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SYSTEMATIC REVIEW AND CLADISTIC ANALYSIS OF THE BRAZILIAN SUBFAMILY CAELOPYGINAE (OPILIONES: GONYLEPTIDAE)

RICARDO PINTO-DA-ROCHA[1]

ABSTRACT

Based upon results of a cladistic analysis, the sub-family Caelopyginae Sørensen, 1884 is reviewed and a new classification is proposed. Nine genera and 28 species are acknowledged as valid. The Caelopyginae species occur in the Atlantic and Araucaria Forests, from the States of Bahia to Santa Catarina. Eight areas of endemism are proposed: Serra da Mar, Paraná/Santa Catarina/southern São Paulo and adjacent areas of Araucaria Forest; Serra da Mar from the São Paulo State; Serra da Mantiqueira; Serra da Bocaina; coastal area along the Southeastern part of the Rio de Janeiro State; Serra dos Órgãos; Espírito Santo and Bahia. Keys for determination of genera and species are presented.

The sub-family Dasypoleptinae Mello-Leitão, 1949 (Gonyleptidae) is synonymized with Caelopyginae.

The genera Arthrodes *Koch, 1839,* Garatiba *Mello-Leitão, 1940, and* Metarthrodes *Roewer, 1913 are revalidated.*

The following genera are considered synonymous: Prosodreana *Giltay, 1928,* Zalonius *Mello-Leitão, 1936,* Metampheroides *Mello-Leitão, 1941 and* Pizaius *Soares, 1942* = Ampheres *C. L. Koch, 1839;* Stenoprostygnus *Piza, 1940* = Pristocnemis *Koch, 1839;* Dasypoleptes *Mello-Leitão, 1949* = Thereza *Roewer, 1943;* Exochobunus *Mello-Leitão, 1931,* Varzellinia *Mello-Leitão, 1942 and* Kapichaba *Mello-Leitão, 1942* = Metarthrodes *Roewer, 1913.*

The following new combinations are proposed: Ampheres luteus *(Giltay, 1928);* A. fuscopunctatus *(Soares, 1942);* Pristocnemis albimaculatus *(Roewer, 1913);* P. perlatus *(Giltay, 1928);* P. farinosus *(Mello-Leitão, 1922);* Thereza speciosa *(Roewer, 1913);* Metarthrodes albotaeniatus *(Mello-Leitão, 1942);* M. laetabundus *(Sørensen, 1884);* M. longipes *(Soares, 1944) and* M. pulcherrimus *(Mello-Leitão, 1931);* Deltigalus curvispina *(Perty, 1833).*

The following species are considered synonymous: Metarthrodes melanacanthus *Roewer, 1913* = Caelopygus melanocephalus *Kollar, 1839;* Zalonius spinipes *Soares, 1944* = Ampheres fuscopunctatus *(Soares, 1942);* Metarthrodes triangularis *Roewer, 1931,* Zalonius punctatus *Mello-Leitão, 1936,* Metampheroides serrinus *Mello-Leitão, 1941 and* Ampheres gracilis *Soares & Soares, 1945* = Ampheres leucopheus *(Mello-Leitão, 1922);* Caelopygus macracanthus *Kollar, 1839* = Arthrodes xanthopygus *Kollar, 1839;* Ampheres pizae *Roewer, 1943* = Pristocnemis farinosus *(Mello-Leitão, 1922);* Varzellinia radagasioi *Soares & Soares, 1945 and* Dasypoleptes guttulatus *Mello-Leitão, 1949* = Thereza albiornata *(Roewer,*

1. Departamento de Zoologia, Universidade de São Paulo, Caixa Postal 11.461, Cep 05422-970, São Paulo, SP, Brazil.

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1943); Zalonius pulcherrimus *H. Soares, 1944* = Thereza speciosa *(Roewer, 1913);* Metarthrodes circumscriptus *Roewer, 1931* = Metarthrodes laetabundus *(Sørensen, 1884);* Metarthrodes rosai *Mello-Leitão, 1942* = Metarthrodes bimaculatus *Roewer, 1913;* Varzellinia leucopyga *Mello-Leitão, 1942* = Metarthrodes leucopygus *Roewer, 1913;* Zalonius albivittatus *Mello-Leitão, 1944* = Metarthrodes albotaeniatus *(Mello-Leitão, 1942);* Heterampheres variabilis *Mello-Leitão, 1935* = Metarthrodes nigrigranulatus *Roewer, 1913.* Caelopygus alter *Roewer, 1923,* Caelopygus kochii *Roewer, 1923 and* Deltigalus bifrons *Roewer, 1931* = Gonyleptes curvispina *Perty, 1833; and* Deltigalus *Roewer, 1931 is newly transferred to the Progonyleptoidellinae (Gonyleptidae).*

Ampheres spinipes *(Perty, 1833) is considered as* species inquerendae.

The following new species are described: Thereza amabilis *(type locality: Angra dos Reis, Rio de Janeiro, Brazil),* Thereza poranga *(type locality: Caraguatatuba, São Paulo, Brazil),* Garatiba bocaina *(type locality: Bananal, São Paulo, Brazil) and* Metarthrodes xango *(type locality: Fazenda São Rafael, Gandu, Bahia, Brazil).*

Keywords: Atlantic Forest; Caelopyginae; cladistic analysis; geographic distribution; Opiliones.

1. Introduction

Many Neotropical harvestmen are recorded only from the type material. The Brazilian harvestmen fauna is best known in eastern region of the Paraná, São Paulo and Rio de Janeiro States. However, there are few records for the remaining States of Brazil, and even in some States (such as Acre and, Sergipe) there are no published records for even a single species, published although they must house several species.

The taxonomy of the harvestmen, especially in the suborder Laniatores, is very confused and several important problems remain unsolved. Until the beginning of this century harvestmen were classified differently according to each author. Carl Friedrich Roewer (1923) began a new age on the taxonomical knowledge of the order, standardizing the descriptions and proposing a new classification for all the Opiliones order. Roewer established that some characters were important to define families (*e.g.,* tarsal process, erroneously called pseudoniquium), some for sub-families (*e.g.,* number of areas on dorsal scute, presence/absence of scopula) and others for genera (*e.g.,* number of tarsal articles, armature of areas of dorsal scute, free-tergites and eye mound). However, the Roewerian system was not efficient, because it attributed a "high value" to some characters, ignoring the use of any others (Kury, 1997; Pinto-da-Rocha, 1997). The Roewerian system overlooked entirely the relationships among taxa, rendering the identification of the majority of groups extremely difficult. He also produced a nonsense classification in which one species could be described in several genera and sub-families. See the report of Kury (1990) on *Mitobates conspersus* (Perty, 1833) which has been described in two sub-families, four genera and as seven different species. Another problem of the Roewerian system was the erection of many monotypic genera, comprising almost 90 % of some groups (Rambla, 1978). This made the use of binominal nomenclature meaningless, because for almost all of the the described species there was a genus.

A few groups of Neotropical Laniatores have been reviewed, such as Stygnidae (Pinto-da-Rocha, 1997) and some sub-families of Gonyleptidae, like Hernandariinae (Soares & Soares, 1984), Goniosomatinae (Jim, 1985, 1995), Sodreaninae and Progonyleptoidellinae (Soares & Soares, 1985), Caelopyginae (Cunha-Filho, 1955) and Mitobatinae (Kury, 1991b). Hypotheses of phylogenetic relationships were proposed only for the families related to the Gonyleptidae (Kury, 1994a), for the sub-families, genera and species of Stygnidae (Pinto-da-Rocha, 1997), among the early lineages of the Gonyleptidae (Kury, 1992a) and for the genera of the Mitobatinae (Kury, 1991b).

Harvestmen show, in general, a high degree of endemism. Most of the Brazilian species occur in restricted areas (*e.g.,* Serra da Bocaina, Serra da Mantiqueira, Serra dos Órgãos). Although the

knowledge of the relationship between the areas of endemism could be of great importance for biodiversity and conservation, only a few attempts were made in this sense. The single biogeographical hypothesis for Brazilian harvestmen was proposed by KURY (1991b) who studied the genera of the Mitobatinae, a sub-family almost completely sympatric with the Caelopyginae.

The sub-family Caelopyginae was reviewed by CUNHA-FILHO (1955) as an unfortunately unpublished Ph.D. thesis. In that thesis Cunha-Filho studied the polymorphism of several characters of external morphology, "described a new species", presented a key for genera, and "established" a new classification for the group. Unfortunately, Cunha did not present any illustration and worked only with material from the *Museu Nacional do Rio de Janeiro*, the *Museu de Zoologia* and with some specimens collected by himself. Some of CUNHA-FILHO's (1955) conclusions agree with those herein proposed (like the synonyms and new combinations) although others differ completely. The transfer of genera and species to other sub-families proposed by CUNHA-FILHO (1955) was latter published by SOARES & SOARES (1985). After the removal of several genera and species not related to this sub-family (SOARES & SOARES, 1985), the remaining genera and species were considered as forming a monophyletic group (KURY, 1992b; 1995).

The Caelopyginae, was composed by 14 genera and 46 species recorded in the Atlantic Forest from the Bahia to Santa Catarina States and the Araucaria Forest in the São Paulo and Paraná States.

The goal of this study is to propose a hypothesis of relationship between genera and species of Caelopyginae and a new classification based upon cladistic analysis.

The revision of Caelopyginae was theme of Ph.D. thesis at "Departamento de Zoologia, Instituto de Biociências, Universidade de São Paulo" and was carried out in "Museu de Zoologia da Universidade de São Paulo".

2. HISTORIC

PERTY (1833) described, based on material collected by Spix and von Martius, the first species of the Caelopyginae, then in the family "Trachearia Phalangida", in the genus *Gonyleptes* Kirby. KOCH (1839a, b) redescribed Perty's species and proposed the genera *Ampheres*, *Arthrodes*, *Caelopygus* and *Pristocnemus (sic)* assigned to the family "Gonyleptides". KOLLAR *in* KOCH (1839a, b), based on material collected by Langsdorff described and presented extensive descriptions and color drawings of several species. GERVAIS (1844) presented diagnoses for the species described by Perty. BERTKAU (1880) described *Caelopygus granulatus* and redescribed *C. macracanthus (sic)*. The family Coelopygoidea was proposed by SØRENSEN (1884), who erroneously corrected the spelling (as stated by the ICZN) of *Caelopygus* to *Coelopygus*, described a new species and redescribed some genera and species. ROEWER (1913b) revised all species of the Gonyleptidae, described several new sub-families, regarded Coelopygoidea as a sub-family, and established *Gonyleptes spinipes* Perty as type species of *Ampheres* Koch. He also presented redescriptions and keys for genera and species. ROEWER (1913b, 1916) described 6 genera (*Heteromitobates*, *Metampheres*, *Metarthrodes*, *Parampheres*, *Sphaerobunus*, and *Proampheres*). MELLO-LEITÃO (1922) established *Liarthrodes* and, *Sodreana*. MELLO-LEITÃO (1923), in his paper "Opiliões Laniatores do Brasil", presented translations of descriptions, copies of already published drawings, synonymic listings, a key for the identification of the Caelopyginae, and designated *Caelopygus elegans* and *Metarthrodes leucopygus* as type species of their genera. ROEWER (1923), in his book "Weberknechte der Erde", presented diagnoses and keys for all genera and species, described *Caelopygus kochii* based upon the material studied by KOCH (1839a, b) who previous described this species as *C. curvispina*, and *C. alter* based on the specimens which Roewer himself (ROEWER, 1913b) considered before as *C. curvispina*. MELLO-LEITÃO (1926) presented a key to genera of the South-American Laniatores, including Caelopyginae. ROEWER (1927) described *Deltaspidium* in Gonyleptinae. GILTAY (1928) described three new species and established *Prosodreana* and, in 1930 these descriptions were published again by himself. MELLO-LEITÃO (1931) proposed *Exochobunus* and described *E. pulcherrimus*. ROEWER (1931) presented a key to genera, new records of distribution, translated the descriptions by Mello-

Leitão and Giltay, established *Caelopygulus* for *Coelopygus leucopheus* Mello-Leitão, *Calampheres* for *C. boliviensis*, *Deltigalus* and, five new species. MELLO-LEITÃO (1932) in his most significant paper, "Opiliões do Brasil" redescribed the sub-family Caelopyginae, their genera and species, described *Liarthrodes granulosus*, presented keys, translated descriptions and reproduced Roewer's drawings. MELLO-LEITÃO (1933, 1935a, 1935c, 1936, 1940a, 1941, 1942a, 1942b and, 1944) established *Iguapeia*, *Heterampheres*, *Heterarthrodes*, *Zalonius*, *Metampheroides*, *Kapichaba*, *Varzellinia* and, *Garatiba* and described 11 species. MELLO-LEITÃO (1935b) presented short diagnoses for some genera and reported that species of Caelopyginae "live on leaves like the Palpatores, hiding during hot hours". PIZA (1940b) described the genus and species *Stenoprostygnus mamillatus* and curiously, pointed out that it shared affinities with the Prostygninae (Gonyleptidae, now a sub-family of Cranaidae) and Stenostygninae (Stygnidae). In 1943, he described another species of the Caelopyginae. SOARES (1942) described *Pizaius* and *P. fuscopunctatus*. SOARES (1943a) synonymized the genus and species *Stenoprostygnus mamillatus* Piza with *Metarthrodes farinosus* Mello-Leitão. SOARES (1943b) synonymized *Coelopygulus* with *Metarthrodes*, *M. pardalis* Piza with *M. leucopheus* (Mello-Leitão). ROEWER (1943) established *Thereza* and four species. H.SOARES (1944) described *Zalonius pulcherrimus*. SOARES (1944a) described two species. SOARES (1944e) synonymized *Metarthrodes massarti* Giltay, 1928 with *M. farinosus* Mello-Leitão, 1922. H. SOARES (1945) mentioned that *Zalonius pulcherrimus* H. Soares and *Metarthrodes speciosus* Roewer could be the same species, but she did not formally propose the synonymy. SOARES (1945b, 1945c, 1946) revised the collection of Opilionids from the *Museu Nacional*, those from the *Instituto Butantan*, and those from the *Museu de Zoologia*, respectively. SOARES & SOARES (1945b, 1945c, 1954) described three species. SOARES & SOARES (1948) published the catalogue for the sub-family with citations of all the genera and species, synonymic listing, bibliography, records of distribution, repositories of type material and a key to genera. MELLO-LEITÃO (1949) proposed the sub-family Dasypoleptinae, the genus *Dasypoleptes*, and described *Dasypoleptes guttulatus*. MORITZ (1971) listed type material from the *Zoologisches Museum Berlin*. H. SOARES (1979) described *Annampheres* and *A. thimoteocostae*. Until the 80's, most of the work done on the group was the description of "a new taxon from somewhere", and a few synonyms were established among species described (and deposited in Brazil) by the Brazilian researchers. The generic diagnostic features remained untouched. The situation changed with SOARES & SOARES (1985), who transferred *Parampheres* Roewer and *Calampheres* Roewer to the Gonyleptinae, *Sphaerobunus* Roewer and *Sodreana* Mello-Leitão to the Sodreaninae, *Iguapeia* Mello-Leitão to the Progonyleptoidellinae, synonymized *Annampheres thimoteocostae* H. Soares with *Zortalia bicalcarata* Mello-Leitão and transferred it to Sodreaninae. They use the utilization of the number of tarsal articles as a diagnostic character for Gonyleptinae and Caelopyginae and presented a new diagnosis for the Caelopyginae. The Soares couple borrowed almost all species of Laniatores deposited in Brazilian museums and studied them in Botucatu (São Paulo State). Unfotunately, the Brazilian material was has never compared to the European one and, the couple has never been to Europe in order to see them or loan types by mail. In their last works they followed the same line of reasoning as in SOARES & SOARES (1986), in which they commented on the variability of the armature on areas I-III, transferred *Gonyleptes asper* Perty to the *Deltaspidium* (Gonyleptinae), proposed the new combination *Caelopygus xanthopygus*, synonymized *Arthrodes* Koch and *Liarthrodes* Mello-Leitão with *Caelopygus* Koch and their species, and illustrated for the first time the male genitalia of a Caelopyginae. SOARES & SOARES (1987) synonymized *Caelopygus pseudomacrocanthus* with *C. macrocanthus* and included illustration of male genitalia. In the 90's, Adriano Kury (MNRJ) launched a new age in the systematics of Laniatores using cladistic analysis of the Neotropical taxa, and in 1992 suggested that Cosmetidae was the sister-group of Gonyleptidae plus Stygnidae. KURY (1992b) recognized the monophyletic group composed of the sub-families Caelopyginae, Gonyleptinae, Hernandariinae, Progonyleptoidellinae, and Sodreaninae. KURY (1994a) recognized the early lineages of Gonyleptidae, composed by Metasarcinae, Heteropachylinae, Cobaniinae and,

Bourguyiinae. KURY (1995) emphasized his hypothesis of relationships found among Caelopyginae and other sub-families of Gonyleptidae published in 1992.

3. MATERIAL AND METHODS

3.1. Material

The review was based upon the study of 1168 specimens. The acronyms of institutions, name of the collections studied, cities and curators are listed below. The abbreviations are, in general, according to ARNETT (1986).

AMNH American Museum of Natural History, New York, N. I. Platnick.

CGCP Carlos Nicolau Gofferjé Private Collection, Blumenau, C.N.Gofferjé.

HSPC Helia Soares Private Collection, Universidade Estadual Paulista, Departamento de Zoologia, Botucatu, R. S. Jim.

IBSP Instituto Butantan, São Paulo, A.D. Brescovit

ISNB Institut Royal des Sciences Naturelles de Belgique, Bruxelles, L. Baert

MCNZ Museu de Ciências Naturais, Fundação Zoobotânica of Rio Grande do Sul, Porto Alegre, E. H. Buckup.

MHNC Museu de História Natural "Capão da Imbuia", Curitiba, J.C. Moura-Leite.

MNHN Muséum National d'Histoire Naturelle, Paris, A. Muñoz-Cuevas.

MNRJ Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, A.B. Kury.

MZSP Museu de Zoologia, Universidade de São Paulo, São Paulo, R. Pinto-da-Rocha.

NHMW Naturistorishes Museum Wien, Wien, J. Gruber.

SMFD Naturmuseum Senckenberg, Frankfurt, M. Grasshoff. The Roewer's collection "CR" is deposited in this collection

ZMHB Museum für Naturkunde der Humboldt-Universität zu Berlin, Berlin, M. Moritz.

ZUEC Museu de História Natural, Universidade Estadual de Campinas, Campinas, W. Silva.

ZMUH Zoologisches Institut und Zoologisches Museum, Universitat von Hamburg, Hamburg.

UZMD Zoologisk Museum, Copenhagen, H. Enghoff.

3.2. Abbreviations

Synonymic listing: bib = bibliographic; bion = bionomic data; cat = catalogue; key = key for determination; cit = citation; desc = description; desig = designation of type species; diag = diagnosis; dist = distribution; misid= misindentification; rdesc = redescription; syn = synonymy; syst = systematic discussion; typ = information on type material.

3.3. Type material

The type material of most species has been studied, except for those considered lost, like *Proampheres serratus* (Kollar, 1839), and the species described by PERTY (1833) as *Ampheres spinipes*, and some species of *Gonyleptes* and *Caelopygus elegans*. For these species, only information found in literature was used.

3.4. Scanning Electron Microscopy

The preparation of the penis for examination by Scanning Electron Microscopy was modified from PINTO-DA-ROCHA (1997). The penis was removed with a sharp scalpel and dissected under water. The tissues that covered the penis were removed and, it was then transferred to commercial detergent "Veja Multi-Uso" diluted in water (1/3) and cleaned with the ultrasonic Thornton T-14 for 3-5 min. Afterward, the material was cleaned again in water using ultrasound, air dried and mounted on a stub. The specimens were coated with gold by a Sputter Coater Balzer SCD 050 and studied under the Scanning Electron Microscope ZEISS DSM 940 of the "Laboratório de Microscopia Ele-

trônica do Instituto de Biociências da Universidade de São Paulo".

3.5. Records of geographical distribution

Records of geographical distribution were taken from labels of the examined material and from literature data (when judged trustworthy).

ROEWER (1913b, 1923) recorded the following species the from Bahia State: *Caelopygus elegans*; *Metampheres albimarginatus*; *Metarthrodes bimaculatus*; *M. leucopygus, Thereza speciosa* and *Pristocnemis albimaculatus*. *Caelopygus elegans* and *Metampheres albimarginatus* were recorded only in the Rio de Janeiro State and, *P. albimaculatus* also in the Serra da Bocaina. *M. bimaculatus* and *M. leucopygus* were recorded only in the Espírito Santo State and finally, *Thereza speciosa* was found only in the south of the São Paulo, Paraná and Santa Catarina States. The record of *Ampheres tocantinus* from the Tocantins river was not included in the geographic distribution maps of the Caelopyginae and is considered incorrect. The accuracy of Roewer's records of localities was questioned by some authors (HELVERSEN & MARTENS, 1972; KURY, 1991b), and it was proven that some are wrong. Several records cited by PERTY (1833) also seem to be ambiguous.

The type localities of the species of Caelopyginae described by PERTY (1833) and by KOLLAR *in* KOCH (1839a, b) were assigned to "Brasil" or "Provincia Bahiensi". The material studied by Perty was collected by Spix and Martius during their voyage across Brazil. These Bavarian researchers collected in the city of Rio de Janeiro (Laranjeiras, Corcovado, Aqueduto, Fonte da Carioca, Tijuca, Botafogo), in the Fazenda Mandioca (near the city of Rio de Janeiro, where they met Langsdorff), in several localities of São Paulo State (as Lorena, Guaratinguetá, Pindamonhangaba, Taubaté, Mogi das Cruzes), Bahia (Salvador, Ilhéus, Itabuna, Feira de Santana and other), and in the States of Minas Gerais, Ceará, Maranhão, Pará and Amazonas (PAPAVERO, 1971). The material studied by Kollar was obtained by the German Heinrich von Langsdorff who collected (during his second voyage to Brazil) in the Fazenda Mandioca, Corcovado (County of Rio de Janeiro) and Cabo Frio (PAPAVERO, 1971). During his voyages to Brazil, Langsdorff visited the States of Santa Catarina (only Florianópolis), São Paulo, Rio de Janeiro, Minas Gerais, Mato Grosso do Sul, Mato Grosso, and Pará (PAPAVERO, 1971). Many species collected by Spix, Martius and Langsdorff were captured again in the areas of the city of Rio de Janeiro and of Serra dos Órgãos. This fact led me to believe that the Caelopyginae described by Perty and Kollar were found in the Fazenda Mandioca, Serra dos Órgãos and/or city of Rio de Janeiro. A well-known mistake of type locality established by Perty refers to the scorpion *Tityus bahiensis* (see LOURENÇO, 1982) as its own name suggests, a species that should be attributed to Bahia. However, this scorpion of remarkable medical importance has never been found in Bahia. It is found in Minas Gerais, Rio de Janeiro and São Paulo (States visited by Spix and Martius) and also in the South of Brazil, Paraguay and Argentina.

3.6. Terminology, measurements and illustrations

The terminology follows KURY (1990, 1991b, 1994a) and, PINTO-DA-ROCHA (1997). The length of setae on the pedipalpal tibia-tarsus (without the socket) was coded as "I" for the long setae and "i" for the short setae. Short setae are those which are less than half the length of the longest segment setae. Whenever a variation of the setae length is found it is mentioned in parentheses. These terms were firstly used by MELLO-LEITÃO (1939, 1940a, 1942a) who has never explicitly mentioned the method. KURY (1991a) defined "I" as "robust spine" and "i" as short spine however, the definition of intermediate states remained unsatisfactory. Measurements are in milimeters and were taken in dorsal view. The color photographs were taken in the field, using a macrophotographic lens (100 mm). The specimens were anaesthetized, or killed with ethyl acetate and set in a "natural" position. The drawings were made under *camara lucida*.

3.7. Cladistic analysis

Cladistic analysis (WILEY, 1981; AMORIM, 1994) was perfomed with the Hennig86 computer program (FARRIS, 1988). Polarization was made using outgroup comparison (WATROUS & WHEELER, 1981; MADDISON *et al.*, 1984) with the sub-families

related to Caelopyginae, such as Progonyleptoidellinae and Hernandariinae (see the list of species below) as proposed by KURY (1992b, 1995). A preliminary cladistic analysis among the sub-families of Gonyleptidae was performed together with Adriano Kury (Museu Nacional, Rio de Janeiro), and will be published elsewhere. The results confirmed the hypothesis of the relationship of Caelopyginae with other sub-families (Fig. 10). For details see item 6 "affinities" of Caelopyginae (page 381). The trees were rooted with a hypothetical group presenting all characters in a plesiomorphic state. In both analyses, only taxa with known males were included, because most of the information used was related to the penis and male external morphology. This procedure avoided building a data matrix with a too large number of features coded as unobserved which would produce "noise". The exact algorithm, "implicit enumeration (ie)" could not be used, probably because of the size of data set and high number of homoplasies present in the analysis. The combination of the approximate algorithms "mh*" and "bb*" was used, the second best alternative, according to PLATNICK (1989). The characters were ordered only when there was an indication of minimal connection among the states, namely, there are traces on the direction of the transformation series and not all possibilities of connection between the states are feasible (SLOWINSKI, 1993). A strict consensus tree (obtained with the command "nelsen") was chosen. Although, a consensus tree presents a higher number of steps and some of the character optimizations may be flawed, I believe that it is the best choice because it shows all the topological information obtained by different, equally parsimonious trees. Distribution of characters was observed in the computer program CLADOS version 1.2 (NIXON, 1992) and with the Tree-Gardener, developed by Tiago Ramos (RAMOS, 1996). The characters used are summarized on table II, "0" is the plesiomorphic state and "1-4" the derived states, "-" means a nonobserved or not comparable character. The optimization options ACCTRAN and DELTRAN were not chosen *a priori* and are discussed in the results of cladistic analysis. The autapomorphies were kept to avoid loss of information (YEATES, 1992), but they were not exhaustively surveyed.

Material examined of the outgroups: SODREANINAE, *Sodreana sodreana* Mello-Leitão, 1922, Brazil, São Paulo, 2.XII.1992, 1♂, 1♀ (MZSP-14,165); *Stygnobates inscriptus* (Mello-Leitão, 1939), Brazil, São Paulo, Ilha da Queimada Grande, E. Dente *leg.*, 14/22.IV.1947, 2♂, 3♀ (MZSP-14,591); PROGONYLEPTOIDELLINAE, *Progonyleptoidellus striatus* (Roewer, 1913), Brazil, São Paulo, Bertioga, Caiubura (25°52'S - 46°10'W), F.A.G. Mello *leg.*, 28.IX/10.X.1995, 1♂, 3♀ (MZSP-14,836); *Cadeadoius niger* (Mello-Leitão, 1936), Brazil, Paraná, Morretes (Marumbi), C.N. Goffergé *leg.*, IX.1945, 1♂, 1♀ (MZSP-964); *Heliella singularis* B. Soares, 1945, Brazil, Paraná, Piraquara (Banhado), C.N. Goffergé, X.1945, 1♂, 3♀ (MZSP-1,894); *Iguapeia melanocephala* Mello-Leitão, 1935, Brazil, São Paulo, Ilha do Cardoso, M. Segalla *leg.*, 19.IV.1991, 3♂ (MZSP-14,125); HERNANDARIINAE, *Hernandaria heloisae* (H. Soares, 1945), Brazil, Paraná, Curitiba (Barigui), Hertel *leg.*, 1944, 1♂ (MZSP-944); *Acrogonyleptes curitibae* (B. Soares, 1943), Brazil, Santa Catarina, Florianópolis, Springmann *leg.*, X.1945, 1♂, 1♀ (MZSP-978).

4. GEOGRAPHICAL DISTRIBUTION

The Caelopyginae were recorded from Bahia to Santa Catarina in areas of *Araucária* and, mainly, of Atlantic Forests (Figs. 1). This group has a high number of endemic species (see Tab. I). From 28 species of the sub-family, 18 are restricted to one area. Two other species occur in two close areas (Serra dos Órgãos and Serra da Bocaina). *Ampheres tocantinus* and *A. spinipes* have an unknown area of distribution, and the record from the Rio Tocantins is flawed, a fact already observed in other species described by C.R. Roewer. The harvestmen of the States of Paraná, São Paulo and Rio de Janeiro are the better known and their fauna was studied by Carl F. Roewer, Cândido Mello-Leitão, Benedito and Helia Soares. However, knowledge of the geographical distribution of the harvestmen in the South and Southeast and adjacent areas of Brazil still remains unsatisfactory. Some areas such as the Serra dos Órgãos, Serra da Mantiqueira and Serra da Mar/São Paulo were well sampled. Other like the Bahia and Espírito Santo States were much less studied and only few collections were made there. It is probable that a significant number of new species will be

discovered in Bahia and Espírito Santo. Another important fact are the flawed records made by PERTY (1833) for "Provincia Bahiensi", and ROEWER (1913b, 1923) for "Bahia" (*Ampheres spinipes*, *Caelopygus elegans*, *Metampheres albimarginatus*, *Pristocnemis albimaculatus*, *Thereza speciosa*, *Metarthrodes leucopygus* and *M. bimaculatus*) and Santa Catarina (Seara, Nova Teutônia). The seven species mentioned above were recorded from Serra dos Órgãos (3 spp.), Espírito Santo (2 spp.) or Paraná/Santa Catarina (1 sp.). For more details see the item 3.5.

Areas of endemism with their endemic species are listed below (Tab. I) and plotted on figure 1:

* Serra do Mar, Paraná-Santa Catarina-São Paulo States - This area comprises the *Restinga* Forest of the Paraná coast and the Atlantic Forest from Serra do Mar in Santa Catarina to São Paulo and neighboring areas of Araucaria Forest (Curitiba, Almirante Tamandaré and Tijucas do Sul) on the first plateau of Paraná (see MAACK, 1981). The boundary to the North is the rio Ribeira do Iguape. Three species of Caelopyginae were recorded in this area and, only one, *Thereza speciosa*, is endemic. *T. speciosa* was recorded from Rancho Queimado (Santa Catarina State) to the Southeast São Paulo State. In this zone of endemism species of *Metarthrodes* are absent, except for a questionable record of *M. nigrigranulatus* on "Paraná".
* Serra da Mar, São Paulo - This area is limited on the east by the ocean and to the west by the subtropical forest of the São Paulo Plateau (see HUECK, 1972). The boundary to the South is the Ribeira do Iguape river valley and to the North the Ubatuba county and neighboring areas of the Serra da Bocaina. It is one of the best known areas and it has the second largest number of endemic species of Caelopyginae, as follows: *Ampheres fuscopunctatus*, *Thereza poranga*, *Metarthrodes pulcherrimus* and *M. longipes*.
* Serra da Mantiqueira - Two localities were well sampled, Parque Nacional do Itatiaia and Campos do Jordão. This area is covered by Araucaria and Atlantic forest and it is limited to the East by the Paraíba do Sul river. Three species were recorded and only *Ampheres luteus* is endemic.
* Serra da Bocaina - A few samples were taken in this area. Eight species were recorded and only *Garatiba bocaina* is endemic. This area comprises the Serra da Bocaina, reaching the Parati county (Southern Rio de Janeiro), and is covered by Atlantic Forest.
* Southern Rio de Janeiro State Coast - This region comprises the areas close to Mangaratiba and the Ilha Grande bay and is covered by Atlantic Forest. There are two endemic species, *Garatiba bisignata* and *Thereza amabilis*. Unfortunately, the two known species were recorded only by the type series. Other Gonyleptidae (non-Caelopyginae) found there were recorded also in Serra da Bocaina and/or North of Serra do Mar in the São Paulo State. This led me to believe that this zone could be part of the endemic area of the Serra da Bocaina or Serra do Mar.
* Serra dos Órgãos, Baixada Fluminense and Serra do Espinhaço - This region is one of the best known areas. Six endemic species were recorded from this Atlantic Forest area, as follows: *Caelopygus elegans*, *C. melanocephalus*, *Arthrodes xanthopygus*, *Metampheres albimarginatus*, *Pristocnemis albimaculatus* and *Metampheres hamatus*; only the latter were recorded from the Serra da Espinhaço.
* Espírito Santo – This zone is borderedto the North by the Doce river and to the South by a gap in the coastal mountain range and rain forests to the south of Vitória county, where semi-decidual forest occurs (HUECK, 1972). This area has five species, of which four endemic are recorded, as follows: *Thereza albiornata*, *Metarthrodes bimaculatus*, *M. leucopygus* and *M. albotaeniatus*. The sampled areas are in the Colatina, Santa Tereza and Santa Leopoldina counties. It is probable that more species will be found in this area.
* Bahia - From this area, only one species is known, *Metarthrodes xango*. At present this species was recorded only in the type locality (Gandu). Another species (undescribed due

Table I. Areas of endemism and number of species by area for the Caelopyginae. PR/SC= Serra da Mar, Paraná/Santa Catarina/South of São Paulo; Mar-SP= Serra do Mar, São Paulo; Mant. = Serra da Mantiqueira; S.Boc. = Serra da Bocaina; Sul-RJ = southeastern coastal region of Rio de Janeiro State; Órgãos = Serra dos Órgãos, Baixada Fluminense and Serra do Espinhaço; E. Santo = Espírito Santo. ? = unknown or doubtful locality.

species/area	PR/SC	Mar-SP	Mant.	S.Boc.	Sul-RJ	Órgãos	E.Santo	Bahia
C. elegans						X		
C. melanocephalus						X		
A. leucopheus	X	X		X		X	X	
A. luteus			X					
A. tocantinus	?	?	?	?	?	?	?	?
A. fuscopunctatus		X						
A. spinipes	?	?	?	?	?	?	?	?
M. albimarginatus						X		
A. xanthopygus						X		
P. albimaculatus				X		X		
P. farinosus	?	X	X	X		X		
P. perlatus			X	X				
P. pustulatus	X	X	X	X		X		
T. speciosa	X							
T. albiornata							X	
T. poranga		X						
T. amabilis					X			
G. bocaina				X				
G. bisignata					X			
M. laetabundus				X		X		
M. xango								X
M. bimaculatus							X	
M. leucopygus							X	
M. albotaeniatus							X	
M. hamatus						X		
M. longipes		X						
M. nigrigranulatus	?		X	X		X		
M. pulcherrimus		X						
Spp.	3	7	5	8	2	11	5	1
Endemic species	1	4	1	1	2	5	4	1

to damaged material) occurs in an area close to the former (Ilhéus). The harvestmen fauna of Bahia was poorly sampled and very little can be said about the composition and boundaries of this area.

Discussion. Four areas of endemism proposed here are in agreement with those established by KURY (1991b) who found four areas for the Mitobatinae : 1- central and western regions of São Paulo/Minas Gerais and southern part of the São Paulo coast (comprising part of the following area); 2- Serra do Mar of Paraná and São Paulo States, coast North of São Paulo, Serra da Bocaina, 3- Serra da Mantiqueira, Rio de Janeiro and São Paulo States; and 4- Espírito Santo. KURY (1991b) proposed, using "Brooks parsimony analysis", the first vicariant event which separated the central/ western region of São Paulo and Minas Gerais States from the Serra da Mar, followed by an event that isolated the fauna of Espírito Santo from that of Serra da Mar. Until 1991 no record had been available for Mitobatinae from Bahia, an area in which a new species will be described (A.B. Kury, pers. comm.) and after this, a fifth area must be added. Unfortunately, Kury's analysis was restricted to a generic level but, I believe (based on distribution of their species) that areas from the Serra do Mar of Paraná to Rio de Janeiro States should be subdivided into smaller areas of endemism. AMORIM & PIRES (1996) proposed a general area cladogram for the western area of Brazil and recognized the following areas (I mentioned only those related to the Caelopyginae): Minas Gerais and Bahia; South of Bahia and North of Espírito Santo; São Paulo, Rio de Janeiro and coast of Paraná and Santa Catarina States. The cladogram showed a first separation in two groups, one composed by the areas between the coast from Santa Catarina to Rio de Janeiro and another by areas between Espírito Santo and Bahia States. The areas of endemism proposed by AMORIM & PIRES (1996) are congruent with those of

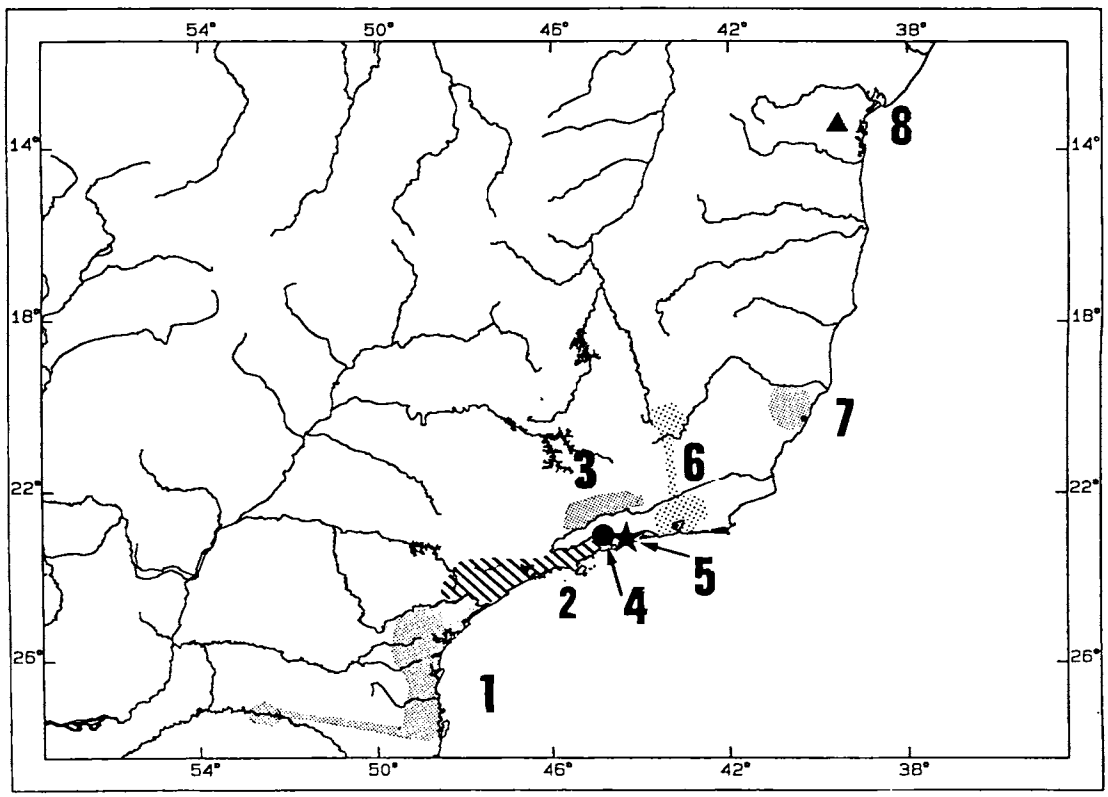
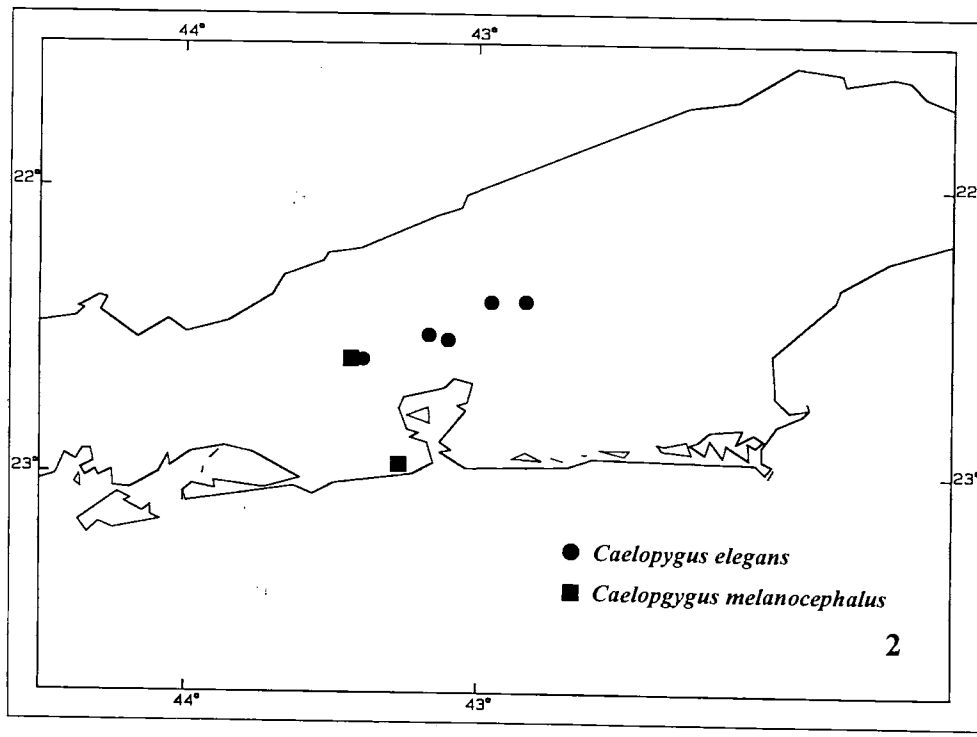
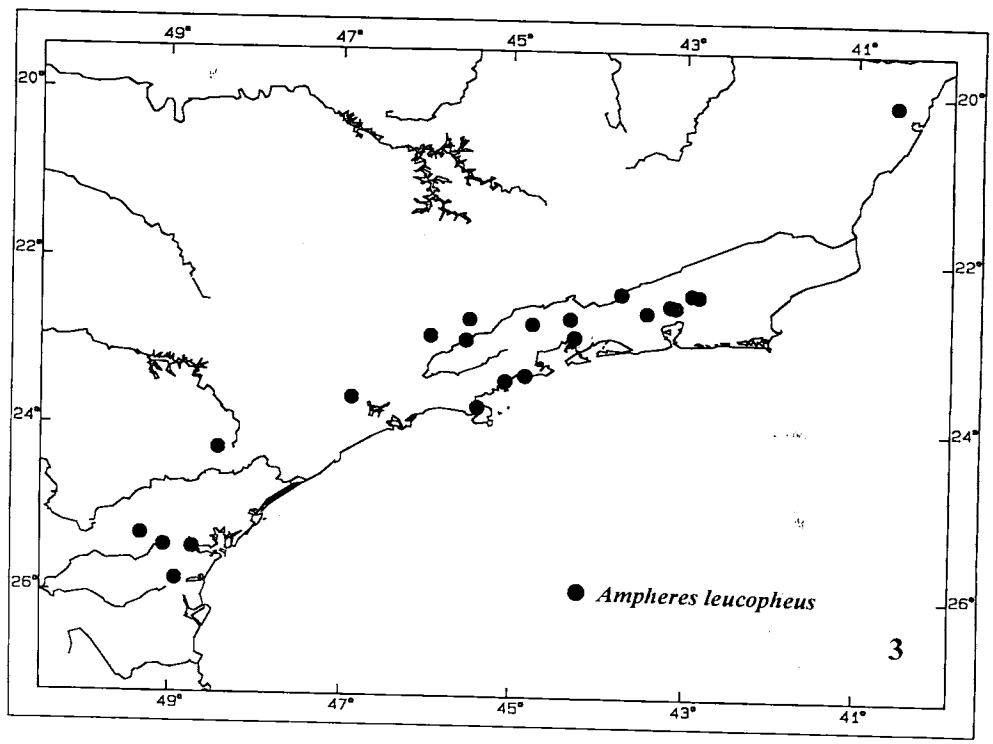
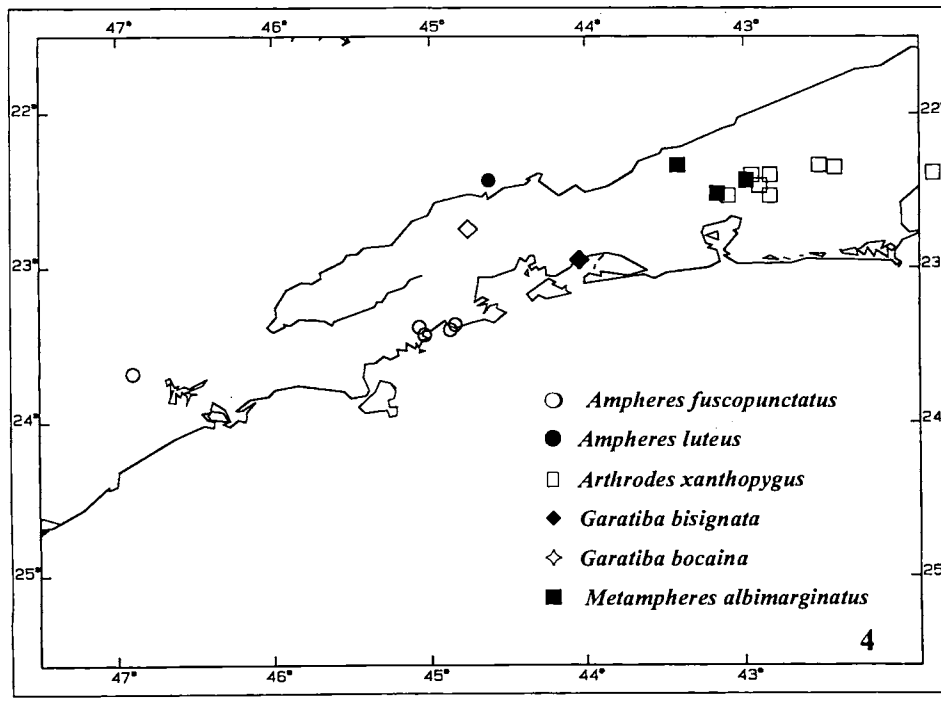


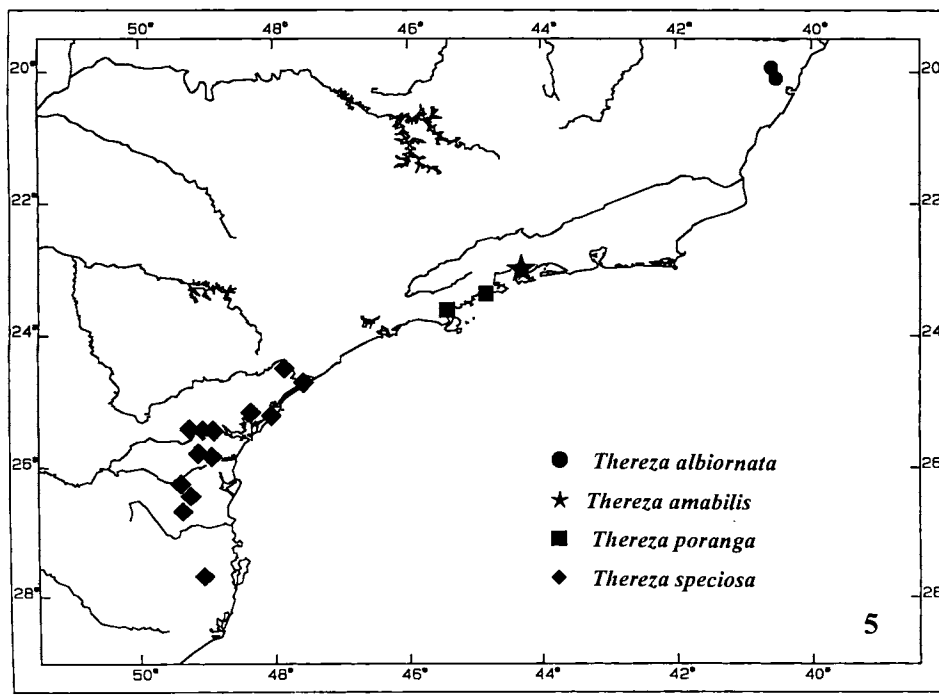
Fig. 1. Areas of endemism assigned to Caelopyginae: 1, Serra da Mar, Paraná/Santa Catarina/South of São Paulo; 2, Serra do Mar, São Paulo; 3, Serra da Mantiqueira; 4, Serra da Bocaina; 5, southeastern coastal region of Rio de Janeiro State; 6, Serra dos Órgãos, Baixada Fluminense and Serra do Espinhaço; 7, Espírito Santo; 8, Bahia.



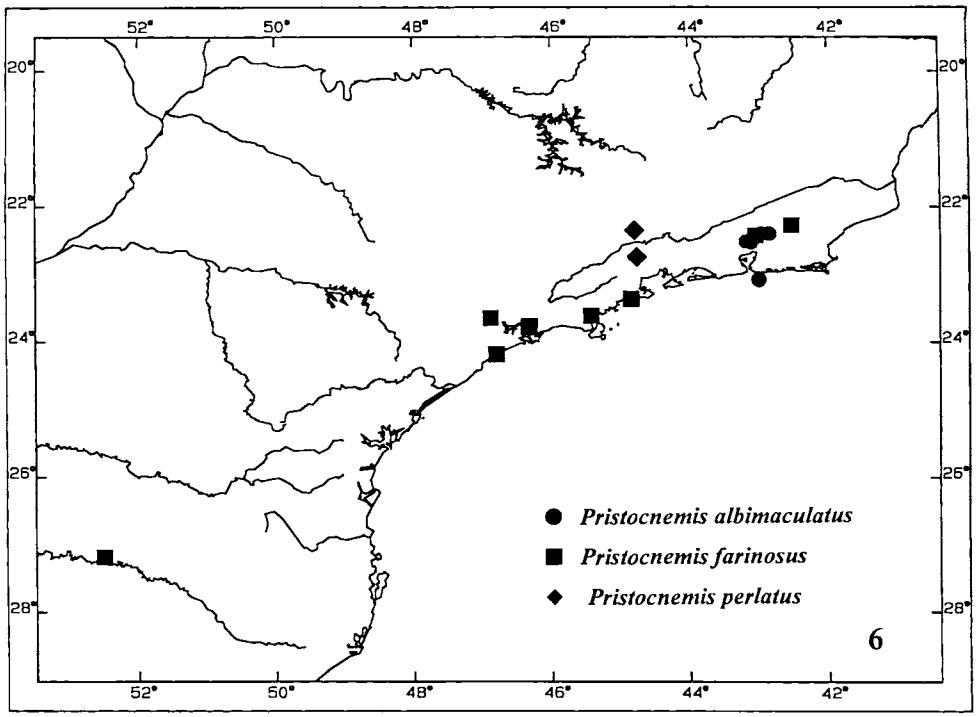


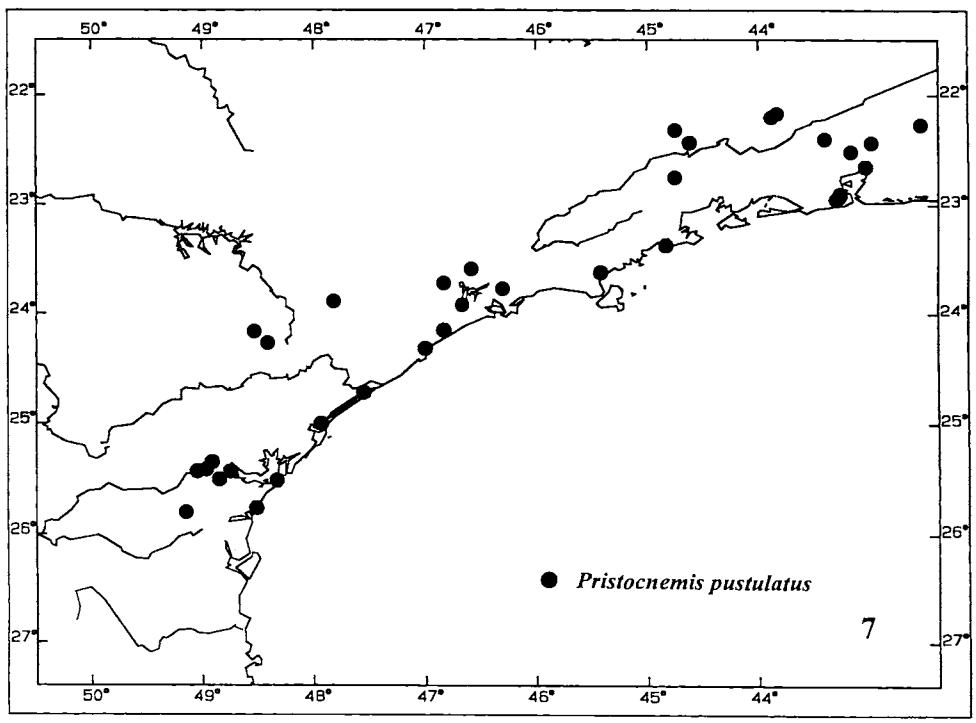
Figs. 2-3. Records of geographical distribution of: 2, *Caelopygus* spp.; 3, *Ampheres leucopheus*.



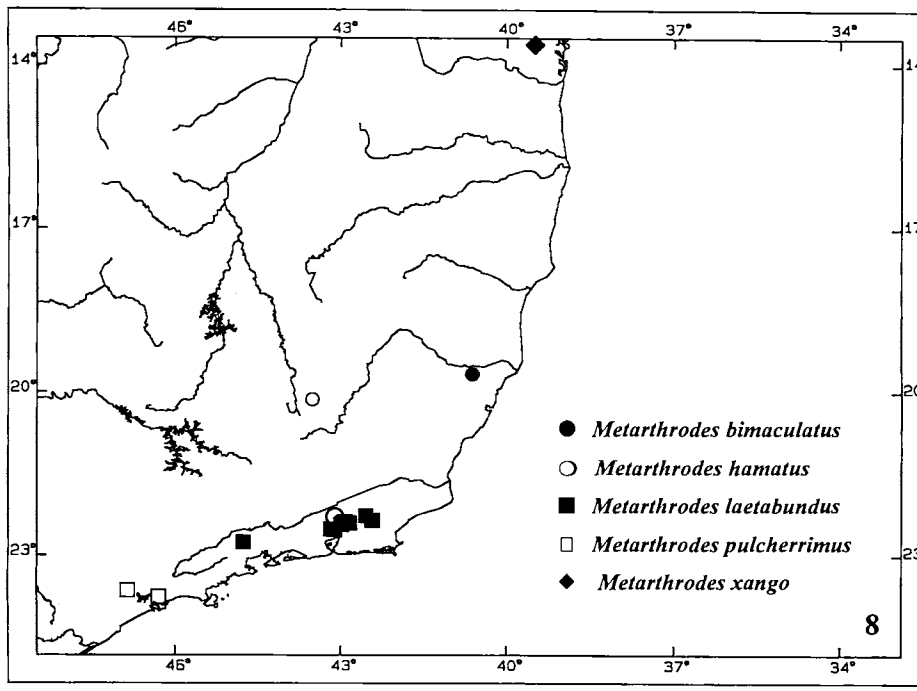


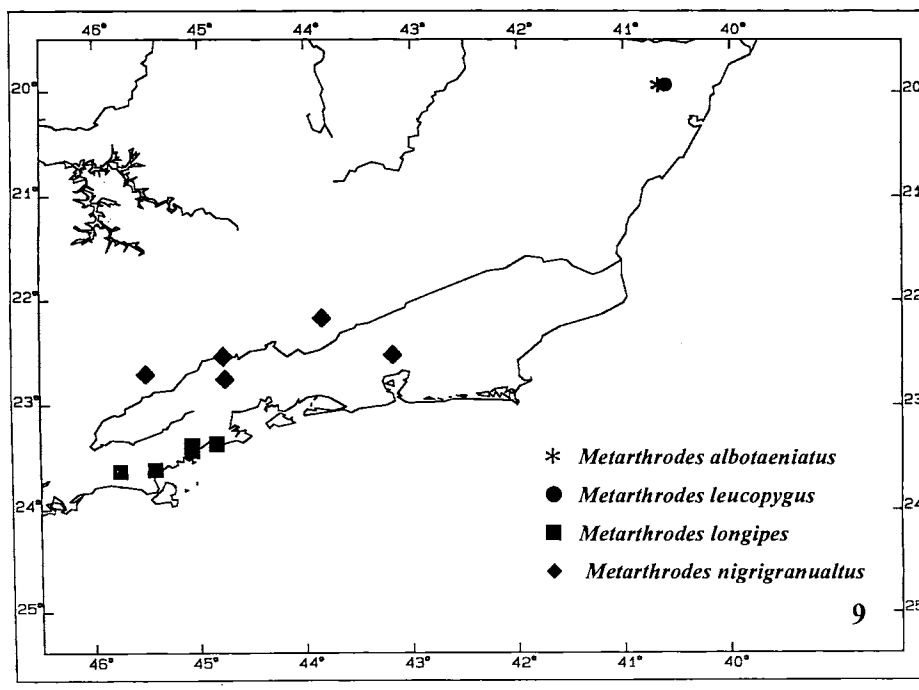
Figs. 4-5. Records of geographical distribution of: 4, *Ampheres* spp., *Metampheres albimarginatus*, *Arthrodes xanthopygus* and *Garatiba* spp.; 5, *Thereza* spp.





Figs. 6-7. Records of geographical distribution of: 6, *Pristocnemis farinosus* and *P. albimaculatus*; 7, *P. pustulatus*.





Figs. 8-9. Records of geographical distribution of *Metarthrodes* spp.

Caelopyginae, but those proposed here are more inclusive and detailed.

Two areas of endemism proposed here, Serra da Bocaina and the southern Rio de Janeiro coast, may be a misinterpretation based on only a few samples. Nevertheless, in other areas, the fauna of Caelopyginae was not well sampled as in the Serra da Mantiqueira, Espírito Santo and, mainly, Bahia. The gaps of samples and the low resolution among species of *Thereza*, and among the monophyletic group composed by *Metarthrodes longipes*, *M. nigrigranulatus* and *M. pulcherrimus*, led me to not perform a biogeographical analysis at this time.

Some areas of endemism resulted from important vicariant events on the South and Southeast of Brazil. The raising of the Serra do Mar and of Mantiqueira during the Pliocene-Pleistocene (PETRI & FÚLFARO, 1986) formed the depression of the Paraíba do Sul river, which isolated the two mountain ranges and its estuary in the North of Rio de Janeiro State and separated the Espírito Santo and Bahia areas from those to the South. JACKSON (1978) and SILVA & STRAUBE (1996) suggested that during the Pleistocene the depression of Paraíba do Sul river was covered by an open vegetation formation, increasing the isolation of both mountain ranges. Another outstanding example is the Ribeira river which isolated the extreme South of São Paulo, Paraná and Santa Catarina from the rest of the Serra da Mar. Other supposed areas of endemism, such as Serra da Bocaina and South cost of Rio de Janeiro, do not show known outstanding vicariant events that have isolated their faunas and it is possible that they were recognized as independent areas only because of the sparse collections made there, as mentioned above.

5. CLADISTIC ANALYSIS

The listing of characters used in the cladistic analysis follow below. Length = number of steps on tree; CI = consistency index of each character; RI = retention index; "+" shows that the taxa form a monophyletic group. Except as mentioned, the multistate characters were considered as unordered (maximally connected). The comments are based on the distribution of the characters after the construction of the cladogram (Fig. 11) and on literature.

Dorsal scute:

1. Sexual dimorphism on the shape of dorsal scute (length = 4; CI = 0.50; RI = 0.83):
   0, present (Figs. 20 for male, 21 for female);
   1, absent (Figs. 40-43);
   2, present, *Pristocnemis*-like (Figs. 25-26, 181-182).

   On the outgroups studied (*Stygnobates inscriptus, Hernandaria heloisae Acrogonyleptes curitibae*, *Sodreana sodreana* and *Cadeadoius niger*) the lateral margins of the scute in the male are more expanded laterally than in the female, except in two species of the Progonyleptoidellinae (*Progonyleptoidellus striatus* and *Iguapeia melanocephala)*, on which the shape of lateral margin is similar in both sexes. The absence of sexual dimorphism for this character in both species is considered as derived (state 1). The plesiomorphic state is present in *Metarthrodes*, *Caelopygus* and *Arthrodes*. The sexual dimorphism on shape of dorsal scute is absent in *Ampheres*, *Metampheres*, *Garatiba* and *Thereza*. The *Pristocnemis*-like dimorphism (state 2) is a synapomorphy for all species of *Pristocnemis*, on which the females show the lateral margin of dorsal scute enlarged on the abdominal region (see figure 26).

2. Maximal width of dorsal scute (length = 1; CI = 1; RI = 1):
   0, reaching groove IV, or between grooves III-IV (Figs. 14-18);
   1, reaching groove III (Figs. 23-32);
   Synapomorphy of *Pristocnemis*, *Garatiba* and *Thereza*.

3. Ratio between abdomen/cephalothorax width (length =1; CI = 1; RI = 1):
   0, cephalothorax narrower than abdomen, relation 1.84-2.65 (♂) and 1.86-2.60 (♀) (Figs. 12-22, 33, 36);
   1, cephalothorax strongly narrower than abdomen, relation 1.38-1.57 (♂) and 1.28-1.85 (♀) (Figs. 23-32, 34-35, 37-43).

   The strongly marked narrower of cephalothorax relative to the abdomen indictes a synapomorphy of *Garatiba* and *Thereza*. It seems that the mentioned ratio has a tendency to be smaller in *Thereza* than in *Garatiba*. However, due to the small number of samples and the overlapping of intervals, I prefer to consider them as belonging to the same state.

4. Cephalothorax (length = 2; CI = 0.50; RI = 0.75):
0, with short tubercles behind eye mound;
1, with 2 pairs of large tubercles behind eye mound (Figs. 16, 23-26).

Convergently shared by *Ampheres fuscopunctatus* and *Pristocnemis* spp..

5. Lateral margins of dorsal scute of male (length = 4; CI = 0.25; RI = 0):
0, same plane as posterior margin and lateral of area III (Figs. 171-173);
1, higher than posterior margin and lateral of area III (Fig. 190).

The lateral margins of dorsal scute are higher than lateral of area III and posterior margin, showing a sinuous aspect when the animal is observed frontally. This derived state occurs in some species of *Metarthrodes* (*M. laetabundus*, *M. nigrigranulatus*, *M. hamatus* and *M. pulcherrimus*). It may be a synapomorphy of *M. nigrigranulatus* and *M. pulcherrimus*, see Discussion (page 600).

6. Lateral tubercles on anterior margin of dorsal scute (length = 6; CI = 0.16; RI = 0.58):
0, present;
1, absent.

The loss of lateral tubercles on anterior margin of dorsal scute occurred convergently in six taxa, *Caelopygus melanocephalus*, *Ampheres tocantinus*, *Metarthrodes albotaeniatus*, *M. hamatus*, in a monophyletic group *(M. leucopygus*, *M. nigrigranulatus*, *M. longipes* and *M. pulcherrimus*) and in *Thereza* spp..

7. Eye mound (ordered; length = 5; CI = 0.50; RI = 0):
0, with 2 large spines;
1, with 2 small tubercles (Figs. 12-18, 20-29, 31-36, 38-43);
2, with 2 large tubercles (Figs. 19, 37);
3, smooth (Fig. 30).

One pair of small tubercles on eye mound is a synapomorphy for Caelopyginae. This pair is, convergently, enlarged in *Metampheres* and *Metarthrodes xango*. In *Thereza albiornata* the small tubercles were lost. *Leptocnema sulphurea* (Perty, 1833), a Progonyleptoidellinae, shares convergently with Caelopyginae the pair of small tubercles on eye mound (see redescription and figures of KURY, 1994c).

8. Eye mound (length = 1; CI = 1; RI = 1):
0, rounded dorsally;
1, depressed medially.

Synapomorphy of Caelopyginae. It is a probable convergence among Caelopyginae, Cosmetidae, Metasarcinae (Gonyleptidae) and some species of Progonyleptoidellinae (Gonyleptidae), as *Leptocnema sulphurea* and *Iguapeia melanocephala* Mello-Leitão, 1935.

9. Eye mound (length = 1; CI = I; RI = 1):
0, narrow;
1, wide.

Autapomorphy of Caelopyginae. The Bourguyiinae, a sub-family of Gonyleptidae not closely related with Caelopyginae, share a similar derived condition.

10. Large tubercle on male lateral margin of scute (length = 2; CI = 0.50; RI = 0):
0, absent (Figs. 12-18, 23-43);
1, present (Figs. 19-22).

The presence of a sharper tubercle on the lateral margin, near area III, arose independently in 2 species of Caelopyginae, *Arthrodes xanthopygus* and *Metampheres albimarginatus*, and in other species of other sub-families as for example *Sadocus conspicillatus* Roewer, 1913 (Pachylinae), *Acutisoma acutangulum* (Simon, 1879), *A. thalassinum* (Simon, 1879) (Goniosomatinae) and *Leptocnema sulphurea* (Perty, 1833) (Progonyleptoidellinae) (ROEWER, 1923 and KURY, 1994c).

11. Areas II-III (length = 1; CI = 1; RI = 1):
0, entire (Figs. 12-26, 33-43);
1, divided (Figs. 27-32).

The areas II-III are divided by a median groove in the species of *Garatiba* and *Thereza*, although in the sub-families related to Caelopyginae only the area I is divided or shown entire as other areas. In groups not closely related to the Caelopyginae, like some species of Oncopodidae, Assamiidae, Podoctidae, and *Sabanilla ornata* Roewer, 1913 (Agoristenidae) the areas I-III show a convergent division (ROEWER, 1923).

12. Armature of area III in male (length = 5; CI = 0.20; RI = 0.20):
0, large spines (Figs. 14-18, 20, 22-26; 29-33, 36-40, 42)

1, reduced to tubercles (Figs. 12-13, 19, 27, 34-35).

The apomorphic condition occurs convergently in *Caelopygus* spp., *Garatiba*, *Metampheres*, *Metarthrodes nigrigranulatus* and *M. albotaeniatus*.

13. Armature of area III in female (length = 1; CI = 1; RI = 1):
0, with 2 spines (Figs. 22, 41, 43);
1, with tubercles (Fig. 28).

Synapomorphy for the species of *Garatiba*, *G. bisignata* (female only is known) and *G. bocaina*.

14. Posterior margin of dorsal scute of male (ordered; length = 6; CI = 0.33; RI = 0.55):
0, straight or slightly concave (Figs. 24, 27-32);
1, concave (Figs. 12-23, 25, 33, 35-37, 39, 42);
2, strongly concave (Figs. 34, 38, 40).

The posterior margin concave, state "1", occurs in almost all species of Caelopyginae, returning to plesiomorphic state in *Pristocnemis albimaculatus*, *P. perlatus* and in *Garatiba* + *Thereza*. In *Metarthrodes laetabundus*, *M. nigrigranulatus* and *M. pulcherrimus*, the concavity became convergently, strongly developed (state 2). In two of the four trees obtained, *M. nigrigranulatus* and *M. pulcherrimus* form a monophyletic group based on this character.

15. Anal operculum (length = 3; CI = 0.33; RI = 0):
0, unarmed;
1, armed with a spine or tubercle (Figs. 35, 40, 42).

Occurs in *Metarthrodes longipes* + *M. pulcherrimus* and convergently in *M. albotaeniatus*.

16. Pedipalpal subapical seta on femur (length = 2; CI = 0.50; RI = 0.50):
0, absent (Figs. 45, 47-54);
1, present (Figs. 44, 46).

Synapomorphy for the *Caelopygus* species, occurs homoplastically in *Arthrodes*. This character arose and was lost several times in almost all subfamilies of the Gonyleptidae.

17. Leg IV (length = 1; CI = 1; RI = 1):
0, with wide and long tubercles (Figs. 72-82, 84-90);
1, minute-tuberculate (Fig. 83).

The loss of the armature on leg IV occurred in *Garatiba* + *Thereza*.

18. Coxa IV of male (length = 1; CI = 1; RI = 1):
0, visible dorsally in most extensions (Figs. 12-20, 33-40, 42);
1, visible dorsally only in apical portion (Figs. 23-32).

The derived condition arose convergently in the species of the Progonyleptoidellinae and in the monophyletic group formed by *Pristocnemis*, *Garatiba* and *Thereza*.

19. Shape of external apophysis on coxa IV of male (length = 4; CI = 75; RI = 0.93):
0, straight, with apex curved downwards (Figs. 12-14, 33, 58, 60, 62, 66);
1, bifid and long, curved downwards (Figs. 34-40, 42, 64);
2, tubercle-like (Figs. 72);
3, bifid and short (Figs. 23-25, 66, 68).

The "state 1" arose independently in *Ampheres tocantinus* and most species of *Metarthrodes* (except in the early lineage represented by *M. bimaculatus*, which maintained the primitive state). In *Pristocnemis* and *Garatiba* the apophysis is bifid and short, reduced to a wide and short tubercle (state 2) in *Thereza*.

20. External apical apophysis of male coxa IV (length = 3; CI = 0.33; RI = 0.81):
0, without basal tubercle (Figs. 12-14, 19-21, 23-24);
1, with basal tubercle (Figs. 17, 25, 33-37, 42).

Arose convergently in *Ampheres tocantinus* + *A. fuscopunctatus*, *Metampheres albimarginatus* and *Pristocnemis farinosus*, *P. albimaculatus and P. perlatus*.

21. External apical apophysis on coxa IV of female (length = 1; CI = 1; RI = 1):
0, short (Fig. 18);
1, very short (Figs. 22, 26, 41, 43).

In the species of *Caelopygus* and *Ampheres* and *Metampheres albimarginatus*, the external apical apophysis of female coxa IV is smaller than in male but conspicuous (primitive condition). In the remaining genera it is shorter and thinner (derived condition).

22. Internal apophysis of coxa IV of male (ordered; length = 8; CI = 0.25; RI = 0.33):
0, absent (Figs. 13-16, 23, 25, 27, 33, 35);

1, present and small (Figs. 12, 17, 19-21, 24, 29-32, 34, 36, 39-40, 42);
2, present and long(Figs. 37-38).

The presence of an internal apophysis on male coxa IV occurs convergently in 7 taxa of Caelopyginae, *Caelopygus elegans*, *Ampheres luteus* + *Ampheres fuscopunctatus*, *Metampheres albimarginatus*, *Arthrodes xanthopygus*, *Pristocnemis albimaculatus* + *Pristocnemis perlatus*, *Thereza* and in the monophyletic group inside *Metarthrodes* (*M. hamatus*, *M. leucopygus*, *M. xango*, *M. nigrigranulatus*, *M. hamatus* and *M. pulcherrimus*). In *M. xango* and *M. laetabundus* the apophysis is elongate (state 2). Although the size of the internal apophysis of male coxa IV and the presence/absence are two distinct characters, I preferred to consider them as ordered because the same topology and number of steps are obtained in both situations.

23. Long internal apophysis on male trochanter IV (length = 3; CI = 0.50; RI = 0.75):
0, absent (Figs. 74, 90, 93);
1, present (Figs. 78, 90-91).

Synapomorphy of *Metarthrodes nigrigranulatus* + *M. longipes* + *M. pulcherrimus*. Convergently shared by *Ampheres luteus*, *A. fuscopunctatus* and *Pristocnemis perlatus*.

24. Femur IV of male (length = 7; CI = 0.57; RI = 0.57):
0, straight;
1, convex in all extensions;
2, curved basally only;
3, sinuous laterally;
4, concave in dorsal view.

The male femur IV, convex in entire length is a synapomorphy of *Pristocnemis albimaculatus* + *P. farinosus*, convergently shared by *Metarthrodes pulcherrimus*. The male femur IV, convex basally only, is a synapomorphy of monophyletic group *M. hamatus* + *M. laetabundus* + *M. xango*. The male femur IV, sinuous S-shaped, occurs independently in *Caelopygus melanocephalus*, *M. bimaculatus* and *Pristocnemis pustulatus*. The male femur IV, curved ventrally, is an autapomorphy of *Arthrodes xanthopygus*.

25. Dorsobasal apophysis on femur IV of male (length = 3; CI = 0.33; RI = 0.50):
0, present (Figs. 74-75);
1, absent (Figs. 76-93).

The dorsobasal apophysis on male femur IV was lost in *Ampheres* and convergently in *Arthrodes* + *Pristocnemis* + *Garatiba* + *Thereza* + *Metarthrodes*. It remains in *Caelopygus* and *Metampheres albimarginatus*. In two species of *Caelopygus* the apophysis shows a dactiliform shape, instead of bifid as in some outgroups, in which the projection is lateral, thin and longer. Some outgroups do not have the apophysis, a supposed secondary loss that has occurred convergently in several groups of Gonyleptidae.

26. Dorsal row of tubercles, decreasing in size, distally on femur IV (length = 1; CI = 1; RI = 1):
0, absent (Figs. 80-93);
1, present (Figs. 74-79).

Synapomorphy of *Ampheres* + *Caelopygus*.

27. Dorsal row of tubercles on basal third of male femur IV (length = 3; CI = 0.33; RI = 0.60):
0, absent (Figs. 80-88, 90-93);
1, present (Figs. 74-76, 78-79).

Synapomorphy of *Ampheres* + *Caelopygus*, convergent in *Metarthrodes leucopygus*. *M. luteus* shows secondary loss of the dorsal row on basal third.

28. Large retrolateral tubercles on male femur IV (length = 5; CI = 0.40; RI = 0.25):
0, absent (Figs. 74-75, 80-93);
1, present only in anterior part (Fig. 79);
2, present in almost all extensions (Figs. 76, 78).

A retrolateral row of large tubercles in almost all extensions of femur IV arose in the ancestry of *Ampheres*. Posteriorly, the tubercles remain restricted to the anterior portion in *A. tocantinus*, this feature is shared convergently with *Pristocnemis perlatus*.

29. Tubercle retrolateral submedian on femur IV of male (length = 2; CI = 0.50; RI = 0.66):
0, absent (Figs. 74-85, 88-90);
1, present (Figs. 87, 91).

Occurs convergently in *Metarthrodes laetabundus* and in the monophyletic group *M. nigrigranulatus* + *M. longipes* + *M. pulcherrimus*.

30. Curved subapical retrolateral tubercle on femur IV of male (length = 1; CI = 1; RI = 1):
0, absent (Figs. 74-85);

1, present (87, 89-92).

Synapomorphy for the species of *Metarthrodes*, except for the early branch, *M. bimaculatus*.

31. Retrolateral row of tubercles contiguous on tibia IV of male (length = 1; CI = 1; RI = 1):
0, absent (Figs. 74-91, 84-93);
1, present (Figs. 82-83).

Synapomorphy of *Pristocnemis albimaculatus* and *P. farinosus*.

32. Articles of male basitarsus I (length = 2; CI = 0.50; RI = 0.80):
0, swollen (Fig. 94);
1, same diameter as distitarsus I (Fig. 95).

Most of the species of Caelopyginae have all articles of tarsus I with the same diameter. The species of *Ampheres* have reacquire the basal conditon (basitarsus I swollen) and share this characteristic convergently with *Metampheres albimarginatus*. *Leptocnema sulphurea* is the single Progonyleptoidellinae which has the basitarsus I normal, a secondary acquisition.

33. Distitarsus II (length = 1; CI = 1; RI = 1):
0, with 4-5 segments;
1, 3-segmented.

In the groundplain of the Gonyleptidae show distitarsus II 3-segmented. The sub-family Pachylospeleinae (PINTO-DA-ROCHA, 1996) and those related to Caelopyginae (Goniosomatinae, Sodreaninae and Progonyleptoidellinae) have the apomorphic condition, one or two additional articles, which is, in turn, symplesiomorphic for the Caelopyginae. A reversion for the ancestral state is an autapomorphy of *Metampheres albimarginatus*.

34. Claws III-IV bipectinate (length = 1; CI = 1; RI = 1):
0, absent;
1, present (Fig. 149).

The pectinate claws arose in different groups, not closely related, among the Laniatores (KURY, 1994b). The derived state occurs independently in the sub-families Caelopyginae (Gonyleptidae), Heterostygninae (Stygnidae) and Heterocranainae (Cranaidae). It also occurs in some species of *Cosmetus* (Cosmetidae), in *Gryne* (Cosmetidae), *Heteromitobates discolor* (Sørensen, 1884) (Goniosomatinae), *Pungoiella bifurcata* Roewer, 1914 (Trionyxellidae), undescribed species of Prostygninae (Cranaidae), *Syncranaus cribrum* Roewer, 1913 (Manaosbiidae) and in *Sickesia helmuti* Soares, 1979 (Stygnidae) (KURY, 1994b; BAPTISTA & KURY, 1996; KURY, 1997; PINTO-DA-ROCHA, 1997).

Penis

35. Truncus of penis (length = 2; CI = 0.50; RI = 0.50):
0, without subapical projection;
1, with subapical projection (Figs. 125,159).

Synapomorphy of *Metarthrodes laetabundus* and *M. xango*, convergently shared by *Pristocnemis perlatus*.

36. Stylus (length = 4; CI = 0.25; RI =0.66):
0, thin and long;
1, short and thick.

The short and thick stylus occurs in *Caelopygus melanocephalus*, *Garatiba bocaina* and, *Metarthrodes* spp. (expcet *M. laetabundus*, in which a reversion to the primitive state occurred).

37. Microsetae of stylus (length = 8; CI = 0.25; RI = 0.33):
0, present (Figs. 99, 101, 105, 107, 138);
1, present and placed in 1/3 of stylus length (Figs. 110-113, 140).
2, absent (Figs. 103, 108, 115, 123, 139).

In the outgroups and in some Caelopyginae the subapical ventral portion of the stylus has several microsetae (variable in number) restricted to a small area. In two species *Pristocnemis albimaculatus* + *P. farinosus*, the microsetae are distributed in a large area of the stylus, and convergently the setae are absent in the following species: *Ampheres tocantinus*, *A. luteus*, *Metarthrodes bimaculatus*, *M. albotaeniatus*, *M. hamatus* + *M. laetabundus* + *M. xango*, *Pristocnemis pustulatus* and *Garatiba bocaina*.

38. Cleft on ventral process of stylus (length = 1; CI = 1; RI = 1):
0, absent (Figs. 98-125, 142);
1, present (Figs. 126-137).

Synapomorphy for the species of *Metarthrodes*.

39. Ventral process of glans (length = 1; CI = 1; RI = 1):
0, short and wide;
1, large and thin (Figs. 98-142).
Synapomorphy for the species of Caelopyginae.

40. Prominences of ventral process (length = 5; CI = 0.40; RI = 0.72):
0, distal;
1, lateral (Figs. 98-117; 138-142);
2, absent (Figs. 118-123, 126-137).
In the outgroups closest to Caelopyginae, as Gonyleptinae, Hernandariinae, Sodreaninae and Progonyleptoidellinae the ventral process of the glans has a fan-like shape with prominences on the posterior edge (see figures in SOARES & SOARES, 1984, 1985). In the Caelopyginae the projections are restricted to, the sides of the ventral process, in half of the species. Some species have no prominences as *Metarthrodes* spp. (except *M. laetabundus* which have it laterally). The monophyletic group formed by *Garatiba* and *Thereza* has no prominences (except in *T. albiornata* which also has it laterally).

41. Cleft on distal margin of ventral plate (length = 8; CI = 0.37; RI = 0.64):
0, deep, V-shaped (Figs. 104, 106);
1, short, U-shaped (Fig. 108);
2, wide and short (Figs. 98, 100);
3, wide, V-shaped (Figs. 102).
The state "1" was optimized as having arisen in the clade formed by *Arthrodes* + *Pristocnemis* + *Garatiba* + *Thereza*. The state "3" arose in the clade formed by *Metampheres* + *Arthrodes* + *Pristocnemis* + *Thereza* (except *T. albiornata* which has the state"2") + *Metarthrodes*. *Metarthrodes longipes* and *M. pulcherrimus* form a monophyletic group in two of the four trees obtained due to the reversion to the state "1". *M. hamatus* has the state "2".

42. Ventral plate (length = 2; CI = 0.50; RI = 0.87):
0, thick (Figs. 98-107; 116-117);
1, thin and longer (Figs. 108-115, 118-122).
Synapomorphy of *Arthrodes* + *Pristocnemis* + *Garatiba* + *Thereza* with a reversion in *T. albiornata*.

43. Venter of ventral plate (length = 1; CI = 1; RI = 1):
0, densely covered by microsetae;
1, sparsely covered by microsetae.
Synapomorphy of *Arthrodes* + *Pristocnemis* + *Garatiba* + *Thereza*.

44. Distal group of setae of plate of penis ventral (length = 2; CI = 0.50; RI = 0.87):
0, on apical region (Figs. 116-117, 124-137);
1, on subapical region (Figs. 108-115, 118-123).
In the longer ventral plate the setae are placed subterminally. Synapomorphy of *Arthrodes* + *Pristocnemis* + *Garatiba* + *Thereza*. Reversion for the plesiomorphic state in *T. albiornata*.

45. Basal group of setae on proximal region of ventral plate (ordered; length =6; CI = 0.33; RI = 0.66):
0, long (Figs. 103, 109-125);
1, reduced (Figs, 99, 101, 105, 107, 129, 131, 133);
2, absent (Figs. 150-153).
The basal seta of the ventral plate is reduced in *Ampheres leucopheus*, *Ampheres fuscopunctatus* and *Metarthrodes*, absent in *A. luteus* and *A. tocantinus*. A reversion to the plesiomorphic state ocurred in *M. laetabundus* + *M. xango* + *M. hamatus*.

Color

46. Tubercles of dorsal scute totally black (length = 4; CI = 0.25; RI = 0.75):
0, absent;
1, present (Figs. 187, 190).
Present in most of the species of *Metarthrodes* (except in *M. albotaeniatus* and *M. leucopygus*, which reverted to the primitive state), in *Arthrodes*, *Pristocnemis*, *Garatiba* and only in the basal species of *Thereza* (*T. speciosa*). A reversion to the plesiomorphic state ocurred in the remaining species of *Thereza*.

47. Pair of white spots behind eye mound (length = 6; CI = 0.16; RI = 0.16):
0, absent;
1, present (Figs. 33-34, 187).
Synapomorphy for *Metarthrodes leucopygus* + *M. nigrigranulatus* + *M. longipes*. Reversion for the primitive state in *M. pulcherrimus*. Present convergently in *M. laetabundus*, *M. bimaculatus*, *Thereza speciosa*, and *T. albiornata*. *M. laetabundus* shows a polymorphism, occurring in the two states. There

is no evidence if these spots are seasonal or not. Several alternatives of codification were tested (unobserved, present or absent character) for *M. laetabundus* and all alternatives resulted in a cladogram with the same topology.

48. White tubercles on dorsal scute (length = 2; CI = 0.50; RI = 0.50):
0, absent;
1, present.
Synapomorphy for the genus *Ampheres*. Occurs in *A. fuscopunctatus* and *A. leucopheus*, absent in *A. luteus*. This character is supposedly present in *A. tocantinus*, although the original description mentioned white tubercles on lateral margin only of the dorsal scute. Unfortunately the type is discolored and could provide no further elucidation of the question.

49. Area I (length = 3; CI = 0.66; RI = 0.75):
0, without white spot;
1, with rounded white spot (Fig. 42, 29-32);
The rounded white spot is present in *Metarthrodes longipes*, *Metarthrodes nigrigranulatus*, and is very enlarged in *Thereza* spp.

50. Area II (length = 3; CI = 0.33; RI = 0.33):
0, without white spot;
1, with white spot (Figs. 29, 31-32).
White spot present in *Thereza poranga* + *T. amabilis* + *T. speciosa*, absent in *T. albiornata*. *M. longipes* shows, convergently, a white spot on area II.

51. Male area III (length = 3; CI = 0.66; RI = 0.90):
0, without white spot;
1, with a rounded white spot near groove IV (Figs. 23-24, 40, 42, 181, 190);
2, with a wide white stripe (Figs. 28-31, 39-42).
The state "1" occurs in *Metarthrodes nigrigranulatus* + *M. longipes* + *M. pulcherrimus*, *Pristocnemis* and, *Garatiba bocaina*. The state "2" occurs in *Thereza*.

52. White spots between tubercles of posterior margin of dorsal scute (length = 1; CI = 1; RI = 1):
0, absent;
1, present (Figs. 181-185).
Synapomorphy of *Pristocnemis pustulatus*, *P. farinosus* and *P. albimaculatus*.

53. White spots between tubercles of free tergites (length = 4; CI = 0.25; RI = 0):
0, absent;
1, present (Figs. 185, 180).
Acquired independently in three taxa not closely related, *Metarthrodes laetabundus*, *Pristocnemis perlatus*, *P. pustulatus* and *Garatiba bocaina*.

54. Dorsal anal operculum (length = 3; CI = 0.33; RI = 0.50):
0, without white spot;
1, with spot(s) white(s) (Figs. 171-172, 174, 187, 190).
The white spot is a serose layer over the exoskeleton. It can be divided, in two or three parts, or be singler, occupying almost the entire anal operculum. Synapomorphy of Caelopyginae, lost convergently in the monophyletic group *Thereza amabilis* + *Thereza poranga* + *T. albiornata* and convergently in *A. fuscopunctatus*.

55. Ventral anal operculum (length = 5; CI = 0.20; RI = 0.50):
0, without white spot;
1, with white spot.
Same observation of the anterior character. Synapomorphy of Caelopyginae, lost convergently in the following monophyletic groups *Ampheres tocantinus* + *A. luteus* + *A. fuscopunctatus*, *Thereza amabilis* + *T. poranga* + *T. albiornata*, in *Metarthrodes xango* and in *M. pulcherrimus*.

56. Pair of black stripes on cephalothorax (length = 1; CI = 1: RI = 1):
0, absent;
1, present (Fig. 172).
The black stripes start near the anterior margin and cross over the eye mound, almost reaching groove I. Synapomorphy of *Ampheres luteus* and *A. fuscopunctatus*.

57. Black stripe on posterior margin (length = 1; CI = 1: RI = 1):
0, absent;
1, present (Fig. 172).
Synapomorphy of *Ampheres luteus* and *A. fuscopunctatus*.

Table II. Data matrix of characters distribution for the species of Caelopyginae.

	1	2	3	4	5	5
	1234567890	1234567890	1234567890	1234567890	1234567890	1234567
outgroup						
Acrogonyleptes curitibae	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Hernandaria heloisae	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Sodreana sodreana	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Stygnobates inscriptus	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Cadeadoius niger	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Heliella singularis	0000000000	0000000000	0000000000	0000000000	0000000000	0000000
Iguapeia melanocepahla	1000000000	0000000000	0000000000	0000000000	0000000000	0000000
Progonyleptoidellus striatus	1000000000	0000000000	0000000000	0000000000	0000000000	0000000
ingroup						
Ampheres fuscopunctatus	1001001110	0001000001	0110111200	0001000011	0000100100	0000011
Ampheres leucopheus	1000001110	0001000000	0000111200	0001000011	0000100100	0001100
Ampheres luteus	1000001110	0001000001	0110110000	0001002011	00?0200000	0001011
Ampheres tocantinus	1000011110	00?1000011	?000111100	0001002011	00?0200100	0001000
Ampheres xanthopygus	0000011111	0001010000	1104100000	0101000011	1111010000	0001100
Caelopygus elegans	0000001110	0101010000	0100011000	0101000011	2000000000	0001100
Caelopygus melanocephalus	0000011110	0101010000	0003011000	0101010011	2000000000	0001100
Garatiba bocaina	1110001110	1110001130	1000000000	0101012012	2111010000	1011100
Metampheres albimarginatus	1000002111	0101000000	0100000000	0011000011	3000000000	0001100
Metarthrodes albotaeniatus	0000011110	0101100011	1000100001	0101012112	3000100000	0001100
Metarthrodes bimaculatus	0000001110	0001000001	1003100000	0101012112	3000111000	0001100
Metarthrodes hamatus	0000111110	00?1000011	?102100001	0101012112	2000110000	0001100
Metarthrodes laetabundus	0000101110	0002000011	1202100011	0101102111	3000011000	0011100
Metarthrodes leucopygus	0000011110	0001000011	?100101001	0101010112	3000101000	0001100
Metarthrodes. longipes	0000011110	0001100011	1110100011	0101010112	1000111011	1001100
Metarthrodes nigrigranulatus	0000111110	0102000011	1110100011	0101010112	3000111010	1001100
Metarthrodes pulcherrimus	0000111110	0002100011	1111100011	0101010112	1000210000	1001000
Metarthrodes. xango	0000002110	00?1000011	?202100001	0101112112	3000010000	0001000
Pristocnemis albimaculatus	2101001110	0000000130	1101100000	1101001011	1111010000	1101100
Pristocnemis farinosus	2101001110	0001000131	1001100000	1101001011	1111010000	1101100
Pristocnemis perlatus	2101001110	0000000131	1111100000	0101100011	11?1010000	1111100
Pristocnemis pustulatus	2101001110	0001000130	1003100000	0101002011	1111010000	1111100
Thereza albiornata	1110013110	1000001120	1100100000	0101000011	2110001020	2000000
Thereza amabilis	1110011110	1000001120	?100100000	0101000012	1111000021	2000000
Thereza poranga	1110011110	1000001120	1100100000	0101000012	1111000021	2000000
Thereza speciosa	1110011110	1000001120	1100100000	0101000012	1111011021	2001100

Discussion. This article is the first attempt towards a cladistic analysis for the members of Caelopyginae. The 57 characters studied were equally weighted and resulted in 4 equally parsimonious trees (length = 166 steps; consistency index = 0.47; retention index = 0.70). A strict consensus tree (length = 168 steps; consistency index = 0.44; retention index = 0.70) is shown in the figure 11. The sub-family Caelopyginae is recognized as monophyletic based on the following 10 characters: eye mound with two small tubercles (character 7, state 1); eye mound depressed medially (character 8); eye mound widened (character 9); posterior margin of dorsal scute concave (character 14); bipectinate claws III-IV (character 34); large and thin ventral process of glans of penis (character 39); lateral prominence on ventral process of glans of penis (character 40, state 1); basal seta of basal lobe of penis reduced (character 45); dorsal anal operculum with white spot (character 54); ventral anal operculum with white spot (character 55). The trees obtained differ by the combination of relationships between species of the genus *Thereza* and between some species of *Metarthrodes* (*M. longipes*, *M. pulcherrimus* and *M. nigrigranulatus*). In *Thereza*, the species *T. amabilis*, *T. poranga* and *T. albiornata* form a monophyletic group based in the loss of white spot on dorsal anal operculum (character 54), on ventral operculum (character 55) and by the black colored tubercles of dorsal scute (character 46). In the consensus tree these three

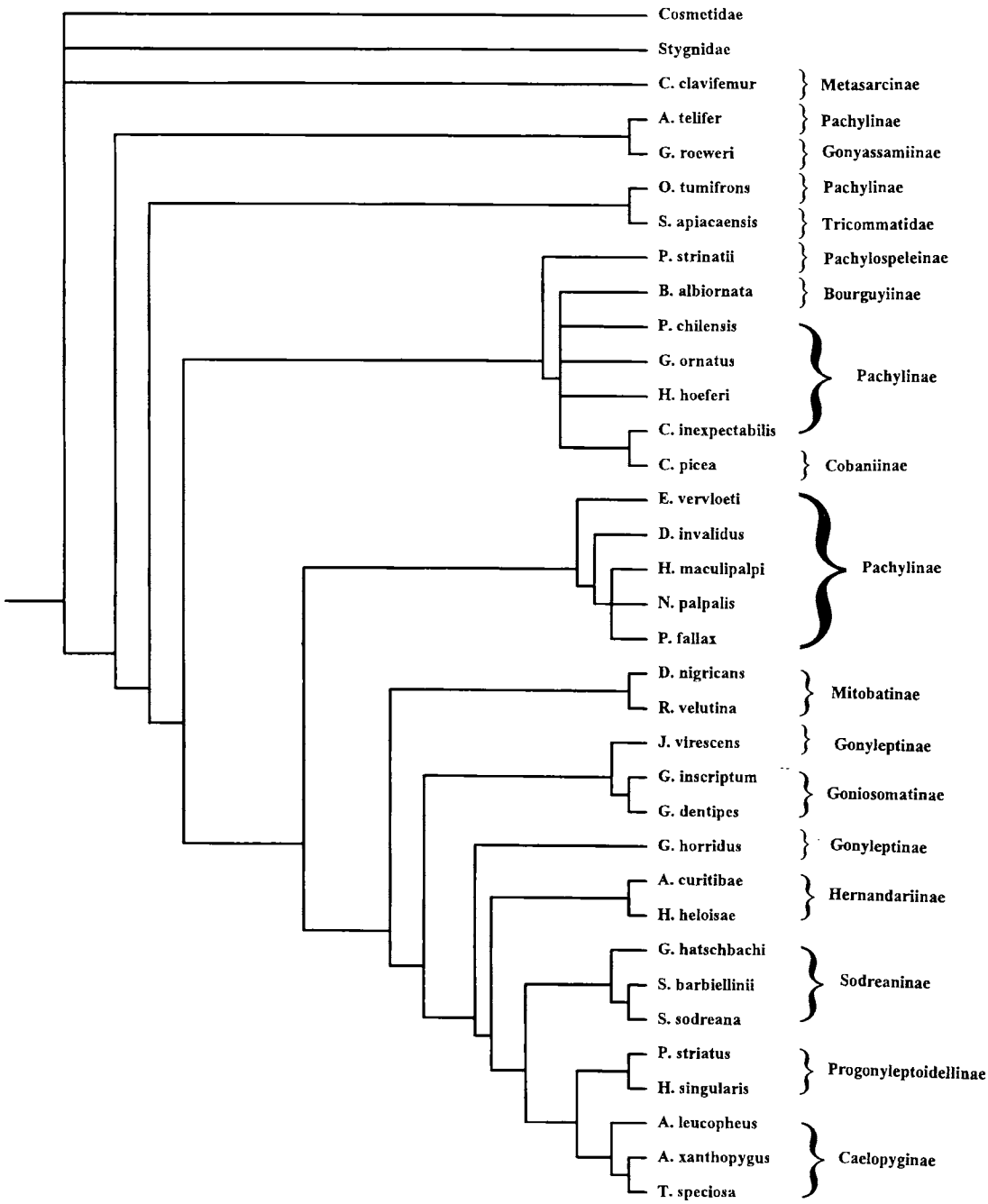


Fig. 10. Hyphothesis of relationships among the subfamilies of Gonyleptidae (analysis unpublished). Strict consensus tree based on 74 characters (113 derived states) from 24 equally parsimonious trees (strict consensus, length 347 steps; index of consistency = 0.31; index of retention = 0.56).

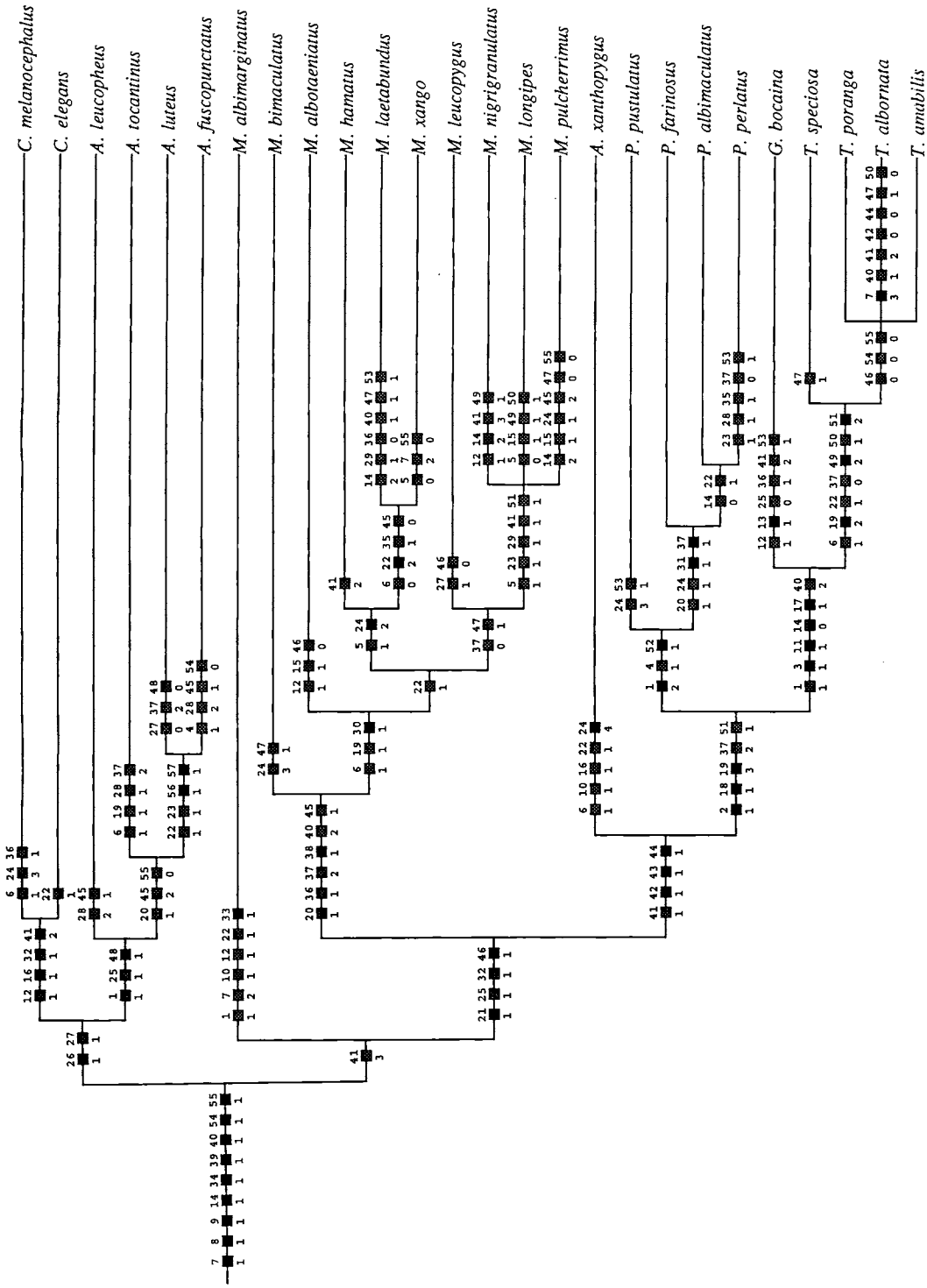


Fig. 11. Hyphothesis of relationships between species of Caelopyginae (Gonyleptidae) based on a strict consensus tree of 4 equally parsimonious trees. 158 steps, index of consistency 0.46; index of retention 0.71. Black means homoplastic charachter and, ligth means reversion to plesiomorphic state.

species form a trichotomy. *T. albiornata* and *Thereza amabilis* are sistergourp in two trees by sharing white spot on area III (character 51, also shared by *T. speciosa*). In two other trees, *Thereza amabilis* and *Thereza poranga* are sister groups through the presence of a white spot on area II (character 50, also shared by *T. speciosa*). In two other trees, *Metarthrodes nigrigranulatus* is the closest related species to *M. pulcherrimus* by the presence of a lateral margin higher than lateral area III and the posterior margin (character 5) and also by the posterior margin strongly concave (character 14, state 2; concave in *M. longipes*, state 1). In the other two trees, *M. longipes* forms a monophyletic group with *M. pulcherrimus* by the presence of a spine on the anal operculum (character 15) and by a short U-shaped cleft in the ventral plate of the penis (character 41, state 1). These different topologies within the *Thereza* and *Metarthrodes* clades resulted from the optimization DELTRAN (procedure that DELays the evolutionary TRANsformation of a character, SWOFFORD & MADDISON, 1987 apud AMORIM, 1994) or, from the independent appearance of the apomorphic condition. A trichotomy will be maintained by the available data with the ACCTRAN optimization (procedure that ACCelerate the evolutionary TRANsformation of a character, Swofford & Maddison, 1987 apud Amorim, 1994) or, by the appearance first of the apomorphic condition, and the subsequent reversion to the plesiomorphic state.

6. Systematics

Caelopyginae Sørensen

Coelopygoidœ Sørensen, 1884: 618; Mello-Leitão, 1923: 35 (key).

Coelopyginae; Roewer, 1913a: 9 (key); 1913b: 306 (rdesc); Mello-Leitão, 1935b: 95 (key), 107 (bion, syst); Ringuelet, 1959: 395 (diagn); Kury, 1995: 206.

Caelopyginae; Roewer, 1923: 395 (key), 518 (rdesc); 1931: 122 (bib); Mello-Leitão, 1935a: 405 (cit); Roewer, 1943: 14 (diag) Soares & Soares, 1948: 564 (diag); Mello-Leitão, 1949: 8 (cit), 11 (cit), 13 (key): Soares & Soares, 1985: 176 (rdesc).

Caelepiginas; Mello-Leitão, 1931: 139 (cit).

Coelopyginas; Mello-Leitão, 1932: 103 (key), 355 (rdesc).

Caelopyginas; Mello-Leitão, 1932: 389 (diag).

Coelopygidæ; Sørensen, 1932: 279-280 (syst).

Dasypoleptinae Mello-Leitão, 1949: 12 (key), 13 (desc) (type genus: *Dasypoleptes* Mello-Leitão, 1949). *Syn.n.*

Type genus: *Caelopygus* Koch, 1839.

Diagnosis. Body subrectangular- or pyiriform-shaped. Scent glands with 2 external openings (ozopores) on each side. Eye mound wide, with a median depression, with 1 low tubercle near each eye (rarely smooth or with 1 pair of large tubercles). Dorsal scute with 4 grooves (3 areas). Area I divided. Area III with 2 spines with blunt apex (rarely more acute) or 2 tubercles. Posterior margin of dorsal scute, from straight to concave. Pedipalpus: femur thin, cylindrical (smaller than length of dorsal scute), without wide ventral setae; patella without prolateral seta; tibia mesal IiIi, ectal IIi/IiIi/IiiIi; tarsus longer than tibia, biconvex, with 2 ventral rows of wide setae, ectal II, mesal II (rarely I). Tarsus with more than 6 segments; III-IV with semispherical articles, distitarsus I 3-segmented, II 4- or 5-segmented (rarely 3-), with a dense scopula. Claws bipectinate. Tarsal process present and long. Penis: ventral process of glans long and thin; dorsal process absent; basal lobe of ventral plate forward; 3-4 pairs of distal setae of ventral plate longer than other; 2 short setae behind distal group of setae (sometimes a little above the long ones; rarely absent); 1 intermediary seta (between the long and the basal groups); 3-4 pairs of long basal setae, the basal one reduced, absent or long. Yellow to greenish coloured, with or without white spots or dots on dorsal scute, free tergites and dorsal and ventral anal opercula. Daytime and nocturnal habits.

Affinities. A preliminary analysis of 74 characters (113 derived states) for 35 terminals of the family Gonyleptidae resulted in 24 equally parsimonious trees (length = 326 steps; consistency index = 0.33; retention index = 0.59). A stricto consensus tree (Fig. 10) confirmed the monophyly of Caelopyginae + Gonyleptinae + Progonyleptoidellinae + Sodreaninae + Hernandariinae + Mitobatinae and Goniosomatinae, postulated by Kury (1992b, 1995). The Caelopyginae is the sister group of the Progonyleptoidellinae, supported by the high number of segments on tarsus I (more than 6

segments), distitarsus II with 4-5 segments, high number of articles on tarsi III-IV and second to last articles of tarsi III-IV semispherical-shaped. These two sub-families are the sister group of the Sodreaninae by sharing a thin, cylindrical and elongate pedipalpus (extremely enlarged in Sodreaninae). Hernandariinae is the sister group of the sub-families previously mentioned supported by the biconvex palpal tarsus, bearing two ventral rows of wide setae. All the sub-families mentioned above are the sister group of Gonyleptinae by the presence of the following characteristics: sub-basal portion of ventral plate of penis forward; distal setae of ventral plate of penis elongate and helicoidal-shaped; distal margin of ventral plate of penis with deep cleft U- or V-shaped; scent glands with 2 external openings (convergently shared with *Goniosoma* or with Goniosomatinae and lost by the possible early lineage *Jupuvura virescens*); male apophysis of coxa IV with a basal tubercle and, probably a reduced area of microsetae on the distal part of stylus. Unfortunately, only *Gonyleptes horridus* Kirby, 1818 and *Jupuvura virescens* Mello-Leitão, 1940 were included as terminals in the analysis as representatives of Gonyleptinae and they do not form a monophyletic group. As there is no evidence to show if these two species are or not representatives of the early lineages of Gonyleptinae, some of the characters that related *G. horridus* with the sister groups of Caelopyginae maybe homoplastic.

Sequenced classification for the genera of the Caelopyginae (see figure 11 for the cladogram):

Caelopygus Koch, 1839
- *C. elegans* (Perty, 1833)
- *C. melanocephalus* Kollar, 1839

Ampheres Koch, 1839
- *A. leucopheus* (Mello-Leitão, 1922)
- *A. tocantinus* Roewer, 1943
- *A. luteus* (Giltay, 1928), comb.n.
- *A. fuscopunctatus* (Soares, 1942), comb.n.
- Species not included in the analysis: *A. spinipes* (Perty, 1833)

Metampheres Roewer, 1913
- *M. albimarginatus* Roewer, 1913

Arthrodes Koch, 1839
- *A. xanthopygus* Kollar, 1839

Pristocnemis Koch, 1839
- *P. albimaculatus* (Roewer, 1913), comb.n.
- *P. farinosus* (Mello-Leitão, 1922), comb.n.
- *P. perlatus* (Giltay, 1928), comb.n.
- *P. pustulatus* Kollar, 1839

Garatiba Mello-Leitão, 1940
- *G. bocaina*, sp.n.
- Species not included in the analysis: *G. bisignata* Mello-Leitão, 1940

Thereza Roewer, 1943
- *T. speciosa* (Roewer, 1913), comb.n.
- *T. albiornata* Roewer, 1943
- *T. amabilis*, sp.n.
- *T. poranga*, sp.n.

Metarthrodes Roewer,1913
- *M. bimaculatus* Roewer, 1913
- *M. albotaeniatus* (Mello-Leitão, 1942), comb.n.
- *M. hamatus* Roewer, 1931
- *M. laetabundus* (Sørensen, 1884), comb.n.
- *M. xango*, sp.n.
- *M. leucopygus* (Roewer, 1931), comb.n.
- *M. longipes* (Soares, 1944), comb.n.
- *M. nigrigranulatus* Roewer, 1913
- *M. pulcherrimus* (Mello-Leitão, 1931), comb.n.

Genus and species not included in the analysis: *Proampheres* Roewer, 1913, *P. serratus* (Kollar, 1839)

Key for the genera of Caelopyginae:

1. Coxa IV dorsally hidden on anterior portion (Figs. 23-32).....2
   Coxa IV dorsally visible (Figs. 12-16, 19-20, 33-40).....4
2(1). Areas II-III undivided (Figs. 23-26).....*Pristocnemis*
   Areas II-III divided by longitudinal groove (Figs. 27-32).....3
3(2). Male dorsal apophysis of coxa IV enlarged (Figs. 27, 66); female with 2 tubercles on area III or smooth.....*Garatiba*
   Male dorsal apophysis of coxa IV reduced or absent (Figs. 29-32, 72); females with 2 spines on area III.....*Thereza*
4(1). Pedipalpal femur with subapical seta (Figs. 46, 48).....5
   Pedipalpal femur without subapical seta (Figs. 47, 49-56).....6
5(4). Lateral margin of dorsal scute with large

tubercle (Figs. 21-22); femur IV without row of dorsal tubercles (Fig. 81)..... .....*Arthrodes*

Lateral margin of dorsal scute without large tubercle (Figs. 12-13); femur IV with row of dorsal tubercles (Figs. 74-75) ..... *Caelopygus*

6(4). Posterior margin and free tergites with a large tubercle (Fig. 163).....*Proampheres*

Posterior margin and free tergites smooth or small-tuberculate (Figs. 14-19, 33-43).....7

7(6). Eye mound with two spines with blunt apex (Fig. 19).....*Metampheres*

Eye mound with two tubercles (Figs. 14-18, 33-43).....8

8(6). Male apical apophysis of coxa IV with basal tubercle (Figs. 33-43); basitarsus I normal (Fig. 96).....*Metarthrodes*

Male apical apophysis of coxa IV without basal tubercle (Figs. 14-17); male basitarsus I swollen (Fig. 91)..... .....*Ampheres*

Caelopygus Koch

Caelopygus Koch, 1839a: 17; 1839b: 78; Bertkau, 1880: 101 (cit); Sørensen, 1884: 619 (cit); Roewer, 1913b: 307 (key, rdesc); 1923: 518 (key), 519 (diag, key); Roewer, 1931: 123 (key); Soares, 1944e: 270 (cit); Soares & Soares, 1948: 565 (key), 571 (cat); 1986: 98 (rdesc, = *Arthrodes* C. L.Koch, 1839 = *Liarthrodes* Mello-Leitão, 1922).

Coelopygus; Roewer, 1913b: 307 (key, rdesc); Mello-Leitão, 1926: 36 (key); 1932, 356 (key), 365 (rdesc); Sørensen, 1932: 279 (cit); Mello-Leitão, 1935b: 107 (diag), 108 (cit).

Cœlopygus; Mello-Leitão, 1923: 169 (cit), 195 (key).

Heterarthrodes Mello-Leitão, 1935c: 405; 1935b: 108 (cit); Soares & Soares, 1948: 571 (= *Arthrodes* Koch, 1839). (Type species: *Heterarthrodes alvimi* Mello-Leitão, 1935, by original designation).

Liarthrodes Mello-Leitão, 1922: 346; 1923: 171 (cit); Roewer, 1931: 123 (key), 142 (rdesc); Mello-Leitão, 1932: 355 (key), 356 (rdesc); 1935b: 107 (diag); Soares, 1944e: 270 (syst); Soares & Soares, 1948: 565 (key), 576 (cat) (Type species: *Liarthrodes tetramaculatus* Mello-Leitão, 1922, by original designation).

Diagnosis. Sexual dimorphism on shape of dorsal scute, the male lateral margin is wider than female. Maximal width of dorsal scute reaching the groove IV. Cephalothorax smaller than abdomen. Eye mound with 2 small tubercles. Large tubercle on male lateral margin absent. Areas II-III undivided. Spines of area III of male reduced to tubercles, normal on female. Pedipalpal subapical seta on femur present. Leg IV tuberculate. Male coxa IV visible in dorsal view. Basitarsus I normal. Distitarsus II 4-segmented. Penis: lateral projections on ventral process; ventral plate wide; ventral part of ventral plate strongly covered by microsetae; distal setae of ventral plate subapical.

Type species: *Gonyleptes elegans* Perty, 1833, designated subsequently by ROEWER (1913).

Caelopygus elegans (Perty)

(Figs. 2, 12, 44, 46, 58-59, 74, 98-99, 171)

Gonyleptes elegans Perty, 1833: 202, fig. 9; Gervais, 1844: 104 (diag). (male holotype "Brasil", not examined, lost).

Caelopygus elegans; Koch, 1839a: 18 (rdesc); 1839b: 87, fig. 576; Roewer, 1913b: 308 (= *Caelopygus granulatus* Bertkau, 1880, rdesc), pl. I b, fig. 4; 1923: 519 (key, diag, dist), fig. 649; Mello-Leitão, 1923: 169 (cit), 195 (diag); Mello-Leitão, 1932: 366 (key, rdesc), fig. 229; Soares, 1944e: 270 (cit); Soares & Soares, 1948: 572 (cat); Moritz, 1971: 196 (typ); Soares & Soares, 1986: 97 (cit), 98 (rdesc, = *Heterarthrodes alvimi* Mello-Leitão, 1935, = *Liarthrodes tetramaculatus* Mello-Leitão, 1922 = *Liarthrodes granulosus* Mello-Leitão, 1932).

Coelopygus elegans; Roewer, 1913b: 308 (key, rdesc, dist), pl. IB, fig. 4.

Caelopygus granulatus Bertkau, 1880: 101. (2 syntypes, unknown sex "Brasil, Terezopolis or São João del Rei, 2 syntypes ", ISNB not examined).

Liarthrodes tetramaculatus Mello-Leitão, 1922: 346; 1923: 172, fig. 32; Roewer, 1931: 143 (diag), fig. 18; Mello-Leitão, 1932: 356 (key), 357 (rdesc); Soares, 1944e: 270 (cit);

Soares, 1946: 493 (cat); Soares & Soares, 1948: 577 (cat). (male holotype "Petrópolis [Rio de Janeiro, Brasil], *Liarthrodes 4-maculatus*, typus ", MZSP-462, dissected, examined).

Liarthrodes 4-maculatus; Mello-Leitão, 1923: 171 (rdesc), fig. 32.

Liarthrodes quadrimaculatus; Mello-Leitão, 1923: 194 (key).

Heterarthrodes alvimi Mello-Leitão, 1935c: 406, fig. 28; Mello-Leitão, 1935b: 108 (cit); Soares, 1944e: 270 (cit); 1945c: 231 (cat); 1945b: 348 (cat, dist); (male holotype, "Petrópolis, Rio de Janeiro, Brasil", MNRJ, not examined; 1 male paratype "Petropolis [Rio de Janeiro, Brasil], 1♂, cótypus", IBSP-50, examined).

Arthrodes alvimi; Soares & Soares, 1948: 571 (cat).

Liarthrodes granulosus Mello-Leitão, 1932: 356 (key), 357 (desc), 483 (diag); Soares, 1945b: 349 (cat); Soares & Soares, 1948: 576 (cat). (2 syntypes males "Petrópolis [Rio de Janeiro, Brasil], M. Rosa col., typus", MNRJ-1449, examined).

Male redescription (MNRJ-6661):

Measurements. Dorsal scute: length 5.90; maximal width 7.12. Cephalothorax: length 2.40; width 2.95.

Dorsum (Figs. 12, 44, 171). Anterior margin with 2 median tubercles, 5 lateral. Eye mound with 1 pair of anterior tubercles, 1 wide median pair, 2 posterior pairs. Cephalothorax very tuberculate laterally and behind eye mound. Lateral margin with 1 row of tubercles from ozopores to posterior margin, several tubercles irregularly distributed in all extension. Areas I-III strongly tuberculate; III with 1 pair of median wide tubercles. Posterior margin and free tergites with a row of tubercles. Anal operculum minute-tuberculate.

Venter. Coxa I with 4-6 anterior tubercles, median irregular row of 9-11, 4 posterior, 3 apical; II with 4-6 anterior tubercles, 11 median, 13-15 posterior, 4 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum minute-tuberculate.

Chelicera. Segment I smooth; II with 5 tubercles; III with 3.

Pedipalpus (Fig. 46). Coxa smooth. Trochanter with 2 ventral tubercles. Femur straight with 7 ventral tubercles. Patella smooth. Tibia ectal IIi, mesal IiII.

Legs (Figs. 12, 74, 171). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior trifid, 1 posterior bifid towards III; III with 1 anterior trifid, 1 posterior bifid towards IV; IV with 1 anterior towards III, external apical apophysis oblique, with helicoidal apex, large internal apical tubercle (Figs. 12, 58). Trochanter I with 2 ventral tubercles; II with 5 ventral tubercles; III with 4 prolateral, 5 retrolateral, 6 ventral; IV with 4 prolateral (median wide and large), 9 retrolateral, 9 ventral. Femora I-IV straight; II-IV with 1 retrolateral row of tubercles (larger on IV); IV with 2 ventral rows on distal 1/3. Patella IV tuberculate. Tibia IV with 1 ventral, 1 retrolateral rows of tubercles. Tarsal segmentation: 8-9, 17, 16, 19. Claws IV with 7 ectal, 6 mesal teeth.

Penis (Figs. 98-99). Stylus thin and long, setose. Ventral process of glans depressed and enlarged. Ventral plate with short and wide cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller); 2 small behind distal setae and 1 on intermediary region.

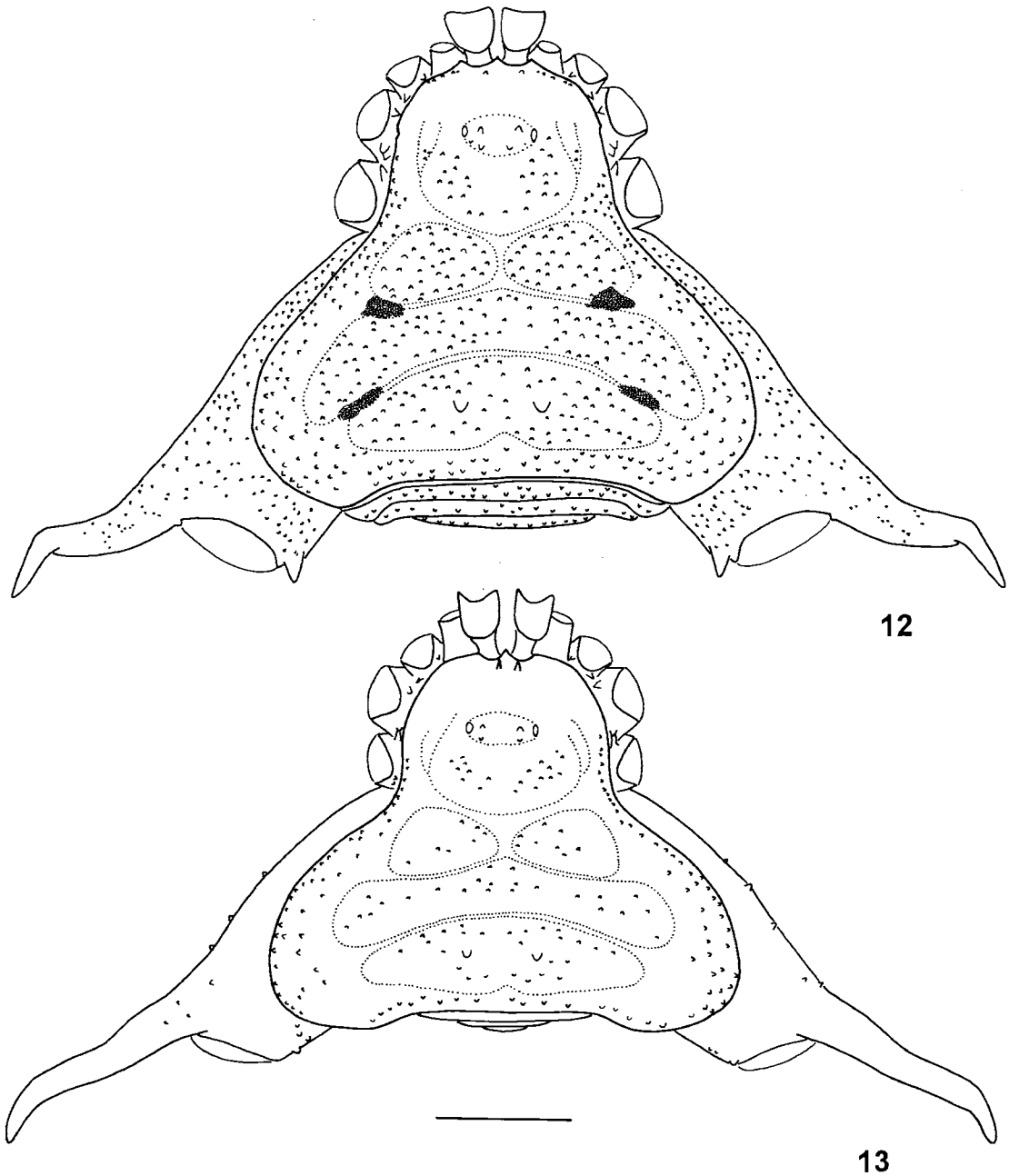
Color. Yellowish-green to brownish. Grooves II-III with 1 white spot each side reaching the surrounding areas. Tubercles of dorsal scute, of leg IV and apical apophysis of coxa IV black. Dorsal scute with small black spots. Dorsal anal operculum brownish with 2 white spots in almost all area; ventral with 2 lateral white spots. Chelicera and pedipalpus yellowish-green.

Female redescription:

Measurements. Dorsal scute: length 5.69; maximal width 6.56. Cephalothorax: length 2.25; width 3.00.

Area III with 2 blunt spines, 2 pairs of white spots, 1 over the groove II, 1 posterior. External apical apophysis of coxa IV smaller than ♂ and straight (Fig. 59). Femur IV tubercles smaller than ♂, without ventral tubercles. Patella IV without ventral and retrolateral tubercles. Femur of pedipalpus with 4 ventral tubercles. Segment III of chelicera with 4 teeth. Tarsal segmentation: 8, 16-17, 16, 20-21.

Variation (male n= 10, female, n= 10): Dorsal scute length 5.2-6 (male), 5.2-5.69 (female), width 6.8-7.44 (male), 6.24-6.72 (female); femur IV length 11.37-12.25 (male), 9.37-12.75 (female);



Figs. 12-13. Dorsal view of male: 12, *Caelopygus elegans* (MNRJ-6661); 13, *C. melanocephalus* (MNRJ-6636). Gray spots mean white color. Scale bar = 2 mm.

tarsal articles of males 8-9, 16-19, 15-16, 19-23, females 7-9, 15-18, 14-16, 17-20; anal operculum with white patches single or separate in two; pedipalpal tibia mesal IiiI/IIi/IiIi, ectal IIi.

Taxonomical notes: this species differs from *C. melanocephalus* by the presence of 2 pairs of spots on lateral of grooves I and II (Figs. 12, 171); dorsal scute and coxa IV strongly covered by tubercles (Fig. 12); anterior margin with median and lateral tubercles (lateral smaller); cephalothorax and dorsal scute uniformly colored; male coxa IV with retrolateral apical tubercle.

Type locality: "Brazil".

Geographical distribution (Fig. 2): State of Rio de Janeiro, Brazil. ROEWER (1913b, 1923) recorded this species erroneously to Bahia (see item 3.5).

Material examined: Brazil. Rio de Janeiro: Terezópolis (Parque Nacional da Serra dos Órgãos), B. A. M. Soares, A. Peracchi & E. Izecksohn *leg.*, 7.IV.1962, ♀ (MZSP-14842); idem, R. Pinto-da-Rocha *leg.*, 21.X.1995, ♂ (MZSP-14843); idem, J. Becker *leg.*, 21.I.1956, 2 ♀ (MNRJ); 5.XII.1963, 6 ♂ & 21 ♀ (MNRJ); idem, J. Becker *leg.*, 28-30.VIII.1957, 4 ♂, 16 ♀ and 3 immatures (MNRJ); idem, R. & A. Baptista *leg.*, 7.X.1990, 2 ♂ & 4 ♀ (MNRJ-6661); E. Izecksohn & C. A. G. Cruz *leg.*, 25.III.1978, 1 ♂ (HSPC-696); idem, 4 ♂ & 14 ♀ (HSPC-697); A. Peracchi & E. Izecksohn *leg.*, 1.V.1965, 15 ♂ & 30 ♀ (HSPC-293); idem, without data, 3 ♂ & 15 ♀ (HSPC-778); idem, A. Peracchi, E. Izecksohn & B. A. M. Soares *leg.*, 7-IV-1962, 5 ♀ (HSPC-996); idem, 3 ♂ (HSPC); idem, E. Izecksohn *leg.*, 28.IV.1964, 5 ♀ (HSPC-780); (Vale da Revolta), S. Potsch & A. Telles *leg.*, 2.III.1992, 1 ♀ (MNRJ-6760); Petrópolis, 1 ♂ syntype of *H. alvimi* (IBSP-50); M. Rosa *leg.*, 2 ♂ syntypes of *L. granulosus* (MNRJ-1449); idem, without collector, without data, 1 ♂ (MZSP-462); Nova Iguaçu (Tinguá), 2 ♀ (HSPC-782); idem, L. Cunha *leg.*, 1954, 5 ♂ & 3 ♀ (HSPC).

Caelopygus melanocephalus Kollar

(Figs. 2, 13, 75, 100-101)

Caelopygus melanocephalus Kollar in Koch, 1839a: 18; 1839b: 85, fig. 575; Roewer, 1913b: 308 (key), 310 (rdesc), fig. 124; 1923: 519 (key), 520 (rdesc), fig. 650; Soares & Soares, 1948: 573 (cat); Moritz, 1971: 196 (misid). (male holotype "Brasil", NHMW, not examined, lost according to J. Grüber).

Coelopygus melanocephalus; Roewer, 1913b: 308 (key), 310 (rdesc), fig. 124; Mello-Leitão, 1923: 171 (cit), 195 (key); 1932: 366 (key), 367 (rdesc), fig. 236.

Metarthrodes melanacanthus Roewer, 1913b: 320 (key), 325 (desc), fig. 129; 1923: 525 (key), 527 (diag), fig. 659; Mello-Leitão, 1923: 174 (*part.*, misid, cat, dist), 195 (key); Roewer, 1931: 125 (key), 126 (cit); Mello-Leitão, 1932: 375 (key), 377 (rdesc), fig. 240; Soares, 1945b: 349(cat). (female holotype "type, 1 ♂, Brasilien, S. Paulo", SMFD-827, examined). *Syn.n.*

Ampheres melanacanthus; Soares & Soares, 1948: 569 (cat).

Male redescription (MNRJ-6636):

Measurements. Dorsal scute: length 4.94; maximal width 6.44. Cephalothorax: length 2.06; width 2.62.

Dorsum (Fig. 13). Anterior margin with 2 median tubercles. Cephalothorax with 19 tubercles behind and 2 next to eye mound. Eye mound with 2 pairs of tubercles. Lateral margin with 1 external row of tubercles from ozopores to posterior margin, 1 internal row from coxa I to groove III, some tubercles sparse between groove II and posterior margin. Area I with 7-9 tubercles each side; II with 33 tubercles; III with 28 tubercles, 1 pair of tubercles larger than the others. Posterior margin with 25 tubercles. Free tergite I with 29 tubercles; II with 26; III with 22. Anal operculum small-tuberculate.

Venter. Coxa I with 3 anterior tubercles, median row of 7 tubercles, 5 posterior, 4 apical; II with 6 anterior, 8-10 median, 12-14 posterior, 5 apical; III with 1 median row of 9, 16-20 posterior, 7 apical; IV enlarged, with tubercles irregularly disposed. Posterior margin and free sternites with 1 row of small tubercles. Anal operculum small-tuberculate.

Chelicera. Segment I smooth; II with 4 tubercles; III with 3.

Pedipalpus. Coxa smooth. Trochanter with 1 ventral tubercle. Femur straight, with 7 ventral tubercles. Patella smooth. Tibia ectal IIi, mesal IiIi (IIi).

Legs (Figs. 13, 75). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior tubercle, 1 posterior bifid and fused with 1 of coxa III; III with 1 tubercle posterior fused with 1 of IV; IV with long apical apophysis with helicoidal apex. Trochanter I with 3 ventral tubercles; II with 7 retrolateral, 7 ventral; III with 3 prolateral, 5 retrolateral, 8 ventral; IV with 3 prolateral (median larger), 8 retrolateral (3 apical larger), 8 small dorsal, 10 ventral. Femora I-III straight; IV sigmoid, with 1 dorsal row of tubercles in almost all extension, 2 ventral rows, 1 long retrolateral. Patellae III-IV very tuberculate. Tarsal segmentation: 8-9, 17-18, 16-17, 18-21. Claws IV with 5 mesal and 5 ectal teeth.

Penis (Figs. 100-101). Stylus thin and long, with subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with wide short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller); 1 small behind distal setae and other on intermediary region.

Color. Yellowish. Cephalothorax dark-brown. Dorsal anal operculum with wide median white stripe; ventral with 2 lateral white spots. Tubercles of dorsal scute, free tergites and apical apophysis of coxa IV black. Corners of dorsal scute black. Legs I-IV brownish. Pedipalpus and chelicera yellowish with black spots.

Female redescription:

Measurements. Dorsal scute: length 6.17; maximal width 7.00. Cephalothorax: length 2.67; width 3.08.

Area I with 5 tubercles each side; II with 18; III with 22. Apical apophysis of coxa IV straight and smaller than male. Femur IV, with tubercles smaller in size and number than male. Tarsal segmentation: 8, 16, 15, 21.

Variation (male n= 6, female, n= 4): Dorsal scute length 4.24-5.2 (male), 4.32-4.96 (female), width 5.2-6.56 (male), 5.2-6.08 (female); femur IV length 12.75-14.12 (male), 12.25-13.75 (female); tarsal articles of males 8-9, 14-20, 15-16, 18-21, females 7-9, 14-18, 14-16, 17-20; tubercles on area I 4-16 (male), 4-19 (female), II 12-29 (male), 11-24 (female), III 6-30 (male), 19-36 (female); pedipalpal tibia ect IiIi/IIi, mesal IiIi/Iii/IiiIi/Iiii.

Taxonomical notes: it differs from *C. elegans* by dorsal scute without white spots; dorsal scute and coxa IV less tuberculate (Fig. 13); anterior margin with 1 pair of median large tubercles; cephalothorax dark-brown to black, dorsal scute yellowish; coxa IV without retrolateral apical tubercle.

Type locality: São Paulo, Brazil

Geographical distribution (Fig. 2): States of Rio de Janeiro and probably São Paulo. The record from MELLO-LEITÃO (1923) from Poço Grande (Juquiá, São Paulo State) are in fact *Progonyleptoidellus striatus* (Progonyleptoidellinae). There is no further records of *C. melanocephalus* from São Paulo State.

Material examined: Brazil. Rio de Janeiro: Nova Iguaçu (Tinguá), S. Potsch *leg.*, in forest, 6.III.1990, 3 ♂ & 2 ♀ (MNRJ-6636); idem, E. Izecksohn *leg.*, 24.III.1966, 3 ♂ & 3 ♀ (HS); idem, 2 ♀, 8.IV.1970 (HSPC); Rio de Janeiro (Copacabana), 1 ♂ (MNRJ-41935); São Paulo (doubtful record): holotype ♀ (SMFD, CR-827).

Ampheres Koch

Ampheres Koch, 1839a: 16; 1839b: 71; Sørensen, 1884: 621 (rdesc); Roewer, 1913b: 307 (key), 334 (rdesc); 1923: 519 (key), 529 (diag); Mello-Leitão: 1923: 175 (cit), 195 (diag); 1926: 36 (key); Roewer, 1927: 350 (cit); 1931: 123 (key), 136 (cit); Sørensen, 1932: 279 (cit); Mello-Leitão: 1932: 356 (rdesc), 372 (rdesc); 1935b: 108 (diag); Soares & Soares, 1948: 565 (key, cat), 566 (= *Metarthrodes* Roewer, 1913b = *Heterampheres* Mello-Leitão, 1935).

Prosodreana Giltay, 1928: 87; 1930: 241; Roewer, 1931: 123 (key), 144 (rdesc); Mello-Leitão, 1932: 356 (key), 362 (key); 1935b: 108 (syst, diag); Soares & Soares, 1948: 565 (key), 580 (cat). (Type species: *Prosodreana lutea* Giltay, 1928, by original designation). *Syn. n.*

Caelopygulus Roewer, 1931: 123 (key), 141; Mello-Leitão, 1932: 356 (key), 371 (rdesc); 1935b: 108 (diag). (Type species: *Coelopygus leucopheus* Mello-Leitão, 1922, by monotypy).

Zalonius Mello-Leitão, 1936: 28; Soares & Soares: 1948: 565 (key), 581 (cat, = *Garatiba*

Mello-Leitão, 1940); Soares & Soares, 1948: 581 (cat). (Type species: *Zalonius punctatus* Mello-Leitão, 1936, by original designation). *Syn.n.*

Metampheroides Mello-Leitão, 1941: 439. (Type species: *Metampheroides serrinus* Mello-Leitão, 1941, by monotypy). *Syn.n.*

Pizaius Soares, 1942: 4; Soares & Soares, 1948: 565 (key), 578 (cat). (Type species: *Pizaius fuscopunctatus* Soares, 1942, by monotypy). *Syn.n.*

Zaloous; Soares, 1944a: 88 (*lapsus*, cit).

Metarthrodes (part.); Soares, 1943a: 196 (= *Stenoprostygnus* Piza, 1940); 1943b: 11 (= *Caelopygulus* Roewer, 1931); Soares & Soares, 1948: 566.

Diagnosis. Sexual dimorphism on shape of dorsal scute absent. Maximal width of dorsal scute reaching the groove IV. Cephalothorax smaller than abdomen. Eye mound with 2 small tubercules. Large tubercle on male lateral margin absent. Areas II-III1 undivided. Long spines of area III on male and female. Pedipalpal subapical seta on femur absent. Leg IV tuberculate. Male coxa IV visible in dorsal view. Male basitarsus I swollen. Distitarsus II with 4-5 segments. Penis: lateral projections on ventral process; ventral plate wide; ventral part of ventral plate densely covered by microsetae; distal setae of ventral plate on apical region.

Type species: *Gonyleptes spinipes* Perty, 1833, designated by Roewer (1913b). The subsequent designation of *A. asper* (Perty, 1833), a species placed in *Deltaspidium* Roewer, 1927, by Mello-Leitão (1923) is invalid.

Key for the males of *Ampheres*:

1. Dorsal scute without black stripes.....2
   Dorsal scute with black stripes (Fig. 172).....3
2(1). Femur IV with large retrolateral tubercles in almost all extension (Fig. 76)..... .....*A. leucopheus*
   Femur IV with large retrolateral tubercles on anterior region only (Fig. 79)..... .....*A. tocantinus*
3(1). Grooves II-IV and posterior margin with black stripes; long apical apophysis on coxa IV (Fig. 16).....*A. fuscopunctatus*
   Black stripes only on posterior margin (Fig. 166); small apical apophysis on coxa IV (Fig. 17).....*A. luteus*

Ampheres fuscopunctatus (Soares), comb.n.
(Figs. 4, 16, 78, 106-107, 177-178)

Pizaius fuscopunctatus Soares, 1942: 1 (cit), 4 (desc), fig. 2; 1946: 495 (cat); Soares & Soares, 1948: 578 (cat). (female holotype "E.190, C.115, tipo [Estação Biológica de Boracéia, Salesópolis, São Paulo, Brasil, B.M. Soares *leg.*, 8-10.II.1942]", MZSP-115, examined).

Zalonius spinipes Soares, 1944a: 87, fig. 3; Soares & Soares, 1948: 582 (cat). (male holotype, Ubatuba, São Paulo, Brasil, MZSP-730, not examined, probably lost). *Syn.n.*

Male redescription (MZSP-14846):

Measurements. Dorsal scute: length 4.44; maximal width 6.50. Cephalothorax: length 1.94; width 2.69.

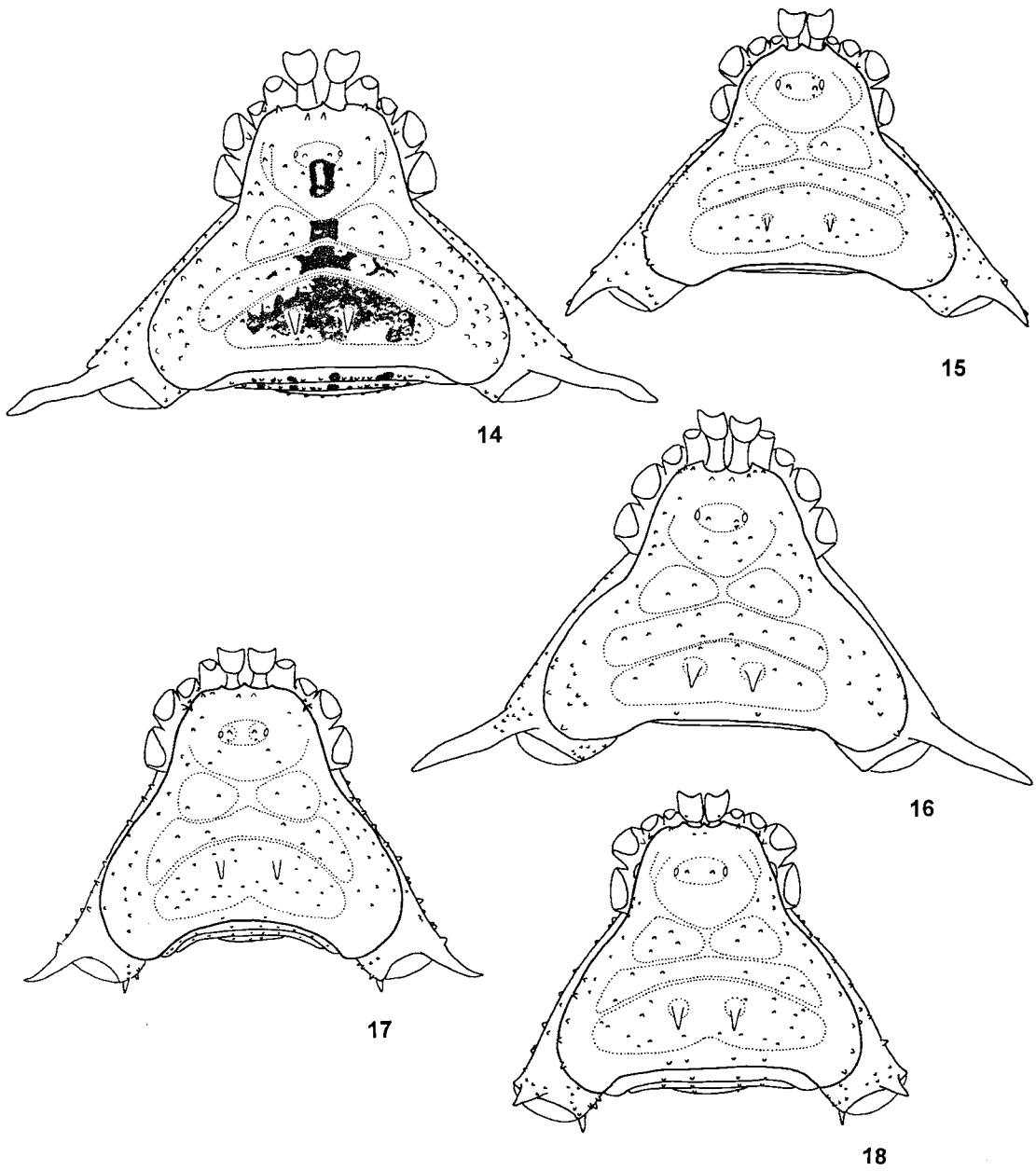
Dorsum (Fig. 16, 177). Anterior margin with 2-3 tubercles each side, 2 median. Cephalothorax with 2 tubercles each side, 5 behind eye mound. Eye mound with 2 median large tubercles, 1 posterior. Lateral margin with 2 tubercles near groove I, 0-1 near groove II; 4-5 between grooves II and IV. Area I with 1-2 tubercles; II with 6; III with 11, 2 short spines with blunt apex. Posterior margin with 1 tubercle. Free tergite I with 1 tubercle; II with 5; III with 4. Anal operculum with 2 anterior tubercles.

Venter. Coxa I with 3 anterior tubercles, 1 median row of 5, 3 posterior, 5 apical; II with 3-4 anterior tubercles, 1 median row of 7-8, 4-6 posterior, 3 apical; III- IV irregularly tuberculate. Posterior margin with 11 tubercles. Free sternite I with 8 tubercles, II-IV with 4. Anal operculum with 2 median tubercles.

Chelicera. Segment I with 1 dorsal tubercle; II with 5 tubercles; III with 4.

Pedipalpus. Coxa with 2 ventral tubercles. Trochanter with 2 small dorsal tubercles. Femur straight with 5 ventral tubercles on anterior half. Patella smooth. Tibia ectal IiIi, mesal III.

Legs (Figs. 16, 78). Coxa I with 1 small tubercle anterior and 1 posterior; II with 1 anterior bifid tubercle, 1 posterior close to other of II; III with 1 close to other of IV; IV with lateral tubercles;



Figs. 14-18. Dorsal view: 14, male of *Ampheres leucopheus* (MNRJ-6482); 15, male of *A. tocantinus* (holotype); 16, male of *A. fuscopunctatus* (MZSP-14846); 17, male of *A. luteus* (MZSP), 18, female. Gray patches mean white color. Scale bar = 2 mm.

external apical apophysis oblique, apex helicoidal, tuberculate at base and retrolaterally (apical tubercles larger). Trochanter I with 2 retrolateral tubercles, 3 ventral, 1 dorsal; II with 2 retrolateral, 3 ventral; III with 2 retrolateral, 4 ventral, 4 dorsal; IV with 6 dorsal, 1 prolateral wide and large, 6 retrolateral (apical larger), 7 ventral. Femora I-IV straight, IV with 2 ventral rows increasing in size apicad, 1 retrolateral row (larger on anterior1/3), 2 rows dorsal. Patella IV with 13 ventral tubercles, 4 retrolateral, 14 dorsal. Tibia IV smooth. Tarsal segmentation: 7-8, 14-15 (4), 15, 17-18.

Penis (Figs. 106-107). Stylus thin and long, with subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with deep cleft V-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller); 1 small behind distal setae and other on intermediary region.

Color. Yellowish. Cephalothorax with black spots; eye mound and posterior region of cephalothorax until groove I with 2 paramedian black stripes. Grooves I-IV with 1-2 black stripes interrupted medially. Area III with 2 paramedian spots between spines. Tubercles of anterior and lateral margins and of eye mound white. Posterior margin, free tergites and free sternites with 1 black stripe. External apical apophysis of coxa IV and apex of spines black. Legs I-IV brownish, with bright areas surrounding the tubercles. Pedipalpus and chelicerae with black spots.

Female description (Fig. 178):

Measurements. Dorsal scute: length 4.38; maximal width 6.06. Cephalothorax: length 1.88; width 2.62.

Anterior margin with 2 tubercles each side. Area II with 8 tubercles; III with 16. Posterior margin with 2 tubercles. Free tergite I with 6 tubercles; II with 8; III with 6. Anal operculum smooth. Tibia of pedipalpus ectal IiIi, mesal IiII. External apical apophysis of coxa IV smaller than ♂, apex straight. Femur IV with row of dorsal tubercles larger than ♂, ventral tubercles smaller. Tarsal segmentation: 7, 13 (4), 13, 15.

Variation (male n= 10, female, n= 8): Dorsal scute length 3.92-4.96 (male), 5.47-5.2 (female), width 6.64-7.2 (male), 5.76-7.36 (female); femur IV length 11.12-16.87 (male), 10.12-14.37 (female); tarsal articles of males 6-8, 12-16, 12-16, 14-19, females 6-7, 12-15, 13-15, 15-19; pedipalpal tibia mesal IiIi/Iiii, ectal IiIi/IiiIi/IIi/iIi/Ii. Area I with 1-7 tubercles, II with 6-19, III with 10-41, posterior margin with 1-6, free tergite I with 5-12, II 4-19, III 4-9.

Taxonomical notes: it resembles *A. luteus* by the presence of black stripes on dorsal scute but differs specially by stripes on grooves II-III and posterior margin (only posterior margin of *A. luteus*). Armature of male leg IV more developed than in *A. luteus* and dorsoapical apophysis of coxa IV perpendicular to longitudinal body axis (oblique in *A. luteus*).

Type locality: Estação Biológica de Boracéia, Salesópolis, São Paulo, Brazil.

Geographical distribution (Fig. 4): State of São Paulo.

Material examined: Brazil. São Paulo: Ubatuba (Fazenda Experimental de Ubatuba), A. Zoppei *leg.*, 15.XI,1943, 3 ♀ (MZSP-755); (Picinguaba), A. Kury & UFRJ, 3 ♂ (MNRJ-6777); A. C. Marques *leg.*, 18.XI.1991, 2 ♂ & 2 ♀ (MZSP-14840); idem, 13-16.X.1994, F. A. G. Mello & N. Carneiro *leg.*, 3 ♂ & 1 ♀ (MZSP-14846); (Faz. Capricórnio, 23°23'S - 45°04'W), F. A. G. Mello *leg.*, 1995, 3 ♂ & 2 ♀ (MZSP-14851); (Moinho Comunitário, rio da Fazenda), A. & L. Kury, R. & A. Baptista *leg.*, 7.IX.1989, 1 ♂ & 1 ♀ (MNRJ-6515); (Cuzcuzeiro), G. Machado *leg.*, 20.XII.1995, 4 ♀ (MZSP, ZUEC); São José dos Barreiros (rio Mambucaba, Parque Nacional da Serra da Bocaina, 1400 m), 21-24.III.1997, R. Pinto-da-Rocha, C. Campaner & S.A. Vanin *leg.*, 1 male (MZSP-157337); idem, 2 ♂ e 7 ♀ (MZSP-16188); idem, ♂ e ♀ (MNRJ); Salesópolis (Estação Biológica de Boracéia), W. Bokermann *leg.*, 30.XI.1948, 1 ♂ and 1 ♀ (HSPC-246).

Ampheres leucopheus (Mello-Leitão)
(Figs. 3 14, 60-61, 76, 104-105, 138, 145)

Coelopygus leucopheus Mello-Leitão, 1922: 345; 1923, 170 (rdesc), 195 (key), fig. 31. (male holotype "[Fazenda] Poço Grande [Juquiá, São Paulo, Brasil]", MZSP-465, examined).

Caelopygulus leucopheus; Roewer, 1931: 141, fig. 17; Mello-Leitão, 1932: 371 (rdesc), fig. 235.

Metarthrodes leucopheus; Soares, 1943b: 11 (=

Metarthrodes pardalis Piza, 1943); 1946: 494 (cat); Costa, 1988: 578 (bion).

Ampheres leucopheus; Soares & Soares, 1948: 568 (cat).

Metarthrodes triangularis Roewer, 1931: 125 (key), 132 (desc), fig. 12; Mello-Leitão, 1932: 375 (key), 383 (rdesc); Soares, 1945b: 349 (cat). (female holotype, " Therezopolis [Rio de Janeiro], Brasilien, typus", SMFD-1395, examined). *Syn.n.*

Ampheres triangularis; Soares & Soares, 1948: 570 (cat).

Zalonius punctatus Mello-Leitão, 1936: 28, fig. 24; Soares, 1945b: 349 (cat); Soares & Soares, 1948: 582 (cat); male holotype "Petrópolis [Rio de Janeiro, Brasil], R. Arlé *leg.*, ", MNRJ-42688, examined). *Syn.n.*

Metampheroides serrinus Mello-Leitão, 1941: 439. (male holotype "Serra do Barro Branco [Caxias, Rio de Janeiro, Brasil], typus, Passareli *leg.*", MNRJ-5124, examined). *Syn.n.*

Varzellinia serrina; Soares & Soares, 1948: 581 (cat).

Metarthrodes pardalis Piza, 1943: 58, fig. 11. (2 males and 1 female syntypes "Fda [Fazenda] Poço G. [Grande], Juquiá [São Paulo, Brasil], MZSP-58', examined).

Ampheres asper; Roewer, 1931: 136 (misid).

Ampheres gracilis Soares & Soares, 1945c: 254 (cit), 268 (desc), fig.1; 1948: 568 (cat). (female holotype "E.614, C.831, holotypus [Serra da Mantiqueira, São Francisco Xavier, São Paulo, Brasil, O.M.O. Pinto *leg.*, XII.1944]", MZSP-831, examined). *Syn.n.*

Male redescription (MNRJ-6482):

Measurements. Dorsal scute: length 6.42; maximal width 8.83. Cephalothorax: length 2.58; width 3.33.

Dorsum (Fig. 14). Anterior margin with 2 median tubercles, 1-2 each side. Cephalothorax with 2 pairs of lateral tubercles, 3 pairs behind eye mound. Eye mound with 2 tubercles. Lateral margin with 1 external row from middle area II to middle area III; 1 internal row of tubercles from middle area I to middle II; some sparse. Area I with 4-5 tubercles each side; II with 15 tubercles; III with 32 tubercles, 2 large spines with blunt apex. Posterior margin smooth. Free tergite I with 13 tubercles; II with 14 tubercles; III with 11 tubercles. Anal operculum minute-tuberculate.

Venter. Coxa I with 2 anterior tubercles, 1 median row of 4, 3-4 posterior, 4 apical; II with 4 anterior tubercles, 6 median, 4-6 posterior, 5 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum smooth.

Chelicera. Segment I smooth; II-III with 5 tubercles.

Pedipalpus. Coxa smooth. Trochanter with 2 ventral tubercles. Femur straight, with 6 ventral tubercles on the anterior half. Patella smooth. Tibia ectal IIi, mesal III.

Legs (Figs. 14, 76). Coxa I with 1 anterior tubercle; II with 1 anterior and 1 posterior fused with other of III; III with 1 posterior; IV with lateral tubercles, external apical apophysis oblique with apex helicoidal and base tuberculate. Trochanter I with 3 ventral tubercles; II-III with 3 ventral, 1 retrolateral; IV with 6 dorsal, 1 prolateral large and 2 short, 4 retrolateral (apical larger). Femora I-IV straight; IV with 1 ventral row of tubercles on anterior 1/3, 2 ventral rows on distal 1/3, 1 retrolateral row of wide and short tubercles, 1 dorsal row on anterior 1/3, 3 dorsal tubercles apical (posterior larger). Patella IV with 5 retrolateral tubercles, 8 ventral, 11 dorsal. Tibia IV with 1 retrolateral row of tubercles. Tarsal segmentation: 8, 16-17 (4), 16, 19. Claws IV with 6 ectal teeth, 5 mesal.

Penis (Figs. 104-105, 138, 145). Stylus (Fig. 138) thin and long, with subapical setae. Ventral process of glans depressed and enlarged. Ventral plate (Figs. 104, 145) with deep cleft V-shaped; with 3-4 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller); 2 short setae behind distal or 1 small behind distal setae and other on intermediary region.

Color. Brownish with black spots. White tubercles on anterior and lateral margins. Lateral portion of free sternites and of ventral anal operculum with white spots. Dorsal anal operculum with 2 white spots covering almost all area. Dorsal scute with several white spots from eye mound to area III forming a triangle. Posterior margin and free tergites I-II dark-brown. Free tergites I-II with white spots between tubercles. Chelicera, pedipalpus and legs with small black spots. External apical apophysis of coxa IV black.

Female redescription:

Measurements. Dorsal scute: length 3.32; maximal width 4.80. Cephalothorax: length 1.32; width 1.84.

Anterior margin with 2-3 lateral tubercles. Eye mound with 1 median pair and 1 posterior of tubercles. Apophysis apical of coxa IV small and straight. Tubercles of femur IV dorsal, ventral and retrolateral similar to male however, dorsal more scattered. Posterior margin with 1 row of tubercles. Chelicera with 2 dorsal tubercles. Tarsal segmentation: 7, 16 (5), 16, 18-19.

Taxonomical notes: it resembles *A. tocantinus* by absence of black stripes on dorsal scute and with *A. fuscopunctatus* by presence of retrolateral row of tubercles on male femur IV. Differs from *A. tocantinus* and *A. fuscopunctatus* by presence of tubercles on lateral margins of dorsal scute.

Variation (male n= 10, female, n= 5): Dorsal scute length 4.25-5.5 (male), 3.32-4.4 (female), width 6.3-7.8 (male), 4.8-6.4 (female); femur IV length 13.7-17.6 (male), 12.2-13.2 (female); tarsal articles of males 7-8, 14-17, 15-18, 14-19, females 7, 14-18, 13-17, 13-19; pedipalpal tibia mesal IIi/IiIi on males and females, ectal IiIi/IIi/IiiIi on males and IIi/IiIi on females. Posterior margin with 2-8 tubercles on males and 3-6 on females. Color (male/females) yellowish with dorsal scute tubercles of same color, or all tubercles white or just those on laterals and cephalothorax white; posterior margin at same color as dorsal scute or darker; anal opercles with (specimens from Ribeira Valley, Juquiá and Intervales) or without two white spots; large white patches on dorsal from eye mound until area III in those specimens from Ribeira Valley; male femur IV with a dorsal row of tubercles in all extension or just on 1/3 anterior.

Type locality: Fazenda Poço Grande, Juquiá, São Paulo, Brazil.

Geographical distribution (Fig. 3): Espírito Santo to Santa Catarina.

Material examined: Brazil. Espírito Santo: Santa Leopoldina (Chaves), Radagasio & Vervloet *leg.*, XII.1944, 2 ♀ (HSPC-1845); Rio de Janeiro: Terezópolis, ♀ holotype of *M. triangularis* (SMFD, CR-1395); (Parque Nacional da Serra dos Órgãos), P. Wygodzinsky *leg.*, 23-27.IV.1947, 1 ♀ (HSPC-249); idem (Faz. Vale da Revolta), S. Postsch & R. Sachsse *leg.*, 2.IX.1989, 1 ♂ (MNRJ-6533); idem (Albuquerque), R. & A. Baptista *leg.*, 6.X.1990, 1 ♂ (MNRJ-6794); Petrópolis, R. Arlé *leg.*, 2 ♀ (MNRJ-42463); 1 ♂ (MNRJ-1446); idem, R. Arlé *leg.*, holotype ♂ de Z. *punctatus* (MNRJ-42688); Mendes, VI.1946, 1 ♂ & 1 ♀ (MZSP-1038); Nova Iguaçu (Tinguá), E. Izecksohn *leg.*, 13.XI.1969, 1 ♂ (HSPC-781); idem, L. Cunha *leg.*, VIII.1954, 2 ♂ (HSPC-982); idem, E. Izecksohn *leg.*, 6.VIII.1965, 24 ♂ & 23 ♀ (HSPC-309); idem, allotype ♂ (HSPC-300); idem, 18 ♂ & 13 ♀ (HSPC-309); Caxias (Serra Barro Branco), ♂ holotype of *M. serrinus* (MNRJ-5124); Angra dos Reis (Pedra Branca), Berla *leg.*, 1 ♀ (MNRJ); São Paulo: Bananal (Faz. Albion), F. B. Pontual *leg.*, 11.III.1989, 1 ♂ (MNRJ-6442); São José do Barreiro (Serra da Bocaina), 1500 m, M. Alvarenga & W. Bokermann *leg.*, 1 ♀ (MZSP-14199); São Francisco Xavier (Serra da Mantiqueira), O. Pinto *leg*, XII.1944, ♀ holotype of *A. gracilis* (MZSP-831); idem, 1 ♂ (HSPC-453); Ubatuba (Rio Picinguaba), A. C. Marques *leg.*, 17.XI.1991, 1 ♂ (MZSP-14169); (Fazenda Experimental de Ubatuba), A. Zoppei *leg.*, 16.XI.1943, 2 ♂ (MZSP-763); idem, 17.XI.1943, 1 ♂ (MZSP-746); idem, 6 ♂ (MZSP-751); idem, 19.XI.1943, 2 ♂ (MZSP-734); idem, 1 ♂ (MZSP-758); idem, 1 ♂ (MZSP-730); (Picinguaba), P. Gnaspini *leg.*, 25-29.IV.1991, 2 ♂ (MZSP-14162); Campos do Jordão (Engenheiro Lefévre), L. T. Filho *leg.*, 1961, 1 ♂ & 3 ♀ (MZSP-14198); Salesópolis (Estação Biológica de Boracéia), B. A. M. Soares *leg*, 8-10.II.1942, paratype ♀ (MZSP-115); idem, holotype ♂ & allotype ♀ (MZSP-97);. idem, H. Reichardt *leg.*, 23-27.II.1963, 1 ♀ (MZSP-14131); idem, Rabello *leg.*, 16.X.1968, 1 ♀ (MZSP-14179); idem, 16.II.1962, 2 ♀ (MZSP-14132); idem, P. Biasi *leg.*, 20.X.1965, 1 ♂ (MZSP-14171); idem, H. Reichardt & L. R. Silva *leg.*, 9-15.II.1963, 1 ♂ & 3 ♀ (MZSP-14161); idem, S. A. Vanin *leg.*, 26-27.X.1991, 1 ♂ (MZSP-14194); idem, 19-20.X.1991, 1 ♂ (MZSP-14174); idem, W. Bokermann *leg.*, 22-24.V.1952, 1 ♂ (MZSP-14205); São Sebastião (Ilha de São Sebastião), 1 ♂ (MZSP-14172); Juquiá (Fazenda Poço Grande), ♂ holotype of *C. leucopheus* (MZSP-465); idem, F. Lane *leg*, IV.1941, 2 ♂ & 1 ♀ de *M. pardalis* (MZSP-58): idem, 1 ♂ (MZSP-14200); Guapiara (Faz. Intervales), 2.XII.1992, R. Pinto-da-Rocha & P. Gnaspini *leg.*, 1 ♂ & 1 ♀ (MZSP-14158); idem, R. L. C. Baptista *leg.*, 16-18.IV.1989, 2 ♂, 3 ♀ & 1 immature (MNRJ-6482); idem, Exp. MZSP *leg.*,

9-13.XI.1992, 1 ♂ (MZSP-14128); idem, 1 ♀ (MZSP-14130); idem, R. Pinto-da-Rocha & P. Gnaspini *leg.*, 5.XII.1992, 1 ♀ (MZSP-14133); S. Ide *leg.*, 22-26.III.1993, 1 ♀ (MZSP-14167); A. Kury, L. Kury & P. Gnaspini *leg.*, 17-19.X.1991, 2 ♂ & 1 ♀ (MZSP-14209); Paraná: São José dos Pinhais (Usina de Guaricana), R. Pinto-da-Rocha & J. C. Moura-Leite *leg.*, 8.VIII.1988, 2 ♀ (MHNC-6363); Almirante Tamandaré, C. Costa *leg.*, XII.1983, 1 ♂ (HSPC-828); Piraquara (Banhado), K. Imaguire *leg.*, X.1946, 1 ♂ (HSPC-255); idem, C. N. Gofferjé *leg.*, VII.1947, 1 ♀ (HSPC-256); Antonina (Praia Grande), S. Imaguire *leg.*, XI.1945, 1 ♀ (HSPC-247). Santa Catarina: Serra Azul, 2 ♂ (SMFD, CR-1399).

Ampheres luteus (Giltay), comb. n.
(Figs. 4, 17-18, 77, 94-95, 150-151, 172)

Prosodreana lutea Giltay, 1928: 87; 1930: 242; Roewer, 1931: 144 (rdesc), fig. 19; Mello-Leitão, 1932: 362 (rdesc); Soares & Soares, 1948: 580 (cat); 1970: 339 (cit). (female holotype "*Prosodreana lutea* Giltay, Génotype, ?, Itatiaya, Maroumba, Brésil [Brasil, Rio de Janeiro], X.1922, P. Brien", ISNB, examined).

Male description (MZSP):

Measurements. Dorsal scute: length 4.44; maximal width 5.69. Cephalothorax: length 1.94; width 2.31.

Dorsum (Figs. 17, 172). Anterior margin with 2 median tubercles and 1-2 each side. Cephalothorax with 2 tubercles each side and 4 behind eye mound. Eye mound with 2 median tubercles, 2 posterior. Lateral margin with 14-15 tubercles each side. Area I with 2-3 tubercles; II with 6 ; III with 26 tubercles, 2 large and blunt spines, upwards. Posterior margin with 2 tubercles. Free tergite I with 6 tubercles; II with 7; III with 3. Anal operculum with 2 tubercles near anterior and 4 near posterior margins.

Venter. Coxa I with 2-3 anterior tubercles, median row of 5, 3 posterior, 3 apical; II with 3 anterior tubercles, 7 median, 4 posterior, 4 apical; III with 18-21 tubercles irregularly disposed, 6 apical; IV with tubercles irregularly disposed. Posterior margin with 10 tubercles. Free sternites with 1 row of tubercles. Anal operculum with 3 tubercles.

Chelicera. Segment I with 3 dorsal tubercles; II with 6; III with 4.

Pedipalpus. Coxa with 2 ventral tubercles. Trochanter with 3 ventral. Femur with 1 ventrobasal large tubercle followed by 5-6. Patella smooth. Tibia mesal Iii, ectal IIi.

Legs (Figs. 17, 77, 172). Coxa IV with several retrolateral tubercles, long apophysis apical with tubercle subbasal. Trochanter I with 4 tubercles ventral, 1 prolateral, 4 retrolateral; II with 3 ventral, 1 retrolateral; III with 4 ventral, 4 retrolateral, 1 prolateral; IV with 7 ventral, 5 retrolateral (apical larger). Femora I-IV straight; IV with 1 dorsal row of tubercles, 1 retrolateral row (larger on anterior half), 1 ventral row (larger on apex), 1 apical large tubercle. Patella IV with 2 ventral rows of tubercles, 3 dorsal rows, several apical tubercles. Tibia IV with 2 ventral rows of tubercles (1 larger), 1 dorsal row, 1 retrolateral row, 1 prolateral row. Tarsal segmentation: 7, 15 (4), 15, 17-18. Three basal articles of basitarsus I swollen (Fig. 94).

Penis (Figs. 150-151). Stylus thin and long, with subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with deep cleft V-shaped; with 3 pairs of long distal setae; 3 pairs of setae on basal lobe; 1 small seta on intermediary region.

Color (Fig. 172). Yellowish. Dorsal scute, free tergites and coxa IV with black spots on tubercles, with black longitudinal stripe from anterior margin, over eye mound and reaching groove I. Posterior margin with 1 black stripe each side. Distal half of coxa IV apophysis black. Anal operculum with 2 white spots surrounded by black stripes.

Female redescription (holotype):

Measurements. Dorsal scute: length 4.50; maximal width 5.55. Cephalothorax: length 1.85; width 2.40.

Lateral margin with 2 tubercles each side (Fig. 18). Cephalothorax with 2 tubercles behind eye mound. Lateral margin with 13-14 tubercles each side. Area III with 23 tubercles. Pedipalpus: coxa with 1 ventral tubercle; tibia ectal Iii, mesal III. Dorsal row of tubercles on femur IV larger than male. Tarsal segmentation: 7, 12 (4), 15, 15. Basitarsus I normal (Fig. 95).

Variation (male n= 3, female, n= 6): Dorsal scute length 4.24-4.48 (male), 4.08-4.72 (female), width 5.6-5.84 (male), 5.52-6.24 (female); femur IV length 13.25-14.25 (male), 12.12-14.12-(female); tarsal articles of males 7, 13, 13-15, 16-18, females 7, 13-17, 14-16, 16-20; pedipalpal tibia mesal IIi, ectal IiIi/IIi. Area I with 2-4 tubercles on males, 2-7 on females; II with 8-17 on females; III with 26-40 on females, 21-30 on males; posterior margin with 2-4; free tergite I with 8-13 on females, 5-13 on males, II with 8-10 on females, 6-9 on males; III with 4-9 on females, 4-6 on males

Taxonomical notes: it resembles *A. fuscopunctatus* especially by the black tubercles, the pair of black longitudinal stripes over eye mound and a pair of black stripes on posterior margin; differs from other species of the genus by the weak armature on femur IV and apophysis dorsoapical of coxa IV perpendicular to longitudinal body axis and also by black spots on tubercles, white in other species of the genus.

Type locality: Maromba, Itatiaia, Rio de Janeiro, Brazil.

Geographical distribution (Fig. 4): recorded only from type locality.

Material examined: Brazil. Rio de Janeiro: Itatiaia (Parque Nacional do Itatiaia, Maromba); R. Pinto-da-Rocha *leg.*, IV.1991, 3 ♀ (MZSP-14186); same data, P. Brien *leg.*, X.1922, ♀ holotype (ISNB); idem, A. Kury, R. Pinto-da-Rocha & L. Mestre *leg.*, 2.II.1997, 7 ♂ & 1 ♀ (MNRJ, MZSP).

Ampheres tocantinus Roewer
(Figs. 15, 47, 79, 152-153)

Ampheres tocantinus Roewer, 1943: 57, fig. 69; (male holotype "Brasilien, Tocantins, Cameta [Pará], typus, ♂", SMFD-2506, dissected, examined).

Male redescription (holotype):

Measurements. Dorsal scute: length 4.21; maximal width 6.00. Cephalothorax: length 1.74; width 2.47.

Dorsum (Fig. 15). Anterior margin smooth. Cephalothorax with 2 pairs of tubercles each side of eye mound. Eye mound with 1 anterior tubercle, 2 median, 1 posterior. Lateral margin with 1 irregular row of tubercles from ozopores to posterior margin. Area I with 3-4 tubercles each side; II with 13 tubercles; III with 16 tubercles irregularly disposed, with 2 large parallel spines with blunt apex, upwards. Posterior margin smooth. Free tergite I with 9 tubercles; II with 7; III with 6. Anal operculum with small tuberculate.

Venter. Coxa I with 1 anterior tubercle, 1 median row of 6 tubercles, 3 apical; II with 1 median row of 5 tubercles, 3 posterior, 4 apical; III with 5 anterior tubercles, 5 median, 5-6 posterior, 3 apical; IV and stigmatic area tuberculate. Posterior margin with 8 tubercles. Free sternites with 1 row of tubercles. Anal operculum small-tuberculate.

Chelicera. Segment I smooth; II-III with 3 tubercles.

Pedipalpus (Fig. 47). Coxa with 1 ventral tubercle. Trochanter with 2 dorsal tubercles, 2 ventral. Femur straight, with 3 ventral basal tubercles. Patella smooth. Tibia ectal IiIi (IIi), mesal IiIi (IIi).

Legs (Figs. 15, 79). Coxa I with 1 anterior tubercle; II with 1 anterior tubercle and other fused with 1 of coxa III. Trochanter I smooth; II with 4 ventral tubercles; III with 5 tubercles ventral and 2 dorsal; IV with 4 prolateral, 3 large dorsal, 2 retrolateral (1 large), 6 ventral. Femora I-IV straight; III tuberculate; IV with 1 dorsal row of tubercles (basal larger), 2 retrolateral (1 large and curved), 2 apical dorsal, 2 ventral rows (first 4 larger and curved). Patella IV with 1 retrolateral tubercle, 8 dorsal and 7 ventral. Tarsal segmentation: 7, 13 (4), 13, 16-17. Three basal articles of tarsus I swollen. Claws III-IV with 5 teeth.

Penis (Figs. 152-153). Stylus thin and long, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with deep cleft V-shaped; with 3 pairs of distal setae; 3 pairs of long setae on basal lobe; short setae behind distal absent, 1 small on intermediary region.

Color (according to ROEWER, 1943). Yellowish. Posterior margin, free tergites, dorsal and ventral anal opercula and leg IV brownish. Cephalothorax with 1 black spot lateral and posterior to eye mound. Tubercles of lateral margin white. Tubercles of dorsal scute (except lateral margin) and spines black. Pedipalpus and chelicera yellowish.

Taxonomical notes: It resembles *A. leucopheus* (see "Taxonomical notes" of this species). It differs from other species of the genus

by absence of tubercles on lateral margins of dorsal scute and by dorsoapical apophysis of male coxa IV bifid (single in other species of genus).

Type locality: Cametá, Rio Tocantins, Pará, Brazil. This locality is not included in the known area of distribution of any Caelopyginae and is considered mislabeled (see item 3.5).

Geographical distribution: unknown.

Female unknown.

Material examined: BRAZIL. Pará: Cametá [incorrect record], holotype ♂ (SMFD).

Species not included in the cladistic analysis:

Ampheres spinipes (Perty), *species inquirenda*
(Fig. 168)

Gonyleptes spinipes Perty, 1833: 202 (cit), 205, pl. 39, fig. 12; Gervais, 1844: 103 (diag). (holotype "Provincia Bahiensi [Bahia, Brasil]", lost, according to M. Moritz).

Ampheres spinipes; Koch, 1839a: 17(cit); 1839b: 73, fig. 571; Sørensen, 1884: 621 (cit); Roewer, 1913b: 334 (key, rdesc, dist), fig. 133; 1923: 530 (key, diag, dist), fig. 663; Mello-Leitão, 1923: 175 (cat), 196 (key); Roewer, 1927: 350 (dist); 1931: 136 (cit); Mello-Leitão, 1932: 372 (key), 373 (rdesc), fig. 237; Soares & Soares, 1948: 570 (cat); 1985: 173 (cit).

Taxonomical notes. Species known only by female description, resembling to females of *Ampheres leucopheus* in which lack the white color on dorsal scute. *A. leucopheus* could be a synonym but, it is difficult to define the identity of *A. spinipes*, because the type is lost (as other opilionids described by Perty, see PINTO-DA-ROCHA, 1997) and no specimen posteriorly identified as belonging to this species could be found.

Type locality: it is mentioned erroneously as "Provincia Bahiensi" (Bahia State), see discussion under the item 3.5 "Records of geographical distribution".

Geographical distribution: unknown.

Metampheres Roewer

Metampheres Roewer, 1913b: 307 (key), 340 (desc); 1923: 518 (key), 532 (diag); Mello-Leitão, 1923: 175 (cit); 1926: 35 (key); Roewer, 1931: 122 (key); Mello-Leitão, 1932: 355 (key), 361 (rdesc); 1935b: 107 (diag); Soares & Soares, 1948: 565 (key), 577 (cat).

Diagnosis. Sexual dimorphism on shape of dorsal scute absent. Maximal width of dorsal scute reaching groove IV. Cephalothorax smaller than abdomen. Eye mound with 2 large tubercles. Large tubercle on male lateral margin present. Areas II-III undivided. Long spines on male and female area III. Pedipalpal subapical seta on femur absent. Leg IV tuberculate. Male coxa IV visible in dorsal view. Basitarsus I normal. Distitarsus II 3-segmented. Penis: projections of ventral process absent; ventral plate densely covered by microsetae; distal setae of ventral plate at apex.

Type species: *Metampheres lbimarginatus* Roewer, 1913b, by monotypy.

Metampheres albimarginatus Roewer
(Figs. 4, 19, 50, 66-67, 80, 102-103)

Metampheres albimarginatus Roewer, 1913b: 307 (key), 340 (desc), fig. 134; 1923: 532 (diag), fig. 665; Mello-Leitão, 1923: 175 (cat), 194 (key); 1932: 361 (rdesc), fig. 227; Soares & Soares, 1948: 577 (cat); (♂ lectotype and 3 ♂ paralectotypes, here designated "type, 4 ♂ & ♀, Brasilien: Bahia, n°821", SMFD, examined; 4 paralectotypes of unknown sex, "Petropolis, Rio de Janeiro, Brasil", ZMUH, not examined).

Male redescription (HSPC-733):

Measurements. Dorsal scute: length 5.69; maximal width 5.06. Cephalothorax: length 2.37; width 2.75.

Dorsum (Fig. 19). Anterior margin with 1 large tubercle on median region, 2-3 large each side. Cephalothorax with 2 tubercles each side, 20 laterally and behind eye mound. Eye mound with 1 anterior pair, 1 large median pair, 1 posterior pair. Lateral margin with 1 irregular row of tubercles from ozopores to posterior margin, some scattered between groove II and posterior margin. Area I with 14-15 tubercles each side, 2 pairs longer and wider; II with 41 tubercles; III very tuberculate, 1 pair of wide and large tubercles with blunt apex. Posteri-

or margin with 15 tubercles. Free tergite I with 12 tubercles; II with I4; III with 10. Anal operculum with 2 median tubercles and 8 posterior.

Venter. Coxa I with 3 anterior tubercles, median row of 6, 4 posterior, 3 apical; II with 5 anterior tubercles, 6 median, 5-6 posterior, 3 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum minute-tuberculate.

Chelicera. Segment I smooth; II-III with 4 tubercles.

Pedipalpus (Fig. 50). Coxa smooth. Trochanter with 2 ventral tubercles. Femur with 4 ventral tubercles on anterior half. Patella smooth. Tibia ectal IiIi, mesal IiII.

Legs (Figs. 19, 66, 80). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior, 1 posterior fused with other of III; III with 1 posterior; IV (Figs. 66, 80) with 1 external apical apophysis slightly oblique. Trochanter I with 2 ventral tubercles; II with 3 ventral, 2 retrolateral; III with 4 prolateral, 3 retrolateral; IV with 1 prolateral large tubercle, 5 dorsal, 7 retrolateral (apical larger), 10 ventral. Femora I-IV straight, IV with 1 row dorsal and 1 retrolateral, both with wide and short tubercles, 1 row prolateral and 1 ventral with small tubercles. Patella IV with 5 ventral tubercles; 4 retrolateral, 15 dorsal. Tibia IV with 1 ventral row, 1 retrolateral row. Tarsal segmentation: 6, 12, 8, 10. Claws IV with 5 mesal and 5 ectal teeth.

Penis (Figs. 102-103). Stylus thin and long, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with wide cleft V-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal longer); 1 small behind distal setae and other on intermediary region.

Color. Yellowish with enlarged brownish stripes, tiger-like. Tubercles of area III and external apical apophysis of coxa IV black. Lateral margin with 1 white stripe from anterior margin to groove II. Dorsal anal operculum with 2 white spots U-shaped; ventral with 1 white stripe each side. Trochanter-tibia IV brownish.

Female redescription (HSPC-733):

Measurements. Dorsal scute: length 5.81; maximal width 5.69. Cephalothorax: length 2.19; width 2.75.

Spines of area II thinner and longer than ♂. Segment II of chelicera with 3 small tubercles; III with 4 small. Pedipalpal femur with 5 ventral tubercles. External apical apophysis of coxa IV small and large (Fig. 67). Femur IV with tubercles smaller than ♂. Tibia IV small-tuberculate. Tarsal segmentation: 6, 12, 8, 9.

Variation (male n= 2, female, n= 2): Dorsal scute length 4.96- (male), 4.8-5.2 (female), width 5.68-6.24 (male), 5.44-6 (female); femur IV length 8.25-10.75 (male), 7.85-8.25 (female); tarsal articles of males 6, 14-16, 8, 9-10, females 6, 13, 8, 9.

Type locality: Erroneously atributted to "State of Bahia, Brazil". Some paralectotypes (not examined in this work) are from Petrópolis, Rio de Janeiro, Brazil.

Geographical distribution (Fig. 4): Rio de Janeiro. The record from Bahia is incorrect (see item 3.5).

Material examined: Brazil. Bahia: ♂ lectotype and 3 ♂ paralectotypes (SMFD, CR-821); Rio de Janeiro: Arcozelo (Sítio das Paineiras), A. Peracchi *leg.*, 29.XII.1976, 2 ♂ & 2 ♀ (HSPC-733); Terezópolis (Colônia Alpina); Göldi *leg.*, 2 ♀ (UZMD-90032e); Petrópolis, R. Arlé *leg.*, IV-1935, 1 ♂ (MNRJ-5132).

Arthrodes Koch, revalidated

Arthrodes Koch, 1839a: 18; 1839b: 90; Roewer, 1913b: 307 (key), 317 (rdesc); 1923: 519 (key), 524 (diag); Mello-Leitão, 1923: 171 (cit), 194 (key), 198 (diag); 1926, 36 (key); Roewer, 1927: 350 (cit); 1931: 123 (key), 124 (rdesc); Mello-Leitão, 1932: 356 (key), 364 (rdesc); 1935b: 108 (diag); Soares, 1944e: 270 (cit); Soares & Soares, 1948: 565 (key), 571 (= *Heterarthrodes* Mello-Leitão, 1935); Soares & Soares, 1986: 98 (= *Caelopygus* Koch, 1839).

Diagnosis. Sexual dimorphism on shape of dorsal scute absent. Maximal width of dorsal scute reaching the groove IV. Cephalothorax smaller than abdomen. Eye mound with 2 large tubercles. Large tubercle on male lateral margin present. Areas II-III undivided. Spines of male area III reduced to tubercles, normal in female. Pedipalpal subapical seta on femur present. Leg IV tuberculate. Male coxa IV visible in dorsal view. Basitarsus I nor-

mal. Distitarsus II with 4-5 segments. Penis: lateral projections on ventral process; ventral plate thin and enlarged; ventral part of ventral plate sparsely covered by microsetae; distal setae of ventral plate on subapical region.

Type species: *Arthrodes xanthopygus* Kollar, 1839, by monotypy.

Arthrodes xanthopygus Kollar

(Figs. 4, 20-22, 48, 62-63, 81, 108-109, 139, 173-174)

Arthrodes xanthopygus Kollar *in* Koch, 1839a: 19; Kollar, 1839b: 90, fig. 577; Roewer, 1913b: 318 (rdesc), fig. 126; 1923: 524 (diag), fig. 655; Mello-Leitão, 1923: 171 (cit); Roewer, 1927: 350; 1931: 124 (dist); Mello-Leitão, 1932: 364 (rdesc), fig. 228; Soares & Soares, 1948: 571 (cat). (female holotype "Brasil", NHMW, not examined, lost according to J. Gruber).

Caelopygus xanthopygus; Soares & Soares, 1986: 98 (rdesc).

Caelopygus macracanthus Kollar *in* Koch, 1839a: 18. (2 males and 1 female syntypes "Brasil", NHMW, not examined, lost according to J. Grüber). *Syn.n.*

Arthrodes acanthopygus (*sic*): Mello-Leitão, 1923: 194 (key).

Caelopygus macrocanthus (*sic*) Kollar *in* Koch; 1839b: 81, fig. 574; Bertkau, 1880: 102 (redesc), pl. 2, fig. 40; Roewer, 1923: 519 (key), 521 (rdesc), fig. 651; Mello-Leitão, 1923, 171 (cit), 195 (key), 198 (diag); Roewer, 1931: 123 (dist); Mello-Leitão, 1932: 366 (key), 368 (rdesc), fig. 231; Roewer, 1938: 6 (dist); Soares, 1945b: 348 (cat); Soares & Soares, 1948: 573 (cat); 1987: 4, figs. 13-15 (= *Caelopygus pseudomacrocanthus* Soares & Soares, 1954).

Coelopygus macrocanthus (sic); Roewer, 1913b: 308 (key), 312 (rdesc), fig. 125.

Caelopygus pseudomacrocanthus Soares & Soares, 1954: 491, fig. 1-3. (male holotype and female allotype "♂ e ♀", typus, E.796, C.1155 [Parque Nacional da Serra dos Órgãos, Terezópolis, Rio de Janeiro, Brasil, 1000, P. Wygodzinsky, 26.I.1948]", MZSP-1155, examined; male paratype, same data as holotype, MZSP-1156, examined).

Male redescription (HSPC-294):

Measurements. Dorsal scute: length 6.19; maximal width 8.16. Cephalothorax: length 2.56; width 3.31.

Dorsum (Figs. 20, 173). Anterior margin with 2 tubercles each side, 2 large tubercles forwards on median region. Eye mound with 2 tubercles median and 3 posterior (smaller). Cephalothorax with tubercles behind eye mound. Lateral margin higher at area III, with 2 rows of tubercles near area III, with tubercles irregularly disposed, with 1 tubercle large close to area III. Areas I-III densely tuberculate; III with 2 parallel spines slightly backwards. Posterior margin densely tuberculate. Free tergites I-III with 1 row of short tubercles. Anal operculum smooth.

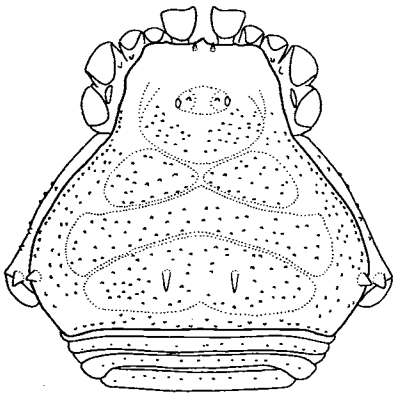
Venter. Coxa I with median row of 5 tubercles, 3 posterior, 3 apical; II with 5 anterior tubercles, 8 median, 8 posterior, 4 apical; III with 7 anterior tubercles, 12 median, 19 posterior, 6 apical; IV tuberculate, with 2 wide retrolateral apical. Posterior margin strongly concave, tuberculate. Free sternites tuberculate. Anal operculum smooth.

Chelicera. Segment I smooth; II with 4 tubercles; III with 5.

Pedipalpus (Fig. 48). Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 5 ventral anterior tubercles, 1 prolateral subapical. Tibia IiIi mesal, IIi ectal.

Legs (Figs. 20, 21, 62, 81, 173). Coxa I with 3 tubercles; II with 1 anterior and 1 posterior fused with other of coxa III; III with 1 fused with other of coxa IV; IV with small apical apophysis (Fig. 21) to elongated with helicoidal apex (Figs. 62, 81). Trochanteres I-IV tuberculate; IV with 1 large retrolateral submedian tubercle, 2 retrolateral smaller. Femora I-IV straight; III with large ventroapical tubercles; IV with 1 row of retrolateral tubercles, 1 wide and large dorsal tubercle, 3 prolateral apical. Patella III with 1 ventral tubercle; IV with 3 ventral, 4 prolateral. Tibia III with 1 row of ventral tubercles; IV with 2 ventral rows (anterior larger). Tarsal segmentation: 10, 17(4), 18-20, 24. Claws with 5 mesal teeth.

Penis (Figs. 108-109, 139). Stylus thin and long, without subapical setae. Ventral process of glans depressed and enlarged (Fig. 139). Ventral plate with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal longer);



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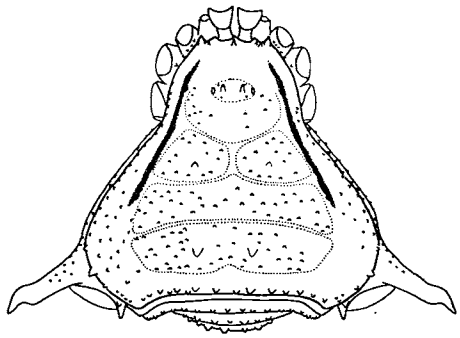

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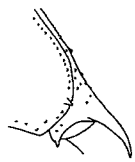

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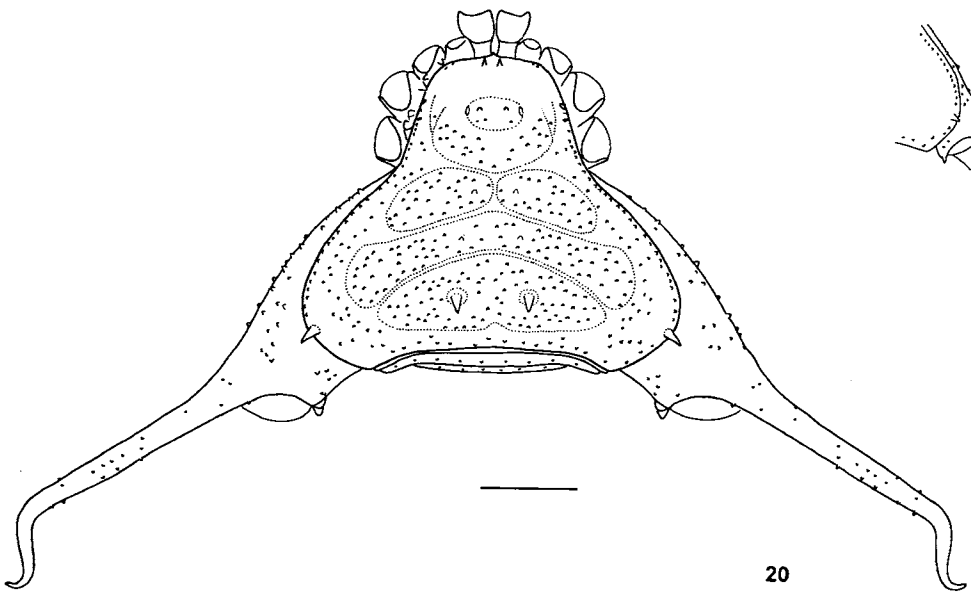

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Figs. 19-22. Dorsal view: 19, male of *Metampheres albimarginatus* (HSPC-733); 20-21, *Arthrodes xanthopygus* (HSPC-294), 20 male, 21 female, 22 coxa IV of male with short spophysis. Gray patches mean white color. Scale bar = 2 mm.

1 small behind distal setae and other on intermediary region.

Color (Fig. 173). Dark-brown. Lateral margin, spine of area III, tubercles of dorsal scute and dorsal tubercle of femur IV black. Pedipalpus, chelicera and legs I-III yellowish with black spots. White spot covering almost whole dorsal anal operculum; ventral with 2 white lateral spots.

Female redescription (HSPC-294):

Measurements. Dorsal scute: length 5.84; maximal width 6.72. Cephalothorax: length 2.56; width 3.12.

Tubercles of lateral margin short (Fig. 22). Apical tubercle of coxa IV wide and short. Pedipalpus: femur with 8 ventral tubercles; tibia of pedipalpus mesal IiiII. Trochanter IV, femur IV, patellae III-IV and tibia IV without large tubercles. Segments II-III of chelicera with 4 tubercles. Tarsal segmentation: 8-9, 17-18(4-5), 16-17, 19-20. Color as in figure 174.

Variation (male n= 8, female, n= 5): Dorsal scute length 5.28-6.08 (male), 3.6-6 (female), width 6.08-7.92 (male), 4.32-6.48 (female);femur IV length 11.75-13.87 (male), 11.75-13.5 (female); male coxa IV spine length 4.37-12.25 (lengthened on large males); tarsal articles of males 8-10 (3), 16-20 (4), 15-20, 19-23, females 7-9 (3), 15-19 (4), 14-17, 19-22; colour yellowish to brownish, anal operculum with one or two white patches; pedipalpal tibia mesal IiIi/IiiIi/Iii, ectal Iii/IIi.

Synonymic note. *Arthrodes xanthopygus* and *Caelopygus macracanthus* were described in same paper in different pages, *C. macracanthus* one page before. Following the article 24 of the International Code of Zoological Nomenclature of 1958, that stated that first revisor have broad power to solve case as the present. I avoid to create a new combination and the stability of nomenclature is maintained.

Type locality: "Brazil".

Geographical distribution (Fig. 4): Serra dos Órgaos, Rio de Janeiro, Brazil. The record of ROEWER (1938) from Ceará (collection Roewer # 10496 of the SMFD) is incorrect (see item 3.5).

Material examined: Brazil. 1 ♀ (NHMW, # 1847.II.53). Rio de Janeiro: Nova Friburgo (Rio Bengalas), R. S. Bérnils *leg.*, 21-23.VIII.1996, 2 ♀ (MZSP-15257); (Mury, Cônego), R. S. Bérnils & Labiak *leg.*, 1.VIII.1996, 2 ♀ (MZSP-15187); (Macaé de Cima), R. S. Bérnils *leg.*, 30.VIII.1996, 4 ♂ & 1 ♀ and 2 immatures (MZSP-15307); (Mury, Debossan, 950 m), 1 ♂, 1 ♀ & 2 immatures (MZSP-15119); Terezópolis, B. Lutz *leg.*, 1 ♂ (MNRJ); idem, E. Izecksohn *leg.*, 2.II.1978, 1 ♀ (HSPC-785); idem, VII.1989, 2 ♂ & 2 ♀ (MNRJ-6272); idem, E. Izecksohn *leg.*, 5.I.1978, 1 ♂ (HSPC-675); idem, E. Gurgel *leg.*, 5.IX.1961; 1 ♂ (HSPC-786); (Parque Nacional da Serra dos Órgãos), VIII.1974, 9 ♀ & 1 immature (MNRJ); idem, J. Becker *leg.*, 5.XII.1963, (MZSP-14849); idem, E. Izecksohn & A. Peracchi *leg.*, IV.1962, 1 ♂ & 12 ♀ (HSPC-779); idem, 2.IX.1989, 7 ♂, 27 ♀ & 3 immatures (MNRJ-6522); idem, S. Postsch & E. Izecksohn *leg.*, 1 ♂ & 1 ♀ (MNRJ-6715); J. Becker *leg.*, 5.XII.1963, 5 ♂ (MNRJ); P. Wygodzinsky *leg.*, 26.I.1948, ♂ & ♀ syntypes of *C. pseudomacrocanthus* (MZSP-1155); idem, VII.1974, 3 ♂; idem, E. Izecksohn & C. A. G.Cruz *leg.*, 7.IV.1972, 2 ♂ & 5 ♀ (HSPC-775); idem, 25.III.1978, 1 ♂ (HSPC-694); idem, P. Wygodzinsky *leg.*, 26.I.1948, ♂ paratype of *C. pseudomacrocanthus* (HSPC-261); idem, A. Peracchi & E. Izecksohn *leg.*, 1.VI.1965, 6 ♂ & 22 ♀ (HSPC-294); idem, 7.IV.1962, 1 ♂ & 3 ♀ (HSPC-752); idem, IV.1962, 1 ♂ (HSPC-744); idem, E. Izecksohn *leg.*, III.1962, 1 ♂ (HSPC-814); idem, IV.1962, 4 ♂ & 4 immatures (HSPC-747); (Faz. Vale da Revolta, 22°26'S - 42°56'W), F. A. G. Mello *Leg.*, II.1996, 1 ♂ (MZSP-14841); idem, S. Potsch & C. Seigneur *leg.*, 23.VIII.1989, 2 ♂ (MNRJ-6524); idem, S. Potsch & E. Izecksohn *leg.*, 2.III.1992, 2 ♂ & 1 ♀ (MNRJ-6759); idem, S. Potsch *leg.*, 1 ♀ (MNRJ-6897); idem, R. Sachse *leg.*, 11.II.1989, 1 ♀ (MNRJ-6422); Guapimirim (Estação Ecológica Estadual Paraíso, 4-7.VII.1996, R. Pinto-da-Rocha & R.S. Bérnils *leg.*, 1 ♂, 8 ♀, 7 immatures (MZSP).

Pristocnemis Koch

Pristocnemis Koch, 1839a: 10; Roewer, 1923: 529 (diag); 1931: 123 (key), 135 (cit); Mello-Leitão, 1932: 355 (key), 358 (rdesc); Soares & Soares, 1948: 565 (key); 579 (cat); Mello-Leitão, 1949: 9 (cit).

Pristocnemus (*sic*) Koch, 1839b: 16; Roewer, 1913b: 307 (key), 331 (rdesc); Mello-Leitão,

1923: 174 (dist), 194 (key), 198 (diag); 1926: 36 (key).

Pristocnemys (*sic*); Mello-Leitão, 1935b: 108 (diag).

Peristocnemis (*sic*); Roewer, 1923: 519 (key).

Stenoprostygnus Piza, 1940: 279; 1942: 404 (syst). (Type species: *Stenoprostygnus mamillatus* Piza, 1940, by original designation). *Syn.n.*

Diagnosis. Sexual dimorphism on shape of dorsal scute present, females with lateral margin wider between grooves I-IV. Maximal width of dorsal scute reaching groove IV. Cephalothorax smaller than abdomen. Eye mound with 2 small tubercles. Large tubercle on male lateral margin absent. Areas II-III undivided. Long spines on area III of male and female present. Pedipalpal subapical seta on femur absent. Leg IV tuberculate. Male coxa IV visible only on apical part (dorsal view). Basitarsus I normal. Distitarsus II 4-segmented. Penis: lateral projections on ventral process; ventral plate thin and enlarged; ventral part of ventral plate sparsely covered by microsetae ventrally; distal setae of ventral plate subapical.

Type species: *Pristocnemis pustulatus* Kollar, 1839, by monotypy.

Key for the species of *Pristocnemis*:

1. Spines of area III adjacent or close each other (Figs. 23, 185).....*P. pustulatus*
   Spines of area III secluded (Figs. 24-26, 181-182).....2

2(1). Femur IV of male with large retrolateral tubercles (Fig. 82); areas I-III with 2 pairs of tubercles (Fig. 24); yellowish colored (Fig. 179).....3
   Femur IV of male with short retrolateral tubercles (Fig. 83); areas I-III with many tubercles (Fig. 25); dark-brown colored (Figs. 181-182).....*P. farinosus*

3(2). Male chelicera swollen; area I-III with 2 pairs of large tubercles and several lateral smaller.....*P. perlatus*
   Male chelicera not swollen; area I-III with 2 pairs of large tubercles and smooth on lateral.....*P. albimaculatus*

Pristocnemis albimaculatus (Roewer), comb.n.
(Figs. 6, 24, 82, 110-111, 140)

Metarthrodes albimaculatus Roewer, 1913b: 320 (key), 329 (desc), figs. 131; 1923: 525 (key), 528 (diag), fig. 661; Mello-Leitão, 1923: 173 (cit), 196 (key); Roewer, 1927: 350 (cit); 1931: 125 (key), 126 (dist); Mello-Leitão, 1932: 375 (key), 381 (rdesc), fig. 243; Soares, 1945b: 349 (cat). (male lectotype and female paralectotype, here designated "Bahia, Brasil", SMFD, not examined).

Ampheres albimaculatus; Soares & Soares, 1948: 566; (cat.).

Male redescription (HSPC-422):

Measurements. Dorsal scute: length 5.50; maximal width 5.06. Cephalothorax: length 2.19; width 2.56.

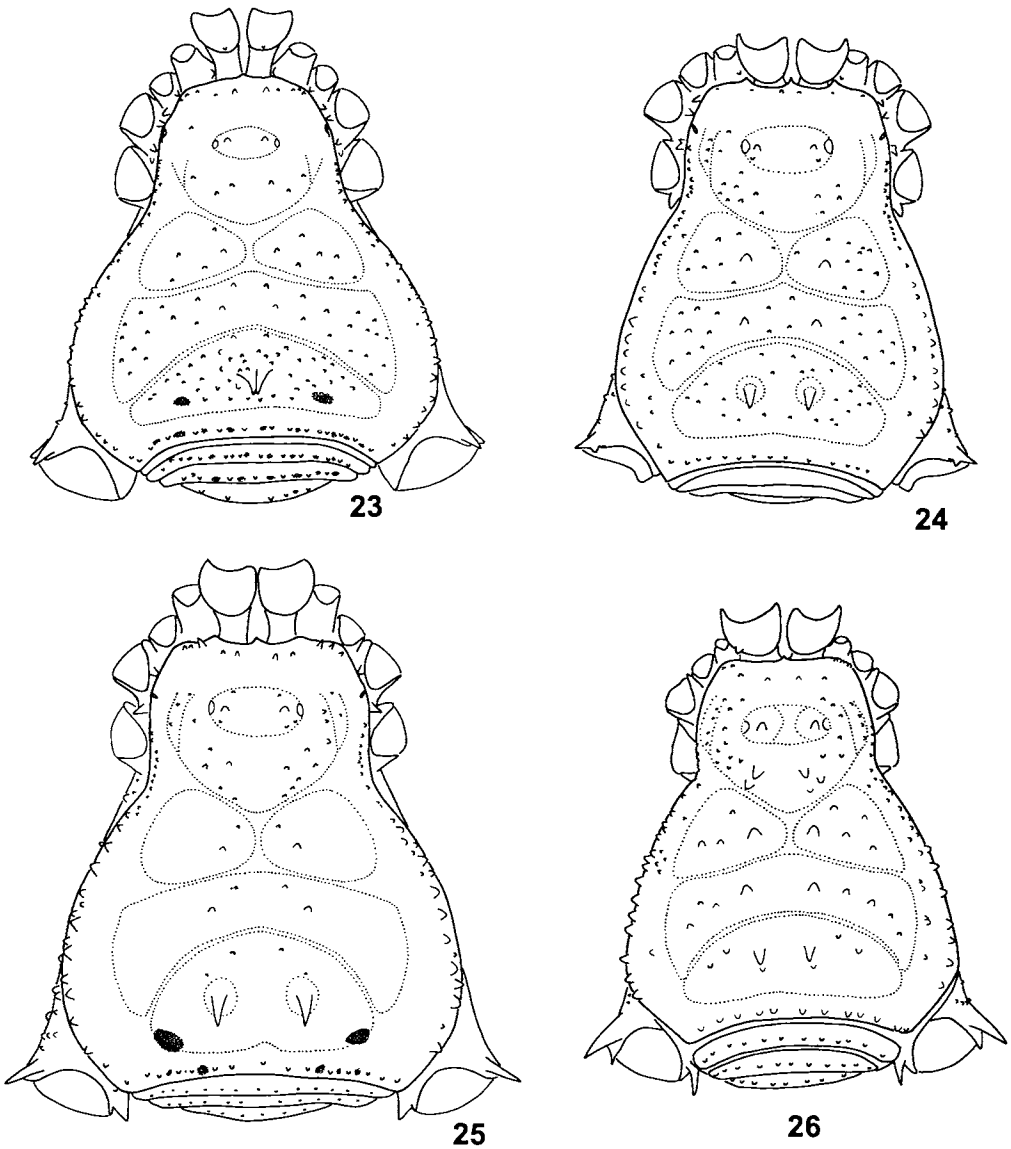
Dorsum (Figs. 24, 179). Anterior margin with 2 large median tubercles, 4 each side. Cephalothorax with 5-6 tubercles laterally on eye mound. Eye mound with 2 large tubercles. Lateral margin with 1 irregular row of tubercles from ozopores to posterior margin. Area I divided, with 2 tubercles each side (1 large and wide); II with 4 tubercles; III with 2 large parallel spines, backwards, 2 anterior tubercles, 1-3 at spines base. Posterior margin with 15 tubercles. Free tergite I with 14 tubercles; II with 13; III with 8. Anal operculum smooth.

Venter. Coxa I with 3-4 anterior tubercles, 1 median row of 5-6 (larger than others), 2 posterior, 5 apical; II with 3 anterior tubercles, 6-8 median, 6 posterior, 4 apical; III with 19-23 tubercles irregularly disposed, 5 apical; IV tuberculate. Posterior margin with 1 row of small tubercles, 2 lateral pairs larger. Free sternites with 1 row of small tubercles. Anal operculum smooth.

Chelicera. Segment I smooth; II with 5 tubercles; III with 6 (basal wider).

Pedipalpus. Coxa smooth. Trochanter with 2 ventral tubercles. Femur straight, 8 ventral tubercles on the anterior half. Patella smooth. Tibia ectal IiIi, mesal IiII.

Legs (Figs. 24, 82, 179). Coxa I with 1 anterior tubercle, 1 posterior towards II; II with 1 wide and large anterior, 1 small posterior, 1 bifid fused



Figs. 23-26. Dorsal view: 23, male of *Pristocnemis pustulatus* (MZSP-14193); 24, male of *P. albiinaculatus* (HSPC-422); 25, male of *P. farinosus* (MNRJ); 26, male of *P. perlatus*. Gray patches mean white color. Scale bar = 2 mm.

with other of coxa III; III with 1 fused with other of IV; IV with external apical apophysis curved, long oblique and bifid, and a small internal apophysis. Trochanter I with 1 prolateral tubercle, 3 ventral; II with 3 ventral; III with 3 retrolateral; IV with 3 prolateral, 3 dorsal, 5 retrolateral, 9-11 ventral. Femora I-IV straight; IV with 1 retrolateral row of tubercles alternately long and short. Patella IV with 1 retrolateral apical tubercle. Tibia IV with 1 retrolateral row of tubercles contiguous (longer centrally), on anterior 2/3 and 5 sparse on apical 1/3. Tarsal segmentation: 8, 10, 14-15, 16-18. Claws IV with 4 ectal teeth.

Penis (Figs. 111-112, 140). Stylus thin and long, with subapical setae on 1/3 of stylus length (Fig. 140). Ventral process of glans depressed and few enlarged. Ventral plate with short cleft U-shaped; with 3 pairs of setae; 4 pairs of setae on basal lobe (basal longer); 2 short setae behind distal.

Color (Fig. 179). Yellowish. Cephalothorax brownish. Tubercles and spines of dorsal scute black. Free tergites with white spots between tubercles. Apophyses of coxa IV yellowish. Tubercles of legs IV brownish. Areas II-III with 1 pair of white spots on each side. Posterior margin with 4 white spots between tubercles. Dorsal and ventral anal operculum with 1 pair of white spots.

Female redescription (HSPC-422):

Measurements. Dorsal scute: length 5.81; maximal width 5.56. Cephalothorax: length 2.25; width 2.81.

Cephalothorax: 4 pairs of tubercles behind the eye mound. Area I with 1 pair of tubercles; III with 1 pair of tubercles posterior, 1-2 tubercles at base of spines. Area II with 2 lateral pairs of white spots. Lateral margin with 1 row of tubercles. Both apical apophyses of coxa IV short. Femur and tibia IV without rows of large tubercles. Color as in figure 180.

Variation (male n= 4, female, n= 4): Dorsal scute length 5.44-6.16 (male), 5.2-5.6 (female), width 4.96-5.6 (male), 5.2-5.84 (female); femur IV length 11.75-12.62 (male), 9.12-10.5 (female); tarsal articles of males 8-9, 15-18, 13-16, 16-17, females 7-8, 14-16, 12-15, 14-17; pedipalpal tibia ectal IIi/IiIi, mesal IiIi/IiI. The specimens from Nova Friburgo (Rio de Janeiro) present a lateral white zone on coxa IV. Area I with 2-3 (male), 2-4 (female), II with 4-6 (male), 4 (female), III with 10-13 (male), 9-15 (female)

Taxonomical notes: it resembles *P. farinosus* and *P. perlatus* but, differs from this species especially by presence of tibia IV with 1 row of tubercles on anterior part, areas I-III with fews tubercles and yellowish colored (see figure 180).

Type locality: Bahia (?), Brazil.

Geographical distribution (Fig. 6): States of Rio de Janeiro and São Paulo. The record from Bahia is incorrect (see item 3.5).

Material examined: Brazil. Rio de Janeiro: Nova Friburgo, R. & A. Baptista, 16.XI.1991, 2 ♂ (MNRJ); Terezópolis 3 ♂ & 3 ♀ (SMFD); idem (Parque Nacional da Serra dos Órgãos), J. Becker *leg.*, 30.VIII.1957, 2 ♀ (MNRJ); idem, 28-30.VIII.1957, 10 ♂ & 8 ♀ (MNRJ); idem, 5.XII.1963, 3 ♂ & 4 ♀ (MNRJ); idem, P. Wygodzinsky *leg.*, 16.II.1947, 1 ♀ (HSPC); idem, E. Izecksohn *leg.*, 2-5.XII.1963, 4 ♂ & 3 ♀ (MNRJ); idem, 26.I.1948, 1000 m, 2 ♂ (MZSP-1113); idem, 14-22.IV.1947, 1 ♂ (MZSP-1044); idem, W. Bokermann *leg.*, 28-30.VIII.1957, 1 ♀ (HSPC); idem, J. Becker *leg.*, 28-30.VIII.1957, 1 ♂ & 1 ♀ (HSPC); idem, 3 ♂ & 3 ♀ (HSPC-422); idem, A. Peracchi & E. Izecksohn *leg.*, 1.VI.1965, 2 ♂ (HSPC-295); idem, 1500-1700 m, P. Wygodzinski *leg.*, 1947, 1 ♂ (HSPC); (Faz. Vale da Revolta), S. Potsch & E. Izecksohn *leg.*, 5.III.1991, 2 ♂ & 1 ♀ (MNRJ-6714); Petrópolis, R. Arlé *leg.*, 2 ♂ & 1 ♀ (MNRJ-42465).

Pristocnemis farinosus (Mello-Leitão), comb. n.
(Figs. 6, 25-26, 70-73, 83, 112-113, 144, 181-182)

Metarthrodes farinosus Mello-Leitão, 1922: 347; 1923: 173 (rdesc), 196 (key), fig. 33; Roewer, 1931: 125 (key), 126 (cit), fig. 8; Mello-Leitão, 1932: 375 (key), 380 (rdesc), fig. 242; Soares, 1943a: 195 (= *Stenoprostygnus mamillatus* Piza, 1940); 1944d: 221 (cit); 1944e, 254 (= *Metarthrodes massarti* Giltay, 1928); 1944b: 280 (dist); 1946: 493 (cat). (female holotype "474, 41 [Alto da Serra, Paranapiacaba, São Paulo, Brasil]", MZSP-474, examined).

Metarthrodes Massarti Giltay, 1928: 86, fig. 3; 1930: 240, fig 3a, b. (male holotype and female paratype "Alto da Serra, Brésil [Paranapiacaba, São Paulo, Brasil], 28.IX.1922, sur les Bromeliacées, P. Brien [leg.]", ISBN, examined).

Metarthrodes massarti; Roewer, 1931: 125 (key), 129 (rdesc), fig. 10; Mello-Leitão, 1932: 375 (key), 378 (rdesc).

Stenoprostygnus mamillatus Piza, 1940: 279; Paschoal & Barros, 1983: 79 (cat) (female holotype"Alto da Serra, SP [São Paulo], Brasil, Monte and Araújo [*leg.*], IX.1940", Museu de Zoologia da Escola Superior de Agricultura Luiz de Queiroz, not examined).

Metarthrodes mamillatus; Soares, 1942: 1.

Ampheres pizae Roewer, 1943: 58, fig. 70. (female holotype "Brasilien, Nova Teutônia [Seara, Santa Catarina], typus", SMFD-6434, examined, bad conserved, legs detached, internal organs were dried). *Syn.n.*

Ampheres farinosus; Soares & Soares, 1948: 567 (cat).

Male redescription (MNRJ, Boracéia):

Measurements. Dorsal scute: length 6.12; maximal width 5.00. Cephalothorax: length 2.19; width 2.94.

Dorsum (Figs. 25, 181). Anterior margin with 2 median tubercles, 2 each side. Cephalothorax with 2 pairs of anterior tubercles, 17 laterally and behind eye mound. Eye mound with 2 median wide tubercles, 2 posterior smaller. Lateral margin with 1 row of tubercles from ozopores to posterior margin. Area I with 3-7 tubercles each side (median wider); II with 13 tubercles (median pair wider); III with 1-2 tubercles each side, 1 pair of large spines, slightly directed backwards, with 1 tubercle at base. Posterior margin with 14 tubercles. Free tergite I with 17 tubercles; II with 14; III with 9. Anal operculum smooth.

Venter. Coxa I with 2 anterior tubercles, 1 median row with 4-5, 3 posterior, 4 apical; II with median row with 8, 6 posterior, 3 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum with tubercles on the posterior margin.

Chelicera. Segment I smooth; II with 4 small tubercles; III with 1 wide anterior and 4 small.

Pedipalpus. Coxa smooth. Trochanter with 2 ventral tubercles. Femur with 10 ventral tubercles. Patella smooth. Tibia ectal IiIi, mesal IiII.

Legs (Figs. 25, 83, 181). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior tubercle, 1 posterior bifid; IV with external apical apophysis oblique, 4 times longer than internal. Trochanter I with 3 ventral tubercles; II with 3 prolateral, 3 retrolateral, 4 ventral; III with 2 prolateral, 3 retrolateral, 5 ventral; IV with 3 prolateral (1 wide and large), 5 retrolateral, 8 ventral, 4 dorsal. Femora I-IV straight; IV with 1 row of tubercles ventral (larger on apex) and1 retrolateral. Patella IV with 5 ventral tubercles, 4 retrolateral apical. Tibia IV with 5 retrolateral tubercles on anterior 1/3. Tarsal segmentation: 9, 19-21, 14-16, 17-18. Claws IV with 4 ectal and 5 mesal teeth.

Penis (Figs. 112-113, 144). Stylus thin and long, with subapical setae in 1/3 of stylus length. Ventral process of glans depressed and enlarged. Ventral plate (Figs. 112, 144) with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal longer); 2 short setae behind distal.

Color (Fig. 181). Dark-brown. Tubercles black. Area III with 2 small white spots. Posterior margin with 1 white stripe each side. Chelicerae and pedipalpus yellowish black reticulate.

Female redescription (MNRJ):

Measurements. Dorsal scute: length 6.06; maximal width 5.87. Cephalothorax: length 2.31; width 2.94.

Anterior margin with 3-4 tubercles each side (Figs. 26, 182). Lateral margin with 2 irregular rows of tubercles. Area II with 15 tubercles; III with 8. Pedipalpal femur with 7 ventral tubercles. External apical apophysis of coxa IV at same size as internal. Patella and tibia IV smooth. Tarsal segmentation: 8-9, 15-18, 15, 16. Color as in figure 182.

Variation (male n= 4, female, n= 4): Dorsal scute length 5.44-6.4 (male), 5.04-5.36 (female), width 4.8-5.76 (male), 5.36-6 (female); femur IV length 11.25-13.62 (male), 6.8-11.87 (female); tarsal articles of males 9-10, 16-21, 14-17, 15-19, females 8-9, 15-18, 13-15, 15-18; area III with 1-2 white patches each side (variable sizes), anal operculum with or without white patches; pedipalpal tibia mesal IiIi/IiiIi, ectal IiIi. Area I with 5-14 tubercles (male), 13-20 (female), II with 13-24(male), 17-25 (female), III with 4-15 (male), 8-24 (female).

Taxonomical notes: it resembles *P. albimaculatus*, but differs especially by the tibia IV with 1 row of tubercles adjacent to posterior region, areas I-III with several tubercles and by coloration brownish (see figure 181).

Type locality: Alto da Serra, Paranapiacaba, São Paulo, Brazil.

Geographical distribution (Fig. 6): States of Rio de Janeiro, São Paulo and Santa Catarina.

Material examined: Brazil. Rio de Janeiro: Nova Friburgo (Muri), Exp. Dep. Zoologia, 5-9.I.1981, 1 ♂ & 1 ♀ (MZSP); Terezópolis (Pedra Açu), 3 ♂ & 2 ♀ (MNRJ); São Paulo: São José do Barreiro (Serra da Bocaina), Alvarenga *leg.*, 4-7.XI.1967, 1 ♀ (MZSP-10591); Ubatuba (Corcovado, 990 m), G. Machado *leg.*, 16.I.1996, 1 ♂ (ZUEC); (Picinguaba), L.S. Rocha leg, IV.1996, 1 ♂ (MZSP); Caraguatatuba, Exp. Dep. Zoologia *leg.*, 29.III-4.IV.1962, ♂ (MZSP-14181); Salesópolis (Estação Biológica de Boracéia), B. A. M. Soares *leg.*, 4.IV.1942, 1 ♀ (MZSP-245); idem, 8-10.II.1942, 1 ♂ (MZSP-191); idem, 28.II-3.III.1992, R. L. Baptista *leg.*, 3 ♂ & 2 ♀ (MNRJ); idem, 1 ♂ (MZSP-711); idem, Exp. MZSP *leg.*, 20-21.XI.1980, 1 ♀ (MZSP-14123); idem, P. Biasi *leg.*, 20.X.1965, 1 ♀ (MZSP-14118); idem, 27.II.1967, 1 ♀ (MZSP-14126); idem, 850 m, H. M. Canter *leg.*, 1 ♂ (MZSP-14119); idem, L. R. Fontes & P. Terra *leg.*, 24-30.I.1979, 1 ♂ (MZSP-14120); idem, M. Carreira *leg.*, 1950, 1 ♀ (HSPC-245); Paranapiacaba, W. Bokermann *leg.*, 18.X.1952, 1 ♀ (MZSP-1846); idem, K. Lenko *leg.*, 10.XI.1960, 1 ♂ & 1 ♀ (MZSP-14288); idem, W. Borkermann *leg*, III.1962, ♀ & 2 immatures (MZSP-14847); (Alto da Serra), II.1991, R.L.C. & A.P. Baptista *leg.*, 1 ♂ (MNRJ-6712); without collector, 1944, 1 ♀ (MZSP-1848); F. Lane & B. A. M. Soares *leg.*, 23.III.1943, 1 ♂ (MZSP-415); idem, W. Bokermann *leg.*, 16.II.1952, 2 ♀ (HSPC-116); idem, 18.X.1952, 1 ♂ & 1 ♀ (HSPC-127); São Paulo (Rio dos Campos), Araújo, 13.III.1945, 1 ♂ (MZSP-1849); Itanhaém, Spitz *leg.*, 1 ♀ (MNRJ-11393); Santa Catarina: Seara (Nova Teutônia), holotype ♀ of *A. pizae* (SMFD, CR-6434).

Pristocnemis perlatus (Giltay, 1928), comb.n.
(Figs. 26, 84, 160-161, 179-180)

Metarthrodes perlatus Giltay, 1928: 85, fig. 2; 1930: 239, fig. 2; Roewer, 1931: 125 (key), 127 (cit, rdesc), fig. 9; Mello-Leitão, 1932: 375 (key), 378 (rdesc), fig. 241; Soares & Soares, 1970: 339 (dist). (female holotype "Itatiaya [Itatiaia, Rio de Janeiro, Brasil, P. Brien [*leg.*], 18.X.1922, 1950 m]", ISNB, examined).

Ampheres perlatus; Soares & Soares, 1948: 569 (cat): 1970: 339 (cit).

Male redescription (MZSP-Serra da Bocaina):

Measurements. Dorsal scute: length 6.8; maximal width 5.8. Cephalothorax: length 3.8; width 3.1.

Dorsum (Figs. 26, 179). Anterior margin with 4-5 tubercles each side, 2 median larger. Cephalothorax with 2 pairs of tubercles behind eye mound, 1 tubercle each side, 26 tubercles sparse. Lateral margin with 1 row of 26-30 tubercles from ozopores to posterior margin, larger towards posterior margin. Area I with 4-5 tubercles each side (those near longitudinal groove larger); II with 9 tubercles (1 pair larger); III with 6 tubercles, 2 spines. Posterior margin with 13 tubercles. Free tergite I with 12 tubercles; II with 10; III with 8. Anal operculum smooth.

Venter. Coxa I with 3 anterior tubercles, median row of 5-6 tubercles larger than others, 3-5 apical; II with 4-5 anterior, 6 median tubercles, 4-6 posterior, 3 apical; III with 4-5 anterior, median row with 6-7 tubercles, 6 apical, 10 posterior; IV tuberculate. Posterior margin and free sternites with 1 row of setae. Anal operculum setous.

Chelicera. Segment I with smooth; II-III with 3 tubercles; II enlarged.

Pedipalpus. Coxa smooth. Trochanter with 1 ventral tubercles. Femur with 7 ventral tubercles. Tibia IiIi mesal, IiIi ectal.

Legs (Figs. 84, 179). Coxa I with 2 tubercles; II with 3 tubercles, posterior fused with 1 of coxa III; III with 1 towards IV; IV with thin apical apophysis (with basal tubercle), internal apophysis thinner and smaller. Trochanter I-II with 3 ventral tubercles; III with 4 ventral and 2 retrolateral; IV 4 retrolateral tubercles, 1 prolateral, 13 ventral and 5 dorsal (1 prolateral and 2 retrolateral larger). Femora I-IV straight and small-tuberculate (except IV); IV with retrolateral row of large tubercles; patella IV tuberculate; tibia IV with 1 retrolateral row with contigous tubercles on anterior 2/3. Tarsal segmentation: 9, 16, 14, 16-17. Claws with 5 mesal teeth.

Penis (Figs. 160-161). Stylus thin and long, swollen at apical 1/3, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (distal larger). Truncus with one lateral projection (Fig. 161).

Color. Yellowish. Legs I-IV brownish. Margins of dorsal scute dark-brown, tubercles and

spines of dorsal scute black, larger tubercles with round black ring. Area I with 2-3 white patches; III with 1-2 small white patches. Posterior margin and free tergites with white spots between tubercles. Dorsal and ventral anal opercula with 2 lateral white spots.

Female redescription (MZSP- Serra da Bocaina):

Measurements. Dorsal scute: length 5.6; maximal width 5.5. Cephalothorax: length 2.1; width 2.8.

Anterior margin with 2 central tubercles and 3 each side (Fig. 180). Cephalothorax with 3 pairs of large tubercles behind eye mound. Area I with 5-6 tubercles each side; II with 12; III with 8; lateral margin with 18-20; posterior margin with 16; free tergite I-II with 16, III with 12. Internal apophysis of coxa IV absent and external reduced to a large tubercle. Leg IV small-tuberculate. Cephalothorax with 1 pair of white patches behind eye mound. Tarsal segmentation: 7, 13, 14, 16.

Variation (male n= 5, female, n= 3): Dorsal scute length 5.3-6.8 (male), 5.5-6.04 (female), width 4.9-5.84 (male), 5.5-5.84 (female); femur IV length 9.6-11.9 (male), 8.5-9.1 (female); tarsal articles of males 7-8, 13-17, 14-16, 16-18, females 7-9, 14-16, 14-6, 17; area III with 2-3 median patches; male pedipalpal tibia mesal IiIi/IiIII, ectal IiIi/IiI. Area I with 4-11 tubercles; II with 8-12, III with 5-8.

Taxonomical notes: it differs from other species of genus by swollen chelicerae segment II.

Type locality: Itatiaia, Rio de Janeiro, Brazil.

Geographical distribution (Fig. 7): States of Rio de Janeiro and São Paulo.

Material examinado: São Paulo: São José do Barreiro (Serra da Bocaina), O. A. Roppa *leg.*, 30.X.1967, 1 ♂ (HSPC-421); idem, R. Pinto-da-Rocha, C. Campaner & S.A. Vanin leg., 21-24.III.1997, 11 ♂ & 2 ♀ (MZSP-15735); Rio de Janeiro: Itatiaia, P. Brien *leg.*, holotype ♀ de *A. perlatus* (ISNB).

Pristocnemis pustulatus Kollar
(Figs. 7, 23, 49, 84, 114-115, 141, 185-186)

Pristocnemis pustulatus Kollar *in* Koch, 1839a: 10; Roewer, 1923: 529 (diag, dist), fig. 662; Roewer, 1931: 135 (cit, dist); Mello-Leitão, 1932: 359 (rdesc), fig. 223; Soares, 1945b: 349 (cat); 1946: 495 (cat); H. Soares, 1945: 208 (dist); Soares & Soares, 1945a: 365 (dist); 1946b: 101 (dist); H. Soares, 1946: 385 (dist); Soares & Soares, 1947a: 63 (dist); 1948, 579 (cat); 1970: 339 (cit). (male holotype "Brasil", NHMW, not examined, lost according to J. Grüber).

Pristocnemus pustulatus; Kollar *in* Koch, 1839b: 16, fig. 547; Roewer, 1913b: 331 (rdesc, dist), fig. 132; Mello-Leitão, 1923: 174 (cat, dist), 194 (key).

Male redescription (MZSP-14193):

Measurements. Dorsal scute: length 6.67; maximal width 6.25. Cephalothorax: length 2.50; width 3.17.

Dorsum (Figs. 23, 185). Anterior margin with 4 tubercles each side, 2 median larger. Cephalothorax with 3 pairs of tubercles behind eye mound, 1 tubercle each side. Lateral margin with 1 row of tubercles from ozopores to posterior margin, some tubercles sparse between the coxae I-II. Area I with 5-7 tubercles each side (those near longitudinal groove larger); II with 30 tubercles (1 pair larger); III with several tubercles, 2 contiguous spines oblique backwards (rarely separate but always close each other), base tuberculate. Posterior margin with 12 tubercles. Free tergite I with 15 tubercles; II with 12; III with 10. Anal operculum smooth.

Venter. Coxa I with 3-4 anterior tubercles, median row of 6 tubercles larger than others, 3 apical; II with 6 median tubercles, 2 posterior, 4 apical; III with 11-13 tubercles, 5 apical; IV tuberculate. Posterior margin and free sternites with 1 row of setae. Anal operculum setous.

Chelicera. Segment I with 1 dorsal tubercle; II with 5; III with 4.

Pedipalpus (Fig. 49). Coxa smooth. Trochanter with 2 ventral tubercles. Femur with 5 ventral tubercles. Tibia IiIi mesal, IIi ectal.

Legs (Figs. 23, 84, 185). Coxa I with 2 tubercles; II with 3 tubercles, posterior fused with 1 of coxa III, median bifid; III with 1 towards IV; IV with thin apical tubercle. Trochanter I with 3 ventral tubercles; II-III with 5 ventral and 3 retrolateral; IV more tuberculate, with 1 large prolateral tubercle. Femora I-III smooth; IV sinuous, with 1 retrolateral row of acute tubercles on distal 1/4, 10 ventroapical tubercles, 1 large and curved retrolateral followed by 3 tubercles on basal

region. Patella IV with ventral row of 6 tubercles, 3 retrolateral (basal larger). Tarsal segmentation: 9, 16, 16-17, 19-20. Claws with 5 mesal teeth.

Penis (Figs. 114-115, 141). Stylus (Fig. 141) thin and long, swollen at apical 1/3, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal larger); 1 small behind distal setae and other on intermediary region.

Color. Yellowish. Leg IV brownish. Lateral margin, spines of area III and tubercles of dorsal scute dark-brown. Posterior margin and free tergites with white spots between tubercles. Area III with 2 posterior white spots. Dorsal and ventral anal opercula with 2 lateral white spots.

Female redescription (MZSP-14190), (Fig. 186):

Measurements. Dorsal scute: length 5.92; maximal width 6.00. Cephalothorax: length 2.42; width 2.92.

Dorsal anal operculum with 2 tubercles. Short apophyse on coxa IV. Tubercles of femur IV smaller than ♂. Patella IV smooth. Tarsal segmentation: 8-9, 15, 14-15, 17.

Variation (male n= 5, female, n= 7): Dorsal scute length 5.12-6.64 (male), 5.2-5.92 (female), width 5.2-6.8 (male), 5.28-6.16 (female); femur IV length 11.62-15 (male), 10.25-13.25 (female); tarsal articles of males 9-10, 14-18, 14-18, 15-20, females; pedipalpal tibia mesal IiIi/IiIii/IiiIi/IIi, ectal IIi/IiI/IiIi. Cephalothorax with 5-10 tubercles, area I with 4-18 (males), 4-15 (females); II with 7-32 (males), 10-29 (females); III 21-54 (males), 23-40 (females).

Taxonomical notes: it differs from other species of genus by the presence of 1 retrolateral row of tubercles on male femur IV and spines of area III contiguous or close each other.

Type locality: "Brazil".

Geographical distribution (Fig. 7): States of Rio de Janeiro, São Paulo and Paraná.

Material examined: Brazil. Rio de Janeiro: Rio de Janeiro, idem (Pico da Tijuca), J. Becker *leg.*, 2.I.1953, 1 ♂ & 2 ♀ (MNRJ-1447); (Tijuca, Açude da Solidão), S. Balbuena & E. Izeckesohn *leg.*, 27.II.1961, 1 ♂ & 4 ♀ (HSPC-751); idem, E. Izecksohn, VIII.1957, 1 ♂ & 4 ♀ (HSPC-236); (Tijuca), E. Izecksohn *leg.*, I.1955, 1 ♀ (HSPC-987); (Pico da Tijuca), 19.X.1951, 1 ♀ (HSPC-750); idem, A. Peracchi & E. Izecksohn *leg.*, 1 ♀ (HSPC-191); (Bico do Papagaio, Floresta da Tijuca), H. Schubart & J. Becker *leg.*, 17.III.1962, 1 ♀ (MNRJ); Petrópolis, R. Arlé *leg.*, 1 ♂ (MNRJ-5131); idem (Taquara, Cremeira), E. Izecksohn *leg.*, 30.I.1961, 1 ♂ & 2 ♀ (HSPC-199); idem, III.1950, 2 ♂ & 6 ♀ (HSPC-250); Nova Friburgo, without collector and date, 900 m, 1 ♂ (MZSP-1851); Terezópolis (Colônia Alpina), Göldi *leg.*, 2 ♂ (UZMD-90032); (Morro do Caxambu), 1 ♀ (MNRJ-5123); Itatiaia, Moreira *leg.*, 1 exemplar (MNRJ-1448); (Parque Nacional do Itatiaia), R. Pinto-da-Rocha *leg.*, IV.1991, 1 ♂ (MZSP-14193); idem, (Maromba, 1100m, 22°26'S - 44°37'W), A. Kury, R. Pinto-da-Rocha & L. Mestre *leg.*, 1 ♂ (MZSP); idem, J. H. Guimarães *leg.*, VIII.1958, 2 ♀ (HSPC-242); idem, P. Wygodzinsky *leg.*, XI.1947, 700 m, 1 ♀ (MZSP-1152); (Camping Spanner, Maromba), R. L. C. Baptista *leg.*, 18.XII.1991, 1 ♀ (MNRJ-6738); Magé, 11.X.1987, K. Tanizaki *leg.*, (MNRJ-6217); Miguel Pederneiras (Pedras Ruivas), R. & A. Baptista *leg.*, 1 ♀ (MNRJ-6270). São Paulo: São José do Barreiro (Serra da Bocaina), 1 ♀ (MNRJ-5133); idem, 1500 m, M. Alvarenga & W. Bokermann *leg.*, 2 ♂ & 1 ♀ (MZSP-14187); idem, Vulcano *leg.*, 2 ♂ & 1 ♀ (MZSP-14190); idem, 30.X.1967, O. A. Roppa *leg.*, 1 ♀ (HSPC); idem, 1 ♀ (MNRJ-5133); idem, R. Pinto-da-Rocha, C.Campaner & S.A. Vanin leg., 21-24.III.1997, 1 ♀ (MZSP-15736); Ubatuba (Corcovado, 520 m), G. Machado *leg.*, 19.I.1996, 1 ♂ & 2 ♀ (ZUEC); Engenheiro Marsiliac (Santo Amaro), 11.II.1967, P. Biasi & J. L. M. Leme *leg.*, 11.II.1967, 1 ♀ (MZSP-14207); São Paulo (Ipiranga), K. Lenko & H. Reichardt *leg.*, 1.XI.1961, 1 ♀ (MZSP-14282); Itapecerica da Serra (Bairro dos Porfírios), 18.X.1944, 1 ♀ (MZSP-14208); Paranapiacaba (Alto da Serra), L. Lima *leg.*, 12.VIII.1964, 1 ♀ (MZSP-14283); Iguape, Biase & Leme *leg.*, 1-5.XI.1968, 5 ♀ (MZSP-14195); Capão Bonito (Faz. Intervales), A. B. Kury *leg.*, 17-19.X.1991, 1 ♀ (MZSP-14121); São Miguel Arcanjo (Parque Estadual Carlos Botelho); A. B. Bonaldo *leg.*, 12-16.X.1990, 1 ♂ (MCNZ); Guapiara, 20.II.1951, 1 ♀ (HSPC); Caraguatatuba, B. A. M. Soares *leg.*, 16-17.II.1942, 1 ♂ (MZSP-93); Itapecerica da Serra (Batêa), F. Lane *leg.*, 2.XI.1940, 3 ♀ (MZSP-59); Itanhaém (Fazenda Santa Júlia), Fontes & Marques *leg.*, 5-7.IX.1977, 1 (MZSP-

15156); idem, L. R. Fontes *leg.*, 24.XII.1978, 1 ♂ & 1 ♀ (MZSP-14178); Peruíbe, Exp. MZSP *leg.*, 29.VI.1981, 1 ♀ (MZSP-14838); Peruíbe (Estação Ecológica Juréia-Itatins), A.D. Brescovit & R.Bertani *leg.*, 17-21.III.1997, 1 ♀ (IBSP); Ilha de Cananéia, L. Fontes *leg.*, 5-6.VI.1976, (MZSP-14850); Paraná: Piraquara (Ipiranga), G. Hatschbach *leg.*, XII.1944, 2 ♀ (MZSP-1852); idem, 1 ♀ (MHCI-1095); (Rincão), C. N. Gofferjé *leg.*, VI-1948, 2 ♂ & 3 ♀ (MZSP-1346); (Florestal), J. Leprevost *leg.*, I.1944, 1 ♂ (MHCI); Quatro Barras (Alto da Serra), S. F. Caron *leg.*, 1.XI.1987, 1 ♀ (MHCI-6156); idem, G. Hatschbach *leg.*, XI.1943, 1 ♂ (MHCI); (Corvo), M. R. Bornschein & F. C. Straube *leg.*, 15.IV.1990, 1 ♂ & 1 ♀ (MZSP-14127); Paranaguá (Ilha do Mel, Reserva Ecológica), F. Zanella *leg.*, 27.VIII.1988, 1 ♀ (MHCI-6155); idem, S. F. Caron *leg.*, 7.X.1988, 2 ♀ (MHCI-6154); (Praia de Leste), 4.V.1967, 2 ♀ (MZSP-14201); Morretes (Estrada daGraciosa), C. N. Gofferjé, IV.1944, 3 ♀ (CGCP); (Marumbi), G. Hatschbach *leg.*, XII.1943, 1 ♀ (MHCI-1095); (Banhado), G. Hatschbach *leg.*, VI.1944, 1 ♂ (MHCI); idem, 8.VII.1945, 1 ♀ (MZSP-1853); idem, 1 ♀ (MZSP-1853); X.1945, C. N. Gofferjé *leg.*, 2 ♀ (CGCP).

Garatiba Mello-Leitão, revalidated

Garatiba Mello-Leitão, 1940a: 104.
Zalonius (*part*); Soares & Soares, 1948: 582 (cat).

Diagnosis. Sexual dimorphism on shape of dorsal scute absent. Maximal width of dorsal scute reaching the groove III. Cephalothorax smaller than abdomen. Eye mound with 2 small tubercles. Large tubercle on lateral margin of dorsal scute absent. Areas II-III divided. Male and female spines of area III reduced to tubercles. Pedipalpal subapical seta of femur absent. Leg IV smooth or minute-tuberculate. Coxa IV visible only on apical region (dorsal view). Basitarsus I normal. Distitarsus II 4-segmented. Penis: ventral process projections absent; ventral plate thin and enlarged; ventral part of ventral plate weakly covered by microsetae; distal setae of ventral plate subapical; presence of dorsal process on glans.

Type species: *Garatiba bisignata* Mello-Leitão, 1940, by original designation.

Garatiba bocaina, sp.n.
(Figs. 4, 27, 51, 68-69, 85, 154-155)

Type material: Holotype ♂, Brazil. São Paulo: Bananal (Posto de Biologia e Criação de Trutas), E. Izecksohn *leg.*, 16-27.X.1963 (MZSP-15165). Paratypes: Rio de Janeiro: Parati (Pedra Branca), ♀ (MNRJ); São Paulo: Bananal (Posto de Biologia e Criação de Trutas), E. Izecksohn *leg.*, 16-27.X.1963, ♂ and 3 ♀ (HSPC); (Fazenda Albion), F. Pontual *leg.*, 23.IX.1989, 1 ♀ (MNRJ-6531); Serra da Bocaina, 2.II.1956, A. Faria *leg.*, 2 ♀ (MNRJ).

Etymology. In reference to the type locality be located in the Serra da Bocaina.

Male description (holotype):

Measurements. Dorsal scute: length 4.40; maximal width 4.55. Cephalothorax: length 2.00; width 2.90.

Dorsum (Fig. 27). Anterior margin with 2 tubercles each side, smooth medially. Eye mound with 3-4 tubercles of similar size. Cephalothorax with 3-5 tubercles behind the eye mound. Lateral margin with 1 row of tubercles from ozopores to posterior margin. Area I with 2 tubercles each side; II-III divided (hard to see); II with 11; III with 12 (central pair larger). Posterior margin and free tergites with 1 row of tubercles. Anal operculum with 2 anterior tubercles.

Venter. Coxa I with 1 median row of 5 tubercles, 4 apical, 3 anterior, 6 posterior; II with 1 median row of 9, 4 apical, 3 anterior, 10 posterior; III -IV irregularly tuberculate. Posterior margin and free sternites with 1 row of setiferous tubercles.

Chelicera. Segment II (fixed finger) with 3 teeth; III (movable finger) with 5 teeth.

Pedipalpus (Fig. 51). Coxa, femur and patella smooth. Trochanter with 1 ventral tubercle. Tibia mesal IiIi (IIi), ectal Iii.

Legs (Figs. 27, 85). Coxa I with 1 anterior tubercle and other towards II; II with 1 large anterior and 1 posterior fused with other of III; III with 1 towards IV; IV tuberculate, with external apical apophysis smooth, enlarged and curved downwards, small internal apical apophysis. Trochanter I with 3 ventral tubercles; II with 5 ventral; III with 6 ventral; IV with 8 ventral, 3 prolateral, 8 retrolateral (apical larger). Legs I-III minute-tuberculate. Femur IV with tubercles larger

on basal region, 1 retrolateral row. Patella IV minute-tuberculate. Tibia IV with 1 retrolateral row of tubercles. Tarsal segmentation: 6, 16(5), 14-15, 18-19. Claws IV with 6 mesal and 6 ectal teeth.

Penis (Figs. 154-155). Stylus thin and short, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate with short cleft U-shaped; 4 pairs of setae on basal lobe (basal longer); short setae behind distal and intermediaries absent.

Color. Brownish-light. Margins of dorsal scute and legs IV darker. Cephalothorax dark reticulate on anterior half. Areas I-IV with dark spots surrouding tubercles; large spots on central tubercles of areas I-II; area III with dark spots in almost all extensions. Free tergites I-II with a small median white spot; III with wide white spot. Dorsal anal operculum with white spot U-inverted-shaped, ventral anal with white spots in almost all extensions.

Female description:

Measurements. Dorsal scute: length 4.94; maximal width 5.44. Cephalothorax: length 1.94; width 2.94.

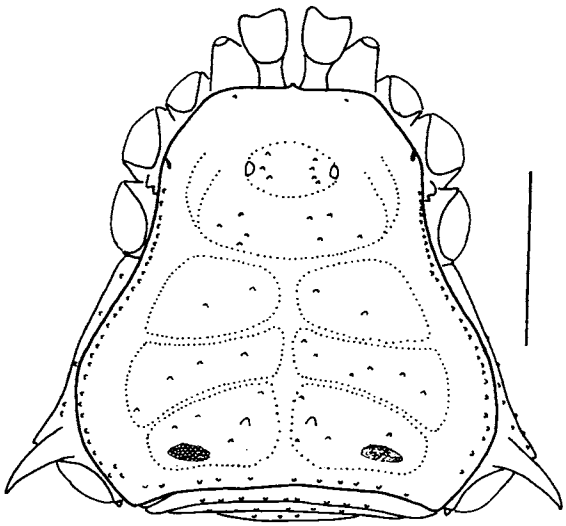
Anterior margin with 2 median tubercles. Posterior region of cephalothorax with 3 tubercles. Area I with 1-3 tubercles each side; II with 8; III with 8 (central pair larger than male). Coxa IV without apical apophyses, only tubercles. Femur IV with tubercles smaller than male. Pedipalpal tibia of IIi/IIi. Tarsal segmentation: 7, 15-16 (4),15, 19.

Variation (male n= 1, female, n= 6): Dorsal scute length 4.32- (male), 4.56-6.08 (female), width 4.64- (male), 5.28-6.8 (female); femur IV length 11- (male), - (female); tarsal articles of males 7, 15, 15-16, 18, females 7-8, 15-19, 14-18, 18-21; white patches on anal operculum single or separate in two; pedipalpal tibia mesal IIi/IiIi/IiiIi, ectal IIi/IiIi. Area I with 2-4 tubercles, II with 12-18, III 10-27.

Taxonomical notes: it differs from *Garatiba bisignata* by presence of 2 white spots on posterior region of area III.

Type locality: Posto de Biologia e Criação de Trutas, Bananal, São Paulo, Brazil.

Geographical distribution (Fig. 4): recorded from Serra da Bocaina, between São Paulo and Rio de Janeiro States.



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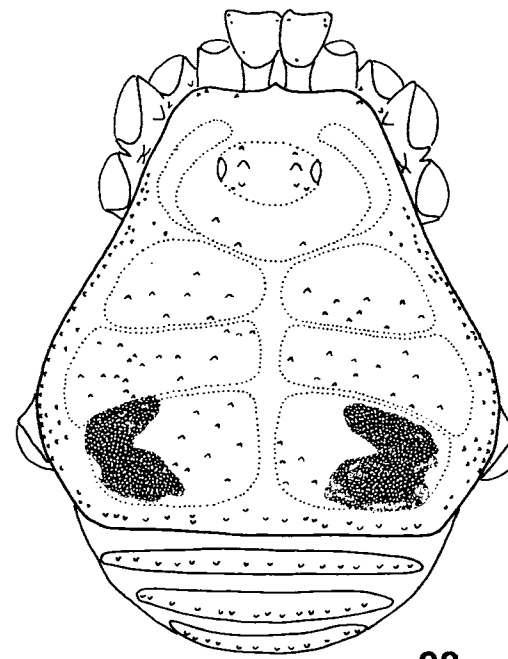

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Figs. 27-28. Dorsal view: 27, male of *Garatiba bocaina* (holotype); 28, female of *G. bisignata* (lectotype). Gray patches mean white color. Scale bar = 2 mm.

Species not included in the cladistic analyses:

Garatiba bisignata Mello-Leitão
(Figs. 4, 28)

Garatiba bi-signata Mello-Leitão, 1940a: 104. (♀ lectotype, 3 immatures paralectotypes & ♀ paralectotype, here designated "*Garatiba bisigillata*, typus, Mangaratiba [Rio de Janeiro, Brasil], Berla *leg*", MNRJ-182, examined).
Garatiba bisignata; Soares, 1945b: 348 (cat).
Zalonius bisignatus; Soares & Soares, 1948: 582 (cat).

Female redescription (lectotype):

Measurements. Dorsal scute: length 5.06; maximal width 5.12. Cephalothorax: length 2.00; width 3.00.

Dorsum (Fig. 28). Anterior margin with 1-3 tubercles each side. Cephalothorax with 2 tubercles each side and 3 behind eye mound. Eye mound with 2 median tubercles and 2 posterior. Lateral margin with 1 row of tubercles from ozopores to posterior margin. Area I with 8 tubercles each side; II with 10-14 tubercles each side; III with 11-13 tubercles each side (1 pair larger). Posterior margin with 15 tubercles. Free tergite I with 13 tubercles; II with 16; III with 12. Anal operculum smooth.

Venter. Coxa I with 4 anterior tubercles, 1 median row of 7-8, 4-6 posterior, 5 apical; II with 2-3 anterior tubercles, 12-14 median, 4 apical; III with 8 anterior tubercles, 9-10 median, 20 posterior; IV irregularly tuberculate. Posterior margin and free sternites with 1 row of minute tubercles. Anal operculum smooth.

Chelicera. Segments I-II with 5 tubercles; III with 4.

Pedipalpus. Coxa, trochanter, femur and patella smooth. Tibia ectal IIIi, mesal IiII.

Legs (Fig. 28). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior large, 1 posterior fused with 1 of III; III with 1 posterior fused with 1 of IV; IV tuberculate, without apical tubercle. Trochanter I with 3 ventral tubercles; II with 3 ventral, 4 posterior, 5 retrolateral; III smooth; IV with 6 ventral, 4 retrolateral, 10 posterior, 6 dorsal. Femora I-IV straight. Tarsal segmentation: 7, 16 (4), 12, 15. Claws with 6 teeth ectal and 5 mesal.

Color. Brownish, with 1 spot C-shaped on area III. Dorsal anal operculum with 1 white spot in almost all extensions, ventral anal operculum with 1 white spot each side.

Taxonomical notes: differs from *G. bocaina* by color pattern with large white spots on lateral of area III (smaller on posterior part of area III in *G. bocaina*).

Male unknown.

Type locality: Mangaratiba, Rio de Janeiro, Brazil.

Geographical distribution (Fig. 4): recorded only from type locality.

Material examined: Brazil. Rio de Janeiro: Mangaratiba, H. Berla *leg.*, ♀ lectotype, ♀ paralectotypes & 3 immatures (MNRJ-182).

Thereza Roewer

Thereza Roewer, 1943: 57.
Dasypoletes Mello-Leitão, 1949: 14 (Type species: *Dasypoleptes guttulatus* Mello-Leitão, 1949, by original designation). *Syn.n.*

Diagnosis. Sexual dimorphism on shape of dorsal scute absent. Maximal width of dorsal scute reaching the groove III. Cephalothorax as wide as abdomen. Eye mound with 2 small tubercles. Large tubercle on male lateral margin absent. Areas II-III divided. Male spines of area III large. Area III of female with 2 spines. Pedipalpal subapical seta on femur absent. Leg IV smooth or minute-tuberculate. Male coxa IV visible only at apical portion (dorsal view). Basitarsus I normal. Distitarsus II 4-segmented. Penis: lateral projections on ventral process present or absent (ventral process nail-like); ventral plate thin and enlarged; ventral part of ventral plate weakly covered by microsetae; distal setae of ventral plate apical or subapical.

Type species: *Thereza albiornata* Roewer, 1943, by monotypy.

Key for the species of *Thereza*:

1. Areas I-II without tubercles (Fig. 30) ..... *T. albiornata*
   Areas I-II with one or more pairs of tubercles (Figs. 29, 31-32) 2
2(1). Cephalothorax, lateral and posterior margins without white spots (Fig. 31)

.....*T. poranga*

Cephalothorax, lateral and posterior margins with 1 pair of white spots (Figs. 29, 32).....3

3(2). One pair of large white spots jointing areas I-III, anterior margin with white spots; spine of area III tuberculate (Figs. 29) .....*T. amabilis*

One pair of smaller white spots on each areas I-III, anterior margin without white spots; spine of area III without tubercles (Fig. 32).....*T. speciosa*

Thereza albiornata Roewer

(Figs. 5, 30, 52, 116-117)

Thereza albiornata Roewer, 1943: 57, fig. 68, 68a, 68b; (♂ lectotype & ♀ paralectotype here designated "Brasilien, Espirito Santo, Sta [Santa] Thereza, typus, 2 ♀", Roewer misidentified the sex probable due to high absence of sexual dimorphism, SMFD-2505, examined).

Varzellinia radagasioi Soares & Soares, 1945b: 285, fig. 3, 3a, 3b; 1946a: 196 (dist); Soares & Soares, 1948: 581 (cat). (female holotype"158 [Chaves, Santa Leopoldina, Espírito Santo, Brasil, Radagásio & F.J Vervloeti, XII.1944-I.1945", HSPC-158, examined). *Syn.n.*

Dasypoleptes guttulatus Mello-Leitão, 1949: 14, fig. 3-4; (female holotype "typus, rio Mucuré [Espírito Santo, Brasil], A.Ruschi *leg.*", MNRJ, examined). *Syn.n.*

Male redescription (HSPC-543):

Measurements. Dorsal scute: length 4.48; maximal width 4.20. Cephalothorax: length 1.68; width 3.00; pedipalpus 6.88.

Dorsum (Fig. 29). Anterior margin and cephalothorax smooth. Eye mound without tubercles. Lateral margin with tubercles between grooves I and II. Areas I-III without tubercles; III with 2 slightly divergent and backwards spines. Posterior margin smooth. Free tergite I with 4 tubercles; II-III with 2 tubercles. Anal operculum smooth.

Venter. Coxa I with 1 median row of 7 tubercles, 1 posterior, 3 apical; II with 1 median row of 8 tubercles, 5 apical; III with 1 median row 1of 8-10 tubercles, 6 posterior, 6 apical; IV irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum smooth.

Chelicera. Segment I smooth; II with 5 tubercles; III with 3 tubercles.

Pedipalpus (Fig. 49). Coxa with 1 ventral tubercle. Trochanter with 2 ventral tubercles. Femur with 4 ventrobasal tubercles. Patella smooth. Tibia IiIi ectal, IiIi mesal, with 2 ventral thin setae.

Legs (Fig. 29). Coxa I with 1 tubercle towards pedipalpus and 1 towards II; II with 1 large anterior tubercle near ozopores and 1 fused with 1 of III; III with 1 tubercle fused with other of IV; IV with 1 apical blunt and large tubercle, with lateral tubercles. Trochanter I with 1 retrolateral tubercle, 3 ventral; II with 2 retrolateral tubercles, 4 ventral; III with 1 prolateral tubercle, 3 retrolateral, 3 ventral; IV with 3 prolateral tubercles, 2 retrolateral, 5 ventral. Femora I-IV straight, with tubercles on basal 1/3; II and IV enlarged. Tarsal segmentation: 7, 14-15, 14, 17-18.

Penis (Figs. 116-117). Stylus thin and long, with few subapical setae. Ventral process of glans with dorsal cleft, nail-like, depressed and enlarged. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae on apex; 4 pairs of setae on basal lobe (basal longer); 2 short setae behind distal.

Color. Brownish. Cephalothorax, areas I-III and posterior margin with black small dots. Cephalothorax with 2 posterior rounded white spots. Lateral margin with 5 white spots. Lateral region of areas I-III with 1 white spot. Posterior margin with 4 white circular spots near groove IV, 3 white spots near free tergites (1 central circular and 2 lateral enlarged). Free tergites I-III with black stripe and white central circular spot; I-II with 2 enlarged white lateral spots. Dorsal anal operculum with 1 white spot formed by 3 rounded parts; ventral with 2 lateral white spots. Chelicera black reticulate. Pedipalpus with black spots. Legs dark-brown to black.

Female redescription:

Measurements. Dorsal scute: length 5.00; maximal width 4.48. Cephalothorax: length 1.96; width 3.08.

Tarsal segmentation according to MELLO-LEITÃO (1949): 7, ?, 14, 16. White spots of anterior margin smaller than in male; of area III unique. Lateral margin with white spots larger than male. Posterior margin and free tergites without lateral

white spots, central spot smaller. Anal operculum with 2 white spots smaller than male.

Variation (male n= 1, female, n= 3): Dorsal scute length 4.48- (male), 3.68-3.76 (female), width 4.2- (male), 3.68- (female); femur IV length 12.2- (male), 7.04-7.28 (female); tarsal articles of males 7, 13-14, 16, 17-18, females 7, 15-17, 14-15, 15-16.

Taxonomical notes: it differs from other species of *Thereza* by absence of tubercles on eye mound and areas I-II; pair of rounded spots behind eye mound and free tergites II-III with white spots.

Type locality: Santa Tereza, Espírito Santo, Brazil.

Geographical distribution (Fig. 4): Espírito Santo.

Material examined: Brazil. Espírito Santo: Santa Tereza, ♂ lectotype & ♀ paralectotype (SMFD, CR-2505); (rio Mucuré), A. Ruschi *leg.*, holotype ♀ of *Dasypoleptes guttulatus* (MNRJ-5129); idem (Reserva Florestal de Santa Tereza), S. T. Albuquerque & W. F. Mendonça *leg.*, 16.VII.1967, 1 ♂ (HSPC-543); Santa Leopoldina (Chaves), Radagasio & Vervloet *leg.*, XII.1944/I.1945, ♀ holotype of *Varzellinia radagasioi* (HSPC-158).

Thereza amabilis, sp.n.
(Figs. 5, 29, 118-119)

Type material: Holotype ♂, "Angra dos Reis, RJ [Rio de Janeiro, Brasil], W. Bokermann, 23.III.1951, MZSP-11989".

Etymology: Latin adjective in reference to the beautiful color of the species.

Male description (holotype):

Measurements. Dorsal scute: length 3.76; maximal width 3.36. Cephalothorax: length 1.64; width 2.36.

Dorsum (Fig. 29). Anterior margin smooth. Eye mound with 2 tubercles. Lateral margin with 1 row of tubercles from ozopores to groove III. Areas I-II with 1 tubercle each side; III with 1 pair of spines of tuberculate base. Posterior margin, free tergites and anal operculum with 1 row of minute tubercles.

Venter. Coxa I with 1 median row of 5 tubercles, 2 posterior, 3 apical; II-III, stigmatic area, free sternites and anal operculum small-tuberculate.

Chelicera. Segment I with 1 dorsal tubercle, 2 prolateral, 1 retrolateral; II-III with 4 tubercles.

Pedipalpus. Coxa with 1 ventral tubercle. Trochanter with 1 ventral tubercle. Femur with 8 ventral tubercles. Patella smooth. Tibia ectal iIiiIi(IiiIi), mesal IiIii.

Legs (Fig. 29). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior, 1 posterior fused with 1 of coxa III; III with 1 posterior towards IV; IV with tubercles irregularly disposed (dorsoapical larger). Trochanter I with 3 tubercles; II with 5 retrolateral tubercles, 3 ventral; III with 5 retrolateral; IV with 3 retrolateral, 6 ventral. Femora-tibiae I-IV small-tuberculate. Tarsal segmentation: 8, 14-15, 14-15, 15-17.

Penis (Figs. 118-119). Stylus thin and long, with few subapical setae. Ventral process of glans nail-like. Ventral plate with slightly concave cleft; with 3 pairs of distal setae (subapical); 4 pairs of setae on basal lobe (basal long); 2 short setae behind the distal.

Color. Areas I-III with 1 lateral white spot. Anterior, lateral and posterior margins of cephalothorax, eye mound, posterior margin and free tergites I-II with white spots (observed on dry or living animals).

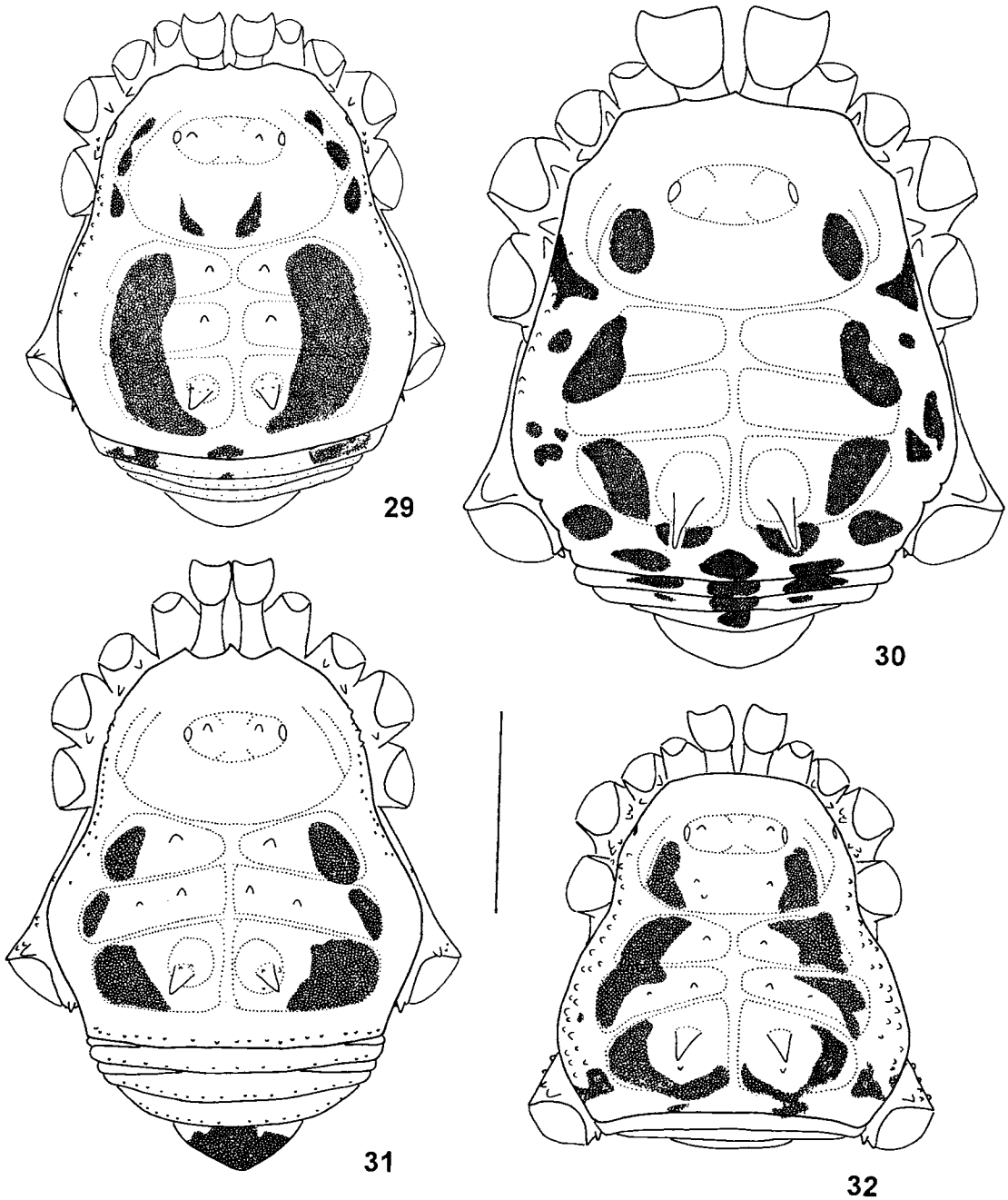
Female unknown.

Taxonomical notes: differs from other species of genus by presence of only 1 pair of tubercles on areas I-II and white spots on lateral sides of cephalothorax.

Geographical distribution (Fig. 5): recorded only from type locality.

Thereza speciosa (Roewer), comb. n.
(Figs. 5, 32, 53, 72-73, 122-123, 143, 147-149)

Metarthrodes speciosus Roewer, 1913b: 320 (key), 324 (desc), pl. IB, fig. 6; 1923: 525 (key), 526 (diag), fig. 658; Mello-Leitão, 1923: 174 (key), 195 (cat, dist); 1927: 402 (cit); Roewer, 1931: 126 (cit); Mello-Leitão, 1932: 375 (key), 376 (rdesc), fig. 238; Roewer, 1938: 6 (dist); Soares, 1945a: 192 (cit). (6 females syntypes according to original description from Brasil, Santa Catarina, Itapocu, ZMUH, not examined, 3 females, according to original description "Brasil, Bahia", SMFD, not examined).



Figs. 29-32. Dorsal view of male: 29, *Thereza amabilis* (holotype); 30, *T. albiornata* (HSPC-543); 31, *T. poranga* (holotype); 32, *T. speciosa* (MZSP-10585). Gray patches mean white color. Scale bar = 2 mm.

Ampheres speciosus; Soares & Soares, 1948: 569 (cat).
Zalonius pulcherrimus H.Soares, 1944: 321, fig. 1, 2; Soares, 1945a, 192 (cit); H. Soares, 1945: 208 (cit), 212 (syst); Soares & Soares, 1946b: 101 (dist); 1947a: 63 (dist); 1947b: 249 (dist); 1948: 582 (cat); Pinto-da-Rocha & Caron, 1989: 1022 (typ). (female holotype "Guaraqueçaba [Paraná, Brasil], R. Hertel *leg.*, VII.1944 ", MHNC-1077, examined). *Syn. n.*

Male redescription (MZSP-10585):

Measurements. Dorsal scute: length 3.40; maximal width 3.44. Cephalothorax: length 1.40; width 2.12.

Dorsum (Fig. 32). Anterior margin smooth. Eye mound with 2 median tubercles. Cephalothorax with 3 tubercles behind eye mound. Odoriferous gland as in figure 143. Lateral margin with 1 row of tubercles from ozopores to posterior margin, with tubercles scattered between areas I-III. Area I with 2 tubercles; II with 4 tubercles; III with 2 parallel spines, 2 tubercles behind the spines. Posterior margin and free tergites with 1 row of setae. Anal operculum smooth.

Venter. Coxa I with 4 median tubercles, 4 apical; II with 5 median tubercles, 3 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with a row of minute tubercles. Anal operculum smooth.

Chelicera. Segment I smooth; II with 4 tubercles; III with 5 tubercles.

Pedipalpus (Figs. 53, 148). Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 5 ventral tubercles. Tibia IiIi mesal, IiIi ectal.

Legs (Figs. 32, 72). Coxa IV with 1 apical external tubercle and 1 short apical internal. Trochanter I with 3 ventral tubercles; II with 3 ventral tubercles, 2 retrolateral; III with 6 ventral tubercles, 2 prolateral, 3 retrolateral, 2 dorsal; IV with several ventral tubercles, 4 prolateral, 5 retrolateral, 7 dorsal. Femora I-IV straight and small-tuberculate. Tarsal segmentation: 5-7, 12, 14, 16. Claws with 4 teeth. Tarsus IV as in figures 147, 149.

Penis (Figs. 122-123). Stylus thin and long, without subapical setae. Ventral process of glans nail-like. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae (subapical); 3-4 pairs of setae on basal lobe (basal larger or absent); 1 small behind distal setae and other on intermediary region.

Color. Dark-brown with small black spots. Pedipalpus yellowish. Spines of area III black. Lateral region of areas I-II with 1 white spot each side (fused or separated). Area III with white spot on lateral posterior region. Lateral and posterior margins with small white spots. Dorsal anal operculum with 3 white spots, ventral with 1 white spot in almost all extensions. Free sternites with white spots. Coxa IV with 1 white lateral spot and a triangular spot on coxa and stigmatic area.

Female redescription (MZSP-10585):

Measurements. Dorsal scute: length 2.12; maximal width 2.72. Cephalothorax: length 1.52; width 2.12.

Anterior margin higher than ♂. Coxa IV as in figure 73. Cephalothorax with 4 tubercles behind eye mound. Free tergites I-II with white spots. Tarsal segmentation: 7, 14, 13-14, 16.

Variation (male n= 5, female, n= 5): Dorsal scute length 3.12-3.52 (male), 3.44-3.68 (female), width 3.36-3.68 (male), 3.44-4.16 (female); femur IV length 10.12-11.12 (male), 8.87-10.37 (female); tarsal articles of males 7-8, 12-17 (3-4), 13-15, 14-19, females 7-8, 14-16, 13-16, 15-18; colour patches on area III fused or separate, free tergites with 1-3 pairs of white patches; pedipalpal tibia ectal iIiIi/IiIi, mesal IiIii/IiIi. There is a slight sexual dimorphism on femur IV, relation between the femur and dorsal scute length is 2.02-2.23 on males and 1.59-1.9 on females.

Taxonomical notes: it differs from other species of genus by presence of tubercles behind eye mound and on lateral margin and posterior margin with 1 pair of white spots.

Type locality: Itapocu, Santa Catarina, Brazil and also the erroneouly labeled speciemens from "Bahia", where part of the type material were assigned.

Geographical distribution (Fig. 5): São Paulo, Paraná and Santa Catarina. ROEWER (1913b) recorded this species from Bahia. ROEWER (1931) cited the record of MELLO-LEITÃO (1923) from Paineiras (Distrito Federal). Both records are wrong (see item 3.5).

Material examined: Brazil. São Paulo: Registro, E. Izecksohn *leg.*, 16.X.1971, 1 ♂ & 1 ♀ (HSPC-554); Iguape, P. Biasi & J. L. Leme *leg.*, 1-5.XI.1968, 1 ♀ (MZSP-14129); Paraná: Guaraqueçaba (Salto Morato); R. Pinto-da-Rocha *leg.*, 25.VIII.1990,

1 ♂ (MHCI-6800); idem, M. V. Segalla & M. Lustosa *leg.*, 3.XII.1989, 1 ♂ (MHCI-6680); (Ilha de Superagui, Barra do Ararapira), M. R. Bornschein & V. G. Persson *leg.*, 18.II.1990, 1 ♂ (MHCI-6780); Curitiba, Gengnagel *leg.*, XII.1948, 1 ♀ (MNRJ); São José dos Pinhais (Usina Hidrelétrica de Guaricana), R. Pinto-da-Rocha & J. C. Moura-Leite *leg.*, 8.VIII.1988, 3 ♂ (MHCI-6159); idem, W. B. Wosiack *leg.*, 12.VII.1988, 2 ♂ (MNRJ-6300); idem, R. S. Bérnils, M. V. Segalla & J. C. Moura-Leite *leg.*, 22-26.IV.1985, 1 ♀ (MHCI-6157); idem, W. B. Wosiacki & M. R. Bornschein *leg.*, 11.VII.1988, 1 ♂ (MHCI-6160); Morretes, A. Bonaldo *leg.*, 29.X.1995, 2 ♀ (MCNZ-1289); (Véu de Noiva), R. Pinto-da-Rocha & R. S. Bérnils *leg.*, 12.I.1991, 1 ♂ (MHCI-6850); (Porto de Cima), M. V. Segalla & M. Lustosa *leg.*, 20.V.1989, 1 ♂ & 1 ♀ (MHCI-6513); idem, M. V. Segalla & M. Polati *leg.*, 29.X.1988, 1 ♀ (MHCI-6161); Piraquara (Banhado), C. N. Gofferjé *leg.*, XII.1945, 2 ♀ (CGCP); idem, R. Pinto-da-Rocha & R. S. Bérnils *leg.*, 1 ♀ (MHCI-6842); G. Hatschbach & S. Imaguire *leg.*, 24.IX.1945, 1 ♀ (MZSP-962); idem, C. N. Gofferjé *leg.*, V.1946, 1 ♂ (MZSP-1021); Tijucas do Sul (Represa de Vossoroca), M. F. Becker *leg.*, 29.IX.1990, 1 ♀ (MHCI-6812); Santa Catarina: Alto Palmeiras (Rio dos Cedros), J. Jim *leg.*, 19-22.VII.1966, 1 ♂ (HSPC-583); idem, 1 ♂ & 1 ♀ (HSPC-584); São Bento do Sul, G. S. Andrade *leg.*, IX.1981, 1 ♂ (HSPC-795); Corupá, P. Biasi *leg.*, 3.III.1967, 7 ♂, 4 ♀ & 4 immatures (MZSP-10585); idem (Rancho do Maller), P. Biasi *leg.*, 3.V.1967, 1 ♂ (MZSP-14192); Rancho Queimado, A. Bonaldo *leg.*, 8-11.X.1994, 3 ♂ & 2 ♂ (MCNZ-1252); idem, 13-15.I.1995, 1 ♂ & 5 immatures (MCNZ-1278); idem, L. Moura *leg.*, 15-18.XI.1995, 1♂, 1 ♀ & 1 immature (MCNZ-1294).

Thereza poranga, sp.n.

(Figs. 5, 31, 120-121)

Type material: Holotype ♂ "Caraguatatuba, SP [São Paulo, Brasil], 19.VII.1962, Exp. MZSP *leg.*, MZSP-15160". Paratypes: 1 ♂ and 4 ♀, same data as holotype ♂, idem, 12.VII.1962 (MZSP-15158); 4 ♂ Ubatuba (Picinguaba) [São Paulo, Brasil], 25-29.IV.1991, P. Gnaspini *leg.* (MZSP-15159); 1 ♂ Ubatuba (Morro do Corcovado) [São Paulo, Brasil], G. Machado *leg.*, 27.I.1996 (MNRJ); Ubatuba (Itamambuca), Momtouchet *leg.*, 08.VI.1975, 1 ♂, 1 ♀ (MNRJ), 2 ♂, 3 ♀ (MZSP-15818), 4 ♂, 6 ♀ (ZUEQ).

Etymology: from Tupi language, means beautiful.

Male description (holotype):

Measurements. Dorsal scute: length 3.65; maximal width 3.41. Cephalothorax: length 1.63; width 2.22.

Dorsum (Fig. 31). Anterior margin smooth. Eye mound with 2 tubercles. Lateral margin with 1 row of tubercles from ozopores to posterior margin. Areas I-III divided; I with 1 tubercle each side; II with 2 each side; III with 2 spines with tuberculate base. Posterior margin, free tergites and anal operculum minute-tuberculate.

Venter. Coxa I with 4-5 anterior tubercles, 1 median row of 5-6, 4 apical; II with 3 anterior tubercles, 1 median row of 9, 4 posterior, 5 apical; III-IV irregularly tuberculate. Genital operculum, stigmatic area, posterior margin, free sternites and anal operculum minute-tuberculate.

Chelicera. Segment I with 2 dorsal and 1 retrolateral tubercles; II with 3; III with 5.

Pedipalpus. Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 8 ventral tubercles. Patella smooth. Tibia ectal iIiIi(IiIi), mesal IiIi.

Legs (Fig. 31). Coxa I with 1 anterior and 1 posterior tubercles; II with 1 anterior large (near opening of odoriferous gland), 1 posterior fused with 1 of III; IV with 1 apical dorsal tubercle. Trochanter I with 3 ventral tubercles, 1 retrolateral; II with 4 ventral, 6 retrolateral; III with 5 prolateral, 5 retrolateral, 4 ventral; IV with 4-5 retrolateral, 3 ventral. Femora-tibiae I-IV minute-tuberculate. Tarsal segmentation: 8, 17, 14, 17-18.

Penis (Figs. 120-121). Stylus thin and long, without subapical setae. Ventral process of glans nail-like. Ventral plate with short U-shaped cleft; with 3 pairs of distal setae (subapical); 4 pairs of setae on basal lobe (basal long); 2 short setae behind distal.

Color. Areas I-III with 1 lateral white spot, anal operculum with 1 white spot covering almost the whole extension. Anterior margin, eye mound, lateral of cephalothorax, region behind eye mound, posterior margin and free tergites I-II with white spots visible only in living or dead and dried animals.

Female description:

Measurements. Dorsal scute: length 4.24; maximal width 3.96. Cephalothorax: length 1.76; width 2.36.

Cephalothorax with 2 tubercles behind eye

mound. Pedipalpal tibia: IiIi/IiIi. White spots on areas I-II smaller than male. Tarsal segmentation: 8, 17, 16, 17-18.

Variation (male n= 7, female, n= 9): Dorsal scute length 3.36-3.6 (male), 3.6-4.08 (female), width 3.44-3.6 (male), 3.84-4.24 (female); femur IV length 5.84-7.12 (male), 5.68-7.04 (female); tarsal articles of males 8-9, 15-18, 14-16, 16-19, females 7-8, 14-17, 14-16, 16-19; colour; pedipalpal tibia mesal IiIi/IiIii, ectal IiIi. Male area II eith 3-6 tubercles, females with 2-6.

Taxonomical notes: it differs from other species of the genus by absence of white spots behind eye mound, free tergites, and lateral and posterior margins of dorsal scute.

Type locality: Caraguatatuba, São Paulo, Brazil.

Geographical distribution (Fig. 5): Coastal north of state of São Paulo.

Metarthrodes Roewer, revalidated

Metarthrodes Roewer, 1913b: 307 (key), 319 (desc); Mello-Leitão, 1922: 347 (cit); Roewer, 1923: 519 (key), 524 (diag); Mello-Leitão, 1923: 173 (cit), 195 (key), 198 (diag); Roewer, 1927: 350 (cit); 1931: 123 (key), 124 (cit); Mello-Leitão, 1932: 356 (key), 374 (rdesc); Mello-Leitão, 1935b: 108 (diag); 1942: 10 (cit).

Metarthrodes (sic); Mello-Leitão, 1926: 36 (key).

Exochobunus Mello-Leitão, 1931: 139; 1935b: 107 (diag); Soares & Soares, 1948: 565 (key); 574 (cat). (Type species: *Exochobunus pulcherrimus* Mello-Leitão, 1931, by monotypy). *Syn. n.*

Heterampheres Mello-Leitão, 1935c: 407; Mello-Leitão, 1935b: 108 (diag.). (Type species: *Heterampheres variabilis* Mello-Leitão, 1935, by original designation).

Varzellinia Mello-Leitão, 1942a: 163; Soares & Soares, 1948: 565 (key), 581 (cat). (Type species: *Varzellinia leucopyga* Mello-Leitão, 1942, by original designation). *Syn. n.*

Kapichaba Mello-Leitão, 1942a: 164; Soares & Soares, 1948: 565 (key), 576 (cat). (Type species: *Kapichaba albotaeniata* Mello-Leitão, 1942, by original designation). *Syn. n.*

Ampheres (part.); Soares & Soares, 1948: 565.

Diagnosis. Sexual dimorphism on shape of dorsal scute present on lateral margin of male, that is wider than female. Maximal width of dorsal scute reaching groove IV. Cephalothorax much smaller or only smaller than abdomen. Eye mound with 2 small tubercles (except, *M. xango*, which have 2 large tubercles). Large tubercle on male lateral margin absent. Areas II-III undivided. Male spines of area III large or reduced to tubercles. Female with 2 spines on area III. Pedipalpal subapical seta on femur absent. Leg IV tuberculate. Male coxa IV visible in dorsal view. Basitarsus I normal. Distitarsus II 4-segmented. Penis: projections of ventral process lateral or absent (*M. laetabundus*); ventral plate wide; strongly covered by microsetae; distal setae of ventral plate on apical region.

Type species: *Metarthrodes leucopygus* Roewer, 1913, designated by Mello-Leitão, 1923.

Key for the males of *Metarthrodes*:

1. Area III with two large tubercles (Figs. 34-35).....2
   Area III with two large spines (Figs. 33, 36-43, 187, 190).....3
2(1). Dorsal scute with small white spots (Fig. 34); trochanter IV with large retrolateral tubercle (same length as the trochanter width, Fig. 89); anal operculum smooth.....*M. nigrigranulatus*
   Dorsal scute with white spot from anterior to posterior margin (Fig. 35); trochanter IV with a short retrolateral tubercle; large tubercle on dorsal anal operculum (Fig. 35).....*M. albotaeniatus*
3(1). Dorsal anal operculum with 1 tubercle or spine (Figs. 40-41, 190).....4
   Dorsal anal operculum smooth.....5
4(3). Femur IV long (5 times the dorsal scute length) and small-tuberculate (Fig. 189).....*M. longipes*
   Femur IV not so long (less than 3 times the dorsal scute length) and with large retrolateral tubercles (Figs. 91, 190).....*M. pulcherrimus*
5(3). Coxa IV with small retrolateral apical apophysis (Figs. 36, 39-40, 42) or smooth (Fig. 33); posterior margin slightly concave (Figs. 33, 36).....6

Coxa IV with retrolateral apical apophysis larger than dorsal (Figs. 37-38); posterior margin strongly concave (Figs. 38, 187) 8

6(5). Coxa IV with small retrolateral apophysis (Figs. 36, 39-40, 42); dorsoapical apophysis curved in all extension; cephalothorax without white spots..... 7

Coxa IV without retrolateral apophysis (Fig. 33); dorsoapical apophysis curved only apically; cephalothorax with 1 pair of white spots (Fig. 33)..... *M. bimaculatus*

7(6). Femur IV straight, extremely large, with 1 dorsal row of large tubercles (Fig. 89); anterior margin of dorsal scute with 1 pair of short tubercles (Fig. 36)..... *M. leucopygus*

Femur IV curved, moderately large (Fig. 93), with short dorsal tubercles; anterior margin of dorsal scute with 1 pair of large tubercles (Fig. 39)..... *M. hamatus*

8(5). Apical internal apophyses of coxa IV convergent (Figs. 38, 187), area III smooth behind spines (Fig. 38)..... *M. laetabundus*

Apical internal apophyses of coxa IV slightly divergent (Fig. 37), area III with tubercles behind spines (Fig. 37)..... *M. xango*

Metarthrodes albotaeniatus
(Mello-Leitão), comb. n.
(Figs. 9, 35, 54, 128-129)

Kapichaba albotaeniata Mello-Leitão, 1942a: 164, fig. 6; Soares, 1944c: 144 (cit); Soares & Soares, 1948: 576 (cat); (male holotype "Sta [Santa] Tereza, E. [Espírito] Santo, [Brasil], typus, Ruschi *leg.*", MNRJ. examined).

Zalonius albivittatus Mello-Leitão, 1944: 21, fig. 8-9; Soares & Soares, 1946a: 196 (cit); 1948: 582 (cat); (female holotype "Santa Tereza, E. [Espírito] Santo, Brasil, A.Ruschi *leg.*", MNRJ, examined). *Syn. n.*

Male redescription (HSPC-263):

Measurements. Dorsal scute: length 3.36; maximal width 3.44. Cephalothorax: length 1.28; width 1.76.

Dorsum (Fig. 35). Anterior margin with 2 median tubercles. Cephalothorax with 2 lateral tubercles and 2 behind eye mound. Eye mound with 2 tubercles. Lateral margin with 12 tubercles from groove I to posterior margin. Area I divided, with 2-4 tubercles (those near longitudinal groove larger); II with 10 (1 pair larger); III with 12 (1 pair larger than other dorsal scute tubercles). Posterior margin and free tergites with 1 row of setae. Anal operculum with 1 large central tubercle.

Venter. Coxa I with 2-4 anterior tubercles, 1 median row of 4-5, 4-5 posterior, 5 apical; II with 1 median row of 6 tubercles, 4 apical; III with 4-5 median, 3 posterior, 4 apical; IV tuberculate. Posterior margin and free sternites with 1 row of setae. Anal operculum smooth.

Chelicera. Segment I smooth; II with 4 tubercles on movable finger; III with 3 tubercles.

Pedipalpus (Fig. 54). Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 1 ventrobasal tubercles. Patella smooth. Tibia IiIi ectal, IiIi mesal. Tarsus II ectal, II (I) mesal.

Legs (Fig. 35). Coxa I with 1 tubercle upwards and 1 towards coxa II; II with 1 large tubercle anterior to ozopores and 1 fused with other of III; III with 1 fused with 1 of IV; IV with 1 small internal apical apophysis, 1 long and curved external apical apophysis (oblique to longitudinal axis of dorsal scute), with 1 basal tubercle. Trochanter I-II with 3 ventral tubercles; III with 4 retrolateral, 5 ventral; IV with 1 dorsal wide and large, 1 large retrolateral, 12-16 ventral. Femora I-IV straight; IV and patella-tibia IV with long and thin retrolateral (1/2 of femur diameter). Tarsal segmentation: 9, 17-18, 17-18, 20, with 5 teeth on claws IV.

Penis (Figs. 128-129). Stylus thin and long, without subapical setae. Ventral process of glans enlarged and with dorsal cleft. Ventral plate with wide cleft V-shaped; with 3 pairs of distal setae; 4-5 pairs of setae on basal lobe (basal small); 1 small behind distal setae and 1 behind intermediary region.

Color. Brownish. Dorsal scute with 1 white triangular spot from center of anterior margin to area III. Dorsal anal operculum with 1 white stripe on posterior half. Stigmatic area with 1 white rectangular spot near posterior margin.

Female redescription (MNRJ-5127):

Measurements. Dorsal scute: length 3.40; maximal width 3.44. Cephalothorax: length 1.28; width 1.68.

Eye mound smooth. Cephalothorax with 5 tubercles behind eye mound. Lateral margin with 10 tubercles. Area I with 8-9 tubercles; II with 14 tubercles; III with 2-tuberculate spines with enlarged base, 17 tubercles. Posterior margin with 11 tubercles. Coxa IV with small dorsoexternal apophysis, internal absent. Pedipalpus: tibia ectal Iii, mesal IiIi; tarsus ectal II, mesal II. Leg IV smooth with almost half of length of male leg IV. Tarsal segmentation: 7, ?, 12, ?. Color: white stripe from anterior margin to area III, wider on areas I-II; area III with 2 white wide spots on posterior region; ventral anal operculum with 2 white spots; stigmatic area without white spot.

Variation (male n= 3): Dorsal scute length 4.88-5.44 (male), width 5.12-5.28 (male); femur IV length 20-20.62 (male); tarsal articles of males 8-9, 16-17, 15-16, 18-21; pedipalpal tibia mesal IiIi, ectal IiiIi/IiIi; Area II with 6-12 tubercles, III with 18-22, lateral margin with 7-13. Anal operculum with a white zone on all extensions.

Taxonomical notes: it differs from other species of genus by having a white triangular area on dorsal scute. It resembles *M. longipes* and *M. leucopygus* by long male femur IV, to *M. longipes* and *M. pulcherrimus* by presence of 1 tubercle on anal operculum, and a *M. nigrigranulatus* by presence of 1 pair of large tubercles on male area III, instead of spines as in the other species of genus.

Type locality: Santa Tereza, Espírito Santo, Brazil.

Geographical distribution (Fig. 9): recorded only on type locality.

Material examined: Brazil. Espírito Santo: Santa Tereza, holotype ♂ (MNRJ-5125); idem, 2 ♂ (MNRJ-5130); holotype ♀ of *Zalonius albivittatus* (MNRJ-5127). Without locality, 1 ♂ (HSPC-263).

Metarthrodes bimaculatus Roewer

(Figs. 8, 33, 88, 126-127, 146)

Metarthrodes bimaculatus Roewer, 1913b: 320 (key), 322 (desc), fig. 128; 1923: 525 (key, diag), fig. 657; Mello-Leitão, 1923: 173 (cat), 195 (key); Roewer, 1931: 125 (key); Mello-Leitão, 1932: 375 (key), 376 (rdesc), fig. 239; Moritz, 1971: 193 (typ). (lectotype male, 2 males, 3 females and 1 immature paralectotypes, here designated "syntyp., Brasilien, loc. typ.?," ZMB-11749, examined).

Ampheres bimaculatus; Soares & Soares, 1948: 567 (cat.).

Metarthrodes rosai Mello-Leitão, 1942b: 10, fig. 8; Soares, 1944c: 144 (cit), 145 (dist); 1946: 494 (cat). (2 males syntypes "*Metarthrodes rosae* Mel-Leit [Mello-Leitão], Colatina E. [Espírito] Santo, Mario Rosa *leg.*", MNRJ-55088, examined). *Syn. n.*

Ampheres rosai; Soares & Soares, 1948: 569 (cat).

Male redescription (lectotype):

Measurements. Dorsal scute: length 5.31; maximal width 6.38. Cephalothorax: length 2.12; width 2.69.

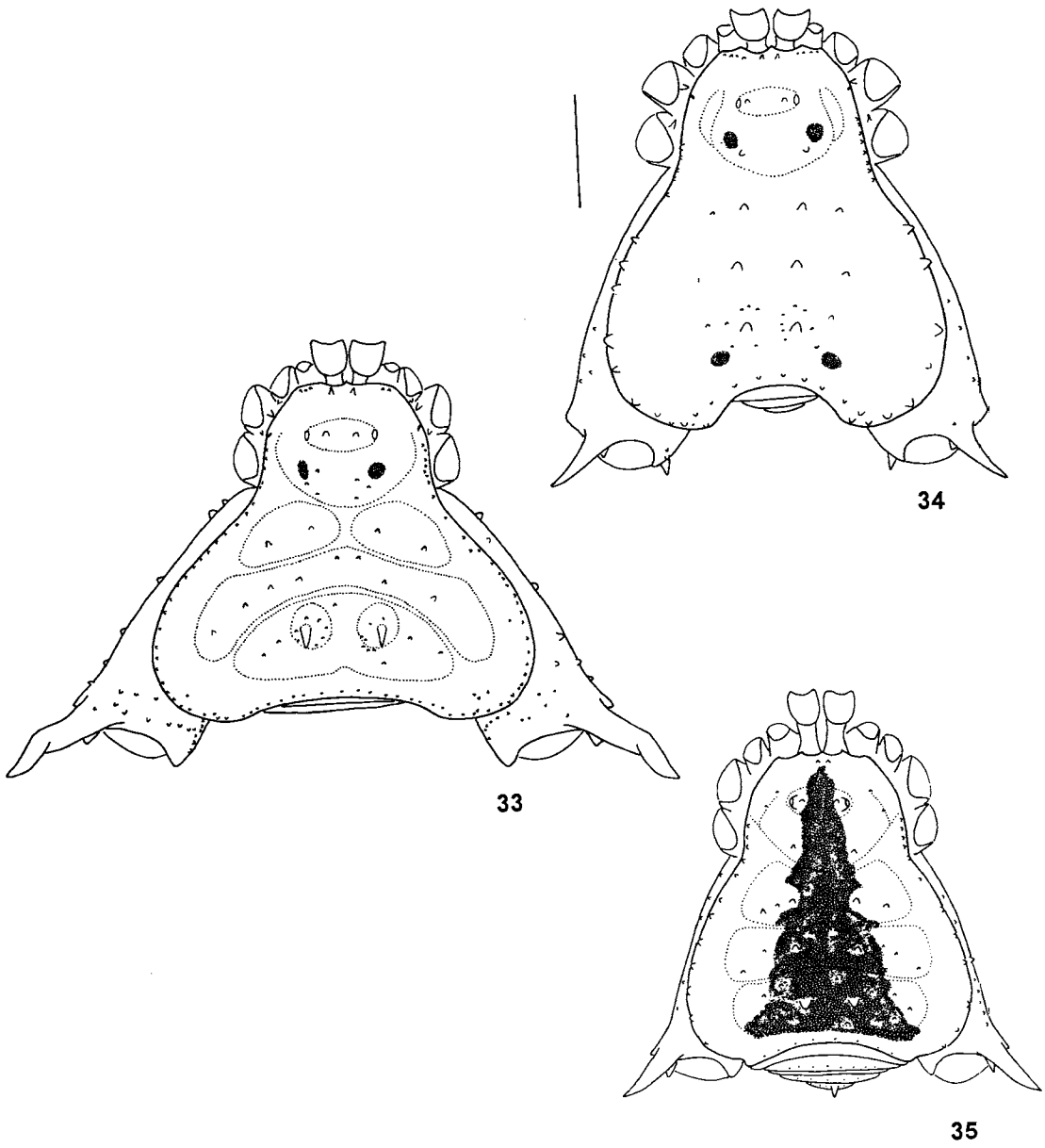
Dorsum (Fig. 33). Anterior margin with 2-3 tubercles each side, 2 median. Cephalothorax with 6 tubercles behind eye mound. Eye mound with 2 short tubercles. Lateral margin with 26-28 scattered tubercles. Area I with 2 tubercles; II with 8; III with 10; III with 2 blunt spines with base tuberculate. Posterior margin and free tergites minute-tuberculate. Anal operculum with 10 central minute tubercles.

Venter. Coxa I with 3 anterior tubercles, median row of 4 wide, 2 posterior, 5 apical; II with 3 anterior, 6 median, 2 posterior, 4 apical; III with 2 anterior, 6 median, 4 posterior, 6 apical; IV irregularly tuberculate. Posterior margin and free sternites with 1 row of minute tubercles. Anal operculum minute-tuberculate.

Chelicera. Segment I with 1 retrolateral apical tubercle; II with 2 tubercles; III with 3.

Pedipalpus. Coxa with 1 dorsal tubercle. Trochanter with 1 ventral tubercle. Femur with 1 ventrobasal tubercle. Patella smooth. Tibia ectal IiIi(IiIii), mesalIiIi(IiiIi).

Legs (Figs. 33, 88). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 large anterior, 1 posterior fused with 1 of III; IV with some sparse tubercles, 1 long external apical apophysis, curved apically, with 1 tubercle at base, 1 small internal apical apophysis. Trochanter I with 1 retrolateral tubercle, 2 prolateral, 3 ventral; II with 3 ventral, 2 retrolateral; III with 3 ventral, 8 retrolateral, 3



Figs. 33-35. Dorsal view of male: 33, *Metarthrodes bimaculatus* (lectotype); 34, *M. nigrigranulatus* (HSPC); 35, *M. albotaeniatus* (HSPC-263). Gray patches mean white color. Scale bar = 2 mm.

prolateral; IV with several tubercles in groups of 2-6, 1 wide apical tubercle. Femora I-III straight; IV curved, with 1 wide ventrobasal tubercle, 1 ventral row in all extensions, 1 ventroapical row (tubercles larger apicad), 1 retrolateral row, several wide dorsobasal tubercles, 2 dorsoapical tubercles fused basally. Patella IV with 5 ventral tubercles, 7 retrolateral, 5 dorsal. Tibia IV with 2 ventral rows of tubercles. Tarsal segmentation: 8, 14, 16-17, 16. Claws with 5 teeth ectal.

Penis (Figs. 126-127, 146). Stylus thin and long, without subapical setae. Ventral process of glans enlarged and with dorsal cleft. Ventral plate (Figs. 126, 146) with wide cleft V-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal small);1 small behind distal setae and other on intermediary region.

Color. Brownish with 2 white spots behind eye mound. Ventral and dorsal anal opercula with 2 white spots each side.

Female redescription (paralectotype):

Measurements. Dorsal scute: length 4.75; maximal width 5.19. Cephalothorax: length 1.88; width 2.75.

Area III with 12 tubercles. Lateral margin with 15-16 tubercles. Chelicera: segment II with 3 tubercles; III with 4 tubercles. Femur IV straight, with tubercles larger on basal region. Patella and tibia IV smooths. Tarsal segmentation: 8, 14, 15, 16-17.

Variation (male n= 5, female, n= 5): Dorsal scute length 5.28-5.68 (male), 4.64-5.04 (female), width 6-6.88 (male), 4.96-5.52 (female); femur IV length 11.75-14.37 (male), 11-12.75 (female); tarsal articles of males 8-9, 14-16, 14-17, 16-19, females 7-9, 14-16, 13-16, 15-18; pedipalpal tibia mesal IiIi/IiIii, ectal IiIi/IiIii. Area I with 6-8 (male), 5-6 (female), II with 10-14 (male), 8-14 (female).

Taxonomical notes: it resembles *M. nigrigranulatus*, *M. longipes* and *M. laetabundus* by the presence of 1 pair of white spots behind cephalothorax; differs from them by absence of spots on dorsal scute, absence of apical internal apophysis on male coxa IV and external apical apophysis large (thinner and curved downwards on remaining species of genus).

Type locality: "Brazil".

Geographical distribution (Fig. 8): Espírito Santo. The record to Bahia of ROEWER (1913b) is wrong (see item 3.5.).

Material examined: Brazil. no further data, lectotype male, 2 males, 3 females & 1 immature paralectotypes (ZMB-11749). Espírito Santo: Colatina (rio São José), M. Rosa *leg.*, 2 ♂ syntypes of *A. rosai* (MNRJ-55088); B. A. M. Soares *leg.*, 21.IX.1942, 1 ♂ (MZSP-262); idem, 2 ♀ (MZSP-239); idem, 1 ♂ & 1 ♀ (MZSP-276); idem, 2 ♀ (MZSP-258); idem, 1 ♂ (MZSP-285); idem, 26.IX.1942, 3 ♂ & 2 ♀ (MZSP-236); idem, 1 ♀ (MZSP-240); idem, 27.IX.1942 (MZSP-282).

Metarthrodes hamatus Roewer

(Figs. 8, 39, 93, 156-157)

Metarthrodes hamatus Roewer, 1931: 125 (key), 133 (desc), fig. 13; Mello-Leitão, 1932: 375 (key), 384 (rdesc). (male lectotype and paralectotype female, here designated "♂ cotypus, Therezopolis, Brasilien [Rio de Janeiro, Brasil], n°1396", "idem, ♀ cotypus, n°1397" SMFD, examined).

Ampheres hamatus; Soares & Soares, 1948: 568 (cat).

Male redescription (SMFD-1396):

Measurements. Dorsal scute: length 5.81; maximal width 6.44. Cephalothorax: length 2.25; width 2.81.

Dorsum (Figs. 39). Anterior margin with 2 median tubercles, 3-4 each side. Cephalothorax with many scattered tubercles. Eye mound with 5 tubercles (median larger). Lateral margin with 24-26 tubercles from groove I to posterior margin. Area I divided with 16 tubercles each side (1 larger near longitudinal groove); II with 30-34 tubercles; III with 24 tubercles (1 pair larger). Posterior margin and free tergites with 1 row of small tubercles. Anal operculum with 1 large central tubercle.

Venter. Coxa I with 2 anterior tubercles, 1 median row of 4, 3 posterior, 3 apical; II with 3 anterior tubercles, 1 median row of 6 tubercles, 4 apical, 6 posterior; III with 5 median, 5 posterior, 4 apical; IV tuberculate. Posterior margin and free stemites with 1 row of setae. Anal operculum smooth.

Chelicera. Segment I smooth; II with 4 tubercles on movable finger; III with 3.

Pedipalpus. Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 4 ventral tubercles. Patella smooth. Tibia IiIi (Iii) ectal, IiIi mesal.

Legs (Figs. 39, 93). Coxa I with 1 anterior

tubercle upward; II with 1 large tubercle anterior to ozopores and 1 fused with 1 of III; III with 1 fused with 1 of IV; IV with 1 small internal apical apophysis, 1 long external apical apophysis, bifid and curved downwards. Trochanters I-II with 6 ventral tubercles; III with 2 retrolateral tubercles, 5 ventral; IV with 1 large dorsal tubercle, 1 large retrolateral, 10 ventral. Femur IV with 1 dorsal row of tubercles, 2 ventral, 1 retrolateral, all tubercles with different size. Patella IV with retrolateral (longer) and ventral tubercles. Tibia IV with 1 row of retrolateral tubercles, 1 prolateral and 2 ventral. Tarsal segmentation: 8-9, 16-18, 14-15, 14-15, with 7 teeth on claw IV.

Penis (Figs. 156-157). Truncus without subapical projection. Stylus thin and short, without subapical setae. Ventral process of glans with dorsal cleft. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal seta long); 1 small behind distal setae and 2 on intermediary region.

Color. Brownish. Tubercles and margin of dorsal scute and leg IV brownish dark. Dorsal anal operculum with 2 wide white spots, ventral with 2 white spots smaller.

Female redescription (paralectotype):

Measurements. Dorsal scute: length 5.18; maximal width 5.75. Cephalothorax: length 2.39; width 2.56.

Coxa IV with 1 small external apical apophysis; small and wider than male internal apical apophysis. Trochanter IV with tubercles larger than male. Femur IV with tubercles smaller than male however, the dorsobasal are larger. Patella IV small-tuberculate.

Variation (male n= 2, female, n= 2): Dorsal scute length 5.3-5.44 (male), 4.45-4.96 (female), width 5.4-6.32 (male), 5.04-5.76 (female); femur IV length 14.87-15.00 (male), 10.5-10.62 (female); tarsal articles of males 8, 15, 13-14, 15-16, females 7-8, 13-16, 13-14, 15.

Taxonomical notes. It resembles *M. xango* by armature and curvature of femur IV and absence of spots on dorsal scute. Differs from it by small internal apical apophysis of coxa IV and high number of small tubercles on dorsal scute.

Note: ROEWER (1931) cited a male from Terezópolis and a female from Caraça (both at MNHN) and a couple from Serra Azul, Santa Catarina deposited on SMFD. The material of MNHN is lost (A. Muñoz-Cuevas com. pers.) and those from SMFD were collected in Terezópolis and not Serra Azul, as erroneously labeled and mentioned in Roewer's publication.

Type locality: Terezópolis, Rio de Janeiro, Brazil.

Geographical distribution: recorded from Serra dos Órgãos (Terezópolis) and Serra da Espinhaço (Caraça, Minas Gerais).

Material examined: Minas Gerais: Santa Bárbara (Serra do Caraça), U. R. Martins & R. Klaus *leg.*, 11-23.XI.1961, 1 ♂ (MZSP); 24.II-3.III.1972,U. Martins, Demetz & S. Vanin *leg.*, 1 (MZSP). Rio de Janeiro: Terezopolis, lectotype ♂ (SMFD-1397); idem, paralectotype ♀ (SMFD-1396).

Metarthrodes laetabundus (Sørensen), comb. n.
(Figs. 8, 38, 87, 124-125, 142, 187-188)

Caelopygus lætabundus Sørensen, 1884: 619. (male lectotype and paralectotype female, here designated "Brasil, ♀, ♂, syntype", pinned, ZMUC, diapositives examined).

Caelopygus laetabundus; Soares & Soares, 1948: 573 (cat); 1985: 173 (cit).

Coelopygus laetabundus; Roewer, 1913b: 308 (key), 316 (rdesc); 1923: 519 (key), 523 (rdesc); Mello-Leitão, 1923: 169 (cit), 195 (key); Mello-Leitão, 1932: 366 (key).

Coelopygus loetabundus; Mello-Leitão, 1932: 367 (rdesc).

Metarthrodes circumscriptus Roewer, 1931: 125 (key), 130, fig. 11, 11a, 11b; Mello-Leitão, 1932: 375 (key), 379 (rdesc); Roewer, 1938: 6 (dist). (male lectotype and paralectotype female, here designated "Therezopolis [Rio de Janeiro, Brasil]", MNHN-8593, examined; paralectotypes 4 males and 3 females, here designated "Therezopolis [Rio de Janeiro, Brasil], CR", SMFD-1393/4, not examined). *Syn. n.*

Ampheres circumscriptus; Soares & Soares, 1948: 567 (cat).

Male redescription (MZSP-14196):

Measurements. Dorsal scute: length 7.08; maximal width 7.92. Cephalothorax: length 2.92; width 3.67.

Dorsum (Figs. 38, 187). Anterior margin with 3-4 tubercles each side, 2 central tubercles. Eye mound with 3 anterior tubercles, 2 median, 2 posterior. Cephalothorax with 16 tubercles behind eye mound. Lateral margin with 1 row of tubercles from ozopores to posterior margin, with scattered tubercles between grooves I and II. Area I with 3 tubercles each side; II with 10 tubercles; III with 2 straight and slightly backwards spines, base of spines with 5-6 tubercles, with 9 tubercles. Posterior margin strongly concave, with 17 tubercles. Free tergite I with 20 tubercles; II with 15; III with 11. Anal operculum smooth.

Venter. Coxa I with 8 anterior tubercles, 1 median row of 7, 3 posterior, 3 apical; II with 2-4 anterior tubercles, 9-11 median, 14 posterior, 5 apical; III with 6 apical, irregularly tuberculate; IV irregularly tuberculate. Posterior margin concave and free sternites with 1 row of tubercles. Anal operculum smooth.

Chelicera. Segment I with 2 dorsal tubercles; II (movable finger) with 6; III with 4.

Pedipalpus. Coxa with 2 dorsal tubercles, 1 ventral. Trochanter with 1 ventral tubercle, 1 dorsal. Femur with 7 ventral tubercles on anterior half. Tibia IiIi mesal, IiIi ectal.

Legs (Fig. 38, 87, 187). Coxa I with 2 dorsal tubercles; III with 2 tubercles (posterior bifid and fused with 1 of coxa IV); IV with 1 anterior tubercle fused with 1 of III, with external apical apophysis long and slightly curved, internal apical apophysis straight and larger than external. Trochanter I with 6 ventral tubercles; II with 8 ventral, 1 prolateral, 3 retrolateral; III with 7 ventral, 3 prolateral, 3 retrolateral; IV tuberculate dorsal and ventrally, with 1 large retrolateral tubercle. Femora and patellae II-III with large ventral tubercles. Femur IV with 2 ventral and 1 dorsal rows of tubercles, 1 large and curved retrolateral tubercle, 1 curved retrolateral apical. Patella IV with dorsal and ventral tubercles, 1 ventral tubercle large. Tibia IV with 1 retrolateral row and 2 ventral rows of tubercles. Tarsal segmentation: 9, 16, 18-19, 21. Claws with 5 mesal teeth.

Penis (Figs. 124-125, 142). Truncus with subapical projection. Stylus (Fig. 142) thin and long, without subapical setae. Ventral process of glans depressed and enlarged. Ventral plate (Fig. 124) with wide and short cleft V-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal longer); 1 small behind distal setae and other on intermediary region.

Color (Fig. 187). Yellowish, cephalothorax darker. Anterior, lateral and posterior margins brownish with black tubercles. Spines of area III and apical apophyses of coxa IV black. Legs I-III with black spots; IV brownish with black tubercles. Cephalothorax with or without (rarely) 2 posterior spots. Posterior margin with narrow white stripe. White spots between the tubercles of free tergites. Dorsal and ventral anal opercula with 2 white spots.

Female redescription:

Measurements. Dorsal scute: length 6.33; maximal width 6.50. Cephalothorax: length 2.50; width 3.50.

Area I with 3-5 tubercles, II with 16-17; III with 9-11 tubercles. Posterior margin with 23-24 tubercles. Apophyses apical of coxa IV short. Tubercles of legs short. Tarsal segmentation: 8, 14-15, 16, 17-18. Groove IV with 1 white stripe.

Taxonomical notes: it resembles *M. xango* by the presence of 1 internal apical apophysis on male coxa IV strongly developed and by shape of penis. It differs by color of dorsal scute (yellowish), tubercles of areas I-III without black spots and presence of large tubercles on male femur IV.

Variation (male n= 5, female, n= 5): Dorsal scute length 5.92-7.72 (male), 5.76-6.08 (female), width 6.24-7.68 (male), 6.24-6.88 (female); femur IV length 14.5-18.62 (male), 11.25-13.87 (female); tarsal articles of males 8-9, 15-17, 14-19, 18-22, females 7-8, 14-17, 15-19; colour, cephalothorax without or with two small or large white patches, posterior margin with or without small white patches; tubercles on area I 4-6 (male), 2-6 (female), II 8-9 (male), 8-16 (female), III 4-6 (male), 2-14 (female); pedipalpal tibia ectal IiIi mesal IiiIi/IiIi. In all specimens studied from Serra dos Órgãos (males and females) showed circular white spots of large size (Fig. 187) behind eye mound. However, in the 6 specimens from Serra da Bocaina the spots are absent (Fig. 38) but, in one of them there are several white stripes on groove I and on anterior margin of dorsal scute.

Type locality: Terezópolis, Rio de Janeiro, Brazil.

Geographical distribution (Fig. 8): States of Rio de Janeiro and São Paulo.

Material examined: Brazil. Rio de Janeiro: Nova Friburgo, R. & A. Baptista *leg.*, 16.XI.1991, 2 ♂ & 2 ♀ (MNRJ-6747); (Rio Bengalas), R. S. Bérnils *leg.*, 21-23.VIII.1996, 2 ♀ & 1 immature (MZSP-15251); Terezópolis (Parque Nacional da Serra dos Órgãos), R. Pinto-da-Rocha *leg.*, 21.X.1995, 1 ♂ (MZSP-14844); idem, J. Becker *leg.*, 5.XII.1963, 1 ♀ (MZSP-14848); idem, E. Izecksohn & A. Peracchi *leg.*, IV.1962, 1 ♂ (HSPC-763); (Colônia Alpina), Göldi *leg.*, 2 ♀ (UZMD-90032c); (Vale da Revolta), S. Potsch *leg.*, 17.II.1990, 1 ♀ (MNRJ-6630); (Albuquerque), R. & A. Baptista *leg.*, 6.X.1990, 1 ♀ (MNRJ-6793); Petrópolis, R. Arlé *leg.*, IV.1935, 1 ♀ (MNRJ-42230); São Paulo: São José do Barreiro (Serra da Bocaina), 1500 m, M. Alvarenga & W. Bokermann *leg.*, 3 ♂ (MZSP-14196); idem, 3 ♀ (MZSP-14839).

Metarthrodes leucopygus Roewer
(Figs. 9, 36, 55, 89, 130-131)

Metarthrodes leucopygus Roewer, 1913b: 320, fig. 127; 1923: 525 (key, diag), fig. 656; Mello-Leitão, 1923: 173 (desig), 174 (cat, dist), 196 (key); Roewer, 1931: 125 (key, cit); Mello-Leitão, 1932: 375 (key), 382 (rdesc), fig. 245; (male holotype " Bahia, Brasilien, type, 1 ♂", SMFD-818, examined).

Ampheres leucopygus; Soares & Soares, 1948: 568 (cat).

Varzellinia leucopyga Mello-Leitão, 1942a: 163, fig. 5; Soares, 1944c: 144 (cit); Soares & Soares, 1948: 581 (cat); (male holotype "Santa Tereza, E. [Espírito] Santo, [Brasil], Ruschi *leg.*"MNRJ, examined). *Syn. n.*

Male redescription (holotype):

Measurements. Dorsal scute: length 3.24; maximal width 4.02. Cephalothorax: length 1.44; width 9.60.

Dorsum (Fig. 36). Anterior margin with 2 small median tubercles. Eye mound with 2 median tubercles, 2 posterior. Cephalothorax with 15 tubercles behind eye mound. Lateral margin with tubercles from ozopores to posterior margin. Area I with 9-11 tubercles each side (1 pair larger); II with 13 tubercles; III strongly tuberculate, with 1 pair with blunt spines, parallel and upwards. Posterior margin with 25 tubercles. Free tergite I with 19 tubercles; II with 16; III with 12. Anal operculum minute-tuberculate.

Venter. Coxa I with 4 anterior tubercles, 1 median row of 6, 4 posterior, 4 apical; II with 3 anterior tubercles, 1 median row of 5, 4 posterior, 4 apical; III with 16 tubercles, 5 apical; IV and stigmatic area tuberculate. Posterior margin with 2 rows of tubercles. Free sternites with 1 row of tubercles. Anal operculum minute-tuberculate.

Chelicera. Segment I with 6-8 dorsal tubercles; II with 4 tubercles; III with 3.

Pedipalpus. Coxa with 2 ventral tubercles. Trochanter with 1 ventral tubercle. Femur straight with 1 ventrobasal tubercle. Patella smooth. Tibia IiIi ectal, IiIi mesal.

Legs (Figs. 36, 89). Coxa I with 1 anterior tubercle and 1 posterior; II with 1 large anterior tubercle, 1 posterior fused with other of coxa III. Trochanter I with 1 retrolateral tubercle, 3 ventral; II with 5 ventral; III with 1 retrolateral tubercle, 3 ventral; IV with 2 prolateral tubercles (1 large), 4 retrolateral, 10 ventral. Femora I-IV straight; IV large, with 1 retrolateral row of tubercles to near apex, 2 ventral rows in almost all length, 3 retrolateral apical tubercles. Patella IV with 9 retrolateral tubercles. Tibia IV with 1 retrolateral row in almost all its lenght. Tarsal segmentation: 9, 12-13, 14-16, 15. Claw IV with 4 teeth.

Penis (Figs. 130-131). Ventral plate: parallel margins lateral, projected laterally in basal portion, slightly concave distally; 3 pairs of long distal setae, 4 ventral pairs; 3 short intermediary pairs. Ventral process conic-like, enlarged at base; stylus with small subapical setae.

Color (according to ROEWER, 1913). Dorsal scute yellowish pale rusted. Tubercles of dorsal scute dark. Legs yellowish pale. Apophysis of coxa IV black. Femur IV darker and bright. Dorsal anal operculum with 1 white spot in almost all extension, ventral with 1 white spot in each lateral.

Female unknown.

Variation (male n= 3): Dorsal scute length 4.8-5.04 (male), width 5.44-5.84 (male); femur IV length 14.5-15.5 (male); tarsal articles of males 7-9, 16-17, 15-16, 14-19; pedipalpal tibia mesal IiiIi.

Taxonomical notes: it resembles *M. longipes* and *M. albotaeniatus* by male femur IV extremely long. Differs from these species by absence of white spots and large number small tubercles on dorsal scute.

Type locality: erroneously referred to Bahia, Brazil (see item 3.5).

Geographical distribution (Fig. 9): Espírito Santo.

Material examined: Brazil. Bahia: (wrong record), holotype ♂ (SMFD, CR-818). Espírito Santo: Santa Tereza, A. Ruschi *leg.*, 1 ♂ (MNRJ); idem, holotype of *V. leucopyga*, ♂ (MNRJ-5128); idem, 1 ♂ (MNRJ);

Metarthrodes longipes (Soares), comb. n.
(Figs. 9, 42-43, 57, 136-137, 189)

Exochobunus longipes Soares, 1944a: 85, fig. 1,2; Soares & Soares, 1948: 574 (cat). (male holotype and 2 paratypes females "E.564, C.733, tipos [Ubatuba, Fazenda Experimental de Ubatuba, São Paulo, Brasil)", MZSP-733, examined).

Male redescription (MZSP-14189):

Measurements. Dorsal scute: length 5.56; maximal width 6.06. Cephalothorax: length 2.18; width 2.75.

Dorsum (Figs. 42, 189). Anterior margin smooth. Cephalothorax with 2 lateral tubercles, 2 tubercles behind eye mound. Eye mound with 2 tubercles. Lateral margin higher at area III, with 1 row of small tubercles from ozopores to groove II, with 6-7 wider tubercles between groove II and posterior margin. Area I with 1 tubercle each side; II with 4 tubercles; III with 12 tubercles, 2 parallel spines, upwards. Posterior margin and free tergites with 1 row of setae. Anal operculum with 1 wide median tubercle.

Venter. Coxa I with 1 median row of 5 tubercles, 4 apical; II with 6 median tubercles, 6 apical; III with 3 tubercles posterior, 4 apical; IV irregularly tuberculate. Posterior margin and free sternites and anal operculum with some scattered setae.

Chelicera. Segment I smooth, II with 4 tubercles; III with 3 tubercles.

Pedipalpus (Fig. 57). Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 7 ventral tubercles. Tibia IiIi mesal, IiIi ectal.

Legs (Figs. 42, 189). Coxa I with 2 tubercles; II with 1 anterior bifid and 1 posterior fused with other of coxa III; III with 1 towards coxa IV; IV with long external apical apophysis, curved and with basal tubercle; internal apophysis small. Trochanter I with 3 ventral tubercles; II-III with 3 ventral, 1 retrolateral. Femora I-IV straight; IV enlarged, with 1 retrolateral tubercle on basal 1/3, 2 retrolateral apical. Patella IV tuberculate. Tibia IV with retrolateral tubercles. Tarsal segmentation: 10, 19, 18-20, 20. Claws with 5 mesal teeth.

Penis (Figs. 136-137). Stylus thin and long, capitate, with subapical setae. Ventral process of glans enlarged with dorsal cleft. Ventral plate with short cleft U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller);1 small behind distal setae and other on intermediary region.

Color (Fig. 189). Yellowish (alcohol). Greenish in living specimens. With 1 pair of white spots on cephalothorax and area I. Area III with 2 pairs of white spots. Dorsal and ventral anal opercula with 2 white spots. Black tubercles on dorsal scute and on venter. Estigmae black. Apophyses of coxa IV dark-brown. Leg IV brownish with black spots.

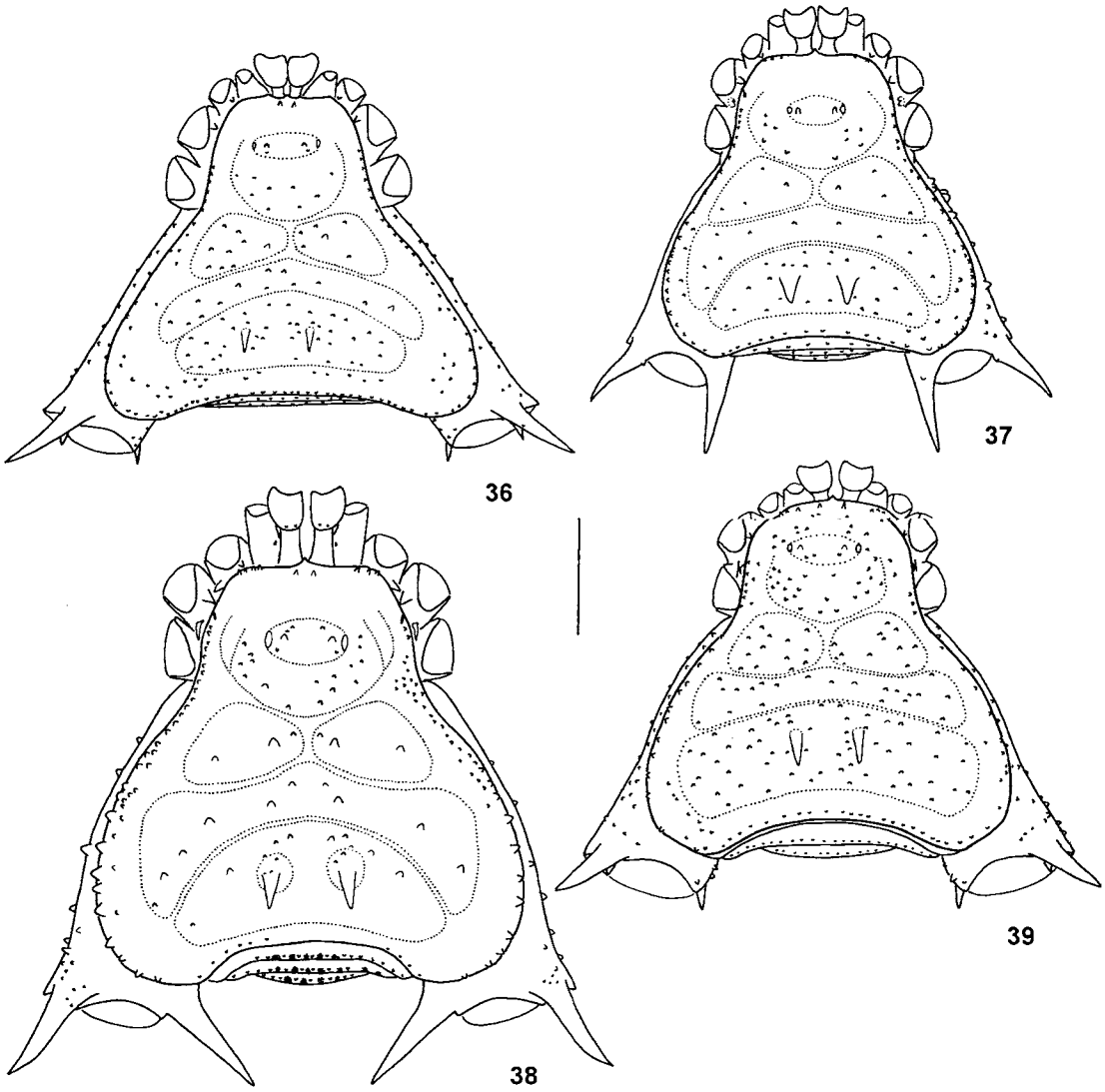
Female redescription (MZSP-14185):

Measurements. Dorsal scute: length 4.80; maximal width 5.10. Cephalothorax: length 1.85; width 2.45.

Lateral margin with 5 tubercles on posterior region (Fig. 43). Dorsal anal operculum with 1 short tubercle. Apical apophyses of coxa IV short and without basal tubercle. Legs I-IV with short tubercles. Femur IV shorter than male. Tarsal segmentation: 9, 17-18, 16, 18-20. Area III with 1 pair of white spots.

Variation (male n= 5, female, n= 5): Dorsal scute length 4.88-6 (male), 4.48-5.36 (female), width 5.2-6.24 (male), 5.04-5.76 (female); femur IV length 15.5-28 (male), 13.6-18.5 (female); tarsal articles of males 8-10, 15-20, 16-18, 18-20, females 8-10, 15-21, 15-19, 17-20; cephalothorax with 2-4 white patches; pedipalpal tibia mesal/ectal IIi/IiIi. Area II with 2-4 tubercles; III with 16-29; lateral margin with 4-13 each side, posterior margin with 8-13.

Taxonomical notes: it resembles *M. pulcherrimus* by presence of wide tubercles on dorsal scute and coxa IV, pair of white spots on posterior part of area III and green color (living specimens) and differs by absence of white spots behind eye mound and male femur IV larger than in *M. pulcherrimus*.



Figs. 36-39. Dorsal view of male: 36, *M. leucopygus* (holotype); 37, *M. xango*; 38, *M. laetabundus* (MZSP-14196); 39, *M. hamatus* (lectotype). Scale bar = 2 mm.

Type locality: Fazenda Experimental de Ubatuba, Ubatuba, São Paulo, Brazil.

Geographical distribution (Fig. 9): São Paulo.

Material examined: Brazil. São Paulo: Ubatuba (Fazenda Experimental de Ubatuba). A. Zoppei *leg.*, 17.XI.1943, 2 ♀ (MZSP-750); idem, holotype ♂ & 2 paratypes ♀(MZSP-733); idem, 16.XI.1943, 1 ♂ (MZSP-762); idem, 14.XI.1943, 5 ♀ (MZSP-739); idem, 1 ♂ & 2 ♀ (MZSP-738); idem, 15.XI.1943, 1 ♂ (MZSP-756); idem, 19.XI.1943, 1 ♀ (MZSP-736); (Faz. Capricórnio, 23°23'S - 45°04'W), F. A. G. Mello, 1995, ♂ & 3 ♀ (MNRJ); (Picinguaba), P. Gnaspini *leg.*, 25-29.IV.1991, 1 ♂ & 1 ♀ (MZSP-14189); M. R. J. Gomes, O. L. Peixoto, A. M. P. Telles & S. P. C. Silva *leg.*, 7-9.VII-1993, 1 ♀ (MNRJ-6814); (Cuzcuzeiro), G. Machado *leg.*, 22.XII.1995, 1 ♀ (ZUEC); Caraguatatuba, Exp. Dep. de Zoologia *leg.*, 10-16.VII.1965, 1 ♀ (MZSP-14185); idem, 4 ♂, 15 ♀ & 3 immatures (MZSP-14197); idem, K. Lenko & H. Reichardt *leg.*, V.1962, 1 ♀ (MZSP-14210); Salesópolis (Casa Grande), Exp. Dep de Zoologia *leg.*, 10-16.VII.1963, 1 ♂ (MZSP-14122).

Metarthrodes nigrigranulatus Roewer
(Figs. 9, 34, 92, 132-133)

Metarthrodes nigrigranulatus Roewer, 1913b: 320 (key), 327 (desc), fig. 130; 1923: 525 (key), 527 (diag), fig. 660; Mello-Leitão, 1923: 174 (cit), 196 (key); Roewer, 1931, 125 (key); Mello-Leitão, 1932: 375 (key), 382 (rdesc), fig. 244. (male holotype "type 1 ♂ & 1 pull[us], S. Paulo, Brasilien", SMFD-817, examined).

Ampheres nigrigranulatus; Soares & Soares, 1948: 569 (cat); H. Soares, 1974: 353 (desc ♀).

Heterampheres variabilis Mello-Leitão, 1935c: 408, fig. 29-30; Soares, 1944c: 254 (cit); 1945c: 231 (cat); 1945b, 348 (cat); (syntypes, 2 ♂ & 1 ♀ "Morro do Caxambu, Petrópolis, [Rio de Janeiro, Brasil], Arlé leg.", MNRJ, examined; ♀ síntipo "Petropolis, [Rio de Janeiro, Brasil]" IBSP-51, examined). *Syn. n.*

Ampheres variabilis; Soares & Soares, 1948: 570 (cat).

Male redescription (HSPC, São José do Barreiro):

Measurements. Dorsal scute: length 5.70; maximal width 5.90. Cephalothorax: length 2.15; width 2.95.

Dorsum (Fig. 34). Anterior margin with 4 tubercles each side, 2 median large. Cephalothorax with 1 pair of tubercles behind eye mound. Eye mound with 1 pair of acute tubercles. Lateral margin with 1 row of 16-18 tubercles. Areas I-II with 2 pairs of tubercles (median larger); III with 5 pairs of tubercles (median larger and wider). Posterior margin with 8 tubercles. Free tergites with 1 row of minute setous tubercles. Anal operculum with setous tubercles.

Venter. Coxa I with 2-3 anterior tubercles, 0-2 posterior, 5 apical; II with 7-8 median tubercles, 5 apical; III with 6-8 median tubercles, 7 apical; IV with 6-9 tubercles. Posterior margin and free sternites with 1 row of minute setous tubercles. Anal operculum with setous minute tubercles.

Chelicera. Segment I smooth; II with 4 small tubercles; III with 5 small tubercles.

Pedipalpus. Coxa smooth. Trochanter with 2 ventral tubercles. Femur straight, with 5 small ventral tubercles. Patella smooth. Tibia ectal IiIi (IiiIi), mesal IiII.

Legs (Figs. 34, 92). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 anterior tubercle large, 1 posterior fused with other of III; III smooth; IV narrow with 4-5 posterior tubercles, external apical apophysis oblique and curved downwards. Trochanter I with 4 ventral tubercles; II with 4 ventral tubercles, 1 prolateral; III with 5 ventral tubercles, 3 retrolateral; IV with 2 retrolateral, apical larger, 6-8 ventral. Femora I-IV straight; IV with 1 row of ventral tubercles (larger on distal half), 1 row dorsal at distal 2/3, 1 curved and large retrolateral tubercle on basal 1/3. Patella IV with retrolateral tubercles of different sizes. Tibia IV with 1 retrolateral row of tubercles of different sizes. Tarsal segmentation: 8, 18, 15, 16. Claws IV with 5 ectal teeth.

Penis (Figs. 132-133). Stylus thin and long, with a few subapical setae. Ventral process of glans with enlarged dorsal cleft. Ventral plate with wide cleft V-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller); 2 short setae behind distal setae.

Color. Yellowish. Cephalothorax darker, with 2 white spots behind eye mound. Tubercles of dorsal scute black. Tubercles of area III surrounded by brownish spots.

Female redescription (HSPC-418):

Measurements. Dorsal scute: length 5.25; maximal width 5.30. Cephalothorax: length 2.15; width 2.60.

Cephalothorax with 2 pairs of tubercles behind eye mound. Lateral margin with 9-10 tubercles. Area I with 1 anterior white spot each side; III with 10-11 tubercles and 2 spines. Posterior margin with 10 tubercles. Apical apophysis of coxa IV smaller than male. Retrolateral tubercle of trochanter IV shorter than male. Femur-tibia IV smooth.

Variation (male n= 5, female, n= 5): Dorsal scute length 5.2-6 (male), 5.2-5.37 (female), width 4.96-6.08 (male), 5.04-5.76 (female); femur IV length 16.87-20 (male), 11.12-14 (female); tarsal articles of males 8, 9, 13-17, 15-18, 17-19, females 7-9, 13-16, 14-16, 15-17; colour with white patches on cephalothorax, area I and with or without on areas II-III; pedipalpal tibia ectal IiIi/IIi, mesal IiIi/IIi; femur IV with 1-3 enlarged tubercles.

Taxonomical notes: it resembles *M. albotaeniatus* by presence of 1 pair of wide tubercles on area III. Differs from other species of genus by absence of grooves II-IV.

Type locality: State of São Paulo, Brazil.

Geographical distribution (Fig. 9): Rio de Janeiro, São Paulo and maybe Paraná.

Material examined: Brazil. Rio de Janeiro: Petrópolis, L. Moojen *leg.*, II.1975, 1 ♂ (MNRJ); (Morro do Caxambu), R. Arlé *leg.*, 2 ♂ & 1 ♀ syntypes of *Heterampheres variabilis* (MNRJ-42462); idem, 1 ♀ cótipo of *M. variabilis* (IBSP-51); São Paulo: Queluz (km 21 of BR-58), J. Jim, A. Peracchi & E. Izecksohn *leg.*, 6.V.1966 (HSPC); São José do Barreiro (Serra da Bocaina), O. A. Roppa *leg.*, 30.X.1967, 1 ♂ & 1 ♀ (HSPC-418); idem, 1 ♂ & 3 ♀ (HSPC); idem, 2 ♂ (MNRJ); idem 2 ♂ & 1 ♀ (MNRJ-5137); Campos do Jordão (Eng. Lefrève), without collector, III.1963 (MZSP-14845); Exp. Dep. Zool *leg.*, 24.I.1963, 1 ♂ & 1 ♀ (MZSP-14213); L. T. Filho *leg.*, 22-25.1967, 1 ♂ (MZSP-14191); Paraná (doubtful record): Lefréve *leg.*, IX.1953, 2 ♀ (HSPC-244).

Metarthrodes pulcherrimus
(Mello-Leitão), comb.n.
(Figs. 8, 40-41, 45, 56, 64-65, 91, 134-135, 190)

Exochobunus pulcherrimus Mello-Leitão, 1931: 139, fig. 10; 1935b: 108 (cit); Soares, 1942: 1 (cit); 1944b: 279 (cit), 288 (desc c), fig. 1; 1945b: 348 (cat); 1946, 493 (cat); Soares & Soares, 1948: 575 (cat); (female holotype "Alto da Serra [Paranapiacaba, São Paulo, Brasil], R. Spitz, typo ", MNRJ-11396, examined).

Male redescription (MZSP-14188):

Measurements. Dorsal scute: length 5.88; maximal width 6.06. Cephalothorax: length 2.25; width 3.00.

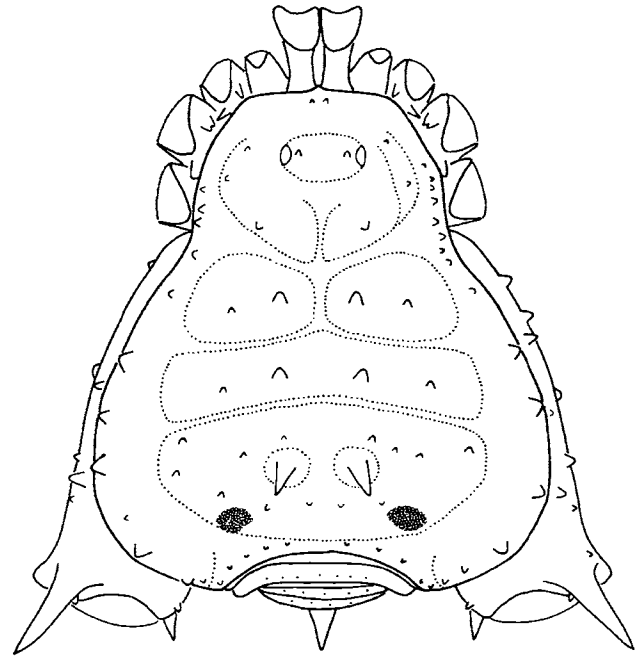
Dorsum (Figs. 40, 45, 190). Anterior margin with 2 median tubercles. Cephalothorax with 2 tubercles lateral to eye mound, 2 tubercles wide and a median depression behind it. Lateral margin higher near area III, with 7-10 small tubercles from ozopores to groove II, with 5 wide tubercles between groove II and posterior margin. Area I with 2 tubercles each side (median larger); II with median depression, with 2 pairs of tubercles; III with 2 spines slightly divergent and backwards, with 4 tubercles each side, 1 tubercle in front of and 1 behind each spine. Posterior margin concave, with 10 tubercles. Free tergites with 1 row of setae. Anal operculum with 1 wide and large median spine.

Venter. Coxa I with 2-4 anterior tubercles, median row of 5 tubercles, with 3 posterior tubercles, 3 apical; II with 5 median tubercles; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of setae.

Chelicera. Segment I smooth; II-III with 4 tubercles.

Pedipalpus (Fig. 56). Coxa smooth. Trochanter with 1 ventral tubercle. Femur with 5 ventral tubercles on anterior half. Tibia IiIi mesal, IiIi ectal.

Legs (Figs. 40, 64, 91, 190). Coxa I with 2 tubercles; II with 2 tubercles (anterior wider); III with 2 tubercles (1 contiguos to 1 of II and other to 1 of IV); IV with long external apical apophysis and slightly curved downwards, with 1 internal tubercle (Fig. 64). Trochanter I with 3 ventral tubercles; II with 10 ventral tubercles; III with 1 ventral tubercle,



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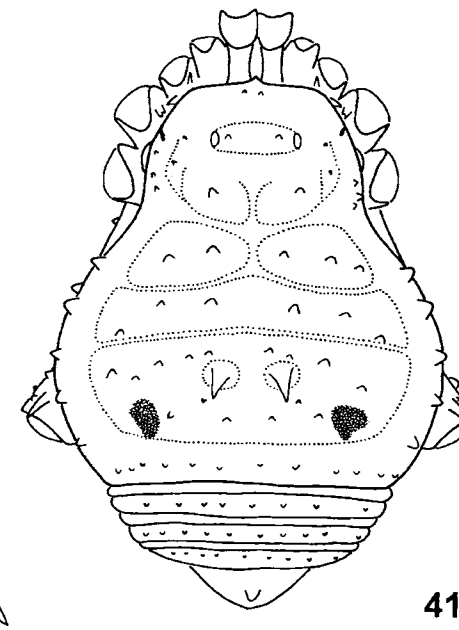

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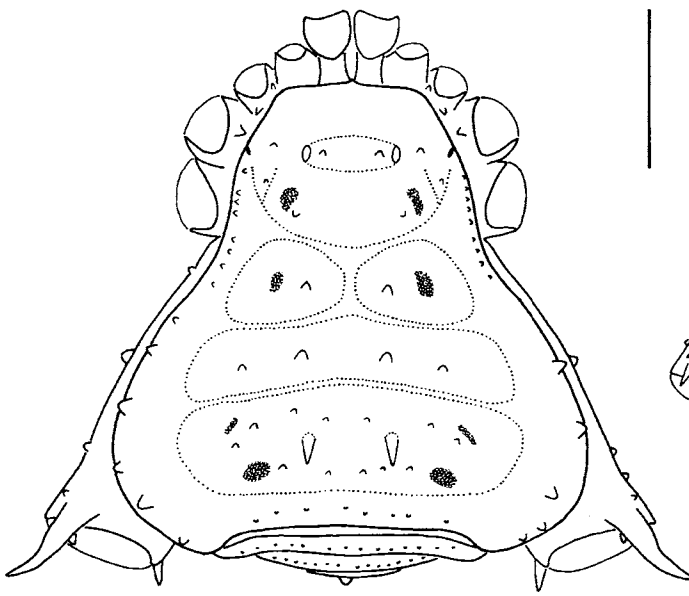

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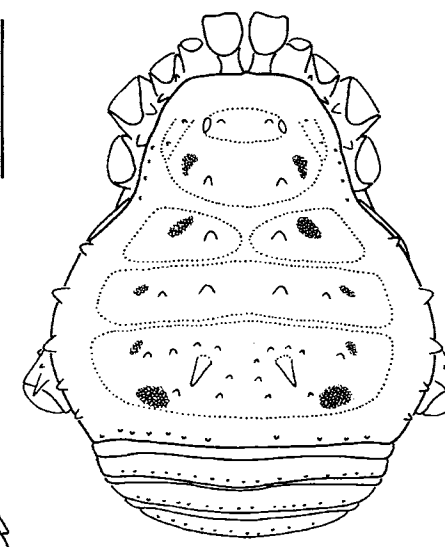

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Figs. 40-43. Dorsal view: 40-41, *M. pulcherrimus* (MZSP-14188), 40, male, 41, female; 42-43, *M. longipes* (MZSP-14189), 42, male, 43 female. Gray patches mean white color. Scale bar = 2 mm.

1 prolateral, 1 retrolateral; IV with 8 ventral tubercles, 1 wide prolateral tubercle, 1 curved and large apical retrolateral. Femora I-III straight; IV curved, with 8-9 dorsal tubercles, 1 large central retrolateral tubercle, 1 subapical retrolateral, 1 retrolateral apical smaller. Patella IV with 9 tubercles ventro-retrolateral. Tibia IV with 1 retrolateral row of tubercles of different sizes. Tarsal segmentation: 9-10, 18-21, 18, 20. Claws with 5 mesal teeth.

Penis (Figs. 134-135). Stylus thin and long, without subapical setae. Ventral process of glans with enlarged dorsal cleft. Ventral plate with short cleft U-shaped; with 3-4 pairs of distal setae; 4 pairs of setae on basal lobe (basal smaller);1 small behind distal setae and other on intermediary part.

Color (Fig. 190). Yellowish. Cephalothorax brownish with light and dark spots. Posterior region of cephalothorax and median region of areas I-III with wide dark-brown spot. Posterior margin, free tergites and anal operculum brownish. Area III and dorsal anal operculum with 2 white spots. Dorsal and ventral tubercles black. Chelicerae and pedipalpus yellowish. Legs brownish to dark-brown.

Female redescription (MZSP-14188, Fig. 41):

Measurements. Dorsal scute: length 4.90; maximal width 5.05. Cephalothorax: length 2.05; width 2.65.

Area II with 3 pairs of tubercles; III with 15 tubercles. Dorsal anal operculum with 1 short tubercle. Coxa IV with small apical apophysis (Fig. 65). Leg IV with short tubercles. Tarsal segmentation: 8, 16-17, 15-16, 17-18.

Variation (male n= 5, female, n= 5): Dorsal scute length 6-6.48 (male), 5.28-5.68 (female), width 6-6.56 (male), 5.12-5.68 (female); femur IV length 16.25-17.25 (male), 12.12-15 (female); tarsal articles of males 8-10, 16-21, 16-18, 19-21, females 8-9, 16-19, 15-17, 17-19; pedipalpal tibia mesal IiIi/Iii/Iiii, ectal IiIi/IiiIi. Area II with 6-8 tubercles (male), 5-9 (female), III with 12-16 (male), 20-25 (female), lateral margin with 9-14 (male), 8-18 (female).

Taxonomical notes: it resembles *M. longipes* by presence of wide tubercles on dorsal scute and coxa IV, pair of white spots on posterior region of area III and green color (living specimens) and differs by absence of white spots behind eye mound and male femur IV smaller than in *M. longipes*.

Type locality: Alto da Serra, Paranapiacaba, São Paulo, Brazil.

Geographical distribution (Fig. 8): State of São Paulo.

Material examined: Brazil. São Paulo: Salesópolis (Estação Biológica de Boracéia), S. A. Vanin *leg.*, 22.X.1995, ♂ & ♀ (MNRJ); idem, IV.1997, 1 male (MZSP-15872); idem, R. Pinto-da-Rocha *leg.*, 28.X.1995 ♂ & ♀ (AMNH); idem, 30.X.1991, ♀ (MNRJ); idem, K. Lenko *leg.*, 10.XI.1960, ♂ (MZSP-14204); idem, S. A. Vanin *leg.*, 11-14.II.1973, 2 ♂ (MZSP-14286); idem, Exp. Dep. de Zoologia *leg.*, 16-18.IV.1962, 2 ♂ & 1 ♀ (MZSP-14180); idem, S. A. Vanin *leg.*, X.1993, 1 ♂ & 2 ♀ (MZSP-14188); idem, 19-20.X.1991, 1 ♀ (MZSP-14156); idem, H. Reichardt & L. R. Silva *leg.*, 9-15.II.1963, 2 ♂ 1 ♀ & 1 immature (MZSP-14157); idem, 26-27.X.1991, 1 ♀ (MZSP-14184); idem, F. Lane *leg.*, 4-5.IX.1963, 8 ♂ & 4 ♀ (MZSP-14211); idem, S. A. Vanin & G. M. Jorge *leg.*, 21-22.III.1973, 1 ♂ & 4 ♀ (MZSP-14212); idem, Exp. Dep. de Zoologia *leg.*, 3-8.III.1962, 1 ♂ (MZSP-14177); idem, 22.X.1982, 1 ♂ & 3 ♀ (MZSP-14159); idem, P. Biasi *leg.*, 23.IX.1965, 4 ♀ & 1 ♂ (MZSP-14182); idem, L. Travassos-Filho *leg.*, I.1948, 1 ♀ (HSPC-260); idem, 1 ♂ (HSPC-121), idem, P. Terra & L. R. Fontes *leg.*, 24-30.I.1979, 2 ♂ & 2 ♀ (HSPC-771); idem, 8 ♂ & 4 ♀ (MZSP15155); idem, F. Lane *leg*, 4.IV.1942, 2 ♀ (MZSP); idem, A. Zoppei *leg.*, XII.1943, 1 ♀ (MZSP-990); idem, 8-10.II.1942, B. A. M. Soares *leg.*, 1 ♂ allotype (MZSP); idem, without collector, 1943, 1 ♀ (MZSP-1847); (Boracéia, Porto da Areia), P. Biasi *leg.*, 28.II.1967, 2 ♀ & 1 immature (MZSP-14166); Paranapiacaba (Alto da Serra), R. Spitz *leg.*, holotype ♀ (MNRJ-11396).

Metarthrodes xango, sp.n.

(Figs. 8, 37, 90, 158-159)

Type material: Holotype, Fazenda São Rafael, Gandu, Bahia, Brazil, 20.IX.1970, CEPLAC *leg.* (MNRJ, 5643).

Etymology: In reference to the Orixá, Xango from afroculture of Bahia State.

Male description (holotype):

Measurements. Dorsal scute: length 4.80; maximal width 5.20. Cephalothorax: length 1.90; width 2.7.

Dorsum (Fig. 37). Anterior margin with 2-3 lateral tubercles, smooth medially. Eye mound with 2 conical tubercles. Cephalothorax with 15 tubercles on lateral and posterior regions. Lateral and posterior margin with 1 row of tubercles; lateral with 5-7 sparsely arranged tubercles. Area I divided, with 4 tubercles; II with 10; III with 2 spines, 26 tubercles. Anal operculum with tubercles more concentrated posteriorly.

Venter. Coxa I with 1 median row of 4 tubercles, 3 apical, 3 posterior; II with 1 median row of 6, 3 anterior, 3 apical, 4 posterior; III with 1 median row of 9, 4 anterior, 7 posterior, 4 apical; IV and stigmatic area irregularly tuberculate. Posterior margin and free sternites with 1 row of tubercles. Anal operculum with tubercles concentrated on posterior region.

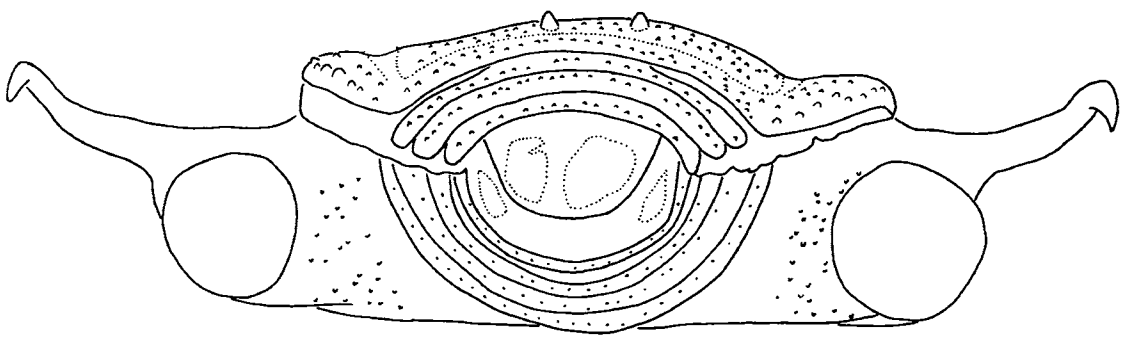
Chelicera. Segment I smooth; II (fixed finger) with 4 teeth; III (movable finger) with 3 teeth.

Pedipalpus. Coxa with 1 ventral tubercle. Trochanter with 2 ventral tubercles. Femur with 4 dorsal tubercles, 8 ventral. Tibia IIi/IiIi.

Legs (Figs. 37, 90). Coxa I with 1 anterior tubercle, 1 posterior towards II; II with 1 wide anterior, 1 bifid posterior fused with other of III; IV tuberculate laterally, 2 large apical apophyses (retrolateral larger). Legs I-IV tuberculate. Femora III-IV with 2 dorsoapical tubercles; IV with submedian region curved retrolaterally; dorsal row of tubercles slightly larger; retrolateral row of tubercles more conspicuous on apical half. Tarsal segmentation: 8, 17, 15-16, 18-20.

Penis (Figs. 158-159). Truncus with subapical projection. Stylus thin and long, with subapical setae. Ventral process of glans with dorsal cleft. Ventral plate with cleft wide and short U-shaped; with 3 pairs of distal setae; 4 pairs of setae on basal lobe (basal large); 1 seta small behind distal ones, 2 short on intermediary region.

Color. Brownish; margins of dorsal scute and



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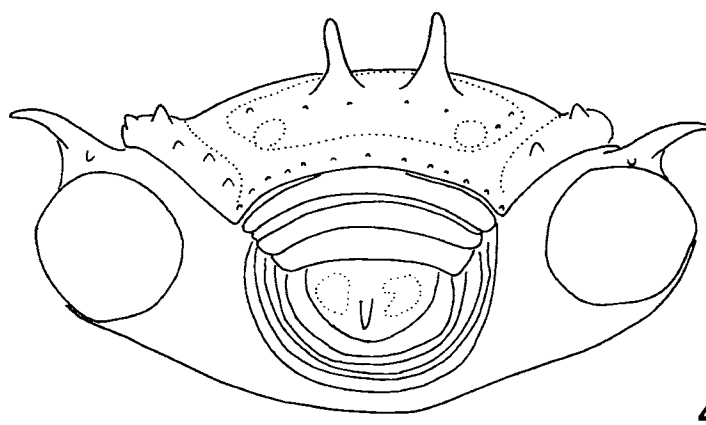

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Figs.44-45. Hind view of: 44, *C. elegans*; 45, *M. pulcherrimus*.

leg IV darker. Cephalothorax dark-brown reticulate. Outline tubercles of dorsal scute, venter and legs darker. Dorsal anal operculum with 2 white spots.

Female unknown.

Taxonomical notes: it resembles *M. laetabundus* by the presence of an internal apical apophysis on male coxa IV strongly developed and by male genitalia. Differs by color of dorsal scute, tubercles of areas I-III with black spots and absence of large tubercles on male femur IV.

Geographical distribution: recorded only from type locality.

Genus and species not included in the cladistic analysis:

The type material of *Proampheres serratus* is lost (maybe it has been destroyed by insects, J. Grüber, personal communication) and the original description and redescriptions of Koch and Roewer are insufficient to compare this species with other Caelopyginae. This species was not included in the cladistic analysis because the penis and the female are unknown.

Proampheres Roewer

Proampheres Roewer, 1913b: 307 (key), 342 (rdesc); 1923: 518 (key), 533 (diag); Mello-Leitão, 1923: 177 (cit), 196 (key), 198 (diag); 1926: 35 (key-); Roewer, 1931: 122 (key); Mello-Leitão, 1932: 356 (key), 385 (rdesc); 1935b: 108 (syst); Soares & Soares, 1948: 565 (key), 579 (cat).

Diagnosis (based on original description and Roewer's redescriptions). Maximal width of dorsal scute reaching groove IV. Eye mound with 2 large and divergent spines. Lateral margin with 1 large tubercle. Areas II-III undivided. Spines of area III large. Pedipalpal femur without subapical seta. Male coxa IV visible dorsally. Male leg IV with wide tubercles. Male basitarsus I swollen. Distitarsus II 4-segmented.

Taxonomical notes: this species belongs to the Caelopyginae due to the pectinate claws III-IV, dorsal anal operculum with white spot and number of pedipalpal setae of tibia and tarsus. It differs from other Caelopyginae genera by presence of pair of spines on eye mound large, sharp spines of area III and posterior margin and free tergites armed with a pair of large tubercles. It resembles *Ampheres* by male basitarsus I swollen, and *Ampheres* and *Caelopygus* by rows of tubercles on male femur IV and external apical apophysis of coxa IV, and *Arthrodes* by large tubercle on lateral margin.

Type species: *Ampheres serratus* Kollar, 1839, by monotypy.

Proampheres serratus (Kollar)
(Figs. 169)

Ampheres serratus Kollar *in* Koch, 1839a: 17; 1839b: 75, fig. 572 (male holotype, Brazil, lost according to J. Grüber).

Proampheres serratus; Roewer, 1913b: 343, fig.135; 1923: 533 (diag), fig. 666; Mello-Leitão, 1923: 177 (cat), 194 (key); 1932: 385 (rdesc), fig. 247; Roewer, 1943: 60 (dist); Soares & Soares, 1948: 580 (cat).

Description: See Roewer (1913b).

Type locality: "Brazil".

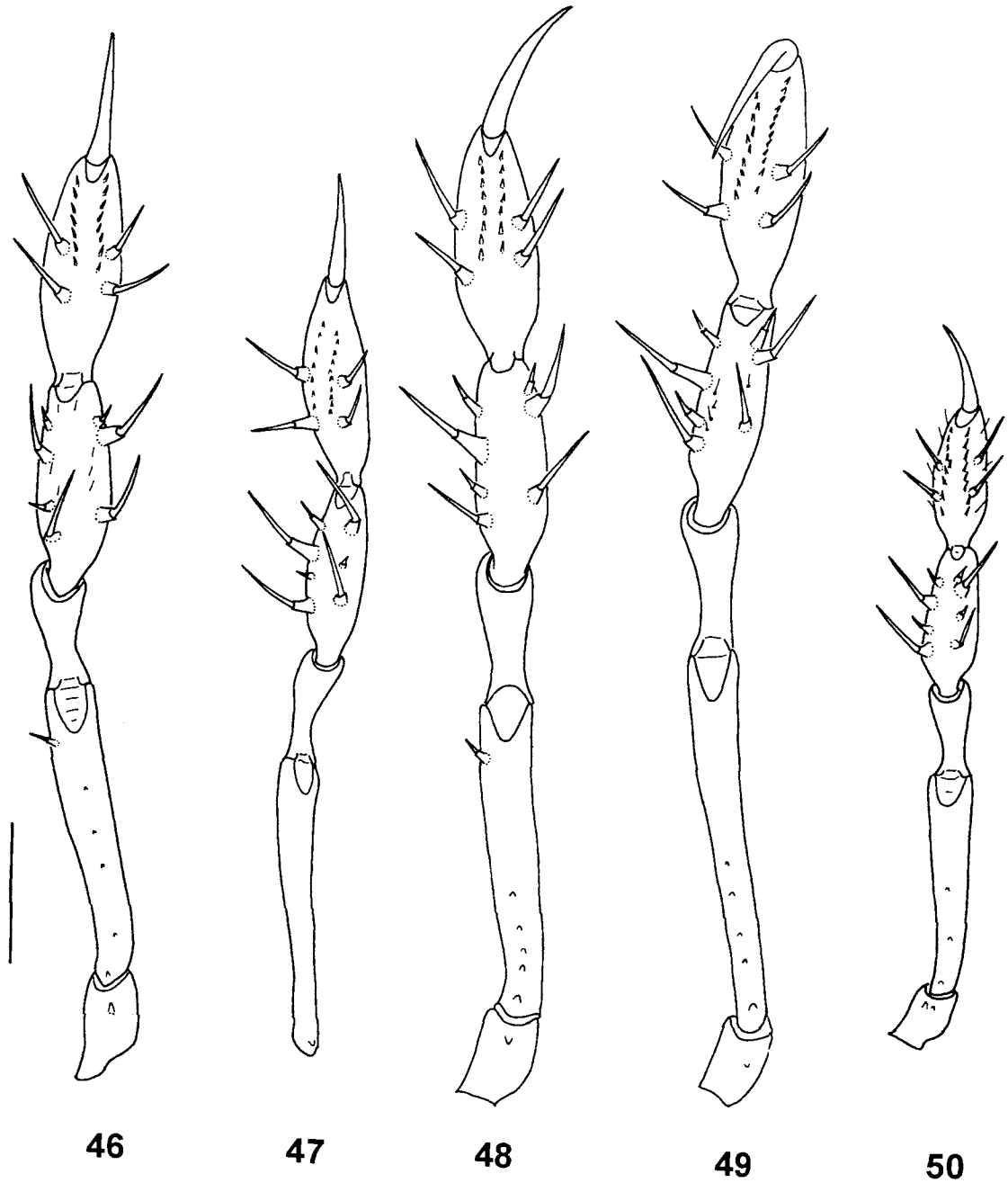
Geographical distribution: there were no records after the original description.

Genus and species transferred to Progonyleptoidellinae:

Deltigalus Roewer

Deltigalus Roewer, 1931: 122 (key), 139 (desc); Mello-Leitão, 1932: 356 (key), 363 (rdesc); 1935b: 108 (diag.); Soares & Soares, 1948: 565 (key), 574 (cat). (Type species: *Deltigalus bifrons* Roewer, 1931, by monotypy).

Diagnosis. Anterior margin with 2 median and 2 lateral ridges. Eye mound with 2 small tubercles. Areas I-II unarmed; III with pair of tubercles wide; posterior margin, free tergites and anal opercula unarmed. Lateral margin with large tubercle near groove III. Coxa IV dorsally visible; male external apical apophysis long and curved apically downwards, internal apophysis well developed. Tarsus I with 6 segments, II-IV with more than 6. Distitarsus II 3-segmented.



Figs. 46-50. Ventral view of left male pedipalpus of: 46, *Caelopygus elegans* (MNRJ-6661); 47, *Ampheres tocantinus* (holotype); 48, *Arthrodes xanthopygus* (HSPC-294); 49, *Pristocnemis pustulatus* (MZSP-14193); 50, *Metampheres albimarginatus* (HSPC-733). Scale bar = 1 mm.

Type species: *Deltigalus bifrons* Roewer, 1931, by monotypy.

Systematic note. The genus *Deltigalus* is excluded from the Caelopyginae by the lack of the following synapomorphies of the sub-family: eye mound wide and depressed medially; dorsal and ventral anal opercula with white spots; distitarsus II with 4-5 segments; claws III-IV pectinate. *Deltigalus* is included tentatively in Progonyleptoidellinae by the presence of the following characteristics (also shared by the Caelopyginae): tarsi III-IV with hemispherical shaped and with large number of segments; pedipalpal tarsus biconvex and with 2 rows of wide setae on ventral face. However, *D. bifrons* do not share the synapomorphy of Progonyleptoidellinae, coxa IV hidden dorsally. Maybe this characteristic could be a reversion to the plesiomorphic condition.

Deltigalus curvispina (Perty), comb. n.
(Figs. 162-169, 170)

Gonyleptes curvispina Perty, 1833: 202, fig. 8; Gervais, 1844: 104 (diag). (male holotype "Brasil", lost, not examined).

Caelopygus curvispina; Koch, 1839a: 18 (cit); 1839b: 78 (rdesc), fig. 573; Roewer, 1913b: 308 (key), 314 (rdesc); Roewer, 1923: 519 (key), 521 (diag), fig. 652; 1931: 124 (cit); Mello-Leitão, 1932: 366 (key), 369 (rdesc), fig. 234; Soares & Soares, 1948: 572 (cat); Moritz, 1971: 195 (typ).

Coelopygus curvispina; Roewer, 1913b: 308 (key), 314 (rdesc, dist); Mello-Leitão, 1923: 169, 195.

Caelopygus alter Roewer, 1923: 519 (key), 523 (diag), fig. 654; Mello-Leitão, 1932: 366 (key), 370 (rdesc), fig. 235; Soares & Soares, 1948: 572 (cat). (male holotype "Brasil, São Paulo", SMFD, not examined). *Syn. n.*

Caelopygus kochii Roewer, 1923: 519, 522, fig. 653; Mello-Leitão, 1932: 366, 369, fig. 233; Soares & Soares, 1948: 573 (cat); Moritz: 1971: 201 (typ). (female holotype "1 ♂ (?), holotypus, Brasilien, Langsdorff *leg.*, ZMB-939, ex. *Gonyleptes curvispinus*", ZMB-12851, examined). *Syn. n.*

Deltigalus bifrons Roewer, 1931: 139, fig. 16; Mello-Leitão, 1932: 363 (rdesc); Soares, 1945a: 192 (cit); Soares & Soares, 1948: 574 (cat); (male syntype "typus ♂, n.g.sp.n., Brasilien, Parana, Curityba", SMFD-1401, now in alchool, it was pinned and dried, examined, a second male syntype seems to be lost). *Syn. n.*

Male redescription (ZMB-939):

Measurements. Dorsal scute: length 5.44; maximal width 6.75. Cephalothorax: length 2.31; width 2.69.

Dorsum (Figs. 162, 170). Anterior margin with 2 median tubercles, 2-3 each side. Cephalothorax with several tubercles around eye mound. Eye mound with 2 anterior tubercles, 2 median slightly acute, 3 posterior. Lateral margin with 1 row of tubercles from cephalothorax to posterior margin, penultimate large. Area I with 11-14 tubercles each side, 1 large; II with 26, 2 large; III with 11, median pair longer than other. Posterior margin with 16 tubercles. Free tergites I-II with 9 tubercles; III with 8. Anal operculum with 3 anterior tubercles.

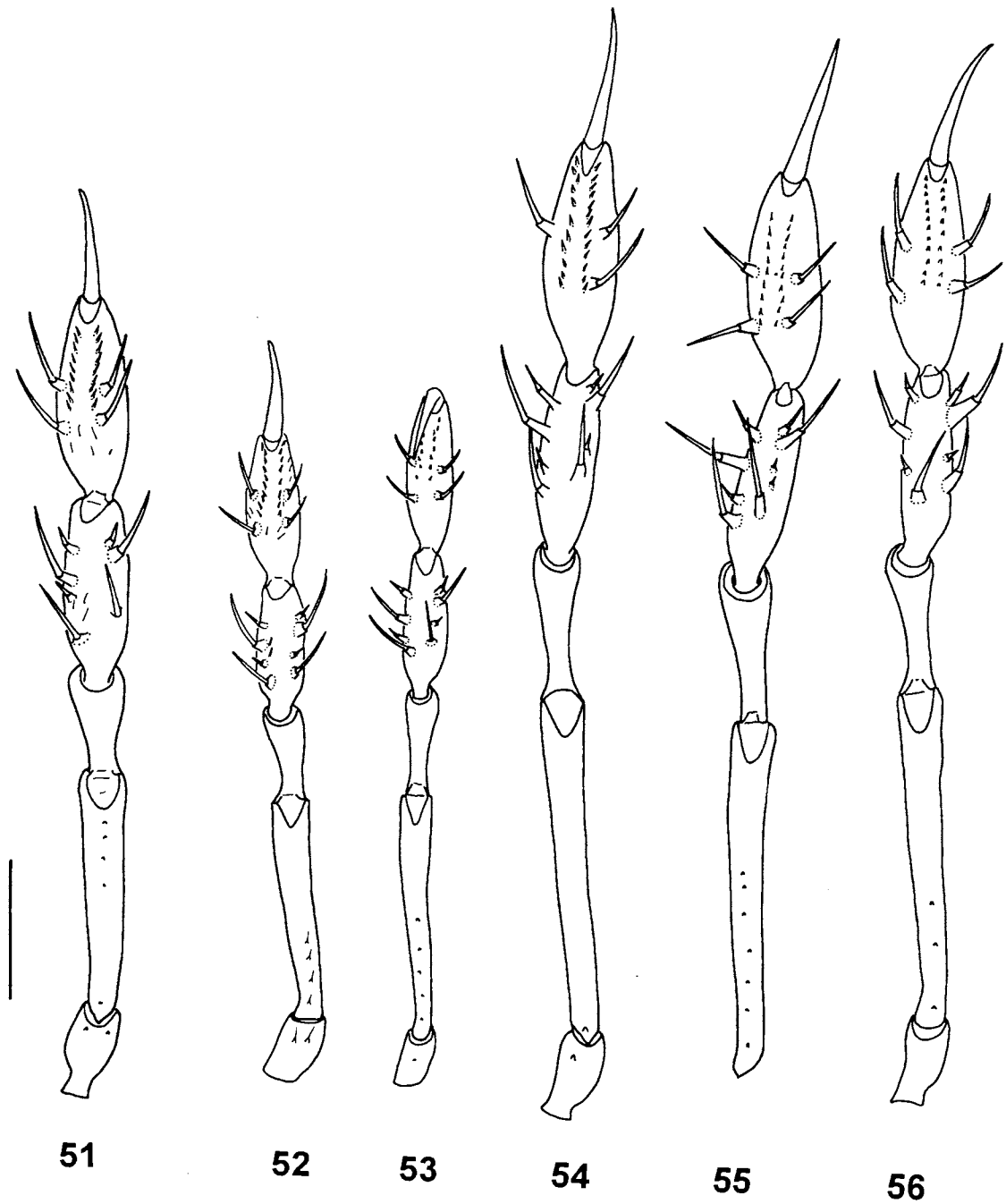
Venter. Coxa I with 1 median row of 7 tubercles, 5 posterior, 4 apical; II with 7 anterior tubercles, 1 median row of 8, 9 posterior, 4 apical; III-IV irregularly tuberculate. Posterior margin and free sternites with 1 row of small tubercles. Anal operculum smooth.

Chelicera. Segment I with 2 tubercles; II with 3; III with 5.

Pedipalpus. Coxa and trochanter with 1 ventral tubercle. Femur with 1 ventrobasal tubercle. Patella smooth. Tibia ectal IiIi, mesal IiII.

Legs (Figs. 163-164). Coxa I with 1 anterior tubercle, 1 posterior; II with 1 large anterior, 1 posterior fused with 1 of III; IV with 1 large and curved external apical apophysis (Fig. 164), internal apophysis large and straight. Trochanter I with 3 ventral tubercles; II with 3 ventral, 3 retrolateral; III with 8 ventral, 3 prolateral, 4 retrolateral; IV with 1 wide prolateral, 7 wide retrolateral, 9 ventral. Femora I-IV tuberculate and straight; IV with 1 dorsal row of tubercles, 1 large basal, 1 retrolateral row of large tubercles, 2 ventral, 1 large retrolateral apical tubercle. Patella IV tuberculate. Tibia IV with 2 ventral tubercles, 1 retrolateral, 1 posterior and, 2 dorsal rows of tubercles. Tarsal segmentation: 6(3), 15(3), 11, 14-15. Three first articles of tarsus I swollen.

Penis (Figs. 166-167). Stylus thin and long, without subapical setae. Ventral process of glans



Figs. 51-56. Ventral view of left male pedipalpus of: 51, *Garatiba bocaina* (holotype); 52, *Thereza albiornata* (HSPC-543); 53, *T. speciosa* (MZSP-10585); 54, *Metarthrodes albotaeniatus* (HSPC-263); 55, *M. leucopygus* (holotype); 56, *M. pulcherrimus* (MZSP-14188). Scale bar = 1 mm

enlarged and with dorsal cleft, without lateral or apical projections. Ventral plate with deep cleft V-shaped; with 3 pairs of large distal; 3 pairs of setae on basal lobe; without intermediary setae or behind distal setae.

Color (Fig. 170). Brownish. Tubercles of dorsal scute black, area III with black spots almost adjacent. Eye mound with 2 lateral black spots. Cephalothorax with 2 black spots behind eye mound.

Female redescription:

Measurements. Dorsal scute: length 4.90; maximal width 5.65. Cephalothorax: length 2.05; width 2.55.

External apical apophysis straight and smaller than ♂. Penultimate tubercle of lateral margin larger than ♂(Fig. 165). Area I with 14-15 tubercles; II with 28; III with 20. Posterior margin with 19 tubercles. Free tergites I-II with 11 tubercles; III with 9. Coxa IV with apical apophysis smaller than male (Fig. 165). Femur IV without dorso-basal tubercle and retrolateral apical tubercles wide. Tarsal segmentation: 6(3), 15(3), 11, 13-14.

Type locality: Brazil. The papers of Koch and Roewer did not cite the precise locality. ROEWER (1913b) cited São Paulo (1 CR).

Geographical distribution: the single precise record for this moment is to Floresta da Tijuca, Rio de Janeiro. The record for Curitiba was mistaken (see item 3.5).

Material examined: Brazil. without data, Langsdorff *leg.*, holotype ♀ of *Caelopygus kochii* (ZMB-12851); Rio de Janeiro: Rio de Janeiro (Floresta da Tijuca), 12.II.1953, M. Alvarenga *leg.*, ♂ and ♀ (HSPC); Paraná: Curitiba, holotype ♂ of *Deltigalus bifrons* (SMFD, CR-1401).

7. ACKNOWLEDGMENTS

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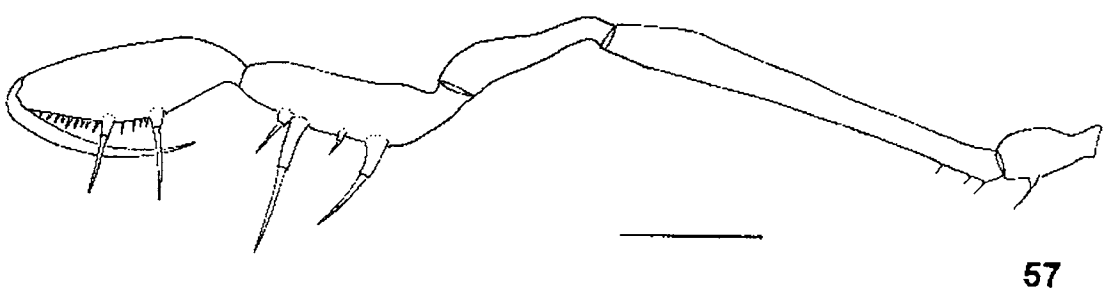

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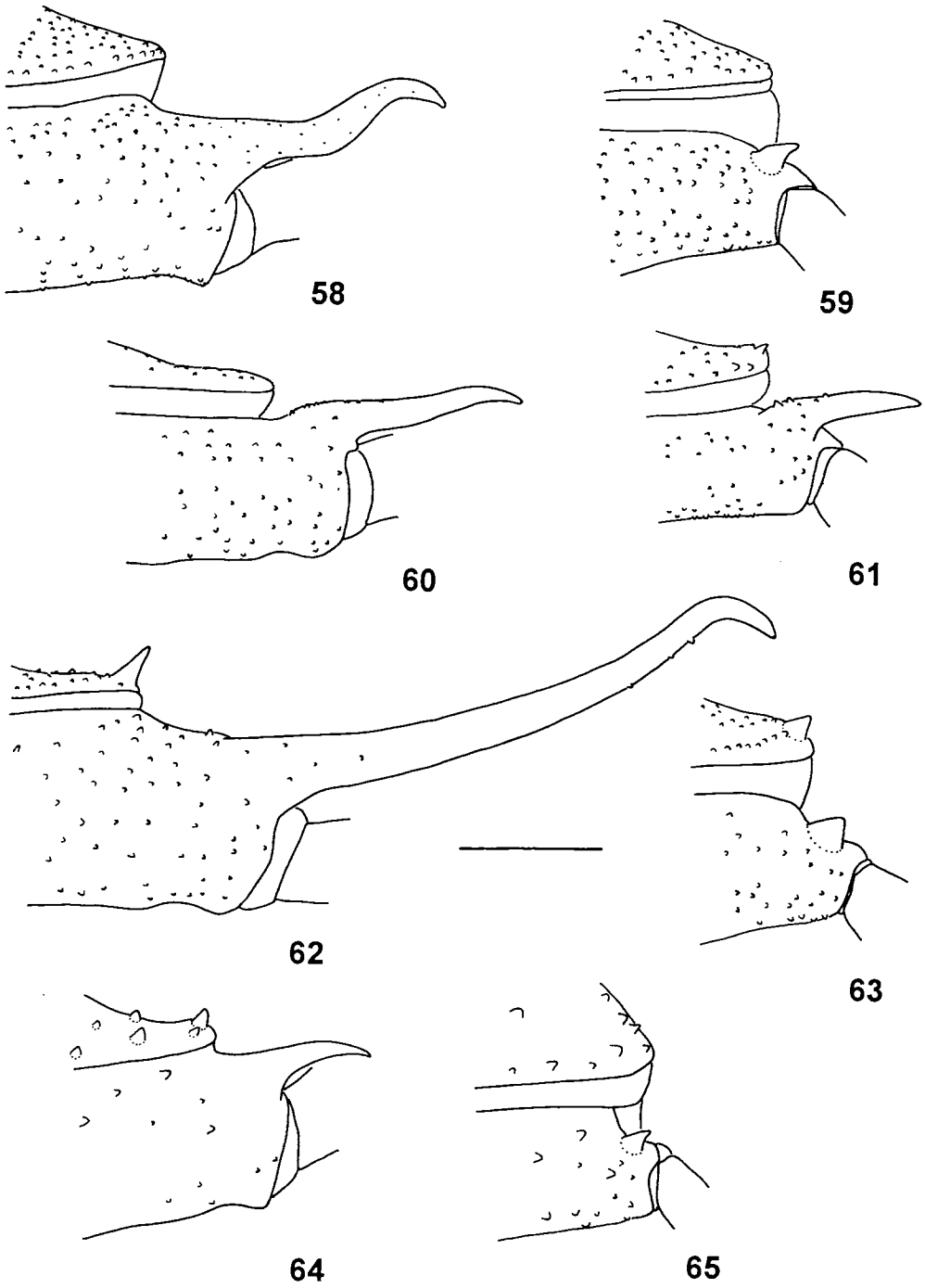
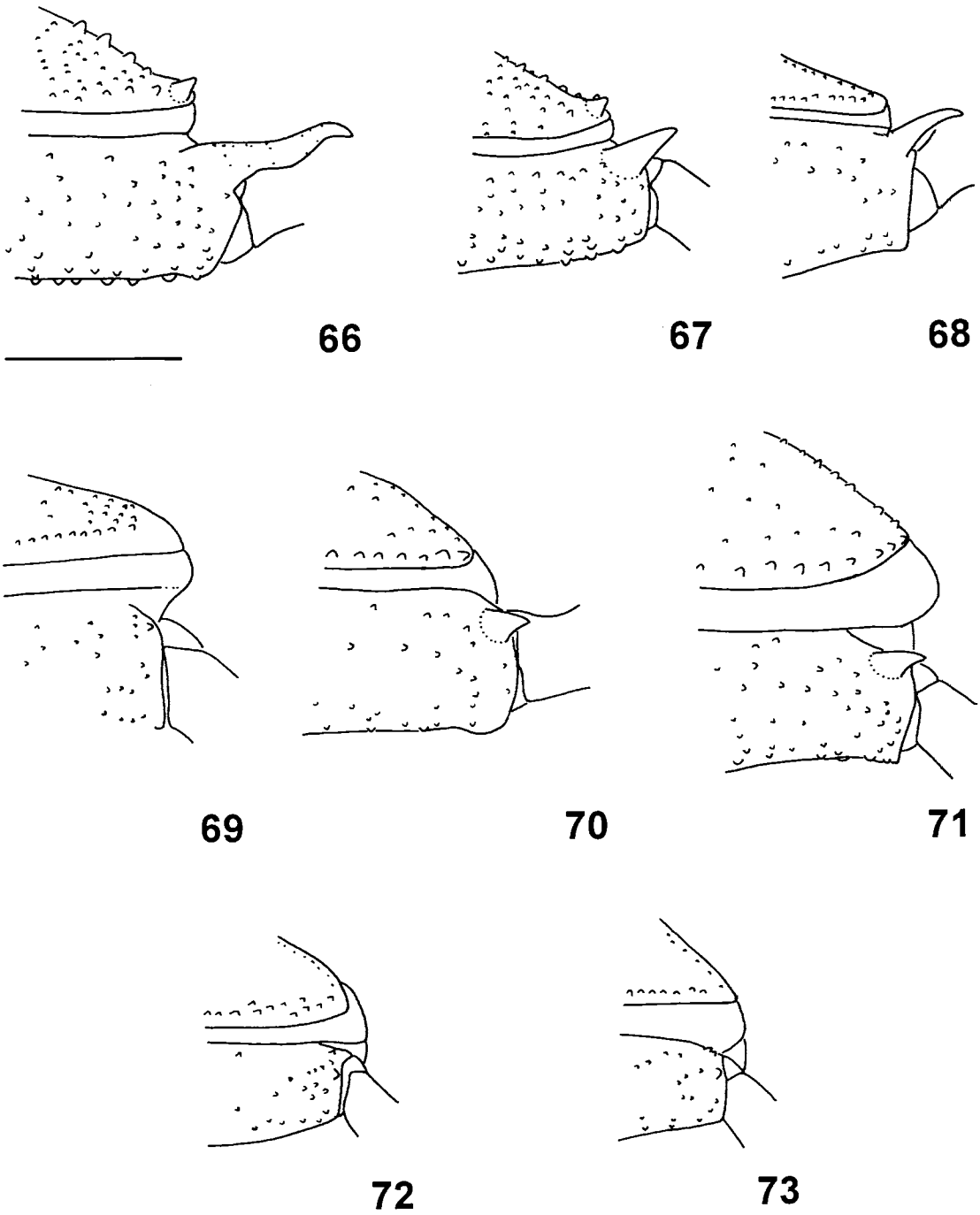
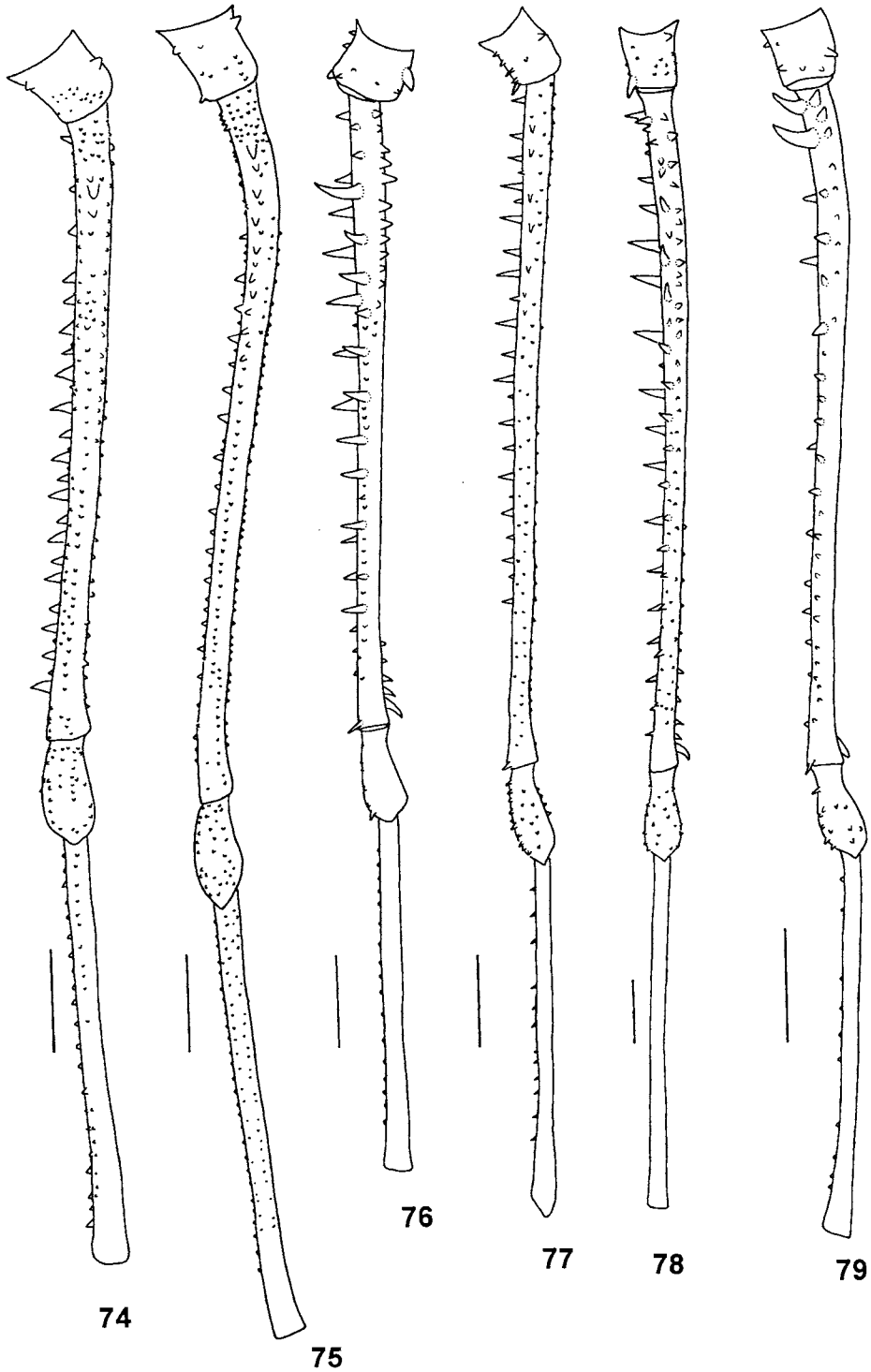
Figs. 57. Pedipalpal lateral view of *Metarthrodes longipes* (MZSP-14189). Scale bar = 1 mm.



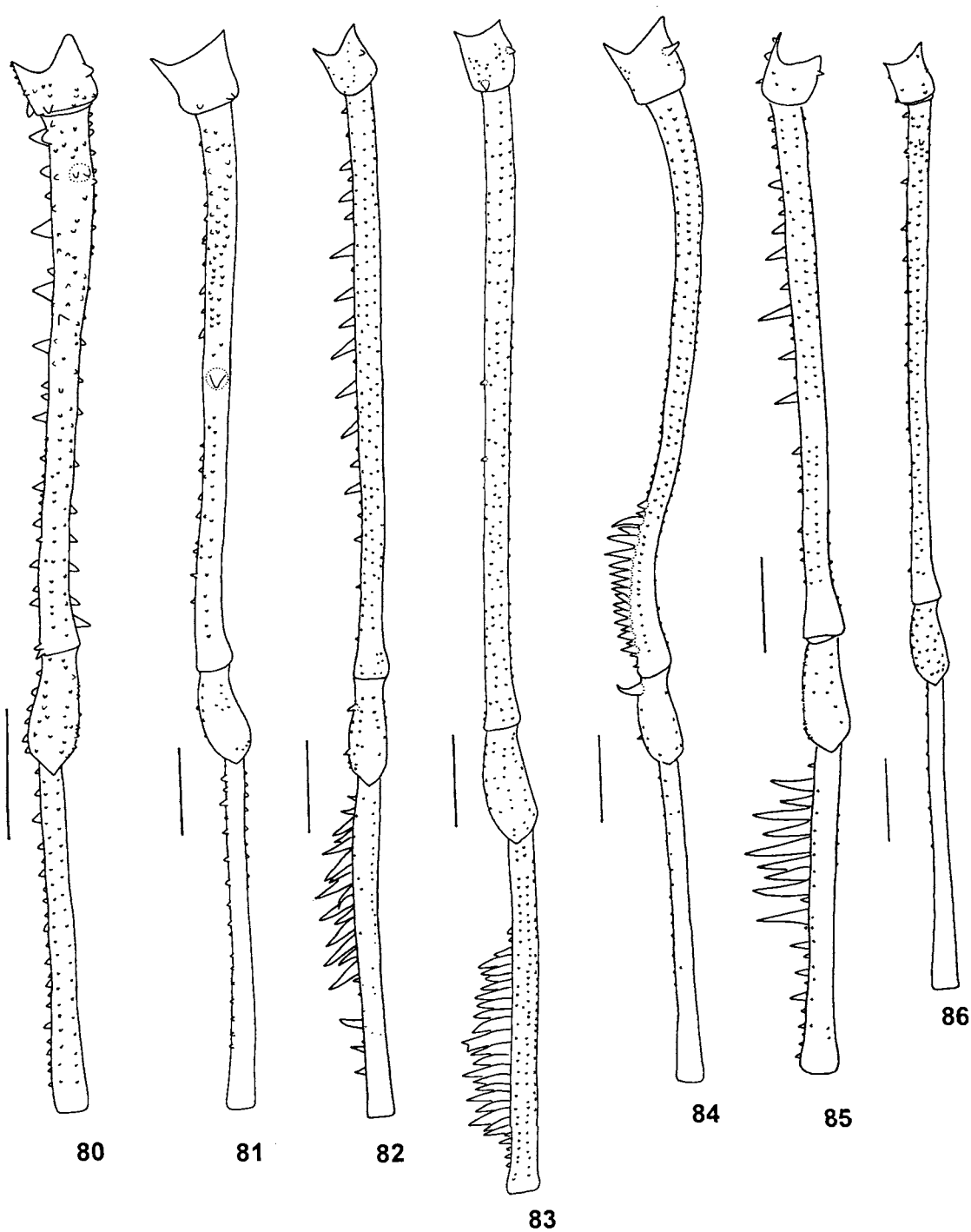
Figs. 58-65. Lateral view of left coxa IV: *Caelopygus elegans* (MNRJ-6661), 58 male, 59 female; *Ampheres leucopheus* (MNRJ-6482); 60 male, 61 female; *Arthrodes xanthopygus* (HSPC-294), 62 male, 63 female; *Metarthrodes pulcherrimus* (MZSP-14188); 64 male, 65 female. Scale bar = 2 mm.



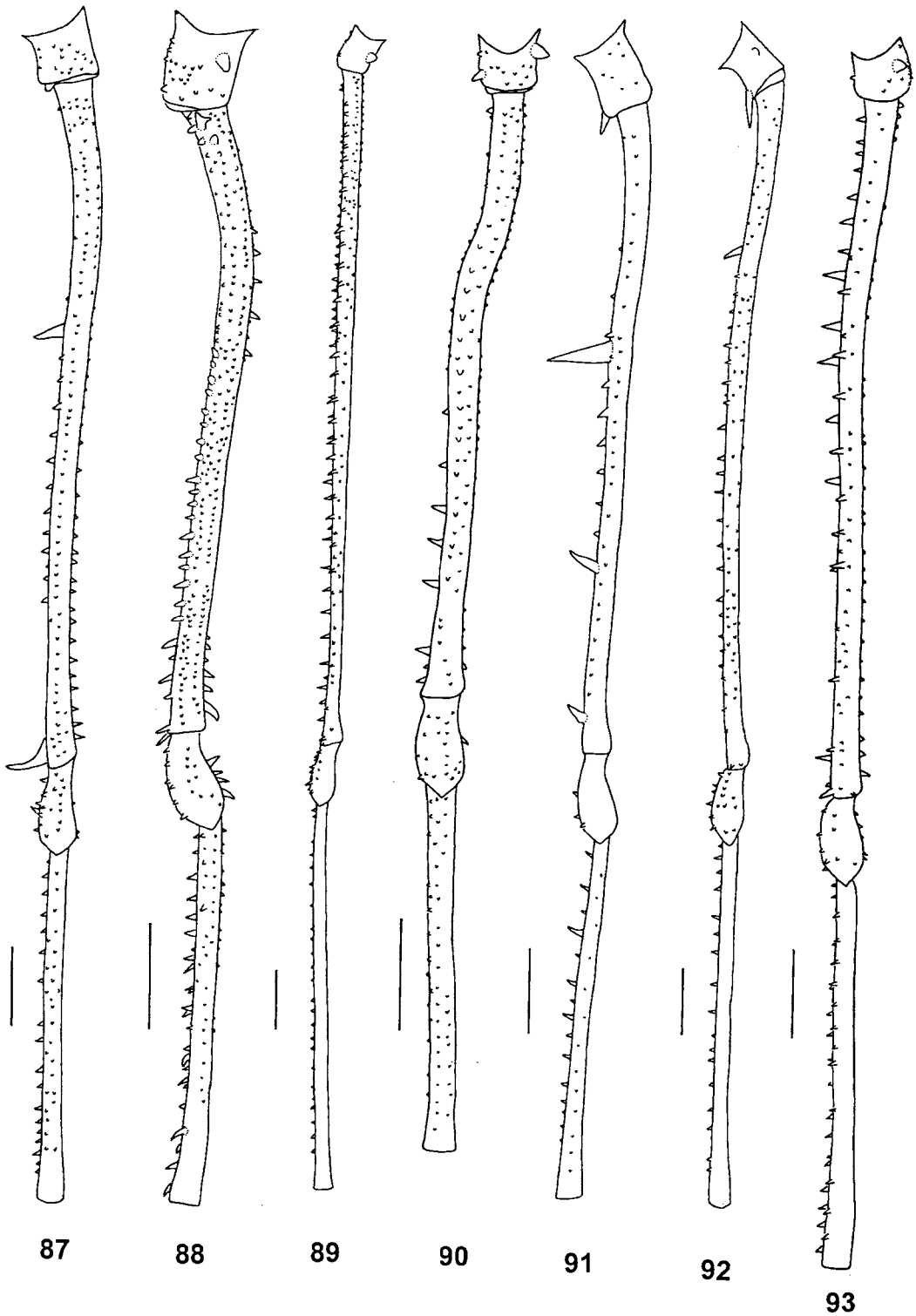
Figs. 66-73. Lateral view of left coxa IV: *Metampheres albimarginatus* (HSPC-733), 66 male, 67 female; *Garatiba bocaina* (holotype), 68 male, 69 female; *Pristocnemis farinosus* (MNRJ), 70 male, 71 female; *Thereza speciosa* (MZSP-10585), 72 male, 73 female. Scale bar = 2 mm.



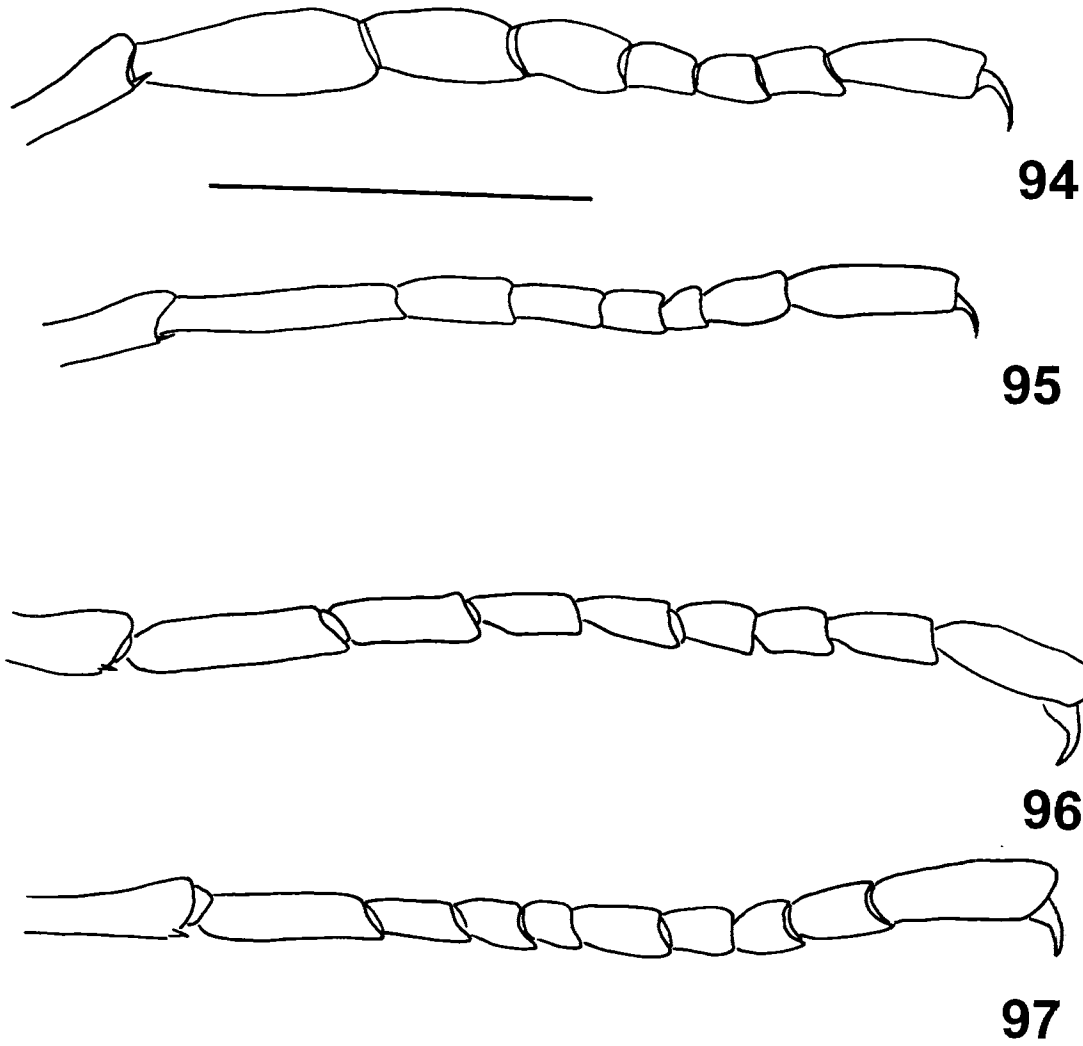
Figs. 74-79. Trochanter-tibia IV of male right leg: 74, *Caelopygus elegans* (MNRJ-6661); 75, *C. melanocephalus* (MNRJ-6636); 76, *Ampheres leucopheus* (MNRJ-6482); 77, *A. luteus* (MZSP); 78, *A. fuscopunctatus* (MZSP-14846); 79, *A. tocantinus* (holotype). Scale bar = 2 mm.



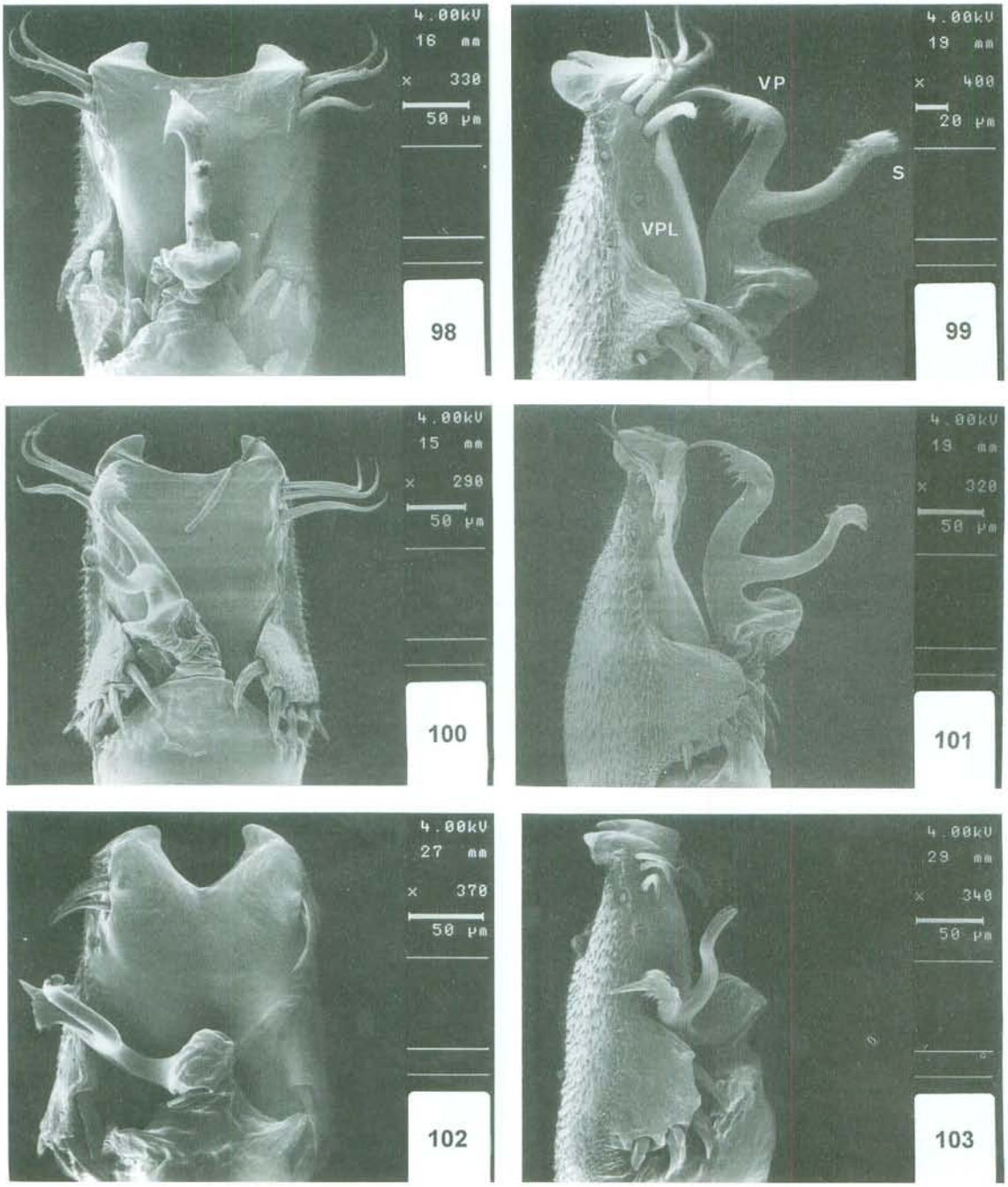
Figs. 80-86. Trochanter-tibia IV of male right leg: 80, *Metampheres albimarginatus* (HSPC-733); 81, *Arthrodes xanthopygus* (HSPC-294); 82, *Pristocnemis albimaculatus* (HSPC-422); 83, *P. farinosus* (MNRJ); 84, *P. perlatus*; 85, *P. pustulatus* (MZSP-14193); 86, *Garatiba bocaina* (holotype). Scale bar = 2 mm.



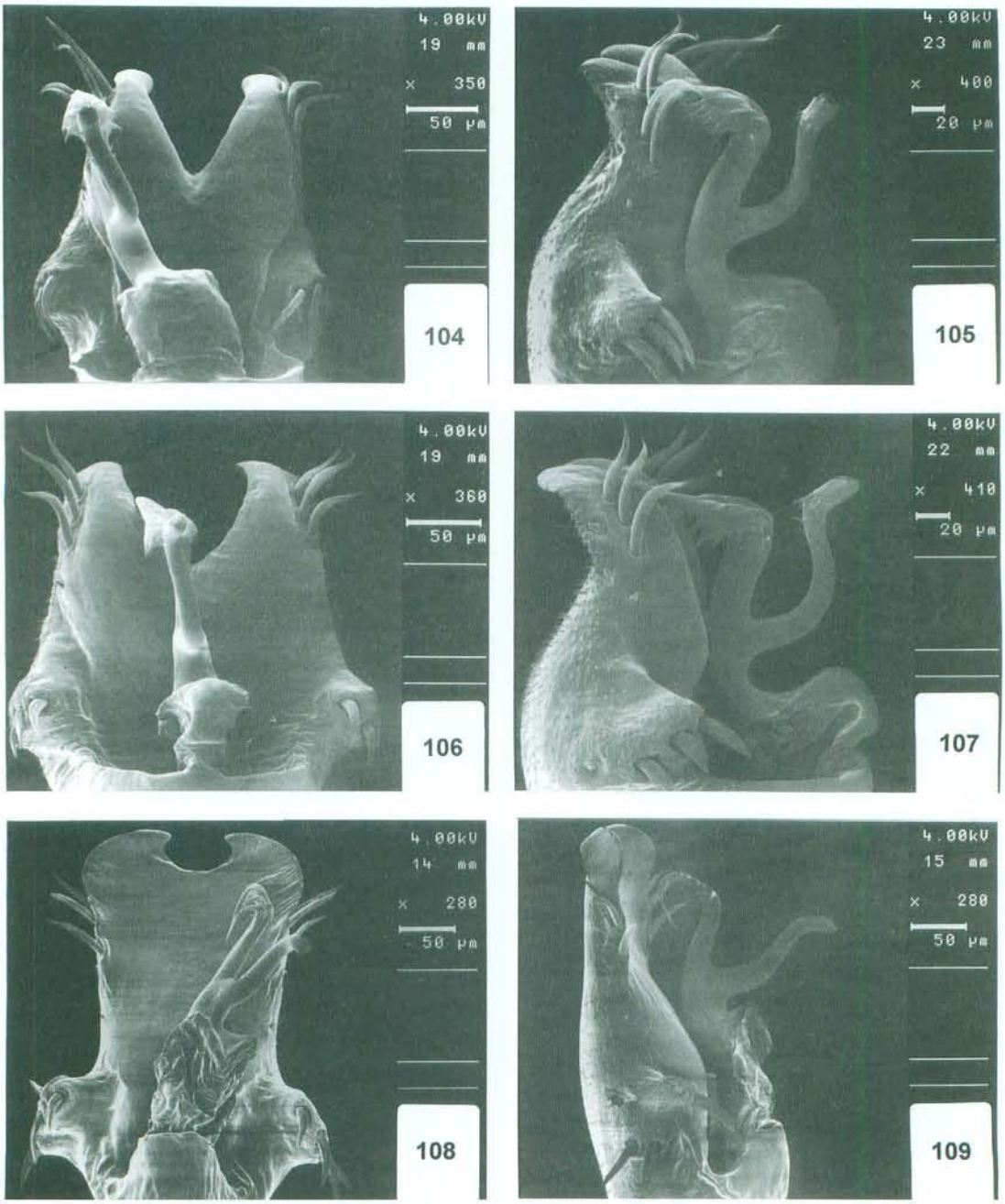
Figs. 87-93. Trochanter-tibia IV of male right leg: 87, *Metarthrodes laetabundus* (MZSP-14196); 88, *M. bimaculatus* (lectotype); 89, *M. leucopygus* (holotype); 90, *M. xango* (holotype); 91, *M. pulcherrimus* (MZSP-14188); 92, *M. nigrigranulatus* (HSPC); 93, *M. hamatus* (lectotype). Scale bar = 2 mm.



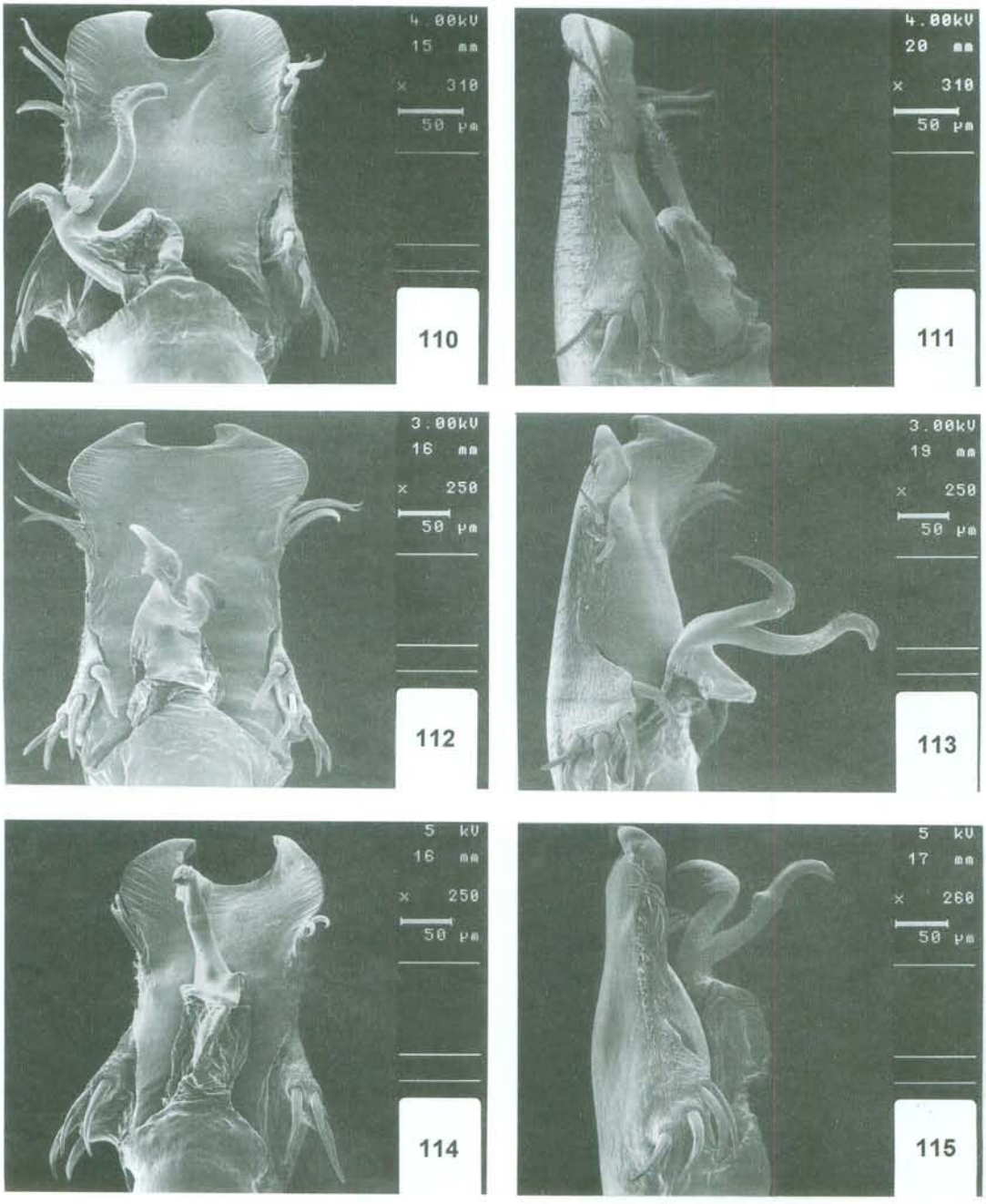
Figs. 94-97. Basitarsus I of *Ampheres luteus* (MZSP): 94, male; 97, female; 96-97 *Metarthrodes pulcherrimus*: 96, male; 97, female. Scale bar = 1 mm.



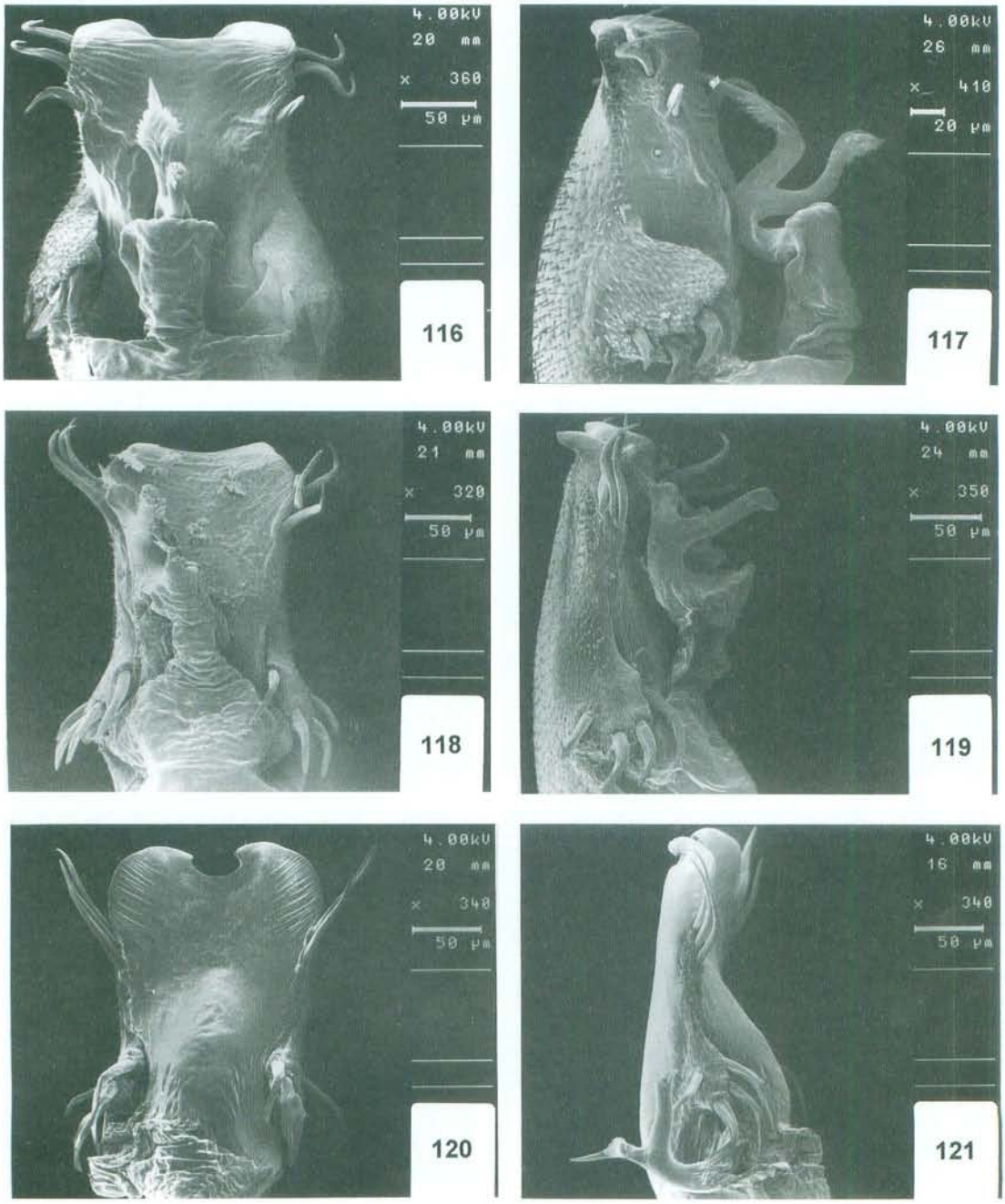
Figs. 98-103. Distal part of penis in dorsal and lateral views, respectivelly: 98-99, *Caelopygus elegans* (MNRJ-6661); 100-101, *C. melanocephalus* (MNRJ-6636); 102-103, *Metampheres albimarginatus* (HSPC-733).



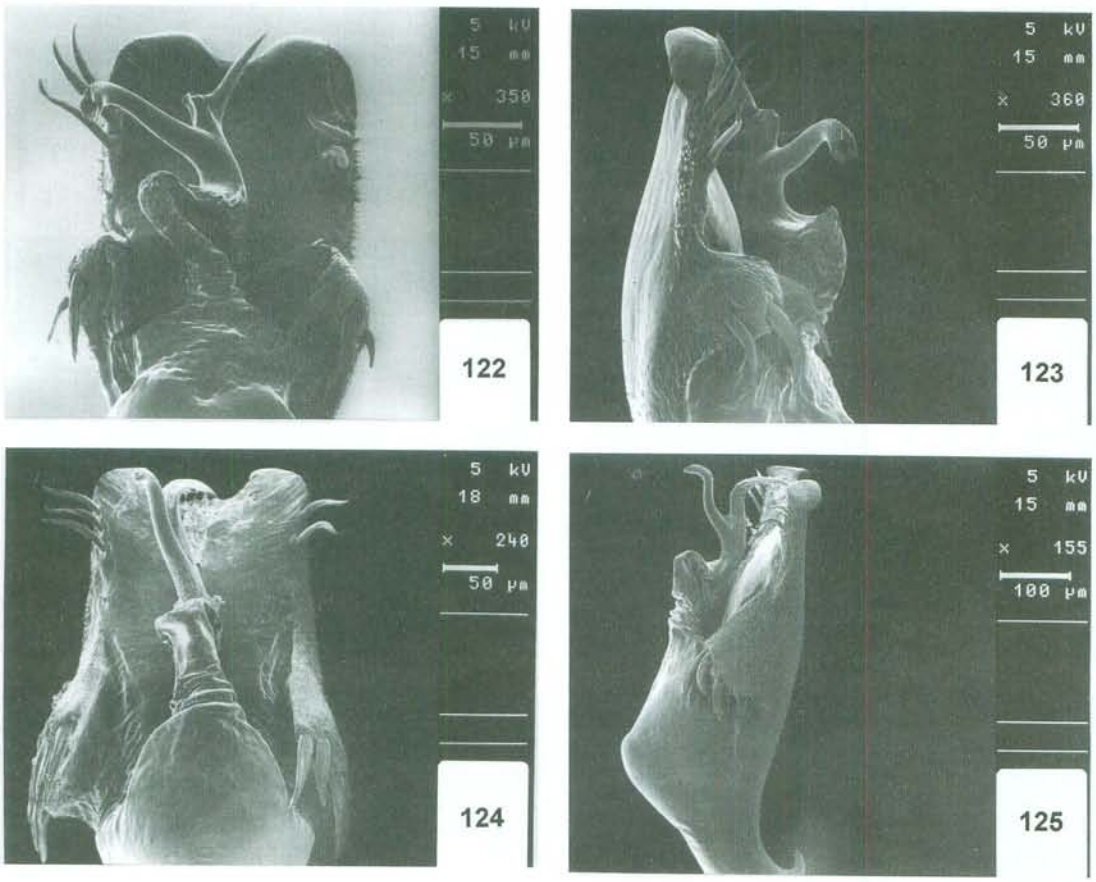
Figs. 104-109. Distal part of penis in dorsal and lateral views, respectivelly: 104-105, *Ampheres leucopheus*; 106-107, *A. fuscopunctatus*; 108-109, *Arthrodes xanthopygus*.



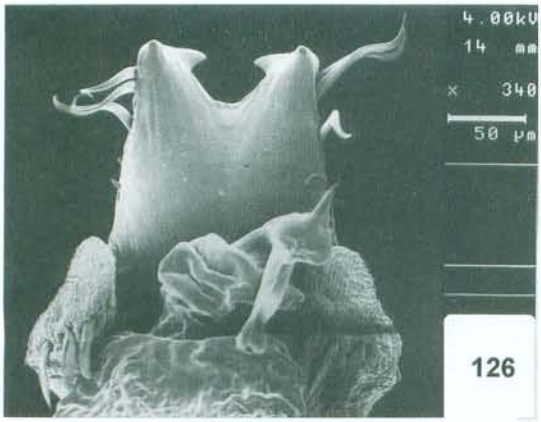
Figs. 110-115. Distal part of penis in dorsal and lateral views, respectivelly: 110-111, *Pristocnemis albimaculatus*; 112-113, *P. farinosus* (MZSP); 114-115, *P. pustulatus*.

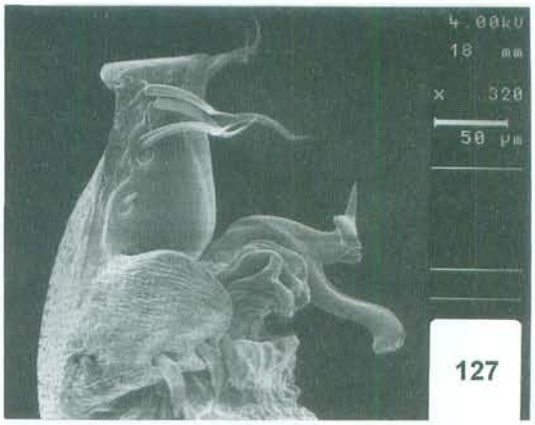


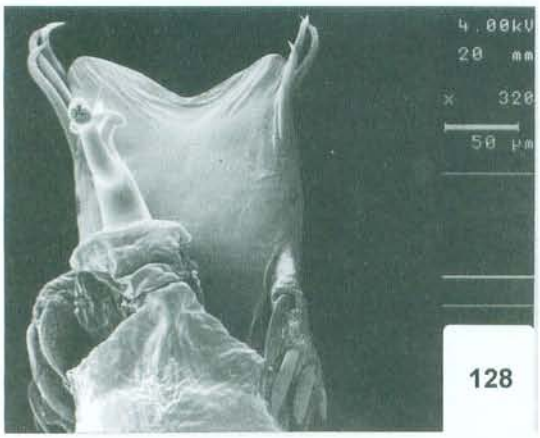
Figs. 116-121. Distal part of penis in dorsal and lateral views, respectivelly: 116-117, *Thereza albiornata* (HSPC-543); 118-119, *T. amabilis* (MZSP-11989); 120-121, *T. poranga* (holotype).

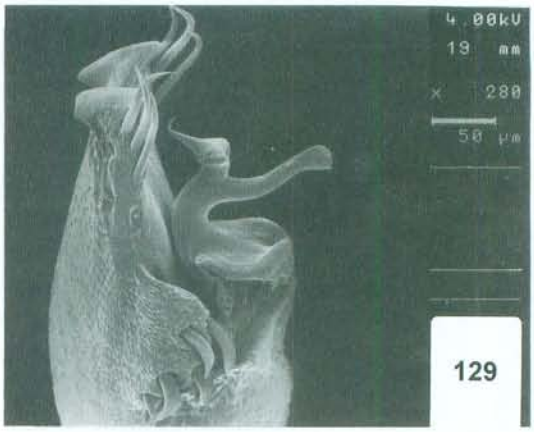


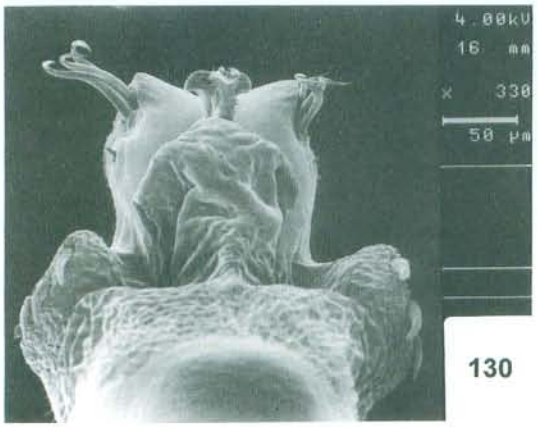
Figs. 122-125. Distal part of penis in dorsal and lateral views respectivelly: 122-123, *Thereza speciosa* (MHNC-6158); 124-125, *Metarthrodes laetabundus* (MNRJ-6747).



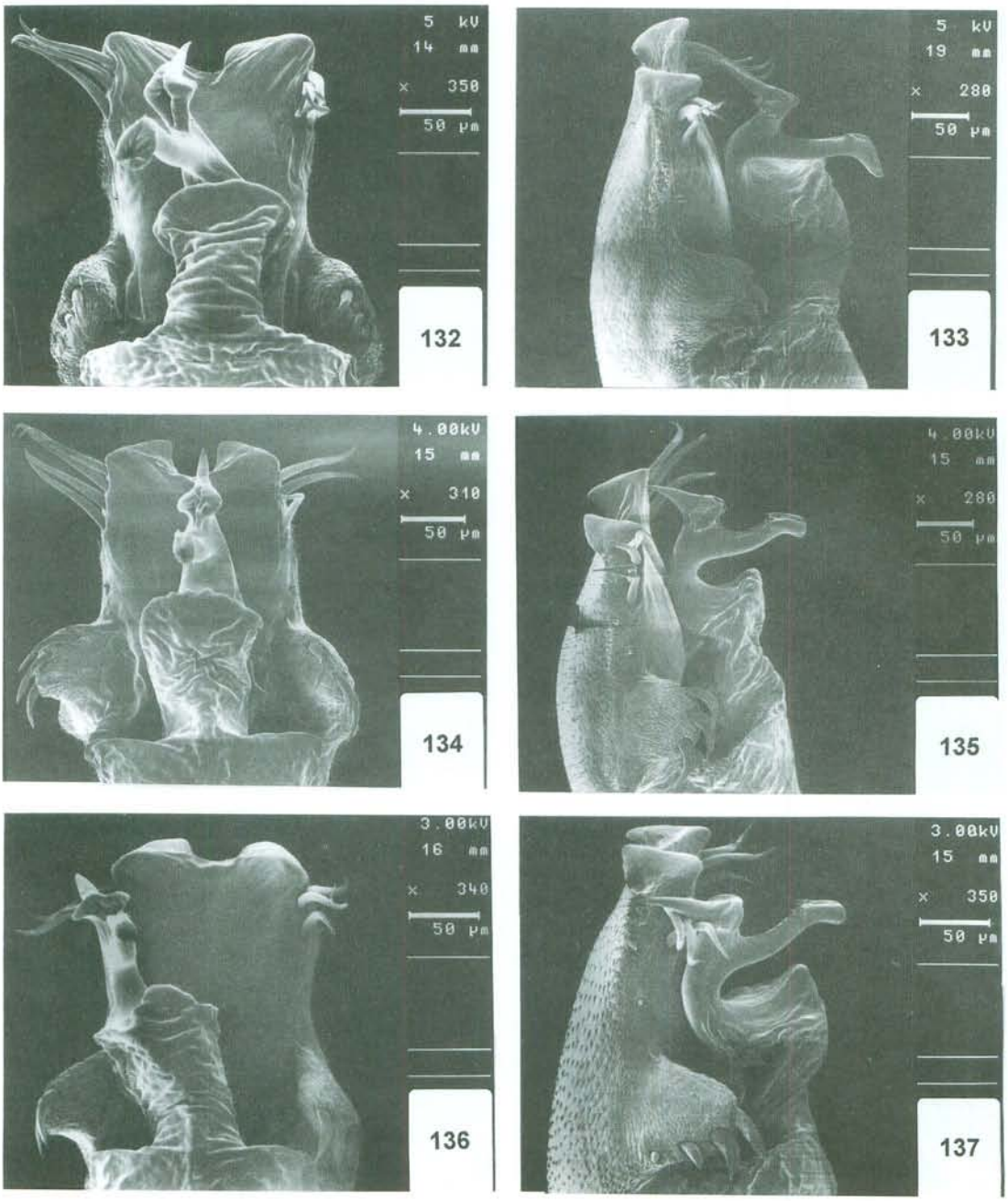




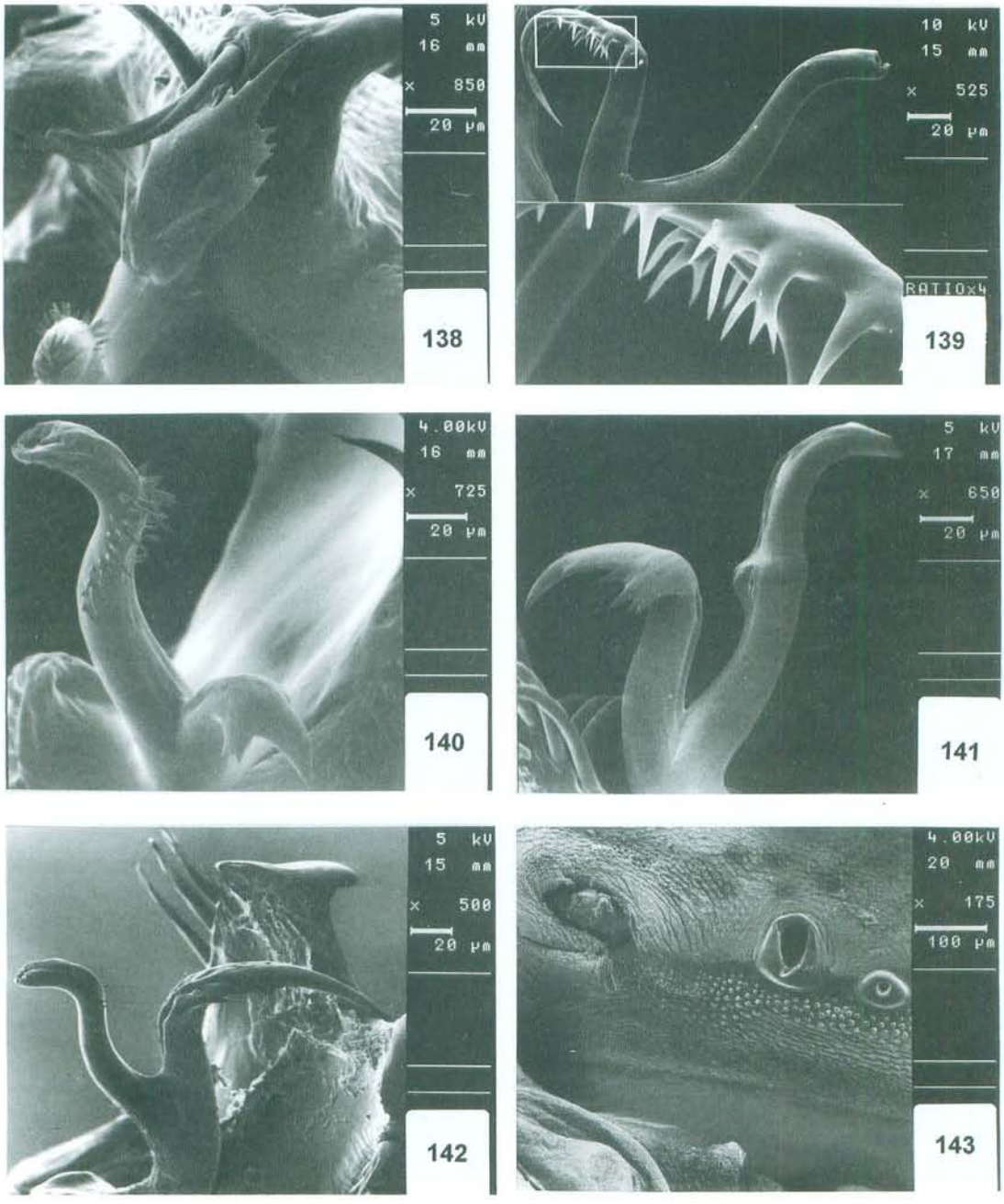




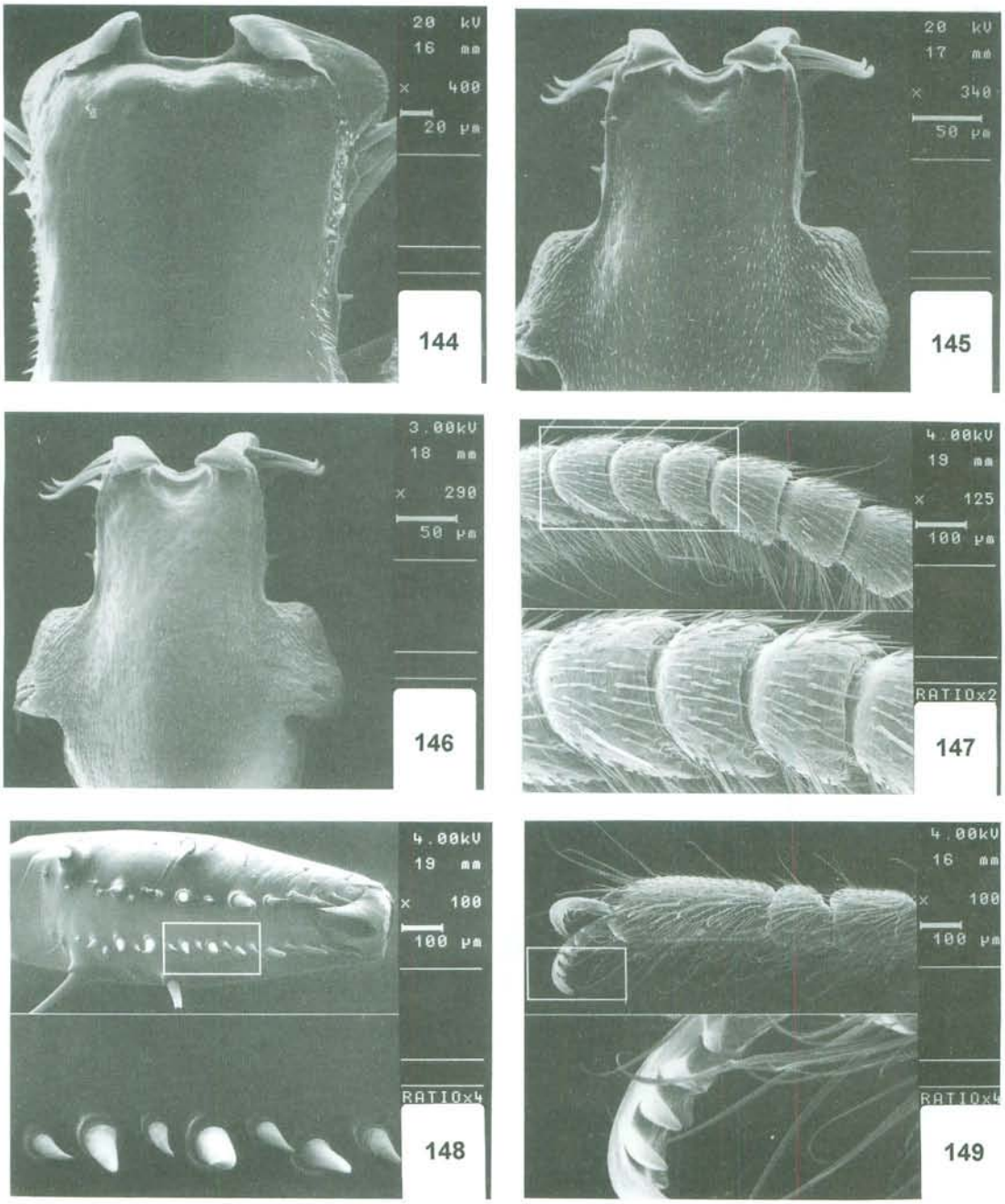
Figs. 126-131. Distal part of penis in dorsal and lateral views respectivelly: 126-127, *Metarthrodes bimaculatus* (MZSP-262); 128-129, *M. albotaeniatus* (HSPC-263); 130-131, *M. leucopygus* (MNRJ).



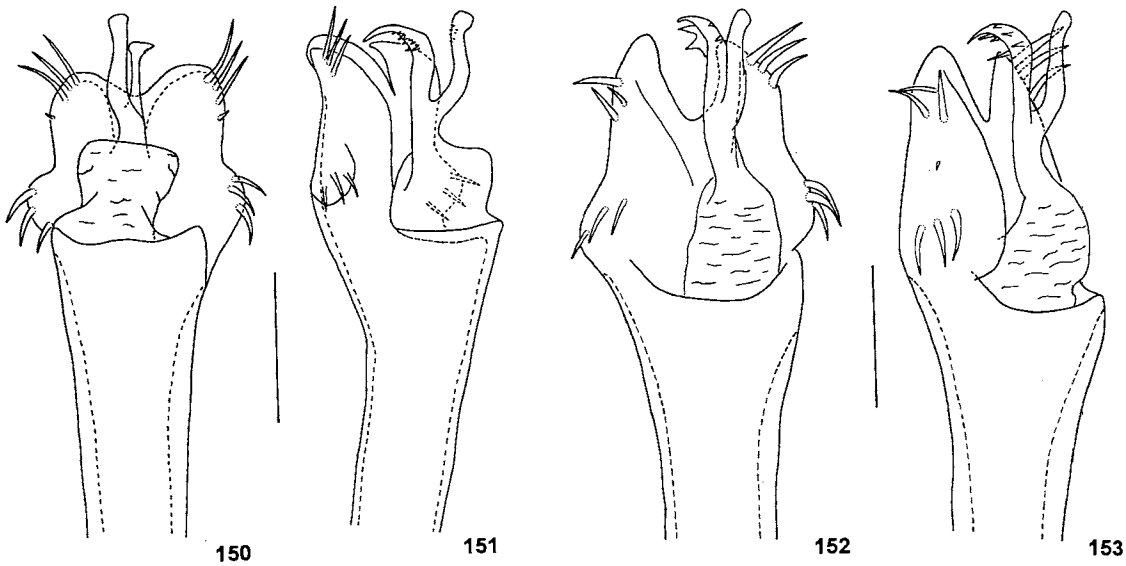
Figs. 132-137. Distal part of penis in dorsal and lateral views, respectivelly: 132-133, *Metarthrodes nigrigranulatus* (MZSP-14191); 134-135, *M. pulcherrimus*; 136-137, *M. longipes*.



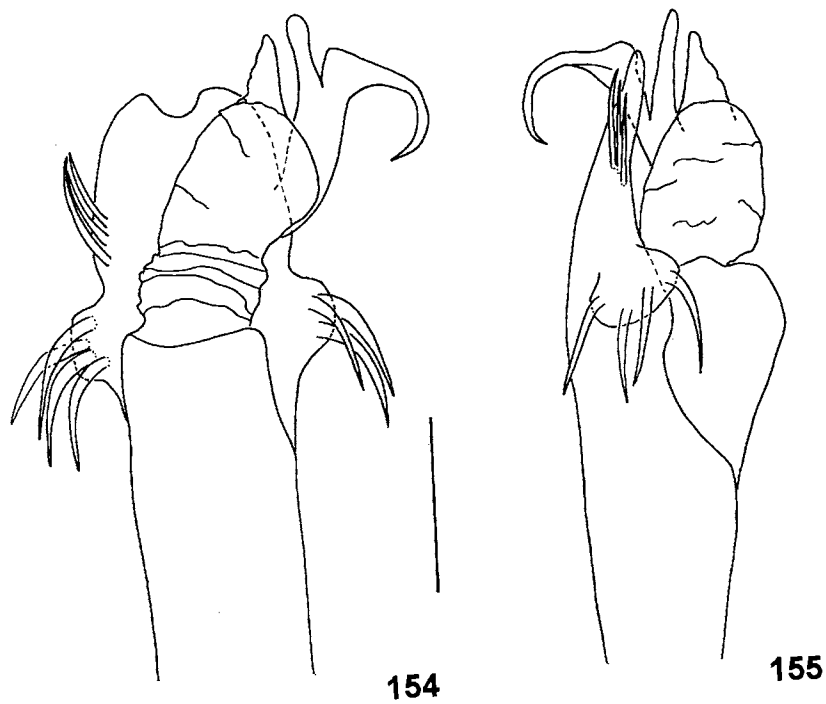
Figs. 138-143. 138-142. Glans: 138, *Ampheres leucopheus*; 139, *Arthrodes xanthopygus*; 140, *Pristocnemis albimaculatus*; 141, *Pristocnemis pustulatus*; 142, *Metarthrodes laetabundus*. 143, ozopores of *Thereza speciosa*.



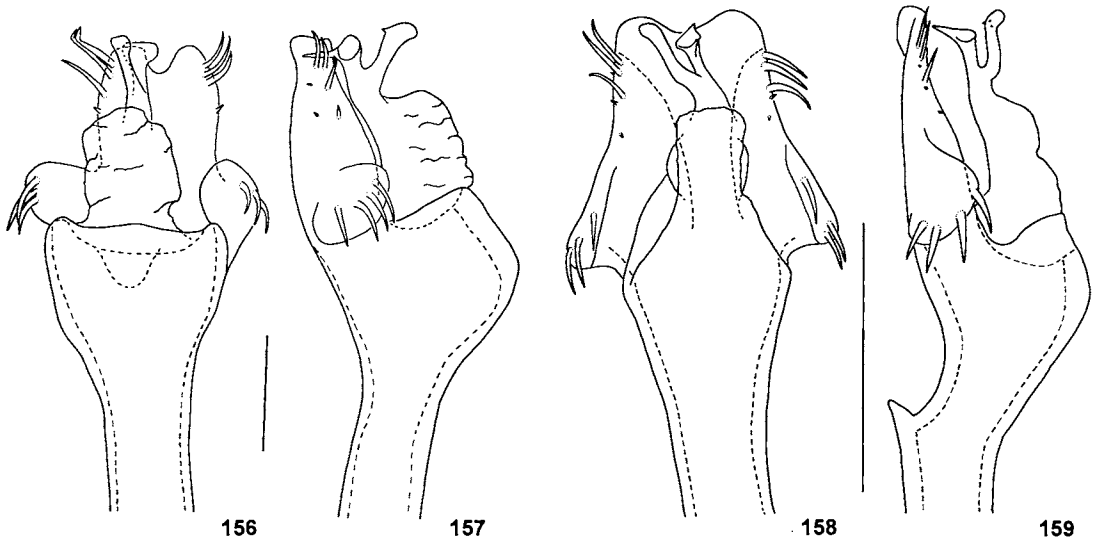
Figs. 144-149. 144-146, Ventral part of ventral plate: 144, *Pristocnemis farinosus*; 145, *Ampheres leucopheus*; 146, *Metarthrodes bimaculatus*. *Thereza speciosa*: 147, tarsomere IV; 148, ventral part of pedipalpal tarsus; 149, distitarsus IV.



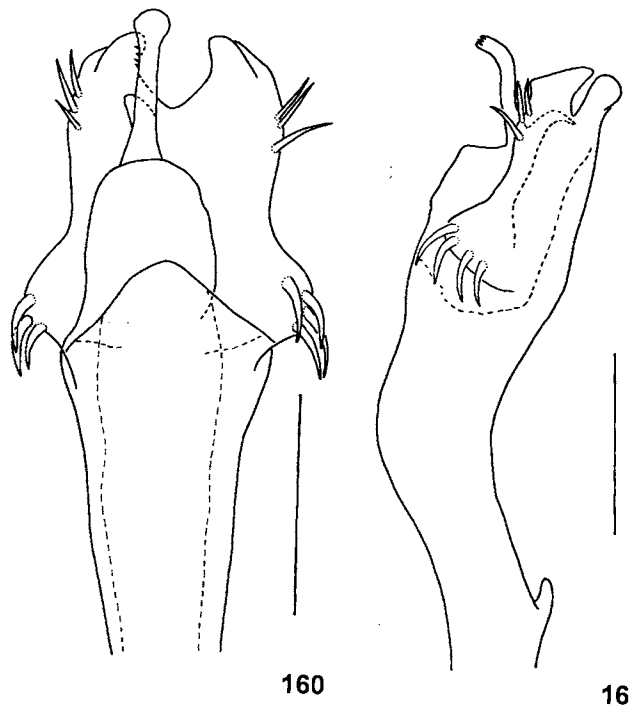
Figs. 150-153. Distal part of penis in dorsal and lateral views, respectivelly: 150-151, *Ampheres luteus*; 152-153, *A. tocantinus* (holotype). Scale bar = 0.3 mm.



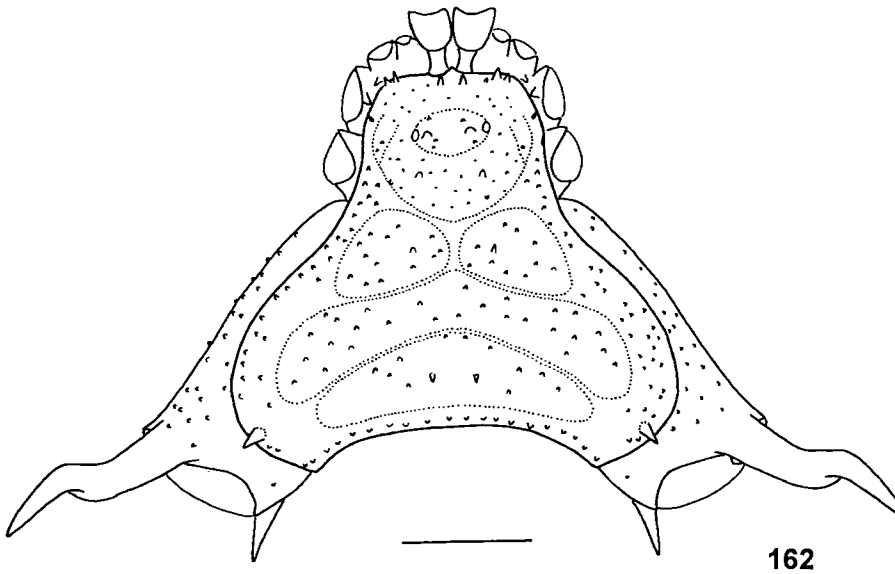
Figs. 154-155. Distal part of penis in dorsal and lateral views of *Garatiba bocaina* (holotype). Scale bar = 0.3 mm.

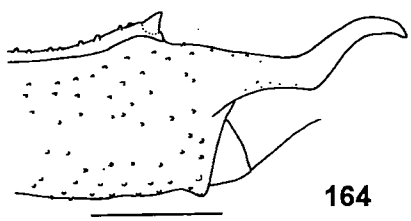


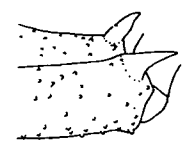
Figs. 156-159. Distal part of penis in dorsal and lateral views, respectivelly: 156-157, *Metarthrodes hamatus*; 158-159, *M. xango* (holotype). Scale bar = 0.3 mm.

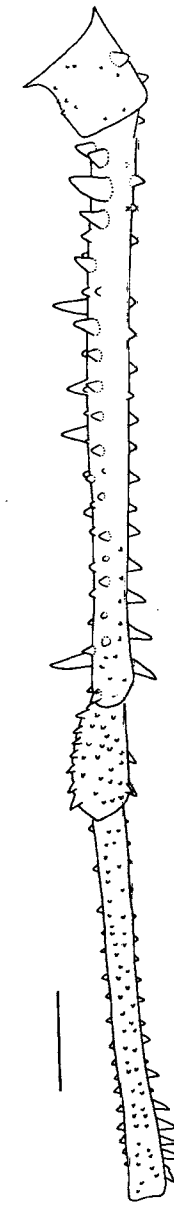


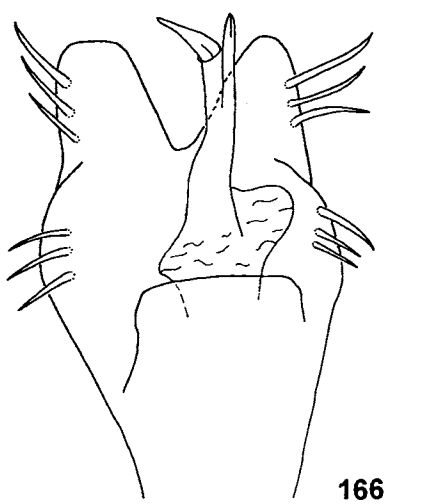
Figs. 160-161. Distal part of penis in dorsal and lateral views, respectivelly of *Pristocnemis perlatus* (Serra da Bocaina, MZSP). Scale bar = 0.3 mm.

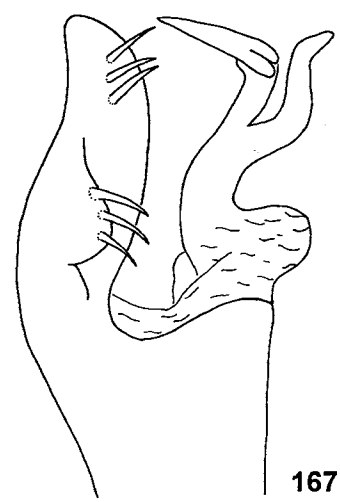




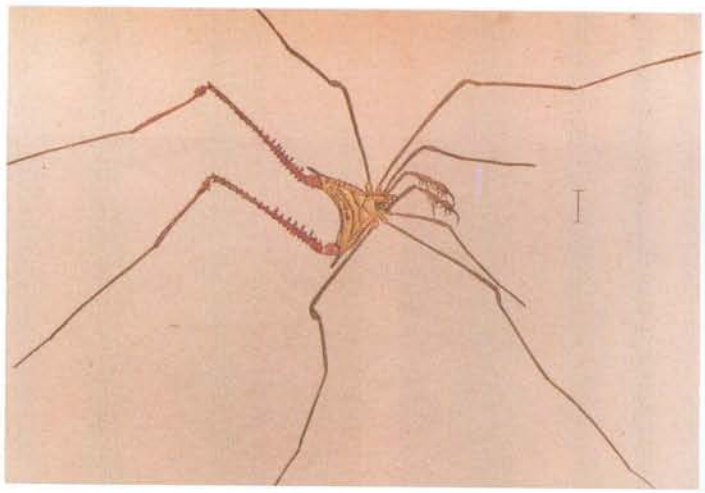








Figs. 162-167. *Deltigalus curvispina*: 162, dorsal view of male; 163, leg IV of male; 164, male coxa IV; 165, female; 166-167, penis. Scale bar (Figs. 92-95) = 2 mm, (Figs. 96-97) = 0.3 mm.



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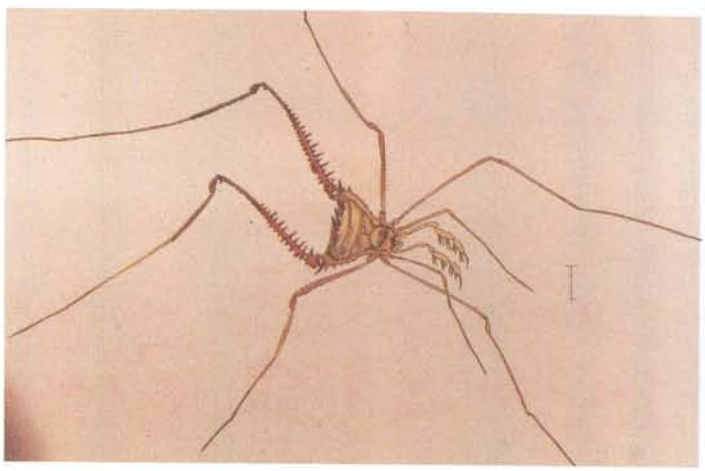

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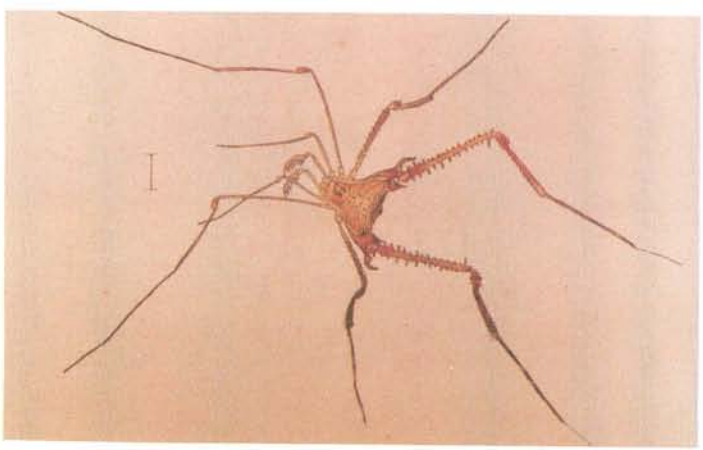

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Figs. 168-170. 168, *Ampheres spinipes*; 169, *Proampheres serratus*; 170, *Deltigalus curvispina*. After Koch (1839b).

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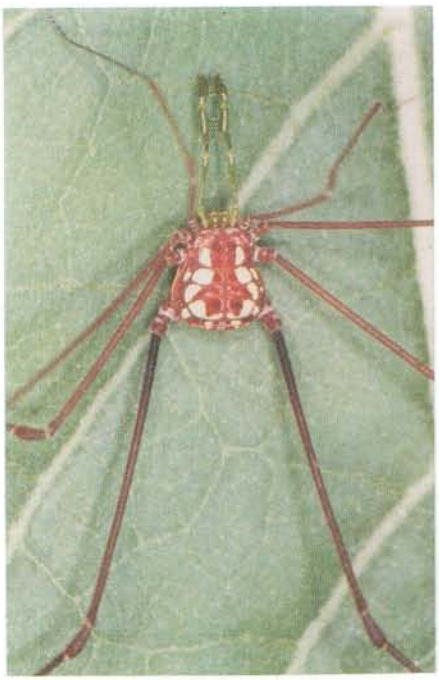
Figs. 171-174. Photographs of live specimens of Caelopyginae. 171, male of *Caelopygus elegans* (Parque Nacional da Serra dos Órgãos); 172, male of *Ampheres luteus* (Parque Nacional do Itatiaia, RJ); 173, male of *Arthrodes xanthopygus* (Estação Ecológica Paraíso, RJ); 174, female.



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Figs. 175-178. Photographs of lived specimens of Caelopyginae. 175, male of *Thereza speciosa* (Parque Botânico do Morro do Baú, SC); 176, *Ampheres leucopheus* (Miracatu, SP). 177, male of *Ampheres fuscopunctatus*; 178, female.

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Figs. 179-182. Photographs of live specimens of Caelopyginae. 179, male of *Pristocnemis perlatus* (Parque Nacional da Bocaina, SP); 180, female.181, male of *Pristocnemis farinosus* (Estação Biológica do Alto da Serra, SP); 182, female.

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Figs. 183-186. Photographs of live specimens of Caelopyginae. 183, male of *Pristocnemis albimaculatus* (Parque Nacional da Serra dos Órgãos, RJ); 184, female (idem); 185, male of *P. pustulatus* (Parque Nacional do Itatiaia, RJ); 186, female (Parque Nacional da Bocaina, SP).

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Figs. 187-190. Photographs of live specimens of Caelopyginae. 187, male of *Metarthrodes laetabundus* (Parque Nacional da Serra dos Órgãos, RJ); 188, female (idem); 189, male of *Metarthrodes longipes* (Ubatuba, SP, Ricardo Sawaya photo); 190, male of *M. pulcherrimus* (Estação Biológica de Boracéia, SP).

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8. References

Amorim, D.S. 1994. *Elementos básicos de sistemática filogenética.* Sociedade Brasileira de Entomologia, São Paulo, 314 p.

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 of Desenvolvimento Científico and Tecnológico. São Paulo. 326 p.

Arnett, R.H., Jr, 1986. *The insects and spider collection of the world.* Gainsville, E.J.Brie1/Flora & Fauna Publication. 220 pp.

Baptista, M.S. & A.B. Kury. 1996. Análise filogenética do gênero *Cosmetus* (Arachnida, Opiliones, Cosmetidae). in: Resumos XXI Congresso brasileiro de Zoologia, Porto Alegre, p.69

Bertkau, P. 1880. Verzeichnis 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.

Costa, 1988. Levantamento populacional de artrópodes associados à bracatinga (*Mimosa scabrella* Benth.) I. Acarina, Opiliones, Araneae. in: Anais do VI Congresso Florestal Estadual, Nova Prata, Rio Grande do Sul. p. 575-588.

Cunha-Filho, L.A. 1955. *Revisão da subfamília Caelopyginae.* Tese de doutoramento (não Publicada) apresentada à Escola Superior de Agricultura "Luiz de Queiroz". 124 p.

Farris, J.S. 1988. Hennig 86 reference, version 1.5. Computer program. New York.

Gervais, P. 1844. Acères Phrynéides, Scorpionides, Solpugides, Phalangides et Acarides, Dieeres Épizoiques, Aphaniptères et Thisanoures. Ordre V. Phalangides. *In*: C.A.Walckenaer, *Histoire naturelle des Insectes Aptères*, 3: 94-131, pl.28-30. Paris.

Giltay, L., 1928. Arachnides nouveaux du Brésil. *Bull. Annls. Soc. ent. Belg.*, 68: 79-87.

Giltay, L., 1930. Liste des Arachnides brésiliens récoltés par la Mission belgo-brésilienne Jean Massart. in: R. Bouillenne, P. Ledoux, P. Brien & A. Navez. *Une Mission Biologique Belge au Brésil*, 2: 234-245. Imprimerie Medicale et Scientifique, Bruxelles.

Helversen, O. van & J. Martens, 1972. Unrichtige Fundort-Angaben in der Arachniden-Sammlung Roewer. *Senckenbergiana.* 53(1-2): 109-123.

Hueck, K. 1972. *As florestas da América da Sul. Ecologia, composição e importância econômica.* Editora Universidade de Brasília, Editora Polígono. São Paulo. 466 p.

Jackson, J. F. 1978. Differentiation in the genera *Enyalius* and *Strobilurus* (Iguanidae): implications for Pleistocene climatic changes in eastern Brazil. *Arq. Zool.*, 30: 1-79.

Jim, R.L.S.1985. Gonyleptidae da subfamilia Goniosomatinae Mello-Leitão, 1935 (Opiliones). Dissertação apresentada na Universidade Estadual Paulista "Júlio de Mesquita Filho", campus Botucatu, 145 p.

Jim, R.L.S. 1995. Estudo sistemático de Goniosomatinae (Opiliones, Laniatores, Gonyleptidae). Tese apresentada na Universidade Estadual Paulista "Júlio de Mesquita Filho", campus Botucatu, 67 p.

Koch, C.L. 1839a. *Übersicht des Arachnidensystems. v.* 2. C.H.Zehschen Buchhandlung.

Koch, C.L. 1839b. *Die Arachniden, getreu nach der Natur abgebildet und beschrieben, V.* 7. p. 1-130. C.H.Zehschen Buchhandlung.

Kury, A.B. 1990. Synonymic notes on *Mitobates* Sundevall, with redescription of the type species, *M. conspersus* (Perty) (Opilines: Gonyleptidae: Mitobatinae). *Bull. Br. arachnol. Soc.*, 8(6): 194-200.

Kury, A. B. 1991a. Notes on Mitobatinae IV: *Ischnotherus tenebrosus* new genus and new species of Brazilian harvestman. *Mitt. Zool. Mus. Berl.* 67 (1991) 2: 351-359.

Kury, A.B. 1991b. Análise filogenética de Mitobatinae (Opiliones, Laniatores, Gonyleptidae). Dissertação de Mestrado. Museu Nacional do Rio de Janeiro, 161 p.

Kury, A.B. 1992a. The genus *Spinopilar* Mello-Leitão, 1940, with notes on the status of the family Tricommatidae (Arachnida, Opiliones). *Steenstrupia*, 18(5): 93-99.

Kury, A.B. 1992b. The false Cranainae of the Brazilian Atlantic Forest (Opiliones Gonyleptidae). *Trop. Zool.*, 5: 279-291.

Kury, A.B. 1994a. Early lineages of Gonyleptidae (Arachnida Opiliones Laniatores). *Trop. Zool.*, 7: 343-353.

Kury, A.B. 1994b. Ocorrência independente de garras pectíneas em Gonyleptoidea Neotropicais (Arachnida, Opiliones). in: Resumos XX Congresso brasileiro de Zoologia, Rio de Janeiro. p. 72.

Kury, A.B. 1994c. On the identity of the enigmatic *Leptocnema* (Arachnida, Opiliones, Gonyleptidae). *Mitt. Zool. Mus. Berl.*, 70(1): 93-98.

Kury, A.B. 1995. A review of *Mitopernoides* revalidated (Progonyleptoidellinae) and the synonymy of *Mitoperna* with *Neosadocus* (Gonyleptinae) (Arachnida, Opiliones, Gonyleptidae). *Papéis Avuls. Zool.*, 39(8): 201-207.

Kury, A. B. 1997. The genera *Saramacia* and *Syncranaus* Roewer, With notes on the status of the Manaosbiidae (Opiliones, Laniatores, Gonyleptoidea). *Bolm. Mus. Nacional*, 374: 1-22.

Lourenço, W.L. 1982. La véritable identité of *Tityus bahiensis* (Perty, 1834). Description of *Tityus eickstedtae* n. sp. (Scorpiones, Buthidae). *Revue Arachnol.*, 4: 93-105.

Maack, R. 1981. *Geografia física do Estado do Paraná.* Livraria José Olympo Editora. Rio de Janeiro, 450 p.

Maddison, W.P. *et al.* 1984. Outgroup analysis and parsimony. *Syst. Zool.*, 33(1): 83-103.

Mello-Leitão, C.F. 1922. On some new Brazilian Gonyleptidae. *Ann. Mag. nat. Hist.*, 9ϒ ser., 9: 329-348.

Mello-Leitão, C.F. 1923. Opiliões Laniatores do Brasil. *Arq. Mus. Nac. RJ*, 24: 105-197.

Mello-Leitão, C.F. 1926. Notas sobre opiliones Laniatores sul-americanos. *Revta Mus. Paulista*, 14: 1-59.

Mello-Leitão, C.F. 1927. Arachnideos de Santa Catarina (Brasil). *Revta Mus. Paulista*, 15: 395-418.

Mello-Leitão, C.F. 1931. Opiliões novos ou críticos. *Arq. Mus. Nac. RJ*, 33: 117-145.

Mello-Leitão, C.F. 1932. Opiliões do Brasil. *Revta Mus. Paulista*, 17(2a. parte): 1-505.

Mello-Leitão, C.F. 1933. Novos Gonyleptidae do Brasil Meridional. *Arq. Esc. Superior Agric. Med. Vet*, 10(2): 133-151.

Mello-Leitão, C.F. 1935a. Alguns novos opiliões do estado de S. Paulo e do Distrito Federal. *Arq. Mus. Nac. RJ*, 36(1934): 9-37.

Mello-Leitão, C.F. 1935b. Algumas notas sobre os Laniatores. *Arq. Mus. Nac. RJ*, 26(1934): 89-116.

Mello-Leitão, C.F. 1935c. A propósito de alguns opiliões novos. *Mem. Inst. Butantan*, 9: 369-411.

Mello-Leitão, C.F. 1936. Notas sobre opiliões. *Bolm Mus. Nac. RJ*, 12(3-4): 1-41.

Mello-Leitão, C. F. 1939. Dois genera e sete species of Gonyléptidas sulamericanos. *Bolm. Biol.*, n.s., 4 (3): 345-351.

Mello-Leitão, C. F. 1940a. Mais alguns novos opiliões sulamericanos. *Anais Acad. bras. Cien., 12* (2): 93-107.

Mello-Leitão, C.F. 1941. Opiliões coligidos por Antenor Leitão de Carvalho no Tapirapés. *Revta Bras. Biol.*, 1(4): 435-442.

Mello-Leitão, C.F. 1942a. Sete novos Laniatores colhidos pelo snr. A. Ruschi no Espírito Santo. *Anais Acad. Bras. Cienc.*, 14(2): 159-165.

Mello-Leitão, C.F. 1942b. Oito novos opiliões do Espírito Santo. *Bolm Mus. Nac. RJ*, 14-17 (1938-1941): 1-11.

Mello-Leitão, C.F. 1944. Alguns curiosos e interessantes opiliões brasileiros. *Anais Acad. Bras. Cienc.*, 16(1): 13-22.

Mello-Leitão, C.F. 1949. Familias, subfamilias, espécies e generos novos de opiliões e notas de sinonímia. *Bolm Mus. Nac. RJ*, 94: 1-33.

Moritz, 1971. Die Typen der Arachniden-Sammlung der Zoologischen Museum Berlin. I. Opiliones. *Mitt. Zool.Mus. Berlin*, 47(1): 189-214.

Nixon, K.C. 1992. Clados version 1.2. Ithaca, New York.

Papavero, N. 1971. *Essays on the history of Neotropical Dipterology*. vol. I. Museu of Zoologia, São Paulo, 216 p.

Paschoal, A.D. & O.N.F. Barros, 1983. Catálogo dos tipos depositados on Museu de Zoologia da Escola Superior de Agricultura "Luiz de Queiroz". II. Arachnida. *Revta Agricultura*, 58 (1-2): 75-94.

Perty, 1833. *Delectus animalium articulatorum, quae in itinere per Brasiliam an. 1817-20 peracta collegerum J.B. of Spix et of Martius*. Monachii, p.1-4, 1-224, pl. 40.

Petri, S. & V.J. Fúlfaro. 1986. *Geologia do Brasil (Fanerozóico)*. Queiroz T A & EDUSP, São Paulo.

Pinto-da-Rocha, R. 1996. Biological notes and population size of *Pachylospeleus strinatii* Silhavy, 1974 in the Gruta das Areias of Cima, Iporanga southwestern Brazil (Arachnida; Opiliones Gonyleptidae). *Bull. British Arachnol. Soc.* 10(5): 189-192.

Pinto-da-Rocha, R. 1997. Systematic review of the family Stygnidae (Opiliones: Laniatores; Gonyleptoidea). *Arq. Zool.*, 33(4): 163-342.

Pinto-da-Rocha, R. & S.F. Caron. 1989. Catálogo dos material-tipo da coleção de Arachnida "Rudolf Bruno Lange do Museu de História Natural "Capão da Imbuia". *Revta bras. Biol.*, 49 (4): 1021-1029.

Piza Jr., S.T. 1940. Novo gênero e nova espécie de duvidosa posição sistemática. *J. Agron.*, 3(4): 279-281.

Piza Jr., S.T. 1942. A respeito da sistemática de alguns opiliões. *Revta bras. Biol., 2*(4): 403-416.

Piza Jr., S.T. 1943. Novos Gonyleptidas brasileiros. *Papéis Avuls. Zool.*, 3(3): 39-60.

Platnick, N.I. 1989. An empirical comparison of microcomputer parsimony programs. II. *Cladistics*, 5(2): 145-161.

Rambla, M. 1978. Systematics of Laniatorid Opiliones. *Symp. zool. Soc. Lond.*, 42: 303-307.

Ramos, T. 1996. Tree-Gardener. 2.2. version. Computer Program. São Paulo.

Ringuelet, R.A., 1959. Los aracnidos argentinos del orden Opiliones. *Revta Mus. argent. Cienc. Nat. "Bernardino Rivadavia"*, 5(2): 127-439.

Roewer, C.F. 1913a. Die familie der Gonyleptiden der Opiliones-Laniatores. *Arch. Naturg.*, 79A(4): 1-256.

Roewer, C.F. 1913b. Die familie der Gonyleptiden der Opiliones-Laniatores. *Arch. Naturg.*, 79A(4): 257-473.

Roewer, C.F. 1916. 52 neue Opilioniden. *Arch. Naturg.*, 82A(2): 90-158.

Roewer, C.F. 1923. *Die Weberknechte der Erde. Systematische Bearbeitung der bisher bekannten Opiliones*. 1116 p. Gustav-Fisher, Jena.

Roewer, C.F. 1927. Brasilianische Opilioniden, gesammelt von Herrn Prof. Bresslau im Jahre 1914. *Abh Senckenberg. Naturf.*, 40(3): 333-352.

Roewer, C.F. 1931. Weitere Weberknechte V. Ergänzung der: "Weberknechte der Erde", 1923. *Abh. Nat. Ver. Bremm.*, 28(2-3): 101-164.

Roewer, C.F. 1938. Opiliones aus dem Naturhistorischen Reichsmuseum in Stockholm. *Ark. Zool. Stockholm*, 30B(10): 1-8.

Roewer, C.F. 1943. Über Gonyleptiden. Weitere Weberknechte (Arachn., Opil.) XI. *Senckenbergiana*. 26(1-3): 12-68.

Silva, J.M.C. & F.C. Straube. 1996. Systematics and biogeography of scland woodcreepers (Aves: Dendrocolaptidae). *Studies Neotrop. Fauna Environm.*, 31(1): 3-10.

Slowinski, J.B. 1993. "Unordered" versus "ordered" characteres. *Syst. Biol.*, 42(2): 155-165.

Soares, B.A.M. 1942. Contribuição ao estudo dos opiliões da Serra da Mar - Opiliões of Boracéa. *Papéis Avuls. Zool.*, 2(1): 1-13.

Soares, B.A.M. 1943a. Notas sobre opiliões. *Papéis Avuls. Zool.*, 3(11): 193-198.

Soares, B.A.M. 1943b. Notas sôbre opiliões. III. *Bolm Industria Animal*, 6(3): 9-15.

Soares, B.A.M. 1944a. Opiliões de Ubatuba coligidos pelo Sr. Alfredo Zoppei. *Bolm Industria Animal*, 7(1-2): 8-96.

Soares, B.A.M. 1944b. Opiliões do Alto da Serra. II. *Papéis Avuls. Zool.*, 4(18): 277-302

Soares, B.A.M. 1944c. Contribuição ao estudo dos opiliões do estado do Espírito Santo. *Papéis Avuls. Zool.*, 6(13): 143-156.

Soares, B.A.M. 1944d. Opiliões do Alto da Serra. *Papéis Avuls. Zool.*, 4(16): 221-241.

Soares, B.A.M. 1944e. Notas sobre opiliões. *Papéis Avuls. Zool.*, 4(17): 248-275.

Soares, B.A.M. 1945a. Opiliões do Paraná. *Arq. Mus. paranaense*, 4(8): 191-206.

Soares, B.A.M. 1945b. Opiliões da coleção do Museu Nacional do Rio de Janeiro. *Arq. Zool.* Est. São Paulo, 4(9): 341-393.

Soares, B.A.M. 1945c. Revisão dos opiliões do Instituto Butantã. *Papéis Avuls. Zool.*, 5(25): 227-242.

Soares, B.A.M. 1946. Opiliões do Departamento de Zoologia. Revisão dos opiliões existentes atualmente on Departamento de Zoologia da Secretaria de Agricultura do estado de São Paulo. *Arq. Zool.* Est. S. Paulo, *4*(13): 485-534.

Soares, B.A.M. & H.E.M. Soares, 1945c. Novos opiliões do Departamento de Zoologia da Secretaria de Agricultura do estado de São Paulo. *Papéis Avuls. Zool.*, 5(27): 251-269.

Soares, B.A.M. & H.E.M. Soares, 1945b. Duas novas especies de opiliões do estado do Espírito Santo. *Papéis Avuls. Zool.*, 5(30): 281-286.

Soares, B.A.M. & H.E.M. Soares, 1945a. Mais opiliões pertencentes ao Museu Paranaense. *Revta Agric.*, 20(9-12): 365-377.

Soares, B.A.M. & H.E.M. Soares, 1946a. Novos opiliões do estado do Espírito Santo e um novo opilião do estado do Pará. *Papéis Avuls. Zool.*, 7(15): 195-212.

Soares, B.A.M. & H.E.M. Soares, 1946b. Novos opiliões de Banhado (estado do Paraná). *Papéis Avuls. Zool.*, 7(8): 101-111.

Soares, B.A.M. & H.E.M. Soares, 1947a. Alótipos e formas novas de opiliões paranaenses (Opiliones - Gonyleptidae, Phalangiidae). *Papéis Avuls. Zool.*, 8(5): 63-84.

Soares, B.A.M. & H.E.M. Soares, 1947b. Opiliões da coleção Gofferjé (Opiliones - Gonyleptidae). *Papéis Avuls. Zool.*, 8(21): 249-259.

Soares, B.A.M. & H.E.M. Soares, 1948. Monografia dos generos de opiliões neotrópicos. *Arq. Zool.* Est. São Paulo, 5(9): 553-635.

Soares, B.A.M. & H.E.M. Soares, 1954. Algumas notas sobre opiliões, com a descrição de novas formas (Opiliones - Gonyleptidae, Phalangodidae). *Papéis Avuls. Zool.*, 11(25): 491-507.

Soares, H.E.M. 1944. Um novo opilião do Paraná. *Papéis Avuls. Zool.*, 4(24): 321-324.

Soares, H.E.M. 1945. Contribuição ao estudo dos opiliões do estado do Paraná. *Arq. Mus. paranaense*, 4(9): 207-230.

Soares, H.E.M. 1946. Contribuição ao estudo dos opiliões do estado do Rio de Janeiro. *Revta bras. Biol.*, *6*(3): 385-390.

Soares, H.E.M. 1974. Opera opiliologica varia. I.(Opiliones, Gonyleptidae). *Revta bras. Biol.*, *34*(3): 353-362.

Soares, H.E.M. 1979. Novo Caelopygínae do Brasil (Opiliones: Gonyleptidae). *Revta bras. Ent.*, 23(1): 43-46.

Soares, H.E.M. & B.A.M. Soares. 1970. Opiliões do Itatiaia (Opiliones: Gonyleptidae, Phalangodidae). *Revta bras. Biol.*, 30(3): 339-350.

Soares, H.E.M. & B.A.M. Soares. 1984. Opera opiliologica varia. XXV. (Opiliones, Gonyleptidae). *Revta bras. Ent.*, 28(3): 301-314.

Soares, H.E.M. & B.A.M. Soares. 1985. Opera opiliologica varia. XXII. (Opiliones: Gonyleptidae). *Naturalia,* 10: 157-200.

Soares, H.E.M. & B.A.M. Soares. 1986. Opera opiliologica varia. XXVI. (Opiliones, Gonyleptidae). *Revta bras. Ent.*, 30(1): 87-100.

Soares, H.E.M. & B.A.M. Soares. 1987. Opera opiliologica varia. XVIII. Notas sinonímicas (Opiliones, Cosmetidae e Gonyleptidae). *Revta bras. Ent.* 31 (1): 1-11.

Sørensen, W. 1884. Opiliones Laniatores (Gonyleptides W. S. olim) Musei Hauniensis. *Naturhist. Tiddskr.*, 14(3): 555-646.

Sørensen, W. 1932 *in* K. L. Henriksen (ed) Descriptiones Laniatorum (Arachnidorum opilionum subordinis) fecit William Sørensen opus posthumum recognivit et edidit K.L.Henriksen. *Mem. Acad. R. Sci. Lettres Danemark Copenhange, ser 9 3*(4): 199-422.

Watrous, L.E. & Q.D. Wheeler. 1981. The out-group comparison method of character analysis. *Syst. Zool.*, 30(1): 1-11.

Wiley, E.O. 1981. *Phylogenetics. The principles and practice of phylogenetic systematics*. New York, John Wiley & Sons. 438 p.

Yeates, D. 1992. Why remove autapomorphies? *Cladistics*, 8(4): 387-389.