

THE NEOTROPICAL ORBWEAVERS OF THE GENUS
LARINIA (ARANEAE: ARANEIDAE)*

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This paper is one in a series of publications on Neotropical orb-weavers (Levi 1968, 1971, 1985, 1986, 1988, 1989a, 1989b, in press), made to facilitate identification of common American spiders. It is hoped that this information will also contribute to our knowledge of the phylogeny and relationships of orb-weaving spiders.

Larinia consists of 30 to 40 species, the genus having world-wide distribution. In the 1970s, Grasshoff (1970a, b, c, 1971) revised the African and Indoaustralian species of *Larinia*, placing them into nine genera. Genera were distinguished by details of palpal structure, especially of the radix, (a projection of the tegulum, illustrated here in Fig. 41). Grasshoff (1971) placed the American species *Larinia directa* in the genus *Drexelia*, this genus being distinguished by the internal structure of the epigynum: ducts that are wide on the outside and narrow toward the seminal receptacles (Levi 1975, fig. 9, 12). Levi (1986) also used Grasshoff's genera in revising *Larinia* of Israel. Alternatively, Levi (1975), revising the *Larinia* of North America, placed all species in *Larinia*, as did Marusik (1986), with *Larinia* of the USSR and Tanikawa (1989), with *Larinia* of Japan. In the current paper, we use *Larinia* in this broad sense, including the nine genera into which Grasshoff split the genus. We do not follow Grasshoff, partly because of the difficulty in placing our species known only from one sex into his genera. Operationally, we consider Grasshoff's genera to be species groups.

Larinia has several synapomorphic characters, including an elongate abdomen, (in a family whose species usually have a spherical abdomen), the anterior median tubercle-like point of the abdomen, a white median ventral streak (also found in the unrelated araneid genera *Eustala* and *Metepeira*), and the structure of the epigyna and palpi (see below).

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Levi (1975) revised and illustrated the three North American species of *Larinia*: *L. directa* (Hentz), *L. borealis* Banks and *L. famulatória* (Keyserling). All three are found in Mexico; *L. directa* is also found throughout the Neotropics. This paper includes the nine species found in the West Indies and south of Mexico.

Materials and Methods. Methods are similar to those described in previous papers. Levi (1977) includes a description of the working method, which will also be discussed in a forthcoming revision of the genus *Wixia*.

Eye sizes were described using the diameter of the anterior median eyes as a standard. For the anterior eye row, distance between eyes was measured in number of anterior median eye diameters; for the posterior eye row, in number of posterior median eye diameters.

We thank the curators of the following collections for the loan of specimens:

- | | |
|-------|---|
| AMNH | American Museum of Natural History, New York; N. Platnick, L. Sorkin |
| BMNH | British Museum (Natural History), London, England; P. Hillyard |
| CAS | California Academy of Sciences, San Francisco; W. J. Pulawski, D. Ubick |
| IRSNB | Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium; L. Baert |
| MACN | Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina; E. A. Maury |
| MAES | J. M. Maes, León, Nicaragua |
| MBUCV | Museo de Biología, Universidad Central, Caracas, Venezuela; J. Racenis |
| MCN | Museu de Ciências Naturais, Porto Alegre, Brazil; A. Lise, E. Buckup |
| MCZ | Museum of Comparative Zoology, Cambridge, Mass. |
| MEG | M. E. Galiano, Buenos Aires, Argentina |
| MIUP | Museo de Invertebrados, Universidad de Panamá, Panama; D. Quintero A. |
| MLP | Museo de Universidad Nacional, La Plata, Argentina; R. F. Arrozpide |
| MNHN | Museum National d'Histoire Naturelle, Paris, France; J. Heurtault |

- MHNSM Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru; D. Silva D.
- MNRJ Museu Nacional, Rio de Janeiro, Brazil; A. Timotheo da Costa
- MZSP Museu de Zoologia da Universidade de São Paulo, Brazil; P. Vanzolini, L. Neme, J. L. M. Leme
- NRMS Naturhistoriska Riksmuseet, Stockholm, Sweden; T. Kronstedt
- SMF Forschungsinstitut Senckenberg, Frankfurt, West Germany; M. Grasshoff
- USNM National Museum of Natural History, Smithsonian Institution, Washington, D.C.; J. Coddington
- ZMK Zoologisk Museum, København, Denmark; H. Enghoff

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Larinia Simon

Larinia Simon, 1874: 115. Type species by monotypy *Epeira lineata* Lucas, 1846. The gender of the generic name is feminine. Levi, 1975: 102.

Drexelia McCook, 1892: 127. Type species by monotypy *Epeira directa* Hentz (1847).

Diagnosis. *Larinia* differs from the related genus *Araneus* by the elongate, oval abdomen, often with an anterior, median tubercle (Figs. 3, 8, 12, 18, 28, 38, 45) and sometimes projecting behind and above the spinnerets (Figs. 19, 23, 29). The abdomen usually has a dorsal pattern of longitudinal marks (Figs. 3, 8, 12, 18, 22, 28, 34, 38, 45), and venter with median white markings on black (Figs. 4, 9, 13, 19, 23, 29, 35, 39).

Eustala fuscovittata and some other *Eustala* resemble *Larinia* in shape and markings. However, the genitalia differ: female *Eustala* have a scape that projects anteriorly from the base, and males have a white colored, lightly sclerotized, cone shaped median apophysis. The resemblance in shape and markings is a homoplasy.

Description. The light colored carapace may have a double, black, longitudinal line behind the eyes that fuses into a single median longitudinal line (Figs. 12, 18, 28, 45). The sternum may be

all black (in *L. ambo* and *L. lampa*), all yellow (in *L. bivittata*, *L. directa*, and *L. t-notata*), or yellow in the center and darker around the edges (*L. minor*, *L. montecarlo*, *L. neblina*, and *L. tucuman*). The legs and dorsum of the abdomen are usually light yellow-orange. The anterior median eyes are the largest, usually separated by a diameter or more. The posterior medians may be slightly smaller, are separated by their diameter at most, and are often in contact. The ocular quadrangle is narrower behind than in front.

Males have a tooth on the lateral margin of each endite, lack the hook on the first coxae which is found in some araneid genera, and have two macrosetae on each palpal patella (Levi 1975, Fig. 3). The second tibia is thicker than the first.

Genitalia. The epigynum is lightly sclerotized, and has a wrinkled scape enclosing a pocket, with a lip at its tip (Figs. 1, 6, 10). The lip and pocket are synapomorphies shared with *Araneus*. An exception is *L. montecarlo* (Fig. 43), but here the scape may have been torn off in all available specimens. The internal female genitalia were illustrated in a previous paper (Levi 1975). The epigynum frequently contains one or two broken embolus tips from a male palpus, which are difficult to remove (Fig. 27, right side; Figs. 32, 33, on both sides in depressions).

Structure of the palpus is similar to that of *Araneus* and *Nuctenea*. The conductor sits on the rim of the tegulum and there is no paramedian apophysis, (this is usually true of genera with the conductor in this position). It is not known whether this condition is primitive or secondary. The presence of two palpal patellar setae is shared with *Araneus*, *Nuctenea* and *Neoscona*.

The palpal embolus is heavily sclerotized. In *L. directa*, it is a diagonal rod (Fig. 5); in *L. montecarlo*, a horizontal curved rod (Fig. 47). It is triangular in *L. tucuman* (Fig. 14), anchor-shaped in *L. bivittata* (Fig. 24), and comma-shaped in *L. ambo* (Fig. 30). In *L. t-notata* it is hidden behind a lamella (Figs 40, 42). In all species, the tip of the embolus rests on the lightly sclerotized conductor (Figs. 5, 14, 24, 30, 47). The conductor is attached to the rim of the tegulum as a white irregularly shaped cushion (as it is in *Araneus*, Levi in press, fig. 3) in *L. tucuman* (Fig. 15), *L. bivittata* (Fig. 25), *L. ambo* (Fig. 31), and *L. montecarlo* (Fig. 48).

The most visible structure of the palpus is the median apophysis, lying proximally to the embolus. In *L. directa*, (Fig. 5), *L. tucuman*

(Fig. 14), and *L. ambo* (Fig. 30), the median apophysis has a distal, sclerotized spine and a basal projection which is blunt and less heavily sclerotized. In *L. bivittata* (Figs. 24, 25), and *L. montecarlo* (Figs. 47, 48), the median apophysis has two spines. In *L. t-notata*, the median apophysis is flattened (Fig. 40) with a distal serrated edge (Figs. 41, 42) and a large proximal, pointed, curved prong (Figs. 41, 42). The tegulum of this species also has a flat projection with a serrated edge (right side, Figs. 40, 41, 42).

Distal to the embolus are structures which are difficult to homologize, the terminal and subterminal apophyses. In *L. directa*, the terminal apophysis is triangular and pointed (Fig. 5). In *L. tucuman*, it appears as a "hanging" rod (Fig. 14). In *L. bivittata*, both the subterminal and terminal apophyses are pointed "above" the embolus (Fig. 24). In *L. ambo*, they are pointed and almost parallel to the embolus (Fig. 30). In *L. neblina*, they are two blunt sclerites (Fig. 40, 42). In *L. montecarlo*, there are two pointed structures, one pointing "up" and the other "down" (Fig. 47). In all cases, there is a hematochocha between the embolus and the sclerotized portions of the subterminal and terminal apophyses. This is small in *L. t-notata* (Fig. 42).

Distribution. The genus is found world-wide. There are between 30 and 40 species.

Natural History. Specimens are commonly collected by sweeping vegetation. *Larina directa* sits in the hub of the web at night, on vegetation to the side of the web in daytime (Levi 1975).

UNRECOGNIZABLE SPECIES

Drexelia scriba Mello-Leitão, 1940: 203 from Colatina, Espírito Santo, Brazil, in MNRJ, lost.

MISPLACED SPECIES

Larina albosigillata Mello-Leitão, 1947b: 247, is an immature *Araneus*.

Larina bristowei Mello-Leitão, 1940: 180, belongs in a new genus.

Larina coamensis Petrunkevitch, 1930: 335, figs. 221–224, ♀, is *Metazygia crewi* (Banks). NEW SYNONYMY

Larina maulliniana Mello-Leitão, 1951: 331 is *Zygella x-notata*.

Synonymized by Levi (1974: 276).

Larinia mundula (Keyserling), 1892: 179 is a *Metazygia*.

Larinia mundulella (Strand), 1916: 114 is a *Metazygia*.

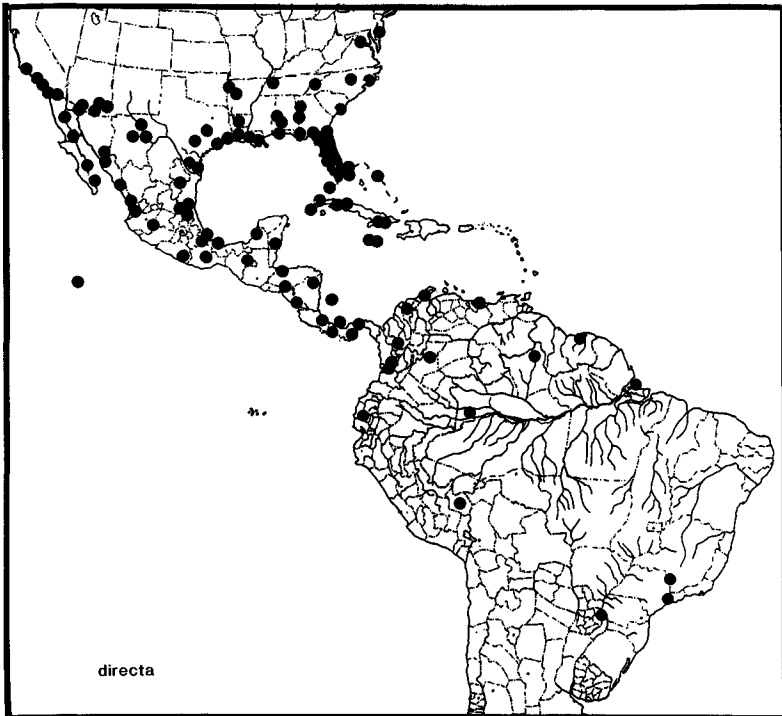
Larinia nobilis Mello-Leitão, 1944: 331 is *Araneus corporosus* (Keyserling). Synonymized by Levi (in press).

Larinia rubroguttulata Keyserling, 1880: 314 is a *Eustala*.

Larinia silvestris Bryant, 1942: 5 is a *Cyclosa*.

Key to *Larinia* species, females

- 1 Epigynum with scape; venter of abdomen with black or gray markings. 2
- Epigynum without scape, as in Figs. 43, 44; venter of abdomen without black or gray markings (Fig. 46); southern Brazil

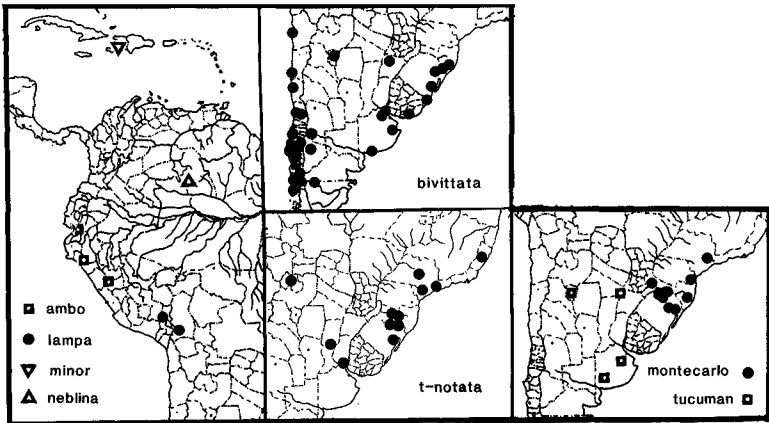


Map 1. Distribution of *Larinia directa*.

- (Map 2). *montecarlo*
- 2(1) Scape longer than broad (Fig. 32, 36). 3
- Scape about as broad as long, or broader than long (Figs. 1, 6, 10, 16, 20, 26). 4
- 3(2) Abdomen more than twice as long as wide, with prominent anterior median tubercle; dorsum lightly colored, sometimes with a double row of black spots; epigynum as in Figs. 36, 37, with scape often curving to one side; total length greater than 6.0 mm; southern Brazil, Argentina (Map 2). *t-notata*
- Abdomen with length about one and one half width, rounded, without prominent tubercle; dorsum of abdomen with broad brown bands (Fig. 34); epigynum as in Figs. 32, 33; total length usually less than 6.0 mm; Venezuela (Map 2). *neblina*
- 4(2) Abdomen more than twice as long as wide (Figs. 3, 18). 5
- Abdomen less than twice as long as wide (Figs. 8, 12, 22, 28). 6
- 5(4) Distal lip of epigynal scape wide (Fig. 1); total length greater than 6.0 mm; widespread (Map 1). *directa*
- Scape with narrow lip (Fig. 16); total length usually less than 6.0 mm; Greater Antilles (Map 2). *minor*
- 6(4) Dorsum of abdomen with a pair of dark lateral stripes, straight or undulating, sometimes with a thin median stripe between them (Figs. 8, 12, 22); epigynum as in Figs. 6, 10, 20. 7
- Dorsum of abdomen with a single dark toothed median band (Fig. 28); epigynum as in Fig. 26, 27; Peru (Map 2). *ambo*
- 7(6) Edges of lateral dorsal bands undulating (Figs. 12, 22). 8
- Lateral bands with straight edges and filled with red-brown dots; epigynum as in Fig. 6; Peru (Map 2). *lampa*
- 8(7) Total length less than 4.7 mm; dorsal bands light anteriorly, becoming darker towards posterior; pronounced median notch in posterior lip of epigynal base (Fig. 11); Argentina (Map 2). *tucuman*
- Total length greater than 5.2 mm; dorsal bands dark throughout entire length. Posterior lip of epigynal base dark, swollen, and sclerotized (Fig. 21); southern Brazil, Chile to Argentina (Map 2). *bivittata*

Key to *Larinia* species, males

- 1 Palp with both tegulum and median apophysis darkened and with serrated borders, as in Figs. 40–42; total length greater than 5.3 mm; southern Brazil to Argentina (Map 2). *t-notata*
- Tegulum and median apophysis without serrated borders; total length less than 5.3 mm. 2
- 2(1) Embolus triangular (Fig. 14), anchor-shaped (Fig. 24), or comma-shaped (Fig. 30). Abdomen less than twice as long as wide. 3
- Embolus thin and tubular as in Figs. 5, 47. Abdomen more than twice as long as wide. 5
- 3(2) Embolus comma-shaped; palpus as in Figs. 30, 31; dorsum of abdomen with a single dark toothed median band; Peru (Map 2). *ambo*
- Embolus anchor-shaped (Fig. 24) or triangular (Fig. 14); dorsum of abdomen with a pair of dark lateral stripes separated by a thin white median band. 4
- 4(3) Embolus anchor-shaped, dark, and sclerotized; terminal apophysis with two distinct tips (Fig. 24); dark dorsal bands running entire length of abdomen; southern Brazil, Chile to Argentina (Map 2). *bivittata*



Map 2. Distribution of *Larinia* species.

- Embolus triangular, not sclerotized; two tips of terminal apophysis not distinct; palp as in Figs. 14, 15; dorsal bands light or absent anteriorly, becoming darker towards posterior; Argentina (Map 2). *tucuman*
- 5(2) Median and terminal apophyses as in Fig. 5; tubular embolus lying diagonal to main axis of palp; usually greater than 4.3 mm in total length; widespread (Map 1). *directa*
- Median and terminal apophyses as in Fig. 47; with tubular embolus bending “down;” usually less than 4.3 mm in length; southern Brazil (Map 2). *montecarlo*

Larinia directa (Hentz)

Figures 1–5; Map 1

Epeira directa Hentz, 1847: 478, pl. 31, fig. 21, ♀. Type specimens from South Carolina and Alabama, destroyed.

Epeira tetragnathoides O.P.-Cambridge, 1889: 16, pl. 7, figs. 9, 10, ♀, ♂. Male and female syntypes from Guatemala and Panama, in BMNH. Name preoccupied by *Epeira tetragnathoides* Walckenaer.

Epeira intercisa O.P.-Cambridge, 1889: 18, pl. 5, fig. 11, ♂. Male holotype from Bugaba, Panama, in BMNH, lost. First synonymized by F.P.-Cambridge, 1903.

Drexelia directa: – McCook, 1892: 127. F.P.-Cambridge, 1903: 461, pl. 43, figs. 12, 13, ♀, ♂. Grasshoff, 1971: 93, fig. 45, ♀.

Epeira deludens Keyserling, 1893: 261, pl. 13, fig. 195, ♀, ♂. Syntypes from Florida and Guatemala, in USNM, examined. First synonymized by F.P.-Cambridge, 1903.

Larinia bellona Banks, 1898: 257, pl. 15, fig. 6, ♀, ♂. Syntypes from Tepic, Mexico, in MCZ, examined. First synonymized by Levi, 1975.

Larinia directa: – Comstock, 1913: 508, fig. 545. Levi, 1975: 105, figs. 1–12, 31, 34, 37–41, ♀, ♂, Map 1.

Larinia cymotypa Chamberlin, 1924: 649, fig. 93, ♀. Female holotype from Gulf of California, in CAS, examined. First synonymized by Levi, 1975.

Larinia albonigra Franganillo, 1934: 158, ♂. Male holotype from Cuba, in Cuban Acad. Sci. First synonymized by Levi, 1975.

Drexelia octopunctata di Caporiacco, 1955: 349, ♀. Female holotype from Caracas, in MBUCV, examined. First synonymized by Levi, 1975.

Larinia nigrovittata Mello-Leitão, 1947a: 12, figs. 26, 27, ♂. Male holotype from Carmo do Rio Claro, Minas Gerais, Brazil, in MNRJ, examined. First synonymized by Levi, 1975.

Description. Female from Veracruz, Mexico. Carapace, chelicerae, endites, coxae, sternum, legs yellow. Carapace with orange longitudinal stripe; sternum with gray border. Labium brown. Dorsum of abdomen with white median stripe, bordered by faint gray

bands with four black dots along their lateral margins (Fig. 3); venter with median white stripe bordered laterally by black bands (Fig. 4). Posterior median eyes 0.8 diameters of anterior medians, laterals 0.8 diameters. Anterior median eyes 1.3 diameters apart. Posterior median eyes 0.2 diameters apart. Abdomen oval, more than twice as long as wide, with anterior median tubercle (Fig. 3). Total length 7.4 mm. Carapace 2.7 mm long, 1.5 wide. First femur 3.2 mm, patella and tibia 4.4, metatarsus 4.0, tarsus 1.4. Second patella and tibia 4.0 mm, third 2.1, fourth 3.8.

Male from Veracruz. Color as in female. Posterior median eyes 0.7 diameters of anterior medians, anterior laterals 0.5 diameters, posterior laterals 0.6. Anterior median eyes 1.2 diameters apart. Posterior median eyes in contact with each other. Abdomen oval. Total length 5.2 mm. Carapace 1.9 mm long, 1.5 wide. First femur 3.2 mm, patella and tibia 4.7, metatarsus 4.9, tarsus 1.5. Second patella and tibia 4.2 mm, third 1.9, fourth 3.5.

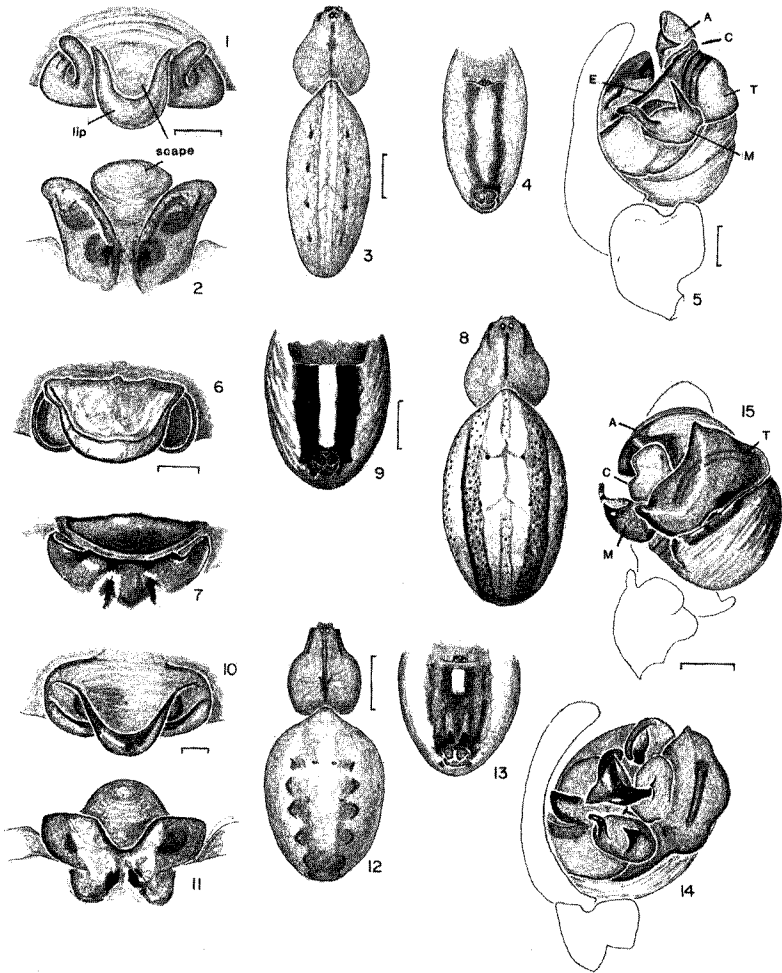
Illustration. Specimens from Surinam were illustrated.

Variation. Females varied between 6.2 and 10.5 mm in length. Males varied between 4.2 and 5.2 mm.

Diagnosis. *Larinia directa* differs from other species south of Mexico in the wide distal lip on the epigynal scape (Fig. 1) and the tubular embolus lying diagonal to the main axis of the palp (Fig. 5). In Mexico two similar species are found: *Larinia famulatoria* (Keyserling) and *L. borealis* Banks. Both are illustrated and keyed out by Levi (1975).

Distribution. Southern United States through Paraguay.

Records. United States localities shown are from Levi (1975, Map 1). MEXICO *Baja California*: La Ribera (CAS); San Felipe (AMNH); Santa Anita (CAS). *Islas Revillasgegidos*: Isla Socorro (CAS). *Sonora*: 16 km W of Alamos; 24 km W of Agiabampo; 32 km SW of Sonoyta (all AMNH). *Sinaloa*: Elota (AMNH). *Nuevo León*: Linares (AMNH). *Tamaulipas*: Mante (AMNH). *San Luis Potosí*: 1.6 km SW of Tamazunchale; Valles (both AMNH); 3 km S of Valles (MCZ). *Nayarit*: Acaponeta; Rio Las Cañyas, 5 km NW Acaponeta; Jalisco; Mecatán; Rosamorada; 42 km S of Rosamorada; Tepic (all AMNH). *Jalisco*: near Anonas (AMNH). *Hidalgo*: Chapulhuacán (AMNH); Tzindejeh (CAS). *Veracruz*: Catameco (Playa Azul); Fortín; Veracruz (all AMNH). *Michoacan*: Jiquilpan; 4.8 km W of Quiroga (both AMNH). *Guerrero*: 11 km S of Chil-



Figures 1-5, *Larinia directa* (Hentz). 1-4, female. 1, epigynum, ventral. 2, epigynum, posterior. 3, dorsal. 4, abdomen, ventral. 5, male, left palpus, mesal.

Figures 6-9, *Larinia lampa* n. sp., female. 6, epigynum, ventral. 7, epigynum, posterior. 8, dorsal. 9, abdomen, ventral.

Figures 10-15, *Larinia tucuman* n. sp. 10-13, female. 10, epigynum, ventral. 11, epigynum, posterior. 12, dorsal. 13, abdomen, ventral. 14, 15, male. 14, palpus, mesal. 15, palpus, ventral. *Scale lines*, 1.0 mm, genitalia 0.1 mm. *Abbreviations*. A, terminal apophysis; C, conductor; E, embolus; M, median apophysis; T, tegulum.

pancingo (AMNH). *Oaxaca*: Oaxaca (AMNH). *Chiapas*: 105 km SE of Palenque (MCZ). *Quintana Roo*: Chetumal (MCZ). HONDURAS *Morazán*: 27 km S of Tegucigalpa (MCZ). *Atlántida*: Lancetilla (MCZ). NICARAGUA Corn Island (MCZ); Masawas, Huaspuc River (AMNH); Islas de Solentiname (MAES); León (MAES). COSTA RICA *Cartago*: Turrialba (CAS, MCZ). *Heredia*: Puerto Vieja (MCZ). *Puntarenas*: Monteverde Community (MCZ). PANAMA *Bocas del Toro*: (MIUP). *Canal Zone*: Fort Kobbe (AMNH). *Chiriquí*: Fortuna (MIUP). *Panamá*: Soberanía Natl. Park (MIUP). BAHAMAS common (AMNH). CUBA *Real Caimana*: Aguada, Las Villas (AMNH). *Santa Clara*: Topes de Colantes (AMNH). *Soledad*: Cienfuegos (MCZ). JAMAICA Grove Place; Long Mt.; Lucea (all AMNH). COLOMBIA *Antioquia*: La Estrella; Medellín (both MCZ). *Cesar*: Curumaní (AMNH). *Magdalena*: Santa Marta (SMF). *Meta*: Carimagua (MCZ). *Valle*: Río Tuluá; Cali (both MCZ). SURINAM Matapica Beach (AMNH). VENEZUELA *Zulia*: Rosario (AMNH). ECUADOR *Los Ríos*: Zapotal (CAS). PERU *Madre de Dios*: Alto Madre de Dios (MHNSM). BRAZIL *Rio Branco*: Roraima (MZSP). *Amapá*: Santana (MEG). *Amazonas*: Ilha da Marchantario-Rio Solimões (MCN). *São Paulo*: Guarujá (AMNH). PARAGUAY *Alto Paraná*: Taquarazapa (AMNH).

Larinia lampa new species

Figures 6–9; Map 2

Holotype. Female holotype and paratype from 10 km N of Lampa, Quebrada Metara, Depto. Puno, Peru, 3900 m., 31 March to 3 April 1987 (O. Karsholt), in ZMK. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace yellow with thin black median stripe. Chelicerae, coxae yellow, legs yellow with brown spots. Labium yellow anteriorly, brown posteriorly. Chelicerae yellow medially, brown posteriorly. Sternum black. Dorsum of abdomen white with a thin median band and two wider straight lateral bands filled with small red spots (Fig. 8); venter with long straight white band, bordered laterally by dark brown bands (Fig. 9). Posterior median eyes same diameter as anterior medians, laterals 0.8 diameter. Anterior median eyes two diameters apart. Posterior median eyes 1.5 diameters apart. Abdomen oval, a little more than

1.5 times as long as wide, with anterior median tubercle. Total length 6.2 mm. Carapace 2.8 mm long, 1.7 wide. First femur 2.7 mm, patella and tibia 2.1, metatarsus 2.0, tarsus 0.7. Second patella and tibia 2.3 mm, third 1.2, fourth 2.2

Illustration. The holotype was illustrated.

Variation. The specimens ranged from 5.8 to 6.5 mm in length.

Diagnosis. This species differs from others in the ventral white band from epigynum to spinnerets (Fig. 9), the wide scape of the epigynum (Fig. 6), and the convex ventral margin of the posterior face of the epigynum (Fig. 7).

Paratypes. BOLIVIA *La Paz*: Tiahuanaco, Puma Puerto Ruins, 1 Feb. 1973, 2♀ (A. Moreton, MCZ).

Larinia tucuman new species

Figures 10–15; Map 2

Holotype. Female holotype and male paratype from 30 km south of Concepción, Tucumán Province, Argentina, 16 January 1983 (L. Peña), in AMNH. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace yellow with brown median line. Chelicerae, coxae, legs yellow. Labium yellow anteriorly, black posteriorly. Endites black laterally, yellow medially. Sternum black with central yellow patch. Dorsum of abdomen white, with a pair of toothed gray longitudinal bands which become more distinct laterally and posteriorly (Fig. 12); venter with small central white patch enclosed by gray lines (Fig. 13). Posterior median eyes same diameter as anterior medians, laterals 0.7 diameter. Anterior median eyes 1.5 diameter apart. Posterior median eyes 0.5 diameter apart. Abdomen oval, less than 1.5 times as long as wide, with anterior median tubercle (Fig. 12). Total length 4.8 mm. Carapace 2.1 mm long, 1.5 wide. First femur 2.1 mm, patella and tibia 2.6, metatarsus 1.8, tarsus 0.7. Second patella and tibia 2.1 mm, third 1.2, fourth 1.7.

Male paratype. Color as in female, but with much lighter pigmentation. Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameters, posterior laterals 0.8. Anterior median eyes 1.5 diameters apart. Posterior median eyes 0.5 diameter apart. Abdomen similar in shape to that of female. Total length 3.0 mm. Carapace 1.3 mm long, 1.0 wide. First femur 2.0 mm, patella

and tibia 2.0, metatarsus 1.9, tarsus 0.8. Second patella and tibia 1.9 mm, third 1.0, fourth 1.9.

Illustration. The holotype and a paratype from the type locality are illustrated.

Diagnosis. Unlike other species, the posterior plate of the epigynum has a ventral notch (Fig. 11), and the embolus of the palpus is triangular in shape (Fig. 14).

Note. Males and females have been collected together.

Variation. Observed females varied between 3.7 and 4.7 mm in length.

Paratypes. ARGENTINA *Tucumán*: 30 km S of Concepción, 16 Jan. 1983, 26 ♀, 1♂ (L. Peña, AMNH, MCZ). *Corrientes*: Corrientes, Jan. 1949, 4♀ (J. Lieberman, MACN). *Buenos Aires*: Capilla del Señor, 23 Jan. 1942, 4♂ (Prosen, MLP); Sierra de la Ventana, March 1939, 3♀ (H. Bavio, MACN).

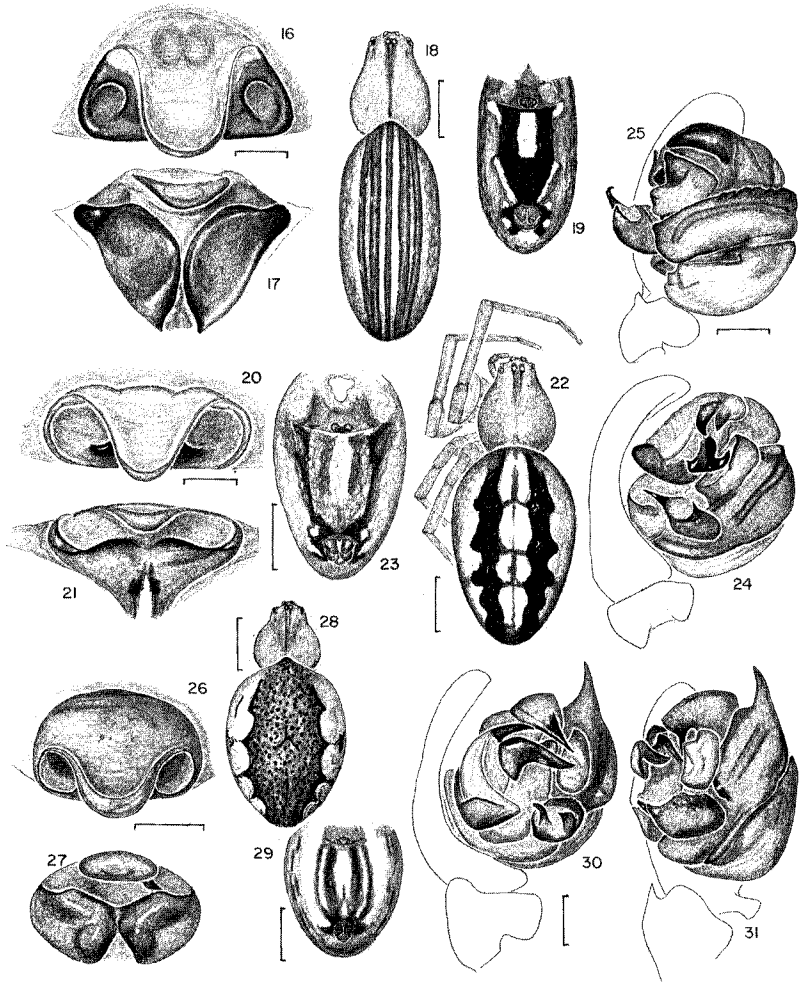
Larinia minor (Bryant)

Figures 16–19; Map 2

Drexelia minor Bryant, 1945: 367, fig. 10, ♀. Female holotype from Port au Prince, Haiti, July 1941, in MCZ, examined. Brignoli, 1983: 267.

Description. Female holotype. Carapace yellow with a narrow median longitudinal dark band which is double behind the posterior median eyes and fuses to a single line; black line around margin. Sternum with a black band on each side, fusing behind in a black V. Legs yellow with black spots on underside. Dorsum of abdomen with longitudinal white and black bands. The dark bands are darkest on the margin towards the white (Fig. 18). Venter black, enclosing a median longitudinal white mark (Fig. 19). Posterior median eyes 0.7 diameters of anterior medians. Laterals subequal to posterior median eyes, anterior median eyes 1.3 diameters apart. Posterior median eyes 0.3 diameters apart. Abdomen oval, more than twice as long as wide, with anterior median tubercle (Fig. 18). Total length 5.5 mm. Carapace 2.0 mm long, 1.4 wide. First femur 2.6 mm, patella and tibia 3.7, metatarsus 3.4, tarsus 1.3. Second patella and tibia 3.3 mm, third missing, fourth 1.7.

Diagnosis. This species differs from all others by two large lateral plates with a convex median border as seen in the posterior view of the epigynum (Fig. 17).



Figures 16–19, *Larinia minor* (Bryant), female. 16, epigynum, ventral. 17, epigynum, posterior. 18, dorsal. 19, abdomen, ventral.

Figures 20–25, *Larinia bivittata* Keyserling. 20–23, female. 20, epigynum, ventral. 21, epigynum, posterior. 22, dorsal. 23, abdomen, ventral. 24, 25, male. 24, left palpus, mesal. 25, palpus, ventral.

Figures 26–31, *Larinia ambo* n. sp. 26–29, female. 26, epigynum, ventral. 27, epigynum, posterior. 28, dorsal. 29, abdomen, ventral. 30, 31, male. 30, palpus, mesal. 31, palpus, ventral. Scale lines, 1.0 mm, genitalia 0.1 mm.

Larinia bivittata Keyserling
Figures 20–25; Map 2

Larinia bivittata Keyserling, 1884: 526, pl. 13, fig. 25, ♀. Roewer, 1942: 771. Bonnet, 1957: 2348. Female holotype from Maldonado, Brazil [sic Uruguay], in MCZ, examined.

Larinia antarctica Simon, 1905:10. Female holotype from Patagonia, Argentina, in MNHN, examined. Roewer, 1942: 771. Bonnet, 1957: 2347. NEW SYNONYMY.

Epeira lintearia Keyserling, 1893: 236, pl. 11, fig. 176, ♀. Female holotype from Rio Grande do Sul, Brazil, in BMNH, examined. NEW SYNONYMY.

Description. Female holotype. Carapace, sternum, legs yellow. Posterior median eyes on black spots with a line going posteriorly which fuses and becomes indistinct. Dorsum of abdomen with two black bands, white in between, and white to sides (Fig. 22); venter between epigynum and spinnerets white, enclosing a pair of longitudinal spots on each side. A narrow black longitudinal band is to the side of the white area. Anterior of spinnerets black (Fig. 23). Posterior median eyes 1.2 diameters of anterior medians, laterals 0.8 diameter of anterior median eyes. Anterior median eyes 1.2 diameters apart. Posterior median eyes their radius apart. Abdomen oval, without prominent anterior tubercle, about 1.5 times as long as wide (Fig. 22). Total length 5.5 mm. Carapace 1.9 mm long, 1.5 wide. First femur 1.9 mm, patella and tibia 2.6, metatarsus 1.9, tarsus 0.7. Second patella and tibia 2.3 mm, third 1.4, fourth 2.0.

Male from Concepción Province, Chile. Color as in female. Posterior median eyes 0.8 diameter of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.6. Anterior median eyes their diameter apart. Posterior median eyes their radius apart. Total length 3.2 mm. Carapace 1.4 mm long, 1.3 mm wide. First femur 1.9 mm, patella and tibia 2.0, metatarsus, 1.9, tarsus 0.9. Second patella and tibia 2.0 mm, third 0.9, fourth 1.7.

Illustration. A female from Brazil and a male from Vacaria, Rio Grande do Sul, Brazil were illustrated.

Note. Males and females have been collected together.

Variation. Females varied in total length between 5.2 and 7.2 mm; males between 2.8 and 3.3 mm.

Diagnosis. *L. bivittata* differs from *L. tucuman* in the epigynum, which has a posterior lip on each side of the scape that is swollen, dark, and sclerotized (Figs. 20, 21), and in the dark, sclerotized, anchor-shaped embolus of the palpus (Fig. 24).

Distribution. Southern Brazil, Chile, Paraguay, Uruguay, and Argentina.

Records. BRAZIL *Paraná:* San Luiz do Puruma (MZSP). *Río Grande do Sul:* Bom Jesus; Cambará do Sul; Santa Cruz do Sol; Rio Grande; Santa Vitoria do Palmar, Vacaria (all MCN); Pelotas (AMNH). URUGUAY *Maldonado:* Piriápolis (CAS). PARAGUAY *Transchaco* km 78 (IRSNB). ARGENTINA *Mendoza:* between Mendoza and el Huecu (MCZ). *Neuquén:* Zapala (MACN). *Tucuman:* Tafí del Valle (AMNH). *Buenos Aires:* Capilla del Señor; Castellar (both MLP); Florencio Varelo; Isla Martín García (both MACN); La Plata (MNRJ); 4 km E Zubiaurre (ZMK). *Chubut:* El Maitén (AMNH). CHILE *Antofagasta:* Antofagasta (IRSNB). *Atacama:* Huasco (AMNH). *Coquimbo:* Ovalle (CAS); Herradura Bay; Loma de Peñueles; Fundo Tahuinco (all AMNH), Hacienda Illapel (IRSNB). *Valparaíso:* Quintero (AMNH). *Santiago:* Antumapu (MCZ); El Salto; Lampa; Pudahuel; Quilicura (all AMNH); Santiago (USNM). *Maule:* Cayurranguil, W of Cauquenes (AMNH). *Curicó:* Curicó (MCZ). *Linares:* Fundo Malcho (MCZ), Linares (IRSNB). *Ñuble:* San Carlos (CAS). *Concepción:* Escuadrón; Desembocadura, Río Bío-Bío; Lenga (all AMNH); Estero Lenga; Nonguen (both MCZ). *Arauco:* Carampangue (MCZ). *Bío-Bío:* Caledonia, E of Mulchen (AMNH). *Malleco:* Nahuelbuta National Park; Selva Oscura W of Curacautín (both AMNH). *Cautín:* Chacamo, NW of Nueva Imperial and W of Temuco (AMNH); Los Pinos near Loncoche (AMNH); Villarrica (MCZ). *Valdivia:* Huachocopihue; Isla Teja (both MCZ); Purolón, NW of Panguipulli (AMNH). *Osorno:* Osorno (AMNH); Termas de Puyehue (MCZ). *Chiloé:* Dalcahue (IRSNB). *Lianquihue:* Carelmapu (IRSNB); Hornohuinca; Petrohué (both MCZ).

Larinia ambo new species

Figures 26–31; Map 2

Holotype. Female holotype from Ambo, Huánuco Province, 2100 m., Peru (W. Weyrauch), in AMNH. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace light brown with gray margins and median line. Chelicerae, coxae, legs yellow. Labium, sternum, endites black. Dorsum of abdomen with a broad black toothed median band, bordered laterally by white (Fig. 28); venter

with central white patch and two pairs of brown bands which run from book lungs to spinnerets (Fig. 29). Posterior median eyes, lateral eyes same diameter as anterior medians. Anterior median eyes 1.5 diameters apart. Posterior median eyes 0.6 diameters apart. Abdomen oval, about 1.5 times as long as wide, with small anterior median tubercle (Fig. 28). Total length 4.3 mm. Carapace 1.6 mm long, 1.3 wide. First femur 2.0 mm, patella and tibia 2.2, metatarsus 1.7, tarsus 0.8. Second patella and tibia 2.1 mm, third 1.1, fourth 1.8.

Male paratype. Color as in female. Posterior median eyes and anterior laterals the same diameter as anterior medians. Posterior laterals 0.8 the diameter of the anterior median eyes. Anterior median eyes 1.5 diameters apart. Posterior median eyes 0.5 diameter apart. Abdomen similar in shape to that of female. Total length 3.0 mm. Carapace 1.5 mm long, 1.1 wide. First femur 1.7 mm, patella and tibia 2.0, metatarsus 1.7, tarsus 0.9. Second patella and tibia 1.9 mm, third 0.9, fourth 1.7.

Illustration. The female holotype and a male from Cerro Portachuelo were illustrated.

Note. Males and females have been collected together.

Variation. Five females varied between 4.1 and 5.1 mm in length. Two males were 3.0 and 3.3 mm in length.

Diagnosis. The species differs from others in having a single dark toothed median band on the dorsum of the abdomen (Fig. 28). Males have a distinctive comma-shaped embolus (Fig. 30).

Paratypes. ECUADOR *Azuay*: Cuenca, 3–14 March 1965, ♂ (L. Peña, MCZ). PERU *Lambayeque*: Cerro Portachuelo, nr. Cerro Racaruma, Chongoyape, 0.6° 40', 78° 28', 450–550 m., ♀, ♂ (CAS). *Huánuco*: Ambo, 3♀, 1♂ (W. Weyrauch, AMNH).

Larinia neblina new species

Figures 32–35; Map 2

Holotype. Female holotype from Cerro de La Neblina, Territorio Federal Amazonas, Venezuela, 0°50'N, 65°59'W, 2100 m., 30 January 1985 (W. E. Steiner), in USNM. The specific name is a noun in apposition after the type locality.

Description. Female holotype. Carapace, chelicerae, coxae, legs yellow. Sternum yellow, grading into brown along borders. Dorsum of abdomen white, with a narrow brown median band and a pair of

broader lateral brown bands (Fig. 34); venter with square white patch within brown region (Fig. 35). Posterior median eyes same diameter as anterior medians, laterals 0.7 diameter. Anterior median eyes 1.6 diameters apart. Posterior median eyes 0.7 diameters apart. Abdomen oval, without anterior tubercle, less than 1.5 times as long as wide (Fig. 34). Total length 4.2 mm. Carapace 1.7 mm long, 1.5 wide. First femur 2.0 mm, patella and tibia 2.5, metatarsus 1.9, tarsus 0.8. Second patella and tibia 2.2 mm, third 1.2, fourth 2.0.

Natural History. Type specimen was found "on *Bennetia* and other low shrubs around bog."

Diagnosis. Females differ from other species in having an elongate, transversely striated, distally pointed scape with parallel sides (Fig. 32). (The epigynum contains parts of the male palpus which are impossible to remove, found in the depression on either side of the scape.)

Larinia t-notata (Tullgren)

Figures 36–42; Map 2

Chrysometa t-notata Tullgren 1905: 28, pl. 3, fig. 8 a, b, ♀. Female holotype from Quinta, Jujuy Prov., Argentina, in NRMS, examined. Roewer, 1942: 914. Bonnet, 1956: 1083.

Larinia t-notata – Levi, 1986: 102

Description. Female holotype. Carapace, sternum, legs golden yellow. Abdomen with dorsal longitudinal gray marks (Fig. 38); venter black with median white longitudinal band (Fig. 39). Posterior median eyes subequal to anterior medians, anterior laterals 0.9 diameter, posterior laterals 0.8 diameters of anterior median eyes. Anterior median eyes 1.2 diameters apart, the same distance from laterals. Posterior median eyes 0.7 diameters apart, 2 diameters from laterals. The height of the clypeus is equal to the diameter of the anterior median eyes. The abdomen is almost three times as long as wide, with an anterior median tubercle (Fig. 38). The abdomen is partly destroyed from having been dry. Total length 6.0 mm. Carapace 2.5 mm long, 1.9 wide. First femur 2.8 mm, patella and tibia 4.0, metatarsus 2.6, tarsus 1.2. Second patella and tibia 3.6 mm, third 2.0, fourth 3.5.

Male from Pinhal, Est. Santa Catarina, Brazil. Color as in female. Posterior median eyes 1.2 diameters of anterior medians, anterior laterals 0.8 diameter, posterior laterals 0.8. Anterior

median eyes 1.5 diameters apart. Posterior median eyes 0.2 diameter apart. Total length 6.2 mm. Carapace 3.0 mm long, 1.2 wide. First femur 3.5 mm, patella and tibia 5.4, metatarsus 4.7, tarsus 1.6. Second patella and tibia 4.6 mm, third 2.3, fourth 4.0.

Illustration. A female and male from Pinhal, Brazil were illustrated.

Note. Males and females have been collected together.

Variation. Females varied in total length between 6.0 mm and 8.7 mm. Four males ranged between 5.3 and 6.6 mm.

Diagnosis. *L. t-notata* differs from other species in the elongate, transversely striated, distally blunt, and often asymmetrical scape (Fig. 36), and in the sclerotized, serrated borders of both the tegulum and median apophysis of the palpus (Fig. 40–42).

Distribution. Southern Brazil to Buenos Aires Province, Argentina.

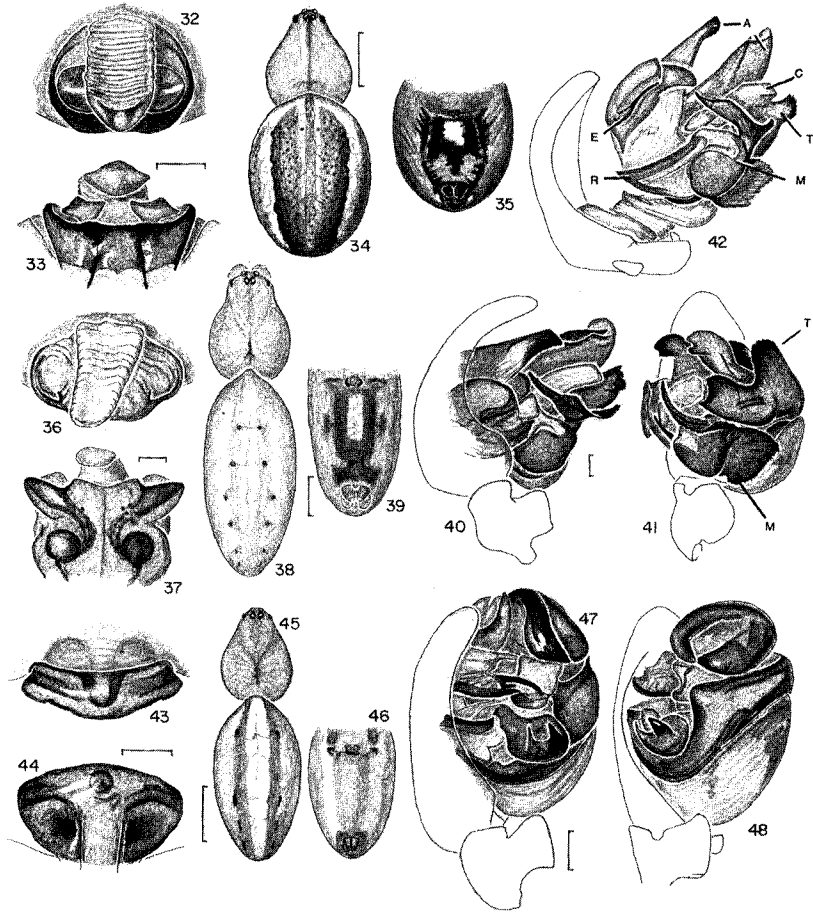
Records. BRAZIL *São Paulo*: Boracéia, 22–23 Feb. 1961, 2♀ (P. Biasi, MZSP); Camino de Mar, 33 km S of São Paulo, 11 Apr. 1965, ♀ (H. Levi and P. Biasi, MCZ); Cocaia - Represa Nova, Sept. 1949, ♀ (H. Urban, MZSP no. 10109); Fazenda Intervalles, 15 km E. Guapiara, 700 m., Feb. 1990, ♀ (W. Eberhard, MCZ). *Santa Catarina*: Joaçaba, Jan.–Feb. 1965, ♂ (L. Bettio, MZSP); Pinhal, Apr. 1947–Jan. 1949, 19♀, 2♂ (A. Maller, AMNH). *Rio Grande do Sul*: Campo Bom, 3 June 1985, ♀ (C. J. Becker, MCN 13343); Sertão de Santana, Guaíba, 25 Jan. 1977, ♂ (A. A. Lise, MCN 4969); Guaíba, 3 Jan. 1974, ♂ (A. A. Lise, MCN 331); Passo Fundo, 1 Aug. 1986, ♀, ♂ (A. A. Lise, MCN 15871); ARGENTINA *Santa Fe*: Piquete, 1947, ♀ (MLP). *Buenos Aires*: Parana de las Palmas y Canal 6, 19 Aug. 1963, ♂ (M. E. Galiano, MEG).

***Larinia montecarlo* (Levi), new combination**

Figures 43–48; Map 2

Alpaida montecarlo Levi, 1988: 414, figs. 172–174, Map 3, ♀. Female holotype from Montecarlo, Misiones Prov., Argentina, in MACN.

Description. Female from Parque Estadual do Tenente Portela, Rio Grande do Sul, Brazil. Carapace, chelicerae, coxae, legs yellow. Sternum light brown. Dorsum of abdomen white, with a pair of faint grayish lateral bands and a pair of lateral rows of four black dots (Fig. 45). Venter white (Fig. 46). Posterior median eyes 1.3



Figures 32–35, *Larinia neblina* n. sp., female. 32, epigynum, ventral. 33, epigynum, posterior. 34, dorsal. 35, abdomen, ventral.

Figures 36–42, *Larinia t-notata* (Tullgren). 36–39, female. 36, epigynum, ventral. 37, epigynum, posterior. 38, dorsal. 39, abdomen, ventral. 40–42, male. 40, left palpus, mesal. 41, palpus, ventral. 42, palpus, pulled apart.

Figures 43–48, *Larinia montecarlo* (Levi). 43–46, female. 43, epigynum, ventral. 44, epigynum, posterior. 45, dorsal. 46, abdomen, ventral. 47, 48, male. 47, palpus, mesal. 48, palpus, ventral. *Abbreviations.* A, terminal apophysis; C, conductor; E, embolus; M, median apophysis; R, radix; T, tegulum. *Scale lines,* 1.0 mm, genitalia 0.1 mm.

diameters of anterior medians, laterals 0.8 diameter. Anterior median eyes 2 diameters apart. Posterior median eyes 1.5 diameters apart. Abdomen oval, a little more than twice as long as wide (Fig. 45). Total length 4.5 mm. Carapace 1.7 mm long, 1.3 wide. First femur 2.5 mm, patella and tibia 3.2, metatarsus 2.9, tarsus 1.1. Second patella and tibia 2.7 mm, third 1.2, fourth 2.0.

Male from Jundiaí, Est. São Paulo, Brazil. Color as in female. Posterior median eyes 1.5 diameter of anterior medians, laterals 0.8 diameters. Anterior median eyes 2 diameters apart. Posterior median eyes 1 diameter apart. Abdomen similar in shape to that of female. Total length 4.0 mm. Carapace 2.0 mm long, 1.5 wide. First femur 2.5 mm, patella and tibia 3.2, metatarsus 3.0, tarsus 1.1. Second patella and tibia 2.7 mm, third 1.4, fourth 2.5.

Illustration. A female from Tenente Portela and a male from Triunfo were illustrated.

Variation. Nine females varied in total length between 4.4 and 5.5 mm long. Males varied between 4.0 and 4.3 mm long.

Note. Males and females were collected together.

Diagnosis. *L. montecarlo* differs from other *Larinia* in lacking an epigynal scape (Fig. 43) and in the configuration of the male palpus (Fig. 47).

Records. BRAZIL *São Paulo*: Jundiaí, 1–15 June 1976, ♂ (A. Schneble, MCZ). *Paraná*: Curitiba, 2 Nov. 1987, ♀ (A. D. Brescovit, MCN 17158). *Santa Catarina*: Araranguá, 18 Feb. 1985, ♀ (A. D. Brescovit, MCN 13149). *Rio Grande do Sul*: Linha Alegre, Arroio do Meio, 9 Jan. 1985, ♀ (A. D. Brescovit, MCN 12899); São Valentim, 16 Oct. 1976, ♀ (S. Scherer, MCN 4703); Parque Estadual do Tenente Portela, 29 Nov. 1978, 15 Jan. 1985, 2♀, ♂ (H. Bischoff, A. Lise, MCN 8441, 12925); Triunfo, 2 June, 27 Dec. 1977, 3♀, 2♂ (A. Lise, H. Bischoff, MCN 5672, 7035), Nonoai, 14 Jan. 1985, ♂ (A. A. Lise, MCN no. 12820).

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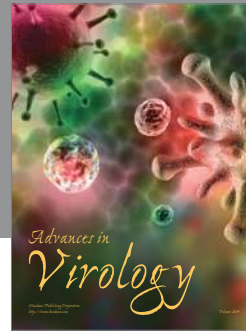
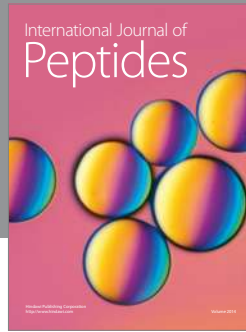
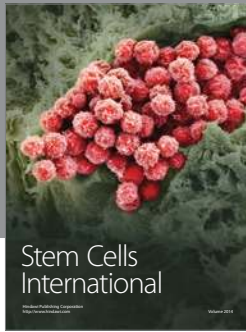
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