSP 1004), 1 ♂ (IBSP 5908); Diadema, 1 ♀ (IBSP 4291); Santo André, 1 ♀ (IBSP 248A), 1 ♀ (IBSP 454), 1 ♂ (IBSP 529), 1 ♂ (IBSP 933), 1 ♀ (IBSP 1527), 1 ♂ (IBSP 2891), 1 ♂ (IBSP 5844), 1 ♀ (IBSP 5971), 1 ♀ (IBSP 5972), 1 ♀ (IBSP 5991), 1 ♀ (MZSP 14948); São Bernardo do Campo, 1 ♀ (IBSP 453), 1 ♂ 1 ♀ (IBSP 4348), 1 ♂ (IBSP 5716), 1 ♂ (IBSP 5742), 1 ♂ (MZSP 14941); São Caetano do Sul, 1 ♂ (IBSP 4356); Mauá, 1 ♂ (IBSP 684), 1 ♂ (IBSP 760), 1 ♂ (IBSP 826); Itararé, 1 ♀ (IBSP 456); Guapiara, 1 ♂ (IBSP 5793); *Santa Catarina*: São Joaquim, 1 ♂ (IBSP 6869); *Rio Grande do Sul*: Rio Grande, 1 ♂ (IBSP 1225), 1 ♂ (IBSP 1226).

Vitalius vellutinus (Mello-Leitão), sp. rev., comb. n.
Figs. 101-111, 184

Pterinopelma vellutinum Mello-Leitão, 1923:186 (holotype male from São Paulo, Brazil, in MNRJ 39, examined). - Petrunkevitch, 1939:261. - Bonnet, 1958:3828. - Bücherl, Costa & Lucas, 1971:129 (syn. with *P. wacketi*). - Pérez-Miles, 1992:30.

Pamphobeteus cephalopheus Piza, 1944:273, fig. 1 (holotype female from Salto Grande, São Paulo, Brazil, should be in MZLQ, not located). - Bücherl, 1947a:257 (syn. with *Pamphobeteus roseus*). - Brignoli, 1983:139. - Platnick, 1993:111. *Syn. n.*

Pamphobeteus roseus; Bücherl, 1947a:233-281 (*in part*, specimens from State of São Paulo, Minas Gerais and Mato Grosso do Sul, Brazil).

Vitalius roseus; Lucas, Silva Junior & Bertani, 1993:241-245 (*comb. n.*).

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. roseus*, by the presence of a small, almost vestigial, male spur (Figs. 108-111). From *V. roseus* they can be

distinguished by the absence of more than five spines closely arranged on the prolateral palpal tibia tip; by the small SA; and by the male palpal bulb (Figs. 101-106) tapering slightly forward. Females can be distinguished from all *Vitalius* species, except *V. paranaensis*, by the absence of many long hairs on the ventral face of femora and coxae. Females from this species and that of *V. paranaensis* can be distinguished only by the distinct geographic distribution, *V. vellutinus* occurring in the west of the State of São Paulo, and States of Minas Gerais and Mato Grosso do Sul.

Description - Male (IBSP 6313) - Total length: 37,9. Carapace: length 16,1, width 14,3. Eye tubercle: length 1,64, width 2,29. Labium: length 2,37, width 2,64. Sternum: length 7,05, width: 6,75. Fovea short, deep, straight. Cheliceral basal segments with 11-12 teeth. Legs I: femur 14,0 / patella 7,7 / tibia 10,7 / metatarsus 9,5 /tarsus 6,4 / total 48,3 / II: 12,8 / 7,1 / 9,4 / 9,1 / 6,2 / 44,6 / III: 11,2 / 6,0 / 7,9 / 9,8 / 6,0 / 40,9 / IV: 13,3 / 6,7 / 11,1 / 14,5 / 6,6 / 52,2. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia v0-1-1ap, p1-2-2; legs I femur p0-0-2, patella p1, tibia v3-5-1ap, p3-1-0, metatarsus v3-0-1ap, r0-1-0; II femur p0-0-1, patella v1, p1; tibia v1-3-3ap, p1-1-1, metatarsus v2-0-3ap, p0-1-0, r0-1-0; III femur p0-1-2, r0-0-2, patella p3, r1, tibia v2-3-2ap, p1-1-1, r1-1-1; metatarsus v4-1-5ap, p1-1-1, r0-1-1; IV femur p1, r1, patella r1, tibia v9(2ap), p1-1-1, r0-2-1, metatarsus v19(4ap), p1-1-1, r0-2-0. Male spur branches very small, originating from a common base, or vestigials in some individuals (Figs. 108-111). Metatarsus I straight, when flexed passes by retrolateral branch laterally without touching it. Male palpal bulb pyriform, embolus short, tapering gradually, flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA small, vestigial in some individuals (Figs. 101-106). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs covered by many long hairs ventrally. Coxae and sternum covered by short hairs. Carapace dark, marginated by light brown. Legs dark, except trochanters, which are dorsally light brown. Sternum, coxae and abdomen ventrally dark. Leg rings on the apex of the femora, patellae and tibiae very distinct. Longitudinal leg stripes very distinct except for the tibiae stripes.

Female (IBSP 5656) - Total length: 62,0. Carapace: length 21,9, width 19,2. Eye tubercle: length 2,46, width 2,78. Labium: length 3,19, width 4,26. Sternum: length 9,45, width: 9,00. Fovea short, deep, procurved. Cheliceral basal segments with 14-14 teeth. Legs I: femur 16,0 / patella 10,0 / tibia 10,9 / metatarsus 10,1 / tarsus 6,7 / total 53,7 / II: 14,1 / 8,9 / 9,4 / 9,6 / 6,5 / 48,5 / III: 12,7 / 7,9 / 8,3 / 10,4 / 5,8 / 45,1 / IV: 15,6 / 8,7 / 11,3 / 14,7 / 6,5 / 56,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-4ap, p0-2-1; legs I femur p0-0-2, patella 0, tibia v0-1-3ap, p1-1-1; metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-2-3ap, p1-2-1, metatarsus v1-0-3ap, p2-0-0; III femur 0, patella p1, r1; tibia v0-2-2ap, p1-1-1, r1-0-0, metatarsus v4-1-4ap, p1-1-1, r0-1-1; IV femur 0, patella 0, tibia v0-2-3(2ap), p1-1-0, r0-0-1, metatarsus v19(5ap), p0-1-1, r0-0-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Fig. 107). Type I urticating hair present (type III vestigial). Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs having few long hairs ventrally. Coxae and sternum covered by short hairs. Carapace brown becoming darker on the cephalic region, marginated by light brown. Trochanters dorsally light brown. Femora black, patellae, tibiae and metatarsi of the legs I and II laterally pinkish. Sternum, coxae and abdomen ventrally black. Leg rings very distinct on the apex of the femora, patellae, and tibiae. Longitudinal leg stripes distinct, pinkish.

Variation - Juveniles have the patellae, tibiae, and metatarsi of the legs 1 and II almost completely pinkish. When they become larger this coloration is restricted to the lateral face of articles and are almost absent in older females and males.

Distribution: Brazil: tropical subcaducifolious forest of central-west State of São Paulo (Planalto Ocidental) (Figs. 171, 173).

Records: Brazil, *Mato Grosso do Sul*: Taunay, 1 ♂ (IBSP 96); Campo Grande, 1 ♂ (IBSP 4622-B); *Minas Gerais*: Araçaí, 1 ♀ (IBSP 74); *São Paulo*: 1 ♂ (MNRJ 39, holotype of *Pterinopelma vellutinum*, Mello-Leitão, 1923), Guarani D'Oeste (U. H. E. Água Vermelha), 2 ♂ (IBSP 4184), 1 ♀ (IBSP 4371A), 1 ♀ (IBSP 6947); Votuporanga, 1 ♀ (IBSP 6982); Ilha Solteira, 1 ♂ (IBSP 2442); Pontal, 1 ♀ (IBSP 1254), 1 ♀ (IBSP 1255), 1 ♀ (IBSP 2173); Altinópolis, 1 ♀ (IBSP 660), 1 ♀ (IBSP 1216); Iracema, 2 ♀ (IBSP 214); Mirandópolis, 1 ♂ (IBSP 4021), 1 ♂ (IBSP 6327); Lavínia, 1 ♂ (IBSP 2917); Valparaíso, 1 ♂ (IBSP 4321); Rubiácea, 1 ♂ (IBSP 3135); Guararapes, 1 ♂ (IBSP 1276), 1 ♀ (IBSP 1450), 2 ♂ (IBSP 2510), 1 ♀ (IBSP 2602), 1 ♂ (IBSP 2851), 1 ♂ (IBSP 3179); Araçatuba, 1 ♀ (IBSP 365), 1 ♀ (IBSP 1022), 1 ♀ (IBSP 1187), 1 ♀ (IBSP 1204), 1 ♀ (IBSP 1205), 1 ♂ (IBSP 1266), 1 ♂ (IBSP 1380), 1 ♀ (IBSP 1616), 1 ♀ (IBSP 1617), 1 ♀ (IBSP 4656), 1 ♂ (IBSP 6328), 1 ♂ (IBSP 6329), 1 ♂ (IBSP 6330), 1 ♂ (IBSP 6340), 1 ♂ (IBSP 6350); Birigui, 1 ♂ (IBSP 160), 1 ♂ (IBSP 3144); Cândido Rodrigues, 1 ♀ (IBSP 1560), 1 ♀ (IBSP 2813); Taquaritinga, 1 ♀ (IBSP 6907); São João do Pau D'Alho, 1 ♂ (IBSP

6331); Toriba, 1 ♂ (IBSP 1269), 1 ♂ (IBSP 1314); Dracena, 2 ♀ (IBSP 4364); Adamantina, 1 ♀ (IBSP 2599); Lins, 1 ♂ (IBSP 82), 1 ♀ (IBSP 281), 1 ♀ (IBSP 584), 1 ♀ (IBSP 1074), 1 ♀ (IBSP 1808), 1 ♂ (IBSP 2538), 1 ♂ (IBSP 2571), 1 ♂ (IBSP 3185), 1 ♂ (IBSP 3186), 1 ♀ (IBSP 4208); Monlevade, 1 ♂ (IBSP 1329); Bueno de Andrada, 1 ♂ (IBSP 196); Nova Europa, 1 ♀ (IBSP 1042), 1 ♀ (IBSP 1044); Araraquara, 1 ♂ (IBSP 517), 1 ♂ (IBSP 692); Santa Lúcia, 1 ♀ (IBSP 531), 1 ♀ (IBSP 1798); Tambaú, 1 ♂ (IBSP 280); Lucélia, 2 ♂ (IBSP 122), 3 ♂ 1 ♀ (IBSP 128), 1 ♀ (IBSP 3975C), 3 ♀ (IBSP 3993), 2 ♀ (IBSP 4053); Rinópolis, 1 ♂ 2 ♀ (IBSP 306), 2 ♀ (IBSP 4388); Cafelândia, 1 ♀ (IBSP 4119); Presidente Epitácio, 1 ♂ (IBSP 2905); Presidente Venceslau, 1 ♀ (IBSP 253), 1 ♀ (IBSP 561), 1 ♀ (IBSP 569), 1 ♀ (IBSP 1243), 1 ♀ (IBSP 1397), 1 ♀ (IBSP 1424), 1 ♀ (IBSP 1435), 1 ♀ (IBSP 1519), 1 ♀ (IBSP 1797), 1 ♂ (IBSP 3153); Tupã, 1 ♀ (IBSP 378), 1 ♀ (IBSP 1475), 1 ♀ (IBSP 2871); Pirajuí, 1 ♀ (IBSP 1586); Guarantã, 1 ♂ (IBSP 2243), 1 ♀ (IBSP 2416), 1 ♀ (IBSP 2461), 1 ♂ (IBSP 2815), 1 ♂ (IBSP 2938), 1 ♂ (IBSP 3132); Boa Esperança do Sul, 1 ♀ (IBSP 1237); São Carlos, 1 ♀ (IBSP 1224), 1 ♂ (IBSP 3223); Santo Anastácio, 1 ♀ (IBSP 279), 1 ♀ (IBSP 302), 1 ♀ (IBSP 418), 1 ♀ (IBSP 419), 1 ♀ (IBSP 548), 1 ♀ (IBSP 549), 1 ♀ (IBSP 581), 1 ♀ (IBSP 633), 1 ♀ (IBSP 843), 1 ♂ (IBSP 1370), 1 ♂ (IBSP 1371), 1 ♂ (IBSP 1372), 1 ♂ (IBSP 1373), 1 ♂ (IBSP 1374), 1 ♂ (IBSP 1375), 1 ♂ (IBSP 1376), 1 ♂ (IBSP 1377), 1 ♂ (IBSP 1378), 3 ♀ (IBSP 1516), 1 ♂ (IBSP 2991), 1 ♂ (IBSP 3224); Presidente Bernardes, 1 ♂ (IBSP 2913), 1 ♀ (IBSP 4151); Quintana, 1 ♀ (IBSP 914), 1 ♀ (IBSP 1218), 1 ♀ (IBSP 1274), 1 ♀ (IBSP 1275); Presidente Alves, 1 ♂ (IBSP 1049), 1 ♂ (IBSP 2877); Leme, 1 ♀ (IBSP 554); Álvares Machado, 1 ♀ (IBSP 552), 1 ♀ (IBSP 553), 1 ♀ (IBSP 965), 1 ♀ (IBSP 967), 1 ♀ (IBSP 968), 1 ♀ (IBSP 969), 1 ♀ (IBSP 983), 1 ♀ (IBSP 1104), 1 J (IBSP 1164), 1 ♀ (IBSP 1169), 1 ♀ (IBSP 1178), 1 ♀ (IBSP 1179), 2 ♀ (IBSP 1186), 1 ♂ (IBSP 2811); Presidente Prudente, 1 ♀ (IBSP 964), 1 ♀ (IBSP 1321), 1 ♀ (IBSP 1322), 1 ♂ (IBSP 1323), 1 J (IBSP 1324), 1 ♂ (IBSP 1325), 1 ♂ (IBSP1326), 1 ♀ (IBSP 1402), 1 ♀ (IBSP 1532), 1 ♀ (IBSP 1533), 1 ♀ (IBSP 2159), 1 ♀ (IBSP 2686), 2 ♀ (IBSP 4132), 1 ♂ (IBSP 6308), 1 ♂ (IBSP 6309); Martinópolis, 1 ♂ (IBSP 246), 1 ♂ (IBSP 1360), 1 ♀ 9IBSP 4193); Oriente, 1 ♂ (IBSP 1909), 1 ♂ (IBSP 2570), 1 ♀ (IBSP 6977); Avaí, 1 ♀ (IBSP 420); Jaú, 1 ♀ (IBSP 2354); Anhumas, 1 ♀ (IBSP 4659); Indiana, 2 ♀ (IBSP 1625); Rancharia, 1 ♀ (IBSP 206), 1 ♀ (IBSP 534); Quatá, 1 ♀ (IBSP 1080); Marília, 1 ♀ (IBSP 1001), 1 ♀ (IBSP 1081), 1 ♀ (IBSP 1678), 1 ♀ (IBSP 6979); Garça, 1 ♂ (IBSP 6310); Gália, 1 ♀ (IBSP 4504); Tibiriça, 1 ♂ (IBSP 3160), 1 ♂ (IBSP 3161); Pederneiras, 1 ♂ (IBSP 42), 1 ♂ (IBSP 43), 1 ♂ (IBSP 44), 1 ♀ (IBSP 45), 1 ♀ (IBSP 60), 1 ♂ (IBSP 120), 1 ♀ (IBSP 591), 1 ♀ (IBSP 628), 1 ♀ (IBSP 691), 1 ♂ (IBSP 2214), 1 ♂ (IBSP 2513), 1 ♂ (IBSP 2518), 1 ♂ (IBSP 2553), 1 ♀ (IBSP 2625); Torrinha, 1 ♀ (IBSP 6970); Limeira, 1 ♀ (IBSP 661); Fernão (Fernão Dias), 1 ♀ (IBSP 979), 1 ♂ (IBSP 1201), 1 ♂ (IBSP 1277), 1 ♀ (IBSP 1317), 1 ♂ (IBSP 1364), 1 ♀ (IBSP 1538), 1 ♂ (IBSP 1896); Duartina, 1 ♀ (IBSP 2456), 1 ♂ (IBSP 2457), 1 ♀ (IBSP 2458), 1 ♀ (IBSP 2460), 2 ♀ (IBSP 4141); Agudos, 1 ♂ (IBSP 4002), 3 ♀ (IBSP 4211), 1 ♂ (IBSP 6311), 1 ♂ (IBSP 6317), 1 ♂ (IBSP 6319); Barra Bonita, 1 ♀ (IBSP 540), 1 ♀ (IBSP 596), 1 ♂ (IBSP 1271); Piracicaba, 1 ♀ (IBSP 775); Tatú, 1 ♀ (IBSP 275), 1 ♀ (IBSP 579), 1 ♀ (IBSP 683); Pedreira, 1 ♂ (IBSP 3234); Cachoeira Paulista (Cachoeira), 1 ♀ (IBSP 157), 1 ♀ (IBSP 1452), 1 ♀ (IBSP 1453), 1 ♀ (IBSP 1454), 1 ♀ (IBSP 1455); Teodoro Sampaio, 1 ♂ (IBSP 4609), 1 ♂ (IBSP 6325), 1 ♀ (MZSP 3150), 1 ♀ (MZSP 14953); Cardoso de Almeida, 1 ♂ (IBSP 1350); Lençóis Paulista, 1 ♀ (IBSP 6986); Assis, 1 ♀ (IBSP 64), 1 ♂ (IBSP 2182), 1 ♀ (IBSP 2408), 1 ♀ (IBSP 2409), 1 ♂ (IBSP 3216), 1 ♂ (IBSP 3888), 1 ♂ 1 ♀ (IBSP 4792), 1 ♂ 1 ♀ (IBSP 4793A), 1 ♂ 2 ♀ 1 J (IBSP 4842A), 2 ♂ 1 ♀ (IBSP 4849A), 3 ♀ (IBSP 4849B), 1 ♀ (IBSP 4916A), 1 ♀ (IBSP 5656), 1 ♂ (IBSP 6307), 1 ♂ (IBSP 6312), 1 ♂ (IBSP 6313), 1 ♂ (IBSP 6314), 1 ♂ (IBSP 6315), 1 ♂ (IBSP 6316), 1 ♂ (IBSP 6318), 1 ♂ (IBSP 6320), 1 ♂ (IBSP 6321), 2 ♂ (IBSP 6322), 5 ♂ (IBSP 6323), 2 ♂ (IBSP 6324), 1 ♂ (IBSP 6326), 1 ♂ (IBSP 6332), 3 ♂ (IBSP 6333), 1 ♂ (IBSP 6335), 1 ♂ (IBSP 6338), 1 ♂ (IBSP 6341), 1 ♂ (IBSP 6342), 1 ♂ (IBSP 6343), 1 ♂ (IBSP 6344), 1 ♂ (IBSP 6345), 1 ♂ (IBSP 6346), 1 ♂ (IBSP 6347), 1 ♂ (IBSP 6348), 1 ♂ (IBSP 6349), 1 ♂ (IBSP 6351), 1 ♂ (IBSP 6352), 1 ♀ (IBSP 6962), 1 ♀ (IBSP 6963), 1 ♀ (IBSP 6964), 1 ♀ (IBSP 6965), 1 ♀ (IBSP 6966), 1 ♀ (IBSP 6967), 1 ♀ (IBSP 6969), 1 ♀ (IBSP 6972), 1 ♀ (IBSP 6973), 1 ♀ (IBSP 6974), 1 ♀ (IBSP 6978), 1 ♀ (IBSP 6980), 1 ♀ (IBSP 6983), 1 ♀ (IBSP 6984), 1 ♀ (IBSP 6988); Platina, 1 ♀ (IBSP 6968), 1 ♀ (IBSP 6971), 1 ♀ (IBSP 6975), 1 ♀ (IBSP 6976), 1 ♀ (IBSP 6981), 1 ♀ (IBSP 6987); Cândido Mota, 1 ♀ (IBSP 362), 1 ♀ (IBSP 947), 1 ♀ (IBSP 1155), 1 ♀ (IBSP 1563), 1 ♀ (IBSP 1637), 1 ♂ (IBSP 2845), 1 ♀ (IBSP 6985), 1 ♀ (IBSP 7011); Palmital, 1 ♂ (IBSP 3242), 1 ♂ (IBSP 3243), 1 ♂ (IBSP 3244), 1 ♂ (IBSP 3245); Ibirarema, 1 ♀ (IBSP 1549), 1 ♀ (IBSP 1550), 1 ♀ (IBSP 1558), 1 ♂ (IBSP 1917); Botucatu, 1 ♂ (IBSP 509), 1 ♀ (IBSP 1650); Capivarí, 1 ♀ (IBSP 89), 1 ♀ (IBSP 123), 1 ♀ (IBSP 315), 1 ♂ (IBSP 934); Campinas, 1 ♀ (IBSP 2311A); Florínea, 4 ♂ (IBSP 119A); Luiz Pinto, 1 ♀ (IBSP 1250); Santa Cruz do Rio Pardo, 1 ♂ (IBSP 1900), 1 ♂ (IBSP 4638); Águas de Santa Bárbara, 1 ♀ (IBSP 4456B), 1 ♂ (IBSP 6897); Monte Serrat, 1 ♀ (IBSP 536); São José dos Campos, 1 ♂ (IBSP 566), 1 ♂ (IBSP 571), 1 ♂ (IBSP 585), 1 ♀ (IBSP 1463); Jundiaí, 1 ♀ (IBSP 642); Sorocaba, 2 ♀ (IBSP 247); Caieiras, 1 ♂ (IBSP 649), 1 ♀ (IBSP 765); Carapicuíba, 1 ♂ (IBSP 6336); São Paulo, 1 ♀ (IBSP 336), 1 ♀ (IBSP 558), 1 ♀ (IBSP 657), 1 ♀ (IBSP 672), 1 ♀ (IBSP 937), 1 ♀ (IBSP 1536), 1 ♀ (IBSP 1547), 1 ♂ (IBSP 2514), 1 ♂ (IBSP 2743), 1 ♂ 1 ♀ (IBSP 4662, 1 ♀ (IBSP 4857), 1 ♂

(IBSP 6334), 1 ♂ (IBSP 6337), 1 ♂ (IBSP 6339); Cotia, 1 ♀ (IBSP 2349)

Vitalius roseus (Mello-Leitão)
Figs. 112-116, 185

Pamphobeteus roseus Mello-Leitão, 1923:232 (holotype female from Itaquy (=Itaqui), Rio Grande do Sul, Brazil, MZSP 143, 1914, E. Garbe col., examined). - Petrunkevitch, 1939:244. - Bücherl, 1947a:257 (*in part*). - Bonnet, 1958:3315. - Schmidt, 1986:59, fig. 97 (*in part*). - Platnick, 1989:107. - Platnick, 1993:111.

Vitalius roseus; Lucas, Silva Junior & Bertani, 1993:241-245 (*comb. n.*). - Platnick, 1997:171.

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. vellutinus*, by the presence of a small, almost vestigial, male spur (Fig. 112). From *V. vellutinus* they can be distinguished by the presence of more than five spines closely arranged on the prolateral palpal tibia tip (Fig. 25) and by the male palpal bulb shape that narrows abruptly from its median region forward (Figs. 115-116). Females can be distinguished by the small quantity of long hairs ventrally on femora together with presence of many long hairs on the coxae and the color pattern on sternum, coxae and abdomen being black ventrally and patellae and metatarsi dorso-laterally slightly pinkish.

Description - Male (IBSP 6883.) - Total length: 38,9. Carapace: length 15,4, width 13,7. Eye tubercle: length 1,72, width 2,29. Labium: length 2,05, width 2,62. Sternum: length 7,54, width: 6,64. Fovea short, deep, straight. Cheliceral basal segments with 11-12 dentes. Legs I: femur 14,3 / patella 7,5 / tibia 10,5 / metatarsus 10,1 /tarsus 7,0 / total 49,4 / II: 12,9 / 6,8 / 9,2 / 9,5 / 6,6 / 45,0 / III: 11,4 / 6,0 / 8,3 / 10,4 / 6,2 / 42,3 / IV: 13,8 / 6,4 / 11,7 / 15,2 / 6,8 / 53,9. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p2-3-5(3ap); legs I femur p0-0-1, patella p1, tibia v2-1-3ap, p1-1-1, r0-1-0, metatarsus v0-0-1ap, p1-0-0, r0-1-0; II femur p0-0-2, patella 0, tibia v2-2-4ap, p1-1-1, r1-2-1; metatarsus v1-0-3ap, p1-0-0, r0-1-0; III femur r0-0-1, patella 0, tibia v2-2-2ap, p1-1-1, r1-1-0, metatarsus v5-0-4ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v1-2-5(3ap), p0-1-0, r1-1-1, metatarsus v14(4ap), p0-1-1, r1-1-1. Male spur branches very small, originating from a common base (Fig. 112). Metatarsus I straight, when flexed passes by the retrolateral branch laterally without touching it. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region, tapering abruptly. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 115-116). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area on the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs ventrally covered by many long hairs. Coxae and sternum covered by short hairs. Carapace dark, margin light brown. Legs dark, except trochanters, that are dorsally light brown. Sternum, coxae and abdomen ventrally dark. Leg rings on the apex of the femora, patellae and tibiae very distinct. Longitudinal leg stripes very distinct except for the tibiae stripes.

Female (IBSP 6723) - Total length: 35,4. Carapace: length 15,6, width 13,0. Eye tubercle: length 1,84, width 2,16. Labium: length 2,32, width 2,80. Sternum: length 7,60, width: 6,40. Fovea short, deep, procurved. Cheliceral basal segments with 13-11 teeth. Legs I: femur 12,3 / patella 7,0 / tibia 8,5 / metatarsus 7,2 /tarsus 4,8 / total 48,1 / II: 10,8 / 6,5 / 6,3 / 6,7 / 4,4 / 43,3 / III: 9,6 / 5,8 / 6,4 / 7,8 / 4,3 / 41,6 / IV: 12,0 / 6,0 / 9,2 / 11,8 / 4,2 / 53,3. Spines: tarsi lacking spines. Palpal femur p0-0-0, patella 0, tibia v0-0-3ap, p0-1-1; legs I femur p0-0-1, patella 0, tibia v0-0-1ap, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-0-2ap, p0-1-1, metatarsus v1-0-3ap; III femur p0-0-1, patella 0, tibia v0-0-2ap, p0-1-1, r1-1-1, metatarsus v2-0-4ap, p0-1-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v0-0-2ap, p0-1-0, r1-1-1, metatarsus v16(4ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Figs. 113-114). Type I urticating hair present (type III vestigial). Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs having few long hairs ventrally. Coxae and sternum covered by short hairs. Carapace brown becoming darker on the cephalic region, marginated by light brown. Trochanters dorsally light brown. Femora black. Patellae, tibiae and metatarsi of the legs I and II laterally pinkish. Sternum, coxae and abdomen ventrally black. Leg rings very distinct on the apex of the femora, patellae, and tibiae. Longitudinal leg stripes distinct, pinkish.

Variation - Juveniles have the patellae, tibiae, and metatarsi of the legs I and II almost completely pinkish. When they get older this coloration is restricted to the lateral segments and are almost absent in old females and in males.

Remarks - The former species *V. roseus* is separated in three. The herein redefined species *V. roseus* is distributed only in the State of Rio Grande do Sul, Brazil.

Structural Anomaly - Among the studied material one specimen was found having the fovea inverted, protruded, from Santo Angelo, Rio Grande do Sul, Brazil.

Distribution: Brazil: subtropical subcaducifolious forest of northwest and central State of Rio Grande do Sul (Figs. 171, 173).

Records: Brazil, *Rio Grande do Sul*: Tenente Portela, 1 ♀ 10.IX.76, S. Scherer col. (MCN-RS 4524); Tuparendí, 1 ♀ (IBSP 5509), 1 ♀ (IBSP 5996), 7 ♂ 3 ♀ (IBSP 6706), 1 J (IBSP 6707), 6 ♂ 1 J (IBSP 6708), 6 ♂ (IBSP 6709), 1 ♂ (IBSP 6710), 1 ♂ (IBSP 6711), 2 ♂ 3 ♀ (IBSP 6712), 1 ♂ (IBSP 6713), 2 ♂ (IBSP 6714), 1 J (IBSP 6715), 1 ♀ (IBSP 6716), 4 ♂ (IBSP 6717), 3 ♂ (IBSP 6718), 1 ♀ (IBSP 6719), 1 ♀ (IBSP 6720), 1 ♀ (IBSP 6721), 1 ♀ (IBSP 6722), 1 ♀ (IBSP 6723), 1 ♀ (IBSP 6724), 1 ♀ (IBSP 6725), 1 ♀ (IBSP 6726), 1 ♀ (IBSP 6727), 1 ♀ (IBSP 6728), 1 ♀ (IBSP 6729), 1 ♀ (IBSP 6730), 1 ♀ (IBSP 6731), 1 ♀ (IBSP 6732), 1 ♀ (IBSP 6733), 1 ♀ (IBSP 6734), 1 ♀ (IBSP 6735), 1 ♀ (IBSP 6736), 1 ♀ (IBSP 6737), 1 ♀ (IBSP 6738), 1 ♀ (IBSP 6739), 2 ♀ 2 J (IBSP 6740), 2 ♀ 1 J (IBSP 6741), 5 ♂ (IBSP 6742), 5 ♂ (IBSP 6743), 5 ♂ (IBSP 6744), 5 ♂ (IBSP 6745), 5 ♂ (IBSP 6746), 3 ♂ (IBSP 6747), 1 ♂ (IBSP 6900), 1 ♀ (IBSP 6904), 1 ♀, ii.VII.91, E. Lückemeyer col. (MCN-RS 21.232); 1 ♀, 30.IV.91, E. Lückemeyer col. (MCN-RS 21.031); Ijuí, 1 ♂, 12.V.91, C. Schutz col. (PUC-RS 1317); Bossoroca, 1 ♀, 14.VII.73, A. Lise col. (MCN-RS 1741); Itaquí, 1 ♀ (MZUSP 143, holotype of *Pamphobeteus roseus*, Mello-Leitão, 1923), 1 ♂ (IBSP 2937), 1 ♂ (IBSP 6883); Itaúba, Arroio do Tigre, 1 ♀, 11.IV.78, A. A. Lise col. (MCN-RS 17.732); Caxias do Sul, 1 ♀, 18.XII.91, F. Becker col. (MCN-RS 22102); São Vicente do Sul, 1 ♂ (IBSP 6887); Santa Maria, 1 ♂ (IBSP 6884), 1 ♀ (IBSP 6885), 1 ♀ (IBSP 6886), 1 ♂, 18.IV.80, D. Link col. (MCN-RS 9549); São Gabriel , 1 ♂ (IBSP 1963).

Vitalius paranaensis sp. n.
Figs. 117-120, 186

Pamphobeteus roseus; Bücherl, 1947a:233-281 (*in part*).

Vitalius roseus; Lucas, Silva Junior & Bertani, 1993:241-245 (*in part*).

Holotype. Male, IBSP 6678, Foz do Iguaçú, Paraná, Brazil, X/1982, Faunal Rescue Team of the Hydroelectric Power Station of Itaipu, col. Paratype. Female, IBSP 6663, Rolândia, Paraná, Brazil, IV/1995, P. M. R. leg.

Etymology - The specific name refers to the State where the type locality is located.

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. sorocabae*, by having metatarsus I straight; embolus short; non-slender legs; PS not pronounced; and male spur well-developed. They can be distinguished from *V. sorocabae* by having the sternum, coxae and abdomen ventrally black. Females can be distinguished from all *Vitalius* species, except *V. vellutinus*, by the absence of many long hairs ventrally on the femora and coxae. The distinction between females of this species and *V. vellutinus* can only be done through the distinct geographic distributions, *V. paranaensis* occurring in the States of Paraná, Brazil, and Missiones, Argentina.

Description - Male (Holotype) - Total length: 36,1. Carapace: length 16,5, width 15,5. Eye tubercle: length 1,80, width 2,29. Labium: length 2,29, width 2,78. Sternum: length 7,79, width: 6,56. Fovea short, deep, slightly procurved. Cheliceral basal segments with 11-12 teeth. Legs I: femur 15,3 / patella 8,5 / tibia 12,0 / metatarsus 11,1 / tarsus 6,8 / total 53,7 / II: 14,3 / 7,3 / 10,5 / 10,5 / 6,6 / 49,2 / III: 12,3 / 6,6 / 9,2 / 11,5 / 6,5 / 46,1 / IV: 15,0 / 6,9 / 12,5 / 16,2 / 7,8 / 58,4. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p2-1-1; legs I femur p0-0-1, patella 0, tibia v1-0-1ap, p0-1-0, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-1-1ap, p1-1-0, metatarsus v2-0-2ap, p2-0-0; III femur p0-0-1, r0-1-1, patella 0, tibia v3-3-2ap, p1-1-1, r0-1-1, metatarsus v4-1-4(3ap), p2-1-1, r0-1-1; IV femur 0, patella 0, tibia v11(4ap), p1-1-0, r1-1-1, metatarsus v24(4ap), p0-2-1, r0-1-1. Male spur branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 117). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus short, flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well developed, bordered by small denticles (Figs. 119-120). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs covered by many long hairs ventrally. Coxae and sternum covered by short hairs. Carapace dark, marginated by light brown. Legs dark, except trochanters, that are dorsally light brown. Sternum, coxae and abdomen ventrally dark. Leg rings on the apex of the femora, patellae and tibiae very distinct. Longitudinal leg stripes very distinct except for the tibiae stripes.

Female (Paratype) - Total length: 66,5. Carapace: length 23,6, width 21,7. Eye tubercle: length 2,37, width 3,28. Labium: length 3,28, width 4,51. Sternum: length 11,25, width: 10,2. Fovea short, deep, slightly procurved. Cheliceral basal segments with 12-12 teeth. Legs I: femur 18,1 / patella 10,5 / tibia 12,1 / metatarsus 10,3 / tarsus 6,6 / total 57,6 / II: 15,7 / 9,6 / 10,5 / 9,8 / 5,9 / 51,5 / III: 13,7 / 8,2 / 9,0 / 10,7 / 5,9 / 47,5 / IV: 16,7 / 8,8 / 11,8 / 15,0 / 5,5 / 57,8. Spines: tarsi lacking spines. Palpal femur p0-0-2, patella 0, tibia v0-0-

4ap, p0-2-1; legs I femur p0-0-1, patella 0, tibia v0-0-3ap, p0-1-0, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v0-1-3ap, p1-1-1, metatarsus v1-0-3ap; III femur r0-0-1, patella r1, tibia v1-0-2ap, p1-1-0, r0-1-0, metatarsus v2-0-3ap, p1-1-1, r0-1-1; IV femur 0, patella 0, tibia v0-2-2ap, p0-1-0, r1-1-0, metatarsus v17(4ap), p0-1-1, r0-2-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Fig. 118). Type I urticating hair present (type III vestigial). Carapace covered by short slender hairs; bordered by short hairs pointing out. Legs having few long hairs ventrally. Coxae and sternum covered by short hairs. Carapace brown becoming darker on the cephalic region, marginated by light brown. Trochanters dorsally light brown. Femora black, patellae, tibiae and metatarsi of the legs I and II laterally pinkish. Sternum, coxae and abdomen ventrally black. Leg rings very distinct on the apex of the femora, patellae, and tibiae. Longitudinal leg stripes distinct, pinkish.
Variation - Juveniles have the patellae, tibiae, and metatarsi of the legs I and II almost completely pinkish. When they become larger this coloration becomes restricted to the lateral segments and are almost absent in old females and males.

Distribution: Brazil: tropical subcaducifolious forest of center, north, and west in the State of Paraná. Argentina: Missiones (Figs. 171, 173).

Records: Brazil, *Paraná*: 1 ♀ (IBSP 3003), 1 ♀ (IBSP 6668); Paranavaí, 2 ♀ (IBSP 4883), 1 ♀ (IBSP 6660), 1 ♀ (IBSP 6666), 1 ♀ (IBSP 6683); Maringá, 1 ♀ (IBSP 4467), 1 ♀ 4 J (IBSP 6658), 1 ♀ (IBSP 6665), 1 ♀ 2 J (IBSP 6670); Iguaraçú, 1 ♀ (IBSP 4041); Marialva, 7 ♀ (IBSP 88), 1♀ 3 J (IBSP 93), 1 ♀ 5 J (IBSP109), 4 ♀ (IBSP 116); Rolândia, 1 ♀ (IBSP 1611), 1 ♂ (IBSP 3314), 2 ♀ (IBSP 3934-A), 2 ♂ 1 ♀ (IBSP 3934-B), 1 ♂ (IBSP 4327), 1 ♀ (IBSP 6663); Arapongas, 1 ♀ (IBSP 21), 1 ♀ (IBSP 307), 1 ♀ (IBSP 1190), 1 ♀ (IBSP 1354), 1 ♂ (IBSP 1359); Apucarana, 1 ♀ (IBSP 2105); Cambé, 1 ♀ (IBSP 6662); Londrina, 1 ♀ (IBSP 1366), 1 ♀ (IBSP 1690), 1 ♂ (IBSP 6667); Ibiporã, 1 ♀ (IBSP 167); Uraí, 1 ♀ 9IBSP 2673), 1 ♀ (IBSP 2697), 1 J (IBSP 2698), 1 J (IBSP 2699), 1 ♀ (IBSP 2700), 1 ♀ (IBSP 2701)1 ♀ (IBSP 2706), 1 ♀ (IBSP 2707), 1 ♀ (IBSP 2758); Sertaneja, 1 ♂ (IBSP 6684); Cornélio Procópio, 1 ♀ (IBSP 2019), 1 ♀ (IBSP 2343), 1 ♀ (IBSP 2344); Bandeirantes, 1 ♀ (IBSP 220), 1 ♀ (IBSP 243), 1 ♀ (IBSP 296), 1 ♀ (IBSP 1073), 1 ♂ (IBSP 1412), 1 ♂ (IBSP 1414), 1 ♀ (IBSP 1494), 1 ♀ (IBSP 1576), 1 ♀ (IBSP 2622); 1 ♀ (IBSP 2511); Andirá, 1 ♀ (IBSP 6661); Cambará, 1 ♀ (IBSP 3939); Engenheiro Beltrão, 1 ♀ (IBSP 6664); Grandes Rios, 1 ♂ (IBSP 4715); Curiúva, 2 ♂ (IBSP 2168); Jaguariaíva, 1 ♀ (IBSP 2768), 1 ♀ (IBSP 2769), 1 ♂ 1 ♀ (IBSP 4411); Foz do Iguaçú - U. H. E. Itaipú - 1 ♀ (IBSP 4904), 1 ♀ (IBSP 6671), 2 ♂ (IBSP 6672), 1 ♀ (IBSP 6673), 1 ♀ (IBSP 6674), 1 ♀ (IBSP 6675), 1 ♀ (IBSP 6676), 1 ♀ (IBSP 6677), 1 ♂ (IBSP 6678), 1 ♀ (IBSP 6679), 1 ♂ (IBSP 6680), 1 ♀ (IBSP 6681), 1 ♀ (IBSP 6682), 1 ♀ (IBSP 6686), 1 ♀ (IBSP 6687), 1 ♀ (IBSP 6688), 2 ♀ (IBSP 6689), 1 ♀ (IBSP 6690), 1 J (IBSP 6691), 1 ♀(IBSP 6692), 1 ♀ (IBSP 6693), 1 ♀ (IBSP 6694), 1 ♂ (IBSP 6695), 5 ♀ (IBSP 6696), 5 ♀ (IBSP 6697), 4 ♀ (IBSP 6698), 2 ♂ (IBSP 6699), 1 ♂ (IBSP 6700), 1 ♂ (IBSP 6701), 1 ♀ (IBSP 6702), 1 ♂ (IBSP 6703), 1 ♂ 1 ♀ (IBSP 6704), 1 ♂ (IBSP 6705), 1 ♀ (IBSP 6903), 1 ♀ (IBSP 6908); Guarapuava, 1 ♀ (IBSP 6659); Prudentópolis, 1 ♂ (IBSP 3601); Ponta Grossa PR - 1 ♂ (IBSP 959), 1 ♂, 15.VIII.82, C. Bortoli col. (MCN-RS 22.547); Balsa Nova (João Eugênio), 1 ♂ J (IBSP 2776); Curitiba, 1 ♀ (IBSP 6669); Argentina, Porto Iguaçu, 1 ♂ (IBSP 6685).

Vitalius buecherli sp. n.
Figs. 121-124, 186-187

Pamphobeteus cesteri; Bücherl, 1947a:233-281 (misidentification). - Schmidt, 1986:59, fig. 95 (misidentification). - Platnick, 1989:107. - Platnick, 1993:111.

Vitalius cesteri; Lucas, Silva Junior & Bertani, 1993:241-245 (misidentification).

Holotype. Male, IBSP 6591, Juquitiba, São Paulo, Brazil, VI/1989, P. C. Palomino col. Paratype. Female, IBSP 6644, Juquitiba, São Paulo, Brazil, VII/1995, N. S. Henrique col.

Etymology - The specific name is a patronym in recognition of the contribution to taxonomy of brazilian mygalomorphs, mainly theraphosids, of Wolfgang Bücherl.

Diagnosis - Males can be distinguished from all *Vitalius* species, except *V. dubius*, by the presence of a pronounced PS (Figs. 123-124). They can be distinguished from *V. dubius* by the presence of slender legs (Fig. 22). Females can be distinguished by having non-thickened tibiae IV, sternum slightly longer than wide, carapace without long hairs on the margin pointing to the carapace center, SB not enlarged, many long hairs on the femora ventrally, and sternum and coxae grayish covered by long hairs.

Description - Male (Holotype) - Total length: 31,1. Carapace: length 13,3, width 12,6. Eye tubercle: length 1,64, width 2,21. Labium: length 1,72, width 2,46. Sternum: length 6,56, width: 5,57. Fovea short, deep, slightly procurved. Cheliceral basal segments with 13-11 teeth. legs I: femur 14,4 / patella 6,7 / tibia 11,1 / metatarsus 10,7 /tarsus 6,9 / total 49,8 / II: 13,0 / 6,2 / 10,3 / 9,5 / 6,5 / 45,5 / III: 11,3 / 5,3 / 9,1 / 10,4 / 5,9 / 42,0 / IV: 13,4 / 5,7 / 12,2

/ 15,3 / 6,4 / 53,0. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia, p1-3-2; legs I femur 0, patella 0, tibia v0-0-1ap, p0-1-0, metatarsus v0-0-1ap, p0-1-0; II femur 0, patella 0, tibia v0-2-1ap, p0-0-1, metatarsus v3-0-2ap; III femur 0, patella 0, tibia v1-2-3(2ap), p0-1-0, r0-1-1, metatarsus v0-4-3ap, p0-1-1, r0-1-1; IV femur 0, patella 0, tibia v0-5-3(2ap), r1-1-1, metatarsus v21(3ap), p1-1-1, r0-1-1. Male spur branches originating from a common base, tapering distally, the prolateral branch thickened (Fig. 121). Metatarsus I straight, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS pronounced, forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Figs. 123-124). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs slender (Fig. 22), ventrally covered by many long hairs. Coxae and sternum covered by medially developed hairs. Carapace brown, marginated by light brown. Legs dark brown, except trochanters, that are dorsally light brown, covered by long reddish hairs. Sternum, coxae and abdomen ventrally grayish, covered by long reddish hairs. Leg rings and longitudinal leg stripes hardly distinct.

Female (Paratype) - Total length: 49,7. Carapace: length 16,4, width 14,4. Eye tubercle: length 2,13, width 2,70. Labium: length 2,54, width 3,44. Sternum: length 7,80, width: 7,05. Fovea short, deep, slightly procurved. Cheliceral basal segments with 11-13 teeth. Legs I: femur 12,9 / patella 7,9 / tibia 9,8 / metatarsus 8,4 / tarsus 5,6 / total 44,6 / II: 11,8 / 7,1 / 8,2 / 7,8 / 5,5 / 40,4 / III: 10,4 / 6,5 / 7,5 / 8,2 / 4,8 / 37,4 / IV: 12,7 / 7,0 / 10,5 / 12,1 / 5,4 / 47,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-3ap, p0-2-1; legs I femur p0-0-1, patella 0, tibia v0-0-1ap, metatarsus v0-0-1; II femur 0, patella 0, tibia v0-0-2ap, metatarsus v1-0-3ap; III femur 0, patella 0, tibia v0-3-2ap, p0-1-0, r0-1-1, metatarsus v0-3-4ap, p0-1-1, r0-1-1; IV femur 0, patella 0, tibia v0-3-3(2ap), r0-1-1, metatarsus v23(4ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Figs. 122). Type I urticating hair present (type III vestigial). Color and hair pattern as in male.

Remarks - Bücherl (1947a) misidentified this undescribed species as *Pamphobeteus cesteri* (= *Vitalius dubius*).

Distribution: Brazil: tropical latifoliated forest of the Planalto Atlântico, "Serra da Paranapiacaba", and vicinity in State of São Paulo (Figs. 170, 173).

Records: Brazil, *São Paulo*: Monte Alegre do Sul, 1 ♂ (IBSP 676), 1 ♀ (IBSP 677); Mairiporã, 1 ♂ (IBSP 6603), 1 ♀ (IBSP 6623); Santa Isabel, 1 ♀ (IBSP 6625); São Luís do Paraitinga, 1 ♀ (IBSP 6636), Guareí, 1 ♀ (IBSP 6649); Araçariguama - 1 ♀ (IBSP 6654); Caieiras, 1 ♀ (IBSP 880B); Itapevi, 1 ♂ (IBSP 4526); Embú, 1 ♂ (IBSP 6614), 1 ♀ (IBSP 6620); Osasco / Carapicuíba, 1 ♀ (IBSP 6629); Parelheiros, 1 ♂ (IBSP 6604), 1 ♀ (IBSP 6617); São Paulo, 1 ♂ (IBSP 1566), 2 ♂ (IBSP 4353A), 1 ♀ (IBSP 4370), 1 ♂ (IBSP 6600), 1 ♂ (IBSP 6601), 1 ♂ (IBSP 6602), 1 ♂ (IBSP 6605), 1 ♂ (IBSP 6607), 1 ♂ (IBSP 6608), 1 ♀ (IBSP 6619), 1 ♀ (IBSP 6627), 1 ♀ (IBSP 6638), 1 ♀ (IBSP 6643), 1 ♀ (IBSP 6651), 1 ♀ (MZSP 14917); Salesópolis, 1 ♀ (MZSP 5283), 1 ♀ (MZSP 6541); Boracéia (E. Ecológica), 1 ♂ (IBSP 6615); Embú-Guaçú, 1 ♀ (IBSP 4237); Cubatão (alto da serra), 1 ♂ (IBSP 6609); São Bernardo do Campo, 1 ♀ (IBSP 6628); Santo André, 1 ♀ (IBSP 248B), 1 ♀ (IBSP 6633); Piedade, 2 ♂ (IBSP 4442), 1 ♂ (IBSP 6616), 1 ♀ (IBSP 6647), 1 ♀ (IBSP 6652), 1 ♀ (IBSP 6655), 1 ♀ (IBSP 6656); Ibiúna, 1 ♀ (IBSP 4469B), 1 ♂ (IBSP 6587), 1 ♂ (IBSP 6597), 1 ♀ (IBSP 6626); Itapecerica da Serra, 1 ♂ (IBSP 6589), 1 ♂ (IBSP 6892); Tapiraí, 2 ♂ (IBSP 4428), 1 ♀ (IBSP 6640); São Lourenço da Serra, 1 ♂ (IBSP 6598), 1 ♀ (IBSP 6641); Juquitiba, 1 ♂ (IBSP 6585), 1 ♂ (IBSP 6586), 1 ♂ (IBSP 6588), 2 ♂ (IBSP 6590), 1 ♂ (IBSP 6591), 1 ♂ (IBSP 6592), 1 ♂ (IBSP 6593), 1 ♂ (IBSP 6594), 1 ♂ (IBSP 6595), 1 ♂ (IBSP 6596), 1 ♂ (IBSP 6599), 1 ♀ (IBSP 6621), 1 ♀ (IBSP 6624), 1 ♀ (IBSP 6630), 1 ♀ (IBSP 6637), 1 ♀ (IBSP 6642), 1 ♀ (IBSP 6644), 1 ♀ (IBSP 6646), 1 ♀ (IBSP 6657); Guapiara, 1 ♀ (IBSP 6634); Itanhaém, 1 ♂ (IBSP 6606), 1 ♂ (IBSP 6610), 1 ♀ (IBSP 6631); Sete Barras, 1 ♀ (IBSP 6618), 1 ♀ (IBSP 6622), 1 ♀ (IBSP 6645); Juquiá, 1 ♀ (IBSP 4209), 2 ♂ (IBSP 4379), 1 ♀ (IBSP 5996), 1 ♂ (IBSP 6612), 1 ♀ (IBSP 6635), 1 ♀ (IBSP 6639), 1 ♀ (IBSP 6648), 1 ♀ (IBSP 6650); Miracatú, 2 ♀ (IBSP 4452), 1 ♂ (IBSP 6613); Pedro Barros, 1 ♂ (IBSP 6611); Iporanga, 1 ♀ (MZSP 4003); Registro, 1 ♂ 1 ♀ (IBSP 4232C), 1 ♂ (IBSP 2562); Vale do Ribeira, 1 ♀(IBSP 6653); Cajatí / Jacupiranga - 1 ♀ (IBSP 6632).

Vitalius lucasae sp. n.
Figs. 125-128

Holotype. Male, IBSP 6828, Curitiba, Paraná, Brazil, 23.V.1993, M. T. Pereira col. Paratype. Female, IBSP 6827, Curitiba, Paraná, Brazil, IX/1996, R. de Aquino col.

Etymology - The specific name is a patronym in recognition to the contribution to the taxonomy of Brazilian mygalomorphs, mainly theraphosids, by Sylvia Lucas.

Diagnosis - Males can be distinguished from all *Vitalius* species by the presence of an accentuated D (Figs. 127-128). Females can be distinguished by the presence of thickened tibiae IV.

Description - Male (holotype) - Total length: 33,4 Carapace: length 15,7, width 14,1. Eye tubercle: length 1,96, width 2,13. Labium: length 1,96, width 2,87. Sternum: length 6,88, width: 6,80. Fovea short, deep, straight. Cheliceral basal segments with 12-12 teeth. legs I: femur 12,0 / patella 6,9 / tibia 8,1 / metatarsus 8,1 / tarsus 5,2 / total 40,3 / II: 11,3 / 6,3 / 7,4 / 7,9 / 5,0 / 37,9 / III: 10,5 / 5,8 / 7,0 / 9,2 / 5,5 / 38,0 / IV: 13,3 / 6,7 / 10,5 / 14,8 / 6,1 / 51,4. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia p1-3-1ap; legs I femur p0-0-1, patella 0, tibia v0-0-1ap, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v1-1-2ap, p1-1-0, metatarsus v1-0-3ap, p0-1-0; III femur p0-0-1, r0-1-1, patella p1, r1, tibia v2-2-2ap, p1-1-1, r1-1-1, metatarsus v4-4-5(4ap), p1-1-1, r1-1-1; IV femur r1, patella r1, tibia v1-2-2(1ap), p0-1-1, r1-1-1, metatarsus v20(3ap), p1-1-1, r1-1-1.

Male spur branches straight (Fig. 125) originating from a common base, the retrolateral constricted in the middle. Metatarsus I curved, when flexed touches the retrolateral branch laterally. Male palpal bulb pyriform, embolus short, tapering gradually, flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles. Male palpal bulb with an accentuated D (Figs. 127-128). Types I and III urticating hairs (Figs. 2, 4) present, the type III restricted to a small area of the abdomen. Tibiae IV slightly thickened. Carapace covered by short slender hairs; bordered by short hairs pointing out (Fig. 16). Legs ventrally covered by many long hairs. Coxae and sternum covered by short hairs. Carapace and legs black. Sternum, coxae and abdomen ventrally grayish. Leg rings on the apex of the femora, patellae and tibiae hardly distinct. Longitudinal leg stripes hardly distinct.

Female (Paratype) - Total length: 56,1. Carapace: length 16,1, width 14,4. Eye tubercle: length 1,88, width 2,21. Labium: length 2,46, width 3,44. Sternum: length 8,25, width: 7,50. Fovea short, deep, straight. Cheliceral basal segments with 12-12 teeth. Legs I: femur 11,8 / patella 7,4 / tibia 7,8 / metatarsus 6,3 / tarsus 4,6 / total 37,9 / II: 10,3 / 6,7 / 6,7 / 5,9 / 4,2 / 33,8 / III: 10,0 / 6,5 / 6,2 / 6,2 / 4,2 / 33,1 / IV: 12,5 / 7,3 / 9,6 / 11,8 / 4,5 / 45,7. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-2ap, p1-2-2; legs I femur p0-0-1, patella 0, tibia v0-0-1ap, metatarsus v0-0-2ap; II femur p0-0-1, patella 0, tibia v0-1-0, metatarsus v0-1-3ap; III femur p0-0-1, r0-0-1, patella 0, tibia v0-1-2ap, p0-2-0, r1-1-1, metatarsus v2-3-3ap, p1-2-1, r0-1-1; IV femur r0-0-1, patella r1, tibia v0-1-1ap, r1-1-1, metatarsus v14(4ap), p0-1-1, r0-1-1. Spermathecae short, separated by a heavily sclerotized short area. SS narrower than SB (Fig. 126). Type I urticating hair present (type III vestigial). Tibiae IV slightly thickened. Color and hair patterns as in the male.

Distribution. Brazil: Apparently limited to the vicinity of the City of Curitiba, State of Paraná (Figs. 170, 173).

Records: Brazil: *São Paulo*: Jundiaí, 1 ♂ (IBSP 2278-B); *Paraná*: 2 ♂ (IBSP 3939); Iratí, 1 ♂ (IBSP 6829); Curitiba, 1 ♂ (IBSP 6826), 1 ♀ (IBSP 6827), 1 ♂ (IBSP 6828), 2 ♀ (IBSP 4392), 1 ♂ (IBSP 6898); Morretes, Serra da Prata, 1 ♀, 1946, Goffergé col. (MNRJ s/ nr.); Araucária, 1 ♂ (IBSP 2927).

Nomina Dubia

Pamphobeteus platyomma Mello-Leitão

Pamphobeteus platyomma Mello-Leitão, 1923:228 (holotype juvenile male from Ilha de São Sebastião (now Ilhabela), State of São Paulo, Brazil, MZSP 155, Fr. Gunther col., examined). - Roewer, 1942:252. - Bücherl, 1949:117-135, figs. 1-3, T. 1-3. - Platnick, 1989:107. - 1993:111.
Vitalius platyomma; Lucas *et al.* 1993:241-245, figs. 1-3 (misidentification). - Platnick, 1997:171.

Remarks - See remarks under *Vitalius wacketi.*

Pamphobeteus rondoniensis Mello-Leitão

Pamphobeteus rondoniensis Mello-Leitão, 1923:230 (holotype female from Campo Grande, Mato Grosso do Sul, Brazil, should be deposited in MNRJ, not located). - Roewer, 1942:253. - Bücherl, 1947a:255.
Vitalius rondoniensis; Lucas *et al.* 1993:241-245, figs. 1-3. - Platnick, 1997:171.

Because the holotype of *Pamphobeteus rondoniensis* is probably lost and its description is insufficient, this species is considered *nomen dubium.*

Pamphobeteus tetracanthus Mello-Leitão

Pamphobeteus tetracanthus Mello-Leitão, 1923:238 (holotype female from São Paulo, State of São Paulo, Brazil, should be deposited in MNRJ, not located). - Roewer, 1942:253. - Bücherl, 1947a:257. - Platnick, 1989:107. - Platnick, 1993:111.
Vitalius tetracanthus; Lucas *et al.* 1993:241-245, figs. 1-3. - Platnick, 1997:171.

Remarks - See remarks under *Vitalius dubius*.

Pamphobeteus exsul Mello-Leitão

Pamphobeteus exsul Mello-Leitão, 1923:240 (holotype female from "south of Brazil", should be deposited in MNRJ, not located). - Roewer, 1942:252. - Bücherl, 1947a:258 (syn. with *Pamphobeteus cesteri*)- Platnick, 1993:111.

Remarks - Because the holotype of *Pamphobeteus exsul* is probably lost and its description is insufficient this species is considered *nomen dubium*.

Nhandu Lucas

Nhandu Lucas, 1981:157, Figs. 1-5; type species *Nhandu carapoensis* Lucas, 1981, by original designation and monotypy. - Raven, 1985:156 (syn. with *Mygalarachne*). - Schmidt, 1989:29-33. - 1990a:3-5. - 1990b:8-12.- Pérez-Miles *et al.*, 1996:53, Fig. 30 (revalidated).

Brazilopelma Schmidt, 1998a:1, figs. 1-3; type species *Brazilopelma coloratovillosum* Schmidt, 1998, by original designation and monotypy. - Schmidt & Samm, 1998a:7-12, figs. 1-3. *Syn. n.*

Diagnosis - Males can be distinguished from species of other theraphosine genera except *Proshapalopus*, *Lasiodora*, and *Vitalius* by the presence of a triangular SA (Figs. 131-132). From *Lasiodora* they can be distinguished by the absence of stridulatory hairs on the superior region of the prolateral coxae I and II (Fig. 27); from *Proshapalopus* by the absence of a AC (Fig. 65); and from *Vitalius*, except *V. lucasae*, by the absence of male spur or, if present, by the straight spur branches originating from a common base, the retrolateral constricted in the middle (Fig. 133). From *V. lucasae* they can be distinguished by lacking an accentuated D. Females can be distinguished by having the presence of retrolateral scopulae on the femur IV; absence of stridulatory hairs on the superior region of the prolateral coxae I and II (Fig. 27); spermathecae separated by a heavily sclerotized short area; and many long, curly, scattered hairs, over the carapace (Fig. 18).

Description - Cephalothorax longer than wide, cephalic region slightly raised, convex. Cephalic and thoracic striae distinct. Fovea short; deep; straight, slightly recurved or procurved. Chelicerae without rastellum, basal segments with 10 to 13 teeth. Eye tubercle distinct, wider than long. Clypeus absent. Anterior eye row procurved, posterior recurved. AME rounded, the same size as ALE and PLE that have an oval shape. PME small, oval. Labium subquadrate, slightly wider than long, with numerous (more than 100) cuspules on its anterior half. Maxila subretangular, anterior lobe distinctly produced into conical process, inner angle bearing numerous cuspules (more than 100). Sternum longer than wide, anterior sigilla on the sternum/labium edge. Other sigilla submarginal, the second pair smaller than the third that is smaller than the fourth. PMS one-segmented, short; PLS three-segmented, basal segment longer than the apical, both longer than the median. Apical segment digitiform. Leg tarsi without spines, claw tufts present; STC with a median row of few small teeth. Tarsi I-IV and metatarsi I-II scopulated, metatarsus III scopulated along half its length, metatarsus IV apically scopulated. Femur IV with retrolateral scopula. Prolateral leg coxae and retrolateral palpal trochanter without stridulatory hairs. Male spur with straight branches originating from a common base, the retrolateral constricted in the middle (*N. vulpinus*, *N. coloratovillosus*, and *N. cerradensis*) (Fig. 133), or male spur absent (N. *carapoensis*) (Fig. 129). Metatarsi I straight (*N. carapoensis*) or curved (other species), when flexed touches the apex of the retrolateral branch (*N. coloratovillosus* and *N. cerradensis*) (Fig. 133) or the retrolateral branch laterally (*N. vulpinus*) (Fig. 137). Male palpal bulb pyriform, embolus short, slightly flattened distally. Prolateral keels present, the PS forming the embolus edge distally. AC absent. R present, pronounced, sharp. A present, medially developed. SA well-developed, bordered by small denticles (Fig. 131-132). Spermathecae long (*N. vulpinus* and *N. coloratovillosus*, Fig. 138) or short (other species, fig. 130), separated by a heavily sclerotized short area. SS narrower than SB (*N. cerradensis*, Fig. 134) or SS indistinct, as wide as SB (other species, Fig. 130). Types I and III urticating hairs (Figs. 2, 4) present in males and females (*N. vulpinus*, *N. coloratovillosus*, and *N. cerradensis*) or type III vestigial in females (*N. carapoensis*). Type I urticating hair with the region "a" longer or equal to the region "b". Female carapace covered by short slender hairs and some very long, curly, scattered hairs; bordered by some long hairs ponting out and other pointing to the center of the carapace (Fig. 18). Tibiae IV not thickened. Legs dorsally and ventrally covered by many long hairs.

Constitution: four species.

Key to *Nhandu* Species

Males

1. Male spur absent (Fig. 129).....*N. carapoensis*
- Male spur present.....2

2(1). Metatarsus I touching the retrolateral male spur branch apex when flexed (Fig. 133).....3
- Metatarsus I touching the retrolateral male spur branch laterally when flexed (Fig. 137).....*N. vulpinus*

3(2). General dorsal color pattern blackish with white rings on the patellae and tibiae .....*N. cerradensis*
- General dorsal color pattern blackish with wide whitish bands on the patellae and tibiae.....*N. coloratovillosus*

Females

1. Long spermathecae (Fig. 138); legs with wide whitish bands on the patellae and tibiae.....2
- Short spermathecae (Fig. 130); leg with rings present on the patellae and tibiae.....3

2(1). Dark legs with wide whitish bands on the patellae and tibiae (Fig. 192)..... .....*N. coloratovillosus*
- Light-brown legs with hardly distinct wide bands on the patellae and tibiae (Fig. 191).....*N. vulpinus*

3(1). Spermathecae stalk indistinct, as long as spermathecae bulb (Fig. 130); general color pattern brown, with leg rings on the patellae and tibiae hardly distinct (Fig. 189); type III urticating hair (Fig. 2) absent..... .....*N. carapoensis*
- Spermathecae stalk narrower than spermathecae bulb (Fig. 134); general color pattern blackish, with very conspicuous white rings on the patellae and tibiae (Fig. 190); type III urticating hair present..... .....*N. cerradensis*

Nhandu carapoensis Lucas
Figs. 129-132, 188

Nhandu carapoensis Lucas, 1981:157, Figs 1-5 (holotype IBSP 4611 and paratypes IBSP 4661 and IBSP 4553, Caarapó, Mato Grosso do Sul, Brazil, Souza Dias and Pellici col; examined. - Schmidt, 1989:29-33. - 1990a:3-5. - 1990b:8-12 . - Pérez-Miles *et al.*, 1996:53, fig. 30.

Mygalarachne carapoensis; Raven, 1985:156; Platnick, 1989:106.

Sericopelma carapoense; Platnick, 1997:169.

Diagnosis - Males can be distinguished from other *Nhandu* species by the absence of a male tibial spur on leg I (Fig. 129). Females can be distinguished by short spermathecae lacking constriction in the middle (Fig. 130).

Description - Male (Paratype, IBSP 4661) - Total length: 54,7 Carapace: length 21,0, width 19,5. Eye tubercle: length 2,13, width 2,70. Labium: length 2,87, width 3,52. Sternum: length 9,00, width: 8,55. Fovea short, deep, slightly recurved. Cheliceral basal segments with 11-10 teeth. Legs I: femur 17,3 / patella 9,5 / tibia 12,0 / metatarsus 13,1 / tarsus 8,3 / total 60,2 / II: 15,8 / 8,5 / 11,2 / 12,7 / 7,8 / 56,0 / III: 14,5 / 7,9 / 10,6 / 13,8 / 7,5 / 54,3 / IV: 17,6 / 8,8 / 14,1 / 20,4 / 8,6 / 69,5. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia p0-2-1; legs I femur p0-0-1, patella v1, p2, tibia v24(7ap), p2-1-1, metatarsus v7-0-2ap; II femur p0-0-2, patella v1, p3, tibia v14(4ap), p1-1-2, metatarsus v5-0-3ap, p1-1-1; III femur p0-0-1, r0-0-1, patella p1, r1, tibia v9(2ap), p1-1-1, r1-1-1, metatarsus v16(6ap), p1-2-1, r0-1-1; IV femur r0-0-1, patella 0, tibia 10(4ap), p0-1-1, r1-1-1, metatarsus v=25(3ap), p0-1-1, r0-1-1. Male tibial spur absent on leg I (Fig. 129). Metatarsus I straight. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, triangular, bordered by small denticles (Figs. 131-132). Type I and III urticating hairs present (Figs. 2, 4), type I with the region "a" longer than region "b". Carapace covered by short slender hairs; bordered by short hairs pointing out. Legs with femora distally thickened, dorsally and ventrally covered by many long hairs. Coxae and sternum covered by short slender hairs. Carapace, legs, sternum, coxae and abdomen ventrally reddish brown, legs covered by long reddish hairs. Leg rings and longitudinal stripes hardly distinct.

Female (Paratype, IBSP 4553) - Total length: 50,0. Carapace: length 21,2, width 20,2. Eye tubercle: length 2,21, width 2,78. Labium: length 3,36, width 4,10. Sternum: length 9,75, width: 9,00. Fovea short, deep, slightly recurved. Cheliceral basal segments with 13-12 teeth. Legs I: femur 15,2 / patella 9,1 / tibia 10,5 / metatarsus 9,7 /tarsus 6,0 / total 50,5 / II: 13,9 / 8,5 / 9,4 / 9,4 / 6,2 / 47,4 / III: 12,5 / 7,9 / 8,7 / 10,9 / 6,6 / 46,6 / IV: 15,3 / 8,2 / 12,1 / 13,6 / 5,2 / 54,4. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella p1, tibia v0-0-3ap, p0-2-1; legs I femur p0-0-2, patella 0, tibia 0, metatarsus v0-0-1ap; II femur p0-0-2, patella 0, tibia v0-1-2ap, p1-1-1, metatarsus v1-0-3ap; III femur p0-0-1, r0-0-1, patella 0, tibia v0-3-1ap, p1-1-1, r0-1-1, metatarsus v1-2-12ap, p1-0-1, r0-1-1; IV femur r0-0-2, patella 0, tibia v1-5-1ap, p0-1-0, r1-1-1, metatarsus v=12. Spermathecae short, separated by a heavily sclerotized short area. SS indistinct, as wide as SB (Fig. 130). Type I urticating hair (Fig. 4) present with the region " a" longer than the region "b". Color and hair pattern

as in male except for the presence of very long curly hairs scattered over the carapace and on the border, some pointing out and others pointing to the carapace center (Fig. 18).

Distribution: Brazil: Brazilian "Pantanal matogrossense" and Brazilian "campos" and "cerrados" from the States of Mato Grosso do Sul and São Paulo; Paraguay: Chaco (Fig. 168).

Records: Brazil, *Mato Grosso do Sul*: Pedro Gomes, 1 ♂ (IBSP 4707); Agachi, 1 ♀ (IBSP 3049), 1 ♂ J (IBSP 4266), 1 ♀ (IBSP 3019), 1 ♀ (IBSP 2981), 1 ♀ (IBSP 3005), 1 ♀ (IBSP 3047); Miranda, 1 ♂ (IBSP 6551), 1 ♂ (MZSP 14892), 1 ♂ (MZSP 14893); Aquidauana, 1 ♀ (IBSP 213), 1 ♀ (IBSP 1434); Piraputanga, 2 ♂ (IBSP 6555); Cachoeirão, 1 ♂ (IBSP 3142); Campo Grande, 1 ♂ J (IBSP 3812), 1 ♂ (IBSP 4647), 1 ♀ (IBSP 2780), 1 ♀ (IBSP 3125), 1 ♀ (IBSP 6554); Campo Grande, Candelária, 1 ♂ J (IBSP 1541); Água Clara, 1 ♀ (IBSP 3058); Bonito, 1 ♂ (IBSP 6553); Nioaque, 1 ♂ (IBSP 4246), 1 ♂ (IBSP 6552); Sidrolândia, 1 ♂ (MZSP 10868); Maracajú, 1 ♂ (IBSP 3766); Dourados, 1 ♂ (IBSP 6556); Caarapó, 1 ♂ (IBSP 4611, holotype of *Nhandu carapoensis*, Lucas 1981), 1 ♂ (IBSP 4661, paratype of *N. carapoensis*), 1 ♀ (IBSP 4553, paratype of *N. carapoensis*); *São Paulo*: Franca, 1 ♀ (IBSP 597), 1 ♀ (IBSP 1192); Sertãozinho, 1 ♀ (IBSP 6560); Lins, 1 ♂ (IBSP 245); Araras, 1 ♂ (IBSP 6559); Arcadas, 1 ♂ (IBSP 3178); Baurú, 1 ♂ (IBSP 2232), 1 ♀ (IBSP 2253), 1 ♀ (IBSP 2269-A), 1 ♀ J (IBSP 1810-B); Rio Claro, 1 ♀ (IBSP 1032); Capivarí, 1 ♂ (IBSP 3417); Cardeal, 1 ♀ (IBSP 3083); Paraguai, Assumpcion, 1 ♂ J (IBSP 2366).

Nhandu cerradensis sp. n.
Figs. 133-136, 190

Holotype. Male, IBSP 6889, Alto Paraíso de Goiás, Goiás, Brazil, C. Nogueira col. Paratype. Female, IBSP 4108, Formoso Goiás, Brazil, 25/V/1973, Avilândia Agr. Pastoril Ind. Com. Ltda leg.

Etymology - The specific name is a noun in apposition taken from the "cerrado", a savanna-like Brazilian vegetation type occurring in the regions where this species inhabits.

Diagnosis - Males can be distinguished from *N. carapoensis* by the presence of a male tibial spur (Fig. 133); from *N. vulpinus* by the metatarsus I touching the apex of the retrolateral male spur branch, when flexed; and, from *N. coloratovillosus* by the color pattern showing white conspicuous leg rings over a dark background. Females can be distinguished from *N. vulpinus* and *N. coloratovillosus* by the short spermathecae (Fig. 134), and from *N. carapoensis* by the SS narrower than SB and also by the presence of very conspicuous white leg rings over a dark background on the legs.

Description - Male (holotype) - Total length: 43,8. Carapace: length 18,1, width 16,3. Eye tubercle: length 1,88, width 2,46. Labium: length 2,29, width 2,95. Sternum: length 7,65, width: 7,20. Fovea short, deep, slightly recurved. Cheliceral basal segments with 12-10 teeth. Legs I: femur 15,9 / patella 8,6 / tibia 11,6 / metatarsus 11,8 / tarsus 7,1 / total 55,0 / II: 14,4 / 7,7 / 10,8 / 11,1 / 7,0 / 51,0 / III: 13,0 / 6,7 / 10,0 / 12,2 / 6,6 / 48,5 / IV: 16,0 / 7,4 / 13,1 / 17,7 / 7,6 / 61,8. Spines: tarsi lacking spines. Palpal femur p0-0-2, patella v1ap, p1, tibia v0-4-3, p4-2-1; legs I femur p0-0-1, patella v3, tibia v11(3ap), p1-0-1, r1-1-1; metatarsus v0-0-1ap, p1-0-0; II femur p0-0-1, patella v1, p1, tibia v13(5ap), p0-2-1, r1-1-1, metatarsus v2-0-3ap, p2-0-0, r2-0-0; III femur p0-1-2, r0-0-1, patella r1, tibia v13(4ap), p1-1-1, r1-1-1, metatarsus v2-3-3ap, p1-1-1, r1-1-1; IV femur r0-0-1, patella 0, tibia v12(4ap), p1-1-1, r1-1-1, metatarsus v24(4ap), p1-1-1, r0-1-1. Male spur branches straight (Fig. 133) originating from a common base, the retrolateral constricted in the middle. Metatarsus I curved, when flexed touches the retrolateral branch apex. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, triangular, bordered by small denticles (Figs. 135-136). Type I and III urticating hairs (Figs. 2, 4) present, type I with the region "a" longer than region "b". Carapace covered by short slender hairs, bordered by short hairs pointing out. Legs ventrally covered by many long hairs. Coxae and sternum covered by short slender hairs. Carapace and legs black. Sternum, coxae, and abdomen ventrally grayish. Leg rings very distinct on the femora, patellae, and tibiae apex. Longitudinal leg stripes hardly distinct.

Female (Paratype) - Total length: 52,4. Carapace: length 19,8, width 17,8. Eye tubercle: length 2,13, width 2,87. Labium: length 3,03, width 3,28. Sternum: length 8,70, width: 8,25. Fovea short, deep, procurved. Cheliceral basal segments with 10-10 teeth. Legs I: femur 15,2 / patella 9,3 / tibia 11,1 / metatarsus 9,9 / tarsus 6,1 / total 51,6 / II: 13,3 / 8,0 / 9,2 / 9,3 / 5,9 / 45,7 / III: 12,4 / 7,8 / 8,8 / 10,6 / 6,1 / 45,7 / IV: 15,8 / 8,6 / 12,4 / 16,0 / 7,0 / 59,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-4ap, p1-2-1; legs I femur p0-0-1, patella 0, tibia v0-1-2ap, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v1-0-2ap, p1-1-0, metatarsus v1-0-3ap; III femur p0-0-1, r0-0-1, patella 0, tibia v1-2-3ap, p1-1-1, r1-1-1, metatarsus v2-2-3ap, p2-1-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v0-3-2ap, p0-1-0, r1-1-1, metatarsus v15(1ap), p0-1-1, r0-1-1. Spermathecae

short, separated by a heavily sclerotized short area. SS narrower than SB (Fig. 134). Urticating hair of the type I and III (Figs. 2, 4) present, the type I with the region "a" longer than the region "b". Color and hair pattern as in the male except for the presence of very long curly hairs scattered over the carapace and on the margin, some pointing out and others to the carapace center (Fig. 18). All legs with many very long curly hairs on the ventral and dorsal sides, giving them a very hirsute aspect. Leg rings white, more conspicuous than in males.

Distribution: Brazil: Brazilian "cerrados" from central and northern State of Goiás (Fig. 168).

Records: Brazil, *Amazonas*: Presidente Figueiredo, U. H. E. Balbina, 1 ♂, X/1987, L. F. Alvarenga & J. A. F. Costa col. (MNRJ 13.259); *Goiás*: Porangatú, 1 ♂ (IBSP 3809); Formoso, 1 ♀ (IBSP 4108); Minuaçú, U. H. E. Serra da Mesa, 1♂, 21.I.88, D. F. de Morais col. (MNRJ s/nr.), 3 ♂ 1 ♀ 1 juvenile (MZSP 18315), 1 ♀ (MZSP 18316), 1 ♀ (MZSP 18317), 1 ♀ (MZSP 18318), 2 ♂ (MZSP 18319); Alto Paraíso de Góias, 1 ♂ (IBSP 6889); Goiás, 1 ♂ (IBSP 6888); *Bahia*: 1 ♀ (IBSP 2716).

Nhandu vulpinus (Schmidt) comb. n.
Figs. 137-140, 191

Vitalius vulpinus Schmidt, 1998b: 1, figs. 1-3 (holotype, exuvia of a female from Pará, Northern Brazil, M. Baumgarten col. 1997, in the Senckenberg Museum, Frankfurt/Main, not examined. - Schmidt & Samm, 1998b:2-6, figs. 1-3 (desc.♂).

Diagnosis - Males can be distinguished from *N. carapoensis* by the presence of a male tibial spur, and from *N. coloratovillosus* and *N. cerradensis* by the metatarsus I touching the retrolateral male spur branch laterally, when flexed (Fig. 137). Females can be distinguished from *N. carapoensis* and *N. cerradensis* by the presence of long spermathecae (Fig. 138) and from *N. coloratovillosus* by the color pattern being less contrasting, with leg bands hardly distinct.

Description - Male (IBSP 4779) - Total length: 50,9 Carapace: length 23,2, width 21,3. Eye tubercle: length 2,46, width 3,28. Labium: length 3,28, width 3,36. Sternum: length 10,05, width: 9,00. Fovea short, deep, slightly recurved. Cheliceral basal segments with 12-10 teeth. Legs I: femur 22,5 / patella 11,3 / tibia 17,9 / metatarsus 17,2 / tarsus 9,4 / total 78,3 / II: 20,5 / 10,3 / 16,2 / 16,8 / 9,3 / 73,1 / III: 18,8 / 9,2 / 14,9 / 18,8 / 8,6 / 70,3 / IV: 22,4 / 10,1 / 19,1 / 26,0 / 9,8 / 87,4. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-3, p1-4-4, d0-0-1; legs I femur p0-0-1, patella 0, tibia v1-3-1ap, p0-1-0, r0-1-1, metatarsus v0-0-1ap; II femur p0-0-1, patella 0, tibia v2-2-4ap, p1-1-1, metatarsus v1-0-3ap; III femur p0-0-1, r0-0-1, patella r1, tibia v15(3ap), p1-1-1, r1-1-1, metatarsus v1-3-3ap, p1-1-1, r1-1-1; IV femur r0-0-1, patella 1r, tibia v14(5ap), p1-1-1, r1-1-2, metatarsus v=29(4ap), p1-1-1, r1-1-1. Male spur branches straight (Fig. 137) originating from a common base, the retrolateral constricted in the middle. Metatarsus I curved, touching laterally the retrolateral branch when flexed. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, triangular, bordered by small denticles (Figs. 139-140). Types I and III urticating hairs present (Figs. 2, 4), type I with the region "a" longer than region "b". Carapace covered by short slender hairs and some very long curly hairs; bordered by short hairs pointing out. Legs covered by many long hairs dorsally and ventrally. Coxae and sternum covered by short slender hairs. Carapace and legs brown, covered by long reddish hairs, femora darker. Sternum, coxae and abdomen ventrally brown. Legs lacking rings, with large whitish bands hardly distinct instead. Longitudinal leg stripes hardly distinct.

Female (IBSP 7036) - Total length: 81,0. Carapace: length 26,5, width 22,7. Eye tubercle: length 2,87, width 3,52. Labium: length 4,34, width 4,51. Sternum: length 11,7, width: 10,05. Fovea short, deep, straight. Cheliceral basal segments with 11-11 teeth. Legs I: femur 19,0 / patella 11,2 / tibia 14,7 / metatarsus 13,8 / tarsus 7,5 / total 66,2 / II: 17,4 / 10,3 / 12,3 / 13,2 / 7,1 / 60,3 / III: 15,5 / 9,8 / 11,6 / 15,0 / 6,8 / 58,7 / IV: 18,4 / 10,0 / 15,8 / 20,3 / 7,3 / 71,8. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-0-2ap, p1-1-1; legs I femur 0, patella 0, tibia v0-0-2ap, p0-1-0, metatarsus v0-0-1ap; II femur 0, patella 0, tibia v01-1ap, p1-1-1, metatarsus v1-0-2ap; III femur r0-0-1, patella 0, tibia v1-2-3(2ap), p1-1-1, r1-1-1, metatarsus v4-0-4ap, p1-1-1, r0-1-1; IV femur 0, patella 0, tibia v0-2-6(4ap), p0-0-1, r0-1-1, metatarsus v20(3ap), p0-1-1, r0-2-1. Spermathecae long, separated by a heavily sclerotized short area. SS indistinct, as wide as SB (Fig. 138). Type I and III urticating hair (Figs. 2, 4) present, the type I with the region "a" longer than the region "b". Color and hair pattern as in the male except for the number of very long curly hairs scattered over the carapace being higher as well as on the carapace border (Fig. 18).

Remarks - Schmidt (1998b) described the female and diagnosed this species based on color pattern and the unusual spermathecae shape. He also called attention to the absence of type III urticating hair, which was present in his newly

described genus *Brazilopelma*. Schmidt & Samm (1998b) described the male and introduced in the diagnosis the presence of one adjacent thick thorn on the retrolateral face of the prolateral branch of the male spur; the metatarsus I touching laterally the retrolateral branch of the male spur when flexed; and, the presence of a modified type I urticating hair, similar to the one he found on the male of *Brazilopelma coloratovillosum* (= *Nhandu coloratovillosus*).

This species is transferred here to the genus *Nhandu* because it shares with *Vitalius* only the character "metatarsus I touching the retrolateral branch of the male spur laterally", a homoplasy, as suggested by the cladistic analysis carried out in this paper. Otherwise, this species shares with other *Nhandu* species the morphology of male spur, the palpal bulb shape, the spermathecae shape, and the presence of long hairs over the carapace in females. Other character presented by Schmidt & Samm (1998b), "presence of one adjacent thick thorn on the retrolateral face of the prolateral branch of the male spur", is a plesiomorphy. All species examined in this work have one or more spines in this region of the male spur, as can be seen in fig. 62. They also have one or more almost apical spines on the retrolateral spur branch.

Schmidt (1998b) and Schmidt & Samm (1998b) also failed to find type III urticating hair in the specimens they examined, thus approximating this species to *Vitalius*. As shown in "Results and Discussion", the type III urticating hair is restricted to the posterior superior abdominal region. Thus, if the specimen has this region bald, due to the defensive behavior of shedding urticating hairs, it is impossible to know with certainty if the species has it or not. The absence of type III urticating hair found by Schimidt (1998b) and Schmidt & Samm (1998b) was probably due to the small number of specimens examined, a male, and a female exuvia (holotype). Adult males do not molt anymore, thus, hardly have the hair field intact. Exuviae constantly break and wrap during the molting process resulting in an enormous difficulty in identifying the different hair field, and should not be considered as holotype, as they can present misinformation for some characters.

Schmidt & Samm (1998b) also found a modified type I urticating hair in males of *N. vulpinus* and *N. coloratovillosus*. It was found in this study that this is just a variation exhibited by males, as discussed before under "urticating hairs" in "Results and Discussion", i. e. urticating hairs with intermediate morphology between the types I and III (Fig. 5).

The main diagnostic character presented by Schmidt (1998b) for his new species, the spermathecae shape, is discussed under *Nhandu coloratovillosus*.

Structural Anomaly - In VIII/1995 the Instituto Butantan received four female specimens from Açailândia, State of Maranhão, Brazil. One of these specimens completely lacks eyes and eye tubercle. Its predatory and defensive behaviors are apparently normal. The specimen molted three times in three years and did not regenerate these structures.

Distribution: Brazil: Amazon Forest, from northeast of State of Pará to northwest State of Maranhão (Fig. 168).

Records: Brazil, *Pará*: 1 ♂ (IBSP 6575); Belém, 1 ♂ (IBSP 3573), 1 ♂ (IBSP 3767), 1 ♂ 2 ♀ (IBSP 4245), 1 ♂ (IBSP 4779), 1 ♀ (IBSP 6561); Jacundá, 1 ♀ (IBSP 4698); Dom Eliseu, 1 ♀ (IBSP 6566), 1 ♀ (IBSP 6567); Tucuruí (U. H. E. Tucuruí, Acamp. Canoal), 1 ♀ (IBSP 6562); Tucuruí (U. H. E. Tucuruí, Vale do Caraipé), 1 ♂ (IBSP 6564); Tucuruí (U. H. E. Tucuruí, Remansão), 1 ♀ (IBSP 6565); Tucuruí (U. H. E. Tucuruí, Vila Bravo), 1 ♀ (IBSP 6568), 1 ♂ (IBSP 6569), 1 ♀ (IBSP 6573), 1 ♂ (IBSP 6574), 1 ♀ (IBSP 6577); Tucuruí (U. H. E. Tucuruí, Breu Branco), 1 ♀ (IBSP 6571); Tucuruí (U. H. E. Tucuruí), 1 ♂ (IBSP 6576), 1 ♀ (IBSP 6578), 1 ♀ (IBSP 7036); *Maranhão*: 1 ♂ (IBSP 3761); Peri-Mirim, Fazenda Canaã, 1 ♂ (IBSP 3620).

Nhandu coloratovillosus (Schmidt) comb. n.
Figs. 141-144, 192

Brazilopelma coloratovillosum Schmidt, 1998a:1, fig. 1 (3 exuviae of the female holotype from Northern Brazil deposited in the Senckenberg Museum, Frankfurt/Main, M. Baumgarten col.); not examined. - Schmidt & Samm, 1998a:7-12, figs. 1-3 (descr. ♂).

Diagnosis - Males can be distinguished from *N. carapoensis* by the presence of male spur (Fig. 141); from *N. vulpinus* by the metatarsus I touching the apex of the retrolateral male spur branch, when flexed; and, from *N. cerradensis* by the color pattern presenting wide bands on the legs instead of leg rings. Females can be distinguished from *N. carapoensis* and *N. cerradensis* by having long spermathecae (Fig. 142) and from *N. vulpinus* by the contrasting color pattern, showing distinct wide white bands over dark background on the legs.

Description - Male (IBSP 6581) - Total length: 43,7. Carapace: length 19,5, width 18,4. Eye tubercle: length 2,00, width 2,87. Labium: length 2,29, width 3,11. Sternum: length 9,00, width: 7,80. Fovea short, deep, recurved. Cheliceral basal segments with 10-10 teeth. Legs I: femur 17,8 / patella 9,2 / tibia 13,4 / metatarsus 12,8 / tarsus 8,7

/ total 61,9 / II: 16,2 / 8,4 / 11,8 / 12,3 / 7,3 / 56,0 / III: 14,7 / 7,8 / 11,4 / 14,1 / 7,7 / 55,7 / IV: 17,5 / 8,8 / 14,9 / 19,8 / 8,0 / 69,0. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia p1-3-8ap; legs I femur p0-0-1, patella 0, tibia v0-3-2ap, p0-1-0, metatarsus v1-0-1ap; II femur p0-0-1, patella 0, tibia v0-3-3ap, p0-1-1, metatarsus v3-0-3ap; III femur p0-0-1, r0-0-1, patella r1, tibia v1-3-3ap, p1-1-1, r1-1-1, metatarsus v6-0-2ap, p1-1-1, r0-1-1; IV femur r0-0-1, patella 0, tibia v0-3-6ap, p1-1-1, r1-1-1, metatarsus v21(4ap), p0-1-1, r0-1-1. Male spur branches straight (Fig. 141) originating from a common base, the retrolateral constricted in the middle. Metatarsus I curved, touching the retrolateral branch apex when flexed. Male palpal bulb pyriform, embolus short, slightly flattened laterally at the distal region. Prolateral keels present, the PS forming the embolus edge distally. R present, pronounced, sharp. A present, medially developed. SA well-developed, triangular, bordered by small denticles (Figs. 143-144). Type I and III urticating hairs (Figs. 2, 4) present, type I with the region "a" longer than region "b". Carapace covered by short slender hairs and some very long curly hairs; bordered by short hairs pointing out. Legs dorsally and ventrally covered by many long hairs. Coxae and sternum covered by short slender hairs. Carapace dark brown with the margin light brown. Sternum, coxae and abdomen ventrally gray. Femora dorsally black, prolateral faces of femora I and II black; retrolateral and ventral faces of the femora I and II black; retrolateral, prolateral, and ventral faces of the femora III and IV pinkish gray. Patellae dorsally brown on the base and pinkish on the apex. Tibiae dorsally brown with basal area and pinkish apex. Metatarsi dorsally with pinkish basal and apical areas, median region brown. Tarsi dorsally pinkish on the base, apex brown. Ventral, prolateral, and retrolateral faces of the tibiae, metatarsi and tarsi grayish. Legs lacking rings, with large whitish bands instead. Longitudinal leg stripes distinct.

Female (IBSP 7018) - Total length: 58,9. Carapace: length 21,8, width 20,0. Eye tubercle: length 2,54, width 3,19. Labium: length 2,70, width 4,10. Sternum: length 10,05 width: 9,15. Fovea short, deep, procurved. Cheliceral basal segments with 12-11 teeth. Legs I: femur 16,1 / patella 9,4 / tibia 11,8 / metatarsus 10,5 / tarsus 6,7 / total 54,5 / II: 14,1 / 8,8 / 9,8 / 9,6 / 5,9 / 48,2 / III: 13,4 / 8,2 / 9,2 / 11,3 / 6,0 / 48,1 / IV: 16,4 / 8,9 / 12,5 / 16,3 / 5,2 / 59,3. Spines: tarsi lacking spines. Palpal femur p0-0-1, patella 0, tibia v0-1-4ap, p1-2-0; legs I femur p0-0-2, patella 0, tibia v1-1-2ap, metatarsus v0-0-3ap; II femur p0-0-1, patella 0, tibia v0-2-3ap, p0-1-1, metatarsus v0-0-3ap, p0-1-1; III femur r0-0-1, patella r1, tibia v2-3-4(2ap), p2-1-1, r1-1-1, metatarsus v5-0-4ap, p1-1-1, r0-1-1; IV femur 0, patella r1, tibia v2-3-4(2ap), p1-1-1, r1-1-1, metatarsus v25(3ap), p1-2-1, r0-0-1. Spermathecae long, separated by a heavily sclerotized short area. SS indistinct, as wide as SB (Fig. 142). Type I and III urticating hair (Figs. 2, 4) present, type I with the region "a" longer than the region "b". Color and hair pattern as in the male except for the number of very long curly hairs scattered over the carapace being higher as well as on the carapace border (Fig. 18). The general color pattern in females is not so contrasting as in the males.

Remarks – Schmidt (1998a) described the female of *B. coloratovillosum* based on three female exuviae. His diagnosis was based on the typical spermathecae shape, the absence of stridulatory hairs, a retrolateral scopula on femur IV and the presence of type I and III urticating hairs. Schmidt & Samm (1998a) described the male and joined to the diagnosis; color pattern, a long median process on the prolateral male spur branch, the metatarsus I touching the middle of the retrolateral male spur branch, and modifications of the type I urticating hair.

Absence of stridulatory hairs and presence of type I and III urticating hairs as well as the presence of a retrolateral scopula on femur IV are plesiomorphic characters found in many theraphosine genera. The character of metatarsus I touching the apex of the retrolateral male spur branch when flexed is shared also by at least some species in the closer genera *Proshapalopus*, *Lasiodora*, and *Nhandu* (see character 15). The modifications of the type I urticating hair found by Schmidt & Samm (1998b) have been discussed under *Nhandu vulpinus*.

Thus, the only character which could give support to the genus *Brazilopelma* is the spermathecae shape. However, the spermathecae of *Nhandu vulpinus* and *Nhandu coloratovillosus* are very similar, almost indistinguishable (Figs. 138, 142), and seems to have been overlooked by Schmidt (1998b), who compared the spermathecae shape of his new genus with some *Vitalius* species, but not with the species he described a month later.

Nhandu coloratovillosus resulted after the cladistic analysis as sister species of *Nhandu vulpinus* sharing such apomorphies as the spermathecae shape and five or more spines positioned apically on the palpal tibia prolateral face in males. Thus, this species is transferred to *Nhandu* and consequently the genus *Brazilopelma* is considered a junior synonym of *Nhandu*.

Distribution: Brazil: Amazon Forest, from southern State of Pará to State of Tocantins, and east States of Mato Grosso and Mato Grosso do Sul, following the River Araguaia Valley (Fig. 168).

Records: Brazil, *Pará*: 1 ♂ (IBSP 4239-B); Marabá, Rod Transamazônica, 1 ♂ (IBSP 3984), 2 ♂ 1 ♀ (IBSP 4239-A), 5 ♂ (IBSP 4240); 1 ♂ 1 J,

IV/V.80, Paulo col. (MNRJ s/nr.); Carajás, 2 ♂ (IBSP 6580); Redenção / Conceição do Araguaia, 1 ♀ J (IBSP 6579); Santana do Araguaia, 1 ♂ (IBSP 4899); *Tocantins*: Palmas, 1 ♀ (IBSP 6583); Porto Nacional, 1 ♂ (IBSP 6581); Araguaçu - 1 ♀ (IBSP 6584); *Mato Grosso*: São Félix do Araguaia, 1 ♀ (IBSP 3734); Parque Nacional do Xingú, 1 ♂ (IBSP 2517); Santa Terezinha, Barra do Tapirapés, 1 ♂ (MZSP 3344); Faz. Betânia, between Rio Culuene e 7 de Setembro, 1 ♂ (IBSP 2748); Paranatinga, 1 ♀ (IBSP 6582); Barra do Garças, 1 macjho (IBSP 4078), 2 ♂ (IBSP 4241), 1 ♀ (IBSP 4403); *Mato Grosso do Sul*: Agachi, 1 ♀ (IBSP 512), 1 ♀ (IBSP 2958), 1 ♀ (IBSP 2959), 2 ♂ J (IBSP 2960); Rio Branco, 1 J (IBSP 3131).

NOMEN DUBIUM

Nhandu tripartitus Schmidt

Nhandu tripartitus Schmidt, 1997:1, fig. 1 (holotype and paratype: two exuviae of females, type locality and collectors unknown, institution of deposition not specified by the author).

Remarks - This species was described based on exuviae of two female specimens. The main diagnostic feature is the presence of three spermathecae, a character which is not found in other theraphosid species. The inclusion of this species in the genus *Nhandu* was done by the author on the premise that the unknown male should lack male spurs. However, the three spermathecae seem to be just a structural genitalic anomaly. Although rare, duplication of female external genitalia, where the two organs are side by side, were reported for other spiders, such as *Lycosa carolinensis* Walckenaer (Muma, 1943) and *Pardosa sagei* Gertsch & Wallace (Kaston, 1963). The lack of information regarding structural abnormalities in Theraphosidae seems to be due to the lack of reporting them, not the lack of the abnormalities themselves. For example, other structural anomalies such as an inverted, protruding fovea (see *Vitalius roseus*) and absence of eyes and eye tubercles (see *Nhandu vulpinus*) were found among the material examined for this paper. Thus, in the impossibility of knowing if this is a case of structural abnormality or not, and, until the male and the type locality of the type specimens are known thus allowing collection of further specimens, this species is considered *nomen dubium*.

Theraphosa Thorell

Mygale Latreille 1804:159 (in part *M. leblondi*).

Theraphosa Thorell, 1870:161; type species: *M. blondi* (Latreille, 1804).- Roewer, 1942:249.- Gerschman & Schiapelli, 1966:667-673.- 1967:481-494.- 1979:297, figs. 46-50.- Platnick, 1993:115.- 1997:170.

Pseudotheraphosa Tinter, 1991:6, figs. 1-10; type species *P. apophysis* Tinter, 1991, by original designation and monotypy; holotype male (SMNK 411) and paratype female (SMNK 412) in SMNK, examined. - Platnick, 1993:113. - 1997:167. *Syn. n.*

Diagnosis: Species of *Theraphosa* can be distinguished from species of all other theraphosine genera by the presence of stridulatory hairs on prolateral coxae I and II together with the presence of a single fused spermatheca in females (fig. 157, 161) or, if male, by the palpal bulb having the apical keel completely fused anteriorly with the prolateral superior keel (figs. 158, 159, 162, 163).

Constitution: two South American species.

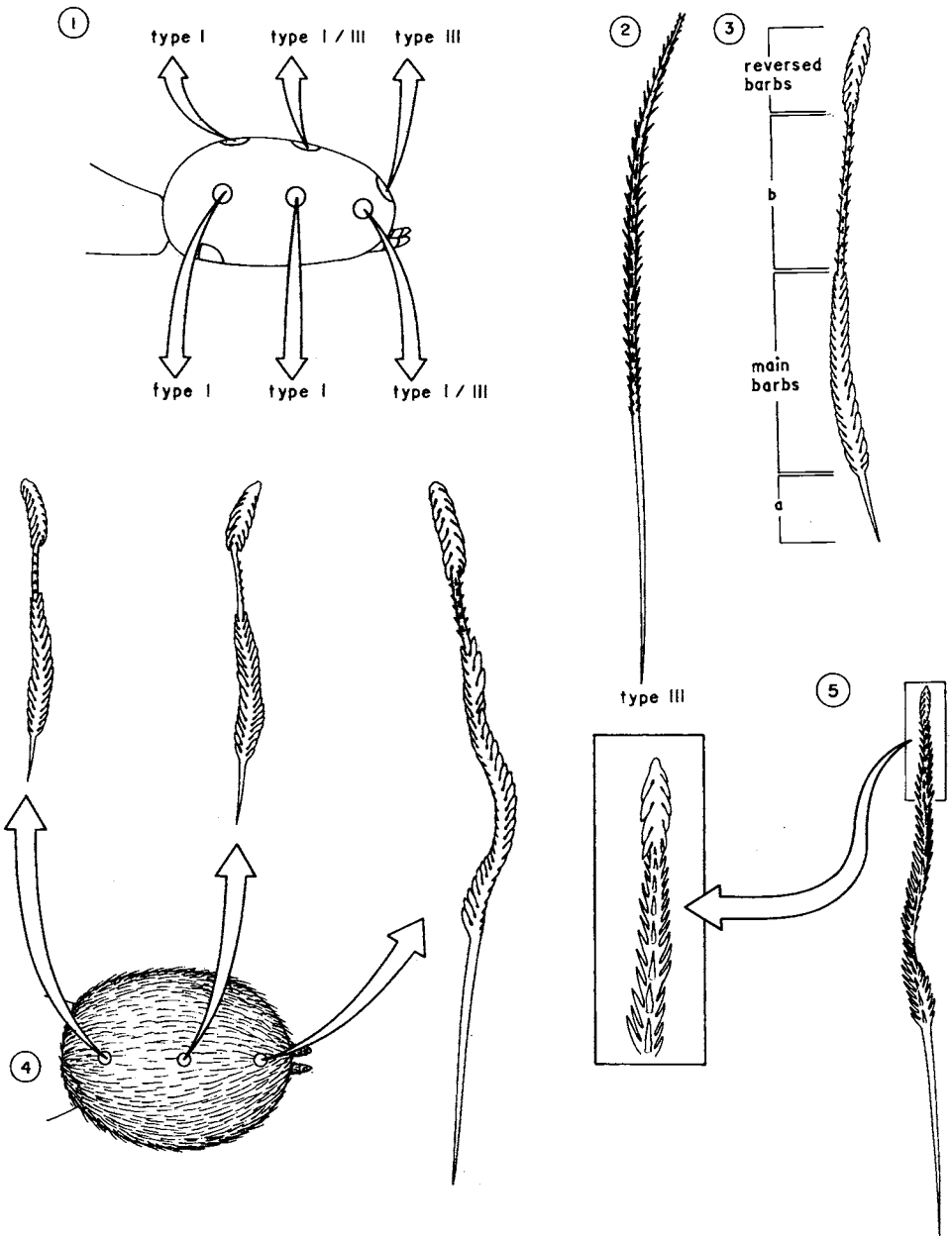
Remarks: The genus *Pseudotheraphosa* and the only species *P. apophysis* were described by Tinter (1991) based on male and female specimens from the Venezuelan/Brazilian boundary area. His newly described species resembles *Theraphosa blondi* by the large size that can be reached; the single fused spermathecae (figs. 157, 161); the presence of stridulatory hairs on prolateral coxae I; and, the very similar male palpal bulb shape (Tinter, 1991) (figs. 158, 159, 162, 163). The differences between these two species are a metallic pinkish sheen presented by *P. apophysis* males on the carapace and dorsally on legs, (absent in *T. blondi*); the presence of stridulating hairs also on the coxae II in *P. apophysis* (*T. blondi* was said to have stridulatory hairs only on coxae I); and, mainly, the presence of male spur in *P. apophysis* (absent in *T. blondi*) (Tinter, 1991) (fig. 160). The presence of male spur seems to have been fundamental to the decision of creating a new genus, since, as discussed previously for *Nhandu carapoensis*, this character was traditionally considered of "generic value" for theraphosid taxonomy. However, *P. apophysis* and *T. blondi* share other characters, like a very modified male palpal bulb (figs. 158, 159, 162, 163), stridulatory hairs present in coxae I and II (*T. blondi* also has stridulatory hairs in coxae II as I found in specimens males and females examined), and presence of only type III urticating hair on the dorsum of abdomen. Thus, the absence of male spur in *T. blondi* seems to be an autapomorphy of this species, because the presence of a male spur is plesiomorphic for the branch *Pseudotheraphosa* + *Theraphosa* if considering the genus *Megaphobema* as an outgroup, as found in the cladistic analysis of Theraphosinae carried out by Pérez-Miles *et al.* (1996). Because these two species are undoubtedly closely related, and are probably sister species (Figs. 164, 165), this study considers *Pseudotheraphosa* a junior synonym of *Theraphosa*.

						1					2					3				
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5
A. seemani	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. hoffmani	0	0	0	0	0	0	1	0	0	0	0	0	-	0	1	0	0	0	0	0	0	0	0	-	0
P. cancerides	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0
C. portoricae	0	?	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0
A. geniculata	1	0	0	0	0	0	0	0	0	0	0	0	?	0	?	1	0	1	0	0	1	0	1	0	0
A. sternalis	0	0	0	0	0	0	0	0	0	0	1	0	?	0	?	1	0	1	0	0	1	0	1	0	0
Pamphobeteus sp.	0	2	0	2	0	0	0	2	0	0	0	0	2	0	2	0	2	0	0	0	0	0	1	0	0
B. emilia	0	2	0	0	0	0	0	2	0	0	0	0	2	0	1	0	3	?	?	?	0	0	1	0	0
X. immanis	0	2	0	2	0	0	0	2	0	0	0	0	2	0	2	0	2	0	0	0	0	0	1	0	0
T. blondi	?	2	0	0	0	0	0	2	1	0	0	1	?	2	?	?	3	?	?	?	0	1	1	?	1
T. apophysis	?	2	0	0	0	0	0	2	1	0	0	1	2	0	0	0	3	?	?	?	0	1	1	?	1
E. campestratus	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
E. weijenberghi	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
P. amazonicus	0	0	0	1	1	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1
P. anomalus	1	0	0	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0
P. multicuspidatus	1	0	0	1	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0
Lasiodora spp.	0	0	0	2	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0
N. carapoensis	1	1	1	2	1	0	0	1	0	0	0	0	?	2	?	?	1	0	0	1	0	0	0	1	1
N. vulpinus	1	1	1	2	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	0	0
N. coloratovillosus	1	1	1	2	1	0	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	1	1	1
N. cerradensis	1	1	1	2	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	1
V. sorocabae	1	1	0	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0
V. wacketi	0	1	0	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
V. dubius	1	1	1	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
V. roseus	1	1	0	2	1	0	0	1	0	0	0	0	?	1	?	0	1	0	0	0	0	1	0	0	0
V. vellutinus	1	1	0	2	1	0	0	1	0	0	0	0	?	1	?	0	1	0	0	0	0	1	0	0	0
V. longisternalis	0	1	0	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
V. lucasae	1	1	0	2	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
V. buecherli	1	1	1	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0
V. paranaensis	1	1	0	2	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0

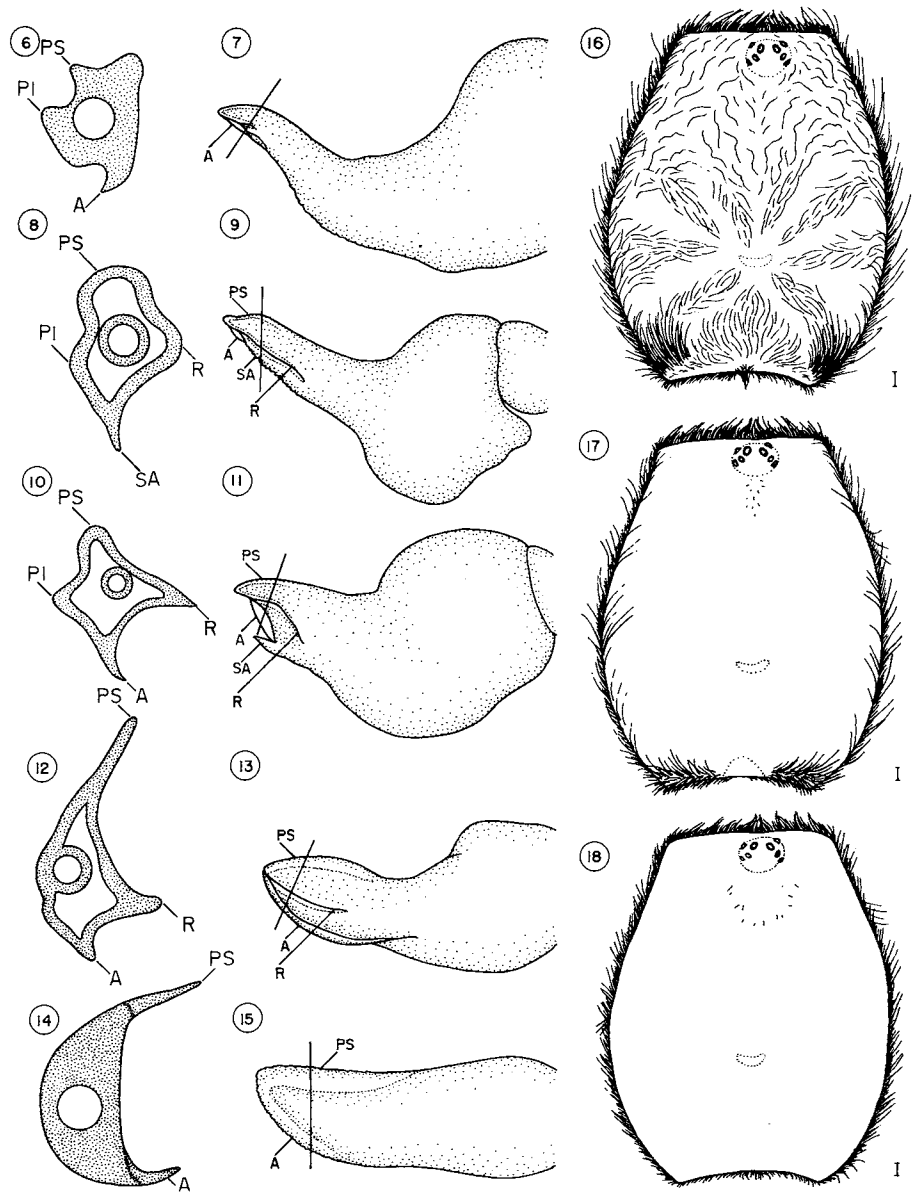
Table I. Data matrix showing the distribution of character states used in the cladistic analysis. (? = unknown, - = non-applicable, both treated as missing data in the cladistic analysis).

	REGION		TIBIA		METATARSUS	
			MALE	FEMALE	MALE	FEMALE
LEG I		BASAL	1 to 6	0 to 2	1 to 3	0 to 1
	VENTRAL	MEDIAN	1 to 7	0 to 1	0	0 to 3
		APICAL	1 to 6	1 to 3	1 to 4	0 to 1
		BASAL	1 to 2	0 to 1	1	0
	PROLATERAL	MEDIAN	2 to 3	0 to 1	1	0
		APICAL	1	0 to 1	1	0
		BASAL	1	0	0	0
	RETROLATERAL	MEDIAN	1 to 3	0 to 1	1	0
		APICAL	1 to 2	0	1	0
LEG II		BASAL	1 to 6	0 to 2	1 to 4	0 to 2
	VENTRAL	MEDIAN	1 to 6	0 to 2	1 to 2	0 to 2
		APICAL	1 to 6	1 to 3	1 to 5	3 to 4
		BASAL	1 to 2	0 to 1	1 to 2	0 to 2
	PROLATERAL	MEDIAN	1 to 2	1 to 2	1	0 to 1
		APICAL	1 to 2	0 to 1	1 to 2	0 to 1
		BASAL	1 to 3	0	1 to 3	0
	RETROLATERAL	MEDIAN	1 to 2	0	1	0 to 1
		APICAL	1 to 2	0	1 to 2	0 to 1
LEG III		BASAL	1 to 8	1 to 5	1 to 8	0 to 6
	VENTRAL	MEDIAN	1 to 8	0 to 4	1 to 5	1 to 4
		APICAL	1 to 6	1 to 3	1 to 6	2 to 8
		BASAL	1 to 3	0 to 2	1 to 3	0 to 3
	PROLATERAL	MEDIAN	1 to 4	0 to 3	1 to 6	0 to 2
		APICAL	1 to 2	0 to 2	1 to 3	0 to 2
		BASAL	1 to 3	0 to 1	1	0 to 2
	RETROLATERAL	MEDIAN	1 to 3	0 to 2	1 to 2	1 to 2
		APICAL	1 to 3	0 to 1	1 to 2	1
LEG IV		BASAL	1 to 8	0 to 2		
	VENTRAL	MEDIAN	1 to 8	0 to 5	16 to 31*	14 to 37*
		APICAL	2 to 8	0 to 4		
		BASAL	1 to 2	0 to 1	1	0 to 2
	PROLATERAL	MEDIAN	1 to 3	0 to 2	1 to 4	0 to 2
		APICAL	1 to 2	0 to 1	1	0 to 3
		BASAL	1	0 to 1	1	0 to 2
	RETROLATERAL	MEDIAN	1 to 3	0 to 3	1 to 2	0 to 2
		APICAL	1 to 2	0 to 3	1 to 2	0 to 3

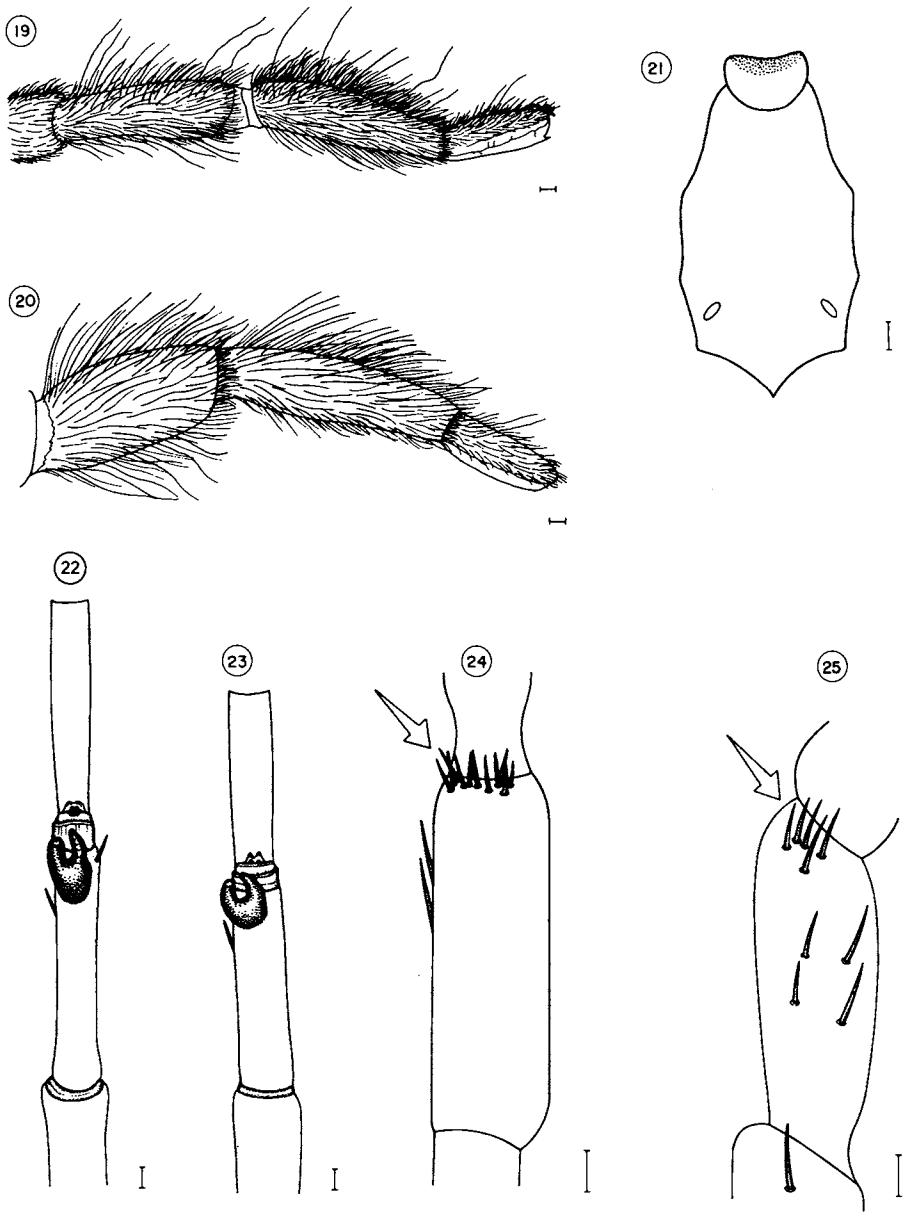
Table II. Maximum and minimum number of spines according to leg region and sex. * For metatarsus IV the number of spines on the ventral face was considered as total.



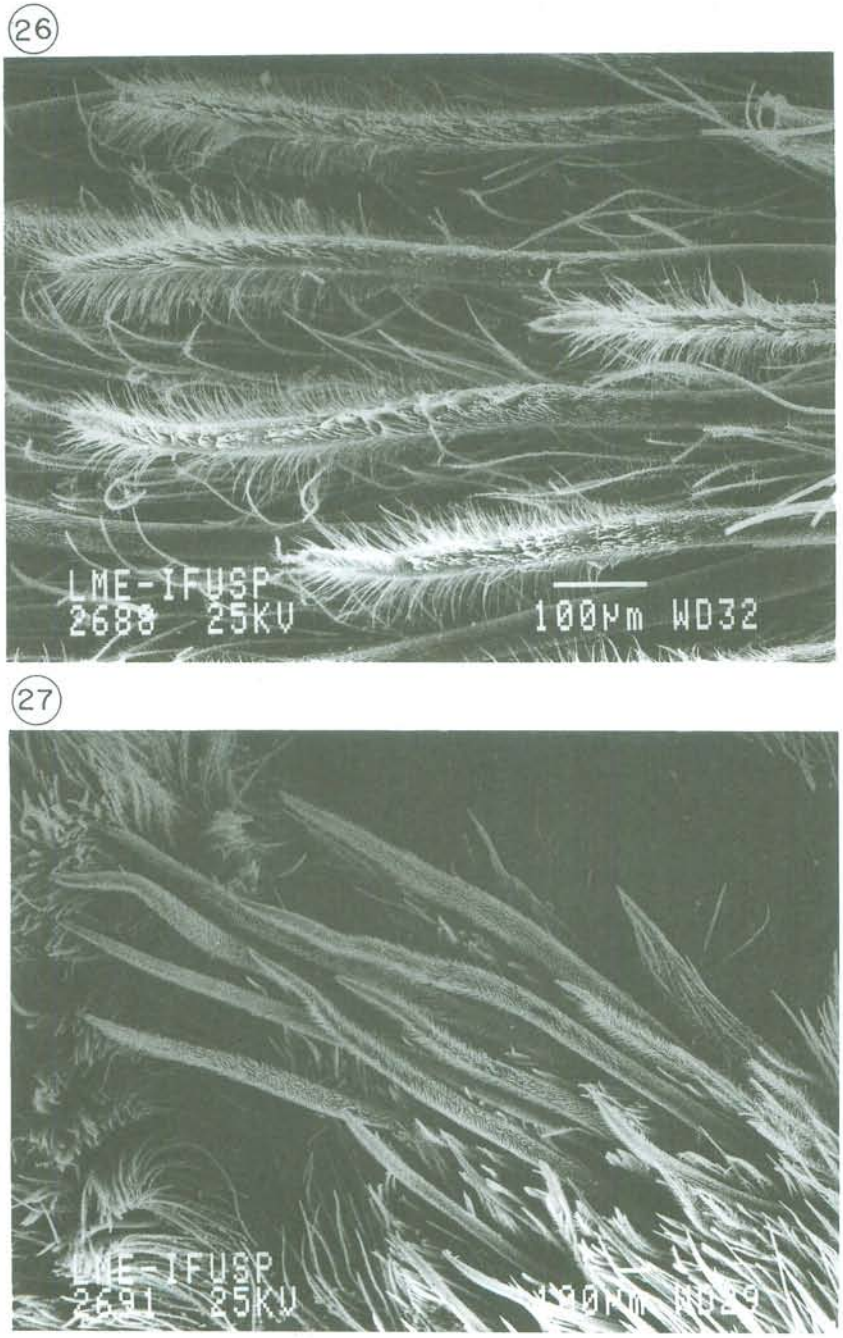
Figs. 1-5. Urticating hairs. 1 - Abdomen of a theraphosine having types I and III urticating hairs, showing the area where urticating hairs were picked up and hair types found. 2 - Type III urticating hair. 3 - Type I urticating hair having the region "a" shorter than "b". 4 - Variation in urticating hair length, showing a great increase in the hair length towards medium-posterior region. Note that the species represented has only type I urticating hair. 5 - Urticating hair having an intermediate morphology between types I and III, found in some males of *Vitalius* species.



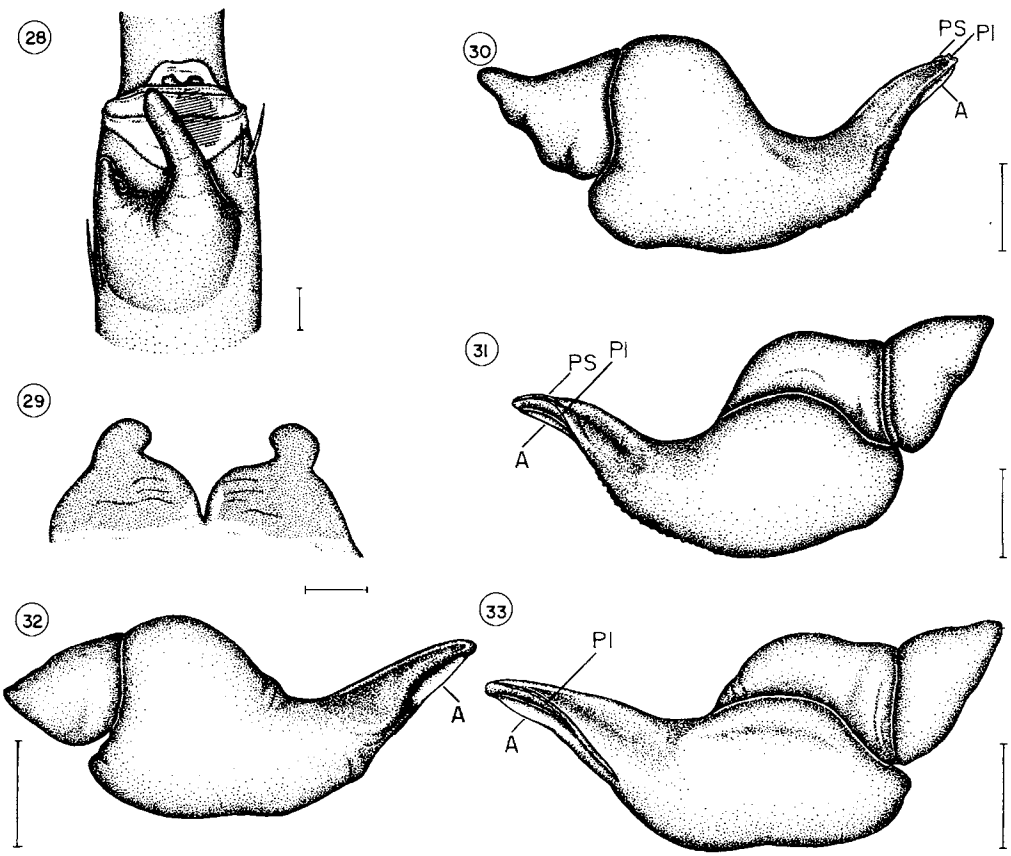
Figs. 6-18. (6-15) Transversal view of left male palpal bulbs of some theraphosine. (6-7). - *Aphonopelma seemani* (F. O. P. - Cambridge, 1897); (8-9) - *Eupalaestrus campestratus* (Simon, 1891); (10-11) - *Vitalius dubius* (Mello-Leitão, 1923); (12-13) - *Pamphobeteus* sp.; (14-15) - *Theraphosa blondi* (Latreille, 1804). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. (16-18) Hairs covering female carapace. 16 - *Vitalius wacketi* (Mello-Leitão, 1923), carapace bordered by short stiff hairs pointing out; 17 - *Vitalius sorocabae* (Mello-Leitão, 1923), carapace bordered by long soft hairs pointing out and to the carapace center; 18 - *Nhandu coloratovillosus* (Schmidt, 1998), carapace bordered by long hairs pointing out and to the carapace center together with many long, scattered, curly hairs over all its surface. Scale line: 1 mm.



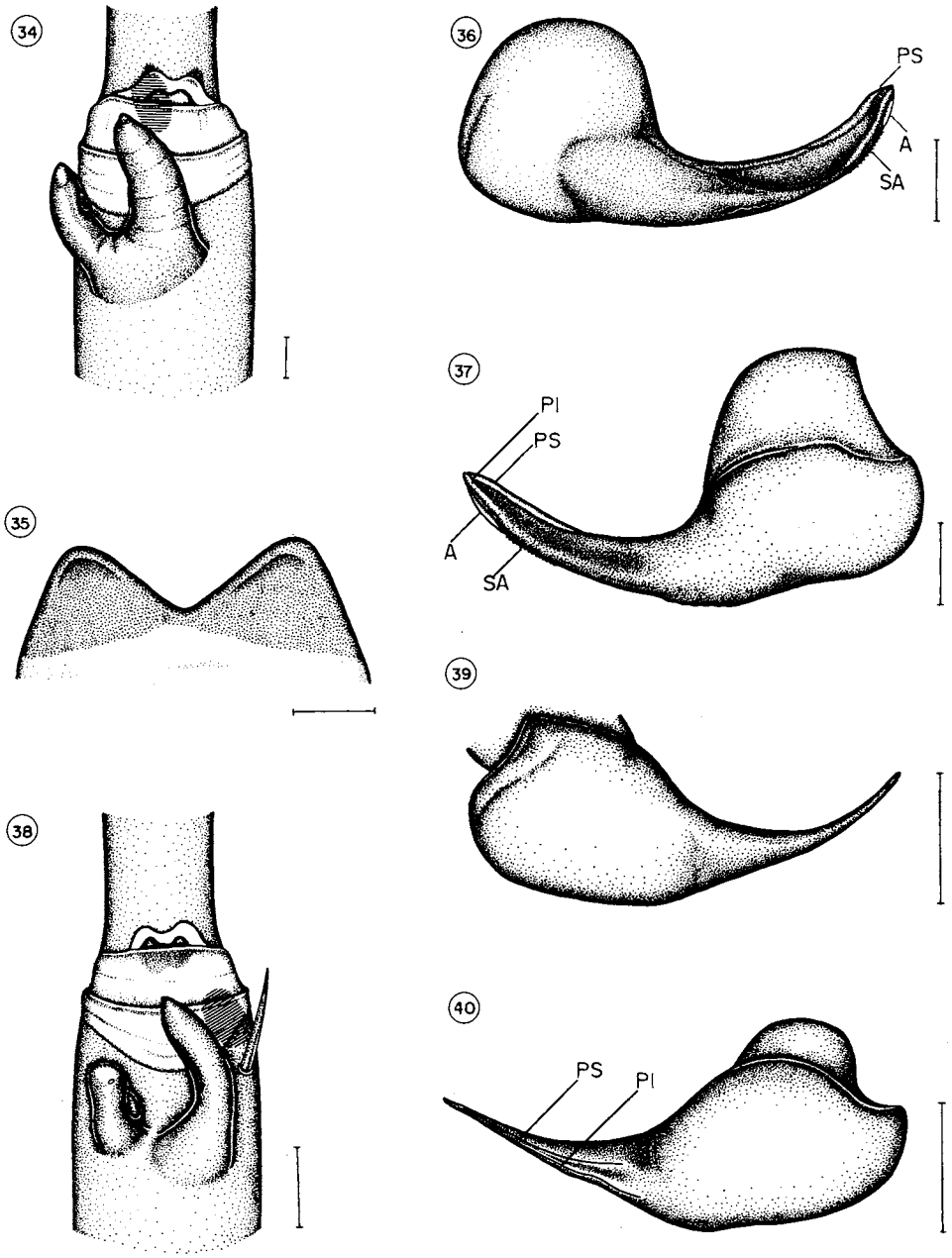
Figs. 19-25. (19) *Eupalaestrus spinosissimus* Mello-Leitão, 1923 female, leg IV, showing thickened metatarsus. (20) *Eupalaestrus campestratus* (Simon, 1891) female showing thickened tibia IV. (21) *Vitalius longisternalis*, paratype female, showing labium much more longer than wide. (22) *Vitalius buecherli*, holotype, ventral leg I. (23) *Vitalius dubius* (Mello-Leitão, 1923), holotype, ventral leg I. (24) *Proshapalopus multicuspidatus* (Mello-Leitão, 1929), palpal tibia, dorsal view, showing spine arrangement. (25) *Eupalaestrus campestratus*, palpal tibia, prolateral view, showing spine arrangement. Scale line: 1 mm.



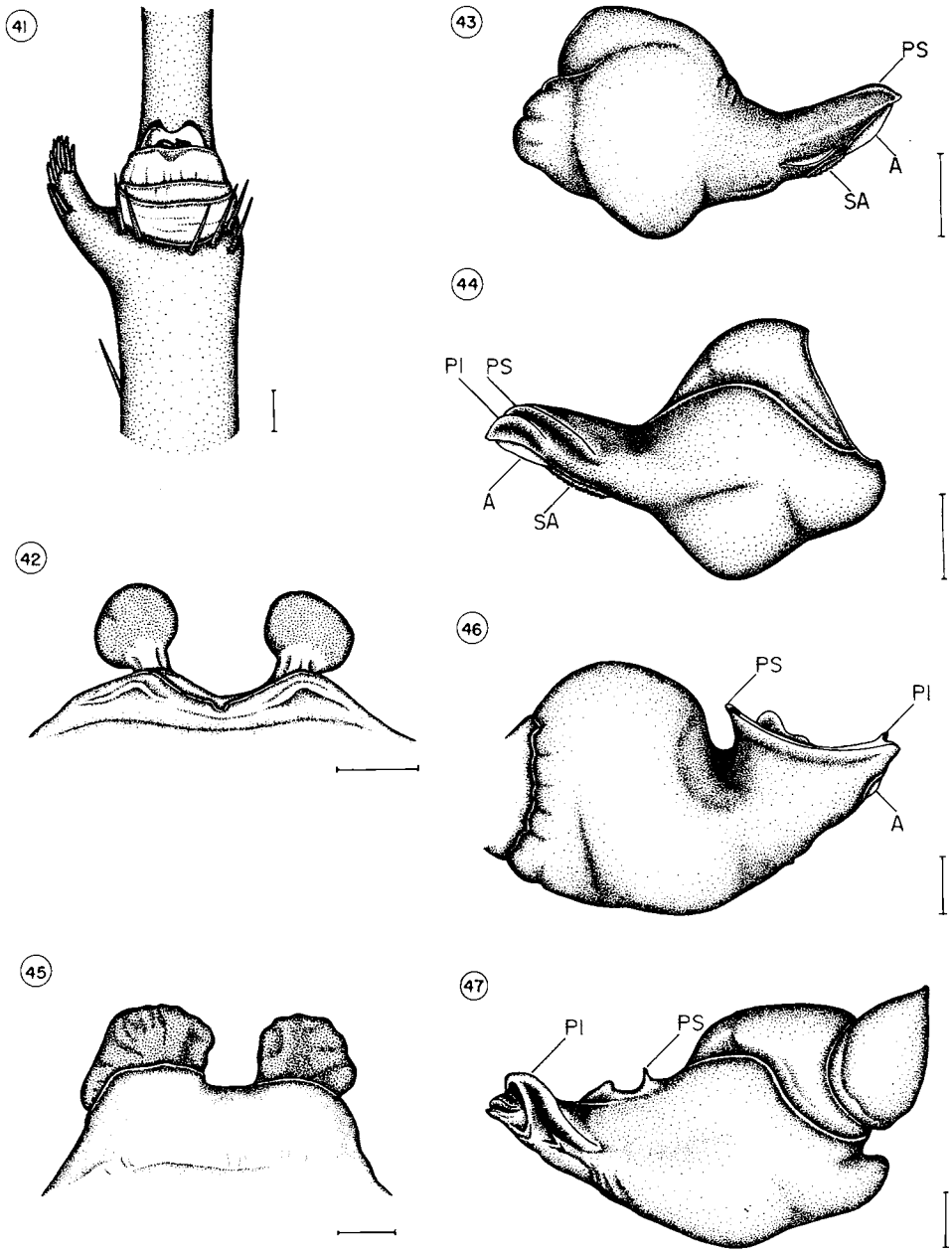
Figs. 26-27. Stridulatory hairs. (26) *Acanthoscurria atrox* Vellard, 1924, female, retrolateral face of palpal trochanter. (27) *Lasiodora* sp., female, superior region of prolateral face of coxa of leg I.



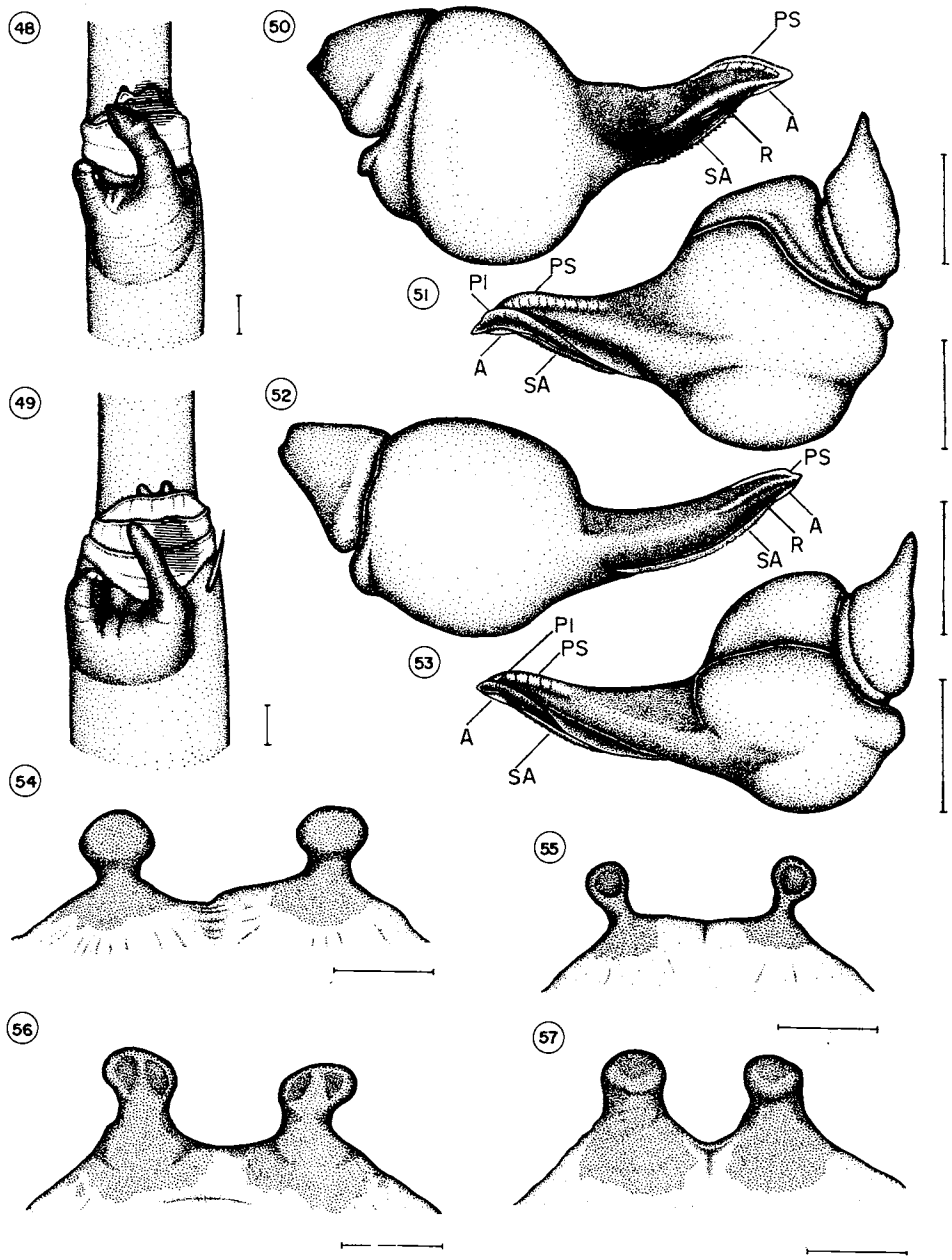
Figs. 28-33. (28-31) *Aphonopelma seemani* (F. O. P. -Cambridge, 1897), IBSP 7019. Male. Male spur, left leg (fig. 28). Right male palpal bulb, retrolateral (fig. 30) and prolateral (fig. 31) faces. IBSP 7020. Female. Spermathecae, ventral face (fig. 29). (32-33) *Sphaerobothria hoffmani* Karsch, 1879, RCW, Moranã, San José, Costa Rica. Male. Right male palpal bulb, retrolateral (fig. 32) and prolateral (fig. 33) views. Keels: A = apical; PI = prolateral inferior; PS = prolateral superior. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



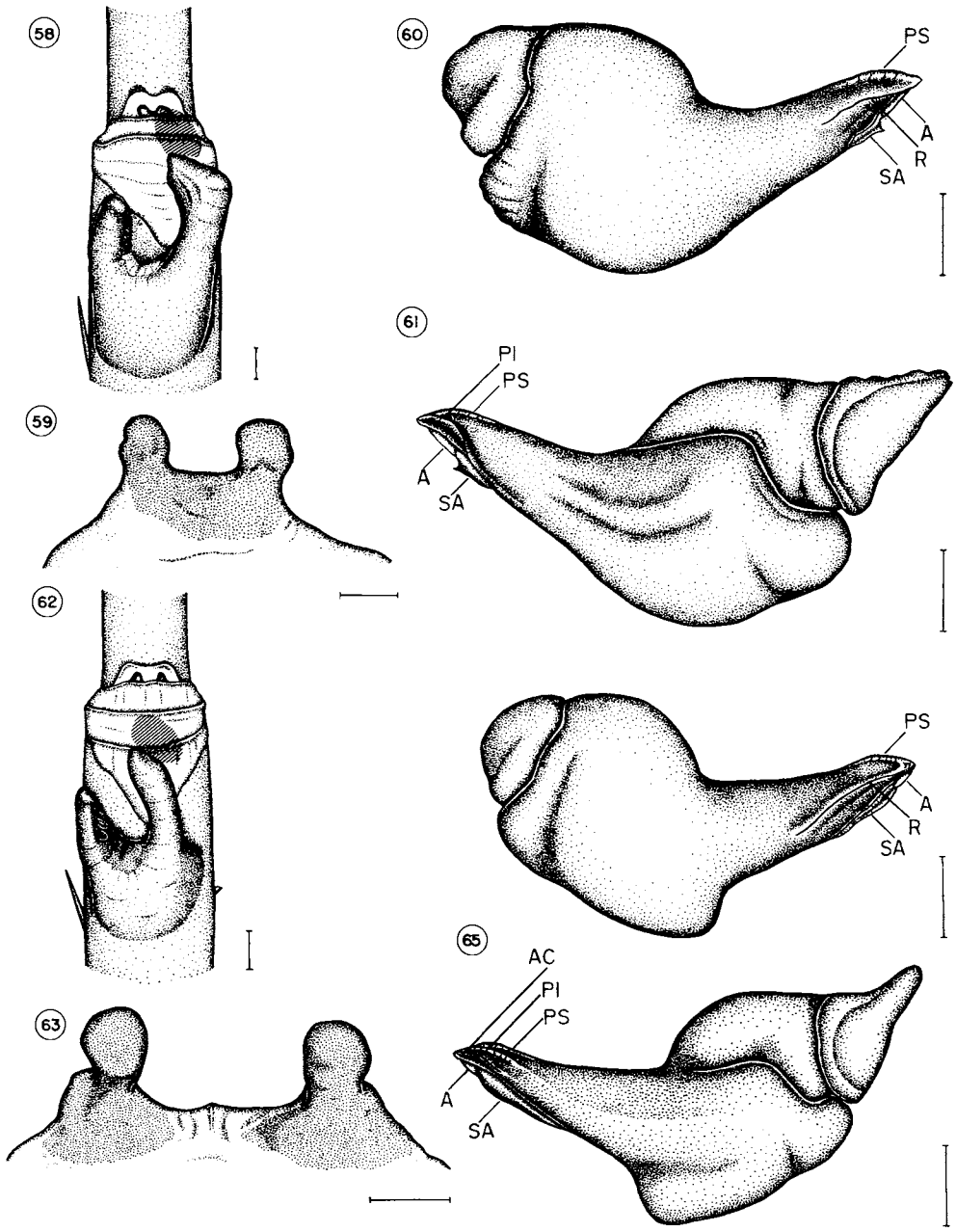
Figs. 34-40. (34) *Phormictopus cubensis* Chamberlin, 1917 MNRJ, Cuba. Male. Left male spur. (35) *Phormictopus cancerides* (Latreille, 1806) IBSP 7021. Female. Spermathecae, ventral face. (36-37) *Phormictopus cancerides*, RCW, Republica Dominicana. Male. Right male palpal bulb, retrolateral (fig. 36) and prolateral (fig. 37) faces. (38-40) *Cyrtopholis portoricae* Chamberlin, 1917, RCW, Puerto Rico. Male. Left male spur (fig. 38). Right male palpal bulb, retrolateral (fig. 39) and prolateral (fig. 40) faces. Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



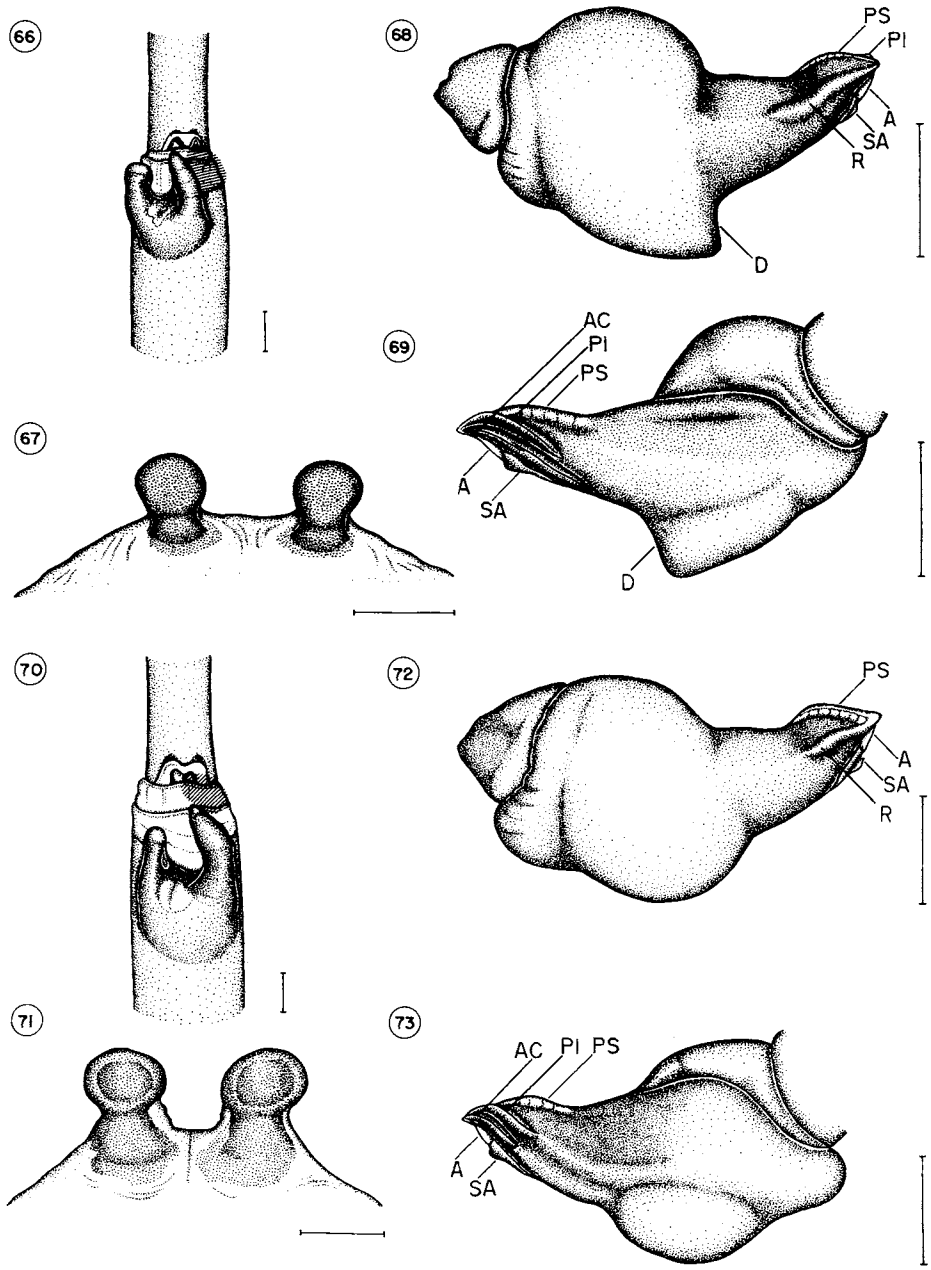
Figs. 41-47. (41-44) *Acanthoscurria sternalis* Pocock, 1903, MNRJ, Jujui, Argentina. Male. Left male spur (fig. 41). Right male palpal bulb, retrolateral (fig. 43) and prolateral (fig. 44) faces. Female. Spermathecae, ventral face (fig. 42). (45-47) *Acanthoscurria geniculata* (C. L. Koch, 1842). Female. IBSP 7023. Spermathecae, ventral face (fig. 45). Male. IBSP 7022. Right male palpal bulb, retrolateral (fig. 46) and prolateral (fig. 47) faces. Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; SA = subapical. Scale line: 1mm.



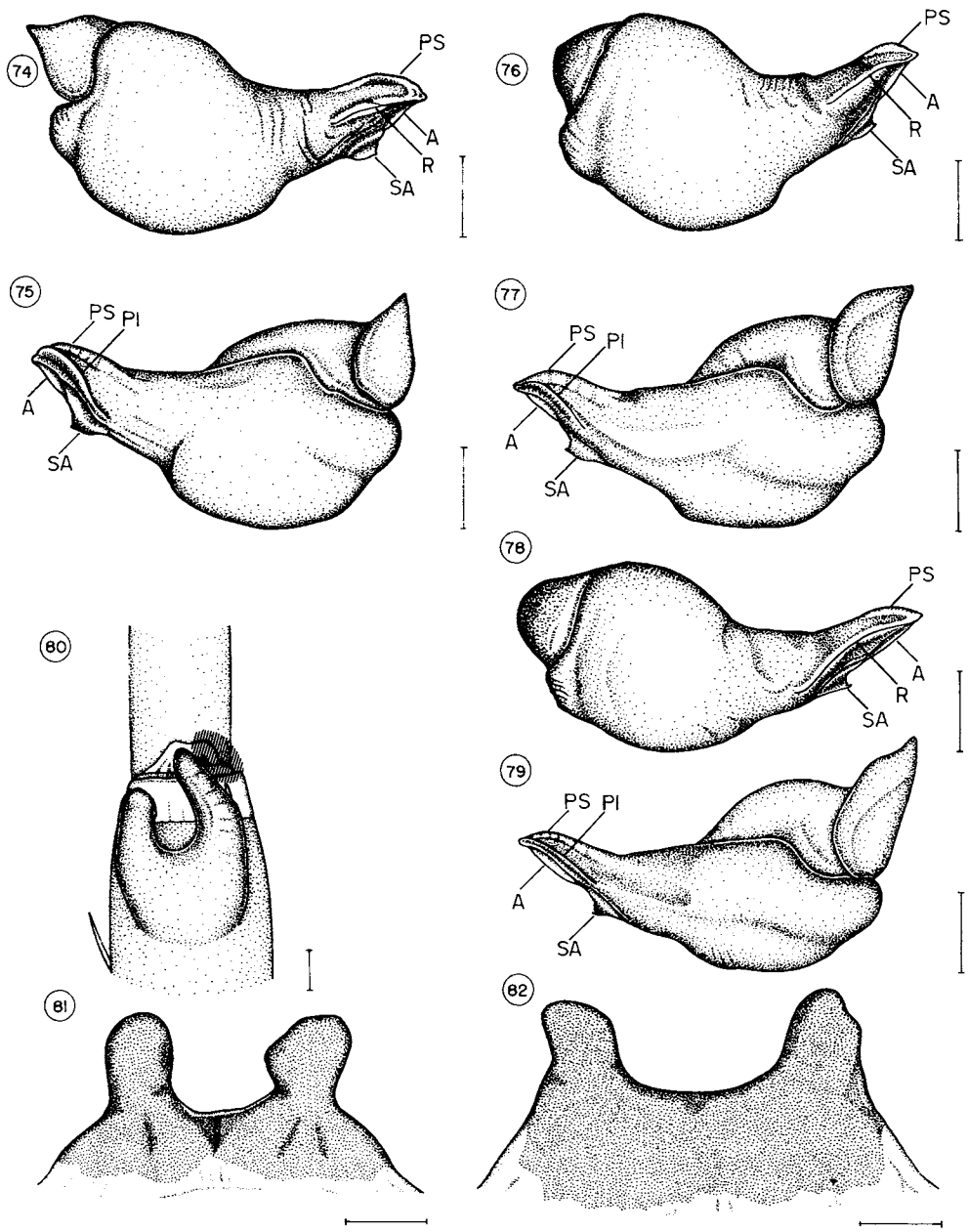
Figs. 48-57. (48, 50-51 and 54) *Eupalaestrus campestratus* (Simon, 1891) Male. IBSP 502. Left male spur (fig. 48). Right male palpal bulb, retrolateral (fig. 50) and prolateral (fig. 51) faces. Female. IBSP 612, holotype of *E. tennuitarsus* Bücherl, 1947. Spermathecae, ventral face (fig. 54). (49, 52-53, and 55) *Eupalaestrus weijenberghi* (Thorell, 1894). Male. IBSP 7979. Left male spur (fig. 49). Right male palpal bulb, retrolateral (fig. 52) and prolateral (fig. 53) faces. Female. IBSP 7980. Spermathecae, ventral face (fig. 55). (56-57) *Eupalaestrus spinosissimus* Mello-Leitão, 1923. Females. Spermathecae, ventral face, IBSP 593, holotype of *E. tarsicrassus* Bücherl, 1947 (fig. 56); MZSP 130, holotype of *Pamphobeteus holophaeus* Mello-Leitão, 1923 (fig. 57). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



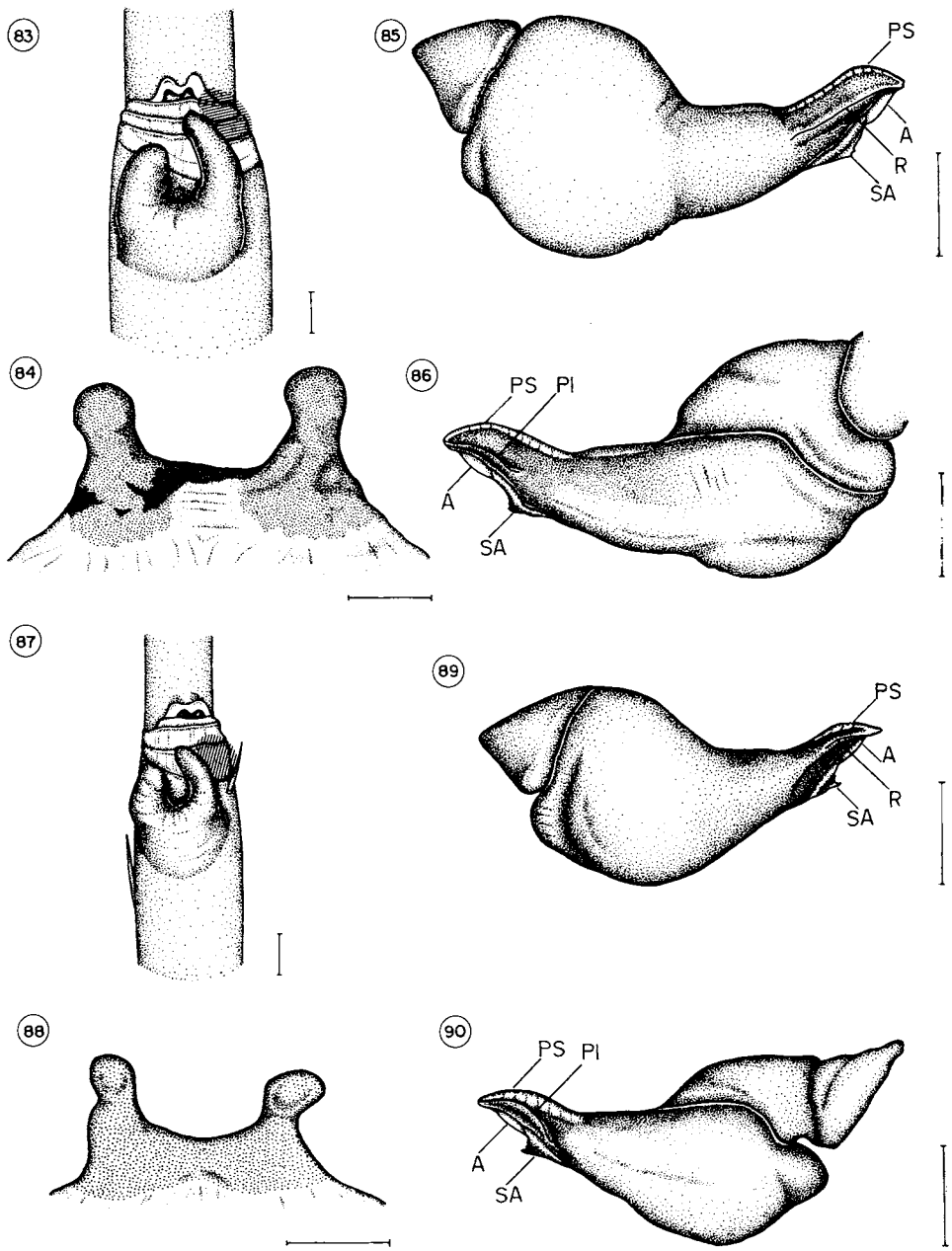
Figs. 58-65. (58-61) *Lasiodora* sp. Male. IBSP 7013. Left male spur (fig. 58), Right male palpal bulb, retrolateral (fig. 60) and prolateral (fig. 61) faces. Female. IBSP 7035. Spermathecae, ventral face (fig. 59). (62-65). *Proshapalopus amazonicus*. Male. MZSP 555, lectotype. Left male spur (fig. 62). Right male palpal bulb, retrolateral (fig. 64) and prolateral (fig. 65) faces. Female. IBSP 6915. Spermathecae, ventral face (fig. 63). Keels: A = apical; AC = accessory; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



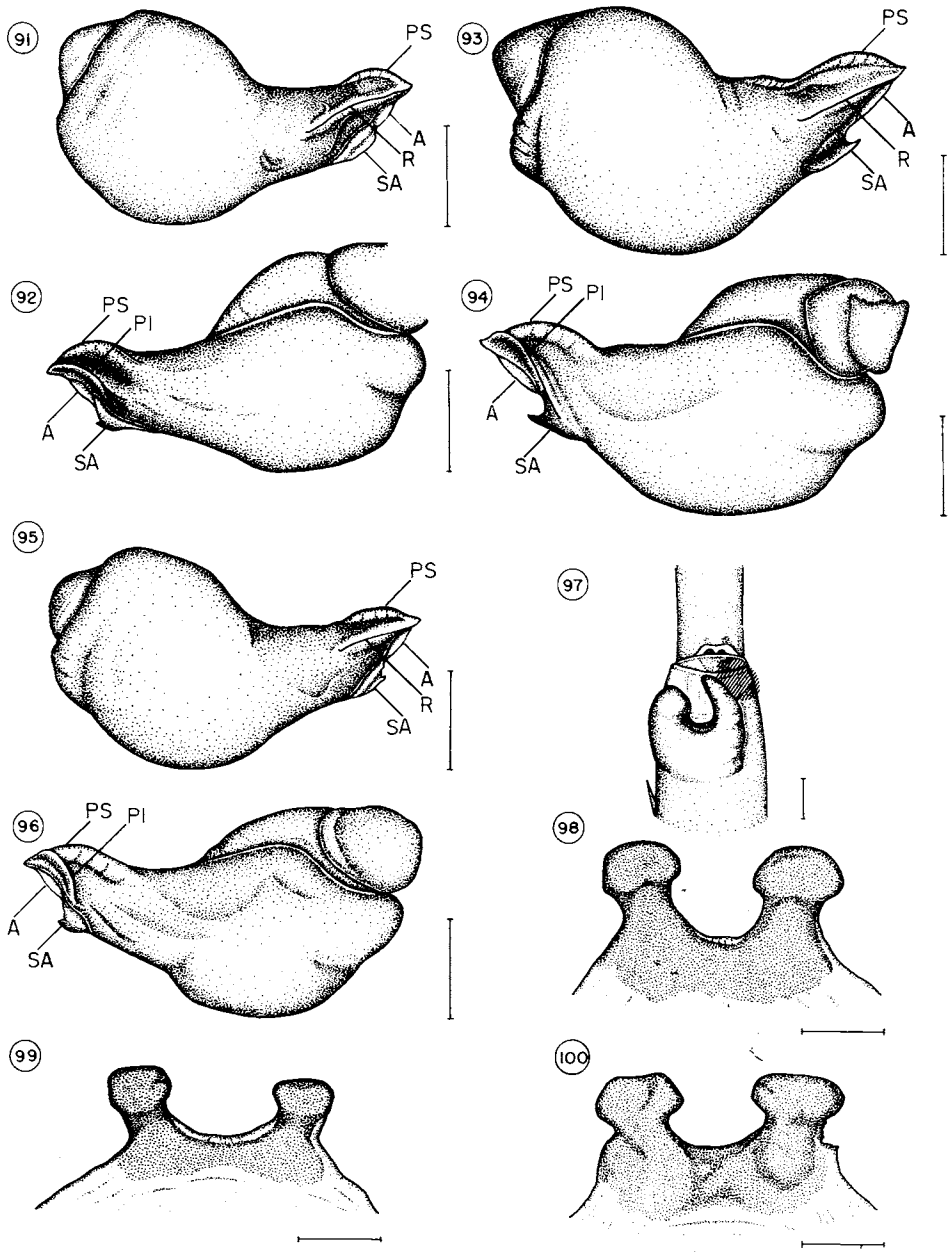
Figs. 66-73. (66-69) *Proshapalopus multicuspidatus* (Mello-Leitão, 1929). Male. MNRJ, holotype. Left male spur (fig. 66). Right male palpal bulb, retrolateral (fig. 68) and prolateral (fig. 69) faces. Female. IBSP 7012. Spermathecae, ventral face (fig. 67). (70-73). *Proshapalopus anomalus* Mello-Leitão, 1923. Male. MNRJ, holotype. Left male spur (fig. 70). Right male palpal bulb, retrolateral (fig. 72) and prolateral (fig. 73) faces. Female. IBSP 6858. Spermathecae, ventral face (fig. 71). Keels: A = apical; AC = accessory; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



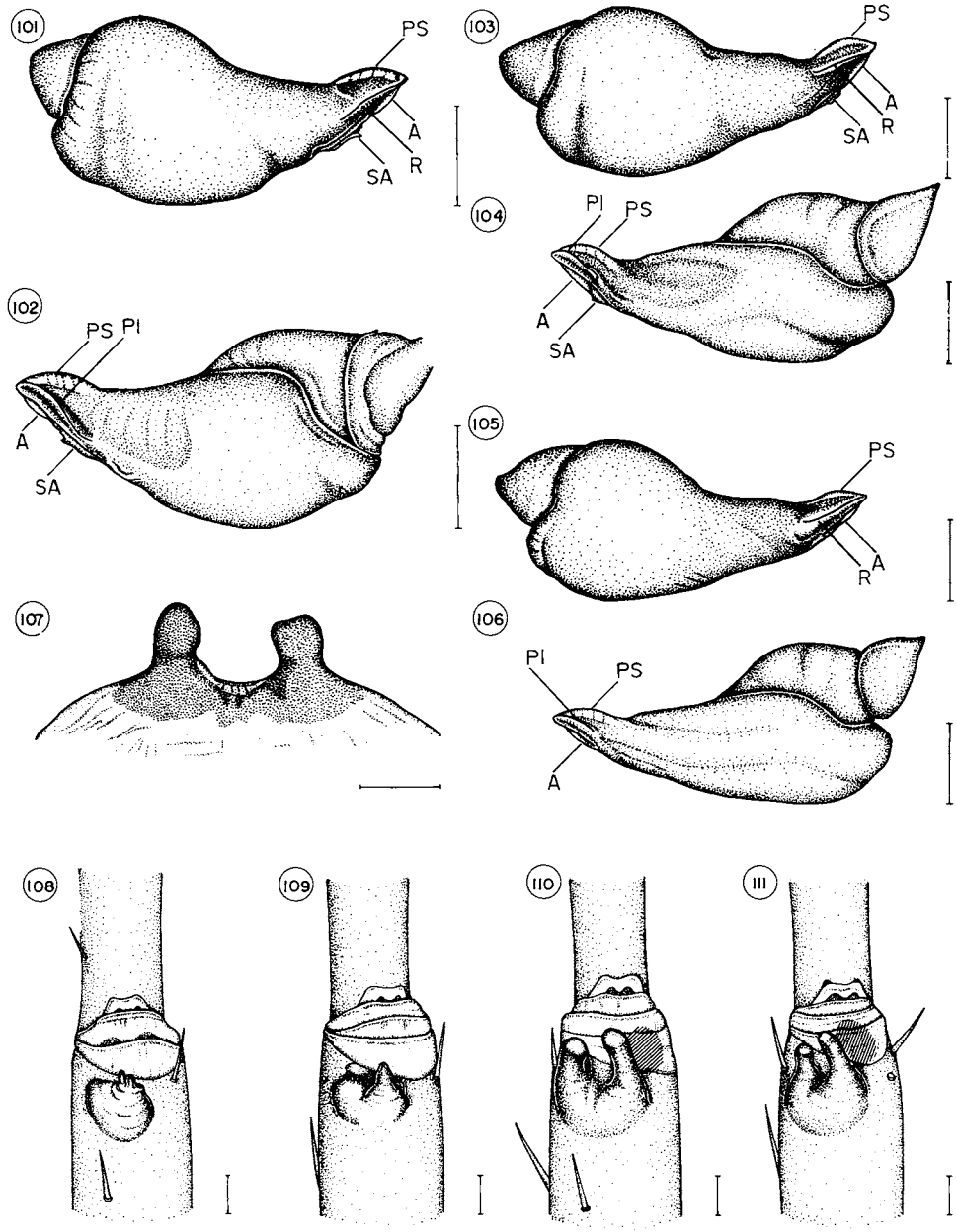
Figs. 74-82. *Vitalius sorocabae* (Mello-Leitão, 1923). Males. (74-79). Variation in male palpal bulbs. (74-75) Allotype, Sorocaba, São Paulo, retrolateral (fig. 74) and prolateral (fig. 75) faces; (76-77) IBSP 5023, Ibiúna, São Paulo, retrolateral (fig. 76) and prolateral (fig. 77) faces; (78-79) IBSP 5032, Águas de Santa Bárbara, São Paulo, retrolateral (fig. 78) and prolateral (fig. 79) faces. (80) Left male spur, allotype. Females. Variation in spermathecae. MZSP 123, holotype (fig. 81); MZSP 153 (fig. 82), holotype of *Pamphobeteus melanocephalus* Mello-Leitão, 1923; ventral face. Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



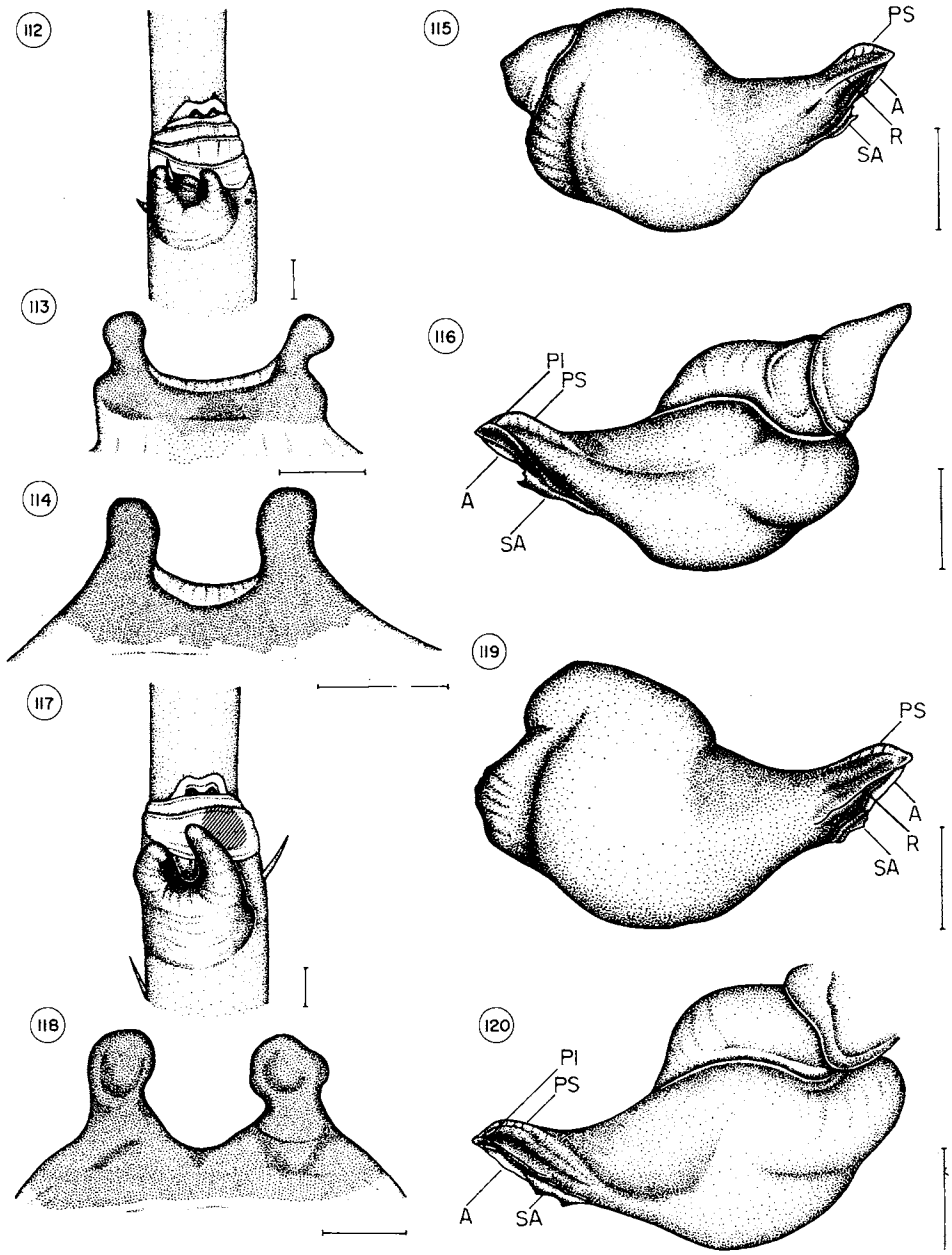
Figs. 83-90. (83-86) *Vitalius wacketi* (Mello-Leitão, 1923). Male. Holotype. Left male spur (fig. 83). Right male palpal bulb, retrolateral (fig. 85) and prolateral (fig. 86) faces. Female. IBSP 6084. Spermathecaee, ventral face (fig. 84). (87-90). *Vitalius longisternalis*. Male. Holotype. Left male spur (fig. 87). Right male palpal bulb, retrolateral (fig. 89) and prolateral (fig. 90) faces. Female. Paratype. Spermathecae, ventral face (fig. 88). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



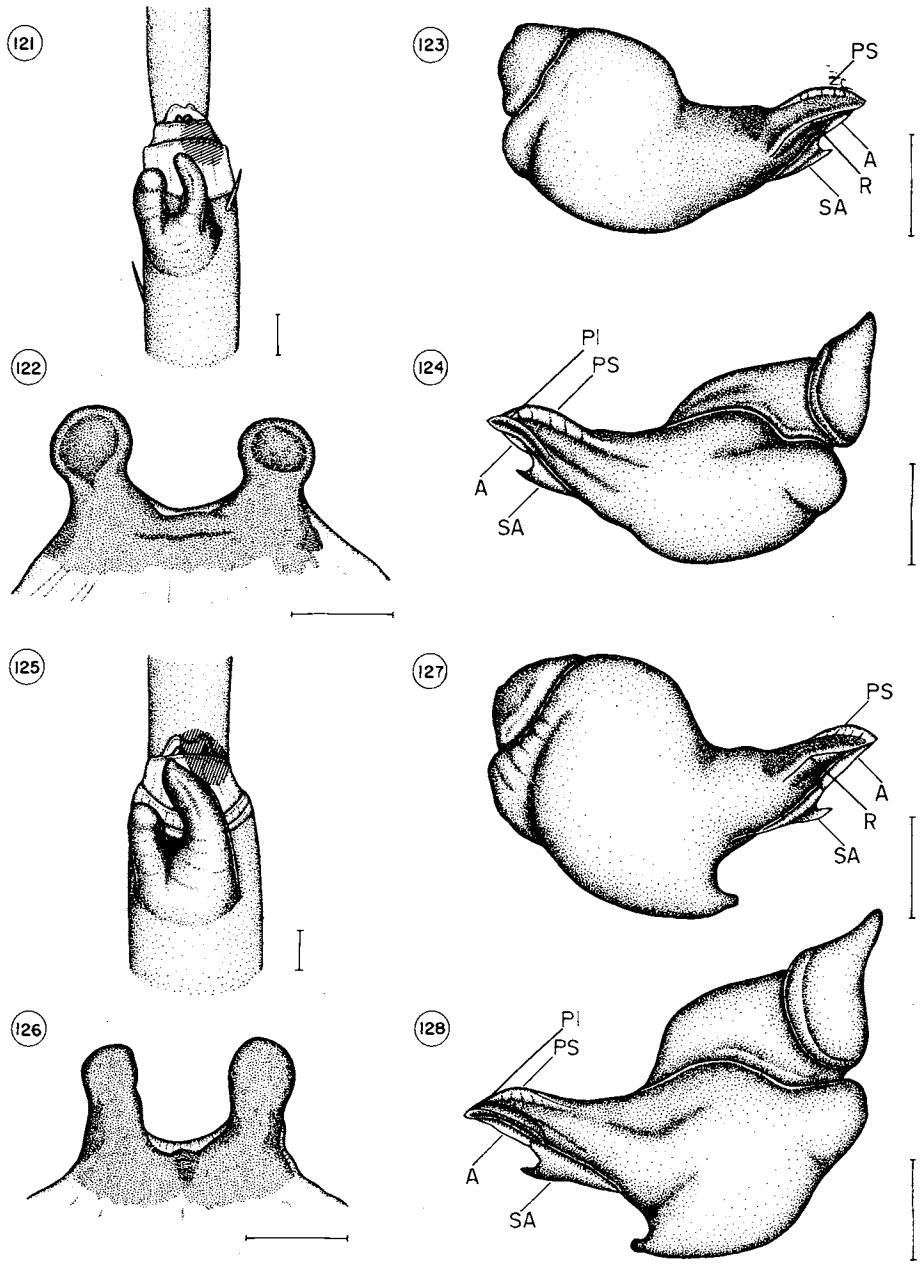
Figs. 91-100. *Vitalius dubius* (Mello-Leitão, 1923). Males. (91-96). Variation in male palpal bulbs. (91-92) Holotype, retrolateral (fig. 91) and prolateral (fig. 92) faces; (93-94) IBSP 5876, Poços de Caldas, Minas Gerais, retrolateral (fig. 93) and prolateral (fig. 94) faces; (95-96) IBSP 5830, Jundiaí, São Paulo, retrolateral (fig. 95) and prolateral (fig. 96) faces. (97) Left male spur, holotype. (98-100). Females. Variation in spermathecae. MZSP C69, holotype of *Pamphobeteus urbanicolus* Soares, 1941 (fig. 98); MZSP 127, holotype of *Pamphobeteus cesteri* Mello-Leitão, 1923 (fig. 99); MZSP 144, holotype of *Pamphobeteus cucullatus* Mello-Leitão, 1923 (fig. 100); ventral faces. Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



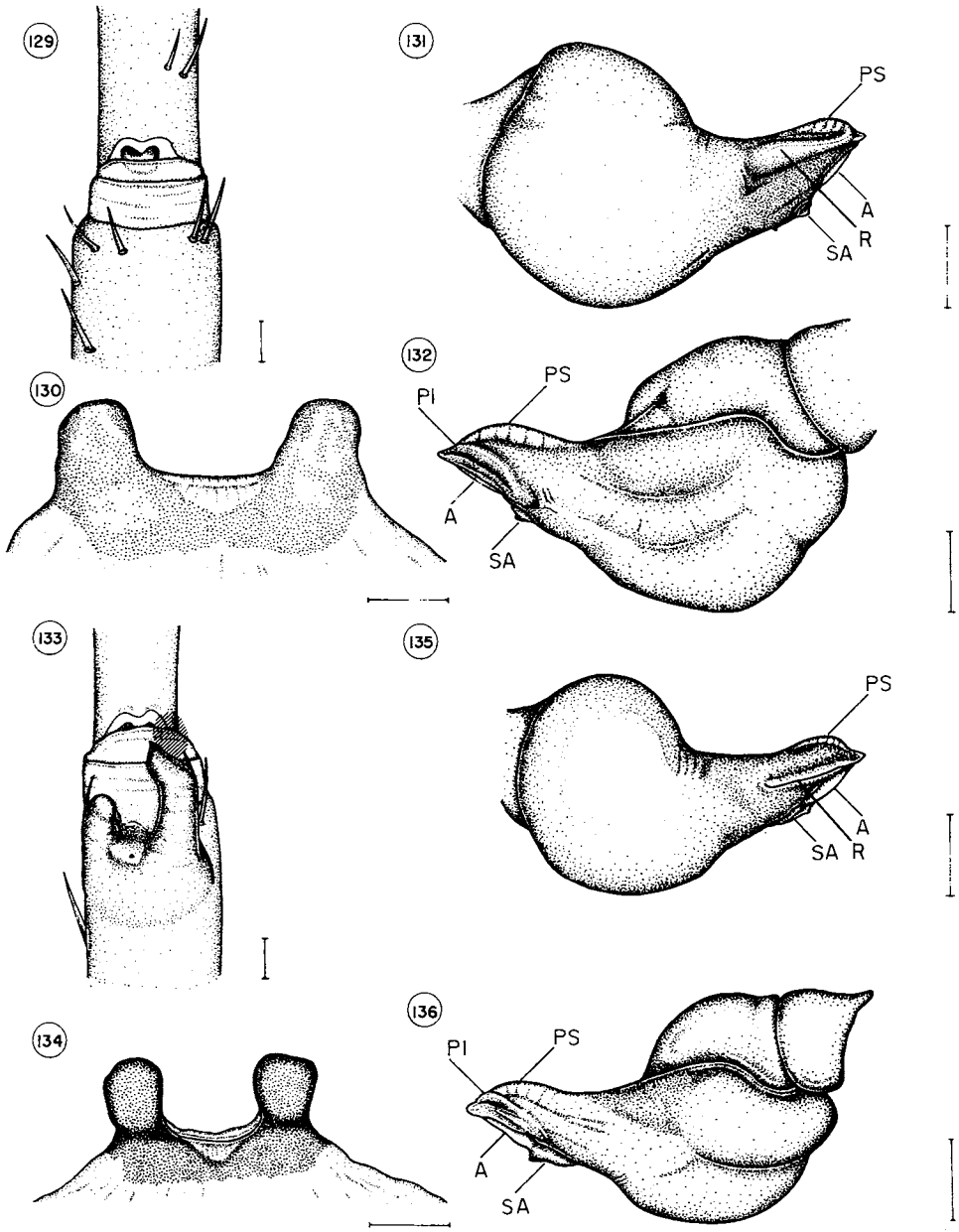
Figs. 101-111. *Vitalius vellutinus* (Mello-Leitão, 1923). Males.(101-106) Variation in male palpal bulbs. (101-102) IBSP 6313, Assis, São Paulo, retrolateral (fig. 101) and prolateral (fig. 102) faces; (103-104) IBSP 6325, Teodoro Sampaio, São Paulo, retrolateral (fig. 103) and prolateral (fig. 104) faces; (105-106) IBSP 6327, Mirandópolis, São Paulo, retrolateral (fig. 105) and prolateral (fig. 106) faces. (108-111). Variation in male spurs, left legs. (108) IBSP 6324, Assis/Ourinhos, São Paulo; (109) IBSP 6327, Mirandópolis, São Paulo; (110) IBSP 6325, Teodoro Sampaio, São Paulo; (111) IBSP 6313, Assis, São Paulo. Female. IBSP 5656. Spermathecaee, ventral face (fig. 107). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



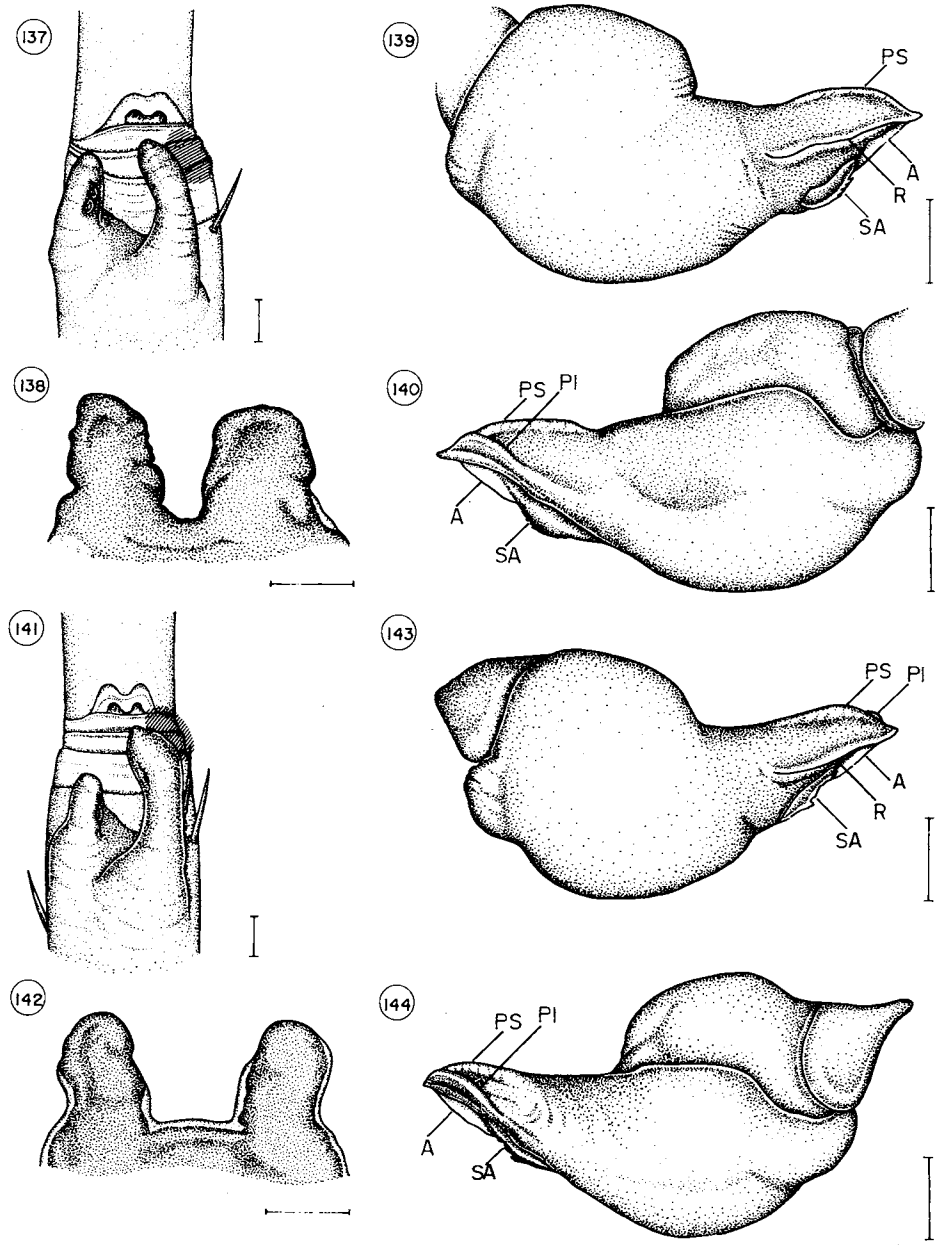
Figs. 112-120. (112-116) *Vitalius roseus* (Mello-Leitão, 1923). Male. IBSP 6883. Left male spur (fig. 112). Right male palpal bulb, retrolateral (fig. 115) and prolateral (fig. 116) faces. Female. Holotype. Spermathecae, ventral face (fig. 113). IBSP 6723. Spermathecae, variation, ventral face (fig. 114). (117-120) *Vitalius paranaensis*. Male. Holotype. Male spur, left leg (fig. 117). Right male palpal bulb, retrolateral (fig. 119) and prolateral (fig. 120) faces. Female. Paratype. Spermathecaee, ventral face (fig. 118). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



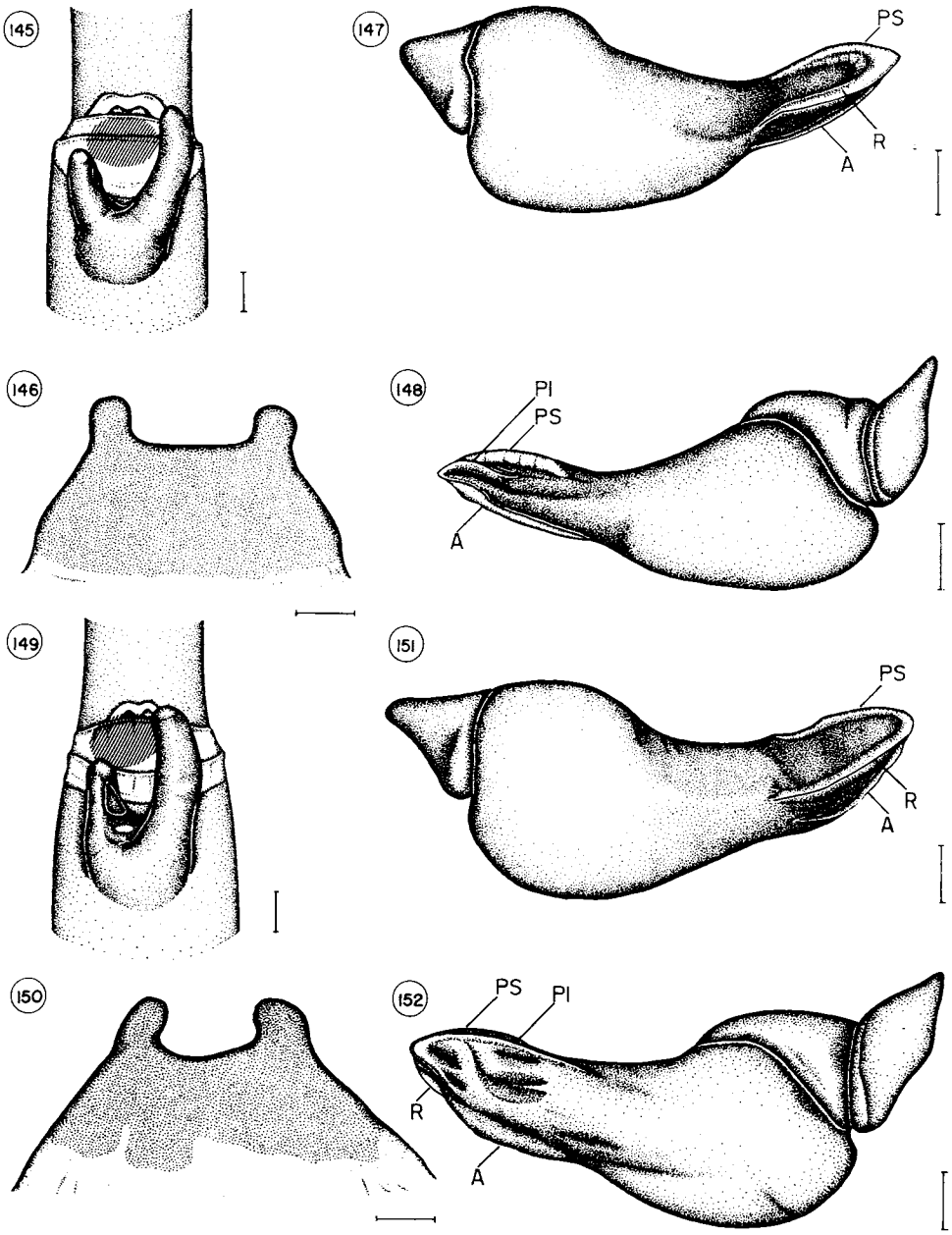
Figs. 121-128. (121-124) *Vitalius buecherli*. Male. Holotype. Left male spur (fig. 121). Right male palpal bulb, retrolateral (fig. 123) and prolateral (fig. 124) faces. Female. Paratype. Spermathecae, ventral face (fig. 122). (125-128). *Vitalius lucasae*. Male. Holotype. Left male spur (fig. 125). Right male palpal bulb, retrolateral (fig. 127) and prolateral (fig. 128) faces. Female. Paratype. Spermathecae, ventral face (fig. 126). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



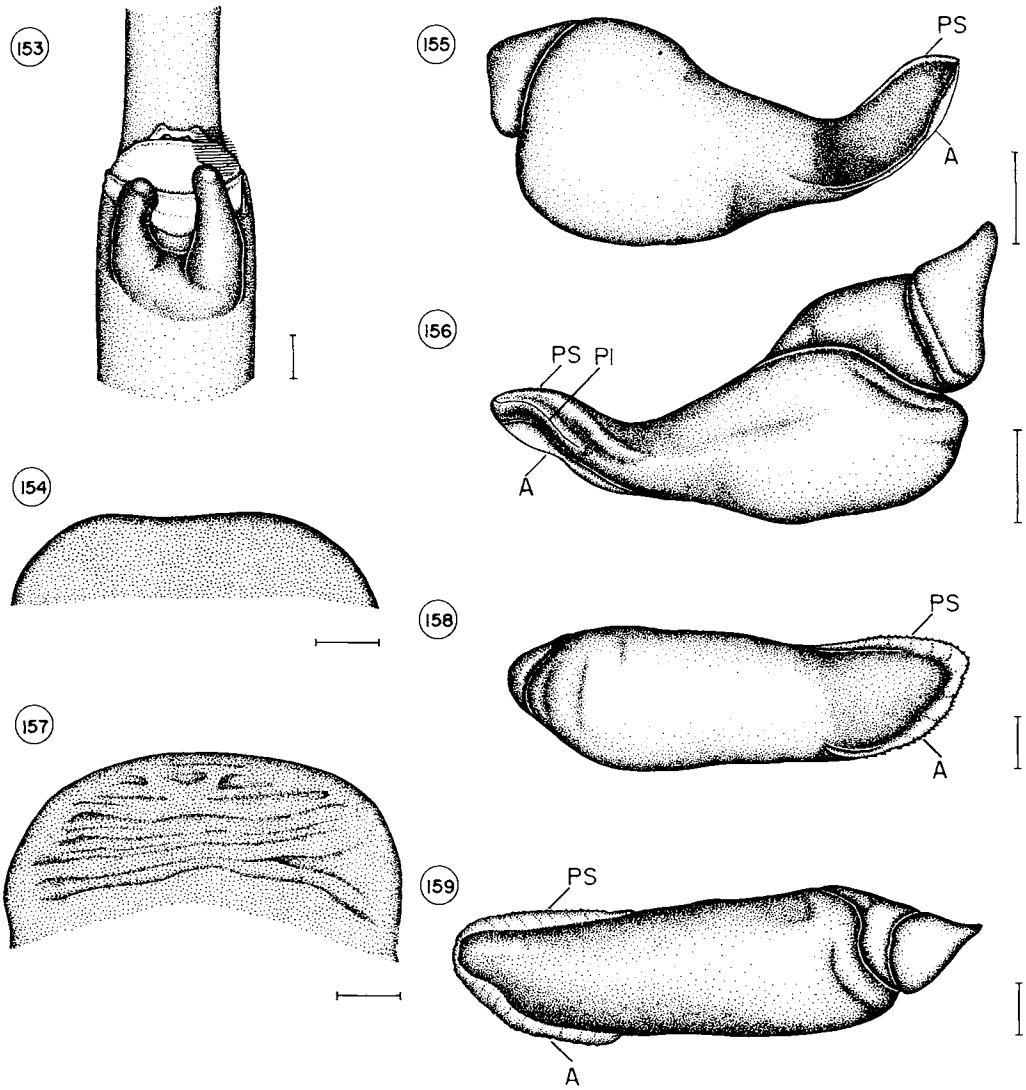
Figs. 129-136. (129-132) *Nhandu carapoensis* Lucas, 1981. Male. Paratype. Left leg ventral face (fig. 129). Right male palpal bulb, retrolateral (fig. 131) and prolateral (fig. 132) faces. Female. Paratype. Spermathecae, ventral face (fig. 130). (133-136). *Nhandu cerradensis*. Male. Holotype. Left male spur (fig. 133). Right male palpal bulb, retrolateral (fig. 135) and prolateral (fig. 136) faces. Female. Paratype. Spermathecae, ventral face (fig. 134). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



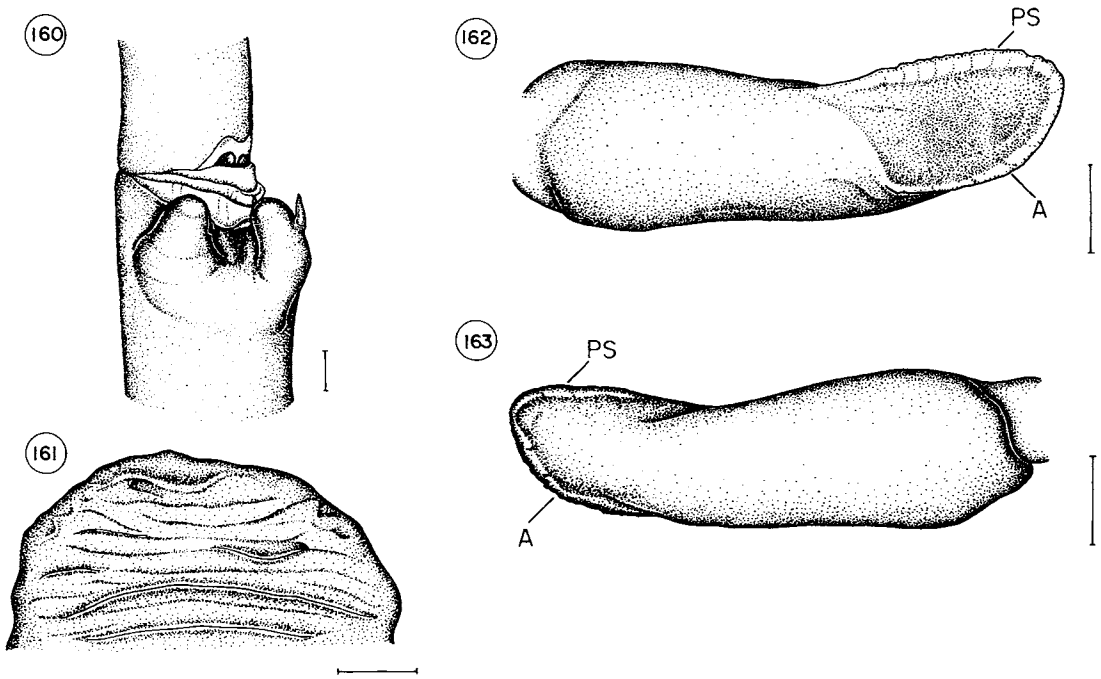
Figs. 137-144. (137-140) *Nhandu vulpinus*. Male. IBSP 4779. Left male spur (fig. 137). Right male palpal bulb, retrolateral (fig. 139) and prolateral (fig. 140) faces. Female. IBSP 7036. Spermathecae, ventral face (fig. 138). (141-144). *Nhandu coloratovillosus*. Male. IBSP 6581. Left male spur (fig. 141). Right male palpal bulb, retrolateral (fig. 143) and prolateral (fig. 144) faces. Female. IBSP 7018. Spermathecae, ventral face (fig. 142). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral; SA = subapical. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



Figs. 145-152. (145-148) *Pamphobeteus sp.* Male. IBSP 7024. Left male spur (fig. 145). Right male palpal bulb, retrolateral (fig. 147) and prolateral (fig. 148) faces. Female. IBSP 7025. Spermathecae, ventral face (fig. 146). (149-152). *Xenesthis immanis* (Ausserer, 1875). Male. IBSP 7026. Left male spur (fig. 149). Right male palpal bulb, retrolateral (fig. 151) and prolateral (fig. 152) faces. Female. IBSP 4267. Spermathecae, ventral face (fig. 150). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior; R = retrolateral. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



Figs. 153-159. (153-156) *Brachypelma emilia* (White, 1856). Male. IBSP 7027. Left male spur (fig. 153). Right male palpal bulb, retrolateral (fig. 155) and prolateral (fig. 156) faces. Female. IBSP 7028. Spermathecae, ventral face (fig. 154). (157-159). *Theraphosa blondi* (Latreille, 1804). Male. IBSP 7029. Right male palpal bulb, retrolateral (fig. 158) and prolateral (fig. 159) faces. Female. IBSP 7030. Spermathecae, ventral face (fig. 157). Keels: A = apical; PI = prolateral inferior; PS = prolateral superior. Hachured area indicates the region of contact of metatarsus I with male spur, when flexed. Scale line: 1mm.



Figs. 160-163. *Theraphosa apophysis* (Tinter, 1991). (160, 162-163) Male. Holotype. Left male spur (fig. 160). Right male palpal bulb, retrolateral (fig. 162) and prolateral (fig. 163) faces. (161) Female. Paratype. Spermathecae, ventral face (fig. 161). Keels: A = apical; PS = prolateral superior. Scale line: 1mm.

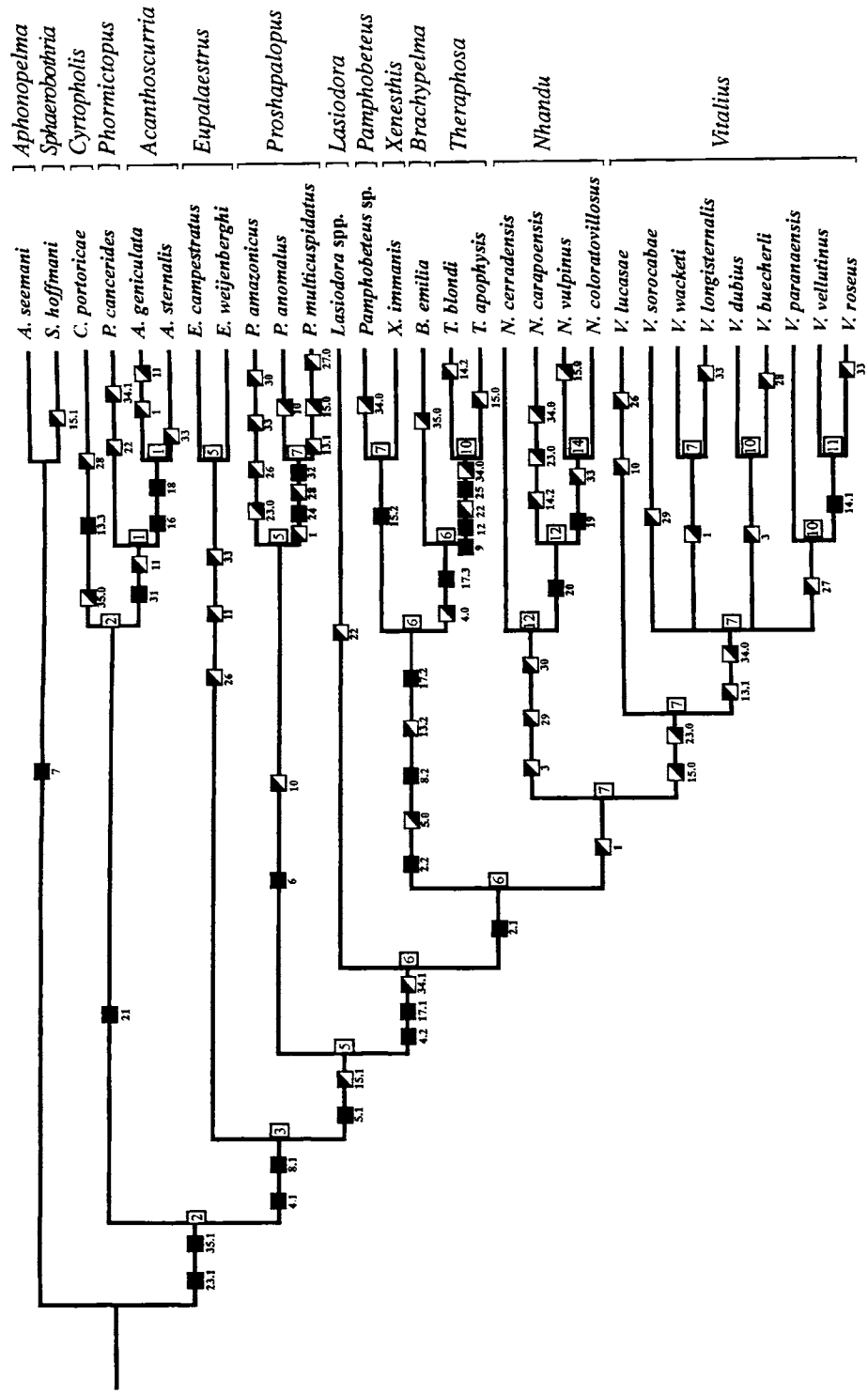


Fig. 164. Cladogram for *Vitalius*, *Nhandu*, *Proshapalopus*, and *Theraphosa* species. Characters 2, 4, 8, and 17 are considered as ordered. Black square = synapomorphy; upper black triangle in a square = parallelism; lower black triangle in a square = reversal. Bremer support values appear inside a retangle close to each internode.

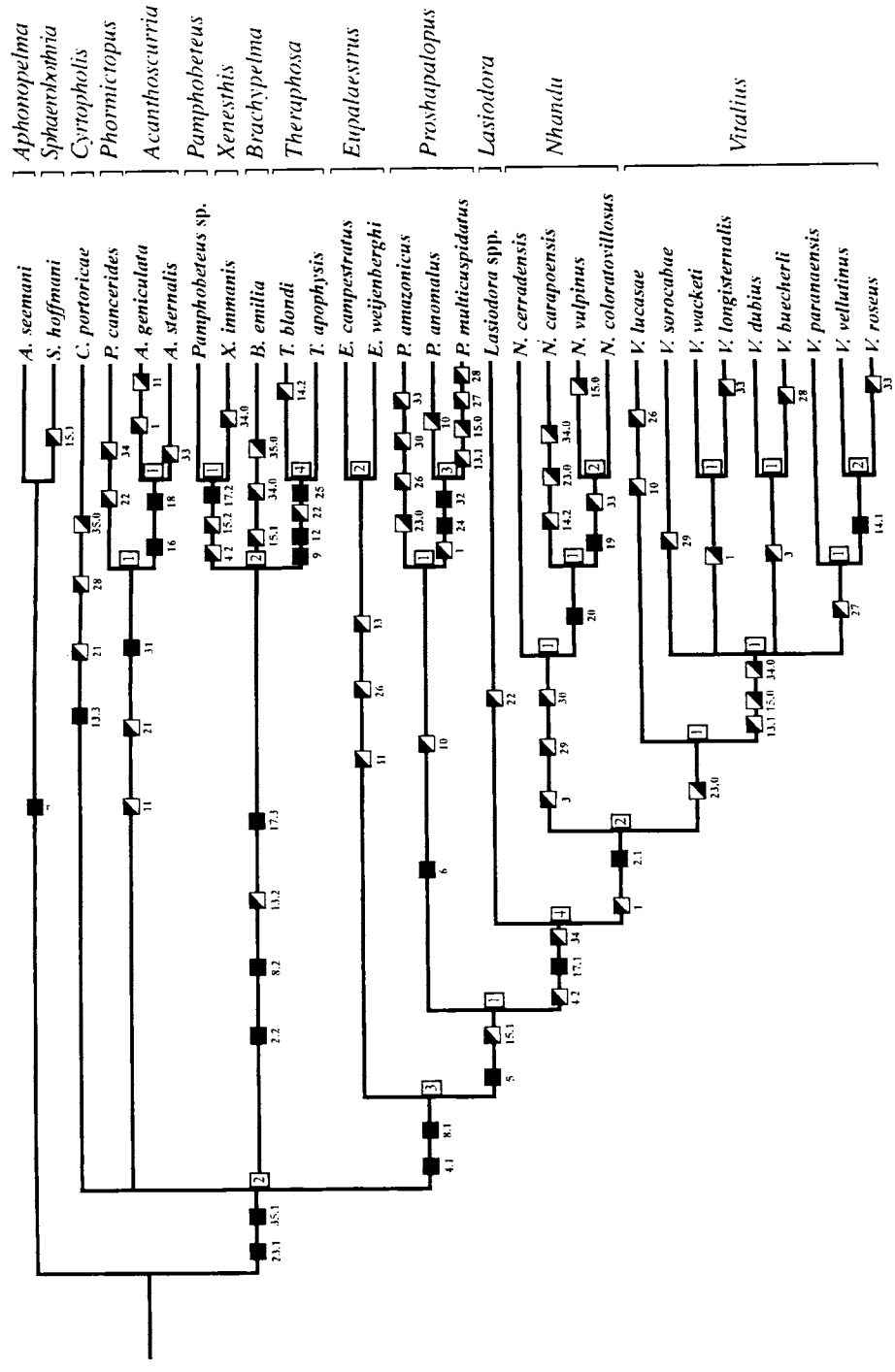


Fig. 165. Cladogram for *Vitalius*, *Nhandu*, *Proshapalopus*, and *Theraphosa* species. All characters unordered. Black square = synapomorphy; upper black triangle in a square = parallelism; lower black triangle in a square = reversal. Bremer support values appear inside a retangle close to each internode.

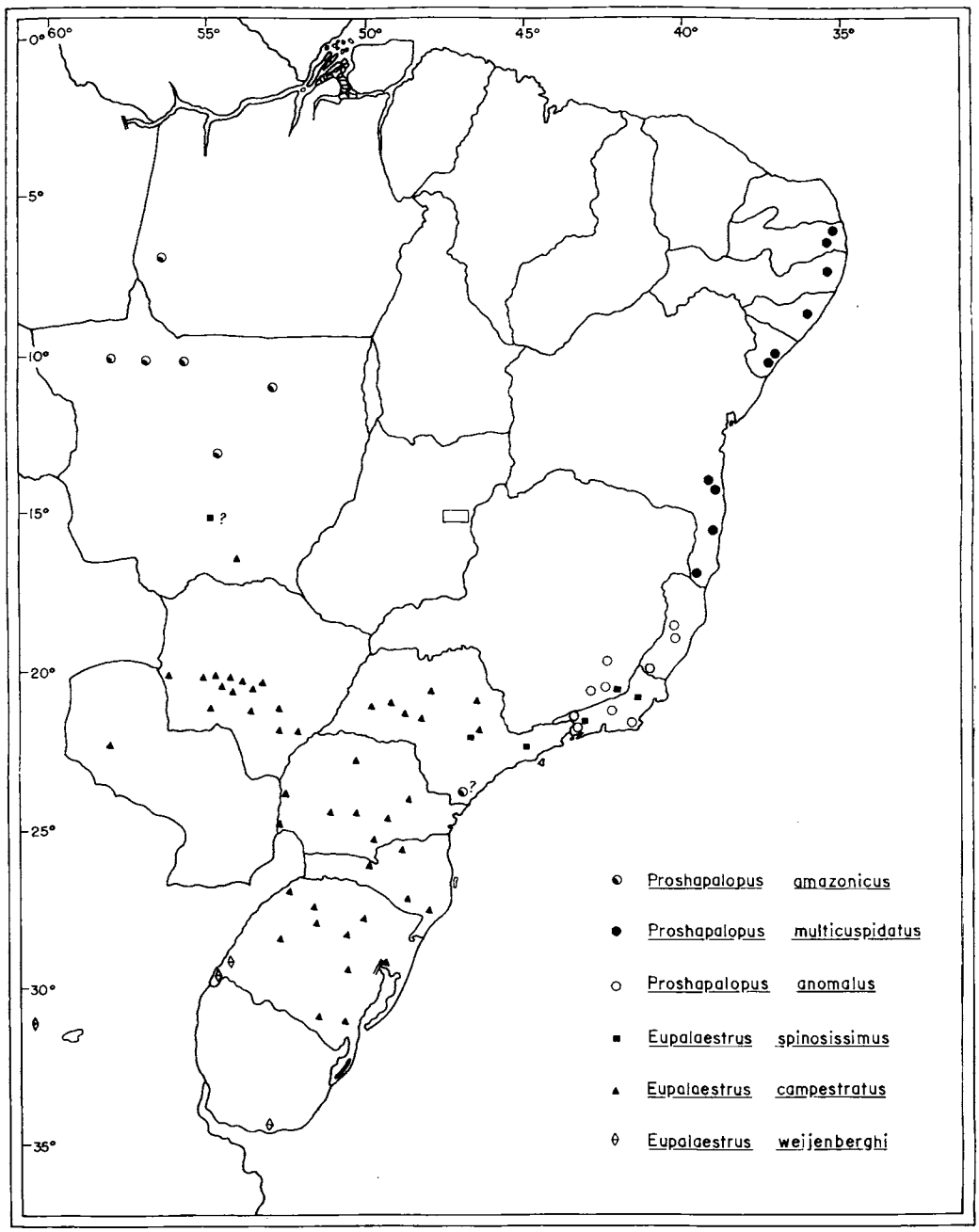


Fig. 166. Distribution of species of *Proshapalopus* and *Eupalaestrus*.

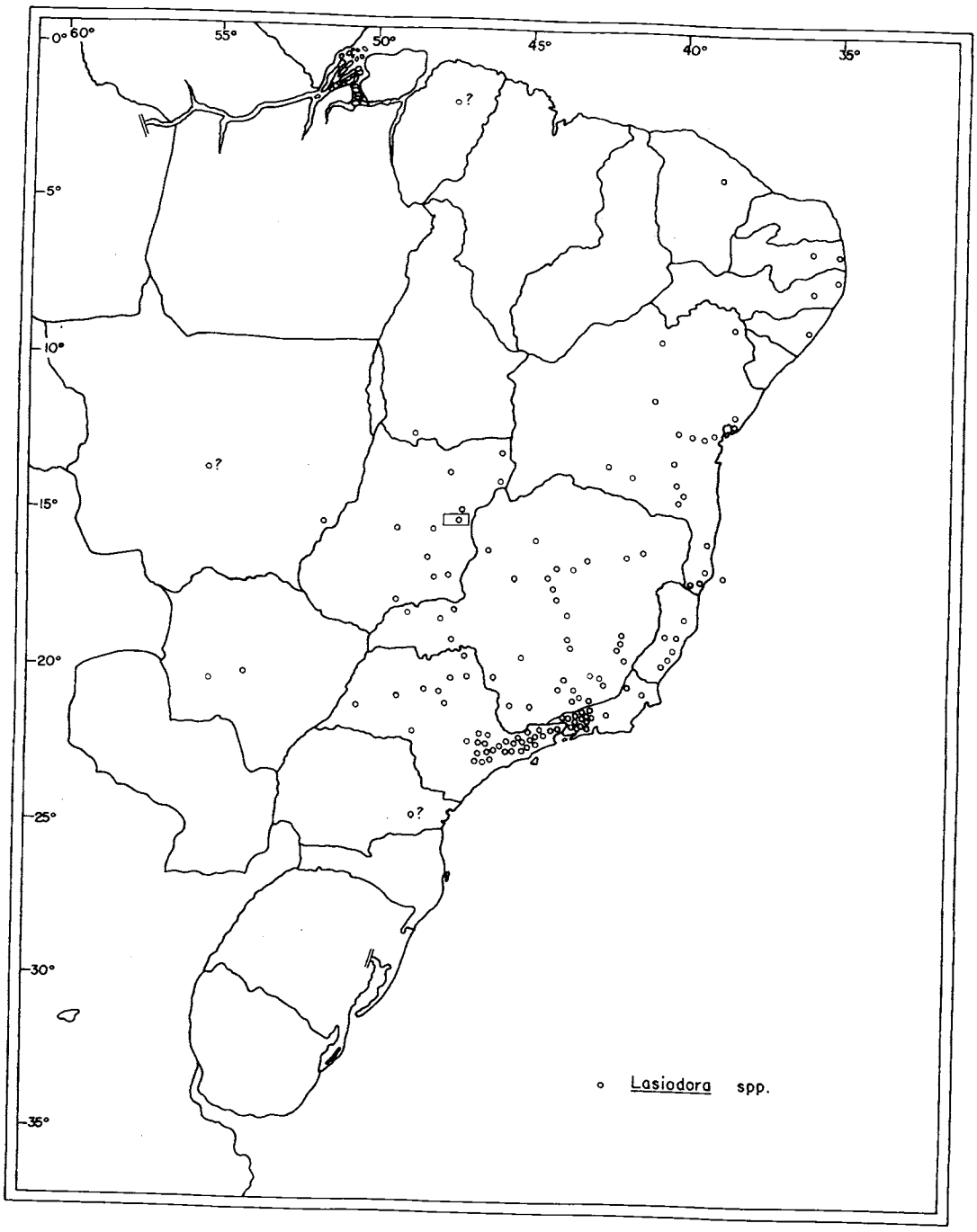


Fig. 167. Distribution of species of *Lasiodora*.

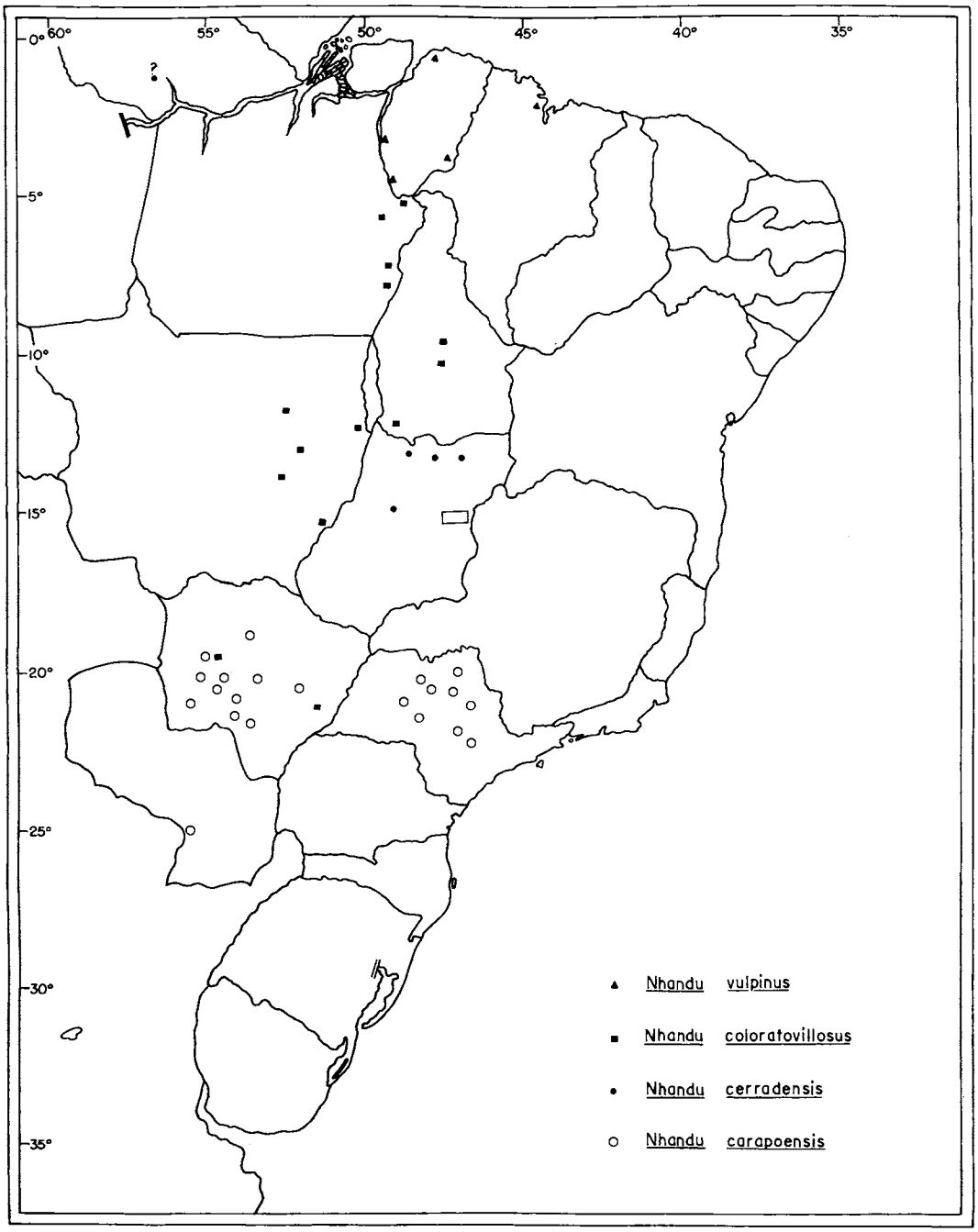


Fig. 168. Distribution of species of *Nhandu*.

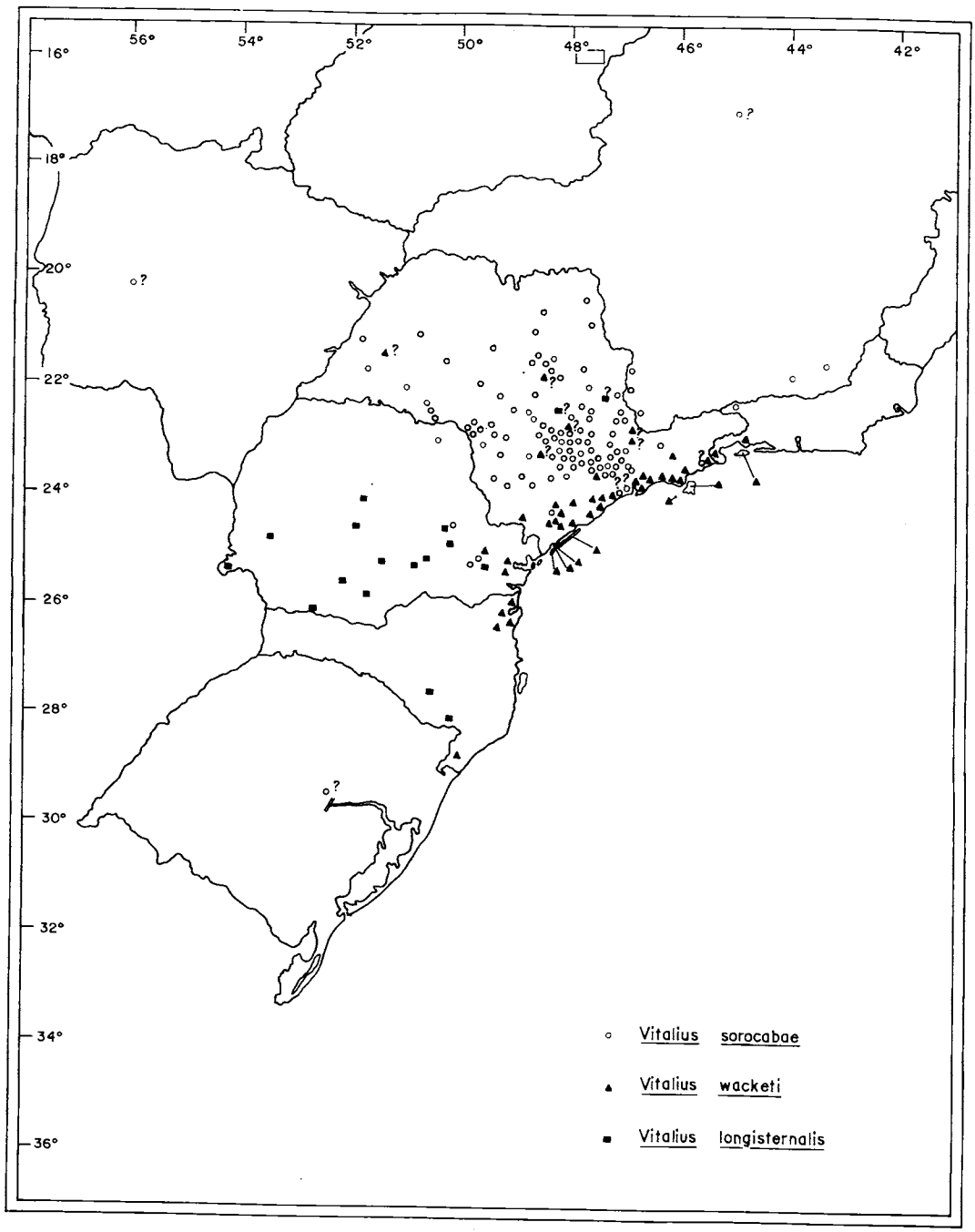


Fig. 169. Distribution of *Vitalius sorocabae*, *Vitalius wacketi*, and *Vitalius longisternalis*.

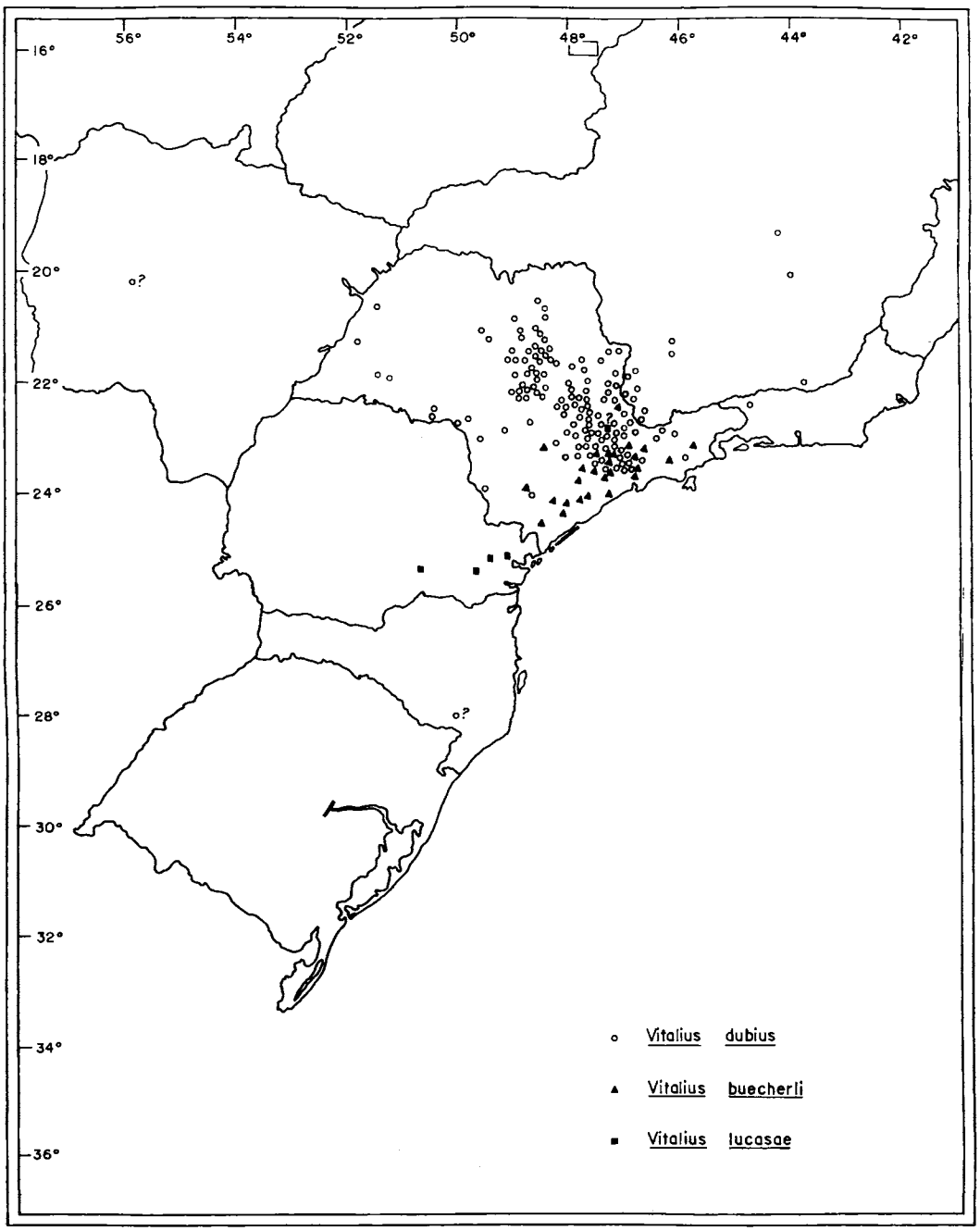


Fig. 170. Distribution of *Vitalius dubius*, *Vitalius buecherli* and *Vitalius lucasae*.

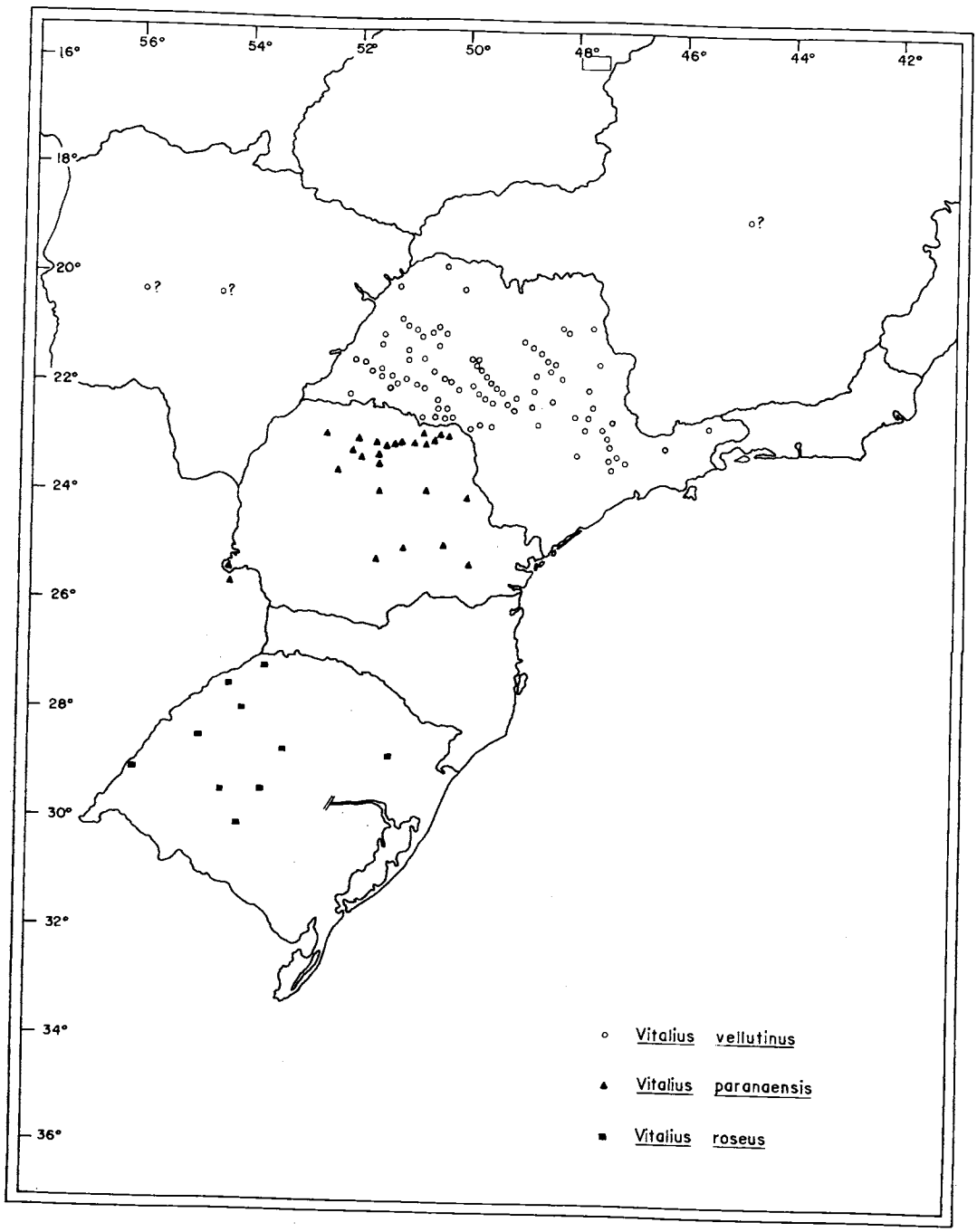


Fig. 171. Distribution of *Vitalius vellutinus*, *Vitalius paranaensis* and *Vitalius roseus*.

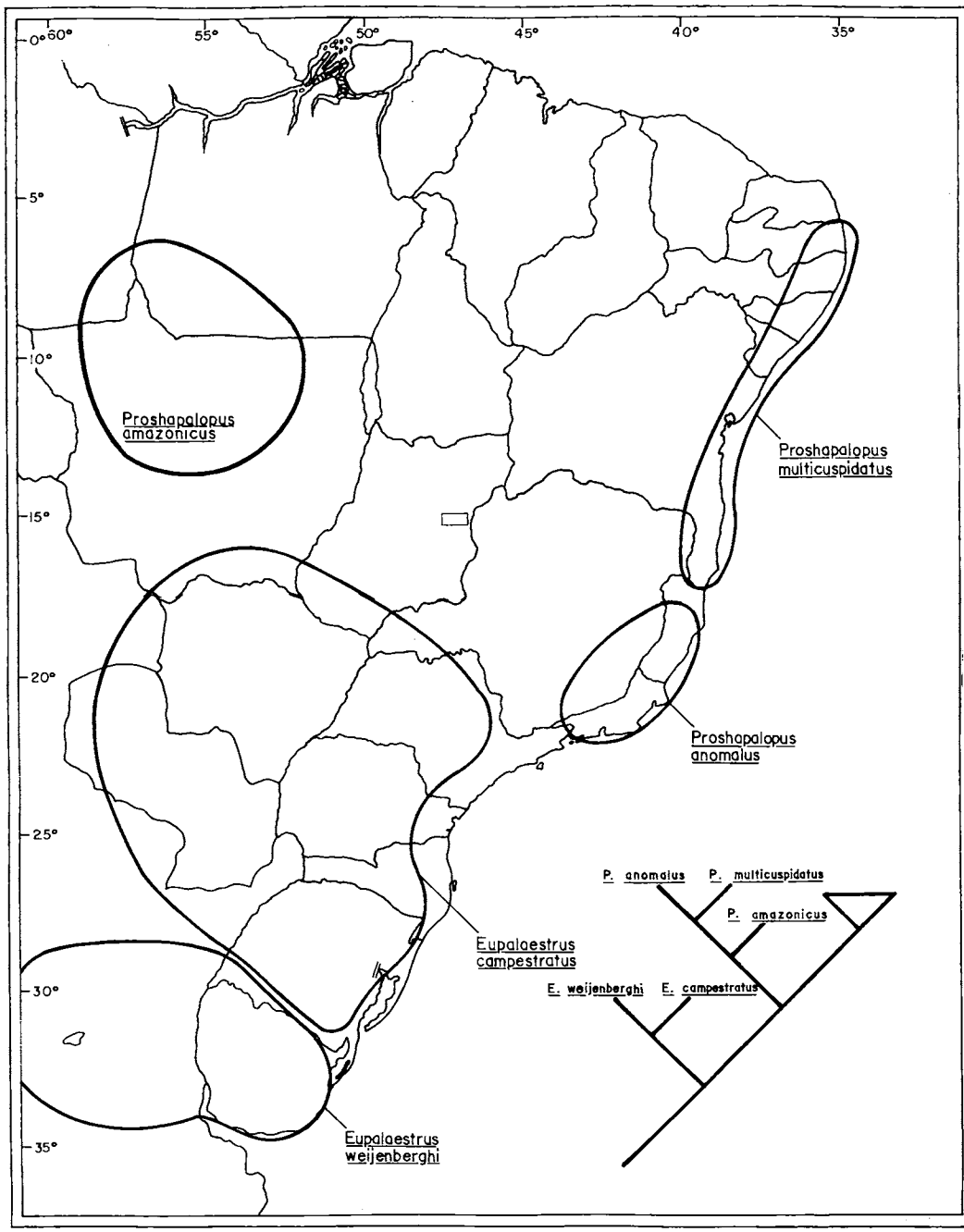


Fig. 172. Area cladogram of species of *Eupalaestrus* and *Proshapalopus*. The triangle represents the clade *Lasiodora* + *Vitalius* + *Nhandu* + sister group of *Vitalius* + *Nhandu*, representated by *Theraphosa*, *Pamphobeteus*, *Xenesthis*, and *Brachypelma*.

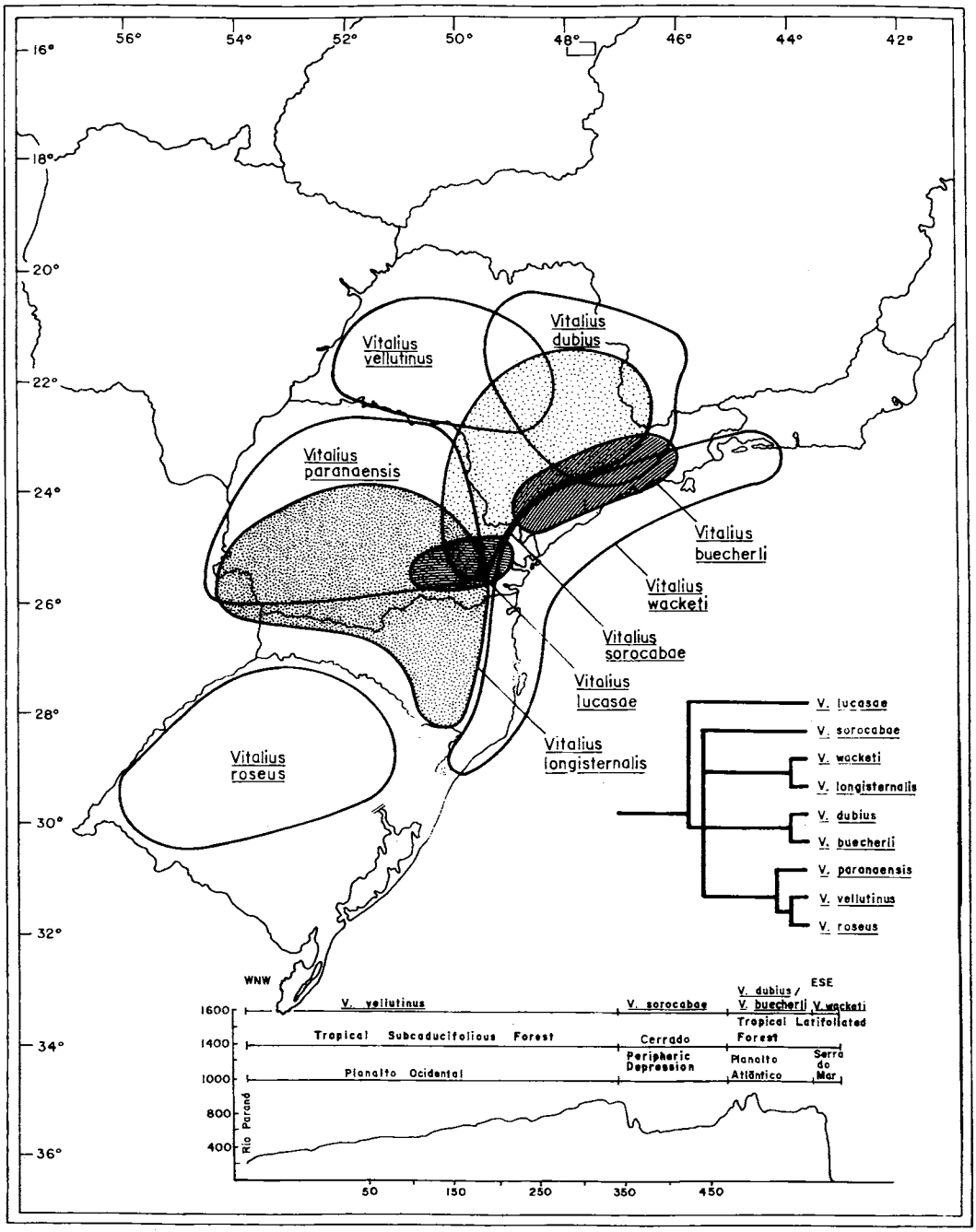


Fig. 173. Area cladogram of species of *Vitalius*; and, east to west cross section of State of São Paulo, Brazil, showing relation between geomorphology, vegetation and distribution of *Vitalius* species. State of São Paulo cross section drawing after Ab'Saber, (1977), modified.

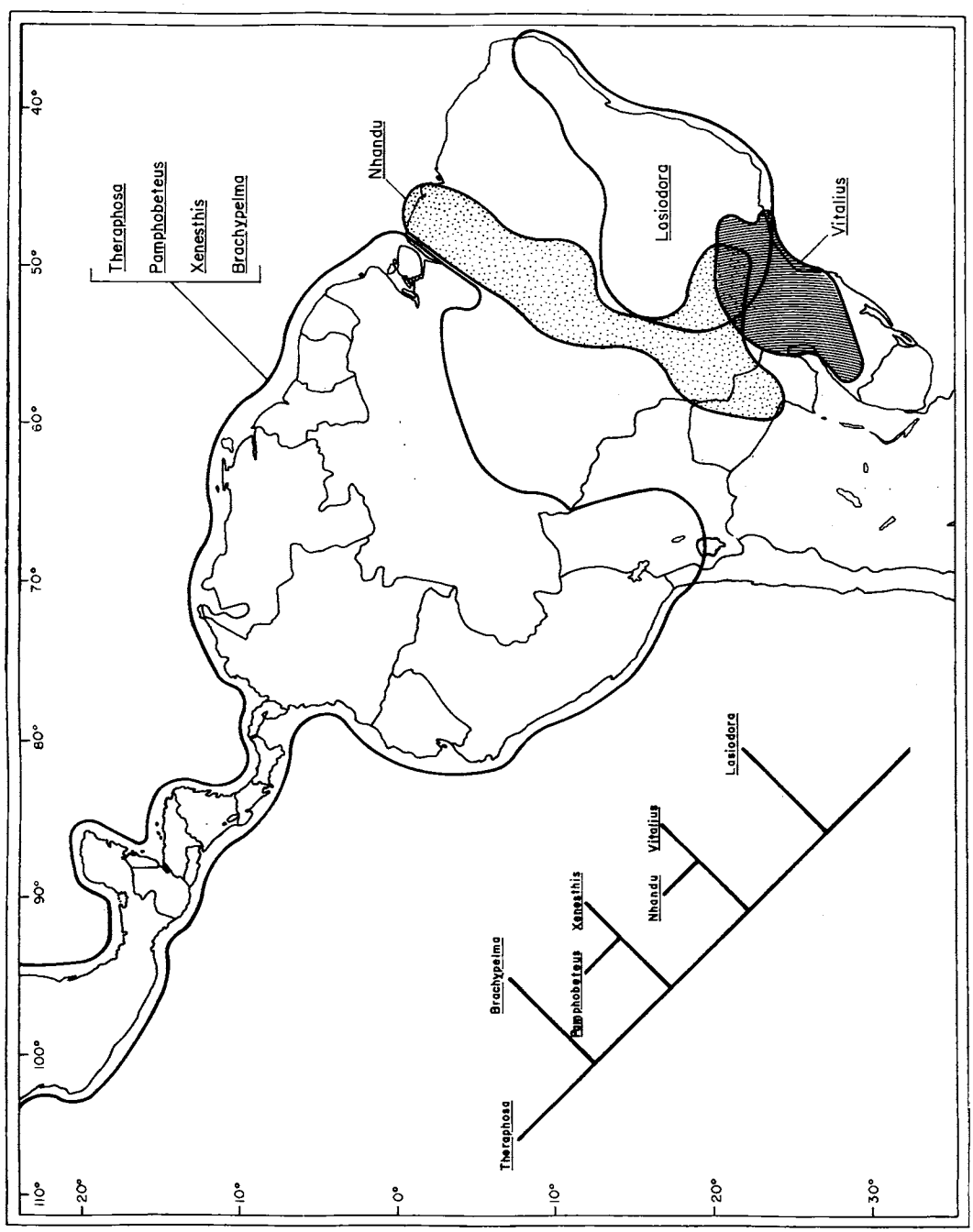


Fig. 174. Area cladogram of species of *Lasiodora*, *Vitalius*, *Nhandu*, and the sister group of *Vitalius* + *Nhandu*, represented by *Pamphobeteus*, *Xenesthis*, *Theraphosa*, and *Brachypelma*.

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Figs. 175-180. (175) *Proshapalopus amazonicus*, female. (176) *Proshapalopus multicuspidatus*, female. (177) *Proshapalopus anomalus*, female. (178) *Vitalius sorocabae*, female. (179) *Vitalius wacketi*, female. (180) *Vitalius wacketi*, male. Photos R. Bertani.

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Figs. 181-186. (181) *Vitalius longisternalis*, female. (182) *Vitalius dubius*, male. (183) *Vitalius dubius*, female. (184) *Vitalius vellutinus*, female. (185) *Vitalius roseus*, female. (186) *Vitalius paranaensis*, male. Photos R. Bertani.

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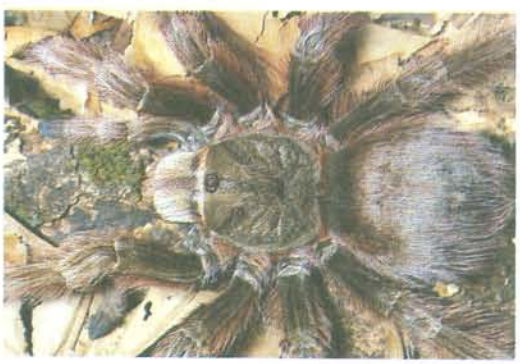

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Figs. 187-192. (187) *Vitalius buecherli*, male. (188) *Vitalius buecherli*, female. (189) *Nhandu carapoensis*, male. (190) *Nhandu cerradensis*, female. (191) *Nhandu vulpinus*, female. (192) *Nhandu coloratovillosus*, female. Photos R. Bertani.

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References

Ab'Saber, A. N. 1977. Espaços ocupados pela expansão dos climas secos na América do Sul, por ocasião dos períodos glaciais Quaternários. *Paleoclimas*, 3:1-19.

Amorim, D. S. & M. R. S. Pires. 1996. Neotropical Biogeography and a method for maximum biodiversity estimation *in* C. E. M. Bicudo & N. A. Menezes (ed.) *Biodiversity in Brazil.* A first approach. Conselho Nacional de Desenvolvimento Científico e Tecnológico. São Paulo. 326 pp.

Ausserer, A. 1871. Beiträge zu kenntnis der Arachnidien familie der Territelariae *Verh. Zool. Bot. Ges. Wien 21*:117-224, T. I, figs. 1-16.

Baumgarten, M. 1998. Das Männchen von *Vitalius cristatus* (Mello-Leitão, 1923) (Araneae: Theraphosidae: Theraphosinae). *Arachnol. Mag.* 6(12):1-8.

Bertani, R. In Press. Male Palpal Bulbs and Homologous Features in Theraphosinae (Araneae, Theraphosidae). *Journal of Arachnology.*

Bertani, R. & O.A.V. Marques. 1996. Defensive behaviors in Mygalomorph spiders: Release of urticating hairs by some Avicullariinae (Araneae, Theraphosidae). *Zool. Anz. 234*:161-165.

Bertkau, P. 1880. Verzeichnids der von Prof. Ed. von Beneden auf seiner im Auftrage der Belgischen Regierung unternommenen wissenschaftlichen Reise nach Brasilien und La Plata I. J. 1879-1875 gesammelten Arachniden. *Mém. cour. Acad. Belgique, 43*:1-120.

Bonnet, P. 1955, *Bibliographie Araneorum*, Tolouse, vol. 2, pt. 1: 1-918.

Bonnet, P. 1956. *Bibliografia Araneorum*. Tolousc, vol. 2, pt. 2:919-1926

Bonnet, P. 1957. *Bibliografia Araneorum*. Toulouse, vol. 2, pt. 3:1927-3026

Bonnet, P. 1958. *Bibliografia Araneorum*. Toulouse, vol. 2, pt. 4:3027-4230

Bonnet, P. 1959. *Bibliographie Araneorum*, Tolouse, vol. 2, pt. 5: 4231-5058.

Bremer, K. 1994. Branch support and tree stability. *Cladistics*, 10:295-304.

Brignoli, P. M. 1983. *A catalogue of the Araneae described between 1940 and 1981.* Manchester, 755 pp.

Bucherl, W. 1947a. Estudo comparativo das espécies brasileiras do gênero *Pamphobeteus* Pocock, 1901. *Mem. Inst. Butantan 20*:233-282

Bücherl, W. 1947b. Duas novas espécies do gênero *Eupalaestrus* Pocock, 1901. *Mem. Inst. Butantan 20*:297-314.

Bücherl, W. 1949. Em torno das três espécies insulares e praianas do gênero *Pamphobeteus* Pocock, 1901 (Mygalomorphae). *Mem. Inst. Butantan 21*:117-136

Bücherl, W. 1957. Sobre a importância dos bulbos copuladores e das apófises tibiais dos ♂s na sistemática das aranhas caranguejeiras (Orthognatha). *Anais Acad. Bras. Cienc. 29*:377-416

Büchel, W., A. T. da Costa & S. Lucas. 1971. Revisão de alguns tipos de aranhas caranguejeiras (Orthognatha) estabelecidos por C. de Mello-Leitão e depositados no Museu Nacional do Rio. *Mem. Inst. Butantan 35*:117-138.

Caporiacco, L. di. 1955. Estudios sobre los aracnidos de Venezuela, 2a parte: Araneae. *Acta Biol. Venez. 1*(16):265-448.

Coddington, J. A. 1990. Ontogeny and homology in the male palpus of orb-weaving spiders and their relatives, with comments on phylogeny (Araneoclada: Araneoidea, Deinopoidea). *Smith. Contrib. Zool.* 496:1-52.

Coddington, J. A. & H. W. Levi. 1991. Systematics and evolution of spiders (Araneae). *Annu. Rev. Ecol. Syst. 22*: 565-592.

Cooke, J.A.L., V.D. Roth & F.H. Miller. 1972. The urticating hairs of theraphosid spiders. *Am. Mus. Novitates 2498*: 1-43.

Coyle, F. A. 1995. A revision of the funnelweb mygalomorph spider subfamily Ischnothelinae (Araneae, Dipluridae). *Bull. Am. Mus. Nat. Hist.* 226:1-133.

Farris, J. S. 1988. *Hennig 86 reference*. Documentation for version 1.5. Port Jefferson, New York.

Gerschman de Pikelin, B. S. & R. D. Schiapelli. 1966. Contribución al conocimiento de *Theraphosa leblondi* (Latreille) 1804 (Araneae: Theraphosidae). *Mem. Inst. Butantan.* Simp. Internac. 33(3):667-674.

Gerschman de Pikeklin, B. S. & R. D. Schiapelli. 1978. Estudio de los ejemplares tipos de *Lasiodora weijenberghi* Thorell, 1894 y *Eurypelma minax* Thorell, 1894 (Araneae, Theraphosidae). *Rev. Soc. Ent. Argentina, 37*(1-4):85-87

Goloboff, P. A. 1993. Nona 1.6. Computer program available from J. M. Carpenter, Dept. Entomology, American Mus. Nat. Hist., Central Park West at 79th, New York, New York 10024 USA.

Goloboff, P. A. 1995. A revision of South American spiders of the family Nemesiidae (Araneae, Mygalomorphae). Part I: Species from Peru, Chile, Argentina and Uruguay. *Bull. Am. Mus. Nat. Hist. 224*: 1-189.

Goloboff, P. A. 1997. Pee-Wee 2.6. Computer program available from J. M. Carpenter, Dept. Entomology, American Mus. Nat. Hist., Central Park West at 79th, New York, New York 10024 USA.

Hauser, D. L. & W. Presch. 1991. The effect of ordered characters on phylogenetic reconstruction. *Cladistics*, 7:243-265.

Fundação Instituto Brasileiro de Geografia e Estatística - IBGE. 1977. *Geografia do Brasil - Região Sul*, 142 pp. Fundação Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro.

Internacional Commission on Zoological Nomenclature 1991. Opinion 1637. *Bull. Zool. Nomenclature* 48:166-167.

Kaston, B. J. 1963. Abnormal duplication of the epigynum and other structural anomalies in spiders. *Trans. Am. Microsc. Soc.* 82(2):220-223.

Keyserling, E. G. 1891. *Die spinnen Americas, Brasilinishe spinnen*. Verlag von Baur & Raspe, Nürnberg, 278 pp.

Koch, C. L. 1842. *Die Arachniden*. Nürnberg, 9, pp. 1-108

Koch, C. L. 1850. *Uebersicht des Arachnidensystems*. Nürnberg 5, pp. 1-77

Latreille, P. A. 1804. *Histoire naturelle générale et particuliére des Crustacés et des Insectes*. Paris. (An XI an XII) 14 tomos. (Arachnides:7:144-305, lam. LXII-LXIV).

Levi, H. W. 1991. The neotropical and Mexican species of the orb-weaver genera *Araneus*, *Dubiepeira*, and *Aculepeira* (Araneae; Araneidae). *Bull. Mus. Com. Zool.* 152(4):167-315.

Lucas, S. 1981. Descrição de gênero e espécie novos da subfamília Theraphosinae (Arancae, Orthognatha, Theraphosidae). *Mem. Inst. Butantan 44/45*:153-156.

Lucas, S. & W. Buchel. 1973. Revision von Typenmaterial der Vogelspinnensammlung des Institutes Butantan. *Zool. Anz. Leipzig 190* (3/4):237-250

Lucas, S., G. Schmidt, P. I. da Silva JR. & R. Bertani. 1991. Wiederaufstellung der Gattung *Sericopelma* Ausserer, 1875 (Araneida, Theraphosidae, Theraphosinae). *Studies Neotrop. Fauna Environ.* 26:229-230.

Lucas, S., P. I da Silva JR. & R. Bertani. 1991. The genus *Ephebopus* Simon, 1892. Description of the male of *Ephebopus murinus* (Walckenaer), 1837. *Spixiana Zeitsch. Zool.* 14:245-248.

Lucas, S., P. I. da Silva JR. & R. Bertani. 1993. *Vitalius*, a new genus of the subfamily Theraphosinae Thorell, 1870 from Brazil (Araneae, Theraphosidae). *Spixiana Zeitsch. Zool. 16*(3):241-245.

Marshall, S. D. & G. W. Uetz. 1990. The pedipalpal brush of *Ephebopus* sp. (Araneae, Theraphosidae): Evidence of a new site for urticating hairs. *Bull. British Arachnol. Soc.* 8:122-124.

Mello-Leitão, C. F. 1921. On the genus *Lasiodora*. - *Ann. Mag. Nat. Hist.* (9) *8*:337-350.

Mello-Leitão, C. F. 1923. Theraphosoideas do Brasil. - *Rev. Mus. Paulista, 13*:1-438, 109 figs.

Mello-Leitão, C. F. 1929. Aranhas do Pernambuco. - *Ann. Acad. Bras. Sci. Rio de Jan.* 1 (*2*):91-112 Figs 1-24.

Mello-Leitão, C. F. 1943. Araneologica varia brasiliana. *Ann. Acad. bras. Cienc. 15*:255-265

Muma, M. H. 1943. Spider deformities. *Bull. Nat. Hist. Soc. Maryland*, 13:80-81.

Nelson, G. & P. Y. Ladies. 1996. Paralogy in cladistic biogeography and analysis of paralogy-free subtrees. *Amer. Mus. Novitates, 3167*: 1-58.

Nixon, K. C & J. M. Carpenter. 1993. On outgroups. *Cladistics 9*:413-426.

Papavero, N. 1994. *Fundamentos Práticos de Taxonomia Zoológica, 2a. ed.*, 285 pp. Editora Unesp, São Paulo.

Pérez-Miles, F. 1989. Variación relativa de caracteres somáticos y genitales em *Grammostola mollicoma* (Araneae, Theraphosidae). *J. Arachnol.* 17(3):263-274

Pérez-Miles, F. 1992a. Revisión del género *Eupalaestrus* Pocock 1901 (Araneae, Theraphosidae). *Rev. Brasil. Biol., 52*:27-35.

Pérez-Miles, F. 1992b. Análisis cladistico preliminar de la subfamilia Theraphosinae (Araneae, Theraphosidae). *Bol. Soc. Zool. Uruguay (2a. Época)*7:11-12.

Pérez-Miles, F. 1994. Tarsal scopula division in Theraphosinae (Araneae, Theraphosidae): its systematic significance. *Journal of Arachnology* 22:46-53.

Pérez-Miles, F. 1998. Notes on the Systematics of the little known theraphosid spider *Hemirrhagus cervinus*, with a description of a new type of urticating hair. *Journal of. Arachnology* 26(1):120-123.

Pérez-Miles, F., S.M. Lucas, P.I. da Silva JR. & R. Bertani. 1996. Systematic revision and cladistic analysis of theraphosinae (Araneae: Theraphosidae). *Mygalomorph 1*: 33-68.

Petrunkevitch, A. 1911. A synonymic index-catalogue of spiders of North, Central and South America with all adjacent islands, Greenland, Bermuda, West Indies, Terra del Fuego, Galápagos, etc. *Bull. Am. Mus. Nat. Hist. 29*:1-809

Petrunkevitch, A. 1925. Arachnida from Panama. *Trans. Conn. Acad. Arts. Sci. 27*:51-248

Petrunkevitch., A. 1928. Systema Aranearum. - *Trans. Connect. Ac. Sci 29*:1-270.

Petrunkevitch, A. 1939. Catalog. of American Spiders. I. - *Trans. Connect. Ac. Sci. 33*:133-338

Pinna, M. C. C. 1991. Concepts and tests of homology in the cladistic paradigm. *Cladistics* 7:367-394.

Piza, S. de T. 1933. Uma nova Theraphosea (Avicullariidae) brasileira. – *Rev. Agric. Piracicaba 8*:(3-4)119-121.

Piza, S. de T. 1939. Novas aranhas do Brasil. - *Rev. Agric. Piracicaba 14*:(7-8)1-8

Piza, S. de T. 1944. Seis aranhas e um Opilião novos do Brasil. - *Rev. Agric. Piracicaba 19*:(6-7) 263-276

Piza, S. de T. 1976. Uma espécie nova de aranha brasileira do gen. *Pamphobeteus* (Theraphosidae). - *Rev. Agric. Piracicaba 51*:56

Platnick, N. I. 1989. *Advances in spider taxonomy 1981-1987*. A supplement to Brignoli's Catalogue of the Araneae described between 1940 and 1981. Manchester Univ. Press, 673 pp.

Platnick, N. I. 1993. *Advances in Spider Taxonomy 1988-1991*. With synonymies and Transfers 1940-1980. Published by The New York Entomological Society in association with The American Museum of Natural History, New York, 846 pp.

Platnick, N. I. 1997. *Advances in Spider Taxonomy 1992-1995*. With redescriptions 1940-1980. New York Entomological Society and The American Museum of Natural History, New York, 976 pp.

Pocock, R. I. 1901. Some new and old genera of S.-American Avicullariidae. - *Ann. Mag. Nat. Hist., ser. 7,8*:540-555.

Pocock, R. I. 1903. On Some genera and species of South-American Avicullariidae. - *Ann. Mag. Nat. Hist., ser. 7, 11*:81-115.

Prentice, T. R. 1997. Theraphosidae of the Mojave Desert West and North of the Colorado River (Araneae, Mygalomorphae, Theraphosidae). *Journal of Arachnology* 25:137-176.

Raven, R. J. 1985. The spider infraorder Mygalomorphae (Araneae): Cladistics and systematics. *Bull. Amer. Mus. Nat. Hist. 182*: 1-180.

Raven, R.J. 1990. Comments on the proposed precedence of *Aphonopelma* Pocoek 1901 (Arachnida, Araneae) over *Rhechostica* Simon 1892. *Bull. Zool. Nomenclature 47*(2): 126.

Roewer, C. F. 1942. *Katalogue der Araneae*, Band 1, Verlag von "Natura", Bremen, 1040 pp.

Ross, J. L. S. 1996. *Geografia do Brasil*, 546 pp, Editora da Universidade de São Paulo, São Paulo.

Rudloff, J. P. 1997. Revision der Gattung *Holothele* Karsch, 1879 nebst Aufstellung einer neuen Gattung *Stichoplastoris* gen. nov. (Araneae, Theraphosidae) und

Wiedereinsetzung einiger weiterer Gattungen der Mygalomorphae. *Arachnol. Mag.* 5(2):1-19.

Schiapelli, R. D. & B. S. Gerschamn de Pikelin. 1962a. Estudio de seis mudas de un ejemplar hembra del género *Grammostola* Simon, 1892 (Araneae, Theraphosidae). *Physis, 23*:17-19.

Schiapelli, R. D. & B. S. Gerschman de Pikelin. 1962b. Importancia de las espermatecas en la sistemática de las arañas del suborden Mygalomorphae (Araneae). *Physis, 23*:69-75.

Schiapelli, R. D. & B. S. Gerschman de Pikelin. 1964. El genero *Acanthoscurria* Ausserer 1871 en la Argentina. *Physis 24*:391-417.

Schiapelli, R. D. & B. S. Gerschman de Pikelin.1967. Estudio sistemático comparativo de los generos *Theraphosa* Walckenaer, 1805; *Lasiodora* C. L. Koch, 1851 y *Sericopelma* Ausserer, 1875 (Araneae, Theraphosidae). *Atas do Simpósio sobre a biota Amazônica* vol. 5 (zoologia):481-494.

Schiapelli, R. D. & B. S. Gerschman de Pikelin. 1979. Las arañas de la subfamília Theraphosinae (Araneae, Theraphosidae). *Rev. Mus. Argentino Cienc. Nat., 5*:287-330, figs. 1-55, 1 map

Schmidt, G. E. W. 1986. *Vogelspinnen: lebensweise, Bestimmungsschlüssel, Haltung und Zucht.* Albrecht Philler Verlag, Minden, R. F. A.

Schmidt, G. E. W. 1989. Wie lautet die (augenblicklich) korrekte Bezeichnung? Vereinsztg. *Vogelspinnenfreunde 5*:29-33

Schmidt, G. E. W. 1990a. Eine schne Leiche, 120 Jahre alt: *Mygalarachne brevipes*. Vereinsztg. *Vogelspinnenfreund 1*:3-5

Schmidt, G. E. W. 1990b. Zur kenntnis der Gattung *Mygalarachne* (Araneida: Theraphosidae). *Aracnol. Anz. 9*:8-12.

Schmidt, G. E. W. 1997. *Nhandu tripartitus* sp. n. (Araneae: Theraphosidae: Theraphosinae), eine Zweite *Nhandu*-Art. *Arachnol. Mag.* 5(7):1-5.

Schmidt, G. E. W. 1998a. *Brazilopelma coloratovillosum* gen. et sp. n. (Araneae: Theraphosidae: Theraphosinae), eine lange verkannte Vogelspinne. *Arachnol. Mag.* 6(4):1-6.

Schmidt, G. E. W. 1998b. *Vitalius vulpinus* sp. n., eine neue *Vitalius*-Spezies aus Nordbrasilien (Araneae: Theraphosidae: Theraphosinae). *Arachnol. Mag.* 6(5):1-6.

Schmidt, G. E. W. & R. Samm. 1998a. Das Männchen von *Brazilopelma coloratovillosum* Schmidt, 1998 (Araneae: Theraphosidae: Theraphosinae). *Arachnol. Mag.* 6(8/9):7-12, Figs. 1-3.

Schmidt, G. E. W. & R. Samm. 1998b. Das Männchen von *Vitalius vulpinus* Schmidt, 1998 (Araneae: Theraphosidae: Theraphosinae). *Arachnol. Mag.* 6(8/9):2-6, Figs. 1-3.

Sierwald, P. 1990. Morphology and homologous features in the male palpal organ in Pisauridae and other spider families, with notes on the taxonomy of Pisauridae (Arachnida, Araneae). *Nemouria 35*:1-59.

Simon, E. 1891. Descriptions d'especes et de genres nouveaux de la familie des Aviculariidae. *Ann. Soc. Ent. France. 60*:300-312

Simon, E. 1892. *Histoire naturelle des araignées.* vol 1, pt 1, 256 pp, Roret, Paris.

Simon, E. 1897. Liste des Arachnides recueillées aux Iles du Cap Vert, in Borelli, Viaggio nella Republique Argentina e Pataguay. *Boll. Mus. Torino* 12 (*270*):1-8

Simon, E. 1903. *Histoire naturelle des araignées.* vol 2, pt 4:669-1080, Roret, Paris

Smith, A. M. 1986. *The Tarantula: Classification and identification guide.* Fitzgerald Publishing, London. 178 pp.

Smith, A. M. 1995. *Tarantula Spiders: tarantulas of the U.S.A. and Mexico.* Fitzgerald Publ. London, 196 pp.

Soares, B. A. M. 1941. Algumas aranhas novas do Brasil. - *Papeis Dep. Zool. São Paulo 1*:255-270

Swofford, D. L. & W. P. Maddison. 1987. Reconstructing ancestral character states under Wagner parsimony. *Math. Biosci.* 87:199-229.

Thorell, T. 1870. On European Spiders. *Nova Acta Regiae Soc. Sci. Upsaliensis* ser. 3, 7:109-242.

Tinter, A. 1991. Eine neue Vogelspinne aus Venezuela *Pseudotheraphosa apophysis* n. gen. sp. n. (Araneae: Theraphosidae: Theraphosinae). *Arachnol. Anz.*, 16:6-10.

Vellard, J. 1936. *Le venin des araignées*, Masson et Cie, Paris

Vivo, M. de. 1997. Mammalian evidence of historical ecological change in the Caatinga semiarid vegetation of northeastern Brazil. *J. Comp. Biol.* 2(1):65:73.

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