

A REVISION OF THE SOUTH
AMERICAN
SPIDERS OF THE FAMILY
NEMESIIDAE
(ARANEAE, MYGALOMORPHAE).

PART I:
SPECIES FROM PERU, CHILE,
ARGENTINA, AND URUGUAY

PABLO A. GOLOBOFF

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ABSTRACT

The 58 species of Nemesiidae occurring in Peru, Chile, Argentina, and Uruguay are described, keyed, illustrated, and diagnosed. Of those 58 species, 39 are new. *Acanthogonatus* comprises 27 species; *Acanthogonatus segne* (Simon) is synonymized with *A. franki* Karsch; *A. guttulata* (Simon) is synonymized with *A. subcalpeianus* (Nicolet); *Thalerommata venosa* Mello-Leitão is synonymized with *A. pissii* (Simon); *A. notatus* (Mello-Leitão) is removed from the synonymy of *A. patagonicus* (Simon); the female previously identified as *A. subcalpeianus* was misidentified and belongs to a new species, *A. confusus*; *Bolostromus incurtus* (Chamberlin) is transferred from the Cyrtachenidiidae to *Acanthogonatus*; 17 new species of *Acanthogonatus* are described: *A. tolhuaca*, *A. mulchen*, *A. chilechico*, *A. quilocura*, *A. huaquen*, *A. juncal*, *A. alegre*, *A. nahuelbuta*, *A. hualpen*, *A. patagallina*, *A. vilches*, *A. recinto*, *A. peniasco*, and *A. confusus*, from Chile, and *A. centralis*, *A. parana*, and *A. birabeni*, from Argentina; the males of *A. franki*, *A. patagonicus*, and *A. subcalpeianus*, and the female of *A. notatus*, are described for first time. *Lycinus* Thorell (with eight species) is removed from the synonymy of *Mygaloides* Nicolet, as *Mygaloides* is an unidentifiable mygalomorph (perhaps a theraphosid); *Lycinus epipiptus* (Zapfe) is removed from the synonymy of *L. gajardoi* (Mello-Leitão); five new species of *Lycinus*, *L. quilicura*, *L. domeyko*, *L. frayjorge*, *L. caldera*, and *L. tofo* are described (all from Chile); *L. longipes* Thorell does not occur in Chile, previous records actually corresponding to specimens of *L. caldera* and *L. epipiptus*; the females of *L. gajardoi* and *L. longipes* are described for the first time (previously described female of *L. gajardoi* is actually that of *L. epipiptus*). *Diplothelopsis* Tullgren comprises two species, *D. bonariensis* Mello-Leitão and *D. ornata* Tullgren; the placement of *D. hastata* Mello-Leitão in this genus is almost certainly erroneous, and the genus is exclusively Argentinian. A new genus from Chile is described, *Chilelopsis*, which contains three new species: *C. calderoni* (the type species), *C. serena*, and *C. puerroviejo*. *Chilelopsis* is hypothesized to be the sister group of *Lycinus* + *Diplothelopsis*. A new genus, *Flamencopsis*, contains only the type species, *F.*

minima (Chile). *Chaco* Tullgren comprises seven species; six new species are described: *C. tucumana*, *C. sanjuanina*, *C. tecka*, and *C. patagonica* from Argentina, and *C. tigre* and *C. socos* from Chile; the male of *C. obscura* is described for first time; *Hermacha leporina* Simon, from Brazil, said by Raven to belong to *Chaco*, is transferred to *Stenoterommata*, and *Neostothis* Vellard (from Brazil) is removed from the synonymy of *Chaco*; as delimited, *Chaco* is restricted to Chile and Argentina. *Stenoterommata* is represented by seven species (other species occur in Brazil); *Stenoterommata argentinensis* (Schiapelli and Gerschman) and *Brachythele argentina* Simon are synonymized with *S. platense* Holmberg; six new species are described: *S. iguazu*, *S. tenuistylum*, *S. quena*, and *S. uruguayi*, from Argentina, *S. crassistylum* from Argentina and Uruguay, and *S. palmar* from Argentina and Brazil. *Rachias* is represented by only one (new) species, *R. timbo*. *Petropolisia* Mello-Leitão is removed from the synonymy of *Pselligmus* and placed in the synonymy of *Rachias*. The genus *Pycnothele* is represented by two species; *P. modesta* (Schiapelli and Gerschman) is removed from the synonymy of the Brazilian *P. singularis* Mello-Leitão; the females of *P. modesta* and *P. auronitens* (Keyserling) are described for first time. *Pselligmus conspersus* Walckenaer is transferred to *Rachias*. *Xenonelesia* Goloboff and *Spelocteniza* Gertsch are transferred to the Microstigmatidae. *Neodiplothele* Mello-Leitão is transferred to the Sasoninae (Barychelidae). *Brachythele keithi* Chamberlin is transferred to the genus *Linothele* (Dipluridae).

A cladistic analysis of nemesiid relationships is provided, based on a matrix including all known species of *Acanthogonatus*, *Chaco*, and *Diplothelopsis*, as well as representatives of most nominal Neotropical nemesiid genera, and several non-Neotropical nemesiids and non-nemesiid bipectinates. The 84 terminals in the matrix were scored for 104 characters. The results of the analysis suggest that Nemesiidae as currently delimited is a paraphyletic group but they do not allow a re-delimitation at the familial level; the subfamilies Pycnothelinae and Anaminae as delimited by Raven do not appear as monophyletic.

INTRODUCTION

The species currently placed in the family Nemesiidae have been considered to belong to families as disparate as the Dipluridae, Ctenizidae, Barychelidae, and Pycnotheli-

dae; one of the species treated here was even described in a family as distantly related as the Migidae. Raven (1985a), in his major treatise on mygalomorph relationships, gave

the *Nemesiae* of Simon (1892) familial status, considered it a senior synonym of Pycnothelidae, and transferred to the Nemesiidae several genera from the abovementioned families. The Neotropical genera currently included in Nemesiidae have never been revised. The most comprehensive species-level treatment is probably that of Schiapelli and Gerschman (1967), who revised the genera then included in the Pycnothelidae: *Lycinus*, *Pycnothele* (and its synonym *Pycnothelopsis*), and *Diplothelopsis*, which comprised a total of six species. Other species have been treated only in isolation; many of those have never been illustrated or are known from only one sex.

The group will be revised in two parts: the faunas from Peru, Chile, Uruguay, and Argentina are included in the present study; the fauna from Brazil will be treated, in collaboration with Brazilian colleagues, in a second part. The only other countries in South America from which the family Nemesiidae has been mentioned are Colombia and Paraguay. For Colombia, the only species mentioned is *Hermacha conspersa* Mello-Leitão, 1941a; the species has never been redescribed; the types (which should be in the Museu de Rio de Janeiro) could not be located and R. Baptista (personal commun.) suggests that they are lost. The aporoptychine cyrtaucheniids, *Bolostromus* and *Fufius*, are very common from Peru to Venezuela; in Mello-Leitão's time, *Hermacha* and *Bolostromus* were considered to belong to the same family, Ctenizidae, and it is probable that *H. conspersa* is actually an aporoptychine. The genus *Hermacha* certainly is exclusively South-African (Raven, 1985a). For Paraguay, Vellard (1936) cited an unidentified species he attributed to the genus *Pselligmus*; the only nemesiid from Paraguay I have examined is a specimen of *Prorachias* sp., possibly a new species, but in condition too poor to be designated as the holotype of any species, and with the accompanying label saying only "Paraguay"!

The status of the family Nemesiidae is still unclear; the only characters mentioned by Raven (1985a) as synapomorphies for the group actually seem to be plesiomorphies, defining the more inclusive Bipectina of Goloboff (1993a). The Nemesiidae could well be

a paraphyletic group; in fact, Goloboff's analysis suggests that some "nemesiids" are actually more closely related to the theraphosoids or microstigmatids.

The scope of this paper could thus be better described as referring to those bipectinate mygalomorphs which are not Theraphosoidina, Microstigmatidae, Diplurinae, or Cyrtaucheniidae. What is left, is the "Nemesiidae." Most diplurines can easily be excluded from this group by their long spinnerets (except for some species of *Diplura*, such as *D. garleppi* and related Amazonian species, which have very short spinnerets; however, those short-spinneretted diplurines can be recognized by the typical lyra and female spermathecae). The cyrtaucheniids are represented in South America only by the aporoptychine genera *Bolostromus*, *Bolostromoides*, *Fufius*, and *Rhytidicolus*, which can be recognized by the long labium and subquadrate maxillae, in conjunction with numerous spines on patella III (these occur only rarely in the genera of "Nemesiidae"). Cyrtaucheniids are also generally more glabrous, with almost no pubescence, and have distinctly shaped anterior tarsi and metatarsi. Some of those cyrtaucheniid features, however, also occur in the "nemesiid" *Rachias*, making the distinction from the Aporoptychini less clear. Considered here as microstigmatids are two genera previously included in Nemesiidae, *Xenonemesia* Goloboff and *Spelocteniza* Gertsch, as well as *Pseudonemesia* Caporiaco, *Ministigmata* Raven and Platnick, *Micromygale* Platnick and Forster, and other new taxa from Amazon basin (Peru, Colombia, Ecuador, and Brazil). Microstigmatids can be recognized by the rounded book-lung openings, in conjunction with extremely shortened posterior lateral spinnerets (often with spigots only on the apical article), glabrous integument, and scopula on anterior tarsi very light to absent.

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MATERIAL AND METHODS

COMPUTER-ASSISTED CLADISTIC ANALYSIS

A numerical cladistic analysis was attempted, as a first approximation to resolving the relationships of the species treated here. Following the standard methodology, all the terminals included in the analysis were scored for all the characters considered. In deciding which characters to use, an honest attempt was made to include all the available evidence; no characters were dismissed a priori as "uninformative" or "misleading." Such explicit analyses are more laborious, in the sense of requiring the assemblage of a complete data matrix, but have the enormous advantage of making the evidence on which conclusions are based much more obvious to other workers—and therefore the conclusions are easier to judge critically.

Once scored, the matrix was analyzed using computer programs to search for most parsimonious trees. The number of steps re-

quired by a given tree—or hypothesis of relationships—can be calculated exactly using the algorithms developed by Farris (1970) and Fitch (1971) (simple modifications of those algorithms, described by Goloboff, 1994, dramatically accelerate calculations during tree searches). Computer programs operate by simply making rearrangements, counting steps, and retaining the best trees. Two such programs, developed during the course of this study (Goloboff, 1993c, 1993d) were used to facilitate calculation of most parsimonious trees. Pee-Wee 2.0 was used to find most parsimonious weighted trees, and Nona 1.0 was used to find the shortest trees under predefined (equal) weights. For the final results reported in this paper, 100 different replications were performed [each with a different random addition sequence of taxa to form the initial Wagner tree, with subsequent tree bisection/reconnection branch-swapping (Swofford, 1990) for each replica-

tion, keeping up to 20 trees per replication]. Although that search strategy cannot guarantee finding the optimal trees, it is likely to do so. Only those trees effectively different when branches unsupported under some possible optimizations are collapsed were retained and reported as distinct (i.e., the default program option of *ambiguous*—was used for tree searches). Other specific program options used for these analyses were *qsearch*=; *xcheck*=; *qcollapse*=; and *duplicate**; (see documentation of Pee-Wee for details on those options).

CHARACTER WEIGHTING

Although many cladistic studies assume that all the characters deserve equal weights, the final results reported here were obtained using differential character weighting. In the case of conflict between characters, the degrees of homoplasy of the characters in conflict can be taken into account to resolve that conflict in favor of one or another character. Those characters with more homoplasy are accorded lower weight (i.e., less influence). As different trees imply different degrees of reliability for the characters, trees are compared here according to their own implications on reliability. As proposed by Goloboff (1993b), this was done by searching for trees of maximum fit, where the fit measure is a concave function of the homoplasy. The trees which maximize such a function will both (1) imply that the characters have as high a weight as possible and (2) be shortest under those implied weights.

The homoplasy inferred outside the study group and the homoplasy implied by variation within higher taxa used here as terminals were taken into account, downweighting those characters. The fit for each character is calculated by Pee-Wee as $(10 * k) / (k + es_i + es_o)$, where k is a constant of concavity (with lower values of k weighting more strongly against characters with homoplasy, and higher values producing results more similar to those under fixed weights), es_i is the number of extra steps implied by the tree (it changes with different trees), and es_o is the number of steps assumed to occur outside the study group or within its terminals (due mostly to polymorphic terminals; it does not change

with different trees, influencing tree choice only through its implications for character weights). The concavity used for the weighted analyses was $k = 4$.

LISTS OF SYNAPOMORPHIES

Only unambiguous changes are considered as synapomorphies for groups. The results of the analysis are summarized by means of a strict consensus tree. As consensus trees often contain polytomies, they cannot be used directly to infer character changes, because the synapomorphies implied by the consensus tree may be different from those implied by the trees used to produce the consensus. The same is true for those polytomies which are the product, not of consensus, but instead of collapsing branches for which there is only ambiguous support. Thus, the lists of synapomorphies for clades occurring in the strict consensus were produced by optimizing individual (dichotomous) trees, which constitute equally parsimonious resolutions (this can be done automatically with the command *apo*—of Pee-Wee/NONA). Only those changes occurring in all the trees are considered synapomorphies for clades. The changes occurring in only some trees are listed for the sake of completeness; note that if future analyses resolve the polytomies—i.e., discard some of the possible resolutions—those characters might become unambiguous synapomorphies. As the number of possible parsimonious dichotomous resolutions can be quite large, only a sample of 3000 arbitrarily chosen resolutions was used. Thus, the synapomorphy lists presented here should not be interpreted as most parsimonious optimizations (they are actually summaries of what is common to several individual most parsimonious optimizations). In my view, the approach used here provides the strictest diagnoses of clades.

SPECIMENS EXAMINED

About 1800 specimens (approximately 350 males, 900 females, and 550 juveniles) were studied. Over a third of those specimens were collected in field trips made by the author, but nemesiids from several major collections were also used for this study. Institutional

abbreviations and cooperating curators are listed below.

AMNH	American Museum of Natural History, New York (Norman I. Platnick)
BMNH	Natural History Museum, London (Paul Hylliard)
FIML	Fundación e Instituto "Miguel Lillo," San Miguel de Tucumán (Abraham Willink)
IBB	Instituto Butantan, São Paulo (Sylvia Lucas)
IRSN	Institut Royal des Sciences Naturelles, Bruxelles (L. Baert)
MACN	Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires (Emilio A. Maury)
MCN-RS	Museu de Ciencias Naturais, Fundação Zoobotânica de Rio Grande do Sul, Porto Alegre (Erica Buckup)
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge (Herbert W. Levi)
MHNM	Museo Nacional de Historia Natural, Montevideo (Roberto Capocasale and Fernando Perez-Miles)
MHNS	Museo Nacional de Historia Natural, Santiago (Ariel Camousseight)
MLP	Museo de La Plata, La Plata (Eduardo Arrozpide)
MNHN	Muséum National d'Histoire Naturelle, Paris (Christine Rollard and Jacqueline Heurtault)
MNRJ	Museu Nacional de Rio de Janeiro (A. Timotheo da Costa)
MZSP	Museu de Zoologia, Universidade de São Paulo (Jose L. Moreira Leme)
USNM	National Museum of Natural History, Washington (Jonathan A. Coddington)
PUC-RS	Pontificia Universidad Católica, Porto Alegre (Arno Lise)
RMS	Naturhistoriska Riksmuseet, Stockholm (T. Kronstedt)
ZMB	Zoologisches Museum, Humboldt Universität, Berlin (M. Moritz)

Some collections housed no Neotropical nematiids but included specimens used to score other taxa for the cladistic analysis:

CU	Cornell University Insect Collection, Ithaca (James K. Liebherr)
QM	Queensland Museum, Brisbane (Robert J. Raven)
SMN	Staatliches Museum für Naturkunde, Leihschein (Hubert Hoffer)

Adriano Kury and Renner Baptista helped find specimens in MNRJ, Ricardo Pinto da Rocha in MZSP, Rogerio Bertani and Pedro da Silva Jr. in IBB, and Mario Helgueta in MHNS.

DESCRIPTIONS AND TERMINOLOGY

The abbreviations used are standard for the group: STC and ITC, superior and inferior tarsal claws; AME and PME, anterior median and posterior median eyes; PMS and PLS, posterior median and lateral spinnerets; OQ, median ocular quadrangle. Leg spines are noted as in Goloboff and Platnick (1987). Two numbers separated by a colon indicate ratios, and if followed by the letter A, B, or M indicate apical, basal, or medial portion respectively (e.g., 1:3A is the apical one-third; 1:1 is full length). The numbers of tibial trichobothria are given, first for the anterior row, and second for the posterior row. The teeth of STC are listed from most anterior row (i.e., external row of anterior claw) to most posterior row (i.e., external row of posterior claw). When it saves space, Goloboff and Platnick's (1987) notation for dentition in tarsal claws is used to describe the chelical dentition. Coyle's (1974) distinction between attenuate (long with a gradually tapering end) and ensiform setae (shorter, with a blunt end) is followed; the terms are intended (in this paper at least) as qualifiers (i.e., of degrees of "ensiform-ness") rather than as designating discrete categories.

All measurements are in millimeters. All were taken at the maximum width or length of the part in question; the length of the OQ is measured from the anterior edge of the ALE to the posterior edge of the PLE; the sternum length is measured from the posterior tip of the sternum to the sides of the labium (measuring to posterior edge of labium would indicate a shorter sternum than the measure used here).

The male palpal bulb is drawn separated from the palp. Because of the simplicity of mygalomorph bulbs, it is not always the same view that provides information to distinguish similar species. As the bulb may rotate around its insertion in the palp, drawing the entire palp makes it very difficult, if not impossible, to position a bulb to be compared in a similar

position. The shape of the subtegulum (the basal sclerite of the bulb) is much more constant than the shape of the rest of the bulb, and there is almost no rotation possible between the subtegulum and tegulum; therefore, illustrations always include the subtegular portion, as an aid in positioning bulbs for comparison.

All species descriptions are based on only one specimen. Differences mentioned in descriptions (separated by a slash; ratios are expressed only with semicolons) refer to the two sides of the same specimen. If some im-

portant variations were observed in other specimens, they are pointed out separately. An exclamation point enclosed in square brackets (!!) in the descriptions indicates that the feature mentioned is uncommon for the genus or species group, or distinguishes the species from closely related species. For most species, the serrula has not been observed under SEM; if no explicit mention of an SEM examination is made, the examination of the maxilla has been made only under light microscope.

CHARACTERS USED IN THE CLADISTIC ANALYSIS

As is the case for most mygalomorphs, very few characters have been available for the systematics of the nemesiids. When compared to the striking diversity of genitalic and morphological characters found in more "advanced" groups such as the Araneomorphae, the general uniformity of mygalomorph spiders is remarkable. This makes the study of cladistic relationships particularly difficult, and it often becomes necessary to rely on characters which are obviously less than ideal.

Genitalia and secondary sexual characters often provide reliable guides for species identification. However, much of the variation in these character complexes comes in the form of slight shape differences, which are difficult to homologize, particularly across large numbers of species. For that reason, the genitalia rarely provide characters useful in identifying higher groups.

Spination patterns are more widely used here than they have been before. Such patterns are difficult to detect and are not always exact. Young specimens have fewer spines, with new spines gradually added during growth. Developmental processes governing the appearance of a given spine at a given position are obviously not strictly determined, since in many specimens there are slight differences between the spines on the right and left sides. Obviously, differences can also be found between individuals of the same population, but these differences usually are

of the same magnitude as the differences in symmetry. Yet, despite that variability, after careful study of many specimens, some general patterns do become apparent. Most spination characters are used here to define restricted groups. The most interesting variations are perhaps observed in the female posterior metatarsi; several species, or groups of species, can be recognized with the aid of this character.

The clasping structures on the male anterior tibia also provide characters which may help define some genera, but a good deal of homoplasy is exhibited, so that care is needed to take into account reversals and parallelisms.

The variation in spigot morphology has been recently used to assist the systematics of the Araneomorphae (e.g., Coddington, 1989; Platnick et al., 1991). In mygalomorphs this character has been, so far, poorly exploited. Palmer, in an unpublished thesis (1990), first attempted a general survey of mygalomorph spigots. She recognized three main types, based on the articulation between shaft and base: the *fused* spigots, in which the base continues smoothly with the shaft (they are not known to occur in any nemesiid); the *articulate* spigots, in which the base and shaft are separated by a distinct groove, but in which the base is relatively small compared to the shaft (figs. 37–47); and the *pumpkiniform* spigots, in which there is a distinct separation between a slender shaft and the large,

bulbous base (figs. 48–62). The spigots in one of the barychelid species examined here (*Strophaeus* sp., Barychelinae; fig. 33) have a globose base and a long shaft, but there is no articulation between shaft and base; those spigots do not fit well into any of Palmer's categories (the only barychelid species she examined belongs to a different subfamily); this

fourth class of spigot is called *bulb-shaped*. Goloboff (1993a) used the spigot types in his analysis of familial relationships, and the character proved, at some levels, informative. For the most part, variations in the general arrangement and relative sizes of spigots have not been found to characterize more than restricted groups or single species.

FAMILY NEMESIIDAE

MORPHOLOGY

The cephalothorax is longer than wide to about as wide as long. The head is usually narrow, lower and flatter in males; some species of *Acanthogonatus* have narrow, relatively flat heads, with weak chelicerae, while other species in that genus, as well as most species in other genera, have wider, more convex heads, with stronger and more robust chelicerae. Species with weak chelicerae often have no rastellum and live in silk tubes under stones or logs, whereas species with stronger chelicerae generally have a weak to strong rastellum, and are stricter burrowers. The rastellum, when present, may be formed by either thick, elongate, stiff setae, or by strong, blunt, short cusps. The fovea is narrow, clearly procurved in *Stenoterommata*, slightly procurved to almost straight with recurved ends in most other genera. The labium is usually about twice as wide as long, with few to no cuspules; it is slightly longer (width about 1.5 of length) in *A. incursa*, *A. subcalpeianus*, and *Rachias*. The palpal coxae are elongated, or shorter and posteriorly produced (in *Rachias*), bearing from over 150 cuspules (in some *Stenoterommata*), to 20–30 cuspules (most other genera) or very few or none (some Diplothelopsini, *Rachias*, *Chaco patagonica*); the cuspules are weaker in males than in females, and in some species cuspluate females correspond to males having no cuspules or only thickened, more attenuate setae, in place of the cuspules. The serrula may be present or absent. This character has been extensively used in the Mygalomorphae after Platnick and Gertsch (1976) suggested it was an important piece of evidence in defining

their “Dipluroidea.” Since 1976, many mygalomorph taxa have been examined for this character. In the nemesiids, however, there are in many cases differences in the degree of development in males and females, male serrulae being more developed. In some cases, serrulate males correspond to completely aserrulate females. As this character was so far not known to be sexually dimorphic, previous references in the literature did not usually mention the sex of the specimens examined, greatly decreasing the usefulness of those pre-existing reports.

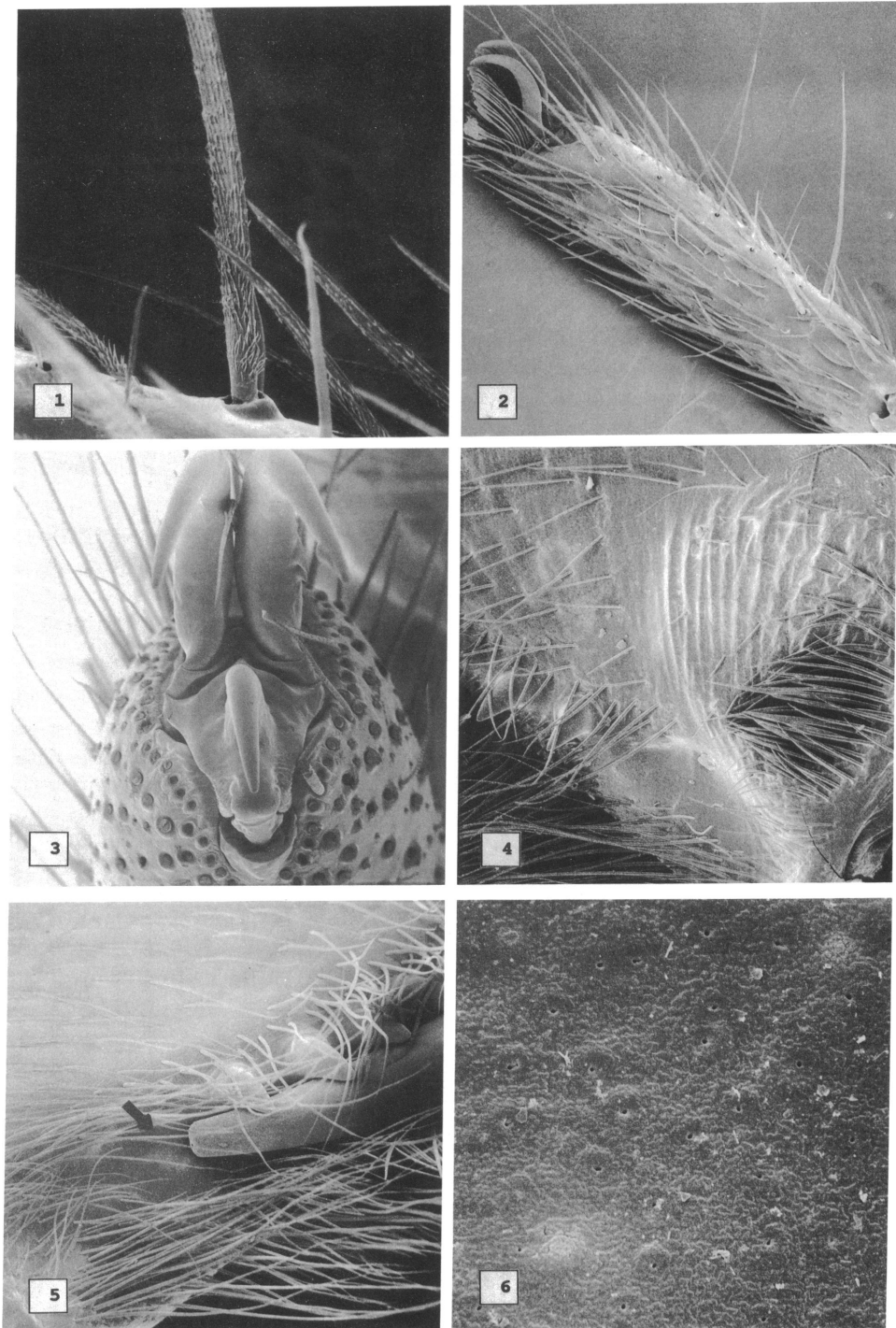
The male cheliceral tumescence is present in all Neotropical nemesiids; in some species (most *Stenoterommata*, *Pycnothele*) the tumescence is covered with thickened setae (fig. 4), in others it is covered only with thin, short, sparse setae. The female chelicerae have a basal concavity, where the fang tip rests; in that concavity there is a glandular area (the arrow in fig. 5 shows the location; fig. 6 shows the pores), possibly homologous with the cheliceral glands found in most araneomorphs. Although the pores are very small, they are placed on small circular elevations (about 1 μm in diameter), differently colored and therefore visible under a light microscope. This structure was first thought to be a homolog of the male cheliceral tumescence, but since a similar structure in males coexists with the cheliceral tumescence, it is clear that the cheliceral tumescence is an independent structure.

The eyes are on an elevated tubercle; the AE row is procurved, and the PE row recurved (in Diplothelopsini, the PE row is synapomorphically straight to procurved); the PME of medium size, not much smaller than

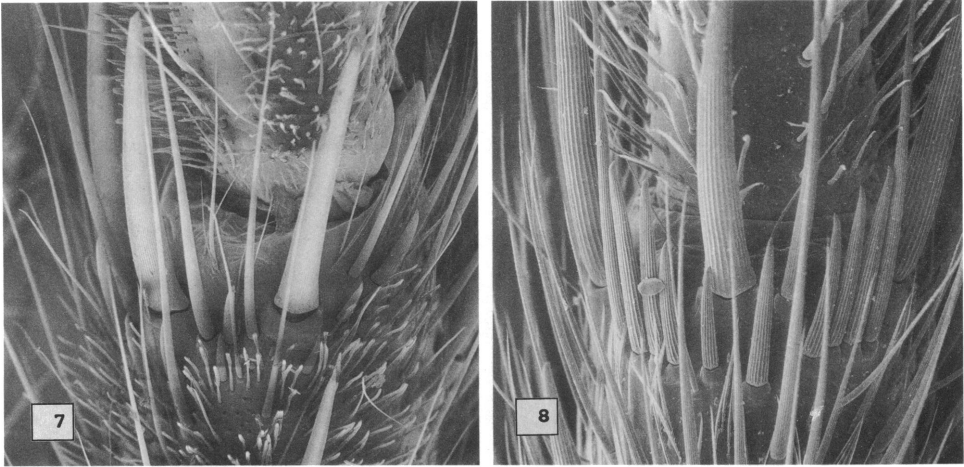
the AME, or (synapomorphically, in the *Diplothelopsini*) much smaller than the AME.

Leg spines: Female femora: I and II have 1 P SUP A and weaker dorsal basal spiniform setae (III and IV have more variable numbers of spines, usually with apical laterodorsal spines, and a single dorsal basal spiniform seta). Male femora: the pattern is similar but more basal spines are added to the laterodorsal set, and more apical spines added to the dorsal set, so that sometimes male femora have 3 rows of spines. Female patellae: I and II usually have 1 P SUP A (weaker on I), III usually has 1-1 or 1-1-1 P (exceptions are *Stenoterommata uruguayi* and *S. quena*, having up to 10, and *Acanthogonatus mulchen* and *A. tolhuaca*, having as few as 1 or 0) and 1 or 2 R (sometimes absent; in some specimens of *S. quena* there may be up to 3-1-1 R, but other specimens of that species—juveniles?—have the normal complement), IV has either no prolateral spines (most genera) or 1-1-1 P (*Pycnothele*, *Lycinus* + *Diplothelopsis*, the *franki* group of *Acanthogonatus*; intermediates are uncommon; *A. centralis* may have either 0, or 1 P, or rarely 1-1 P, but in all other species the spination of prolateral patella IV seems quite constant). Male patellae: I-II may have the same spination as in females, or (in the *patagonicus* group of *Acanthogonatus*, and *Diplothelopsini* except *Flamencopsis*) have 1-1 or even 1-1-1 strong prolateral, and 1 R, a pattern reminiscent of that of patella III; patella III almost always has the same spination as in females (i.e., 1-1 or 1-1-1 P, 1 R; males of those species with more numerous spines on female prolateral patella III are unknown; males of some *Diplothelopsini* and some *Acanthogonatus* may have 1-1 R instead of 1 R); patella IV can be similar to the female, or (in some species with no spines on prolateral patella IV of female) it may have 1 or 1-1 P. Female tibiae: I with 1-1 P SUP (often absent or reduced to thickened setae), 1 (rarely 2) V ANT A, and 1-1 or 1-1-1 ventral posterior weak spines or setae (in some species of *Chaco* the v post are strong and very long); II has a pattern similar to tibia I but the spines are stronger; III and IV have similar spination, having 1-1 P, 1 D (1:3 A), 1-1 R SUP longer than the P ones, and two rows of either spines or weak setae on the ventral surface (usually arranged as

1-1-2 V ANT and 1-1-1 V POST, of which some spines may be absent). Male tibiae: I has spines confined mostly to the anterior and ventral surfaces; as I is modified for clasping, the spination is very variable; in some *Acanthogonatus* and *Chilelopsis* there are numerous strong setae on the anterior apical tibia I; II has a spination vaguely similar to that of the female; only in some species of the *patagonicus* group of *Acanthogonatus* and in *Diplothelopsini* except *Flamencopsis* do the anterior tibiae have some dorsal spines, which in *Lycinus*, *Diplothelopsis*, and some *Acanthogonatus*, are also present on the posterior dorsal tibiae; the spination of III and IV is otherwise similar to the female. Female metatarsi: I and II usually have 2-2 short V on the basal third, and 1 or 2 V on the apex; some of those are lost, the ventral anterior ones more often; in many species there is also 1 P SUP (weaker and more often absent from I); in *Prorachias* the apex of metatarsus II has 3 or 4 V instead of the usual 1 or 2; in some species of *Chaco* the metatarsal spines on the anterior legs are very long; III has a rather constant spination in the female, with 1-1-1 P and 1-1-1 P SUP (more or less pairing), usually 1 smaller D POST on the base, 1-1-1 R SUP, and 2-2-3 ventral spines (1-1-1 V ANT and 1-1-2 V POST); IV has sometimes a pattern similar to that of III, but sometimes the P and/or P SUP are reduced (as in *Chaco*, *Lycinus*, some *Acanthogonatus*, and some Brazilian *Stenoterommata* to be described by Goloboff et al., in prep.). Male metatarsi: I is also widely variable, having from none to numerous spines; II-IV have spination often reminiscent of those of the females (the spines are longer and shiner), but in those species with P SUP spines reduced or absent on the female metatarsus IV, for which the males are known, those spines are present in males; in males of the *nahuelbuta* group of *Acanthogonatus* the P SUP spine in II is stronger (and accompanied by other spines). Female and male tarsi almost always lack spines completely. Only in the females of *Rachias* and of some *Chaco* there may be 1-3 spines on the sides of the tarsi; in the *Diplothelopsini* the males may have 1 or 2 spines on each side of the tarsus; in *Rachias* the males have numerous strong P INF and R INF setae or spines, which delimit the scopula (confined



Figs. 1-6. Tarsal and leg ultrastuctures. 1, 2. *Neodiplothele* sp. (Brasil, MACN), female, modified basal setae of tarsus IV. 3. *Rachias timbo*, female, STC and ITC IV. 4. *Stenoterommata platense*, male, setose tumescence of right chelicерum. 5, 6. *S. platense*, female, left chelicерum showing location (5) and detail (6) of glandular area.



Figs. 7, 8. Apex of metatarsus III of females. 7. *Lycinus gajardoi*. 8. *Stenoterommata tenuistylum*.

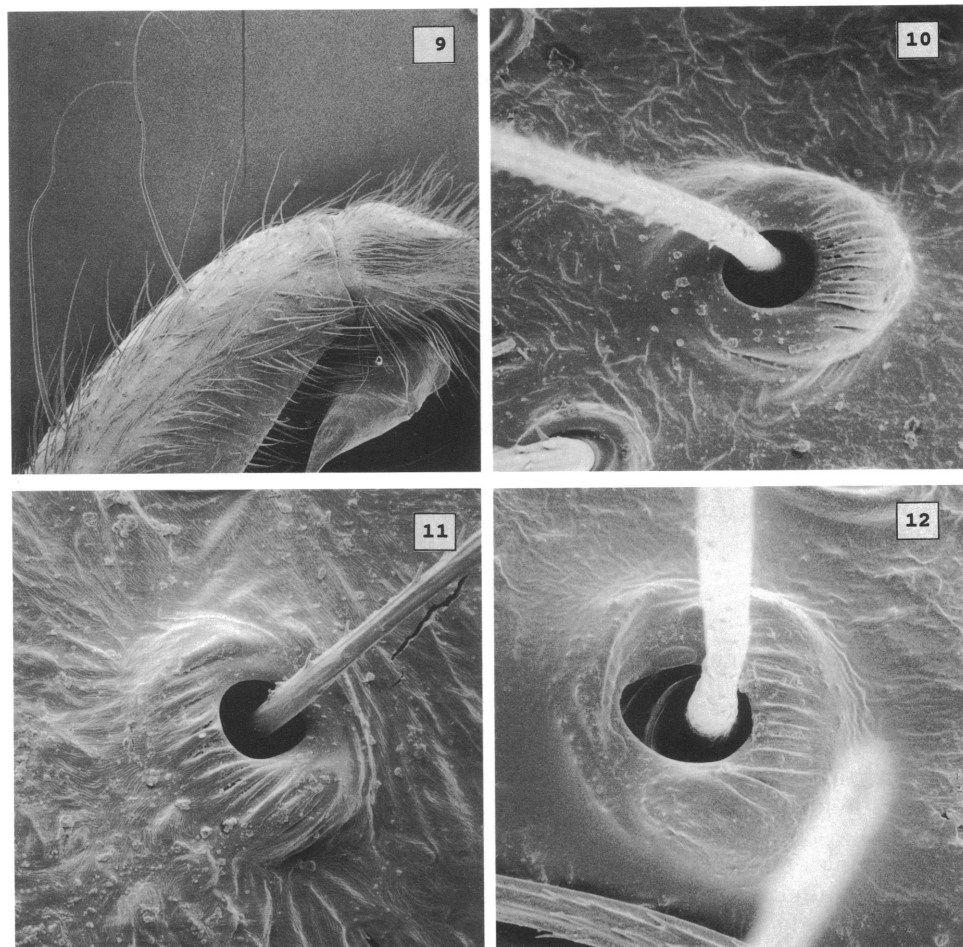
in males of that genus to the ventral surface of the tarsus).

The metatarsal preening combs may be present on II–IV, only on III and IV, or be completely absent. The term preening comb is used for a distinct cluster of spines, relatively long and thin, with bases very close to each other, arranged in a transverse, linear row (as in fig. 8). A character whose homology with the preening combs cannot be established a priori is found in some *Lycinus*, *Chaco*, and *Acanthogonatus*. The apex of the metatarsus has numerous, more irregularly arranged short setae (figs. 7, 124B). The term pseudopreening comb is used for such a structure.

The trichobothria are arranged in two converging rows on the tibiae (the normal arrangement for mygalomorphs), one unique diagonal row on the metatarsi (instead of the strongly curved, sometimes broken line, found in theraphosoids), and a zigzag line on the tarsi (instead of the double row, separated by setae, present in theraphosoids). In some *Prorachias*, and to a lesser extent in larger sized *Rachias* and *Pycnothele*, the tarsal trichobothria may form two distinct rows (separated by short setae), approaching the condition in theraphosoids (those cases are most parsimoniously interpreted as parallelisms). No known nemesiid has clavate trichobothria on the tarsi (they are present in *Neodiplothele*, included by Raven [1985a] in the

Nemesiidae, but that genus is transferred below to the Barychelidae). The bothrial bases have parallel corrugations or ridges on the proximal plate. In most genera the basal plate is elevated, convex, and rounded (figs. 13–16, 18); in *Flamencopsis* and *Chilelopsis* the basal plate is flattened, with deeper ridges (figs. 10–12).

Tarsal organs: The tarsal organs have been examined for only a small proportion of the species described here. The plesiomorphic state for this character is supposed to be a flat tarsal organ, with several concentric ridges (Raven, 1985a; Goloboff, 1993a) (as in figs. 15, 17–19). In several groups some interesting variations have been observed. In the Diplothelopsini, the tarsal organ is protruding (but—unlike the tarsal organ in ixamatines—with a flattened surface) and with a greatly increased number of ridges in *Chilelopsis* (figs. 22–24, 26–28) and *Flamencopsis* (figs. 25, 29, 30); the ridges are so small that they can be seen clearly only at relatively high magnifications (3000 × or more); they seem to be more evident in males (figs. 26, 28, 30). The tarsal organs of the other Diplothelopsini (*Lycinus* and *Diplothelelopsis*) have not been thoroughly surveyed; in at least *L. gajardoi* the tarsal organ is somewhat protruding and has some indication of fine concentric ridges; in *L. longipes* (figs. 31, 32) the tarsal organ is rugose with a double pitted receptor area. In the putative sister group of

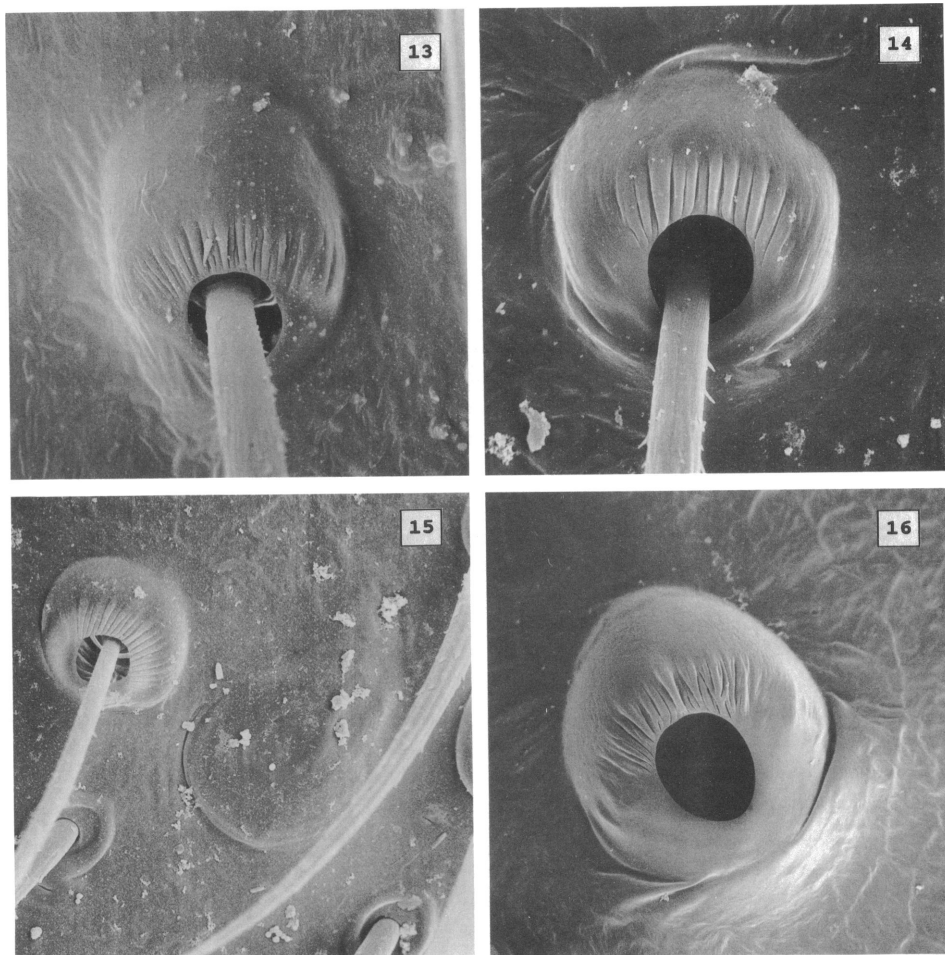


Figs. 9–12. 9. *Acanthogonatus centralis*, male right palpal tibia, retrolateral, showing long sinuous setae. 10. *Flamencopsis minima* female, bothrium of tarsus I. 11. *Chilelopsis puertoviejo*, male, bothrium of tarsus I. 12. *C. puertoviejo*, female, bothrium of tarsus I.

the Diplotheopsini, the genus *Chaco*, the tarsal organ has been surveyed only in the type species, *C. obscura* (fig. 38); the ridges seem absent. When more tarsal organs are surveyed, it is likely that the finely ridged and protruding tarsal organ may prove to be a synapomorphy of either *Flamencopsis* and *Chilelopsis*, or of a larger group including those genera as well as the other Diplotheopsini (and perhaps *Chaco*). Minimally one parallelism exists, at least in the increased number of ridges, in the sasonine *Neodiplothele* (fig. 20). In *Pycnothele modesta*, the only specimen examined for this character had a double receptor area (fig. 17), while *P. au-*

ronitens has the normal, single-receptor area (fig. 18).

The anterior tarsi are always scopulate. The posterior tarsi may have scopulae of varying degrees of density, or be completely ascopulate. The posterior tarsi may have a divided or integral scopula, while the anterior tarsi almost always have an undivided scopula (only in a few species do tarsi II have some setae dividing the scopula). The scopula is usually symmetrical, but in some genera (*Pselligmus*, *Prorachias*, and to a lesser extent *Nemesia*) it is more developed on the anterior side (which is also the case in barychelins and some rastelloids; Goloboff, 1993a). In



Figs. 13–16. Bothria of tarsus I, females. 13. *Diplothelopsis bonariensis*. 14. *Stenoterommata tenuistylum*. 15. *Acanthogonatus nahuelbuta*. 16. *Lycinus gajardoi*.

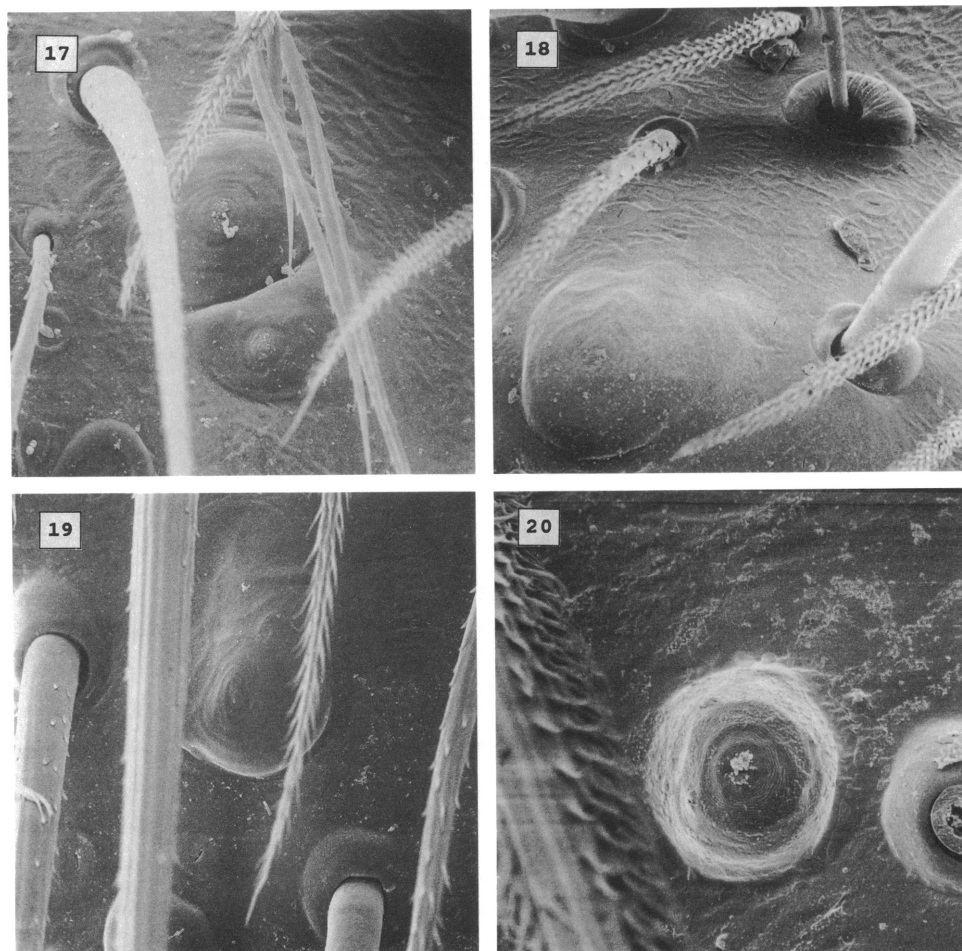
Rachias the scopula IV is confined to the ventral surface, and delimited laterally by strong setae or spines. The anterior tibiae have a scopula only in *Pycnothele*, *Prorachias* (where it is much denser), and *Pselligmus* (the tibial scopula is uncommon in non-Neotropical nemesiids; to my knowledge, it is found only in *Nemesia*). The tibial scopula is denser and extended more basally on the anterior side.

The tarsi may have two or three claws. The ITC is always bare; the STC have two rows of (usually numerous) teeth (non-Neotropical bemmerines are an exception, with male STC monopectinate). The teeth of the STC IV are less numerous or almost completely reduced (particularly on the inner rows) in females of

Rachias (fig. 3), *A. guttulata*, some *Lycinus*, and some *Chaco*.

The book-lung openings may be a long narrow slit, or a wider opening with the posterior edge more sclerotized (in many *Acanthogonatus*); in *Acanthogonatus vilches* the openings are large and more rounded than in other species.

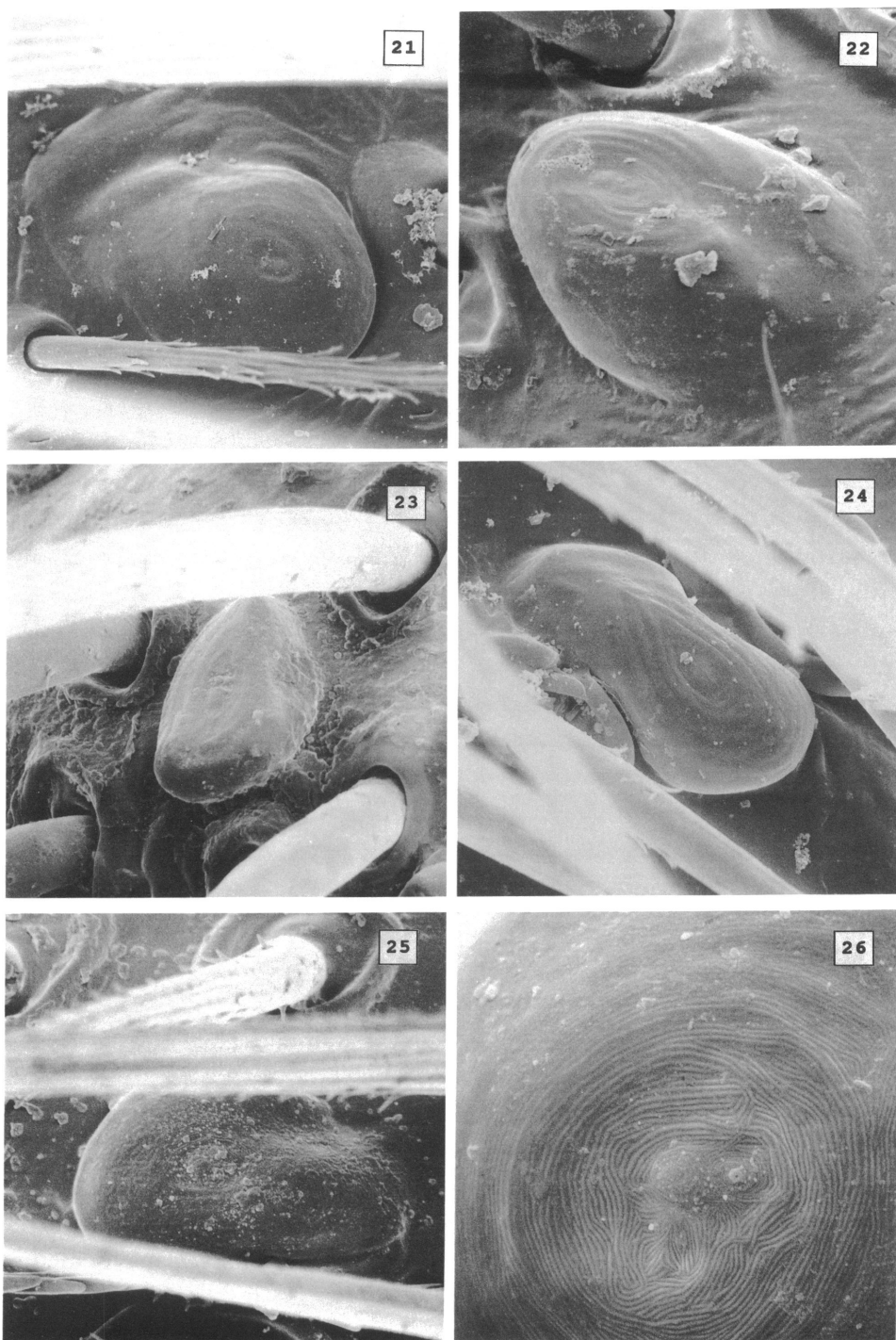
The PMS can be present or absent, and have from numerous (most species) to a few or only one spigot (*Flamencopsis*, some *Chaco*). The PLS are always triarticulate, with the apical article ranging from elongated and digitiform to very short and domed; the apical and medial articles always have numerous spigots; the basal article usually has numer-



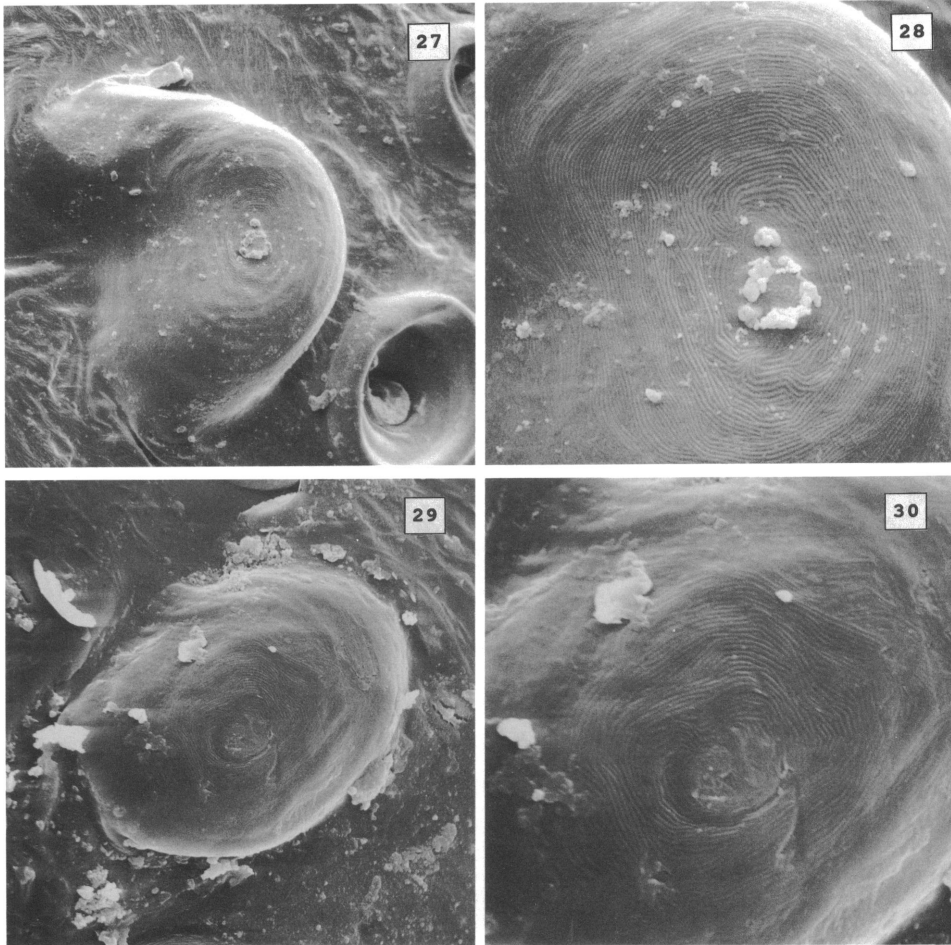
Figs. 17–20. Tarsal organ, females. 17. *Pycnothele modesta*, tarsus I. 18. *Pycnothele auronitens*, tarsus I. 19. *Rachias timbo*, tarsus IV. 20. *Neodiplothele* sp. (Brasil, MACN), tarsus IV.

ous spigots, but some *Chaco* have only a few spigots confined to the apex. In those nemesiids that have been examined with SEM, the PLS have only articulate spigots (*Diplothelepsiini*: figs. 43–46; *Prorachias*: fig. 47; *Chaco*: figs. 37–42), only pumpkiniform spigots (a condition found only in non-Neotropical nemesiids: *Anamini*: fig. 49; apparently this is also the case in *Damarchus*, which has not been examined under SEM), or both articulate and pumpkiniform spigots (*Pycnothele*, *Stenoterommata*, *Acanthogonatus*, *Rachias*; also in the non-Neotropical *Ixamatus*); in some genera (*Acanthogonatus*: figs. 55–62; *Stenoterommata*: fig. 51 and its possible synonym *Hermachura*: fig. 50; *Hermacha*; *Stan-*

wellia: fig. 48; one Brazilian species possibly belonging to *Pycnothele*: fig. 52; and less so in *Rachias*: figs. 35, 36) the pumpkiniform spigots are larger than the articulate ones and are arranged in a line or band along the inner edge of the spinning field of the three articles of the PLS (Goloboff, 1993a); this condition is generally so evident that it can be seen even with a light microscope. In *Rachias* there are very few pumpkiniforms (from one to three), confined to the inner side, a condition considered a probable homolog of the state in the other genera. In other species of *Pycnothele* (figs. 53–54) the pumpkiniform spigots are found clustered on the apex of the ventral side of each PLS article. It is common that



Figs. 21–26. Tarsal organ of tarsus I of Diplotelopsini. 21–25. Females. 26. Male. 21. *Lycinus gajardoi*. 22. *Chilelopsis calderoni* (from Huasco). 23. *C. serena*. 24. *C. calderoni* (from La Herradura). 25. *Flamencopsis minima*. 26. *C. calderoni*.

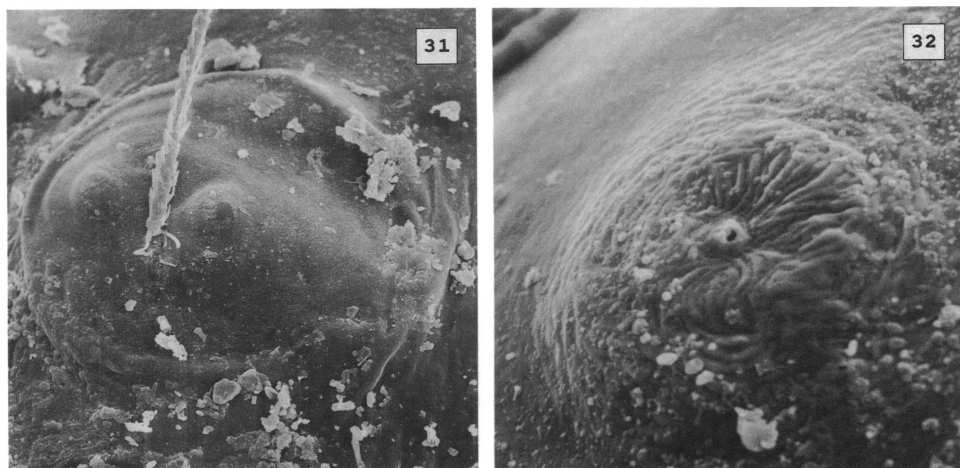


Figs. 27–30. Tarsal organ of tarsus I of male Diplothelopsini. 27, 28. *Chilelopsis puertoviejo*. 29, 30. *Flamencopsis minima*.

the spigots in a particular area of a given PLS article are larger sized and arranged differentially (often grouped on the apex of each PLS article). In some *Chaco* species, the spigots on the apical article of the PLS have long erect shafts which radiate in all directions (fig. 37).

The spermathecae usually consist of a single (often bi- or multilobed) receptaculum on each side; *Stenoterommata platense* and *S. iguazu* have (synapomorphically) 2 + 2 spermathecae. The spermathecae are usually flat and unmodified; in the *nahuelbuta* group of *Acanthogonatus* the spermathecae are (synapomorphically) very thick, with a large cavity, and can have a kind of cap that folds to

cover the entrance; in *A. mulchen* and related species the spermathecae are (synapomorphically) very wide, with the receptacula fused in the middle. In *Pycnothele* there is a sclerotized chamber above the spermathecae (which possibly has a role in sperm storage, as it is densely covered with glandular pores); this chamber has a wide opening, so that specimens of *Pycnothele* may sometimes appear to have two genital openings. In the Asian genera *Damarchus* and *Atmetochilus* there is, behind the genital opening, a fold which also looks like a second genital opening; that condition is clearly not homologous with the one in *Pycnothele*, since in *Damarchus* and *Atmetochilus* the true genital opening is the an-



Figs. 31, 32. *Lycinus longipes*, female, tarsal organ of tarsus I.

terior one, while in *Pycnothele* it is the posterior one.

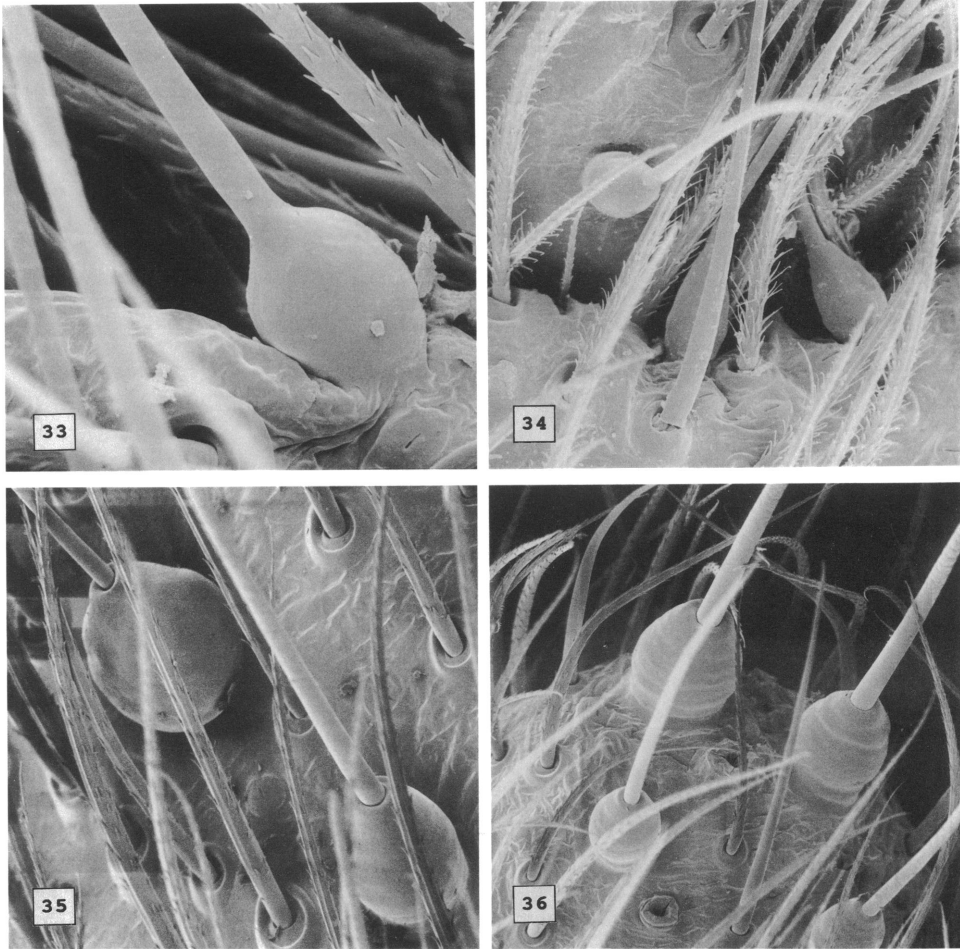
The male palpal bulb has the tegulum and embolus fused, with no movement possible between subtegulum and tegulum. The bulb is usually quite simple. The presence of either lateral keels or parallel ridges along the embolus, and the pattern of the seminal tube are often the only important modifications. The male palpal tibia is usually unmodified, with a ventral excavation where the bulb rests (that excavation is very deep in *Pycnothele*, but shallow in all other genera); in *Acanthogonatus* there are two dorsal very long, erect, sinuous setae (fig. 9), which are absent or less evident in other genera. The male tibial apophyses can be present or absent; most *Acanthogonatus* have a low prolateroventral apophysis with two short spines on a common base; *Chaco* has a slightly more developed apophysis with 3–5 spines; *Stenoterommata* has a retrolateral apical megaspine, found also in Brazilian species which appear to belong to the genera *Rachias* and *Pycnothele* (Goloboff et al., in prep.); except for those Brazilian species, *Rachias* and *Pycnothele*, as well as the *Diplothelopsini*, a few *Acanthogonatus*, and *Prorachias*, completely lack tibial apophyses.

HABITS

Almost nothing has been published on the habits of the species treated here. The only

exceptions are *Acanthogonatus pissii* (studied by Calderón et al., 1979), and *Acanthogonatus tacuariensis* (studied by Capocasale and Pérez-Miles, 1990). In numerous field trips, made between 1980 and 1993, I have been able to collect 43 of the 58 species treated here (plus six more Brazilian species not found in the countries covered here), representing most of the Neotropical nemesiid genera (except *Prorachias*, *Pselligmus*, and *Neostothis*); the basic aspects of burrow structure were noted, allowing some generalizations. R. Bertani, of the IBB, has collected specimens of *Prorachias* and kindly made available information on them.

The habits of Neotropical nemesiids vary from living in loose tubes vaguely reminiscent of diplurid webs (some *Acanthogonatus*) to living in burrows without trap-doors (closed with debris or simply open, as in *Stenoterommata*, *Rachias*, *Pycnothele*, and many *Acanthogonatus*) to stricter burrowers which construct trap-doors (as in *Chaco* or *Prorachias*). As for most mygalomorphs, the burrows of nemesiids can be distinguished from those of most araneomorph spiders by having smooth walls, lined with a mesh of silk in which individual strands are not evident, with an almost perfectly rounded contour. Araneomorph burrows usually have more irregular walls and a more irregular contour, with the silk lining formed by accumulation of strands, where individual threads can be distinguished. In nemesiids, the burrow walls



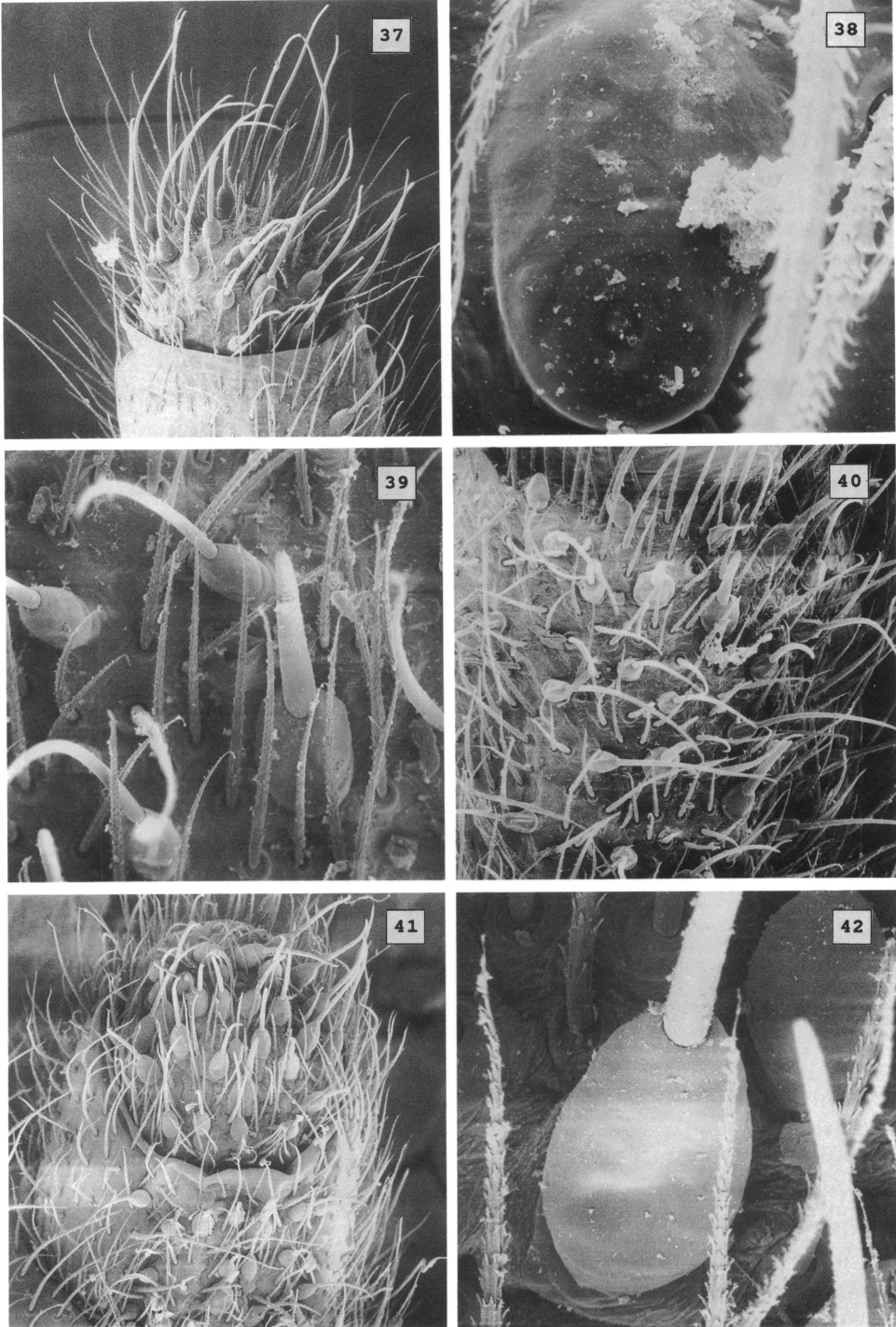
Figs. 33–36. 33. *Strophaeus* sp. (Barychelidae; Peru, AMNH), spigot on medial article of PLS. 34. *Neodiplothele* sp. (Brasil, MACN), inner side of apex of medial article of PLS. 35. *Rachias timbo*, pumpkiniform spigot in the inner edge of medial article of PLS. 36. *R. timbo*, spigots in the apex of PMS.

may be cemented or compacted, and either have the silk incorporated into the walls in a sort of cartonlike layer, or a loose silk lining which can separate from the walls.

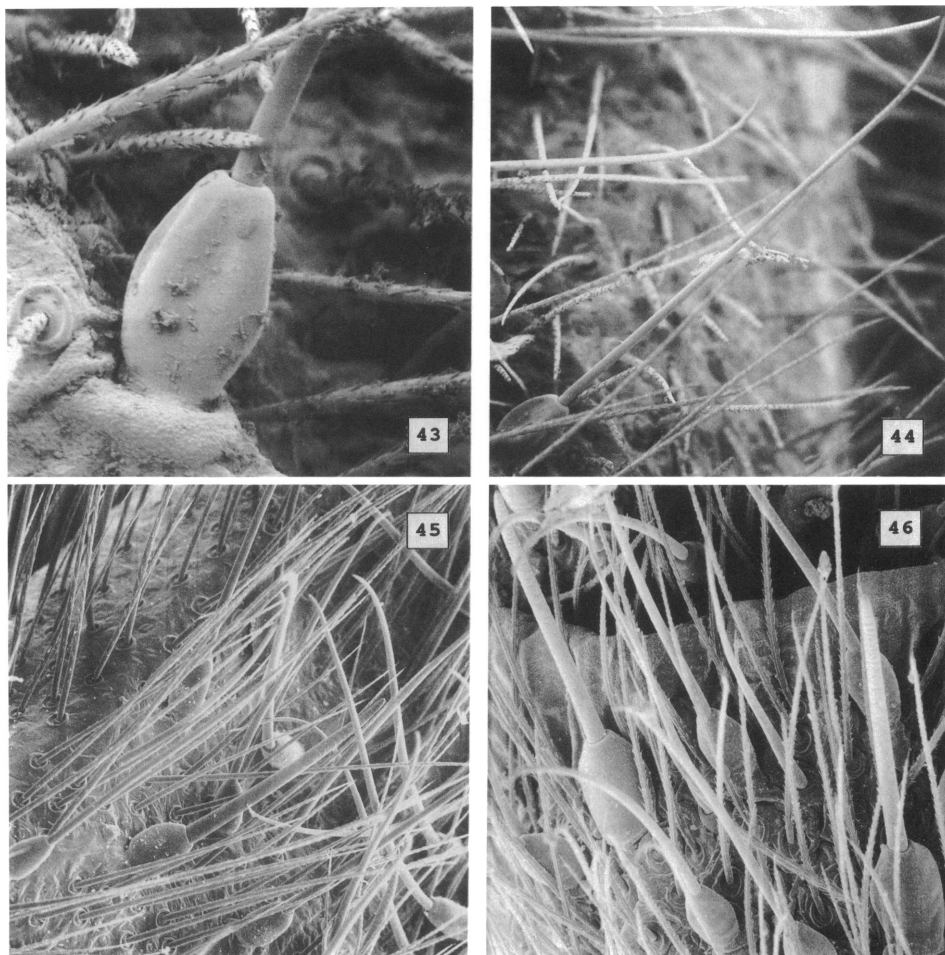
Most species live in firm soil, but some (some *Chaco*, some *Acanthogonatus*, and several *Diplothelopsini*) live in sand dunes. The silk lining of their burrows forms a tube of thick walls which prevents the sand from collapsing. Those burrows are particularly difficult to find and excavate. As the sand falls over the burrow entrance (in most sand-dwelling species closed with a flap-door) it covers completely the entrance, and the only way to detect the presence of a burrow is by

carefully moving the sand (especially by blowing).

Most species of nemesiids are found in aggregations, sometimes rather dense, with the burrows close to each other. As a general rule, finding one specimen of Nemesiidae greatly increases the chances of subsequently finding more. Despite that tendency to live in aggregations, actual interactions between the spiders must be quite uncommon, as nemesiids rarely leave their burrows; the closeness of the burrows, however, must make it much easier for a wandering male to find a female burrow. The most notable exceptions to the abovementioned rule seem to be the *Diplothe-*



Figs. 37–42. *Chaco* spp., females. 37. *C. patagonicus*, apical article of PLS. 38. *C. obscura*, tarsal organ of tarsus I. 39. *C. obscura*, spigot in apex of medial article of PLS (ventral). 40. *C. obscura*, medial article, ventral, showing general spigot arrangement. 41. *C. tigre*, medial and apical articles of PLS, ventral. 42. *C. tigre*, spigot on apical article.



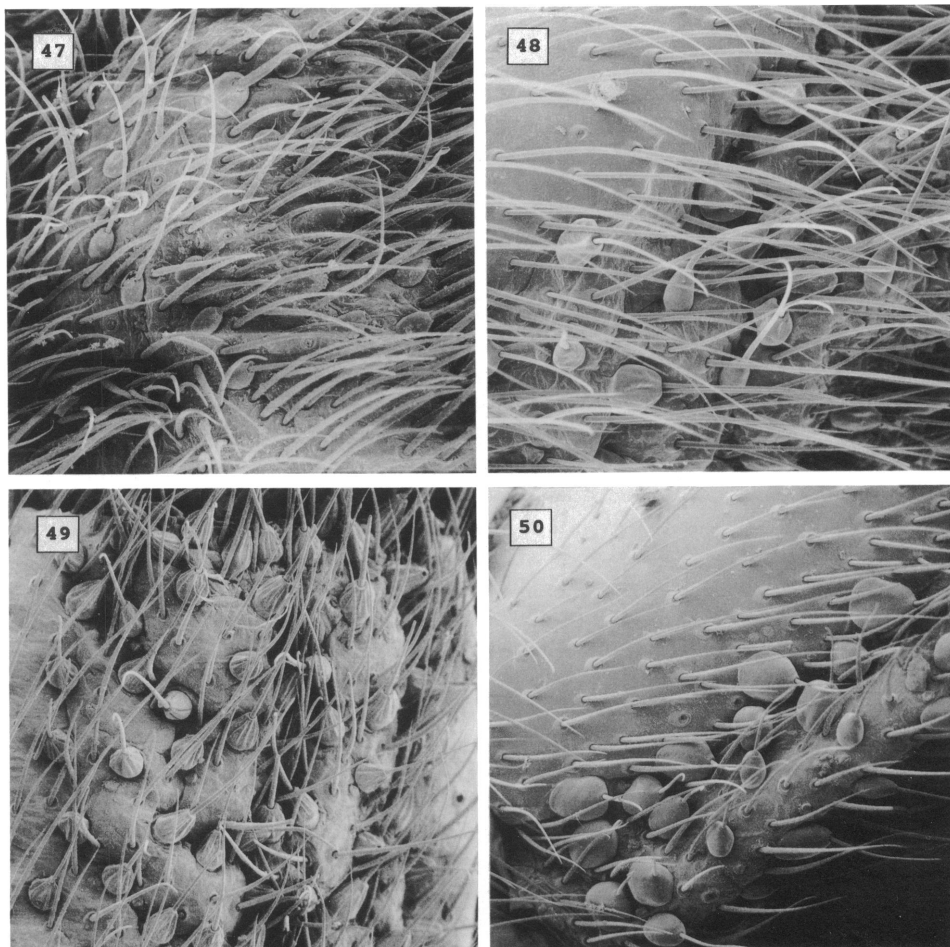
Figs. 43–46. PLS spigots of Diplothelopsini, females. 43, 44. *Chilelopsis calderoni*, medial article. 45. *Diplothelopsis bonariensis*. 46. *Flamencopsis minima*.

elopsini *Lycinus* and *Diplothelopsis*; although widely distributed, very few specimens per locality are usually collected for those genera; to a lesser extent, the same seems to be true for *Pycnothele*.

Although the habits seem to offer little to the study of cladistic relationships within this family, many elaborations in the basic burrow structure often readily distinguish species in the field; these are pointed out in the descriptions.

At present it is difficult to correlate habits with morphology. Species living in silk tubes under stones or logs tend to have a narrower and flatter head, weaker chelicerae with no rastellum, STC with more numerous teeth,

and longer PLS with a digitiform apical article. Species living as strict burrowers, instead, tend to have a wider, more convex head, more robust chelicerae with a medium to strong rastellum, STC with fewer teeth, and shorter PLS with a triangular to domed apical article. The absence of P and/or P SUP spines on the female metatarsus IV seems more common in strict burrowers. The function of the tarsal scopula has traditionally been considered that of facilitating movements on smooth surfaces. The hypothesis, however, has little support (as proposed also by Raven, 1994) in that the leg scopula usually do not touch the substrate when the spider moves, as the legs form an angle and only



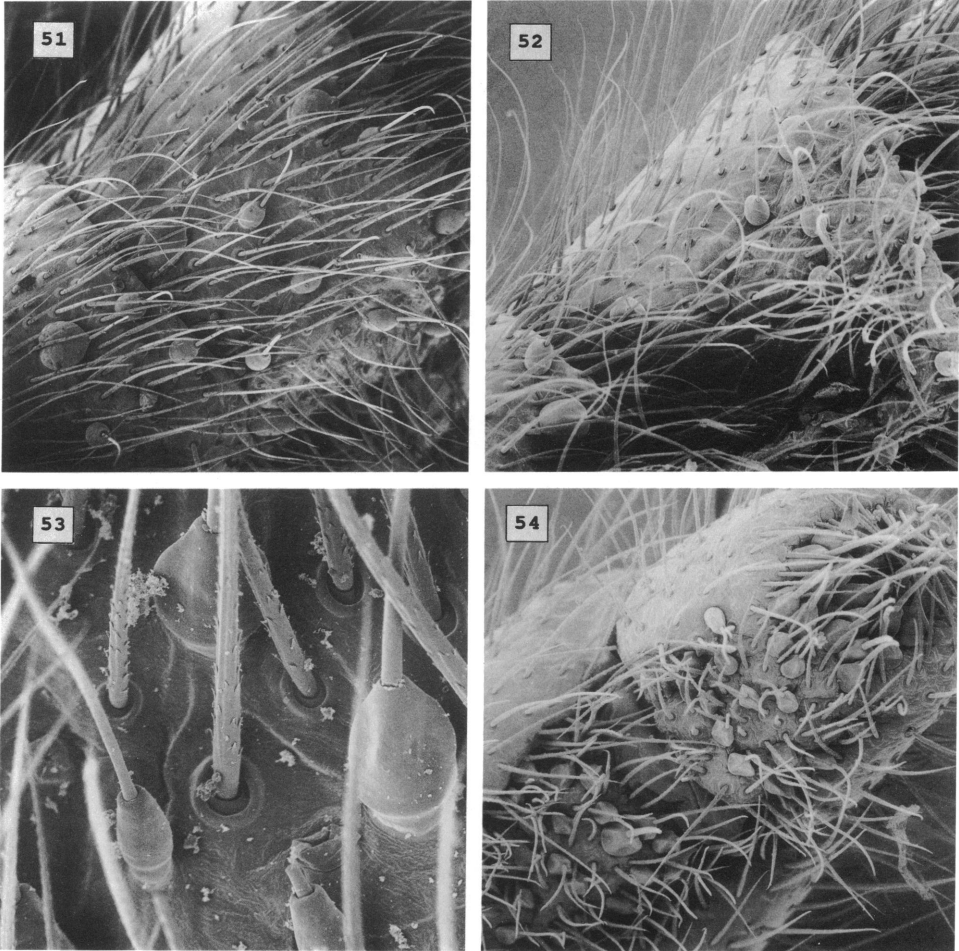
Figs. 47–50. Spigots of right PLS, females. 47, 48, 50. Inner side. 49. Ventral. 47. *Prorachias* sp. (Rio de Janeiro, MZSP). 48. *Stanwellia* sp. (Australia, AMNH). 49. *Anamini* (unidentified genus; Australia, AMNH). 50. “*Hermachura*” (= *Stenoterommata*?) *luderwaldti*.

the apex of the tarsi (with the claws) contact the substrate. The scopula of the anterior tarsi of a specimen of *Acanthogonatus centralis* was shaved, in an attempt to find out whether any significant change in either walking, climbing, or prey-capture behavior was detected. The shaved specimens moved and captured prey just like normal specimens. Only specimens with the anterior STC removed would show any change in behavior: they could not climb vertical surfaces, although they still could capture prey as efficiently as normal specimens. Given that the control and observations in this experiment were far from rigorous, the negative results are somewhat inconclusive, and the experi-

ment ended when the specimens molted, regaining their STC and scopulae. To my knowledge, no function has been proposed for the flexible tarsi. A male *Acanthogonatus centralis* braced the female, during copula, and the tarsi were then strongly bent downwards, holding the female by the sides of the cephalothorax. Holding the female during copulation can hardly be the only use of flexible tarsi, however, as in many species they are found also in females.

RELATIONSHIPS

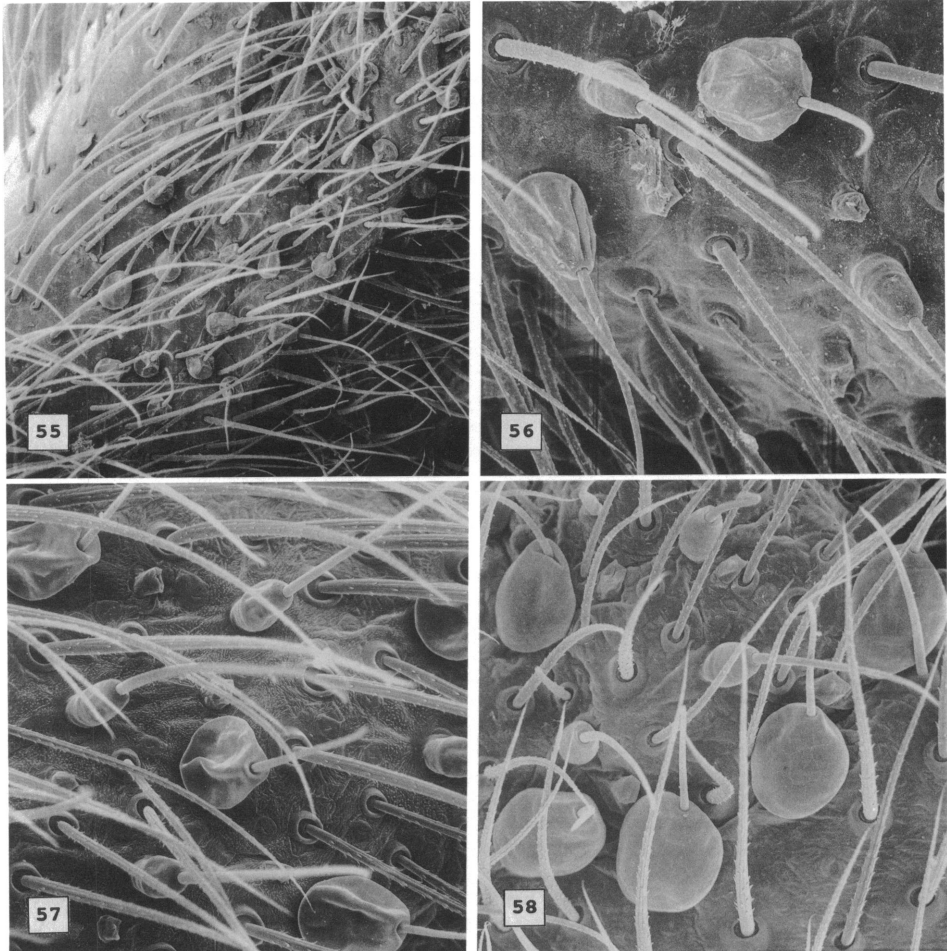
The family Nemesiidae was resurrected by Raven (1985a), who proposed three syna-



Figs. 51–54. Spigots of right PLS, females. 51, 52. Inner side. 53, 54. Ventral. 51. *Stenoterommata quena*, apex of basal and base of medial articles. 52. *Pycnothele* (?) sp. (Brasil, MZSP), apex of basal article. 53. *Pycnothele modesta*, apex of basal article. 54. *P. auronitens*, medial and apical articles.

pomorphies for the family: the presence of two rows of teeth on the STC, the STC wide, and the female palpal claw with teeth on the promargin. Raven (1985a) also proposed a cladogram for nemesiid genera; he published no data matrix for the nemesiids, but simply indicated on the cladogram the proposed synapomorphies and some (but not all) of the homoplastic changes. Since no computer programs for parsimony analysis were readily available in 1985, that cladogram was done manually. As finding most parsimonious trees is no easy task, it is not surprising that scoring in a matrix the characters proposed by Raven

(1985a) does not actually produce his cladogram as one of the shortest trees. Goloboff (1993a) reanalyzed the relationships of mygalomorph families, and suggested that the three characters proposed by Raven (1985a) as synapomorphies of Nemesiidae are actually just one, described in different ways. The two rows of teeth are clearly separated, on the sides of the ventral face of the claw, and it is this that makes the claws appear wider. The palpal claw has its teeth advanced from the midline in all species in which there is a double row of teeth on the STC (diplurines, microstigmatids, and cyr-

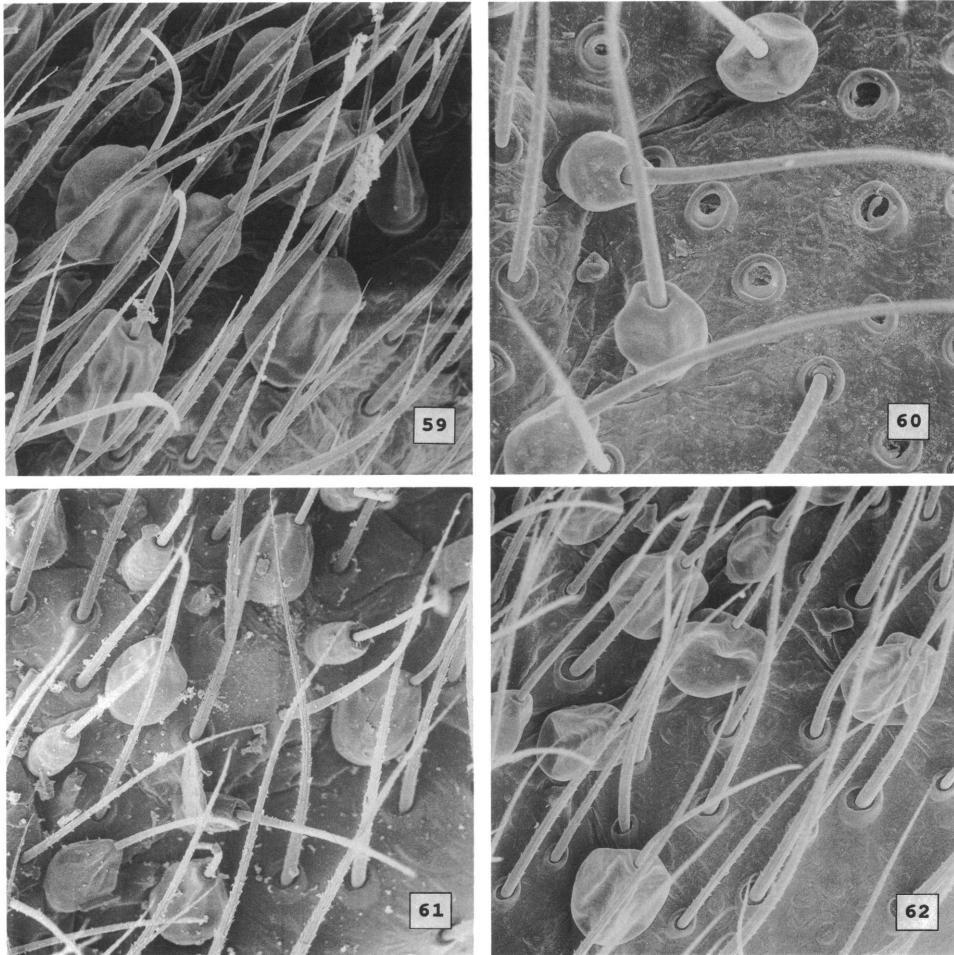


Figs. 55–58. Spigots of PLS of female *Acanthogonatus* spp., inner side. 55–57. Medial article of right PLS. 58. Basal article of left PLS. 55. *A. incurus*. 56. *A. tolhuaca*. 57. *A. recinto*. 58. *A. peniasco*.

taucheniids), and even in some species in which there is a single row on the leg claws (see Goloboff, 1993a, figs. 8–13). This leaves just one possible synapomorphy for the Nemesiidae, but Goloboff's analysis implied that the bipectinate STC are a synapomorphy of a group including "Nemsiidae" as well as diplurine diplurids, microstigmatids, Theraphosoidina (Theraphosidae, Barychelidae, and Paratropididae), and rastelloids (with "cyrtaucheniids" paraphyletic in terms of other rastelloids, so that the ancestral state for rastelloids is the presence of bipectinate STC). That result suggests that Nemesiidae may well be a paraphyletic group.

Therefore, both the relationships within the

family and the monophyly of the family itself are far from well established. The two problems are, obviously, interrelated, but the solution to neither of them is likely to be found in the near future. The study of Neotropical and non-Neotropical genera of nemesiids and related families has revealed, so far, no obvious characters which could help in delimiting well-justified groups. As a first approximation to the problem, a matrix including all the species treated here, plus several other possibly related taxa, was assembled. The matrix (table 1) includes 84 taxa (most of the species dealt with here, plus 18 putative Neotropical and non-Neotropical nemesiids, plus 10 non-nemesiid taxa) and 104 characters.



Figs. 59–62. Spigots of left PLS of female *Acanthogonatus*, inner side of medial article. 59. *A. huaquen*. 60. *A. fuegianus*. 61. *A. nahuelbuta*. 62. *A. confusus*.

The support for some of the groups in the resulting trees is less than satisfactory, particularly for the higher groups. The resolution of the low-level relationships of the species treated here should be viewed with more confidence, as the survey of those species has been more meticulous. My firsthand knowledge of many of the other genera or higher groups included (some of which may contain hundreds of species, as Theraphosinae or Barychelinae) is limited. This highlights the necessity of collaborative studies such as that of Platnick et al. (1991), as deep knowledge of such an array of taxonomic groups by a single person seems beyond human capacity. The data are presented “as is” with the aim

of providing a basis for subsequent improvements when new characters are found.

TAXA

The taxa were chosen using Goloboff's (1993a) hypothesis of mygalomorph relationships as a framework.

ROOT

The group Bipectina comprises all bipectinate taxa (with some rastelloids secondarily monopectinate). Diplurines were hypothesized by Goloboff (1993a) to be the sister group of all other bipectinates, and they were therefore chosen to root the tree (the cymbial

spines in diplurines are absent, but they are present in more basal dipluroids, so the root was scored as variable for that particular character; the other characters correspond to those actually found in diplurines). The Diplurines were scored mainly on the basis of *Diplura paraguayensis* (Gerschman and Schiapelli), but specimens of other (unidentified) species of *Diplura* and several species of *Linothele* (in MACN and AMNH) have been examined; for most of the characters used here the variability within the subfamily seems to be minimal or absent.

NON-NEMESIID TAXA

Barychelinae. Representatives of several genera were examined for the present study (*Trittame*, *Nihoa*, *Idioctis*, *Encyocrypta*, *Strophaeus*, *Cyphonisia*, *Atrophothele*, in MACN, AMNH, and MCZ). This is a very diverse group. Raven (1994) has recently described numerous new species and genera from the Pacific. When possible, his generalizations were used, but as he has provided no detailed cladistic analysis of the group, it is possible that many of the states assigned here to Barychelinae are not the plesiomorphic states for that group.

Trichopelmatinae. This group seems quite speciose in the Caribbean; numerous species (in AMNH, MCZ, USNM, QM, and CU, most of them possibly undescribed) have been examined. The limits between the only two genera of the subfamily (*Trichopelma* and *Psalistops*) are unclear and both might turn out to be synonyms (Raven, 1985a: 159).

Theraphosinae. Scored on the basis of numerous species. For most of the characters studied here, the group is possibly relatively uniform.

Ischnocolinae. This refers to three-clawed "theraphosids." Published data on the African genus *Heterothele* (with ITC present in all legs; see Gerschman and Schiapelli, 1973; Raven, 1985a) was used as basis for the scoring. They are treated separately from the Theraphosinae as they differ in the presence of a third claw and in having the STC bipectinate in the male. Caribbean specimens of *Ischnocolous* (Goloboff det., in CU and AMNH) and *Oligoxystre argentinensis* (Goloboff det., in AMNH and MACN) were used

to complete the scoring for those characters not described for *Heterothele* in the literature.

Paratropidinae. Scored on basis of *Paratropis* and *Anisaspis*, in MACN, AMNH, and SMN.

Glabropelmatinae. The subfamily includes only *G. gracilis* (Schenkel). Scored here on the basis of a female (from Venezuela, in MACN, Goloboff det.); for the male characters, Raven's (1985a) description of the subfamily was used.

Neodiplothele and *Cosmopelma*. *Neodiplothele*, originally described as a barychelid, was transferred by Raven (1985a), with reservations, to the Nemesiidae. Goloboff (1993a) found that *Neodiplothele* shares with the Theraphosoidina (Barychelidae, Paratropididae, and Theraphosidae) the presence of clavate trichobothria and a double row of trichobothria on the tarsi; this alone made the placement of *Neodiplothele* in Theraphosoidina the most parsimonious choice. For the present paper, I have examined the types of three of the four species described for the genus (female *N. irregularis*, male *N. fluminensis*, juv. *N. leonardosi*, all in MNRJ), and additional specimens (of both sexes) in MZSP, MNRJ, MNHN, and SMN. The types of *N. picta* Vellard, 1925 are possibly lost. *Neodiplothele* is here transferred to the Sasoninae (Barychelidae; see below). Specimens of a genus apparently related to *Neodiplothele* (from Paranaíba, Brazil) have been found in IBB and MNRJ; they differ from *Neodiplothele* in having the PMS present (although rudimentary). That species differs from other sasonines (and agrees with other barychelids) in having the male STC bipectinate; as that provides additional evidence on the ground plan of sasonines for that important character, the new species is included in the matrix (as "N.gen. ? cf. *Neodiplothele*"). The types of *Cosmopelma* have not been examined, but the presence of cuspules on the leg coxae (Simon, 1892) makes this genus unmistakable. One of the characters in the matrix (char. 47; see below) is scored based on African sasonines which appear to be closely related to *Cosmopelma* (see below), so that "*Cosmopelma*" in the matrix actually represents a group of species (some of which may not belong to the genus).

Raven (1985a: 103) concluded that placing

TABLE 1

Data Matrix. Character numbers and coding correspond to list in text (see "Characters"). Terminals which may have more than one state are coded as follows: 01 = A; 02 = B; 04 = C; 12 = D; 14 = E; 24 = F; 012 = G; 015 = H.

	1	2	3	4	5	6	7	8	9	10
	0123456789	0123456789	0123456789	0123456789	0123456789	0123456789	0123456789	0123456789	0123456789	0123
ROOT	1001100110	0000000100	-010000001	1000001000	100000-001	0000000000	0A00000000	0000001011	0000000000	-020000-00 00-0
- Acanthogonatus										
subcalpeianus	1001100011	0001000200	0010000111	0001001000	0000-0-002	1000011000	0100000000	0000000022	0100000000	0010000000 02-0
confusus	1001100111	0000000200	0010000011	1100001000	2000-0-002	1000000000	01000000-0	0000000042	0100000200	0010000000 01-0
campanae	1001100111	0000000200	0010000011	1000001000	1000-0-002	1000000010	0100000000	0000000021	0100000000	0010000000 01-0
alegre	1001100111	0000000200	00200000--	1100001000	2000--0-00	-0000000000	--0-0----	000000----	--00-----	-0-000000 01--
pissii	1001100111	0000000200	0010000011	1200001000	2000-0-002	0000000000	0100000000	0000000020	-100000200	0010000100 01-0
huequen	1001100111	0000000200	0010000111	1200001000	2000-0-002	1000010020	0100000010	0000000021	0100000200	0010000100 02-0
quilocura	1001100111	0000000200	0010000111	1200001000	2000-0-002	1000010000	0100000010	0000000021	0100000200	0010000100 02-0
juncal	1001100111	0000000200	00100001--	1200001000	2000--0-002	1000000000	--0-0----	000000----	--00-----	-0-000010 02-0
incursus	1001100111	0000000200	00200000--	1100011000	2000--0-002	1000010000	--0-0----	000000----	--00-----	-0-000000 0-0-
centralis	1001100111	0000000200	0010000111	1200001000	2000-0-002	1000010000	0100000000	0000000021	0100000000	-0100000000 01-0
perana	1001100111	0000000200	00100001--	1200001000	2000--0-002	1000010000	--0-0----	000000----	--00-----	-0-000000 01-0
tacuariensis	1001100111	0000000200	0010000111	1200001000	2000-0-002	1000010000	0100000000	0000000022	0100000200	0010000100 01-0
frankii	1001100111	0000000200	00100000-11	1200001000	0000-0-002	1000010020	1101000000	1000000041	0100000201	0010000100 02-0
penasco	1001100111	0000000200	00100001--	1200001000	2000--0-012	1000010020	--0-0----	000000----	--00-----	-0-0000-00 02-0
recinto	1001100111	0000000200	0010000111	1200001000	2000-0-012	1000010000	0101010010	0000000021	0100000201	0000-00100 0-0-
patagonicus	1001100111	0000000200	0010000111	1200001000	2000-0-012	1000010000	0101010010	0000000041	-100000200	0100000000 02-0
fuegianus	1001100111	0000000200	0010000111	1200001000	1000-0-012	10000110-0	1100010010	0000000020	0100000200	0100000100 02-0
notatus	1001100111	00-00-0200	0010000111	-20-001000	1000-0-01-	-0000100-0	0100000000	0-0-000020	1000000200	101--0-00 0-0-
bibrabeni	1001100111	00-00-0200	0010000111	-20-001000	2000-0-012	100000000-0	0100000010	--000020	1000000200	101--0-00 0-0-
chilechico	1001100111	00-00-0200	0010000010	0000001000	0000000002	1000010000	1100001110	0000000021	0100000200	-000011-00 01-0
nahuelbuta	1001100010	0000000200	0010000010	0000001000	0000-0-002	1000000000	1000001110	0000000021	0100000200	-000011-00 01-0
hualpen	1001100010	0000000200	0010000010	0000001000	0000-0-002	1000000000	1100001100	0000000021	0100000200	0010-11-00 0-0-
patagallina	1001100011	0000000200	0010000010	0000001000	0000-0-002	1000000000	--0-0----	000000----	--00-----	-0-0010-00 01-0
vilches	1001100011	0000000200	00100000--	0000001000	0000--0-002	1000001010	--0-0----	000000----	--00-----	-0-0100-00 01-0
tolhuaca	1001100011	0000000200	00100000--	0000001000	2000--0-002	1000000000	--0-0----	000000----	--00-----	-0-0100-00 01-0
mulchen	1001100012	0000000200	00100000--	0000001000	2000--0-002	1000000000	--0-0----	000000----	--00-----	-0-0100-00 01-0
brunneus	1001100011	0000000200	00100000--	0000001000	2000--0-002	10000-0000	--0-0----	000000----	--00-----	-0-0100-00 0-0-
- Lycinus										
longipes	1101011210	0000000200	0000001211	0200001000	2000010021	0000011000	1101-10010	1000000041	0000010101	000000-00 0320
gajardoi	1101011211	0000000200	0000001211	1200001000	1000-10021	0000011000	1101110010	1000000040	0001011101	0010000-00 0310
caldera	1101011211	0000000200	0010001211	1200001000	2000-1-021	0000011000	1101110010	1000000040	0001111101	0000000-00 0310
tofo	1101011211	0000000200	0000001211	1200001000	2000-1-021	0000011000	1111110010	1000000041	0000010101	0020000-00 0310
frayjorge	1101011211	0000000200	0010001211	1200001000	2000--0-021	0000001100	1-1-1-0-0	000000004-	00000--0-	00-0000-00 0310
epiptus	1101011211	0000000200	0000001211	1200001000	2000-1-021	0000011000	1101110010	1000000041	0000010101	0000000-00 0310
cf. tofo	1101011211	0000000200	0000001211	1200001000	2000-1-021	0000011000	1111-10010	1000000041	0000010101	0020000-00 0310
domeyko	1101011211	0000000200	0000001211	1200001000	2000-1-021	0000011000	1101110010	1000000041	0000010101	0000000-00 0310
quilicura	1101011211	0000000200	0000001211	1200001000	2000-1-021	0000011000	1111110010	1000000041	0000010101	0020000-00 0310
- Diplotelopsis										
ornata	1101011210	0000000200	0000001211	1200001000	2000-1-021	001-011000	0101110010	1001000041	0000010000	0010000-00 03-0
bonariensis	1101011210	0000000200	0000001211	1200001000	2000010021	001-011000	0101110010	1001000041	0000010000	0010000-00 03-0
- Chilelopsis										
calderoni	1101011111	0000010200	0020001111	0100001000	1000101021	0000011010	0101011010	0010000040	0000000200	1010000-00 0300
puerto Viejo	1101011111	0000010200	0020001111	0100001000	1000101021	0000011010	0101011010	0010000040	0000000200	0010000-00 0300
serena	1101011111	0000010200	0010001211	0100001000	10001-1021	010-011010	1101000010	0010000041	0000000100	0010000-00 0300
- Flamencopsis										
minima	1101011111	0000000200	0010001211	0100001000	1000101021	0101011000	0100000000	0000000040	0000000200	0010000-00 0300
- Chaco										
obscura	1101000111	0001000200	0010001111	1200001000	100000A021	0000011000	0100000000	0000000031	0000000101	10-0000-00 04-0
tucumana	1101000111	0000000200	0010001111	1200001000	1000-0-021	0000011000	0100000000	0000000031	0000000101	10-0000-00 04-0
socos	1101000111	0001000200	0010001111	0200001000	1000-0-021	0101011000	0100000000	0000010031	0000000101	10-0000-10 04-0
tigre	1101000111	0001000200	0010001111	0200001000	1000-00021	0101011000	0100000000	0000010031	0000000101	10-0000-10 04-0
patagonica	1101000011	1000010200	00100011--	0200001000	0000--0-021	0101011000	--0-0----	000011----	0-00-----	-0-0000-10 03-0
tecka	1101001111	1001010200	00100011--	0200001000	0000--0-021	0101011000	--0-0----	000001----	0-00-----	-0-0000-10 03-0
sanjuanina	1101000011	1000010200	0010001111	0200001000	0000-0-021	0101011000	0100000000	0000110030	0000000101	00-0000-10 0-0-
- Pycnothelpe										
perdita	1101001211	0000000200	0010001111	0200001010	1010-0-022	0000013000	0100000000	1000000040	0010000111	00-1000-00 02--
modesta	1101000211	0000000200	0010001111	0200001010	1000000022	0000010000	0100000000	1000000040	0010000111	00-1000-00 02-0
(?) n.sp.	1101000111	0000000200	0010001111	01000010-0	1000-0-022	1000010010	0100000000	0000000010	0010000111	00--000-00 ----
- Stenoteromata										
platense	1101100111	0000000200	0020001111	0100001000	1000-0-012	1000010011	0100000000	0000000011	0000000101	00-0000-01 02-0
palmar	1101100111	0000000200	0020001111	0000001000	000000-012	1000010011	0100000000	0000000011	0000000101	10-0000-00 02-0
crassistylus	1101100111	0000000200	0020001111	0000001000	000000-012	1000010011	1100000000	0000000010	0000000101	10-0000-00 02-0
leporina	1101100111	00-00-0200	0020001111	-10-001000	0000-0-012	2000010011	0100000000	----000111	0000000101	00--0-0-00 02-0
cf. leporina	1101100111	0000000200	0020001111	0100001000	0000-0-012	2000010011	0100000000	0000000011	0000000101	00-0000-00 02-0
- Hermachura										
ludlowi	1101100111	00-00-0200	00200011--	-00-001000	0000--0-012	2000010011	-----0-0	----0-0----	0-00-----	-0-0000-00 02-0
- Rachias										
timbo	1101100011	000000-10	0100110111	0101001001	0000000022	100001--10	1100000001	0000100042	0000000101	00-0000-10 02-1
piracicabensis	1101100011	000000-10	0100110111	0101001001	0010-0-01-	-00001--10	1100000001	0000100041	0000000101	00-0000-00 02-1
(?) n.sp.	1101100011	00-00--10	0100110111	-20-001001	0000-0-022	100001--10	1100000001	----000111	0000000101	10-0000-00 02-0
- Other nemesiids										
Prorachias	1101000001	0000000000	0010002211	0000001110	00A0-0-021	0000010010	0100000001	0100000042	0000000101	00-0000-00 04-0
Paelligmus	1101000011	0000000200	00100001--	0100001110	0000-0-02-	0000010010	0100000000	000000-0-	00-0000--0	00-0000-00 0-0-
Stawellia	1101100110	0000000200	0010000011	-0000010000	1000-0-002	10000A1010	0100000000	0000000041	0000000000	00A00000-00 0-0-
Hermachura	1101100111	0000000200	0010000110	00000010-0	0000-0-002	10000--010	0A00000010	0000000011	0000000000	00-0000-00 0-0-
Ixametus	1101100111	0000000200	00A00000A0	0000000000	0000002002	0000001000	0A00000000	000000A0E0	0000000000	00-0000-00 01-0
Nemesia	1201A00011	0000000200	0000002200	0000001010	0000-0-021	0000001000	0A00000001	0000000011	0000000	

TABLE 1—(Continued)

Non-nemesiids	1101100011	0000000200	000000G1A0	0000000000	0000002022	0100010000	0A00000000	00000000E1	0000000000	00-0000-00	00-0
MICROSTIGMATIDAE	1101000A01	0000000200	00G0002200	0200111100	111100-123	00000110A0	0100000000	1000000000-	0000000000	00-0000-0A	04-0
BARYCHELINAE	1101000011	0000000110	0010012211	0200111100	111100-122	0000011000	0100000000	0000000000-	0000000000	00-0000-00	0F-0
TRICHOPELMATINAE	1101100211	0000000110	102000200A	0200312000	1111000002	000000A000	0100000000	000000000C-	0000000000	00-0000-00	01-0
THERAPHOSINAE	1101100211	0000000110	1020000001	0000111000	1111000000-	0000000000	0100000000	000000000C-	0000000000	00-0000-00	01-0
ISCHNOCOLINAE	1101100011	0000001111	1020002000	0010200000	0010002000	000000-100	0100000000	0000000004-	0000000000	00-0000-00	01-0
PARATROPIDINAE	1101100111	0000001111	1020002000	02003110-0	0111-0-00-	000000-100	0100000000	0000000000-	0-00000000	00-0000-00	0--0
Glabropelma	1101000111	0001100200	0000012211	0200311100	1111001022	0010001000	0100000000	00000000041	0000000100	01-0000-00	04--
Neodiplothele	1101000111	0000100200	0000012211	0200111110	1111-0-02-	-000001000	0100000000	00000000041	0000000000	01-0000-00	0---
Gen.n.(?) cf. Neod.	1101000111	0000100200	0000012211	02003111A0	0111-0-12-	0000001000	0100000000	00000000000	0000000100	01-0000-00	04--
Cosmopelma	0210100012	0110000000	011000A-00	0000001001	0000000002	000012-0-0	0A000-0--0	0000000A11	0000000000	-010000-00	00-0
APOROPTYCHINI	0210100001	0110000100	0010002200	0000001100	0020-0-022	0000122000	0100000001	0000000010	0000000000	00-0000-00	04-0
Cyrtauchenius											

Neodiplothele in the Barychelidae instead of Nemesiidae required additional steps in four characters, which would then be autapomorphies of *Neodiplothele*: the wide clypeus, the reduced scopula, the cheliceral tumescence, and the ridges on the bulb. The last two characters are present in many nemesiids, but contrary to Raven's (1985a) statement, they do not require additional steps if *Neodiplothele* is placed in Barychelidae, as those characters also occur in that family. Raven (1985a: 47) mentioned that a cheliceral tumescence is present in *Trittame* (Barychelidae, Barychelinae), and it also occurs in trichopelmataines and sasonines. Males of the sasonines *Paracenobiopelma* (types of *P. gerekormophila*, type and only species of the genus, in MNRJ, examined) and *Cosmopelma* (males of *Cosmopelma* are undescribed; specimens examined are in MNRJ) not only agree with *Neodiplothele* in having a cheliceral tumescence, but also in having a bulb with low ridges (similar to those of *Neodiplothele*), plus two other significant characters (previously overlooked). The bulb follows an extremely convoluted path, with its outer loop enclosing the other one, and the tarsi (of both males and females) have a pair of basal, long, erect modified setae (figs. 1, 2). The tarsal setae are also found in females of *Sason* and those of African sasonines (undescribed, in AMNH and USNM, sharing with *Cosmopelma* the maxillary cuspules extending posteriorly and the presence of some cuspules on the leg coxae), so that it can be considered a synapomorphy of the subfamily. I have not studied males of *Sason*; if the extremely convoluted duct is also present in that genus, it would constitute an additional synapomorphy for the sasonines; Raven's (1986a) illustrations of *Sason* bulbs do not show whether the character is present or not.

Microstigmatidae. The family is considered (after results of Goloboff, 1993a) as including also *Xenonemesia* and *Spelocteniza*, as well as some new taxa from the Amazon basin (in AMNH, MNHN, and SMN). Some species in the family are extremely autapomorphic, but the scoring for the group was based mostly on *Xenonemesia* (which is probably basal to the group).

Rastelloids. Two basal rastelloids were included: the Aporoptychini (scored mostly on the basis of *Bolostromus* and *Fufius*, numerous specimens in AMNH and MACN examined) and *Cyrtauchenius* (scored on basis of the female types of *C. bicolor* Simon and *C. structor* Simon, in USNM, and males in AMNH, Goloboff det.). Other rastelloids are too modified to influence character optimizations within the group under study.

NEOTROPICAL NEMESIID TAXA

Acanthogonatus, *Chaco*, *Lycinus*, *Diplotheleopsis*, *Flamencopsis*, and *Chilelopsis*. All known species of those genera are included in the matrix.

Pycnothele. The matrix includes *P. modesta* (Schiapelli and Gerschman) and the type species of the genus, *P. perdita* Chamberlin (male and female types in MCZ, examined). An apparently undescribed Brazilian species (known from the male only, in MZSP) seems to be related to *Pycnothele*, but differs from all other species in that genus in having ITC present in tarsus IV and a retrolateral apical megaspine on tibia I. The species is included as *Pycnothele* (?) n. sp. in the matrix.

Stenoterommata. The matrix includes the type species, *S. platense* Holmberg, plus three others: *S. palmar*, *S. leporina* (Simon) (NEW COMBINATION) and a possibly undescribed species close to *S. leporina* (included

as *Stenoterommata* cf. *leporina*). *S. leporina*, originally described in *Hermachura*, was said by Raven (1985a: 45) to belong to *Chaco*; study of the male holotype (in MNHN) reveals that it agrees in most characters with *Stenoterommata* (among those, the presence of the typical apical retrolateral megaspine on tibia I); the species is therefore transferred to *Stenoterommata*.

Hermachura. The types of *H. luderwaldti* Mello-Leitão, 1923 (type and only species, in MZSP, examined) are juveniles. Raven (1985a) characterized the genus as having "enlarged spigots" on the PLS; study of a topotypical adult female (in MZSP, which became available after Raven, 1985a) shows that those enlarged spigots are pumpkiniform and are also present in adults, as wide bands along the inner edge of the spinning field of the PLS (as in *Stenoterommata* and other genera). Possibly congeneric males (in IBB) have the anterior tibia with the retrolateral apical megaspine typical of *Stenoterommata*; the wide bands of huge pumpkiniform spigots and a low distal process on metatarsus I are shared with *Stenoterommata leporina* and related species. Although the character combination in *H. luderwaldti* is not significantly different from that in those *Stenoterommata*, the species is included to confirm that it clusters as a polytomy between them.

Rachias. A poorly known but apparently speciose genus; only three species are included in the matrix. Two of those are the small *R. timbo* and the much larger *R. piracicabensis* (from Brazil). The third is a species from northeastern Brazil (possibly new), included in the matrix as *Rachias* (?) n. sp., which differs from all (or at least, most) of the other *Rachias* in having the male tibia I with a retrolateral megaspine, which suggests that it might be their sister group.

Prorachias. New species in this genus have been studied (including the first known male, collected by R. Bertani, in IBB; other specimens are from MZSP and MNRJ), allowing an expanded perspective on that genus. All species here attributed to *Prorachias* have the anterior tibiae densely scopulate, which could link *Prorachias* to other nemesiids with scopulate anterior tibiae, and—synapomorphically—three or four strong, almost immobile spines on the ventral apex of metatarsus II

(instead of the usual weak, more loosely articulated one or two).

Pselligmus. The only species in this genus is the type species, *P. infaustus* Simon (female holotype in USNM, examined; males are unknown). Other species included by Raven (1985a) in the genus are here transferred to other genera (see remarks under *Rachias* and *Stenoterommata*). *Petropolisia*, synonymized with *Pselligmus*, is here synonymized with *Rachias* (see section on that genus, below). Raven (1985a) considered *Psalistopoides* Mello-Leitão (1934) as a synonym of *Pselligmus*. However, *Psalistopoides* (male holotype of the only species, *P. fulvimanus*, in IBB, and other males in IBB and AMNH, examined) is probably not a synonym of *Pselligmus*; it lacks a tibial scopula and has a longer apical article of the PLS; it could belong in the *Stenoterommata* group. *Pselligmus conspersus* (Walckenaer) was tentatively placed by Raven (1985a) in *Pselligmus*, but the study of the type (in BMNH, examined) reveals that it belongs in the genus *Rachias*, where it is then transferred as *Rachias conspersus* (NEW COMBINATION).

For the genera *Pycnothele*, *Stenoterommata*, and *Rachias*, many more species exist in Brazil. Several species of each genus are included in the present matrix only to represent their ground plans more accurately; the details of their interrelationships will be treated elsewhere, when the additional new species are described. The genus *Prorachias* also contains some new species, but they are more uniform than species in *Pycnothele*, *Stenoterommata*, or *Rachias*, and the genus is therefore treated as just one terminal.

NON-NEOTROPICAL NEMESIID TAXA

Stanwellia. Scored mostly on basis of male *Stanwellia pexa* and female *Stanwellia* sp. (in AMNH) and male and female *S. grisea* (Raven det., in MACN); additional information was taken from Raven (1985a) and Forster and Wilton (1967). Numerous species are included in *Stanwellia*. Some characters are scored in the matrix as variable, mainly based on Raven's (1985a) description of the genus (the actual states observed in the specimens above are enclosed in parentheses): male bulb keels are scored as either absent or lateral (absent); preening combs as absent or present

(absent); male tibia I with single megaspine or no spur at all (no spur).

Hermacha. Scored on basis of male *Hermacha* sp. (in AMNH), and male *Hermacha caudata* (type species of the genus, holotype 9917 MNHN, considered lost by Raven, 1985a, subsequently found, in MNHN, examined), and Raven's (1985a) description of the genus.

Ixamatinae. Scored on basis of male and female *Ixamatus broomi* (Goloboff det., in AMNH), and male *Xamiatus rubrifrons* (Raven det., in AMNH). Additional specimens of *Ixamatus* and *Xamiatus* in QM were examined at earlier stages of this study, so they could not be scored for many of the characters used here. Raven's descriptions (1981, 1982a, 1982b) were also used. Most ixamatines lack a male metatarsal process, but as it is present in *Ixamatus rozefeldsi* (see Raven, 1985b) the subfamily is scored as variable for this character. The cymbial spines of ixamatines are also scored as variable, as they are present in *I. lornensis* (see Raven, 1985b), and absent in the other species.

Nemesia. Scored on basis of female *Nemesia dubia* (Goloboff det., in MACN), and male *Nemesia* sp. (Goloboff det., in MCZ and AMNH), as well as Blasco's (1986) descriptions. A male of *Anemesia* (= *Nemesia*) *karatovi* (Andreeva), Zonshtein det. (in QM), examined at an earlier stage of the study.

Calisoga. Scored on the basis of numerous males and females, possibly belonging to more than a single species, in AMNH. The cheliceral tumescence is absent from the male chelicerae, but I have observed it in some females (having the same position and appearance as in males); no other species is known where the cheliceral tumescence is present in females.

Mexentypesa. Numerous male and female specimens from Mexico (possibly representing more than a single species; some of those identified by Raven) examined (in AMNH).

Bemmerinae. Only female specimens (of *Damarchus* sp., in MNHN) examined in detail. Males (in QM) and females (in MCZ) of *Spiroctenus* spp. and female of *Damarchus* sp. (in QM) examined at an earlier stage of the study so they could not be scored for many characters. Male characters for *Damarchus* and *Atmetochilus* are taken from Raven (1985a). This group is assumed to be

monophyletic for the purpose of the present analysis (see comments on the scoring for the male tibial spur of bemmerines, below).

Anamini. Scored on basis of male *Namea bunya* Raven det., "*Chenistonina*" *villosa* Main det., and unidentified males and a female (all in AMNH). Raven's (1985a) descriptions (which were based on his extensive research in Australian nemesiids) were also used to assess variability in this speciose group.

The only valid genera of Nemesiidae not included in the matrix are the African *Lepthercus* and *Entypesa*, and the Palearctic *Raveniola* and *Brachythele*. *Raveniola* is very close to *Nemesia*; I have examined males of *Raveniola virgata* (Simon) and *R. pontica* (Spassky), both Zonshtein det., in AMNH and QM. If included in the matrix, *Raveniola* would probably cluster together with that genus. I have not seen specimens of *Brachythele*, but it is—according to Raven (1985a)—very close to *Nemesia* and it would probably also cluster with that genus. Both *Entypesa* and *Lepthercus* are poorly known; I have not examined specimens of *Lepthercus*, but I have seen specimens of *Entypesa* (females in MNHN, males in QM). *Entypesa* would probably cluster near the base of the cladogram, as they have a cymbium with spines and a well-developed knob on the male metatarsus I (very similar to the one found in diplurines), in conjunction with long spinners and no conspicuous row of pumpkiniforms along inner edge of PLS.

CHARACTERS

Like many of the previously used characters, most of the new ones are either quite variable and homoplastic, or delimit very restricted groups, or (because of intergrades) are very difficult to score with certainty. Given that for most multistate characters there was no evident ordering of the states, they were considered as nonadditive (= unordered); only the exceptions are pointed out in the list below. The number of steps added because of variation outside the group or within terminals is given only when different from zero. Note that this number of steps cannot be derived directly from the information given in the matrix. For some (higher) taxa, there is so much variability in some characters that they were scored as "?" for those characters.

For others, the plesiomorphic state for the group could be hypothesized with some confidence, and the taxon was then not scored as polymorphic. The number of steps added to each character is, therefore, extrinsic to the present analysis, resulting from previous ideas of relationships. Only through more global analyses could those numbers of steps be tested. A few of the characters included are uninformative (= autapomorphies) at the level of the present analysis; they are nonetheless included in the analysis, and in the list of syn-plus autapomorphies, as that makes more explicit what is unique to those genera and species and facilitates their identification.

GENERAL SOMATIC CHARACTERS

(0) thorax: 0, flat; 1, sloping. Steps in terminals: 2 steps considered, as the thorax in some migids is more elevated and there is some variation in rastelloids.

(1) fovea: 0, narrow; 1, medium; 2, wide. Steps in terminals: 2 steps considered: the fovea of *Rhytidicolus* is narrower than in other rastelloids, which would presumably add homoplasy to this character, and the fovea is rather narrow in some migids.

(2) caput: 0, low; 1, high. Steps in terminals: 2 steps added because of variation in the rastelloids (some migids and idiopids have a low caput).

(3) eye tubercle: 0, absent; 1, present. Steps in terminals: 1 step added, as pachylomerine ctenizids have (unlike other rastelloids) the eyes on a tubercle.

(4) clypeus: 0, wide; 1, narrow. Steps in terminals: 2 steps added, because the character is variable within rastelloids (and it presents some variability even within some of the nemesiid species treated here).

(5) PE row: 0, recurved; 1, procurved.

(6) Eyes: 0, AME not much larger than PME; 1, AME much larger PME.

(7) pubescence: 0, absent; 1, light; 2, dense. Steps in terminals: 2 steps (pubescence is variable within barychelinae and trichopelmatae).

(8) sternum shape: 0, as in rastelloids: widest at coxae III, and narrowing gradually in front of coxae III; 1, tuberculatae: more or less cordiform, equally wide at coxae II and III, narrowed more abruptly in front of coxae II.

(9) sternum: 0, wide; 1, normal; 2, long. Steps in terminals: 2 steps (numerous instances of parallelisms are known for this character).

(10) sternal sigilla: 0, conspicuous; 1, inconspicuous.

(11) anterior legs: 0, normal; 1, short, slender. The character is to some extent variable in aporoptychines; the plesiomorphic state for that group is assumed to be (as in Raven, 1985a and Goloboff, 1993a) state 1. Steps in terminals: 1 step added.

(12) female tarsi: 0, normal; 1, stout.

(13) leg color: 0, uniform; 1, patterned. Steps in terminals: trichopelmatae and *Fufius* include species with both states 0 and 1; 2 steps added.

(14) tarsal modified setae: 0, absent; 1, present (figs. 1, 2). Included as a potential synapomorphy of Sasoninae [including *Neodiplothele* and N. gen. (?) cf. *Neodiplothele*].

(15) setae on female posterior legs: 0, normal; 1, dense. Steps in terminals: some theraphosids also have an increased setation; 1 step added.

(16) labium: 0, normal; 1, large, protruding. State 1 is exclusive to Paratropididae.

(17) labium: 0, long; 1, squared; 2, wide. Steps in terminals: 2 steps, to account for a widening in mecicobothriids and an elongation in actinopodids.

(18) labial cuspules: 0, few; 1, many. Steps in terminals: 2 steps, as the character is variable within bemmerines and theraphosids. The plesiomorphic state for bemmerines is considered to be few labial cuspules (since only in some species of *Spiroctenus* may there be numerous cuspules), and for both theraphosid taxa included here it is considered to be numerous labial cuspules (which has long been considered as one of the synapomorphies of the family; Raven, 1985a).

(19) anterior maxillary edge: 0, normal; 1, concave.

(20) maxillary lobe: 0, normal; 1, produced.

(21) palpal coxae: 0, long; 1, short.

(22) maxillary cuspules: 0, few (about 0–10); 1, medium (about 10–30); 2, many (over 30). Steps in terminals: 2 steps (both barychelids and theraphosids may have from few to many). Barychelinae are scored as having any of the possible states, as the plesiomorphic state for the group is unknown. The

distinction between the three states of this character is not always clear, as the number of cuspules is actually almost a continuous variable (and, for most of the species studied here, there is some variability in the exact number of cuspules, which makes scoring the character even more difficult). The character was treated as additive.

(23) cuspules: 0, on anterior angle; 1, extend backwards. The character is variable in bemmerines (the cuspules in *Damarchus* may extend posteriorly), and they were scored as variable for this character. Steps in terminals: 2 steps (one to account for variation within bemmerines, one within rastelloids: cyrtacheniids).

(24) setae maxillary heel: 0, normal; 1, strong. In *Rachias* (particularly in females), the posterior maxillary heel has long, strong and curved setae on the edge.

(25) maxillary heel: 0, absent; 1, present. Steps in terminals: no steps counted, as the terminals included should account for most of the homoplasy in this character (the only significant variation is not *within* the terminals included, but instead *between* them).

(26) serrula: 0, present in male and female; 1, present in male only; 2, absent in male and female. Steps in terminals: Anamini and Ixamatinae include both serrulate and aserrulate species; 2 steps added. As there seems to be an increasing reduction from states 0 to 2, the character was treated as additive.

(27) rastellum: 0, absent; 1, weak; 2, strong. Steps in terminals: numerous instances of homoplasy are known for this character; 3 steps added. The character was treated as additive.

(28) male cheliceral tumescence: 0, absent; 1, present. This character may be present or absent in several families of mygalomorphs; 2 steps added.

LEG AND MICROSTRUCTURAL CHARACTERS

(29) male tarsi: 0, rigid; 1, flexible. Steps in terminals: 2 steps added, as numerous instances of homoplasy are hypothesized down the tree (see Goloboff, 1993a).

(30) female tarsi: 0, rigid; 1, flexible.

(31) third claw: 0, present I–IV; 1, absent I–III; 2, absent from all legs. Steps in terminals: one step added to account for variability within Anamini (which may or may not have ITC on the anterior legs). The char-

acter was treated as additive, so that the state 1 is intermediate between states 0 and 2.

(32) third claw: 0, present in all or posterior tarsi only; 1, present in anterior legs only. This character accounts for the unique condition observed in some paratropidids. Paratropidids are scored as having state 0 for the previous character, and therefore the cost of a transformation between the state in paratropidids to states 0, 1, and 2, would be (respectively) 1, 2, and 3 steps, but (given that two characters are being used) is weighted independently of the homoplasy in char. 31.

(33) teeth female STC IV: 0, numerous; 1, few.

(34) teeth of STC: 0, male and female with 2 rows; 1, male with 2 rows, female claws bare; 2, male and female with single strong tooth; 3, male and female claws bare (or with few, small teeth, as in some theraphosids); 4, male with 1 row, female with 2. Two characters considered by Raven (1985a), the "broad STC" and the "female palpal with teeth on the promargin" are considered as logical correlates of this character (see Goloboff, 1993a, for discussion), and are therefore not included as separate characters.

(35) claw tufts: 0, absent; 1, present.

(36) scopula: 0, absent; 1, light; 2, dense. Steps in terminals: as for char. 37. The character was treated as additive.

(37) scopula on anterior legs: 0, symmetric; 1, asymmetric. Steps in terminals: 1 step, to account for the independent origin of asymmetric scopula in scopulate idiopids.

(38) scopula on female anterior tibiae: 0, absent; 1, present. The tibial scopula in some *Nemesia* is dense, but in other species of the genus it is very light, almost absent; the genus is scored as having state 1. Steps in terminals: one step added to the character to account for the variability in *Nemesia*.

(39) male scopula IV: 0, normal/absent; 1, narrow. Steps in terminals: some male aporoptychine have the posterior tarsi with the scopula confined to the ventral surface of the article; thus, one step was added. Species in *Pycnothele* are scored as having a normal scopula, although the condition observed in some of them approaches that of *Rachias*. The species of *Rachias* and Aporoptychini are the only taxa scored as having state 1; although the character is variable within aporoptychines, they were scored as having state

1 to test more stringently the hypothesis that they are not closely related to *Rachias*.

(40) scopula IV: 0, absent/very light; 1, light; 2, dense. The distinction between states for this character is somewhat arbitrary, as the density of the scopula actually varies in an almost continuous gradient. The character was treated as additive.

(41) clavate tarsal trichobothria: 0, absent; 1, present. Steps in terminals: 2 steps, as clavate trichobothria arise independently in idiopids (*Homogona*) and ctenizids (pachylomerines and *Latouchia*).

(42) tarsal trichobothria: 0, single zigzag row; 1, double row of trichobothria, separated by thicker setae (the two rows themselves are often zigzagging); 2, wide band. Steps in terminals: rastelloids have a single wide band of trichobothria, but some actinopodids (*Plesiolenia* plus *Missulena*) have a single straight line; 1 step added.

(43) basal trichobothria on metatarsi I–II: 0, absent; 1, present. Raven (1994) suggests that the character is variable within barychelids; one internal step was therefore added.

(44) basal bothrial plate: 0, convex (figs. 13–16); 1, flattened and with deeper ridges (as in *Chilelopsis* and *Flamencopsis*; figs. 10–12).

(45) trichobothria on male cymbium: 0, 1:3M; 1, 1:2B. State 1 is found only in *Lycinus* and *Diplothele* (perhaps as a necessary consequence of having modified setae on the cymbium, char. 85).

(46) tarsal organ: 0, normal (figs. 17–19); 1, as in *Chilelopsis* (figs. 22–30): elevated but with a flattened surface, and finely ridged; 2, elevated (as in ixamatines). *Lycinus longipes* (figs. 31, 32) is scored as having state 0. The tarsal organ of *L. gajardoi* (fig. 21) was scored also as state 0 but it could be scored almost as well as state 1. *Chaco obscura* (fig. 38) was scored as having either states 0 or 1. As discussed above, more research is needed on this character, particularly to ascertain the limits of individual variation.

(47) book-lung combs (as in many barychelids; see Goloboff, 1993a, figs. 4, 5): 0, absent; 1, present. *Neodiplothele* and N. gen. (?) cf. *Neodiplothele* do not have book-lung combs. *Cosmopelma* does not have book-lung

combs, but it is scored as having them, because undescribed African sasonines (sharing with *Cosmopelma* the distribution of labial and maxillary cuspules) have conspicuous combs.

SPINNERET/SPIGOT CHARACTERS

(48) PLS apical article: 0, digitiform; 1, triangular; 2, domed. As the three states represent a series in shortening, the character was considered as additive.

(49) spigot types: 0, fused; 1, articulate (figs. 37, 39–47); 2, pumpkiniform (51–62); 3, bulb-shaped (fig. 33).

(50) inner row of pumpkiniforms: 0, absent; 1, narrow; 2, very wide, with huge spigots (fig. 50).

(51) basal article of PLS, number of spigots: 0, many (figs. 115C, 147D); 1, few (figs. 150F, 156B).

(52) PMS: 0, present; 1, absent. Steps in terminals: 2 steps added, to account for losses of the PMS in some barychelids and microstigmatids.

(53) PMS spigot number: 0, many (figs. 115C, 147D); 1, few (figs. 150F, 156B).

CHAETOTAXIAL CHARACTERS

(54) posterior leg spines: 0, both dorsal and ventral; 1, mostly dorsal. This character was proposed by Raven (1985a) as one of the synapomorphies of the Rastelloidina plus the Atypoidina.

(55) spines on patella III: 0, 1-1P (or less); 1, 1-1-1P; 2, many P (as in most rastelloids). Steps in terminals: Raven (1994) describes some variability in this character for barychelids; *Nemesia* may have either 1-1P or more; 2 steps are added. Note that some taxa have less than 1-1P (*Acanthogonatus mulcheni*, *A. chilechico*), a condition not distinguished here as separate.

(56) metatarsus IV: 0, 1-1-1P SUP (figs. 66F, 72L); 1, 0-0-1P SUP (figs. 79C, 118D, 127C); 2, 0P SUP; 3, 16P/P SUP. Species in *Chilelopsis* have enormous P spines on metatarsus IV (figs. 120B, C), which to some extent occupy the surface of P SUP. They seem to be the P spines, not the P SUP (and if they are the P SUP, *Chilelopsis* would be missing the P without having lost the P SUP, not

known in any other nemesiid). The three species in *Chilelopsis* are therefore scored as having state 1. State 2 is found only in the rastelloids (at least those included in this analysis), which completely lack P and P SUP (and R SUP) spines on the metatarsi, and have numerous V ANT. At first this may appear as contradictory with scoring the rastelloids as having state 1 of char. 54 (following the Raven, 1985a, proposal that one of the synapomorphies of the Rastelloidina is the spines on the posterior legs becoming dorsal). However, more basal segments of leg IV and most segments of leg III in rastelloids agree with Raven's statement. State 3 is included only to indicate that *Pycnothele perditia* is autapomorphic for this character (see description of the genus *Pycnothele*).

(57) lateroinferior tarsal spines: 0, absent/weak; 1, strong. This character refers only to the numerous, serially arranged, rigidly articulated, ventrolateral spines of paratropidids.

(58) preening combs: 0, absent; 1, present (fig. 8); 2, pseudocombs (fig. 9). Steps in terminals: numerous instances of homoplasy, besides those occurring in the tree, are known for this character; 2 steps are added.

(59) preening combs in II: 0, absent; 1, present. See comments under *Stenoteromata* for caveats regarding scoring this character.

(60) dorsal spines on male palpal tibia: 0, absent; 1, present. The conditions in many of the taxa scored as having state 1 may not actually be homologous, since there are some differences in location. The character refers mostly to spines on the apical part; *S. platense* may have a dorsal spine, but it is a basal one, and its (almost certain) sister species, *S. iguazu*, lacks such spines; *S. platense* is therefore scored as having state 0.

(61) spines on male cymbium: 0, present; 1, absent. This refers to true spines, mostly apical. The thickened setae in some Diplothelopsini are here considered as an independent modification (char. 85). Steps in terminals: several groups included in the analysis are variable for this character: the root, Apoptychinae, *Hermacha*, Anamini, *Ixamatus*, microstigmatids, and *Nemesia*; five steps are added to this character.

(62) proventral setae on male palpal tibia: 0, weak (figs. 124E, 127D); 1, strong (fig. 129B).

(63) dorsal spines on male tibia I: 0, absent; 1, present. To score this character, spines were considered as dorsal only if located between the two trichobothrial rows.

(64) dorsal spines on male posterior tibiae: 0, few/absent; 1, numerous. The usual complement [1 D (1:3 A), sometimes with 1 D B as well] is scored as state 0; some Diplothelopsini may have more numerous spines (although very irregularly arranged).

(65) spines on male patella I: 0, 0R; 1, 1R.

(66) shield of setae on male tibia I: 0, absent; 1, present (figs. 75, 76, 103C, 119F).

(67) P SUP spines on male metatarsus II: 0, normal; 1, strong.

(68) spines on male patellae I-II: 0, 0/1P; 1, 1-1-1P. Some species have few spines, and others have the anterior patellae with stronger spines on the prolateral side. The presence of those spines is less consistent (in single individuals) than in the posterior patellae (chars. 55, 70), making the scoring for this character rather difficult (particularly in homologizing the conditions across distantly related taxa).

(69) female palpal tarsus: 0, 0VA; 1, 2VA. Diplothelopsini and *Pycnothele* are scored as having state 0; those taxa may have 2 VB spines occupying the sides of the tarsus, but the condition is considered as independent; in many *Nemesia* the two conditions coexist together.

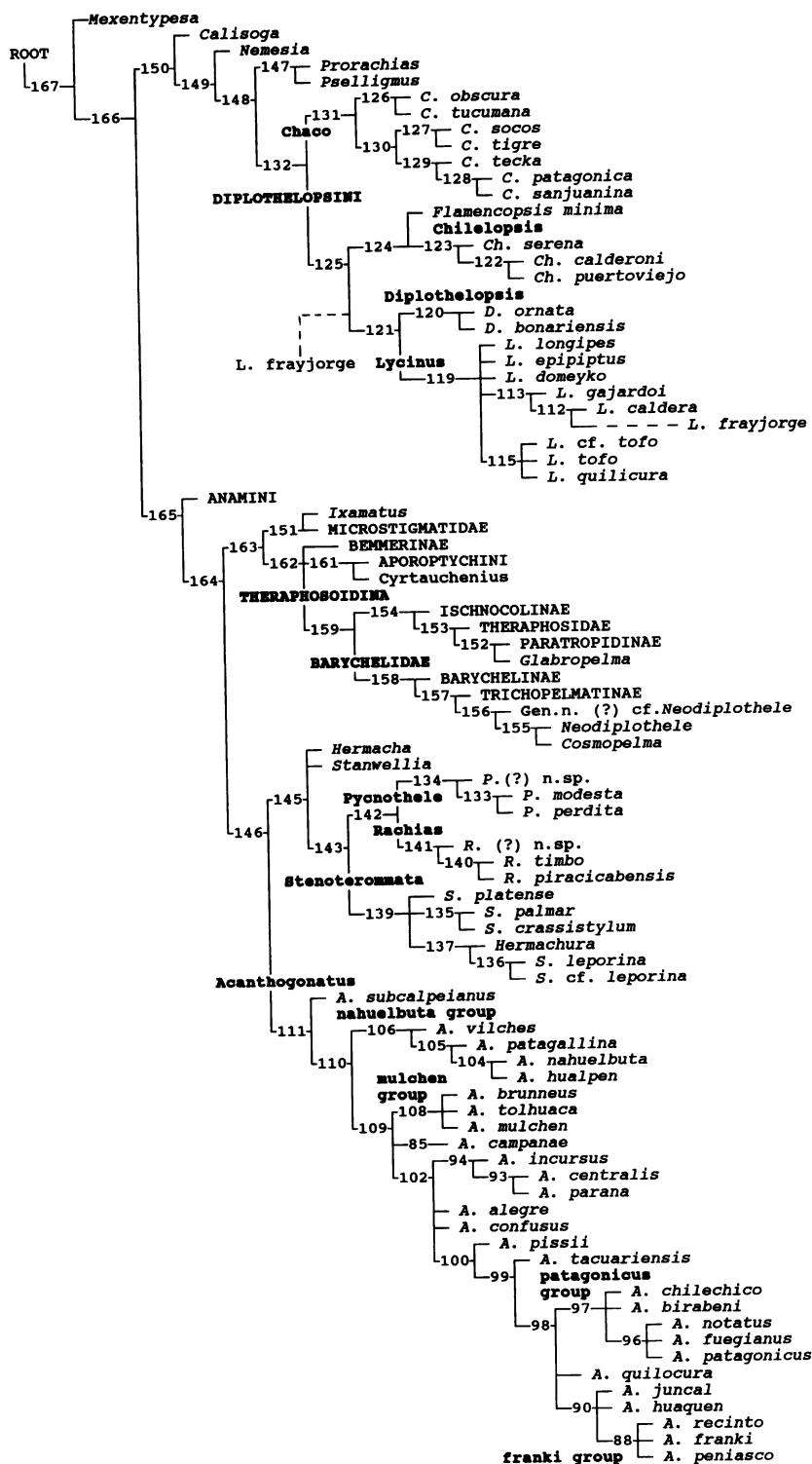
(70) female patella IV: 0, 0/1P; 1, 1-1-1P. Steps in terminals: there is some variability in *Acanthogonatus centralis* (although the plesiomorphic state for that species is considered state 0); 1 step added.

(71) spines on female metatarsus II: 0, 2VA; 1, 4VA. Included as an autapomorphy of *Prorachias*, found in all the species attributed to the genus.

(72) spines on female metatarsus IV: 0, normal; 1, long (figs. 120B, C).

(73) spines on female tibia III: 0, 1-1R; 1, 1-1-1-1R.

(74) spines on female tarsi IV: 0, absent; 1, present. This refers to the presence of 1-3, long, irregularly arranged, laterodorsal spines on the tarsi. It is considered indepen-



dent of char. 57, which defines the paratrochids, as the spines differ in shape, location, and articulation.

(75) spines on female tibiae/meta I: 0, short (fig. 147C); 1, long (figs. 150C, 156D).

SECONDARY SEXUAL AND GENITALIC CHARACTERS

(76) male metatarsal knob: 0, absent; 1, present. The state in Diplurines (see, for example, Raven, 1985a, figs. 21, 26) and that in several nemesiids (*Mexentypesa*, *Entypesa*) is considered as homologous. A similar basal protuberance occurs in some aporoptychines (*Fufius*), but is absent in (at least some) *Bolostromus* and *Acontius*. The character is also variable for ixamatines (see Raven, 1985b). It is therefore scored as variable for aporoptychines and ixamatines.

(77) male apical metatarsus: 0, normal; 1, with a bump. A character shared by *Stenoterommata leporina* and *Stenoterommata* cf. *leporina*, as well as by some other undescribed species in the genus.

(78) male tibial spur: six states are recognized: state 0, theraphosoid type of spur: proventral, bipartite; state 1, Diplura type of spur: retrolateral apical or subapical single spur bearing single megaspine; state 2, *Acanthogonatus* type of spur: a proventral single low spur, bearing two closely set spines; state 3, Chaco type of spur: a proventral single spur, somewhat more developed than in the previous state, bearing numerous spines; state 4, absent; state 5, proventral apical. In some of the taxa considered here (most notably *Calisoga* and some *Nemesia*, and also *Microstigmata*), the tibia itself is modified and appears partly rotated, so that the single spur which appears to be ventral or anterior may actually correspond to the retrolateral face of the article. Those taxa are therefore considered here as having a state homologous with that of *Diplura*. The male tibial spur for bemmerines is variable. In *Spiroctenus*, there is a bipartite proventral clasping structure rath-

er similar to that in many Theraphosoidina (see Raven, 1985a, fig. 61). Raven (1985a), as well as other authors (e.g. Hirst, 1910, table 24, fig. 7), have described *Damarchus* and *Atmetochilus* as having a "prolateroventral spur with a single spine." If the spur is indeed prolateral, it would represent a state different from all the other states considered here for that character. As I have not been able to examine males of *Damarchus* or *Atmetochilus*, and their tibial spur could either correspond to that in *Nemesia* or *Calisoga*, or actually represent a different state, the bemmerines are scored as having either states 0, 1, or 5. Steps in terminals: homoplasy in this character is known to be ubiquitous; three steps added.

(79) male palpal tibia: 0, short; 1, long; 2, very long. The character was treated as additive. Steps in terminals: the character is extremely variable; almost all mygalomorph families include species with long and short palps, and only in closely related species could those modifications be confidently homologized; four steps are added.

(80) joint between the male palpal patella and tibia: 0, normal; 1, wide. The articulation between patella/tibia in the *patagonicus* group of *Acanthogonatus* is modified; in lateral view, the base of the tibia appears more constricted than in other species. The difference is not clear in all species, but the character is also congruent with several other characters.

(81) dorsal setae male palpal tibia: 0, absent; 1, present. This character is most obvious in *Acanthogonatus*. Vaguely similar setae occur also in some *Stenoterommata* and *Rachias*; they can also be present in some trichopelmatines. In not being as long and sinuous as in *Acanthogonatus*, the setae of those other taxa are scored as state 0, but the distinction is not too clear in those cases.

(82) male palpal tibia: excavation: 0, shallow; 1, deep (fig. 114C).

(83) male cymbium: 0, normal; 1, narrow, asymmetric, with posterior lobe longer (fig. 124E).

Fig. 63. Strict consensus of the maximum fit trees which do not imply a regain of ITC, showing two possible locations of *Lycinus fraxjorge*. See tables 3–7 for lists of synapomorphies.

(84) male cymbium: 0, normal (figs. 127D, 129B); 1, large (fig. 125C).

(85) setae on male cymbium: 0, thin, hair-like setae; 1, thickened setae (as in figs. 123F, 124D, 125D, 131A).

(86) setae male cymbium: 0, directed forward (figs. 123F, 127E, 132A); 1, directed backward (only in *Lycinus gajardoi* and *L. caldera*, figs. 124D, 125D).

(87) male bulb keels: 0, absent; 1, parallel keels or ridges along embolus base (figs. 65H, 72J, 74E); 2, lateral keels or flanges (as in many *Acanthogonatus*; figs. 81B, C, 95D, E, 98B).

(88) male bulb: 0, normal size; 1, large. State 1 is present only in *Pycnothele*.

(89) male bulb shape: 0, piriform (with the basal portion of the bulb rounded, tapering abruptly to form distinct embolus; figs. 118H, I, 119C, D); 1, conical (bulb tapering evenly to form embolus, with a gradual transition between embolus and main bulb portion; figs. 123F, 124D, 125D).

(90) male bulb duct: 0, basal portion evenly curved (figs. 114D, 121C); 1, basal portion strongly sinuous (116B, 119C). Steps in terminals: three steps. *Pycnothele auronitens*, not included in the matrix, has, unlike other *Pycnothele*, a sinuous duct (Pérez-Miles and Capocasale, 1988); a similar situation occurs with *Psalistopoides fulvimanus*. The character almost certainly shows variability in related groups included here as terminals.

(91) bulb duct (loops): 0, normal; 1, one enclosing other. State 1 is exclusive to the sasonines.

(92) male embolus: 0, short; 1, long; 2, very long. The character was treated as additive. The character is also very variable in the families/subfamilies included here as terminals; four steps in terminals were therefore added.

(93) female atrium: 0, normal; 1, large, sclerotized (figs. 115G, H, 116A).

(94) female spermathecae: 0, separate; 1, fused (figs. 112B, D, 113B, D).

(95) female spermathecae: 0, normal; 1, thick and heavily sclerotized, fingerlike, with wide opening (figs. 106A–C, 109D).

(96) female spermathecae thickened further: 0, no (fig. 109D); 1, yes (fig. 106A–C).

(97) female spermathecae: 0, cactuslike (with a main branch, and a lateral receptaculum; figs. 80A–C, 89A, 91B); 1, as in *A. patagonicus* (with the receptaculum arising

from a low basal dome; figs. 86A, 100E). This character is considered only to help resolve the relationships within *Acanthogonatus*, where two main spermathecal types can be recognized. For other genera, homologizing states becomes practically impossible. The species of *Acanthogonatus* which have characters 94–96 were scored as missing for this character.

(98) female spermathecae: 0, no basal sphere (figs. 147E, F; 148D, E); 1, with basal sphere (figs. 150B, 153B, 154B). State 1 is characteristic of a group of species within *Chaco*.

(99) female spermathecae: 0, 1 + 1; 1, 2 + 2 (in the present matrix, autapomorphic of *S. platense*, shared also with *S. iguazu*; figs. 66E, 67B).

(100) postgenital opening: 0, absent; 1, present. State 1 has been observed only in *Damarchus* (Bemmerinae).

BEHAVIORAL CHARACTERS

(101) habits: 0, web; 1, tube; 2, open burrow; 3, flap-door; 4, trap-door. Most mygalomorph families show significant variation in their habits; three steps in terminals were therefore added.

(102) burrow entrance: 0, open; 1, hinged door; 2, flap door; 3, double flap; 4, stopper door. This character is used only within the Diplothelopsini. The double flap door of the Chilean *Lycinus* is unique (at least among Neotropical nemesiids). Non-Diplothelopsini were not scored for this character (for char. 101, scored across all taxa, the double flap was considered as identical with the single flap).

(103) silk-lined burrow: 0, yes; 1, no. Of the species included in the matrix, only *Rachias timbo* and *R. piracicabensis* are known not to use silk for burrow lining.

RESULTS AND DISCUSSION

MAIN GROUPINGS IN THE TREES

Only the main groupings of the trees are discussed in this section. The relationships within the genera are discussed in the respective generic treatments, below.

The data set in table 1 was analyzed as described above, producing 72 trees of maximum fit, 664.0, and 393–394 steps. The con-

TABLE 2

Character steps, extra steps (in parentheses), and weights implied by the best-fitting trees. The numbers in square brackets indicate the increase [+] or decrease [-] in steps or implied weights by some trees.

Char.	Steps	Weight	Char.	Steps	Weight
0	1(0)	6.6	52	2(1)	5.7
1	4(2)	5.0	53	2(1)	8.0
2	1(0)	6.6	54	1(0)	10.0
3	1(0)	8.0	55	12(10)	2.5
4	4(3)	4.4	56	11(8) [-1]	3.3 [+0.3]
5	1(0)	10.0	57	1(0)	10.0
6	3(2)	6.6	58	9(7)	3.0
7	14(12) [+1]	2.2 [-0.1]	59	1(0)	10.0
8	3(2)	6.6	60	9(8) [-1]	3.3 [+0.3]
9	7(5)	3.6	61	----	----
10	1(0)	10.0	62	1(0)	10.0
11	1(0)	8.0	63	5(4) [+1]	5.0 [-0.6]
12	1(0)	10.0	64	1(0)	10.0
13	5(4)	4.0	65	3(2)	6.6
14	1(0)	10.0	66	2(1)	8.0
15	2(1)	6.6	67	1(0)	10.0
16	1(0)	10.0	68	7(6)	4.0
17	7(5)	3.6	69	4(3)	5.7
18	3(2)	5.0	70	4(3)	5.0
19	1(0)	10.0	71	----	----
20	1(0)	10.0	72	1(0)	10.0
21	2(1)	8.0	73	1(0)	10.0
22	14(12)	2.2	74	2(1)	8.0
23	----	----	75	1(0)	10.0
24	1(0)	10.0	76	1(0)	10.0
25	3(2)	6.6	77	1(0)	10.0
26	11(9)	2.6	78	13(9)	2.5
27	13(11)	2.2	79	15(13)	1.9
28	3(2)	5.0	80	1(0)	10.0
29	6(5)	3.6	81	1(0)	10.0
30	5(4)	5.0	82	1(0)	10.0
31	18(16)	1.9	83	----	----
32	----	----	84	----	----
33	2(1)	8.0	85	1(0)	10.0
34	5(1)	8.0	86	1(0)	10.0
35	4(3)	5.7	87	8(6)	4.0
36	3(1)	6.6	88	1(0)	10.0
37	4(3)	5.0	89	5(4)	5.0
38	4(3)	5.0	90	6(5)	3.3
39	2(1)	6.6	91	1(0)	10.0
40	18(16) [-1]	2.0 [+0.1]	92	7(5)	3.0
41	2(1)	5.7	93	1(0)	10.0
42	4(2)	5.7	94	1(0)	10.0
43	2(1)	6.6	95	1(0)	10.0
44	1(0)	10.0	96	1(0)	10.0
45	1(0)	10.0	97	2(1)	8.0
46	4(2)	6.6	98	2(1)	8.0
47	3(2)	6.6	99	----	----
48	13(11)	2.6	100	----	----
49	3(0)	10.0	101	9(5)	3.3
50	4(2)	6.6	102	2(0)	10.0
51	4(3)	5.7	103	1(0)	10.0

sensus tree is shown in figure 63. Out of 100 replications, about a third succeeded in finding the trees of highest fit. Running the 100 replications took about 3 hours (on a 486 66Mhz machine); given the speed at which

Pee-Wee evaluates rearrangements on that machine, about 200 million alternative trees should have been evaluated in that time. All the trees of maximum fit have several polytomies, so that the number of parsimonious

TABLE 3

List of synapomorphies found in all and some of 3000 dichotomous parsimonious resolutions (all of which have *Lycinus* as monophyletic, and imply no regain of ITC), for main clades in fig. 63. For *Stenoterommata*, *Pycnothele*, and *Rachias*, see table 4; for *Acanthogonatus*, table 5; for *Diplothelopsini*, table 6; for *Chaco*, table 7.

Node	In all trees	In some trees
Node 167	fovea: narrow → medium sternum: wide → normal labium: squared → wide rastellum: abs → weak ♀ tarsi: flexuous → rigid scopula IV: light → abs/very light	—
<i>Mexentypesa</i>	leg color: uniform → patterned maxillary cuspules: medium → few claw tufts: abs → pres	—
Node 166	metatarsus IV: 1-1-1PD → 0-0-1PD ♂ metatarsal knob: pres → abs	—
Node 150	serrula: pres ♂♀ → abs ♂♀	—
<i>Calisoga</i>	(no autapomorphies)	—
Node 149	PLS apical article: digitif. → domed habits: open burrow → trap-door	—
<i>Nemesia</i>	fovea: medium → wide maxillary cuspules: medium → few ♂ tarsi: flexuous → rigid ♀ plp tarsus: 0VA → 2VA	—
Node 148	♂ cheliceral tumescence: abs → pres spines patella III: 1-1P → 1-1-1P ♂ tibial spur: diplura → abs	—
<i>Prorachias</i> + <i>Pselligmus</i> Node 147	scopula ant. legs: symmetric → asymmetric metatarsus IV: 0-0-1PD → 1-1-1PD preening-combs: abs → pres	—
<i>Prorachias</i>	sternum shape: tuberculote → rastelloid ♀ plp tarsus: 0VA → 2VA spines ♀ metatarsus II: 2VAp → 4VAp ♂ bulb shape: piriform → coniform	—
<i>Pselligmus</i>	(no autapomorphies)	—
DIPLOTHELOPSINI + <i>Chaco</i> Node 132	serrula: abs ♂♀ → ♂ only scopula IV: abs/very light → light	—
Node 165	spigot types: articulate → pumpkiniiform	—
ANAMINI	cuspules: on angle → extending backwards maxillary heel: abs → pres	—
Node 164	spines patella III: 1-1P → 1-1-1P	—
Node 162	serrula: pres ♂♀ → ♂ only, or abs ♂♀	—
Node 163	♂ tarsi: flexuous → rigid habits: open burrow → tube	—
MICROSTIGMAT. + <i>Ixamatus</i> Node 151	scopula: light → abs tarsal organ: normal → elevated	—
MICROSTIGMAT.	PLS apical article: digitif. → domed basal article PLS, spigots: many → few metatarsus IV: 0-0-1PD → 1-1-1PD	—
<i>Ixamatus</i>	rastellum: weak → abs spines patella III: 1-1-1P → 1-1P	pubescence: abs → light
BEMMERINAE	preening-combs: abs → pres post-genital opening: abs → pres	STC teeth: ♂♀ 2 rows → ♂ 1 row, ♀ 2 rows

TABLE 3—(Continued)

THERAPHOSOIDINA Node 159	claw tufts: abs → pres scopula IV: abs/very light → light clavate tarsal trichob.: abs → pres tarsal trichob.: zig-zag → double row basal trichob. metatarsi I-II: abs → pres	STC teeth: ♂♀ 2 rows → ♂ 2 rows, ♀ bare ♂ tibial spur: diplura → theraphosoid
THERAPHOSINAE	scopula: light → dense	—
ISCHNOCOLINAE	serrula: abs ♂♀ → pres ♂♀ ♂ tarsi: rigid → flexuous	—
BARYCHELIDAE Node 158	clypeus: narrow → wide PLS apical article: digitif. → domed habits: tube → trap-door	rastellum: weak → strong
BARYCHELINAE	sternum shape: tuberculote → rastelloid spigot types: pumpkiniform → bulb-shaped ♀ patella IV: 0/1P → 1-1-1P	—
TRICHOPELMAT. + SASONINAE Node 157	maxillary heel: abs → pres ♂ cheliceral tumescence: abs → pres ♂ tarsi: rigid → flexuous	—
TRICHOPELMAT.	labial cuspules: few → many	—
SASONINAE Node 156	tarsal modified setae: abs → pres spines patella III: 1-1-1P → 1-1P bulb duct (loops): normal → one encl. other	—
N.g.(?) cf. <i>Neodiplo.</i>	scopula ant. tibiae: abs → pres	—
<i>Neodiplothele</i>	PMS: pres → abs	—
<i>Cosmopelma</i>	labial cuspules: few → many maxillary cuspules: few, or medium → many scopula IV: light → abs/very light ♂ plp tibia: long → short	—
Node 155	leg color: uniform → patterned STC teeth: ♂ 2 rows, ♀ bare → ♂♀ bare ♂ bulb keels: abs → parallel	—
PARATROPIDIDAE Node 152	labium: normal → big, protruding ant. maxillary edge: normal → concave scopula IV: light → abs/very light lat inf. tarsal spines: abs → strong	—
PARATROPIDINAE	third claw: all or post. → ant. legs only STC teeth: ♂♀ bare → ♂♀ 1 strong tooth claw tufts: pres → abs scopula: light → abs clavate tarsal trichob.: pres → abs basal trichob. metatarsi I-II: pres → abs ♂ tibial spur: theraphosoid → abs	—
<i>Glabropelma</i>	(no autapomorphies)	—
Node 153	STC teeth: ♂ 2 rows, ♀ bare → ♂♀ bare	—
Node 154	labial cuspules: few → many maxillary lobe: normal → produced maxillary cuspules: medium → many rastellum: weak, or strong → abs spines patella III: 1-1-1P → 1-1P	—
APOROPTYCHINI	sternum: normal → long plp coxae: long → short ♂ scopula IV: normal/abs → narrow	serrula: abs ♂♀ → pres ♂♀, or ♂ only

dichotomous resolutions would be much larger. Although only superficial searches were done under that option, if the number of steps added to all characters is exclusively the number of steps as implied by the polymorphisms in the matrix, an almost equivalent

topology is obtained. (The consensus of the resulting trees and the one presented in fig. 63 would only lack node 149.) As the assumption of equal weights seems directly contradicted by the present data set, no exhaustive search was done to find the shortest

TABLE 3—(Continued)

RASTELLOIDINA Node 161	thorax: sloping → flat fovea: medium → wide caput: low → high eye tubercle: pres → abs ant. legs: normal → short, slender ♀ tarsi: normal → stout post. leg spines: verticil. → dorsal spines patella III: 1-1-1P → many P	—
<i>Cyrtachenius</i>	sternum shape: tuberculote → rastelloid scopula ant. legs: symmetric → asymmetric tarsal trichob.: zig-zag → band PLS apical article: digitif. → domed ♀ plp tarsus: OVA → 2VA ♂ plp tibia: long → short habits: tube → trap-door	—
Node 145	preening-combs: abs → pres	pubescence: abs → light
Node 146	♂ cheliceral tumescence: abs → pres inner row of pumpks.: abs → narrow	—
<i>Stanwellia</i>	sternum: normal → wide rastellum: weak → abs ♂ tibial spur: diplura → abs	scopula IV: abs/very light → light
<i>Hermacha</i>	♂ tarsi: flexuous → rigid spines ♂ patellae I-II: 0/1P → 1-1-1P	—

trees under that assumption. In a superficial search (using three different addition sequences with subsequent branch-swapping), NONA found 60+ trees of 384 steps (as the search was interrupted at about 5 minutes it is likely that shorter trees exist), the strict consensus of which was poorly resolved.

Some possible dichotomous resolutions of the 72 distinct trees of maximum fit, imply that the ITC was lost and subsequently regained in some taxa, but for each distinct tree there are resolutions onto which the absence/presence of ITC can be optimized equally parsimoniously as a loss and gain, or as parallel losses. Several character complexes in spiders have been traditionally considered as more likely to be reduced than regained. The most obvious examples are the presence of spinnerets and cribellum. Another example is the presence of a third claw. Of published cladistic analyses, many have postulated several independent losses of the third claw, but almost none has postulated regains. A notable exception is Raven's (1985a) analysis of mygalomorphs, which (despite indicating that, other things being equal, the interpretation of ITC loss seemed more reasonable than that of ITC regain; see 1985a: 19) postulated that the presence of ITC in some paratropidines was the result of a regain. For the

present results, the ITC present on the anterior legs, and absent on the posterior ones, of paratropidines can be considered parsimoniously as derived from a state where the ITC was present in all tarsi. This depends on how the character is coded; if instead of the additive coding used here, the presence of a third claw was coded as a single character, with the state in paratropidids as a fourth state (transforming into any other with equal cost), the optimization of that character on the trees of best fit would indicate that the condition in paratropidids is derived from having no third claw on any tarsus (state 2). If the cost of transforming from either states 0 or 2 to the state in paratropidids was the same, the optimization of that character would probably be ambiguous (the computer programs used here would not easily allow optimizing that type of character). Certainly the conclusion that the ITC in paratropidids is regained instead of not ever lost is far from inescapable based just on the distribution of the character. (Raven, 1985a, briefly indicated that developmental evidence suggests that the presence of a third claw in paratropidids could be the result of a regain.)

Note also that the presence of ITC in ischnocolines can be parsimoniously considered a plesiomorphic retention (instead of a

reversal) only if the Theraphosidae are paraphyletic (with the paratropidids more closely related to two-clawed theraphosids). Indeed, the only character proposed so far to support the hypothesis of theraphosid monophyly is the denser scopula (Raven, 1985a: 37). But (as long known) the scopula on the posterior tarsi of ischnocolines can be very light, and light scopulae are also present on the posterior tarsi of many barychelids. The group formed by paratropidids plus theraphosids excluding ischnocolines is supported unambiguously only by the reduction in the tooth rows of the male STC; the paraphyly of Theraphosidae is not strongly indicated by the present data (that some ischnocolines have also reduced teeth on STC merely indicates that Ischnocolinae in turn may be paraphyletic, hardly a new idea after Raven, 1985a). But even if the support for the paraphyly of Theraphosidae is weak, and even if that hypothesis of paraphyly violates a long-standing tradition in arachnology, no violence is done to any obvious character by considering some theraphosids as closer to paratropidids than to the plesiomorphic three-clawed ischnocolines.

All the maximum-fit trees require the same number of steps for all characters, except five. Some trees require one more step in the pubescence and save another in the scopula IV, by virtue of placing *Acanthogonatus campanae* as sister to either clades 102 or 109. Other trees require one more step for the male spines of the dorsal tibia I, but two fewer steps in the spination of metatarsus IV (char. 56) and the presence of dorsal apical spines on the palpal tibia, because of different resolutions of the *patagonicus* group of *Acanthogonatus*. The trees that save steps in the spination of male dorsal tibia I would be, under equal weights, 1 step longer, but the two characters in which steps could be saved by the alternative topology have a lot of homoplasy, so that both resolutions seem equally reasonable—or unreasonable—choices. For each possible combination of resolutions, there are 18 distinct topologies ($18 \times 4 = 72$) which require the same number of steps for all characters. The differences between the trees within each group of 18 result only from ambiguities in optimizations, and it would therefore not be possible to choose from

among them by differentially weighting characters.

Nemesiidae appears as paraphyletic, in terms of the Theraphosoidina and Microstigmatidae (as suggested by Goloboff's 1993a analysis), and also in terms of the Rastelloidina. Constraining the Nemesiidae to be a monophyletic group (but letting *Neodiplothele* cluster with other sasonines) would imply a decrease in fit of about 6.2 and an increase in length of 9 steps (accounting better for 4 characters, and worse for 13); the evidence against the monophyly of Nemesiidae is not strong, but points unequivocally in that direction. Constraining all the groups proposed by Raven (1985a) to be monophyletic (but letting *Neodiplothele* cluster with sasonines, *Acanthogonatus incurva* cluster with the other *Acanthogonatus*, and the relationships for the genera of Diplothelopsini free of constraint) would imply a decrease in fit of about 13.0 and an increase in length of 15–17 steps (accounting worse for 23–25 characters, and better for 7–8).

The inclusion of the Neotropical *Chaco*, the Diplothelopsini, and *Prorachias* + *Pseligmus* in a group (node 150 in fig. 63) which includes also *Nemesia* and *Calisoga* (Palearctic and Nearctic, respectively), but excludes most other Neotropical nemesiids, is supported only by weak evidence. One of the characters supporting such a separation is the presence/absence of pumpkiniform spigots. The character is too poorly known to be viewed at the present time as conclusive evidence. During the analysis, it was assigned a weight higher than most others, in part, for not having homoplasy outside the group of study, but that absence of homoplasy may just be an artifact of poor sampling. It is then very likely that future studies will demonstrate that this character has, just like most others, significant amounts of homoplasy in other groups. That would probably shift those isolated Neotropical nemesiids together with the other ones. Additionally, taxa having both articulate and pumpkiniform spigots were scored here identically with those having only pumpkiniforms; perhaps—although that was not attempted for the present analysis—it would be justified to distinguish those alternatives in some manner. Other characters which can be optimized as synapomorphies

for subgroups, such as the presence of 1-1-1P spines on patella III instead of only 0-1-1P, the domed apical article of the PLS, the reduced serrula, and the male cheliceral tumescence, are actually parallelisms between the Neotropical nemesiids split into two groups. Therefore—even when they have to be considered as synapomorphies of the subgroups—those characters are, from a global perspective, evidence *against* interposing those Palearctic and Nearctic taxa between the Neotropical nemesiids. Although *Nemesia* is variable for one of the number of spines on female patella III [*N. dubia*, on which the scoring for the genus was mostly based, has 1-1P, but *N. congener* (Simon det., in USNM) has more numerous spines], it was scored as having 1-1P. If *Nemesia* is scored as variable for this character, the node 148 in figure 63 collapses, and the number of optimal trees doubles. *Nemesia* was also scored as having a tibial scopula, but it includes some species with very light tibial scopula; the character is actually evidence against the trees presented here, since the similarity in that character between *Nemesia* and *Prorachias* + *Pselligmus* is not accounted for by the trees; if *Nemesia* is scored as variable for the two characters (both the number of spines in patella III and the tibial scopula), the node 148 reappears in the consensus, and exactly the same results as presented in figure 63 are obtained.

As in Goloboff's (1993a) analysis, the microstigmatids cluster with the ixamatines based on the shared reduction of tarsal scopulae. The bemmerines and the rastelloids appear in a trichotomy with the Theraphosoidina. That lack of resolution is in part due to the ambiguous scoring of the male tibial spur for bemmerines. Given that ambiguity, the unique type of claw dentition in the bemmerines can be optimized in some trees as a precursor of the state in Theraphosoidina, and in others as an independent modification from a common state. Intuition would indicate that it is more likely to be, as suggested by Raven, 1985a, an independent modification, and therefore an autapomorphy, of the bemmerines. The support for the nodes including Theraphosoidina plus Bemmerinae plus the rastelloids (node 162), that group plus ixamatines and microstigmatids (node

163), and that group plus some of the Neotropical nemesiids (node 164) is weak; just by considering that the plesiomorphic state for bemmerines is having the maxillary cusps extending to the posterior heel (as in Anamini; the character was scored as variable, as it varies within Bemmerinae), the bemmerines would be better accommodated as the sister group of the Anamini and nodes 162–164 would collapse in the consensus of the resulting trees.

Another character for which the scoring was less than satisfactory was the apical article of the PLS (digitiform, triangular, or domed). The distinction between digitiform and the other two states is always clear, but for short-spinnereted mygalomorphs the distinction between triangular and domed is not always obvious. If the apical article of the PLS is coded as having only two states, without distinguishing between triangular and domed, the present results do not change significantly (which could be expected by simply noting that very few groupings are supported by changes from domed to triangular or from triangular to domed).

The present selection of taxa was not designed to test Goloboff's (1993a) results; given that only a few nemesiid taxa were included in that earlier analysis, the possibilities of disagreement with the results for the present set of taxa are very limited. The present results differ significantly only in that the Rastelloidina are closer to Theraphosoidina than to most other nemesiids, whereas in Goloboff (1993a) all the included nemesiids were closer to Theraphosoidina than to the rastelloids. The group formed by nemesiids plus microstigmatids plus Theraphosoidina in Goloboff (1993a) was supported unambiguously by only two characters. The first, the labium changing from squared to wide, reverted to the plesiomorphic state (found also in some rastelloids) in the Theraphosoidina; besides that homoplasy, the scoring for this character is often ambiguous, as the differences in width/length proportions are relatively minor. The other character was the "ITC reduced in size" (char. 10 in Goloboff's, 1993a analysis); the coding for the character in the present paper (char. 31) is more detailed than in the previous analysis and accounts better for the observed variation (ad-

ditionally, this character presents a lot of homoplasy). In conclusion, the group Nemesiidae + Microstigmatidae + Theraphosoidina in Goloboff (1993a) was rather weakly supported. That is not to say that the evidence placing Rastelloidina as closer to Theraphosoidina in the present analysis is strong; as discussed above, only minor changes in scoring for the bemmerines would cause nodes 162–164 to collapse in a polytomy. Additionally, the relationships within the Microstigmatidae (which in being closely related to the Rastelloidina + Bemmerinae + Theraphosoidina obviously must be influencing the character interactions that lead to that grouping) are at present poorly known; future work could determine that some of the character states treated here as plesiomorphic for the group are actually not such, and consequently decrease the support for Rastelloidina + Theraphosoidina.

The consensus presented in figure 63 corresponds to the trees which are optimal under a weighting function of medium strength. Exactly how strongly one should weight against characters with homoplasy has not yet been determined, and is a question that deserves further investigation. The concavity used here ($k = 4$) is a medium concavity, which weights neither too strongly (less so than the one implemented in Hennig86's "successive weighting") nor too mildly. If one does tree searches using weighting functions of different strengths (the range of concavities allowed by Pee-Wee is $0 < k < 7$), the groups that appear under all treatments are those which do not depend on a particular weighting function; in that case, the consensus of all the resulting trees is much less well-resolved than the tree in figure 63. As this search under different concavities was just exploratory, no more than 1000 trees were retained at most for each concavity (but only for $k = 1$ that tree-storage space was actually filled), and no replications with different addition sequences were attempted. The results suggest that most of the nodes in the tree are very poorly supported; the consensus of the trees would have nodes 88, 90, 95–97, 104–106, 108, 111, 120–131, 133, 135, 137, 139, 151–156, and 159, collapsed. In containing very little explicit information on groupings, that consensus would have little heuristic value, but in some sense

it would better reflect the uncertainties plaguing the study of the relationships in this group. The present results therefore do not allow a relimitation of Nemesiidae based on reasonably homoplasy-free characters. It is at least comforting that most of the nemesiid genera and most of the species groups recognized here appear as monophyletic groups in all cases, providing justification for nomenclatural actions in the present paper.

As expected, given the numerous potential synapomorphies shared by those taxa, *Neodiplothele* always appeared as closest to Sasoninae (instead of appearing as the sister group of the other Theraphosoidina, as in Goloboff, 1993a). This difference is mostly due to newly found characters (char. 14, 91) and to having split the Barychelidae into its constituent subfamilies. If the optimization for the STC rows is followed, the absence of teeth in the male claws of (previously known) sasonines (node 155) is, as suggested by Raven (1985a: 41), a reduction from having two rows. Interestingly, the distribution of the book-lung combs (assumed by Goloboff, 1993a, to be a synapomorphy of barychelids) cannot be unambiguously interpreted, given the present selection of barychelid taxa. That character can be seen equally parsimoniously as either a synapomorphy of Barychelidae with subsequent losses, or as independent gains for trichopelmatines, barychelinae, and some sasonines. The hypothesis that trichopelmatines are more closely related to the sasonines is supported only by two characters with some homoplasy in taxa not included in the matrix (the presence of male flexible tarsi and cheliceral tumescence) and a character that cannot be scored confidently for all taxa (the "produced maxillary heel" for which there are difficult intergrades, the sasonines being one of them). The present analysis therefore provides little evidence to resolve the relationships of the three barychelid subfamilies.

TRENDS IN CHARACTER CHANGE

The present results suggest that many characters are very poor indicators of relationships. Table 2 indicates the number of steps and extra steps for each character. Among the characters with the worst fit (i.e., those

with 10 or more extra steps) are the density of the pubescence, the number of maxillary cuspules, the rastellum, the shape of the PLS apical article, the length of the male palpal tibia, and the number of prolateral spines on female patella III. The presence/absence of ITC and the density of the scapula on the posterior tarsi require 16 extra steps. Only slightly inferior, the serrula and the male tibial spur had 9 extra steps. Those characters therefore were assigned, during the analysis, a very low weight, and they delimit, for the most part, only restricted groups. The flexible male tarsi, and the intercheliceral tumescence, known to have several parallelisms in groups not included in the matrix (and thus receiving a lower weight even if having no extra steps *within* the trees), strangely had a relatively good fit to the tree (with only 2 to 5 extra steps); they may be more stable characters for the group treated here (and indeed it is in this group where those characters had originally been proposed to delimit some groups; see Raven, 1985a: 47).

Interestingly, the transformations in several characters seem more likely to occur in one direction than in others. The examination of character change has not been done exhaustively (e.g., it was done using only some of the possible dichotomous resolutions). Additionally, only characters for which at least one type of change occurs several times can be considered, which leaves for consideration only the more homoplastic characters. The main conclusions of the present discussion, however, are so clearly supported by the trees examined that they would probably hold under a more meticulous analysis. For example, the male tibial spur (a character with 13 steps, 9 of which are homoplastic) is much more often lost (7–8 unambiguous losses) than regained (only one unambiguous regain, as a synapomorphy for *Chaco*). Other steps in this character are transformations between different types of spurs. There is a change from a "Diplura" type of spur to an "Acanthogonatus" type, in *Acanthogonatus*. The uncertainty in scoring the bemmerines introduces much ambiguity in the optimization of this character, with ambiguous transformations from a "Diplura" type of spur to either a "theraphosoid," "Diplura," or proventral type of spur in the bemmerines. The numbers

of tibial spur gains and losses on the optimal trees, of course, are not meaningful unless the possibilities of minimum gains or losses on any tree, determined by the character distribution, are taken into account. Optimizing the character in 100 randomly generated trees,¹ however, showed that, given the distribution of this character, regains would be very likely to occur. The range of unambiguous regains for 100 random trees was 4–23 (76 trees had 10–23 regains; only 5 trees had 4 or 5). Although 7–8 unambiguous losses occur in the most parsimonious trees, in (a different set of) 100 random trees only 1 tree had 10 unambiguous losses (one tree each had 6, 5, and 4 losses, 3 trees had 4, and 92 trees had 0–2 losses). Those numbers are not interpreted as an indication of confidence in any statistical sense, but just as a general indication that, given the number of taxa with different types of male tibial spur, one would expect numerous regains and few losses, instead of a single regain and numerous unambiguous losses of the male tibial spur.

As mentioned above, the ITC is also more commonly lost than gained (unambiguous losses outnumber unambiguous regains 5 to 0, but many more ambiguous losses occur). The apical article of the PLS is also often shortened and rarely reelongated (it unambiguously changes from digitiform to either domed or triangular 7 times, and the single reelongation is minor, from domed to triangular). The preening combs and the pseudocombs never transform into one another (suggesting that indeed both conditions are not homologous); combs are unambiguously gained 6 times, and lost only once. The female patella IV with 1-1-1P spines appears 4 times, and those spines, once gained, are never reduced. That they are not reduced, however, is probably not as significant as for the other characters, as there are relatively few taxa with 1-1-1P on female patella IV and therefore it is expected that there will be fewer secondary losses.

The number of maxillary cuspules changes (unambiguously) from medium to either nu-

¹ Those trees were generated using a specially written program, which forms an initial network of three taxa, and then adds remaining taxa, with equal probability at each preexisting branch.

merous or few cuspules more often (7–9 times) than it changes from either few or many to medium (1 and 0, respectively). Numerous maxillary cuspules unambiguously appear on 4–6 occasions (and are never lost). Note that the states of this character are poorly defined, so many of the divisions between “few” and “numerous” may be artificial.

In other characters it is difficult to detect trends. The density of the scopula is de-

creased twice (in microstigmatids plus ixamatines, and in paratropidines) and increased once (in Theraphosinae). The 1-1-1P SUP spines on the female metatarsus IV are gained about as many times as they are lost, as is the rastellum. No evident trend in the general habits (char. 101) can be detected, as there is a significant degree of ambiguity in the optimization for that character.

KEY FOR NEMESIIDS FROM PERU, CHILE, ARGENTINA, AND URUGUAY

Note: Males of *Acanthogonatus incursa*, *A. alegre*, *A. parana*, *A. peniasco*, *A. vilches*, *A. mulchen*, *A. tolhuaca*, *A. brunneus*, *A. juncal*, *Lycinus frayjorge*, *Stenoterommata quena*, *S. uruguayi*, *Chaco patagonica*, and *C. tecka*, and females of *A. birabeni*, *A. chilechico*, *L. quilocura*, and *L. domeyko*, are unknown.

MALES

1. ITC IV absent 2
ITC IV present 29
2. Anterior tibia with apophysis (figs. 75–78, 81D, 89D, 146F, 149F, 154F; includes *Acanthogonatus* type apophysis) 3
No apophysis on anterior tibia 16
3. Apophysis with two laminar spines on common base (figs. 75–78); palpal tibia with two dorsal sinuous long setae (figs. 9, 79F, 80E, 89C); bulb with no keels, or with lateral keels 4
Apophysis with three or more spines; palpal tibia without dorsal erect setae; bulb with several low parallel ridges along embolus 12
4. Bulb with a lateral keel forming a concavity (as in fig. 81B, C); very common in central Chile (regions IV, V)
..... *Acanthogonatus huaquen*
Bulb different 5
5. Dorsal abdomen yellowish with a chevron (similar to figs. 98A, 100A); apical article of PLS short, triangular; dry regions of Patagonia and southern Chile 6
Dorsal abdomen with pattern formed by numerous mottles (similar to figs. 84A, 103A, 109B); apical article of PLS longer, digitiform; north of Patagonia 9
6. Large-sized spiders (about 20 mm total length, cephalothorax over 9 mm); bulb as in fig. 98C, with two lateral flanges delimiting

- concave triangular area; palpal tibia rather elongate (fig. 98B)
..... *Acanthogonatus patagonicus*
- Medium to small-sized spiders (total length 15 mm or less, cephalothorax below 6 mm); bulb variable; palpal tibia shorter 7
7. Bulb with low lateral keels (or with single keel) (figs. 101A, B, 102A, B); metatarsi I with at least 1 or 2 ventral spines 8
Bulb with more developed lateral keels (fig. 100C, D); metatarsi I with no ventral spines
..... *Acanthogonatus notatus*
8. Bulb with a single keel (fig. 102A, B); patella III with 1-1-1 P; very small size (cephalothorax length about 3.5 mm)
..... *Acanthogonatus birabeni*
- Bulb with a double keel (figs. 101A, B); patella III with only 1 P; slightly larger (cephalothorax length about 5 mm)
..... *Acanthogonatus chilechico*
9. Dorsal abdomen blackish with yellowish-whitish oblique lines; bulb with widened, flanged tip (fig. 87B; extremely common in central-southern Chile (regions IV–VIII)
..... *Acanthogonatus pissii*
- Dorsal abdomen with only white dots not forming continuous lines, or mottled; bulb with narrower tip, flanged in the base or without flanges 10
10. Bulb with no keels (fig. 89E, F); total length ca. 13 mm; central Argentina (Córdoba, San Luis, San Juan, and Buenos Aires)
..... *Acanthogonatus centralis*
- Bulb as in figs. 83B, C, 85B, C; central Chile, Uruguay and southern Brazil 11
11. Metatarsus I slightly curved downward; central Chile *Acanthogonatus quilocura*
- Metatarsus I straight; Uruguay and southern Brazil *Acanthogonatus tacuariensis*
12. Dark spiders; body length over 14 mm (cephalothorax over 6 mm); with long, thin em-

- bolus (figs. 146D, E, 148D, E); northwestern Argentina 13
- Lighter colored; smaller (total length 12 or less; cephalothorax 5 mm long or less); shorter embolus; Chile and western Argentina 14
13. Embolus extremely long; bulb, in lateral view, abruptly constricted to form embolus (fig. 146D); Salta and Jujuy .. *Chaco obscura*
 Embolus shorter; bulb more gradually tapering (fig. 148E); Tucumán and Catamarca *Chaco tucumana*
14. Tibial apophysis with only three spines; bulb as in fig. 154D, E; San Juan *Chaco sanjuanina*
 Tibial apophysis with four or more spines; Chile 15
15. Construct beveled trap-doors (figs. 142, 143); Region IV, Limarí Prov. ... *Chaco socos*
 Construct thin trap-doors (figs. 151, 152); Region V *Chaco tigre*
16. PMS absent 17
 PMS present 18
17. Tibia I wider at apex, with a cluster of about five short thick spines near apex; palpal tibia fusiform, widest in the middle; bulb as in figure 131B, with long narrow embolus *Diplotheopsis ornata*
 Tibia I of uniform width, with spines irregularly arranged; palpal tibia widest at the base and then gradually narrowing; bulb as in figure 132A, with shorter broader embolus *Diplotheopsis bonariensis*
18. Bulb with three perpendicular flanges along embolus (fig. 95D, E) *Acanthogonatus franki*
 Bulb different 19
19. Bulb with a winglike projection (fig. 96D) .. *Acanthogonatus recinto*
 Bulb different 20
20. Bulb smooth, as in fig. 99D, E; Patagonia .. *Acanthogonatus fuegianus*
 Bulb with parallel or diagonal ridges or keels along embolus base 21
21. Keels very elevated, forming vanes; palpal tibia with deep ventral excavation (fig. 114C); cymbium with normal setae; anterior tibiae with no dorsal spines, posterior ones with few; anterior patella with no retrolateral spines 22
 Keels very low; palpal tibia with shallow ventral excavation; cymbium with blunt modified setae; all tibiae with dorsal spines (numerous on posterior legs); anterior patella usually with a retrolateral spine 23
22. Bulbal duct with a tight loop (fig. 116B); anterior tibia with a cluster of three rather long posteroventral spines (on the apical third), with no appreciable concavity in front of them *Pycnothele auronitens*
 Bulbal duct evenly curved (fig. 114D); spines in the cluster shorter and stronger, with a concavity in front of them (fig. 114B) ... *Pycnothele modesta*
23. Cymbial setae very thick, directed backwards (figs. 124D, 125D); palpal tibia short (figs. 124E, 125C) 24
 Cymbial setae directed apically (figs. 123E, 127E); palpal tibia slightly longer 25
24. Cymbium large, with both lobes normal (fig. 125C, D); embolus very short; northern region III, Chile *Lycinus caldera*
 Cymbium of normal size, but with narrow and elongate posterior lobe (fig. 124D, E); embolus longer; southern Region III and Region IV *Lycinus gajardoi*
25. Embolus about as long as the rest of the bulb (fig. 128) *Lycinus quilocura*
 Embolus short 26
26. Palpal tibia with strong, blunt prolateroventral setae along bulb furrow (fig. 129B) .. *Lycinus longipes*
 Palpal tibia with weak attenuate setae along furrow (fig. 127D) 28
27. All the spider uniform black; sternum wide; salt flats in western and northwestern Argentina *Lycinus longipes*
 Cephalothorax and legs yellowish, abdomen dark with conspicuous transversal bands; sternum longer than wide; central Chile, common in (but not exclusive to) sand dunes *Lycinus epipiptus*
28. Embolus long (fig. 129C, D) .. *Lycinus tofo*
 Embolus short (fig. 130) *Lycinus domeyko*
29. Anterior tibia with dense prolateral shield of setae (figs. 103C, 119E) 30
 Anterior tibia without such shield 34
30. Two short spines on common base below shield (figs. 75, 76); anterior tarsi with ITC; palpal tibia with two (or three) long dorsal sinuous setae; bulb very modified 31
 No spines below setae; anterior tarsi with two claws only; palpal tibia with no dorsal long erect setae; bulb normal 33
31. Palpal tibia widest in basal third, and then uniformly tapering (fig. 103D); retrolateral thicker setae present along apical 2/3 of article 32
 Palpal tibia of uniform width along medial half, more abruptly narrowed in the apical third (fig. 107A); retrolateral thicker setae present only on apical third *Acanthogonatus hualpen*
32. Bulb (in lateral view, fig. 108A) with its basal portion rounded, abruptly tapered to form embolus base; basal portion of the bulb duct

- strongly sinuous (fig. 108B)
 *Acanthogonatus patagallina*
 Bulb (fig. 103F) with its basal portion not rounded, tapering more gradually to form embolus base; basal portion of the bulb duct less sinuous (fig. 103E)
 *Acanthogonatus nahuelbuta*
 33. Apical portion of bulb duct evenly curved (fig. 121C) *Chilelopsis puertoviejo*
 Apical portion of bulb with a loop (fig. 119C) *Chilelopsis calderoni*
 34. Tibia I with a strong apical retrolateral megaspine (figs. 72K, 73F) 35
 Tibia I with no retrolateral megaspine .. 39
 35. Anterior tarsi with no ITC; bulb duct with evenly curved apical portion 36
 Anterior tarsi with three claws; distal portion of bulb duct strongly sinuous 37
 36. Small-sized spiders (cephalothorax length 4 mm or less); tarsus IV very lightly scopulate; bulb duct with apical constriction (fig. 67D) *Stenoterommata iguazu*
 Medium-sized spiders (cephalothorax over 5 mm); scopula IV denser; bulb duct tapering gradually (fig. 66B)
 *Stenoterommata platense*
 37. Embolus tip widened, membranous (fig. 74E); palpal tibia short, with retrolateral medial projection, and with basal lateral excavations (fig. 74C, D)
 *Stenoterommata crassistylum*
 Embolus tip thin and strongly sclerotized (figs. 72J, 73C, D); palpal tibia longer, with no retrolateral projection and no basal excavations (fig. 72H, I) 38
 38. Anterior tibia with a strong ventral spine, curved toward the retrolateral apical megaspine (fig. 73F); metatarsus with few, normal spines (fig. 73E)
 *Stenoterommata palmar*
 Anterior tibia with no such spine (fig. 72K); metatarsus with numerous ventral, short, strong spines (72G)
 *Stenoterommata tenuistylum*
 39. With low prolateral tibial apophysis, bearing two spines on common base 40
 No tibial apophysis of any kind; ITC I absent 41
 40. Palpi very long (fig. 79F); bulb as in fig. 79G, H *Acanthogonatus subcalpeianus*
 Palpi normal; bulb as in figs. 93A, B, 92A, B *Acanthogonatus campanae*
 41. Apical article of PLS long, digitiform; bulb as in figs. 80F, G; forests in southern Chile and Argentina .. *Acanthogonatus confusus*
 Apical article of PLS short, domed 42
 42. Posterior tarsi with scopula narrow, confined to ventral surface, with thickened setae on sides (fig. 65E); palpal coxae short; bulb as in fig. 65H *Rachias timbo*
 Posterior tarsi with light but normal scopula; palpal coxae elongate; bulb as in figs. 118H, I or 122G, H 43
 43. Posterior metatarsi with numerous long strong spines; tibia I as in fig. 122F
 *Chilelopsis serena*
 Posterior metatarsi with normal spines; tibia I as in fig. 118F .. *Flamencopsis minima*
- ### FEMALES
1. Claw tufts present; Peru
 *Acanthogonatus incursa*
 Claw tufts absent 2
 2. ITC IV absent 3
 ITC IV present 33
 3. Patella IV with 1-1-1 P 4
 Patella IV with 1 P or (more often) no P spines at all 17
 4. AME much larger than PME; PE in slightly procurved row; head wide and convex .. 5
 AME only slightly larger than PME; PE in recurved row; head narrow 12
 5. PMS absent 6
 PMS present 7
 6. Spermathecae as in figure 132C; Patagonia
 *Diplohelopsis bonariensis*
 Spermathecae as in figure 131C; central and northwestern Argentina
 *Diplohelopsis ornata*
 7. Posterior metatarsi with pseudo preening combs *Lycinus gajardo*
 No pseudo preening combs 8
 8. Uniformly black spiders; sternum wide; Argentina *Lycinus longipes*
 Spiders with patterned abdomen; sternum longer than wide; Chile 9
 9. Spermathecae with multiple receptacula (fig. 125B) *Lycinus caldera*
 Spermathecae with a single receptaculum ..
 10
 10. Spermathecae with long convoluted duct (fig. 129A) *Lycinus tofo*
 Duct shorter and straighter 11
 11. Light scopula on posterior tarsi; spermathecae with narrow duct, with expanded base (fig. 127A, B); central Chile
 *Lycinus epipiptus*
 Posterior tarsi densely scopulate; spermathecae with very short ducts (fig. 126); northern Chile *Lycinus frayjorge*
 12. Spermathecae thick, sclerotized (fig. 97) ...
 *Acanthogonatus peniasco*
 Spermathecae slightly sclerotized 13
 13. With a sclerotized distinctive chamber above the spermathecae (figs. 115G, H, 116A)
 14

- No chamber above spermathecae 15
14. Spermathecae with relatively short, straight ducts; supraspermathecal chamber large; palpal tarsus with ventral basal spines ... *Pycnothele modesta*
Spermathecal ducts long and spiraling; supraspermathecal chamber small; palpal tarsus with no ventral basal spines *Pycnothele auronitens*
15. Spermathecae cactus like (fig. 89A); Argentina *Acanthogonatus centralis*
Spermathecae different; Chile 16
16. Spermathecae as in figure 95A *Acanthogonatus franki*
Spermathecae as in figure 96A *Acanthogonatus recinto*
17. Apical article of PLS short, domed or triangular 18
Apical article of PLS longer, digitiform ... 27
18. Spermathecae a single undivided tube (sometimes spiraled); northwestern Argentina 19
Spermathecae branched, or a single tube with a basal protuberance 20
19. Spermathecae very long (fig. 147E, F); Salta and Jujuy *Chaco obscura*
Spermathecae short (fig. 148A, B); Tucumán and Catamarca *Chaco tucumana*
20. Spermathecae branched (bi- or trifurcated) (fig. 99A) *Acanthogonatus fuegianus*
Spermathecae with a basal mound or protuberance 21
21. Rastellum very strong; basal article of PLS with few apical spigots; PMS with few spigots 22
Rastellum weak; basal article of PLS and PMS with numerous spigots 26
22. Pseudo preening combs present; metatarsus IV with numerous strong spines on superoanterior face *Chaco tecka*
No pseudo preening combs; metatarsus IV with few spines on superoanterior face ... 23
23. Sternal sigilla almost inconspicuous; color yellowish light; Argentina 24
Sternal sigilla normal; maxilla with medium numbers of cuspules (15–50); color brownish or ash gray; Chile 25
24. Maxillae with few cuspules (about 6); labium with few cuspules irregularly arranged ... *Chaco patagonica*
Maxillae with medium number of cuspules (about 12); labium with 8 cuspules in transverse line *Chaco sanjuanina*
25. Spermathecae as in figure 150B; color brownish; construct thin trap-doors; Region V *Chaco tigre*
Spermathecae as in figure 153B; color grayish; construct trap-doors with beveled edges; Region IV *Chaco socos*
26. Small spiders (total length about 12, cephalothorax length 5–6 mm); cephalothorax slightly patterned, with margins and medial line lighter; lateral stripes of dorsal abdominal chevron conspicuous (fig. 100A); general coloration yellowish *Acanthogonatus notatus*
Larger spiders (total length well over 20 mm, cephalothorax length 10 mm or more); cephalothorax not appreciably patterned; dorsal abdominal pattern limited mostly to cardiac area (fig. 98A); general coloration brown with golden hairs *Acanthogonatus patagonicus*
27. Spermathecae with a main branch and a lateral secondary internal branch arising from middle of main branch (figs. 89A, 91B) ... 28
Spermathecal duct arising from inner side of basal mound or protuberance (figs. 83A, 84B, 86A) 29
28. Main spermathecal branch widened distally (fig. 89A); central Argentina *Acanthogonatus centralis*
Main spermathecal branch not widened distally (fig. 91B); eastern Argentina (Entre Rios) *Acanthogonatus parana*
29. Dorsal abdomen blackish with yellow-white oblique lines; spermathecae as in fig. 86A; extremely common in central and southern Chile (regions IV–VIII) *Acanthogonatus pissii*
Dorsal abdomen with white dots or spots not forming continuous lines, or yellowish with darker mottles 30
30. Small spiders (total length about 10 mm, cephalothorax 4 mm or less); spermathecae as in figure 84B; patella III with 1-1 prolateral spines *Acanthogonatus juncal*
Larger (total length 20 mm or more, cephalothorax 8 mm or more); patella III with 1-1-1 prolateral spines 31
31. Spermathecae with blunt basal mound, and duct strongly curved at the base (fig. 83A) *Acanthogonatus quilocura*
Spermathecae with basal mound tapering more gradually 32
32. Spermathecae as in figure 85A; cephalothorax in vivo reddish, dorsal abdomen with oblique lines of dots; rastellum absent; Uruguay and southern Brazil *Acanthogonatus tacuariensis*
Spermathecae as in figure 81A; cephalothorax in vivo brownish, dorsal abdomen irregu-

- larly mottled; with (weak) rastellum; very common in central Chile *Acanthogonatus huaquén*
33. ITC I present 34
ITC I absent 43
34. Spermathecae two wide (but flat) plates . 35
Spermathecae different 37
35. Sternum long (fig. 112C); spermathecae as in figure 112B, with shallow medial notch *Acanthogonatus mulchen*
Sternum normal (fig. 112C) 36
36. color uniform blackish; patella III with 1-1 prolateral spines *Acanthogonatus tolhuaca*
Color brownish, with mottled abdomen; patella III with 1-1 or 1-1-1 prolateral spines *Acanthogonatus brunneus*
37. Spermathecae strongly sclerotized, with a wide cavity, opening through wide passage . 38
Spermathecae weakly sclerotized, flat and with no appreciable cavity; duct opening not conspicuous 39
38. Spermathecae finger like, strongly curved (fig. 106A-C) ... *Acanthogonatus nahuelbuta* and *A. hualpen*
Spermathecae wider, shaped like two pockets (fig. 109D) *Acanthogonatus vilches*
39. Cephalothorax patterned, legs ringed; spermathecae as in figure 79E *Acanthogonatus subcalpeianus*
Cephalothorax and legs uniform brown; spermathecae different 40
40. Cephalothorax and abdomen flattened; apical article of PLS digitiform; spermathecae single, undivided (fig. 92C); very common in central Chile (regions IV, V) *Acanthogonatus campanae*
Cephalothorax convex, abdomen more rounded; apical article of PLS short, triangular; spermathecae divided; Argentina, Uruguay and southern Brazil 41
41. Spermathecae divided in two or three roughly equivalent portions (fig. 74A) *Stenoterommata crassistylum*
Spermathecae unequally divided (with a main dome and a lateral branch) 42
42. Spermathecae as in figure 72C; total length about 10-15 mm *Stenoterommata tenuistylum*
Spermathecae as in figure 73A; total length 15-20 mm *Stenoterommata palmar*
43. Palpal coxae short, subquadrate, with almost no maxillary cuspules; STC IV with reduced teeth (no teeth on inner row, two or fewer on outer row); burrows with no visible silk lining *Rachias timbo*
Palpal coxae longer, with 10 or more cuspules; STC IV with numerous teeth (usually 5 or more per row); burrows with evident silk lining 44
44. Metatarsi IV with very long and strong spines on superoanterior face (fig. 120B, C) . 45
Metatarsi IV with normal spines 47
45. Spermathecae divided (fig. 122C) *Chilelopsis serena*
Spermathecae entire 46
46. Spermathecae short, straight (fig. 121A) ... *Chilelopsis puertoviejo*
Spermathecae longer, sinuous (fig. 120E) ... *Chilelopsis calderoni*
47. Apical article of PLS digitiform 48
Apical article of PLS short, triangular .. 49
48. Epigastrium posteriorly produced (fig. 94B); spermathecae very long (94A); northern Chile (Region II) ... *Acanthogonatus alegre*
Epigastrium normal; spermathecae shorter (fig. 80A-C); southern Chile (Regions VIII-X) and Argentina (Neuquén) *Acanthogonatus confusus*
49. Spermathecae a single undivided receptaculum; sand-colored spiders, with abdominal pattern formed by transversal bands; northern Chile *Flamencopsis minima*
Spermathecae divided; brown colored, with mottled dorsal abdomen; Argentina .. 50
50. Spermathecae 2 + 2; 1-1-1 prolateral spines on patella III 51
Spermathecae 1 + 1; often more than 1-1-1 prolateral spines on patella III 52
51. Spermathecae with outer lobe bearing a single receptaculum (fig. 67B); total length about 15 mm (cephalothorax about 5 mm) *Stenoterommata iguazu*
Spermathecae with outer lobe bearing 2-3 receptacula (fig. 66E); total length about 20 mm (cephalothorax about 7 mm) *Stenoterommata platense*
52. Patella III with 3-5 spines; spermathecae as in figure 68; Misiones *Stenoterommata uruguayi*
Patella III with 7 or more spines; spermathecae as in figure 71B; northeast Salta *Stenoterommata quena*

SYSTEMATICS

RACHIAS SIMON

Table 4

Rachias Simon, 1892: 114.—Raven, 1985a: 105.
Petropolisia Mello-Leitão, 1920: 59. NEW SYNONYMY.

Pselligmus: Raven, 1985a: 107 (in part).

TYPE SPECIES: The type species of *Rachias* is, by original designation, *Hermacha dispar* Simon, 1891 (male lectotype, here designated, in MNHN, examined; female paralectotype, in same institution, examined, is not congeneric). The type species of *Petropolisia* is *P. aurea* Mello-Leitão (female holotype in IBB, examined).

DIAGNOSIS: Males can be recognized by having the scopula on tarsi IV narrow, confined to the ventral surface, and laterally delimited by thickened setae or spines (fig. 65E), and the tibia I with a retrolateral apical megaspine (in a possibly new species, from Estado de Rio Grande do Norte, Brazil) or (in most species) long, slender, unmodified (fig. 65G). Females have the labium almost squared, with maxillae short, posteriorly produced, and with very few cuspules (fig. 65B); the posterior tarsi are ascopulate, and the STC IV have reduced teeth (fig. 3). Another possible autapomorphy of *Rachias* is the presence of spines (usually two) on the ventral female palpal tarsus, in the middle or apical third; those spines are clearly on the ventral surface, unlike the spines on the female palpal tarsus of *Pycnothele* and some *Diplothelopsini*, where they are basal and mostly lateral. Spines positioned similarly to those of *Rachias* occur in *Nemesia* and *Prorachias*, where they are best considered as parallelisms.

DESCRIPTION: Cephalothorax longer than wide; caput wide, convex; chelicerae strong, wide. Integument less pubescent than in other Neotropical nemesiids; often apical leg articles (tibia to metatarsus) more orangish or yellowish than basal articles and cephalothorax. Abdomen mottled, with almost no discernible chevron. Eyes on steep tubercle; anterior eyes in procurved row, with AME not much larger than PME. Maxillae short, posterior edge produced in a heel partially covering labium and bearing long curved setae; with very few to no cuspules. Labium longer

than in other nemesiids (width only 160% of length). Chelicerae with weak rastellum, with well developed, flat, cheliceral tumescence. PLS very short, with apical article domed, truncated, or triangular. Mostly with articulate spigots, with few pumpkiniiform spigots only on inner edge of spinning field. Anterior tarsi with light scopula, posterior tarsi ascopulate in females (covered with long, thick setae), with narrow scopula (laterally delimited by thickened setae or spines) in males. Female tarsi I–IV rigid; male tarsi flexible. Female STC IV with few teeth (much less numerous than on anterior legs; fig. 3). In most species, tarsi I–III with only two claws, and ITC present on tarsus IV (but a male in MCZ, from Estado de Rio Grande do Norte, Brazil, which, according to the results of the cladistic analysis, appears to belong in this genus, has tarsus IV with no ITC). Anterior legs of females with elongate metatarsus, shaped similarly to metatarsi of aporoptychines. Male tibia I unmodified in most species (the abovementioned male has a retrolateral apical megaspine). Patella III with 1-1-1 spines, patella IV with no prolateral spines. Posterior male tibiae with few dorsal spines. Metatarsus IV with P and P SUP spines moved toward apex, with basal third free of spines (fig. 65D). Poorly defined preening combs (with setae irregularly arranged) present in metatarsi II–IV of both sexes. Tarsal organ low, flattened, with concentric ridges (fig. 19); trichobothria corrugiform, with basal plate convex, elevated. Tarsal trichobothria arranged in zigzag line in smaller species, but in larger, hairier species, a line of short setae divides trichobothrial field in two.

BIOLOGY: Species of *Rachias* live in open burrows, similar to those of other nemesiids in shape and general conformation, but with no evident silk lining. That reduced use of silk could explain the reduced number of pumpkiniiform spigots in this genus (which, according to the results of the cladistic analysis, is the result of secondary reduction and not of plesiomorphy).

REMARKS: The apparently numerous species from Brazil are, so far, poorly known. Several undescribed species have been ex-

TABLE 4

List of Synapomorphies for *Stenoterommata*, *Pycnothele*, and *Rachias*
(produced as table 3).

Node	In all trees	In some trees
<i>Stenoterommata</i> + <i>Pycnothele</i> + <i>Rachias</i> Node 143	serrula: pres ♂♀ → ♂ only PLS apical article: digitif. → triang. ♂ bulb keels: abs → parallel ♂ bulb shape: piriform → coniform	metatarsus IV: 0-0-1PD → 1-1-1PD
<i>Pycnothele</i> Node 134	clypeus: narrow → wide ♂ plp tibia: long → short ♂ plp tibia: excavation: shallow → deep ♂ bulb: normal size → large	scopula IV: abs/very light → light
<i>P. modesta</i>	(no autapomorphies)	—
<i>P. perdita</i>	Eyes: AME=PME → AME > > PME tarsal trichob.: zig-zag → double row metatarsus IV: 1-1-1PD → 16P/PD	—
<i>P. (?) n.sp.</i> Node 133	(no autapomorphies) pubescence: light → dense third claw: abs I-III → abs inner row of pumpk.: narrow → abs preening-combs: pres → abs ♀ patella IV: 0/1P → 1-1-1P ♂ tibial spur: diplura → abs	—
<i>Stenoterommata</i> Node 139	maxillary cuspules: medium → many preening-combs in II: abs → pres	—
<i>St. platense</i>	♀ spermathecae: 1+1 → 2+2	scopula IV: abs/very light → light
<i>St. crassistylum</i>	♂ plp tibia: long → short	—
<i>St. palmar</i> <i>leporina</i> cf. <i>leporina</i> "Hermachura"	(no autapomorphies)	—
Node 135	dorsal spines ♂ plp tibia: abs → pres ♂ bulb duct: evenly curved → sinuous	—
Node 136	(ambiguous loss of ITC I-III)	—
Node 137	inner row of pumpk.: narrow → very wide	—
<i>Pycnothele</i> + <i>Rachias</i> Node 142	PLS apical article: triang. → domed	—
<i>Rachias</i> Node 141	pubescence: light → abs labium: wide → squared plp coxae: long → short maxillary cuspules: medium → few setae maxillary heel: normal → strong maxillary heel: abs → pres ♂ scopula IV: normal/abs → narrow dorsal spines ♂ plp tib: abs → pres ♀ plp tarsus: 0VA → 2VA	—
<i>R. timbo</i>	♂ plp tibia: long → very long ♀ sperm: no basal sphere → w/basal sphere	—
<i>R. (?) n.sp.</i>	third claw: abs I-III → abs ♂ bulb duct: evenly curved → sinuous	—
<i>R. piracicabensis</i>	tarsal trichob.: zig-zag → double row PLS apical article: domed → triang.	—
Node 140	spines ♀ tarsi IV: abs → pres ♂ tibial spur: diplura → abs silk lined burrow: yes → no	—



Fig. 64. Female *Rachias timbo* (Photo John Wenzel).

amined, which with further study could change the present concept and limits given here for the genus, which has been quite confused in the literature. Raven (1985a) enormously clarified the limits of most Neotropical genera, but his delimitation of *Rachias* has several problems (see below). The genus is very common in southeastern Brazil, and Brazilian collections house numerous specimens. Very few specimens, however, are found in most other institutions, and it was probably the paucity of specimens that caused the previous confusion about this genus. Lucas et al. (1986), who had access to the important Brazilian collections of *Rachias*, made correct identifications of numerous specimens, although unfortunately those authors did not make explicit reference to the most typical characters of the genus.

The present generic description assumes that the male mentioned above (in MCZ, with a retrolateral apical megaspine on tibia I and only 2 claws on tarsus IV) belongs in the genus, and is based on *R. timbo* and on numerous specimens of *Rachias* in IBB [including the types of *Rachias brachythele* (Mello-Leitão) and *R. dolichosterna* (Mello-Leitão)], MNRJ, MZSP [including the type of *R. intermedia* Soares, transferred by Raven, 1985a, to *Pycnothele*, but correctly placed by Lucas et al. (1986) in *Rachias*], AMNH, and MNHN [including the male lectotype of *R. dispar* (Simon), type species of the genus].

The male and female syntypes of *Rachias dispar* are probably not conspecific. As the character that has traditionally been considered diagnostic for the genus (the presence of

spines on the posterior tarsi) is a male character, and most species described subsequently to the original description of *Rachias* seem congeneric with the syntype male, and not the syntype female, choosing the male as lectotype should lead to greater nomenclatural stability. The male syntype has few maxillary "cuspules" (short ensiform setae) confined to the anterior angle, whereas the female has numerous cuspules occupying an extended area. Although it is common that male cuspules are weaker than those in females, they appear (when present) in roughly similar numbers and positions. Additionally, the female syntype has a clear row of enlarged pumpkiniiform spigots along the inner side of the PLS, absent in the male; that character is so far not known to be sexually dimorphic. Those two characters are not found in females of any other known species of *Rachias*, and suggest that the female syntype does not actually belong in *Rachias*, but is probably part of the *Stenoterommata* complex. This is also suggested by the preening combs on metatarsi III and IV formed by more regularly arranged setae, instead of the sort of pseudocomb present in other *Rachias*. Several characters considered by Raven (1985a) as present in *Rachias* are also present in that female syntype, but are not actually present in true females of *Rachias*. Thus, there are few (or even no) cuspules on the maxillae (instead of "numerous"), the serrula appears to be absent in both sexes (it is certainly absent in the females), the female posterior tarsi are ascopulate (instead of having "scopulae . . . divided on tarsi III and IV"). The "long, slender, undivided" spermathecal receptacula and the "apical segment of PLS triangular" mentioned by Raven (1985a) are also those of the female syntype. Females of *Rachias* have receptacula (fig. 65C; Lucas et al., 1986: figs. 3, 6) which are not particularly slender, and are often divided (or at least have two well differentiated parts). The apical article of the PLS in most species is very short and domed (although in some species it is triangular).

SYNONYMY: As Raven's (1985a) concept of *Rachias* was partly based on the female syntype of *R. dispar*, it is not surprising that he wrongly synonymized the genus *Petropolisia* (type species *P. aurea* Mello-Leitão, female

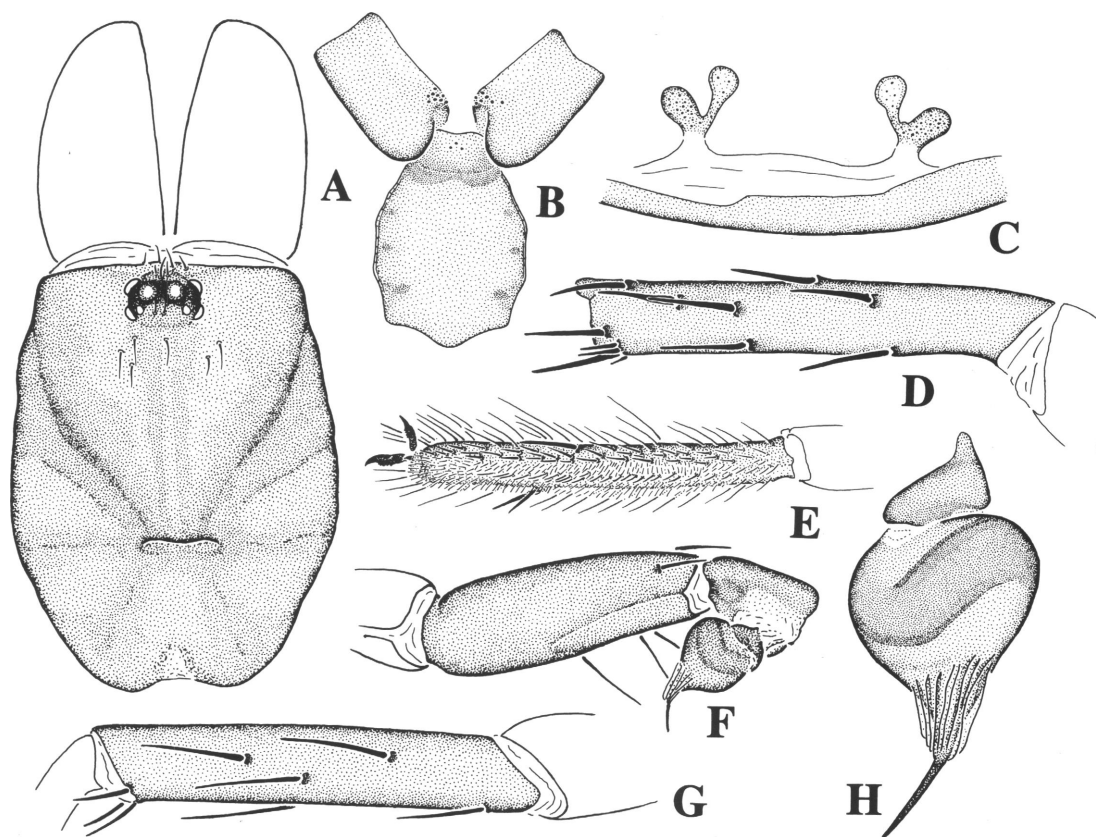


Fig. 65. *Rachias timbo*. A–D. Female. E–H. Male. A. Cephalothorax. b. Sternum and maxillae. C. Spermathecae, ventral. D. Right metatarsus IV, prolateral. E. Right tarsus IV, prolatero-ventral. F. Right palp, retrolateral. G. Right tibia I, retrolateral. H. Left bulb.

holotype in MNRJ, examined) with *Pselligmus*. *Petropolisia aurea* has the short, inflated palpal coxae, with few cuspsules, typical of *Rachias*, and *Petropolisia* is therefore considered a synonym of *Rachias*, not *Pselligmus*. Whether *P. aurea* is actually different from other species of *Rachias* will be determined in a revision of the Brazilian nemesiids (Goloboff et al., in prep.).

***Rachias timbo*, new species**

Figures 3, 19, 35, 36, 64, 65A–H

TYPES: Female holotype and male paratype from Ruta Provincial 101, between El Timbó and El Palmital, Parque Nacional Iguazú, Misiones, Argentina (Sep. 13–15, 1992; P. Goloboff, C. Szumik), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: *R. timbo* differs from those Brazilian species of *Rachias* which have similar genitalia by being smaller and having lower keels on the male embolus.

MALE (paratype): Total length 16.50. Cephalothorax length 5.95, width 4.25. Cephalic region length 3.55, width 5.70. OQ length 0.51, width 1.09. Labium length 0.45, width 1.00. Sternum length 3.00, width 2.46. Labium with no cuspsules, maxillae with 11/13. Serrula absent. Sternal sigilla as in female; sternum with thin reborder. Chelicerae: rastellum formed by strong, thick but long and attenuate setae; inner margin with 10 or 11 small widely spaced teeth; furrow with 15 small denticles occupying small patch. Cheliceral tumescence present, flat, covered with thickened setae. Chaetotaxy: Femora: I, 1-1 P SUP (1:4A), 1-1-1-1 d, 1-1 R SUP (1:4A); II, 0-1-0-1-1 P SUP or 1-1 P SUP (1:4A),

1-1-1 d, 0-1-1-1/0-0-1-1 R SUP; III, 0-1-1-1 P SUP, 1 d b, 0-1-1-1 R SUP; IV, 1-1 P SUP (1:4A), 0/1 P SUP (1:3B), 1-1 d b, 0-1-1/1-1-1 R SUP (1:2A); palp, 1 P SUP A, 1-1-1 d (1:3a), 1 R SUP A. Patellae: I, II, 0; III, 1-1-1 P, 0 R; IV, 0; palp, 0. Tibiae: I, 1-1/0-1 P, 1-2-2 V ANT, 1-1-1 V POST; II, 1-1 P, 0-1-2/1-1-2 V ANT, 1-2-1 V POST; III, 1-1 P, 1 D (1:3A), 1 D POST B (very long), 1-1 R SUP, 1-1-2/0-1-2 V ANT, 1-1-1/1-0-1 V POST; IV, 1-1 P, 1-1 R SUP, 1-2-2 V; palp, 0-1-1 P, 1-1-1 P INF, 2 D A, 2 long recumbent dorsal setae (similar to those in *Acanthogonatus*). Metatarsi: I, 0/1 P, 1 R, 2-2-3 V; II, 1 P, 1 R INF, 2-1-3/2-2-3 V; III, 1-1-1 P, 1-1 P SUP (1:2A), 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 0-1-1-0 P, 1-0-1/1-1-0-1 P SUP (1:2A), 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST. Tarsi: I, 0; II, 1 R; III, 1 P, 1 R; IV, 1 P, 1/2 R; palp, 0. All tarsi with very light scopula; metatarsi I, II with sparse scopuliform hairs on 1:8A; III, IV completely ascopulate. Scopula I, II with hairs along midline thicker; III, IV divided by band of short setae (occupying 1:4 of article's width on IV, narrower on III); sides of tarsi IV with strong setae, scopula narrow (fig. 65E). Metatarsal preening combs: I, II, absent (some indication of comb on II); III, with 5 or 6 long, irregularly arranged setae at each side of most ventral spine; IV, with 5 long, irregularly arranged setae in front of spine, and 5 more or less linearly arranged setae behind it. STC, teeth: I, 7876; II, 7776; III, 6866; IV, 6776. ITC I-III, absent; IV, present, sharp. Tarsi I-IV flexible. PLS, apical article domed; length of apical:medial:basal, 0.37:0.56:0.82; basal article with 7 spigots on 1:2A; medial with 10 large spigots (no small spigots); apical with 10 large spigots (no small spigots). PMS length 0.46. Palp: tibia long, slender, unmodified (fig. 65F); bulb as in figure 65H, with keels lower than in other species of genus. Leg I: tibia (fig. 65G) cylindrical, unmodified, no apophysis, no megaspines; metatarsus straight, unmodified. Cephalothorax and femora of legs and palpi greenish-bluish brown; patellae and rest of articles orange brown. Abdomen yellowish brown with dorsal mottles.

FEMALE (holotype): Total length 23.1. Cephalothorax (fig. 65A) length 7.35, width 57.5. Cephalic region length 4.70, width 4.77.

Fovea width 1.15. OQ length 0.75, width 1.35. Labium length 0.92, width 1.50. Sternum (fig. 65B) length 3.82, width 3.15. Cephalic region convex; fovea very slightly procurved, with recurved ends. Trichobothria: tarsal trichobothria in zigzag row. Labium with 3 cusps, maxillae with 10/13. Serrula apparently absent. Posterior angle of palpal coxae covered with long thick curved setae. Anterior sternal sigilla well separated from labium [!]. Posterior sternal sigilla small, oval, medium depth, separated from margin by about their longest diameter; sternum weakly re-bordered. Chelicerae: rastellum strong, thick attenuate setae (stronger than in *S. platense*); 9/10 teeth on inner margin, apical ones larger; furrow with 13 small denticles. Chaetotaxy: Femora: I-III, 1 P SUP A; IV, 0; palp, 0. Patellae: I, 0/1 p; II, 1 P; III, 1-1-1 P; IV, 0 P, 0 R; palp, 0. Tibiae: I, 0/1 P (1:3A), 0/1 V POST (1:3A); II, 1 P (1:4A), 0-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 2 v, 2 V A; IV, 1-1 P, 2 V A; palp, 0-1-1-1/0-0-1-1 P, 2-2-2/1-2-2 P INF, 1-1-1 R INF. Metatarsi: I, 2-1-0-3 V; II, 2-1-0-3 V (stronger than in leg I), 0/1 P SUP (1:3A); III, 0-1-1 P, 0-1-0-1 P SUP, 1-1-1 R SUP, 2-2-3 V; IV (fig. 64D), 0-1-1/0-1-1-1 P, 0-1-0-1 P SUP, 1-1-1 R SUP, 2-2-3 V. Tarsi: I, 0; II, 0; III, 1 P; IV, 0/1 P; palp, 2 V, 0/1 R POST (1:3B). Scopula: present (light) on tarsi I, II, absent on III, IV; present for full length of metatarsi I, about 1:2A of II. Scopula I with scattered setae (not forming a definite line), on II forming a band 3 setae wide; setae very thick. Tarsi I-IV rigid. Metatarsal preening combs: I, absent; II, ill-defined comb of 3/4 setae; III, with one irregular comb of about 15; IV, with 2 combs of 5 setae, anterior comb with disordered setae, posterior one with well aligned setae. STC, teeth: I, 6664; II, 5554; III, 5174 or 5254; IV, 0002 or 1002 (all tiny denticles; fig. 3). Palpal claw with 3 teeth on promargin. ITC I-III, absent; IV, present, small. Tarsal organ low, as in figure 20. PLS, apical article domed; length of apical:medial:basal, 0.44:0.45:1.12; with articulate spigots, some rather large, scattered among smaller ones, and few pumpkiniform spigots on inner edge (too few to form row); basal article with spigots on 1:3A, about 10 of which are articulate (4 of which, larger) and 2 or 3 are pumpkiniform, on inner edge; medial article with

about 18 articulate spigots (4 or 5 larger), and 1 pumpkiniiform spigot on inner edge (fig. 35); apical article with about 20 articulate large spigots. PMS (fig. 36) length 0.65; 4 large articulate spigots on apex, and 2 smaller ones (more basal), covering 1:4A. Spermathecae as in figure 65C. Cephalothorax, chelicerae, and femora dark greenish-bluish brown; patellae and rest of articles orange-yellowish brown; abdomen dark with brown mottles.

NATURAL HISTORY: Like other *Rachias* species (R. Bertani, personal commun.), *R. timbo* lives in open burrows with no evident silk lining (it is conceivable that silk is present in the walls, but so intimately incorporated into the walls, and so similarly colored, that it was not visible even under a dissection microscope). The burrows are about 1 cm wide, 15 to 20 cm deep, widened at the bottom. The burrows were found on banks along roads or streams. The male paratype was collected as a penultimate between September 13–15, 1992, and matured on the night of June 14, 1993. In several months of captivity (in a small jar) that penultimate male deposited almost no silk, except until a few days before molting, when it laid a few threads.

The ecological requirements of this species in Parque Nacional Iguazú seem to be different from those of syntopical species of *Stenoterommata*. Specimens of *R. timbo* have been collected only in the more elevated parts of the park, not too close to the Iguazú River (which, upstream from the falls, is a slow-moving river with no banks). Collecting over several years in the lower parts of the park yielded only specimens of *Stenoterommata iguazu* and *S. urugui*.

DISTRIBUTION: Misiones Province, Argentina.

OTHER MATERIAL EXAMINED: ARGENTINA: **Misiones:** Parque Nacional Iguazú, all from Ruta Provincial 101: Arroyo Santo Domingo, 30 Jan., 1988 (P. Goloboff, C. Szumik, MACN), 3♂ juv., 2 juvs., El Timbó, 31 Jan. 1988 (P. Goloboff, C. Szumik, MACN), 2♀, 1 juv., between El Timbó and El Palmital, 13–15 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 2♀, 2 juv., El Palmital, 22–30 Aug. 1986, (M. Ramírez, MACN), 4 juvs.; Puerto Libertad (ex. Pto. Bemberg), Feb. 1958 (W. Partridge, MACN), 1♀, 1 Feb. 1988 (P. Goloboff, C. Szumik, MACN), 1♀, 4 juvs.; Par-

que Provincial Urugua-í, Ruta Provincial 19 and Arroyo Uruzú, Feb. 1988 (P. Goloboff, C. Szumik, MACN), 2 juvs.; Parque Provincial Urugua-í, Ruta Provincial 19, ravine leading to Río Urugua-í, 16 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 2♂ juv.; Ruta Provincial 17, 44 km E Eldorado, 20 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 1 juv.; no locality, 20–30 Oct. 1960 (no collector, MACN), 2♀.

STENOTEROMMATA HOLMBERG

Table 4

Stenoterommata Holmberg, 1881: 126.–Raven, 1985a: 106.

TYPE SPECIES: By original designation, *S. platense* Holmberg, 1881 (types destroyed, numerous topotypical specimens in MACN, examined).

DIAGNOSIS: Recognized by having a row of enlarged pumpkiniiform spigots along the inner edge of PLS spinning field, in conjunction with preening combs on the female metatarsi II, and numerous maxillary cuspules (usually over 40, up to 160). The male tibia has an apical retrolateral megaspine, and the bulb has several low parallel keels along the embolus. The only two possible autapomorphies are the numerous maxillary cuspules, and the well-developed preening combs on metatarsi II (table 4). Those preening combs may be absent in adult females of some species, but they are present in juveniles. Aside from those two characters, *Stenoterommata* is distinguished from other genera just by lacking their autapomorphies.

DESCRIPTION: Cephalothorax long; head of medium width, convex; chelicerae robust, with rastellum weak, formed by short, thick but attenuate setae, or rastellum strong, formed by short blunt setae (two new species from Brazil). Cheliceral tumescence present, with posteroinferior side covered by thickened setae. Eyes on steep tubercle; clypeus generally narrow. Fovea clearly procurved, narrow. Labium wide, with few cuspules; maxillae elongated, with serrula present in both sexes or only in males, bearing numerous cuspules (from 40 to over 150) on inner angle; posterior heel not produced. Sternum flat, longer than wide, with posterior sigilla small, oval, submarginal. PLS with apical

segment short, triangular; numerous spigots on basal article; with enlarged pumpkiniform spigots along inner edge of spinning field of all three articles, elsewhere covered with articulate spigots. PMS present, with numerous spigots. Abdomen dorsally mottled or with faint chevron; cephalothorax yellowish-brown with golden pubescence; legs uniform in color (except in *S. quena* where apical articles are more orangish than basal articles). Male tibia I with retrolateral, apical, sessile megaspine; no dorsal spines on tibia, no retrolateral spines on patella. Patella III with 1-1-1 P (most species), 4 or 5 P (some specimens of *S. uruguayi*) or up to 8 (*S. quena*); female patella always IV with 0 P. Posterior male tibiae with few dorsal spines. Metatarsus IV with full complement of 1-1-1 P and 1-1-1 P SUP spines or with only 1 P SUP A (some undescribed Brazilian species). Female metatarsi II with single well-developed preening comb (usually formed by 3 or more linearly arranged, small spines) present at least in juvenile stages; metatarsi III, IV with two combs each, at each side of the apical most ventral spine. Tarsi (and metatarsi) I and II with dense, symmetric scopulae; tarsi III, IV with well-developed but widely divided scopula, or with no scopula at all; all tibiae ascopulate. Male posterior tarsi flexible, anterior ones rigid or flexible; female posterior tarsi rigid (*S. quena*, *S. uruguayi*) or ventrally pallid and slightly flexible (in some cases with medial lateral weakening), anterior tarsi rigid or ventrally pallid. Male and female tarsi aspinose. STC with two rows of 3 to 10 teeth in all legs; female STC IV with teeth more numerous than on anterior legs. Tarsal trichobothria in single, zigzag row. Spermathecae 2 + 2 (*S. platense*, *S. iguazu*), or single lobe bearing from one to three receptacula, or (in some Brazilian species) single, slender, undivided receptaculum. Male bulb with short embolus, thin and sclerotized, or widened and translucent at tip, in most species with several parallel keels; in a new Brazilian species bulb highly modified and rotated, with keels spiraled.

BIOLOGY: *Stenoterommata* species live in burrows, in some species constructed under logs or stones as well as in open spaces, in others exclusively in open spaces, more common in banks along rivers or streams; some

species can live in flat, floodable terrains (*S. platense*), and a new Brazilian species has been collected from burrows in trees (at about 1.5 m height). The burrows are open, usually prolonged with silk for a few mm (in a species from southern Brazil the prolongation is a dense tube held by blades of grass which can be several cm long); in a species from Brazil it is possible that a side chamber was separated from the main by a thin internal door (since few specimens of that species have been collected, their burrows could not be observed in detail).

REMARKS: The genus is difficult to diagnose and might be paraphyletic (in terms of *Rachias*, or *Pycnothele*, or both). Of the only two possible synapomorphies for the genus, the presence of numerous maxillary cuspules has a good deal of homoplasy in related taxa and is somewhat vaguely defined. The second character, female metatarsi II with preening combs, can be observed only in females (and in some Brazilian species is present only in juveniles), with the consequence that the character could not be scored for species known only from males, and in female *Rachias* there are vaguely defined combs on metatarsi II. Numerous species in Brazil are tentatively considered as belonging to this group (*Hermachura luderwaldti* Mello-Leitão, the type species of *Hermachura*, Mello-Leitão, *Hermachura leporina* Simon, 1891, and several apparently new species). As with *Rachias*, the concept of the genus is likely to change with the revision of the Brazilian species (Goloboff et al., in prep.).

Raven (1985a) considered the genus as closest to *Pselligmus* Simon. He studied specimens of *Stenoterommata argentinensis* (Schiapelli and Gerschman), here synonymized with the type species of *Stenoterommata*, *S. platense* Holmberg. He stated that *Stenoterommata* differs from *Pselligmus* in having "a short domed apical segment of the PLS and in the presence of scopulae on tarsi III and IV." The (female) type of *Pselligmus infaustus* (in USNM, examined), however, has an extremely short apical article of the PLS, actually much shorter than that in *S. platense* (and all other species included here in *Stenoterommata*), which have a triangular apical article of the PLS. As for the tarsi III and IV being scopulate in *Stenoterommata*, the con-

dition is observed in several species in the genus (including the type species), but not in several of the new species described here, which eliminates, at least in principle, the denser scopula of tarsi III, IV as diagnostic for the genus.

Pselligmus infaustus does differ from all other *Stenoterommata* (and agrees with *Pro-rachias*, with which it is probably most closely related) in having the tibiae I and II scopulate, and an asymmetrical scopula; the maxillary cuspules of *Pselligmus* are much less numerous than in *Stenoterommata*.

RELATIONSHIPS: This genus shares with *Acanthogonatus*, *Hermacha*, and *Stanwellia* (and, plesiomorphically, *Rachias* and *Pycnothele*) the presence of a row or band of pumpkiniform spigots along the inner edge of PLS. The interrelationships of the genus will be analyzed by Goloboff et al. (in prep.); at least nine additional species (about half of which are not described) exist in Brazil. According to the present results (fig. 63, table 4), the strongly sinuous bulbal duct is a synapomorphy of *S. palmar* and *S. tenuistylum*. *Hermachura luderwaldti* clusters within *Stenoterommata*, together with *S. leporina* and *S. cf. leporina*, by virtue of having the inner band of pumpkiniform spigots much wider and with larger spigots; if the results of the cladistic analysis are correct, the apical male metatarsus with a bump (found in a few other species from Brazil, besides the ones included here) should also be present in the as yet unidentified males of *H. luderwaldti*. Note that node 136 is not unambiguously supported by any synapomorphy; collapsing the node, however, would change the optimization for the presence of ITC such that an unambiguous regain is implied, and therefore the node is shown as not collapsed. Although the 2 + 2 spermathecae appear as an autapomorphy of *S. platense*, the same condition is also exhibited by *S. iguazu*, and is taken as an indication that those two species form a monophyletic group. The denser scopula on tarsi IV of *S. platense* are not shared with any other species in the genus treated here; it is probably correctly considered as an autapomorphy for that species (the presence of a denser scopula on the posterior tarsi of some Brazilian species is probably a parallelism).

Stenoterommata platense Holmberg

Figures 4–6, 66A–D

Stenoterommata platensis, Holmberg, 1881: 126 (male and female types from Buenos Aires, destroyed, numerous topotypical specimens in MACN, examined).

Brachythele argentina Simon, 1897: 4 (male holotype from Buenos Aires, should be in MNHN, not located). NEW SYNONYMY.

Tryssothele argentina: Roewer, 1942: 202.

Pselligmus argentinensis Schiapelli and Gerschman, 1958: 124 (male holotype from Piñalito, Misiones, Argentina, and female allotype from 30 km Puerto Bemberg (currently Puerto Libertad), Misiones, in MACN, examined); 1962: 72. – Goloboff, 1982: 76. NEW SYNONYMY.

Stenoterommata argentinensis: Raven, 1985a: 107.

DIAGNOSIS: Females can be distinguished easily from those of all other species in the genus, except *S. iguazu*, by the 2 + 2 spermathecae (fig. 66E), and from those of *S. iguazu* by the spermathecae with the outer lobe bearing numerous receptacula (instead of a single one) and the inner lobe longer. Males can be distinguished from those of other species, except *S. iguazu*, by having both a thin, slender, well-sclerotized embolus, and the bulbal duct with an even curvature (figs. 66A–C; cf. figs. 72J, 73C, D, 74E), and from those of *S. iguazu* by the slightly larger size and the apical portion of the bulbal duct tapering more gradually.

MALE (17 km S Magdalena): Total length 13.75. Cephalothorax length 5.85, width 4.45. Cephalic region length 3.65, width 2.63. OQ length 0.55, width 1.02. Labium length 0.52, width 0.97. Sternum length 3.07, width 2.50. Labium with 3 cuspules, maxillae with 86/91. Serrula present, on anterior and posterior face of lobe. Sternal sigilla small, oval, shallow, submarginal; sternum rebordered. Chelicerae: rastellum weak; inner margin with 8 teeth; furrow with about 20. Cheliceral tumescence (fig. 4) present, large, flat, with thickened hairs. Chaetotaxy: Femora: I, 1/1-1 P SUP, 1 R, some recumbent d; II, 1-1 P SUP (1:4A), some recumbent d, 0-1-1-1-1 R SUP; III, 1-1-1 P SUP (1:2A), 1-1-1/1-0-1 R SUP (1:2A); IV, 1 P SUP A, 1-1 R SUP (1:4A); palp, 1 P SUP A, 2 D POST A. Patellae: I, 0; II, 0-1-1 P; III, 1-1-1 P, 1 R; IV, 1 R; palp, 1-1 P. Tibiae: I, 1-1 R SUP, 0-1-2 V ANT, 1-1-1 V POST (the apical is a megas-

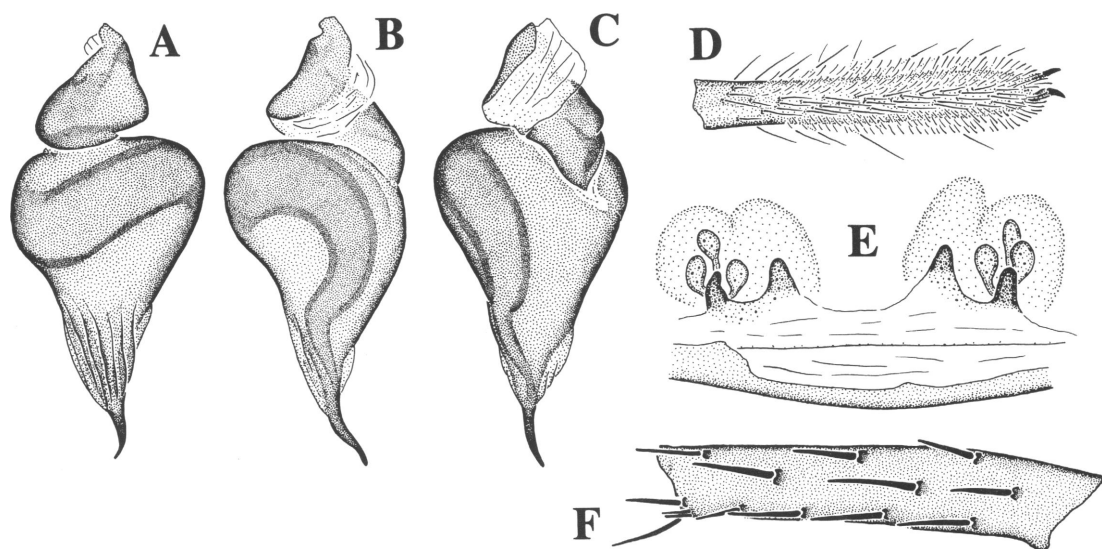


Fig. 66. *Stenoterommata platense*. A-D. Male. E, F. Female. A-C. Left bulb. D. Left tarsus IV, ventral anterior. E. Spermathecae, ventral. F. Right metatarsus IV, prolateral.

pine); II, 2 V ANT A, 1-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R, 1-1-2/1-0-2 V ANT, 0-1-1 V POST; IV, 1-1 P, 1-1-1 R SUP, 2-2-3 V; palp, 0-2-2 P, 1 D POST B, 1 R A. Metatarsi: I, 0-1-1 P SUP, 0-1-1/0-1-0 V ANT, 0-1-1 V POST (the second largest), 0/1 R; II, 1-1-1 R SUP, 0-1-1 V ANT, 1-1-1 V POST (the second largest), 0/1 R; III, 2-2-2 P SUP, 1 D POST B, 2-2-1 R SUP, 2-2-3 V; IV, 1-1-1-1 P, 0-1-1-1-1 P SUP, 2-2-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV scopulate; metatarsi I, II with scopula on 1:2A; III, IV, ascopulate. Scopula I undivided, II divided by line of thin setae (about 3 setae wide), III with wider division (about 5 setae wide, 1:4 of article width), IV with wide division (about 1:3 of article width). Metatarsal preening combs absent from I-IV. STC, teeth: I, 7776; II, 6766; III, 6777; IV, 8 10 9 7. ITC I, II, absent; III, tiny, almost absent; IV, small (but larger than III). Tarsi I-IV flexible. Palp: bulb (figs. 66A-C) with duct gradually tapering; bulb piriform. Leg I with no apophysis, with retroventral apical megaspine; metatarsus cylindrical, unmodified. Color as in female.

FEMALE (17 km S Magdalena): Total length 19.90. Cephalothorax length 7.40, width 5.65. Cephalic region length 4.90, width 4.10. Fovea width 1.00. OQ length 0.54, width 1.20.

Labium length 0.67, width 1.45. Sternum length 3.95, width 3.20. Cephalic region strongly convex; fovea procurved. Labium with 5 cuspules, maxillae with 106/121. Serula absent (SEM confirmed). Sternal sigilla small, oval, slightly excavated, submarginal; sternum rebordered. Chelicerae: rastellum formed by thick attenuate setae; inner margin with 9/10 teeth, with 2 denticles scattered between teeth 4-7; furrow with 29 denticles, forming band wider behind; figures 5, 6 show the glandular area at tip of fang. Chaetotaxy: Femora: I, 0; II, 1/0 p sup a; III, 0; IV, 0; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 0 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, II, 0; III, 1-1 P SUP, 1 D (1:3A), 1 P SUP (1:3A), 1 V ANT A; IV, 1-1 R SUP, 2 V A; palp, 0/1 p, 0-1-2 P INF, 1-1-1/0-1-0 R INF. Metatarsi: I, 0-1-0-1 V POST (strong but short); II, 0-1-1/0-0-1 V ANT, 1-1-1 V POST; III, 2-2-2 P SUP, 1 D POST B, 1-1-1 R SUP, 0-1-1 V ANT, 1-1-2 V POST; IV (fig. 66F), 1-1-1 P, 0-1-1-1 P SUP, 2-0-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-III scopulate, IV very lightly so (the scopula is only lateral); metatarsi I, II with scopula on 1:1; III, IV, ascopulate. Scopula I undivided, II divided by narrow line of 2 or 3 thin setae; III with a wide band of thick setae (occupying 1:3 of tarsus width), IV with

even wider band (only lateral 1:4 on each side have scopular hairs). All tarsi ventrally pallid, but none seem flexible. Metatarsal preening combs: II with poorly defined comb of 3 spines; III, with anterior and posterior combs merging in middle (with 9 spines total), IV, anterior comb of 3, posterior of 4. STC, teeth: I, 4544; II, 5564; III, 5774; IV, 5665. Palpal claw: 3 teeth on promargin. ITC I–III, absent (in other specimens from same locality the ITC III may be either present or absent!); IV, present, small. PLS, apical article triangular; length of apical:medial:basal, 0.62:0.87:1.37. PMS length 0.97. Spermathecae as in figure 66E, with outer lobe bearing two to three receptacula, inner lobe longer than in *S. iguazu*. Cephalothorax, legs, palpi, brown with yellowish-golden hairs; abdomen yellowish with brown mottles.

NATURAL HISTORY: *S. platense* lives in open burrows, lined with abundant white silk; the burrow mouth is slightly widened, with the silk attached to fallen leaves or branches. In Buenos Aires Province they are common south of Belén de Escobar, where the banks of the Río Paraná become lower and less steep. Specimens have been collected from riparian forest near small streams, which are temporarily flooded; that is highly unusual for mygalomorphs in the area. South of Magdalena, the forests of “tala” (*Celtis spinosum*) appear in bands, separated by lower, open, grassy corridors, parallel to the Río de La Plata. The burrows of *S. platense* are concentrated in forested areas. In Misiones they have been found in terrain that is (probably) less commonly flooded; the most numerous concentration was found in the steep and deep ravine of a small temporary stream near the Río Uruguay-í.

SYNONYMY: Goloboff (1982) suggested (without taking any nomenclatural action) that *Pselligmus argentinensis* was a synonym of *Stenoterommata platense*. As the number of specimens collected in the area around Buenos Aires and Tigre (both localities from where Holmberg had specimens) is now greater, and the distribution of other species in the genus better known, the identity of Holmberg’s species seems well-established. Holmberg’s specimens came from a municipal garden (“Bosque de Palermo”), in downtown Buenos Aires, at most a few hundred

meters from where some of the specimens cited below have been collected. No other nemesiid fitting Holmberg’s description is known to exist in Buenos Aires; both *S. tenuistylum* and *S. crassistylum*, the only two other nemesiid species occurring in northern Buenos Aires Province, are smaller than Holmberg’s specimens, and neither has been collected south of Las Palmas (about 200 km north of Buenos Aires City). Additional evidence comes from Holmberg’s statement that some of his specimens had been collected from under a “sauce” (*Salix*) trunk, as those trees occur in floodable areas near water. Only the species identified here as *S. platense* lives in Buenos Aires in low terrains; *S. crassistylum* and *S. tenuistylum* live only up on the banks of the Río Paraná.

The type of *Brachythele argentina* has not been located. Simon (1897) did not indicate where the male type was deposited. The types of other mygalomorph species described in the same paper are in MNHN, but no trace of the type of *B. argentina* was found (which could perhaps be taken as an indication that Simon had discovered the synonymy). The specimen apparently came from Buenos Aires city, where the only mygalomorph fitting Simon’s brief description is *S. platense*.

DISTRIBUTION: Argentina: provinces of Buenos Aires, Entre Ríos, and Misiones; specimens from (a single locality) in Catamarca show no significant differences. A single specimen from Córdoba, could be mislabeled, since no additional records from that well-collected province exist. In Entre Ríos it is much less common than other species of the genus; a single specimen (when 30 specimens of *S. palmar* have been collected) from Parque Nacional El Palmar has been collected (12–16 Feb. 1981, P. Goloboff, 1♀, in MACN). A single male specimen from Río Negro: El Bolsón (Kovacs, AMNH) could belong to this species, which would indicate a much wider range. That male from Río Negro differs from all other studied specimens only in having the patella IV with 1-1-1 P; the study of additional material may indicate that it actually belongs to a different species.

OTHER MATERIAL EXAMINED: ARGENTINA: Misiones: Parque Provincial Uruguay-í, Ruta Provincial 19 and Arroyo Uruzú, 2–7 Feb. 1988 (P. Goloboff, C. Szumik, MACN),

4♀, 16 juvs., 16 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 1♀, 1 juv., ravine leading to Río Uruguay-í, 16 Sep. 1992 (P. Goloboff, C. Szumik, MACN) 1♂, 5♀; Ruta Provincial 17, 33 km E Eldorado, 20 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 1♀; Ruta Provincial 17, 44 km E Eldorado, 20 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 1♀, 1 juv. **Buenos Aires:** 17 km S Magdalena, Apr. 1983 (P. Goloboff, MACN, AMNH), 5♂, 22♀; 22 km S Magdalena, 25–26 Jun. 1983 (P. Goloboff, M. Ramírez, MACN), 1♀; 25 km S Magdalena, 13–14 Aug. 1983 (P. Goloboff, M. Ramírez, MACN), 1♂, 1♀, 1♂ juv.; Capital Federal, Jardín Botánico, 1987 (P. Goloboff, MACN), 1♀; Hudson, 26 Oct. 1986 (P. Goloboff, C. Szumik, MACN), 1♂, 1 juv.; Punta Indio, 13 Mar. 1983 (P. Goloboff, E. Maury, MACN), 1♀. **Santa Fé:** Arroyo del Medio, frente a San Nicolás, 1 Feb. 1983 (Rosas, MACN), 1♀.

Not listed here are specimens examined by Goloboff (1982), from Buenos Aires (Tigre, Buenos Aires, Punta Lara, San Isidro, Belén de Escobar, Isla Martín García), Entre Ríos (Parque Nacional El Palmar), and Catamarca (Recreo), identifications corroborated here.

Stenoterommata iguazu,

new species

Figure 67A–E

Stenoterommata argentinensis: Goloboff, 1989: 80 (misidentification).

TYPES: Female holotype and male paratype from Parque Nacional Iguazú, Misiones, Argentina, (Nov. 1981; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be distinguished easily from those of all other species in the genus, except *S. platense*, by the 2 + 2 spermathecae (fig. 67B); from those of *S. platense*, they can be distinguished by the outer spermathecal lobe bearing a single receptaculum, and the shorter, rounded inner lobe. Males can be distinguished from those of other species, except *S. platense*, by having both a thin, slender, well-sclerotized embolus and the bulbal duct with an even curvature (fig. 67D, E); from those of *S. platense*, by the apical portion of the bulbal duct more abruptly tapering and the slightly smaller size.

MALE (paratype): Total length 8.20. Cephalothorax length 3.80, width 2.75. Cephalic region length 2.32, width 1.75. OQ length 0.37, width 0.75. Labium length 0.31, width 0.57. Sternum length 2.02, width 1.61. Labium with no cuspules, maxillae with 27/25. Sternal sigilla small, oval, marginal, shallow; sternum with clear reborder. Chelicerae: rastellum with only long, thin, attenuate setae; inner margin with 7 teeth; furrow with about 15 denticles. Cheliceral tumescence present, covered with slightly thickened hairs. Chaetotaxy: Femora: I, II, 1 P SUP A, 1-1-1-1 d, 1 r sup a; III, 1 P SUP, 1-1-1-0 d, 1-1-1 R SUP; IV, 1 P SUP A, 1-1-1-0 d; palp, 1 P SUP A, 1-1-1 d (1:2a). Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 1/1-1 P SUP, 1 V ANT A, 1-1-1 V POST (apical one, small megaspine); II, same as I (both legs with 1-1 P SUP), but longer, thinner; III, 1-1 P, 1 D (1:3A), 1-1 R, 1-1-1 V ANT, 0-1-1 V POST; IV, 1-1 P INF, 1-1 R SUP (longer), 1-1-1 V ANT, 0-1-1 V POST; palp, 2-2 P (1:2A), 1 R SUP A. Metatarsi: I, 0-1-1 P SUP, 1-1/2 V POST, 1 V POST A; II, 0-1-1/1-1-1 P SUP, 0-1-1 V ANT, 1-1-1 V POST (middle one stronger), 1 R INF; III, 2-2-3/2-2-2 P SUP, 1 D POST B (small), 2-1-1/1-1-1 R SUP, 0-1-1 V ANT, 1-1-2 V POST; IV, 2-2-2 P SUP, 2-2-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi I, II with scopula of medium density, III, IV with very light scopula; metatarsi I, II with scopula on 1:2A, III, IV ascopulate. Scopula I, II with thicker ventral setae (more abundant on II) not forming definite line; III, IV with most of ventral surface covered by setae (scopula only lateral). Metatarsal preening combs absent from I, II, III with faint posterior comb of 3/4 setae, anterior comb inconspicuous. STC, teeth: I, 5666; II, 5876; III, 6776; IV, 6776. ITC absent from I, II, tiny (almost absent) on III, present (small) on IV. Flexible tarsi: all tarsi ventrally pallid, but only III, IV flexible. PLS, apical article triangular; length of apical:medial:basal, 0.52:0.55:0.80. PMS length 0.40. Palp: as in figure 67C; bulb (fig. 67D, E) piriform, with apical part of duct narrowing abruptly. Leg I with retroventral apical megaspine; metatarsus cylindrical, unmodified, with few spines. Color similar to *S. platense*.

FEMALE (holotype): Total length 13.25. Cephalothorax length 4.65, width 3.55. Ce-

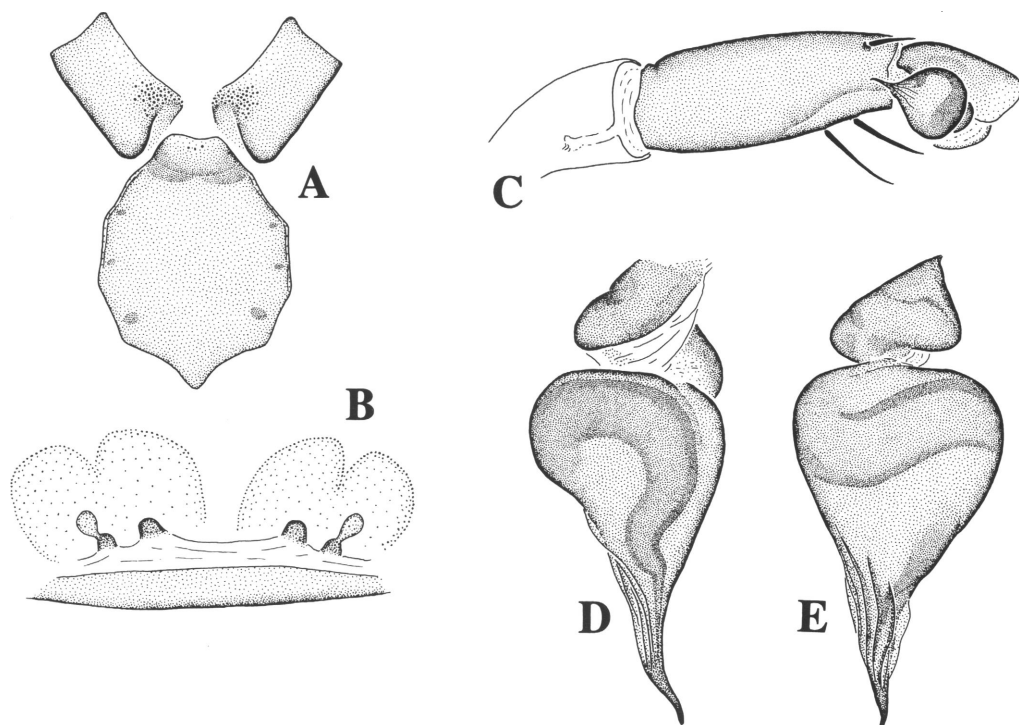


Fig. 67. *Stenoterommata iguazu*. A, B. Female. C-E. Male. A. Sternum and maxillae. B. Spermathecae, ventral. C. Right palp, retrolateral. D, E. Left bulb.

phalic region length 3.25, width 2.67. Fovea width 0.65. OQ length 0.45, width 0.95. Labium length 0.44, width 0.90. Sternum (fig. 67A) length 2.63, width 2.25. Cephalic region convex; fovea slightly procurved. Labium with 3 cusps, maxillae with 58/61. Sternal sigilla small, oval, shallow, marginal; sternum rebordered. Chelicerae: rastellum formed by thick attenuate setae; inner margin with 7 teeth; furrow with 12 denticles (forming row bifurcated posteriorly). Chaetotaxy: Femora: I, II, 1 P SUP A, 1-1-1-1 d; III, 1-1 d (1:3b); IV, 1-1-1 d (1:2b); palp, 1 P SUP A, 1-1-1 d (1:3A). Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 0; II, 1-1 v post (very long, thin); III, 1/1-1 P, 1 D B (1:3A), 1/1-1 R, 2 V; IV, 0/1 P, 1-1 R SUP, 2 V; palp, 1 P SUP, 2-2/1-2 P INF, 1-1-1 R INF. Metatarsi: I, 0/1 V A; II, 1 P, 1 V ANT A, 1-1-1 V POST A; III, 2-2-2 P SUP, 1 D POST B, 1-2-1/1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 1-1-1 P SUP, 2-2-1 R SUP, 1-1-2 V ANT, 1-1-1-1 V POST. Tarsi: I-IV, palp, 0. Scopula of normal density on I, II, light on III, very light on IV; metatarsi I, II with

scopula on 1:1; metatarsi III, IV ascopulate. Scopula I undivided, II divided by row of 3 or 4 setae, III, IV with most of ventral surface covered with setae (scopula only lateral). Tarsi rigid, inflexible. Metatarsal preening combs absent from I; II with anteroventral comb of 4 spines; III with anterior comb of 3, posterior of 5; IV, with anterior comb very faint, formed by 3 spines, posterior comb well-delimited, with 4 spines. STC, teeth: I, 4443; II-IV, 4444. Palpal claw with 4 teeth on promargin. ITC I, II, absent; III, small; IV, larger. PLS, apical article triangular; length of apical:medial:basal, 0.60:0.70:1.02. PMS length 0.60. Spermathecae as in figure 67B. Color similar to *S. platense*.

DISTRIBUTION: Northern Misiones Province, Argentina.

OTHER MATERIAL EXAMINED: ARGENTINA: **Misiones:** Parque Nacional Iguazú, Nov. 1981 (P. Goloboff, MACN), 5♀, 2♂, 3 juvs.; VII.1983 (P. Goloboff, MACN), 9♀; 1♂, 8 juv.; Ruta Provincial 101, between El Timbó and El Palmital, 13-15 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 9♀, 2 juvs.; Ruta

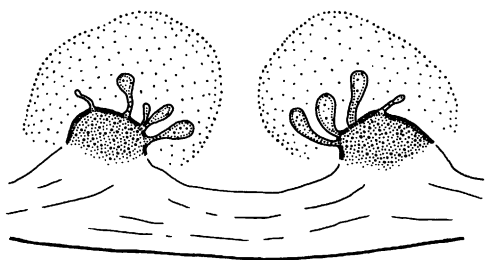


Fig. 68. *Stenoterommata uruguayi*, female spermathecae, dorsal.

Provincial 101, Arroyo Santo Domingo, 30 Jan. 1988 (P. Goloboff, C. Szumik, MACN), 4♀, 4 juvs.; Puerto Canoas, 180–200 m elev., FIT, 8 Dec.–6 Jan. 1991 (S. Peck, J. Peck, AMNH), 5♂, 1♀; Puerto Bossetti, 17 Sep. 1992 (P. Goloboff, C. Szumik, MACN), 1♀; Salto del Uruguay-í, 25 Nov. 1981 (P. Goloboff, MACN), 1♀; Arroyo Piñalito, 2 km upstream from Ruta Provincial 101, Jan. 1988 (P. Goloboff, C. Szumik, MACN), 1♀, 1 juv.; Wanda, Jul. 1983 (P. Goloboff, MACN), 1♀.

***Stenoterommata uruguayi*,
new species
Figure 68**

Stenoterommata platense: Schiapelli and Gerschman, 1965: 13 (misidentification).

TYPE: Female holotype from Parque Nacional Iguazú, Misiones, Argentina (Jul. 1983; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from one of the localities where this species was first collected.

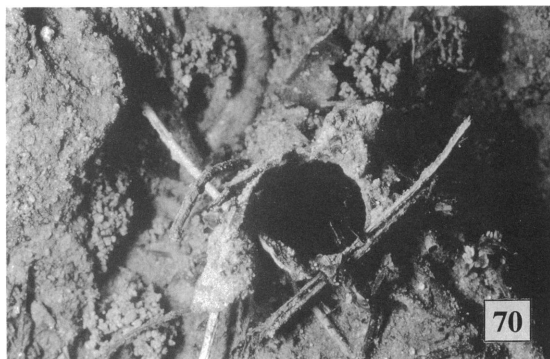
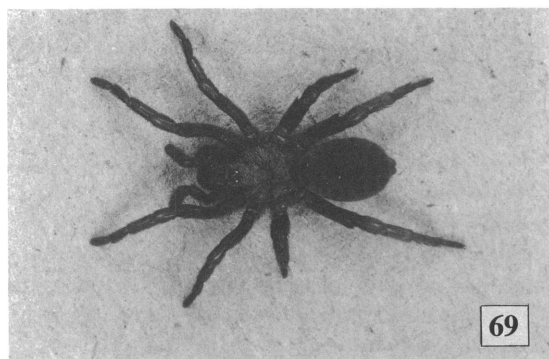
DIAGNOSIS: Can be distinguished from other *Stenoterommata* which have the anterior tarsi with reduced ITC by its spermathecae consisting of a single, wide dome, bearing numerous receptacula. The spermathecae are superficially similar to those of *S. quena*, but in *S. uruguayi* the basal dome is more rounded (in *S. quena* the dome is more triangular) and the prolateral spines on patella III are less numerous.

MALE: Unknown.

FEMALE (holotype): Total length 17.70. Cephalothorax length 7.10, width 5.00. Cephalic region length 4.35, width 3.85. Fovea width 0.91. OQ length 0.56, width 1.09. Labium length 0.67, width 1.22. Sternum length 3.47, width 3.00. Cephalic region convex; fo-

vea procurved. Labium with no cuspules, maxillae with 159/161. Serrula absent. Sternal sigilla very shallow, elongated, in most specimens smaller, more widely separated from margin than in other species of genus (particularly the sympatric *S. iguazu*; however, some specimens of *S. uruguayi* have slightly larger and more marginal sigilla); sternum very slightly rebordered. Chelicerae: rastellum weak, only thin, attenuate setae; inner margin with 8 teeth; furrow with c. 20 scattered denticles. Chaetotaxy: Femora: I, 1 P SUP A; II, 1 p sup a (very thin); III, IV, 0; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-2-2/1-2-1 P, 1 R; IV, 0; palp, 0. Tibiae: I, 0; II, 1 P (1:3A), 1 v post; III, 1-1 P, 0-1 D, 0-1 R SUP; IV, 0 P [!], 1-1 R SUP, 2 V A; palp, 1 P, 1-1-2 V ANT, 1-1-1 V POST (apical strongest). Metatarsi: I, 1-0-1/1-0-2 V; II, 1 P SUP, 1-2-3 V; III, 3-2-2/2-2-2 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 1-1-1-1 P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, 0; palp, 0/1 R INF B [!]. Tarsi I, II densely scopulate, III, IV less densely so; metatarsi I, II with 1:1 scopulate, III, IV ascopulate. Scopula I undivided; II with some slightly thicker setae along midline; III, IV divided by wide band, 6 or 7 setae wide, occupying about 1:3 of article's width. All tarsi rigid. Metatarsal preening combs: I, absent; II, almost no comb (only two comblike spines); III, 2 combs of 4; IV, anterior comb of 3, posterior of 4; posterior legs with comb setae regularly arranged. STC, teeth: I, 4433; II, 4444; III, 4554; IV, 4454. Palpal claw with 4 teeth on promargin. ITC I, II, absent; III, almost absent, very small; IV, present, small. PLS, apical article short, triangular to domed; length of apical:medial:basal, 0.40:0.85:1.47; with pumpkiniform spigots along inner edge, only slightly larger than the other (articulate) spigots; some articulate spigots, irregularly arranged, larger than the others. PMS length 0.75. Spermathecae as in figure 68. Cephalothorax, legs, palpi reddish brown, with golden hairs; abdomen yellowish brown, with darker mottles.

OTHER MATERIAL EXAMINED: ARGENTINA: **Misiones:** Wanda, banks of Río Paraná, Oct. 1985 (P. Goloboff, MACN), 6♀; Salto del Uruguay-í, 25 Nov. 1981 (P. Goloboff, MACN), 7♀, 2 juvs.; Parque Nacional



Figs. 69, 70. *Stenoterommata quena*, female and burrow entrance (Photo F. A. Coyle).

Iguazú, Jul. 1983 (P. Goloboff, MACN), 1♀, Jul. 1985 (M. Ramírez, MACN), 3♀, 1 juv.; Feb. 1944 (Williner, MACN), 1♀; Parque Nacional Iguazú, Salto Macuco, 26 Dec. 1990 (S. Peck, J. Peck, AMNH), 1♀; Parque Nacional Iguazú, Puerto Canoas, 180 m elev., river forest FIT, 8 Dec.–6 Jan. 1991 (S. Peck, J. Peck, AMNH), 1♀; Puerto Libertad (ex Puerto 17 de Octubre), Oct. 1953 (J. De Carlo, R. Schiapelli, M. Viana, M. Galiano, MACN), 2♀, 1 Feb. 1988 (P. Goloboff, C. Szumik, MACN), 3♀ juv.; Piñalito, Mar. 1957 (W. Partridge, MACN), 1♀; Arroyo Piñalito, 2 km upstream from Ruta Provincial 101, 4 Feb. 1988 (P. Goloboff, C. Szumik, MACN), 1♀.

***Stenoterommata quena*,
new species
Figures 69–71**

Stenoterommata sp.: Coyle et al., 1990: 90.

TYPE: Female holotype from La Quena, banks of Río Bermejo, Salta, Argentina (15 May 1983; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be easily recognized by the presence of numerous (7 or more) spines on prolateral patella III. The rastellum is stronger, and the maxillae are shorter, than in other species of the genus. The presence of preening combs in metatarsi I is also very unusual.

MALE: Unknown.

FEMALE (holotype): Total length 12.20. Cephalothorax length 4.55, width 2.55. Ce-

phalic region length 2.97, width 3.15. Fovea width 0.75. OQ length 0.44, width 0.89. Labium length 0.50, width 0.95. Sternum (fig. 71A) length 2.55, width 1.97. Cephalic region convex; fovea procurved. Labium with no cuspules, maxillae (fig. 71A) with 47/46. Maxillae rather short. Serrula apparently absent. Sternal sigilla shallow, small, almost

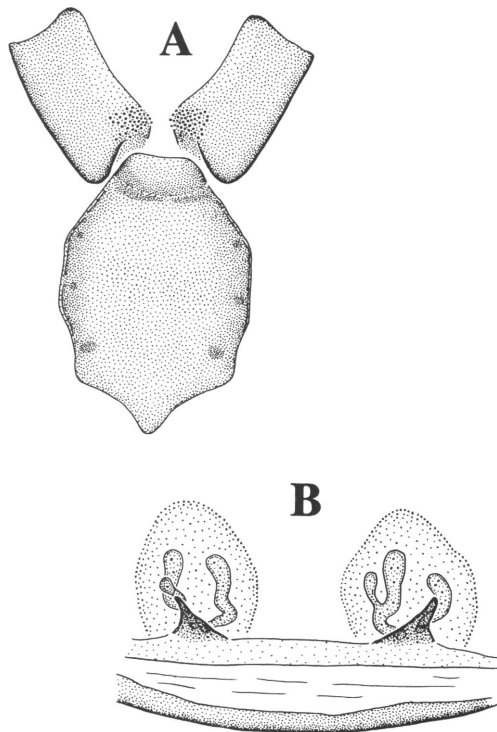


Fig. 71. *Stenoterommata quena*, female. A. Sternum and maxillae. B. Spermathecae, ventral.

rounded, submarginal; sternum rebordered. Chelicerae: rastellum strong, formed by thick blunt setae; inner margin with 6/7 teeth; furrow with 22 large denticles (9 larger, along outer edge). Chaetotaxy: Femora: I, II, 1 P SUP A; III, IV, 0; palp, 0. Patellae: I, 0; II, 1 p sup a; III, 7/8 P; IV, 0; palp, 0. Tibiae: I, II, 0; III, 1-1 P, 1 D (1:3A), 0/1 r b, 1 R A; IV, 1 P, 1-1 R, 2 V A; palp, 1 P SUP (1:2A), 0-1-2/1-1-2 P INF, 1-1-1 R INF. Metatarsi: I, 1 V ANT A, 1-1-0-1 V POST A; II, 1 V ANT A, 1-1-2 V POST; III, 1-1-1 P, 0-1-1 P SUP, 3-1-1 R SUP [!] (one other specimen agrees with holotype in having numerous R; three specimens—juveniles?—have normal arrangement); IV, 2-2-2 P SUP, 2-2-1 R SUP, 1-1-1-1 V ANT, 1-2 V POST (1:3A). Tarsi: I-IV, palp, 0. Tarsi I, II lightly scopulate, III, IV ascopulate. Metatarsi I with 3:4A scopulate, II with only scopuliform hairs on 1:3A. Scopula I with some medial thicker setae, forming irregular line of about 2 setae width; II, with band of setae, occupying about 1:4 of article's width. All tarsi rigid. Metatarsal preening combs: I, with 5 setae in straight line [!]; II, with 9 setae on straight line, about 3 more irregularly arranged; III, with anterior and posterior comb merging together in middle, with 11 setae; IV, same as III, with 12 setae. STC, teeth: I, 5775; II, 6765; III, 4554; IV, 4465. Palpal claw: with 5 teeth on promargin. ITC I, II absent, III very small, IV small. PLS, apical article short, domed; length of apical:medial:basal, 0.39:0.45:0.81; spigots typical for genus, with pumkiniform spigots along inner edge much larger (fig. 51). PMS length 0.50. Spermathecae as in figure 71B. Cephalothorax, legs and palpi reddish brown, abdomen yellowish with brown chevron.

NATURAL HISTORY: Specimens (fig. 69) have been collected from burrows similar to those of other species in the genus, with an open entrance (fig. 70), lined with a dense layer of silk.

DISTRIBUTION: Known only from a thorn-forest habitat in northeastern Salta Province.

OTHER MATERIAL EXAMINED: ARGENTINA: Salta: La Quena, banks of Río Bermejo, 15 May 1983 (P. Goloboff, MACN), 2♀, 1 juv.; 4-5 Feb. 1985 (P. Goloboff, C. Szumik, MACN), 1♀, 1♂ juv.; 21 Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN),

1♀; 1 km E of Hickman, 20 Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 1♀.

Stenoterommata tenuistylum,

new species

Figures 8, 14, 72A-L

Stenoterommata sp.: Goloboff, 1988: 362; 1993a: fig. 17.

TYPES: Male holotype and female paratype from Atucha, banks of Paraná River, Buenos Aires, Argentina (1 Nov. 1981; P. Goloboff, M. Ramírez, A. Zanetic), deposited in MACN.

ETYMOLOGY: The specific name refers to the thin, slender embolus of males of this species, which distinguish it from males of the sympatric *S. crassistylum*.

DIAGNOSIS: Females can be distinguished from those of other three-clawed *Stenoterommata* by their spermathecae (fig. 72C), which have a short rounded basal portion and a single rounded receptaculum arising from near the tip of the base (in *S. palmar*, the basal portion is more triangular, and the single receptaculum arises from the base of that basal portion; fig. 73A). Males are easily diagnosed by one of the species autapomorphies, the presence of numerous short spines on the ventral metatarsus I (fig. 72G).

MALE (holotype): Total length 11.50. Cephalothorax (fig. 72F) length 3.97, width 3.37. Cephalic region length 2.57, width 2.00. OQ length 0.37, width 0.76. Labium length 0.35, width 0.72. Sternum (fig. 72E) length 2.17, width 1.85. Labium with no cuspules, maxillae with 62/55. Serrula not visible. Sternal sigilla posterior small, oval, submarginal, shallow; sternum slightly rebordered. Chelicerae: rastellum absent (only very weak attenuate setae); inner margin with 8/9 teeth (basal two larger, apical one smaller); furrow with 8 denticles in row, plus 15 smaller denticles in front. Cheliceral tumescence present, flat, lower half covered with setae. Chaetotaxy: Femora: I, II, 1-1-1-1 d, 1 P SUP A; III, 1-1 d b, 1-0-1 P SUP (1:2A), 1-1-1/1-0-1 R SUP (1:2A); IV, 1-1-1 d, 1/1-1 P SUP A, 1 R SUP A; palp, 1-1 d (1:2a), 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 1-1 P SUP, 1 R INF A (megaspine), 1-1 V POST, 2 V POST A (posterior smaller); II, 1 P SUP, 1 R INF A, 1-1 V POST, 2 V POST

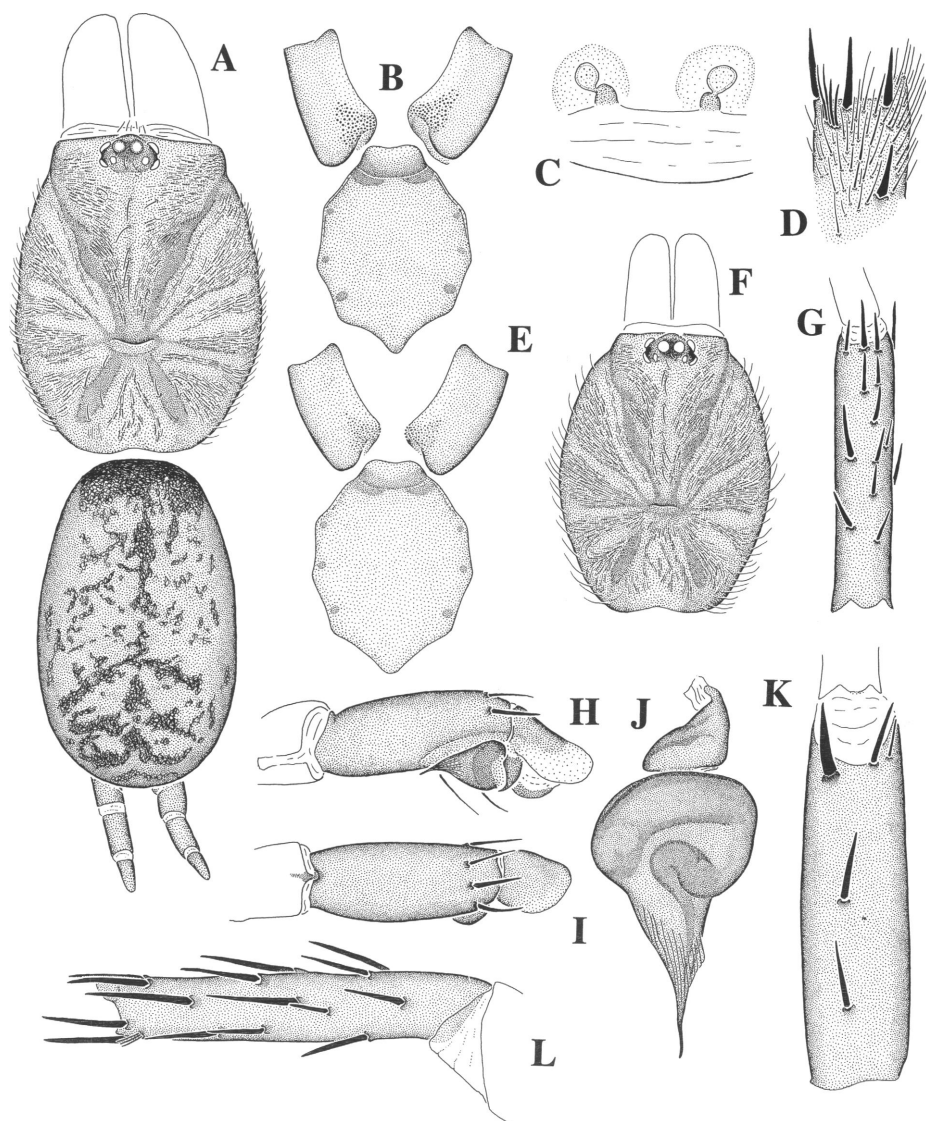


Fig. 72. *Stenoterommata tenuistylum*. A–D, L. Female. E–K. Male. A. Cephalothorax and abdomen. B. Sternum and maxillae. C. Spermathecae, dorsal. D. Preening-comb of right metatarsus IV. E. Sternum and maxillae. F. Cephalothorax. G. Right metatarsus I, ventral. H, I. Right palp (retrolateral and dorsal views). J. Left bulb. K. Right tibia I, ventral. L. Right metatarsus IV, prolateral.

A; III, 1-1 P, 1 D A, 1-1 R SUP, 2-1-3 V; IV, 1/1-1 P, 1-1-1 R (basal much smaller), 2-2-3/2-3-3 V; palp, 1-1 P, 2 P INFA, several p inf, 2 D A, 1 R A. Metatarsi: I, 0-1-1/1-1-1 P, 13 V; II, 0-1-1/1-1-1 P, 2-2-3 V; III, 2-2-2 P SUP, 1 D POST B (small), 1-1-1 R SUP, 2-2-3 V; IV, 2-2-2 P SUP, 1 D B, 1-2-1/1-2-1-1 R SUP, 2-1-2-3 V. Tarsi: I–IV, palp, 0. Tarsi I, II scopulate, III, IV without scop-

ula but with scopuliform hairs on sides; metatarsi I, II with scopula on 1:3A post; metatarsi III, IV ascopulate. Scopula I slightly divided by row of 2 thin setae; II clearly divided by row of 4 thicker setae; III, IV with entire ventral face covered with setae. Metatarsal preening combs: absent from I; metatarsus II with comb of 3; III, IV with anterior comb of 3, posterior comb of 4. STC, teeth: I, 8777;

II, 7886; III, 7987; IV, 8987. ITC present on I–IV. Tarsi I, II integral; III, IV flexible, with medial area less sclerotized. PLS, apical article triangular; length of apical:medial:basal, 0.62:0.62:0.81; basal article with numerous spigots, large pumpkiniforms on inner side, rest smaller, articulated, except single larger apical spigot in middle (with large ringed base); medial with large pumpkiniform spigots on inner side, with two larger spigots along middle. PMS length 0.42; about 20 spigots, on 2:3A. Palp as in figure 72H, I; tibia without basal notch, membranous area between patella and tibia narrow; tibia tapering gradually; bulb (fig. 72J) tapering gradually, embolus thin, well sclerotized; with low parallel keels on base of embolus. Leg I, tibia with no spur, with retrolateral apical megaspine (fig. 72K); metatarsus straight, with numerous disordered ventral spines (fig. 72G). Cephalothorax, legs, palpi, yellowish-reddish brown; abdomen yellow, with brown chevron.

FEMALE (paratype): Total length 13.70. Cephalothorax (fig. 72A) length 4.75, width 3.60. Cephalic region length 3.15, width 2.55. Fovea width 0.62. OQ length 0.45, width 0.82. Labium length 0.46, width 0.92. Sternum (fig. 72B) length 2.72, width 2.12. Cephalic region convex; fovea procurved. Labium with 4 cuspules, maxillae with 76/78. Serrula not visible. Sternal sigilla small, shallow (fig. 72B). Chelicerae: rastellum formed by attenuate setae; inner margin with 9/10 teeth (apical smaller); furrow with 8 denticles in row, and 20 much smaller ones in front of them. Trichobothrial bases as in fig. 14. Chaetotaxy: Femora: I, II, 1-1-1 d b, 1 d p sup; III, 1-1-1 d b, 1-1 r sup (very thin); IV, 1-1-1-1 d b; palp, 1-1-1 d (1:3a). Patellae: I, II, 1 p a; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 0; II, 1 V POST; III, 1-1 P, 1 D (1:3A), 1 R; IV, 1-1 R, 2-2 v, 2 V A; palp, 1 P, 1-1-2 P INF, 1-1-1 R INF (3 apical spines much thicker). Metatarsi: I, 2-1-1 V; II, 2-2-2 V, 0/1 P SUP; III, 2-2-2 P, 1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV (fig. 72L), 2-2-2 P SUP, 1-2-1 R SUP, 1-1-1-1 V ANT, 0-1-1-2 V POST. Tarsi: I–IV, and palp, 0. Tarsi I, II with light scopula, III, IV almost ascopulate (only few scopuliform hairs on sides). Metatarsi I with 3:4A scopulate, II with 2:3A, III, IV ascopulate. Scopula I almost undivided

(some ventral setae slightly thicker), II divided by clear row of 3 setae. Tarsi I–III integral, IV with medial less sclerotized area. Metatarsal preening combs: I, absent; II, ventral anterior comb of 3, III (fig. 8), IV (fig. 72D), anterior comb of 3, posterior comb of 4. Combs very well defined. STC, teeth: I, 5445; II, 5665; III, 6546; IV, 6887. Palpal claw with 4 teeth on promargin. ITC present, large, on I–IV. PLS, apical article triangular; length of apical:medial:basal, 0.60:0.80:1.15. PMS length 0.51. PLS and PMS spigots as in male. Spermathecae as in figure 72C. Color as in male.

NATURAL HISTORY: *S. tenuistylum* lives in short, irregularly branched burrows, lined with a dense layer of white silk. The burrows are constructed either under rocks or logs (in which case they are often prolonged by a silk tube), or between roots, or simply in open spaces. In Buenos Aires they have been found only in the banks of the Río Paraná, in three localities along 50 km; north of there, they seem to be replaced by *S. crassistylum*. In Entre Ríos they have been found in similarly constructed burrows, in flatter places; there, the burrows were found mostly in the mounds around trees. During daytime, the burrows had the entrance closed with debris and silk and were not directly visible from the exterior. However, in having a dense silk lining, they were easily found by removing the substrate.

DISTRIBUTION: Known only from Entre Ríos and northern Buenos Aires.

OTHER MATERIAL EXAMINED: ARGENTINA: **Buenos Aires:** Atucha, 1 Nov. 1981 (P. Goloboff, M. Ramírez, A. Zanetic, MACN), 6♀, 2♂, 1 juv., Apr. 1982 (P. Goloboff, MACN), 1♂, 27 Jul. 1984 (P. Goloboff, M. Ramírez, MACN), 6♀, 2♂, 4 juvs. (MACN), Jun. 1985 (P. Goloboff, C. Szumik, C. Scioscia, MACN), 1♀, 1♂, 10 May 1987 (M. Ramírez, MACN), 3♀, Aug. 1987 (P. Goloboff, C. Szumik, MACN), 2♀, 1 juv., Mar. 1989 (P. Goloboff, C. Szumik, MACN), 5♀, 3♂, 3 juvs., no date (P. Goloboff, MACN), 1♀, 1♂, 1 juv., 13 Sep. 1990 (M. Ramírez, MACN), 1♀; Alsina, 12 Oct. 1981 (P. Goloboff, MACN), 7♀, 2 juvs.; Las Palmas, 2 Nov. 1980 (P. Goloboff, A. Zanetic, MACN), 1♀ (MACN), 16 Nov. 1980 (P. Goloboff, MACN), 1♀, Feb. 1981 (P. Goloboff, A. Za-

netic, MACN), 2♂, 2♀, 3 juvs. **Entre Ríos:** 20 km SW Victoria, Ruta Provincial 11, 29 Aug. 1981 (P. Goloboff, A. Zanetic, MACN), 5♀, 1♂, 27–28 Feb. 1982 (P. Goloboff, A. Roig, S. Roig, MACN), 5♀; Arroyo Manantiales, Ruta Provincial 11 (km. 103), 23 Oct. 1982 (P. Goloboff, M. Ramírez, MACN), 1♀; Balneario La Lana, Río Guaaleguay, Aldea Asunción, 5–6 Dec. 1987 (P. Goloboff, C. Szumik, MACN), 5♀, 1♂ juv.; Río Guaaleguaychú, Ruta Nacional 14, 19 Feb. 1983 (P. Goloboff, E. Maury, MACN), 2♀, 2♂ juv.; Arroyo Guaaleán, Ruta Nacional 14, 5–6 Feb. 1983 (P. Goloboff, MACN), 3♀, 3 juvs., 13 Oct. 1984 (P. Goloboff, C. Szumik, MACN), 1♀, 27 Sep. 1987 (P. Goloboff, C. Szumik, MACN), 1♀, 2 juvs.; Rosario del Tala, Ruta Provincial 39 y Río Guaaleguay, 11 Jan. 1988 (P. Goloboff, C. Szumik, MACN), 1♀, 1♂ juv.

Stenoterommata palmar,

new species

Figure 73A–F

Stenoterommata sp.: Goloboff, 1988: 362.

TYPES: Male holotype and female paratype from Parque Nacional El Palmar, Entre Ríos, Argentina (3 May 1980; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females differ from those of other three-clawed *Stenoterommata* in the spermathecae (fig. 73A) having a single triangular dome with a single receptaculum and a single receptaculum arising from its base; males are most similar to those of *S. tenuistylum*, but lack the short ventral spines (fig. 73E) on the metatarsus I typical of that species (cf. fig. 72L), and have a long, thick, curved spine on the apical third of the ventral tibia I (fig. 73F) that is absent in *S. tenuistylum*.

MALE (holotype): Total length 8.75. Cephalothorax length 4.05, width 2.90. Cephalic region length 2.57, width 1.57. OQ length 0.39, width 0.79. Labium length 0.31, width 0.62. Sternum length 2.15, width 1.70. Labium with no cuspules, maxillae with 43/44. Serrula apparently absent. Sternal sigilla small, shallow, marginal; sternum rebordered. Chelicerae: rastellum very weak, with only thin attenuate setae; inner margin with

TTtTTTTT; furrow with 20 denticles. Chelicer al tumescence present, with some thickened hairs on postero-inferior corner. Chaetotaxy: Femora: I, 1 P SUP A, 1 R SUP A; II, 1 P SUP A; III, 0-1-1 P SUP, 0-1-1 R SUP; IV, 1-1 P SUP (1:3A), 1-1 R SUP (1:3A); I–IV with dorsal basal long setae; palp, 1 P SUP A, 1 R SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 0-1-1-0 P, 3-2-2/2-3-2 V (ventral medial one, thicker and outwardly curved; absent in *S. tenuistylum*); II, 0-1-1-0 P SUP, 2 V ANT A, 1-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 2-2-3 V; IV, 1-1 P, 1-1 R (large), 0/1 R B (small), 2-3-3/2-1-3 V; palp, 1 P SUP, 1-1 P INF (1:3A), 4/5 D A (half verticil). Metatarsi: I, 0-1-0-1 P, 1-0-1 V ANT, 1 V POST; II, 0-1-0-1 P SUP, 2-2-3 V; III, 2-2-1/2-2-1-1, 0/1 D B, 1-2-1 R SUP, 2-2-3 V; IV, 1-1-1/1-1-1-1 P, 1-1-1-1 P SUP, 1-2-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, 0; palp, 0. Tarsi I, II scopulate, III, IV with scopula on 2:3A; metatarsi I with scopula on 1:2A, II with scopula on 1:3A, III, IV ascopulate. Scopula I narrowly divided, II more widely, III, IV with setae occupying roughly medial third of article. Metatarsal preening combs: I, II without combs or pseudocombs; III with 6 anterior, 5 posterior thin bristles forming inconspicuous comb; IV, with 4/5 anterior bristles very irregularly arranged, 5 posterior ones in a straight line. STC, teeth: I, 6566; II, 7677; III, 8677; IV, 8788. ITC present on I–IV. Flexible tarsi: I, II non-flexible, III, IV flexible. PLS, apical article triangular; length of apical:medial:basal, 0.62:0.62:0.80. PMS length 0.37. Palp: tibia without basal concavity; bulb as in figures 73C, D; palpal coxa with concavity above suture more pronounced than in species of other genera (fig. 73B). Leg I, tibia with no apophysis, with retrolateral apical megaspine, plus single thicker curved ventral spine (fig. 73F); metatarsus (fig. 73E) with few, normal spines. Cephalothorax, legs, palpi reddish brown, with golden hairs; abdomen yellowish brown, with darker mottles.

FEMALE (paratype): Total length 15.05. Cephalothorax length 5.95, width 4.60. Cephalic region length 0.38, width 3.25. Fovea width 0.67. OQ length 0.54, width 0.95. Labium length 0.52, width 1.06. Sternum length 3.20, width 2.62. Cephalic region convex; fo-

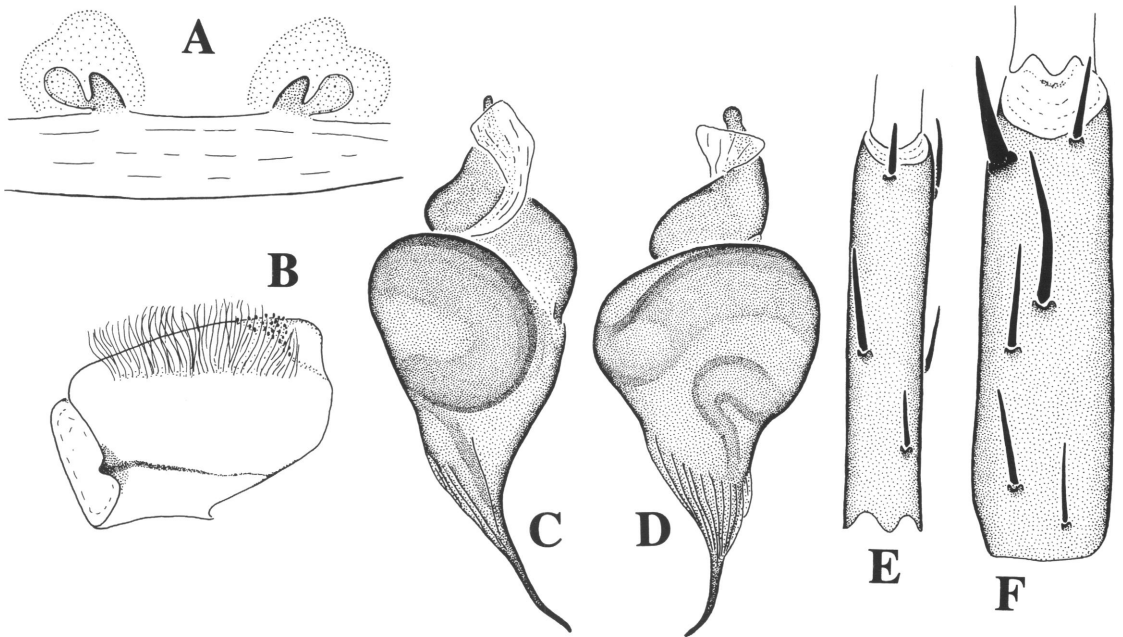


Fig. 73. *Stenoterommata palmar*. A. Female. B–F. Male. A. Spermathecae, dorsal. B. Left palpal coxa, anterior view. C, D. Left bulb. E. Right metatarsus I, ventral. F. Right tibia I, ventral.

vea slightly procurved, with small posterior notch. Labium with 1 cuspule, maxillae with 82. Serrula absent. Sternal sigilla small, shallow, marginal, oval (similar to those of *S. tenuistylum*); sternum rebordered. Chelicerae: rastellum formed by thick attenuate setae; inner margin with 8/9 teeth (2 basal ones larger); furrow with about 30 denticles. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1 R SUP A; IV, 0; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 0; II, 1 V POST; III, 0-1/1-1 P, 1 D (1:3A), 0-1 R SUP; IV, 1 P INF, 1-1 R SUP, 2 V A; palp, 0/1 P, 2/1-3 V ANT A, 0-1-1 V POST. Metatarsi: I, 2-1-1 V; II, 2-2-2/2-2-0 V; III, 2-2-2 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV, 2-2-2 P SUP, 1-2-1 R SUP, 1-1-1/1-1-1V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Scopula: on 1:1 of tarsi I, II, 2:3A (very light) of III, IV; 1:1 of metatarsi I, about 2:3A of II, no scopula on metatarsi III, IV. Scopula I undivided, II divided by clear row of 3 setae, III with setae occupying central 2:4 of article's width (4 or 5 setae width), IV with even broader band of setae (5/6 setae width, scopula only lateral). Tarsi I, II rigid, III, IV slightly flexible (IV with medial

“crack”). Metatarsal preening combs: I, absent; II, formed by 3/4 spines; III, 2 combs of 5 spines; IV, anterior irregular comb of 4/5, posterior of 5 orderly arranged spines. STC, teeth [counted in another specimen]: I, 7777; II, 7777; III, 8997; IV, 10 999. Palpal claw with 6 teeth on promargin. ITC present, small, on I, II; larger on III, IV. PLS, apical article triangular; length of apical:medial: basal, 0.75:0.80:1.12. PMS length 0.62. Spermathecae as in figure 73A. Color as in male.

REMARKS: The male from Solari has the ventral curved spine in the tibia I slightly shorter and thicker than in figure 73F, but otherwise similar.

NATURAL HISTORY: Similar to *S. tenuistylum*.

DISTRIBUTION: Argentina, eastern Entre Ríos and Corrientes. Specimens from southern Brazil (in MCN-RS and PUC) have also been examined (Goloboff et al., in prep.).

OTHER MATERIAL EXAMINED (Brazilian specimens not included): **ARGENTINA:** **Entre Ríos:** Parque Nacional El Palmar, 2 Dec. 1941 (M. Birabén, MACN), 1♀, 1♂, 1 juv., 3 May. 1980 (P. Goloboff, MACN), 2♀, 12–16 Feb. 1981 (P. Goloboff, MACN), 14♀,

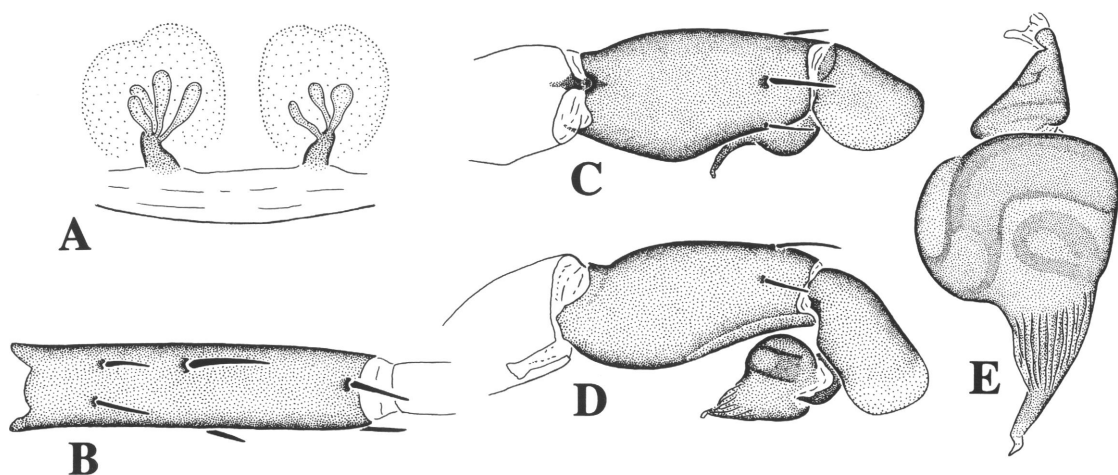


Fig. 74. *Stenoterommata crassistylum*. A. Female. B–E. Male. A. Spermathecae, dorsal. B. Right metatarsus I, ventral. C, D. Right palp (dorsal and retrolateral views). E. Left bulb.

7 juv., 18 Apr. 1981 (P. Goloboff, MACN), 4♀, 1 juv., 14 Oct. 1984 (M. Ramírez, MACN), 2♀, 2♂ juv., 27 Mar. 1986 (M. Ramírez, MACN), 1♀, May 1986 (P. Goloboff, MACN), 1♀, 2♂, Oct. 1992 (C. Grismado, MACN), 1♀. **Corrientes:** Solari, Dec. 1942 (M. Birabén, MACN) 1♂.

Stenoterommata crassistylum,
new species
Figure 74A–E

Stenoterommata sp.: Goloboff, 1987: 47.–Pérez-Miles et al., 1993: 3 (ecol.).

TYPES: Male holotype and female paratype from 20 km S Victoria, Ruta Provincial 11, Entre Ríos, Argentina (29 Aug. 1981; P. Goloboff, A. Zanetic), deposited in MACN.

ETYMOLOGY: The specific name refers to the wide embolus (*stylus*) of the males, which distinguishes this species from the sympatric *S. tenuistylum*. Galiano (1970) has described two species of a salticid genus (*Yepoella*), with specific names *crassi*– and *tenuistylum*, for two closely related sympatric species distinguished by embolus morphology.

DIAGNOSIS: Females can be distinguished from those of other *Stenoterommata* having multireceptaculate spermathecae by the presence of ITC on the anterior legs. Males have the palpal tibia with a basal notch at each side of the base (fig. 74C, D), and retrolaterally swollen. The species is sympatric

with *S. tenuistylum* (in some localities both species coexist together), from which it is distinguished also by lacking the numerous short spines on the male metatarsus I, characteristic of that species.

MALE (holotype): Total length 8.25. Cephalothorax length 3.32, width 2.50. Cephalic region length 2.15, width 1.37. OQ length 0.31, width 0.60. Labium length 0.25, width 0.57. Sternum length 1.79, width 1.43. Labium with no cuspules, maxillae with 35/34. Sternal sigilla small, shallow, oval, marginal; sternum narrowly rebordered. Chelicerae: rastellum very weak, only long, attenuate setae; inner margin with 7 teeth (TTtttd); furrow with 15 denticles (in row bifurcated posteriorly, forming Y). Cheliceral tumescence present, small, rather flat, with few hairs on inferior half. Chaetotaxy: Femora: I, II, 1 p sup a, 1-1-1 d (1:2b); III, 1-1 P SUP (1:3A), 1-1-1 d, 1-1 R SUP (1:3A); IV, 1-1-1 D (1:2B), 1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 1/2 P, 1 P INF A, 1 R INF A (megaspine), 2 V P; II, 1-1 P, 2 P INF A, 0-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R, 0-1-3/1-2-3 V; IV, 1-1 P, 1-1 R SUP (large), 1-2-2/1-2-3 V; palp, 1-1 P INF (1:3A), 1 P SUP A, 2 R SUP A. Metatarsi: I, 0-1-1 P, 0/1 V B, 0-1-1 V POST; II, 0-1-1 P SUP, ; III, 2-2-2/2-1-2-2 P SUP, 1-2-1 R SUP, 2-2-3 V; IV, 2-2-2/1-2-2-2 P SUP, 0/1 D B, 1-2-1 R SUP, 1-1-1/1-1-1 V ANT, 1-1-2 V POST.

Tarsi: I–IV, palp, 0. Scopula: present, light, on tarsi I, II, only scopuliform lateral hairs present on apical third of III, IV; metatarsi I, II, with scopula on 1:2A. Scopula I undivided, II with ventral setae thicker but not forming row. Metatarsal preening combs: absent from I; some apical ventral thicker setae (not form a definite comb) on II; III, anterior comb of 4, posterior of 5; IV, no anterior comb, posterior of 4. STC, teeth: I, 7666; II, 7677; III, 8779; IV, 9778. ITC present on I–IV. Flexible tarsi: III, IV with medial ring less sclerotized; I, II integral. PLS, apical article triangular; length of apical:medial:basal, 0.47:0.45:0.61. Spigots: normal for genus. PMS length 0.45. Palp: tibia with basal notch, with bump on basal retroventral face (figs. 74C, D); bulb with embolus tip less sclerotized, low keels on embolus base (fig. 74E). Leg I, tibia with no apophysis, with retroventral megaspine; metatarsus (fig. 74B) cylindrical, with few spines. Cephalothorax reddish brown with golden hairs, abdomen yellowish brown with dark mottles forming chevron as in *S. tenuistylum*.

FEMALE (paratype): Total length 10.50. Cephalothorax length 3.42, width 2.52. Cephalic region length 2.25, width 1.80. Fovea width 0.40. OQ length 0.36, width 0.67. Labium length 0.32, width 0.67. Sternum length 1.90, width 1.62. Cephalic region convex; fovea slightly procurved. Labium with no cusps, maxillae with 42/39. Sternal sigilla small, oval, marginal, shallow; sternum weakly rebordered. Chelicerae: rastellum weak, formed by thick, long, attenuate setae; inner margin with 7 teeth (2 basal ones larger); furrow with about 20 denticles forming band about 2 denticles wide. Chaetotaxy: Femora: I, II, 0; III, 1-1 r sup (1:3a); IV, 0; palp, 1 p sup a. Patellae: I, II, 0; III, 1-1-1 P; IV, 0; palp, 0. Tibiae: I, 0; II, 1-1 V POST; III, 1-1 P, 1 D (1:3A); IV, 1-1 R SUP, 1-1-1 V ANT, 0-1-1 V POST; palp, 0-1-2 P INF, 0-1-1 R INF. Metatarsi: I, 1-1-0-1 V POST; II, 1-1-2/1-1-3 V; III, 2-2-2/1-2-2 P SUP, 1-1-1 R SUP, 2-2-3 V; IV, 2-2-2 P SUP, 1-2-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Scopula: light on tarsi I, very light on II, absent on III, IV; metatarsi I, about 2:3A scopulate, II, about 1:3A scopulate. Scopula I divided by narrow band of setae, II divided by wide band (occupying about

one third of tarsus width). Flexible tarsi: only tarsus IV with medial crack; all other tarsi rigid. Metatarsal preening combs: absent on I; II, with anteroventral comb of 2/3; III, anterior comb of 3/4, posterior of 4; IV, anterior comb of 3, posterior of 4. STC, teeth: I, 5555; II, 5666; III, 6776; IV, 6786. Palpal claw with 5/6 teeth on promargin. ITC present, large, on I–IV. PLS, apical article triangular, length of apical:medial:basal, 0.41:0.46:0.66. PMS length 0.39. Spermathecae as in figure 74A. Color as in male.

NATURAL HISTORY: Similar to *S. tenuistylum*.

DISTRIBUTION: Uruguay and Argentina (Entre Ríos and northern Buenos Aires Province). In Buenos Aires, specimens have been collected only north of San Pedro (south of San Pedro, only *S. tenuistylum* seems to occur). In eastern Entre Ríos, it is sympatric with *S. tenuistylum*.

OTHER MATERIAL EXAMINED: ARGENTINA: **Buenos Aires:** Puerto Obligado, 19 Mar. 1983 (P. Goloboff, A. Zanetic, MACN), 2♀, 2♂, 3 juvs.; Estancia "El Centinela," 1.5 km N Puerto Obligado, Feb. 1986 (P. Goloboff, N. Platnick, C. Scioscia, MACN), 1♀; Ramallo, 2 Apr. 1983 (P. Goloboff, E. Maury, MACN), 6♀, 1♂, 8 juvs. **Entre Ríos:** Toma Vieja, Paraná, 10 Feb. 1980 (P. Goloboff, MACN), 1♀, 2♂ juv.; 2 km N Toma Vieja, Paraná, 16 Jan. 1988 (P. Goloboff, C. Szumik, MACN), 1 juv.; Villa Urquiza, 17 Jan. 1988 (P. Goloboff, C. Szumik, (MACN), 5♀, 8 juvs., Apr. 1992 (P. Goloboff, C. Szumik, MACN), 1♀; Arroyo Manantiales, Ruta Provincial 11 (km 103), 23 Oct. 1982 (P. Goloboff, M. Ramírez, MACN), 3♀, 4♂, 3 juv.; 20 km SW Victoria, Ruta Provincial 11, 29–30 Aug. 1981 (P. Goloboff, A. Zanetic, MACN), 2♀, 2♂, 27–28 Feb. 1982 (P. Goloboff, A. Roig, S. Roig, MACN), 1♀. **REPUBLICA ORIENTAL DEL URUGUAY:** **Maldonado:** Punta Ballena, 29 Aug. 1980 (P. Goloboff, MACN), 1♀; Sierra de las Animas, May 1989 (F. Pérez-Miles, MHNM), 2♂, 1♀.

ACANTHOGONATUS KARSCH

Table 5

Acanthogonatus Karsch, 1880: 391.–Raven, 1985a: 83.

Trysothele Simon, 1902: 6. First synonymized by Raven, 1985a: 83.

Chubutia Mello-Leitão, 1940a: 3. First synonymized by Schiapelli and Gerschman, 1965: 15.

TYPE SPECIES: *A. franki* Karsch (female holotype in ZMB, examined) is the type species (by original designation) of *Acanthogonatus*. *Mygale subcalpeiana* Nicolet (holotype, female or juvenile, in MNHN, examined) is the type species of *Trysothele* Simon. *Chubutia notata* Mello-Leitão (male holotype, in MLP, examined) is the type species of *Chubutia*.

DIAGNOSIS: Males of most species can be recognized by the two short apical proventral spines on the first tibia, and by the two (rarely three) very long, attenuate sinuous setae on the dorsal palpal tibia (table 5). Unlike other Neotropical nemesiids, female *Acanthogonatus* usually have a well-developed serrula (but a serrula is absent or very poorly developed in species of the *patagonicus* group).

DESCRIPTION: Cephalothorax long; head narrow, flat (*mulchen* group, *A. campanae*, *A. pissii*), or head of medium width, convex (other species); chelicerae robust, with weak rastellum (formed by short but attenuate thick setae) or with rastellum absent. Cheliceral tumescence present, in many species basally produced in inferior part, forming low bump. Eyes on steep tubercle; clypeus narrow. Fovea procurved, straight or recurved, narrow. Labium wide, with few cusps; maxillae elongated, with serrula present in both sexes or absent, bearing medium number of cusps (10 to 30, in most species), rarely over 30 (*A. tacuariensis*, *A. segne*, *A. fuegianus*, *A. mulchen*) or 50 (*A. alegre*, *A. incurus*); posterior maxillary heel not produced. Sternum flat, longer than wide, with posterior sigilla small, oval, submarginal; in *mulchen* group and *A. confusus*, sigilla slightly deeper, with depression slightly more marked than in other species at connection with sternal margin. PLS with apical segment digitiform (most species) or short, triangular (*patagonicus* group); numerous spigots on basal article; with pumpkiniform spigots (larger than rest of spigots, or of same size) along inner edge of spinning field of all three PLS articles, elsewhere covered with articulate spigots. PMS present (absent in a single specimen, possibly normal, of *A. centralis*), with numerous spigots. Abdomen with variable de-

sign, dorsally with either chevron (*patagonicus* group), or dark with lighter yellowish diagonal lines (*A. pissii*), uniformly dark (*A. mulchen*, *A. tolhuaca*), or mottled (other species); cephalothorax yellowish-brown with golden pubescence or reddish (*A. pissii*, *A. tacuariensis*), in some species patterned (*A. notatus*, *A. chilechico*, and especially *A. subcalpeianus*); legs uniform in color or ringed (*A. subcalpeianus*). Male leg I: tibia with no spur (*A. confusus*, *franki* group, *A. fuegianus*), or (most species) with pair of short, flattened, almost keellike spines on low apical prolateral spur (figs. 77, 78; this condition is referred to as "typical for genus" in descriptions below); in *nahuelbuta* species group, pair of spines covered by numerous setae forming black shield partially occluding spines (figs. 75, 76); tibia with (some species of *patagonicus* group) or without dorsal spines (most species); patella with no retrolateral spines (most species) or with retrolateral spine (*A. fuegianus*, *A. notatus*, *A. patagonicus*). Patella III with 1-1-1 or 1-1 P (species in *mulchen* group have from 1-1 to no P spines at all on patella III; single known specimen of *A. chilechico* also has only 1 P on patella III but it is not known whether that condition is normal); female patella IV with no P or with 1-1-1 P (*franki* group; some specimens of *A. centralis* may have some spines on patella IV but usually less than 1-1-1). Posterior male tibiae with few dorsal spines. Metatarsus IV with full complement of P and P SUP spines (i.e., 1-1-1 each) or with basal P and P SUP reduced (*A. subcalpeianus*, *A. fuegianus*). Female metatarsi I, II with no preening combs, metatarsi III, IV with combs, pseudocombs, or no combs at all. Tarsi (and metatarsi) I, II with symmetric, usually dense scopulae; tarsi III, IV with well-developed (from almost entire to widely divided) scopula, or with no scopula; all tibiae ascopulate. Male tarsi flexible (most species) or rigid (*nahuelbuta* group); female tarsi I-IV flexible or entire, rigid. Male and female tarsi aspinose. STC with two rows of over 5 teeth on all legs (most species) or with teeth less numerous on female STC IV (i.e., 1-3 teeth per row, in *A. subcalpeianus*); claw tufts present (*A. incurus*) or absent (all other species). Tarsal trichobothria in single, zigzag row. Spermathecae very variable, with basal dome bearing

TABLE 5

List of Synapomorphies for *Acanthogonatus*
(produced as table 3).

Node	In all trees	In some trees
<i>Acanthogonatus</i> Node 111	fovea: medium → narrow ♂ tibial spur: diplura → acanthogonatus dorsal setae ♂ plp tib: abs → pres	—
<i>A. subcalpeianus</i>	leg color: uniform → patterned teeth ♀ STC IV: numer → few ♂ plp tibia: long → very long	—
<i>Acanthogonatus</i> except <i>A. subcalp.</i> Node 110	rastellum: weak → abs spines patella III: 1-1-1P → 1-1P habits: open burrow → tube	—
<i>A. incursus</i>	claw tufts: abs → pres	maxillary cuspules: medium → many
<i>A. alegre</i>	—	(no autapomorphies) maxillary cuspules: medium → many
<i>A. campanae</i>	preening-combs: abs → pres	—
<i>A. quilocura</i> <i>huaquen</i> <i>centralis</i> <i>parana</i> <i>tacuariensis</i>	(no autapomorphies)	—
<i>A. pissii</i>	inner row of pumpk.: narrow → abs	♂ plp tibia: long → short
<i>A. juncal</i>	spines patella III: 1-1-1P → 1-1P	—
<i>franki</i> GROUP Node 88	♀ patella IV: 0/1P → 1-1-1P	♂ tibial spur: acanthogonatus → abs ♂ bulb shape: piriform → coniform
<i>A. franki</i>	scopula IV: dense → abs/very light	dorsal spines ♂ plp tib: abs → pres dorsal spines ♂ tibia I: abs → pres spines ♂ patellae I-II: 1-1-1P → 0/1P
<i>A. peniasco</i>	PLS apical article: digitif. → triang.	—
<i>A. recinto</i>	—	(no autapomorphies) ♂ embolus: long → short
<i>patagonicus</i> GROUP Node 97	serrula: pres ♂♀ → ♂ only PLS apical article: digitif. → triang. joint ♂ plp patella/tibia: normal → wide ♂ bulb duct: evenly curved → sinuous	♂ plp tibia: long → short
<i>A. fuegianus</i>	serrula: ♂ only → pres ♂♀ ♂ tibial spur: acanthogonatus → abs ♂ embolus: long → very long ♀ spermathecae: patagonicus → cactus-like	—
<i>A. patagonicus</i>	(no autapomorphies)	—
<i>A. notatus</i>	—	(no autapomorphies) scopula IV: dense → light ♂ plp tibia: long → short
<i>A. birabeni</i>	—	scopula IV: dense → light spines ♂ patellae I-II: 1-1-1P → 0/1P
<i>A. chilechico</i>	spines patella III: 1-1-1P → 1-1P	—
Node 96	spines ♂ patella I: 0R → 1R	—
<i>nahuelbuta</i> GROUP Node 106	♀ spermathecae: normal → thick/fingerlike	—
<i>A. nahuelbuta</i>	spines patella III: 1-1P → 1-1-1P	—
<i>A. hualpen</i> <i>patagallina</i>	(no autapomorphies)	—

TABLE 5—(Continued)

<i>A. vilches</i>	preening-combs: abs → pres	—
Node 104	sternum: normal → wide spines ♂ patellae I-II: 0/1P → 1-1-1P ♂ embolus: long → short	—
Node 105	♀ spermathecae thickened further: no → yes	—
<i>mulchen</i> GROUP		
Node 108	♀ spermathecae: separate → fused	—
<i>A. mulchen</i>	sternum: normal → long	—
<i>A. tolhuaca brunneus</i>	(no autapomorphies)	—
<i>A. confusus</i>	—	(no autapomorphies) ♂ tibial spur: <i>acanthogonatus</i> → abs ♂ plp tibia: long → very long
Node 90	preening-combs: abs → pseudo-combs	—
Node 93	third claw: abs I-III → abs rastellum: abs → pres	—
Node 94	spines patella III: 1-1P → 1-1-1P	—
Node 98	habits: tube → open burrow	spines ♂ patellae I-II: 0/1P → 1-1-1P
Node 99	rastellum: abs → weak spines patella III: 1-1P → 1-1-1P	—
Node 100	third claw: abs I-III → abs ♀ spermathecae: cactus-like → patagonicus	—
Node 101	♂ bulb keels: abs → lateral	—
Node 102	third claw: pres I-IV → abs I-III	—
Node 103	pubescence: abs → light	—
Node 109	♀ tarsi: rigid → flexuous scopula IV: abs/very light → light, or dense	—

one (rarely more) receptacula, or roughly equally divided, cactuslike, or (*mulchen* group) widened laterally and medially fused, or two fingerlike cavities with thick sclerotized walls and wide opening covered by single caplike membranous extension (*nahuelbuta* group). Male bulb smooth or with one to three lateral keels along embolus base; highly modified in *nahuelbuta* group; palpal tibia with two dorsal erect, long, sinuous setae, stronger and more developed than in other genera.

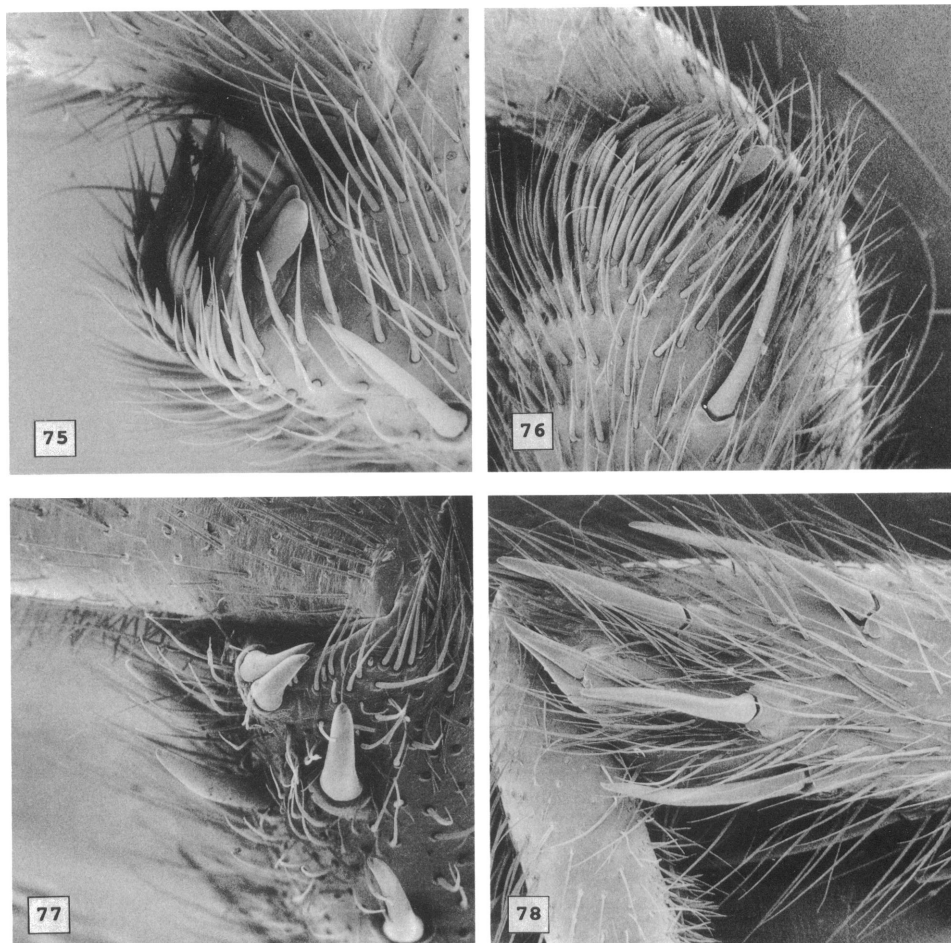
BIOLOGY: Some species of *Acanthogonatus* live in long, dense, almost weblike silk tubes, under rocks or logs; others live in open burrows, in open spaces. No known species in the genus constructs a trap-door; they close their burrows, at most, with an accumulation of silk and debris.

REMARKS: Raven (1985a) described the male tibia I of *Acanthogonatus* as having a "low distal spur bearing megaspine or with dense black shield of spines." In no species

of *Acanthogonatus* is there a single spine on the apophysis; all the spurred species have two short adjacent spines (figs. 75–78). Further, that condition is not mutually exclusive with the presence of a "dense black shield of spines," as species having those spines also have the two spines on a low spur.

A character that eventually might provide more information on the relationships of this genus is the book-lung opening morphology. The differences observed in this character are difficult to describe and classify in discrete states, but many species in *Acanthogonatus*, if not most, have openings which are wider than those in other genera, with a wider and more conspicuous sclerotization on the posterior margin. In *A. vilches* the openings are wide and oval, which is most parsimoniously interpreted as an autapomorphy of that species.

RELATIONSHIPS: Raven (1985a) proposed that *Acanthogonatus* is the sister group of *Stanwellia* (from Australia), and those two



Figs. 75–78. Apex of right tibia I of male *Acanthogonatus* spp. 75, 76. *A. nahuelbuta*. 77, 78. *A. centralis*.

genera together form a trichotomy with *Hermacha* and *Lepthercus* + *Anamini*. The present analysis suggests that indeed *Acanthogonatus*, *Stanwellia*, and *Hermacha* are closely related, sharing (with other genera as well) a row or band of pumpkiniform spigots along the inner edge of the PLS; that character is absent in *Anamini* (no specimens of *Lepthercus* have been examined in the present study). Those three genera (plesiomorphically) share a digitiform apical segment of the PLS (secondarily changed to triangular in some *Acanthogonatus* and in *Stenoterommata* plus *Rachias* and *Pycnothele*).

As for relationships within the genus, no cladogram has previously been proposed for

the species of *Acanthogonatus*. The data matrix includes all known species of the genus. *Stenoterommata gounellei* Simon, 1886 was transferred by Raven, 1985a to *Acanthogonatus*, but the type in MNHN, examined, is a juvenile male and the species cannot therefore be identified with certainty at the present time; it possibly belongs in *Stenoterommata*.

The results of the present analysis confidently allow the recognition of four species groups as monophyletic (see table 5 for a complete list of synapomorphies). The first is the *franki* group, with *A. franki*, *A. recinto*, and *A. peniasco*, which share the presence of 1-1-1 P spines on the female patella (a character not occurring in any other *Acanthogon-*

atus except some specimens of *A. centralis*). The bulb in the two known males of the *franki* group is also more coniform than in most other species of the genus, although the shape of the bulb in *A. huaquen* (which was scored as piriform) approaches the condition in the *franki* group (which would not constitute evidence against the present cladograms, as *A. huaquen* is placed—together with *A. juncal*—as the sister group of the *franki* group, on the tenuous grounds of sharing more or less developed pseudo preening combs). The absence of a male tibial apophysis (absent in the two known males of the *franki* group) might also constitute a synapomorphy of the *franki* group, but the character cannot be optimized unambiguously in all possible resolutions because the males of *A. juncal* (sister of the *franki* group, together with *A. huaquen*) and *A. peniasco* are unknown.

The second group is the *patagonicus* group, including five species (node 97 in fig. 63) which share a triangular apical article of the PLS, a reduced serrula, and a modified patello/tibial joint in the male palp. *A. notatus*, *A. patagonicus*, and *A. fuegianus* share the presence of 1 R spine on male patella I; the last two species share the presence of dorsal spines on the male anterior tibia (two conditions found also in some Diplotheopsini, but known in no other *Acanthogonatus*), but as this character is in conflict with both the presence of dorsal apical spines on the male palpal tibia and the spination of female metatarsus IV (see table 2), there are alternative resolutions of the *patagonicus* group which, in the consensus tree, produce a trichotomy for those three species. The third group is the *nahuelbuta* group, characterized by extremely modified male bulbs and female spermathecae; the genitalia of *A. nahuelbuta*, *A. hualpen*, and *A. patagallina* are more modified than in *A. vilches*, and that species is therefore considered the sister group of the other three (given that males of *A. vilches* are unknown, the highly modified bulb and copulatory spurs in the other three species could be a synapomorphy of clade 105, or of the *nahuelbuta* group, and therefore those two male characters do not appear on table 5, which includes only unambiguous synapomorphies). The fourth group is the *mulchen* group, characterized by the very wide female

spermathecae, fused in the middle (males of the group are unknown).

The other groups of *Acanthogonatus* occurring in the strict consensus tree are too weakly supported to create species groups for them. *A. subcalpeianus* is the sister group of all other species in the genus, based on a reduction of the spines on female patella III from 1-1-1P to 1-1P, the rastellum changing from weak to absent, and the habits changing from living in burrows to living in loose silk tubes. None of those characters is conclusive enough to justify the creation of a group for all *Acanthogonatus* except *A. subcalpeianus* (either because of rampant homoplasy or because of intergrades necessarily overlooked in the cladistic analysis).

A. subcalpeianus and species in the *nahuelbuta* group have integral female tarsi, while known females in other species of the genus (i.e., clade 109 in fig. 63) have flexible tarsi. Most species except *A. subcalpeianus* and those in the *nahuelbuta* group also have a denser pubescence; in species of the *mulchen* group the pubescence is somewhat intermediate and species in that group were scored in the matrix as having no pubescence. Placing *A. campanae* or the *mulchen* group as sister of clade 102 accounts better or worse (respectively) for this character, and worse or better (respectively) for the density of scopula IV. If the *mulchen* group was scored as having a light pubescence, the character would become an unambiguous synapomorphy for clade 109 (i.e., all *Acanthogonatus* except *A. subcalpeianus* and the *nahuelbuta* group), the number of trees would change from 72 to 36, and the *mulchen* group would cluster with node 102 by virtue of having a denser scopula IV (a character, recall, having no less than 16 extra steps!).

Acanthogonatus incurtus is grouped with *A. centralis* and *A. parana* (node 94) by having the patella III with 1-1-1 P instead of 1-1 P (a reversal of a change occurring just a few nodes above, with a parallelism just a few nodes away!). Moving the group as sister of the taxa with those parallelisms would explain the character better, but not explain as well the male bulb keels and the female spermathecae (which in those other taxa are a dome bearing a receptaculum, instead of the branched spermathecae of the species outside

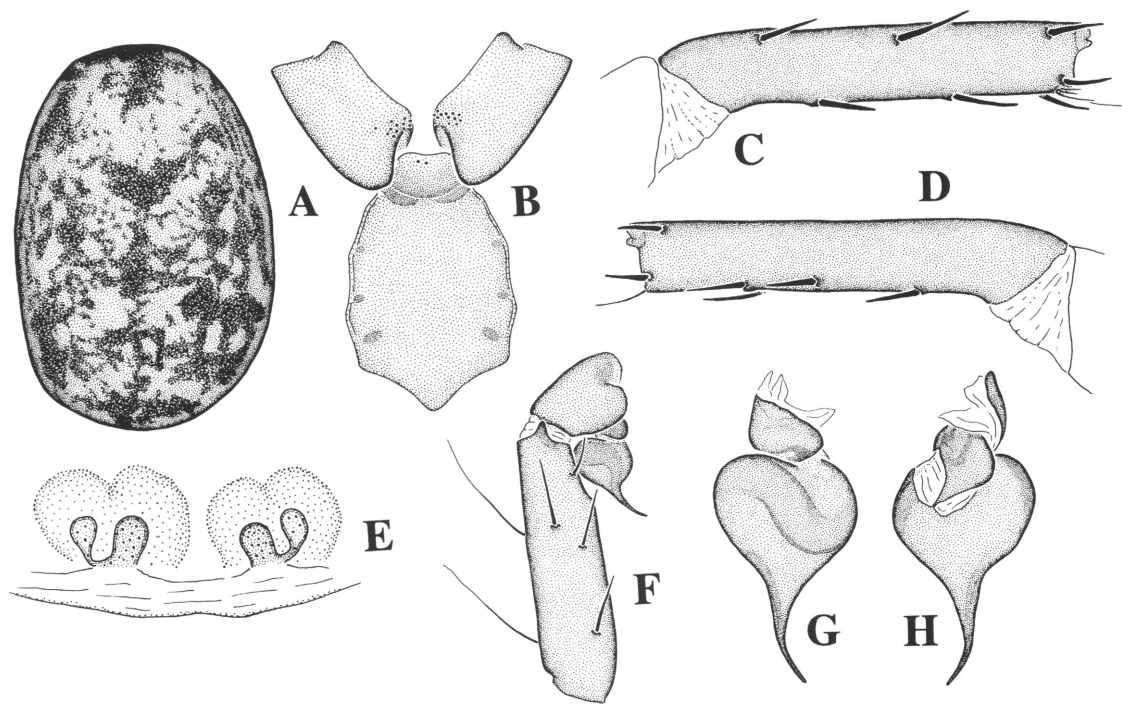


Fig. 79. *Acanthogonatus subcalpeianus*. A–D. Female. F–H. Male. A. Dorsal abdomen. B. Sternum and maxillae. C, D. Right metatarsus IV (retrolateral and prolateral views). E. Spermathecae, dorsal. F. Left palp, prolateral. G, H. Right bulb.

clade 100). That alternative tree would require one more step, and there is more homoplasy in the characters for which steps could be saved, so that the solution in figure 63 is clearly preferable. *Acanthogonatus centralis* and *A. parana* share the complete absence of a third claw from all legs and a slightly more developed rastellum (both characters with parallelisms just a few nodes away, defining clades 99 and 100!).

The presence of spermathecae formed by a basal dome and the duct arising from that base is a synapomorphy (together with the homoplastic absence of ITC from tarsi IV) for *A. pissii* and a clade (node 99 in figure 63) containing the *patagonicus* and *franki* groups, plus *A. tacuariensis*, *A. huaquen*, *A. juncal*, and *A. quilocura*; all of those species except *A. pissii* share the presence of 1-1-1P instead of 1-1P spines on female patella III (reverted to 1-1P in *A. juncal*) and a weak rastellum; all of those species except *A. tacuariensis* share the presence of stronger spines on the male anterior patella. All those characters also show

significant amounts of homoplasy, and although the present results suggest that those groups are monophyletic, they do so only on very tenuous grounds. The spermathecae of *A. segne* are quite similar to those of most other species in this group, but those of *A. recinto* and *A. peniasco* are each modified in unique ways (in *A. peniasco* vaguely approaching the condition found in the *nahuelbuta* group).

Acanthogonatus subcalpeianus
(Nicolet)

Figure 79A–H

Mygale subcalpeiana Nicolet, 1849: 334 (female or juvenile, holotype with no abdomen, from Valdivia, Chile, 4105 MNHN, examined).

Stenoterommata guttulatum Simon, 1886: 573 (female holotype from Valdivia, Chile, should be in MNHN, not found). NEW SYNONYMY.

DIAGNOSIS: This species can be easily recognized by its coloration, with a patterned cephalothorax and legs with darker annula-

tions. Males can also be identified by having very long palpi, a keelless embolus, and a low spur on tibia I; females are the only *Acanthogonatus* with ITC present on all legs in which the spermathecae are branched (*A. campanae* has a single undivided receptaculum; species in the *mulchen* group have fused spermathecae; species in the *nahuelbuta* group have undivided incrassate spermathecae).

MALE (36 km W La Unión): Total length 13.12. Cephalothorax length 4.70, width 3.65. Cephalic region length 3.03, width 2.38. OQ length 0.46, width 1.02. Labium length 0.88, width 0.42. Sternum length 2.60, width 1.97. Fovea width 0.67. Labium with no cuspules, maxillae with 9–12 long setae with thick bases (almost cusps). Serrula present. Sternal sigilla small, oval, marginal; sternum very thinly rebordered. Chelicerae: rastellum weak, with attenuate setae; 8 teeth on inner margin (3 apical smaller, more closely spaced); furrow with 2 longitudinal rows, 4 small teeth in inner row, 8 outside. Cheliceral tumescence present, with irregular limits, ventrally protruding. Trichobothria: Tibiae, I, 7(4:5b), 6(3:4b); II, 6(3:4b), 6(3:4b); III, 6(2:3b), 6(2:3b); IV, 7(3:4b), 6(3:4b); palp, 7(1:1), 6(5:6b). Metatarsi, I, 9(3:4a); II, 10(3:4a); III, 9(3:4a); IV, 13(4:5a). Tarsi, I, II, 13; III, 12; IV, 11. Legs very long. Chaetotaxy: Femora: I, II, 1 P SUP A, 1-1/1-1-1 d (weak, recumbent); III, 0/1 P SUP, 1-1 d (1:2b) 7(1:3M)(recumbent), 1-1 R SUP (1:2A); IV, 0/1 R SUP A, 1-1 d (1:2b) (recumbent); palp, recumbent dorsal setae (1:3a). Patellae: I, II, 0; III, 1-1-1 P; IV, 0; palp, 0. Tibiae: I, 1-1 P, 2 P INF A (laminar), no D, 2-3 V, 1 V POST A, 0/1 R (1:3A); II, 1-1 P, 2-1-3/2-2-3 V; III, 1-1 P SUP, 1 D (1:3A), 1-1 R SUP, 2-1-3/2-2-3 V; IV, 1-1 R SUP, 3-3-2/3-2-1-2; palp, 1-2-1 P. Metatarsi: I, 0/1 P, 0/1 V ANT (1:3B), 1 V ANT A, 1-1-1 V POST; II, 1 P SUP, 2-2-2/2-2-3 V; III, 1-2-2/1-2-1 P SUP, 1-1-1-1 R SUP, 2-2-3/2-1-3 V; IV, 10 P, 1-1-1 R, 2-2-2 V. Tarsi: I–IV, palp, 0. Tarsi I, II with very light scopulae; tarsi III, IV ascopulate; metatarsi I, II with scopula on 1:2A. Scopulae entire on I, II. Metatarsal preening combs absent from all legs. STC, teeth: I, 8757; II, 6656; III, 7657; IV, 66 4/6 4/6. ITC present on I–IV (smaller on anterior legs). Flexible tarsi: I integral, II slightly pallid ventrally but

integral, III, IV flexible. PLS, apical article digitiform; length of apical:medial:basal, 0.85:0.67:1.16. Spigots: numerous on three articles, all of more or less similar size. PMS length 1.04; spigots on 1:2A. Palp (fig. 79F) very long, tibia long, narrow; bulb smooth, with no keels, as in figure 79G, H. Leg I, tibial spur typical for genus; metatarsus straight. Color similar to female, but leg maculations less marked.

FEMALE (36 km W La Unión): Total length 17.43. Cephalothorax length 6.97, width 4.78. Cephalic region length 4.33, width 3.87. Fovea width 1.10. OQ length 0.59, width 1.35. Labium length 0.66, width 0.99. Sternum (fig. 79B) length 3.37, width 2.51. Cephalic region strongly convex, caput wide; fovea straight with recurved ends. Labium with 1 cuspule, maxillae with 14, confined to inner corner. Serrula present, well developed. Sternal sigilla oval, separated from margin by almost their diameter; sternum weakly rebordered anteriorly. Chelicerae: rastellum formed by strong curved, attenuate setae; inner margin with 7/8 teeth; furrow with 13 small denticles. Trichobothria: Tibiae, I, 8(2:3b), 8(2:3b); II, 8(2:3b), 7(1:2b); III, 8(1:2b), 7(1:2b); IV, 9(1:2b), 8(1:2b); palp, 8(1:1), 8(1:1). Metatarsi, I, 13(3:4a); II, 13(4:5a); III, 13(3:4a); IV, 14(3:4a). Tarsi, I, 14; II, 16; III, IV, 16; palp, 8(2:4m). Chaetotaxy: Femora: I–IV, and palp, 0; palp, I, II, with dorsal long curved setae. Patellae: I, 0; II, 0; III, 1-1-1 P; IV, 0; palp, 1 P INF. Tibiae: I, 0/1 P SUP (1:3A), 2 V ANT A, 1-1-1 V POST; II, 1 P SUP, 1-1 V POST (strong, long), 2 v a; III, 1-1-0 P, 1 D, 1-1 V POST (weak, long); IV, 1 R SUP (1:3A), 1-1-2 v; palp, 1-2-2/2-2-2 P INF, 2-1-2 R INF. Metatarsi: I, 2-1-0-2 V; II, 1 P SUP, 2-2-0-2 V; III, 2-1-1/2-2 P, 1 D POST B, 1-0-1 R SUP, 2-2-2/2-2-3 V; IV (figs. 79C, D), 0/1 P, 1 D ANT A, 1-1-1/1-2-1 R SUP, 2-1-2-2/2-2-1-2 V. Tarsi: I–IV, palp, 0. Scopulae: dense on tarsi I, II; occupying entire length but light on tarsi III; absent from tarsi IV; on full length of metatarsi I, II; absent from metatarsi III, IV. Scopula entire on I, II, with many setae (not forming line or band) interspersed on III. Tarsi I–IV integral. Metatarsal preening combs: absent. STC, teeth: I, 4224; II, 5224; III, 5214; IV, 2123. Palpal claw with 4 teeth on promargin. ITC present on I–IV (smaller on I and II). PLS, apical

article as in male; length of apical:medial: basal, 0.86:0.82:1.32; spigots (of uniform size and distribution) numerous on three articles, with pumkiniform along inner edge. PMS length 0.66; with numerous spigots on 2:3A. Spermathecae as in figure 79E. Cephalothorax reddish brownish, legs yellowish with dark spots on base of tibiae and metatarsi I–III (and palpal tibia), femur IV with apical spots; abdomen (fig. 79A) yellowish with black spots.

SYNONYMY: The type of Nicolet is a juvenile with no abdomen, collected in "Valdivia." The specimen is poorly preserved, but the ITC is present on all legs. The species here identified as *A. subcalpeianus* is the most common species around Valdivia; *A. franki* is almost as common but that species lacks ITC from all tarsi. Although the type is now completely decolorized, Nicolet's description mentions a glabrous cephalothorax and a patterned coloration.

The type of *Stenoterommata guttulatatum* Simon (1886) has not been located (the types of the other two species described in *Stenoterommata* in the same paper are in MNHN). The specimen had been collected in "Valdivia." Valdivia was in Simon's time an important port; it seems likely that expeditions would have collected near the port. In the vicinity of Valdivia (6 km E Niebla) there are still some patches of forest, where the only two species of Nemesiidae found were *A. franki* Karsch (= *Stenoterommata segne* Simon 1886) and *A. subcalpeianus*. The specific epithet chosen by Simon, "guttulata," is quite significant, in that this species has ringed legs and a conspicuously patterned cephalothorax and abdomen.

Simon's subsequent identifications of *A. subcalpeianus* correspond actually to females of *A. pissii* or *A. confusus* (both lacking, unlike the type of *A. subcalpeianus*, the ITC on the anterior legs), or juveniles and a male of *A. campanae* (found only farther north, in central Chile). Raven (1985a) "followed Gerschman and Schiapelli (1968) in assuming that Simon (1902) had sufficient parts of the Nicolet type to identify a conspecific male in his collection," but as Simon identified at least three different species as *A. subcalpeianus*, there is little basis for that assumption. Gerschman and Schiapelli's (1968) and Legendre and Calderón's (1984) descriptions of

female *A. subcalpeianus* correspond actually to female *A. confusus*. Gerschman and Schiapelli's (1968) description and figures, and Raven's (1985a) figures, of male *A. subcalpeianus*, correspond actually to *A. campanae*; Legendre and Calderón (1984: 1052) correctly stated that the male identified as *A. subcalpeianus* by Simon and Gerschman and Schiapelli did not belong to the species.

NATURAL HISTORY: *Acanthogonatus subcalpeianus* lives in forests, in small burrows lined with silk. The burrow entrance is open, slightly widened, and prolonged a few millimeters with silk and debris.

DISTRIBUTION: Provinces of Valdivia and Osorno, in Region X (Chile).

OTHER MATERIAL EXAMINED: CHILE: Region X (de los Lagos): Osorno: 36 km W La Unión, 600 m elev., 25–28 Mar. 1987 (L. Peña, AMNH), 6♀, 2♂, 2 juvs.; Las Lajas (Las Trancas), W La Unión, 19–20 Nov. 1990 (L. Peña, AMNH), 4♀, 6 juvs.; Maicolpué, 19 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, MACN, AMNH), 1♀, 3 juvs. **Valdivia:** 6 km E Niebla, 16 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, MACN, AMNH), 7♀, 3 juvs.

Acanthogonatus confusus, new species

Figures 62, 80A–G

Brachythele subcalpetana: Simon, 1888: 221 (misidentification).

Trysothele subcalpetana: Gerschman and Schiapelli, 1968: 29 (in part, male only).—Legendre and Calderón, 1984: 1051.

TYPES: Female holotype and male paratype from Hualpén, Concepción, Chile (19–22 Mar. 1975; T. Cekalovic), deposited in AMNH.

ETYMOLOGY: The specific epithet refers to the long-standing confusion between this species and *A. subcalpeianus*.

DIAGNOSIS: Males can be recognized by the long palpi in conjunction with absence of a tibial apophysis; females can be recognized by the spermathecae (similar spermathecae occur only in *A. fuegianus*, *A. centralis*, and *A. parana*, which have—unlike *A. confusus*—no ITC on tarsus IV).

MALE (Hualpén): Total length 23.60. Cephalothorax length 8.80, width 7.35. Cephalic region length 5.30, width 4.20. OQ

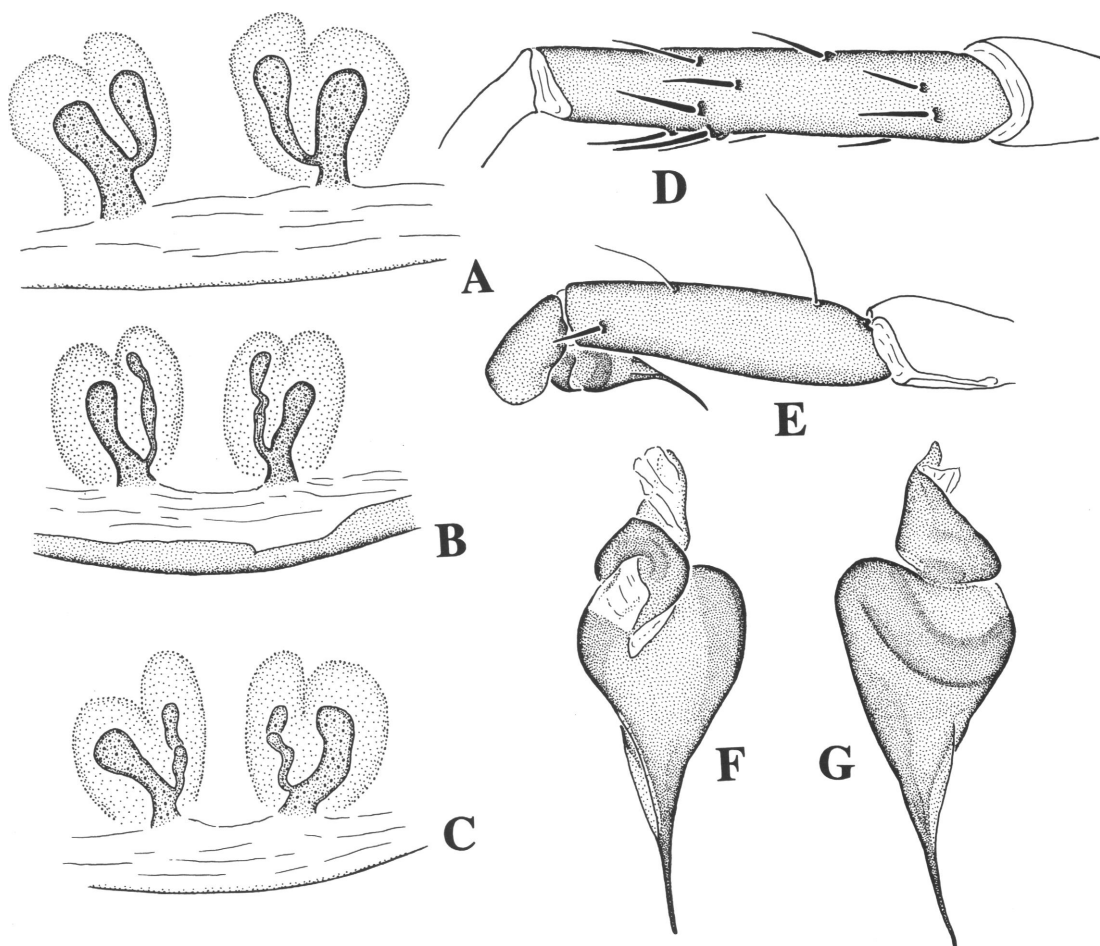


Fig. 80. *Acanthogonatus confusus*. A–C. Variation in female spermathecae. D–G. Male. A. Nonguén (dorsal). B. Hualpen (ventral). C. Pucará (dorsal). D. Right tibia I, proventral. E. Left palp, retrolateral. F, G. Right male bulb.

length 0.77, width 1.65. Labium length 0.75, width 1.25. Sternum length 4.55, width 3.57. Labium with 1 cuspule, maxillae with 23/23. Serrula present, well developed. Sternal sigilla shallow, small, posterior ones oval, submarginal (separated from margin by smallest diameter); sternum rebordered. Chelicerae: rastellum absent; inner margin with 10 teeth; furrow with 30 minute sharp teeth in triangular area. Cheliceral tumescence present, small, asetose, ventrally protruding. Chaetotaxy: Femora: I, 0/1 P SUP (1:3B), 1-1/1-1-1 P SUP (1:3A), 1-1-1 D (1:2B), 0-0-1-1/1-1-1-1 R SUP; II, 0/1 P SUP (1:3B), 1-1-1 P SUP (1:3A), 1-1 D (1:3B), 0-1-1-0/0-0-1 R SUP; III, 1-1-1-1-1/0-1-0-1-1 P SUP, 2-1/2-

1-1 D B, 0-1-1-1-2/1-1-1 R SUP; IV, 0-1-1-1-1/0-1-0-1-1 P SUP, 1-2-1-1-1 D, 1/1-1 R SUP A; palp, 1 P SUP A. Patellae: I, 1 P SUP A; II, 0-1-1/0-0-1 P SUP; III, 1-2/1-1 P, 1 R; IV, 0/1 R; palp, 0/1 p sup a. Tibiae: I, 1-1 P, 2-2 V ANT, 2-0-2-2 V POST (apical 2-2 very close together, almost grouped), 1/1-1 R; II, 1-1 P SUP, 2-0-1-2 V ANT, 1-1-1-1 V POST; III, 1-1/1-1-1 P SUP, 1 D A, 1 D B POST, 1-1-1 R SUP, 1-1-2 V ANT, 1-1-1-1/2-0-1-1 V POST; IV, 1-1 P, 1 D POST B, 1-1 R SUP, 1-1-1 V ANT, 2-0-1-1 V POST; palp, 1/2 P A, 1 R A. Metatarsi: I, 0; II, 0-1-1-1-0 P SUP, 1-1 V POST (1:3B); III, 1-1-1 P, 0-1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1 V ANT, 2-1-1 V POST; IV, 1-1-1 P,

0-1-1-0-1 P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III with scopula on about 1:3A, IV with few isolated scopuliform hairs on apex. Scopula I-III undivided, IV with clear band (about 3-4 setae width) occupying about 1:6 of article's width. Metatarsal preening combs: absent from I-IV. STC, teeth: I, 8898; II, 8988; III, 8987; IV, 9 10 10 9. ITC I, II, absent; III, tiny; IV, small. Tarsi I-IV flexible. PLS, apical article digitiform. Palpal tibia very long (fig. 80E); bulb (fig. 80F, G) with two lateral keels. Leg I, tibial apophysis absent (fig. 80D); metatarsus very gently curved (almost straight). Cephalothorax, legs, palpi, reddish brown; abdomen yellowish with brown chevron.

FEMALE (Hualpén): Total length 24.60. Cephalothorax length 10.35, width 8.45. Cephalic region length 6.35, width 6.00. Fovea width 0.90. OQ length 0.95, width 1.72. Labium length 1.12, width 1.62. Sternum length 5.80, width 4.40. Cephalic region low, flat; fovea sinuous, procurved with recurved ends, without posterior notch (that notch present in male and other specimens here assigned to species). Labium with 3 cuspules, maxillae with 31/29. Serrula present, well developed, occupying extended area on anterior lobe. Posterior sternal sigilla two times longer than wide, separated from margin by small diameter; sternum rebordered. Chelicerae: rastellum absent; inner margin with 10 teeth; furrow with 16 small denticles. Chaetotaxy: Femora: I, II, 1 P SUP A, 1 d b; III, 1 P SUP A, 1 d b, 1 R SUP A; IV, 1 d b, 1 r sup a; palp, 1 P SUP A. Patellae: I, II, 1 p sup a; III, 0-1-1 P; IV, 0; palp, 0/1 p sup b. Tibiae: I, 1-1 P, 1-0-0-1-2 v ant, 1-0-1-1-1 v post; II, 1-1 P SUP, 1-0-0-1-2 v ant, 1-0-0-1-1 v post; III, 1-1 P, 1 D A, 1-1 R SUP, 1-0-2 v ant, 1-1-1-1 v post; IV, 0-1 P, 1-1 R SUP, 1-0-2 v ant, 1-1-1 v post; palp, 1-0-1/1-1-1 P, 1-1-2 V ANT, 2-1-2/2-2-2 V POST, 1 R (1:3A). Metatarsi: I, 1 V POST (1:3B); II, 1 P SUP, 1 V ANT (1:3B), 1-1/1-1-1 V POST (1:2B); III, 1-1-1 P, 0-1-1-0-1-0-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-2-2 V POST; IV, 1-1-1 P, 0-1-1-0-1-1 P SUP, 1-2-1 R SUP, 1-1-1-1-1-1 V ANT, 1-1-0-1-0-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II

scopulate to base, III with scopula on 1:3A, IV ascopulate. Scopula I, II undivided, III with some thicker setae along midline not forming clear band; IV with clear band (about 4 setae wide) occupying 1:4 of article's width. Tarsi I-IV flexible. Metatarsal preening combs: absent from I and II; III with 2 somewhat irregular combs of about 4 setae each, IV with anterior comb inconspicuous, posterior comb (somewhat irregular) of 4 setae. STC, teeth: I, II, 5555; III, 5565; IV, 6666. Palpal claw with 6 teeth on promargin. ITC I, II, absent; III, IV, present, small (but slightly larger than in male). PLS, apical article digitiform; length of apical:medial:basal, 1.87:1.62:2.07; spigots as in figure 62, numerous on basal article. PMS length 1.25. Book-lung openings appear wider than in most other species of genus, with posterior rim more sclerotized. Spermathecae as in figure 80A-C. Color as in male.

REMARKS: there may be more than one species included here. The paucity of available specimens, particularly males, precludes describing the Argentinian specimens (smaller, with more convoluted spermathecal ducts) as a different species.

The specimens from Pinares (Concepción) have the outer spermathecal lobe shorter than in other specimens, probably because they are juveniles.

NATURAL HISTORY: Adults have been found under stones or logs, where they construct a silk tube and a shallow burrow. At Contulmo and Pata de Gallina juveniles of this species were collected in small open tubes in moss or loose soil.

DISTRIBUTION: Forests in southern Chile (Regions VIII-X) and adjacent Argentina (Neuquén).

OTHER MATERIAL EXAMINED: CHILE: no locality, no date (no collector, MNHN 9586), 1♀. **Region VIII (del Bío-Bío):** Concepción: Bosque de Ramuntcho, 14-16 Oct. 1961 (collector illegible, AMNH), 1♀, 8 juvs.; Pinares, 6 May 1979 (T. Cekalovic, MCZ), 2 juvs.; Tomeco, 12 Nov. 1989 (T. Cekalovic, AMNH), 1♀; Penco, 22 Dec. 1979 (T. Cekalovic, AMNH), 1♀; Hualpén, 19 Mar. 1975 (T. Cekalovic, AMNH), 1♀, 22 Mar. 1975 (T. Cekalovic, AMNH), 1♂, 17 Jul. 1976 (T. Cekalovic, MCZ), 1 juv.; Chiguayante, 23 Nov. 1975 (T. Cekalovic, AMNH), 1♀; Valle Non-

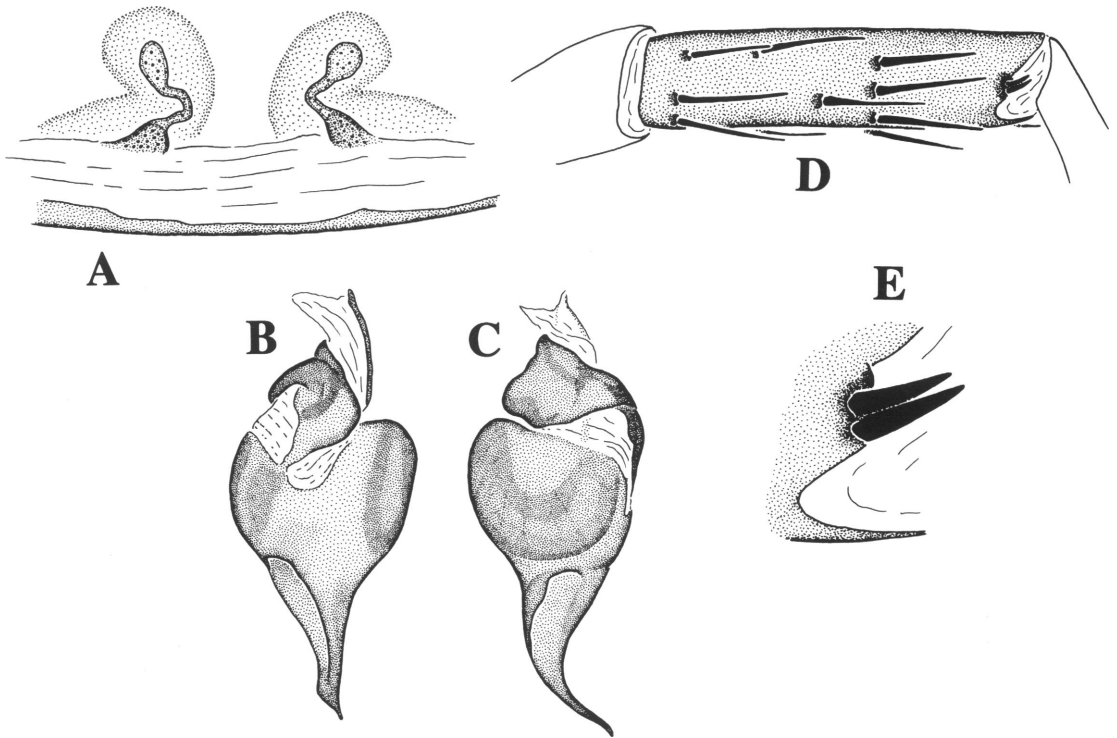


Fig. 81. *Acanthogonatus huaquen*. A. Female. B–E. Male. A. Spermathecae, ventral. B, C. Right bulb. D. Left tibia I, prolateral. E. Detail of tibial spur.

guén, 12 Apr. 1976 (T. Cekalovic, AMNH), 1 juv., 12 Dec. 1976 (T. Cekalovic, AMNH), 1♀; 6 km S San Pedro, 365 m elev., 22 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀. **Arauco:** Parque Nacional Contulmo, 11–12 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀, 3 juvs.; Pata de Gallina, S. of Contulmo, 14 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 2 juvs.; Lebu, 10 Feb. 1977 (Oñate, AMNH), 2♀, 1 juv.; Curanilahue, no date (no collector, AMNH), 1♂, 1 juv. **Region IX (de la Araucanía):** **Cautín:** Pucón, E. of Villarica, Jan. 1987 (L. Peña, AMNH), 1♀; Pucon, Volcan Villarica, FIT nr. old lava flow, 10 Nov.–3 Dec. 1989 (S. Marshall, AMNH), 1♀; Toltén (coast), 27 Feb. 1979 (no collector, AMNH), 1♀. **Region X (de los Lagos):** **Prov. ???:** Pirehueico, Valdivia, 18 Jan. 1985 (E. Maury, A. Toth, MACN), 1♀, 5 juvs., 1 Dec. 1985 (E. Maury, MACN), 1 juv. **ARGENTINA:** **Neuquén:** Río Pucará, Lago Lacar, 8 km E Hua-Hum, 13 Jan. 1986 (P. Goloboff, N. Platnick,

R. Schuh, AMNH), 2♀; Pucará, 31 Dec. 1963 (Navas, MACN), 1♀; Hua-Hum, 17 Jan. 1985 (E. Maury, A. Toth, MACN), 3 juvs.; Lago Lacar, 15 Jan. 1978 (no collector?, MACN), 1♀.

Acanthogonatus huaquen, new species

Figures 81A–E, 82

Acanthogonatus frankii: Palmer, 1990: 141 (misidentification).

Acanthogonatus sp.: Goloboff, 1993a: 15, fig. 16.

TYPES: Male holotype and female paratype from Palmas de Ocoa, Parque Nacional La Campana, Chile (27–28 Oct. 1988; P. Goloboff, E. Maury, C. Szumik), deposited in MHNS.

ETYMOLOGY: The specific name is a noun in apposition taken from one of the localities where the species was first collected.

DIAGNOSIS: Males can be distinguished from those of other two-clawed *Acanthogonatus* by the bulb with a lateral keel delimiting

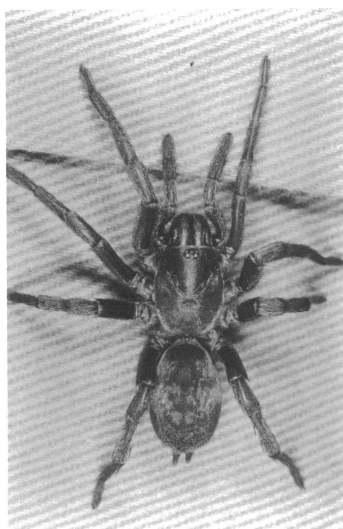


Fig. 82. *Acanthogonatus huaquen*, female (Photo Martín Ramírez).

a very concave area (fig. 81B, C), females by the spermathecae with an almost conical basal mound and the duct arising from its tip (fig. 81A; rather similar spermathecae occur in *A. franki*, which differs in having the patella IV with 1-1-1 P).

MALE (holotype): Total length 15.27. Cephalothorax length 6.87, width 5.38. Cephalic region length 4.33, width 3.09. OQ length 0.59, width 1.18. Labium length 0.67, width 1.61. Sternum length 3.60, width 2.74. Labium with 2 very small cuspules, maxillae with 13/15 very small cuspules, confined to inner corner. Serrula present, well developed. Sternal sigilla small, shallow, oval, marginal; sternum strongly rebordered. Chelicerae: rastellum formed by very weak setae; inner margin with 6 medium size, widely spaced teeth; furrow with 12 very small denticles. Chelicer al tumescence present, asetose, ventrally protruding. Trichobothria: Tibiae, I, 14(3:4b), 12(3:4b); II, 12(4:5b), 14(4:5b); III, 13(2:3b), 11(3:4b); IV, 13(3:4), 12(3:4b); palp, 9(4:5b), 19(5:6b). Metatarsi, I, II, 17(4:5a); III, 18(5:6a); IV, 19(5:6a). Tarsi, I, 16; II, 18; III, 16; IV, 17; palp, 16(1:2b). Chaetotaxy: Femora: I, 1-0-1-1/1-1-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1-1-1/1-0-1-1 R SUP (1:2A); II, 1-1-1-1/1-1-1 P SUP(1:2A), 1-1-1-0 D, 1-1-1 R SUP

(1:2A); III, 1-1-1 P SUP (1:2A), 1-1-1 D (1:2B) (very thin), 1-1-1-1-1/1-1-1 R SUP; IV, 1-0-1-1 P SUP (1:2A), 1-1-1/1-1-1-1 D, 1-1-1 R SUP (2:3A); palp, 1 P A, 1 R A. Patellae: I, 1-1 P (no R spines); II, 1-1/1-1-1 P; III, 1-1-1 P, 1 R (very large, long); IV, 1 R (large, strong), no P; palp, 1 P B. Tibiae: I, 1-1-0 P, 1-1 R, 4-4/4-5 V, 1 V POST A, 2 V ANT A; II, 1-1-1 P SUP, 2-4-3 V; III, 1-1 P SUP (1:4B), 0/1 P SUP (1:3A), 1 D (1:3A), 1-1 R SUP, 2-3-3 V; IV, 1-1-1 P, 1-1-1 R (apical smaller), 2-3-3/2-4-3 V; palp, 2-2-1 P. Metatarsi: I, 0/1 P SUP B, 1-1 P SUP M, 0/1 R M, 1 V P M; II, 1-2-1-0-1 P SUP, 1 R M, 2-2-0 V; III, 17 on entire article (arranged irregularly); IV, 21, same. Tarsi: I-IV, 0; palp, 0. Scopula: present along full length of tarsi I-IV; present on 1:1 of metatarsi I, 4:5A of II, 1:5A of III, absent from IV. Only scopula IV slightly divided by narrow double row of setae. Metatarsal preening combs: absent from all legs. STC, teeth: all tarsi with 8-10 teeth in each row. ITC absent from I-IV. PLS, apical article triangular to digitiform; length of apical:medial:basal, 1.28:1.04:1.37, spigots numerous on all three articles. PMS length 0.79, with numerous spigots on 2:3A. Palp: tibia with two long, erect setae, basal one stronger; bulb as in figures 81B, C. Leg I, tibial apophysis (figs. 81D, E) typical for genus; metatarsus almost straight (very slightly curved, with prolateral side concave). Color as in female.

FEMALE (paratype): Total length 23.60. Cephalothorax length 9.21, width 7.45. Cephalic region length 5.55, width 5.50. Fovea width 0.93. OQ length 0.82, width 1.53. Labium length 1.01, width 1.56. Sternum length 4.82, width 3.83. Cephalic region convex. Labium with 2 cuspules, maxillae with 27/29. Serrula present, well developed. Sternal sigilla submarginal, quite long; sternum weakly rebordered. Chelicerae: rastellum formed by attenuate setae only; inner margin with TtTtTTtTTTTt, larger than in male, more closely spaced; furrow with 25 small denticles. Trichobothria: Tibiae, I, 13(3:4b), 11(4:5b); II, 14(3:4b), 14(3:4b); III, 13(2:3b), 16(3:4b); IV, 15(3:4b), 16(3:4b); palp, 12(1:1), 11(1:1). Metatarsi, I, 21(5:6a); II, 20(5:6a); III, 25(5:6a); IV, 25(5:6a). Tarsi, I, 20; II, 21; III, 22; IV, 21; palp, 18. Chaetotaxy: Femora: I,

II, 1 P SUP A, 1 D B; III, 0/1 P SUP A, 1 D B, 1-1/1-1 R SUP (1:2A); IV, 1 D B, 1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 0 P, 0/1 R; palp, 0. Tibiae: I, II, 1 P (1:3A), 1-1 V POST, 2 V ANT A; III, 1-1 P SUP, 1 D (1:3A), 1-1 R SUP, 2-2-2/2-1-3 V; IV, 1-1 R, 2-2-2 V; palp, 1 P (1:3A), 1-1 P INF, 1/2 V ANT A, 1-1-2 V POST. Metatarsi: I, 1 V POST (1:3A); II, 1-2 V (1:2B); III, 2-2-2/1-2-1 P SUP, 2-2-2 R SUP, 2-2-3 V; IV, 1-1-1 P, 1-1-1 P SUP, 2-2-1 R SUP, 2-1-2-3 V. Tarsi: I-IV, 0; palp, 0. Scopula: on full length of tarsi I-IV and metatarsi I, II, absent from metatarsi III, IV. Scopula I-III, entire; IV, divided by band slightly wider than in male (about 3 setae width). Metatarsal preening combs: well-developed pseudo combs on III, IV, none on I, II. STC, teeth: 6 to 8 teeth on each row of both claws of all legs. ITC absent from I-IV. PLS, apical article digitiform; length of apical:medial:basal, 1.49:1.09:1.59; spigots: numerous on all three articles, with pumpkiniform spigots along inner edge (fig. 59). PMS length 1.22; spigots on 3:4A. Spermathecae as in figure 81A. Cephalothorax and legs dark brown, abdomen yellowish, densely mottled, covered with dark hairs; entire body covered with golden pubescence.

REMARKS: Specimens from Quereo and Caleta Oscura have longer, spiraled spermathecal ducts; they might represent a different species.

NATURAL HISTORY: This species constructs open burrows, lined with a dense layer of silk. The silk lining extends to the burrow entrance forming a sort of collar; the burrows can be up to 2 cm in diameter, and 20–25 cm deep. Where forest exists, they prefer parts which are more forested (but not necessarily too moist); they are very common also in more open grassland.

DISTRIBUTION: Together with *A. campanae* and *A. pissii*, *A. huaquen* is one of the most common nemesiids in central Chile (Regions IV and V). Notably, it has not been found in Region Metropolitana, where it seems to be replaced by *A. quilocura*.

OTHER MATERIAL EXAMINED: CHILE: **Region V (Valparaíso):** *Valparaíso:* Ventana, 13 May 1961 (A. Archer, AMNH) 1♀; *Valparaíso*, 1954 (E. Reed, AMNH), 1♀, 3?? (in

very bad shape), Dec. 1900 (Carter, BMNH), 1♀; *Las Bayicas*, 24 km E Algarrobo, 9 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 1 juv.; *Los Perales*, S of Quilpué, 27 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH, MACN), 1♀; *La Retuca*, S of Quilpué, 5 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 2♀, 1♂ juv. *Petorca:* Quebrada del Chivato, 1 km S Los Molles, 30 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 4♀; *Quebrada Huaquen*, Caleta Pichicuy, Jan. 1984 (P. Goloboff, E. Maury, MACN), 7♀, 2♀ juv., 2♂ juv., 3 pulli, Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 2 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 2♀; *Entre Cachagua y La Laguna*, Jan. 1984 (P. Goloboff, E. Maury, MACN), 2♀, 3♂ juv.; *Quebrada El Tigre*, nr. Cachagua, 7 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 9♀, 1 juv. *Border Quillota–Petorca:* Cuesta El Melón, Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 5♀, 1♀ juv., 1♂ juv. *Quillota:* Parque Nacional La Campana, Palmas de Ocoa, 27–28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♂, 8♀, 3 juvs.; *Parque Nacional La Campana*, Cerro La Campana, Nov. 1976 (Betancourt, AMNH), 1♂, 1 juv. *San Antonio:* Quebrada Córdoba, 5 km E El Tabo, 9 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 2♀. **Region IV (Coquimbo):** *Choapa:* Quebrada a Playa Agua Dulce, 46 Km N Los Vilos, 5–6 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 5♀; *Cerro Silla del Gobernador*, E of Pichidangui, 31 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 4♀; *Caleta Oscura*, 50 km S Manto de Hornillos, 5 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀; *Cuesta de Cavilolén*, 30 km NE Los Vilos, 7 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 7♀; 10 km S. Los Vilos, Jan. 1984 (P. Goloboff, E. Maury, MACN), 13♀, 1♂ juv.; *Bosque de Quereo*, nr. Los Vilos, 6 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 2 juvs.; *Fundo Palo Colorado*, 16 km N Pichidangui, 31 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 4♀. *Limarí:* Parque Nacional Fray Jorge, 9 Jan. 1984 (P. Goloboff, E. Maury, MACN), 2♀, 2♀ juv., 1♂ juv., 3 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 4♀.

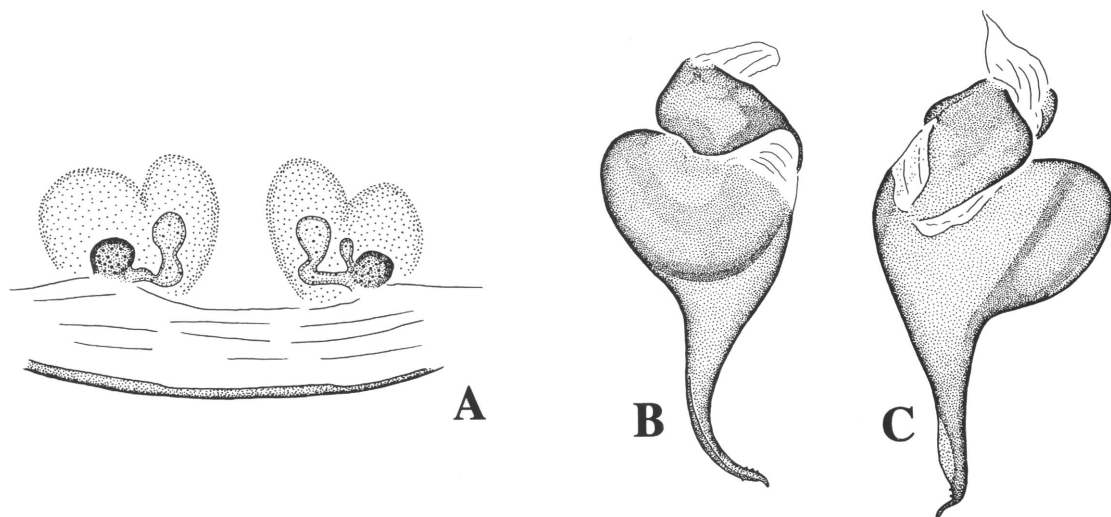


Fig. 83. *Acanthogonatus quilocura*. A. Female spermathecae. B, C. Right male bulb.

3 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1♂, 4♀, 2♀ juv.; Ruta 5, 25 km S Socos, 1 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀.

***Acanthogonatus quilocura*, new species**

Figure 83A–C

TYPES: Male holotype from Renca, west of Santiago, Region Metropolitana, Chile (7 Jul. 1983; Irrarrazaval), and female paratype from El Portezuelo, Region Metropolitana (30 Sep. 1992; P. Goloboff, G. Carrasco), deposited in AMNH.

ETYMOLOGY: The specific name is a modification of the name of one of the localities where the species has been collected, roughly meaning (in Spanish) "what a madness." It refers to the fact that, when the first specimens were examined, the number of species in the genus *Acanthogonatus* seemed endless.

DIAGNOSIS: Males (fig. 83B, C) are most similar to those of *A. tacuariensis* (from Uruguay), from which they can be distinguished by the curved metatarsus I; the female spermathecae are characteristic in having a strongly bent duct arising from the base of a blunt basal dome (fig. 83A).

MALE (holotype): Total length 19.60. Cephalothorax length 8.90, width 7.00. Cephalic region length 5.50, width 4.25. OQ length 0.69, width 1.28. Labium length 0.83,

width 1.35. Sternum length 4.45, width 3.48. Labium with 1 cuspule, maxillae with 20/24. Serrula well developed. Sternal sigilla elongate, marginal, with outer side depressed forming connection with sternal margin; sternum rebordered. Chelicerae: rastellum absent (only weak, attenuate setae); inner margin with 7 teeth, well separated; furrow with about 10 tiny denticles. Cheliceral tumescence small, asetose, pallid, ventrally protruding. Chaetotaxy: Femora: I, 1-1 P SUP (1:3A), 1 d b, 1-1/1-1-1 R SUP (1:3A); II, 1-1-1 P SUP (1:2A), 1 D B, 1-1 R SUP (1:3M); III, 1-1-1 P SUP, 1 D B, 1-0-1/1-1-1 R SUP (1:2A); IV, 1-1/1-1-1 P SUP (1:2A), 1 D B, 1-1/1-1-1 R SUP (1:3A); palp, 1 P SUP A. Patellae: I, II, 1-1 P (1:2A); III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 2-2-2 P INF, 1-1 R, 2-2 V, 2 V ANT A (on common base), 1 V POST A; II, 1-1-1/0-1-1 P SUP, 2-3-3 V; III, 1-1 P SUP, 1 D A, 1-1/1-1-1 R SUP, 2-3-2/2-2-3 V; IV, 1-1 P, 1-1-1 R (basal much smaller), 2-2-3 V; palp, 1-2 P, 2 dorsal erect setae. Metatarsi: I, 0 ([!] there are several in male *A. huaquen*); II, 1-1-1/1-2 P SUP, 1 V ANT (1:3B), 1-1 V POST (1:3B); III, 6/7 P (alternating), 1 D POST B (small), 1-1-1 R SUP, 2-2-3 V; IV, 6/7 P SUP (alternating), 2-1-1/1-1-1 R SUP, 2-1-2-3/2-1-2-2 V. Tarsi: I–IV, palp, 0. Scopula: present for full length of tarsi I–IV; on 4:5A of metatarsi I, II, 1:3A of III, a few scopuliform hairs on IV.

Scopula I–III undivided; IV with few sparse setae (not forming proper line, two setae wide). Metatarsal preening combs absent from all legs. STC, teeth: I, 12 11 11 12; II, 12 11 11 12; III, 14 13 12 13; IV, 15 13 13 13. ITC I–IV absent. Flexible tarsi: I–IV. PLS, apical article digitiform; length of apical:medial:basal, 1.43:1.10:1.65. PMS length 0.88. Palp: tibia with thickened retroventral setae at base of bulb furrow; bulb as in figures 83B, C. Leg I, metatarsus curved downwards. Entire spider golden brown; abdomen yellowish golden brown with brown darker spots.

FEMALE (paratype): Total length 29.60. Cephalothorax length 9.65, width 7.45. Cephalic region length 6.20, width 5.40. Fovea width 1.00. OQ length 0.71, width 1.40. Labium length 0.88, width 1.50. Sternum length 4.90, width 3.90. Cephalic region convex. Fovea very slightly procurved, with small posterior notch. Labium with 3 cuspules, maxillae with 21/18. Serrula present, well developed. Sternal sigilla small, oval, submarginal, connected to sternal margin by depression; sternum very slightly rebordered. Chelicerae: rastellum formed by thickened, attenuate setae; inner margin with 7/8 large teeth; furrow with about 20 denticles forming band wider behind. Chaetotaxy: Femora: I, II, 1 P SUP A, 1 d b; III, 1/1-1 P SUP (1:3A), 1 d b, 1 R SUP A; IV, 1 d b, 1 R SUP A; palp, 1 P SUP A. Patellae: I, 0; II, 1 P A; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 1-1 P, 1 V ANT A; II, 1 P (1:3A), 1 V ANT A, 1 V POST M; III, 1-1 P, 1 D (1:3A), 1 D POST B, 1-1 R, 2-2-4/2-1-3 V; IV, 0/1 P (1:3A), 1-1 R, 2-2-2/2-1-2 V; palp, 1 P, 1-1-2 P INF, 1-1-2/1-2-2 R INF. Metatarsi: I, 1-1 V POST (1:3B); II, 1-2 V; III, 2-2-2 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV, 2-2-2 P SUP, 2-1-1 R SUP, 2-2-3/2-1-2-3 V. Tarsi: I–IV, palp, 0. Scopula: on full length of tarsi I–IV; on full length of metatarsi I, II, on 1:4A of III, only few apical scopuliform hairs on IV. Scopula I–III undivided, IV divided by row of 2 setae. Flexible tarsi: I–IV (posterior ones more so). Metatarsal preening combs absent from all legs. STC, teeth: I, 6777; II, 8787; III, 9888; IV, 9999. Palpal claw with 5 teeth on promargin. ITC absent from I–IV. PLS, apical article short but digitiform; length of apical:medial:basal, 1.50:1.30:2.00; spigots numerous on all three articles, occupying

entire ventral side of basal article. PMS length 1.10; numerous spigots, occupying 2:3A. Spermathecae as in figure 83A, with lateral duct strongly bent. Color as in male.

NATURAL HISTORY: This species has been collected from burrows similar to those of *A. huaquen*.

DISTRIBUTION: Apparently restricted to Region Metropolitana, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region Metropolitana:** El Portezuelo, 30 Sep. 1992 (P. Goloboff, G. Carrasco, MACN, AMNH), 3♀; Renca, W of Santiago, 7 Jul. 1983 (Irrarrazaval, AMNH), 1♂, 11 Oct. 1984 (L. Peña, AMNH), 1♀; Quilicura, May 1979 (L. Peña, AMNH), 1♂, 1♀, 1 specimen in bad shape (♀ or juv.?), Aug.–Oct. 1979 (L. Peña, AMNH), 1♂.

Acanthogonatus juncal, new species

Figure 84A–C

TYPE: Female holotype from Juncal, Los Andes, 1950 m elev., Chile (Jan. 1984; P. Goloboff, E. Maury), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: *A. juncal* is the smallest two-clawed *Acanthogonatus* (the most similar species, *A. huaquen* and *A. quilicura*, have a cephalothorax length of over 8 mm, compared to less than 4 mm in *A. juncal*).

FEMALE (holotype): Total length 9.47. Cephalothorax length 3.77, width 3.09. Cephalic region length 2.44, width 1.98. Fovea width 0.45. OQ length 0.42, width 0.76. Labium length 0.32, width 0.84. Sternum (fig. 84C) length 2.01, width 1.74. Cephalic region slightly convex; fovea recurved, with posterior median notch. Labium with no cuspules, maxillae with 15/17. Serrula present. Sternal sigilla small, oval, weakly marked; sternum rebordered very weakly on anterior 1/4. Chelicerae: rastellum absent; inner margin with 7 teeth; furrow with about 15 denticles, forming row 2–3 denticles wide. Trichobothria: Tibiae, I, 10(2:3b), 10(2:3b); II, 9(2:3b), 9(2:3b); III, 9(1:2b), 10(1:2b); IV, 10(2:3b), 10(1:2b); palp, 8(3:4b), 8(3:4b). Metatarsi, I, 12(3:4a); II, 13(3:4a); III, 14(3:4a); IV, 15(4:5b). Tarsi, I, 13; II, 12; III, 13; IV, 15; palp, 11. Chaetotaxy: Femora: I, II, 1 P SUP A; III,

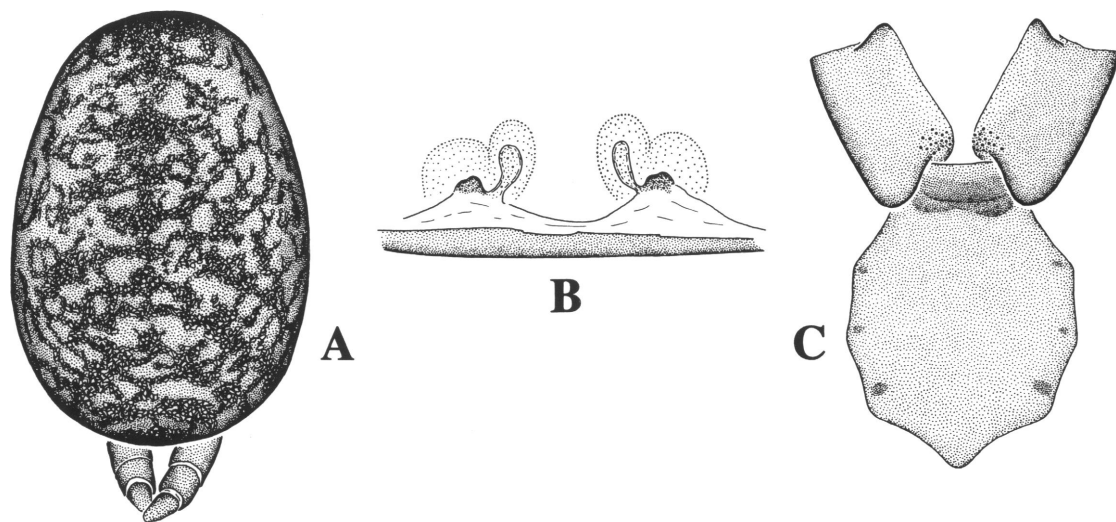


Fig. 84. *Acanthogonatus juncal*, female. A. Dorsal abdomen. B. Spermathecae, ventral. C. Sternum and maxillae.

IV, 0; palp, 1/0 P SUP A. Patellae: I, II, 0; III, 1-1 P; IV, 0; palp, 0. Tibiae: I, 1 v post, 1 a ant a; II, 1 P SUP (1:3A), 1 V POST, 1 V ANT A; III, 1-1 P, 1 D (1:3A), 1-1 R, 1-2 v, 3 V A; IV, 1-1 R SUP, 0/1-2 v, 2 V A; palp, 2 P INF, 1 V POST, 3 V A. Metatarsi: I, 1-1 V POST (1:3B); II, 1-2 V (1:3B); III, 2-2-1-1 P SUP, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 R SUP, 4/5 P, 2-2-1-3 V. Tarsi: I-IV, 0; palp, 0. Scopula: present for full length of tarsi I-IV (quite dense); occupying almost full length of metatarsi I, II, only few scopuliform apical hairs on III, absent from IV. Scopula I-III undivided, divided by few setae (in irregular row) on IV. Tarsi I-IV flexible. Metatarsal preening combs: III, IV with strong pseudocombs. STC, teeth: I, all rows with 6-7 teeth; II-IV, 6676. ITC absent from I-IV. PLS, apical article triangular, short; length of apical:medial:basal, 0.45:0.50:0.84; basal article with spigots occupying 3:4A; all three articles with numerous, evenly distributed, apparently regularly sized spigots (except for the inner edge, not observed, due to poor preservation). PMS length 0.29; 15 spigots on (3:4A). Spermathecae as in figure 84B. Cephalothorax, legs, palpi uniform yellowish brown; venter more pallid; dorsal abdomen (fig. 84A) mottled.

NATURAL HISTORY: The type locality is a dry, scrubby habitat. Specimens were col-

lected from small burrows at stone edges. A subsequent attempt to collect additional specimens (October, 1988) failed miserably.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: CHILE: *Los Andes*: Juncal, 1950 m elev., Jan. 1984 (P. Goloboff, E. Maury, MACN), 1♀, 1♂ juv.

Acanthogonatus tacuariensis
(Pérez-Miles and Capocasale)

Figure 85A-C

Pycnothele auripilus: Capocasale and Pérez-Miles, 1979: 3 (in part, female only).

Pycnothele tacuariensis Pérez-Miles and Capocasale, 1982: 2 (male holotype from Río Tacuarí, Cerro Largo, Uruguay, in MHNM, examined).

Acanthogonatus tacuariensis: Raven, 1985a: 101.-Capocasale and Pérez-Miles, 1990: 41.

DIAGNOSIS: Males are most similar to those of the Chilean *A. quilocura*, from which they can be distinguished by the straight metatarsus I; females are most similar to those of the Chilean *A. huaquen*, from which they can be distinguished by the proportionally larger basal dome of the spermathecae (with the receptaculum arising from the side); both sexes can be distinguished from those two Chilean species by the more reddish cephalothorax and the abdominal pattern (dark with

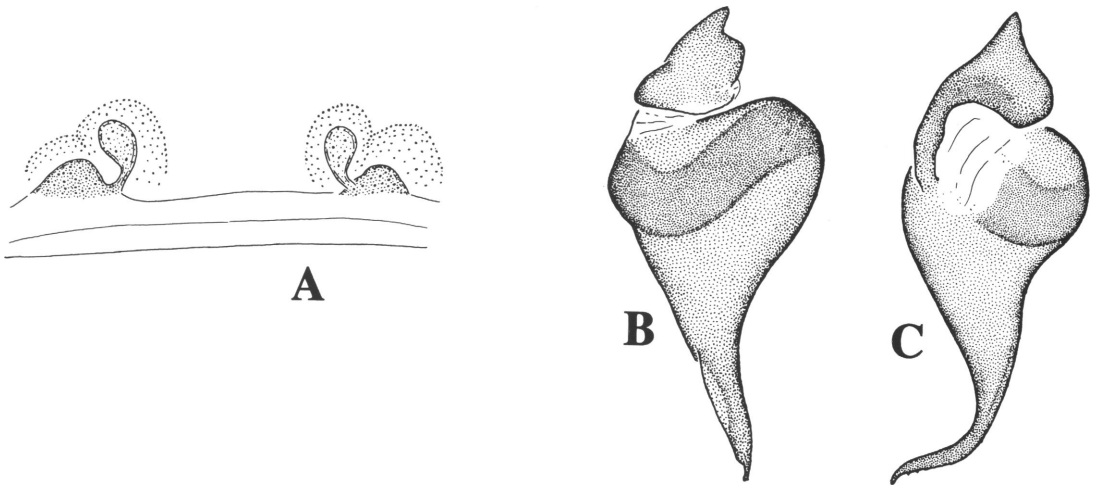


Fig. 85. *Acanthogonatus tacuariensis*. A. Female spermathecae. B, C. Left male bulb.

oblique bands of lighter dots in *A. tacuariensis*; yellowish brown with oblique bands of darker spots in the two Chilean species).

MALE (MHNM 862): Total length 23.40. Cephalothorax length 9.80, width 7.90. Cephalic region length 6.00, width 4.40. OQ length 0.75, width 1.37. Labium length 0.70, width 1.22. Sternum length 4.65, width 3.70. Labium with 3 cuspules, maxillae with 43/43. Serrula present, well developed. Sternal sigilla small, shallow, oval, separated from margin by half long diameter; sternum weakly rebordered. Chelicerae: rastellum absent; inner margin with 10 teeth; furrow with about 20 small denticles. Cheliceral tumescence small, asetose, with low protuberance in ventral side. Chaetotaxy: Femora: I, 1-1 P SUP A, 1 d b; II, 1-1-1/1-1-1-1 P SUP (1:2A), 1 d b; III, 1-1-1/1-1-2 P SUP (1:2A), 1 d b, 1-1-1 R SUP (1:2A); IV, 1-1-1/0-1-1 P SUP (1:2A), 1 d b, 1-1-1/0-1-1 R SUP (1:2A); palp, 1 P SUP A. Patellae: I, II, 1 P A, 0 R; III, 1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 1-1 P SUP (1:3A), 3 P (extending to V, 1:5A), 2 P INF (on common base on low spur), no D, 1 V ANT B, 1-2-1/1-2-0 V POST, 1 R; II, 1-1-1/0-1-1 P SUP, 1-1-2 V ANT, 1-1-1 V POST; III, 1-1 P, 0/1 D (1:3A), 1-1 R SUP, 1-0-2/1-1-2 V ANT, 1-1-1 V POST; IV, 1-1/1-1-1 P, 0/1 D (1:4A), 1-1-1/1-1-1-1 R SUP, 1-1-2/1-2-2 V ANT, 1-1-1/1-1-1-1 V POST; palp, 2 P, 0 R. Metatarsi: I, 0; II, 1 P SUP, 2-2 V (1:2 or 1:3B); III, 1-1-1/0-1-1-1 P, 0-1-

1-1/0-1-1-1-1 P SUP, 0/1 D POST B, 0-1-0-1 R SUP, 0-2-2-0 R, spination on ventral side appears abnormal; other specimens have normal complement; IV, 1-1-1 P, 1-1-1 P SUP, 1 D POST B, 2-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:2A, IV on 1:5A; tibiae I, II ascopulate. Scopula I-III undivided, IV almost undivided (with single line of thin setae). Metatarsal preening combs absent from I-IV. ITC I-IV absent. All tarsi flexible. PLS, apical article digitiform; length of apical:medial:basal, 1.00:0.87:1.00. PMS length 0.55. Palp: tibia long, with 2 dorsal erect setae; bulb as in figures 85B, C (very similar to bulb of *A. quilocura*). Leg I, tibia cylindrical, with low proventral apical apophysis bearing two spines; metatarsus straight, unmodified. Cephalothorax and appendages reddish-brown (particularly *in vivo*); abdomen dark brown with oblique lines or bands of whitish-yellowish dots.

FEMALE (MHNM 862): Total length 30.20. Cephalothorax length 11.90, width 8.70. Cephalic region length 7.90, width 6.50. Fovea width 1.32. OQ length 0.89, width 1.55. Labium length 1.07, width 2.07. Sternum length 5.90, width 4.50. Cephalic region convex; fovea almost straight, narrow, shallow, with posterior notch. Labium with 3 cuspules, maxillae with 40/41. Serrula present, well developed. Sternal sigilla shallow, small, oval

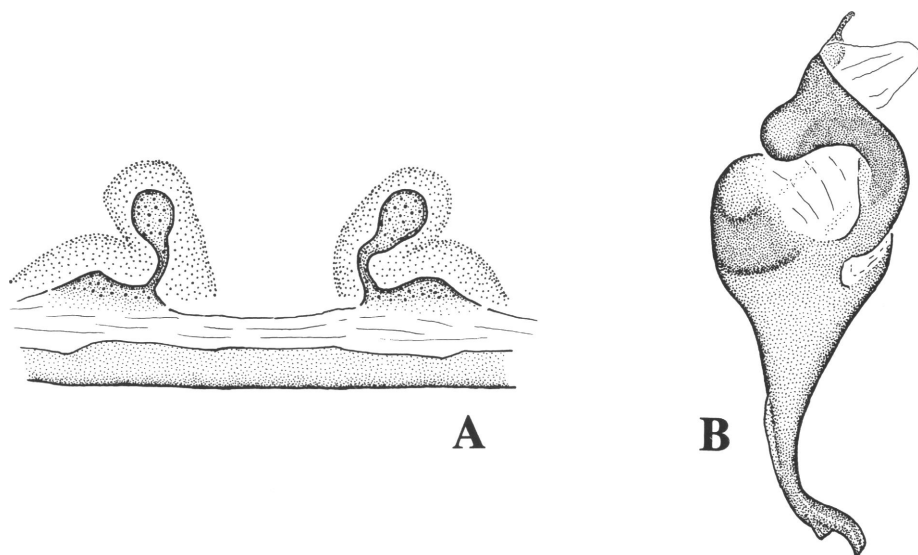


Fig. 86. *Acanthogonatus pissii*. A. Female spermathecae. B. Right male bulb.

(short diameter 60% of long), separated from margin by half long diameter; sternum re-bordered. Chelicerae: rastellum absent; inner margin with 8 teeth; furrow with 22 medium sized denticles. Chaetotaxy: Femora: I, II, 1 P SUP A, 1 d b; III, 1 P SUP A, 1 D B, 1 R SUP A; IV, 1-1 d b (1:3b), 1 R SUP A; palp, 1 P SUP A. Patellae: I, 0/1 P SUP A; II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0/1 p sup a. Tibiae: I, 0-1-1 P SUP, 1-2/2 P INF A, 1-1-1/1-1-1 V POST; II, 1-1 P SUP, 1 P INF A, 1-1-0 V; III, 1-1 P, 1 D (1:3A), 0-1/1-1 R SUP, 1-0-2 V ANT, 1-1-1/1-0-1 V POST; IV, 1-1 P, 1 D (1:3A), 1-1 R SUP, 1-0-1/1-1-1 V ANT, 1-1-1 V POST; palp, 1-2/0-1 P, 2 V ANT A, 1-1-2/0-1-2 V POST. Metatarsi: I, 1 V POST (1:3B); II, 2-1/2-2 V; III, 1-1-1 P, 0-1-1-1/0-1-0-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 1-1-1 P SUP, 0/1 D POST B, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:2A, IV on 1:4A; all tibiae ascopulate. Scopula I-III undivided, IV with single line of slightly thicker setae. Tarsi I-IV flexible. Metatarsal preening combs absent from I-IV. ITC absent from I-IV. PLS, apical article digitiform; length of apical:medial:basal, 2.20:2.00:2.50. PMS length 1.50. Spermathecae as in figure 85A. Color as in male.

NATURAL HISTORY: See Capocasale and Pérez-Miles (1990).

DISTRIBUTION: Uruguay (and southern Brazil: males and females in MCN-RS, PUC-RS and MACN; Goloboff et al., in prep.).

OTHER MATERIAL EXAMINED (only specimens from Uruguay listed): URUGUAY: **Cerro Largo**: Río Tacuarí, 9 Apr. 1966 (Achával, MHNM 775/B), 1♀, 18-19 Oct. 1979 (F. Costa, F. Pérez-Miles, MHNM 862), 5♂, 2♀, 6-7 Dec. 1980 (F. Costa, F. Pérez-Miles, MHNM 907), 1♀. **Tacuarembó**: Tacuarembó Chico, 22 Jan. 1960 (Carbonell, MACN), 1♀.

Acanthogonatus pissii (Simon)

Figures 86A, B, 87

Brachythele pissii Simon, 1888: 221 (juvenile male possible syntype from Cerro Pissis, Chile, and female labeled as "Cotype" from unspecified locality in Chile, in MNHN, examined).

Tryssothele pissii: Simon, 1902: 7.—Gerschman and Schiapelli, 1968: 27.—Calderón, 1978: 149.—Calderón et al., 1979: 195.—Legendre and Calderón, 1984: 1049.

Tryssothele latastei Simon, 1902: 7 (female possible type, from "Chile," in MNHN, examined). First synonymized by Gerschman and Schiapelli, 1968: 22.

Tryssothele australis Chamberlin, 1917: 72 (female holotype from Talcahuano, Concepción, Region VII, Chile, in MCZ, examined). First

synonymized by Gerschman and Schiapelli, 1968: 22.

Aphantopelma venosa Mello-Leitão, 1936: 119 (female holotype should be in MNRJ, possibly lost). NEW SYNONYMY.

DIAGNOSIS: This species is unmistakable because of its coloration, with a reddish cephalothorax and a dark abdomen with yellowish oblique stripes, with dark legs and palps. The tip of the male embolus is widened (fig. 86B), unlike that of other species in the genus; the female spermathecae are most similar to those of the Uruguayan *A. tacuariensis*, and vaguely similar to those of *A. huaquen* and *A. quilocura* (which differ in their coloration).

MALE (Los Queñes): Total length 23.70. Cephalothorax length 10.70, width 9.10. Cephalic region length 6.30, width 4.80. Labium with 2 cuspules, maxillae with 13/14. Serrula well-developed. Sternal sigilla oval, shallow, medium size, submarginal. Chelicerae: rastellum absent; inner margin with 10 teeth; furrow with about 30 sharp, small denticles. Cheliceral tumescence present, small, pallid, ventrally protruding. Chaetotaxy (salient features only): with 0-1-1 P, 0 R on patellae I, II, 0-1-1 P, 1 R on patellae III, IV; no dorsal spines on tibiae I, II, tibia I with numerous P SUP (and apical cluster of 4/5 P A, with 2 shorter P V A on slight elevation). No spines on metatarsus I, with 0-1-1-1 P SUP, 1-1-1 P on IV. Scopula: all tarsi densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:3A, IV on 1:6A. Metatarsal preening combs absent. ITC absent from I-IV. All tarsi very flexible. PLS, apical article digitiform; length of apical:medial:basal, 1.75:1.05:1.90. PMS length 1.00. Palp: tibia of medium length; bulb as in figure 86B, with tip of embolus widened apically. Leg I, 2 P INF apical spines very close to each other; metatarsus slightly, evenly curved. Color as in female.

FEMALE (Palmas de Ocoa): Total length 30.00. Cephalothorax length 11.70, width 10.20. Cephalic region length 7.50, width 6.80. Cephalic region low, flat; fovea narrow, very slightly procurved. Labium with no cuspules, maxillae with 13/15. Serrula well developed. Sternal sigilla of medium size, oval, shallow, separated from margin by almost diameter; sternum weakly rebordered. Chelicerae: rastellum absent; inner margin with 9 teeth; furrow with about 20 large denticles. Chaetotaxy (salient features only): 0-1-1 P, 1



Fig. 87. *Acanthogonatus pissii*, female (Photo Arturo Roig).

R on patella III, 0 P, 1 R on IV; 1 V POST (1:3B) on metatarsus I, 2-2 V (1:3B) on II, 1-1-1-1/1-1-1 P SUP, 1-1-1/0-1-1 P on IV; no spines on palpal tarsus. All tarsi densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:3A, IV with some scopuliform hairs on apex. Scopula I-III undivided, IV with almost imperceptible line of 2 thin setae. All tarsi flexible. Metatarsal preening combs absent from all legs. ITC I-IV absent. PLS, apical article digitiform; length of apical:medial:basal, 1.15:0.75:1.25. PMS length 0.75. Spermathecae as in figure 86A. Cephalothorax reddish brown, legs darker; abdomen blackish brown with chevron in whitish yellow; entire spider covered with long golden hairs.

REMARKS: Specimens of this species, in MNHN, had been identified by Simon as *Brachythele* or *Tryssothele subcalpetana*. As usual, Simon did not indicate which specimens were the types, but as a specimen (MNHN 22843, with a label reading "*Brachythele pissii* Simon, Auct. det.") is from Cerro Pissis, I assume it was part of the sample originally used by Simon (1888) to describe the species. A specimen labeled "Cotype" (MNHN 9587) has no data; this specimen was considered by Gerschman and Schiapelli (1968) as the holotype of the species.

SYNONYMY: Although the type of *Aphantopelma venosa* has not been located, the illustration published in the original descrip-

tion (showing clearly the typical abdominal pattern) leaves no doubt as to the identity of the specimen.

NATURAL HISTORY: This species may be the most conspicuous nemesiid in Chile (which explains the numerous synonyms); it is found in relatively dry areas in central Chile as well as in more densely forested areas in the south. Very common under stones or logs, where they construct an irregular silk-tube, often visible from outside. Specimens are often found in tubes built under rocks lying over rocks, which is almost never the case for other nemesiids. Some specimens have been collected from burrows on the ground; probably they had simply occupied natural cracks or holes, as the burrows were quite irregular. The silk lining of the burrow is not mixed with soil or debris, and is often prolonged to the exterior a few cm (forming a sort of "web").

DISTRIBUTION: Chile, regions IV–VIII.

OTHER MATERIAL EXAMINED: CHILE: no specific locality, no date (no collector, MNHN 26211), 2♀. San Vicente (no collector?, MNHN 23417), 1♀, 4 juvs. **Region IV (de Coquimbo):** *Choapa:* Huentelauquén, 26 Sep. 1980 (L. Peña, AMNH), 1 juv.; Fundo Palo Colorado, 16 km N Pichidangui, 31 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 2 juvs.; Quebrada El Negro, 7 km S Los Vilos, 6 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀; 10 km S Los Vilos, Jan. 1984 (P. Goloboff, E. Maury, MACN), 6♀, 1 juv.; 28 km N Los Vilos, 150 m elev., 6 Nov. 1981 (N. Platnick, R. Schuh, AMNH), 1 juv. **Region Metropolitana:** Santiago, Jan. 1970 (L. Peña, MCZ), 1 juv.; Guayacán, Río Colorado, Jan. 1984 (P. Goloboff, E. Maury, MACN), 4♀; El Canelo, no date (Fritz, Valencia, MACN), 2♀; Santiago, no date (Lub. (?), MNHN 15167), 2 juvs.; Quilicura, Sep. 1979 (L. Peña, AMNH), 1♀; Cajón de Lisboa, SE Melipilla, 20 Dec. 1987 (L. Peña, AMNH), 2♀; La Viluma, 350 m elev., SE Melipilla, 15 Dec. 1987 (L. Peña, AMNH), 1♀, 2 juvs.; Piche Alhué, 22 Nov. 1959 (L. Peña, MCZ), 1♀, 25 Nov. 1969 (L. Peña, MCZ), 2♀; San Pedro (dpto. San Antonio?), Melipilla, no date (no collector, AMNH), 1♀; Aculeo, Jan. 1970 (L. Peña, MCZ), 1♀, 2 juvs.; Aculeo, El Arbol, Oct. 1959 (L. Peña, MCZ), 1♀, 1 juv., 3 abdomens!!; Oct. 1969 (L. Peña, MCZ), 4 juvs.;

Aculeo, El Patagual, 5–8 Dec. 1983 (Irrarrazaval, AMNH), 3 juvs.; El Manzano, Aug. 1975 (L. Peña, AMNH), 2 juvs.; 6 km W Nogales Artificio, 275 m elev., 7 Nov. 1981 (N. Platnick, R. Schuh, AMNH), 3 juvs.; 16 km N Nogales Artificio, 520 m elev., 7 Nov. 1981 (N. Platnick, R. Schuh, AMNH), 1♀; Quebrada de La Plata, La Rinconada nr. Maipú (33°30'S, 70°55'W), 5 Aug. 1966 (E. Schlinger, M. Irwin, AMNH), 3♀, 580 m elev., 15 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀, 6 juvs.; 20 km W Maipú, 460 m elev., 8 Nov. 1981 (R. Schuh, N. Platnick, AMNH), 2♂, 1 juv.; Cuesta La Dormida, 1000 m elev. (33°04'S, 71°01'W), 1 Nov. 1966 (E. Schlinger, AMNH), 1♂, 1♀, 2 juvs., 610 m elev., 11 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀. **Region V (de Valparaíso):** *Valparaíso:* Valparaíso, Dec. 1900 (Carter, BMNH), 3♀; Quilpué, no date (no collector?, MNHN 21752), 1♀, Hamb. Mag.; Granizo, 31 Mar. 1978 (Calderón, MHNS), 1♂. *Aconcagua:* 7 km E La Ligua, 9 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀, 2 juv.; Talanquen, 32°33'S, 71°14'W, Oct. 1982 (L. Peña, AMNH), 2 juvs. *San Antonio:* Quebrada Córdoba, nr. El Tabo, 1–4 Nov. 1985 (L. Peña, AMNH), 1♀, 1 juv.; Quebrada Córdoba, 5 km E El Tabo, Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1 juv., 6 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♂. *Quillota:* Parque Nacional "La Campana," Palmas de Ocoa, 27–28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀. *Border Quillota–Petorca:* Cuesta El Melón, 500 m elev., 3 Nov. 1981 (L. Peña, AMNH), 1♀, 4 juvs. *Petorca:* Quebrada El Chivato, 1 km S Los Molles, 30 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀. **Region VI (del Libertador):** *Alhue:* Cajón de Lisboa, 20 Dec. 1989 (L. Peña, AMNH), 2♂, 1♀. *O'Higgins:* La Sepultura, nr. San Vicente de Tagua-Tagua, 25 Dec. 1985 (L. Peña, AMNH), 1♂, 1–20♀. **Region VII (del Maule):** *Cauquenes:* Reserva Nacional Los Ruiles, 25 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀; Cayurraguil, W. of Cauquenes, 420 m elev., 24–28 Jan. 1981 (L. Peña, AMNH), 11♀, 5♂, 9 juvs.; Cauquenes, May 1984 (no collector, AMNH), 1♀. *Curicó:* Los Queñes, Jan. 1984 (P. Goloboff, E. Maury, MACN), 1♂. *Linares:* Carizalillo, E Constitución, nr. Forel, 250 m

elev., 1–3 Feb. 1981 (L. Peña, AMNH), 2♂, 1♀, 2 juvs.; Bullileo, Parral, 5–8 Dec. 1990 (L. Peña, AMNH), 9 juvs. *Talca*: Gil de Vilches, 1200 m elev., Jan. 1984 (P. Goloboff, E. Maury, MACN), 1♂, 2♀, 4 juvs., 1160 m elev., 18 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♂, 3 juvs., 7 Jan. 1989 (M. Ramírez, MACN), 1♀, 1 juv., 30 Oct. 1969 (J. Rozen, AMNH), 1♀; Tonlema, 14–21 Dec. 1984 (L. Peña, AMNH), 4♀, 5 juvs. **Region VIII (del Bio-Bío): Ñuble**: Invernada, Jan.–Mar. 1970 (L. Peña, AMNH), 1♂; Los Lleuques, 12 Jun. 1981 (G. Moreno, AMNH), 1♀; 13 km E San Fabián de Alico, 550 m elev., 19 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♂; Fundo El Sauce, San Fabián de Alico, 8–24 Jan. 1986 (L. Peña, AMNH), 2 juvs.; 10 km E Recinto, Jan. 1989 (E. Maury, MACN), 1♀. *Concepción*: Tregualemu, 30 Mar. 1986 (T. Cekalovic, AMNH), 2 juvs.; Escuadrón, 11 Nov. 1979 (T. Cekalovic, AMNH), 1 juv.; Nonguén, 20 Oct. 1979 (T. Cekalovic, AMNH), 1♀; camino a Santa Juana, 18 Sep. 1979 (T. Cekalovic, AMNH), 1♀; El Manzano, camino a Santa Juana, 22 Nov. 1975 (Guzmán, AMNH), 2♀, 2 juvs.; Pinares, 6 May 1979 (T. Cekalovic, MCZ), 7 juvs.; Ramuntcho, 9 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀. *Mallico*: 40 km W Angol, Parque Nacional Nahuel-Buta, 1200–1500 m elev., 9 Dec.–17 Feb. 1985 (S. Peck, J. Peck, AMNH), 1♀; Vega Blanca, Nahuel-Buta, Jan. 1967 (A. Barrio, MACN), 1♀, 2 juvs.; Collipulli, 10 Dec. 1961 (A. Archer, AMNH), 1♀.

Acanthogonatus incurtus
(Chamberlin), new combination
Figures 55, 88A–D

Brachythele incurtus Chamberlin, 1916: 205 (female holotype from Huadquina, Peru, examined).

Bolostromus incurtus: Raven, 1985a: 160.

DIAGNOSIS: This species can be recognized by the presence of claw-tufts (together with the absence of all the characters of Theraphosoidina: no clavate trichobothria, tarsal trichobothria in a single zigzag row, and no basal group of retrobasal trichobothria on the anterior metatarsi).

MALE: Unknown.

FEMALE (Tarma, MCZ): Total length 23.20. Cephalothorax (fig. 88A) length 10.20, width 8.00. Cephalic region length 6.70, width 6.60. Fovea width 1.45. OQ length 0.87, width 1.67; PE row slightly procurved (not straight or recurved as in *Fufius*). Labium length 1.25, width 1.75. Sternum (fig. 88C) length 6.10, width 4.15. Cephalic region convex; fovea slightly recurved (not as deep and wide as in typical Aporoptychini). Labium with 4 cusps, maxillae with 134. Serrula present, well developed. Sternal sigilla long, separated from margin by almost long diameter; sternum re-bordered. Chelicerae: rastellum very weak, formed by very long, thin attenuate setae; inner margin with 7 large teeth; furrow with about 15 weak, widely spaced denticles. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1 d b, 1 R SUP A; IV, 1 d b, 0/1 r sup a; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-2-1/1-1-1 P, 1-1 R; IV, 0; palp, 0. Tibiae: I, II, 0; III, 1-1 P, 0 D, 0-1 R SUP, 1-1-2 v ant, 1-1-1 V post; IV, 0 P, 1-1 R SUP, 1-0-2 v ant, 1-1-1 v post; palp, 0-1 p sup, 1-1-1/1-2-1 p inf, 2/3 v ant a, 1-1-1 r inf. Metatarsi: I, 2 V A, 1-1/0 V POST; II, 0-1-1/0-2-1 V ANT, 1-1-1 V POST; III, 0-0-1-1-1-1 P, 0-1-1-1-1 P SUP, 0-1-1-1 R SUP, 1-1-1 V ANT or 1 V ANT A, 1-1-2 V POST; IV (fig. 88D), 0-0-1-1-1 P, 1-1-1/0-1-1 P SUP (1:2A), 1-1-1/1-1-0 R SUP, 1-1-1-1/1-0-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, 0; palp, 1/1-1 V ANT B, 1 V POST B. Scopula: Tarsi I–IV densely scopulate; metatarsi I with scopula on 1:1, II on 3:4A, III on 1:4A, IV ascopulate; tibiae ascopulate. Scopula I, II undivided, III divided by narrow but clear band of about 4 thin setae, IV with wider band of about 5 thicker, longer setae (occupying about 2:7 of article's width). Tarsi I, II entire, III, IV ventrally more pallid, flexible, less sclerotized in medial 1:3. Metatarsal preening combs: absent from I–IV; III, IV with numerous thicker apical setae, irregularly arranged. STC, teeth: I, 5445; II, 6665; III, 6664; IV, 6566. Palpal claw with 4 teeth on promargin. ITC I, II, absent; III, tiny; IV, small. All leg tarsi with well-developed but small claw-tufts, absent from palp. PLS, apical article digitiform; length of apical:medial:basal, 1.75:1.25:1.87; with numerous spigots on all three articles, with pumpkiniform spigots forming line along inner edge of spinning field (fig. 55). PMS

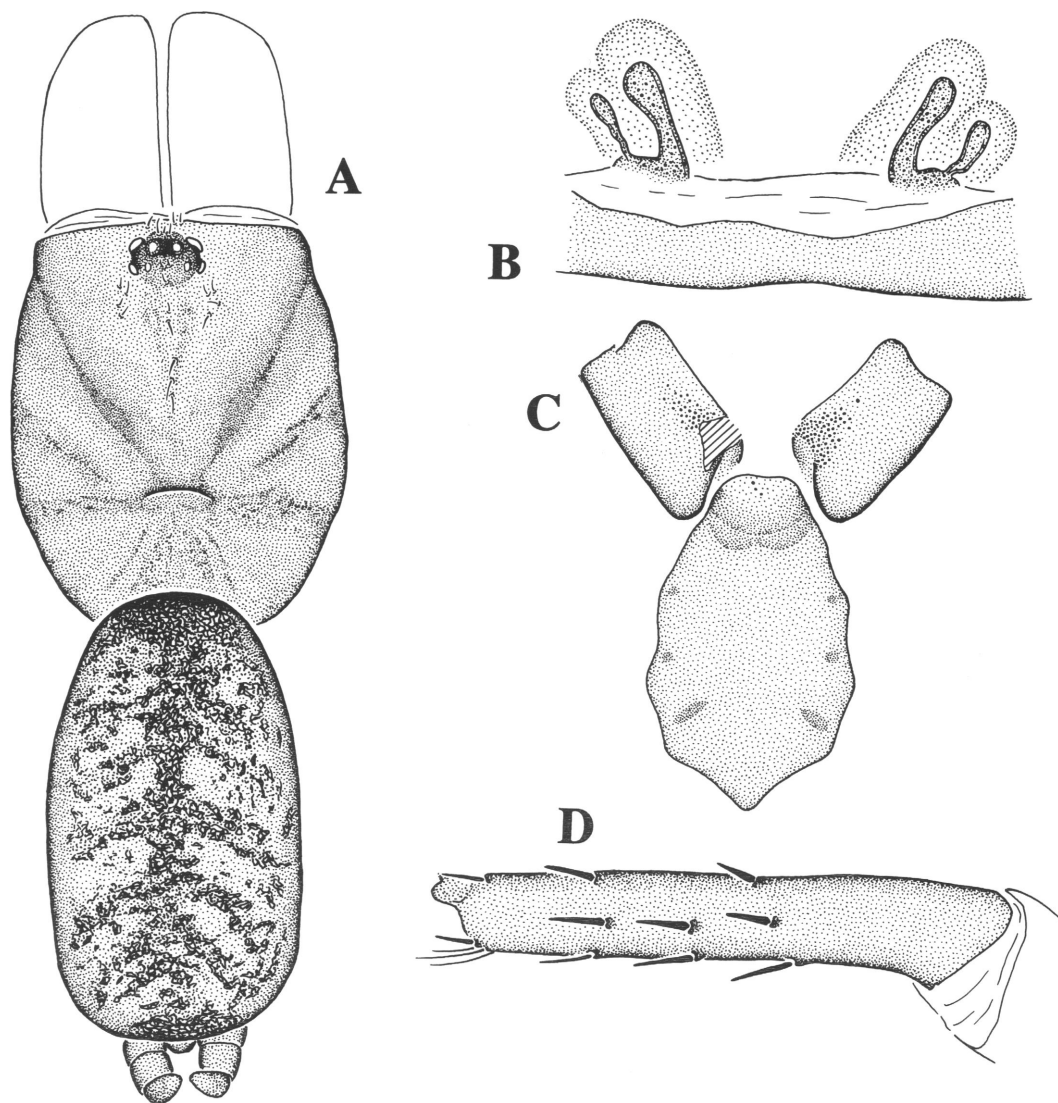


Fig. 88. *Acanthogonatus incursus*, female. A. Cephalothorax and abdomen. B. Spermathecae, ventral. C. Sternum and maxillae. D. Right metatarsus IV, prolateral.

length 1.25; with numerous spigots. Spermathecae as in figure 88B. Cephalothorax, legs, palpi reddish brown; abdomen (fig. 88A) yellowish with brown chevron.

NATURAL HISTORY: The label with specimens from Tarma says "on ground." As the collector of those specimens, Herbert Levi, specializes in araneoid spiders, it is unlikely that he would have excavated burrows. It seems likely that this species lives in silk tubes under stones or logs.

REMARKS: The presence of claw-tufts rep-

resents a striking autapomorphy for any reasonable placement of this species, originally assigned by Chamberlin (1916) to the nemesiid genus *Brachythele*. The only other putative nemesiid with claw-tufts is *Mexentypesa* Raven (1986b) (since *Neodiplothele* Mello-Leitão is here transferred to the Sasoninae). Raven (1985a) transferred this species, with reservations, to the aporoptychine genus *Bolostromus*, "with which it shares the subquadrate maxillae" (Raven, 1985a: 160). The maxillae of *B. incursus* (fig. 88C) are per-

haps shorter than in many nemesiids (although the maxillae of *Rachias* may be even shorter), but not as short as in aporoptychines, and the labium is, although longer than in nemesiids, not as long as in aporoptychines. The labium and maxillae, then, would imply some degree of autapomorphy, whether this species is placed in Nemesiidae or Aporoptychinae. If the species were to be placed in the Aporoptychinae, the genus *Fufius* seems a better choice than *Bolostromus*. In *Bolostromus* the fovea is strongly procurved, the rastellum is strong, and there are numerous (often 10 or more) spines on the prolateral side of patella III. In *B. incurus*, as in *Fufius*, the rastellum is absent, and the spines in patella III are less numerous (although there are 4 spines instead of only 2, as in the species of *Fufius* I have studied). The fovea in *B. incurus* (fig. 88A), however, is not as wide, deep, or recurved as in *Fufius*; an additional difference is that the anterior eyes in *Fufius* form a straight or recurved line (not common in mygalomorphs in general, which for the most part have the anterior eyes in a procurved row, as in all species discussed in the present paper, including *B. incurus*). In all those characters *B. incurus* agrees more with the nemesiids. The spines of the fourth metatarsi are also arranged in a pattern most similar to that in nemesiids. The fourth metatarsus of aporoptychines, instead, has no P SUP or P (sometimes not even R SUP), and has more numerous ventral spines (particularly on ventral anterior) than the nemesiids. The tarsi III, IV of *B. incurus* are rather densely scopulate and flexible (as in many *Acanthogonatus*), while no known (female) aporoptychine has scopulate or flexible tarsi. The eye tubercle of *B. incurus* is steep, while it is very low or absent in aporoptychines (as in most rastelloids). The ITC is not absent on the anterior legs of any rastelloid (aporoptychine or otherwise), but is lacking on the anterior tarsi of many species of *Acanthogonatus* and in *B. incurus*. Finally, the most conclusive evidence lies perhaps in the spigots of *B. incurus*, which shares with *Acanthogonatus*, *Stenoterommata*, and other nemesiid genera, a band of pumpkini-form spigots along the inner edge of the spinning field of the PLS. This character has not been observed in aporoptychines, and is considered here as a synapomorphy linking the gen-

era *Stenoterommata* (with its possible synonym *Hermachura*), *Hermacha*, *Stanwellia*, *Acanthogonatus*, and (more tenuously so) *Rachias* and *Pycnothele*. Of all those genera, the only Neotropical genus with a digitiform apical article of the PLS and female tarsi clearly flexible is *Acanthogonatus*. *B. incurus* is therefore included in that genus, which seems the most conservative decision at the present time. To summarize, nine characters are better accounted for by placing *B. incurus* in *Acanthogonatus* instead of *Bolostromus*: ITC absent from I and II; spines of patella III; spines of metatarsus IV; tarsus IV scopulate; flexible tarsi; rastellum absent; narrow fovea; eyes in a tubercle; pumpkini-form spigots along inner edge of PLS. As the most important characters for the genus *Acanthogonatus* are male characters (i.e., the characteristic tibial apophysis and pair of modified setae on the dorsal palpal tibia), only the eventual discovery of males of *A. incurus* will decisively corroborate—or refute—the present placement.

Chamberlin (1916: 204) described in the same paper another species of *Brachythele*, *B. keithi*, which he considered as very close to *B. incurus*, and suggested that, were it not for the longer legs in *B. keithi*, the two species could be synonyms. The type of *B. keithi* (a specimen in MCZ, examined, with the epigastrium dissected and at least some parts of it placed in a separate microvial, but with no detectable spermathecae) is in extremely poor condition, reduced to just a series of loose fragments. The specimen may have been freshly molted when collected; none of the tarsi has the claws still attached, and it is impossible to say whether it had claw-tufts (Chamberlin's description does not mention them). The maxillae have only about 10 maxillary cuspules (whereas cuspules in *B. incurus* are very numerous); that in itself suggests that the two species cannot be synonyms. There are only loose fragments of spinnerets accompanying the specimen, which appear to have corresponded to long spinnerets. That, and the general appearance of the fragments, suggest that the species may belong in the Diplurinae. As no maxillary lyra is present, the species is provisionally transferred to the diplurine genus *Linothele*, as *L. keithi* (NEW COMBINATION).

BIOGEOGRAPHY: If this species is correctly

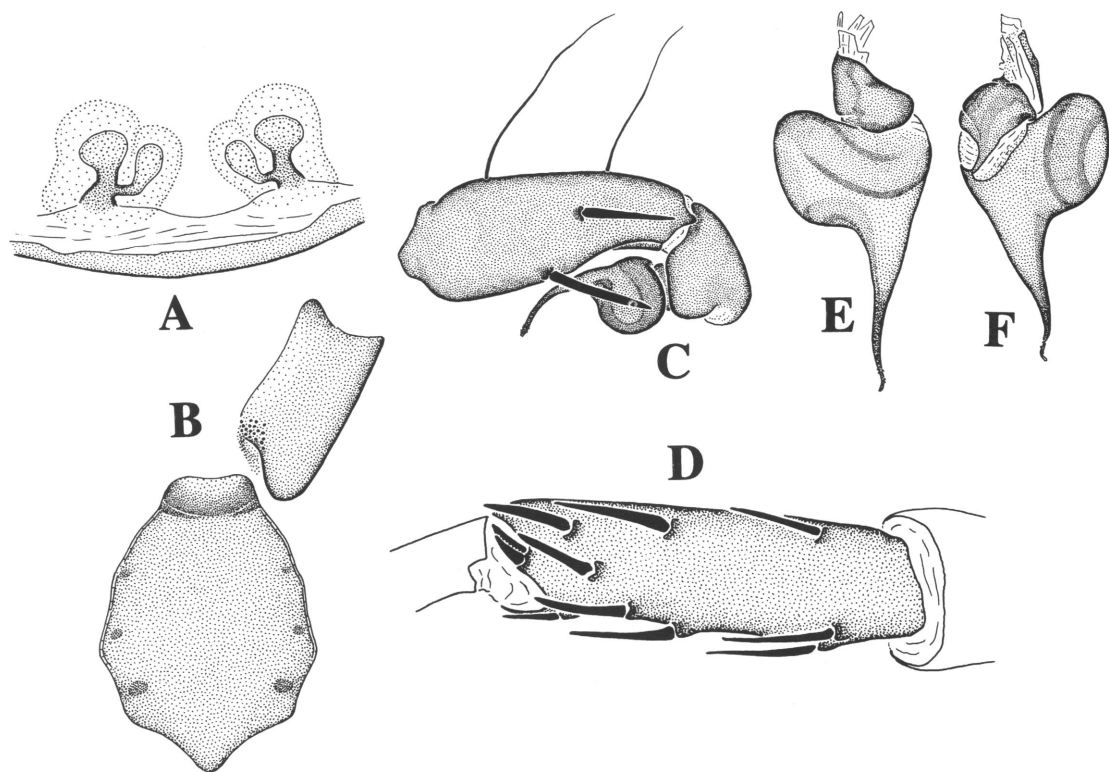


Fig. 89. *Acanthogonatus centralis*. A, B. Female. C–F. Male. A. Spermathecae, ventral. B. Sternum and maxilla. C. Left palp, prolateral. D. Right tibia I, prolateral. E, F. Right bulb.

placed in *Acanthogonatus*, its distribution may suggest a general biogeographical pattern. At least one other group of spiders with some species from high altitude elevations in Peru and others in northern Chile and Argentina is known, the family Diguetiidae. That family is represented in northern Chile and high altitude localities in Peru by the genus *Segestrioides*, and in Argentina by the genus *Diguetia*.

DISTRIBUTION: Known only from high altitude localities in Peru.

OTHER MATERIAL EXAMINED: PERU: **Junin:** Tarma, 3200 m, 14 Feb. 1965 (H. Levi, MCZ), 1♀, 6 juvs., 3100 m, Nov. 1942 (Weyrauch, AMNH), 1♀ juv.; Ambo, nr. Huanuco, 2100 m, no date (Weyrauch, AMNH), 2♀, 1 juv.

Acanthogonatus centralis,
new species

Figures 9, 77, 78, 89A–F, 90

Stenoterommata platense: Mello-Leitão, 1941b: 101 (misidentification).

Tryssothele sp.: Schiapelli and Gerschman, 1965: 13.–Goloboff, 1982: 77.

Acanthogonatus sp.: Goloboff, 1987: 46; 1993a: fig. 18.

TYPES: Male holotype and female paratype from Sierra de la Ventana, between Pringles and Saavedra, Buenos Aires, Argentina (26–29 Aug. 1987; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name refers to the distribution of this species, one of the most common mygalomorphs in central Argentina.

DIAGNOSIS: Females are most similar to those of *A. parana*, but can be distinguished by the widened fundus of the spermathecae (fig. 89A). Males can be recognized by the smooth, keelless bulb (figs. 89E, F), in combination with a well-developed tibial apophysis.

MALE (holotype): Total length 12.62. Cephalothorax length 5.57, width 4.27. Cephalic region length 3.71, width 2.54. OQ length 0.61, width 1.03. Labium length 0.50,

width 1.01. Sternum length 2.75, width 2.20. Labium with 1 cuspule, maxillae with 29/30. Serrula present, well developed. Sternal sigilla small, oval; sternal margin depressed next to sigilla III; sternum weakly rebordered. Chelicerae: rastellum absent; inner margin with 8 teeth (apical ones smaller); furrow with about 10 tiny scattered denticles. Cheliceral tumescence small, diffuse limits, with small ventral projection. Trichobothria: Tibiae, I, 10(3:4b), 9(3:4b); II, 10(3:4b), 9(3:4b); III, 10(1:2b), 8(1:2b); IV, 9(2:3b), 8(3:4b); palp, 8(1:1), 9(1:1). Metatarsi, I, 15(4:5a); II, 14(4:5a); III, 16(4:5a); IV, 18(4:5a). Tarsi, I, 15; II-IV, 16; palp, 15(1:3m). Chaetotaxy: Femora: I, 1 P A, 1 D B (and some more d, recumbent), 1-1/1-1 R SUP (1:3A), 1 D B (and some more d, recumbent); II, 1-1 P A, 1 D B; III, 1-1/1-1 P SUP (1:2A), 1-1 D (1:2B), 1-1 R SUP (1:2A); IV, 0/1 P SUP A, 1 D B, 1-1/1-1 R SUP (1:2A); palp, 1 P SUP A. Patellae: I, II, 1 P SUP A; III, 1-1-1 P, 1 R (very long, thick); IV, 0 p, 1 R (long, thick); palp, 0. Tibiae: I, 1-1-1 P SUP, 2 P INF A (laminar, on small apophysis), 1 P INF (1:4A), 2-2-1 V; II, 0-1-1 P SUP, 2 P INF A, 1-2 V; III, 1-1 P, 1-1 R, 0 D, 2-1-2/2-1-3 V; IV, 1-1/1-1-1 P, 1 D (1:3A), 1-1 R, 1-2-2/1-1-3 V ANT, 1-1-1 V POST; palp, 2 P. Metatarsi: I, 1/1-1 V POST B (thick, short); II, 1 P, 3 V (1:3B) (thick, longer); III, 2-2-1-1 P SUP, 2-1-1 R SUP, 2-1-1 V ANT, 1-1-1 V POST; IV, 1 D B (short), 6 P SUP (alternating), 2-1-1 V ANT, 1-1-2 V POST, 2-2-1 R SUP. Tarsi: I-IV, palp, 0. Scopula: dense on tarsi I-IV; for full length of metatarsi I, II, on 1:4A of III, on posterior 1:5A of IV. Scopulae I, II undivided, III divided by inconspicuous row of thin setae, IV divided by straight band of 4 thicker setae. Metatarsal preening combs absent from all legs. STC, teeth: I, 10 9 9 9; II, 10 9 9 10; III, 11 11 12 10; IV, 12 12 12 12. ITC absent from I-IV. Tarsi I-IV ventrally pallid, flexible. PLS, apical article digitiform; length of apical:medial:basal, 0.69:0.59:0.93; basal article with numerous spigots, occupying 5:7A; some spigots along midline of medial and basal article larger. PMS length 0.54, with about 10 spigots (one in middle, larger). Palp: as in figures 9, 89C; bulb as in figures 89E, F. Leg I, tibial spur typical for genus (figs. 77, 78, 89D); metatarsus straight. Color as in female.

FEMALE (paratype): Total length 15.02.



Fig. 90. *Acanthogonatus centralis*, female (photo F. A. Coyle).

Cephalothorax length 5.69, width 4.14. Cephalic region length 3.84, width 2.85. Fovea width 0.60. OQ length 0.60, width 1.11. Labium length 0.50, width 1.09. Sternum (fig. 89B) length 2.75, width 2.35. Cephalic region convex; fovea slightly procurved. Labium with no cuspules, maxillae with 28/28. Serrula present, as small patch of teeth. Sternal sigilla oval, sternal margin depressed at sides of posterior sigilla; sternum very weakly rebordered. Chelicerae: rastellum formed by weak attenuate setae; inner margin with 7 teeth; furrow with about 10 small denticles along groove. Trichobothria: Tibiae, I, 10(2:3b), 10(2:3b); II, 9(2:3b), 10(2:3b); III, 8(1:2b), 9(1:2b); IV, 9(2:3b), 11(3:4b); palp, 8(4:5b), 8(4:5b). Metatarsi, I, 15(3:4a); II, 14(3:4a); III, 14(3:4a); IV, 18(4:5a). Tarsi, I, 13; II, 15; III, 14; IV, 15; palp, 13. Chaetotaxy: Femora: I, II, 1 P SUP A, several d (recumbent, basal one stronger); III, 1 P SUP A, 1 D B (plus some recumbent, weaker), 1-1 R SUP (1:3A); IV, 1 D B (plus recumbent, weaker setae), 1 R SUP; palp, 1 P SUP A. Patellae: I, 0/1 P SUP A; II, 1 P SUP A; III, 1-1-1 P, 1 R (thick, long); IV, 0/1 P, 1 R; palp, 1 P B (weak). Tibiae: I, 2 V ANT A, 1-1/0-1 P SUP (1:2A), 1 v post; II, 2 V ANT A, 1 P (1:3A), 1 V POST; III, 1-1 P, 1 D (1:2A), 1-1 R SUP, 2-1/1 v, 3 V A; IV, 1-1 P, 1-1 R SUP, 2-1/1-1 v, 3 V A; palp, 2 P, 2 P INF A, 1-1 R INF. Metatarsi: I, 1-1 V POST (1:3B); II, 0/1 P SUP, 1-2-0-1 V; III, 2-2-2 P SUP, 2-1-1/1-1-1 R, 2-2-3 V; IV, 2-2-2 P SUP, 2-1-1 R SUP, 2-1-2-3 V. Tarsi: I-IV, palp, 0. Scopula: present for full length of tarsi I-IV and metatarsi I, II, anterior 1:2A on III, anterior 1:5A on IV. Scopula I, II undivided,

III divided by row of 4 thin setae, IV by row of 4 thicker setae. Flexible tarsi: I, II ventrally pallid but apparently rigid; III, IV flexible. Metatarsal preening combs absent from I-IV. STC, teeth: I, 6666; II, 7777; III, 9888; IV, 9 10 8 9. ITC absent from I-IV. PLS, apical article digitiform; length of apical:medial: basal, 0.82:0.67:0.98; basal article with numerous spigots on 5:7A. PMS length 0.67, with about 8 spigots. Spermathecae as in figure 89A. Cephalothorax, legs, palpi, yellowish brown; abdomen densely mottled, ventrally pallid, with some dark spots in front of spinnerets.

NATURAL HISTORY: *A. centralis* has been found mostly in the hilly areas of central Argentina. They are common under stones, where they make a dense silk tube (which continues often with a short burrow). They have also occasionally been collected in burrows dug in the earth accumulated between big stones; the burrows, found by shaving the surface, were closed with debris.

REMARKS: One female specimen of *A. centralis* from Sierra de la Ventana (where the species is extremely common) lacks the PMS. The PLS and all other characters in that specimen seem otherwise completely normal. No other specimens of *A. centralis* without PMS have been examined. It is of course impossible to know whether that peculiarity was just a developmental abnormality or had a genetic, inheritable basis. In many traditional classifications the absence of PMS has been considered as an "important" character, used in some cases to justify the creation of genera or even subfamilies (as the "Diplotheleinae" barychelids, synonymized with Barychelinae by Raven, 1985a). The loss of PMS has in more modern work been postulated for many more mygalomorph taxa, and its variability within a single species suggests that the character may indeed be quite labile.

I have examined specimens of this species from Córdoba (Agua de Oro, Anisacate, Cabana, and no specific locality, collected by M. Birabén and C. Bruch) which were identified as *Stenoterommata platense* and most probably were the specimens published by Mello-Leitão (1941b).

DISTRIBUTION: Very common in Sierras Centrales of Argentina (southern Buenos Ai-

res, western Córdoba, San Luis, and San Juan).

OTHER MATERIAL EXAMINED: ARGENTINA: **Buenos Aires:** Sierra de La Ventana, Jan. 1967 (M. Galiano, MACN), 1♂, 1 juv., Oct. 1972 (M. Galiano, MACN), 1♂, Dec. 72 (C. Cesari, MACN), 2♀, 22-27 Oct. 1981 (A. Ruggiero, MACN), 1♀, Jul. 1972 (Rojo(?), MACN), 1♂, Oct. 1988 (M. Galiano, C. Scioscia, MACN), 15♀, 6♂, 1 juv.; Sierra de La Ventana, Cerro La Ventana, detras del Hotel Provincial, 15 Nov. 1962 (M. Galiano, MACN), 2♀, 1 juv.; Sierra de La Ventana, between Pringles and Saavedra, 26-29 Aug. 1987 (P. Goloboff, MACN), 4♀, 1♂; Sierra de La Ventana, Cerro Bahía Blanca, 27 Sep. 1981 (S. Roig, MACN), 1♀, 1♂; Sierra de La Ventana, Parque Provincial E. Tornquist, 22-26 Oct. 1980 (P. Goloboff, A. Zanetic, MACN), 2♀, 6♂, 2 juvs.; Sep. 1982 (M. Ramírez, MACN), 2♂, 1♀, 2 juvs.; Sierra de La Ventana, Las Espadañas, Oct. 1973 (E. Maury, Cesari, MACN), 2♂, 6♀, juvs.; Sierra de La Ventana, Cerro Negro, 2 May 1972 (Césari, MACN), 1♀, Jul. 1972 (Césari, -20MACN), 1♀, Apr. 1974 (no collector?, MACN), 4♀, 2 juvs.; Sierra de La Ventana, Estancia "La Bonanza," Nov.-Dec. 1972 (Césari, MACN), 1♂, 1 juv.; Ruta Provincial 35 y Arroyo Chasicó, Puan, 14 Jun. 1980 (P. Goloboff, E. Spivak, MACN), 1♀; Sierra de Curamalal, Cerro Pan de Azúcar, 25 Nov. 1969 (E. Maury, J. Gallardo, M. Canevari, MACN), 1 juv.; Sierra de Curamalal, Saavedra, 15 Jun. 1980 (P. Goloboff, E. Spivak, MACN), 1♀, 1 juv.; Las Flores, no date (Varela, MACN), exuvia of 1♀; Bahía Blanca, Feb. 1942 (M. Monrós, MACN 1159), 1 juv. **Córdoba:** No specific locality, May 1924 (C. Brethes, MACN 12960), 1♂; no date (C. Bruch, MACN 14.406), 1♀. Salsipuedes, 7 Aug. 1978 (P. Goloboff, MACN), 1♀, 1♂; La Cumbre, Oct. 1976 (E. Maury, MACN), 1♂; Alta Gracia, Jun. 1955 (Gallardo, MACN), 1♀; Los Gigantes, Aug. 1984 (P. Goloboff, MACN), 1♀; Pampa de San Luis, 5 km Cuchilla Nevada, 16 Apr. 1987 (P. Goloboff, Acosta, C. Scioscia, MACN), 2 juvs.; Camino de Altas Cumbres, 16 Oct. 1984 (M. Galiano, MACN), 1 juv.; El Cóndor, Pampa de Achala, 18 Apr. 1987 (P. Goloboff, C. Scioscia, MACN), 4♀, 9♂, 3 juvs.; 10 km Pampa de Achala, Mar. 1986

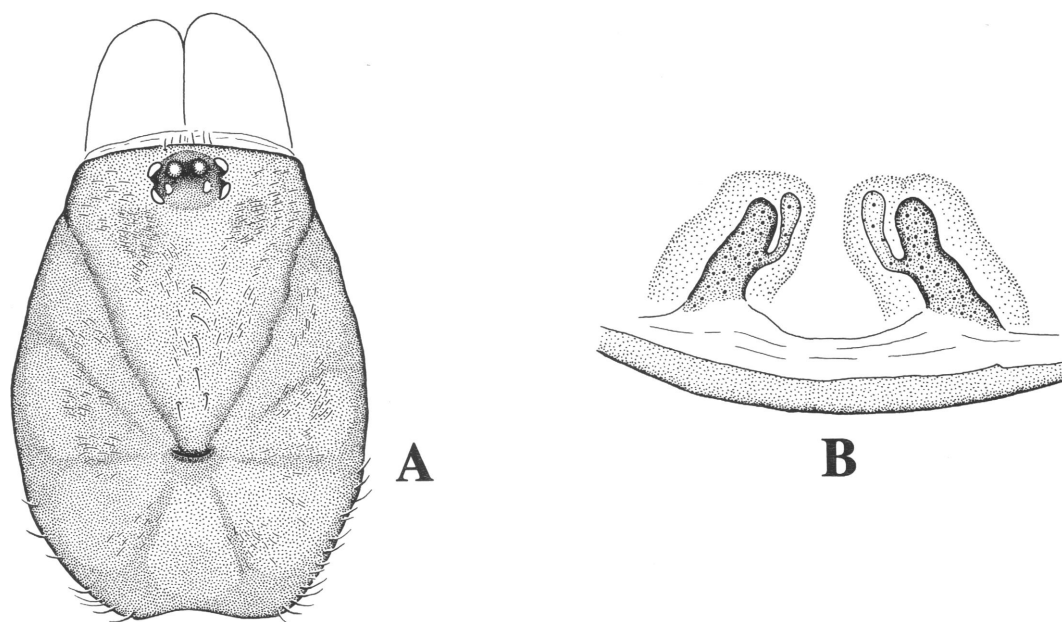


Fig. 91. *Acanthogonatus parana*, female. A. Cephalothorax. B. Spermathecae, ventral.

(C. Scioscia, MACN), 1♀, 1 juv.; Pampa de Achala, Nov. 1985 (M. Galiano, M. Miranda, MACN), 1♀, 6 Feb. 1981 (A. Roig, MACN), 5 juvs.; Calamuchita, Mar. 1957 (M. Viana, MACN), 2♀, Mar.–Apr. 1958 (M. Viana, MACN), 1 juv.; El Sauce, Calamuchita, Dec. 1940 (no collector?, MACN 2273), 2♀; Yacanto de Calamuchita, no date, (Crespo, Gallardo, Apóstol, MACN), 1♂; Capilla del Monte, Jul. 1983 (J. Genise, MACN), 1♀; Agua de Oro, no date? (M. Birabén, MACN), 1♂; Las Jarillas, 15–16 Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 1♀; Anisacate, no date (M. Birabén, MACN 14466), 2 juvs.; Jul. 1988 (L. Fortich, MACN), 1♀; Bosque Alegre, 15 Jan. 1981 (P. Goloboff, MACN), 4♀, IX.81 (P. Goloboff, MACN), 1♀; Jesús María, Nov. 1949 (M. Birabén, MACN), 1♀, 1♂; San Francisco del Chañar, Dec. 1949 (no collector, MACN), 1♀; 15 km. E. Mina Clavero, Jan. 1981 (P. Goloboff, MACN), 1♀; Cabana, no date (C. Bruch, MACN), 1♀, no date (M. Birabén, MACN 14465), 2♂, Jul. 1950 (M. Birabén, MACN), 1♀ (spermathecae lost). **Prov. ?:** Estancia Los Molles, Dpto. Santa María, 19 Jun. 1946 (Pierotti, FIML?). **San Luis:** Merlo, Nov. 1970 (Williner, MACN), 1♂, 12 Nov. 1982 (E.

Maury, MACN), 1♂, 10 Nov. 1984 (M. Galiano, MACN), 1 juv.; Papagallos, 9 Nov. 1982 (A. Roig, MACN), 1♀, 1 juv.; Cortaderas, Villa Elena, 10 Nov. 1982 (A. Roig, E. Maury, MACN), 4♀, 1 juv.; San Felipe, 20 Aug. 1951 (Luchini, MACN), 1♂, 1 juv.; Villa Elisa, Oct. 1974 (Williner, MACN), 1 juv. **San Juan:** Valle Fértil, Jan.–Feb. 1971 (M. Viana, MACN), 1♀.

Acanthogonatus parana,
new species
Figure 91A, B

TYPE: Female holotype from Toma Vieja, 2 km N of Paraná, Entre Ríos, Argentina (1 Dec. 1981; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females are most similar to those of *A. centralis*, but can be distinguished by the narrow fundus of the spermathecae.

MALE: Unknown.

FEMALE (holotype): Total length 16.40. Cephalothorax (fig. 91A) length 6.77, width 4.95. Cephalic region length 4.30, width 3.40. Fovea width 0.67. OQ length 0.67, width 1.28. Labium length 0.61, width 1.14. Sternum

length 1.77, width 1.53. Cephalic region moderately convex; fovea procurved. Labium with no cuspules, maxillae with 15/20. Serrula present. Sternal sigilla as in *A. centralis*; sternum weakly rebordered. Chelicerae: rastellum formed by long, attenuate setae; inner margin with 9 teeth. Trichobothria: Tibiae, I, 10(3:4b), 10(3:4b); II, 10(3:4b), 10(3:4b); III, 10(2:3b), 9(2:3b); IV, 11(3:4b), 11(3:4b); palp, 8(1:1), 7(1:1). Metatarsi, I, II, 13(3:4a); III, 13(4:5a); IV, 16(4:5a). Tarsi, I, 15; II, 13; III, IV, 15; palp, 12. Chaetotaxy: Femora: I, II, 1 P SUP A, 1 D B (plus recumbent setae); III, 0/1 SUP A, 1/1-1 D B, 1 R SUP A; IV, 1 R SUP A, 1 D B; palp, 1 P SUP A. Patellae: I, 0; II, 0/1 P SUP A; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 1 p inf a; II, 1 v, 1 P INF A; III, 1-1 P, 1 R (1:2A), 1 D (1:2A), 1-0-2/1-0-1 V ANT, 0-1-1 V POST; IV, 1-1/0-1 P, 1-1 R, 2-1-2/2-0-2 V; palp, 2 P (1:2A), 2 P INF A, 0-1-1 R INF. Metatarsi: I, 0; II, 1-1-1 V (1:2B); III, 2-2-2 P SUP, 1-1-1 R SUP, 2-1-2-3/2-2-3 V; IV, 2-2-2/2-1-2 P SUP, 2-0-1-1 R SUP, 2-1-2-3 V. Tarsi: I-IV, palp, 0. Scopula: on full length of tarsi I-IV; on 4:5A of metatarsi I, 3:4A of II, anterior 1:5A of III, absent from IV. Scopula I, II undivided, III, IV divided by row of 4 setae width. Flexible tarsi: I, II ventrally pallid; III, IV flexible. Metatarsal preening combs absent from all legs. STC, teeth: I, 5555; II, 6666; III, 7766; IV, 8887. Palpal claw with 5 teeth on promargin. ITC absent from I-IV. PLS, apical article digitiform; length of apical:medial:basal, 1.17:1.04:1.41; with pumpkiniiform spigots in row along inner edge of spinning field. PMS length 0.84; about 7 or 8 spigots. Spermathecae as in figure 91B. Cephalothorax, legs, and palpi, yellowish brown; abdomen densely mottled, ventrally pallid, with some dark spots in front of spinnerets.

NATURAL HISTORY: The specimens were collected in silk tubes under boulders of "tosca" (concretions of calcium carbonate), at the foot of a low forested bank of the Río Paraná. Relatively careful collecting within a radius of about 100 km of the type locality never yielded any more specimens of *A. parana*. In a trip made in 1992, the habitat where specimens had been collected in 1980 and 1981 had been destroyed. If this species was restricted to that area of the banks of the Paraná

it seems plausible that finding additional specimens will prove very difficult, as most of the suitably forested habitats along many kilometers of the Paraná have now been severely disturbed.

DISTRIBUTION: Known only from the type locality, in eastern Entre Ríos Province, Argentina.

OTHER MATERIAL EXAMINED: Same locality as the type but date 8-10 Feb. 1980 (P. Goloboff, MACN), 1♀, 2♂ juvs.

Acanthogonatus campanae

Legendre and Calderón

Figure 92A-E

Trysothele subcalpetana: Gerschman and Schiapelli, 1968: 29 (in part, male only).—Raven, 1985a: figs. 35-39.

Trysothele campanae Legendre and Calderón, 1984: 1052 (male and female types from Parque Nacional La Campana, not examined; numerous topotypical specimens, in AMNH and MACN, examined).

DIAGNOSIS: Males can be distinguished by the smooth, keelless embolus, in combination with the presence of ITC on all legs and a tibial spur. The female spermathecae, with a unique, long, undivided receptaculum, are different from those of all other known females of the genus. In the field, they are easily distinguished from the sympatric *A. pissii* by their brownish, more uniform color, and from *A. huaquen* by their more flattened cephalothorax and abdomen and the more marked abdominal chevron (instead of the irregularly distributed mottles of *A. huaquen*), and by living in loose silk tubes under stones or logs (instead of deep burrows).

MALE (MNHN, 15187, boc. 351, and MACN, La Campana, P. Goloboff, E. Maury, Szumik): Total length 14.80. Cephalothorax length 6.10, width 4.90. Labium with no cuspules, maxillae with 15 to 23. Serrula, present, well developed. Sternal sigilla, small, oval, marginal. Chelicerae without rastellum. Cheliceral tumescence small, with irregular edges, flat, with few thin scattered setae. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1-1 P SUP A, 1 d m, 1-1 R SUP A; IV, 1-1 P SUP A, 1 d (1:3b), 1-1 R SUP A; palp, 1 p a. Patellae: I, II, 1 P A; III, 1-1 P, 1 R; IV, 1 P A, 1 R; palp, 1 p a. Tibiae: I, 1-1 P, 0 D, 2 P INF A (on common base on low spur),

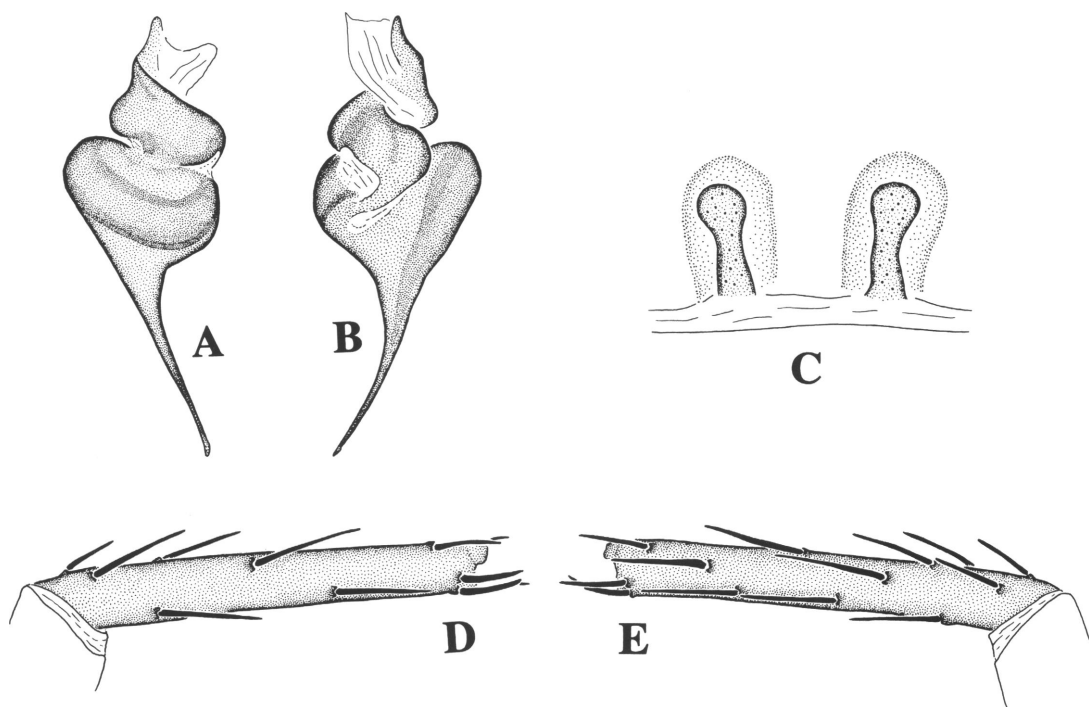


Fig. 92. *Acanthogonatus campanae*. A, B. Male. C-E. Female. A, B. Right bulb. C. Spermathecae, dorsal. D. Right metatarsus IV, retrolateral. E. Same, prolateral.

2-2 V, 1 V POST A; II, 1-1 P SUP, 2-1-2-2 V; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 2-2-3 V; IV, 1-1 P, 1-1 R SUP, 2-2-3 V; palp, 1-2-1 P INF, 1 R A. Metatarsi: I, 2-2 B (1:2B); II, 1 P SUP M, 2-2 V (2:3B), 1 V POST (1:3A); III, 1-1-1 P, 1-1-1 P SUP, 1 D B POST, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 1-1-1 P SUP, 1-1-1 R SUP, 2-1-1-1-3 V. Tarsi: I-IV, 0; palp, 0. Tarsi scopulate, III, IV lightly so; metatarsi I with scopula on 1:2A, II on 1:3A, III, IV ascopulate. Scopula I, II undivided, III, IV divided by wide band of setae. Metatarsal preening combs: present on III, IV, formed by clusters of 4 long thin setae (anterior comb of IV almost inconspicuous). ITC present in I-IV. All tarsi flexible. Spigots occupying full length of basal article; medial and apical articles with numerous spigots of uniform size. Palpal bulb as in figures 92A, B. Leg I, tibia cylindrical, with spur typical for genus; metatarsus straight, unmodified. Entire spider light brown, with golden pubescence and conspicuous chevron on dorsal abdomen.

FEMALE (La Campana, P. Goloboff, E. Maury, C. Szumik): Total length 17.60. Cephalothorax length 6.50, width 5.05. Cephalic region length 3.80, width 2.75. Sternum length 3.10, width 2.68. Cephalic region low, flat, narrow. Labium with 2 cusps, maxillae with 18/22. Serrula present, well developed. Sternal sigilla small, subcircular, marginal; sternum rebordered. Chelicerae: rastellum absent; inner margin with 9 teeth; furrow with 10 denticles. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1 P SUP A, 1 d b, 1/1-1 R SUP A; IV, 1 D B, 1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 1 V ANT A; II, 1 P SUP (1:3A), 2 V ANT A, 1 V POST M; III, 1-1 P, 0/1 D (1:3A), 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; IV, 1-1 P, 1-1 R SUP, 2-2-2 V; palp, 1 p sup, 1-1-2 P INF (basal weakest), 1-1-1 R INF (basal weakest). Metatarsi: I, 2-1 V (1:2B); II, 2-2-0-2 V (strong); III, 1-1-1 P SUP, 0-1-1-1 D ANT, 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV (figs. 92D, E), 1-1-1 P SUP, 0-1-1-1 D

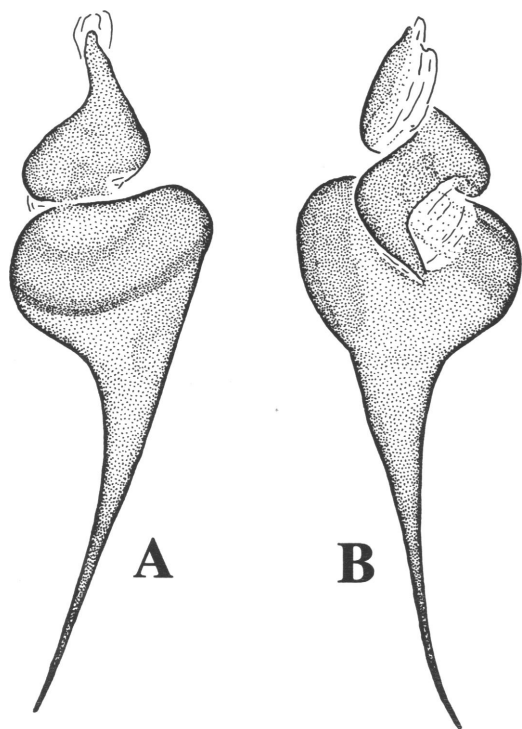


Fig. 93. A, B. *Acanthogonatus campanae*, male from Elqui Prov., Left male bulb.

ANT, 1-0-1/1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV scopulate (anterior ones more densely so); metatarsi I with scopula reaching base, II with 1:2A scopulate, III, IV scopulate. Scopula I undivided, II with scopular hairs along midline thicker, setiform; III, IV divided by wide band of numerous setae. Tarsi I, II rigid (with medial paler area), III, IV flexible. Metatarsal preening combs: I, II, absent; III with 2 clusters of 4 long setae forming a somewhat undefined comb; IV with anterior comb of 4 setae quite undefined, posterior comb formed by 4 thicker setae. ITC I-IV, present. Spermathecae as in figure 92C. Color as in male.

NATURAL HISTORY: This species lives in silk tubes under stones or logs, in both forested or more open areas in central Chile. Some specimens have been collected in sandy soils near the sea shore.

REMARKS: The specimens from Elqui Prov. were first thought to represent a different species. The only known male, a poorly pre-

served specimen lacking both anterior legs, has a much longer embolus (figs. 93A, B) than males from farther South. The spermathecae of the only known female from Elqui Prov., however, are indistinguishable from those of specimens from other localities.

DISTRIBUTION: Very common in central Chile (Regions IV, V, and Metropolitana).

MATERIAL EXAMINED: CHILE: No specific locality: no date (no collector, MNHN 15187), 1♂. Prov. ??: Cerro El Roble, Aug. 1961 (no collector, MACN), 1♂. **Region Metropolitana:** Lampa, 14 Aug. 1984 (Irrarrazaval, AMNH), 1♀, 2 juvs.; El Canelo, Río Colorado, Jan. 1984 (P. Goloboff, E. Maury, MACN), 2 juvs. **San Felipe de Aconcagua:** Talaquén (32°33' S, 71°14' W), Oct. 1982 (L. Peña, AMNH), 1♀, 1 juv. **Region V (de Valparaíso):** Valparaíso: Valparaíso, Dec. 1900 (Carter, BMNH), 1♀. **Border Quillota-Petorca:** Fundo Talanquén, nr. Cuesta El Melón, 9 Dec. 1984 (Niemeyer, MHNS 853), 1♀; Cuesta El Melón, 520 m. elev., 10 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀, Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1 juv. **Quillota:** Parque Nacional La Campana, Palmas de Ocoa, 14 Mar. 1985 (R. Calderón, AMNH), 1♂, 27-28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 4♀, 3♂, 5 juvs. **Petorca:** Quebrada Huaquén, Calleta Pichicuy, 7 Jan. 1984 (P. Goloboff, E. Maury, Roig, MACN), 3♀, 9 juvs., elev. 10 m, 2 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1 juv.; Quebrada El Chivato, 1 km S Los Molles, Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 1 juv. **Region IV (Coquimbo):** **Choapa:** Cuesta de Caviolén, 30 km NE of Los Vilos, 7 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 2♀, 4 juvs.; 10 km S Los Vilos, Jan. 1984 (P. Goloboff, E. Maury, MACN), 2♀, 2 juvs.; Los Vilos, 30 Sep. 1983 (E. Maury, MACN), 5 juvs.; Cerro Silla del Gobernador, E of Pichidangui, 31 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 2 juvs. **Elqui:** 16 km S Cruz Grande, 140 m elev., 7 Oct. 1992, P. Goloboff, N. Platnick, K. Catley, 5 juvs. (AMNH); 6 km S Cruz Grande, 20 m elev., P. Goloboff, N. Platnick, K. Catley, 7 Oct. 1992, 3 juvs. (AMNH), 11 Nov. 1993 (N. Platnick, K. Catley, M. Ramírez, T. Allen, AMNH), 1♀; El Tofo, no date, Halliman, 1♂ (AMNH).

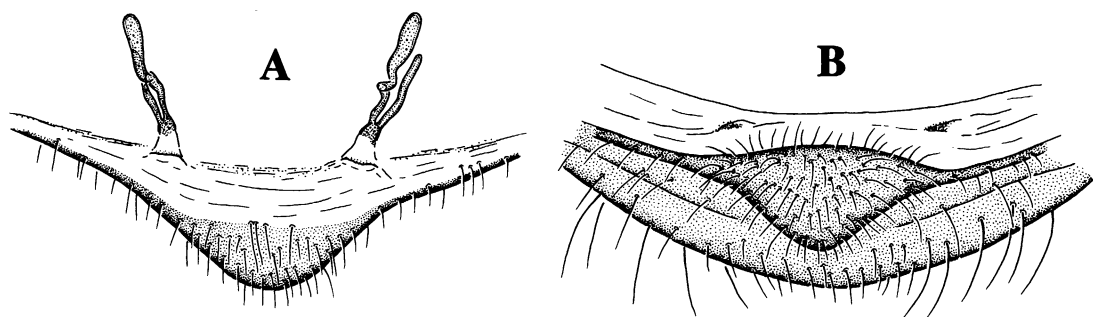


Fig. 94. *Acanthogonatus alegre*, female spermathecae and epigastrium. A. Dorsal view. B. Posterior view.

***Acanthogonatus alegre*,**
new species
Figure 94A, B

TYPE: Female holotype from Las Vertientes, Antofagasta, Region II, Chile (12 Jun. 1992; L. Peña), deposited in AMNH.

DIAGNOSIS: Females can be recognized by the epigastrium produced in a membranous extension (figs. 94A, B), and the long, slender, bifurcated spermathecae.

ETYMOLOGY: The specific name, Spanish for happy, refers to the aspect of a happy (penguin?) face that the female epigastrium has in posterior view.

MALE: Unknown.

FEMALE (holotype): Total length 23.30. Cephalothorax length 8.40, width 6.20. Cephalic region length 5.35, width 4.20. Fovea width 0.75. OQ length 0.67, width 1.25. Labium length 0.67, width 1.37. Sternum length 4.12, width 3.10. Cephalic region flat, low, narrow; fovea slightly procurved, with small posterior notch. Labium with 1 cuspule, maxillae with 61/73. Serrula present, well developed. Sternal sigilla oval, elongated, small, shallow, separated from margin by half their length; sternum rebordered. Chelicerae: rastellum absent; inner margin with 8 teeth; apparently no denticles in furrow (furrow is very dirty). Chaetotaxy: Femora: I, II, 1 p sup a; III, 1/1-1 P SUP (1:2A), 1 d b, 1-1/1-1-1 R SUP (1:2A); IV, 1 d b, 1/1-1 R SUP A; palp, 1 P SUP A. Patellae: I, 0; II, 1 p sup a; III, 1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 1 p (1:3a), 1-1 v post, 0/2 V A; II, 1-1 p (1:2a), 1-1/2-2-2 V; III, 1-1 P, 1 D (1:3A), 1-1 R, 2-2-3 V (thick, strong; of which, 1-1-2 V ANT); IV,

1-1 P, 1-1 R SUP, 2-2-3 V (thick, strong; of which, 1-1-2 V ANT); palp, 0-1/1-1 P, 1-1-2 P INF, 1-1-2 R INF. Metatarsi: I, 2-2-1-0-1/1-2-1-0-1 V (thick); II, 1 P SUP, 3-2-0-2/1-1-1-0-1 V (thick); III, 2-2-2 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 V (of which, 1-1-2 V POST); IV, 2-2-2 P SUP, 2-2-1/2-1-2-1 R SUP, 2-2-3 V (of which, 1-1-2 V POST). Tarsi: I-IV, 0; palp, 0. Tarsi I-IV densely scopulate; 3:4A of metatarsi I, 1:2A of II scopulate; metatarsi III, IV ascopulate. Scopula I, II undivided, III with setae scattered along midline (not forming clear band), IV with narrow band about 3 setae wide. Tarsi I-IV flexible. Metatarsal preening combs absent from I-IV. STCS, teeth: I, 5555; II, 6665; III, 6777; IV, 10 889. Palpal claw with 4 teeth on promargin. ITC I, II, absent; III, present, small; IV, present, slightly larger than on III. PLS, apical article digitiform; length of apical:medial:basal, 2.12:1.57:1.82; spigots poorly preserved; numerous on all three articles, occupying entire length of basal article. PMS length 1.00; numerous spigots, occupying entire length. Spermathecae as in figure 94A, with conspicuous epigastric projection (fig. 94B). Cephalothorax, legs, chelicerae, olive brown with golden hairs; abdomen lighter, with darker chevron similar to the one in *A. campanae*.

NATURAL HISTORY: No data are known.

REMARKS: This is one of the northernmost records of Mygalomorphae in Chile. Besides the holotype of *A. alegre*, a single juvenile male of (apparently) *Acanthogonatus* has been collected in Antofagasta (6 km E Paposo, 480 m elev, 12 Oct. 1992, P. Goloboff, N. Platnick, K. Catley, in AMNH), but that speci-

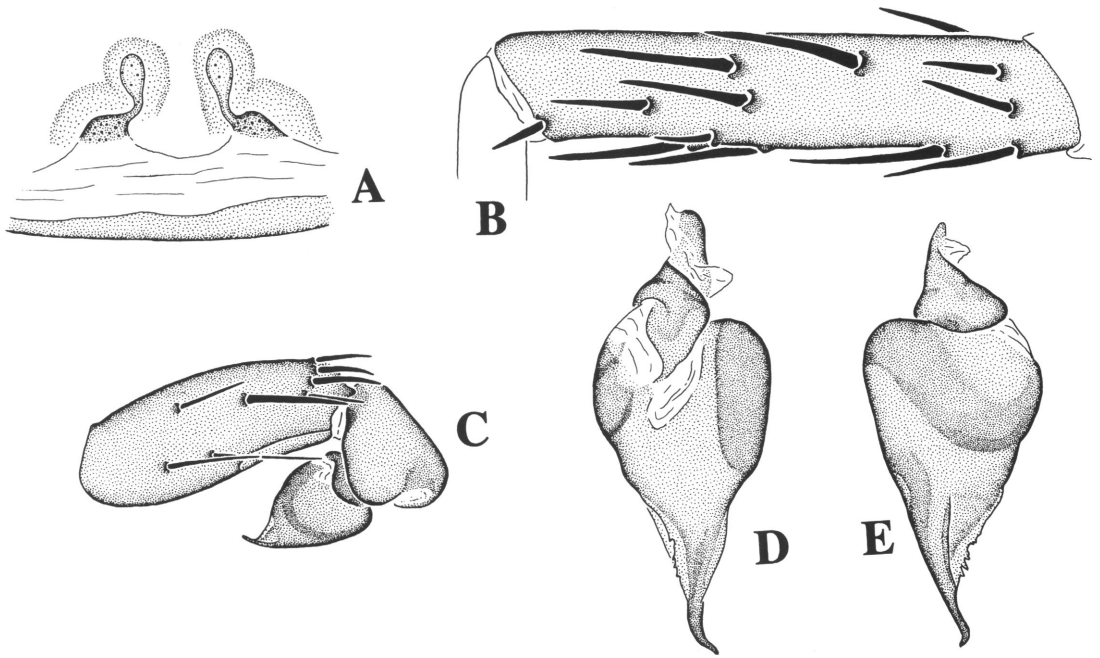


Fig. 95. *Acanthogonatus franki*. A. Female. B–E. Male. A. Spermathecae, ventral. B. Right tibia I, prolateral. C. Left palp, prolateral. D, E. Right bulb.

men clearly belongs to a different species, as it has three claws on the anterior tarsi.

DISTRIBUTION: Known only from the type locality, in northern Chile.

OTHER MATERIAL EXAMINED: None.

THE FRANKI GROUP

This species group is characterized by the presence of 1-1-1 P spines on patella IV, the loss of the spur on the male tibia I (a reversal, also occurring, in parallel, in *A. fuegianus*), and the more coniform male bulb. It comprises three species: *A. franki*, *A. peniasco*, and *A. recinto* from central-southern Chile.

Acanthogonatus franki Karsch

Figures 95A–E

Acanthogonatus franki Karsch, 1880: 391 (female holotype from unspecified locality in Chile, in ZMB, examined).

Stenoterommata segne Simon, 1886: 574 (two female syntypes from Valdivia, Chile, in MNHN, examined). **NEW SYNONYMY.**

Acanthogonatus segne: Raven, 1985a: 161.

DIAGNOSIS: This species can be easily distinguished from the other two species in the

franki group (*A. recinto* and *A. peniasco*) by its genitalia, and from other species in the genus, by having 1-1-1 P spines in the female patella IV.

MALE (Osorno, no specific locality, AMNH): Total length about 16 (abdomen separated). Cephalothorax length 6.50, width 5.20. Cephalic region length 4.20, width 3.05. OQ length 0.60, width 1.14. Labium length 0.52, width 1.00. Sternum length 3.10, width 2.70. Labium with 6 cuspules, maxillae with 43/48. Serrula present, well developed. Anterior sternal sigillum as in female; posterior sigilla slightly shallower than in female, but similarly shaped and positioned; sternum strongly rebordered. Chelicerae elongated; rastellum weak, formed by long, thin, stiff bristles; inner margin with 10 teeth; furrow with about 20 long denticles. Cheliceral tumescence present, rather excavated, ventrally protruding. Chaetotaxy: Femora: I, 1 P SUP A, 0-1-1 D (1:2B), 1-1-1/1-1-1-1 R SUP; II, 0-1-0-1 P SUP, 0-1-1 D (1:2B), 0-1-1-1-1/0-1-1-1 R SUP; III, 1-1-1/1-1-2 P SUP, 1 D B, 1-0-1/1-1-1 R SUP (2:3A); IV, 1-1-1 P SUP (1:2A), 1 D B, 1 R SUP A; palp, 1/2 P SUP A. Patellae: I, II, 1/1-1 P, 0 R, 1 V POST

A [I]; III, IV, 1-1-1 P, 1 R; palp, 1-1-1 p. Tibiae: I, 2-1-2 P, 0/1 P INF (1:4A), 1 D ANT B, 0-1-1/1-1-1 R, 2-1-1-2-0/2-0-1-2-0 V POST, 1-0-0-1-0 V ANT. II, 1-1 P SUP, 1-1/1 P, 2-1-1/2-2-1 V POST, 1-1-2 V ANT; III, 1-1 P SUP, 1 D (1:3A), 1 D POST B, 1-1 R SUP, 3-2-3 V; IV, 1-1 P, 0/1 d a, 1 D POST B, 1-1 R, 2-2-3 V; palp, 2-2/1-2 P, 4 P SUP A, 1/1-2 R A. Metatarsi: I, 1 V POST A (very short, small); II, 1-1 P (1:2B), 1-1 P SUP (1:3M), 1 R, 1 V ANT M, 1-1-1 V POST; III, 1-1-1-0 P, 0-1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 P; IV, 1-1-1 P, 0-1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2/1-1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I, II densely scopulate, III with relatively dense scopula, IV with light scopula; metatarsi I, II with scopula on 1:2A, III with some scopular hairs on 1:3A; IV ascopulate. Scopula I, II undivided; III with scattered setae along midline, IV with numerous setae scattered on ventral surface, not forming clear band. Metatarsal preening combs: absent from I-IV. STC, teeth: I, 9889; II, 8879; III, 9998; IV, 9899. ITC I-IV absent. Tarsi I-IV flexible. PLS, apical article digitiform; length of apical:medial:basal, 0.87:0.59:1.12; spigots on 2:3A of basal article. PMS length 0.65; spigots on 1:3A. Palp: as in figure 95C; tibia with group of 4 P SUP A on tibia; bulb as in figures 95D, E, coniform, triangular, with 3 flanges along embolus (one perpendicular to other two). Leg I, tibial apophysis absent (fig. 95B); metatarsus slightly sinuous (almost straight), with concavity anterior in basal half, posterior in apical half. Cephalothorax, legs, palpi yellowish brown; abdomen lighter with brown mottles.

FEMALE (Maicolpué): Total length 18.95. Cephalothorax length 7.20, width 6.00. Cephalic region length 4.80, width 4.40. Fovea width 0.80. OQ length 0.65, width 1.30. Labium length 0.75, width 1.37. Sternum length 3.85, width 3.15. Cephalic region of medium width and convexity; fovea slightly procurved, with tiny posterior notch. Labium with 5 cuspules, maxillae with 61/57. Serrula well developed. Anterior sternal sigillum with sternum sloping over it (as in *Chaco sanjuanina*); posterior sigilla small, oval (narrow), relatively deep, separated from margin by half its length; sternum rebordered. Chelicerae: rastellum formed by thin, stiff bristles; inner

margin with 10 teeth; furrow with about 30 long denticles, in a triangle-shaped area (pointed forward; anterior denticles larger). Chaetotaxy: Femora: I, II, 1 P SUP A; III, IV, 1 d b (very weak); palp, 0. Patellae: I, II, 0; III, 1-1-1/2-1-1 P, 0 R; IV, 1-1-1 P, 1 R; palp, 0. Tibiae: I, II, 1 p, 1-1 v post; III, 1-1 P, 1 D (1:2A), 1-0/1-1 R, 0-1-2 v ant, 0-1-1/1-1-1 v post; IV, 1 P (1:3A), 1-1 R SUP, 0-2-2 v; palp, 1 p (1:3a), 0-1-2 V ANT, 0-1-2 V POST. Metatarsi: I, 1 V POST A (short); II, 1 V ANT, 1-1-1 V POST; III, 0-1-1-1/0-1-1-1-1 P SUP, 1-1-1-0/1-1-1 P, 1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 0-1-1-1 P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I, II densely scopulate; III, IV with very light scopula; metatarsi I and 1:2A of II scopulate, III, IV ascopulate. Scopula I, II undivided, III, IV with numerous setae interspersed among scopular hairs (covering most of ventral surface). Flexible tarsi: I, II ventrally pallid, but not really flexible; III, IV flexible. Metatarsal preening combs: absent from I and II; III, with 2 rather irregular combs of about 5 long stiff setae (combs separated by a ventral apical spine, but otherwise run almost contiguous); IV, without anterior comb, with posterior comb formed by 5 setae (slightly more orderly arranged than on III). STC, teeth: I, 4564; II, 6555; III, 6675; IV, 6666. Palpal claw with 6 teeth. ITC I-IV absent. PLS, apical article digitiform; length of apical:medial:basal, 1.00:0.92:1.42; spigots numerous on all three articles, occupying 3:4A of basal; pumpkiniform spigots on inner edge of spinning field, articulate spigots on rest of article. PMS length 0.80; numerous spigots on 1:2A. Spermathecae as in figure 95A. Cephalothorax, legs, palpi yellowish brown; abdomen lighter with brown mottles.

NATURAL HISTORY: This species is apparently restricted to moist, densely forested areas in eastern Region X, Chile. The specimen from Maicolpué was found in a silk tube built between a dense layer of moss mixed with detritus in a fallen log.

SYNONYMY AND REMARKS: No significant differences are exhibited by the types of *A. franki* and *A. segne*. Raven (in Palmer, 1990) identified specimens of *A. huaquen* as *A. franki*; the two species share rather similar female genitalia, but females of *A. huaquen*

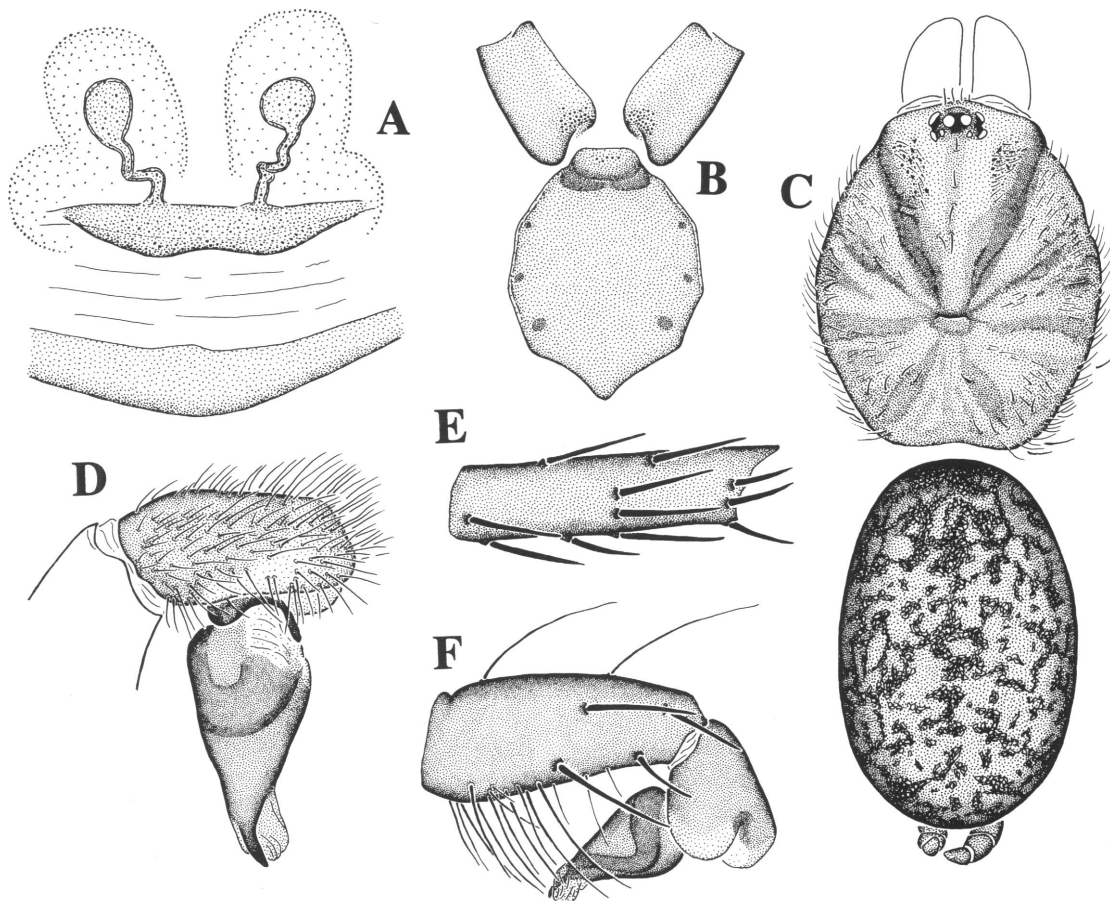


Fig. 96. *Acanthogonatus recinto*. A. Female. B–F. Male. A. Spermathecae, ventral. B. Sternum and maxillae. C. Cephalothorax and abdomen. D. Right cymbium, retrolateral. E. Left tibia I, proventral. F. Left palp, prolateral.

never possess spines on the patella IV, which are present in the types of both *A. segne* and *A. franki*.

The illustration of the female syntype spermathecae of *A. segne* published by Schiapelli and Pikelin (1962) (note that the figure legends in that paper were transposed, so that the actual figure for *Stenoterommata segne* is table 3, fig. 2) represented only the base of the spermathecae (the differentiated duct and fundus, omitted in that figure, are actually present).

DISTRIBUTION: Known only from eastern Region X, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region X (de los Lagos):** *Valdivia*: 6 km E Niebla (nr. Valdivia), 23 Jan. 1991 (E. Maury,

MACN), 1♂ juv.; Maicolpué, 19 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀. *Osorno*: 36 km W La Unión, 600 m elev., 25–28 Mar. 1987 (L. Peña, AMNH), 3 juvs.; La Pelada Chica (between El Mirador and La Unión), 1–2 Mar. 1987 (L. Peña, AMNH), 1♀; Pucatrihue, Osorno coast, Jan.–Mar. 1968 (L. Peña, MCZ), 1♀. *Llanquihue*: Correntosa (N.), El Chingue, 20–25 Jan. 1980 (L. Peña, AMNH), 1♀ (poorly preserved spermathecae, but identifiable).

Acanthogonatus recinto,
new species

Figures 57, 96A–F

TYPES: Male holotype from 22.7 km ESE Recinto, 1330 m elev., Ñuble, Region VIII

(del Bío-Bío), Chile (10 Dec.–3 Jan. 1983; Newton, Thayer), window trap, *Nothofagus* forest, deposited in AMNH, and female paratype from 8 km E Recinto, Nuble, Region VIII (del Bío-Bío), Chile (16 Oct. 1987; E. Maury), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be distinguished from those of *A. franki* by the spermathecae, which have a more rounded and differentiated fundus and the basal portion extended internally, with the bases of each side forming a continuous cavity, from those of *A. peniasco* by the narrower, longer and less sclerotized ducts, and from those of other species in the genus by having 1-1-1 P spines on patella IV. Males differ from those of *A. franki* (and, essentially, all other species in the genus) in the unique winglike projection at the base of the embolus.

MALE (holotype): Total length 12.95. Cephalothorax (fig. 96C) length 5.80, width 4.90. Cephalic region length 3.70, width 3.05. OQ length 0.52, width 1.00. Labium length 0.42, width 0.85. Sternum (fig. 96B) length 2.92, width 2.32. Labium with 3 cuspules, maxillae with 29/30. Serrula present, well developed, teeth widely spaced. Sternal sigilla small, shallow, oval, submarginal; sternum rebordered. Chelicerae: rastellum weak, formed by long thin bristles; inner margin with 7 teeth; furrow with 20 denticles. Cheliceral tumescence present, small, ventrally protruding, aetose. Chaetotaxy: Femora: I, 1-1 P SUP (1:3A), 1-1-1-1 D, 1-1-1/0-1-1 R SUP (1:2A); II, 0-1-1-1 P SUP, 1-1-1-1 D, 1-1-1-1/0-1-1-1 R SUP; III, 0-1-1-1 P SUP, 1-1-1-1 D, 0-1-1-1 R SUP; IV, 1-1 R SUP (1:3A), 1-1-1-1/0-1-1-1 D, 1 R SUP A or 1-1-1 R SUP (1:2A); palp, 1 P SUP A. Patellae: I, 0-0-0-1/0-1-1 P SUP, 1 V A; II, 0-2-1/0-1-1 P SUP; III, IV, 1-1-1 P, 1 R; palp, 1 P SUP B. Tibiae: I, 1-1 P SUP, 1-0-2-2 V ANT (2 apical ones shorter, close to each other, but on separate bases), 1-2-1 V POST; II, 1-1 P, 1-2-2 V ANT, 1-1-1 V POST; III, 1-1 P SUP, 1 D (1:3A), 1-1 R SUP, 1-2-2 V ANT, 1-1-1 V POST; IV, 1-1-1/1-2-1 P, 1 D (1:3A), 1-1/1-1-1 R SUP, 1-2-2/1-1-2 V ANT, 1-1-1 V POST; palp, 0-1-0/0-1-1 P SUP, 0-1-1 P INF, 1 R A. Metatarsi: I, 0; II, 1-1-0 P SUP, 1 D ANT, 1 V ANT, 1-1-0 V POST;

III, 1-1-1 P, 0-1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 0-1-1-1/0-0-1-1 P SUP, 1 D POST B, 2-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 1:1, III with scopula on 1:3A, IV with few scopuliform hairs on 1:5A. Scopula I–III undivided, IV with narrow line of setae (2–3 setae wide). Metatarsal preening combs absent from I–IV. STC, teeth: I, 10 998; II, 8 10 10 9; III, 8998; IV, 8998. ITC I–IV, absent. Tarsi I–IV flexible. PLS, apical article triangular; length of apical:medial:basal, 0.62:0.57:0.95; spigots poorly preserved. PMS length 0.60. Palp: tibia (fig. 96F) with two dorsal long erect sinuous bristles; bulb with distinct winglike projection (fig. 96D, F). Leg I, tibia cylindrical, straight, with no apophysis; metatarsus straight. Cephalothorax, legs, palpi reddish brown; abdomen light yellowish brown, with numerous dorsal mottles forming almost inconspicuous darker chevron (fig. 96C).

FEMALE (paratype): Total length 19.20. Cephalothorax length 6.90, width 5.50. Cephalic region length 4.45, width 3.70. Fovea width 0.75. OQ length 0.62, width 1.14. Labium length 0.70, width 1.17. Sternum length 3.52, width 3.07. Cephalic region of medium convexity; fovea shape straight to procurved, with small posterior notch. Labium with 4 cuspules, maxillae with 21/29. Serrula present, well developed, on anterior side of lobe. Sternal sigilla small, oval, shallow, submarginal; sternum rebordered. Chelicerae: rastellum weak, formed by thin, long, attenuate bristles; inner margin with 7 large teeth; furrow with 15 small denticles. Chaetotaxy: Femora: I, 1 P SUP A, 1-1-1-1 d; II, 1/1-1 P SUP A, 1-1-0-0 d; III, 1 P SUP A, 1 d b; IV, 1 d b, 1 R SUP A; palp, 1. Patellae: I, 1 P SUP A; II, 0-1-1 P SUP; III, IV, 0-1-1/1-1-1 P, 1 R; palp, 0. Tibiae: I, 1-1 p sup, 2 v ant a, 1-1-1 v post; II, 1-1 p sup, 1-2/1-1 v ant (1:3a), 1-1-1 v post; III, 1-1 P SUP, 1 D (1:3A), 1-0/1-1 R SUP, 1-0-1 v ant/1 v ant a, 1-1-1 v post; IV, 1-1 P, 1-1 R SUP; palp, 1-2/2-2 P, 2 V ANT A, 1-1-2 V POST. Metatarsi: I, 1 V POST (1:3B); II, 1 P SUP M, 1-2 V (1:3B); III, 1-1-1 P, 0-1-1-1 P SUP, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 0-1-1-1 P SUP, 2-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST.

Tarsi: I-IV, palp, 0. Tarsi I-IV scopulate; metatarsi I, II with dense scopula on 1:1, III with scopula on 1:5A, IV ascopulate (with only some scopuliform hairs on apex). Scopula I, II undivided, III with some thicker setae along midline that do not even form a continuous line; IV with narrow band of thick setae (two setae wide). Tarsi I-IV flexible. Metatarsal preening combs: I, II absent, III with 3 or 4 setae at each side of ventral apical spine, forming pseudocomb; IV, with 4 or 5 even more irregularly arranged thick setae at apex. STC, teeth: I, 4554; II, 5555; III, 6776; IV, 7886. Palpal claw with 6 teeth on promargin. ITC I-IV, absent. PLS, apical article digitiform to triangular; length of apical:medial:basal, 0.75:0.80:1.57; basal article with numerous spigots, occupying almost 1:1, with single larger articulate spigot in middle of article and one at apex; medial and apical articles with numerous larger spigots interspersed among smaller ones (fig. 57). PMS length 0.75; numerous spigots on 1:2A. Spermathecae as in figure 96A. Color similar to male.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known from only a few localities in Regions VIII and IX, in Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region VIII (del Bio-Bio):** Ñuble: Recinto, 12 Jan. 1989 (M. Ramírez, MACN), 1 juv.; El Purgatorio, Las Trancas, Chillán, 1400 m elev., no date? (no collector?, MCZ), 1♀. **Concepción:** Valle Nonguén, 21 Apr. 1976 (T. Cekalovic, AMNH), 1♀. **Region IX (de la Araucanía):** Malleco: Tolhuaca, Laguna Malleco, 4 Mar. 1978 (T. Cekalovic, AMNH), 1♂.

Acanthogonatus peniasco, new species

Figures 58, 97

TYPE: Female holotype from El Peñasco (21 km SE Linares), 200 m elev., Linares, VII Region (del Maule), Chile (Jan. 1984; P. Goloboff, E. Maury), deposited in MACN.

DIAGNOSIS: Females differ from those of *A. franki* and *A. recinto* in the shorter, wider, and more sclerotized spermathecal ducts, and from those of other species in the genus by having 1-1-1 P spines in the patella IV. Males are unknown.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

MALE: Unknown.

FEMALE (holotype). Total length 15.27. Cephalothorax length 6.56. Cephalic region length 4.21, width 3.65. Fovea width 0.55. OQ length 0.57, width 1.20. Labium length 0.54, width 1.25. Sternum length 3.49, width 2.78. Cephalic region moderately convex; fovea deep, with posterior notch. Labium with 2 cuspules, maxillae with 20/21. Serrula present. Posterior sternal sigilla oval, submarginal; sternal margin depressed at sides of posterior sigilla; sternum rebordered. Chelicerae: rastellum formed by long, thin setae; inner margin with 7 teeth; furrow with about 7 denticles. Trichobothria: Tibiae, I, 11(2:3b), 10(3:4b); II, 10(3:4b), 10(3:4b); III, 10(3:5b), 11(3:5b); IV, 11(3:4b), 10(4:b); palp, 9(3:4b), 9(3:4b). Metatarsi, I, II, 13(3:4a); III, 16(4:5a); IV, 18(4:5a). Tarsi, I, 13; II, 12; III, 13; IV, 14; palp, 11. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 0/1 R SUP A; IV, 0; palp, 1 1 P SUP A. Patellae: I, II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 1-1-1 P, 0 R; palp, 1 P SUP B [!]. Tibiae: I, 0-1 P, 2 p inf a, 1-1-0 v; II, 0-1/1-1 P, 2 p inf a, 1-1-0 v; III, 1-1 P, 0-1 D, 1-1 R SUP, 2-2-2/2-2-3 V; IV, 0-1/1-1 P, 1-1 R SUP, 2-2-2/2-2-3 V (basal weaker); palp, 1 P, 1-1-2 P INF, 1-1-2/1-1-1 R INF. Metatarsi: I, 2 V; II, 1 P SUP, 1-2-0-1 V; III, 2-2-2 P SUP (alternate), 1-1-2 R SUP, 2-2-3 V; IV, 1-1-1 P, 0-1-1-0-1 P SUP, 1-1-1 R SUP, 2-1-2-3 V. Tarsi: I-IV, palp, 0. Tarsi I-IV scopulate; metatarsi I, II with scopula on 1:1; III, IV ascopulate. Scopula I, II undivided, III divided by row (3 setae width) of thin setae, IV divided by band (4 setae width) of thicker setae. Tarsi I-IV ventrally pallid, flexible. Metatarsi III, IV with pseudo combs, formed by about 25 irregularly arranged, attenuate setae on III, 16 on IV. STC, teeth: I, 4544; II, 4544; III, 5555; IV, 6655. Palpal claw with 5 teeth on promargin. ITC absent on I-IV. PLS, apical article triangular, short; length of apical:medial:basal, 0.49:0.60:0.98; numerous spigots on basal article; large pumpkiniform spigots along inner edge (fig. 58). PMS length 0.67; about 10 spigots. Spermathecae as in figure 97. Cephalothorax, legs, palpi reddish brown; abdomen light yellowish brown, with numerous dorsal mottles forming almost inconspicuous darker chevron.

NATURAL HISTORY: The specimens were collected from burrows, with an open entrance, lined with little silk, in banks and hill slopes in an open forest somewhat transitional between the typical forest formation in central Chile and moister forests further south. *Calathotarsus* (possibly *C. coronatus* Simon; Migidae), more or less widely distributed in the drier Central Valley has been collected in the same place, as well as *Scotinoecus* (possibly a new species; Hexathelidae), a genus more common in moister forests further south.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: CHILE: same locality, date, and collectors as the holotype, 1♀ (MACN), 8 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1 juv.

THE PATAGONICUS GROUP

This species group comprises five species (*A. patagonicus*, *A. fuegianus*, *A. notatus*, *A. birabeni*, *A. chilechico*), restricted to dry, scrubby habitats in Patagonia and adjacent Chile. It is characterized by the triangular apical article of the PLS and the less developed serrula (a possible additional synapomorphy is the strong curvature of the male bulb duct). The species in this group are stricter burrowers than other species of *Acanthogonatus*; their burrows are often rather deep, excavated in firm, clayish soil. Although the character was not included in the matrix (given the difficulties it would present in scoring several other taxa), species in the *patagonicus* group also can be identified by the well-marked chevron pattern on the abdomen (while most other species in the genus have a more irregular, mottled abdominal pattern).

Acanthogonatus patagonicus (Simon)

Figure 98A–D

Tryssothele patagonica Simon, 1905: 2 (female holotype should be in MNHN, not located).—Gerschman and Schiapelli, 1968: 25.

DIAGNOSIS: This species is most similar to *A. notatus*, but differs in the larger size, the

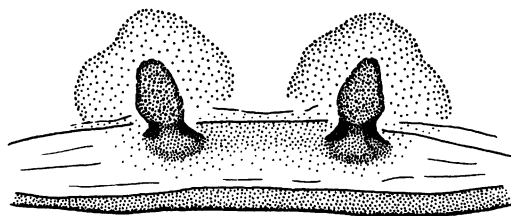


Fig. 97. *Acanthogonatus peniasco*, female spermathecae.

longer male palpal tibia, and the different coloration (with cephalothorax uniformly colored, and a dorsal abdominal pattern with the lateral oblique bands almost absent). From *A. fuegianus*, it can be distinguished by the presence of a male tibial spur and laterally keeled embolus, and the female spermathecae having a basal dome from which the receptaculum (sometimes double) arises. Males differ from those of *A. birabeni* and *A. chilechico* (the females of which are unknown) in their larger size, more developed lateral embolar keels, and longer palpal tibia.

MALE (Valle Huemules): Total length 19.60. Cephalothorax length 9.80, width 7.80. Cephalic region length 5.90, width 4.50. OQ length 0.70, width 1.29. Labium length 0.82, width 1.25. Sternum length 4.75, width 3.70. Labium with 2 cuspules, maxillae with 25/26. Serrula present, but not too well developed (small blunt teeth only on small portion of apical lobe). Sternal sigilla oval, shallow, separated from margin by almost long diameter; sternum rebordered. Chelicerae: rastellum weak, formed by thin, stiff bristles; inner margin with 9 teeth; furrow with about 10 denticles. Cheliceral tumescence present, small, asetose, with postero inferior bump. Chaetotaxy: Femora: I, 1-1-1 P SUP (1:2A), 1-1-1-1-1 D, 1-1-1-1 R SUP (2:3A); II, 1-1-1-1 P SUP, 1-1-1-1/1-1-1-1-1 D, 1-1-1-1 R SUP; III, 1-1-1-1 P SUP, 1-1-1-1 D, 1-1-1-1 R SUP; IV, 1-2/1-1-1 P SUP (1:3A), 1-1-1-1 D, 1-1 R SUP (1:4A); palp, 1 P SUP A. Patellae: I, 1-1 P SUP, 1 P A, 2 V A, 1 R []; II, 1-1-1 P SUP, 1 V A, 1 R []; III, 1-1/1-1-1 P, 1 R; IV, 1-1 P [], 1 R; palp, 0. Tibiae: I, 2-1-1-3/2-2-3 P, 1/1-1 D, 1-1-1 R SUP, 1-0-1-0 V ANT, 2-0-2-1/2-0-1-1 V POST, 2 P INF A (on common base) (of which 6 on 1:3B extend from P SUP to R SUP); II, 2-1-2/2-1-1-2 P, 1-1/1-1-1 D (1:2B), 1-1-1/0-1-1

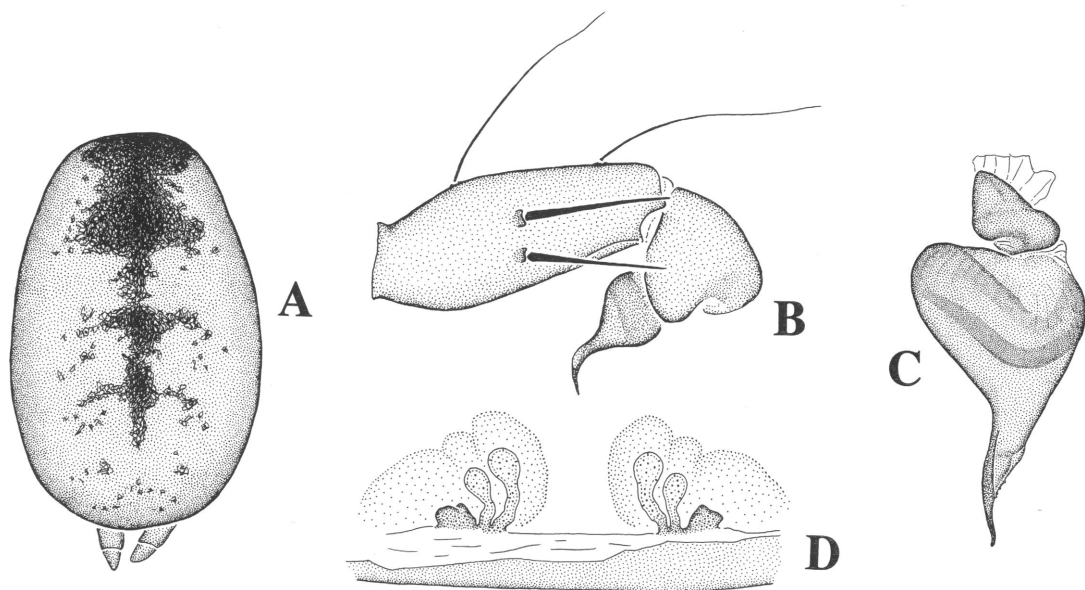


Fig. 98. *Acanthogonatus patagonicus*. A. Dorsal abdomen (juvenile male). B. Left male palp, pro-lateral. C. Right male bulb. D. Female spermathecae, ventral.

R, 1-1-2 V ANT, 1-1-1 V POST; III, 0-1/1-1-1 P, 3-0-1-1/1-0-1 D, 1-1-0/0-1-1 R; IV, 1-2-1-2/1-2-0-1 P, 2-1-1-2/0-1-1-1-1 D ANT, 1 D POST B, 1-1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; palp, 1/2 P, 2 dorsal, long, erect, sinuous setae. Metatarsi: I, 0; II, 1-1 P SUP (1:3B), 1-1/1-0 D ANT (1:3M), 1 D POST B, 0/1 R, 2-2 V (1:3B, short, thick); III, 1-1-1 P, 1-1-1-1/1-1-0-1 D ANT, 1 D POST B, 1-1-1 R SUP, 1-1-1/2-1-1 V ANT, 1-1-2/0-1-2 V POST; IV, 1-1-0/1-1-1-1 P, 1-1-0-1-0-1 P SUP, 1 D POST B, 2-1-1 R SUP, 1-0-1-1/1-1-1-1 V ANT, 1-1-0-1-2/1-0-1-2 V POST. Tarsi I-IV, palp, 0. Scopula dense on tarsi I-IV; metatarsi I, II completely scopulate, III with scopula on 1:2A, IV with scopula on 1:6A (on anterior side). Scopula apparently undivided on all tarsi (tarsi IV are very contracted, but seem to have only some setae on base of article). Metatarsal preening combs absent from I-IV. ITC absent from I-IV. Tarsi I-IV flexible. PLS, apical article triangular; length of apical:medial:basal, 0.90:0.90:1.52. PMS length 1.00. Palp as in figure 98B; bulb as in figure 98C; patello/tibial joint of characteristic form (with condyle at apex of patella deeply inserted in cavity of tibial base). Leg I, tibial spur typical for genus;

metatarsus evenly curved, with retrodorsal side convex. Color as in female.

FEMALE (Estancia Miramar): Total length 31.00. Cephalothorax length 13.20, width 10.40. Cephalic region length 8.10, width 7.40. Cephalic region convex; fovea deep, straight to slightly procurved with posterior medial incision. Labium with 4 cuspules, maxillae with 25/22. Serrula absent. Sternal sigilla shallow, large, oval elongated, separated from margin by about 3:4 their long diameter; sternum rebordered. Chelicerae: rastellum weak, formed by long, thin, stiff setae; inner margin with 10 teeth; furrow with 12-15 large denticles in longitudinal band. Chaetotaxy: Femora: I, 1-1 P SUP A, 1 D B; II, 1-1-1 P SUP (1:2A), 1 D B; III, 1-1-1 P SUP (2:3A), 1 D B, 1-1-1-1 R SUP (3:4A); IV, 0 P, 1 D B, 1/1-1 R SUP A; palp, 1 P SUP. Patellae: I, 0/1 P SUP A; II, 0-1-1 P SUP; III, 0-1-1/1-1-1 P, 1 R; IV, 0; palp, 1 P SUP B. Tibiae: I, 0/1-1 P SUP, 0/1 V ANT A, 0-1-0/1-1-1 V POST; II, 0-1-1 P SUP, 1 V ANT A, 1-1-1 V POST; III, 1-1 P SUP, 1 D (1:3A), 1-1 R SUP, 1-0-2 V ANT, 1-1-1 V POST; IV, 1-1 R, 1-1-2/1-1-1 V ANT, 1-1-1/1-0-1 V POST; palp, 1-1-1-/1-0-1-0 P, 1-0-1-2 P INF [or, 2-1-2/2-0-2 P, 2 P INF A],

0-1-2 R INF. Metatarsi: I, 1-1 V POST (1:4B, short, thick); II, 1 P SUP (1:3B), 2-2-0-0-1 V (short, thick); III, 1-1-1 P, 0-1-1-1 P SUP, 0/1 D POST B, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 0-1-1 P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Scopula very dense on tarsi I-IV; metatarsi I, II with dense scopulate on 1:1, metatarsus III with scopula on 1:2A, IV with light scopula on 1:5A (only on anterior side). Scopula I-III undivided, IV with narrow band (2 setae width) of thin setae. Tarsi I-IV flexible. Metatarsal preening combs absent from I-IV. STC of all legs with 2 rows of numerous teeth. ITC absent from I-IV. PLS, apical article triangular, short; length of apical:medial:basal, 1.40:1.35:2.10; basal article with numerous spigots on 3:4A. PMS length 1.42; numerous spigots on 2:3A. Spermathecae as in figure 98D (most specimens have a single duct arising from base at each side). Entire spider light yellowish brown, covered with golden pubescence; abdomen (as in fig. 98A) yellowish with darker chevron or folium.

REMARKS: Although the types of *A. patagonicus* have not been examined for this paper, Gerschman and Schiapelli (1968) provided good illustrations of the spermathecae of the holotype.

Acanthogonatus patagonicus and *A. fuegianus* are partly sympatric (with *A. patagonicus* extending further south). Males and females for both species are associated here by having been collected by the same collector, at the same time (presumably, in exactly the same spot); that also agrees with the pairing done by Simon (1902) for *A. fuegianus*. Given the localities at which they have been collected, it is conceivable that the female considered as *A. fuegianus* and the males identified as *A. patagonicus* are actually conspecific, with male *A. fuegianus* and female *A. patagonicus* belonging to a second and third species (as it seems unlikely that they are conspecific).

NATURAL HISTORY: The habitats in which this species lives are dry deserts. Although most species treated in this paper are often found in banks or ravines, this species seems to prefer low, flat, clayish terrains, as they are flooded and retain more moisture from the scarce rains. The animals dig open burrows, 15-20 mm wide, often closed with silk. The

burrow mouth is not prolonged. The burrows are Y-shaped, with a lateral chamber where the spider hides when the main branch of the burrow is dug.

DISTRIBUTION: Southern Argentina (Neuquén, Chubut and Santa Cruz Provinces) and Chile (Region XII).

MATERIAL EXAMINED: ARGENTINA: **Chubut:** Río Senguerr, Valle Huemules, Feb. 1943 (M. Bruzzone, MACN), 1♂; Ruta Provincial 1, Estancia Miramar, Mar. 1984 (P. Goloboff, MACN), 1♀, 1♂ juv.; Punta Loma, 15 km Puerto Madryn, 24 Dec. 1981 (P. Goloboff, MACN), 3♀, 4 juvs.; Puerto Madryn, Dec. 1981 (P. Goloboff, MACN), 1♀; Bahía Vera, Estancia Santa Ana, Mar. 1984 (P. Goloboff, MACN), 1♀, 3♂ juv.; Telsen, 29 Dec. 1981 (P. Goloboff, MACN), 2♀. Perhaps belonging to this species, 15 km S Epuyén, 15 Jan. 1986 (P. Goloboff, N. Platnick, R. Schuh, AMNH), 8 juvs. **Santa Cruz:** Puerto Deseado, Nov. 1948 (M. Birabén, MACN), 1♀; Lago San Martín, Nov. 1948 (M. Birabén, MACN), 1♂; Río Gallegos, Cerro Aymond, 26 Mar. 1949 (Núñez, W. Partridge, MACN), 1♂; Tres Lagos, 9 Mar. 1948 (M. Birabén, MACN), 1♂ juv., Apr. 1949 (Waring, MACN), 1♀, 1♂; Jan.-Mar. 1956 (Waring, MACN), 1♂; Lago Posadas, Mar. 1948 (M. Birabén, MACN), 1♂. **Neuquén:** Lago Meliquina, 5 Mar. 1942 (M. Birabén, MACN), 1♂. **CHILE: Region XII (de Magallanes):** *Magallanes:* Ultima Esperanza, 5 Jan. 1952 (T. Cekalovic, AMNH), 1♂; Gallegos Chico, 10 Feb. 1990 (T. Cekalovic, AMNH), 2♂.

Acanthogonatus fuegianus
(Simon)

Figures 60, 99A-E

Tryssothele fuegiana Simon, 1902: 8 (male and female syntypes in Zoologisches Institut und Zoologisches Museum, not examined). Gerschman and Schiapelli, 1968: 22.

Acanthogonatus fuegianus Raven, 1985a: 84.

DIAGNOSIS: Males can be recognized by the long, thin, keelless embolus and the spurless tibia I, females by the branched (bi- or trifurcated) spermathecae. Those features are also shared with *A. confusus*, but that species has a digitiform, instead of triangular, apical article of the PLS, and a mottled abdominal pattern.

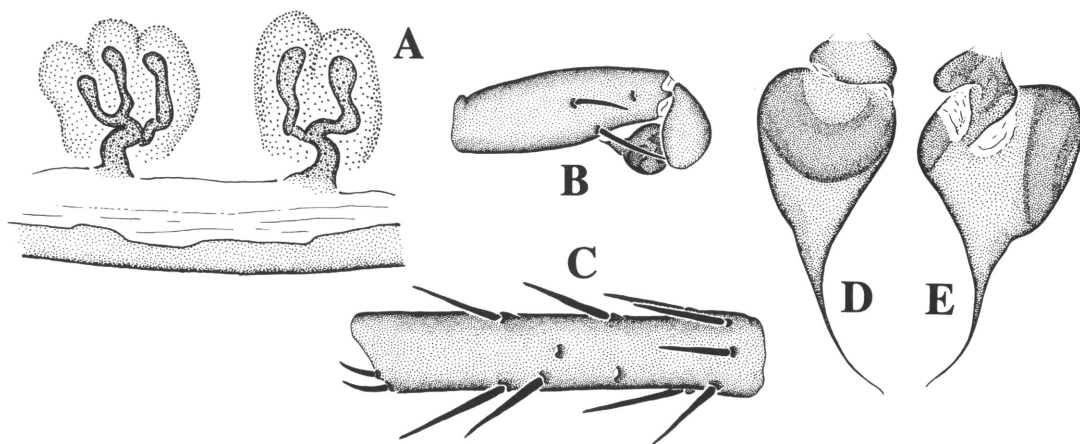


Fig. 99. *Acanthogonatus fuegianus*. A. Female. B-E. Male. A. Spermathecae, ventral. B. Left palp, prolateral. C. Right tibia I, prolateral. D, E. Right bulb.

MALE (Gallegos Norte, Miller): Total length 22.60. Cephalothorax length 10.30, width 8.85. Cephalic region length 6.35, width 5.60. OQ length 0.84, width 1.45. Labium length 0.85, width 1.50. Sternum length 4.92, width 4.12. Labium with 4 cuspules, maxillae with 39/41. Serrula present, but with low, blunt, sparse teeth. Postlabial sigillum with posterior edge abrupt (as in some *Chaco*), posterior sigilla small but rather deep, separated from margin by diameter; sternum rebordered. Chelicerae: rastellum weak, formed by long, thin, stiff bristles; inner margin with 9 teeth; furrow with about 10 large, sparse denticles. Cheliceral tumescence present, small, aseptose, with postero inferior bump. Chaetotaxy: Femora: I, 1-1-1/1-1-2-2 P SUP (1:2A), 1 d (1:3b), 1-1-1 R SUP (1:2A); II, 0-1-1-1-1 P SUP, 1-1-1 D (2:3B), 0-1-1-1-1 R SUP; III, 1-1-1/1-1-1-1 P SUP, 1-1-1/1-1-0 D (2:3B), 1-1-1-1/1-1-1-1-1 R SUP; IV, 1-1-1 P SUP (1:2A), 1-1-1 D (2:3B), 1-1/1-1-1 R SUP (1:3A); palp, 1 P SUP A. Patellae: I, 0-1/0-1-1 P SUP, 0/1 R, 0/1 P INF, 1/2 V A; II, 1-1-1/1-1-2 P SUP (strong), 0 V, 0 R; III, 1-1-1 P, 1 R; IV, 0/1 P INF (abnormal?), 0/1 R; palp, 1 R SUP A. Tibiae: I, with numerous, strong spines, 1-1-1 P SUP, 1-1-0 P, 2 P INF A (with separate bases), 1 D ANT (1:3B), 1-1-1 R SUP, 1-1 V ANT, 1-2-0-1-1-1-1/1-2-0-2-0-1 V POST; II, 1 P INF B, 1-1/1-1-1 P, 1 D ANT B, 1-1 R, 3-3-3/3-4-3 V (of which 2 V ANT A close to each other); III, 1-1-0-1-1 P, 1 D POST B, 1 D (1:3A), 1-1 R

SUP, 1-0-2/2-1-2 V ANT, 2-1-1/1-1-1 V POST; IV, 1-2/1-1 P, 1-1-1 R SUP, 3-2-3/2-2-3 V; palp, 2-0-1-1-3/2-0-1-1-2 P, strong p inf (along tibial depression), 1 D A, 2 R A. Metatarsi: I, 1 P SUP B; II, 1-2-1-1/1-2-2-1 P SUP, 2 V B, 2/3 V POST M, 0/1 V A; III, 1-1-1 P, 1-1-1-1-1/0-1-1-1 P SUP, 1-2-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1-1 P, 0-1-2-1/0-1-1-1 P SUP, 1-2-1/1-1-1 R SUP, 1-0-1-1-1 V ANT, 1-0-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV densely scopulate; metatarsi I with scopula on 1:1, II on 4:5A, III on 1:2A, IV on 1:6A. Scopula I-III undivided, IV with narrow band of 3 setae width. Metatarsal preening combs absent. STC of all legs with 2 rows of 10-12 teeth each. ITC I-IV, absent. Tarsi I-IV very flexible. PLS, apical article triangular; length of apical:medial:basal, 1.15:1.20:1.25; spigots poorly preserved. PMS length 0.85. Palp: tibia long (fig. 99B); bulb keels very reduced, almost absent (fig. 99D, E). Leg I, tibial apophysis absent, with 2 apical spines on separate bases (fig. 99C); tibia cylindrical, with very strong spines; metatarsus sinuous. Cephalothorax, legs, palpi orange brown; abdomen yellowish with darker chevron (as in *A. patagonicus*).

FEMALE (Gallegos Norte, Cabo Buen Tiempo): Total length 33.60. Cephalothorax length 13.45, width 10.85. Cephalic region length 8.90, width 9.20 (proportionally wider than in *A. patagonicus*). Fovea width 1.25. OQ length 0.92, width 1.98. Labium length 1.37,

width 2.17. Sternum length 6.65, width 5.40. Cephalic region wide, strongly convex; fovea straight, wide, deep. Labium with 3 cuspules, maxillae with 34/33. Serrula present but reduced (confined to anterior-upper portion of lobe). Postlabial sigillum normal; sigilla I, II deep; posterior sigilla oval, deep, separated from margin by diameter; sternum rebordered. Chelicerae: rastellum weak, formed by long thin stiff bristles; inner margin with 10 teeth; furrow with about 10 large denticles (or small teeth). Chaetotaxy: Femora: I, II, 1 P SUP A; III, IV, 1 D B; palp, 1 P SUP A. Patellae: I, 0; II, 1 P SUP A; III, 1-1-1 P, 0 R; IV, 0; palp, 0-1/1-1 P. Tibiae: I, 1-1 p sup, 1-1/1-1-1 v post; II, 1-1 p sup, 1-1 v post; III, 1-1 P SUP, 1 D B (1:3A), 1-1 R SUP, 1-1-1 v post; IV, 0/1 P (1:3A), 0-1-1 R SUP, 1-1 v, 2 V A; palp, 2-2 P, 2 P INF A, 1-2-2/1-1-2 R INF. Metatarsi: I, 1 V POST M (short, thick); II, 1-2-1/1-1-1 V POST (strong, thick); III, 1-1-1/1-0-1 P (2:3A), 1-1 P SUP (1:2A), 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1 P, 1 D ANT A, 1-1-1/0-1-1 D POST (apical one matches 1 D ANT A), 0/1 R, 1-1-1-1 V ANT, 1-0-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III with scopula on 3:8A, IV with only a few scopuliform hairs on 1:5A. Scopula I-III undivided, IV divided by well-delimited, narrow band of setae (about 4-5 setae wide, occupying 1:5 of article's width). Tarsi I-IV flexible, posterior ones more evidently so. Metatarsal preening combs absent from all legs. STC, teeth: I, II, with 5-6 teeth on each row; III, 5687; IV, 6783 (teeth on posterior row of posterior claw larger [!]). ITC I-IV, absent. PLS, apical article triangular; length of apical:medial:basal, 0.85:0.70:1.25; spigots as in figure 60; few pumpkiniform spigots on inner edge of spinning field (fig. 60). PMS length 1.55, with about 20 spigots on 1:3A. Spermathecae as in figure 99A. Color as in male.

REMARKS: Although the types have not been examined, Gerschman and Schiapelli identified a female (in MACN) compared with the type, and published (1968) good illustrations of the genitalia of the male and female types. See also remarks for *A. patagonicus*.

The males from Magallanes are smaller, with a slightly shorter palpal tibia, and abdomen with irregular mottles (instead of the

discrete chevron of the Argentinian specimens).

NATURAL HISTORY: No data are known. All the areas where the species has been collected are typical Patagonian scrub.

DISTRIBUTION: Known from southern Argentina (Santa Cruz) and Chile (Region XII). A single record from Buenos Aires (Carmen de Patagones) could correspond to mislabeled specimens; no modern records north of Santa Cruz are known.

MATERIAL EXAMINED: ARGENTINA: **Buenos Aires (?)**: Carmen de Patagones, 1987 (Bicego, MZSP), 27♀, 6 juvs. **Santa Cruz**: Gallegos Norte, no date (S. Miller, MACN), 4♂, 28 Mar. 1948 (M. Birabén, MACN), 2 juvs.; Gallegos Norte, Cabo Buen Tiempo, Feb. 1953 (M. Birabén, MACN), 2♀; Puerto Deseado, Aug. 1961 (Pallares, Zapata, MACN), 1♂, 14 Nov. 1970 (A. Gosztonyi, MACN), 1♀, Dec. 1971 (A. Gosztonyi, MACN), 1♀; "Patagonia", no date (B. Brown, AMNH), 6♀, 2 juvs.; Lago Posadas, Mar. 1948 (M. Birabén, MACN), 1♀, 2 juvs. **CHILE: Region XII (de Magallanes):** *Magallanes*: Punta Delgada, no date (no collector, MACN), 12 juvs. (very bad shape); Rubens, Punta Arenas, Tierra del Fuego, 13 Dec. 1960 (L. Peña, MCZ), 4♂; E side of Laguna Blanca, nr. Magellan, 1 Dec.-24 Jan. 1936 (J. Bird, AMNH), 2♂.

Acanthogonatus notatus
(Mello-Leitão)
Figure 100A-E

Chubutia notata Mello-Leitão, 1940a: 4 (male holotype, from Gobernador Costa, Chubut, Argentina, in MLP, examined).

Trysothele patagonica Gerschman and Schiapelli, 1970a: 152 (in part, male only).

DIAGNOSIS: This species differs from *A. patagonicus* in its smaller size, the shorter male palpal tibia, the dorsal abdomen with more evident oblique lateral stripes, and the cephalothorax being darker around the striae and lighter at the margins. Males differ from those of *A. birabeni* (females of which are unknown) in their larger size and stouter legs, and the more developed lateral embolar keel, and from those of *A. chilechico* (females of which are unknown) in the slightly more developed embolar keel and the bulb (in lateral view, fig. 100C; cf. fig. 101B for *A. chilechico*)

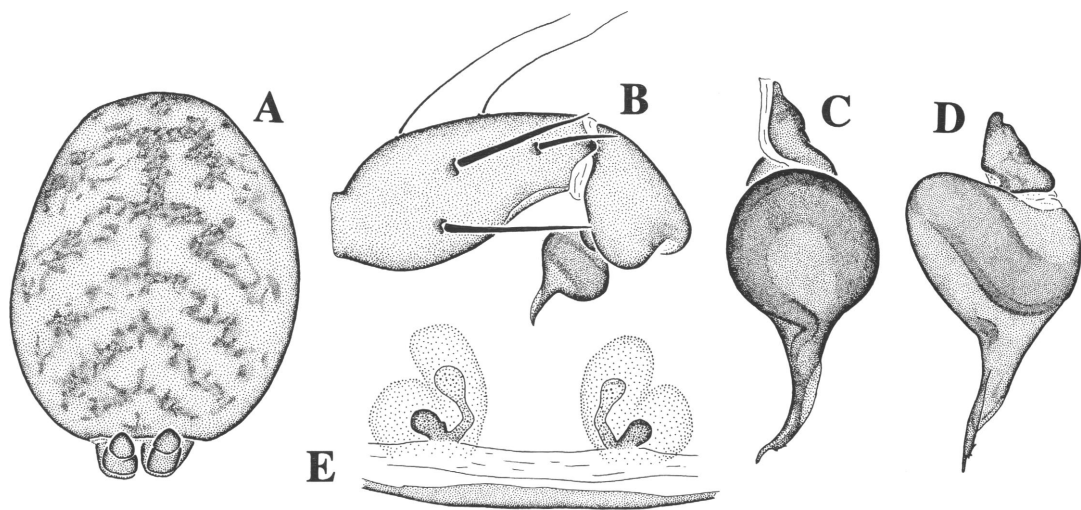


Fig. 100. *Acanthogonatus notatus*. A. Female dorsal abdomen. B. Left male palp, prolateral. C, D. Right male bulb. E. Female spermathecae, ventral.

with a narrower basal portion and the less numerous spines on metatarsus I.

MALE (Los Altares): Total length 12.52. Cephalothorax length 5.84, width 4.78. Cephalic region length 3.49, width 2.76. OQ length 0.51, width 1.06. Labium length 0.50, width 0.91. Sternum length 3.04, width 2.38. Labium with 2 cuspules, maxillae with 14/14. Serrula present, on anterior face of lobe. Sternal sigilla small, oval, shallow, submarginal; sternum weakly rebordered. Chelicerae: rastellum formed by weak attenuate setae; inner margin with 5 teeth, strong, separated; furrow with 5 small denticles in row. Chelicerai tumescence with short thin setae on upper half; lower half slightly protruding. Trichobothria: Tibiae, I, 8(2:3b), 8(2:3b); II, 8(2:3b), 9(2:3b); III, 8(1:2b), 9(1:2b); IV, 9(1:2b), 8(1:2b); palp, 7(1:2b), 8(1:2b). Metatarsi, I, 13(2:3a); II, 11(2:3a); III, 19(4:5a); IV, 21(4:5a). Tarsi, I, 14; II, 16; III, 14; IV, 17; palp, 12. Chaetotaxy: Femora: I, 1-1 p sup (1:3A), 1-1-1-1-1 D (apical one, half the length of others), 0-1-1/1-1-2-1 R SUP; II, 0-1-1/0-1-1-1 P SUP, 1-1-1-1-1 (apical one, half the length of others), 0-1-1-1 R SUP; III, 1-1-1-1 P SUP, 1-1-1 D (1:2B, thin, seta like), 0-1-1-1/0-1-0-1 R SUP; IV, 1-1-1 (1:2B), 1-0-1-1-1-0 D, 0-1-0-1-1 R SUP; palp, 1 R SUP. Patellae: I, 1 P SUP A, 1 R [!]; II, 1-1-1 P, 0 R; III, 1-1-1 P, 1 R (long, strong); IV, 1 R; palp, 1 p. Tibiae: I, 1 P, 2 P INF A (on com-

mon base), 1-1 R, 2-4/3-4 V, 1 V POST A (no dorsal spines); II, 1-1 P, 1 R, 2-3-3 V; III, 1-1/1-1-1 P SUP, 1 D (1:3A), 1-1 R SUP, 2-3-3 (long, strong); IV, 0-1-2 P, 1-1 R, 2-3(1-1-1)-2 V; palp, 2-1/2-2 P, 1 D A (fallen). Metatarsi: I, 1 P SUP; II, 1-2-1-1 P, 0-1-1 R, 2-2-1 V; III, 16/17, irregularly arranged; IV, 21, irregularly arranged. Tarsi: I-III, 0; IV, 1 D SUP (very small); palp, 0. Scopula: tarsi I, II, total, dense; metatarsi I, II, on 1:2A; III, on 1:3A; no scopula on IV. Scopula undivided on I, II, divided by row of very thin setae on III, divided by row (3-4 setae wide) of thicker setae on IV. Metatarsal preening combs absent from I-IV. STC, teeth: I, 13 13 11 11; II, 13 11 12 11; III, 14 12 12 13; IV, 14 12 14 12. ITC absent from I-IV. Tarsi I-IV flexible. PLS, apical article short, triangular; length of apical:medial:basal, 0.43:0.50:0.96; spigots numerous on all three articles, occupying 3:4A of basal article. PMS length 0.56; only 7/8 spigots on 1:4A. Palp: tibia short, wide (fig. 100B); bulb as in figure 100C, D. Leg I, tibial spur typical for genus; metatarsus slightly bent. Color as in female.

FEMALE (Gobernador Costa, Goloboff): Total length 11.99. Cephalothorax length 5.32, width 3.77. Cephalic region length 3.40, width 3.09. Fovea width 0.50. OQ length 0.57, width 1.04. Labium length 0.46, width 0.92. Sternum length 2.58, width 2.14. Cephalic region strongly convex; fovea slightly re-

curved, no posterior notch. Labium with 2 cuspules, maxillae with 23/21. Serrula absent. Sternal sigilla small, oval, marginal; sternum rebordered very weakly, on anterior half. Chelicerae: rastellum formed by strong attenuate setae; inner margin with 6 strong teeth; furrow with row of 5 denticles, plus 5 more basal, grouped. Trichobothria: Tibiae, I, II, 8(1:2b), 8(1:2b); III, 7(1:3b), 7(1:3b); IV, 9(1:2b), 8(1:2b); palp, 8(3:4b), 8(3:4b). Metatarsi, I, 11(2:3a); II, 14(2:3a); III, 16(3:4a); IV, 17(3:4a). Tarsi, I, 15; II, 14; III, 15; IV, 17; palp, 11. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1 R SUP A; IV, 0/1 R SUP A; palp, 1 P SUP A. Patellae: I, 0; II, 1 P SUP A; III, 1-1-1 P, 1 R (stronger than P); IV, 0/1 R; palp, 1 P SUP A. Tibiae: I, 1 P SUP (1: 2A), 1 V ANT A, 1/1-1 V POST; II, 1/1-1 P SUP, 1 V ANT A, 1-1 V POST; III, 1-1 P SUP, 0/1 D (1:3A), 1-1 R SUP, 1-1/1-1-1 v, 2 V A; IV, 0-1-1 R SUP, 2-2-2 V (basal ones very weak); palp, 1 P A, 1-1-2 P INF, 1-1 v post, 2 V POST A. Metatarsi: I, 1-1-0 V POST; II, 2-2-0-1 V on left; right legs has fewer spines but seems regenerated; III, 5/6 P SUP, 1-1-1/2-1-1 R SUP, 2-1-3/(2-2-1-3 plus 1-1 b) V; IV, 0-1-1-1/1-1-1-1 P SUP, 0-1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 0. Scopula: on full length of tarsi I-IV and metatarsi I, II, on 1:4A of III, absent from IV. Scopula I, II undivided; III slightly divided by few, thin setae (setal row, 3 setae width); IV divided by clear band of 4-5 thicker setae. Tarsi I, II slightly flexible, III, IV flexible. Metatarsal preening combs absent from I-IV. STC, teeth: I, 8787; II, 10 888; III, 8777; IV, 7787. ITC absent from I-IV. PLS, apical article triangular, short; length of apical:medial:basal, 0.50:0.64:1.19; three articles with numerous, uniformly distributed and sized spigots; apparently some pumpkiniform spigots close to inner edge would not form clear row (SEM examination needed for confirmation); basal article with spigots on 3:4B. PMS length 0.50, with numerous spigots on 3:4A. Spermathecae as in figure 100E. Legs, carapace yellowish; carapace darker around striae (with margins lighter); abdomen with chevron (fig. 100A).

NATURAL HISTORY: *Acanthogonatus notatus* has been collected in Patagonian scrub, in sandy terrains. The spiders live in hill

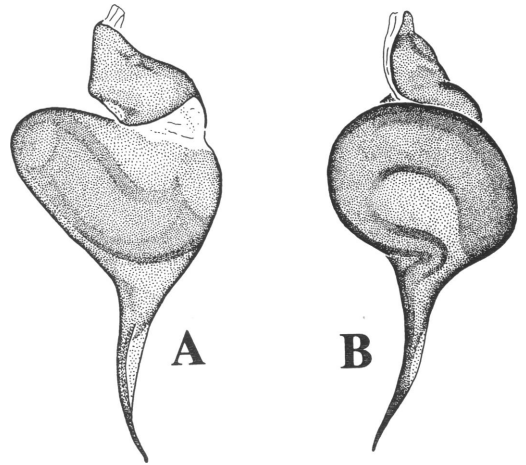


Fig. 101. A, B. *Acanthogonatus chilechico*, right male bulb.

slopes, preferably at the foot of small plants, in small burrows, which were not evident until the surface was removed; the entrance could not be observed. *Acanthogonatus patagonicus*, which is almost sympatric, seems to occupy a different type of habitat, so that both species apparently do not coexist together.

DISTRIBUTION: Apparently restricted to the foothills of the Andes in eastern Chubut.

OTHER MATERIAL EXAMINED: ARGENTINA: **Chubut:** Los Altares, 28 Nov. 1965 (Kovacs, AMNH), 1♂; Gobernador Costa, 8 Mar. 1937 (M. Birabén, MLP), 1♀, 4 Jan. 1982 (P. Goloboff, MACN), 1♀, 12 juvs.; Sierrita Sarmiento, Sep. 1960 (Rosinkonk, MACN), 1♂; José de San Martín, 720 m elev., 21 Jan. 1986 (P. Goloboff, N. Platnick, R. Schuh, AMNH), 1♀; Tecka, 2 Jan. 1982 (P. Goloboff, MACN), 1♀, 1 juv.

Acanthogonatus chilechico,
new species
Figure 101A, B

TYPE: Male holotype from Chile Chico, Valdivia, Region X (de los Lagos), Chile (Oct. 1985; L. Peña), deposited in AMNH.

DIAGNOSIS: This species is most similar to *A. notatus*, but can be distinguished by the less developed embolar flange and by having the basal portion of the bulb narrower in lateral view (fig. 101A, B; cf. fig. 100C, D for

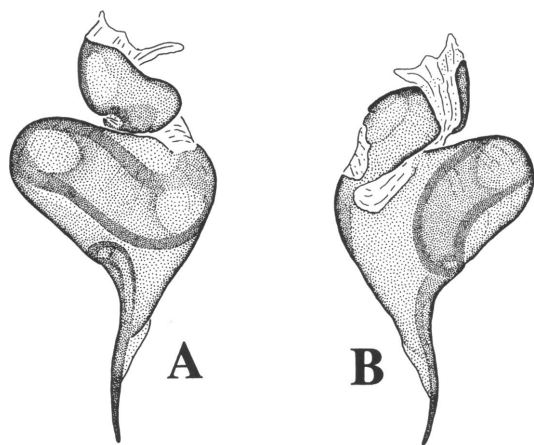


Fig. 102. A, B. *Acanthogonatus birabeni*, right male bulb.

A. notatus), and the presence of more numerous spines on metatarsus I.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

MALE (holotype): Total length 11.74. Cephalothorax length 5.04, width 4.18. Cephalic region length 3.22, width 2.66. OQ length 0.49, width 0.87. Labium length 0.50, width 0.93. Sternum length 2.90, width 2.14. Labium with no cuspules, maxillae with 15, of medium size, confined to inner anterior corner. Serrula present, on anterior edge only. Sternal sigilla small, oval, submarginal; sternum weakly rebordered. Chelicerae: rastellum formed by attenuate setae; inner margin with 6 teeth, widely spaced; furrow with 10 tiny teeth, forming one longitudinal row. Cheliceral tumescence white, aetose, flat. Trichobothria: Tibiae, I, 9(2:3b), 9(2:3b); II, 8(1:2b), 9(2:3a); III, 8(1:2b), 8(1:2b); IV, 9(2:3b), 9(2:3b); palp, 8(3:4b), 8(3:4b). Metatarsi, I, 17(3:4a); II, 19(3:4a); III, 19(4:5a); IV, 16(4:5a)? (fallen). Tarsi, I, II, 14; III, 15; IV, 14; palp, 11(≈1:3m). Chaetotaxy: Femora: with thick, strong spines; I, 1-1 P SUP (1:2A), 1-1-1-1 D, 1-1 R SUP (1:2A); II, 1-1-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1-1-1 R SUP (2:3A); III, 1-1-1 P SUP (1:2A), 1-0-1-0 D, 1-1-1 R SUP (1:2A); IV, 1-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1-1 R SUP (1:2A); palp, 1 P SUP A, 4/5 d a. Patellae: I, 2 P, no R; II, 0-1-1/1-1-1 P; III, 1 P [I], 1 R; IV, 1 P, 1 R; palp, 0. Tibiae: I, 0-1-1 P, 2 P INF A (on common base), no D, 0-1-1 R, 2-4-2/2-3-2 V; II, 0-1-1

P, 2-3-3 V; III, 4 P, 1 D, 1 R (1:2B), 2-4-2 V; IV, 1-1 P, 1 D (1:3A), 1-1-0-1/1-1-1 R, 2-3-3/2-2-3 V; palp, 2-2 P, strong p inf. Metatarsi: I, 1-2-1/1-1-1 P SUP, 1 V POST, 1 R INF; II, 1-1-1-1 P, 1 R, 2-2-1 V; III, 2-2-2-1-1 P SUP, 1-1-1 R, 2-2-3 V; IV, 19, irregularly arranged. Tarsi: I-IV, palp, 0. Scopula: on full length of tarsi I-IV and metatarsi I, on 1:2A of metatarsus II, 1:3A of III, absent from IV. Scopula entire on I, II, almost entire on III (with some scattered setae interspersed on basal half), divided by clear band of 2/3 setae on IV. Metatarsal preening combs absent from all legs. STC, teeth: I, 12 10 10 11; II, 11 10 10 11; III, 11 10 10 10; IV, 11 9 11 10. ITC absent from I-IV. Tarsi I-IV flexible. PLS, apical article very short, triangular (almost domed); length of apical:medial:basal, 0.37:0.54:1.26; spigots numerous on all three articles, uniformly distributed. PMS length 0.42, with about 10 spigots on 1:2A. Palp: tibia short, wide; bulb as in figure 101A, B. Leg I, tibial spur typical for genus; metatarsus almost straight (very slightly bent, ventrally and outwardly directed). Entire spider yellowish-brown; abdomen with darker spots forming chevron.

FEMALE: Unknown.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from the type locality, in southern Chile.

OTHER MATERIAL EXAMINED: None.

Acanthogonatus birabeni,

new species

Figure 102A, B

TYPE: Male holotype from Puerto Madryn, Chubut, Argentina (15 Feb. 1948; M. Birabén), deposited in MACN.

ETYMOLOGY: The specific name is a patronym in honor of Max Birabén, collector of the type and many other interesting specimens and author of numerous contributions to Argentinian arachnology.

DIAGNOSIS: This species differs from others in the *patagonicus* group by its smaller size and (except for *A. fuegianus*, which has a smooth bulb but lacks a tibial apophysis) by the less developed bulb keels (fig. 102A, B).

MALE (holotype): Total length 7.90. Cephalothorax length 3.27, width 2.62. Cephalic region length 2.00, width 1.65. OQ length

0.35, width 0.69. Labium length 0.25, width 0.61. Sternum length 1.87, width 1.46. Labium with no cuspules, maxillae with 0. Serula apparently present as small patch of denticles. Posterior sternal sigilla small, almost rounded, shallow, marginal; sternum weakly rebordered. Chelicerae: rastellum formed by long, thin, stiff setae; inner margin with 6 large, widely spaced teeth. Cheliceral tumescence present, only slightly produced ventrally, with only thin setae. Chaetotaxy: Femora: I, 1 P SUP A, 1-1-1-1 D, 0-1-1-1 R SUP; II, 0-1-1-1 P SUP, 1-1-1-1 D, 0-1-1-1 R SUP; III, 0-0-1-1-1 P SUP, 1-1 R SUP (1:3B), 0-1-1-1-1 R SUP; IV, 1-1-1 P SUP (1:2A), 1-1-1 D (2:3B), 1-1 R SUP (1:3A); palp, 1 P SUP A. Patellae: I, 1 P SUP A, 1 V POST A; II, 1 P SUP A; III, 1-1-1 P, 1 R (very long); IV, 0 P, 1 R; palp, 1 P SUP B. Tibiae: I, 1 P SUP, 3 P (in diagonal line, inferior ones more basal, extending to V ANT, similar to those of *A. centralis*, fig. 89D), 1 V ANT B, 1-1-1 V POST, 0-1-1 R INF; II, 0-1-1 P SUP, 1-1-2 V POST, 1-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 1-0-2/1-1-2 V ANT, 1-1-1 V POST; IV, 1-1/1-2 P, 1 D (1:4A), 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; palp, 0-2-2 P (thin), 4 or 5 thickened setae at base of posterior margin of ventral excavation, 0 R. Metatarsi: I, 1 P SUP M (large, thick), 0/1 D ANT M (short, thin), 1 V POST (long); II, 1 P SUP M (thick), 0-1-1 D ANT, 1 R M, 1-1-0 V ANT, 1-1-1 V POST; III, 1-1-1 P, 0-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1 V ANT B, 1-1-2 V POST. IV, 1-1-1 P, 0-1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-1-2 V POST. Tarsi: I-IV, palp, 0. Light, sparse scopulae on all tarsi, 3:4A of I and 1:2A of metatarsi I, II, absent from metatarsi III, IV. Scopulae I, II undivided, III, IV with wide band of thin setae. Metatarsal preening combs absent from all legs. STC I-IV with 2 rows of 12/14 teeth each. ITC I-IV absent. All tarsi very flexible. PLS, apical article short, triangular; length of apical:medial:basal, 0.32:0.50:0.60; basal article with at least 20 spigots on 2:3A, very difficult to see (specimen very pale). PMS length 0.30, with about 5 spigots. Palp: bulb as in figure 102A, B, with single low lateral keel along embolar base; tibia short, with 2 thicker dorsal setae (apical one broken off in both palps; basal one long, sinuous). Leg I,

tibia long, cylindrical, with apical prolateral spur typical for genus; metatarsus evenly curved downward in basal third, remainder straight. Entire spider light yellow, with dorsal abdominal pattern similar to that in *A. patagonicus*.

FEMALE: Unknown.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: None.

THE NAHUEL BUTA GROUP

The *nahuelbuta* group comprises four species (*A. nahuelbuta*, *A. patagallina*, *A. hualpen*, and *A. vilches*), which share modified spermathecae (figs. 106A-C, 109D), rigid female tarsi, and reduced tarsal scopulae. Males (unknown for *A. vilches*) differ from those of all other *Acanthogonatus* in the highly modified bulb and tibial apophysis, and the strong P SUP spine on metatarsus II (in the absence of data on males of *A. vilches* it cannot be decided whether those three characters are a synapomorphy of the *nahuelbuta* group or just the group comprising *A. nahuelbuta*, *A. hualpen*, and *A. patagallina*).

The setae at the apex of the male tibia I are so dense that they occlude the two spines typical of other *Acanthogonatus*. The spines are present, however, underneath the dense covering of setae (figs. 75, 76).

NATURAL HISTORY: The four species in the group have similar habits. They live only under logs or rocks, making dense, white silk tubes, ending in a short, shallow burrow, in shady forested areas in southern Chile (Regions VII and VIII).

REMARKS: Except for *A. vilches* (which differs from females of other species in the group in having significantly less modified spermathecae), females in this group not collected in association with males cannot be reliably identified. Below is a list of those unidentified females.

MATERIAL EXAMINED (only unidentified females or juveniles of the *nahuelbuta* group): CHILE: *Cautín*: Fundo La Selva, N of Temuco & NW of Nueva Imperial, 750 m, 16-20 Feb. 1981 (L. Peña, AMNH), 1♀; Lautaro, Jan. 1956 (J. Vellard, MACN), 1♀; Chacamo, NW of Nueva Imperial and W of Temuco,

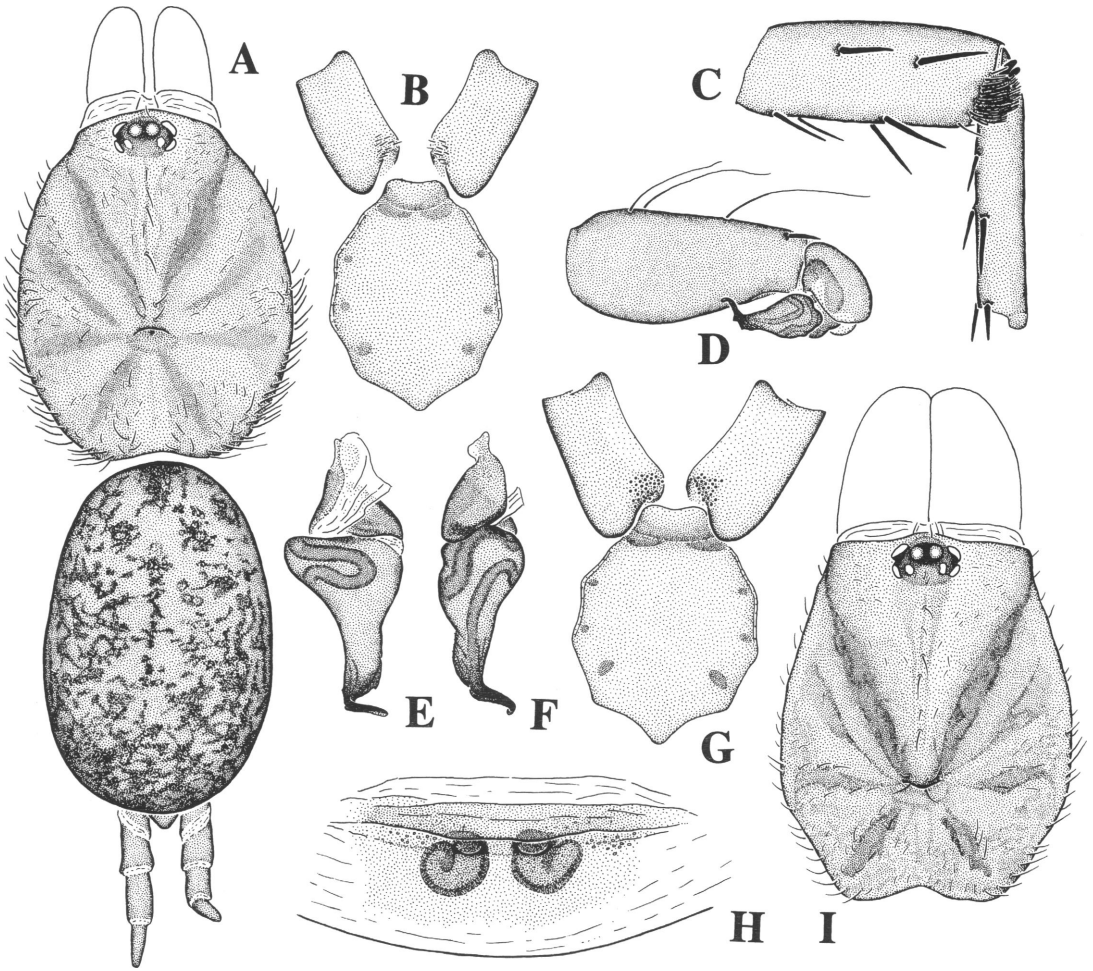


Fig. 103. *Acanthogonatus nahuelbuta*. A–F. Male. G–I. Female. A. Cephalothorax and abdomen. B. Sternum and maxillae. C. Left tibia I, prolateral. D. Right palp, retrolateral. E, F. Left bulb. G. Sternum and maxillae. H. Spermathecae, from behind. I. Cephalothorax.

12–24 Feb. 1981 (L. Peña, AMNH), 1♀, juvs. *Concepción*: camino a Tomé, 18 Jan. 1983 (Muñoz, AMNH), 1♀, 1 juv.; Las Escaleras, 26 Nov. 1975 (T. Cekalovic, MCZ), 1♀. *Mal-leco*: Parque Nacional Contulmo, 10 km W Purén, 240 m elev., 12 Dec. 1982 (A. Newton, M. Thayer, AMNH), juvs. *Valdivia*: Mehuin, 8 Mar. 1965, coastal forest (H. Levi, MCZ), 1♀.

***Acanthogonatus nahuelbuta*, new species**

Figures 15, 61, 75, 76,
103A–I, 104, 105, 106A, B

Types: Male holotype from Piedra del Aguila, Parque Nacional Nahuel-Buta, Mal-

leco, Chile (29 Dec. 1988; T. Cekalovic), and female paratype from Parque Nacional Nahuel-Buta (13 Feb. 1992; P. Goloboff, N. Platnick, M. Ramírez), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males differ from those of *A. patagallina* by having the basal portion of the bulb (in lateral view; fig. 103F) less rounded, with a more gradual transition with the embolus base, and the basal loop of the bulbal duct less sinuous (fig. 103E), and from those of *A. hualpen* by the differently shaped embolus and the palpal tibia (fig. 103D) with the apical two-thirds (instead of the apical one-



Figs. 104, 105. *Acanthogonatus nahuelbuta*. 104. Male from Alto Caledonia. 105. Female from Parque Nacional Nahuel-Buta. (Photos Martín Ramírez).

third) tapering gradually and bearing thickened setae on the retrolateral face.

MALE (holotype): Total length 13.38. Cephalothorax (fig. 103A) length 5.26, width 3.34. Cephalic region length 4.52, width 2.72. OQ length 0.63, width 1.11. Fovea width 0.67. Labium length 0.51, width 1.03. Sternum (fig. 103B) length 2.97, width 2.44. Labium with no cuspules, maxillae with about 12 short blunt setae. Serrula present. Sternal sigilla small, oval, submarginal, of medium depth; sternum strongly rebordered. Chelicerae: rastellum absent; inner margin with 8 teeth; furrow with about 20 tiny denticles. Cheliceral tumescence present, small, pallid, asetose, protruding. Trichobothria: Tibiae, I, 7(1:2b), 7(1:2b); II, 8(2:3b), 8(2:3b); III, 7(2:3b), 8(2:3b); IV, 7(2:3b), 8(1:2b); palp, 6(\approx 1:1), 6(\approx 1:1). Metatarsi, I, 13(3:4a); II, 11(3:4a); III, 13(3:4a); IV, 15(4:5a). Tarsi, I, 11; II, 12; III, 12; IV, 13; palp, 9(1:3m). Chaetotaxy: Femora: I, 1/1-1 P SUP A, 1-1-1 D; II, 1-0-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1/1-1-1 R SUP; III, 1-0-1/1-1-1 P SUP (1:2A), 1-1-1-0 D, 1-1 R SUP (1:2A); IV, 1-1/1-1-1 P SUP (1:3/1:2A), 1-1-1-0 D, 1-1 R SUP (1:3A); palp, 1-1-1-1 d (1:2a). Patellae: I, 1/1-1 P SUP, 1/1-1 V POST A [!]; II, 0-1-1/1-1-1 P SUP, 1 V POST A [!]; III, 1-1-1 P, 1/1-1 R; IV, 1 R; palp, 0. Tibiae: I, 1-1 P, numerous p inf a, 2 P INF A (covered by brush of p inf a), 1-1-0 V ANT, 1-1-1 V POST, 0 D; II, 1-1/1-1-1 P SUP, 2-2-3 V; III, 1-1 P SUP, 1 D (1:2A), 0-1/1-1 R, 2-2-3 V; IV, 1-1 P, 0/1 D (1:3A), 0-1-1 R SUP, 2-2-3 V; palp, 1 D POST A. Metatarsi: I, 2-2-2 V; II, 1-2 P SUP (middle

one strong, thick) [!], 2-2-3 V; III, 2-2-2 P SUP, 1-1-1 R SUP, 2-2-3/2-3-3 V; IV, 0/1 D POST B (small), 2-2-1-1 P SUP, 1-1-1 R SUP, 2-1-2-3 V, all very irregularly arranged. Tarsi: I-IV, 0; palp, 0. Scopula: present (very light) on I, II, absent from III, IV (covered with thin setae); metatarsi I, II with scopula on 1:2A. Tarsi I, II with scopula divided by wide, irregular band of setae. Metatarsal preening combs absent from I-IV. STC, teeth: I, 9889; II, 987 10; III, 10 899; IV, 9988. ITC present, well developed, on I-IV; no teeth. Flexible tarsi: tarsi I-IV ventrally pallid (III, IV more obviously so), but integral. PLS, apical article digitiform; length of apical:medial: basal, 0.79:0.76:1.09; spigots numerous on all three articles; basal and medial with evident row of pumpkiniform spigots on inner edge (slightly larger than other spigots). PMS length 0.66; about 20 spigots on 1:2A. Palp: tibia with dorsal erect sinuous setae; tibia (fig. 103D) slendering gradually from basal third to apex, retrolateral face covered with thicker setae along those apical two-thirds; bulb as in figures 103E, F. Leg I, tibial apophysis with two low spines on common base (figs. 75, 76, 103C); metatarsus straight, unmodified. Color as in female.

FEMALE (paratype): Total length 17.54. Cephalothorax (fig. 103I) length 6.19, width 5.29. Cephalic region length 4.14, width 3.84. Fovea width 0.76. OQ length 0.61, width 1.25. Labium length 0.67, width 1.19. Sternum (fig. 103G) length 1.75, width 1.55. Cephalic region strongly convex; fovea sinuous, slightly procurved, with very short posterior medial

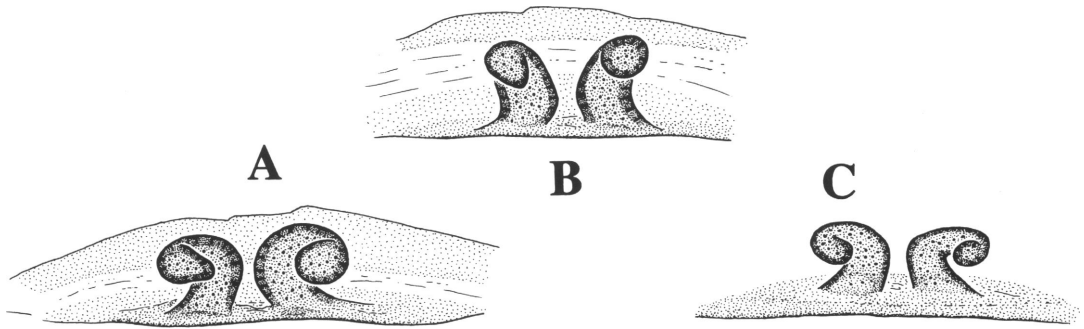


Fig. 106. *Acanthogonatus*, variation in female spermathecae of *nahuelbuta* group (dorsal-anterior view). A, B. Specimens from Parque Nacional Nahuel-Buta. C. Specimen from Chacamo, NW of Nueva Imperial.

notch. Labium with 2 cuspules, maxillae with 26/26. Serrula present. Sternal sigilla small, oval, medium depth; sternum rebordered. Trichobothrial bases as in figure 15. Chelicerae: rastellum absent; inner margin with 9 teeth (decreasing in size towards apex); furrow with about 35 denticles. Trichobothria: Tibiae, I, 9(3:4b), 7(3:4b); II, 10(3:4b), 8(3:4b); III, 8(1:2b), 8(1:2b); IV, 9(2:3b), 10(3:4b); palp, 7(\approx 1:1), 8(\approx 1:1). Metatarsi, I, 13(3:4a); II, 12(3:4a); III, 14(3:4a); IV, 16(4:5a). Tarsi, I, 11; II, 10; III, 12; IV, 13; palp, 9. Chaetotaxy: Femora: I, 0/1 P SUP A; II–IV, 0; palp, 0. Patellae: I, II, 0; III, 1-1-1 P, 0 R; IV, 0; palp, 0. Tibiae: I, 0/1 P INF A [!]; II, 1-1-1 v, 1 P SUP (1:2A); III, 1-1/1-0 P, 1 D, 0-1 R, 2-2 v, 3 V A; IV, 1-1 P, 1 D (1:3A), 1-1 R, 2-2 v, 2 V A; palp, 2 V ANT A, 1 V POST A. Metatarsi: I, 1-1-1/0-1-1 V POST; II, 2-2-2 V; III, 2-1-2 P SUP, 1 D POST B, 1-1-1/1-0-1 R SUP, 2-2-3 V; IV, 1-1-1/1-1-0 P SUP, 1-1 P, 1 D POST B, 1-1-1 R, 2-2-1-3 V. Tarsi: I–IV, 0; palp, 0. Scopula present, light, on tarsi I, II, absent from III, IV; metatarsus I with scopula on 2:3A on prolateral side, 1:3A on retrolateral; II with scopula on prolateral 1:3A. Scopula I, II with setae interspersed in middle. All tarsi integral, uniformly sclerotized. Metatarsal preening combs absent (apical ventral setae numerous on metatarsi III, IV, but disordered). STC, teeth: I, 5445; II, 5555; III, 6766; IV, 6776. Palpal claw with 4 teeth. ITC present on I–IV, without teeth. PLS, apical article digitiform; length of apical:medial:basal: 0.96:0.79:1.26; numerous irregularly distributed spigots, except for pumpkiniform spigots forming

row along inner edge of all three articles (fig. 61). PMS length 0.76; 18 spigots. Spermathecae as in figure 106B; figures 103H (posterior view), 106A show spermathecae of other specimens (with slight differences in shape). Cephalothorax, legs, reddish brown; abdomen yellowish, densely mottled with dark brown.

DISTRIBUTION: Provinces of Bío-Bío and Malleco, in Region VIII, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region VIII (del Bío-Bío): Malleco:** Parque Nacional Nahuel-Buta: 1220–1400 m elev., mixed forest with *Araucaria*, 26 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♂, 6♀, 1 juv., Oct. 1965 (Barrio, MACN), 1♀, *Nothofagus* and *Araucaria* association, 9 Oct. 1966 (E. Schlinger, M. Irwin, AMNH), 1♂, 13 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH, MACN), 3♀, 1 juv.; Piedra del Aguila, 1370 m, montane forest with *Araucaria*, 19 Nov. 1981 (N. Platnick, R. Schuh, T. Cekalovic, AMNH), 2♀; Piedra del Aguila, 1100 m elev., 28 Dec. 1988 (T. Cekalovic, AMNH), 1♂, 6♀; Cabrería, Dec. 1985 (E. Maury, MACN), 4♀, 1 juv., 28 Dec. 1988 (T. Cekalovic, AMNH), 13♀, 1 juv.; 1230 m, dry forest, 1 Feb. 1986 (N. Platnick, R. Schuh, AMNH), 1♀, 2 juvs., 1300 m elev., 1–6 Feb. 1979 (L. Peña, AMNH), 1♂, 3♀, 2 juvs., 1100 m elev., 5–9 Jan. 1989 (L. Peña, AMNH), 1♀, 1400 m elev., 9 Dec. 1984–16 Feb. 1985 (S. Peck, J. Peck, AMNH), car trap and FIT's, 16♂, 4♀, 3 juvs.; Cordillera Nahuelbuta, 14–24 Feb. 1977 (G. Moreno, AMNH), 1♀. **Bío-Bío:** Poco a Poco, 14 km N of Nacimiento, 19–21 Feb. 1990 (L. Peña, AMNH), 3♂; Cal-

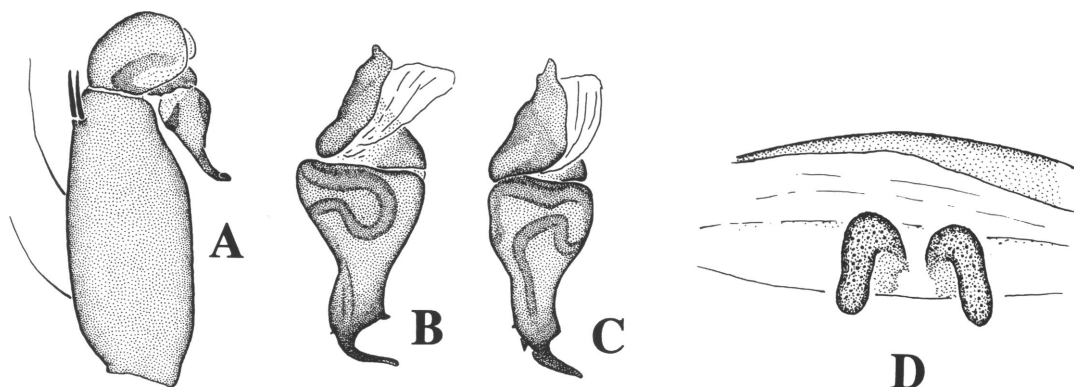


Fig. 107. *Acanthogonatus hualpen*. A–C. Male. D. Female. A. Right palp, retrolateral. B, C. Left bulb. D. Spermatheca.

edonia, Mulchen, 600 m elev., 18–20 Feb. 1990 (L. Peña, AMNH), 1♀, 1 juv.; Alto Calcedonia, 42 km E Mulchen, 14 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH, MACN), 3♂.

***Acanthogonatus hualpen*, new species**

Figures 107A–D

TYPES: Male holotype taken with barber trap, from Hualpén, Concepción, Region VIII (del Bío-Bío), Chile (29 Aug. 1975; Quesada), and female paratype from the same locality (9 Dec. 1975; T. Cekalovic), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished from those of *A. nahuelbuta* and *A. patagallina* by the distinctly shaped apex of the bulb, and by the palpal tibia being uniformly wide in the basal two-thirds (tapering more abruptly at the apex) with thickened setae along the apical one-third of the retrolateral face (instead of two-thirds). Females cannot be distinguished from those of *A. nahuelbuta* (those of *A. patagallina* are unknown).

MALE (holotype): Total length 9.42. Cephalothorax length 4.08, width 3.25. Cephalic region length 2.66, width 1.92. OQ length 0.45, width 0.84. Labium length 0.34, width 0.79. Sternum length 1.20, width 0.99. Labium and maxillae with no cuspules, maxillae with thickened setae on anterior inner corner. Serrula present. Sternum and sigilla as in *A. nahuelbuta*. Chelicerae: rastellum ab-

sent; inner margin with 8 small teeth, widely spaced; furrow with row of minute denticles. Cheliceral tumescence small, with ventral protuberance. Trichobothria: Tibiae, I, 9(4:5b), 9(4:5b); II, 8(3:4b), 7(3:4b); III, 7(2:3b), 7(2:3b); IV, 9(2:3b), 9(2:3b); palp, 7(≈1:1), 7(≈1:1). Metatarsi, I, 11(3:4a); II, 10(3:4a); III, 9(4:5a); IV, 13(4:5a). Tarsi, I, 12; II, III, 11; IV, 12; palp, 9(1:3m). Chaetotaxy: Femora: I, II, 1 P SUP A, 1-1-1 d; III, 1-1-1 P SUP (1:2A), 1-1-1 D, 1-1-1 R SUP (1:2A); IV, 1-1-1 D, 1 R SUP A; palp, 0. Patellae: I, 1 P, 0 V ANT; II, 1-1 P SUP, 0 V ANT; III, 1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 0-1-1 P SUP, 1-3-1/2-2-1 V, apical brush of numerous setae, covering 2 P INF A; II, 0-1-1 P SUP, 2-2-3/1-1-3 V; III, 1-1 P, 2-1/1-1 D, 1-1 R, 2-2-3 V; IV, 1-1 P, 1 D B, 1-1-1 R SUP, 2-2-3 V; palp, 2 D POST A. Metatarsi: I, 1-1 V ANT, 1-1-1 V POST; II, 1/1-1 P SUP, 1-1-2 V ANT, 1-1-1 V POST; III, 2-2-2/1-2-2 P SUP, 1-1-1 R, 2-2-3 V; IV, 2-2-2 P SUP, 1-1-1 R, 2-2-3 V. Tarsi: I–IV, 0; palp, 0. Scopula: light on tarsus I, very light on tarsus II, absent from III, IV; apical half of metatarsi I, II with sparse scopuliform hairs. Scopula on tarsi I, II with thin setae interspersed (forming irregular band). Metatarsal preening combs absent from all legs. STC, teeth: I, 9768; II, 9759; III, 10 779; IV, 10 8 9 10. ITC present in I–IV. Tarsi I, II integral, with uniform sclerotization; tarsi III, IV ventrally less sclerotized, but rigid. Palp: tibia with two dorsal erect setae; 2:3B of tibia of uniform width, narrowing in 1:3A (fig. 107A); with thicker setae in 1:3A; bulb as in figure

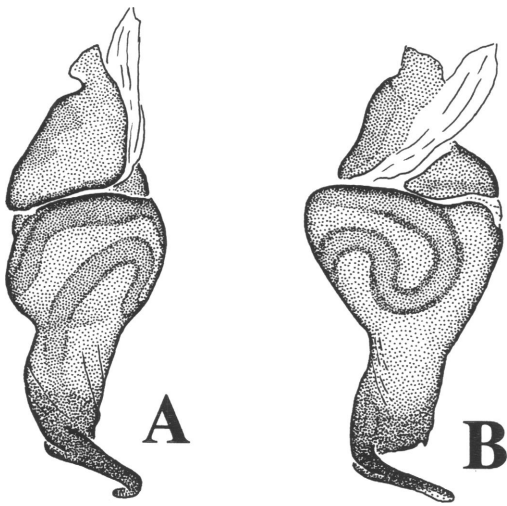


Fig. 108. A, B. *Acanthogonatus patagallina*, left male bulb.

107B, C. Leg I, tibial apophysis similar to that of *A. nahuelbuta*; metatarsus straight, unmodified. Color as in *A. nahuelbuta*.

FEMALE (paratype): Total length 12.50. Cephalothorax length 4.90, width 3.92. Cephalic region length 3.32, width 2.60. Fovea width 0.62. OQ length 0.49, width 0.95. Labium length 0.47, width 0.85. Sternum length 2.52, width 2.27. Cephalic region convex; fovea slightly procurved with recurved ends. Labium with 1 cuspule, maxillae with 16. Serrula present, well developed. Sternal sigilla small, almost rounded, shallow, marginal; sternum rebordered. Chelicerae: rastellum absent; inner margin with 6 teeth. Chaetotaxy: Femora: I–IV, 0, with 1 or 2 basal only slightly thickened setae; palp, 0. Patellae: I, II, 0; III, 0-1-1 P, 0 R; IV, 0; palp, 0. Tibiae: I, 0; II, 1-1 v post (very thin); III, 1-1 P, 1 D (1:3A), 0-1 R SUP, 2 V A; IV, 1-1 P, 1 D (1:3A), 0-1-1/1-1-1 R SUP, 2 v m, 2 V A; palp, 2 P INF A, only 2 r inf a (very thin). Metatarsi: I, 1-1 V POST; II, 0-1-1 V ANT, 1-1-1 V POST; III, 1-1-1/1-0-1 P, 1-1-1 P SUP, 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 1-1-1 P SUP, 1 D POST B, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi, I, II lightly scopulate, tarsi III, IV ascopulate; metatarsi I with scopula almost reaching the base, II with scopula on 1:3A, metatarsi III, IV, and all tibiae, ascopulate. Scopula I undivided, II with thicker setae interspersed with scopula along band

occupying 1:3 of width of article. All tarsi rigid. Metatarsal preening combs absent from all legs. STC, teeth: II, 5435; III, 5665; IV, 5556. ITC present in I–IV. PLS, apical article digitiform; length of apical:medial:basal, 0.75:0.67:0.85. PMS length 0.60. Spermathecae similar to those of *A. nahuelbuta* (fig. 107D). Color as in male.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: Chile: **Region VIII (del Bío-Bío):** Concepción: Hualpén, 16 May 1976 (T. Cekalovic, AMNH), 1♂.

Acanthogonatus patagallina,
new species
Figures 108A, B

TYPE: Male holotype from Pata de Gallina, Arauco, Region VIII (del Bío-Bío), Chile (17–18 Mar. 1987; L. Peña), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species is closest to *A. nahuelbuta*, but can be distinguished by having the basal portion of the male bulbal duct more sinuous (fig. 108B) and the basal portion of the bulb more rounded in lateral view (fig. 108A).

MALE (holotype): Total length 10.50. Cephalothorax length 4.37, width 3.42. Cephalic region length 2.87, width 1.91. OQ length 0.42, width 0.80. Labium length 0.30, width 0.73. Sternum length 2.21, width 1.82. Labium with no cuspules, maxillae with 15 short attenuate setae. Serrula present, well developed. Sternal sigilla small, almost rounded, shallow, marginal; sternum strongly rebordered. Chelicerae: rastellum absent; inner margin with 9 widely spaced teeth, pointing toward furrow (same teeth normal in specimens of *A. nahuelbuta*); furrow with about 15 tiny granulations. Cheliceral tumescence present, small, ventrally produced, asetose. Chaetotaxy: Femora: I, II, 1 P SUP A, 1-1 d (1:3b); III, 0-1-1-1 P SUP, 1-1 d (1:4b, very thick), 0-1-1-1 R SUP; IV, 1-1-1 d (1:2B), 1 R SUP A; palp, only 2 or 3 long recumbent thickened setae on dorsal apex. Patellae: I, 1 P SUP A, 1 V POST A [?]; II, 0-1-1 P SUP, 0 v post a; III, 1-1-1 P, 1-1-0 R (strong); IV, 0-1-1/0-0-1 P, 1 R; palp, 0. Tibiae: I, 1-1 P SUP, 2 P INF A (short, on

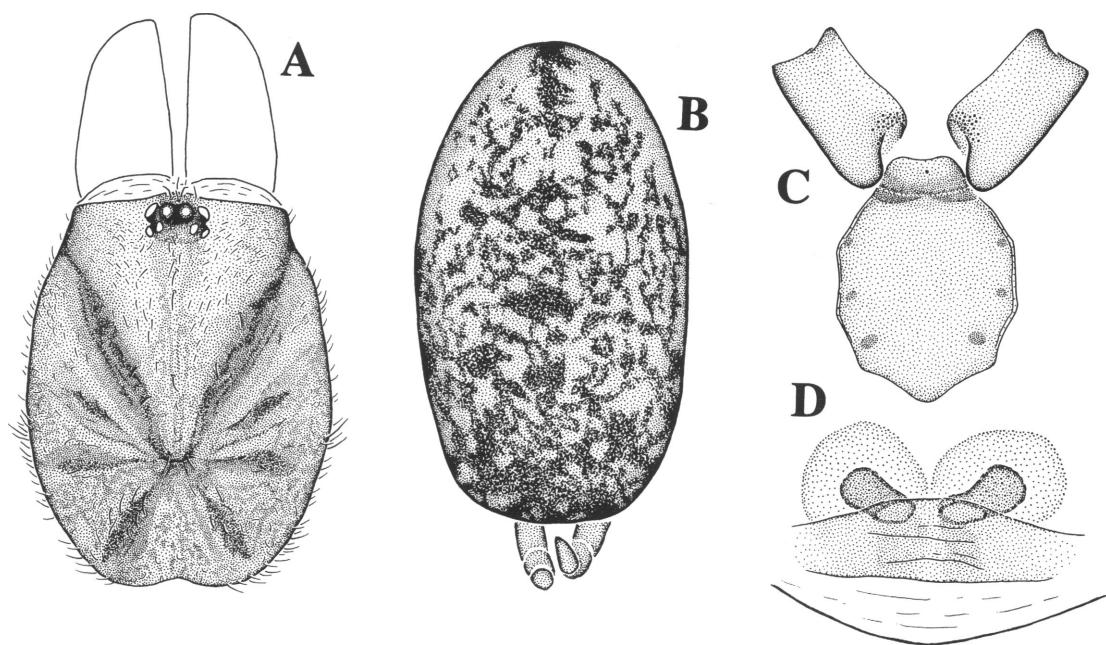


Fig. 109. *Acanthogonatus vilches*, female. A. Cephalothorax. B. Dorsal abdomen. C. Sternum and maxillae. D. Spermathecae, dorsal and posterior.

spur) and numerous short thick setae covering them, 1-1-0 V ANT, 1-1-1 V POST, 0 D, 0 R; II, 1-1 P SUP, 1-1-2 V ANT, 1-1-1 V POST; III, 1-1-1/1-1 P SUP, 2-0-1 D, 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; IV, 1-1 P, 0/1 D (1:3A), 1 D POST B, 0-1/1-1 R SUP; palp, 2 D POST A. Metatarsi: I, 0-1-1 V ANT, 1-1-1 V POST, all short, thick; II, 1-1-0 P SUP, 0-1-1 V ANT, 1-1-2 V POST, all short, thick, especially second P SUP; III, 1-1-1 P, 1-1-1 P SUP, 1 D POST B, 1-1-1 R, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 1-1-1-1/1-1-1 P SUP, 1 D POST B, 1-1-1/1-1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-1-2/1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I, II very lightly scopulate, III, IV ascopulate; metatarsi I, II with sparse apical scopuliform hairs at apex. Scopula I with only scopuliform hairs, II with some thicker setae interspersed. All tibiae ascopulate. Metatarsal preening combs absent from all legs. STC, teeth: I, 6556; II, 7557; III, 7566; IV, 7877. ITC I-IV, present. Flexible tarsi: I, II, rigid, III, IV ventrally pallid but rigid. PLS, apical article digitiform; length of apical:medial:basal, 0.62:0.50:0.75; numerous spigots on 2:3A of basal article. PMS length 0.41; about 8 spigots on

1:3A. Palp: basal portion of bulbal duct strongly sinuous (fig. 108B), basal portion of bulb, in lateral view, rounded (fig. 108A); tibia widest at 1:3B, gradually tapering from there; retroventral 2:3A with thickened setae. Leg I, tibial apophysis similar to that in *A. nahuelbuta* (as in figs. 75, 76, 103C); metatarsus straight, unmodified. Cephalothorax and legs reddish brown, with yellowish, lighter, glabrous leg stripes; sternum yellowish, with margins darker; dorsal abdomen densely mottled.

FEMALE: Unknown.

DISTRIBUTION: Known only from the type locality.

NATURAL HISTORY: No data are known.

OTHER MATERIAL EXAMINED: Chile: same locality, date, and collectors as the holotype (AMNH), 1♂.

Acanthogonatus vilches, new species

Figure 109A-D

TYPE: Female holotype from Gil de Vilches, Talca, Region VII (del Maule), Chile (7 Jan. 1989; M. Ramírez, E. Maury), deposited in MACN.

DIAGNOSIS: Males are unknown, but females differ from those of the other species in the *nahuelbuta* group by their less modified spermathecae (fig. 109D).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

MALE: Unknown.

FEMALE (holotype): Total length 14.51. Cephalothorax (fig. 109A) length 5.16, width 4.02. Cephalic region length 3.53, width 3.03. Fovea width 0.50. OQ length 0.47, width 0.94. Labium length 0.62, width 1.17. Sternum (fig. 109C) length 1.51, width 1.28. Cephalic region moderately convex; fovea procurved. Labium with 1 cuspule, maxillae with 22/28. Serrula present. Sternal sigilla small, oval; sternum rebordered. Chelicerae: rastellum weak, with only long setae; inner margin with 8 teeth; furrow with 18 tiny denticles. Trichobothria: Tibiae, I, 9(3:4b), 10(3:4b); II, 8(3:4b), 9(3:4b); III, 8(1:2b), 9(1:2b); IV, 10(3:4b), 9(3:4b); palp, 7(\approx 1:1), 8(\approx 1:1). Metatarsi, I, 14(4:5a); II, 12(4:5a); III, 12(3:4a); IV, 16(4:5a). Tarsi, I, II, 11; III, 10; IV, 12; palp, 10. Chaetotaxy: Femora: I, II, 1 p sup a; III, IV, 0; palp, 0 [!]. Patellae: I, II, 0; III, 1-1 P, 0 R; IV, 0; palp, 0. Tibiae: I, 0; II, 0/1 p (1:3a); III, 1-1/0-1 P, 1 D (1:2A), 1 R (1:2A), 1-2 v, 2/3 V A; IV, 0 P [!], 1-1 R (basal one very small, weak), 1-2 v, 2/3 V A; palp, 1-2 P INF (1:2A), 1 R INF A. Metatarsi: I, 2-1/2 V (short, strong); II, 1-2-3/2-2-3 V (strong, longer); III, 1-1-1/1-1-0 P, 0-1-1 P SUP, 1-1-1 R SUP, 2-2-3 V (thick, strong); IV, 0-1-1 P, 1 P SUP A, 1-1-1 R SUP, 2-2-3 V (thick, strong). Tarsi: I-IV, 0; palp, 0. Scopula: light on tarsi I, almost absent from II, absent from III, IV; apical third of metatarsi I with scopula; metatarsi II, IV ascopulate. Scopula I divided by line of setae, II by wide band of setae. All tarsi rigid. Metatarsal preening combs absent from I, II; III, IV with comb of 4 setae (with bases closely spaced) behind medial apical spine, with 3 setae grouped (but not forming a comb) in front of spine. STC, teeth: I, 5444; II, 5555; III, 5455; IV, 5555. Palpal claw with 4 teeth on promargin. ITC present on I-IV, directed downward on I, II, more apically on III, IV; without teeth. PLS, apical article digitiform; length of apical:medial:basal, 0.93:0.76:1.14; basal article with numerous spigots. PMS length 0.67; about 10 spigots. Spermathecae as in

figure 109D, without membranous extension covering entrance (present in other species of *nahuelbuta* group). Book-lung openings oval, wide, more rounded than in other *Acanthogonatus*. Cephalothorax, legs yellowish brown; abdomen (fig. 109B) mottled with dark brown.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: Same locality, 1200 m elev., 16-17 Jan. 1984 (P. Goloboff, E. Maury, MACN), 3♀, juvs., 30 Oct. 1969 (Rozen, AMNH), 1♀.

THE MULCHEN GROUP

This group comprises three species, *A. mulchen*, *A. tolhuaca*, and *A. brunneus*, which share very wide spermathecae, fused in the middle. They are known from only a handful of localities in southern Chile. Males are unknown; if the cladogram for *Acanthogonatus* is correct, males of this group should have the tibial apophysis and the well-developed dorsal setae on the palpal tibia typical for the genus; eventual discovery of males will thus constitute an important test of the cladogram proposed here.

Acanthogonatus mulchen, new species

Figures 110, 111, 112A, B

TYPE: Female holotype from Alto Caledonia, 42 km E Mulchén, 470 m elev., Bío-Bío, Chile (14 Feb. 1992; P. Goloboff, N. Platnick, M. Ramírez), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species can be easily recognized by the long, narrow sternum (fig. 112A). It also differs from *A. tolhuaca* in the spermathecae having a less pronounced notch and the glandular areas on each side joining in the middle, and the slightly larger size (*A. mulchen* has a cephalothorax length of up to 13.20, and a total length of 35.05), and from *A. brunneus* by the uniformly colored abdomen.

MALE: Unknown.

FEMALE (holotype): Total length 29.50. Cephalothorax length 11.80, width 9.50. Cephalic region length 7.70, width 7.00. Fovea width 1.50. OQ length 1.00, width 1.90. La-



Figs. 110, 111. *Acanthogonatus mulchen*, female and burrow (Photos Martín Ramírez).

bium length 0.95, width 2.00. Sternum (fig. 112A) long, narrow, length 6.50, width 4.80. Cephalic region wide but low, only slightly convex; fovea straight to procurved with recurved ends; no posterior notch. Labium with 2 cuspules, maxillae with 38/40. Serrula present as small patch of teeth only on anterior face of lobe. Sternal sigilla deep, long; sternum rebordered. Chelicerae: rastellum absent; inner margin with 9 teeth; furrow with 14 small teeth (replaced by denticles in most other species). Chaetotaxy: Femora: I, 0/1 P SUP A, 1-1 d (1:3b, very weak); II, 1 P SUP A, 1-1 d (1:3b, very weak); III, 0-1-1-1 P SUP (apical stronger), 0-1/1-1 d (1:3b), 0-1-1-1 R SUP (apical stronger); IV, 1/1-1 d (1:3b), 1-1 R SUP (1:3A); palp, 1/2 P SUP A. Patellae: I, 0; II, 1/0 p sup a; III, 1/1-1 P (of six studied females, all have 1-1 or fewer; some have no prolateral spines on patella III [!]; of 5 juveniles, total length 10.5–13.5, all have 1-1 on each patella III), 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 0/1 P (1:3A), 1/2 V ANT A, 0/1 v post; II, 0-1/1-1 P SUP, 2 V ANT A, 1-2/0-2 V; III, 1-1/1-2 P, 0-1 D (1:3A), 1-1/1-0 R SUP, 1-1-2/1-2-2 V ANT, 1-1-1 V POST; IV, 1-1 P, 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; palp, 1-1/1-0 P SUP (1:3A), 1-1 p inf, 1-2/1 V ANT A, 1-1 v post, 1 V POST A. Metatarsi: I, 2 V (1:3B), 1 V POST A; II, 0 P, 2-2-0-2 V; III, 1-1-1 P, 0-1-0-1 P SUP, 1 D POST B, 1-1-1/1-1-1-1 R SUP, 1-1-2-0-1 V ANT, 1-0-1-0-2 V POST (i.e., roughly 3-3-3 V); IV, 1-1-1/1-1-1-1 P, 1-1-1-0-1/0-1-1-0-1 D ANT, 1 D POST B, 1-2-1/2-0-1-1-1 R SUP, 1-1-2-1 V ANT, 1-1-1-2/1-1-2 V POST. Tarsi: I–IV, 0; palp, 1 V ANT B,

0/1 V POST B (other females have no spines on palpal tarsus). Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 1:1, III with light scopula on anterior side of 1:3A, IV ascopulate. Scopula I, II undivided (but tarsus II has slightly thicker setae along 1:3B); III with wide band of thick setae (about 5 setae wide, occupying 1:3 of article's width), IV with wider band (about 5 setae wide, but setae are thicker, so that band occupies 1:2 of article's width, leaving 1:4 free at each side). Tarsi I–IV flexible. Metatarsal preening combs: absent from I–IV (III, IV have thickened setae at apex, not even forming pseudo comb). STC, teeth: I, 5546; II, 4554; III, 5655; IV, 5655/6556. Palpal claw with 3 teeth on promargin. ITC I–IV present. PLS, apical article digitiform; length of apical:medial:basal, 1.70:1.25: 2.25. PMS length 1.35. Spermathecae as in figure 112B. Entire spider uniform blackish-reddish brown, except one lighter spot in front of abdomen (tergum size and shape). Juveniles have a similar color, but lighter, with diagonal lines of pale dots on dorsum of abdomen evident.

NATURAL HISTORY: The specimens (figs. 110, 111) were collected from densely silk-lined burrows, short and shallow, about 15–20 mm wide, which originated from under stones or at the base of trees. The burrow mouth was funnellike, with the white silk extending in a sort of collar.

DISTRIBUTION: Known only from Bío-Bío Province, in Region VIII (Chile).

OTHER MATERIAL EXAMINED: CHILE: **Region VIII (del Bío-Bío):** Bío-Bío: Alto Caledonia, 42 km E Mulchén, 470 m elev., 14

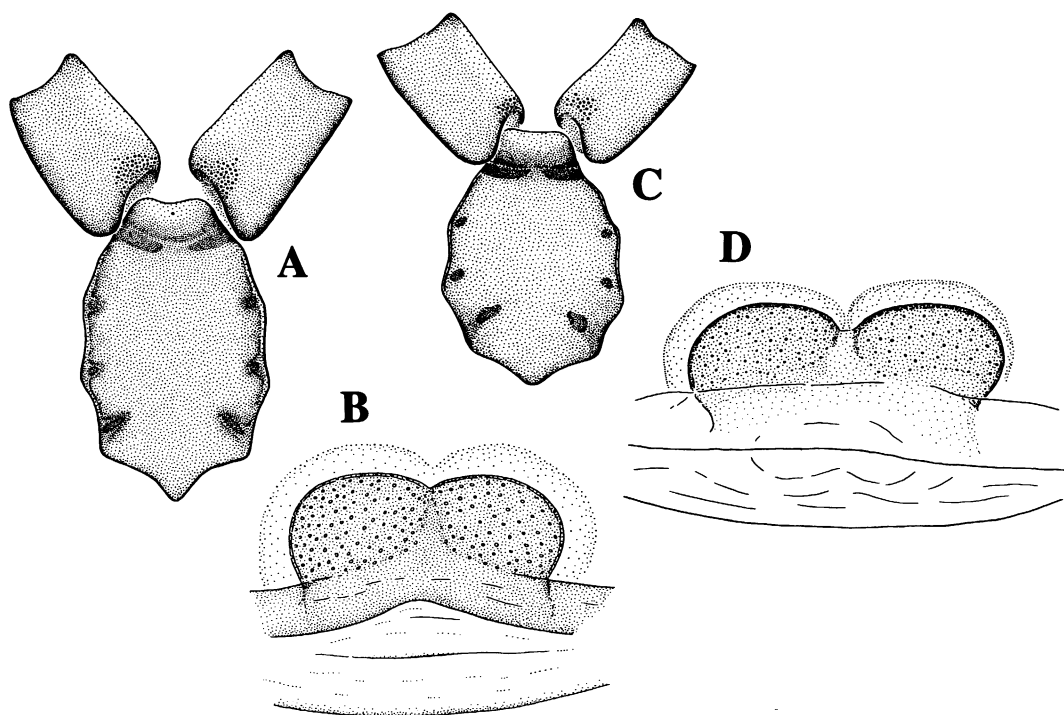


Fig. 112. *Acanthogonatus*, females of the *mulchen* group. A, B. *A. mulchen*. C, D. *A. tolhuaca*. A, C. Sternum and maxillae. B, D. Spermathecae, dorsal.

Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH, MACN), 4♀, 5 juvs.; Alto Caledonia, E Mulchén, 750 m elev., 20–23 Jan. 1988 (L. Peña, AMNH), 1♀, 600 m elev., 18–20 Feb. 1990 (L. Peña, AMNH), 3 juvs.

Acanthogonatus tolhuaca,
new species

Figures 56, 112C, D

TYPE: Female holotype from Tolhuaca, Malleco, Region IX (de la Araucanía), Chile (15–23 Mar. 1986; L. Peña), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species differs from *A. mulchen* in its wider sternum (fig. 112C), slightly smaller size, and the spermathecae having a more pronounced notch; from *A. brunneus*, it differs in the uniformly colored abdomen.

MALE: Unknown.

FEMALE (holotype): Total length 23.10. Cephalothorax length 9.40, width 7.70. Cephalic region length 5.80, width 5.60. Fovea width 0.95. OQ length 0.72, width 1.57. Labium length 0.82, width 1.57. Sternum (fig. 112C) length 4.95, width 3.82. Cephalic region wide but low, not very convex; fovea slightly procurved with recurved ends, with small posterior notch. Labium with no cuspules, maxillae with 18/22. Serrula present on anterior face of lobe. Sternal sigilla small, oval, less elongated than in *A. mulchen*, more separated from margin; sternum rebordered. Chelicerae: rastellum absent; inner margin with 8 teeth; furrow with 10 denticles (smaller than in *A. mulchen*). Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1/1-1 P SUP (1:3A), 1 d b, 1-1-1-0 R SUP (1:2A); IV, 1 d b, 1 R SUP A; palp, 1 P SUP A. Patellae: I, 0; II, 0/1 p; III, 1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 1 p (1:3a), 1 V ANT A, 1 v post m; II, 1 p (1:3a), 2 v ant a, 2 v; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 1-1-2 V ANT (weak),

1-1-1 V POST (weak); IV, 1-1 P, 1-1 R SUP, 1-0-2/1-1-2 v ant, 1-1-1 v post; palp, 1-0 P (1:3A), 1-2 V ANT (1:3A), 1-1-2 V POST. Metatarsi: I, 1-2 V (1:3B), 0/1 V A; II, 2-2-0-2 V; III, 1-1-1 P, 0-1-1-0-1 P SUP, 1 D POST B, 1-1-1/1-1-2 R SUP, 2-2-3 V; IV, 1-1-1 P, 0-1-1-0-1 P SUP, 1 D POST B, 1-1-1 R SUP, 2-2-3 V. Tarsi: I-IV, 0; palp, 0 (two other females examined also lack palpal spines). Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:3A (denser on anterior side), IV ascopulate (with few scopuliform hairs on 1:6A). Scopula I, II undivided, III with band (occupying about 1:3 of article's width) of about 5 setae wide; IV with wider band (occupying almost 1:2 of article's width) of 6 setae wide. Tarsi I-IV flexible, posterior ones more obviously so. Metatarsal preening combs absent from I-IV. STC, teeth: I, 5455; II, 7555; III, 8656; IV, 7566. Palpal claw with 5 teeth on promargin. ITC I-IV present. PLS, apical article digitiform; length of apical:medial:basal, 1.75:1.35:1.75; spigots as in figure 56. PMS length 1.00; numerous spigots on 2:3A. Spermathecae as in figure 112D, notch more pronounced than in *A. mulchen*, glandular areas of each side not touching in middle; basal part straight (concave in *A. mulchen*). Entire spider reddish-blackish brown; abdomen with paler anterodorsal spot.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from Malleco Province, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region IX (de la Araucania): Malleco:** Tolhuaca, 15 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀; Tolhuaca, Laguna Malleco, 4 Mar. 1978 (T. Cekalovic, AMNH), 1♀.

Acanthogonatus brunneus (Nicolet),
new combination
Figures 113A-D

Mygale brunnea Nicolet, 1849: 336 (holotype female, possibly juvenile, from Valdivia, Region X (de los Lagos), Chile, in MNHN, examined).

DIAGNOSIS: This species differs from the others in the *mulchen* group in the lighter color, and in having the dorsal abdomen mottled.

MALE: Unknown.

FEMALE (Sierra de Chillán, MNHN, dissected female): Total length 23.25. Cephalothorax length 9.80, width 8.00. Cephalic region length 6.20, width 5.70. Fovea width 1.00. OQ length 0.85, width 1.70. Labium length 0.90, width 1.62. Sternum (similar to fig. 113A) length 5.10, width 4.10. Cephalic region lightly convex; fovea narrow, sinuous, with conspicuous posterior notch. Labium with no cuspules, maxillae with 33/31. Serula present, well developed. Sternal sigilla oval, deep, separated from margin by almost long diameter, connected with sternal margin by depression; sternum rebordered. Chelicerae: rastellum absent; inner margin with 10 teeth; furrow with 17 large teeth. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 0-1/1-1 P SUP (1:3A), 1 d b, 0-1/1-1 R SUP (1:3A); IV, 1-1 d b, 1/1-1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1/0-1-1 P (other specimen from same locality is missing one leg III; remaining patella has 0-1-1 P), 1 R; IV, 1 R; palp, 0. Tibiae: I, 2 p inf a, 1 v post; II, 1 P SUP (1:3A), 2 p inf a, 1-2 v; III, 1-1 P, 1 D (1:3A), 1-1 R SUP; IV, 1-1 P, 1 D ANT (1:4A) (very small), 1-1/1-2 R SUP, 1-2-2 V ANT, 1-1-1 V POST; palp, 1 P SUP (1:3A), 0-1-2 V ANT, 1 V POST A. Metatarsi: I, 1-1-1 V POST; II, 2-2-2 V (stronger than in I); III, 1-1-1 P, 0-1-1-1 P SUP, 1-1-1 R SUP, 1-1-1/1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 0-1-1-1 P SUP, 1 D B POST, 2-2-1/1-1-1 R SUP, 1-1-1/1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I-IV densely scopulate; metatarsi I, II with 1:1 scopulate, III with 1:4A lightly scopulate, IV ascopulate. Scopula I, II undivided, III with wide band of about 5 thick setae (occupying 1:3 of article's width), IV with wider discrete band of about 6-7 setae (leaving 1:4 of article's width free at each side). All tarsi flexible. Metatarsal preening combs absent, but III, IV with some thicker setae on ventral apex. STC, teeth: I, 4554; II, 5555; III, 5555; IV, 5555; most basal tooth of external rows very basal, distinctly shaped. Palpal claw with 6 on promargin. ITC I-IV present, well developed. PLS, apical article digitiform; length of apical:medial:basal, 1.75:1.25:1.75; spigots poorly preserved; with pumpkiniform spigots along inner edge, numerous on basal article. PMS length 1.12; numerous spigots on 1:2A. Spermathecae as in figure 113C. Cep-

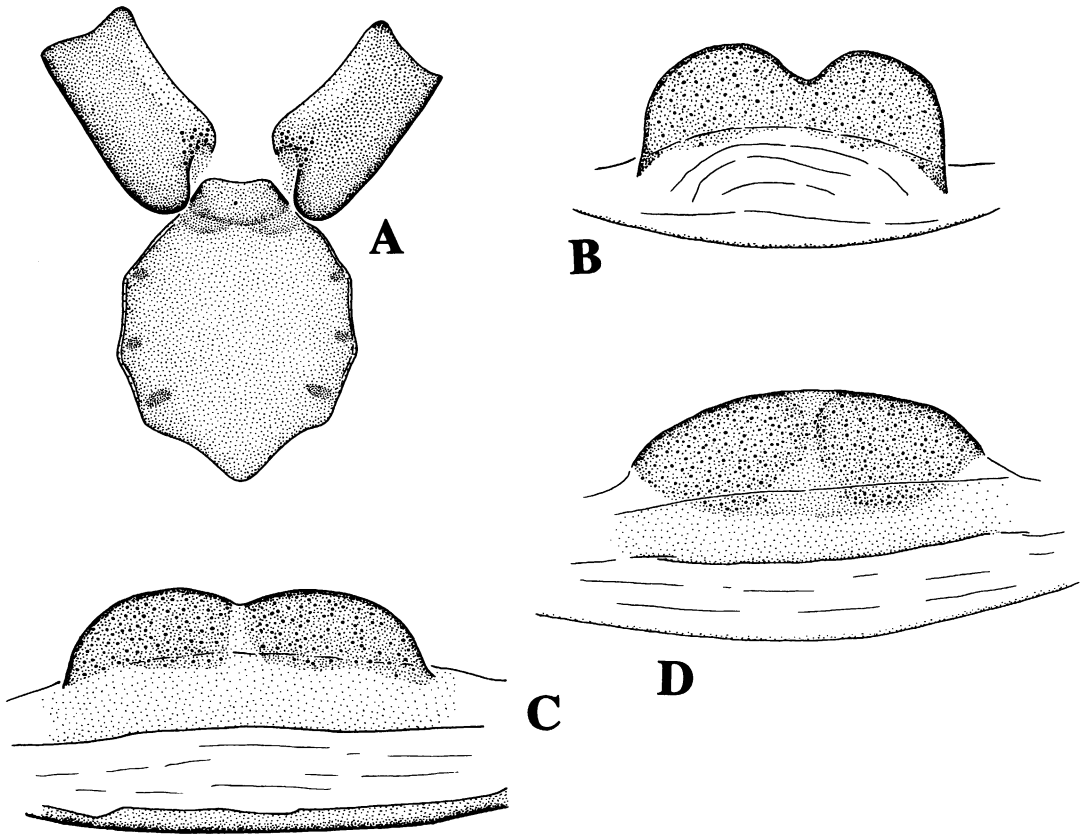


Fig. 113. *Acanthogonatus brunneus*, females. A. Sternum and maxillae (Los Ruiles). B. Holotype (dorsal). C. Chillán (ventral). D. Los Ruiles (dorsal).

alothorax, legs, palpi uniform reddish brown, abdomen dark brown with numerous lighter yellowish spots forming chevron (absent in *A. mulchen* and *A. tolhuaca*).

REMARKS: This species has never been identified since its original description. Legendre and Calderón (1984), who gave a "complete" list of the Chilean mygalomorphs, did not mention this species, presumably because they considered it unidentifiable. Although Nicolet's (1849) description is very uninformative, the type still exists in the MNHN. It is in very poor condition. The color is completely faded, the cephalothorax is deformed, and the eye group is broken. If the specimens described here, from Sierra de Chillán, belong to the same species, the holotype (with cephalothorax length about 4.50, width about 3.30) must be a juvenile. The preening combs in the holotype (and in the

specimen from Los Ruiles; see below) are better developed than in the specimens from Chillán, perhaps just because they are juveniles. No other specimens from the vicinity of Valdivia are known.

A single specimen collected in Los Ruiles could also be a juvenile of this species, although its sclerotization, coloration, and general chaetotaxy suggest that it could be an adult; if the characters differentiating that specimen from the ones collected in Sierra de Chillán are indeed adult characters, it would be justified to consider them a different species. It differs from the other species in the *mulchen* group in having the legs I with no spines, shallower and smaller sternal sigilla, a weak rastellum, and serrula absent (or very reduced). The specimen could be adult because it is well sclerotized and has a wide genital opening. Specimens of *A. mulchen* and

A. tolhuaca of comparable size are obviously juveniles, pale, unsclerotized, with few hairs, the genital opening unsclerotized and narrow, and have 1-1 or fewer prolateral spines on patella III and a well-developed serrula. The more sclerotized juveniles (about 15 mm length) of *A. mulchen* have much denser scopulae, leg I with 1 V ANT A on tibia and 1 V A on metatarsus, an elongated sternum, and larger teeth on the cheliceral furrow; no juveniles on that age-class are available for *A. tolhuaca*. A brief description of that specimen from Los Ruiles follows: Total length 12.30. Cephalothorax length 4.80, width 3.60. Sternum length 2.39, width 2.28. Labium with 1 cuspule, maxillae with 14/13. Serrula absent or very reduced. Sternal sigilla small, oval, shallow, submarginal. Chelicerae: rastellum weak, formed by thick, long, attenuate setae; inner margin with 7 teeth; furrow with about 25 small denticles. Chaetotaxy: Femora: I-IV, palp, 0. Patellae: I, II, 0; III, 1-1-1 P (strong), 0 R; IV, palp, 0. Tibiae: I, II, 0; III, 1-1 P, 1 D, 1 R SUP, 2 V A; IV, 1 P, 1-1 R SUP, 2 V A; palp, only 1 V ANT A [!]. Metatarsi: I, 0; II, 1 V ANT A, 0-1-1 V POST; III, 1-1-1 P, 0-1-1 P SUP, 1-1-1 R SUP, 0-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1 P, 0-1-1 P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi I with light scopula, II-IV ascopulate; metatarsi I with scopula on 1:2A, II-IV ascopulate. Scopula I with scopular hairs along medial line thicker, but with no real setae. All tarsi rigid. Metatarsal preening combs absent from I, II; III with 2 combs of 3 short, thick, attenuate setae at each side of most ventral apical spine, irregularly aligned; IV differs from III only in having longer, more aligned setae. STC, teeth: I, 4234; II, 4345; III, 4445; IV, 5445. PLS, apical article digitiform; length of apical:medial:basal, 0.85:0.72:0.90; basal article with numerous spigots, on 4:5A. PMS length 0.52. Spermathecae as in figure 113D. Cephalothorax, legs, palpi light olive brown; abdomen yellowish with dorsal mottles.

Given the paucity of specimens available (and that some of them could be juveniles) all are considered as conspecific, for the time being.

DISTRIBUTION: Known only from a single locality in each of Regions VII, VIII, and X, Chile.

OTHER MATERIAL EXAMINED: CHILE: Region VII (del Maule): Cauquenes: Reserva Nacional Los Ruiles, 25 Feb. 1992 (P. Goloboff, N. Platnick, M. Ramírez, AMNH), 1♀. **Region VIII (del Bío-Bío): Ñuble:** Sierra de Chillán, no date (Germain, MNHN), 2♀.

PYCNOTHELE CHAMBERLIN

Table 4

- Pycnothele* Chamberlin, 1917: 27.
Heteromma Mello-Leitão, 1935: 356. Preoccupied by *Heteromma* Karsch, 1888.
Agersborgia Strand, 1936: 167 (nomen novum for *Heteromma* Mello-Leitão). First synonymized by Lucas and Bücherl, 1973: 241.
Androthelopsis Mello-Leitão, 1934: 402. First synonymized with *Pycnothele* by Pérez-Miles and Capocasale, 1988: 287.
Pycnothelopsis Schiapelli and Gerschman, 1942: 319. First synonymized with *Androthelopsis* by Raven, 1985a: 101.

TYPE SPECIES: *P. perdita* Chamberlin, 1917 (male holotype and female paratype in MCZ, examined) is (by original designation) the type of *Pycnothele*. *Heteromma anomala* Mello-Leitão, 1935 (male holotype in IBB, examined) is the type of *Heteromma*. *Androthelopsis singularis* Mello-Leitão, 1934 (male holotype in IBB, examined) is the type of *Androthelopsis*. *Pycnothelopsis modestus* Schiapelli and Gerschman, 1942 (male holotype in MACN, examined) is the type of *Pycnothelopsis*.

DIAGNOSIS: Females differ from those of all other nemesiids in having a sclerotized chamber above the spermathecae. Males have a very large bulb, which rests on a large, deep tibial excavation.

DESCRIPTION: Cephalothorax elongated; head narrow, of medium height, convex; chelicerae robust, with rastellum formed by stiff, long, thick attenuate setae. Cheliceral tumescence flat, covered with numerous modified setae. Eyes in steep tubercle; clypeus wide. Fovea more or less straight. Labium wide, with few to no cuspules; maxillae elongated, with serrula present in males, absent in females, with medium (20-25) numbers of cuspules on inner angle; posterior heel not produced. Sternum flat, longer than wide, with posterior sigilla small, oval, submarginal (on some Brazilian species tentatively included in genus posterior sigilla large, well separated

from margin). PLS with apical segment very short, domed; numerous spigots on basal article; articulate and some pumpkiniform spigots present (pumpkiniform spigots larger, mostly in groups of 2–3 at apex of each article, with short thick shafts). PMS present, with numerous spigots. Cephalothorax reddish brown; dorsal abdomen yellowish brown with faint chevron, or dark with chevron concealed. Male leg I: tibia with no apophysis, with subapical retroventral clasping cluster of 3–4 strong spines with concavity in front of them (*P. modesta*) or cylindrical (other species); dorsal spines absent; patella without retrolateral spines. Patellae III, IV of both sexes with 1-1-1 P. Posterior male tibiae with few dorsal spines. Metatarsus IV with full complement of P, P SUP spines (in *P. perdit*, both P, P SUP, and R SUP, extremely numerous, with up to 8 spines in each series). All metatarsi without preening combs. Tarsi I–IV, metatarsi I, II, with dense, symmetric scopulae; tarsi III, IV with scopula very narrowly to broadly divided; tibiae I, II with light scopula (lighter on posterior side). All male tarsi flexible; female tarsi entire, very stout (*P. perdit*) or more slender, ventrally pallid (other species). Cymbium aspinose; male and female leg tarsi aspinose; female palpal tarsus with no spines (*P. auronitens*) or with pair of ventrolateral basal spines (1 R INF B, 1 P INF B). STC with two rows of few (*P. perdit*) to numerous teeth (other species). ITC IV absent from all legs; claw tufts absent. Tarsal trichobothria in single, zigzag row. Spermathecae simple, with single undivided slender receptaculum, and strongly sclerotized chamber situated above spermathecae (spermathecal ducts discharge through separate openings), surrounded by glandular tissue (most evident in female *P. modesta* and *P. perdit*, least so in some new Brazilian species tentatively assigned to genus); that chamber seems to be main sperm storage area. Male bulb very large, coniform, more or less abruptly but evenly tapering to form embolus; cymbium with thin setae; palpal tibia with ventral excavation very large, deep.

REMARKS: One of the most significant features of this genus is the modified female genitalia (the character does not appear as a synapomorphy of node 134 in table 4 because females of *Pycnothele* (?) n. sp. are unknown,

and the character cannot be unambiguously optimized). Schiapelli and Gerschman's (1967) illustration of the female type of *P. perdit* (the only species of *Pycnothele* for which females were previously known) clearly shows the supraspermathecal chamber. However, neither them, nor subsequent authors (Raven, 1985a; Pérez-Miles and Capocasale), made an explicit reference to the character.

Mello-Leitão's original description of *Androthelopsis* indicated that the spider had only two spinnerets, but the type actually has four spinnerets.

The present concept of the genus is likely to change when species from Brasil are revised (Goloboff et al., in prep.). Most significant is an apparently undescribed species (known only from a male, in MZSP, included in the matrix as *Pycnothele* (?) n. sp.), which has a large bulb and a deeply excavated palpal tibia (with a general conformation similar to that in other species of *Pycnothele*), but lacks spines on the prolateral patella IV, has a third claw on leg IV, and a retrolateral apical megaspine on tibia I; the pumpkiniform spigots in that species form a band along the inner edge of the PLS spinning field.

Pycnothele modesta

(Schiapelli and Gerschman)

Figures 17, 53, 114A–D, 115A–I

Pycnothelopsis modestus Schiapelli and Gerschman, 1942: 319 (male holotype from Colonia Dora, Santiago del Estero, Argentina, in MACN, examined); 1967: 59.

Stenoterommata platense: Mello-Leitão, 1941b: 101 (misidentification, in part).

Androthelopsis modestus: Raven, 1985a: 102.

Pycnothele singularis: Pérez-Miles and Capocasale, 1988: 291 (in part, erroneous synonymy with *Pycnothelopsis modestus*).

DIAGNOSIS: Males are most similar to those of *P. singularis* (from Brazil), but can be distinguished by having the retroventral spines on the metatarsus I (fig. 114A) more sessile (in *P. singularis* those spines are placed on very elevated bases), and by the tibia I (fig. 114B) having a concavity in front of the cluster of three ventral posterior spines. Females (described here for first time) can be distinguished from those of *P. auronitens* by the larger, more developed supraspermathecal

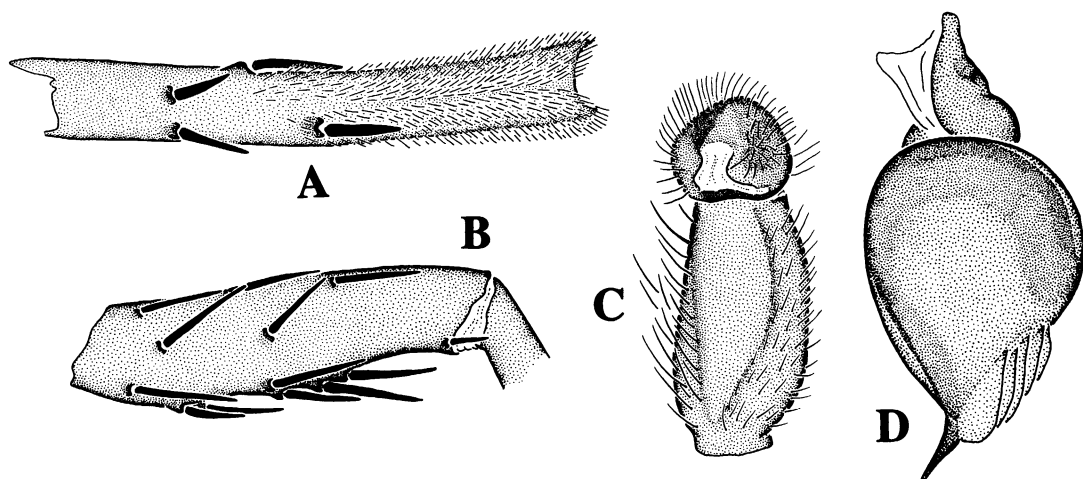


Fig. 114. *Pycnothele modesta*, male. A. Left metatarsus I, ventral. B. Left tibia I, prolateral. C. Left palp, ventral (bulb removed to show expanded tibial depression). D. Right bulb.

chamber (fig. 115G, H), and by usually having two basal lateroventral spines on the palpal tarsus, and from those of *P. perdita* by having the normal complement of 1-1-1 P and 1-1-1 P SUP spines on metatarsus IV (*P. perdita* has about 16 spines covering the P and P SUP faces).

MALE (Beltrán): Total length 17.10. Cephalothorax length 7.10, width 5.90. Cephalic region length 4.75, width 3.60. Labium with 2 cuspules, maxillae with 22/25. Serrula present, on upper side of anterior lobe, conspicuous. Sternal sigilla small, oval, shallow, marginal; sternum rebordered. Chelicerae: rastellum weak, formed by long, stiff, attenuate setae; inner margin with 6 teeth; fang furrow with 10 small blunt cusps. Cheliceral tumescence flat, covered with thick setae. Chaetotaxy: Femora: I, 1-1/1-1-1 P SUP (1:3A), 1-1-1-1 D, 0-1-0-1/1-1-1-1 R SUP; II, 0-1-1-1 P SUP, 1-1-1-1 D, 0-1-1-1 R SUP; III, 0-1-0-1/0-1-1-1 P SUP, 1-1-1-1/1-1-1-0 D, 0-1-1-1/1-1-1-1 R SUP; IV, 1-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1/1-1-1 R SUP (1:3A); palp, 1 P SUP A, 0/1 r sup a. Patellae: I, 1 P, 0 R; II, 0-1-1 P; III, 1-1-1 P, 1 R; IV, 1-0-1/1-1-1 P, 1 R; palp, 1-1 p sup. Tibiae: I, 1-1 P SUP, 1-1-0 P INF, 1-1-1/1-0-1 V ANT (apical one right on edge), 2-2 V POST (2 apical ones separated from edge, with slight concavity in front of them, fig. 114B), no R or D; II, 1-1 P SUP, 1-1-2 V ANT, 1-2-0/2-

2-1 V POST; III, 1-1 P, 2-1/1-1 D, 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; IV, 1-1/1-2 P, 2 D (1:3B), 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; palp, 2-1 P (long), 1 R A (shorter). Metatarsi: I, 1 P SUP, 2/2-1 V (1:3B); II, 1-1-1 P SUP [!], 1-1-1 V ANT, 1-1-0 V POST, 1 R; III, 1-1-1 P, 1-1-1 P SUP, 1 D B POST, 1-2-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 1-1-1/1-0-1-1-1 P, 1-1-1-1 P SUP, 1 D B POST, 1-2-1-1 R SUP, 1-1-1-1/1-0-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. All tarsi densely scopulate; metatarsi I, II with scopula on 1:2A, III with few scopuliform hairs on 1:4A, IV ascopulate; all tibiae ascopulate. Scopula I-III undivided, IV with narrow band of (double row of) thin setae. Metatarsal preening combs: absent from I-IV. ITC, I-IV, absent. All tarsi flexible. Apical article of PLS domed, short; PMS present. Palpal tibia deeply excavated (fig. 114C); bulb as in figure 114D, with apical part of duct evenly curved. Leg I, tibia cylindrical, with slight concavity in front of 2 or 3 ventral apical spines (fig. 114B), forming clasping organ; no apophysis, no retrolateral megaspine; metatarsus straight, with normal spines, on low bases (fig. 114A). Color as in female.

FEMALE (Anta, FIML 01009): Cephalothorax (fig. 115A) 9.67 long, width 8.12. Labium length 0.58 of width. Sternum (fig. 115I) width 0.83 of length. Labium with 3 cuspules, max-

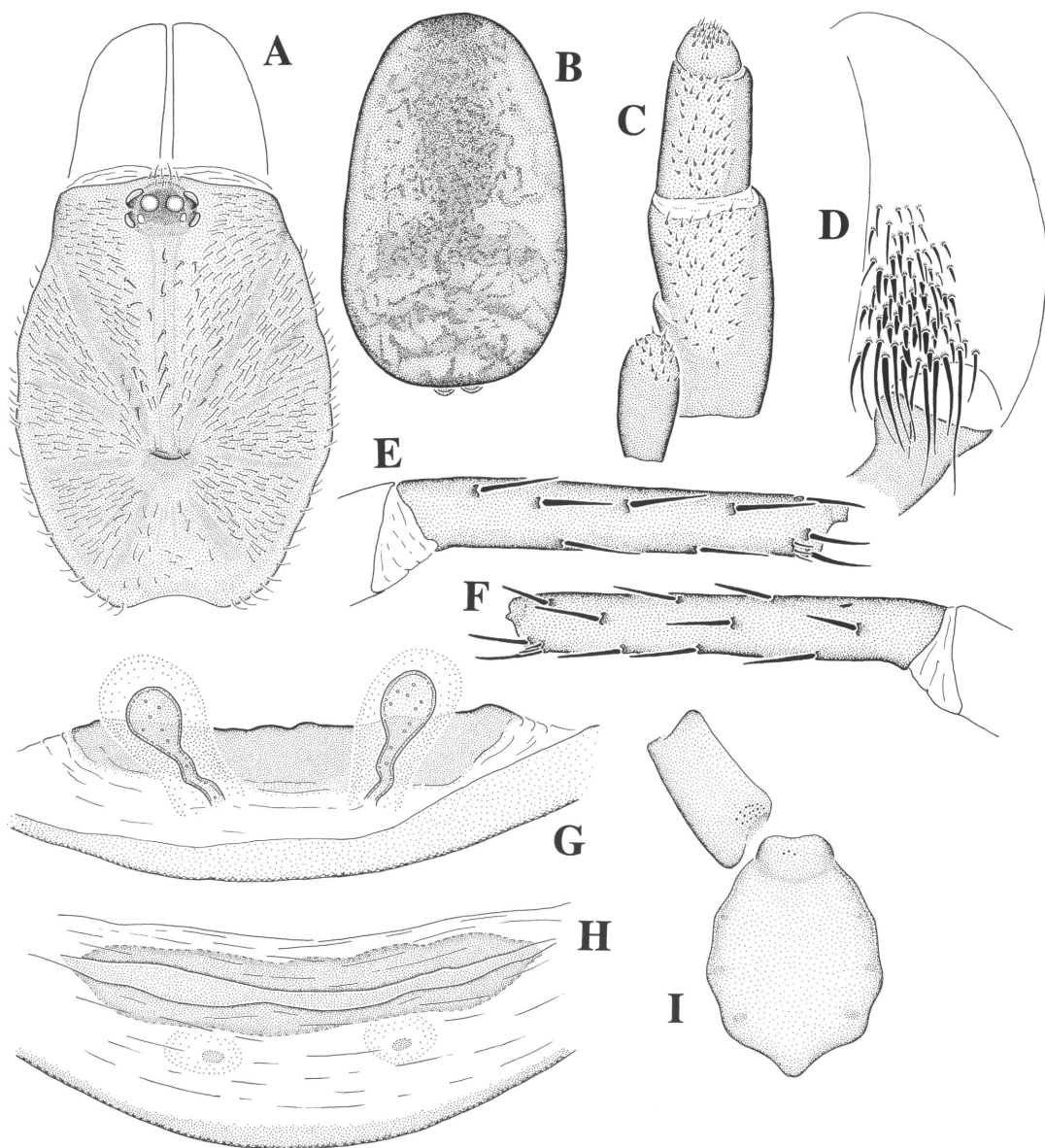


Fig. 115. *Pycnothele modesta*, female. A. Cephalothorax. B. Abdomen. C. Right PLS and PMS. D. Left chelicera, showing rastellum. E. Right metatarsus IV, retrolateral. F. Same, prolateral. G. Spermathecae and accessory chamber, ventral view. H. Same, posterior view. I. Sternum and maxilla.

illae with 21/22. Chelicerae with rastellum formed by numerous long, weak, attenuate setae (fig. 115D). Chaetotaxy: Femora I, II, 1 p sup a; III, 1 r sup a; IV, 0, with thicker p sup a; palp, 0. Patellae I, II, 0; III, 1-1 P (see variations); 1-1/1-1-1 P; palp, 0. Tibiae, I, II, 0; III, 1-1 P, 2-2 P, 1-1 R, 0-1-3 V; IV, 1-1 P, 1-1 R, 1-3 V; palp, 1-1-4 V. Metatarsi,

I, 2-1 V (1:3B); II, 2-1-1 V; III, 6 P, 2 R B, 1 R A, 2-2-3 V; IV (fig. 115E, F), 8 P, 1-1-1-1 R SUP, 8 V. Tarsi I-IV and palpal tarsi, 0 (see remarks). No metatarsal combs (some specimens with light pseudocombs). Tarsi I-IV, metatarsi I, 3:4A of metatarsi II, with dense scopula (see remarks). Scopula undivided on tarsi I, II, divided on III, IV. Tarsi

ventrally pallid but integral. Tarsal organ with double receptor area (fig. 17). Spermathecae with large sclerotized atrium (fig. 115G, H). Spinnerets short, apical article domed (fig. 115C); spigots as in figure 53. Body covered with numerous long thin hairs. Cephalothorax, legs, palpi, uniform reddish brown; abdomen darker with dark dorsal band laterally incised (fig. 115B), inconspicuous in darker specimens.

NATURAL HISTORY: In Córdoba and Entre Ríos specimens were found in places with moist soil, in shallow burrows (10 cm), of 15–20 mm diameter at the (open) entrance and becoming narrower at the bottom (where they had about 10 mm diameter). The walls were covered with a thin, white layer of silk; the walls were smooth and quite compacted by the spider. In Santiago del Estero they were collected in two places of much drier soil; the burrow of those specimens was longer, lined with more silk, and did not open directly to the exterior, but instead under a layer of fallen leaves; in some cases, the burrow continued as silk tubes under the layer of leaves, parallel to the surface, for 2 to 4 cm.

REMARKS: The males from Uruguay have the 2 V POST spines on metatarsus I short and curved upwards, with bases more raised than in specimens from Argentina (but not so much as in *P. singularis*). In the male holotype of *P. singularis* (in IBB, examined) and in other specimens I have identified as *P. singularis* or a closely related species (in MZSP and IBB), the spines on the raised bases are longer and straight, and although a cluster of spines occurs on the retroventral apical third of tibia I, there is no conspicuous concavity in front of those spines. The specimens from Uruguay could perhaps represent a new species.

Other females from Argentina (none are known from Uruguay) usually have 1-1-1P spines on patella III, and two lateral inferior basal spines on the palpal tarsus; the metatarsi III have scopula occupying 1:3A. Some specimens also have a wider sternum and clusters of thickened setae at apex of metatarsi III, IV resembling pseudopreening combs.

DISTRIBUTION: Northern Argentina and Uruguay.

OTHER MATERIAL EXAMINED: ARGENTINA: **Salta:** Río del Valle, Anta, 1 Dec. 1955 (Pierotti, FIML 01009), 1♀; Hickman, 17 Dec. 1945 (Pierotti, M. Lillo, MACN), 1♂ juv. **Jujuy:** T. del Palmar, Oct. 1948 (A. Prosen, MACN), 1♂. **Santiago del Estero:** Campo Gallo, Dec. 1940 (J. Abalos, MACN), 1♂, 1 juv.; Beltrán, Dec. 1940 (Maldonado, MACN), 1♂, Dec. 1949 (no collector, MACN), 1 juv.; Campo del Cielo, no date (J. Abalos, MACN), 1♂; Colonia Dora, 7–8 Feb. 1985 (P. Goloboff, C. Szumik, MACN), 1♀, 2 juvs., 1992 (P. Goloboff, C. Szumik, MACN), 1♀; Dique Los Quiroga, 6 Jan. 1985 (P. Goloboff, C. Szumik, MACN), 2 juvs. **Catamarca:** San Fernando del Valle de Catamarca, Jan. 1944 (Schaeffer, MACN), 1♂. **Córdoba:** no specific locality, no date (MACN), 1 juv.; Lucio V. Mansilla, Dec. 1950 (A. Ibarra Grasso, MACN), 1♂; Anisacate, no date (M. Birabén, MACN 14.466), 2 juvs.; Cabana, Apr. 1947 (M. Birabén, MACN), 2♂, 2 juvs., Dec. 1952 (M. Birabén, MACN), 1♂, 12 Feb. 1945 (no collector, MACN), 1♀; Capilla del Monte, Apr. 1987 (P. Goloboff, MACN), 1♀; Embalse, Oct. 1963 (Lucchino, MACN), 1♂, 1 juv. **Corrientes:** Solari, Dec. 1941 (no collector, MACN), 1♂. **Chaco:** Colonia Benítez, Sep. 1959 (A. Bachmann, MACN), 1♂. **Formosa:** Laguna Yema, 19 Nov. 1981, (A. Roig, MACN), 1♂. **Entre Ríos:** Paraná, Apr. 1962 (Japun, MACN), 1♂; Ruta Nacional 12 (ex. Ruta Provincial 126) and Arroyo Orillas del Monte, 16 Jan. 1988 (P. Goloboff, C. Szumik, MACN), 2♀. **URUGUAY:** Salto: Río Arapey, Estación San Agustín, 12 Jan. 1980 (Shannon, MHNM), 1♂; Río Arapey, 12 Nov. 1955 (no collector?, MHNM 777), 1♂. Artigas: Cerro del Zorro, Ruta 30 and Arroyo Catalán, 30 Mar. 1983 (Gudynas, Skuk, MHNM), 1♂.

Pycnothele auronitens
(Keyserling)

Figures 18, 54, 116A, B

Trechona auronitens Keyserling, 1891: 16 (male holotype, from Taquara, Rio Grande do Sul, Brazil, in BMNH, examined).

Psalistops auripilus Mello-Leitão, 1946: 8 (male holotype, from Florida, Uruguay, in MHNM, not examined). First synonymized by Pérez-Miles and Capocasa (1988).

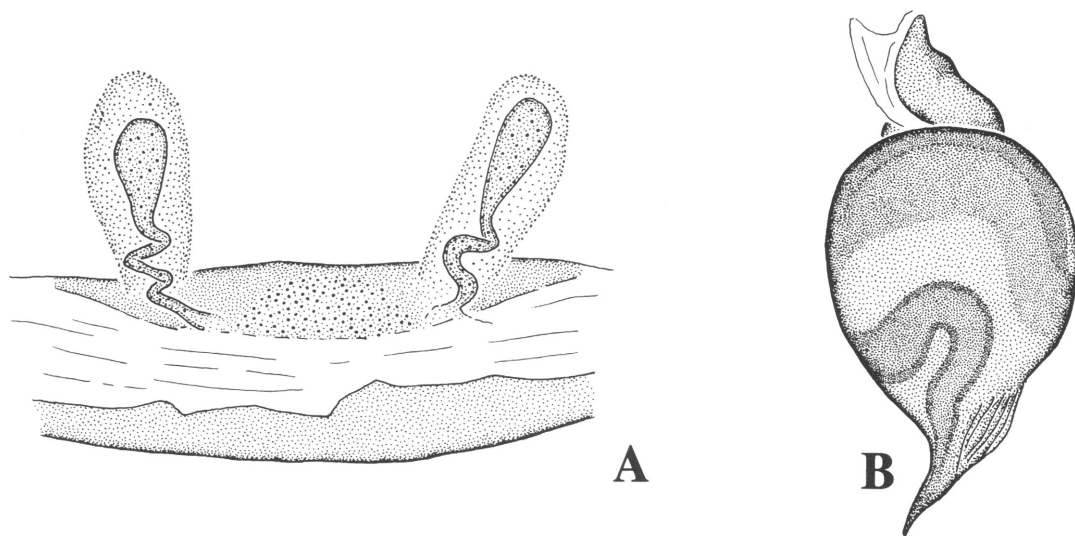


Fig. 116. *Pycnothele auronitens*. A. Female spermathecae, ventral. B. Right male bulb.

Pycnothelopsis modesta: Schiapelli and Gerschman, 1971: 61 (erroneous synonymy).

Pycnothele auronitens: Gerschman and Schiapelli, 1970b: 100.—Pérez-Miles and Capocasale, 1988: 289.

DIAGNOSIS: Males can be distinguished from other species in the genus by having the bulbal duct strongly sinuous in the apical part (fig. 116B). Females can be distinguished by the less developed supraspermathecal chamber and the long spiraled ducts (fig. 116A).

MALE (MACN 6343): Total length 15.70. Cephalothorax length 6.10, width 4.80. Cephalic region length 3.90, width 3.10. Labium with no cuspules, maxillae with 20/21. Serrula present, well developed. Sternal sigilla small, shallow, oval, marginal; sternum rebordered. Chelicerae: rastellum as in female; inner margin with 7 teeth; fang furrow with 13 small blunt cusps. Cheliceral tumescence flat, covered with thick setae. Chaetotaxy: Femora: I, 1-1 P SUP (1:3A), 1-1-1-0 D, 1-1 R SUP (1:3A); II, 0-1-0-1-1 P SUP, 1-1-1-1-0/0-1-1-1-0 D, 1-0-1-1/0-0-1-1 R SUP (1:2A); III, 0-1-1-1 P SUP, 1-1-1-0-0 D, 0-1-1-1 R SUP; IV, 0-1-1-1 R SUP or 1 R SUP A, 1-1-1-0 D, 0-1-0-1/0-1-1-1 R SUP; palp, 1 P SUP A, 1 d, 1 R SUP A. Patellae: I, 1 P SUP A, 0 R; II, 0-1-1/0-0-1 P SUP, 0 R; III, 1-1-1 P, 1 R; IV, 1-1-1/1-0-1 P, 1 R; palp, 1-0-1 P SUP. Tibiae: I, 0-1-1-0 P SUP,

1 P, 1-1-2 V ANT (first 1-1 rather weak), 2-2-0 V POST (longer, more slender than in *P. modesta*); II, 0-1-1-0 P SUP, 0/1 1 v post b, 2 V ANT A, 2-2-1/1-2-0 V POST; III, 1-1 P, 2-1 D, 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; IV, 1-1 P, 0/1 P INF, 1-1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; palp, 0-2-2 P, 1 R A. Metatarsi: I, 1 P SUP, 2 V B, 1-1/0-1 V POST (1:2A); II, 1-1-1/0-2-1 P SUP, 2-2-0-2/2-3-0-3 V, 0/1 R; III, 1-1-1-1 P, 0-1-1-1 P SUP, 1 D POST B, 1-2-1 R SUP; IV, 1-1-1-1-0/2-1-1-1-0 P, 0-1-1-0-1/1-1-1-1-1 P SUP, 2-2-1-1/2-1-1-1 R SUP (basal 2 as 1 R SUP plus 1 D POST B). Tarsi: I–IV, palp, 0. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 2:3A, III on 1:3A, IV ascopulate. Scopula I, II undivided, III divided by narrow band (triple row of thin, short setae), IV divided by wider band (four rows of thicker setae, occupying 1:4 of article's width) (band wider than in *P. modesta*, setae thicker). Metatarsal preening combs: absent from I–IV. ITC, I–IV absent. All tarsi flexible. Apical article of PLS short, domed; PMS with about 15 spigots. Palpal tibia deeply excavated; bulb (fig. 116B) large, with high keels, with duct strongly looped. Leg I, tibia cylindrical, no apophysis, no concavity in front of 2 V POST; metatarsus straight, unmodified, with normal spines. Cephalothorax, legs, palpi reddish brown with golden pubescence; ab-

domen yellowish brown with brown chevron (denser in middle) similar to one in light-colored specimens of *P. modesta*.

FEMALE (FIML 00002): Total length 24.10. Cephalothorax length 7.70, width 6.10. Cephalic region length 5.20, width 4.50. Fovea, width 1.05. OQ length 0.77, width 1.27. Labium length 0.77, width 1.42. Sternum length 3.63, width 3.33. Cephalic region convex; fovea slightly procurved. Labium with 3 cusps, maxillae with 25/21. Serrula absent. Sternal sigilla small, shallow, oval, marginal; sternum weakly rebordered. Chelicerae: rastellum stronger than in *P. modesta*, formed by shorter, blunter setae; inner margin with 6/7 teeth; fang furrow with 15 large denticles. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 1 P SUP A, 1 R SUP A; IV, 0/1 R SUP A; palp, 1 P SUP A. Patellae: I, 0; II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 1-1-1 P, 0/1 R; palp, 1 P SUP B. Tibiae: I, 0; II, 1-1 P SUP, 1 v ant a, 1 V POST; III, 1-1 P, 1-1/2-1 D, 1-1 R SUP, 0-1-2/0-1-3 V; IV, 0-1 P, 1-1 R SUP, 2-2-3 V (2 basal ones very thin, just thickened setae); palp, 2 P M, 2 P INF A, 0-1-2 R INF. Metatarsi: I, 2 V B, 1 V POST A; II, 1-0-1 V ANT, 1-1-1 V POST; III, 1-1-1 P SUP, 0-1-1 D ANT, 1 D POST B, 1-1-1 R SUP; IV, 1-1-1-1 P, 2 D A, 2-1-1-0/1-1-1-0 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I, 0; tarsi II missing; III, IV, 0; palp, 0. Tarsi I-IV scopulate; metatarsi I, II with scopula reaching base, III with 1:4A scopulate, IV ascopulate; tibia I with very light scopula on anterior 1:4A; tibia II ascopulate. Scopula I undivided, III with clear band of 4-5 setae (occupying 1:4 of article's width); IV with broad band 7-8 setae wide, occupying more than half of article's width. All tarsi integral,

rigid. Metatarsal preening combs: III, IV with faint pseudocombs (formed by long disordered setae). STC, teeth: I, 4543; II ? (poorly preserved); III, 5555; IV, 5665. Palpal claw with 5 teeth on promargin. ITC, I-IV, absent. PLS: apical article domed; length of apical: medial:basal, 0.47:0.62:1.00. PLS spigots (poorly preserved; fig. 54 shows spigots of another specimen): numerous on basal article, occupying 2:3A; with numerous spigots, larger than those on other articles, on apical article. PMS length 0.77; about 10 spigots on 1:3A. Spermathecae as in figure 116A, with long spiraled ducts. Color as in male, with golden pubescence less dense.

REMARKS: The female described above was not collected together with males; samples from southern Brasil (in MCN-RS; Goloboff et al., in prep.) containing males and females collected together support the present identification.

Pérez-Miles and Capocasale (1988) took Raven (1985a) as synonymizing this species with *Androthelopsis modestus* Schiapelli and Gerschman, 1942 (now in *Pycnothele*), which Raven never did.

DISTRIBUTION: Uruguay (and southern Brasil).

NATURAL HISTORY: No data are known.

OTHER MATERIAL EXAMINED (only specimens from Uruguay listed): **URUGUAY:** **Montevideo:** Montevideo, 16 Apr. 1946 (Parker, FIML 00002), 1♀. **Maldonado:** Sierra de Las Animas, 9 Jul. 1967 (L. Zolezzi, MACN 6343), 1♂; 15 Aug. 1982 (F. Pérez-Miles, Delgado, MHNM), 1♂. **Lavalleja:** Cerro de Aréquita, 26 Apr. 1970 (L. Zolessi, MHNM), 1♂.

TRIBE DIPTOTHELOPSINI SCHIAPELLI AND GERSCHMAN

Diplothelopsinae Schiapelli and Gerschman, 1967: 53, 60.

DIAGNOSIS: Members of this tribe can be recognized by having the AME much larger than the minute PME, and the PE row slightly recurved, and by the short, wide caput of females.

INCLUDED GENERA: *Flamencopsis* new genus, *Chilelopsis* new genus, *Lycinus* Thorell, and *Diplotheopsis* Tullgren.

RELATIONSHIPS: *Chilelopsis* and *Flamencopsis* share a unique type of bothrial basal plate and a modified tarsal organ. The tarsal organ, however, has not been exhaustively surveyed in either *Lycinus* or *Chaco*, so that the condition in *Chilelopsis* and *Flamencopsis* might not prove to be, upon closer examination, a synapomorphy.

The presence of long, thick prolateral spines on the female metatarsus IV is a synapo-

TABLE 6
List of Synapomorphies for Diplothelopsini
(produced as table 3).

Node	In all trees	In some trees
DIPLOTHELOPSINI	PE row: recurved → procurved	—
Node 125	Eyes: AME=PME → AME > > PME habits: trap-door → flap-door	
<i>Diplothelopsis</i> + <i>Lycinus</i> Node 121	pubescence: light → dense ♀ tarsi: rigid → flexuous maxillary cuspules: medium → few scopula IV: light → dense trichob. ♂ cymbium: 1:3M → 1:2B dorsal spines ♂ post. tibiae: abs/few → many spines ♂ patella I: OR → 1R ♀ patella IV: 0/1P → 1-1-1P setae ♂ cymbium: thin → thick	
<i>Lycinus</i> Node 119	dorsal spines ♂ plp tibia: abs → pres ♂ bulb shape: piriform → coniform	—
<i>L. gajardoi</i>	scopula IV: dense → light preening-combs: abs → pseudo-combs cymbium: normal → narrow, asymmetric	♂ embolus: short → long
<i>L. longipes</i>	sternum: normal → wide ♀ tarsi: flexuous → rigid burrow entrance: flap-doors → stopper-door	
<i>L. caldera</i>	♂ cymbium: normal → big	—
<i>L. tofo</i> cf. <i>tofo</i> <i>frayjorge</i> <i>epipiptus</i> <i>domeyko</i> <i>quilicura</i>	(no autapomorphies)	—
Node 113	♂ plp tibia: long → short setae ♂ cymbium: forward → backward	—
Node 115	♂ embolus: long → very long proventral setae ♂ plp tibia: weak → strong	—
<i>Diplothelopsis</i> Node 120	PMS: pres → abs spines ♀ tibia III: 1-1R → 1-1-1-1R sternum: normal → wide ♂ bulb keels: parallel → abs	—
<i>D. ornata</i> <i>bonariensis</i>	(no autapomorphies)	—
<i>Chilelopsis</i> Node 123	setae ♀ post. legs: normal → dense preening-combs: abs → pres spines ♀ metatarsus IV: normal → long	—
<i>Ch. serena</i>	dorsal spines ♂ plp tibia: abs → pres	—
<i>Ch. calderoni</i>	♂ bulb duct: evenly curved → sinuous	—
<i>Ch. puertoviejo</i>	(no autapomorphies)	—
Node 122	maxillary cuspules: medium → many rastellum: strong → weak spines ♂ patella I: OR → 1R shield of setae ♂ tibia I: abs → pres	—
<i>Flam. minima</i>	PMS spigot number: many → few	—
Node 124	basal bothrial plate: convex → flattened tarsal organ: normal → <i>Chilelopsis</i>	—

morphy of *Chilelopsis*, as is the presence of preening combs and increased setation on the posterior legs. *Chilelopsis serena* lacks the unique patch of setae on the anterior tibiae,

present in *C. calderoni* and *C. puertoviejo*, and is considered to be the sister group of those two species. The presence of dorsal spines on the male anterior tibiae can only

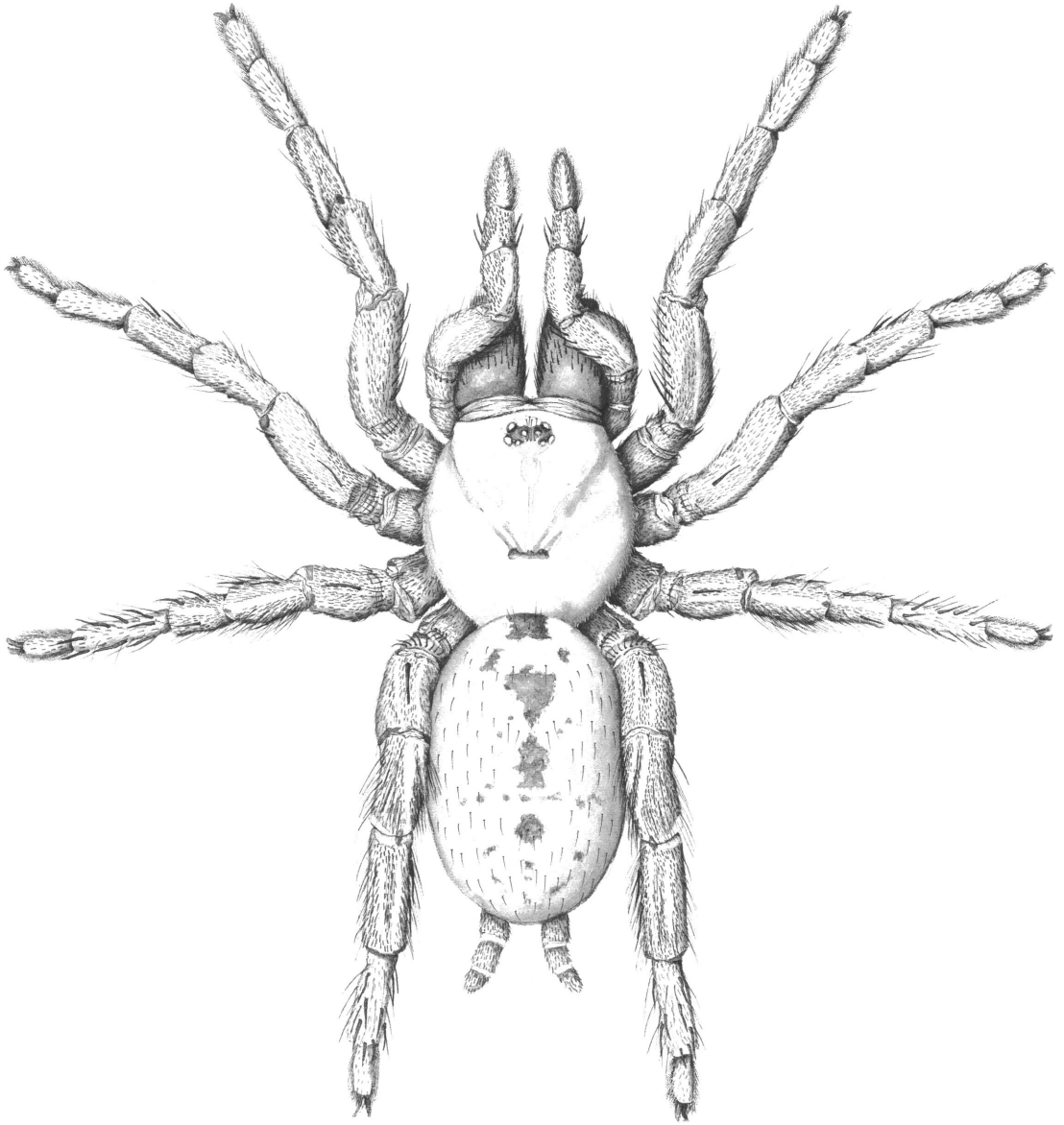


Fig. 117. *Chilelopsis calderoni*, female (drawing by Sergio Roig).

be optimized ambiguously; as those spines are present in *C. calderoni* and *C. serena*, and *Lycinus* + *Diplotheopsis*, but absent in *Flamencopsis* and *C. puertoviejo*, the character could be optimized equally parsimoniously as three parallel gains or as a single gain for the Diplotheopsini with two losses in *Flamencopsis* and *C. puertoviejo*.

Lycinus and *Diplotheopsis* share a number of characters (see table 6 for a complete list),

which very strongly suggest that those two genera form a monophyletic group. The strict consensus of all the trees would show poor resolution for that group, and would not show the genus *Lycinus* as monophyletic (as nodes 113, 119, and 121 would be collapsed). When the individual trees used to produce the consensus are examined, however, it becomes evident that there are only two topologies for the Diplotheopsini, and that the lack of res-

olution is caused only by *Lycinus frayjorge* (a species for which males are unknown, and for which the only two characters synapomorphic for *Lycinus* had to be scored as missing entries). In some trees, *Lycinus* is paraphyletic by virtue of placing *L. frayjorge* as the sister group of *Diplotheopsis* plus the rest of *Lycinus*, with *Diplotheopsis* + *Lycinus* having as their only unambiguous synapomorphy the reduction in number of maxillary cuspules (reversed in *L. caldera*); in the other trees, *L. frayjorge* is placed as sister group of *L. caldera* (based on the secondarily increased number of maxillary cuspules). Surprisingly, exactly the same number of steps is required for each character in the matrix by placing *L. frayjorge* in positions which are about 4 nodes away, but the different possible placements result not so much from homoplasy as from simple lack of information. Although no known character evidence places *L. frayjorge* in *Lycinus* instead of *Diplotheopsis*, it seems much more likely that the species actually belongs in the same group as *L. gajardoi* and *L. caldera*, also found in northern Chile. Therefore, the character optimizations presented in table 6 correspond to those trees in which *Lycinus* is monophyletic by virtue of placing the floating *L. frayjorge* as sister of *L. caldera* (but note that the same optimizations for the rest of the clades would be obtained if *L. frayjorge* was physically excluded from the matrix).

The monophyly of *Lycinus* is supported by the coniform male palpal bulb and the presence of dorsal spines on the male palpal tibia. *L. caldera* and *L. frayjorge* share, as mentioned above, the increased number of maxillary cuspules; the sister group of those two species is *Lycinus gajardoi*, which shares with males of *L. caldera* the posteriorly directed cymbial setae and a shorter palpal tibia (males of *L. frayjorge* should also have those setae and a short palpal tibia if the preferred placement for that species is correct). The group formed by *L. quilibura* and *L. tofo* (plus an undescribed species from Region II) share the stronger, ensiform setae on the anterior margin of the ventral furrow of the male palpal tibia and a more elongated male embolus. The monophyly of *Diplotheopsis* is supported by the absence of the PMS and by the absence of keels or ridges on the male embolus.

FLAMENCOPSIS, NEW GENUS

Table 6

TYPE SPECIES: *F. minima*, new species.

ETYMOLOGY: The generic name is a combination of Flamenco (the type locality of the type species) and *Diplotheopsis*.

DIAGNOSIS: This genus differs from *Chilelopsis* in having normal spines on the pro-lateral metatarsus IV of the female, and from *Diplotheopsis* and *Lycinus* by the male cymbium having normal, thin setae, and the leg I lacking R spines on the patella and D spines on the tibia, and by the female patella IV with no P spines.

DESCRIPTION: See description of the type species.

Flamencopsis minima, new species

Figures 10, 25, 29,
30, 46, 118A–I

TYPES: Male holotype from Quebrada Flamenco, coastal town, Atacama, Chile (8 Oct. 1980; Peña), and female paratype from same locality (13 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), deposited in AMNH.

ETYMOLOGY: The specific name stresses the fact that this species is the smallest known member of the *Diplotheopsini*.

DIAGNOSIS: See diagnosis for the genus.

MALE (holotype): Total length 7.25. Cephalothorax length 3.20, width 2.48. Cephalic region length 1.65, width 1.50. OQ length 0.30, width 0.54. Labium length 0.29, width 0.60. Sternum length 1.84, width 1.37. Trichobothria: leg trichobothria as in other *Diplotheopsini*; palpal tarsus with 6 trichobothria on 1:3M. Labium with no cuspules, maxillae with 8 thick but attenuate. Serrula apparently absent. Sternal sigilla small, shallow, almost rounded, separated from margin by diameter; sternum rebordered. Chelicerae: rastellum with thick attenuate setae; inner margin with 5 teeth; fang furrow with large denticles. Cheliceral tumescence large, rounded, more or less flat. Chaetotaxy: Femora: I, 1 P SUP A, 1-1-1-1-0 D; II, 1 P SUP A, 1-1-1-1-0 D, 1-1-1 R SUP (1:2A); III, 1-1-1/0-1-1 P SUP (1:2A), 1-1-1-1/1-0-1-0 D, 1-1-1 R SUP (1:2A); IV, 1-1 P SUP (1:4A), 1-1-1-1-0 D, 1-1 R SUP (1:4A); palp, 1 P SUP A. Patellae: I, 0/1 P SUP A, 0 R; II, 1 P SUP A; III, 1-1-1/1-0-1 P, 1 R; IV, 0; palp,

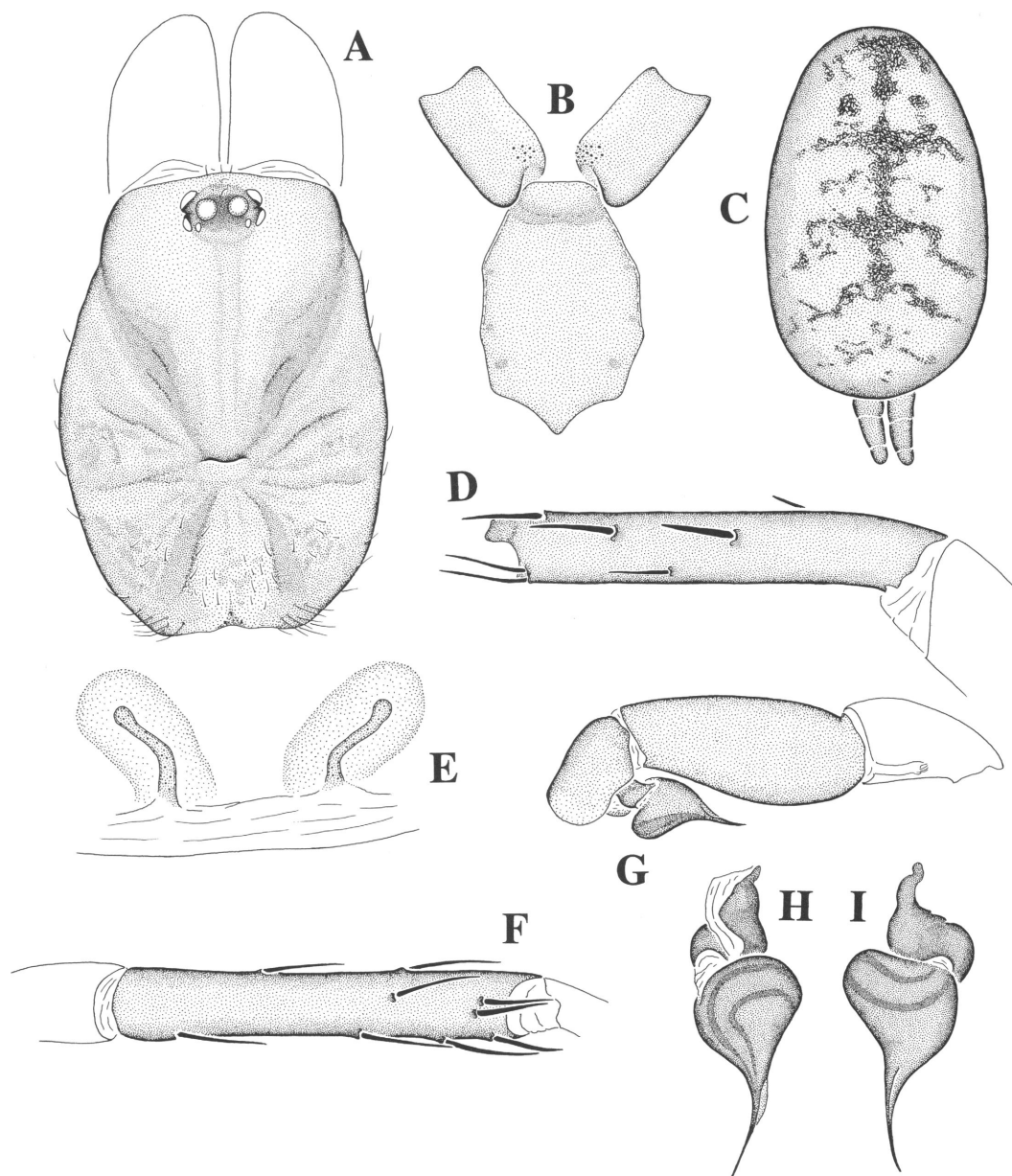


Fig. 118. *Flamencopsis minima*. A–E. Female. f–i. Male. A. Cephalothorax. B. Sternum and maxillae. C. dorsal abdomen. D. Right metatarsus IV, prolateral. E. Spermathecae, dorsal. F. Left tibia I, proventral. G. Right palp, retrolateral. H, I. Right bulb.

0. Tibiae: I, 1-1 P SUP, no D, 1-1-2/0-1-2 V ANT (1:2A), 1-1-1 V POST (plus 0/1 V POST A); II, 1-1 P SUP, no D, 1-1-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1 D POST B, 1-1 R SUP, 2-2-2/2-2-1 V; IV, 1-2 P [!], 1 D (1:3A), 1-1 R SUP, 2-2-2/1-2-2 V; palp, 2-2 p (very thin), 1-1 p inf (1:4A, along bulb fur-

row). Metatarsi: I, 1 P SUP (1:3B), 1 V A, 1 V POST M, 0/1 V POST B (small); II, 1 P SUP (1:3B), 1 R, 1-1-0-1 V POST; III, 0-1-1/1-1-1 P, 1-1 P SUP (1:2A), 1-1-1 R SUP, 1-2-3/2-2-3 V; IV, 1-1-1-0 P, 0-1-1-1 P SUP, 1-1-1 R SUP, 1-2-3/2-2-3 V. Tarsi: I–IV, palp, 0. Cymbium with thin, normal setae only.

Tarsi I–III with light scopula on 1:1, IV with very light scopula on 1:2A; metatarsi I, II with light scopula on 1:2A; metatarsi III, IV ascopulate. Scopula I, II undivided, III divided by band of about 4 setae (occupying 1:3 of article's width), IV, divided by band of 4–5 thicker setae (occupying medial 2:4 of article's width). Metatarsal preening combs: I–IV, absent. STC, teeth: I, 9899; II, 10 879; III, 10 6 7 10; IV, 10 799. ITC, I–III, absent; IV, present, small. Tarsi I–IV flexible. PLS: apical article domed; length of apical:medial:basal, 0.25:0.40:0.65. PMS length 0.35. Palpal tibia (fig. 118G) rather short, wide; bulb as in figure 118H, I. Leg I, tibia slender (fig. 118F), apophysis absent; metatarsus I evenly curved, with retrolateral side convex. Color as in female.

FEMALE (paratype): Total length 10.7. Cephalothorax (fig. 118A) length 3.77, width 2.90. Cephalic region length 2.40, width 2.21. Fovea, width 0.50. OQ length 0.36, width 0.62. Labium length 0.36, width 0.71. Sternum (fig. 118B) length 2.11, width 1.61. Cephalic region wide, short, strongly convex; fovea slightly procurved. Labium with no cuspules, maxillae with 8/16. Serrula not visible. Sternal sigilla small, slightly oval, shallow, separated from margin by diameter; sternum rebordered. Chelicerae: rastellum formed by short blunt cusps extending well above margin; inner margin with 5 large teeth on short margin; fang furrow with 8 large denticles—or small teeth—in longitudinal row, plus 3 tiny basal denticles. Trichobothria: bases with deeply ridged proximal plate (fig. 10). Chaetotaxy: Femora: I–IV, 0, with some d, long, erect, basal thicker; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 0; palp, 0/1 R SUP. Tibiae: I, 1 V ANT A, 1-1 V POST (long!); II, 1-1 P SUP, 1-1 V POST; III, 1-1 P SUP, 1 D (1:2A), 1-1 R SUP, 0-1-1/0-1-0 v post; IV, 0 P, 1-1 R SUP, 1 v a; palp, 1-2 P (very long), 2 P INF A (short), 1-1-1 R INF (apical one short, others long). Metatarsi: I, 1-1-0-1/0-1-0-1 V POST; II, 1 P SUP, 1-1-0-1 V POST; III, 2-1-1/2-1 P SUP (2:3A), 1-1-1 R SUP, 0-1-0-1 V ANT, 1-1-2 V POST (thicker); IV (fig. 118D), 1-1-1 P SUP (1:2A), 1-1-1 R; apical P and R more superior, like 2 D A, 1-1 V ANT (1:2A), 1-2 V POST (1:2A) (spines mostly in apical half

[!]). Tarsi: I–IV, 0; palp, 0/1 R INF B. Tarsi I, II with scopula on 1:1; III, on about 2:3A; IV on 1:2A (light); metatarsi I, II on 1:1, III, IV ascopulate. Scopula I, II undivided by setae, III, IV divided by clear, wide band of 4/5 setae. All tarsi rigid. Metatarsal preening combs: absent on I–III, but on III, in place of posterior comb, single short comblike spine; on IV, 2 short spines in place of posterior comb. STC, teeth: I, 7556; II, 7547; III, 6457; IV, 6445. Palpal claw with 6 teeth on promargin. ITC, I–III, absent; IV, present. PLS: apical article domed; length of apical:medial:basal, 0.29:0.46:0.80; basal article with 12 spigots on 1:2A; medial with 20; apical with 25. Spigots with long erect shafts, except single spigot at middle-apex of apical article, with shorter, thicker shaft, and two spigots at apex of medial article (fig. 46). PMS length 0.42; 3 spigots on apex. Spermathecae as in figure 118E. Cephalothorax, legs, palpi grayish-brownish yellow; abdomen (fig. 118C) with dorsal blackish-brownish chevron.

NATURAL HISTORY: The type locality is located near the sea shore; it is a sand dune, formed by extremely thin, grayish sand. The specimens were collected from narrow Y-shaped burrows; one of the branches did not reach the exterior, the other was closed by a flap-door. The burrows were 5–6 mm wide, and very deep (up to about 30 cm for some specimens). During day, the sand covers the flap-door completely, so that the burrows are essentially invisible. As the burrows are so deep and narrow, and the sand in this place is so thin, they were extremely difficult to dig. Only four specimens were found by digging burrows during the day. At night, the burrows were opened (with the flap-door turned completely backwards); the spiders stayed at the door awaiting prey and could be easily captured by quickly blocking the way down the burrow with the hand.

DISTRIBUTION: Known only from provinces of Chañaral and Copiapó, Region III (Atacama), Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region III (de Atacama):** *Chañaral:* Quebrada Flamenco, coastal town, 13 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 3♀, 5 juvs., 10 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 2♀,

2 juvs. *Copiapó*: 60 km S Copiapó, 16 Oct. 1980 (Peña, AMNH), 1♂.

CHILELOPSIS, NEW GENUS

Table 6

Lycinus: Raven, 1985a: 98 (in part).

TYPE SPECIES: *C. calderoni*, new species.

ETYMOLOGY: A combination of Chile and *Diplothelopsis*.

DIAGNOSIS: Females are easily recognized by the modified, strong, elongated spines on the prolateral metatarsus IV (also present, although less developed, in males).

DESCRIPTION: Cephalothorax wide; head short, high, convex, in females about as wide as long; chelicerae robust, with rastellum formed by short thick setae, tapering only apically. Chelicerai tumescence large, flat, covered with few thin setae. Eyes on steep tubercle; AME very large, much larger than PME; PE row slightly procurved; clypeus very wide. Fovea straight, deep in females, shallower, narrower in males. Labium wide, with few cusps; maxillae elongated, with serrula absent in females, almost inconspicuous or absent in males, with medium to large numbers of cusps (25 to 60) on inner angle; posterior heel not produced. Sternum flat, longer than wide, with oval posterior sigilla, from small, marginal to medium-sized, separated from margin. PLS with apical segment triangular; numerous spigots on basal article; only articulate spigots present, with very long shafts (especially on apical article). PMS present, with numerous (8–20) spigots. Sand-colored spiders, dorsal abdomen yellowish gray with darker areas along midline, cephalothorax and legs uniform yellowish, with dense setation (denser on patellae and tibiae of posterior legs). Male leg I: tibia with no apophysis, long, slender, with dense apical proventral shield of setae (*C. calderoni*, *C. puertoviejo*), or stouter, with no shield of setae (*C. serena*); dorsal spines absent (*C. puertoviejo*) or present; patella with no retrolateral spines (*C. serena*) or with 1 R. Patella III with 1-1-1 P; female patella IV with no P. Posterior male tibiae with few dorsal spines. Metatarsus IV with P SUP spines reduced, but P extremely long, large (fig. 120B, C). Female metatarsi I, II with no preening

combs, metatarsi III, IV with well-developed preening combs. Tarsi I, II with dense, symmetric scopulae; scopula on anterior metatarsi with somewhat irregular anterior edge; tarsi III, IV with very light scopula (with broad longitudinal band of setae) or no scopula at all; all tibiae ascopulate. Under light microscope, scopular hairs look different (different microstructure?) from those of other species. All male tarsi flexible; female tarsi I–IV entire, rigid. Male and female leg tarsi, and cymbium, aspinose; female palpal tarsus with 1 R INF B (sometimes paired with 1 P INF B). STC with two rows of numerous teeth on all legs. ITC IV present, small; III very small (absent in some specimens), I, II always absent; claw tufts absent. Tarsal trichobothria in single, zigzag row. Spermathecae simple, divided (*C. serena*) or not. Male bulb with only two lateral to numerous (lower) lateral keels along embolus base; bulb piriform, tapering abruptly to form embolus; palpal tibia with or without dorsal spines, with few lateral spines; cymbium with long thin setae; cymbial trichobothria occupying medial third.

BIOLOGY: The three species included live in sand dunes, where they construct a burrow, closed with a flap-door. During day, the burrows remain closed. While collecting at night in Huasco, the burrows of *C. calderoni* were found open, with the flap lying backwards, and the spider at the entrance; numerous males were found walking on the ground, and some were courting females at their burrow entrances. The burrows are more common in slopes; they are formed by a very dense tube of silk, 1–1.5 cm wide.

***Chilelopsis calderoni*, new species**

Figures 22, 24, 26, 43, 44,
117, 119A–G, 120A–E

TYPES: Male holotype from Quebrada del Totoral, camino a Carrizal, Copiapó, Region III, Chile (15 Oct. 1987; Figueroa), deposited in MHNS, and female paratype from Huasco, Huasco, Region III (8 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), deposited in AMNH.

ETYMOLOGY: The specific name is a patronym in recognition of the contribution to the systematics of Chilean nemesiids, and

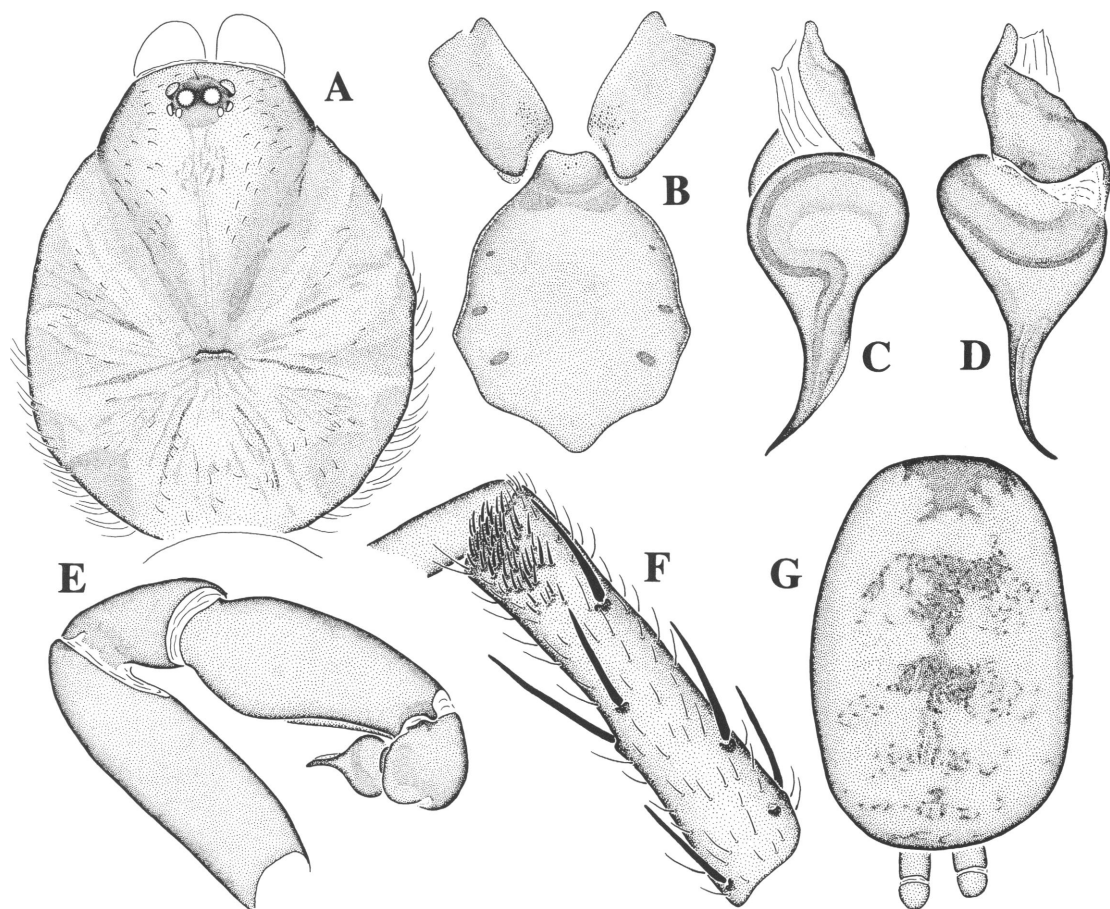


Fig. 119. *Chilelopsis calderoni*, male. A. Cephalothorax. B. Sternum and maxillae. C, D. Right bulb. E. Left palp, prolateral. F. Right tibia I, prolateral. G. Dorsal abdomen.

mygalomorphs in general, of Dr. Raúl Calderón, who sent the type specimen for study.

DIAGNOSIS: Males differ from those of *C. puertoviejo* in the more sinuous distal portion of the bulbal duct (fig. 119C), females in the spermathecae with a distinct fundus and a narrowed duct (fig. 120E). Males differ from those of *C. serena* in the presence of a dense patch of setae on the anterior tibiae (fig. 119F), females in the undivided spermathecae.

MALE (holotype): Total length 11.24. Cephalothorax (fig. 119A) length 5.56, width 4.73. Cephalic region wide, short. Labium length 0.62 of width. Sternum (fig. 119B) width 0.92 of length. PME much smaller than AME; PE in slightly procurved row. Clypeus wide. Chelicerae with weak rastellum, with intercheliceral tumescence large. Labium with 3 cusps, maxillae with 32/34 cusps; with ser-

rula formed by thick teeth (observed in another specimen); posterior sigilla large, separated from margin. Chaetotaxy: Femora: I, 1/1-1 P SUP A, 1-1-1-1/1-1-1-1-1 D, 1-1/1-1-1 R SUP (1:2A); II, 1-1/1-1-1 P SUP (1:2A), 1-1-1-1/1-1-1-1-1 D, 1-1-1/1-1-1-1 R SUP; III, 1-1-1-1 P SUP (1:2A), 1-1-1-1 D, 1-1/1-1-1 R SUP (1:2A); IV, 1-1-1-1 P SUP (1:2A), 1-1-1-1/1-1-1-1-1 D, 1-1-1 R SUP (1:2A); palp, 1 D, 1 R SUP A. Patellae: 1/1-1P, 1 R; II, 1/1-1 P; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, 1-1-0-1 P SUP, 1 D B, 1-1-0-1 R SUP, 3-2-1 V, 35 p inf a (fig. 119F); II, 1-1-0-1 P SUP, 1 D B, 1-1-0-1 R SUP, 3 V B, 1-1 V POST, 1 V ANT A; III, verticil B of 7, 1 P SUP M, 1 D M, 1-1 R SUP M, 1-1 R SUP, 2-2 V (1:2A); IV, 1-1-1-1 P SUP, 1 D B, 1 D A, 1-1-0-1 R SUP, 2-2-2 V; palp, 0 (others specimens may have 1 P M). Meta-

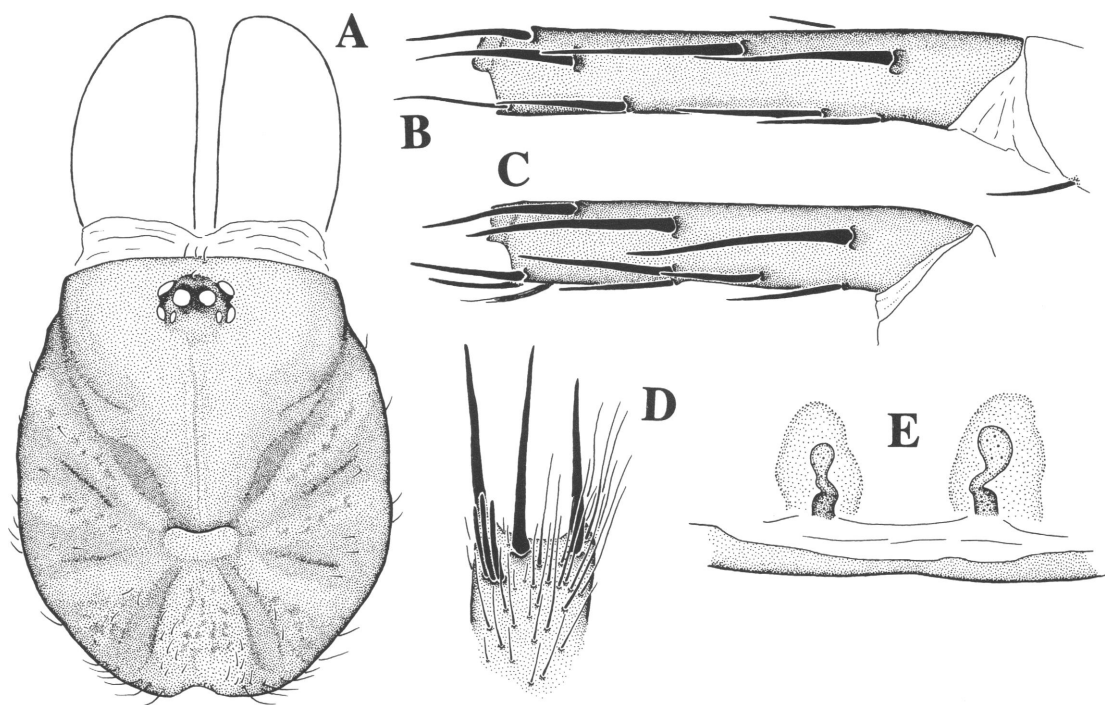


Fig. 120. *Chilelopsis calderoni*, female. A. Cephalothorax. B. Right metatarsus IV, prolateral (Huasco). C. Same, La Herradura. D. Apex of right metatarsus IV. E. Spermathecae, ventral.

tarsi: I, 1-1 P SUP (1:3M), 2-1-1 V (1:3B); II, 1-1-0-1-1 P SUP, 1-1 D (1:3M), 1 R (1:3A), 1-2-0-2 V; III, 1-1-0-1-1 P SUP, 1-1-0-2/1-1-0-1 D, 1-2-2 V; IV, 1-1-0-1-0-1 P SUP, 1-1-0-2 D, 1-0-1 R SUP (1:2B), 1-0-1-1 V POST, 1-1-1-1 V ANT. Tarsi I-IV and cymbium unarmed. No combs or pseudo-preening combs. Tarsi I-IV scopulate; metatarsi I, II with light scopula, with hairs that become ensiform setae toward base of article (on prolateral side). Tarsi I-IV flexible. STC I-IV with 2 rows of 12-14 teeth. ITC present in tarsus IV, absent from I-III. Tarsal organ as in figure 26. Palp as in figure 119E; tibia slightly incrassate; bulb (figs. 119C, D) piriform, bulbal duct apically sinuous, embolus long, keeled at base. Tibia I (fig. 119F) thin, cylindrical, without spurs, with setae on prolateral apex. PLS, basal article, 1.15, with numerous spigots; middle article, 0.58; apical article 0.28, domed. PMS length 0.50, with 50 spigots. Legs, cephalothorax yellowish; abdomen (fig. 119G) yellowish, with brown spots.

FEMALE (paratype): Total length 17.95.

Cephalothorax (fig. 120A) length 6.40, width 5.30. Cephalic region length 4.00, width 3.55. Fovea, width 0.67. OQ length 0.55, width 1.01. Labium length 0.65, width 1.12. Sternum length 3.32, width 2.82. Clypeus wide (0.35); PE in slightly procurved row; AME much larger than PME. Cephalic region wide, convex; fovea deep, straight. Labium with no cuspules, maxillae with 67/59. Serrula absent. Sternal sigilla small, oval elongated, submarginal, shallow; sternum rebordered. Chelicerae robust, short, with short margins; fang short, thick: rastellum formed by long, attenuate, but very stiff setae; inner margin with 6/7 teeth; fang furrow with 16 large denticles. Trichobothria: Tibiae, I, 9(1:2b), 8(1:2b); II, 9(1:2b), 8(1:2b); III, 8(1:3b), 10(1:3b); IV, 9(1:3b), 9(1:2b); palp, 7(1:2b), 8(1:2b). Metatarsi, I, 12(2:3a); II, 14(2:3a); III, 14(2:3a); IV, 20(4:5a). Tarsi, I, 15; II, 17; III, 15; IV, 16; palp, 12(1:2m). Chaetotaxy: Femora: I, II, 1 p sup a, 1 d b; III, IV, 1 d b; palp, 1 P SUP A. Patellae: I, 0; II, 1 p sup a; III, 1-1-1 P, 1 R (very long, [!]); IV, 0; palp, 0. Tibiae: I, 1 p sup (1:3a), 1 V ANT A, 1-1-1

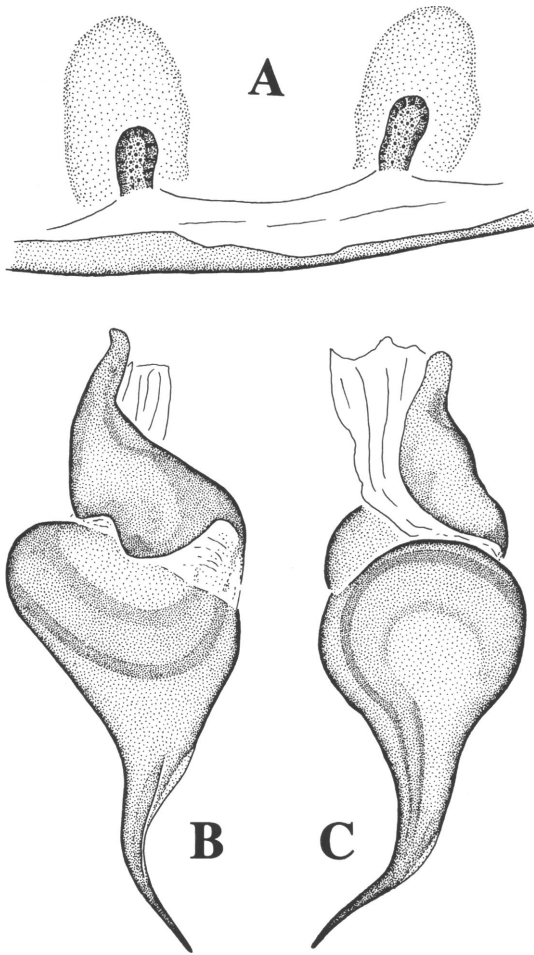


Fig. 121. *Chilelopsis puertoviejo*. A. Female spermathecae, ventral. B, C. Male right bulb.

V POST (first two long, thin); II, 1-1 p sup, 1 V ANT A, 1-1-1 V POST; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 1 V ANT A, 1-1-1 V POST (2 apical ones very weak); IV, 1-1 R SUP, 0-1-1 V ANT, 1 V POST A; palp, 1/1-1 P, 1-1-2 P INF (except 2 P INF A, other P very long, thin), 1-1-2 R INF. Metatarsi: I, 1-2-0-2 V; II, 1 P SUP, 1-2-0-2 V; III, 1-1-1-0/1-1-1 P, 0-1-1 D ANT, 1-1-1 D POST, 2-2-3 V; IV (fig. 120B, C), 1-1-1 P SUP (very long, strong), 1 D ANT A, 1-1-1 R SUP (also very long, thick), 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 1 R INF B (other specimens also with 1 P INF B). Scopula: on tarsi I, II, very dense; on III, IV, dense; metatarsi I, II scopulate to base; III, IV, ascopulate. Scopula I, II, undivided; III, with thin

setae scattered along longitudinal band (1:3 of article's width), not dividing scopula; IV, with broad division (with setae scattered within scopula). All tarsi rigid. Metatarsal preening combs: I, II, absent; III, anterior comb of 3/5, posterior of 3/4, with spines regularly arranged; IV (fig. 120D), posterior comb of 3 setae orderly arranged (only very thin setae in place of anterior comb). STC, teeth: I, 8989; II, 8999; III, 98 10 9; IV, 88 10 9. Palpal claw with 6 teeth on promargin. ITC, I-III, absent; IV, small, short, thick. Tarsal organ as in figures 22, 24. PLS: apical article domed; length of apical:medial:basal, 0.30:0.75:1.47; 20 spigots on basal article (occupying 2:3A); about 30 on medial, 40 on apical. Spigots (figs. 43, 44) with very long, erect, tubuli. PMS length 0.70; with about 20 spigots. Spermathecae as in figure 120E. Entire spider light yellow (i.e., sand-colored); abdomen with series of mottles along dorsum (in some specimens slightly extending to sides, forming faint chevron).

DISTRIBUTION: Sand dunes in Regions III and IV, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region III (Atacama):** no specific locality, Oct. 1980 (Peña, AMNH), 1♂. **Huasco:** Huasco, 12 Oct. 1980 (Peña, AMNH), 1♂, beach, 5 m elev., 8 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 6♂, 8♀, 5 juvs. **Copiapó:** Ruta 5, 56 km N Vallenar, 440 m elev., 9 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1♀; Ruta 5, 65 km S of Copiapó, 420 m elev., 9 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 5♀, 6 juvs.; 60 km S of Copiapó, 22 Oct. 1991 (Peña, AMNH), 1♂. **Region IV (de Coquimbo):** **Elqui:** Bahía La Herradura, 1 Mar. 1942 (Bird, AMNH), 9♀, numerous juvs.

Chilelopsis puertoviejo,
new species

Figures 11, 12, 27, 28, 121A-C

TYPES: Male holotype from Puerto Viejo (S. Caldera), Copiapó, Region III, Chile (15-16 Oct. 1992; Peña), and female paratype from Ruta 5, 46 km SE Caldera, 180 m elev., Copiapó (14 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species is most similar to *C. calderoni*, but differs in having the distal portion of the male bulbal duct (fig. 121B, C) less sinuous and the female spermathecae (121A) of uniform width, with no fundus differentiated. It differs from *C. serena* in the undivided female spermathecae and in the male tibia I having a dense apical patch of setae.

MALE (holotype): Total length 11.70. Cephalothorax length 5.70, width 4.75. Cephalic region length 3.30, width 2.90. OQ length 0.45, width 0.84. Labium length 0.45, width 0.812. Sternum length 2.80, width 2.42. Labium with 2 cuspules, maxillae with 43/44. Serrula: apparently some denticles present, but very small. Sternal sigilla shallow, small, oval, separated from margin by long diameter; sternum rebordered. Chelicerae: rastellum absent, only with long, thin, stiff setae; inner margin with 5 teeth. Cheliceral tumescence rounded, flat, covered with short, thin setae. Trichobothria: bases with deeply ridged proximal plate (fig. 11). Chaetotaxy: Femora: anterior femora with strong spines; I, 1-1/1-1-1 P SUP (1:3A), 1-1-1-1-1/1-1-1-1-1 D, 1-1-1-1/1-2-1-1 P SUP (1:2A); II, 1-1-1 P SUP (1:2A), 1-1-1-1-1-1/1-1-1-1-1-1 D, 1-1-1-1-1/1-1-2-1 R SUP; III, 1-1-1/1-1-1-1 P SUP, 1-1-1-1/1-1-1-1-1 D, 1-1-1/1-1-1-1 R SUP; IV, 1-0-1-1/1-1-1-1 P SUP (2:3A), 1-1-1-1/1-1-1-1 D, 1-1-1-1-1 R SUP (2:3A); palp, 1 P SUP A, 1-1-1 D (1:4A). Patellae: I, 1-0-1/1-1-1 P, 1 R; II, 1-0-1/1-1-1 P, 0 R; III, 1-1-1/1-1-2 P, 1-1 R; IV, 0-1-1/1-1-1 P, 1 R; palp, 0. Tibiae: I, 1-2-0/1-2-1 P, 0 D (missing in other male specimens as well), 1-1-1 R, 3-3 V, 1 V POST A, 2 V POST A (right by patch of setae), with anteroventral patch of stiff setae; II, 1-1 P, 0 D (missing in other male specimens as well), 1-1-1 R, 3-2-3/3-3-3 V; III, 1-1 P SUP, 1 D (1:3A), 1 D POST B, 1-1-1 R SUP, 3-2-3/3-3-3 V; IV, 1-1/1-1-1 P, 0/1 D (1:3A), 1 D POST B, 1-1-1 R SUP, 3-3-3 V; palp, 1-1 P (1:2A), 1-1 p inf (1:2b), 1 P INF A (holotype of *C. calderoni* has fewer spines on P, but some specimens of *C. puertoviejo* may have as few as 1 P M). Metatarsi: I, 1-2-1 P SUP, 0/1 R SUP B, 2 R SUP (1:4A), 1-1-0-1 V ANT (small), 1-1-1 V POST (2 basal ones, large); II, 1-2-1-1 P SUP, 1/1-1 R SUP, 1-1-1 R, 2-2-0-2 V (1-1 V POST B large); III, 2-2-

2/2-1-2-2 P SUP, 2-1-1-1/3-1-1 R SUP, 2-2-3 V; IV, 8/9 P SUP (roughly two series), 1-1-1-1 R SUP, 2-1-1-1-1-1/2-1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 0. Tarsi I-IV scopulate; apical 1:3 of metatarsi I, II scopulate, metatarsi III, IV ascopulate. Scopula I, II undivided by setae; scopula III with thin scattered setae, scopula IV with wider denser band of setae (about 1:3 of article's width). Metatarsal preening combs: I, II, absent; III 2 faint combs of 3/4 thin, orderly arranged setae; IV with anterior comb almost inconspicuous, posterior one formed by 4 setae. STC, teeth: I, 12 11 10 9; II, 13 10 9 11; III, 13 10 12 12; IV, 14 11 13 12. ITC, I-III, absent; IV, present, small. Tarsi I-IV clearly flexible. Tarsal organ as in figures 27, 28. PLS: apical article domed; length of apical:medial: basal, 0.22:0.55:1.20. PMS length 0.54. Palpal bulb as in figures 121B, C; duct gently curved. Leg I, tibial apophysis absent, with shield of setae on anteroventral apex; tibia straight, cylindrical; metatarsus evenly curved (with prolateral side concave, retrolateral convex). Color as in *C. calderoni*.

FEMALE (paratype): Total length 17.20. Cephalothorax length 6.80, width 5.65. Cephalic region length 4.35, width 4.25. Fovea, width 0.95. OQ length 0.61, width 1.10. Labium length 0.77, width 1.32. Sternum length 3.72, width 3.00. Cephalic region short, wide, convex; fovea slightly procurved. Labium with no cuspules, maxillae with 56/53. Serrula absent. Sternal sigilla shallow but well marked, small, oval, separated from margin by long diameter; sternum rebordered. Chelicerae: rastellum formed by thin, long, stiff setae; inner margin with 5 large teeth; fang furrow with 16 very large denticles (or tiny teeth); fang short; cheliceral groove short, margins short. Trichobothria: bases with deeply ridged proximal plate (fig. 12). Chaetotaxy: Femora: I, 1 p sup a; II, 1 P SUP A, 1 d b (recumbent); III, 1 R SUP A, 1 d b (long); IV, 1 d b (long); palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 0 R; IV, 0; palp, 1/1-1 p. Tibiae: I, 0/1 P (1:3A), 1-1-0 v post (very long); II, 1 P SUP (1:3A), 1-1 V POST (very long, thicker than on I); III, 1-1 P SUP, 1 D, 1-1 R SUP, 0/1 v ant b, 1/2 V A; IV, 0 P, 1-1 R SUP, 0/1 v, 2 V A; palp, 2-2-1/1-2-1 P (very long), 1/2 P INF A, 1-1-1/1-1-1-1 R INF (vary long). Metatarsi: I, 1-1-0-1

V POST (short); II, 0/1 P SUP (1:3B), 2-1-2/1-1-2 V (large, second one largest); III, 2-1-2-2/2-2-1 P SUP, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1-2-1 P SUP (very long, strong), 1-1-1 R SUP (almost as strong as p sup), 1-1-1-1 V ANT (almost P INF, very strong, long), 1-1-2 V POST. Tarsi: I-IV, 0; palp, 0/1 R INF B. Tarsi I-IV scopulate; metatarsi I, II scopulate to base. Scopula I, II undivided; III divided by narrow row of thin scattered setae; IV with broad band (about 5/6 setae wide), occupying between 1:3 to 2:4 of article's width. All tarsi rigid. Metatarsal preening combs formed by linearly arranged short spines; I, absent; II, anterior comb of 2/3; III, anterior comb of 2/3, posterior of 4; IV, anterior comb inconspicuous, posterior with 3 spines. STC, teeth: I, 9768; II, 10 869; III, 10 89 10; IV, 10 8 11 11. Palpal claw with 5 teeth on promargin. ITC, I-III, absent; IV, present. PLS: apical article domed; length of apical:medial:basal, 0.60:0.75:1.80; about 30 spigots on basal article, 45 on medial, 45 on apical. PMS length 0.75, with 16 spigots. Spermathecae as in figure 121A. Color as in *C. calderoni*.

DISTRIBUTION: Sand dunes in Regions III and IV, Chile (sympatric with *C. calderoni*).

OTHER MATERIAL EXAMINED: CHILE: **Region III (Atacama):** No specific locality, 21-23 Oct. 1983 (L. Peña, AMNH), 3♂. *Copiapó:* Puerto Viejo (S. Caldera), 15-16 Oct. 1992 (L. Peña, AMNH), 1♂, 4♀, 11 juvs.; Ruta 5, 46 km SE Caldera, 180 m elev., 14 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 2♀, 5 juvs.; Ruta 5, 56 km N Valenar, 440 m elev., 9 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 2♀, 3 juvs. **Region IV (Coquimbo):** *Elqui (?)*: Lagunillas, 7-10 Mar. 1956 (L. Peña, IRSN), 2♂, 1 juv.

Chilelopsis serena, new species

Figure 122A-H

TYPES: Male holotype from Ruta 5, km 553, 79 km N La Serena, Elqui, 300 m elev., Region IV (Coquimbo), Chile (5 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), and female paratype, same data but date 15 Oct. 1992, deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males differ from those of both

C. calderoni and *C. puertoviejo* in the absence of a patch of setae on the apical tibia I (fig. 122F), and also in the palpal tibia having dorsal spines and the bulbal duct being abruptly narrowed at the apex (fig. 122G, H). Females differ from those of the two other species by the divided spermathecae (fig. 122C).

MALE (holotype): Total length 9.80. Cephalothorax length 4.57, width 3.73. Cephalic region length 2.95, width 2.20. OQ length 0.41, width 0.76. Labium length 0.40, width 0.75. Sternum length 2.45, width 2.01. Labium with no cuspules, maxillae with 10/12 thickened setae (long, with blunt tips). Serula apparently absent. Sternal sigilla small, well marked but shallow, oval, separated from margin by long diameter; sternum weakly rebordered. Chelicerae: rastellum formed by thin, long stiff setae; inner margin with 6. Cheliceral tumescence small, rounded, flat, covered with few long, thin bristles. Chaetotaxy: Femora: I, 1/1-1 P SUP (1:3A), 1-0-1-1-1-1-1 D, 0/1 R SUP (1:3B), 1 R SUP A; II, 1-1-1 P SUP (1:2A), 1-0-1-1-1 D, 0-1-1-0-1/0-0-1-0-1 R SUP; III, 0-1-0-1/0-1-1-1 P SUP, 1-1-1/1-1-1-1 D, 0-1-0-1/0-1-1-1 R SUP; IV, 0-1-0-1/0-1-0-2-1 P SUP, 1-1-1-0/1-1-1-1-1-0 D, 1-1/1-1-1 R SUP (1:2/1:3A); palp, 1 P SUP A, 0-1-1-1-1-1-1 D. Patellae: I, II, 1-1-1 P SUP, 0 R; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 0. Tibiae: I, with very strong spines; 1-1-2-0 P or P SUP, 1-1-0-2-1/2-0-2-2 D, 0-1-1-0 R, 2-2-2/1-1-2 V ANT (2 apical stronger), 1-2-1-1/1-1-1 V POST (apical stronger); II, 1-1-1-0 P SUP, 0-1-1-0 D, 0-1-1-0 R, 1-1-2 V ANT, 1-1-1 V POST; III, 1-1 P SUP, 1 D, 1-1/1-1-1 R SUP, 2-1-2/2-2-1 V; IV, 0 P, 1-1-1 R SUP, 3-3-2/3-2-2 V; palp, 2-0-1 D. Metatarsi: I, 2-2-0/2-1-2 P SUP (2:3A), 1/1-1-1 R SUP (1:2A), 0-1-0-1/0-2-0-1 V; II, 2-2-0-1 P SUP, 1/1-1 R SUP (1:2A), 1-0-1 R, 1-2-2/2-2-2 V (medial ones longest); III, 1-2-2-1-1/1-2-1-1-1 P SUP, 3-1-1-1/1-0-1-1 R SUP, 3-2-3 V; IV, 1-2-2/2-2-1-1-1-1 P SUP, 2 D A, 2-2/3-2 R SUP, 1-1-1-1 V ANT, 1-1-1-2/1-1-2 V POST. Spines of metatarsus IV very long, but not as thick as in female. Tarsi: I-IV, 0; palp, 0. Tarsi I-IV scopulate (IV thinly so); metatarsi I, II with apical half lightly scopulate; III with few apical scopuliform hairs; IV, ascopulate. Scopula I, II undivided, III with scattered thin

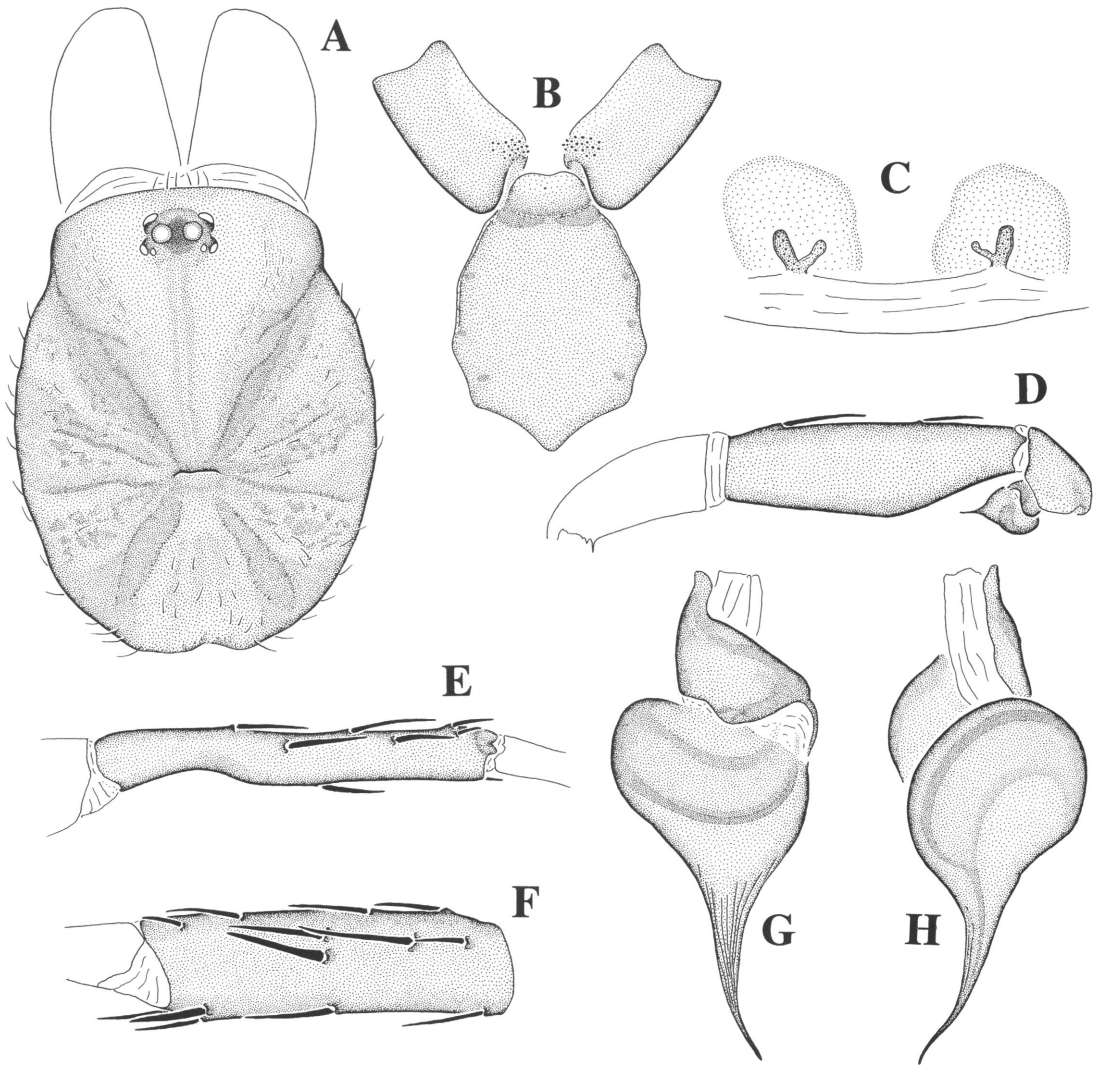


Fig. 122. *Chileloopsis serena*. A–C. Female. D–H. Male. A. Cephalothorax. B. Sternum and maxillae. C. Spermathecae, dorsal. D. Left palp, prolateral. E. Right metatarsus I, retrodorsal. F. Right tibia I, prolateral. G, H. Right bulb.

setae, IV with broad band of 5 setae (occupying about 1:3 of article's width). Metatarsal preening combs: absent from I–IV. STC, teeth: I, 11 10 9 10; II, 11 10 9 10; III, 12 8 10 10; IV, 12 9 12 11. ITC, I–III, absent; IV, present, small. Tarsi I–IV flexible. PLS: apical article domed; length of apical:medial: basal, 0.17:0.47:0.97; 10 spigots on basal article (on 1:2A), 12 on medial, 15–20 on apical. Spigots with long, erect shafts. PMS length 0.45, 6–8 spigots on 1:3A. Palpal femur and tibia long, tibia (fig. 122D) widest in 1:3A,

with dorsal spines (see above); bulb as in figure 122G, H, with several low parallel keels. Leg I, tibia (fig. 122F) with no apophysis or shield of setae; metatarsus (fig. 122E) bent at basal third, protruding backward and laterally; setae in bump directed upwards and slightly backwards. Color as in other *Chileloopsis*.

FEMALE (paratype): Total length 13.50. Cephalothorax (fig. 122A) length 4.60, width 3.65. Cephalic region length 2.80, width 2.70. Fovea, width 0.45. OQ length 0.44, width

0.72. Labium length 0.42, width 0.87. Sternum (fig. 122B) length 2.46, width 2.01. Cephalic region short, wide, convex; fovea very slightly procurved, almost straight. Labium with 1 cuspule, maxillae with 25/29. Serrula absent. Sternal sigilla small, shallow but well marked, oval, separated from margin by long diameter; sternum almost unrebordered. Chelicerae: rastellum formed by strong blunt setae; inner margin with 6 large teeth, along short groove; fang furrow with 15 large denticles. Chaetotaxy: Femora: I, II, 1 p sup a, 1 d b (long, recumbent); III, 1 r sup a, 1 d b (long, recumbent); IV, 1 d b (long, recumbent); palp, 1 p sup a. Patellae: I, II, 1 p sup a; III, 1-1-1/1-0-1 P, 0 R; IV, 0; palp, 1 p sup. Tibiae: I, 1 P SUP (1:3A), 2 V A, 1-1 V POST (1:2B, very long); II, 1-1/0-1 P SUP, 2 V A (anterior one very small, weak), 1-1 V POST (1:2B); III, 1-1 P, 0/1 D, 1-1 R SUP, 2 v b (very weak), 1 V POST A (weak); IV, 1-1 R, 1-1 V ANT, 2 V A; palp, 2-2 P (extremely long), 2 P INF A (short, strong), 1-1 R INF (also very long), 2 R INF A (short, strong). Metatarsi: I, 1-2-2 V; II, 1 P SUP, 2-2-2 V (ones on posterior side longer, stronger); III, 1-2-2/1-2-2-2 P SUP, 1-1-1/1-1-1-1 R SUP, 2-1-1-1/2-0-1-1 V ANT, 1-1-1-2/1-1-2 V POST; IV, 2-1-2/2-2-2 P SUP (very long, thick, strong), 1-1 R SUP (same!), 2 D A (same!), 2-1-1-1 V ANT (almost P INF [!], very strong but weaker than P SUP), 1-1-2 V POST. Tarsi: I-IV, 0; palp, 1 R INF B. Tarsi I-IV scopulate; metatarsi I, II scopulate to base; III, IV ascopulate. Scopula I, II undivided; III with broad band of sparse setae; IV with numerous setae interspersed among scopular hairs on entire ventral surface. All tarsi rigid. Metatarsal preening combs: I, II, absent; III, anterior and posterior combs joining in middle, forming continuous comb of about 12 spines; IV, anterior comb not very conspicuous, formed by 2-3 spines, posterior formed by 4-5. STC, teeth: I, 9996; II, 79 10 8; III, 89 10 8; IV, 10 8 11 9. Palpal claw with 6 on promargin. ITC, I-III, absent; IV, present. PLS: apical article domed; length of apical:medial:basal, 0.25:0.45:1.10. Spigots: 15 on 1:2A of basal article, 15 on medial, 30 on apical. All spigots articulate, with very long, erect shafts, except one spigot in middle of apical article, with short thick shaft. PMS length 0.55; 8-9 spigots in 2:5A. Spermathe-

cae as in figure 122C. Color as in other *Chilelopsis*, but with abdominal pattern more marked.

DISTRIBUTION: Known only from the type locality, in northern Region IV, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region IV (Coquimbo):** *Elqui*: 79 km N La Serena (Ruta 5, km 553), 300 m elev., 5 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 8 juvs., 15 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH, MACN), 3♀, 2 juvs.

LYCINUS THORELL

Table 6

Lycinus Thorell, 1894: 36.

Parachubutia Mello-Leitão, 1940b: 233. First synonymized by Schiapelli and Gerschman, 1967: 45.

Levina Zapfe, 1963: 125. First synonymized by Schiapelli and Gerschman, 1973: 291.

Mygaloides: Raven, 1985a: 98 (synonymy, here rejected).

TYPE SPECIES: *Lycinus longipes* Thorell, 1894 (type in RMS, examined) is the type species of *Lycinus*. *Parachubutia gajardoi* Mello-Leitão, 1940 (two male syntypes, in MNRJ, examined) is the type species of *Parachubutia*. *Levina epipiptusa* Zapfe, 1963 (male holotype in MHNS, examined) is the type species of *Levina*.

DIAGNOSIS: The only possible autapomorphy for the genus is the male bulb being coniform and gradually tapering to form embolus (in other diplothelopsines it is piriform and abruptly tapered). It can be quickly distinguished from *Diplothelopsis* by having the PMS present, and from *Flamencopsis* and *Chilelopsis* by the female patella IV having strong 1-1-1 P spines.

DESCRIPTION: Cephalothorax wide; head short, high, convex, in females about as wide as long; chelicerae robust, with rastellum formed by short thick setae, tapering only apically. Cheliceral tumescence large, flat, covered with few thin setae. Eyes on steep tubercle; AME very large, much larger than PME; PE row slightly procurved; clypeus very wide. Fovea more or less straight, deep in females, shallower, narrower in males. Labium wide, with few to no cuspules; maxillae elongated, with serrula poorly developed (or

absent) in males, always absent in females, with medium (20–45, *L. frayjorge*, *L. caldera*) to low (0–12, in all other species) numbers of cuspules on inner angle; posterior heel not produced. Sternum flat, very wide (*L. longipes*) or clearly longer than wide [all other (Chilean) species], with oval medium-sized to large, from well separated from margin to subcentral posterior sigilla; in some species, anterior sigilla also separated from margin. PLS with apical segment triangular; numerous spigots on basal article; only articulate spigots present, with very long shafts; apical article with spigots not as erect as in *Chilelopsis* or *Flamencopsis*. PMS present, with numerous spigots. Cephalothorax reddish to yellowish brown, or blackish brown; dorsal abdomen yellowish with chevron formed by about 6–7 almost parallel dark stripes (most evident in *L. epiptus*; in *L. caldera* and *L. longipes* abdomen very dark, with no evident pattern). Male leg I: tibia with no apophysis, long, slender; dorsal spines present; patella with retrolateral spine. Patellae III, IV of both sexes with 1-1-1 P. Posterior male tibiae with numerous dorsal spines. Metatarsus IV with P SUP spines reduced, with P situated more ventrally than in other genera (fig. 127C). All metatarsi without preening combs. Tarsi and metatarsi I, II with dense, symmetric scopulae; tarsi III, IV with scopula light, divided by wide longitudinal band of setae (*L. gajardoi*, *L. domeyko*, *L. tofo*) or dense, almost undivided (all other species); all tibiae ascopulate. All male tarsi flexible; female tarsi I–IV entire, rigid (*L. longipes*) or flexible (all other species). Cymbium aspinose; male and female leg tarsi usually aspinose (in some specimens there may be 1 or 2 lateral upper long weak spines on posterior tarsi); female palpal tarsus with pair of ventrolateral basal spines (1 R INF B, 1 P INF B). STC with two rows of numerous teeth on all legs (less numerous on posterior tarsi of females *L. longipes*). ITC IV absent from all legs; clawtufts absent. Tarsal trichobothria in single, zigzag row. Spermathecae simple, with single long slender receptaculum, widened or not at base; in *L. caldera* base widened, bearing multiple receptacula; in *L. longipes* wide base may bear main plus smaller secondary receptaculum. Male bulb with diagonal to parallel keels along embolus base; bulb coniform,

tapering gradually to form embolus; palpal tibia with (*L. gajardoi*, *L. caldera*) or without dorsal spines, with numerous pro-lateral spines; setae along anterior edge of ventral excavation weak (most species) or very strong (*L. tofo*, *L. quilicura*); cymbium with thickened setae; cymbial trichobothria occupying basal half.

REMARKS: Raven (1985a) synonymized *Lycinus* with *Mygaloides* Nicolet, 1849. The types of *Mygaloides nubila* (the type and only species of *Mygaloides*) were considered by Raven (1985a) as possibly lost, but were subsequently found (Ramírez, 1989). As Simon (1888) had correctly pointed out, the name cannot be reliably associated with any genus, as the types are very early instars of an unidentifiable mygalomorph (perhaps a theraphosid), which probably had not even left the egg sac when collected. The specific epithet chosen by Nicolet seems appropriate indeed. The rounded sternum and cephalothorax in those specimens, mentioned by Nicolet and considered by Raven (1985a) as the most compelling reason to synonymize the genus with *Lycinus*, are observed in very early instars of most mygalomorphs.

Given Raven's (1985a) description of *Lycinus*, it is evident that he studied specimens of *Chilelopsis* and considered that they would belong in this genus. However, the only "character" actually shared by the two genera is the (plesiomorphic) presence of PMS. Raven's (1985a) statement that *Lycinus* can have a "distal tibia I of males without spur or with dense black shield of spines," and a "third claw very small or absent" was obviously a result of considering *Chilelopsis* as part of *Lycinus*. None of the species included here in *Lycinus* has a shield of spines on the male tibia I or a third claw.

Mello-Leitão (1941b) described a species of *Lycinus*, *L. secundus*, which was declared by Schiapelli and Gerschman (1967) as a species inquirenda; the type (deposited in MLP, examined) is an unidentifiable juvenile, which (based just on the known geographic distribution of that species) could perhaps be *Pycnothele modesta*.

BIOLOGY: All *Lycinus* live in burrows, rather deep and with compacted walls lined with little silk. All the Chilean species of the genus for which the burrow has been observed (*L.*

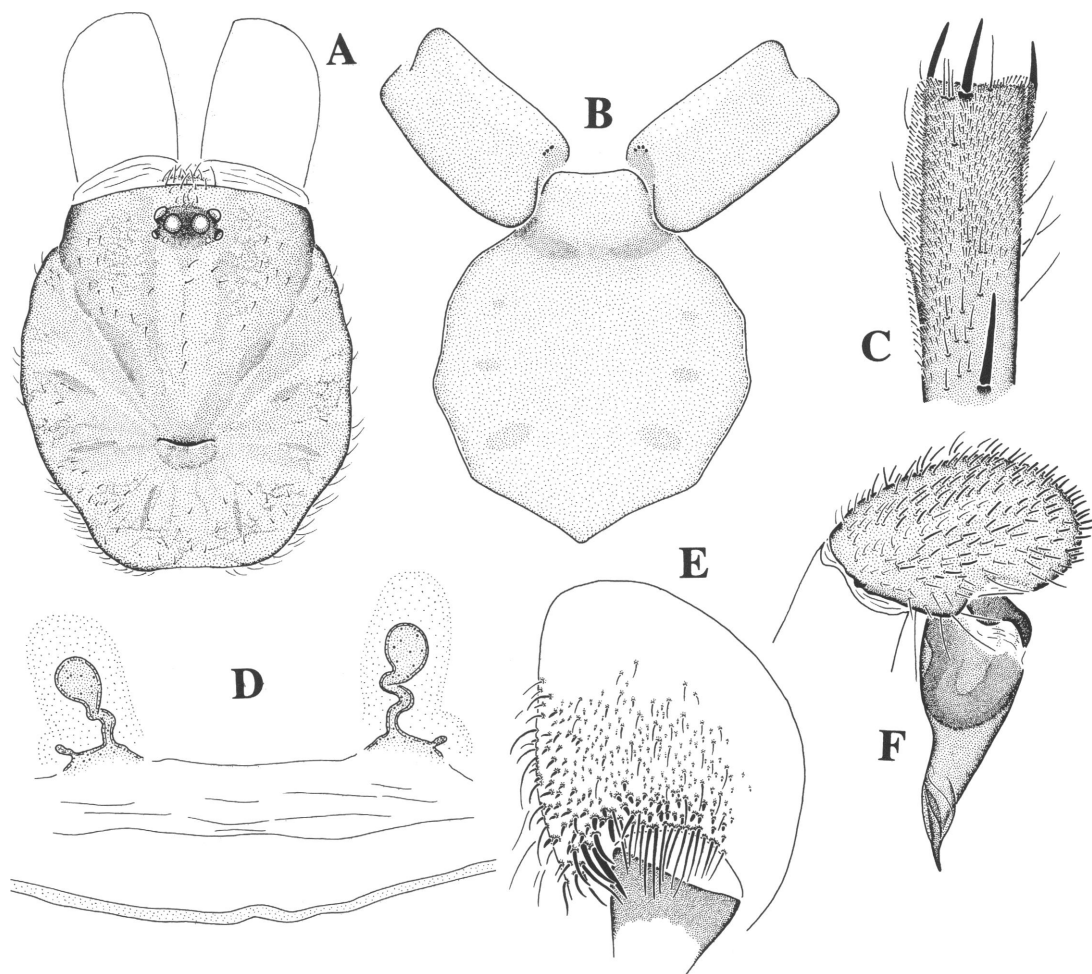


Fig. 123. *Lycinus longipes*. A–E. Female. F. Male. A. Cephalothorax. B. Sternum and maxillae. C. Apex of left metatarsus IV, ventral. D. Spermathecae, dorsal. E. Left chelicera, anterior view. F. Right cymbium and bulb.

tofo, *L. gajardoi*, *L. caldera*, *L. frayjorge*, *L. epipiptus*) have two lateral flaps (fig. 141), simple extensions of the internal lining of the burrow mixed with soil/debris. Sometimes those two flaps were opened during day, but in other cases they were closed. The flaps are soft and flexible, so that when they are closed their edges fold against each other, making the burrow almost invisible. When the soil surface is sloping, the flaps are always lateral, so that they join in a medial vertical line. The only Argentinian species in the genus, *L. longipes*, closes its burrow using a stopperlike door (see section on *L. longipes*).

Although most species of Nemesiidae (in-

cluding *Chilelopsis* and *Flamencopsis*) tend to live in dense aggregations, specimens of *Lycinus* (and *Diplotheopsis* as well) are usually found in isolation; usually only one or two females can be collected per day or per locality.

Lycinus longipes Thorell

Figures 31, 32, 123A–F,
133, 134, 137–140

Lycinus longipes Thorell, 1894: 36 (male holotype, from Córdoba, Argentina, in RMS, examined).—Schiapelli and Gerschman, 1942: 321; 1967: 56 (in part, Argentinian males only).

Mygaloides longipes: Raven, 1985a: 99, figs. 97–102.

DIAGNOSIS: This species differs from the Chilean species of *Lycinus* by the wider sternum. The male bulb morphology is most similar to that of *L. caldera*, which differs from *L. longipes* in having a large cymbium and the cymbial setae directed backwards.

MALE: Described in full by Schiapelli and Gerschman (1967). Anterior tibiae with dorsal spines. Posterior tarsi with dense scopula, slightly divided by narrow band of setae. Palpal tibia long. Cymbium with apically directed setae, bulb (fig. 123F) tapering gradually, with short embolus.

FEMALE (MACN 8781): Total length, 33.15. Cephalothorax (fig. 123A) length 12.19, width 10.73. Cephalic region short, wide, convex, width 0.77 of thoracic width. Labium length 0.56 of width. Sternum (fig. 123B) as wide as long. Labium and maxillae without cuspules. Serrula apparently absent. Posterior sternal sigilla large, nonmarginal. Chelicerae: rastellum formed by numerous small, short, cusps (fig. 123E); TTtTTt on promargin, 12 denticles in fang furrow. Trichobothria: Tibiae, I, 8(1:2b), 8(1:3b); II, 9(1:2b), 9(1:2b); III, 7(1:4b), 11(1:3b); IV, 9(1:4b), 10(1:4b); palp 8(3:4b), 10(3:4b). Metatarsi, I, 16(3:4a); II, 18(2:3a); III, 21(3:4a); IV, 20(3:4a). Tarsi, I, 14(3:4a); II, 16(3:4a); III, 18(3:4a); IV, 18(3:4a); palp, 13(1:2m). Chaetotaxy: Femora I, II, 1 P SUP A; III, 1-1/1-1 P SUP A, 1 R SUP A, 1 R SUP A; IV, 1 P SUP A, 0/1 R SUP A; palp, 1 P SUP A. Patella, I, 1/1-1 P; II, 0/1 P; III, IV, 1-1-1 P, 0/1 r; palp, 0/1-1 P. Tibia, I, 1 P A, 1 V POST M, 2 V ANT A, 1 V POST A; II, 1/1-1 P, 0/1 V POST M, 2 V ANT A, 1 V POST A; III, IV, 1-1-1-1/1-1-1-2 P, 1-1 R, 2 V ANT A, 1 V POST A; palp, 1-2 V POST, 1-2 V ANT. Metatarsus, I, 0/1 P, 1-1-1 V ANT, 1-0-1 V POST; II, 2-2-0-2/1-1-0-2 V, 1 P; III, 1-1-1-0-1-1 P SUP, 1-0-0-1/1-1-1-1 P INF, 1-1-2 V POST, 0-1-1/1-1-1 R, 1/3 V A; IV, 1-1-1-1-1-1 P, 1-1-1-1 P INF, 1-1-2 V POST, 1-1-1 R. Tarsi I–IV, unarmed; palp, 1 R INF, 1/1-1 P INF. No metatarsal combs or pseudocombs. Tarsi I–IV with dense scopula, entire on I, II, divided by double row of thin setae on III, by triple row on IV. Metatarsi I, II, apical half of metatarsi III, apical third of IV (fig. 123C)

with scopula. STC teeth: I, 7446; II, 7335; III, 4124; IV, 412 4/5. Claws of tarsi I shorter, thicker than II–IV. Tarsal organ as in figures 31, 32. Spermathecae as in figure 123D. PLS, basal article 2.23 long, with spigots on 4:3A (3 larger spigots in diagonal row); medial 0.81 long, with 3 larger spigots in row; apical 0.51 long, domed. PMS, 1.22 long, with about 60 spigots. Entire spider uniformly dark black, with long hairs.

NATURAL HISTORY: The specimens for which such information is available (i.e., those from Paso Huitrin, Pueblo Bermejo, Esquiú, 26 km N Rio Saladillo, 3 km S Rio Saladillo, and Ruta Provincial 60) have been collected in salt-flats, in depressed, floodable areas (fig. 133).

They live in deep burrows (up to 40 cm deep), about 20 mm wide, with smooth well compacted and cemented walls, lined with a thin layer of silk. The burrows are closed by means of a door (figs. 137–140), without hinge, which lies over the burrow mouth. The doors have a diameter of up to 25 mm and are up to 5 mm thick; the edges are at an angle of about 45° so that the inner diameter is about 20 mm. The inner face of the door is covered with silk and often has in the middle a slight convexity (fig. 138).

The burrows of several specimens were covered by water (about 1 cm deep); in those cases (as well as in those females collected with spiderlings in the burrow) the door was sealed with silk from inside. In other cases, an old (presumably abandoned) door was found at the side of the burrow, and a newer, thinner door was covering the burrow mouth (fig. 140). No night observations could be done in the localities mentioned; specimens held in captivity opened their burrows at night, leaving the door by the side of the burrow (with its inner face downward). It could never be observed how the spider actually handles the door. The waiting position is like that described by Buchli (1968) for *Nemesia*.

DISTRIBUTION: Northwestern and western Argentina; previously recorded from Santiago del Estero, Salta, Córdoba, La Rioja and Neuquén, but found also in Catamarca, San Juan, and Mendoza.

OTHER MATERIAL EXAMINED: ARGENTINA: Salta: no specific locality, Oct. 1963 (Havrylenko, MACN), 1♂. La Rioja: Iliar,

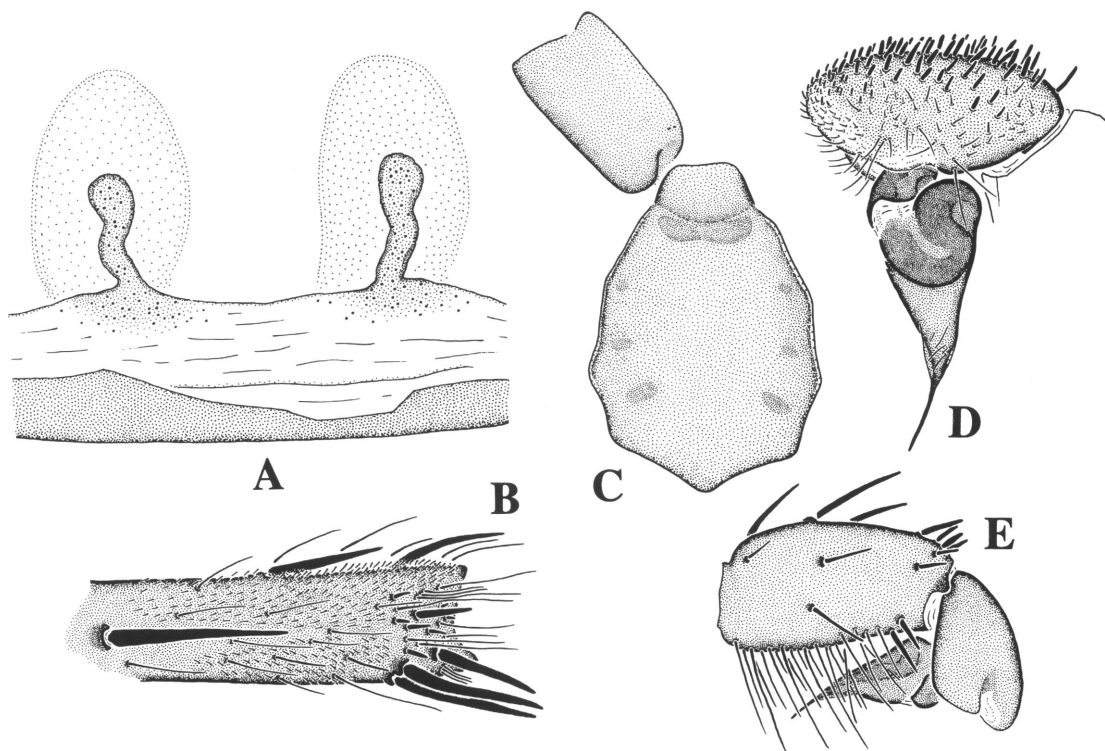


Fig. 124. *Lycinus gajardoi*. A–C. Female. D, E. Male. A. Spermathecae, ventral. B. Apex of left metatarsus IV, ventral. C. Sternum and maxillae. D. Left cymbium and bulb, retrolateral. E. Left palp, prolateral.

Apr. 1941 (Gómez, MACN), 3♂; Patuía, Guayapa, 16 Dec. 1951 (no collector, MACN), 4♂, Nov. 1958 (L. Yivoff, MACN), 3♂, Apr. 1962 (L. Yivoff, MACN), 2♂, Oct.–Nov. 1963 (M. Galiano, MACN), 8♂, 1♀, Oct. 1954 (Hayward, MACN), 1♂; Olta, no date (no collector, MACN, ex Canals Collection), 3♂, 2♀. **Catamarca:** Andalgalá, Jan. 1973 (Ender, MACN), 5♂; Andalgalá, km 1510, no date (no collector, MACN), 1♂; Esquiú, Dec. 1988 (L. Coronel, MACN), 1♂; Ruta Provincial 60, between junction with Route 157 and border with Córdoba, Salina Grande, Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 4♀. **Santiago del Estero:** Campo del Cielo, Sep. 1940 (Abalos, MACN), 1♂, 1 juv.; Ruta 9, 3 km S Río Saladillo, Salina de Ambargasta, Jan. 1985 (P. Goloboff, C. Szumik, MACN), 5♀, 2 juvs.; Ruta 9, 26 km N Río Saladillo, Salina de Ambargasta, Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 2♀; Santa Catalina, Oct. 1963 (M. Galiano,

MACN), 1♂. **Mendoza:** Nacuñán, 3 Jan. 1974 (A. Roig, MACN), 1♀. **Neuquén:** Zapala, Bajada del Marrucho, 22 Dec. 1969 (Schajovskoi, MACN), 2♂; Chorriaca, between Zapala and Chos Malal, 10 Feb. 1985 (Dejean, MACN), 1♂; Laguna Blanca, Dec. 1959 (Navas, MACN), 2♂. **San Juan:** Ischigualasto, Apr. 1960 (Apóstol, MACN), 1 juv.; Pueblo Bermejo, Nov. 1987 (P. Blendinger, MACN), 1♂.

Lycinus gajardoi
(Mello-Leitão)

Figures 7, 21, 124A–E, 141

Parachubutia gajardoi Mello-Leitão, 1940b: 233 (two male syntypes from Casablanca, Chile, in MNRJ, examined).

Lycinus gajardoi: Schiapelli and Gerschman, 1967: 57, figs. 16–19.

DIAGNOSIS: Males can be easily recognized by the narrow, asymmetric cymbium with

very thick setae directed backward, the lighter scopula on tarsi IV, and the longer embolus; females, by the pseudopreening combs.

MALE (*Caleta Oscura*): Total length 19.60. Cephalothorax length 8.60, width 7.15. Cephalic region length 5.20, width 4.30. Labium with no cuspules, maxillae with 8/10. Serrula present, quite evident, on upper-posterior face of apical lobe. Sternal sigilla small, oval elongated, shallow, separated from margin by 1.25 long diameters; sternum with thick reborder. Chelicerae: rastellum as in female; inner margin with 6 teeth; fang furrow with 12 blunt cuspules. Cheliceral tumescence large, rounded, flat, glabrous. Chaetotaxy (only salient features): with 1/1-1 R on patella I (1 R on II as well), 1-0-1/1-1-1 P on IV; 2-2-2 D on tibia I, 1-1-2/2-1-2 on II, 1-1-2/1-1-1-2 on III, 2-2-1-2 on IV, 1-2-2 plus apical cluster of 11 blunt (almost cylindrical) spines on dorsal palpal tibia; anterolateral spines extending to dorsal surface of metatarsi I, II; all leg tarsi without spines, cymbium with numerous modified setae (fig. 124D). All tarsi scopulate, posterior ones lightly so; metatarsi I, II with scopula on 4:5A, III on 1:3A, IV ascopulate. Scopula I, II undivided, III, IV divided by broad, double row of thick long setae. Metatarsal preening combs: absent. ITC, I-IV absent. All tarsi flexible. Palp: cymbial setae very thick, blunt, short, basally directed; cymbium narrow, long, with its posterior lobe longer (fig. 124D); tibia wide (fig. 124E). Bulb coniform, gradually tapering, with long embolus. Tibia I cylindrical, with no apophyses; metatarsus straight, unmodified. Color as in female.

FEMALE (*Agua Dulce*): Total length, 21.65. Cephalothorax length 8.20, width 6.41. Cephalic region wide, short, convex, width 0.78 of cephalothorax width. Rastellum as in *L. longipes*. Labium without cuspules, width 0.56 of length. Maxillae with 10 cuspules; serrula absent. Sternum (fig. 124C) width 0.81 of length, with posterior sigilla long, separated from margin. Trichobothrial bases as in figure 16. Chaetotaxy: Femora, I, II, 1 d b, 1 p sup (1:3a), 1 P SUP A; III, 1 d b, 1-1-1 p sup (2:3a), 1-1-1 r sup; IV, 1 d b, 1 p sup a, 1 r sup a; palp, 1 P SUP A. Patellae I, II, 1-1/1-1-1 p; III, IV, 1-1-1 P, 1 R; palp, 2 P. Tibiae, I, 1-1 P, 2 P INF A, 1-1-1 R INF; II, 1-1 P, 1 P INF A, 1-1 R INF (1:2A); III, 1-1

P, 1-1 R, 0/1 D ANT, 1-2-3 V; IV, 1-1 P, 1-1 R, 2 P INF A, 1 R INF A; palp, 2-2 P, 2 P INF A, 1-1-2 R INF. Metatarsi, I, 1-1-1 V POST; II, 2-2-1/0-2-1 V, 1 P SUP M; III, 1-1-1/1-1-1-1 V ANT, 1-1-2 V POST, 1-1-1-1/1-1-1-1-1 P SUP, 1-1-1 R; IV, 0-1-1-1-1 P, 2-1-2-3/2-1-2-1-3 V, 0-1-1-1 R. Tarsi I-IV unarmed; palp, 1 R B, 1 P INF B. Metatarsal preening combs: no combs on I, II; III, IV with pseudocombs (figs. 7, 124B). All tarsi, metatarsi I, II, 1:3A of metatarsus III and 1:6A of metatarsus IV with scopula, entire on I, II, divided by narrow line of setae on III, by clear, broad band on tarsus IV; scopula IV light. Tarsi I-IV flexible. STC teeth: I, II, 6655; III, 4446; IV, 4364. Tarsal organ as in figure 21. Spermathecae as in figure 124A. PLS length of basal:middle:apical, 1.36:0.60:0.20. PMS length 0.64. Cephalothorax, legs, palpi, yellowish brown; abdomen with chevron.

NATURAL HISTORY: They live in burrows typical of Chilean *Lycinus* (fig. 141).

REMARKS: Females from 79 km N La Serena, Llano de la Higuera, and (especially) Cuesta Pajonales have pseudocombs more developed than females from further south; to a lesser extent, the female from La Serena also. The combs in females from Monte Redondo are very weak, almost absent.

There is some uncertainty regarding the placement of the type locality of this species. Mello-Leitão (1940b) stated only that the specimens had been collected "en los alrededores de Casablanca." Numerous localities with that name exist in Chile, from regions I to X. The most important one is certainly a Casablanca in V Region, 29 km SE of Quilpué. All other known specimens of *L. gajardoi*, however, come from Regions III to IV; the closest record to the Casablanca from V Region is Los Vilos. The only other species of *Lycinus* that have been collected in V Region are *L. quilicura* and *L. epipiptus*. Mello-Leitão (1940b) provided a list of other arachnids that had been collected in the same locality; the scorpion or opilionid species mentioned by Mello-Leitão were either clearly misidentifications or are widely distributed (E. Maury, personal commun.); all the spider species are very common, widely distributed species. The other species mentioned by Mello-Leitão as having been collected with the

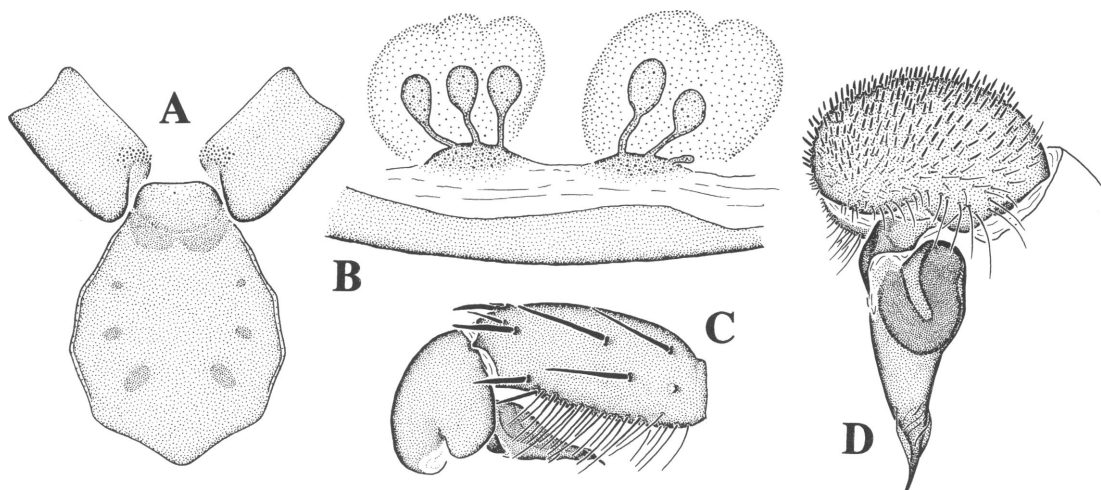


Fig. 125. *Lycinus caldera*. A, B. Female. C, D. Male. A. Sternum and maxillae. B. Spermathecae, ventral. C. Right palp, prolateral. D. Left cymbium and bulb, retrolateral.

type, therefore, provide no clues as to the exact placement of the type locality.

DISTRIBUTION: Southern Region III and northern Region IV, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region III (Atacama): Huasco:** Cuesta Pajonales, S. of Copiapó, 30 Oct. 1980 (L. Peña, AMNH), 1♀. **Region IV (Coquimbo): Elqui:** 5 km S Guanaqueros, 9 Jan. 1984 (P. Goloboff, MACN), 1♀; Guanaqueros, Jan. 1984 (P. Goloboff, MACN), 1 juv.; Monte Redondo, 15 km N Manto de Hornillos, 1 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 2♀; Socos, 12 Feb. 1974 (Cekalovic, AMNH), 1♀; Termas de Socos, 300 m elev., 2 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 2 juvs.; Ruta 5, 20 km S Socos, 4 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀; Ruta 5, 25 km S Socos, 1 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀ or juv.? (no abdomen); La Herradura, 80 m elev., 3 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 2♀; El Tofo, Sep. 1916 (Hallinam, AMNH), 8♂, (MACN 5836), 1♂; 3 km E El Tofo, 45 m elev., 7 Jan. 1985 (N. Platnick, O. Francke, AMNH), 1♀; La Serena, Jan.–Feb. 1961 (Wagenknecht, AMNH), 1♀; Ruta 5, km 553, 79 km N La Serena, 300 m elev., 15 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1♀; Llano de La Higuera, N of La Serena, 17 Oct. 1983 (no collector, AMNH),

1♀. **Choapa:** Huentelauquén, coastal town, 35 km N Los Vilos, 27 Sep. 1980 (L. Peña, AMNH), 2♂; Los Vilos, 30 May 1978 (Gutiérrez, AMNH), 1♂; Caleta Oscura, 2 Oct. 1983 (E. Maury, A. Roig, MACN), 3♂; Playa Agua Dulce, 51 km N of Los Vilos, Jan. 1984 (P. Goloboff, MACN 8728), 1♀, (MACN), 5♀, 6 juvs.; creek leading to Playa Agua Dulce, 46 km N Los Vilos, 5–6 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♂, 3♀. **Prov. ??? (in IV Region): Quintapia,** 2 Nov. 1970 (J. Solervicens, MACN), 1♂.

Lycinus caldera, new species

Figures 125A–D

Lycinus longipes: Schiapelli and Gerschman, 1967: 57 (in part, Chilean specimens only).

TYPES: Male holotype from La Travesía, between Copiapó and Vallenar, Copiapó, III Region (Atacama), Chile (16 Nov. 1987; F. Figueroa), deposited in MHNS, male paratype from Caldera, Copiapó (Apr. 1964; H. Zapfe), deposited in MACN, and female paratype from 30 km S Copiapó, 520 m elev., Copiapó (9 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from one of the type localities.

DIAGNOSIS: Males can be distinguished from those of *L. gajardoi* by the larger cym-

bium, the thinner and more numerous modified cymbial setae, and the shorter embolus (fig. 125C, D), and from those of all other species in the tribe by having the cymbial setae directed backward. Females can be distinguished from those of other Chilean species of *Lycinus* by the spermathecae with two or three receptacula on each side; the spermathecae are vaguely similar to those of female *L. longipes* (which can have a secondary lateral receptaculum, but much smaller than in *L. caldera*), which differs in having a wider sternum and less numerous (or completely absent) maxillary cuspules.

MALE (holotype): Total length, 27.14. Cephalothorax length 12.65, width 11.49. Cephalic region wide, short, width 0.58 of cephalothorax width. Fovea narrow, occupying 0.08 of cephalothorax width. PME much smaller than AME, PE in procurved row. Labium length 0.73 of width. Sternum width 0.85 of length. Labium without cuspules, maxillae with 18/22 small cuspules on inner angle. Serrula well evident, on upper-posterior face of apical lobe. Posterior sternal sigilla long, well separated from margin; sternum reborder thick. Chelicerae with 6 teeth on promargin. Tichobothria: Tibiae, I, 9(1:2b), 9(1:2b); II, 9(1:2b), 8(1:2b); III, 9(1:2b), 10(1:2b); IV, 8(1:3b), 10(1:2b); palp, 9(2:3b), 8(2:3b). Metatarsi, I, 17(3:4a); II, 17(2:3a); III, IV, 16(2:3a). Tarsi, I, 19(2:3A); II, 21(2:3A); III, 19(2:3A); IV, 18(2:3A); palp, 13(≈1:2B). Chaetotaxy: Femora, I, 1-1-1 P SUP (1:2A), 1-1-1-1-1 D, 1-1-1 R SUP (1:2A); II, 1-1/1-1-1-1 P SUP (1:2A), 1-1-1-1-1 D, 1-1-1/1-1-1-1 R SUP (1:2A); III, 1-1-1-1 P SUP (3:4A), 1-1-1-1-1 D, 1-1-1-1-1 R SUP; IV, 1-0-1-1 P SUP (1:2A), 1-0-1-1-1 D, 1-1-1-1 R SUP (2:3A); PALP, 1-1 P SUP (1:3A), 1-1-2 D (1:3A). Patellae, I, 1-1-1 P, 1 R; II, 1-1-1 P; III, IV, 1-1-1 P, 1 R; palp, 1-1 P. Tibiae, I, 1-1-1 P SUP, 1/1-1 P (1:3A), 3-2-2 V, 1-1-1/1-0-0-1 R SUP; II, 1-1/1 P, 1-1/1-1-1 R SUP (1:2A), 2-2-2/3-2-2 V; other specimens (see remarks) have dorsal spines on tibiae I, II; III, 1-1-2-1/1-1-1-1-1 P, 1-1-1 P INF, 1-0-1-2/2-1-0-1 D, 1-1-1 R, 3-2-3 V; IV, 1-1-1-1 P SUP, 1-1 P (1:3A), 0-1-2-1/1-0-1-1-1-1 D, 1-1-1/1-1-2 R, 3-2-2 V; palp, 1-1-1-2 P SUP, 0-1-0-1 P INF, 2 R SUP A, 2 D A. Metatarsi with spines very irregularly distributed; I, 1-1/2 P SUP (1:5A), 1 P SUP M, 1 R SUP

(1:3B), 1 R (1:3A), 1-1-1 V ANT, 1 V POST (1:3B); II, 10/22; III, 20; IV, 22. Tarsi I-IV and cymbium without spines. No metatarsal combs. Tarsi I-IV, 1:2A of metatarsi I, II, and 1:6A of III, IV with scopula. Scopula entire on I, II, with isolated ventral setae (not forming definite line) on tarsi III, IV. STC teeth: I, 16 9 9 14; II, 15 11 9 12; III, 16 11 10 14; IV, 14 10 10 14. Palp as in figure 125C, D. Cymbium large, with thick, short hairs, directed toward base; bulb with embolus short; palpal tibia short, wide. Tibia I long, cylindrical, unmodified. Basal article of PLS 2.43 long, with 4 larger spigots in longitudinal line; medial article 1.71 long, with 3 larger spigots in diagonal line; apical article 0.65 mm long, domed. Entire spider uniform blackish brown; abdomen without discernible pattern.

FEMALE (paratype): Total length 35.95. Cephalothorax length 13.50, width 10.80. Cephalic region length 8.35, width 8.70. Fovea, width 1.75. OQ length 0.86, width 1.92. Labium length 1.70, width 2.55. Sternum (fig. 125A) length 7.60, width 6.50. Cephalic region strongly convex, high, wide, short; fovea deep, straight. Labium with no cuspules, maxillae with 48/44. Serrula absent. Sternal sigilla I, II well marked, very separated from margin [!]; posterior sigilla of medium depth, very elongated, separated from margin; sternum strongly rebordered. Chelicerae: rastellum strong, formed by numerous blunt cusps on anterior face (similar to rastellum of *L. longipes*, see fig. 123E); inner margin with 6 strong teeth; 13 intermarginal teeth. Chaetotaxy: Femora: I, 1 P SUP A; II, 1-0-1-1-1/0-0-1-1-1 P SUP; III, 0-1-1-1 p sup, 1 d b, 0-1-1-1/1-1-1-1 r sup; IV, 1 P SUP A, 1 d b, 1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 1 p sup a; III, IV, 1-1-1 P, 1 R; palp, 1/2 P. Tibiae: I, 0-1/1-1 p sup, 0-1-1/1-1-0 v post; II, 1-1 p, 1 V POST; III, IV, 1-1 P, 1-1 R SUP, 1 V POST M, 2 V A; palp, 1-2/2-2 P (long, thin), 2 V ANT A, 1-1-2 V POST. Metatarsi: I, 1 V ANT (1:3B), 1-1-0-1 V POST; II, 1 P SUP, 1 V ANT (1:3B), 1-1-0-1 V POST; III, 1-1-1-0-1-1/1-2-1-1-1-1 P SUP, 1-2-1-1/1-1-1-1 R SUP, 2-2-0-3 V; IV, 2-1-2-2-2-1/2-1-2-1-0-1 R SUP, 1-1-1-1-0-01/1-1-1-1-1-1 P, 1-1-1-1 V ANT (on one leg, 2 additional small V ANT A), 1-1-2 V POST. Tarsi: I-IV, 0; palp, 1 P INF B, 1 R

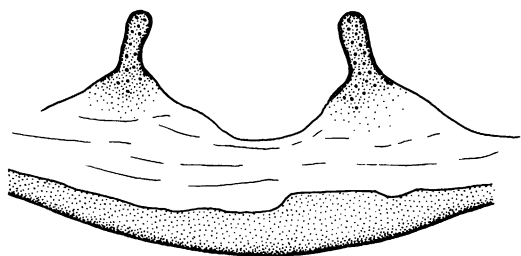


Fig. 126. *Lycinus frayjorge*, female, spermathecae, ventral.

INF B, long, strong. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 1:1, III with 2:3A scopulate, IV with 1:2A densely scopulate. Scopula I–III undivided, IV with narrow band of setae (2–3 setae wide). Tarsi I–IV clearly flexible, with ventral face and sides pallid. Metatarsal preening combs: absent; metatarsus IV with long setae more numerous on apex but not forming comb or pseudocomb. STC, teeth: I, 7566; II, 6656; III, 7667; IV, 6576. ITC, I–IV absent. PLS: apical article domed; length of apical:medial:basal, 0.75:1.65:2.65. Spigots very numerous, reaching almost base of basal article; spigots seem articulated, with long thin shafts. PMS length 1.00, with numerous spigots on 1:2A. Spermathecae as in figure 125B. Entire spider uniform dark blackish-reddish brown; no abdominal pattern.

NATURAL HISTORY: The specimens have been collected from long, deep burrows (closed with the double flap typical of the Chilean *Lycinus*) in sandy, desertic places. The internal burrow lining was denser than in other species of the genus, and effectively formed a dense, thick tube which prevented the sand from collapsing. The burrows were about 20–25 mm wide; they started more or less vertically and became (at about 25 cm) more horizontal, with the bottom widened in a resting chamber.

REMARKS: Schiapelli and Gerschman (1967) mentioned *L. longipes* as occurring in Chile, but the specimen they had examined (here designated as paratype) belongs to this species. Those authors distinguished *L. longipes* from *L. gajardoi* (the only other Chilean *Lycinus* species they knew) on the basis of color and bulb morphology only. Specimens of *L. caldera* are larger and much darker than *L. gajardoi*, and the bulb shape (with a short

embolus) is similar to *L. longipes*, which easily explains Schiapelli and Gerschman's mistake. The basally directed setae, which are not known to occur in any other nemesiid, as well as the wider palpal tibia, clearly ally this species with *L. gajardoi* rather than with *L. longipes*.

The male paratype had two different bulbs in the microvial when I examined it for first time.

The male holotype does not have dorsal spines on tibiae I and II. The dorsal spines of tibiae I and II of other specimens are: male paratype, 1-1-2 in I, 2-2/1-1-2 in II; topotypical male, 0/1 in I, 1 in II; another topotypical male, 2-1-2/1-1-1-2 in I, 1-1-2-2-/2-1 in II.

DISTRIBUTION: Known only from provinces of Chañaral and Copiapó, in northern Region III, Chile.

OTHER MATERIAL EXAMINED: CHILE: **Region III (de Atacama):** *Chañaral:* Flamenco, dunes 200 m from sea shore, 13 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1♀ juv. *Copiapó:* La Travesía, between Copiapó and Vallenar, 16 Oct. 1987 (F. Figueroa, MHNS), 2♂; SE Caldera, 26 Oct. 1983 (no collector, AMNH), 1♂; 60 km S Copiapó, 16 Oct. 1980 (L. Peña, AMNH), 1♂; Quebrada de León, N of Caldera, 140 m elev., 10 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, MACN), 1♀. *Huasco:* Freirina, 27–28 Oct. 1980 (L. Peña, AMNH), 2♂.

Lycinus frayjorge, new species

Figure 126

TYPE: Female holotype from slopes of western exposure, Parque Nacional Fray Jorge, Limarí, IV Region (Coquimbo), Chile (3 Nov. 1988; P. Goloboff, E. Maury, C. Szumik), deposited in MNHS.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: The female spermathecae are most similar to those of *L. gajardoi*, which differs by the less numerous maxillary cusps, the lighter scopula IV, and the presence of pseudopreening combs.

MALE: Unknown.

FEMALE (holotype): Total length 24.90. Cephalothorax length 9.90, width 8.80. Cephalic region length 6.55, width 6.60. Fovea,

width 1.40. OQ length 0.84, width 1.35. Labium length 1.05, width 1.95. Sternum length 5.60, width 4.50. Cephalic region short, wide, convex; fovea very slightly procurved. Labium with 1 cuspule, maxillae with 22/25. Serrula absent. Anterior sternal sigilla subcircular, submarginal, medial sigilla oval (twice as long as wide), separated from margin by long diameter, posterior sigilla larger, elongated (about 3 times longer than wide), oval, separated from margin by diameter; sternum rebordered. Chelicerae: rastellum formed by numerous small, short, blunt cusps; inner margin with 6 huge blunt teeth in short row; fang furrow with 10 huge denticles. Chaetotaxy: Femora: I, 1-1 P SUP (1:3A), 1 D B, 0-1/1-1 R SUP (1:3A); II, 0-1-0-1-1/1-1-0-1-1-1 P SUP, 1/1-1 D B, 0 R; III, 0-1-1-1 P SUP, 1 D B, 0-1-1-1/1-1-1-1 R SUP; IV, 1/1-1 P SUP A, 1 D B, 1/1-1 R SUP A; palp, 1 P SUP A. Patellae: I, 1-1 P; II, 1-1/1-1-1 P; III, 1-1-1 P, 1 R; IV, 1-1/1-1-1 P, 1 R; palp, 2-1 P (long, thin). Tibiae: I, II, 1-1 P, 2 P INF A (strong, short), 1-1-1 V POST (longer); III, 1-1 P, 0 D, 1-1 R SUP, 1-1-2 V ANT, 1-1-1 V POST; IV, 1-1 P, 0 D, 1-1 R SUP, 3 V A; palp, 2-2 P (long), 2 V ANT A (short), 1-1-2/0-1-2 V POST. Metatarsi: I, 1 V ANT (1:3B), 1-1-0-0-1 V POST; II, 1 P SUP, 1 V ANT (1:3B), 1-1-0-0-1 V POST (ventral spines longer than on I); III, 1-1-1/1-1-1-1 P, 1 P SUP A, 1-1-1 R SUP, 1-1-1/1-2-1 V ANT, 1-1-2 V POST; IV, 1-1-1-1 P, 1 D ANT A, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 1 P INF B, 0/1 R INF B. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III with scopula on 1:2A (densest on 1:3A), IV with scopula on 1:4 or 1:5A. Scopula I, II undivided, III almost entire (with single irregular line of scattered setae along midline), IV with double line of thick setae. Tarsi I-IV flexible. No metatarsal combs or pseudocombs. STC, teeth: I, 5545; II, 6655; III, 5445; IV, 5465. Palpal claw with 5 teeth. ITC, I-IV, absent. PLS: apical article short, triangular to domed; length of apical:medial:basal, 0.45:0.82:1.80. Spigots: numerous on basal article (occupying more than 1:2A), with 4 or 5 larger spigots on apex; medial with one larger spigot on 1:3A; apical with all its spigots as large as largest spigots on medial article. PMS length 0.75; about 10 spigots on 1:3A. Spermathe-

cae as in figure 126. Cephalothorax yellowish-brown, with dark striae, margins lighter; legs uniformly yellowish-brown; dorsal abdomen dark-brown, with chevron as in *L. epiptus*, but almost completely hidden by dark pubescence and pigmentation.

NATURAL HISTORY: The specimens were collected in a habitat similar to that described for *Chaco socos*, at the side of a ravine that led into the sea, from burrows closed with the typical double flap.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: Two juveniles taken together with the holotype (MACN).

Lycinus epiptus (Zapfe)

Figure 127A-E

Levina epiptusa Zapfe, 1963: 125 (male holotype from Cachagua, Petorca, Region V, Chile, II.1963, Zapfe, MHNS 3639, examined).

Lycinus gajardoi: Schiapelli and Gerschman, 1973: 291 (synonymy, here rejected).—Legendre and Calderón, 1984: 1045 (misidentification).

Lycinus longipes: Legendre and Calderón, 1984: 1048 (misidentification).

DIAGNOSIS: This species differs from *L. longipes* by its narrower sternum and lighter color; the male short embolus distinguishes it from all Chilean species except *L. caldera* (which differs in the darker color and in having the cymbial setae directed backward; those setae are directed towards the apex in *L. epiptus*; fig. 127E); females can be recognized by having the spermathecae wider in the base and with the fundus, narrowed in the middle, forming a slender duct (fig. 127A).

MALE (Mantagua): Total length 23.40. Cephalothorax length 10.00, width 8.65. Cephalic region length 6.20, width 5.60. Labium and maxillae without cuspules (other specimens with long ensiform setae in maxillae). Serrula: apparently with patch of tiny teeth on anterior lobe of maxilla. Chelicerae: inner margin with 7 teeth; fang furrow with 15 large denticles. Cheliceral tumescence rounded, flattened, glabrous. Chaetotaxy (salient features only): all tibiae with strong numerous dorsal spines; I, II with 5 to 6, III, IV with 6 to 8; 1 R on patella I, 1-1-1-1 P on III, 1-2-1/1-1-1 on IV. Metatarsi I, II with numerous laterosuperior spines (on both

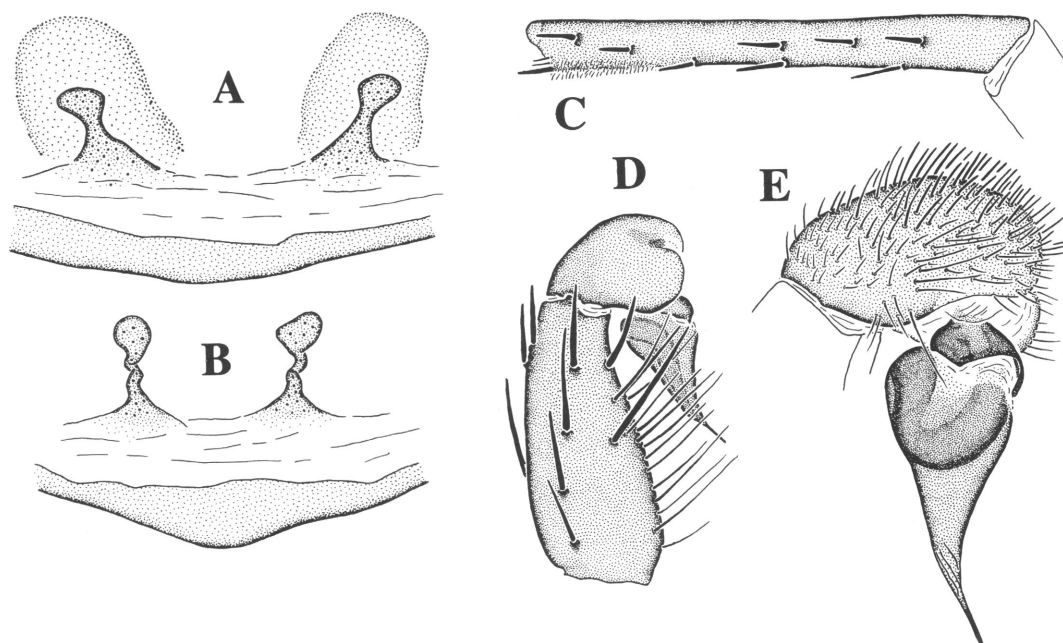


Fig. 127. *Lycinus epiptus*. A–C. Female. D, E. Male. A. Spermathecae, ventral (Huaquén). B. Same (Vilches). C. Right metatarsus IV, prolateral. D. Left palp, prolateral. E. Right cymbium and bulb, retrolateral.

sides); metatarsus IV with 10 spines irregularly distributed along P and P SUP. Tarsi without spines. All tarsi densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:2A, IV on 1:4A. Scopula I, II undivided, III, IV divided by narrow double row of thin setae. Metatarsal preening combs absent. ITC, I–IV, absent. All tarsi flexible. PLS: apical article short, triangular. Palpal tibia elongated, with weak proventral setae (fig. 127D); bulb coniform, with relatively long embolus, with very low keels (fig. 127E). Leg I, tibia cylindrical, with no apophyses; metatarsus straight. Color as in female.

FEMALE (Quebrada Huaquén): Total length 33.00. Cephalothorax length 12.10, width 10.60. Cephalic region length 7.80, width 8.10. Cephalic region elevated, strongly convex; fovea procurved. Labium with 1 cuspule, maxillae with 8/12. Serrula absent. Sternal sigilla I, II separated from margin, posterior ones larger, oval, deep, separated from margin by small diameter; sternum re-bordered. Chelicerae: rastellum formed by numerous short small cusps; inner margin with 6 or 9 short thick teeth in short cheliceral

margin; fang furrow with 13 small cusps. Chaetotaxy (salient features only): 1-1-1/1-1-0 P on patella IV; 1-1-0-1-1-1 P on metatarsus IV (fig. 127C), without P SUP; palpal tarsus usually with pair of V B spines. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:2A, IV on 1:5A. Scopula I, II undivided, III divided by almost imperceptible single row of thin setae, IV with narrow double row of thin setae. All tarsi flexible. Metatarsal preening combs absent from all legs. ITC absent from I–IV. PLS: apical article triangular, short. Spermathecae as in figure 127A. Cephalothorax, legs, palpi yellowish brown; abdomen of same color, with clearcut chevron (see Zapfe, 1963) not occluded by hairs.

NATURAL HISTORY: The animals live in burrows closed with the typical double-door. The specimens from Quebrada El Tigre (very near the type locality) and Parque Nacional La Campana were collected in dryer, rocky, sun-exposed slopes. The specimens from Quebrada Huaquén and 6.5 km N of Los Vilos were collected in sand dunes, just a few meters away from the sea, where the burrows

had a denser silk lining (similar to that in *L. caldera*, which also lives in sand).

REMARKS: Schiapelli and Gerschman (1973) synonymized this species (originally described as a migid!) with *L. gajardoi*, without actually having seen the type. Although their conclusion that the species belongs in *Lycinus* is certainly correct, it differs from *L. gajardoi* in a series of characters. Legendre and Calderón's (1984) description of *L. gajardoi* was based on specimens of *L. epipiptus*; perhaps (given that they apparently did not examine the types of either *L. gajardoi* or *L. epipiptus*) they simply followed Schiapelli and Gerschman's synonymy. More problematic is Legendre and Calderón's (1984) attribution of specimens of *L. epipiptus* to *L. longipes*; the specimen they identified and described as *L. gajardoi* came from the same locality, collector, and date, than other specimens they identified as *L. gajardoi*. They did not mention any significant differences to justify considering those specimens as belonging to two different species.

A specimen from Vilches has the spermathecae with the duct spiraled (fig. 127B); that specimen could actually belong to a different (new) species, but no males from that locality are known.

DISTRIBUTION: Common in Regions IV and V of Chile; a single specimen tentatively considered as *L. epipiptus* has been collected in Region VIII.

OTHER MATERIAL EXAMINED: CHILE: **Region IV (Coquimbo):** *Choapa*: 6.5 km N Los Vilos, sand dunes, 10 m elev., 16 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 1♀. **Region V (Valparaíso):** *Petorca*: Cachagua, Feb. 1977 (H. Zapfe, MHNS 566), 1♂; Quebrada El Tigre, Cachagua, Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 3 juvs.; Quebrada Huaquén, Caleta Pichicuy, 10 m elev., 2 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, AMNH), 2♀, 1 juv. *Quillota*: Parque Nacional La Campana, Palmas de Ocoa, 29 Jan. 1985 (Calderón, AMNH), 1♀, 14 Mar. 1985 (Calderón, AMNH), 1 juv., 27–28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1 juv. *Aconcagua*(?): Punta Pugen, nr. Los Molles (32°12'S, 71°27'W), 12 Aug. 1966 (E. Schlinger, AMNH), 1♀. *Valparaíso*: Villa Alemana, 11 Apr. 1971 (J. Solervicens, MHNS), 1♂; Dunas Concon, 1 Apr.

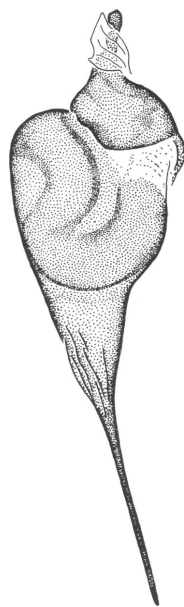


Fig. 128. *Lycinus quilicura*, male, right bulb.

1974 (Ortiz, MHNS), 1♂, 26 Apr. 1976 (L. Le Fort, MHNS), 1♀, 1 juv. *Prov. ???*: Mantagua, 10 Apr. 1976 (M. Salas, MHNS), 1♂, 1 juv. **Region VII (del Maule):** *Talca*: Alto Vilches, 26 Nov. 1790 (J. Solervicens, MACN), 1♀.

Lycinus quilicura, new species

Figure 128

TYPE: Male holotype from Quilicura, Region Metropolitana, Chile (Apr. 1979; L. Peña), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species can be distinguished from all others in the genus by its very long embolus (fig. 128).

MALE (holotype): Total length 21.20. Cephalothorax length 9.70, width 8.30. Cephalic region length 5.50, width 5.20. OQ length 0.75, width 1.41. Labium length 0.90, width 1.60. Sternum length 5.00, width 4.05. Labium and maxillae with no cuspules. Serula absent or quite reduced (dirt makes examination difficult). Sternal sigilla sigilla I, II subcircular, submarginal, III medium sized, shallow, oval (twice as long as wide), separated from margin by 3:4 of long diameter; sternum strongly rebordered. Chelicerae: ras-

tellum weak, formed by long stiff bristles; inner margin with 7 teeth; fang furrow with 12 medium sized denticles. Cheliceral tumescence rounded, flat, aetose. Chaetotaxy (both legs IV missing): Femora: I, 1-1-1/1-1 P SUP (1:4A), 1-1-1-1-1 D, 1-1-1-1/1-1-1 R SUP; II, 1-0-1-1/1-0-1-1-1 P SUP, 1-1-1-1-1/1-1-1-1 D, 1-1-1-1 R SUP; III, 1-1-1-1-1/1-1-1-1 P SUP, 1-1-1-1-1-1/1-1-1-1-1-0 D, 1-0-1-1-1-1/1-1-1-1-1 R SUP; palp, 1 P SUP A, 1 D A. Patellae: I, II, 1-1-1 P, 1-1-0 R; III, 1-2-1 P, 1-1 R (1:3B, very close to each other); palp, 1-1-1/1-0-1 P. Tibiae: I, 1-1-1-2/1-1-2 P, 2-2-2/2-2-3 D, 1-1-1-1 R, 2-2-2 V ANT, 2-2-1 V POST; II, 1-1-2/1-1-1-1-1 P SUP, 2-1-0-2/2-1-2-0-1 D, 1-1-1/1-1-1-1 R, 1-1-0-2/2-2-2 V ANT, 2-2-2-1/2-1-2-1 V POST; III, 1-1-1-2-1-1/1-1-1-2-1 P SUP, 2-2-1-2/2-1-2-2-2-1 D, 1-1-1/1-1-1-1 R SUP, 2-1-2/2-2-2 V ANT, 2-1-1/2-2-1 V POST; palp, 0-1-1 P SUP, 0-1-1-1 P INF, 0-1-1/1-1-1 D, 1-1 P (1:3A), with rigid long setae on anterior edge of ventral excavation. Metatarsi: I, 1-1-1/1-1-2 P SUP, 0-1-1-0 D ANT, 1-0-0/1-0-1-1 D POST, 1-0-1 R, 1-0-1/1-1-1 V POST; II, 1-1-1-0-1/1-0-1-0-1 P, 1-1-0-1/1-0-1 D ANT (1:2B), 1-1-0 D POST (1:2A) OR 1 D POST (1:3A), 1-1-1-0-1-0-0-1-0 R; III, 1-1-1-1-1-1/1-1-1-1-1-1 P, 1-1-1 P SUP, 1 D POST B, 2-2-2-1-2/2-1-2-2-2 R SUP, 2-1-1-1/1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-III, palp, 0. Tarsi I-III densely scopulate (judging from density of scopula III, scopula on IV must also have been dense, narrowly divided); metatarsi I, II with scopulate on 1:1, III with scopula on 1:3A. Scopula I, II undivided, III divided by tenuous double line of scattered setae. Metatarsal preening combs: absent from all legs. STC, teeth: I, 10 899; II, 10 988; III, 9898. ITC, I-III, absent. All tarsi (I-III) flexible. PLS: apical article triangular, short; length of apical:medial:basal, 0.75:1.00:1.50. Basal article with numerous spigots, occupying most of article's length. PMS length 0.75; with numerous spigots (about 25) occupying 2:3A. Palpal tibia slightly shorter and wider than in *L. epipiptus*, with long stiff setae on anterior edge of tibial excavation, weaker than in *L. tofo* but stronger than in *L. epipiptus*; bulb as in figure 128, with very long embolus. Leg I, tibia unmodified, no apophysis, metatarsus straight. Entire spider blackish brown; apparently densely covered with

golden-brown pubescence, but most hairs are fallen off; chevron (similar to that of *L. gajardoi* and other Chilean species of genus) almost completely occluded by very dark color and pubescence.

FEMALE: Unknown.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: None.

Lycinus tofo, new species

Figure 129A-D

TYPES: Male holotype from 4 km E El Tofo, Elqui, IV Region (Coquimbo), Chile (4 Nov. 1974; Moyano), deposited in MHNS, and female paratype from Ruta 5, km 491, 20 km N La Serena, 120 m elev., Elqui (7 Oct. 1992; P. Goloboff, N. Platnick, K. Catley), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males can be distinguished by the palpal bulb, more abruptly tapered than in other species of the genus (fig. 129C, D); females by the long, slender, spiraled spermathecal receptacula (fig. 129A).

MALE (holotype): Total length 24.00. Cephalothorax length 10.39, width 8.44. Cephalic region short, wide, width 0.61 of thoracic width. Fovea narrow, occupying 0.08 of cephalothorax width. Labium length 0.50 of width. Sternum width 0.79 of length. Labium without cuspules, maxillae with 8/9. Posterior sternal sigilla long, separated from margin. Chelicerae with 7 or 8 teeth on promargin (apical tooth smaller); 17 denticles in fang furrow. Trichobothria: Tibiae, I, 8(2:5b), 9(1:2b); II, 8(1:4b), 9(1:2b); III, 8(1:4b), 13(1:3b); IV, 9(1:4b), 11(1:4b); palp 6(3:4b), 7(3:4b). Metatarsi, I, 18(4:5a); II, 20(4:5a); III, 22(4:5a); IV, 18(3:4a). Tarsi, I, 19(5:6a); II, 17(3:4a); III, 21(3:4a); IV, 21(3:4a); palp, 16. Chaetotaxy: Femora, I, 1-1-1 P SUP (1:2a), 1-0-1-1-1-1 D, 1-1-1 R SUP (1:2A)/0-1-1-0-2-1 R SUP; II, 0-1-2-1 P SUP, 1-1-1-1-1 D, 1-1/1-0-1-1 R SUP (1:2A); III, 1-1-1 P SUP (2:3A), 1-1-1-1 D, 1-1-1 R SUP (2:3A); palp, 1 P SUP A, 1-1-1-2 D, 1 R SUP A. Patellae, I, 1-1/1-1-1 P, 1-1 R; II, 1-1-1 P; III, 1-2-1/1-1-1 P, 1 R; IV, 1-1-1 P, 1 R; palp, 1-1 P. Tibiae, I, 2-2-1-0/2-1-0 D, 1-1-0 P INF, 1-

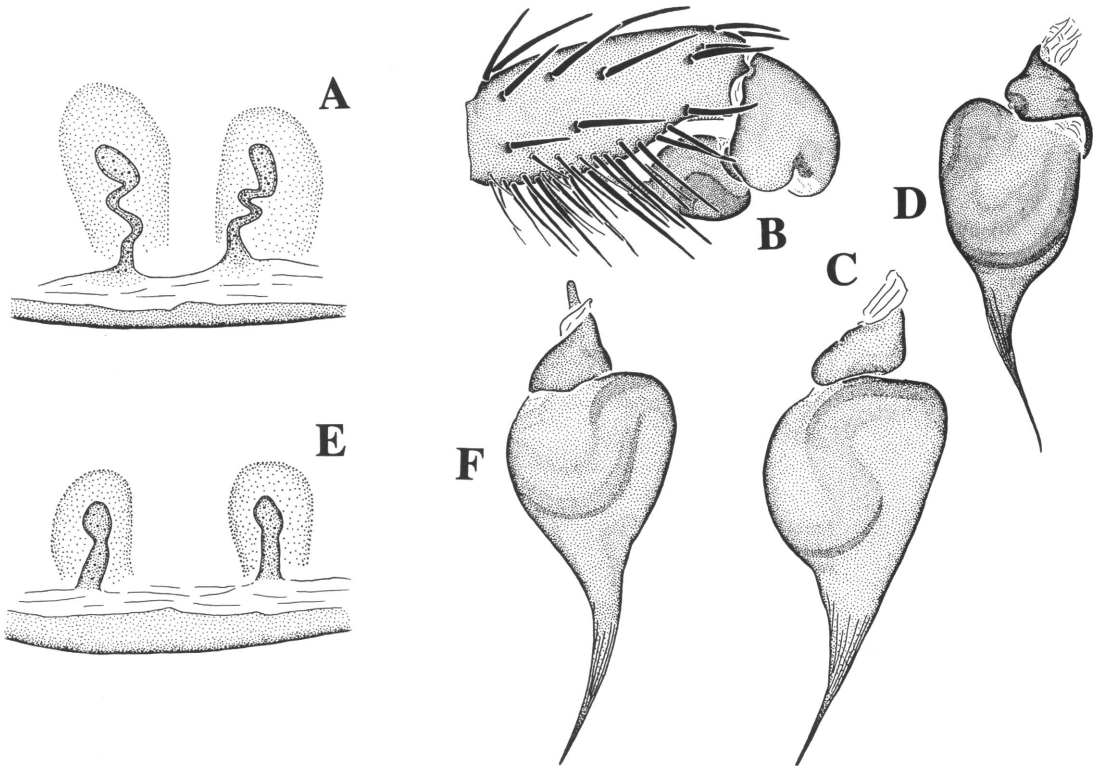


Fig. 129. *Lycinus tofo* and *Lycinus* sp. (cf. *tofo*). A–D. *L. tofo*. E–F. *Lycinus* sp. A, E. Female spermathecae, ventral. B. Male left palp, prolateral. C, D. Left (C) and right (D) bulb. F. Left bulb.

0-1-1 P SUP, 4-3-2 V, 1 R B; II, 1-1-1 P SUP, 1-1-0 P INF, 2-1-0/3-1-1-1 D, 0-1-1/1-1-1 R, 3-3-3 V; III, 2-1-2 P, 3-2-2-2 D, 0-1-1 R, 4-3-3 V; IV, 1-1-2/1-2-0-1-1-1 P, 3-1-1-1-2/3-1-2-2 D, 1-1-1 R, 4-3-3 V; palp, 1 R A, 1-2-1/1-2-2 D, with some d a, 1 V POST B, 8 P as in figure 129B, 8/10 v ant. Metatarsi, I, 1-1 P, 0-1-1-1 P SUP, 1 D POST B, 0-1-0-1 R, 1-1 V ANT (1:4M), 1-1-1-1 V POST, or 1-0-0-1 P, 1-1-1 R (1:2B), 1-1-0-1-0 R SUP, 1-0-1-1-1 P SUP, 1-1-1-0-1 V POST, 1-1 V ANT; II, 1-2-1-1-1 P SUP, 1-1-1 R SUP, 1-0-1-0 R, 3-2-0-1 V or 1-1-0-1 P SUP, 1 D POST B, 0-1-1-0-1 R SUP, 6 V (1:2B), 1 V A; III, 23; IV, 22/24. Tarsi I–IV unarmed; cymbium without spines. No metatarsal combs or pseudocombs. Tarsi I, II with undivided scopulae, III with dense scopula and few setae not forming definite line, IV with scopula lighter than in *L. longipes* and *L. caldera* but denser than in *L. gajardoi* and *L. epipiptus*, slightly divided by

narrow line of setae; metatarsi I, II with full scopulae, III with scopula on 1:4A, IV with scopula on 1:10 A. STC teeth: I, II, 11 9 10 10; III, 10 8 9 10; IV, 10 8 8 9. PLS, basal article 1.60 long, with numerous spigots on 1:2A; medial article, 1.04 long; apical, 0.65 long, with about 40 spigots. Palp as in figure 129B. Tibia with strong, spinelike setae along anterior margin of ventral excavation. Cymbium wide, with apically directed, rather long, thickened setae. Bulb (fig. 129C, D) tapering abruptly, with low keels and long embolus. Tibia I long, cylindrical, unmodified. Cephalothorax, legs, palpi yellowish brown; abdomen with dark chevron.

FEMALE (paratype): Total length 24.30. Cephalothorax length 8.10, width 6.55. Cephalic region length 5.20, width 5.20. Fovea, width 0.87. OQ length 0.71, width 1.32. Labium length 0.82, width 1.57. Sternum length 4.45, width 3.45. Cephalic region short, wide, very convex; fovea slightly procurved with

recurved ends. Labium with no cuspules, maxillae with 9/10. Serrula absent. Sternal sigilla I small, almost circular, submarginal; II, oval, separated from margin by small diameter; posterior sigilla shallow, twice as long as wide, separated from margin by long diameter; sternum weakly rebordered. Chelicerae: rastellum formed by strong blunt setae (similar to *L. longipes*, but setae slightly longer, thicker); inner margin with 6 or 7 teeth; fang furrow with 14 very large denticles (small teeth). Chaetotaxy: Femora: I, 1-1 P SUP A (most basal one weaker), 1 d b, 1 R SUP A; II, 1-1-1 P SUP (2:3A), 1 d b; III, 0-1-0-1 P SUP, 1 d b, 0-1-1-1 R SUP; IV, 1 p sup a, 1 D B, 1 R SUP A; palp, 1 P SUP A. Patellae: I, II, 1-0-1 P; III, 1-1-1 P, 1 R; IV, 1-0-1/1-1-1 P, 0/1 R; palp, 1 P SUP B. Tibiae: I, 1-1 P SUP, 1 V ANT A, 1-1-1/1-1-0 V POST; II, 1-1 P SUP, 1 V ANT A, 1-1-0 V POST (most basal one very weak); III, 1-1 P, 1-1 R SUP, 0-2-2 V; IV, 1-1 P, 1-1 R SUP, 2 V A; palp, 2-2 P (strong, very long), 2 V ANT A, 1-1-2 V POST. Metatarsi: I, 1-1-0-0-1 V POST; II, 1 P SUP M, 1 V ANT (1:4B), 1-1-0-0-1 V POST; III, 1-1-1/1-1-1-1 P SUP, 1-1-1 R SUP, 2-2-3 V; IV, 1-1 P (1:2A), 1-1-1 R SUP, 1-1-1/1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, 0; palp, 1 P INF B, 1 R INF B. Tarsi I-IV densely scopulate; metatarsi I, II with scopula on 1:1, III with 1:2A, IV with 1:5A. Scopula I, II undivided by setae, III divided by narrow line of 2 setae wide, IV divided by narrow band 3 setae wide (occupying 1:4 of article's width). Tarsi I-IV flexible. Metatarsal preening combs absent from I-IV. STC, teeth: I, 8777; II, 7677; III, 6477 or 6378; IV, 6476. Palpal claw with 4 teeth on promargin. ITC I-IV absent. PLS: apical article short, triangular; length of apical:medial:basal, 0.50:0.75:1.40; basal article with numerous spigots on 3:4A. Spigots on all three articles with long shaft; 1 or 2 spigots at apex of basal and medial article with larger base; 3 spigots on apical article with larger base. PMS length 0.62, numerous spigots on 1:2A. Spermathecae as in figure 129A. Cephalothorax, legs, palpi blackish-reddish brown; abdomen gray, with darker parallel lines not too conspicuous.

NATURAL HISTORY: The female paratype was collected from a burrow with a double flap.

REMARKS: The female described here is assumed to be conspecific with the male, because the most common species in the area, besides *L. gajardoi*, is *L. tofo*. *L. domeyko* is known from only one locality, further north, but it seems unlikely that that male (which has an extremely short embolus) corresponds to the female from 20 km N La Serena (which has long spermathecal ducts, matching the long embolus of *L. tofo*).

DISTRIBUTION: Chile, southern Region III and northern Region IV.

OTHER MATERIAL EXAMINED: CHILE: **Region III (Atacama):** *Huasco*: 20 km N Vallenar, 21-23 Oct. 1983 (L. Peña, AMNH), 1♂; Quebrada Maitencillo, NW of Vallenar, 11 Oct. 1980 (L. Peña, AMNH), 1♂; El Morado to Totoralillo, Oct. 1980 (L. Peña, AMNH), 1♂; E Domeyko, 1 Oct. 1980 (L. Peña, AMNH), 1♂.

Lycinus sp., cf. *tofo*

Only a single male and a single female are known for this species, both in very poor condition. The male bulb (only the left bulb is well preserved; figure 129F) is most similar to that of *L. tofo*, but it differs in having the loop on the bulb basal portion occupying only about a third of the total bulb length (while in *L. tofo*, fig. 129C, it occupies about half). The female spermathecae (fig. 129E) differ from those of *L. tofo* in not having spiraled ducts. The very poor condition of the only two known specimens prevents their designation as types.

MATERIAL EXAMINED: CHILE: **Region II (Antofagasta):** *Antofagasta*: Paposo, 54 km N Taltal, Feb. 1959 (H. Zapfe, MHNS), 1♂; Quebrada del Hucso, E Taltal, 28 Jan.-4 Feb. 1941 (J. Bird, AMNH), 1♀.

Lycinus domeyko, new species

Figure 130

TYPE: Male holotype from E of Domeyko, Huasco, Region III (Atacama), Chile (1 Oct. 1980; L. Peña), deposited in the AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This is the smallest species in the genus; in addition to the size, the evenly tapered bulb, with the basal loop of the duct occupying half of the total bulb length, the

very short embolus, and the cymbial setae directed toward the apex distinguish this species from all other *Lycinus*.

MALE (holotype): Total length 11.50. Cephalothorax length 5.25, width 4.25. Cephalic region length 3.00, width 2.60. OQ length 0.44, width 0.80. Labium length 0.50, width 0.85. Sternum length 2.63, width 2.25. Labium with no cuspules, maxillae with 7/8. Serrula: apparently few scattered small granulations on upper-posterior face of anterior lobe. Sternal sigilla small, oval, shallow, separated from margin by long diameter; sternum rebordered. Chelicerae: rastellum weak, mostly with attenuate setae and few blunter ones on anteroventral edge; inner margin with 6 teeth; fang furrow with about 10 medium sized denticles. Chelicerai tumescence rounded, flat, asetose. Chaetotaxy: Femora: I, 1-1 P SUP (1:4A), 1-1-1-1-2/1-1-1-1-1 D, 1-1-1 R SUP (2:3A); II, 1-0-1-1-1/1-0-1-1 P SUP, 1-1-1-1-1-1/1-1-1-1-1 D, 0-1-0-1-1/0-1-1-0-1-1 R SUP; III, 0-1-1-1-1/0-1-1-1 P SUP, 1-1-1-1 D, 1-1-1 R SUP (2:3A); IV, 1-0-1-1 P SUP (2:3A), 1-1-1-1/1-1-1-1-1 D, 1-1/1-1-1 R SUP (1:3A); palp, 1 P SUP A, 1-1-2 D (1:4A). Patellae: I, 1-0-1 P, 1 R; II, 1-0-1 P, 0 R; III, 1-0-1 P, 1-1 R SUP (1:3B) [!]; IV, 1-0-1 P, 1/1-1 R SUP (1:3B); palp, 2-0-1 P. Tibiae: I, 1-1-1 P SUP, 3-2-1/4-2-1 D, 1-1-1 R, 1-1-2 V ANT, 2-3-1 V POST or 1-2-2 V ANT, 2-1-1 V POST; II, 1-1-1 P SUP, 3-2-0 D, 1-1-1 R, 1-1-2 V ANT, 2-3-1 V POST; III, 1-1-1 P, 2-2-2/3-2-2 D, 1-1-1 R SUP, 3-3-3 V; IV, 1-1-3-0/1-1-2-0 P, 3-2-1-1-1-2/3-2-2-2 D, 0-1-1 R, 0/1 r sup a, 2-1-2 V ANT, 2-1-1/1-1-1 V POST; palp, 1-2-2 P, 1-2-2 D, 1 R A. Metatarsi: I, 1-1-1-1 P SUP, 0-1-1-0 D ANT, 1-1-1 D POST, 1 R (1:3A), 2-1-1/2-2-1 V; II, 1-1-1/1-1-1-1 P SUP, 0-1-1-0 D ANT, 1-1 D POST, 0-1/1-1 R, 2-2-1 V; III, 1-1-1-1-1 P SUP, 1-1-0-1/0-1-1-0-1-1 V ANT, 3-1-1-1-1 R SUP, 2-2-3/2-3-3 V; IV, 1-2-2-1-1-2/2-1-2-1-2-1 P SUP, 2-1-1 R SUP, 1-1-1-1-1-1/1-1-1-1-1 R, 1-1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Palpal tarsus with thickened setae, directed apically. Tarsi I-IV scopulate; scopula on tarsus IV light; metatarsi I, II scopulate almost to base, III with scopula on 1:3A, IV with few scattered scopuliform hairs on apex. Scopula I, II undivided, III, IV divided by line of thick setae (2 setae wide),

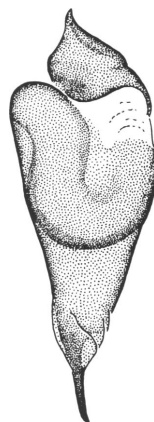


Fig. 130. *Lycinus domeyko*, male, right bulb.

occupying about 1:3 of article's width. Metatarsal preening combs: absent from I-IV. STC, teeth: I, 13 89 12; II, 12 99 10; III, 11 67 10; IV, 11 78 11. ITC, I-IV, absent. Tarsi I-IV flexible. PLS: apical article domed to triangular, short; length of apical:medial:basal, 0.40:0.50:0.75. Spigots: basal with numerous articulated spigots; medial with one of its spigots larger; apical with erect spigots larger than in medial and basal articles. PMS small, length 0.28; few spigots, on apex. Palp: palpal tibia with weak, slender, proventral setae; bulb as in figure 130. Leg I, tibial apophysis absent; metatarsus straight, unmodified. Cephalothorax, legs, palpi yellowish-orangish brown; abdomen with chevron formed by 6 recurved lines becoming gradually smaller toward posterior end.

FEMALE: Unknown.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: None.

DIPLOTHELOPSIS TULLGREN

Table 6

Diplotheopsis Tullgren, 1905: 4.

TYPE SPECIES: By monotypy, *D. ornata* Tullgren, 1905 (female holotype, examined).

DIAGNOSIS: This genus differs from other Diplothelopsini (and, essentially, all other species treated here) by the presence of only two spinnerets and by having the male embolus smooth, with no keels; from *Lycinus* it

differs also in the more abruptly tapering bulb, and from *Chilelopsis* and *Flamencopsis* in the female patella IV with 1-1-1 P (shared with some *Lycinus*).

DESCRIPTION: Cephalothorax wide; head short, high, convex, in females about as wide as long; chelicerae robust, with rastellum formed by short thick setae, tapering only at apex. Cheliceraral tumescence large, flat, covered with few thin setae. Eyes on steep tubercle; AME very large, much larger than PME; PE row slightly procurved; clypeus very wide. Fovea more or less straight, deep in females, shallower, narrower in males. Labium wide, with few to no cuspules; maxillae elongated, with serrula poorly developed (or absent) in males, absent in females, with few to none (0-8) cuspules on inner angle; posterior heel not produced. Sternum flat, very wide, with oval, large, subcentral posterior sigilla; anterior sigilla separated from margin. PLS with apical segment triangular; numerous spigots on basal article; only articulate spigots present, with very long shafts; apical article with spigots not as erect as in *Chilelopsis* or *Flamencopsis*. PMS absent. Cephalothorax reddish to blackish brown; dorsal abdomen yellowish with chevron similar to that of *Lycinus* or very dark, with almost no pattern evident. Male leg I: tibia with no apophysis, long, slender (*D. bonariensis*) or distally widened, with subapical ventral cluster of 5/6 strong spines (*D. ornata*); dorsal spines present; patella with retrolateral spine. Patellae III, IV of both sexes with 1-1-1 P. Posterior male tibiae with numerous dorsal spines. Metatarsus IV with P SUP spines reduced, with P situated more ventrally than in other genera. All metatarsi without preening combs. Tarsi I-IV, metatarsi I, II, with dense, symmetric scopulae; tarsi III, IV with scopula narrowly divided; all tibiae ascopulate. All male and female tarsi flexible. Cymbium aspinose; male and female leg tarsi usually aspinose (in some specimens there may be 1 or 2 lateral upper long weak spines on posterior tarsi); female palpal tarsus with pair of ventrolateral basal spines (1 R INF B, 1 P INF B). STC with two rows of numerous teeth in all legs. ITC IV absent from all legs; clawtufts absent. Tarsal trichobothria in single, zigzag row. Spermathecae simple, with wide base bearing single receptaculum with short

duct. Male bulb smooth, piriform, abruptly tapering to form embolus; palpal tibia with few or no prolateral spines; setae along anterior edge of ventral excavation weak; cymbium with thickened setae; cymbial trichobothria occupying basal half.

REMARKS: Mello-Leitão (1923) described a species, *D. hastata*, from northern Brazil. The type has not been found (R. Baptista, personal commun., assures me that, like many other types designated in Mello-Leitão's earlier papers, the specimen is lost). Mello-Leitão's description is quite uninformative. It is quite unlikely that the species was correctly placed in *Diplotheopsis*, as the genus has never been collected in Brazil. The species may actually correspond to *Neodiplothele* (or a closely related genus), specimens of which (in MZSP and MNRJ) have been found misidentified (by W. Bücherl) as *Diplotheopsis*. Perhaps Mello-Leitão made a similar mistake.

Schiapelli and Gerschman (1966) have revised the genus; they published detailed descriptions, figures and keys which allow reliable identifications of the only two species in the genus.

Diplotheopsis ornata Tullgren

Figure 131A-C

Diplotheopsis ornatus Tullgren, 1905: 5 (female holotype, from Quinta, Jujuy, Argentina, in RMS, examined). - Gerschman and Schiapelli, 1966: 385.

Diplotheopsis decarloi Schiapelli and Gerschman, 1948: 4 (male holotype, from Valle Hermoso, Córdoba, Argentina, in MACN, not examined). First synonymized by Gerschman and Schiapelli, 1966: 385.

DIAGNOSIS: Females can be distinguished from those of *D. bonariensis* by the spermathecae with a narrower and more differentiated duct (fig. 131C) and by the more evident pattern on the dorsal abdomen, males by the longer and narrower embolus (fig. 131B), the palpal tibia widest in the middle half and with thicker ensiform setae on the retrolateral face, the straight metatarsus I, and the tibia I widened distally, with a ventral subdistal cluster of 5/6 short spines.

MALE (Esquiú): Total length 23.90 (very thin). Cephalothorax length 10.60, width 10.10. Cephalic region length 6.80, width

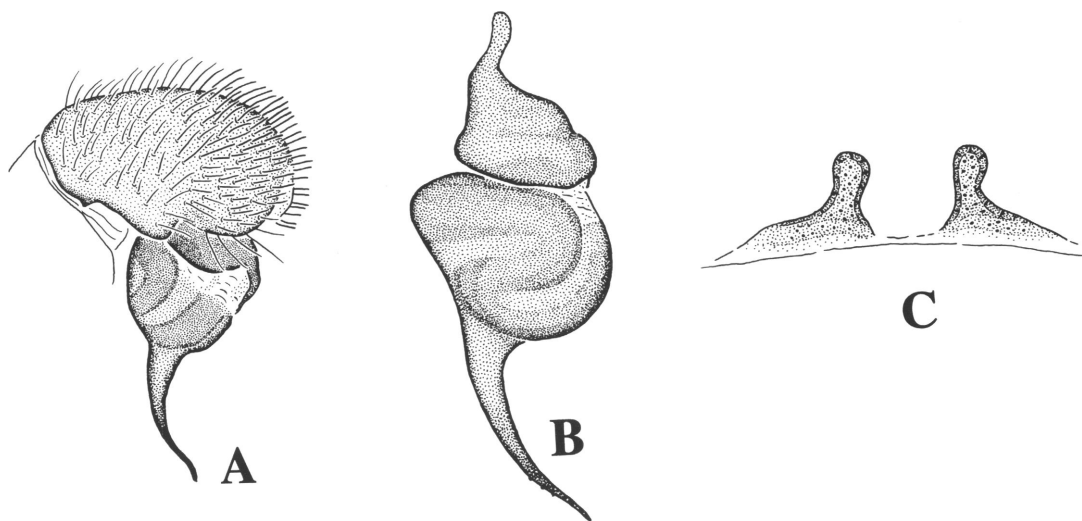


Fig. 131. *Diplothelopsis ornata*. A, B. Right male cymbium and bulb. C. Female spermathecae, dorsal.

6.50. OQ length 0.78, width 1.80; AME much larger than PME, PE row slightly recurved. Labium length 1.40, width 2.25. Sternum length 6.60, width 5.50 (sternum wider in other specimens). Labium and maxillae without cuspules. Serrula present, formed by few low, sparse teeth. Sternal sigilla I, II large, well marked, elongated, well separated from margin; posterior sigilla large, twice as long as wide, separated from margin by 1.3 long diameters; sternum strongly rebordered. Chelicerae: rastellum formed by stiff, thick but long, attenuate setae; inner margin with 8 large teeth; fang furrow with 18 large denticles in long line (only slightly widened posteriorly). Cheliceral tumescence large, flat, with only sparse, thin short setae. Chaetotaxy (salient features only): Patellae I, strong 1-1 P, 1 R (may be absent in some specimens); II, strong 1-1 P, no R; III, 1-1-1 P, 2 R [!] (2 R in other specimens as well); IV, 1-1-1 P, 1 R. Tibiae: I, 2-2-2 P, 1-2-0 D, 1-1-1-1 R SUP, with cluster of 4/5 strong V spines on 1:4A, 2-2 V (2:3B); II with 2 D, III with 0-2-2-0-1-2-1, IV with 0-2-2-1. Metatarsi: I, II with lateral spines extending to dorsal surfaces; III, IV with lateral upper series of 5/6 spines. Tarsi: I-III, 0; IV, 1 P SUP; palp, 0. Scopula: all tarsi densely scopulate; metatarsi I, II with scopula on 1:1, III with on 2:7A, IV with few scopuliform hairs on 1:7A. Scop-

ula I-III undivided, IV almost entire (with narrow double row of thick but sparse setae). Metatarsal preening combs: I-IV absent. ITC absent from all legs. All tarsi flexible. Palpal tibia fusiform, widest in 1:3M (particularly when viewed from above), with thicker ensiform setae on retrolateral face; cymbium with thickened hairs, directed apically (fig. 131A), with trichobothria moved toward base; bulb with wide embolus, seminal tube tightly looped (fig. 131B). Leg I, tibia apically widened, with no apophysis, with ventral cluster of 5 or 6 strong spines slightly separated from apex; metatarsus straight, unmodified. Cephalothorax, legs, palpi reddish brown; abdomen darker, with foliate darker pattern on dorsum.

FEMALE (Casas Viejas): Total length 17.00. Cephalothorax length 9.80, width 8.20. Cephalic region length 6.10, width 6.50. Fovea, width 0.37. OQ length 0.67, width 1.57. Labium length 1.07, width 2.00. Sternum length 5.00, width 4.75. Cephalic region very high, convex; fovea straight, deep. Labium with no cuspules, maxillae with 0 (other specimens with up to 8 cuspules). Serrula with few, very low, almost inconspicuous teeth. Sternal sigilla I, II almost rounded, well separated from margin; posterior sigilla oval (twice as long as wide), of medium to small size, separated from margin by over their long diameter;

sternum concave in middle, rebordered. Chelicerae: rastellum as in *L. longipes*, formed by short setae (with tapered end); inner margin with 6 teeth; fang furrow with 20 large denticles arranged in straight line. Chaetotaxy (salient features only): leg III, patella with 1-1-1 P, 1/1-1 R B; tibia with 1-1-1-1 R SUP (other specimens may lack basal one, i.e., 0-1-1-1; usual in other species is 1-1); metatarsus with single series of 0-1-0-1/1-1-1-1 P (instead of usual 2 series of other species). Leg IV, patella with 1-1-1 P, tibia with 1-1 P short, 1 R (1:3A), metatarsus with no P SUP, only 1-0-1 P (1:2A), 1-0-1 R SUP. Palp, 1 P INF B, 2 R INF B. Scopula present, dense, on all tarsi; metatarsi I, II with scopula on 1:1, III on 1:3A, IV on 1:6A. Scopula I, II undivided, III with alternating setae scattered along midline, IV with line 3 setae wide. All tarsi flexible. Metatarsal preening combs: absent. STC, teeth: I, 6555; IV, 5335. ITC absent from all tarsi. PLS: apical article short, triangular; length of apical:medial:basal, 0.62:0.75:1.75. Spigots: articulate only, with about 80 spigots on 3:4A of basal article. PMS absent. Spermathecae as in figure 131C. Color as in male.

NATURAL HISTORY: The animals live in burrows quite similar to those of *Lycinus*, i.e., rather deep and with smooth walls with a very thin silk lining. The burrow opening has not been observed in any case; the entrance of the burrows was not visible from outside (the burrows were found by shaving the soil). A specimen held in captivity for some months closed its burrow with silk and earth.

DISTRIBUTION: Widely distributed in central, western, and northwestern Argentina (provinces of Chaco, Tucuman, Salta, Santiago del Estero, La Rioja, Catamarca, Córdoba, San Luis, La Pampa, Mendoza, and Neuquén); in the southern limit of its distribution it overlaps with *D. bonariensis* Mello-Leitão.

OTHER MATERIAL EXAMINED: ARGENTINA: **Chaco:** General Pinedo, 1946 (J. Cranwell, MACN), 1♂. **Tucumán:** Vipos, 10 Sep. 1944 (no collector, MACN), 1♀. **Salta:** Metán, May 1983 (P. Goloboff, MACN), 1♀; Quebrachal, Anta, 10 Dec. 1949 (no collector?, FIML), 1♂. **Santiago del Estero:** Beltrán, Dec. 1940 (Maldonado, MACN), 2♂, 1♀; Beltrán, Tusca Pozo, 12 May 1939 (no collector,

MACN), 1♀; Choya, Apr. 1962 (Salguero, MACN), 8♂; Sumampa, Parada Yacu, Dec. 1949 (Maldonado-Bruzzzone, MACN), 1♂. **La Rioja:** Olta, no date (M. Gomez, MACN), 2♂. **Catamarca:** Esquiú, Recreo, Dec. 1988 (L. Coronel, MACN), 9♂; Río Casas Viejas, Singuil, 19–21 Jan. 1987 (P. Goloboff, C. Szumik, MACN), 1♀. **Córdoba:** Tanti, Jan. 1950 (M. Viana, MACN), 1♂; Calamuchita, Dec. 1941 (M. Viana, MACN), 1♀; Cruz del Eje, Apr. 1951 (Hidalgo, MACN), 2♂; Cruz del Eje, Pozo Nuevo, May 1972 (A. Martínez, MACN), 1♂; La Falda, Mar. 1958 (M. Viana, MACN), 2♂; Cabana, 12 Feb. 1945 (no collector, MACN), 1♀; 7 km Observatorio Bosque Alegre, 28 Sep. 1981 (P. Goloboff, MACN), 1♀. **San Luis:** San Gerónimo, Oct. 1971 (M. Viana, G. Williner, MACN), 1♂, (AMNH), 1♂; San Francisco, Nov. 1970 (G. Williner, MACN), 2♂; Nachel, no date (Lucchini, MACN), 2♂. **La Pampa:** Conhelli, Feb. 1943 (Hepper, MACN 5860), 1♂; Santa Rosa, no date (Aravena, MACN), 2♂; Laguna El Carancho, junction roads 21 and 152, Jan. 1983 (P. Goloboff, AMNH), 1♀. **Mendoza:** Tupungato, 1942 (Obreski, MACN), 2♂; San Carlos, no date (J. Canals, MACN) 1♀; Viluco, no date (no collector, MACN), 2♀; Malargüe, no date (no collector, MACN), 1♂. **Neuquén:** Junín de los Andes, 9 Dec. 1967 (Carnotto, MACN), 1♀.

Diplothelopsis bonariensis

Mello-Leitão

Figures 13, 132A, B

Diplothelopsis bonariensis Mello-Leitão, 1938: 89 (male and female syntypes, from San Blas, Buenos Aires, Argentina, in MLP, not examined). – Gerschman and Schiapelli, 1966: 387.

Diplothelopsis canescens Mello-Leitão, 1939: 47 (male holotype, from Camarones, Chubut, Argentina, in Musée du Bâle, not examined). First synonymized by Gerschman and Schiapelli, 1966: 387.

DIAGNOSIS: Females can be distinguished from those of *D. ornata* by the fundus of the spermathecae with no differentiated duct (fig. 132A) and by the dorsal abdomen uniformly dark, males by the shorter and thicker embolus (fig. 132B), the palpal tibia widest in the basal third and without thicker ensiform setae on the retrolateral face, the curved

metatarsus I, and the tibia I of uniform width and having no subdistal ventral cluster of spines.

MALE (Ne Luan): Total length 30.80. Cephalothorax length 13.60. Cephalic region wide, short, convex. Labium and maxillae with no cuspules. Serrula present. Sternum and sigilla similar to those of *D. ornata*. Inner cheliceral margin with 7 teeth; fang furrow with 13. Cheliceral tumescence large, flat, asetose. Chaetotaxy (salient features only): leg I, patella with 1 R, tibia with 1-1-1-0/0-2-2-0 D, metatarsus with lateral spines extending dorsally. Leg II, tibia with 1 D. Tibiae III, IV with dorsal spines. Tarsi I-IV aspinose. All tarsi densely scopulate; metatarsi I with scopula on 1:1, II on 1:3A, III on 1:4A, IV on 1:5A. Scopula I-III undivided, IV with narrow double line of (alternating) setae. Metatarsal preening combs absent. ITC, I-IV absent. All tarsi flexible. Palpal tibia widest in 1:3B, gradually tapering from there; cymbium with apically directed thickened setae; bulb as in figure 132B. Leg I, tibia unmodified, with no subapical cluster of spines; metatarsus curved downward. Entire spider uniform blackish brown.

FEMALE (Comodoro Rivadavia): Total length 27.85. Cephalothorax length 10.75, width 9.55. Cephalic region length 7.00, width 7.50. Fovea, width 1.20. OQ length 0.87, width 1.75. Labium length 1.20, width 2.17. Sternum length 5.60, width 5.20. Cephalic region wide, high, convex; fovea straight, deep. No cuspules on labium or maxillae. Serrula absent. Sternum and sigilla as in female *D. ornata*. Chelicerae: rastellum formed by numerous short, small setae with abruptly tapered end; inner margin with 8 teeth; fang furrow with 10 small teeth. Legs covered with very long hairs. Trichobothrial bases as in figure 13. Chaetotaxy (salient features only): patellae I, II, 1-0-1 P SUP. Leg III, patella with 1-1-1 P, 1-1-1 R; tibia with 1-1-1-1/1-1-1-2-1 R SUP; metatarsus with single P SUP series (of 5 linearly arranged spines), 1-1-1-2-1-1-1-2/1-1-2-1-1-1-2 R SUP [!]. Leg IV, patella with 1-1-1 P, 0/1 R, tibia with 0-1-0-2-1/0-1-0-1-1 R SUP, metatarsus with 1-0-1/1-1-1 P (1:2A), no P SUP, 1-1-1 R SUP. Palpal tarsus with 1 P INF B, 1 R INF B. All tarsi densely scopulate; metatarsi I with scopula on 1:1, II on 2:3A, III on 1:2A, IV on 1:

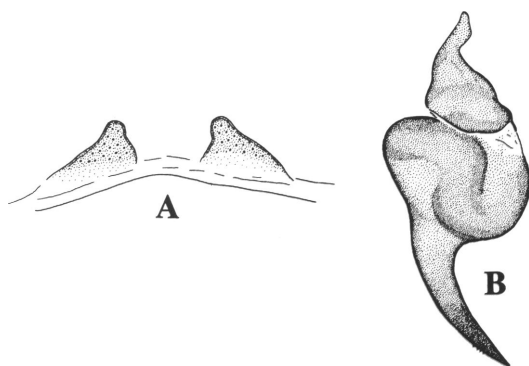


Fig. 132. *Diplotheopsis bonariensis*. A. Female spermathecae, dorsal. B. Right male bulb.

5A. Scopula I, II undivided, III with discontinuous line of single setate width, IV with narrow line 2 or 3 setae wide (occupying 1:5 of article's width). All tarsi flexible. Metatarsal preening combs absent from I-IV. STC IV 7355. ITC absent from all legs. PLS: apical article short, triangular. Length of apical:medial:basal, 0.87:1.37:2.45. Spigots: only articulate spigots, as in figure 45. PMS, absent. Spermathecae as in figure 132A. Color as in male.

NATURAL HISTORY: The specimen from Comodoro Rivadavia was collected from a burrow (found by moving sand away, so that the entrance could not be observed), in a sandy hill near the sea shore.

REMARKS: Few specimens of *D. bonariensis*, particularly females, are known. The male specimen from San Martín de Los Andes has a more tightly looped seminal tube, and a straight metatarsus I. Those differences could indicate that the specimen represents a different species.

DISTRIBUTION: Chubut, Neuquén, and La Pampa; the types (not examined) are from Buenos Aires; Gerschman and Schiapelli (1966) also studied a specimen from Río Negro.

MATERIAL EXAMINED: ARGENTINA: Chubut: Comodoro Rivadavia, Mar. 1984 (P. Goloboff, MACN), 1♀, 1 juv.; Golfo de San José, coast, Sep.-Nov. 1972 (Frick, MCZ) 2♂. Neuquén: Piedra Pintada, Nov. 1984 (no collector, MACN), 1♂; San Martín de Los Andes, 21 Mar. 1979 (W. Sedgwick, AMNH), 1♂; Río Limay, date illegible (Obresky, MACN), 2♂. La Pampa: Depto. Río Limay, no legible

TABLE 7

List of Synapomorphies for *Chaco*
(produced as table 3).

Node	In all trees
<i>Chaco</i>	♂ tibial spur: abs → chaco
Node 131	♂ bulb shape: piriform → coniform leg color: uniform → patterned
<i>C. obscura</i> <i>tucumana</i> <i>tigre</i> <i>sanjuanina</i> <i>patagonica</i>	(no autapomorphies)
<i>C. socos</i>	dorsal spines ♂ plp tib: abs → pres
<i>C. tecka</i>	Eyes: AME=PME → AME > PME
Node 126	♀ tarsi: rigid → flexuous
Node 127	clypeus: wide → narrow
Node 128	pubescence: light → abs leg color: patterned → uniform spines ♀ tarsi IV: abs → pres
Node 129	sigilla: conspicuous → inconspicuous setae ♀ post. legs: normal → dense scopula IV: light → abs/very light habits: trap-door → flap-door
Node 130	spigots basal article PLS: many → few PMS spigot number: many → few spines ♀ tibiae/meta I: short → long ♀ sperm: w/out basal sphere → with

date (Gallardo, MACN), 2♂. **Mendoza:** Mendoza (?), no date (G. Boag, BMNH), 1♂.

CHACO TULLGREN

Table 7

Chaco Tullgren, 1905: 7.

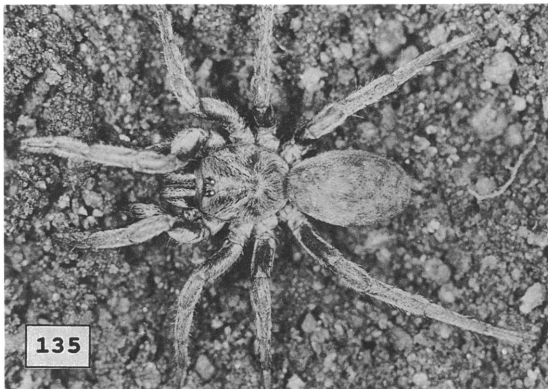
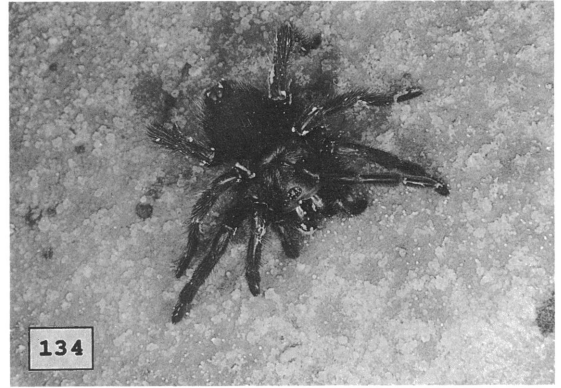
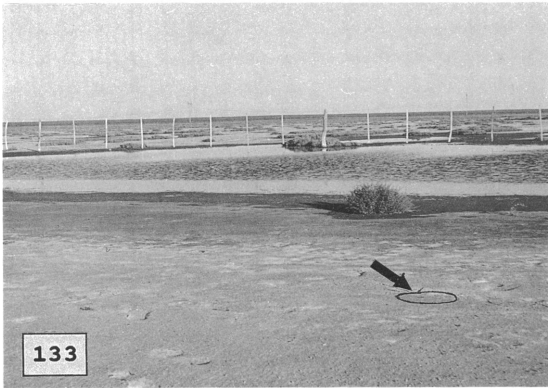
TYPE SPECIES: *C. obscura* Tullgren, 1905 (female holotype in RMS, examined).

DIAGNOSIS: Males can be recognized by the low distal spur on prolateral tibia I, bearing three or more spines (instead of two modified ones as in *Acanthogonatus*). Females of most species are characteristic in having a patterned cephalothorax and legs, but in dark adult specimens the pattern becomes invisible, and in some Patagonian species the pattern is completely absent. Aside from that, females can only be recognized by their character combination, of no pumpkiniform spigots, ITC absent from all legs, together with the absence of the autapomorphies of the Diplothelopsini and the absence of a scopula on the anterior tibiae (characteristic of *Prorachias* and *Pselligmus*).

DESCRIPTION: Cephalothorax long; head of medium width, convex; chelicerae robust,

with rastellum strong, formed by short, thick, attenuate (*C. obscura*, *C. tucumana*) or blunt (other species) setae. Cheliceral tumescence flat, covered with thin sparse setae. Eyes in steep tubercle; clypeus wide. Thoracic fovea straight or slightly procurved, narrow. Labium wide, with few to no cuspules (in *C. sanjuanina* arranged in transversal line); maxillae elongated, with serrula present only in males, bearing medium to low numbers of maxillary cuspules; posterior heel not produced. Sternum flat, longer than wide, with posterior sigilla well marked, small, oval, submarginal, or almost inconspicuous. PLS with apical segment very short, domed; few or numerous spigots on basal article; only articulate spigots present; medial article of PLS with some spigots enlarged. PMS present, with numerous or few spigots. Abdomen dorsally mottled or with faint chevron; cephalothorax dark brown with golden pubescence or yellowish, sand-colored, with little pubescence; legs uniform in color or patterned (in dark species pattern visible only in lighter colored juveniles). Male tibia I with low prolateral apical apophysis, bearing 3 to 7 short immovable spines; no dorsal spines on tibia, no retrolateral spines on patella. Patella III with 1-1-1 P; female patella IV with 0 P. Metatarsus IV with full complement of P, P SUP spines (*C. tecka*) or with P SUP and basal P reduced (all other species). Preening combs absent (most species) or pseudocombs present (*C. tecka*). Tarsi (and metatarsi) I, II with dense, symmetric scopulae; tarsi III, IV with scopula dense (*C. obscura*, *C. tucumana*) to very light or absent (other species); all tibiae ascopulate. All male tarsi flexible; all female tarsi slightly flexible (*C. obscura*, *C. tucumana*) or entire (all other species). Male and female tarsi aspinose or tarsi III, IV with 1 to 4 weak spines on upper prolateral and/or upper retrolateral faces. STC with two rows of about 4–10 teeth on all legs; female STC IV with as many teeth as STC I–III or with fewer teeth (*C. sanjuanina*; difference less evident in *C. tecka*). Tarsal trichobothria in single, zigzag row. Spermathecae single receptaculum, with long simple duct (*C. obscura*, *C. tucumana*) or with basal protuberance (all other species). Male bulb with thin embolus, with several low parallel keels.

BIOLOGY: All the species in the genus for



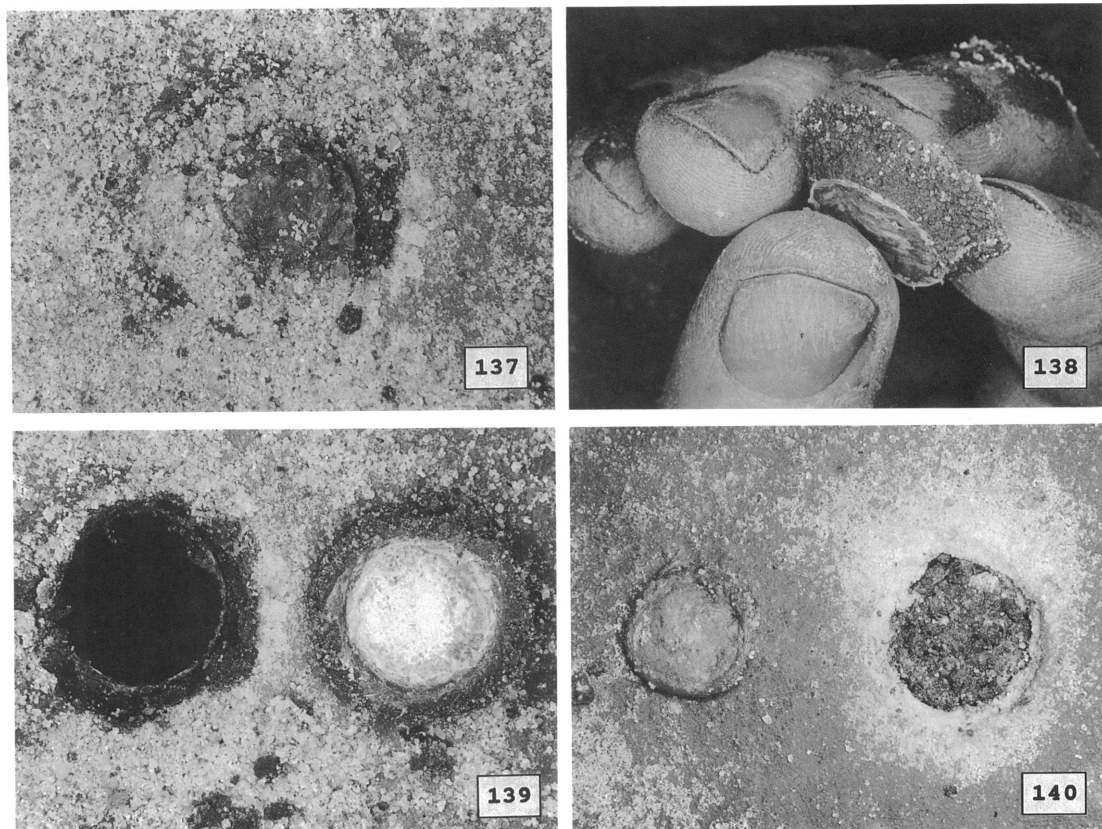
Figs. 133–136. 133. Habitat of *Lycinus longipes* in Catamarca, Ruta Prov. 60 (the arrow marks the location of one of the burrows). 134. *Lycinus longipes*, female. 135. *Chaco tigre*, female. 136. *Chaco socos* (133, 134, photos F. A. Coyle, 135, 136, Martín Ramírez).

which data exist live in burrows, closed with a trap-door.

REMARKS: Raven (1985a) synonymized *Neostothis* Vellard (1924) with *Chaco*. The types of *N. gigas* Vellard, 1924 (the type species of *Neostothis*) are destroyed, as are most of Vellard's types (R. Baptista, personal commun.; S. Lucas, personal commun.). I have examined a male, topotypical with *N. gigas*, which agrees with Vellard's relatively precise description and illustrations (which, incidentally, clearly show that—as recognized by Lucas and Bücherl, 1973, and Raven, 1985a—*N. gigas* is not a synonym of *Psalistopoides fulvimanus* Mello-Leitão, 1934, as suggested by Bücherl et al., 1971). That male lacks keels in the bulb, and has no tibial apophysis; those two characters alone are sufficient to consider *Neostothis* distinct from *Chaco*. *Neostothis* is therefore removed from the synonymy of

Chaco; its relationships to other nemesiid genera remain enigmatic.

Raven (1985a: 45) apparently considered that *Hermacha leporina* Simon, 1891 belonged in *Chaco*. Raven (1985a) provided no discussion for that placement of *H. leporina*; as mentioned already in Simon's (1891) original description, the male type of *H. leporina* (in MNHN, examined) has the retrolateral apical megaspine typical of *Stenoterommata* (very different from the prolateral spur with several spines present in *Chaco*); additionally, the band of pumpkiniform spigots along the inner edge of the PLS spinning field seems to be present (the type obviously could not be SEM examined). A small bump on the ventral apex of the (male) metatarsus, present in *H. leporina* as well as in other Brazilian species of *Stenoterommata*, seems to define a restricted group within that genus.



Figs. 137–140. Burrow entrance and door of *Lycinus longipes* (photos F. A. Coyle).

Chaco obscura Tullgren

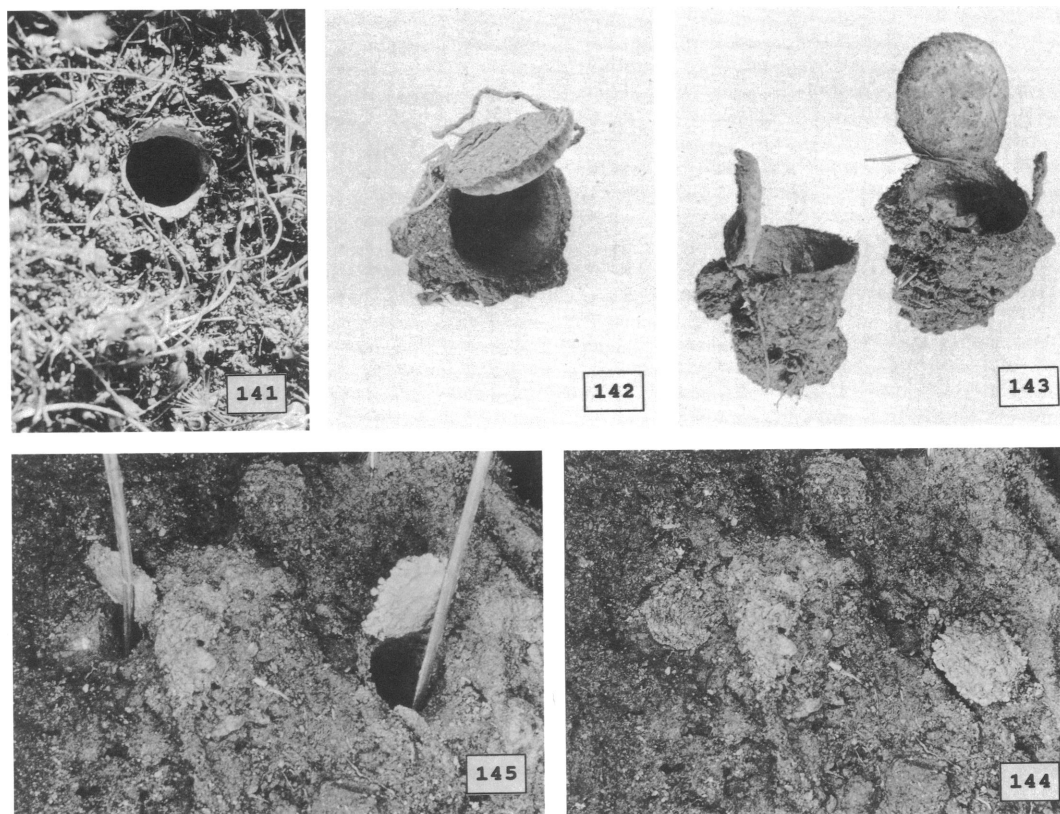
Figures 39, 40, 146A–G, 147A–F

Chaco obscura Tullgren, 1905: 7 (female holotype, from Aguas Blancas, Salta, Argentina, in RMS, examined). – Gerschman and Schiapelli, 1965: 377. – Raven, 1985a: 104.

DIAGNOSIS: This species differs from *C. tucumana* in the longer male embolus and the longer female spermathecal ducts. The male bulb is also more constricted, in lateral view, than is that of *C. tucumana*. From the other species of the genus except *C. tucumana*, this species differs in the dark uniform color, the flexible anterior female tarsi, the denser scopulae on the posterior tarsi, and the female spermathecae lacking a basal protuberance.

MALE (MACN 8716): Total length 24.38. Cephalothorax (fig. 146A), 9.79 long, 8.29 wide. Labium length 0.65 of width. Sternum

(fig. 146C) width 0.81 of length. Labium without cuspules, maxillae with 18/19. Serula present, on posterior face of lobe. Chelicerae with weak rastellum. Trichobothria: Tibiae, I, 10(3:4b), 12(1:2b); II, 11(3:4b), 9(3:4b); III, 12(1:2b), 10(3:4b); IV, 12(2:3b), 11(1:2b); palp, 10(2:3b), 9(4:5b). Metatarsi, I, 17(3:4a); II, 17(4:5a); III, 19(3:4a); IV, 15(4:5a). Tarsi, I, 17(3:4a); II, 18(2:3a); III, 18(3:4a); IV, 18(4:5a); palp, 16(1:3m). Chaetotaxy: Femora, I, 1-1 D ANT (1:4A), 1-1-1 D POST (1:2a), 1-1 D (1:3A); II, 1-1-1 D ANT (1:2B), 1-1 D, 1-1-1-1 D POST; III, 1-1-1 D ANT (2:3A), 1-1-1 D POST (1:2A), 0/1 d (1:3b); IV, 1-1 D ANT (1:4A), 1-1 D (1:3M), 1-1-1 D POST (1:3A); palp, 1 D ANT A. Patellae, I, II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 1 P A; palp, 1-1 P. Tibiae, I, 2-2 V, 1 V POST A, 7 V ANT (on spur, fig. 146F), 1-1 P, 1-1 R; II, 1-1 P (2:3A) (short), 1-1 R (1:3A), 2-2 V, 1 V POST A, 2 V ANT A; III, 1-1 P, 1-



Figs. 141–145. 141. Burrow entrance of *Lycinus gajardoi* (photo Arturo Roig). 142, 143. Doors of *Chaco socos* (photos Claudio Esses). 144, 145. Double burrow entrance of *Chaco tucumana* (photos F. A. Coyle).

1 R SUP, 1-2 D, 2-2 V, 2 V ANT A, 1 V ANT A; IV, 1-1-1 P, 1-0-1-1 D, 1-1 R, 2-2 V, 1 V POST A, 2 V ANT A; palp, 1-1 P (1:2A), 1 P INF, 1 R A. Metatarsi, I, 2-2 V (1:2b), 1 V POST A, 1 P, 1-1 P SUP; II, 2-2 V, 1/2 V POST A, 1 R, 1-1 D ANT (1:3M), 1-1-1/1-1-0 P; III, 3-2-3-2 P, 1-1-2 V, 2-1-2 R; IV, 2-2-2-2 P SUP, 1-1-1 D (1:3M), 1-1-0-1 R (1:2B), 1-1-2 V, 2 D A, 1 V POST A. Tarsi, I, II, O; III, 0/1 R; IV, palp, 0. No metatarsal combs. Tarsi I–IV with scopula, entire on I, II, slightly divided on III, IV. Scopula on 1: 1 of metatarsus I, 3:4A of II, apex of III, absent from IV. STC teeth: I–III, both claws, 7/8 teeth each row; IV, 7/8 teeth on external row, 5/6 on internal. Palp as in figure 146G. Bulb (fig. 146D, E) tapering gradually, but with lateral constriction (absent in *C. tucumana*), with low keels; embolus very long. Tibia I with short spur bearing 7 short spines

(fig. 146F). PLS, basal article with about 30 spigots on 1:2A; apical article domed. PMS small, short, with 7/8 spigots. Cephalothorax dark brown with golden pubescence; legs dark, with black spots; abdomen dark, with black mottles.

FEMALE (Calilegua): Total length 22.30. Cephalothorax length 9.10, width 6.95. Cephalic region length 5.70, width 5.50. Cephalic region convex; fovea slightly procurved. Labium with 2 cuspules, maxillae with 21/22. Serrula absent (SEM confirmed). Sternal sigilla small, oval, rather deep, separated from margin by almost long diameter; sternum strongly rebordered. Chelicerae: rastellum weak, as in figure 147B; inner margin with 8 teeth; fang furrow with 15 blunt cusps. Chaetotaxy: Femora: I, II, 1 P SUP A; III, 0-1-1-1 p sup (apical one stronger), 0-1-1-1 R SUP; IV, 1 R SUP A; palp, 1 P SUP A.

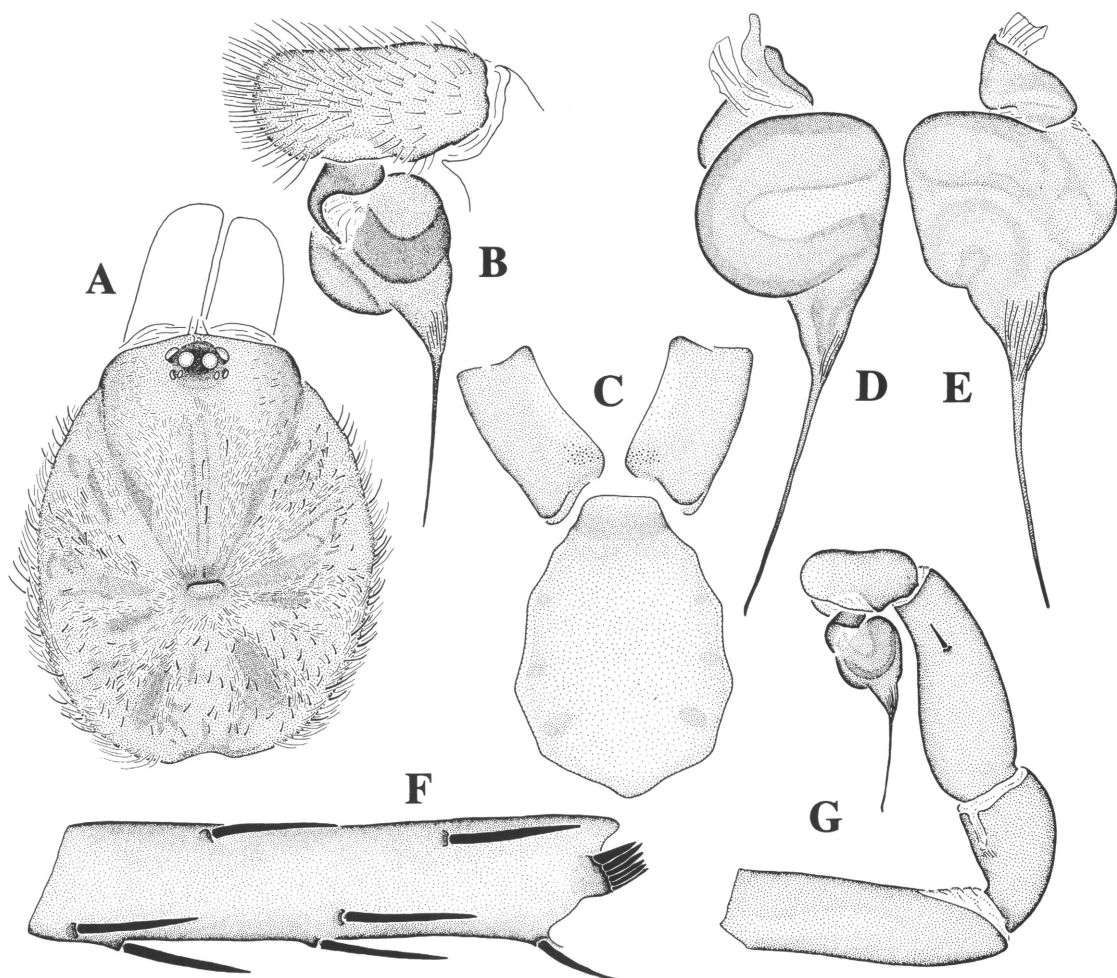


Fig. 146. *Chaco obscura*, male. A. Cephalothorax. B. Left cymbium and bulb. C. Sternum and maxillae. D, E. Right bulb. F. Left tibia I, prolateral. G. Left palp, retrolateral.

Patellae: I, 1 p sup a; II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 0 P, 1 R; palp, 1-0-1 P, 0/1 p inf a. Tibiae: I (fig. 147C), 0-1/1-1 p sup, 2 p inf a, 1 v post b; II, 1-1 P SUP, 1-1-1 V POST B; III, 1-1 P, 1 D (1:3A), 1-1 R SUP, 1-0-2 V ANT (basal one very weak), 1-1-1 V POST (two basal ones weaker), IV, 1 P (1:3A), 1-1 R SUP, 1/2 v b, 2 V ANT A, 1 V POST A; palp, 0-1 P SUP, 1-1-2 P INF, 1-1-2 R INF. Metatarsi: I, 2-1-0-0-2 V; II, 1 P SUP, 2-2-1 V (apical one posterior); III, 1-1-1/1-1-1 P, 1-1 P SUP (1:3A [!]), 1-1-1 R SUP, 1-1-1 V ANT, 1-1-2 V POST; IV, 0-1-1-1-1/0-0-1-1-1 P, no P SUP, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV,

palp, 0. All tarsi densely scopulate; metatarsi I, II with scopula on 1:1, III on 1:2A, IV with few apical scopuliform hairs; all tibiae ascopulate. Scopula I, II undivided, III divided by wide band of about 3 thick setae (occupying 1:3 of article's width), IV with most of its ventral surface covered by thick setae, along band about 4 setae wide (occupying 1:2 of article's width), and numerous setae interspersed in scopula. All tarsi flexible. Metatarsal preening combs absent from I-IV. STC teeth: I, 6545; II, 6554; III, 6566; IV, 6356. ITC, I-IV absent. PLS (figs. 39, 40, 147D): apical article domed; length of apical:medial: basal, 0.37:0.50:1.30; basal article with about

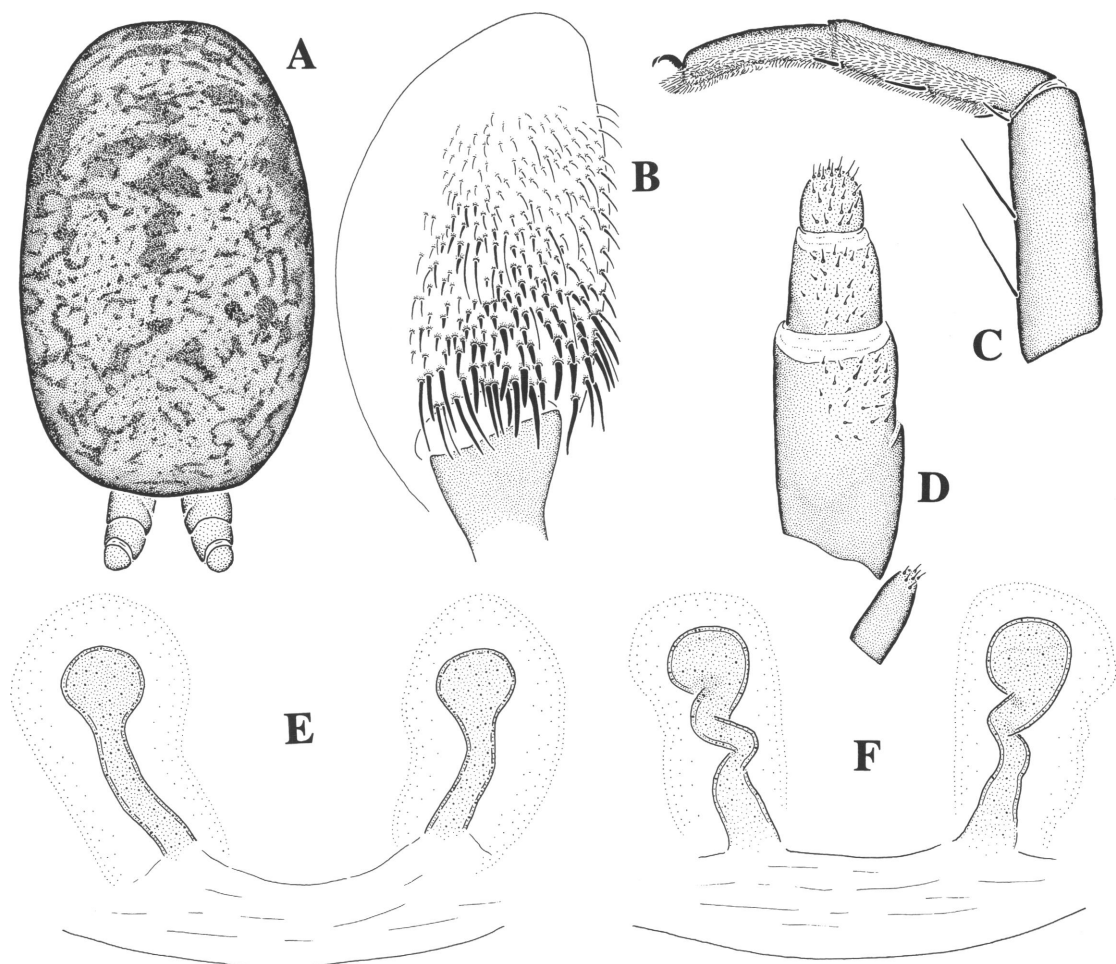


Fig. 147. *Chaco obscura*, female. A. Dorsal abdomen. B. Right chelicera, anterior view showing rastellum. C. Left leg I, retrolateral. D. Left PLS and PMS, showing general arrangement of spigots. E. Spermathecae, dorsal (La Quena). F. Same (Calilegua).

30 spigots, occupying 1:2A, no pumpkini-form spigots along inner edge of spinning field. PMS length 0.87, with about 10 spigots. Spermathecae as in figure 147E (specimens from Calilegua and Aguas Blancas have slightly spiraled ducts; fig. 147F). Entire spider uniform blackish brown, ventrally darker.

NATURAL HISTORY: Similar to *Chaco tucumana*.

REMARKS: Mello-Leitão's (1941b) identification of *Chaco obscura* corresponds actually to specimens of Theraphosidae (Goloboff, 1982).

Smaller specimens are lighter, and have a

conspicuous pattern on the cephalothorax (with two darker bands on sides of cephalic and middle of thoracic regions, and lighter along mid cephalic region and sides of thorax) and legs (with dark spots on apex of femora, on patella, and apex of tibiae) and abdomen (fig. 147A).

DISTRIBUTION: Northwestern Argentina (Salta and Jujuy).

OTHER MATERIAL EXAMINED: ARGENTINA: Salta: La Quena, May 1983 (P. Goloboff, MACN), 8♀, 3♂, juvs.; Jan. 1985 (P. Goloboff, C. Szumik, MACN), 2♀, juvs.; Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet,

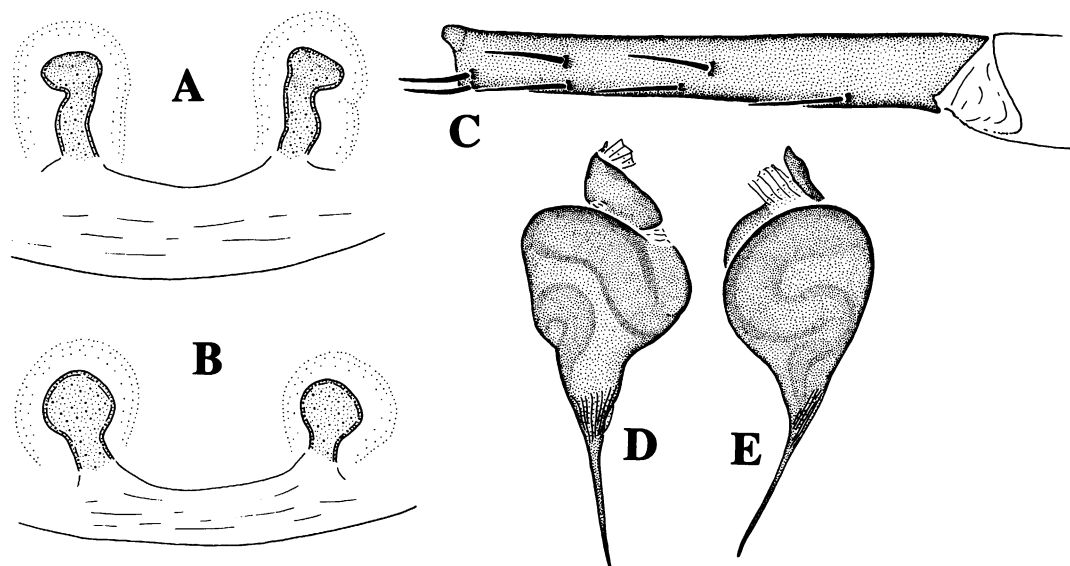


Fig. 148. *Chaco tucumana*. A, B. Female spermathecae (specimens from Raco). C. Female right metatarsus IV, prolateral. D, E. Right male bulb.

MACN), 1♀. **Jujuy:** Parque Nacional Calilegua, Jan. 1985 (P. Goloboff, C. Szumik, MACN), 5♀, juvs.

***Chaco tucumana*, new species**

Figures 144, 145, 148A–E

Chaco sp.: Goloboff, 1987: 37, 44.

TYPES: Male holotype and female paratype from Ruta 9 and Arroyo Saladillo, Tucumán, Argentina (May 1983; P. Goloboff, M. Viñas) deposited in MACN.

ETYMOLOGY: The specific name refers to the placement of the type locality.

DIAGNOSIS: This species differs from *C. obscura* in the shorter male embolus and the shorter female spermathecal ducts. The male bulb is also less constricted, in lateral view, than that of *C. obscura*. From the other species of the genus besides *C. obscura*, it differs in the dark uniform color, the flexible anterior female tarsi, the denser scopulae on the posterior tarsi, and the female spermathecae without a basal protuberance.

MALE (holotype): Total length 14.60. Cephalothorax length 6.20, width 5.40. Cephalic region length 3.75, width 3.25. OQ length 0.56, width 1.02. Labium length 0.50, width 1.05. Sternum length 3.15, width 2.45. Labium with 1 cuspule, maxillae with 26/20.

Serrula present. Sternal sigilla medium sized, oval, submarginal, shallow (similar to those of male *C. obscura*, fig. 146C); sternum re-bordered. Chelicerae: rastellum as in female; inner margin with 7 teeth; fang furrow with 11 denticles. Cheliceral tumescence flat, covered with thin setae on inferior half. Chaetotaxy: Femora: I, 1-1 P SUP (1:3A), 1-1-1-1 D, 1-0-1-1 R SUP (1:2A); II, 0-1-1-1 P SUP, 1-1-1/1-1-1-1 D, 1-1-1-1 R SUP; III, 1-1-1-1 P SUP, 1-1-1-0 d, 0-1-1-1 R SUP; IV, 1-1-1/1-1-0 P SUP, 1-1-1-1 d, 1-1 R SUP (1:3A); palp, 1 R SUP A. Patellae: I, II, 1 R SUP A; III, 1-1-1 P, 1 R; IV, 0/1-1 P, 0/1 R; palp, 1 P SUP A. Tibiae: I, 1-1 P SUP, 0/1 P (1:3A), 6/7 on spur, 1-1 R, 1-1-0 V ANT, 1-1-1 V POST; II, 1-1 P SUP, 2-2-2 V; III, 1-1 P, 0-1 D, 1-1 R SUP, 2-2-3 V; IV, 1-2/1-1-1 P (INF), 0/1 D (1:3A), 1-1 R SUP, 2-2-3 V; palp, 2-1 P (1:2A), 1 P INF A, 1 R A. Metatarsi: I, 1-1 P SUP, 1 R, 2-2-0-1 V; II, 2-1/1-1-3 P, 1 R, 2-2-1 V; III, 0-1-1 P SUP, 1-1-1-0-1 P, 1-1-1 R SUP, 2-2-3/3-2-3 V; IV, 0-1-1-0 P SUP, 1-1-1-1 P, 1-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2/1-1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on almost 1:1; III with few apical scopuliform hairs; IV ascopulate. Scopula I, II undivided; III slightly divided by row of 1 or 2 setae; IV slightly

divided by row of 3 scattered setae. Metatarsal preening combs absent from I–IV. STC, teeth: I, 7777; II, 7776; III, 8787; IV, 7678. ITC I–IV, absent. Tarsi I–IV flexible. PLS apical article domed. Palpal bulb (fig. 148D, E) coniform, with embolus long but much shorter than in *C. obscura*. Tibia I with proventral spur bearing 6/7 short, thick spines; metatarsus I almost straight, unmodified. Color as in female.

FEMALE (paratype): Total length 17.60. Cephalothorax length 6.70, width 5.20. Cephalic region length 4.20, width 3.75. Fovea, width 0.82. OQ length 0.60, width 1.11. Labium length 0.57, width 1.32. Sternum length 3.55, width 2.72. Cephalic region convex; fovea slightly procurved, almost straight. Labium with 2 cusps, maxillae with 42/46. Serrula absent. Sternal sigilla small, submarginal, medium depth (slightly deeper than in male); sternum rebordered. Chelicerae: rastellum as in *C. obscura* (fig. 147B); inner margin with 8 teeth; fang furrow with 15 large denticles in band wider behind. Chaetotaxy: Femora: I, II, 1 p sup a; III, 1 p sup a, 1-1-1/0-0-1 r sup (1:2a); IV, 1 r sup a; palp, 1 P SUP A. Patellae: I, II, 0; III, 1-1-1 P, 1 R; IV, 0 P, 0/1 R; palp, 1-0/1-1 P SUP. Tibiae: I, II, 1-1 v post (long, strong); III, 1-1 P SUP, 0-1 D, 1-1 R SUP, 2 v a; IV, 0 P, 1-1 R SUP, 2 V A; palp, 1 P SUP, 1-1-2 P INF, 1-1-2 R INF. Metatarsi: I, 1-1-0-1 V POST; II, 2-2-1-0-1/2-1-0-1 V; III, 1-1-1 P, 1-0-1 P SUP (1:2A), 0-1-1/1-1-1 R SUP, 2-2-3 V; IV (fig. 148C), 0-1-1 P INF, 0-1-1 R SUP, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi I–IV densely scopulate; metatarsi I, II with scopula on 1:1; III with scopula on 1:4A; IV ascopulate. Scopula I, II undivided, III divided by band (better defined than in male) of about 3 setae wide (occupying 1:4 or 1:5 of article's width); IV with wide band (much denser than in male) of about 6 setae (occupying more than 1:3 of article's width) (larger specimens also have dense band of setae on tarsus IV, as do large females of *C. obscura*). Tarsi I–IV flexible. Metatarsal preening combs absent from I–IV. ITC I–IV absent. PLS apical article domed. Spermathecae as in figure 148B (fig. 148A shows longest spermathecae observed in any specimen of *C. tucumana*; spermathecae of most specimens as in fig. 148B). Cephalothorax, legs,

palpi blackish brown; abdomen brown with light-brown spots (similar to *C. obscura*, fig. 147A).

REMARKS: As in *C. obscura*, smaller specimens are much lighter in color, and darker spots are evident on the sides of cephalic region, apex of femora, base of patellae and lateral tibiae, and dorsal abdomen. Larger specimens are much darker, almost black, so that the pattern is not visible.

NATURAL HISTORY: The animals construct burrows with a door; the burrows are often branched, and then they have two doors (figs. 144, 145). Near the hinge the door is thicker, but becomes thinner (and sometimes, concave) toward the edges; the edges are irregular. The hinge articulates loosely and sometimes consists only of a few silk threads. The door normally is about 2 cm in diameter but it may be slightly larger. The door does not fit inside the burrow mouth, but instead (being generally larger than the burrow opening) lies on the edges of the burrow mouth. The upper portion of the burrow is never prolonged as in *C. tigre*. Apparently the door does not have alternating layers of silk and soil, but only a thin layer of silk covering the internal face (and often not reaching the edges), to which soil particles are adhered. The "growth rings" often seen in the doors of other trap-door spiders (corresponding to the smaller, older doors embedded in subsequent ones built from below) are not present in the doors of *C. tucumana*. The juveniles of this species held in captivity quickly reconstructed their doors in a few days; the adult specimens, instead, took several weeks or never reconstructed them.

The burrow has smooth, well-cemented, and compacted walls, with a thin (soil-colored) layer of compact silk; it often follows an irregular trajectory and is only 10 to 15 cm deep, with a diameter of about 15 mm. The characteristics of the burrow and door easily distinguish burrows of this species (and those of *Chaco obscura*) from those of the other trap-door building spiders in Argentina (Goloboff, 1987).

Most of the specimens were collected at the foot of almost vertical banks or the foot of large trees. In this type of microhabitat the water seems not to run directly over the soil, and the ground is often covered by a layer of

loose soil particles (which the spiders use to construct their doors), and the soil surface is usually drier.

Two of the specimens collected in Catamarca were eating prey. A specimen captured at about 4 P.M. was eating a larva of *Chromacris miles* (Orthoptera, Acrididae, Romaleinae, A. Bachmann det.), which was very common there. Another specimen, captured at about 1 P.M., was eating a larva of Arcidae (Lepidoptera, J. Pastrana det.). It seems highly probable that those insects had been captured during daytime, since in both cases they were still almost intact. However, according to observations made in captivity, the period of greater activity is at night. Then, the spiders remain at the entrance of their burrows, with the door partly open, awaiting prey; their position is similar to that described by Buchli (1968) for *Nemesia*: standing with most of the cephalothorax out of the burrow and with legs I–III extended and lying on the substrate. The radius of prey capture seems greater than in the rastelloids (actinopodids, idiopids, ctenizids); the spider may come completely out of the burrow to capture prey.

DISTRIBUTION: Tucumán and Catamarca. Juveniles from Santiago del Estero (Colonia Dora, I.1985 (P. Goloboff, C. Szumik, 2 juv. males, MACN) may belong to this species and indicate a wider range.

OTHER MATERIAL EXAMINED: ARGENTINA: **Tucumán:** Ruta Nacional 9 and Río Salí, Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 1♀, juvs.; Río Loro, Apr. 1987 (P. Goloboff, C. Szumik, MACN), 3♀, juvs., Mar. 1988 (P. Goloboff, F. Coyle, R. Bennet, MACN), 2♀. **Catamarca:** Singuil, El Chorro, 20–31 Jan. 1953 (W. Partridge, Núñez, MACN), 1 juv.; Singuil, Casas Viejas, Jan. 1987 (P. Goloboff, C. Szumik, MACN), 3♀, juvs.

***Chaco tigre*, new species**

Figures 41, 42, 135,
149A–F, 150A–F, 151, 152

TYPES: Male holotype and female paratype from Cachagua, Quebrada El Tigre, Petorca, V Region (Valparaíso), Chile (Nov. 1988; P. Goloboff, E. Maury, C. Szumik), and female paratype from Cuesta El Melon, border Pe-

torca–Quillota provinces (Oct. 1988; P. Goloboff, E. Maury, C. Szumik), deposited in MACN.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: This species differs from *C. socos* by its spermathecae having a shorter duct and a more globose fundus, and by constructing a thin door for its burrow; the general coloration is brownish, while *C. socos* is more grayish colored.

MALE (holotype): Total length 11.97. Cephalothorax (fig. 149A), 4.67 long, 3.65 wide. Labium length 0.82 of width. Sternum (fig. 149B) width 0.82 of length. Labium with 6 small cuspules, maxillae with 13. Posterior sternal sigilla well marked. Chelicerae with 6/7 large, 2 smaller teeth on promargin, 11 denticles in furrow. Trichobothria: Tibiae, I, II, 7(3:4b), 7(3:4b); III, IV, 7(1:2b), 7(1:2b); palp, 6(1:1), 7(1:1). Metatarsi, I, II, 13(2:3a); III, 13(3:4a); IV, 12(3:4a). Tarsi, I–IV, 14/15(4:5a); palp, 10(1:3m). Chaetotaxy: femora, I, 1-1 P SUP (1:2A), 1-1-1-1-1 D, 1-1 R SUP (1:2A); II, 0-1-1-1 P SUP, 1-1-1-1-1 D, 0-1-1-1/0-1-1 R SUP; III, 1-1-1-1 P SUP, 1-1-1-0 D, 0-1-1-1-1 R SUP; IV, 1-0-1-1 P SUP (1:2A), 1-1-1-1-0 D, 1-1/1-1-1 R SUP (1:3A); palp, 1 P SUP A, 1-1-1-1 d (1:2a). Patellae, I, II, 1-1 P SUP; III, 1-1-1 P SUP, 1/1-1 R; IV, 1 R; palp, 1 r. Tibiae, I, 0-1-1 P, 4 P A (on apophysis, fig. 149F), 1-1 R, 2-2-1 V; II, 0-1-1 P, 0-1-1 R, 2-2-4 V; III, 1-1 P, 0/1 D B, 1-1-1 R SUP, 3-2-2/3-2-3 V; palp, 1 R A, 2-2-2 p. Metatarsi, I, 1-1 P SUP, 1 R M, 2-2-1 V; II, 1-1-1 P, 1 P SUP (1:3A), 0-1-1 R, 2-2-1 V; III, 0-1-1-0-1 P SUP, 1-1-1-0 P, 1-1-0-1 R SUP, 2-2-3 V; IV, 1-1-1-1/1-1-1-1-1 P, 1-1 D ANT (1:3M), 1-1-1 R, 2-0-2-3/2-1-3 V. Tarsi, I, II, 0; III, 0/1 P; IV, 1 P; palp, 0. Metatarsi without preening combs or pseudocombs. Tarsi I, II with undivided scopula; III, IV with very light scopula, divided on III by thin setae, on IV by thick, numerous setae. Metatarsi I, II scopulate on 1:3A, metatarsi III, IV ascopulate. Tarsi I–IV flexible. STC teeth: I, 8866; II, 8877; III, 7677; IV, 8677. Palp as in figure 149C. Bulb (fig. 149D, E) tapering gradually, with short embolus, with well-developed keels. Tibia I (fig. 149F) with small apical proventral apophysis bearing 4 short, thick spines; metatarsus straight. Cephalothorax,

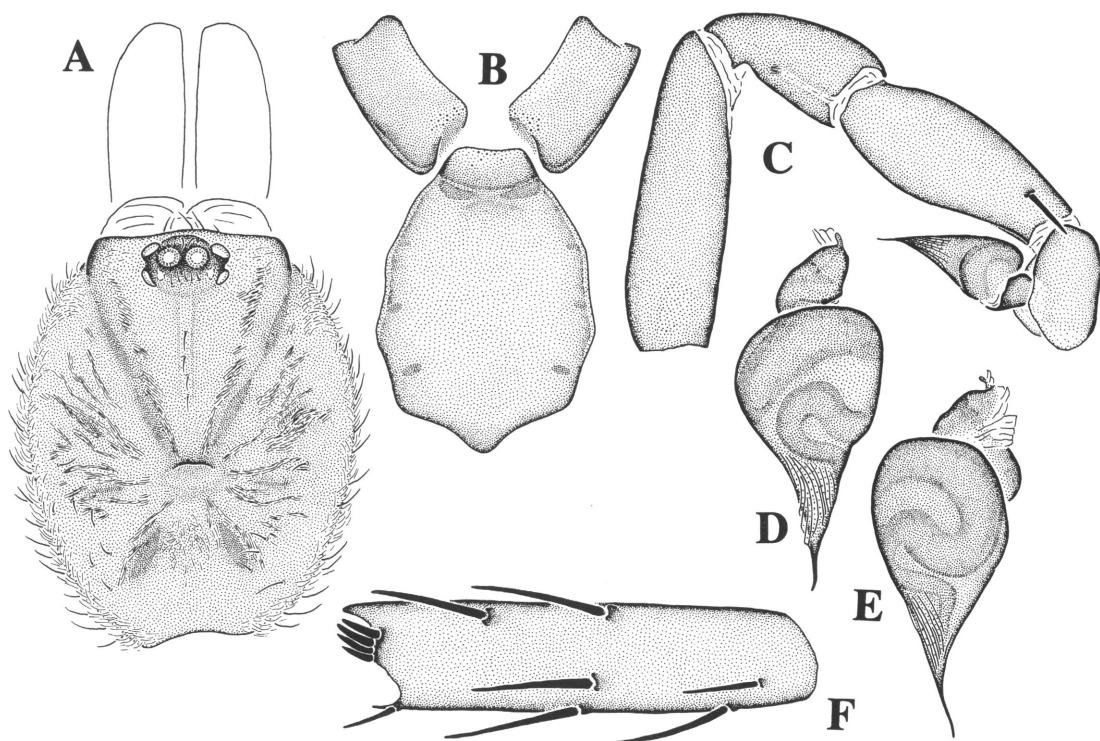


Fig. 149. *Chaco tigre*, male. A. Cephalothorax. B. Sternum and maxillae. C. Right palp, retrolateral. D, E. Left bulb. F. Right tibia I, prolateral.

legs yellowish brown; legs with darker spots; abdomen lighter with brown pattern.

FEMALE (paratype): Total length, 14.43. Cephalothorax (fig. 150A), 5.03 long, 3.93 wide. Cephalic region, width 0.77 of cephalothorax width. Labium length 0.52 of width. Sternum (fig. 150D) width 0.75 of length. Labium with 6 large cuspules (in irregular transversal line), maxillae with 17/18. Serrula apparently absent. Chelicerae with rastellum as in figure 150E; 6/7 teeth and 2 smaller on promargin, 11 denticles on furrow. Trichobothria: Tibiae, I, II, 8(2:3b), 7(2:3b); III, 7(1:2b), 7(1:2b); IV, 7(1:2b), 8(1:2b); palp, 7(4:5b), 8(1:1). Metatarsi, I, 16(2:3a); II, 15(2:3a); III, 18(4:5a); IV, 14(3:4a); palp, 12(\approx 1:2m). Chaetotaxy: Femora I–IV with dorsal recumbent setae; I, II, 1 P SUP A; III, 1-1 P SUP (1:2A), 1 R SUP A; IV, 20/30 p sup a, 1 r sup a; palp, 1 P SUP A. Patellae, I, 1/1-1 P SUP; II 1-1 P SUP; III, 1-1-1 P, 1 R; IV, 0; palp, 1-1 P SUP, 1 P INF. Tibiae, I, II, 0-1-1 P, 1-1-1 R INF; III, 1-1 P, 1-1 R SUP, 1-1-3 V; IV, 1-1 R, 2 V A; palp, 1-1 P, 1-1-

2 V ANT, 1-1-2 V POST. Metatarsi, I, II, 1-1-1 V POST, 1-1-0 V ANT, 1 P; III, 1-1-1 P, 1-1 D ANT (1:2A), 1-1-1 R SUP, 2-2-3 V; IV, 1-1 P (1:2A), 1-1 R SUP, 2-1-2-3 V. Tarsi: I–IV, palp, 0. Spines of metatarsi I, II long (fig. 150C). Metatarsi without combs or pseudocombs. Anterior tarsi and metatarsi with dense scopula; tarsi III with light scopula; IV, almost ascopulate; metatarsi III, IV ascopulate. Tarsi I–IV entire (ventrally pallid). STC teeth: I, 8536; II, 7446; III, 5455; IV, 5466. Palpal claw with 3 teeth. Spermathecae as in figure 150B, with basal spheroid protuberance. PLS (fig. 150F), basal article 0.71 long, medial 0.34, apical 0.28, with long, erect spigots (figs. 41, 42). PMS 0.34 long. Color as in male.

NATURAL HISTORY: This species has been collected in places of inclined, sandy or stony soil, on dry, sun exposed slopes. It lives in burrows closed with a single door (unlike *Chaco obscura* and *C. tucumana*, the burrows of which are often bifurcated in a Y with two doors). The door is thin but rigid; the edges

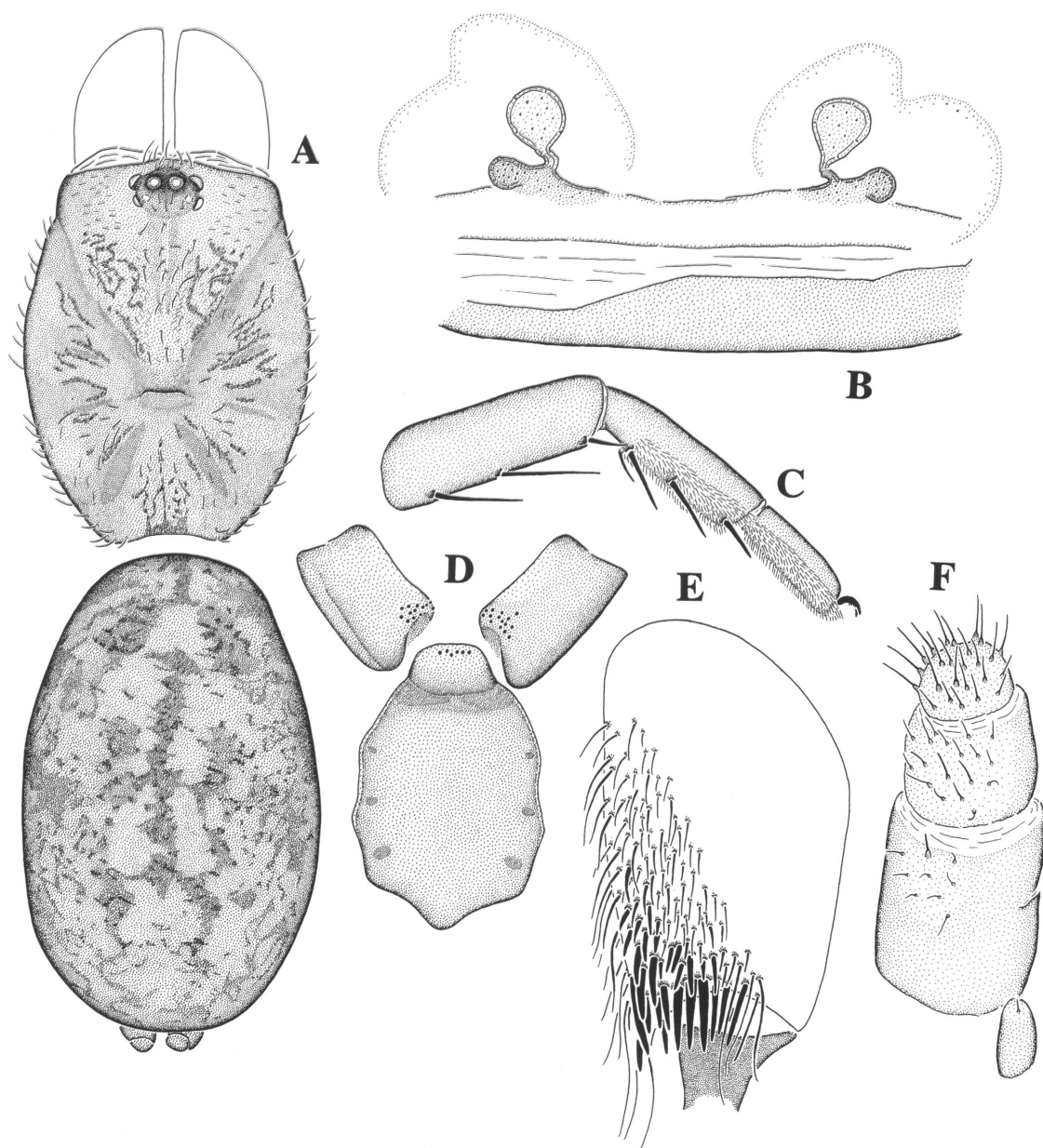


Fig. 150. *Chaco tigre*, female. A. Cephalothorax and abdomen. B. Spermathecae, ventral. C. Right leg I, retrolateral. D. Sternum and maxillae. E. Left chelicera, anterior view showing rastellum. F. Left PLS and PMS, showing general spigot arrangement.

are not beveled; sometimes "growth rings" can be seen in the door (figs. 151, 152). The hinge is wide and articulates firmly. The tube of the burrow is often prolonged with silk and earth in the upper portion. The smooth, well-compacted walls are covered with little silk.

DISTRIBUTION: Chile: Regions Metropolitana and V.

OTHER MATERIAL EXAMINED: CHILE: V Region (Valparaíso): *Petorca*: Cachagua, Quebrada El Tigre, Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 9♀, 1♂, 7 juvs.

Border Quillota–Petorca: Cuesta El Melon, 28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 2♀, 3 juvs. *Quillota*: Parque Nacional La Campana, Palmas de Ocoa, 27–28 Oct. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 7♀, 4 juvs. **Region Metropolitana (Santiago)**: Guayacán, Río Colorado, Jan. 1984 (P. Goloboff, E. Maury, MACN), 1♀.

***Chaco socos*, new species**

Figures 136, 142, 143, 153A–E

TYPES: Female holotype from Ruta 5, 25 km S Socos, Limarí, IV Region (Coquimbo), Chile (1 Nov. 1988; P. Goloboff, E. Maury, C. Szumik), deposited in MACN, and male paratype from Parque Nacional Fray Jorge, Limarí (12 Aug ??; R. Calderón), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from one of the type localities.

DIAGNOSIS: This species differs from *C. tigre* by its spermathecae having a longer, outwardly directed duct, and a more slender fundus, and by constructing a beveled door for its burrow; the general coloration is grayish, while *C. tigre* is more brownish colored.

MALE (paratype): Total length 11.30. Cephalothorax length 5.00, width 4.27. Cephalic region length 3.10, width 2.67. OQ length 0.61, width 1.07. Labium length 0.52, width 0.79. Sternum length 2.75, width 2.11. Labium with 5 cuspules (roughly in transverse line), maxillae with 33. Sternal sigilla small, shallow, slightly oval, marginal; sternum rebordered. Chelicerae: rastellum formed by strong blunt short setae (only slightly weaker than in female); inner margin with apparently 5 teeth, leaving 1:3A of margin free of teeth [!]. Cheliceral tumescence asetose, flat. Chaetotaxy: Femora: I, 0-1-0-1 P SUP, 1-1-1-1-1-1 D, 1-1-1 P SUP (1:2A); II, 1-0-1-1 P SUP (1:2A), 1-1-1-1-1-1 D, 1-1-0-1 P SUP; III, 0-1-0-1 P SUP, 1-1-1-1-1 D, 1-1-1 R SUP (2:3A); IV, 1-0-1-1 P SUP (2:3A), 1-1-1-1-1-0 D, 1-1-1 R SUP (1:2A); palp, 1 P SUP A, 1-1-1 D (1:2A). Patellae: I, 1 P SUP A; II, 1-1 P SUP A; III, 1-1-1 P, 1-1 R; IV, 1 P, 1-1 R; palp, 1-1 P SUP, 1 D B. Tibiae: I, 1-1/1-1-1 P, 5 P INF (on apophysis), 1-1-1 R, 1-1-0/1-0-0 V ANT, 1-1-2/1-

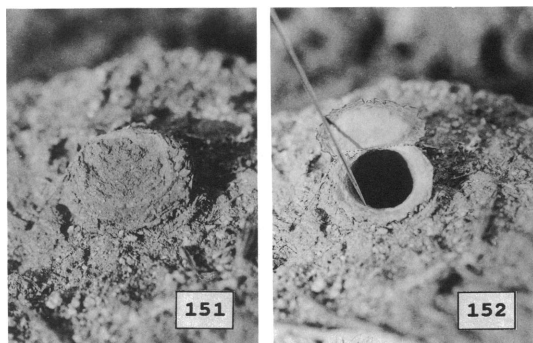


Fig. 151, 152. Burrow entrance of *Chaco tigre* (photo Emilio A. Maury).

1-1 V POST; II, 1-1 P SUP, 1-0-0-2 V ANT, 1-1-1 V POST; III, 1-1 P, 0-1-1 D, 1 D B POST, 1-1-1 R, 2-2-3 V; IV, 1-1-1 P, 1-1 D (2:5A), 1 D B POST, 1-1-1-1 R, 2-2-4 V; palp, 2-2-2 P, 0-1-1 D (absent in *C. tigre*), 1 R A. Metatarsi: I, 1 P (1:3B), 1 D ANT M, 1 R M, 1-1 V ANT (1:3M), 1-1-1 V POST; II, 1-1 P (1:2B), 1-1 D ANT (1:2A), 1 R M, 1-1-0 V ANT, 1-1-1 V POST; III, 1-1-1 P, 1-1-1 P SUP (alternating), 1 D B POST, 1-1-1 R SUP, 2-2-3 V; IV, 1-1-1 P, 1-1-1 P SUP (alternating), 1 D B POST, 1-1-1 R, 1-1-1-1 V ANT, 1-1-2 V POST. Tarsi: I–IV, palp, 0. Tarsi I–IV scopulate; 1:3A of metatarsi I, 1:4A of II scopulate; metatarsi III, IV ascopulate. Scopula I, II undivided; III with few thin, scattered setae, not forming line; IV with thicker setae forming line about 3 setae wide (1:4 of article's width). Metatarsal preening combs absent from I–IV. STC, teeth: I, 8888; II, 9989; III, 8788; IV, 10 78 10. ITC absent from I–IV. Tarsi I–IV flexible. PLS: apical article domed. Palp and bulb (fig. 153E) similar to that of *C. tigre* (in male paratype of *C. tigre* seminal tube forms more indented loop, longer than turn and counterturn in *C. socos*; holotype of *C. tigre* with less pronounced loop, so character may be variable). Leg I, tibial apophysis typical for genus; metatarsus straight, cylindrical. Color as in female.

FEMALE (holotype): Total length, 14.89. Cephalothorax (fig. 153A) 5.25 long, 4.36 wide. Labium length 0.48 of width. Sternum (fig. 153C) width 0.72 of length. Labium with 3 cuspules, maxillae with 49/53. Chelicerae with rastellum as in figure 153D; with 2 large

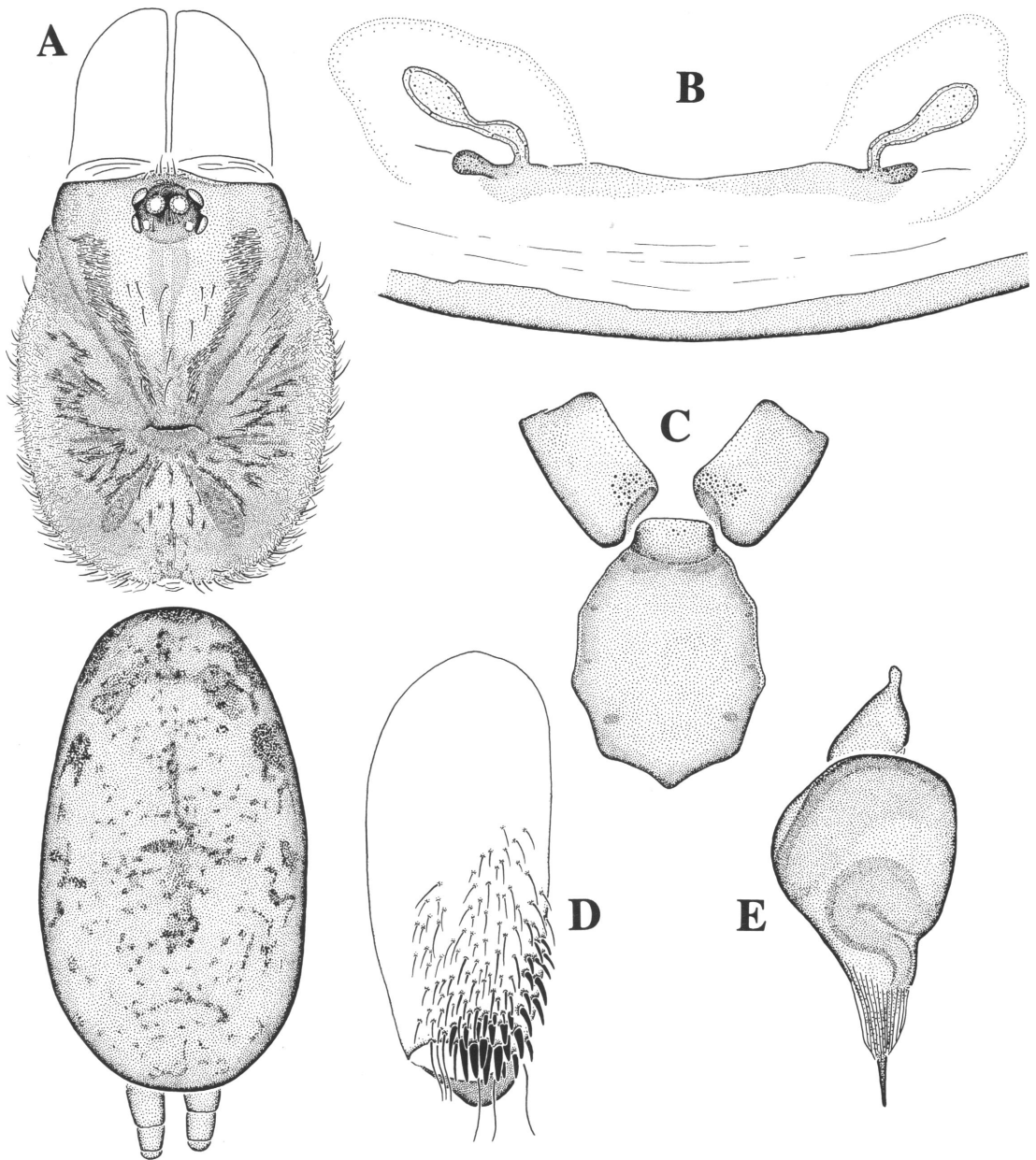


Fig. 153. *Chaco socos*. A–D. Female. E. Male. A. Cephalothorax and abdomen. B. Spermathecae, ventral. C. Sternum and maxillae. D. Right chelicera, anterior view. E. Left bulb.

basal teeth and 5/6 smaller ones in promargin; furrow with 9/10 denticles. Trichobothria: Tibiae, I–III, 6(1:2b), 7(1:2b); IV, 6(1:3b), 7(1:3b); palp, 7(1:2b), 7(1:2b). Metatarsi, I–III, 13(2:3a); IV, 14(4:5a). Tarsi, I, 12(3:4a); II, 14(2:3a); III, 13(2:3a); IV, 13(3:4a); palp, 11(≈2:3a). Chaetotaxy: femora, I, II, 1

P SUP A, 3/5 d; III, 1-1 R SUP (1:2a), 3 D (1:2B); IV, 1 R SUP A, 3 d (1:2b); palp, 1 P SUP A. Patellae, I, II, 1 P SUP A; III, 1-1-1 P, 1 R; IV, 0; palp, 1-1 P SUP, 1 P INF. Tibiae, I, II, 1-1 P, 1-1-1 R INF; III, 1-1 P, 1-1 R, 1-1-3 V; IV, 1-1 R, 3 V A, 1-1 v (1:2b); palp, 1-1 P, 1-1-1 V POST, 1-1-2 V ANT.

Metatarsi I, II with spines long, thin, 1-1-1 V POST, 1-1-0 V ANT, 1 P SUP; III, 1-1-1 P SUP (1:2A), 1-1-1 P, 1-1-1 R SUP, 2-2-3 V; IV, 0-1-1 P, 1-1-1 R SUP, 2-1-2-3 V. Tarsi I-IV, palpal tarsus, 0. No metatarsal combs or pseudocombs. Tarsi I, II, 2:3A of metatarsi I, 1:2A of metatarsus II, with dense scopula, undivided; tarsi III, IV with light scopula, divided by few setae on III, by wide band on IV. Tarsi I-IV integral. STC teeth: I, II, 5 $\frac{3}{4}$ $\frac{3}{4}$ 5; III, 5455; IV, 6445. Palpal claw with 3 teeth on promargin. Spermathecae as in figure 153B. PMS 0.35 long, with only one spigot. PLS, basal article 1.00 long, with 15 spigots on 1:2A, medial article, 0.36 long, with 20 spigots; apical, 0.24 long, with 15 spigots, long, erect. Cephalothorax ash-gray, with lycosid like pattern (figs. 136, 153A); legs, palpi gray with darker spots; abdomen yellowish with darker dorsal spots.

NATURAL HISTORY: This species has been collected only in two localities, both in high mountains near the sea, which are often covered by mist. The vegetation in the area is sparse, but the soil (formed by thin sediments, with no rocks) is rather moist. The animals construct a thick door for their burrow (figs. 142, 143), which fits into the burrow mouth. The outer face of the door is generally slightly concave; the hinge is wide and tight. The burrow walls are well-compacted, lined with little silk incorporated into the walls.

DISTRIBUTION: Known only from mountains near the coast in Limarí province, Chile.

OTHER MATERIAL EXAMINED: CHILE: IV Region (Coquimbo): *Limarí*: Ruta 5, 25 km S Socos, 1 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 5♀; 300 m, 2 Oct. 1992 (P. Goloboff, N. Platnick, K. Catley, MACN, AMNH), 2♀. Parque Nacional Fray Jorge, 3 Nov. 1988 (P. Goloboff, E. Maury, C. Szumik, MACN), 1♀, 2 juvs.

Chaco sanjuanina, new species

Figures 154A-G

TYPES: Male holotype (missing left legs III and IV) and female paratype from semidesert locality, with frequent dews, 82 km NW San Agustín, Valle Fértil, 1300 m elev., San Juan, Argentina (Apr.-May 1958; B. Patterson), deposited in MCZ.

ETYMOLOGY: The specific name refers to the province where the type locality is located.

DIAGNOSIS: Males can be immediately distinguished from those of other species in the genus by the more conical bulb (fig. 154D, E); females differ from *C. tecka* in having fewer spines on the metatarsus IV, and from *C. patagonica* in having numerous labial cuspules arranged in a transverse row and the slightly more numerous maxillary cuspules.

MALE (holotype): Total length 7.95. Cephalothorax length 3.34, width 2.66. Cephalic region length 1.92, width 1.55. OQ length 0.34, width 0.69. Labium length 0.25, width 0.59. Sternum length 1.86, width 1.37. Labium with 7 weak cuspules in transverse row; maxillae with 12/12 (in second male, attenuate macrosetae instead of cuspules!). Serrula not visible with light microscope. Sternal sigilla small, oval, very shallow, inconspicuous; sternum not rebordered. Chelicerae: rastellum formed by strong, attenuate setae; inner margin with 6 teeth decreasing in size toward apex; fang furrow with 4 large denticles in longitudinal row. Cheliceral tumescence asctose, flat. Trichobothria: Tibiae, I, 5(1:2b), 5(1:2b); II, 5(1:2b), 5(1:2b); III, 5(1:3b), 4(1:2b); IV, 5(1:3b), 5(1:2b); palp, 5(1:2b), 5(1:2b). Metatarsi, I, 8(2:3a); II, 6(2:3a); III, 7(2:3a); IV, 6(1:2a). Tarsi, I, 9; II, 7; III, 8; IV, 11; palp, 5(1:3m). Chaetotaxy: Femora: I, 1-1 R SUP (1:3A), 1-1-1-1 D, 1/1-1 R SUP (1:3A); II, 1-0-1 P SUP (1:2A), 1-1-1-1 D, 0-1-1-1 R SUP; III, 1-0-1 P SUP (1:2A), 1-1 D (1:2B), 1-1 R SUP (1:2A); IV, 1 P SUP, 1-1-1-1 D, 1-1 R SUP (1:2A); palp, 0. Patellae: I, 1 P SUP; II, 1/1-1 P SUP; III, 1-1-1 P, 1 R; IV, 1 R; palp, 0. Tibiae: I, 0-1-1 P SUP, 1-0-1 R, 3 P INF (on spur), 1-0-1/0-0-1 V ANT, 1-1-1/1-1-1-1 V POST; II, 0-1-1 P SUP, 1 R, 2 P INF A, 3-2-1-2/3-2-2 V; III, 1-1 P, 1-1 R, 2-2-3 V; IV, 1-1 P, 1-1 R, 2-2-4(1 POST, 3 ANT) V; palp, 0. Metatarsi: I, 0-1-1-1 V POST; II, 1 P SUP, 2-1-2 V; III, 6 P SUP (double row), 1-1-1 R SUP, 2-2-3 V; IV, 6 P SUP (double row), 1-1-1 R, 2-1-3 V. Tarsi: I-III, 0; IV, 1 P; palp, 0. Scopula: light on tarsi I, II, very light (almost absent) on III, IV (on apical half); few scopuliform hairs on prolateral 1:3A of metatarsus I, no scopula on other metatarsi. Scopula entire on I, II, with many setae (covering most of ven-

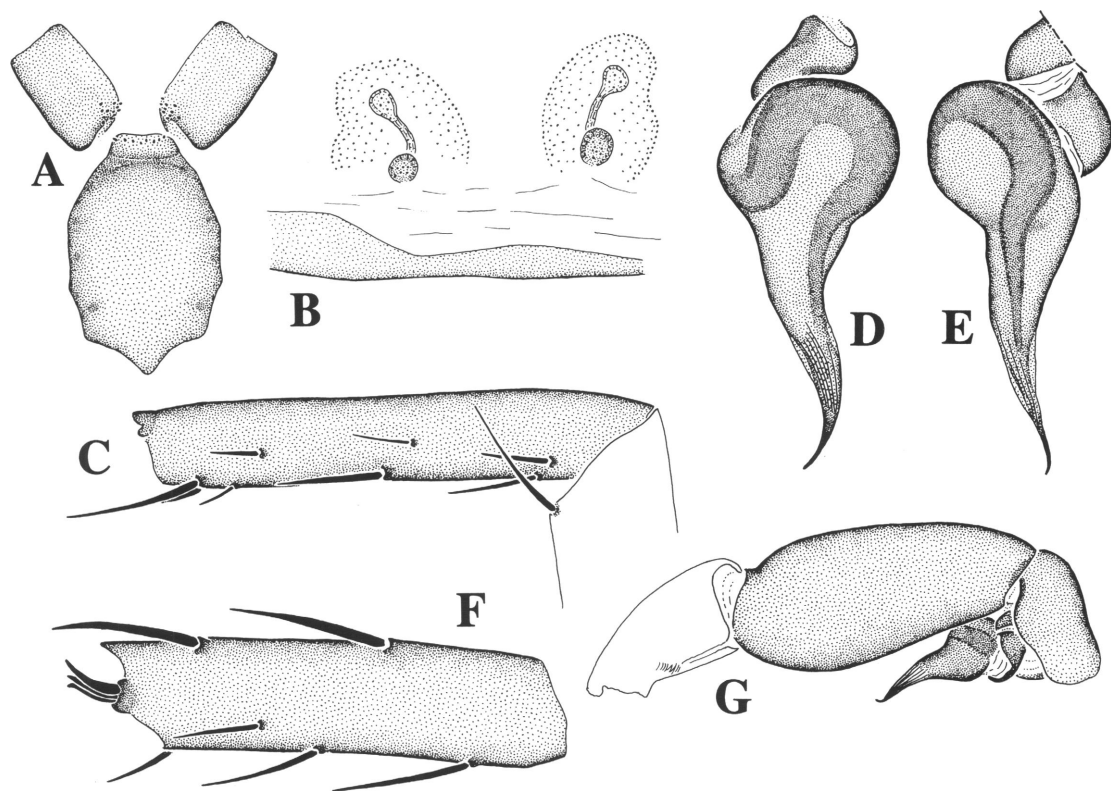


Fig. 154. *Chaco sanjuanina*. A–C. Female. D–G. Male. A. Sternum and maxillae. B. Spermathecae, ventral. C. Right metatarsus IV, prolateral. D, E. Left bulb. F. Right tibia I, prolateral. G. Right palp, retrolateral.

tral face on 2:3B, less numerous on 1:3A) on III, IV. Metatarsal preening combs absent from I–IV. STC, teeth: I, 12 10 9 12; II, 10 899; III, 10 (broken; other specimens with 7) 6 9; IV, 11 569. ITC absent from I–IV. Tarsi I–IV flexible. PLS apical article domed; length of apical:medial:basal, 0.22:0.40:0.67. Spigots: basal article with 3 spigots on 1:2A, medial with 5, apical with 15 spigots with long, erect shaft. PMS length 0.27, with 7 spigots. Palp as in figure 154G; bulb as in figure 154D, E. Leg I, tibial apophysis with 3 spines (fig. 154F); metatarsus slightly curved, concave on prolateral side. Color apparently faded; uniform yellow, caput apparently darker; abdomen with light chevron (similar to that of *Chaco patagonica*).

FEMALE (paratype): Total length 17.41. Cephalothorax length 3.23, width 2.47. Cephalic region length 1.98, width 1.95. Fovea, width 0.37. OQ length 0.39, width 0.77. La-

bium length 0.30, width 0.67. Sternum (fig. 154A) length 1.98, width 1.40. Cephalic region strongly convex; fovea sinuous, straight. Labium with 8 cuspules in transverse row [!], maxillae with 10/12. Sternal sigilla small, oval, not very conspicuous (but more than in *C. patagonica*); sternum quite convex, anterior edge sloping; not rebordered. Chelicerae: rastellum formed by thick setae, intermediate between attenuate and ensiform; inner margin with 6 teeth; fang furrow with row of 4 small teeth (large denticles). Trichobothria: Tibiae, I, 6(2:3b), 5(1:2b); II, 6(2:3b), 6(2:3b); III, 4(1:3b), 4(1:2b); IV, 5(1:3b), 8(2:3b); palp, 4(1:2b), 5(1:2b). Metatarsi, I, 7(2:3a); II, 7(2:3a); III, 9(2:3b); IV, 11(3:4a). Tarsi, I, 8; II, 9; III, 8; IV, 10; palp, 7. Chaetotaxy: Femora: I, II, 1 p sup, 1-1-1-1 d (long, recumbent); III, 1 r sup (very weak); IV, 1 p sup, 1-1-1 d (1:2a, long, recumbent), 1 r sup (all very weak); palp, 0. Patellae: I, 1 p; II, 1-1 p; III, 1-1-1

P, 1 R; IV, 0; palp, 1-1 p. Tibiae: I, II, 1-1 V POST (very long); III, 0/0-1 P, 1-1 R SUP; IV, 1-1 R SUP, 2-2 v, 2 V A; palp, 2-2-3 P INF (very long), 1-1-2 R INF (very long). Metatarsi: I, 1 P SUP, 2-3-2/2-3-3 V; II, 1 P SUP, 1-1/1-0 v ant (1:2b), 2 V ANT A, 1-1-1 V POST; III, 1-1-1 P, 1-1-1 P SUP, 1-1-1 R SUP, 3 V A; IV (fig. 154C), 1-1/1-0 P, 0-1-1 R, 2-1-3 V. Tarsi: I, II, 0; III, 1 P; IV, 1 P, 1 R A; palp, 2 P INF B, 1 R INF B. Tarsi I, II scopulate, III, IV ascopulate; metatarsi I, with scopula on 2:3A, II on 1:3A. metatarsi III, IV ascopulate. Scopula I with few irregularly arranged setae in middle; II divided by band 3/4 setae wide. All tarsi integral. Metatarsal preening combs absent from I-IV. STC, teeth: I, 11 10 9 10; II, 10 779; III, 9448; IV, 8116. Palpal claw with 7 teeth on prolateral side. ITC absent from I-IV. PLS: apical article domed; length of apical:medial:basal, 0.13:0.33:0.79. Spigots: basal article with 5 spigots on apical half, medial with 7, apical with 15. PMS length 0.30, with 7 spigots. Spermathecae as in figure 154B, with basal spheroid protuberance. Color as in male.

NATURAL HISTORY: No data are known.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: One male, taken with the types.

Chaco tecka, new species

Figures 155A-F

TYPE: Female holotype from Rio Tecka at Tecka, 100 m elev., Chubut, Argentina (22 Jan. 1992; P. Goloboff, N. Platnick, R. Schuh), deposited in AMNH.

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be easily distinguished from those of other species of *Chaco* by the strong, numerous P and P SUP spines on metatarsus IV and by the presence of pseudopreening combs on metatarsi III and IV. From *C. patagonica* and *C. sanjuanina*, females differ also in the patterned cephalothorax and legs.

MALE: Unknown.

FEMALE (holotype): Total length 8.40. Cephalothorax (fig. 155A) length 3.02, width 2.55. Cephalic region length 1.87, width 1.85. Fovea, width 0.37. OQ length 0.34, width

0.61. Labium length 0.29, width 0.67. Sternum (fig. 155E) length 1.71, width 1.42. Cephalic region convex; fovea slightly procurved. Labium with no cuspules, maxillae with 17/21. Serrula absent. Sternal sigilla small, shallow, almost inconspicuous; sternum rebordered. Chelicerae: rastellum formed by numerous long, strong, blunt, thick setae; inner margin with 6 teeth; fang furrow with about 10 large denticles. Chaetotaxy: Femora: all femora with long recumbent dorsal setae; I, II, 1 p sup a; III, 0; IV, with several d ant a, weak; palp, 0. Patellae: I, 0; II, 1 p sup a; III, 1-1-1 P, numerous erect curved setae along dorsal and posterior faces; IV, 0, with less numerous setae; palp, 1 P SUP (1:3B). Tibiae: I, 1-1 P SUP, 1-1-0-1 V POST (very long); II, 1 P SUP (1:3A), 1-1-0 V POST (very long); III, 1-1 P, 0 D (with numerous long erect setae), 1/1-1 R, 2 v a; IV, with dorsal erect setae less numerous than on III, 1-1 P, 1 v ant, 2 V A; palp, 2-1-2/2-0-2 P, 0/2 P INF A, 1-12 R INF, 1 R SUP (1:3A). Metatarsi: I, 1-1 V POST (long, strong); II, 1-1-1 V POST (long, strong); III, 2-2-1/3-2-2 P SUP, 1-2-1 R SUP, 1-1 v post, 3 V A; IV (fig. 155D), 1-1-1 D ANT (2:3A), 5/6 P as in figure 155C, 0/1 D POST, 1-2-1/1-1-1 R SUP, 1-1-1-1/1-0-1-1 V ANT, 1-1-2 V POST. Tarsi: I-IV, palp, 0. Tarsi and metatarsi I, II scopulate, III, IV ascopulate. Scopula I, II undivided. Tarsi I-IV rigid. Metatarsal preening combs: I, II absent, III, IV (fig. 155D) with about 10 short setae forming 2 pseudocombs (almost joining in middle). STC, teeth: I, 6 10 10 6; II, 6 10 96; III, 5657; IV 5336. Palpal claw with 6 teeth on promargin. ITC, I-IV absent. PLS: apical article domed; length of apical:medial:basal, 0.25:0.29:0.76; 1 or 2 spigots on apex of basal article, 5 on medial, 25 on apical; all spigots with very long, thin, erect shafts, except one spigot on apical article with slightly shorter, thicker shaft. PMS length 0.32; with 7 spigots. Spermathecae as in figure 155F. Cephalothorax yellowish brown; legs of same color, but lighter; darker spots on cephalic region (as paired spots behind OQ), on retrolateral apex of femora, middle of patellae, and base of tibiae.

NATURAL HISTORY: The holotype was collected from a burrow in sand, near the banks of the river Tecka. The burrow entrance could

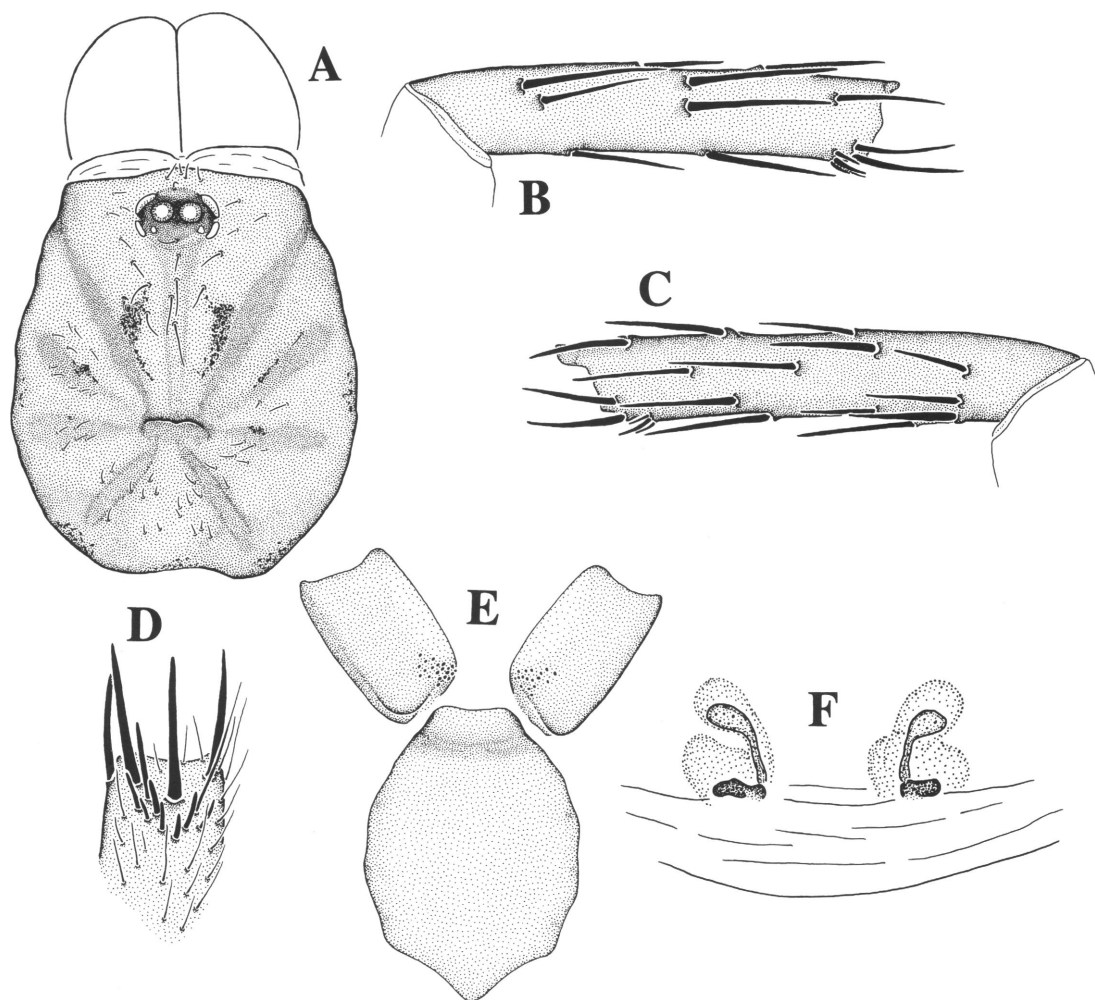


Fig. 155. *Chaco tecka*, female. A. Cephalothorax. B. Right metatarsus IV, retrolateral. C. Same, prolateral. D. Apex of right metatarsus IV, ventral. E. Sternum and maxillae. F. Spermathecae, dorsal.

not be observed; the burrow was found by blowing sand.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: None.

***Chaco patagonica*, new species**

Figures 156A–G

TYPES: Holotype and paratype females from Comodoro Rivadavia, Chubut, Argentina (20 Mar. 1984; P. Goloboff), deposited in MACN.

ETYMOLOGY: The specific name refers to the type locality, situated in Patagonia.

DIAGNOSIS: The species can be distinguished from *C. tecka* by not having a pat-

terned cephalothorax and legs, by the less numerous maxillary cuspules, and by the absence of pseudopreening combs, and from *C. sanjuanina* by having few labial cuspules (not arranged in a transverse row).

MALE: Unknown.

FEMALE (holotype): Total length 8.65. Cephalothorax (fig. 156A), 3.10 long, 2.43 wide. Labium length 0.45 of width. Sternum (fig. 156E) width 0.66 of length. Labium with 2 cuspules, maxillae with 6 cuspules. Labial and maxillary cuspules large, with acute tip. Serrula absent (SEM confirmed). Sternum (fig. 156E) of width 0.66 of length, posterior sigilla very small, almost inconspicuous. Chelicerae with rastellum strong, as in figure 156F;

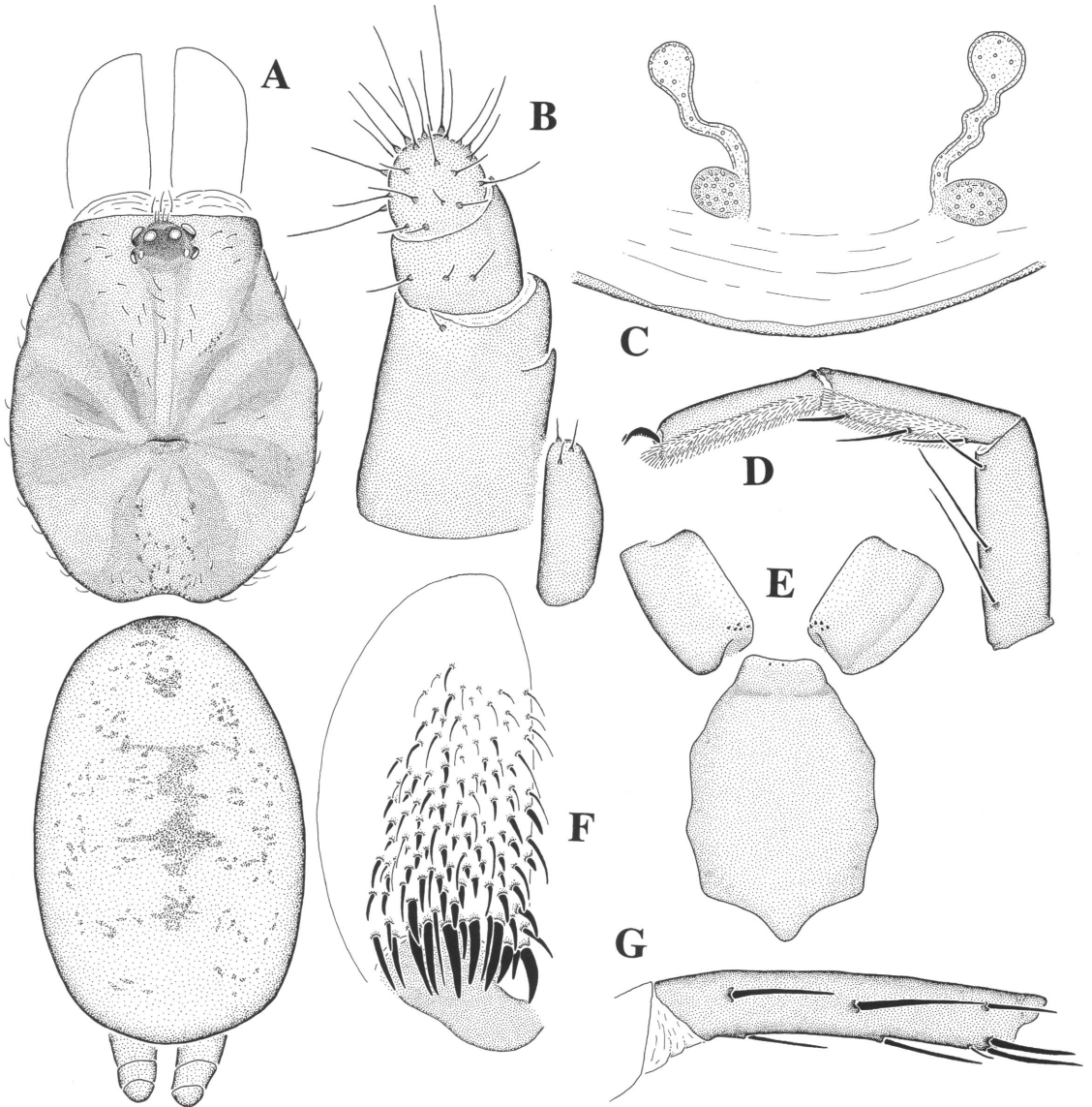


Fig. 156. *Chaco patagonica*, female. A. Cephalothorax and abdomen. B. Left PLS and PMS. C. Spermathecae, ventral. D. Left leg I, retrolateral. E. Sternum and maxillae. F. Right chelicera, anterior view showing rastellum. G. Right metatarsus IV, retrolateral.

tTTTTTd on promargin, 12 denticles in furrow. Trichobothria: Tibiae, I, 7(2:5b), 6(1:3b); II, 7(1:2b), 6(1:3b); III, 5(1:3b), 5(1:3b); IV, 5(1:3b), 5(1:3b); palp, 6(1:2b), 7(1:2b). Metatarsi, I, 9(2:3a); II, 7(2:3a); III, 10(2:3a); IV, 11(3:4a). Tarsi, I, 9(2:3a); II, 10(2:3a); III, 11(2:3a); IV, 11(2:3a); palp, 7(1:4m). Chaetotaxy: Femora: I, II, 1 d ant a; III, 1 d ant a, 1 d post a; IV, with some thickened setae on p d a; palp, 1 d ant a. Patellae: I, II,

0/1 p sup a; III, 1-1/1-1-1 P, 1 r; IV, 0 (other specimens with 1 r); palp, 1 p b. Tibiae: I (fig. 156D), 0/1-1 p sup, 1 v ant, 1-1-1 v pot; II, 1-1 p sup, 1 v ant a, 1-1-1 v post; III, 1-1 P, 2-3 V (1:2A), 1-1 R SUP; IV, 1-1-1-0-1/1-0-0-0-1 p inf, 1-1/1-1-1 R; palp, 1-1-2 P INF, 1-1-2 R INF (very long). Metatarsi: I, 1-1-1 V POST (very long); II, 1 P SUP M, 1-1-1 V POST (very long); III, 1-1-1 P, 2-2-2 R, 3-2-3/2-2-3 v; IV (fig. 156G), 0-1-1-1-1 P INF,

1-1-1-1-1 P, 2-2-2/2-2-4 V, 2-1-1-1/2-1-1-1-1 R SUP, 0/1 R; palp, 0. Tarsi: I, II, 0; III, 1 P; IV (fig. 156G), 2-1-1/1 P SUP, 0/1 R; palp, 0. No metatarsal combs or pseudo-combs. Tarsi and metatarsi I, II with undivided scopula; tarsi III with very light scopula, with numerous setae; IV almost ascopulate. Tarsi I-IV integral (IV ventrally pallid). STC teeth: I, 9888; II, 10 769; III, 9558; IV, 6567. Palpal claw with 5 teeth (two apical ones larger). STC IV longer, thinner than I-III. Spermathecae as in figure 156C; with spheroid protuberance at base of duct. PMS length 0.35, with only 3 spigots; PLS, basal article 0.67, with only 2 or 3 apical spigots, medial 0.27, with 5 spigots, apical 0.17, with about 20 spigots, with long, erect tubuli (figs. 37, 156B). Cephalothorax yellowish, with brown mottles on caput and posterior part of thorax; abdomen (fig. 156A) yellowish, with mottles. Pubescence very light.

NATURAL HISTORY: This species has been found in a sandy area (in southeastern Chubut), in the west-facing slope of a small hill near the seashore. The spiders make a small burrow which they close with a thin, flaplike door. The door actually consists of a prolongation of the silk layer lining the interior of the burrow, covered by grains of sand; it is flexible and loosely articulated. As the spiders dig their burrow on inclined places (about 45°), when the door is closed the sand falls over it, completely covering the burrow. The burrows were found by blowing sand upwards to blow the doors open. The burrows are about 5 mm in diameter, and 10 cm deep; the walls are not compacted or cemented but instead consist of a dense silk tube which prevents the sand from collapsing.

DISTRIBUTION: Known only from the type locality.

OTHER MATERIAL EXAMINED: Only the types.

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