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A Review of the Pirate Spiders (Araneae, Mimetidae) of Chile

NORMAN I. PLATNICK¹ AND MOHAMMAD U. SHADAB²

ABSTRACT

The spider family Mimetidae is represented in Chile and adjacent Argentina by at least eight species. One, *Ero spinipes* (Nicolet), belongs to a worldwide genus but seems to be a south temperate endemic. The remaining species belong to the apparently endemic genera *Oarces* and *Gnolus*. Although these two genera have been placed in different families (the Mimetidae and Araneidae, respectively), genitalic characters indicate that they are sister taxa. *Oarces* and *Gnolus* differ from araneids in lacking aggregate gland spigots on the posterior lateral spinnerets, and resemble mime-

tids in having peg teeth on the cheliceral promargin; *Gnolus* is therefore transferred to the Mimetidae. Typical Mimetinae, however, have modified cylindrical gland spigots not shared with *Oarces* and *Gnolus*, which are assigned to the subfamily Oarcinae Simon. *Gnolus affinis* Tullgren is newly synonymized with *G. cordiformis* (Nicolet). One new species (*G. blinkeni*), the first known males of *G. cordiformis* (Nicolet), *G. spiculator* (Nicolet), and *G. angulifrons* Simon, and the first known females of *G. zonatulus* Tullgren are described.

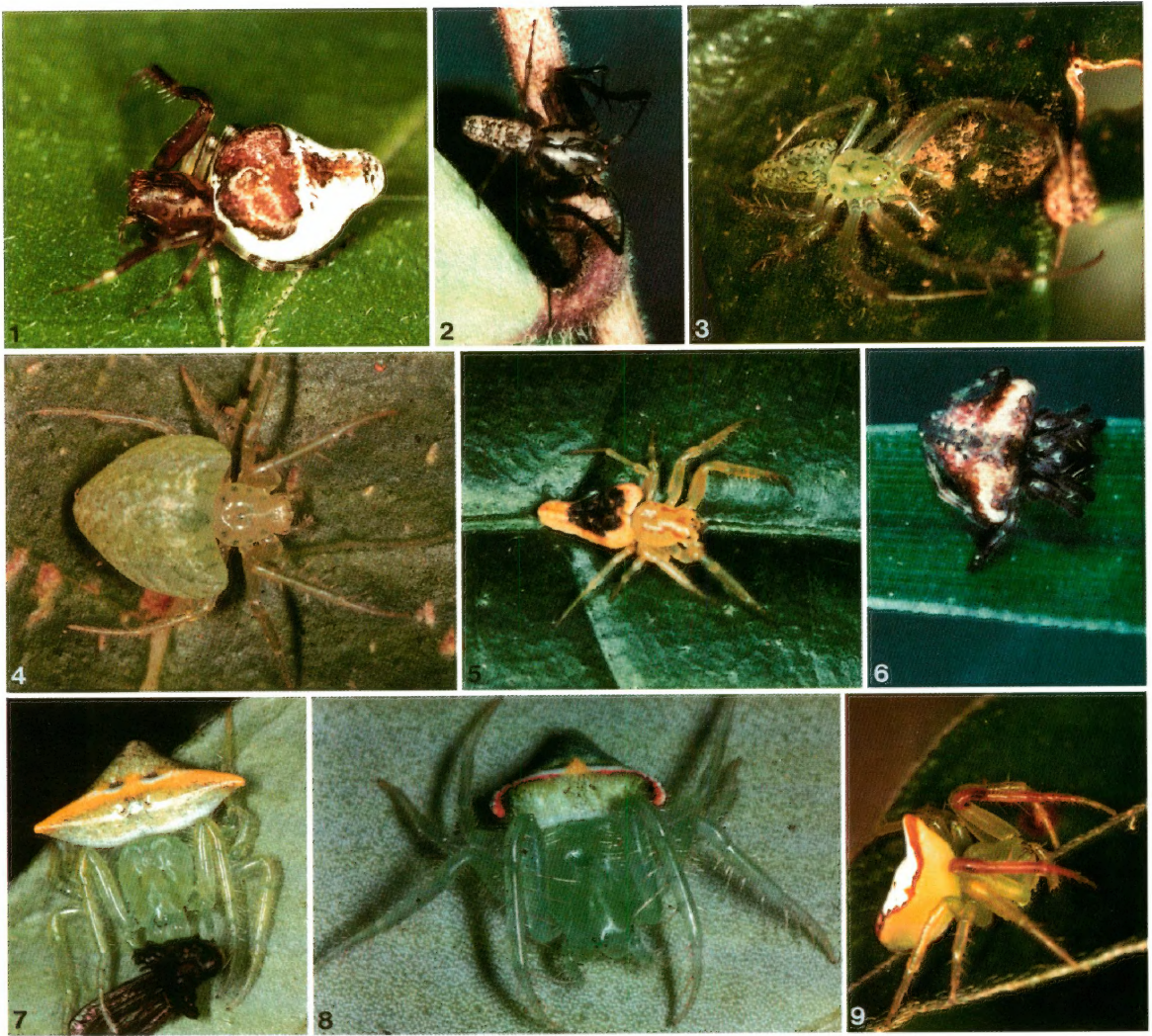
INTRODUCTION

The spiders considered here (figs. 1–9) have long been controversial and difficult to place. Mimetids are often called pirate spiders because they generally prey on other spiders, but it is doubtful that all species are obligate

spider predators. Some have been taken from the webs of larval Lepidoptera (Warren et al., 1967), where they may, of course, have been feeding only on other spiders attacking the insects. Others will definitely feed on insects

¹ Chairman and Curator, Department of Entomology, American Museum of Natural History; Adjunct Professor, Department of Biology, City College, City University of New York; Adjunct Professor, Department of Entomology, Cornell University.

² Senior Scientific Assistant, Department of Entomology, American Museum of Natural History.



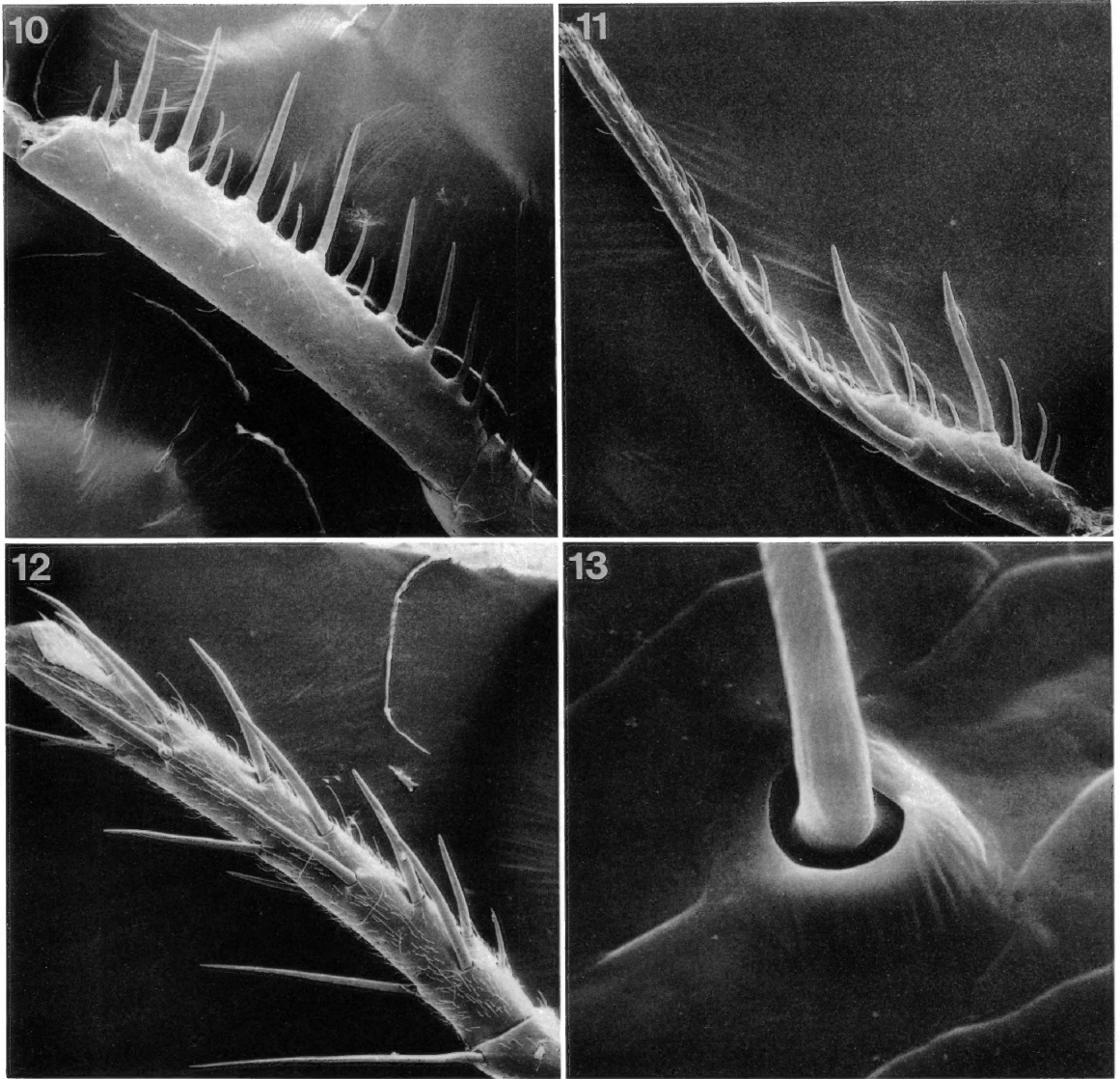
Figs. 1–9. Photographs of Chilean spiders by Martín J. Ramírez. 1. *Oarces reticulatus* (Nicolet), female. 2. Same, male. 3. *Gnolus cordiformis* (Nicolet), male. 4. Same, female. 5. *G. blinkeni*, new species, female. 6. *G. zonulatus* Tullgren, female. 7, 8. *G. spiculator* (Nicolet), juvenile and female. 9. *Heterognatha collusor* (Petrunkevitch), female.

that become ensnared in webs belonging to other spiders (Jackson and Whitehouse, 1986), and some have been observed to directly capture insect prey, at least in captivity (Cutler, 1972; Lawler, 1972).

Mimetids are generally recognized by the characteristically modified prolateral spination of tibiae and metatarsi I and II, in which a series of short spines, the most distal in each series of which are the longest, are interspersed among a series of much longer spines (figs. 10, 11). However, most of the species treated here show typical mimetid

spination only in females; as noted by Tullgren (1902), the males show no traces whatever of that spination pattern (fig. 12). It is not surprising, therefore, that opinions on the relationships of these animals have been diverse.

Like many other Chilean spiders, they were first described by Nicolet (1849), who assigned most of the species to *Arkys* Walckenaer, an Australasian genus of uncertain affinities. Simon (1879) established two generic names, *Oarces* and *Gnolus*, and assigned Nicolet's various *Arkys* species to them, syn-



Figs. 10–13. *Oarces reticulatus* (Nicolet). 10. Female, tibia I, dorsal view. 11. Female, metatarsus and tarsus I, dorsal view. 12. Male, tibia I, dorsal view. 13. Female, metatarsus IV, trichobothrial base, dorsal view.

onymizing several of those names representing only color variants.

Simon's opinions on the affinities of these genera varied considerably over the years. In the original generic descriptions (1879), he united *Oarces* and *Gnolus* with *Arkys* in a subfamily Arcyinae, placed in the Epeiridae (= Araneidae). By the time of Simon (1890) he had changed his mind on both counts; *Oarces* and *Arkys* were assigned to different subfamilies (the Oarcinae and Arciinae), and

both subfamilies were placed in the Mimetidae rather than Araneidae. In his major treatise, Simon (1895) recognized the tribal groupings Arcyae and Gnoleae within his Argiopinae (= Araneidae), but placed *Oarces* alone in the Mimetidae.

Simon's (1895) arrangement was followed by subsequent workers (Mello-Leitão, 1935) and catalogers (Roewer, 1942; Bonnet, 1957, 1958; Brignoli, 1983; Platnick, 1989), despite the fact that it was extensively criticized by

Tullgren (1902). After a detailed study, Tullgren (1902: 37) concluded that *Oarces* and *Gnolus* "are so nearly related to each other as to make it impossible to refer them to different families" and that both genera should be assigned to the Mimetidae, views with which we fully concur. Tullgren (1902: 41) also concluded that *Gnolus* "in several points is very near related to" *Arkys*, but as he had examined no material of the latter genus, that conclusion was advanced with appropriate hesitation.

We present below new evidence relevant to resolving the interrelationships of these taxa. Specimens have been examined from the collections of the American Museum of Natural History (AMNH), the California Academy of Sciences, San Francisco (CAS, courtesy of Dr. C. E. Griswold), the Institut Royal des Sciences Naturelles de Belgique, Brussels (IRSNB, courtesy of Dr. L. Baert), the Museo Argentino de Ciencias Naturales, Buenos Aires (MACN, courtesy of Dr. E. A. Maury and Mr. M. J. Ramírez), the Museum of Comparative Zoology, Harvard University (MCZ, courtesy of Dr. H. W. Levi), the Muséum National d'Histoire Naturelle, Paris (MNHN, courtesy of Dr. C. Rollard), and the Naturhistoriska Riksmuseet, Stockholm (NRS, courtesy of Dr. T. Kronstedt). We thank V. T. Davies, R. R. Forster, P. A. Goloboff, C. E. Griswold, D. J. Mott, M. J. Ramírez, and W. A. Shear for helpful comments on a draft of the manuscript. All measurements are in millimeters. Fieldwork for this project was supported by National Science Foundation grants BSR-8312611 and BSR-9024566.

SYSTEMATICS

FAMILY MIMETIDAE SIMON

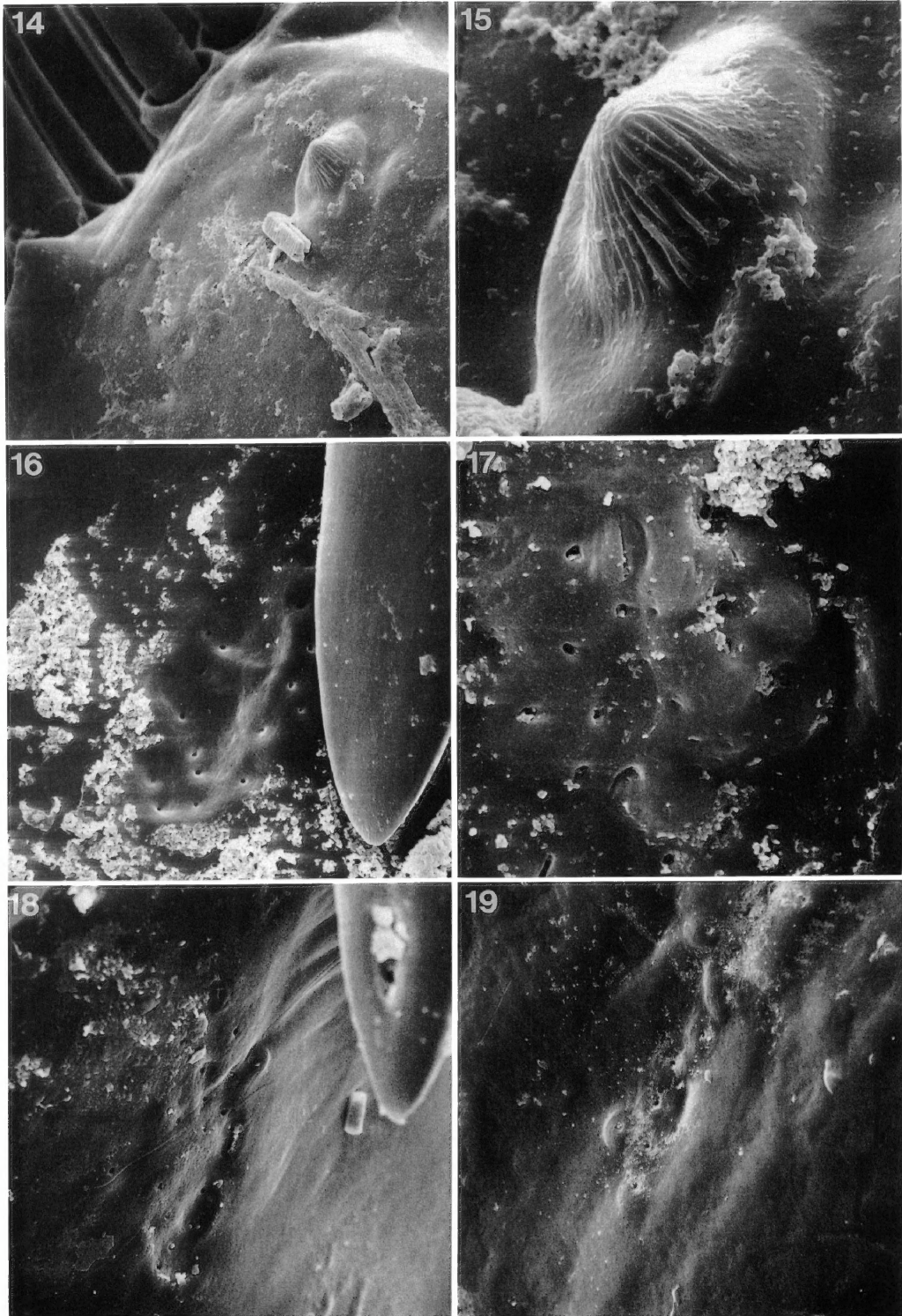
DIAGNOSIS: The traditional synapomorphy of the family, the distinctive prolateral spination on tibiae and/or metatarsi I and II, appears to hold, with the proviso that it need occur only in females (and that at least the genus *Melaenosia* Simon may be misplaced; see below).

RELATIONSHIPS: The superfamilial placement of the family is controversial. Most authors consider it an araneoid, but Forster and Platnick (1984) assigned it to the Palpimanoidea on the basis of the peg teeth on the

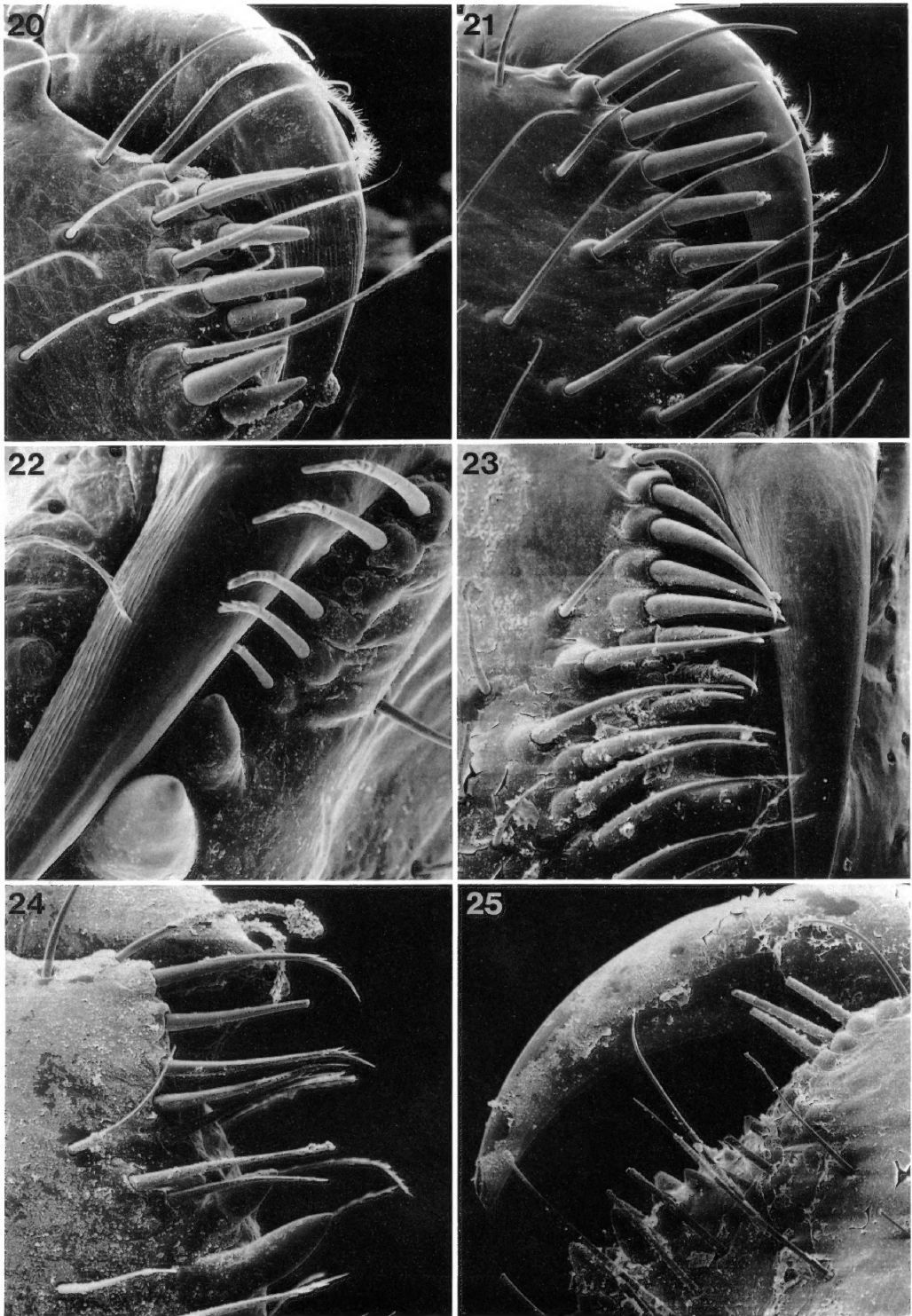
cheliceral promargin and the gland mound on the cheliceral retromargin, and that placement was supported by the analysis of Platnick et al. (1991). Admittedly, the cheliceral characters are not ideal. The gland "mound" of mimetids is only a slight ridge, not as pronounced as in other palpimanoids (figs. 14–18), and is approached in morphology by some putative araneoids (such as the enigmatic Chilean genus *Heterognatha* Nicolet, fig. 19). A few other spiders do have similar (although probably not homologous) peg teeth (Forster and Platnick, 1984), and peg teeth sometimes differ from stiff setae only in having relatively larger bases (compare figs. 20–23 with figs. 24, 25).

However, we note here that unlike araneoids, in the genera that share the typical mimetid leg spination pattern and that have been examined by scanning electron microscopy to date, there are no aggregate or flagelliform gland spigots on the posterior lateral spinnerets (figs. 26–31). As aggregate gland spigots have been hypothesized to be synapomorphic for the Araneoidea, and flagelliform gland spigots (or their homologs) have been hypothesized to be synapomorphic for at least the Araneoidea plus Dinopoidea (Coddington, 1986, 1989, 1990a, b), workers wishing to include mimetids in the Araneoidea will have to find additional characters to overcome the extra steps required by the loss of those spigots (as well as the cheliceral parallels with palpimanoids) in mimetids. The spigot loss could, of course, be associated with the abandonment of orbweb construction (if mimetids are araneoids), but it is notable that specimens of *Arkys*, which make no orbweb and apparently spin at most a single non-viscid frameline (Main, 1982), nevertheless retain the aggregate gland spigots in their full glory (figs. 32–34).

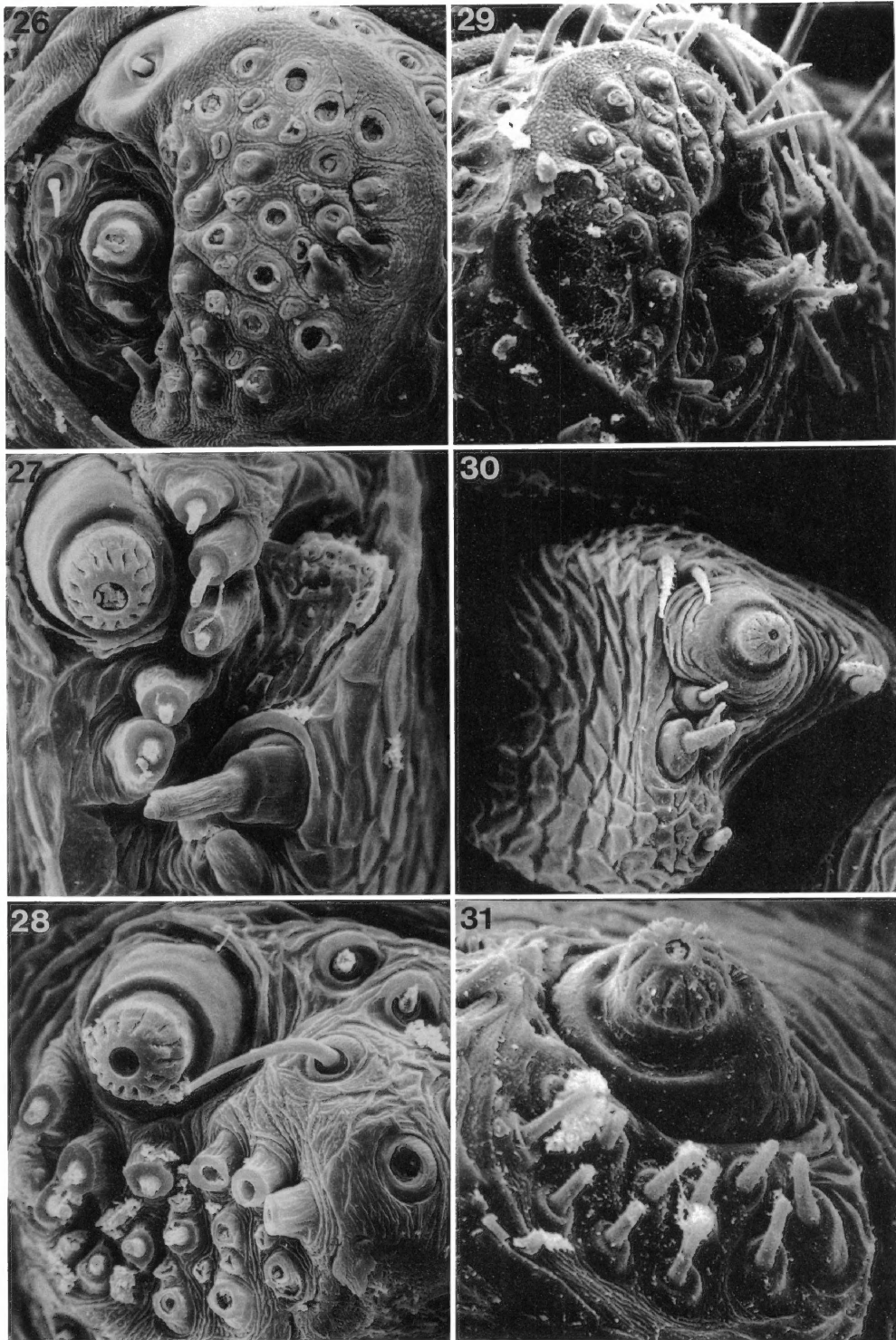
DOUBTFUL PLACEMENT: Levi (1991) suggested that the endemic Chilean genus *Heterognatha*, most notable for its curious abdominal morphology (fig. 9), may belong to the Mimetidae. This is not an unreasonable suggestion; the cheliceral gland openings, for example, are not on flat cuticle (fig. 19). However, neither sex shows typical mimetid leg spination; these spiders appear to have only stiff setae, rather than true peg teeth, on the cheliceral promargin (fig. 24); and they definitely have aggregate gland spigots on the



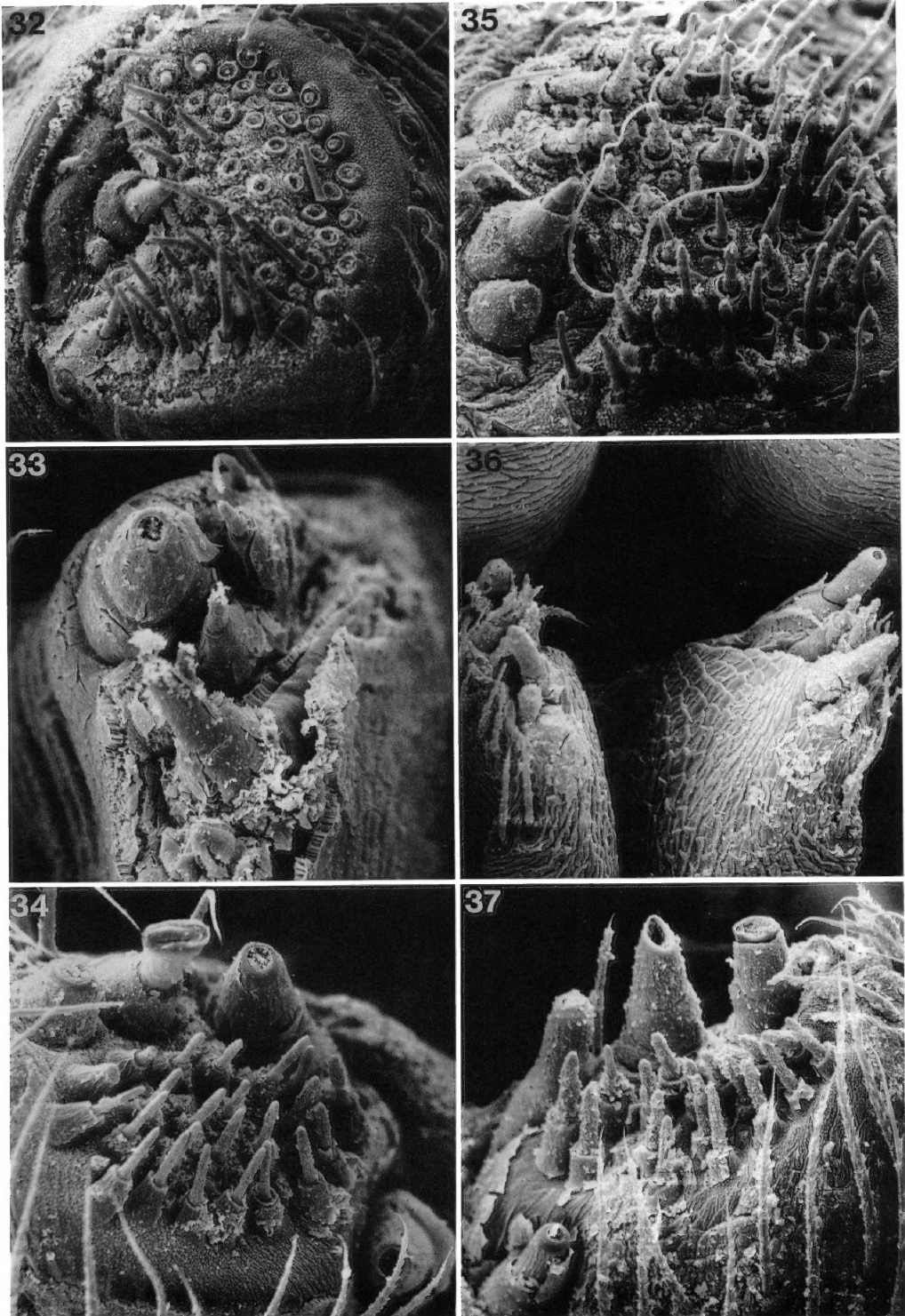
Figs. 14–19. 14, 16–19. Cheliceral gland openings, ventral view. 15. Ridged retromarginal cheliceral tooth. 14, 15. *Ero spinipes* (Nicolet). 16. *Oarces reticulatus* (Nicolet). 17. *Gnolus cordiformis* (Nicolet). 18. *Gnolus angulifrons* Simon. 19. *Heterognatha collusor* (Petrunkevitch).



Figs. 20–25. Cheliceral promargin, anterior view. 20. *Ero spinipes* (Nicolet). 21. *Oarces reticulatus* (Nicolet). 22. *Gnolus cordiformis* (Nicolet). 23. *Gnolus angulifrons* Simon. 24. *Heterognatha collusor* (Petrunkevitch). 25. *Arkys simsoni* (Simon).



Figs. 26–31. Spinnerets of females, ventral view. 26–28. *Mimetus syllepsicus* Hentz. 29–31. *Ero cambridgei* Kulczyński. 26, 29. Anterior lateral spinnerets. 27, 30. Posterior median spinnerets. 28, 31. Posterior lateral spinnerets.



Figs. 32–37. Spinnerets of females, ventral view. 32–34. *Arkys* sp., New Caledonia. 35–37. *Heterognatha collusor* (Petrunkevitch). 32, 35. Anterior lateral spinnerets. 33, 36. Posterior median spinnerets. 34, 37. Posterior lateral spinnerets.

posterior lateral spinnerets (figs. 35–37; flagelliform gland spigots are apparently absent). Thus *Heterognatha* is here excluded from the Mimetidae. The same combination of characters (the lack of true peg teeth and the presence of aggregate but not flagelliform gland spigots; figs. 34, 37) occurs in the Australasian genus *Arkys*, which was considered a mimetid by Heimer (1984) even though typical mimetid leg spination is also absent in that genus. Thus, it seems that the doubts about Heimer's placement of *Arkys* expressed by Davies (1988) are fully justified.

SUBFAMILY MIMETINAE SIMON

Mimetini Simon, 1881: 27.

DIAGNOSIS: The limits of the subfamily, as well as of the larger genera in the family, are ambiguous at present (Brignoli, 1979). However, members of at least the genera *Mimetus* Hentz and *Ero* C. L. Koch share peculiarly enlarged, rotund, and incised cylindrical gland spigots (figs. 27, 28, 30, 31, 42, 43) of a sort unknown in any other spiders. Further, members of the genera *Australomimetus* Heimer and *Phobetinus* Simon share an apparently synapomorphic character with *Mimetus*: the presence of a row of tiny spines along the basal retromargin of at least femur I (Heimer, 1986; a similar row of spines is often present along the promargin and/or retromargin of femur II). These spines do not occur in *Ero*, so if there is no homoplasy in these characters *Australomimetus* and *Phobetinus* should also have the modified cylindrical gland spigots, and are probably also members of the Mimetinae.

Of the remaining genera established to date, *Arochoides* Mello-Leitão is probably just a synonym of *Gelanor* Thorell (curiously, the subfamily name Gelanorinae, which was established by Mello-Leitão, 1935, to contain just *Gelanor* and *Arochoides*, was omitted by Bonnet, 1957). Females of *Gelanor* have cylindrical gland spigots that are enlarged, but are not rotund or incised as in *Mimetus* and *Ero* (figs. 38–40). *Melaenosia* Simon and *Kratochvilia* Strand (i.e., the subfamily Melaenosiinae of Mello-Leitão, 1935, also omitted by Bonnet) may be misplaced in the family (at least *Melaenosia* apparently lacks mimetid leg spination). *Arocha* Simon from Brazil and Peru, and *Reo* Brignoli from Ke-

nya (the transfer of the North American species *Mimetus eutypus* Chamberlin and Ivie to *Reo* by Brignoli, 1979, is totally unconvincing) need to be reexamined, especially for spigot structure, before their relationships can be established. At least some African mimetids resemble *Gelanor* in lacking the modified cylindrical gland spigots (C. Griswold, in litt.), and it therefore seems likely that they belong to a separate (probably as yet undescribed) subfamily. It should be noted that the cylindrical gland spigots of female *Arkys* are enlarged (figs. 33, 34), but again do not share the curiously rotund and incised morphology of mimetines.

DUBIOUS RECORD: Keyserling (1881) described a new genus and species, *Eurymachus latus*, for a female from the Simon collection said to be from Chile. The generic name was later synonymized with *Gelanor* by Simon (1895). The Simon collection (MNHN) currently includes under this name a vial containing a female matching Keyserling's description, as well as an additional pair of adults, all said to be from Bolivia. The spiders do indeed belong to the tropical genus *Gelanor*. As *G. latus* has subsequently been recorded only from Peru, and no modern specimens of *Gelanor* are known from Chile, it seems likely that the type locality of *G. latus* is in Bolivia rather than Chile.

ERO C. L. KOCH

NOTE: Although it appears that no synapomorphies have been suggested to delimit the widely dispersed species currently assigned to this well-known genus, both the abdominal shape and male palpal structure of the Chilean species support its association with the European type species and its relatives. The cheliceral retromargin of at least the Chilean species bears a curiously ridged tooth of a sort apparently also present in the New Zealand species *Mimetus mendicus* O. P.-Cambridge (compare figs. 14, 15 with Forster and Platnick, 1984: fig. 381).

Ero spinipes (Nicolet)

Figures 14, 15, 20, 41–49

Theridion spinipes Nicolet, 1849: 540 (juvenile female lectotype, designated by Levi, 1967: 19, from Chile, in MNHN, not examined).

Ero nicoleti Simon, 1904: 96 (female holotype from

La Herradura, Elqui, Región de Coquimbo, Chile, should be in MNHN, lost). NEW SYNONYMY, following suggestion by Levi, 1967: 19.

Ero spinipes: Levi, 1967: 19, figs. 48–53.

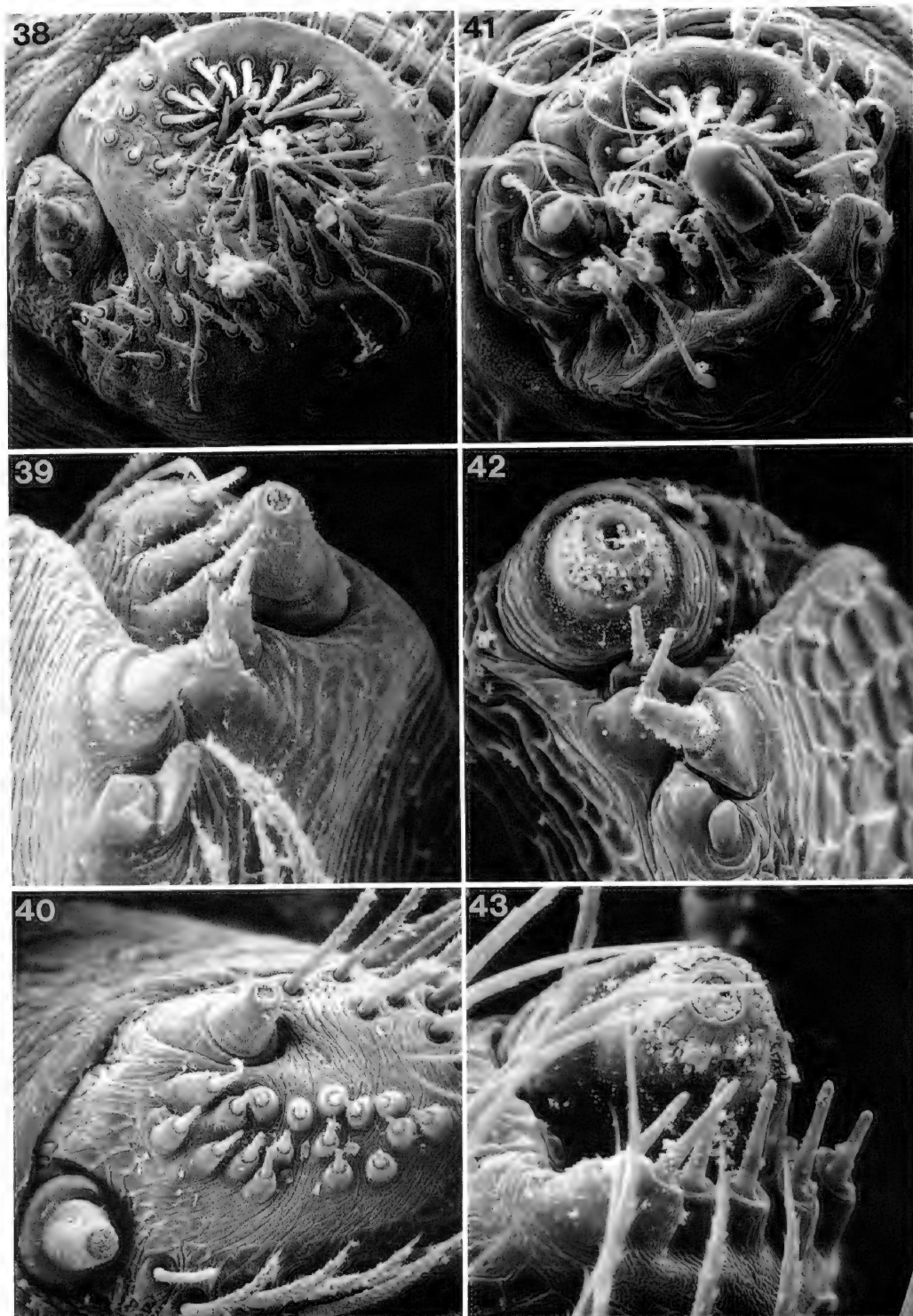
DIAGNOSIS: This species can be distinguished from other members of the genus by the bilobed paracymbium and distally bifid conductor of males (figs. 46, 47) and the medially invaginated posterior epigynal margin of females (figs. 48, 49).

MALE: Total length ca. 3.0 mm. Carapace domed, highest at middle, with dark maculations on pars cephalica, thoracic groove, and along lateral borders of pars thoracica; eyes relatively large. Abdomen with two dorsal tubercles (figs. 44, 45). Tibia I with 4–7, metatarsus I with four, tibia II with 4–5, metatarsus II with three long spines interspersed among short spines. Palp with notched cymbial margin, large, bilobed paracymbium, and distally bifid conductor (figs. 46, 47).

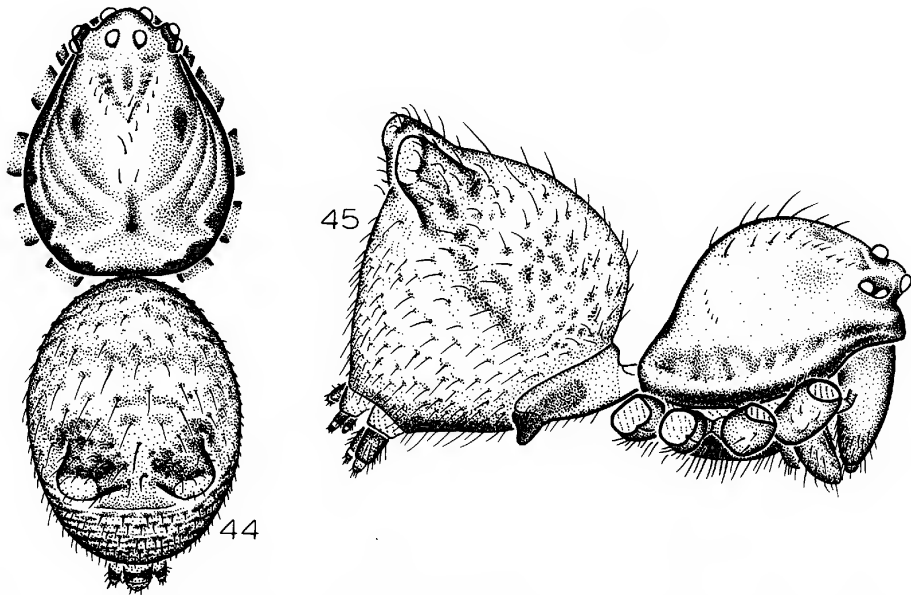
FEMALE: As in male, except tibia I with 8–10, tibia II with 5–6, long spines. Epigynum with bilobed posterior extension attached anteriorly by narrow tongue; spermathecal ducts large, coiled (figs. 48, 49).

MATERIAL EXAMINED: CHILE: **Región de Coquimbo (IV):** *Choapa*: El Bato, E Illapel, Oct. 10, 1985 (L. E. Peña, AMNH), 2♂, 1♀. **Región de Valparaíso (V):** *Petorca*: SW Capatillo, Sept. 30, 1964 (L. E. Peña, MCZ), 1♀; Quebrada Huaquén, Pichicuy, Jan. 1984 (P. A. Goloboff, MACN), 1♀. *Valparaíso*: Quintero, May 11–12, 1961, relict forest (A. F. Archer, AMNH), 1♂, Oct. 2, 1968, relict forest, pitfall (R. Calderón, AMNH), 1♀. **Región Metropolitana:** *Santiago*: Pirque, Oct. 5, 1982 (L. E. Peña, AMNH), 1♀. **Región del Maule (VII):** *Cauquenes*: Agua Buena, June 12, 1984 (L. Irarrazaval, AMNH), 1♂. *Curicó*: Las Tablas, E Curicó, Feb. 1985 (L. E. Peña, AMNH), 1♂. **Región del Bío-Bío (VIII):** *Arauco*: Monumento Natural Contulmo, Dec. 11–Feb. 13, 1985, flight intercept trap, mixed evergreen forest, elev. 350 m (S. J. Peck, AMNH), 3♂, 2♀, Feb. 11–12, 1992, elev. 300 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♀; El Manzano, Cordillera de Nahuelbuta, Mar. 3–5, 1986 (L. E. Peña, AMNH), 1♂, 1♀. **Región de Araucanía (IX):**

Cautín: Flor del Lago, 15 km NE Villarrica, Feb. 10, 1985, log spraying, elev. 500 m (S., J. Peck, AMNH), 1♀ (penultimate); Pucón, Lago Villarrica, Dec. 14, 1988 (V., B. Roth, CAS), 1♀. *Malleco*: Alto Caledonia, 42 km E Mulchén, Feb. 10–15, 1981, elev. 700 m (L. E. Peña, AMNH), 1♀; Parque Nacional Conguillio, Feb. 23, 1992, elev. 1000 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♂; Parque Nacional Nahuelbuta, 40 km W Angol, Dec. 9, 1984–Feb. 17, 1985, flight intercept trap, beech-araucaria forest, elev. 1200–1500 m (S., J. Peck, AMNH), 1♂; Princesa, 20 km W Curacautín, Dec. 12, 1984–Feb. 16, 1985, flight intercept trap, beech forest, elev. 1000 m (S. J. Peck, AMNH), 1♀. **Región de los Lagos (X):** *Chiloé*: Chepu, NW coast, Isla de Chiloé, Feb. 21, 1992, elev. 75 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♂, 2♀; 15 km S Chepu, Feb. 3, 1991 (M. J. Ramírez, MACN), 1♂, 1♀. *Llanquihue*: 2–3 km NW Ensenada, Mar. 18, 1965 (H. W. Levi, MCZ), 1♀; Isla Tengo, Puerto Montt, Mar. 1, 1962 (A. F. Archer, AMNH), 1♀. *Osorno*: Derumbes Forest trail, Aguas Calientes, Parque Nacional Puyehue, Dec. 20, 1984–Feb. 8, 1985, flight intercept trap, elev. 500 m (S. J. Peck, AMNH), 1♂; Pucatrihue, Feb. 1–10, 1980 (L. E. Peña, AMNH), 1♀; Termas de Puyehue, Mar. 10–14, 1965, forest, elev. 240–250 m (H. W. Levi, MCZ), 2♀. *Valdivia*: Neltume, Feb. 1987 (L. E. Peña, AMNH), 4♂, 7♀; Las Trancas, W La Unión, Feb. 6–10, 1988, elev. 500 m (L. E. Peña, AMNH), 1♂. **Región de Aisén (XI):** *Aisén*: 15 km W Cisnes Medio, Río Grande, Dec. 30, 1984–Jan. 28, 1985, flight intercept trap, mature beech forest, elev. 200 m (S., J. Peck, AMNH), 1♂; 15 km S Las Juntas, 30 km N Puyuhuapi, Dec. 30, 1984–Jan. 29, 1985, flight intercept trap, beech forest, elev. 100 m (S., J. Peck, AMNH), 1♂; Reserva Nacional Río Simpson, 37 km W Coihaique, Jan. 20, 1986, wet forest, elev. 20 m (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♀. ARGENTINA: **Chubut**: El Maitén, Feb. 2, 1966 (A. Kovács, AMNH), 1♂, 3♀; Lago Futalaufquen, Jan. 1990 (M. J. Ramírez, MACN), 1♂. **Neuquén**: Lago Ortiz Basualdo, Jan. 1990 (M. J. Ramírez, MACN), 1♀; Laguna Los Cántaros, Puerto Blest, Parque Nacional Nahuel Huapi, Jan. 30, 1985 (M. J. Ramírez, MACN), 1♀. **Río Negro**: El



Figs. 38–43. Spinnerets of females, ventral view. 38–40. *Gelanor* sp., Brazil. 41–43. *Ero spinipes* (Nicolet). 38, 41. Anterior lateral spinnerets. 39, 42. Posterior median spinnerets. 40, 43. Posterior lateral spinnerets.



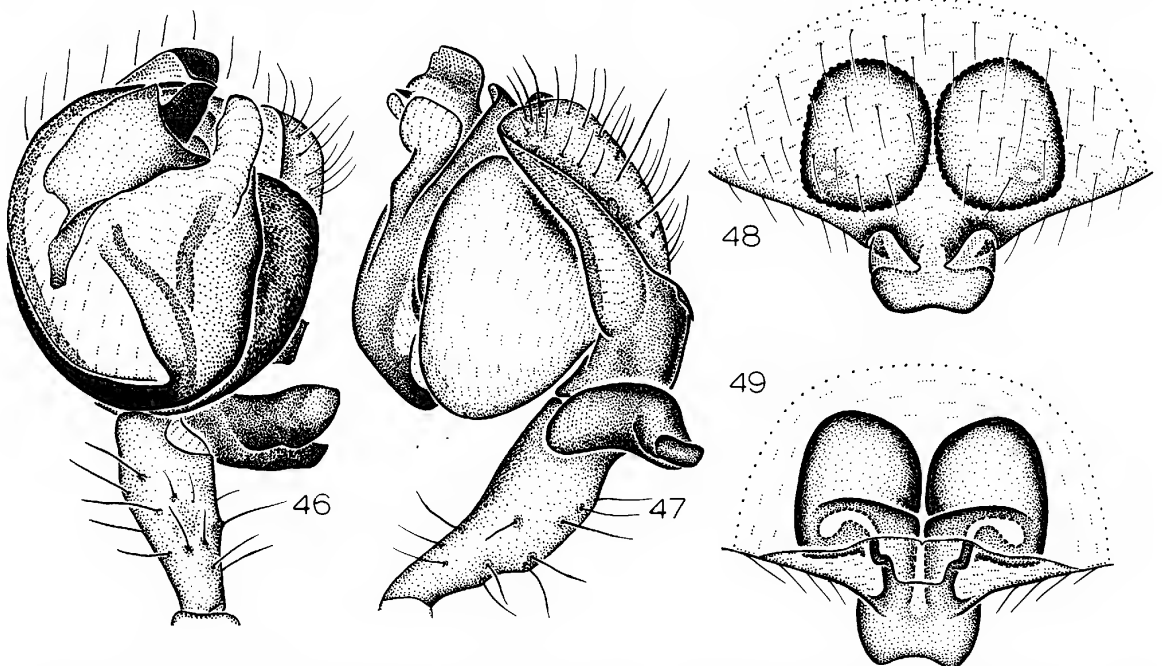
Figs. 44, 45. *Ero spinipes* (Nicolet), female. 44. Dorsal view. 45. Lateral view.

Bolsón, Mar. 13, 1961 (A. Kovács, AMNH), 1♀.

DISTRIBUTION: Widespread in Chile and adjacent Argentina.

SYNONYMY: Levi (1967) suggested the synonymy of *Ero nicoleti* with *E. spinipes*. That

suggestion is adopted here, as only one Chilean species of *Ero* has been found in modern collections, which represent most of the suitable habitats. This may be an example of a pattern that seems to be detectable in the Simon collection. It is well known that Simon



Figs. 46–49. *Ero spinipes* (Nicolet). 46. Left male palp, ventral view. 47. Same, retrolateral view. 48. Epigynum, ventral view. 49. Same, dorsal view.

generally maintained a single vial for each species that he recognized. As a result, the type series for some species (especially Mediterranean ones) consists of a large number of specimens, often belonging to several different species. Apparently Simon would add subsequently collected specimens he considered to be conspecific to a preexisting vial, even if the new material came from a different locality. In many such cases, the new locality information was apparently not noted on the vial label. I have noted numerous cases where no types can now be found for names that Simon discovered to be synonyms, or for Simon names that now appear to be new synonyms. It may well be that Simon routinely consolidated the contents of tubes when he thought the specimens were conspecific, even before the synonymy may have been published. In cases where the type material should be in Paris, the absence of a name from the collection and its card index may thus indicate that Simon had subsequently concluded that the name is a junior synonym.

SUBFAMILY OARCINAE SIMON

Oarcinae Simon, 1890: 81.

Gnoleae Simon, 1895: 909. NEW SYNONYMY.

DIAGNOSIS: The two included genera, *Oarces* and *Gnolus*, resemble mimetines in cheliceral gland mound (figs. 16–18) and peg tooth (figs. 21–23) morphology, as well as in having relatively smooth trichobothrial bases (fig. 13) and capsulate tarsal organs (fig. 53). They differ from mimetines in lacking typical mimetid leg spination in males (fig. 12), and in having normal, rather than enlarged, rounded, and incised cylindrical gland spigots in females (figs. 50–52, 62–67). Genitalic characters leave little doubt that *Oarces* and *Gnolus* are sister taxa; indeed, the two genera cannot be distinguished by palpal or epigynal structure alone. Their palpal conformation is unique within the family, involving a short, prodistally originating embolus supported by a large distal conductor and accompanied by an enlarged, flattened, retrolaterally situated median apophysis (as in figs. 56–58, 71–73).

SYNONYMY: Two family-group level names are needed only if *Oarces* and *Gnolus* are placed in different families, an arrangement rejected by Tullgren (1902) and here.

OARCES SIMON

Oarces Simon, 1879: LIX (type species by monotypy *Arkys reticulatus* Nicolet).

DIAGNOSIS: Specimens of *Oarces* can readily be distinguished from those of the other Chilean mimetids by the posteriorly prolonged abdomen, the tip of which far overhangs the spinnerets (figs. 54, 55).

MISPLACED SPECIES: Mello-Leitão (1935) described a second species, *O. ornatus*, from Brazil, but his figure shows a long-legged spider that is clearly misplaced in this genus.

Oarces reticulatus (Nicolet)

Figures 1, 2, 10–13, 16, 21, 50–61

Arkys reticulatus Nicolet, 1849: 387 (two female syntypes from Chile, in MNHN, examined).

Arkys piriformis Nicolet, 1849: 388 (holotype from Valdivia, Chile, not in MNHN, lost). First synonymized by Simon, 1879: LX.

Arkys gayi Nicolet, 1849: 388 (holotype from Chile, not in MNHN, lost). First synonymized by Simon, 1879: LX.

Arkys flavescens Nicolet, 1849: 389, pl. 5, figs. 1, 1a–c (female holotype from Valdivia, Chile, in MNHN, examined). First synonymized by Simon, 1879: LX.

Arkys liliputianus Nicolet, 1849: 389 (six juvenile syntypes from Valdivia, Chile, in MNHN, examined). First synonymized by Simon, 1879: LX.

Arkys inflatus Nicolet, 1849: 389 (five female syntypes from Chile, in MNHN, examined). First synonymized by Simon, 1879: LX.

Oarces reticulatus: Simon, 1879: LX.

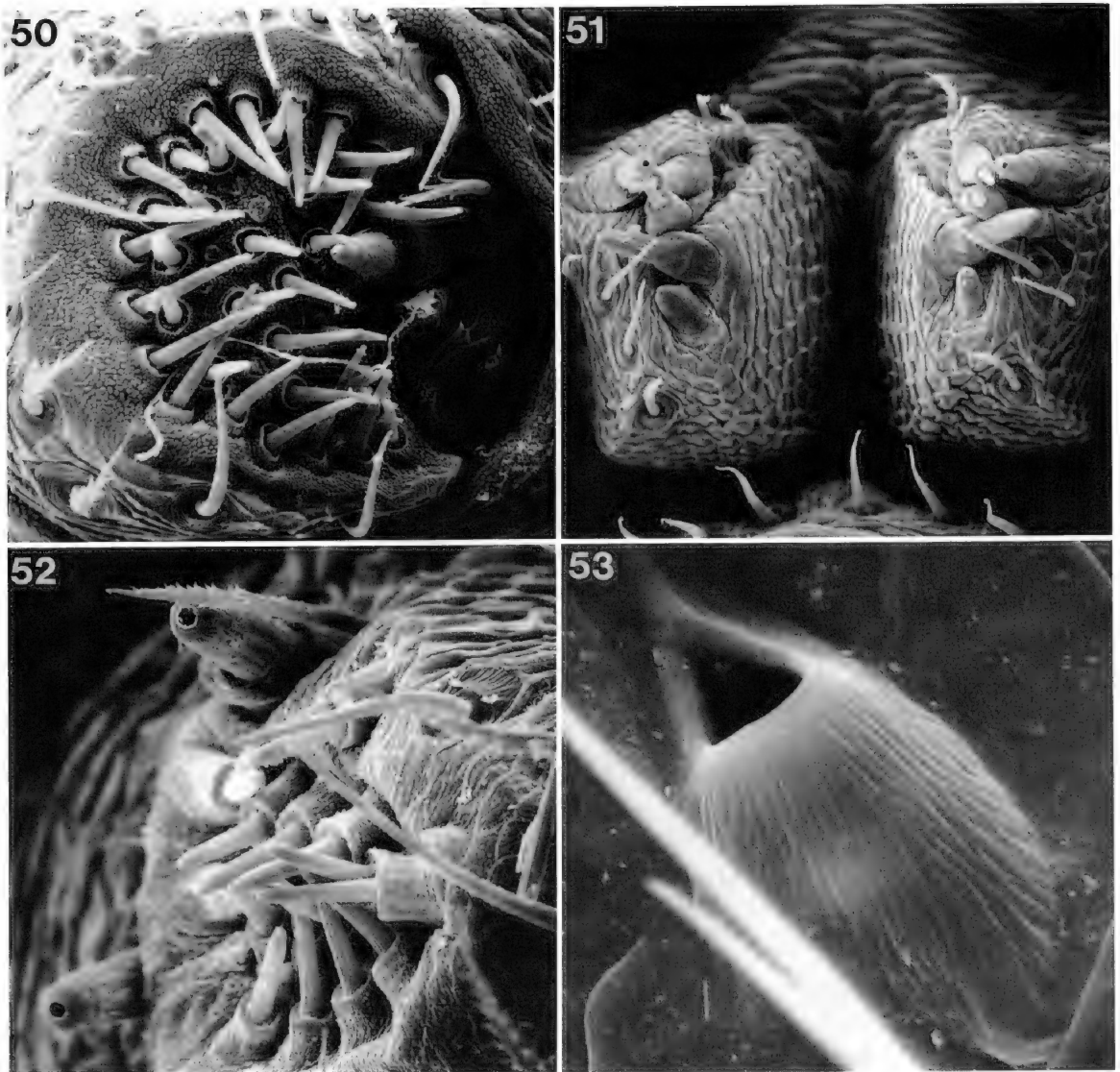
Ursa liliputana: Archer, 1963: 22.

DIAGNOSIS: The body form (figs. 54, 55), the incised tip of the retrolateral tegular apophysis (figs. 56–58), and the posterior epigynal notch (fig. 60) are diagnostic.

MALE: Described by Simon (1879).

FEMALE: Described by Nicolet (1849), Simon (1879), and Tullgren (1902).

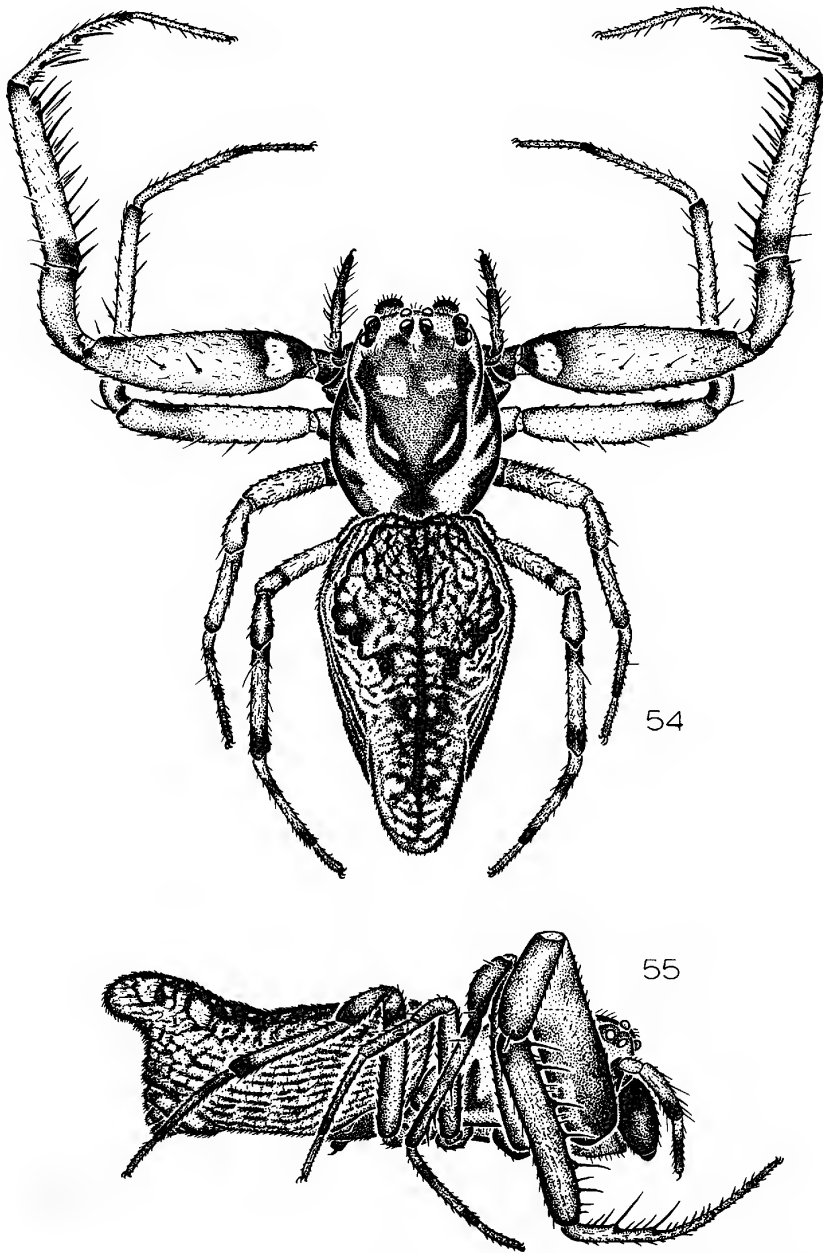
MATERIAL EXAMINED: CHILE: Región de Coquimbo (IV): Choapa: El Bato, E Illapel, Oct. 10, 1985 (L. E. Peña, AMNH), 3♂, 1♀. **Región de Valparaíso (V): Petorca:** Petorca, Oct. 8, 1986 (L. E. Peña, AMNH), 3♂, 1♀; Quebrada Huaquén, Pichicuy, Oct. 2, 1992, elev. 10 m (N. I. Platnick, P. A. Goloboff, K. M. Catley, AMNH), 1♀. **San Antonio:** Quebrada Córdoba, 5 km E El Tabo, Feb. 15–20, 1979 (L. E. Peña, AMNH), 2♀, Nov. 1–



Figs. 50–53. *Oarces reticulatus* (Nicolet), female. 50. Anterior lateral spinnerets, ventral view. 51. Posterior median spinnerets, ventral view. 52. Posterior lateral spinnerets, ventral view. 53. Tarsal organ from leg IV, dorsal view.

4, 1985 (L. E. Peña, AMNH), 1♂. **Valparaíso:** Cuesta El Melón, Oct. 10–12, 1986 (L. E. Peña, AMNH), 2♂. **Región Metropolitana:** *Santiago:* Quilicura, May 1979 (L. E. Peña, AMNH), 1♂, 1♀. **Región del Maule (VII):** *Cauquenes:* W Cauquenes, Oct. 4, 1983, elev. 350 m (AMNH), 1♀; Reserva Nacional Los Ruiles, Feb. 25, 1992, elev. 160 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♀. *Curicó:* Las Tablas, E Curicó, Feb. 1985 (L. E. Peña, AMNH), 1♂, 3♀. *Linares:* Bullileo, Parral, Dec. 5–8, 1990 (L. E. Peña, AMNH), 1♂, 1♀; El Coigo, Oct. 1–10, 1960

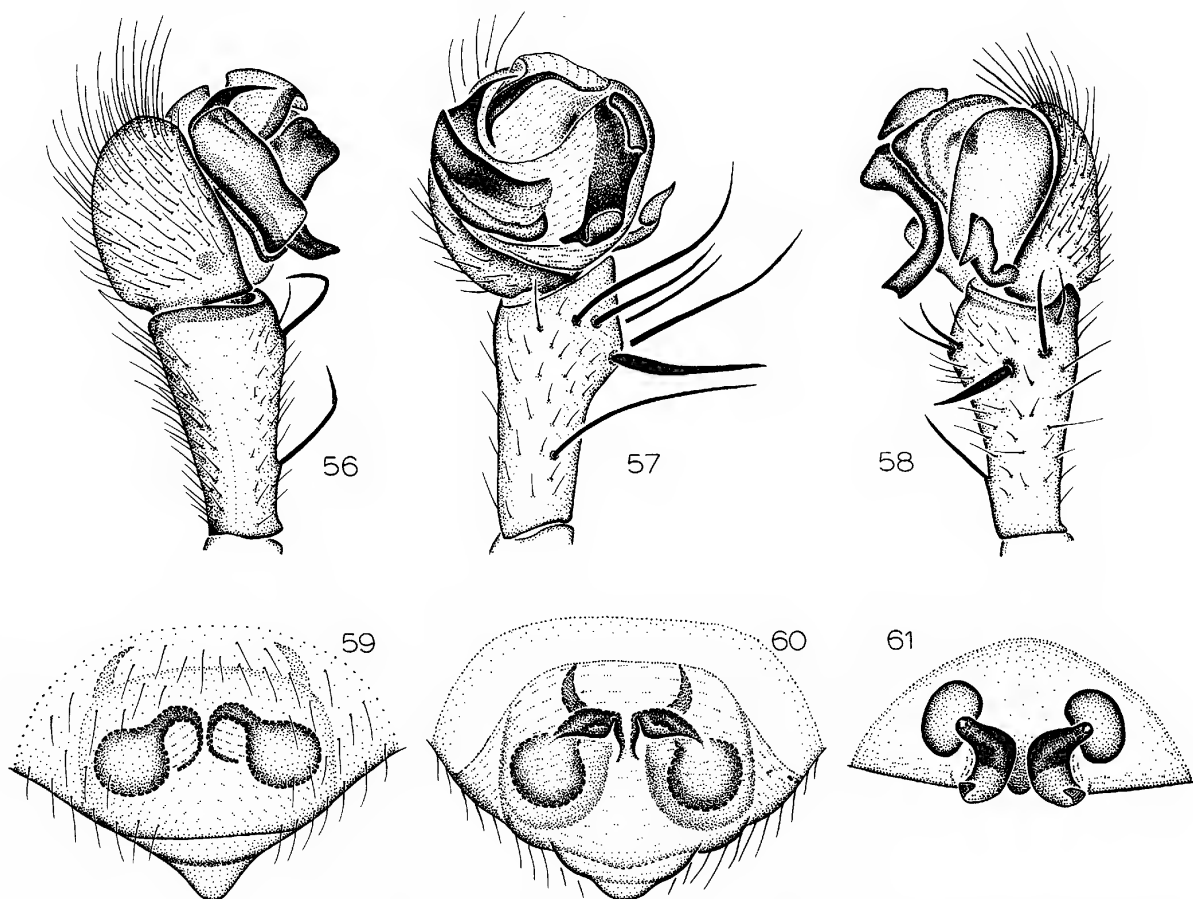
(L. E. Peña, IRSNB), 1♀; Fundo Malcho, Parral, Nov. 11–20, 1964 (L. E. Peña, MCZ), 3♂, 1♀; Pte. Malcho, Jan. 13–16, 1979 (L. E. Peña, AMNH), 1♀. *Talca:* Alto de Vilches, 70 km E Talca, Oct. 17–24, 1964 (L. E. Peña, MCZ), 1♀, Dec. 5, 1984–Feb. 20, 1985, flight intercept trap, beech forest, elev. 1300 m (S., J. Peck, AMNH), 1♂; Gil de Vilches, Jan. 7, 1989 (M. J. Ramírez, MACN), 1♂; 3 km W Vilches, Feb. 7, 1992, elev. 1070 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♀. **Región del Bío-Bío (VIII):** *Arauco:* Monumento Natural Contulmo, Dec.



Figs. 54, 55. *Oarces reticulatus* (Nicolet), female. 54. Dorsal view. 55. Lateral view.

11, 1984–Feb. 13, 1985, flight intercept trap, mixed evergreen forest, elev. 350 m (S., J. Peck, AMNH), 2♀, Feb. 11–12, 1992, elev. 300 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 2♂, 1♀; El Manzano, near Contulmo, Dec. 15, 1985 (L. E. Peña, AMNH), 1♂, 5♀. *Concepción*: Bosque Ramuntcho, Concepción, Oct. 14–Dec. 13, 1961 (A. F. Archer, J. Artigas, AMNH), 9♂, 14♀; Caleta Chome, Nov. 30, 1991 (T. Cekalovic,

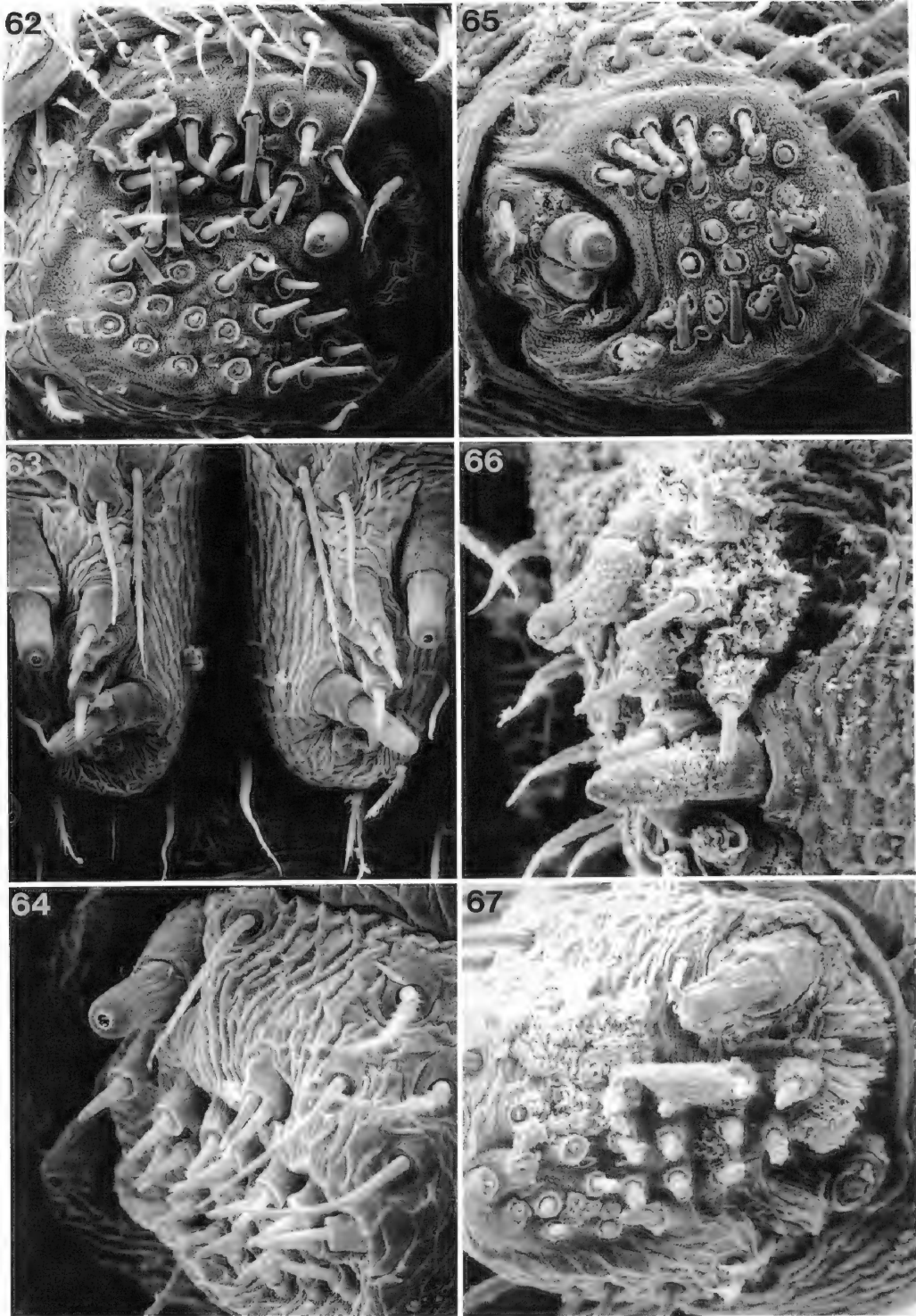
AMNH), 1♀; Copiulemu, Jan. 17, 1969 (L. E. Peña, MCZ), 1♂; Escuadrón, Dec. 27, 1987 (T. Cekalovic, AMNH), 1♀; Estero Nonguén, Concepción, Dec. 12, 1976 (T. Cekalovic, AMNH), 1♀; Hualpén, Concepción, Jan. 11, 1989 (M. J. Ramírez, MACN), 3♂, 2♀; Penco, Sept. 18, 1986 (T. Cekalovic, AMNH), 1♀. *Nuble*: Fundo El Sauce, San Fabián de Alico, Jan. 8–24, 1986 (L. E. Peña, AMNH), 1♂, 2♀; Las Cabras, Dec. 26–28, 1986 (L. Umaña,



Figs. 56–61. *Oarces reticulatus* (Nicolet). 56. Left male palp, prolateral view. 57. Same, ventral view. 58. Same, retrolateral view. 59. Epigynum, ventral view. 60. Same, posterior view. 61. Same, dorsal view.

AMNH), 1♂, 1♀; Las Comadres, near Chillán, Feb. 5–9, 1983 (L. E. Peña, AMNH), 1♀; Recinto, SE Chillán, Jan. 23, 1979, elev. 800 m (L. E. Peña, AMNH), 4♂, 5♀, Oct. 1–3, 1983, elev. 1000 m (L. E. Peña, AMNH), 3♀. **Región de Araucanía (IX):** *Cautín*: Cerro Nielol, Temuco, Jan. 15, 1989 (M. J. Ramírez, MACN), 3♂, 2♀, Jan. 21, 1991 (E. A. Maury, MACN), 1♂; Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981 (L. E. Peña, AMNH), 2♂, 2♀; Flor del Lago, 15 km NE Villarrica, Dec. 14, 1984–Feb. 10, 1985, flight intercept trap, beech forest, elev. 300 m (S. J. Peck, AMNH), 1♀; Lago Caburga, 21 km NE Pucón, Dec. 15, 1984–Feb. 10, 1985, flight intercept trap, mixed forest remnant, elev. 600 m (S. J. Peck, AMNH), 1♀; La Selva, NW Nueva Imperial, W Temuco, Feb. 9–12, 1981, elev. 700 m (L. E. Peña, AMNH), 2♀; Pucón, Lago Villarrica, Dec. 14, 1988 (V., B. Roth, CAS),

4♂, 1♀; 20 km E Temuco, Jan. 1951 (M. Smith, CAS), 1♀; Villarrica, Feb. 27–28, 1979 (L. E. Peña, AMNH), 2♀; NE Villarrica, Dec. 16–31, 1964 (L. E. Peña, MCZ), 1♂, 1♀; 30 km NE Villarrica, Jan. 1–30, 1965 (L. E. Peña, MCZ), 2♂, 1♀. *Malleco*: Alto Caledonia, 42 km E Mulchén, Feb. 14, 1992, elev. 740 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 2♂, 2♀; 17 km W Angol, Dec. 8, 1984–Feb. 16, 1985, flight intercept trap, mixed beech forest, elev. 800 m (S., J. Peck, AMNH), 1♂, 1♀; Princesa, 20 km W Curacautín, Dec. 12, 1984–Feb. 16, 1985, flight intercept trap, beech forest, elev. 1000 m (S. J. Peck, AMNH), 1♂; Fundo Ester, 15 km E Victoria, Jan. 14, 1989 (M. J. Ramírez, MACN), 6♂, 6♀. **Región de los Lagos (X):** *Chiloé*: 15 km S Chepu, Isla de Chiloé, Feb. 3, 1991 (M. J. Ramírez, MACN), 1♀; Cucao, Isla de Chiloé, Feb. 12, 1991 (M. J. Ramírez,



Figs. 62–67. Spinnerets of females, ventral view. 62–64. *Gnolus cordiformis* (Nicolet). 65–67. *Gnolus angulifrons* Simon. 62, 65. Anterior lateral spinnerets. 63, 66. Posterior median spinnerets. 64, 67. Posterior lateral spinnerets.

MACN), 1♂, 1♀; 25 km N Cucao, Isla de Chiloé, Feb. 8–11, 1991 (M. J. Ramírez, MACN), 2♀; Dalcahue, NE Castro, Isla de Chiloé, Jan.–Feb. 1981 (L. E. Peña, AMNH), 1♀; Guabún, Isla de Chiloé, Jan. 13–15, 1980 (L. E. Peña, AMNH), 2♀; Huequetrumao, Isla de Chiloé, Dec. 27, 1981 (L. E. Peña, AMNH), 2♂, 1♀; Pio-Pio, Isla de Chiloé, Mar. 10–12, 1987 (L. E. Peña, AMNH), 1♀; Río Ventisquero, Lago Velcho, Dec. 5–9, 1985 (L. E. Peña, AMNH), 2♂; Tepuhueico, Isla de Chiloé, Dec. 23–26, 1981 (L. E. Peña, AMNH), 1♂; Terao, S Chonchi, Isla de Chiloé, Jan. 18–21, 1990 (L. E. Peña, AMNH), 1♂, 6♀. *Llanquihue*: Cabo Hornuina, Correntoso, Dec. 1968 (L. E. Peña, MCZ), 4♀; Caleta La Arena, Jan. 30, 1991 (M. J. Ramírez, MACN), 1♂; Ensenada, Dec. 1, 1988 (V., B. Roth, CAS), 2♂; Isla Calbuco, Feb. 21–28, 1962 (A. F. Archer, AMNH), 1♂, 2♀; Lago Chapo, 34 km E Puerto Montt, Dec. 24, 1984–Feb. 2, 1985, flight intercept trap, secondary growth beech forest, elev. 300 m (S., J. Peck, AMNH), 1♂; Los Muermos, Jan. 19–20, 1951, forest (E. S. Ross, Michelbacher, CAS), 3♂, 5♀; Petrohue, Mar. 29, 1968 (L. E. Peña, MCZ), 3♀; Peulla, Mar. 13, 1985 (W. Sedgwick, MCZ), 1♀; 8 mi W Puerto Varas, Jan. 16, 1951 (E. S. Ross, CAS), 1♂. *Osorno*: Aguas Calientes, Parque Nacional Puyehue, Dec. 12–20, 1981, elev. 600 m (L. E. Peña, AMNH), 2♀, Dec. 5–7, 1988 (V., B. Roth, CAS), 2♂, 1♀; Anticura, Parque Nacional Puyehue, Jan. 1–Feb. 20, 1979–1986 (L. E. Peña, AMNH), 1♂, 2♀; 4.1 km E Anticura, Parque Nacional Puyehue, Dec. 19–26, 1982, screen sweeping at dusk, valdivian rainforest, elev. 430 m (A. Newton, M. Thayer, AMNH), 9♀; Antillanca road, Parque Nacional Puyehue, Dec. 18–24, 1982, sweeping at dusk, valdivian rainforest, elev. 470–720 m (A. Newton, M. Thayer, AMNH), 5♀; La Picada, NW Volcán Osorno, Jan. 15–20, 1980, elev. 450 m (L. E. Peña, AMNH), 1♂; 36 km W La Unión, Mar. 25–28, 1987, elev. 600 m (L. E. Peña, AMNH), 3♀; Los Derrumbes, 5 km S Termas de Puyehue, Jan. 18, 1989 (M. J. Ramírez, MACN), 1♂; hills S Maicolpué, Feb. 19, 1992, elev. 50 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 2♂, 1♀; Pucatrihue, Jan.–Mar. 1967–1968 (L. E. Peña, MCZ), 3♂, 4♀, Feb. 1–24, 1980–1985 (L. E. Peña, AMNH), 3♀; 18 km W Purranque, Jan. 16, 1951, valley forest (E. S. Ross, Michelbacher, CAS), 2♂, 1♀; Puye-

hue, Jan. 26, 1969, elev. 500 m (L. E. Peña, MCZ), 3♂, 2♀; 10 km E Puyehue, Jan. 24, 1951 (E. S. Ross, Michelbacher, CAS), 1♂, 4♀; Termas de Puyehue, Mar. 14, 1965, elev. 240 m (H. W. Levi, MCZ), 1♀. *Palena*: Chaitén, Jan. 16, 1986, roadside at night, elev. 10 m (N. I. Platnick, P. A. Goloboff, R. T. Schuh, AMNH), 1♂. *Valdivia*: La Herradura, 6 km E Niebla, Feb. 16, 1992, elev. 20 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 2♀; Las Lajas, W La Unión, Jan. 9–15, 1990 (L. E. Peña, AMNH), 3♂, 3♀, Nov. 19–20, 1990 (L. E. Peña, AMNH), 1♀; Mashue, Feb. 11–15, 1974, L. Alvarez, L. Cartogena, MCZ), 2♂; Neltume, Feb. 1987 (L. E. Peña, AMNH), 3♀; Puroción, NW Panguipulli, Jan. 10, 1985 (L. E. Peña, AMNH), 1♂, 2♀; Riñico de Piedra, S Valdivia, Feb. 23–26, 1979 (L. E. Peña, AMNH), 1♂; 8 mi E Río Bueno, Jan. 15, 1951 (E. S. Ross, Michelbacher, CAS), 2♀; Santo Domingo, Sept. 19, 1976 (E. Krahmer, AMNH), 2♀; 30 km S Valdivia, Jan. 13, 1951 (E. S. Ross, Michelbacher, CAS), 1♂. **Región de Aisén (XI)**: *Aisén*: La Junta, Jan. 25, 1990 (L. E. Peña, AMNH), 1♂; Puerto Aisén, Nov. 1985 (L. E. Peña, AMNH), 1♂, 2♀. **ARGENTINA**: **Chubut**: Lago Verde, Jan. 1990 (M. J. Ramírez, MACN), 2♂, 1♀. **Neuquén**: Hua Hum, Parque Nacional Nahuel Huapi, Jan. 1985 (M. J. Ramírez, MACN), 1♀, Nov. 23–25, 1987 (E. A. Maury, MACN), 1♂; Laguna Los Cántaros, Puerto Blest, Parque Nacional Nahuel Huapi, Jan. 30, 1985 (M. J. Ramírez, MACN), 1♀; Península de Quetrihué, Laguna Patagua, Parque Nacional Nahuel Huapi, Jan. 23, 1985 (M. J. Ramírez, MACN), 2♂, 1♀.

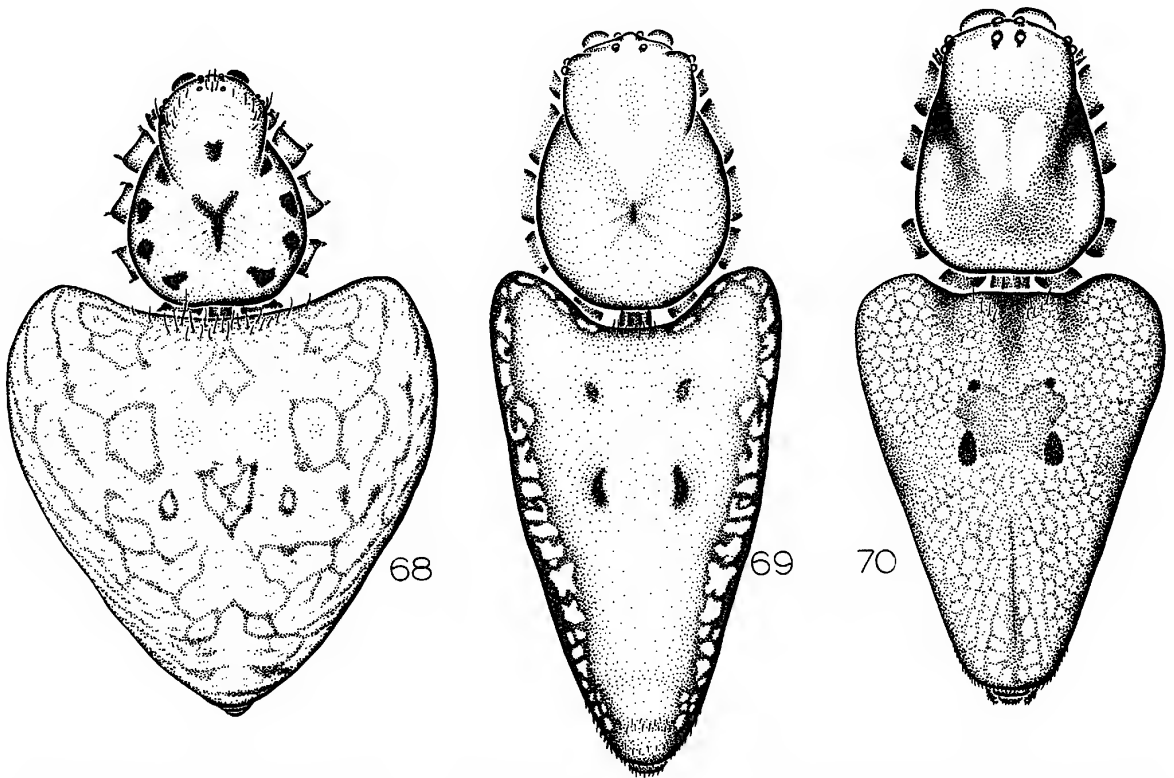
DISTRIBUTION: Widespread in Chile and adjacent Argentina.

NOTE: Archer's (1963) transfer of *Arkys liliputianus* to the araneid genus *Ursa* is unwarranted; the types of Nicolet's name, although juvenile, clearly belong to *Oarces*.

GNOLUS SIMON

Gnolus Simon, 1879: LVIII (type species, designated by Simon, 1895: 912, *Arkys cordiformis* Nicolet).

DIAGNOSIS: Specimens of *Gnolus* have distinctive triangular abdomens (figs. 68–70, 89–91) in which the posterior tip of the abdomen does not far overhang the spinnerets. In life



Figs. 68–70. Female cephalothorax and abdomen, dorsal view. 68. *Gnolus cordiformis* (Nicolet). 69. *G. limbatus* (Nicolet). 70. *G. blinkeni*, new species.

these species often have distinctive green color patterns (that unfortunately fade completely in alcohol).

MISPLACED SPECIES: Simon (1895) assigned to *Gnolus* three Neotropical species originally described as *Testudinaria quadripunctatus* Taczanowski (from Peru), *Arcidius lemniscatus* Simon (from Brazil), and *Arcidius unipunctatus* Simon (from Brazil). As no modern specimens of *Gnolus* are known from the tropics, it is likely that Simon's transfers are erroneous, and that the genus *Arcidius* may need to be revived to contain some or all of these tropical species, which seem to share with true *Gnolus* only a triangular abdominal shape and anteriorly situated, protuberant eyes. Interestingly, the male palpal morphology of some of these species suggests that they may be closely related to the Chilean *Heterognatha*.

The *cordiformis* Group

This species group contains three species in which the abdomen forms an elongated

triangle, much longer than wide (figs. 68–70). The male palpal tibia is relatively long, and the female epigynum bears a small, median, posteriorly directed extension.

Gnolus cordiformis (Nicolet)

Figures 3, 4, 17, 22, 62–64,
68, 71–76

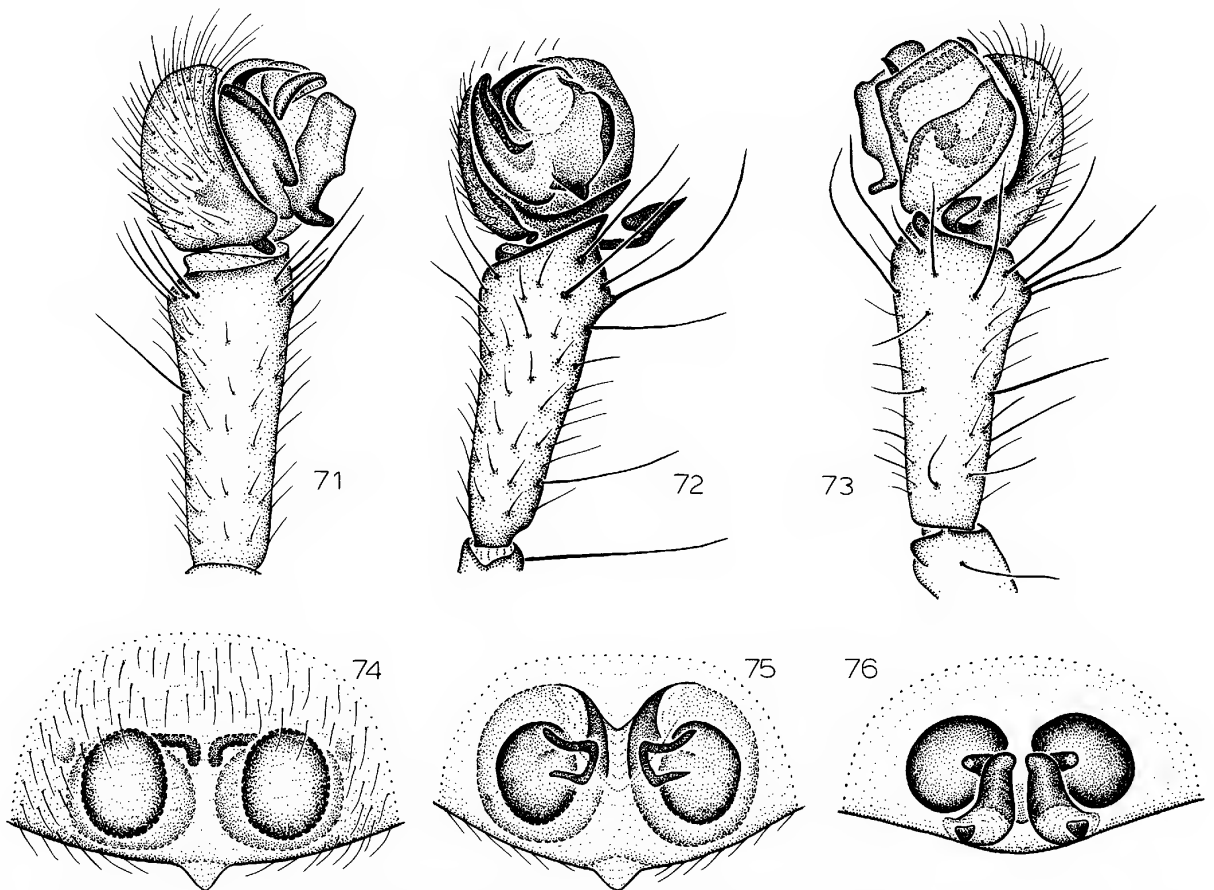
Arkys cordiformis Nicolet, 1849: 385 (female holotype from Valdivia, Chile, in MNHN, examined).

Arkys variabilis Nicolet, 1849: 385 (female holotype from Chile, in MNHN, examined). First synonymized by Simon, 1879: LIX.

Gnolus cordiformis: Simon, 1879: LIX.

Gnolus affinis Tullgren, 1902: 43 (female holotype from upper part of Aisén valley, Aisén, Chile, in NRS, examined). **NEW SYNONYMY.**

DIAGNOSIS: Males can be recognized easily by the incised margin of the retrolateral tegular apophysis (fig. 71), females by the abdominal shape (fig. 68) and tiny posterior epigynal projection (figs. 74–76). Although this is one of the most common Chilean spiders,



Figs. 71–76. *Gnolus cordiformis* (Nicolet). 71. Left male palp, prolateral view. 72. Same, ventral view. 73. Same, retrolateral view. 74. Epigynum, ventral view. 75. Same, posterior view. 76. Same, dorsal view.

the male has not previously been described (the male assigned to this species by Tullgren, 1902, actually belongs to *G. blinkeni*).

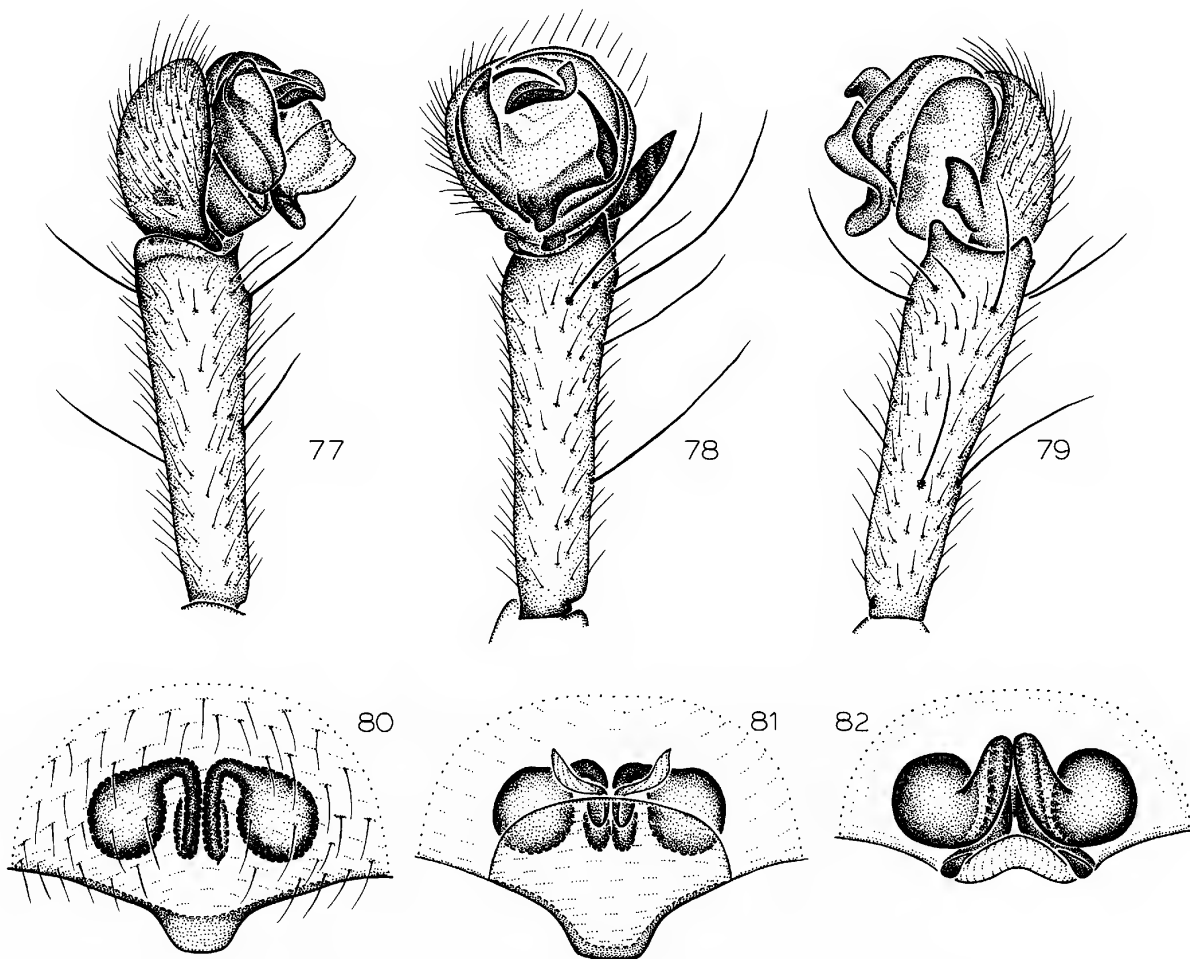
MALE: Total length ca. 4.5 mm. Carapace flat, highest at middle of pars cephalica, with green lateral markings that fade rapidly in alcohol; eyes relatively small. Abdomen triangular, anterolateral corners slightly produced anteriorly. Tibiae I, II with about 7 prolateral spines, of which most distal is greatly enlarged (as is accompanying ventral spine), metatarsi I, II with single weak prolateral spine. Palp with incised retrolateral tegular apophysis and distally expanded paracymbium (figs. 71–73).

FEMALE: Described by Nicolet (1849), Simon (1879, 1896), and Tullgren (1902, as *Gnolus affinis*).

MATERIAL EXAMINED: CHILE: **Región de Coquimbo (IV):** *Choapa:* El Bato, E Illapel,

Oct. 10, 1985 (L. E. Peña, AMNH), 6♂, 15♀; 22 mi N Los Vilos, Dec. 13, 1950 (E. S. Ross, Michelbacher, CAS), 3♀. *Limari:* Fray Jorge, Dec. 10, 1950, ranch (E. S. Ross, Michelbacher, CAS), 1♂, 4♀; 70 mi S Ovalle, Dec. 13, 1950, coast road (E. S. Ross, Michelbacher, CAS), 1♀. **Región de Valparaíso (V):** *Aconcagua:* E La Ligua, Sept. 27, 1980, relict forest (L. E. Peña, AMNH), 6♀; Llay-Llay, Feb. 4, 1951 (CAS), 3♀. *Petorca:* Cachagua, Dec. 14, 1980 (L. E. Peña, AMNH), 6♂, 9♀; SW Catapilco, Sept. 30, 1964 (L. E. Peña, MCZ), 1♂, 1♀; Petorca, Oct. 8, 1986 (L. E. Peña, AMNH), 2♂, 3♀; Pullalli, Dec. 16, 1980 (L. E. Peña, AMNH), 1♀; Zapallar, Nov. 27, 1959 (E. S. Ross, Michelbacher, CAS), 2♂, 14♀. *San Antonio:* Quebrada Córdoba, 5 km E El Tabo, Feb. 15–20, 1979 (L. E. Peña, AMNH), 4♂, 9♀, Nov. 1–4, 1985 (L. E. Peña, AMNH), 2♀, Feb. 6, 1992, elev. 80 m (N. I.

- Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♂. *Valparaíso*: 10 mi N Concon, Dec. 16, 1950 (E. S. Ross, Michelbacher, CAS), 5♀; Cuesta El Melón, Nov. 15, 1985 (L. E. Peña, AMNH), 1♀; Quintero, May 11–12, 1961, relict forest (A. F. Archer, AMNH), 1♀, Dec. 12, 1980 (L. E. Peña, AMNH), 3♀; Valparaíso, Feb. 1954 (E. Reed, AMNH), 1♂.
- Región Metropolitana: Santiago:** Cuesta La Dormida, N Tiltil, Nov. 13–18, 1982, elev. 800–1300 m (L. E. Peña, AMNH), 4♀; Parcela Carmichael, Las Corides, May 5, 1962 (A. F. Archer, AMNH), 1♀; San Manuel, S Melipilla, Dec. 6–8, 1980 (L. E. Peña, AMNH), 4♂, 3♀.
- Región del Maule (VII): Cauquenes:** Cayurranquil, W Cauquenes, Jan. 24–27, 1981, beech forest, elev. 400 m (L. E. Peña, AMNH), 2♂. *Curicó:* Lago Vichuguén, Mar. 26, 1961 (A. F. Archer, AMNH), 1♂, 1♀; Las Tablas, E Curico, Feb. 1985 (L. E. Peña, AMNH), 54♂, 37♀. *Linares:* El Coigo, Jan. 1960 (L. E. Peña, IRSNB), 1♂, 1♀; Pte. Malcho, Jan. 13–16, 1979 (L. E. Peña, AMNH), 4♀. *Talca:* Alto de Vilches, Oct. 18–25, 1964 2♀; Carrizalillo, E Constitución, near Forel railroad station, Feb. 2, 1981, elev. 250 m (L. E. Peña, AMNH), 1♂, 1♀; 22 mi N Talca, Dec. 22, 1950 (E. S. Ross, Michelbacher, CAS), 2♀.
- Región del Bío-Bío (VIII): Bío-Bío:** El Abanico, Dec. 30, 1950 (E. S. Ross, Michelbacher, CAS), 1♂, 4♀; El Manzano, near Contulmo, Dec. 15, 1985 (L. E. Peña, AMNH), 4♂, 8♀. *Concepción:* Hualpén, Concepción, Jan. 11, 1989 (M. J. Ramírez, MACN), 1♂, 1♀; Lomas Coloradas, Oct. 15, 1961 (A. F. Archer, AMNH), 1♂, 1♀. *Ñuble:* Fundo El Sauce, San Fabián de Alico, Jan. 8–24, 1986 (L. E. Peña, AMNH), 1♀; Las Comadres, Chillán, Feb. 5–9, 1983 (L. E. Peña, AMNH), 1♂, 9♀; Las Trancas, Chillán, Feb. 20–25, 1980 (L. E. Peña, AMNH), 1♀; Recinto, SE Chillán, Jan. 23, 1979, elev. 800 m (L. E. Peña, AMNH), 2♂, 5♀; Tregualemu, Jan. 24, 1976 (G. Moreno, AMNH), 1♀.
- Región de Araucanía (IX): Cautín:** Cerro Nielol, Temuco, Jan. 15, 1989 (M. J. Ramírez, MACN), 1♂; Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981 (L. E. Peña, AMNH), 6♂, 1♀; Los Pinos, near Loncoche, Dec. 20, 1985 (L. E. Peña, AMNH), 1♀; Pucón, Lago Villarrica, Dec. 14, 1988 (V., B. Roth, CAS) 3♂, 1♀; 10 mi NE Pucón, Jan. 12, 1951 (E. S. Ross, Michelbacher, CAS), 3♀; 20 km E Temuco, Jan. 7–8, 1951 (E. S. Ross, Michelbacher, CAS), 1♂, 1♀; Villarrica, Dec. 19, 1961 (A. F. Archer, AMNH), 5♂, 1♀; NE Villarrica, Dec. 16–31, 1964 (L. E. Peña, MCZ), 3♂, 2♀; 30 km NE Villarrica, Jan. 1–30, 1965 (L. E. Peña, MCZ), 15♂, 12♀. *Malleco:* Alto Caledonia, 42 km E Mulchén, Feb. 6–15, 1981, elev. 700–900 m (L. E. Peña, AMNH), 5♂, 10♀, Feb. 14, 1992, elev. 740 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 3♂, 3♀; 17 km W Angol, Dec. 8, 1984–Feb. 18, 1985, flight intercept trap, mixed beech forest, elev. 800 m (S., J. Peck, AMNH), 1♂; Curacautín, Dec. 16, 1985 (L. E. Peña, AMNH), 1♀; 10 mi N Perquenco, Jan. 6, 1951 (E. S. Ross, Michelbacher, CAS), 2♀.
- Región de los Lagos (X): Chiloé:** Chaitén, Dec. 1985 (L. E. Peña, AMNH), 6♂, 9♀; Chepu, Isla de Chiloé, Jan. 30, 1981 (L. E. Peña, AMNH), 1♂; Cucao, Isla de Chiloé, Feb. 12, 1991 (M. J. Ramírez, MACN), 1♂; Dalcahue, NE Castro, Isla de Chiloé, Feb. 1967 (L. E. Peña, MCZ), 2♂, 2♀, Jan.–Feb. 1981 (L. E. Peña, AMNH), 2♂, 3♀; Lago Coluco, S Ancud, Jan. 26, 1981 (L. E. Peña, AMNH), 2♂; Pio-Pio, Isla de Chiloé, Mar. 10–12, 1987 (L. E. Peña, AMNH), 1♂; Terao, S Chonchi, Isla de Chiloé, Jan. 18–21, 1990 (L. E. Peña, AMNH), 11♂, 7♀; Vilupulli, Isla de Chiloé, Feb. 7, 1981 (T. Cekalovic, AMNH), 1♀. *Llanquihue:* Caleta La Arena, Jan. 30, 1991 (M. J. Ramírez, MACN), 1♂; Correntoso, N El Chingue, Jan. 20–25, 1980 (L. E. Peña, AMNH), 4♂, 1♀; Hornohuinca, Correntoso, Apr. 29, 1968 (L. E. Peña, MCZ), 1♀; Isla Calbuco, Feb. 21–28, 1962 (A. F. Archer, AMNH), 1♂, 6♀; Isla Puluqui, Feb. 27, 1962 (A. F. Archer, AMNH), 1♀; Lepihue, W Puerto Montt, Jan. 21, 1951 (E. S. Ross, Michelbacher, CAS), 1♂, 1♀; Los Muermos, Jan. 19, 1951, forest (E. S. Ross, Michelbacher, CAS), 7♂, 21♀; Parque Philippi, Puerto Varas, Mar. 2, 1962 (A. F. Archer, AMNH), 2♀; 8 mi W Puerto Varas, Jan. 16, 1951 (E. S. Ross, CAS), 5♀. *Osorno:* La Picada, NW Volcán Osorno, Jan. 15–20, 1980 (L. E. Peña, AMNH), 1♀; hills S Maicolpué, Feb. 19, 1992, elev. 50 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♂; Pucatrihue, Jan.–Mar. 1968 (L. E. Peña, MCZ), 1♀; 18 km W Purrangué, Jan. 16, 1951, valley forest (E. S. Ross, Michelbacher, CAS), 3♀; 10 km E Puyehue, Jan. 24, 1951 (E. S. Ross, Michelbacher,



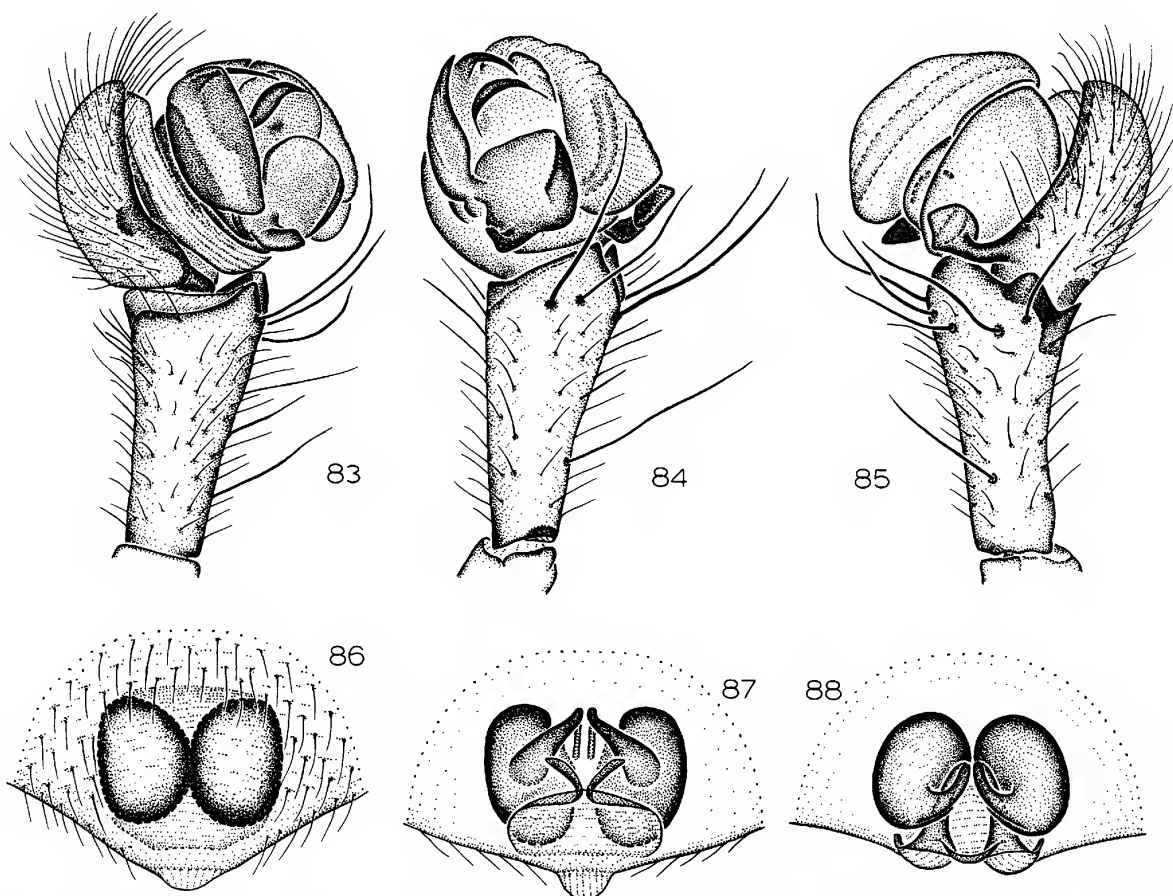
Figs. 77–82. *Gnolus limbatus* (Nicolet). 77. Left male palp, prolateral view. 78. Same, ventral view. 79. Same, retrolateral view. 80. Epigynum, ventral view. 81. Same, posterior view. 82. Same, dorsal view.

er, CAS), 2♂; Salto de Pilmaiquén, Jan. 27, 1951 (E. S. Ross, Michelbacher, CAS), 2♀. *Valdivia*: Corral, Jan. 16, 1989 (M. J. Ramírez, MACN), 1♂, 1♀; Purolón, NW Panguipulli, Jan. 10, 1985 (L. E. Peña, AMNH), 1♂, 10♀; Riñico de Piedra, S Valdivia, Feb. 23–26, 1979 (L. E. Peña, AMNH), 2♀; 8 mi E Río Bueno, Jan. 15, 1951 (E. S. Ross, Michelbacher, CAS), 3♂, 5♀; 30 km S Valdivia, Jan. 13, 1951 (E. S. Ross, Michelbacher, CAS), 1♀. **Región de Aisén (XI)**: *Aisén*: La Junta, Jan. 25, 1990 (L. E. Peña, AMNH), 1♀; Puerto Aisén, Jan. 24–26, 1961 (L. E. Peña, IRSNB), 2♂; upper part of Aisén valley, Jan. 1897 (P. Dusén, NRS), 1♀ (holotype). **ARGENTINA**: **Chubut**: El Hoyo, Jan. 10, 1962 (A. Kovács, AMNH), 1♀; El Maitén, Feb. 2,

1966 (A. Kovács, AMNH), 1♂, 8♀; Lago Puelo, Nov. 9, 1961 (A. Kovács, AMNH), 1♀; Río Menéndez, Parque Nacional Los Alerces, Feb. 1985 (M. J. Ramírez, MACN), 1♂; Río Turbio, Jan. 12, 1962 (A. Kovács, AMNH), 5♂, 5♀; Villa Futalaufquen, Parque Nacional Los Alerces, Feb. 9, 1986 (M. J. Ramírez, MACN), 1♂, 2♀. **Neuquén**: Lago Lácar, Pucará (N. Kormilev, MACN), 1♀, Dec. 1965 (Giai, MACN), 1♂, 1♀. **Río Negro**: Bariloche, 1944 (MACN), 2♀; El Bolsón, Sept. 4–Mar. 13, 1960–1961 (A. Kovács, AMNH), 6♂, 20♀; Norquinco, June 20, 1966 (A. Kovács, AMNH), 6♂, 11♀.

DISTRIBUTION: Widespread in Chile and adjacent Argentina.

SYNONYMY: Given Tullgren's misidentifi-



Figs. 83–88. *Gnolus blinkeni*, new species. 83. Left male palp, prolateral view. 84. Same, ventral view. 85. Same, retrolateral view. 86. Epigynum, ventral view. 87. Same, posterior view. 88. Same, dorsal view.

cation of specimens of *G. blinkeni* as *G. cordiformis*, it is unsurprising that he erroneously described an actual specimen of *G. cordiformis* as a different taxon, *G. affinis*.

Gnolus limbatus (Nicolet)

Figures 69, 77–82

Arkys limbatus Nicolet, 1849: 386, pl. 4, figs. 11, 11a–d (female lectotype, here designated, from Llanquihue, Chile, in MNHN, examined).

Gnolus limbatus: Simon, 1879: LIX.

NOTE: A lectotype is designated because the type series is mixed, containing one male and two females of this species along with four males of *G. cordiformis*; Nicolet's illustrations clearly show the female of this species.

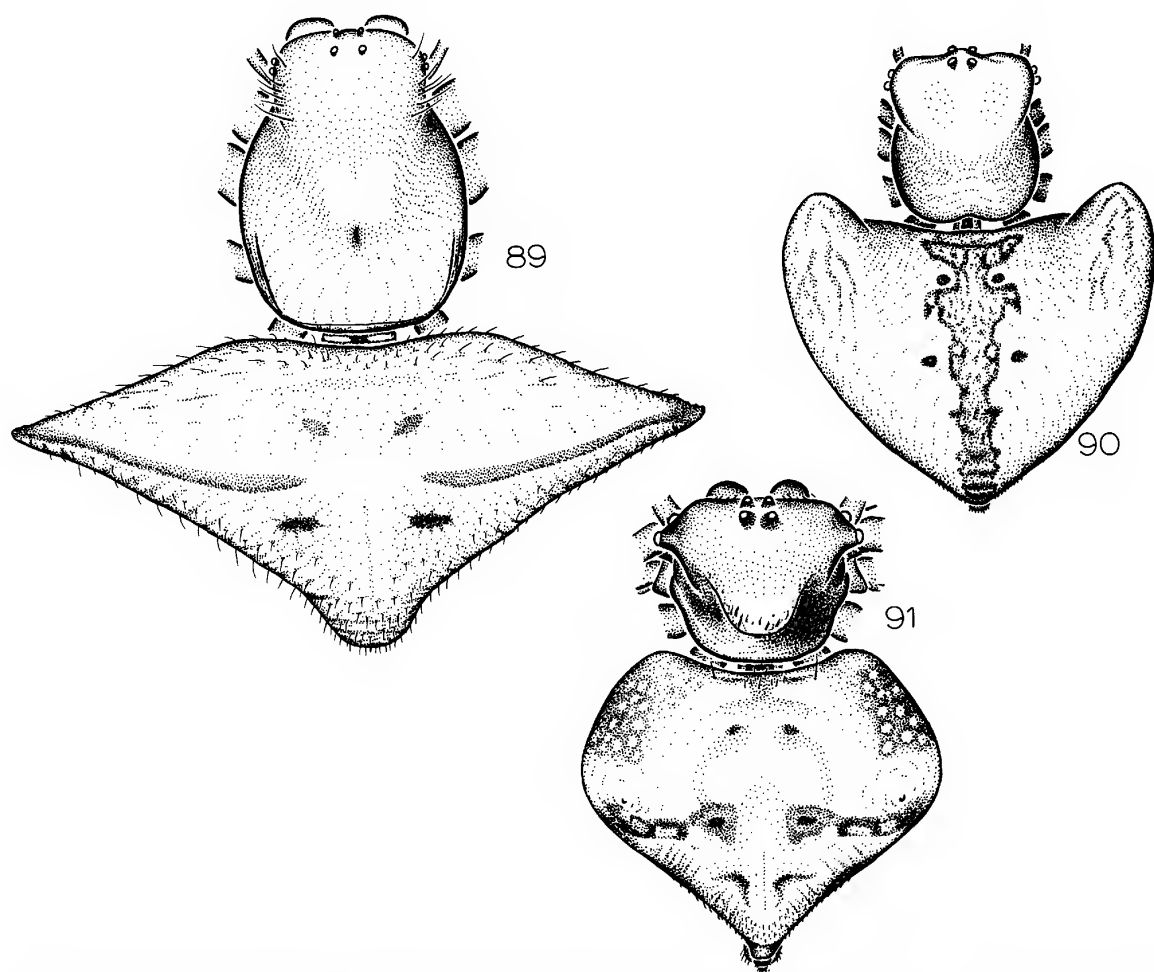
DIAGNOSIS: Males have a distinctively elongated palpal tibia (figs. 77–79); females have a distinctive white stripe around the

margin of the abdominal dorsum (fig. 69) and a pair of darkened epigynal ducts situated between the spermathecae (figs. 80–82).

MALE: Described by Simon (1879).

FEMALE: Described by Nicolet (1849) and Simon (1879).

MATERIAL EXAMINED: CHILE: **Región del Bío-Bío (VIII)**: *Arauco*: Monumento Natural Contulmo, Jan. 12, 1989 (M. J. Ramírez, MACN), 1♂. *Bío-Bío*: El Manzano, near Contulmo, Dec. 15, 1985 (L. E. Peña, AMNH), 2♂, 3♀. *Ñuble*: Los Lleuques, Dec. 5–20, 1985 (L. Umaña, AMNH), 1♀. **Región de Araucanía (IX)**: *Cautín*: Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981 (L. E. Peña, AMNH), 3♂; Toltén, Feb. 27, 1979 (L. E. Peña, AMNH), 1♀; 30 km NE Villarica, Jan. 1–30, 1965 (L. E. Peña, MCZ), 1♀. *Malleco*: Malalcahuello, Dec. 9–15, 1985 (L. E. Peña, AMNH), 1♂, 1♀. **Región de los Lagos**



Figs. 89–91. Female cephalothorax and abdomen, dorsal view. 89. *Gnolus spiculator* (Nicolet). 90. *G. zonulatus* Tullgren. 91. *G. angulifrons* Simon.

(X): *Chiloé*: Chepu, Isla de Chiloé, Jan. 30, 1981 (L. E. Peña, AMNH), 1♀; Lago Coluco, S Ancud, Isla de Chiloé, Jan. 26, 1981 (L. E. Peña, AMNH), 1♂. *Osorno*: Aguas Calientes, Parque Nacional Puyehue, Jan. 2–5, 1982, elev. 500 m (L. E. Peña, AMNH), 2♂, 1♀; Anticura, E Puyehue, Aug. 26–Sept. 5, 1983 (L. E. Peña, AMNH), 3♀. *Valdivia*: Purolón, NW Panguipulli, Jan. 10, 1985 (L. E. Peña, AMNH), 2♀; 8 mi E Río Bueno, Jan. 15, 1951 (E. S. Ross, Michelbacher, CAS), 1♀.

DISTRIBUTION: Known only from southern Chile (regions VIII–X).

***Gnolus blinkeni*, new species**

Figures 5, 70, 83–88

Gnolus cordiformis (misidentification): Tullgren, 1902: 44, pl. 3, fig. 6, pl. 4, fig. 1.

TYPE: Holotype male from Río Ventisquero, Lago Velcho, continental Chiloé, Región de los Lagos, Chile (Dec. 5–9, 1985; L. E. Peña), deposited in AMNH.

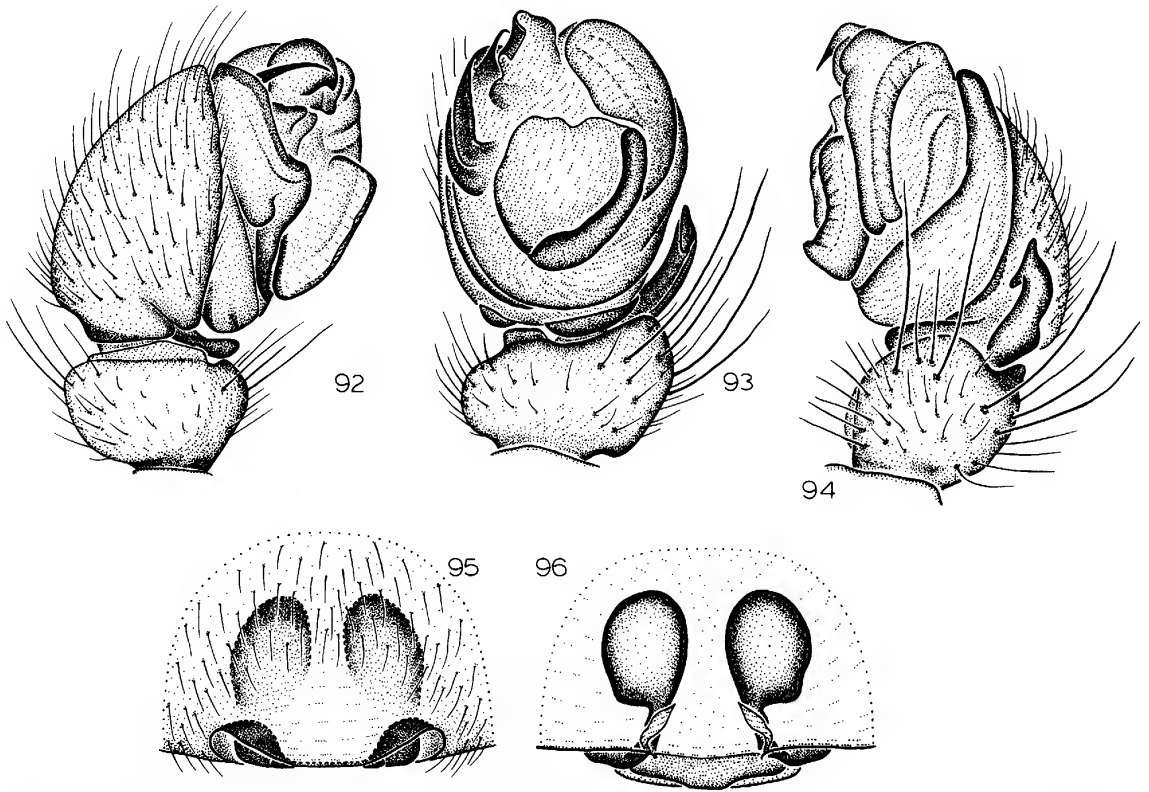
ETYMOLOGY: The specific name is a patronym in honor of Mr. Alan J. Blinks, in recognition of his many contributions to the American Museum.

DIAGNOSIS: The laterally darkened carapace (fig. 70), the large, triangular posterior projection of the retrolateral tegular apophysis of males (figs. 83–85), and the large posterior epigynal projection of females (figs. 86–88) are diagnostic.

MALE: Described by Tullgren (1902, as *Gnolus cordiformis*).

FEMALE: Described by Tullgren (1902, as *Gnolus cordiformis*).

OTHER MATERIAL EXAMINED: CHILE: Re-



Figs. 92–96. *Gnolus spiculator* (Nicolet). 92. Left male palp, prolateral view. 93. Same, ventral view. 94. Same, retrolateral view. 95. Epigynum, ventral view. 96. Same, dorsal view.

gión del Bio-Bio (VIII): Arauco: Monumento Natural Contulmo, Jan. 12, 1989 (M. J. Ramírez, MACN), 2♂. **Concepción:** Bosque de Ramuntcho, Concepción, Dec. 13, 1961 (A. F. Archer, AMNH), 1♂; Hualpén, Concepción, Jan. 11, 1989 (M. J. Ramírez, MACN), 1♀. **Región de Araucanía (IX): Cautín:** Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981 (L. E. Peña, AMNH), 1♀. **Región de los Lagos (X): Llanquihue:** Isla Calbuco, Feb. 21–28, 1962 (A. F. Archer, AMNH), 1♀; Isla Tengo, Puerto Montt, Mar. 1, 1961 (A. F. Archer, AMNH), 1♀; Parque Philippi, Puerto Varas, Mar. 2, 1962 (A. F. Archer, H. McMillin, AMNH), 1♂. **Osorno:** Aguas Calientes, Parque Nacional Puyehue, Dec. 12–20, 1981, elev. 600 m (L. E. Peña, AMNH), 1♀, Jan. 2–5, 1982, elev. 500 m (L. E. Peña, AMNH), 2♂; Anticura, E Puyehue, Aug. 26–Sept. 5, 1983 (L. E. Peña, AMNH), 2♀; 4.1 km E Anticura, Parque Nacional Puyehue, Dec. 19–26, 1982, screen sweeping at dusk, valdivian rainforest, elev. 430 m (A. Newton, M. Thayer, AMNH), 2♂, 1♀. **Región de Aisén**

(XI): Aisén: upper and lower parts, Aisén valley, Jan. 1897 (P. Dusén, NRS), 1♂, 1♀. **ARGENTINA: Río Negro:** Río Frías Superior, Jan. 1990 (M. J. Ramírez, MACN), 1♀.

DISTRIBUTION: Known only from southern Chile (regions VIII–XI) and adjacent Argentina.

The *spiculator* Group

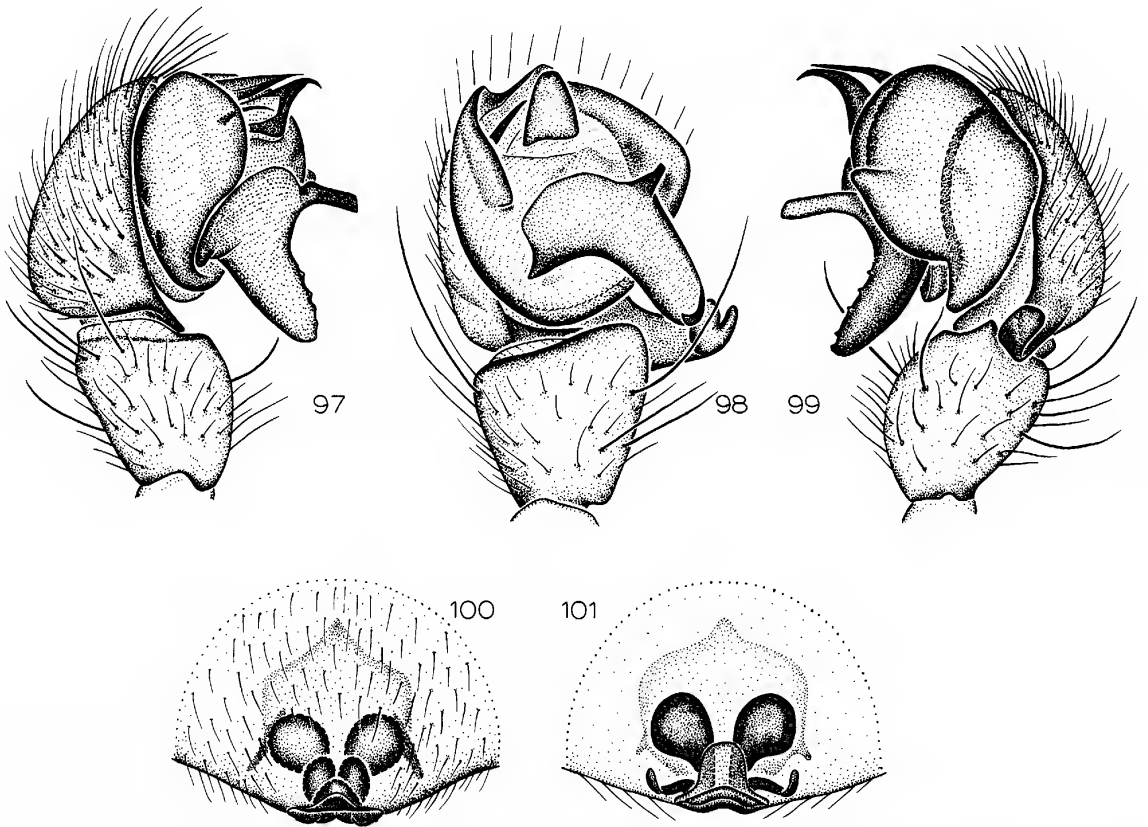
This species group contains three species in which the abdomen forms a broadened triangle, much wider than long (figs. 89–91). The male palpal tibia is relatively short, and the female epigynum lacks a small, median, posteriorly directed extension.

Gnolus spiculator (Nicolet)

Figures 7, 8, 89, 92–96

Arkys spiculator Nicolet, 1849: 384, pl. 4, f. 12, 12a–d (six juvenile syntypes from Chile, in MNHN, examined).

Arkys parvulus Nicolet, 1849: 384 (seven juvenile



Figs. 97–101. *Gnolus zonulatus* Tullgren. 97. Left male palp, prolateral view. 98. Same, ventral view. 99. Same, retrolateral view. 100. Epigynum, ventral view. 101. Same, dorsal view.

syntypes from Chile, in MNHN, examined). First synonymized by Simon, 1879: LVIII.

Arkys nigriventris Nicolet, 1849: 385 (holotype from Chile, not in MNHN, lost). First synonymized by Simon, 1879: LVIII.

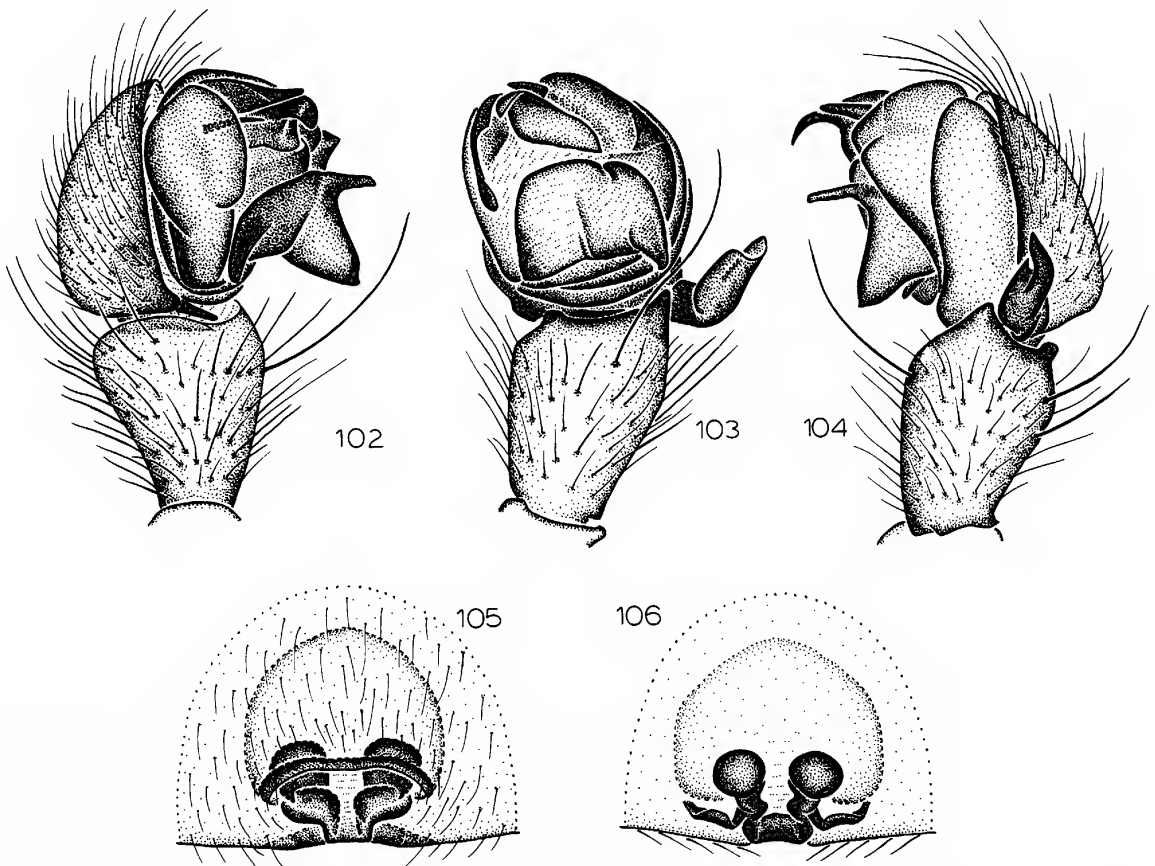
Gnolus spiculator: Simon, 1879: LVIII.

DIAGNOSIS: The abdominal shape (fig. 89), the enlarged retrolateral tegular apophysis of males (figs. 92–94), and the paired, posterior epigynal openings of females (figs. 95, 96) are diagnostic.

MALE: Total length ca. 5.2 mm. Carapace flat, highest at middle of pars cephalica; eyes relatively small. Abdomen wider than long, with pair of pointed lateral extensions. Tibia I with 6, tibia II with 5 prolateral spines, more ventrally situated of those spines elongated, enlarged; metatarsi I, II with 3 elongated, enlarged prolateral spines. Palp with enlarged retrolateral tegular apophysis and distally recurved paracymbium (figs. 92–94).

FEMALE: Described by Nicolet (1849), Simon (1879), and Tullgren (1902).

MATERIAL EXAMINED: CHILE: **Región del Bio-Bío (VIII):** *Bío-Bío*: El Manzano, near Contulmo, Dec. 15, 1985 (L. E. Peña, AMNH), 1♀. *Concepción*: Periquillo, Sept. 13, 1992 (T. Cekalovic, AMNH), 1♀. *Nuble*: Las Cabras, Dec. 26–28, 1986 (L. Umaña, AMNH), 1♂; Los Lleuques, Dec. 5–20, 1985 (L. Umaña, AMNH), 4♀. **Región de Araucanía (IX):** *Cautín*: Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981, elev. 600–700 m (L. E. Peña, AMNH), 1♀. *Malleco*: no specific locality, Nov. 1979 (L. E. Peña, AMNH), 1♂, 1♀. **Región de los Lagos (X):** *Chiloé*: 15 km S Chepu, Isla de Chiloé, Feb. 3, 1991 (M. J. Ramírez, MACN), 1♀; Terao, S Chonchi, Isla de Chiloé, Jan. 18–21, 1990 (L. E. Peña, AMNH), 3♀. *Llanquihue*: Isla Calbuco, Feb. 21–28, 1962 (A. F. Archer, AMNH), 1♀; Los Muermos, Jan. 19,



Figs. 102–106. *Gnolus angulifrons* Simon. **102.** Left male palp, prolateral view. **103.** Same, ventral view. **104.** Same, retrolateral view. **105.** Epigynum, ventral view. **106.** Same, dorsal view.

1951, forest (E. S. Ross, Michelbacher, CAS), 1♂; Petrohué, Mar. 29, 1968 (L. E. Peña, MCZ), 8♀, Jan. 13, 1980 (L. E. Peña, AMNH), 1♀; 8 mi W Puerto Varas, Jan. 16, 1951 (E. S. Ross, CAS), 1♂. *Osorno*: Anticura, E Puyehue, Aug. 26–Sept. 5, 1983 (L. E. Peña, AMNH), 2♀, Oct. 19–20, 1985 (L. E. Peña, AMNH), 1♂; La Picada, NW Volcán Osorno, Jan. 15–20, 1980, elev. 450 m (L. E. Peña, AMNH), 1♀; Pucatrihue, Jan.–Mar. 1968 (L. E. Peña, MCZ), 2♀; 10 km E Puyehue, Jan. 24, 1951 (E. S. Ross, Michelbacher, CAS), 1♀. *Valdivia*: Purolón, NW Panguipulli, Jan. 10, 1985 (L. E. Peña, AMNH), 1♀; Santo Domingo, Sept. 19, 1976 (E. Kraemer, AMNH), 1♀; Valdivia, Nov. 14, 1976 (E. Kraemer, AMNH), 1♀. **Región de Aisén (XI)**: *Aisén*: Puerto Aisén, Jan. 24–26, 1961 (L. E. Peña, IRSNB), 1♀. **ARGENTINA**: *Neuquén*: Pucará, Dec. 1965 (Giai, MACN), 1♀.

DISTRIBUTION: Known only from southern Chile (regions VIII–XI) and adjacent Argentina.

Gnolus zonulatus Tullgren

Figures 6, 90, 97–101

Gnolus zonulatus Tullgren, 1902: 48, pl. 4, fig. 4 (two male syntypes from upper part of Aisén valley, Aisén, Chile, in NRS, examined).

DIAGNOSIS: This species is close to *G. angulifrons* but lacks the greatly protuberant eyes (fig. 90); the relatively short paracymbium of males (figs. 97–99) and median posterior epigynal opening of females (figs. 100, 101) are diagnostic.

MALE: Described by Tullgren (1902).

FEMALE: Total length ca. 3.2 mm. Carapace with pars cephalica elevated, pars thoracica steeply sloping; eyes relatively small, slightly

protuberant laterally. Abdomen with two irregularly rounded lateral projections (fig. 90). Typical mimetid spination reduced on tibiae I and II, with at most 2 large spines situated proximally and a few small spines situated distally; metatarsi I, II with small spines interspersed between 2 long spines. Epigynum with median posterior opening and ridge (figs. 100, 101).

MATERIAL EXAMINED: CHILE: **Región del Maule (VII):** *Curicó:* Las Tablas, E Curico, Feb. 1985 (L. E. Peña, AMNH), 1♀. **Región del Bío-Bío (VIII):** *Arauco:* Monumento Natural Contulmo, Jan. 12, 1989 (M. J. Ramírez, MACN), 2♀. *Bío-Bío:* El Manzano, near Contulmo, Dec. 15, 1985 (L. E. Peña, AMNH), 1♂, 1♀. *Ñuble:* Las Trancas, 72 km SE Chillán, Dec. 1–10, 1965 (L. E. Peña, MCZ), 2♂, 1♀, Dec. 6, 1984–Feb. 19, 1985, flight intercept trap, beech forest, elev. 1700 m (S., J. Peck, AMNH), 1♂, Feb. 1987, elev. 1100 m (L. E. Peña, AMNH), 1♀. **Región de Araucanía (IX):** *Cautín:* Chacamo, NW Nueva Imperial, W Temuco, Feb. 16–24, 1981, elev. 600–700 m (L. E. Peña, AMNH), 2♂, 1♀; Los Pinos, near Loncoche, Dec. 20, 1985 (L. E. Peña, AMNH), 1♂; Toltén, Feb. 27, 1979 (L. E. Peña, AMNH), 1♀; 30 km NE Villarrica, Jan. 1–30, 1965 (L. E. Peña, MCZ), 1♂. **Región de los Lagos (X):** *Chiloé:* 25 km N Cucao, Isla de Chiloé, Feb. 8–11, 1991 (M. J. Ramírez, MACN), 1♂, 1♀. *Osorno:* 45 km W La Unión, E El Mirador, Mar. 1–2, 1987 (L. E. Peña, AMNH), 1♂. **Región de Aisén (XI):** *Aisén:* upper part, Aisén valley, Jan. 1897 (P. Dusén, NRS), 2♂ (syntypes). ARGENTINA: **Chubut:** Lago Futalauquen, Dec. 15, 1986 (E. A. Maury, MACN), 1♂. **Neuquén:** Lago Lácar, Pucará, Jan. 1954 (N. Kormilev, MACN), 1♀, Oct.–Dec. 1971 (Duret, MACN), 2♂, May 1972 (Duret, MACN), 1♂, Feb. 1974 (Schajovskoy, MACN), 1♂. **Río Negro:** Río Frías Superior, Jan. 1990 (M. J. Ramírez, MACN), 1♂.

DISTRIBUTION: Known only from southern Chile (regions VII–XI) and adjacent Argentina.

Gnolus angulifrons Simon

Figures 18, 23, 65–67, 91, 102–106

Gnotus angulifrons Simon, 1896: 69 (female holotype from Sierra de Chillán, Ñuble, Chile, in

MNHN, examined; spelling of generic name a lapsus).

DIAGNOSIS: This species is easily recognized by the protuberant eyes (fig. 91); the distally prolonged paracymbium of males (figs. 102–104) and the anterior epigynal ridge of females (figs. 105, 106) are also diagnostic.

MALE: Total length ca. 3.3 mm. Carapace with pars cephalica elevated, pars thoracica gradually sloping; eyes relatively large, greatly protuberant laterally. Abdomen wider than long, much wider anteriorly than posteriorly. Tibia I with 6–7, tibia II with 5 prolateral spines, more ventrally situated of those spines greatly elongated; metatarsi I, II with 3 elongated, enlarged prolateral spines. Palp with massive retrolateral tegular apophysis bearing thin dorsal extension and dorsally prolonged paracymbium (figs. 102–104).

FEMALE: Described by Simon (1896) and Tullgren (1902).

MATERIAL EXAMINED: CHILE: **Región del Bío-Bío (VIII):** *Ñuble:* Los Lleuques, Dec. 5–20, 1985 (L. Umaña, AMNH), 1♂; Sierra de Chillán (Germain, MNHN), 1♀ (holotype). **Región de Araucanía (IX):** *Cautín:* Chacamo, NW Nueva Imperial, W Temuco, Feb. 17–23, 1981, elev. 600–700 m (L. E. Peña, AMNH), 1♀; La Selva, NW Nueva Imperial, W Temuco, Feb. 9–12, 1981, elev. 700 m (L. E. Peña, AMNH), 3♂, 2♀; Parque Nacional Volcán Villarrica, 10 km S Pucón, Dec. 15, 1984–Feb. 10, 1985, flight intercept trap, beech grove on ash, elev. 900 m (S., J. Peck, AMNH), 2♂; 30 km NE Villarrica, Jan. 1–30, 1965 (L. E. Peña, MCZ), 1♂. **Región de los Lagos (X):** *Chiloé:* Tepuhueico, Isla de Chiloé, Dec. 11–15, 1985 (L. E. Peña, AMNH), 1♀. *Llanquihue:* Correntoso, N El Chingue, Jan. 20–25, 1980 (L. E. Peña, AMNH), 1♀; Lago Chapo, 13.5 km E Correntoso, Dec. 16–27, 1982, window trap, valdivian rainforest, elev. 310 m (A. Newton, M. Thayer, AMNH), 2♂. *Osorno:* Aguas Calientes, Parque Nacional Puyehue, Feb. 17–18, 1992, elev. 480 m (N. I. Platnick, P. A. Goloboff, M. J. Ramírez, AMNH), 1♀; La Picada, NW Volcán Osorno, Jan. 15–20, 1980, elev. 450 m (L. E. Peña, AMNH), 1♀; 36 km W La Unión, Mar. 25–28, 1987, elev. 600 m (L. E. Peña, AMNH), 1♂. *Valdivia:* Las Laja, Las Trancas,

W La Unión, Nov. 19–20, 1990 (L. E. Peña, AMNH), 1♂; Neltume, Feb. 1987 (L. E. Peña, AMNH), 1♀. **Región de Aisén (XI): Aisén:** Puerto Aisén, Nov. 1985 (L. E. Peña, AMNH), 1♀. **ARGENTINA: Neuquén:** Que-

trihué, Jan. 26, 1973 (O. de Ferreriis, AMNH), 1♂.

DISTRIBUTION: Known only from southern Chile (regions VIII–XI) and adjacent Argentina.

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