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# Biodiversity and distribution of lethaeine seed bugs (Heteroptera, Rhyparochromidae, Lethaeini) from Argentina

Pablo M Dellapé[1,3*], Maria C Melo[1,3] and Jane E O' Donnell[2]

## Abstract

**Background:** The tribe Lethaeini has received little attention in Argentina. In 2014, Dellapé recorded 9 genera and 15 species from this country.

**Results:** A comprehensive study of the Lethaeini (Heteroptera, Rhyparochromidae) from Argentina is presented. Herein three new species of *Cryphula* Stål, one new species of *Cistalia* Stål, and the male of *Cryphula australis* Berg are described. The genus *Petissius* Distant and the species *Cistalia binotata* Slater & Baranowski, *Cistalia neotropicalis* Slater & Baranowski, and *Petissius spinipes* Stål are reported for the first time from Argentina; also, the known distribution is extended for many of the previously recorded species. A generic key, keys to species, and distributional maps to the Argentinean species are also given. Dorsal habitus photographs of all species and the male and female genitalia of the new species are provided to facilitate identification.

**Conclusions:** The Lethaeini fauna from Argentina is increased to 10 genera and 22 species. The distribution of the tribe in the country is mainly Neotropical into the Chacoan Subregion, with most of the species distributed in the Chacoan and Pampean provinces (Chacoan Domain) and Parana Forest Province (Parana Domain). Only *Rhaptus quadricollis* appears to be an Andean element, with most of the known records in the South American Transition Zone (Monte Province).

**Keywords:** *Bubaces*; *Cistalia*; *Cryphula*; *Esuris*; *Lipostemmata*; *Neopetissius*; *Rhaptus*; *Stictolethaeus*; *Valtissius*

## Background

Rhyparochromidae is the most diverse group of Lygaeoidea, with more than 2,000 species. The family contains two subfamilies, Plinthisinae and Rhyparochrominae, the latter with 14 tribes (Henry 1997). The Plinthisinae and seven tribes of Rhyparochrominae have been recorded from the Neotropical Region; among them, five have been recorded from Argentina: Antillocorini, Lethaeini, Myodochini, Ozophorini, and Udeocorini.

The tribe Lethaeini includes 38 genera and more than 160 species worldwide (Li et al. 2011) and shows its greatest diversity in the tropical and subtropical parts of the Afrotropical, Oriental, and Australian regions (Slater 1986). It is one of the most diverse tribes in the Neotropics, with 13 genera and 36 species known.

Lethaeines are recognized as monophyletic by the linear placement of trichobothria on abdominal sternum V, a rounded buccular groove joined immediately behind the labium, carinate juga, a trichobothrium at each anterior corner of the pronotum, loss of the Y chromosome, extreme modification of the sperm reservoir, immatures with a reduced scent gland between abdominal terga 5 and 6, and the presence of an iridescent area or areas on the head (Ashlock 1964; Slater and Woodward 1982; O'Donnell 1991).

Very little is known about the biology of Lethaeini; as with many other members of the family Rhyparochromidae, most species seem to be ground-litter inhabitants and seed predators (Sweet 1964; Baranowski and Slater 1979; Slater and Baranowski 1990; O'Donnell 2001; Cervantes and Gamez 2006).

* Correspondence: pdellape@fcnym.unlp.edu.ar
[1]División Entomología, Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, Paseo del Bosque s/n, 1900 La Plata, Argentina
[3]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina
Full list of author information is available at the end of the article

The tribe has received little attention in Argentina. Dellapé (2014) recorded 9 genera and 15 species from this country. In this contribution, four new Lethaeini species are described, and one genus and three species are recorded for the first time from Argentina; also, the known distribution is extended for many of the previously recorded species. A generic key, keys to species, and distributional maps to the Argentinean species are also given. Dorsal habitus photographs of all species and the male and female genitalia of the new species are provided to facilitate identification.

## Methods

We examined material from the following institutions: Museo de La Plata, Buenos Aires, Argentina (MLP); Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (MACN); Colección Instituto Fundación Miguel Lillo, Tucumán, Argentina (IFML), Instituto Argentino de Investigaciones de las Zonas Áridas, Mendoza, Argentina (IADIZA); Museu Nacional, Universidade do Rio Janeiro, Rio de Janeiro, Brazil (MNRJ); National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM); Carnegie Museum of Natural History, Pittsburgh, PA, USA (CMNH); University of Connecticut, Storrs, CT, USA (UCMS); American Museum of Natural History, New York, NY, USA (AMNH); Russian Academy of Sciences, St. Petersburg, Russia (ZIN); Nationaal Natuurhistorische Museum ("Naturalis"), Leiden, Netherlands (RMNH); Bernice P. Bishop Museum, Honolulu, HI, USA (BPBM).

The genital structures were dissected under a stereomicroscope, cleared in a 10% KOH solution, washed in distilled water, and preserved in vials with glycerin, following O'Donnell (1991). Color images were captured using a digital camera (Micrometrics 391CU, 3.2 m, Accu-Scope, Commack, NY, USA) mounted to a Nikon SMZ1000 stereomicroscope. Multiple focal planes were merged using Micrometrics SE Premium 4 software.

Localities were geo-referenced using gazetteers and Google Earth; maps were produced with ArcView 10.

This article was registered in the *Official Register of Zoological Nomenclature* (ZooBank) as FE84EF07-E706-483D-87A3-399521143E27.

## Results

### Key to the genera of Lethaeini from Argentina (modified from Baranowski and Slater 2005)

1. Pronotal trichobothria absent; eyes large occupying more than half length of head; juga reduced; densely setose species ..... *Lipostemmata* Berg
   – Trichobothria present on anterolateral region of pronotum; eyes small; juga well developed; less setose species ..... 2
2. Dorsal surface of body entirely strongly shiny ... 3
   – Dorsal surface of body at most in part shiny ... 4
3. Pronotum trapezoidal, narrowing anteriorly; head with two iridescent patches; profemur weakly incrassate ..... *Bubaces* Distant
   – Pronotum subquadrangular; head with one iridescent patch; profemur strongly incrassate and compressed ..... *Rhaptus* Stål
4. Head with two iridescent patches ..... 5
   – Head with one iridescent patch ..... 7
5. Body with short setae dorsally; inner laterotergites absent ..... *Stictolethaeus* O'Donnell
   – Body with long setae dorsally; inner laterotergites present ..... 6
6. Dorsal surface weakly punctate; evaporative area ample, occupying half of anterior margin of metapleuron ..... *Valtissius* Barber
   – Dorsal surface strongly punctate; evaporative area reduced, restricted to surrounding areas of auricle, occupying less than half the anterior margin of metapleuron ..... *Esuris* Stål
7. Transverse impression of pronotum distinct, dividing pronotum into anterior and posterior lobes; lateral pronotal margins broadly explanate and sinuate; collar triangular, well separated from pronotum by a row of punctures ..... *Neopetissius* O'Donnell
   – Transverse impression of pronotum indistinct; lateral pronotal margins carinate but never broadly explanate; collar not differentiated ..... 8
8. Evaporatory area extended anteriorly over mesopleuron, reaching or nearly reaching dorsal margin ..... 9
   – Evaporatory area not extended anteriorly, distant from dorsal margin of mesopleuron ... *Cryphula* Stål
9. Basiflagellomere without a pale annulus..... ..... *Petissius* Distant
   – Basiflagellomere with a pale annulus..... ..... *Cistalia* Stål

### *Bubaces* Distant 1893

This genus comprises four species ranging from Mexico to Argentina, including the West Indies. Two species were known from Argentina: *Bubaces castaneus* Distant 1893 (Figure 1A) from Santa Fe Province (Brailovsky 1981) and *B. enatus* Brailovsky 1981 (Figure 1B) from Chaco and Salta provinces (Brailovsky 1981; Melo et al. 2011).

*Bubaces enatus* is here recorded from Córdoba Province for the first time (Figure 2).

### Key to Argentinean species of *Bubaces*

– Longer than 5 mm; rostrum extending to fourth or fifth abdominal sternum ..... *B. castaneus*

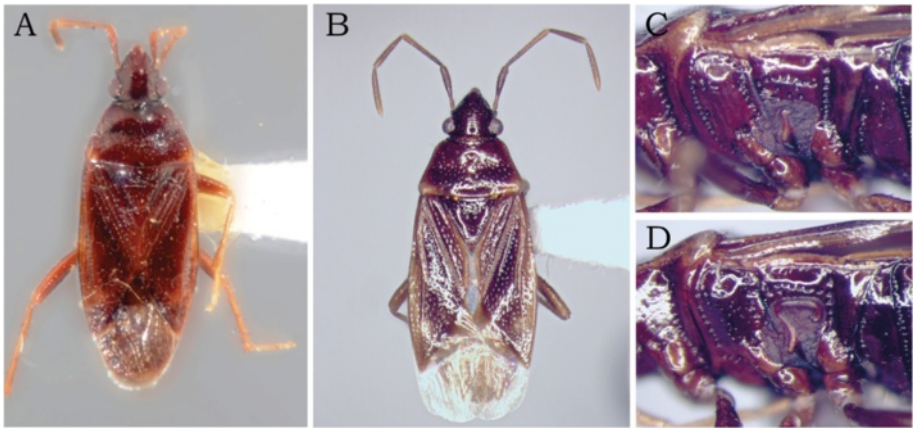


**Figure 1** *Bubaces* species. **(A)** *B. castaneus* dorsal habitus; **(B)** *B. enatus* dorsal habitus; **(C)** *B. enatus*, female metapleural auricle and evaporative area; **(D)** *B. enatus*, female metapleural auricle and evaporative area.

Shorter than 5 mm, about 4 mm; rostrum extending to metacoxae ..... *B. enatus*

### *Bubaces enatus* Brailovsky 1981

This species (Figure 1B) was described based on a single male. The females are quite similar to the males, except for the sexual dimorphism in the metapleural scent gland, with both the auricle and evaporative area showing differences in shape and extent (Figure 1C,D); this kind of dimorphism was also observed in *B. convergens* Brailovsky (Brailovsky 1981).

#### *Material examined*

*Chaco*: 4♂ 8♀, P.N. Chaco, park rangers' house, 26°48′ 25″ S-59°36′36.5″ W, 26-IX-2009, light trap, Dellapé, P. M. & Melo, M.C. cols. (MLP); 2♀, same data, 17/28-X-2009, light trap, Pfoh, R. col. (MLP); 1♂, same data, 25-IX-2009, light trap, Melo, M.C. col. (MLP); *Córdoba*: 1♂, Los Cocos, XII-1946, Viana col. (MLP); *Misiones*: 1♂ 2♀, Parque Nacional Iguazú, Centro de Investigaciones Subtropicales (CIES), 29-X-2012, light trap (MLP).

### *Cistalia* Stål 1874

This genus was revised by Slater and Baranowski (1973); it comprises seven species ranging from southwestern USA to Argentina. Two species were known from Argentina: *Cistalia signoretii* (Guérin-Méneville 1857) from Buenos Aires (Dellapé and Carpintero 2012) and Corrientes (Melo et al. 2004), and here recorded from Chaco, Córdoba, Formosa, Entre Ríos, Santa Fe, and Santiago del Estero provinces; and *C. alboannulata* (Stål 1858) from Chaco, Corrientes, Entre Ríos, Formosa, Salta, and Santa Fe provinces (Carpintero et al. 2006; Melo et al. 2011), and here recorded from Misiones Province.

In this contribution, *Cistalia binotata* Slater and Baranowski, 1973 and *C. neotropicalis* Slater and Baranowski, 1973 are recorded from Argentina for the first time, and a new species, *C. parva*, is described from Argentina, Brazil, and Peru.

#### Key to Argentinean species of *Cistalia* (modified from Slater and Baranowski 1973)

1. First 3 antennal articles with numerous elongate setae present in addition to semidecumbent pubescence, each elongate seta as long as or longer than diameter of segment ..... *C. signoretii*
   – Scapus sometimes with occasional elongate setae, but pedicellus and basiflagellomere bearing chiefly dense semidecumbent pubescence much shorter than diameter of segment, upright setae when present shorter than diameter of segment ..... 2
2. Small species: females not over 5 mm, males smaller; antenna thick and incrassate, width of pedicellus at middle about 1/8 as great as length of segment ..... *C. parva* n. sp.
   – Larger species; antenna relatively more slender, width of pedicellus at middle about 1/10 as great as length of segment ..... 3
3. Corium lateral of radial vein shining, strongly contrasting with dull inner surface of corium ..... *C. binotata*
   – Corium shining or subshining on both sides of radial vein, the two surfaces not strongly differentiated in texture ..... 4
4. Scapus relatively elongate; width across eyes considerably less than 1.5 times length of scapus; at least dorsal surface of basiflagellomere pale on distal 3/4; lateral pronotal margins evenly narrowed from humeral angles to anterior margin ..... *C. alboannulata*
   – Scapus relatively short; width across eyes more than 1.5 times length of scapus; basiflagellomere pale only on distal 1/2 to 1/3 of segment; lateral

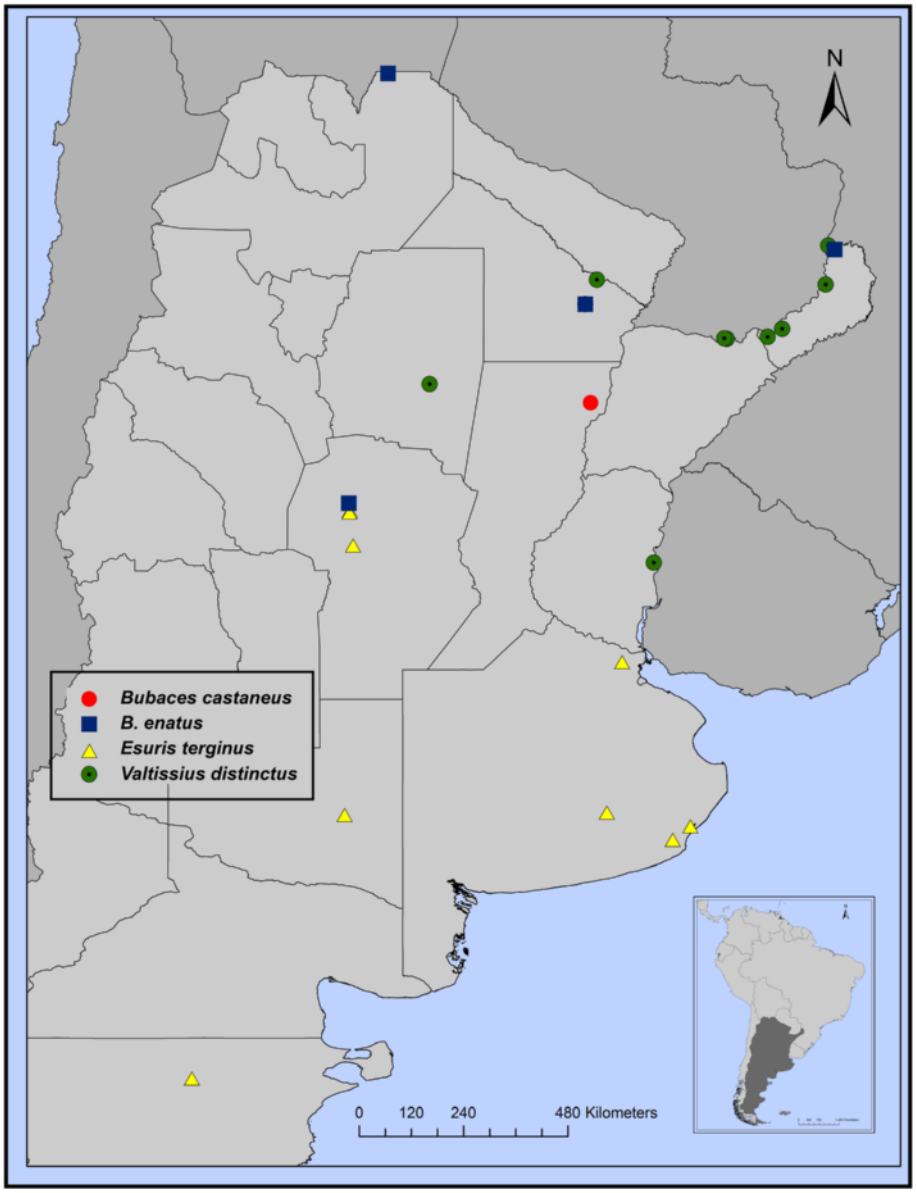


**Figure 2** Distributional map of *Bubaces*, *Esuris*, and *Valtissius* species.

pronotal margins moderately convex and arcuately narrowing from humeral angles to anterior margin ..... *C. neotropicalis*

### *Cistalia alboannulata* (Stål 1858)

#### *Material examined*

*Chaco*: 1♂, P.N. Chaco, park rangers' house, 26°48′25″ S-59°36′36.5″ W, 17/28-X-2009, light trap, R. Pfoh col. (MLP); 1♀, Puente colgante, 26°48′20.1″ S-59°36′32.1″ W, 27-IX-2009, P.M. Dellapé & M.C. Melo cols. (MLP); 2♀, Resistencia, 1-X-[19]36 (MLP); *Corrientes*: 1♂, Reserva Santa María, 27-IV-2003, t. de luz, M.C. Coscarón col. (MLP); *Entre Ríos*: 5♂ 1♀, Colón, Liebig, verano 2003, luz, L. Caire col. (MLP); *Formosa*: 1♂, II-1970, B. Docasas col. (MACN); 1♀, Ibarreta, 20-IV-[19]39 (MLP); *Misiones*: 1♀, I-1978, Carpintero col. (MACN); *Salta*: 1♂, Depto. Gral. San Martin, Rio Carapari, 8 km S of Pocitos, A. Martinez & R.E. Woodruff cols., 16-II-[19]69, blacklight trap (MLP); 1♀, Urundel, C. Lucero col. (MACN) (Figures 3A and 4).

### *Cistalia binotata* Slater and Baranowski 1973 first country record

#### *Material examined*

*Chaco*: 1♂, 40 km Tres Estacas, 27°4′58.8″ S-61°51′38.4″ W, 28/30-IX-2009, Marti-Pelliza cols. (MLP) (Figures 3B and 4).

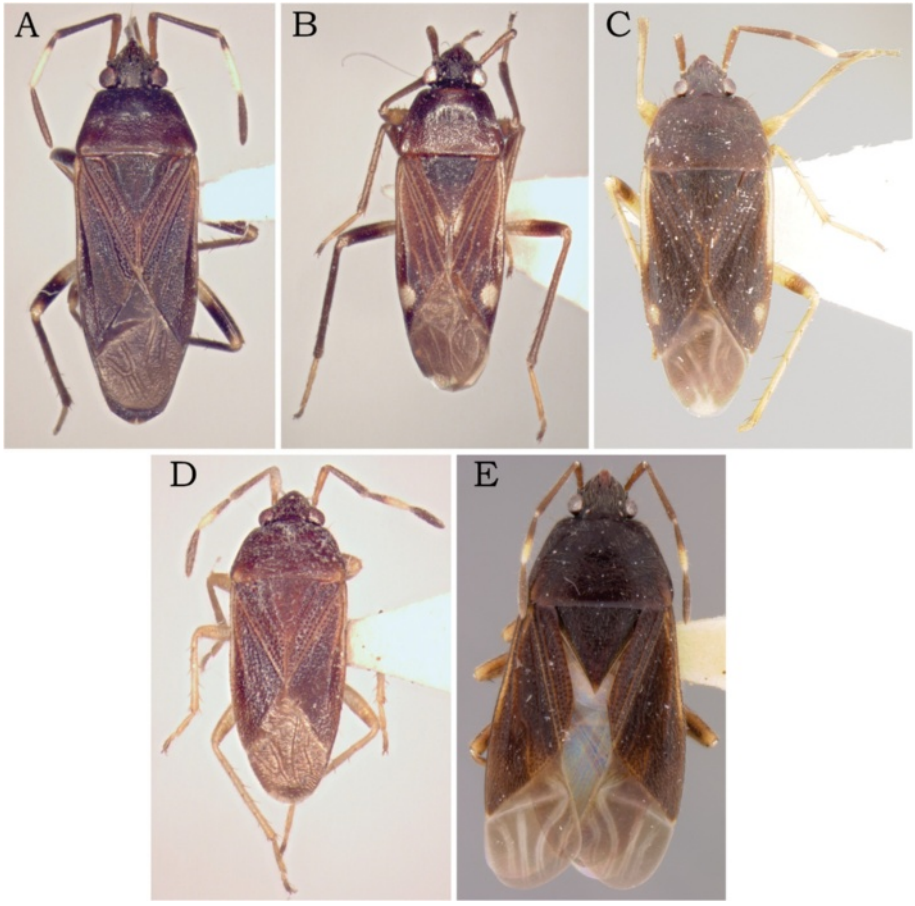


**Figure 3** *Cistalia* species. **(A)** *C. alboannulata* dorsal habitus; **(B)** *C. binotata* dorsal habitus; **(C)** *C. neotropicalis* dorsal habitus; **(D)** *C. parva* n. sp. dorsal habitus; **(E)** *C. signoretii* dorsal habitus.

### *Cistalia neotropicalis* Slater and Baranowski 1973 first country record

#### *Material examined*

*Entre Ríos*: 1♂, La Paz, XII-1972, Carpintero col. (MACN); *Córdoba*: 2♂ 2♀ (on same pin), Valle Hermoso, 1965, Carpintero col. (MACN) (Figures 3C and 4).

### *Cistalia parva* n. sp.

#### *Diagnosis*

This new species can be distinguished by its small size, females smaller than 5 mm and males smaller than 4 mm, and the thick and incrassate antenna, with a prominently fusiform pedicellus (Figure 3D).

#### *Description of male holotype*

Total length 3.6. General coloration dark chestnut brown, becoming paler at tip of tylus and on clavus. Humerus, radial vein, and lateral corial margin to level of apex of clavus dark buff yellow. Dorsal surface uniformly pruinose, clothed above with semierect, pale yellow to silvery setae.

*Head*: Moderately convex across vertex, non-declivent anteriorly; tylus broad, evenly rounded, nearly reaching middle of scapus. Eyes large, touching antero-lateral margins of pronotum. Length head 0.54; width head 0.76; interocular space 0.43. Antenna stout, scapus and pedicellus prominently fusiform; clothed with decumbent pubescence and with scattered erect setae on flagellomeres. Scapus dark buff yellow, faintly tinged with red basally and dark chestnut brown distally. Pedicellus, basal 1/3 of basiflagellomere, and all distiflagellomere amber; distal 2/3 of basiflagellomere light cream color. Length scapus 0.49; pedicellus 0.58; basiflagellomere 0.50; distiflagellomere 0.64. Rostrum extending between mesocoxae; first labial segment amber, successive segments paler. Length labial segments I: 0.49; II 0.58; III 0.50; IV 0.64.

*Thorax*: Pronotum with transverse impression shallow, calli impunctate; posterior lobe with evenly scattered, shallow, indistinct punctures. Lateral margins slightly arcuate, carinate, and evenly tapering from humeri to anterior margin. Anterior and posterior margins slightly concave. Length pronotum 0.72; width 1.3 (estimated). Scutellum ecarinate, impunctate, slightly depressed in center. Length claval commissure 0.40. Hemelytron with lateral corial margin nearly straight to level just beyond

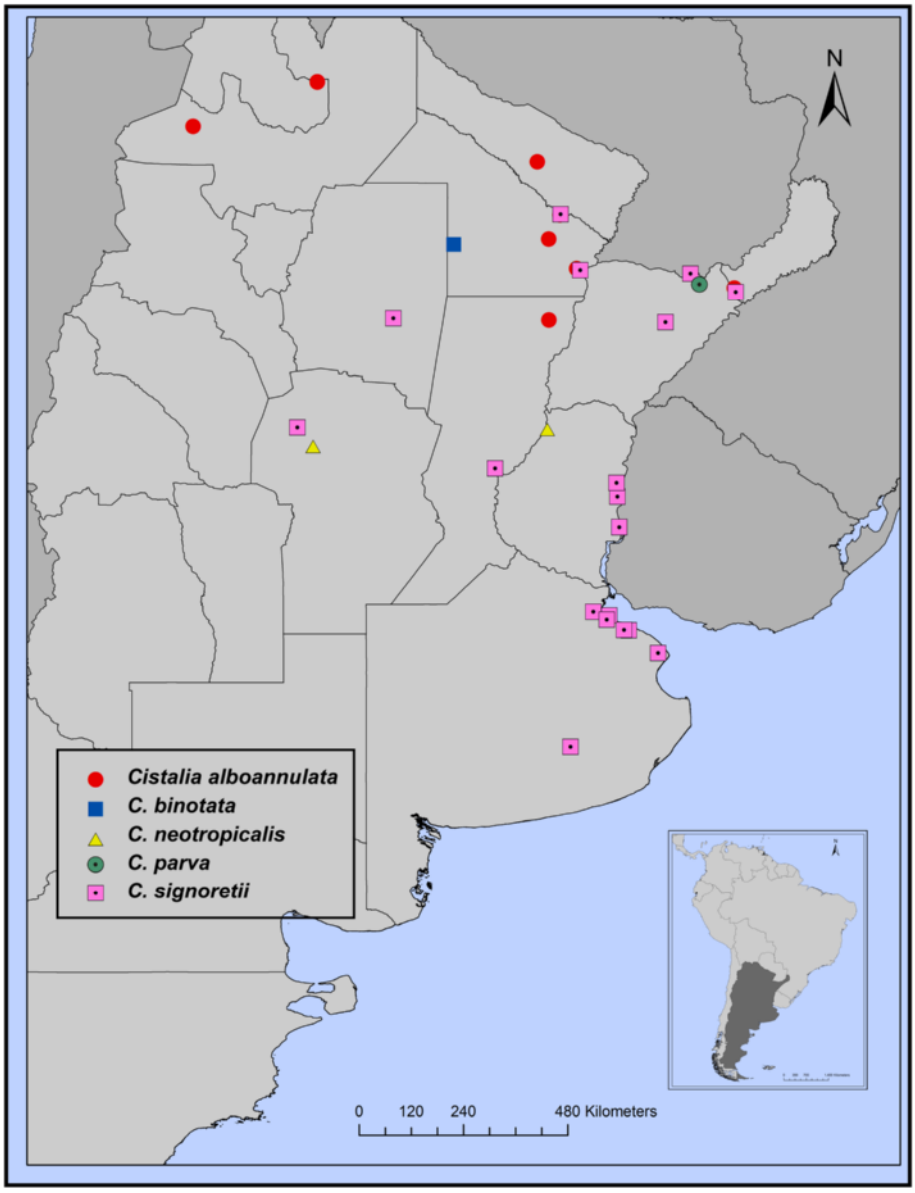


**Figure 4** Distributional map of *Cistalia* species.

distal end of claval commissure, tapering posteriorly from this point. Clavus with 4 rows of punctures; membrane just attaining end of abdomen; distance apex clavus-apex corium 0.66; distance apex corium-apex abdomen 0.62. Membrane concolorous with corium, veins not differentiated. Metathoracic scent gland auricle curving slightly apically and tapering to a blunt point; evaporative area rugose, covering ventral 2/3 of metapleuron, with the dorsal margin sloping ventrad posteriorly. Pleural surfaces chestnut with bluish or greenish iridescent cast; sternum chestnut. Profemur incrassate, armed below with two short stout spines distally and several elongate 'hair spines' more proximally. Meso- and metafemora mutic, but covered with long decumbent pubescence. Coxae amber; all femora, tibiae, and tarsi pale yellow.

*Abdomen*: Shining below, clothed with long decumbent setae. *Genitalia*: Sperm reservoir as in Figure 5A; male paramere as in Figure 5B.

### *Female*

Spermatheca as in Figure 5C.

### *Etymology*

From the Latin 'parv-', meaning 'small', in reference to the small size of this species.

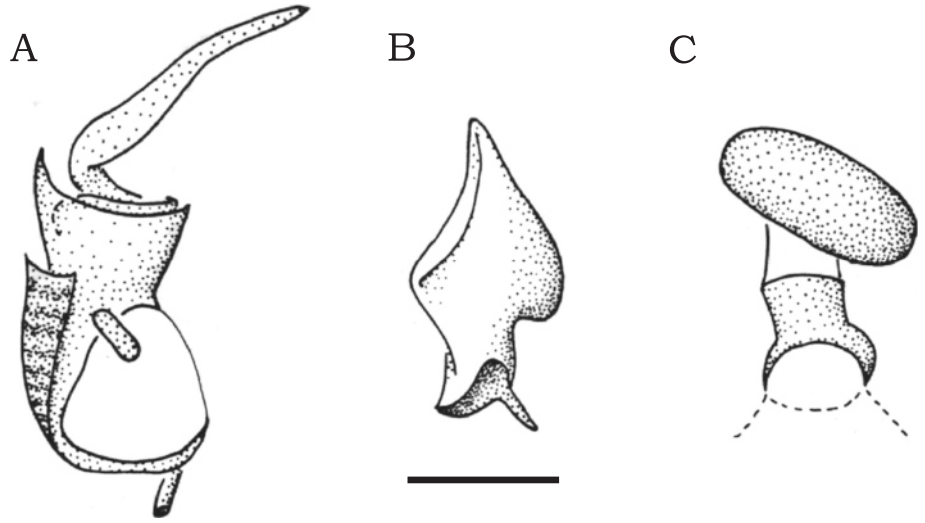


**Figure 5** *Cistalia parva* **(A)** sperm reservoir, **(B)** paramere, and **(C)** spermatheca. Scale bar: 0.1 mm.

#### *Type material*

Holotype (dissected and illustrated): ♂ **Peru**: Loreto, km 3 Tournavista Rd., 34 km W Pucallpa, 300 m, 16-XII-1971, at light, R.T. & J.C. Schuh cols. (AMNH). Paratypes: 1♀, same data as holotype (AMNH); 1♂, **Brazil**: *Pará*: Belem, 18-X-1973, R.T. Schuh col., a luz (AMNH); 1♀ (dissected and illustrated), *E. do Rio*, Colubande, X-1957 (MNRJ); **Argentina**: *Corrientes*: 1♂, Ituzaingó, Reserva Santa María, 26-IV-2003, T. luz, M. Chayle col. (MLP); 1♂, same data, 30-IV-2003 (MLP); 1♀, same data, 27-IV-2003, M.C. Melo col. (MLP).

### *Cistalia signoretii* (Guérin-Méneville 1857)

#### *Material examined*

*Buenos Aires*: 1♀, II-1974, G. Levy col. (MACN); 2♂, 2♀, Reserva Costanera Sur, 17-XII-2008, D.L. Carpintero col. (MACN); 1♂, same data, 13-III-2009 (MACN); 1♀, same data, 30-X/31-XI-2008, pitfall, D.L. Carpintero col. (MACN); 1♀, San Miguel, 1-VII-[19]55, P. Riviere S.L. (MACN); 1♀, San Miguel, 30-III-[19]88, Williner col. (MACN); 1♂, same data, 31-X-[19]82 (MACN); 1♀, Tandil, V-1957, M. Viana col. (MACN); 1♂ 6♀, Hudson, VI-1995, UWC, D.L. Carpintero col. (MLP); 1♂ 1♀, Verónica, Punta Indio, IV-1999, D.L. Carpintero col. (MLP); 1♂, Lanús, I-1979, D.L. Carpintero col. (MLP); 1♂, same locality, V-1974, Carpintero col. (MACN); 1♂, La Plata, 8-II-2002, P. Martínez col. (MLP); 1♀, La Plata, 3-III-2003, P. Dellapé col. (MLP); 1♀, M.B. Gonnet, 12-XI-1957, Trota leg. (MLP); *Córdoba*: 1♂, Cruz del Eje, 5-II-1999, J.E. Barriga col. (MLP); *Chaco*: 1♂, Resistencia, 10-XII-[19]35 (MLP); *Corrientes*: 2♀, Colonia Carlos Pellegrini, 26-IX-2002, LT, P. Dellapé col. (MLP); 1♂ 1♀, Reserva Santa María, 27-IV-2003, M.C. Melo col. (MLP); 1♂, 3♀, Mercedes, XII-1974 (MACN); *Entre Ríos*: 1♂ 2♀, Gualeguaychú, I-2012, J. Siches & C. Limeres cols. (MLP); 2♂, Entre Ríos, III-1974, Poinar col. (MACN); 1♂, Entre Ríos, XII-1972, J. Feliciano col. (MACN); 4♂ 2♀, Liebig, Colón, I-2003, luz, L. Caire col. (MLP); 5♀, Colón, Ruinas del Viejo Molino, 06-II-2003, luz, Grandinetti & Cichino cols. (MLP); 1♀, P.N. El Palmar, 16/18-XI-2001, M.C. Melo col. (MLP); *Formosa*: 1♂ 3♀, Formosa, Ea. (Estancia) 'La Marcela', 35 km E (este), El Colorado, VIII-2003, luz, J. Williams (MLP); *Santa Fe*: 1♀, Piquete, 8-I-[19]29, Bridarolli, S.J. col. (MACN); *Santiago del Estero*: 4♂ 8♀, Añatuya, XII-1998, luz, D.L. Carpintero col. (MLP); 3♂ 1♀, same data, II-1999 (MLP) (Figures 3E and 4).

### *Cryphula* Stål 1874

This genus comprises 11 species ranging from the northern USA and the West Indies to Argentina. Previously, three species were known from Argentina: *Cryphula dubia* (Berg 1883) from Buenos Aires and Corrientes provinces (Berg 1883; Melo et al. 2004; Dellapé and Carpintero 2012); *C. affinis* (Distant 1901) from Chaco Province (Melo et al. 2011), and here recorded from Buenos Aires, Córdoba, Corrientes, Entre Ríos, Formosa, Misiones, Salta, and Santiago del Estero provinces; and *C. australis* (Berg 1884) known from Buenos Aires Province (Berg 1884; Dellapé and Carpintero 2012), and here recorded from Córdoba, Salta, Santa Fe, and Santiago del Estero provinces. In the present contribution, we describe three new species from Argentina and the male of *C. australis* Berg.

#### Key to Argentinean species of *Cryphula*

1. Scutellum with three pale spots ..... 2
   – Scutellum without pale spots ..... 3

2. Spots of scutellum small and diffuse; meso- and metafemur light brown ……..... *C. rivierei* n. sp.
   – Spots of scutellum large and distinct; meso- and metafemur light brown darker basally and with a subapical dark band, more distinct on metafemur …… *C. affinis*
3. Pronotum uniformly dark brown … *C. brunnea* n. sp.
   – Pronotum with paler areas on posterior lobe … 4
4. Posterior pronotal lobe pale with two dark longitudinal stripes submedially and humeral angles darker; hemelytra light brown with punctures and surrounding areas darker …….. *C. australis*
   – Posterior pronotal lobe with pale humeral angles; hemelytra light brown, posterior half with darker areas ……..... 5
5. Pronotum subquadrangular (only brachypterous form known); corium with a dark rounded spot posteriorly; hemelytra with long erect setae as long as eye height ……..... *C. dubia*
   – Pronotum trapezoidal; corium light brown, posterior half with darker areas but not forming a rounded spot; hemelytra with short, erect setae shorter than eye height ……..... *C. humeralis* n. sp.

### *Cryphula affinis* (Distant 1901)

#### *Material examined*

*Buenos Aires*: 1♂, Alejandro Korn, X-1972 (MACN); *Chaco*: 1♂, 40 km Tres Estacas, 27°4′58.8″ S-61°51′ 38.4″ W, 28/30-IX-2009, Marti-Pelliza cols. (MLP); 1♂, Paraje La Gringa, II-2008, P. Marino col. (MLP); 2♂, 4♀, P.N. Chaco, park rangers' house, 26°48′25″ S-59°36′ 36.5″ W, 17/28-X-2009, light trap, Pfoh, R. col. (MLP); 1♀, same data, Dellapé, P.M. & Melo, M.C. cols.; 1♀, Puente colgante, 26°48′20.1″ S-59°36′32.1″ W, 27-IX-2009, Dellapé, P.M. & Melo, M.C. cols. (MLP); 1♂, Pte. Perón, Resistencia, III-7-1963, Juan Foerster col. (USNM); *Córdoba*: 1♀, Cruz del Eje, 5-II-1999, J.E. Barriga col. (MLP); *Corrientes*: 1♂, Pellegrini, 22-IX-2002, T. Malaise, P.M. Dellapé col. (MLP); 1♂, Pellegrini, 8-V-2002, M. Chayle col. (MLP); 1♂, Ituzaingó, Reserva Santa María, TL, 2-V-2003, M. Chayle col. (MLP); 1♀, same data, 26-IV-2003, M.C. Coscarón col. (MLP); 1♂ 2♀, same data, 27-IV-2003, P.M. Dellapé col. (MLP); 1♀, same data, M. Chayle col. (MLP); 1♂, same data, M.C. Melo col. (MLP); 1♀, same data, 29-IV-2003, P.M. Dellapé col. (MLP); 1♀, same data, M.C. Melo col. (MLP); *Entre Ríos*: 2♂ 2♀, Liebig, I-2003, L. Caire col. (MLP); 1♀, Liebig, 29-X/23-XI-2004, T. luz, L. Caire col. (MLP); 1♀, El Palmar, III-1974, Carpintero col. (MACN); *Formosa*: 3♂ 1♀, Ea. La Marcela, 35 km E El Colorado, VIII-2003, J. Williams col. (MLP); *Misiones*: 2♀, Parque Nacional Iguazú, Centro de Investigaciones Subtropicales (CIES), 29-X-2012, light trap (MLP); 1♂, R.P. 1, 27°41.360 S-55°48.493 W, 3-III-2010, Dellapé, P.M. col. (MLP); 1♂, P.P. Moconá, 27°9.185″ S-53°54.08″ W, 342 m, 21-III-2011, Dellapé, P.M. col. (MLP); 2♂, P.P. Moconá, Obeja Negra, 21-III-2011, Dellapé, P.M. & Montemayor, S.I. cols. (MLP); 1♀, same locality, 21-III-2011, Montemayor, S.I. col. (MLP); 3♂ 2♀, Pto. Iguazú, X-1978, D. Carpintero col. (MACN); 3♂, same data, XII-1979 (MLP); 5♂ 2♀, P.N. Iguazú, X-1980, UWLT, D.J. Carpintero col. (MLP); 2♂ 1♀, Iguazú, 21/27-IX-2006, TL, C. Cazorla col. (MLP); 1♂, Loreto, 18-VI-[1] 930, [collector's name in Russian] (ZIN); 1♂, Apepu, X-1980, Carpintero col. (MACN); *Salta*: 1♀, Rosario de Lerma, I-1986, UVL, D.L. Carpintero col. (MLP); 1♀, Dept. Gral. San Martin, Rio Carapari, 8 km S Pocitos, A. Martínez & R. Woodruff, 16-II-1969, blacklight trap (UCMS); *Santiago del Estero*: 2♀, Añatuya, II-1999, luz, D. L. Carpintero col. (MLP) (Figures 6A and 7).

### *Cryphula australis* (Berg 1884)

We have examined the macropterous female holotype of this species (Figure 6B), and we have found a conspecific brachypterous male described as follows (Figures 6C and 8A,B,C).

#### *Description of male*

Total length 2.68 (Figure 6C).

*Head*: Brown, shiny, tylus paler; convex across vertex, declivent anteriorly; tylus broad, evenly rounded. Eyes small, touching antero-lateral margins of pronotum. Ocelli minute, interocellar space 0.32. Length head 0.59; width head 0.62; interocular space 0.42. Antenna brown, scapus and pedicellus light brown; clothed with decumbent setae, more abundant towards apex; scapus with a few semierect stiff setae. Antennal length: scapus 0.26, pedicellus 0.50, basiflagellomere 0.53, distiflagellomere 0.55. Rostrum extending between metacoxae; length rostral segments I: 0.34; II 0.40; III 0.35; IV 0.27.

*Thorax*: Pronotum dark brown except middle anterior margin, lateral margins and most of posterior lobe paler; posterior lobe darker on two submedial maculae and humeral angles. Shiny, with short decumbent setae. Transverse impression shallow; punctate, calli with shallow punctures. Lateral margins carinate and straight. Anterior margin straight, posterior margin slightly concave. Length pronotum 0.51; width 0.90. Scutellum dark brown, paler apically, pruinose, punctate, with short decumbent setae. Hemelytron: brachypterous. Clavus and corium light brown, with short decumbent setae. Clavus with 3 rows of punctures and a few scattered punctures between inner and median rows. Membrane as Figure 6C. Distance apex clavus-apex corium 0.48; distance apex corium-apex abdomen 0.38. Metathoracic scent gland auricle slightly curving posteriorly; evaporative area covering approximately ventral 2/3 of metapleuron, dorsal margin straight. Pleura dark brown, acetabular areas paler, proepimeron dorsally and metaepimeron contrastingly whitish. Coxae,

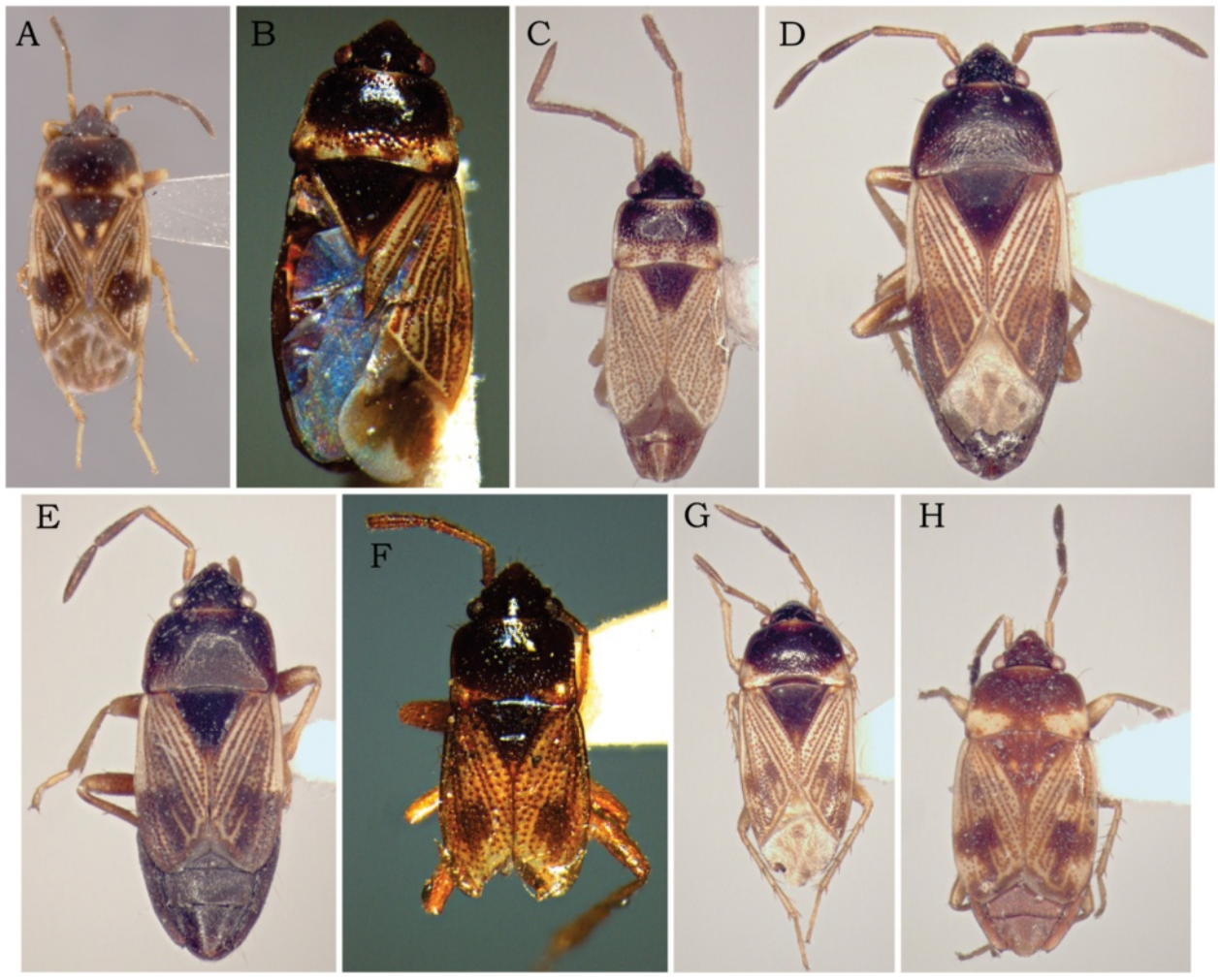


**Figure 6** *Cryphula* species. **(A)** *C. affinis* dorsal habitus; **(B)** *C. australis* dorsal habitus of female holotype; **(C)** *C. australis* dorsal habitus of male; **(D)** *C. brunnea* n. sp. dorsal habitus of female holotype; **(E)** *C. brunnea* n. sp. dorsal habitus brachypterous form; **(F)** *C. dubia* dorsal habitus of male lectotype; **(G)** *C. humeralis* n. sp. dorsal habitus of male holotype; **(H)** *C. rivierei* n. sp. dorsal habitus of male holotype.

trochanter, and basal 4/5 of profemur brown, apical 1/5 of profemur, meso- and metafemur, tibiae, and tarsi pale brown; meso- and metafemur slightly darker subapically. Femora and tibiae with short decumbent setae. Profemur incrassate, ventral region slightly concave with three short spiniform setae on apical third and three long stiff setae at middle. Metafemur with a spiniform seta ventrally near apex. Tibia with long semierect spiniform setae, restricted on ventral and apical regions on protibia.

*Abdomen*: Brown, with short recumbent setae. *Genitalia*: Sperm reservoir and paramere as in Figure 8A,B.

#### *Female*

Spermatheca as in Figure 8C.

#### *Material examined*

Holotype ♀, [*Buenos Aires*] Tandil, Dr. Holmberg [col.] *Tropisthetus australis* Berg, typus, #1479 (MLP); *Córdoba*: 1♀, Cruz del Eje, 5-II-1999, J.E. Barriga col. (MLP); *Mendoza*: 1♂, Las Heras, Villavicencio, 32°50′49.62″ S-69° 00′42.6″ W, 1,742 m, 26-XII-05/5-I-06, S. Claver & A. Scollo cols. (MLP); 1♂, same data (IADIZA); *Salta*: 1♂, Dept. Gral. San Martin, Rio Carapari, 8 km Sur Pocitos, A. Martínez and R. Woodruff, 16-II-1969, blacklight trap (UCMS); *Santa Fe*: 1♀, Isla Timbo, XII-1972, Carpintero col. (MACN); *Santiago del Estero*: 1♀, Añatuya, II-1999, luz, D.L. Carpintero col. (MLP). **Brazil**: 1♂, Chapada, (dissected and illustrated) (CMNH). **Bolivia**: 1♀, Prov. Del Sara, Steinbach, coll. (CMNH) (Figure 7).

### *Cryphula brunnea* n. sp.

#### *Diagnosis*

This species can be distinguished by the uniformly dark brown pronotum and scutellum and the pale basal half of hemelytra (Figure 6D).

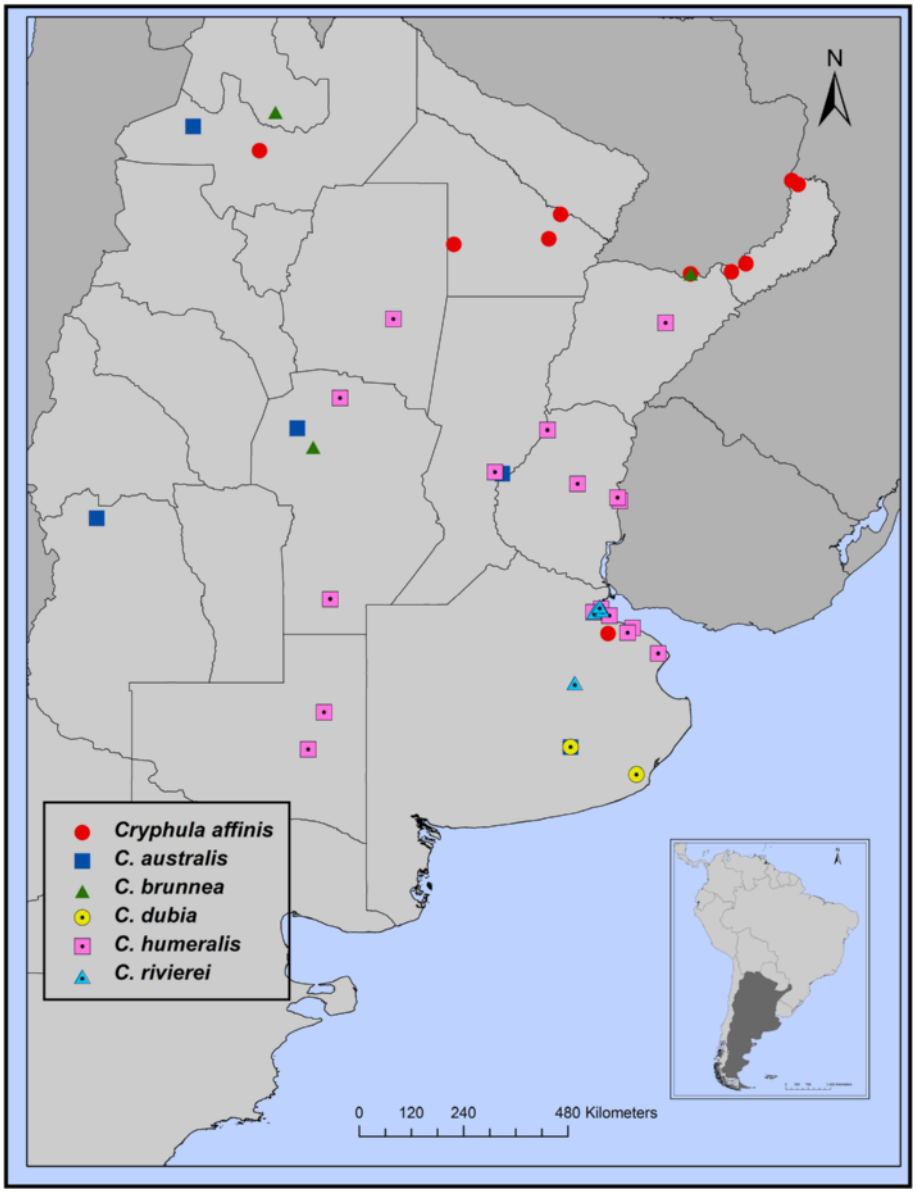


**Figure 7** Distributional map of *Cryphula* species.

***Description of macropterous female holotype***

Total length 4.23. General coloration dark brown (Figure 6D). Head and pronotum shiny, scutellum dull. Head, pronotum, and scutellum with short decumbent setae; hemelytra with short decumbent and longer erect setae.

*Head*: Dark brown, tylus paler; convex across vertex, non-declivent anteriorly; tylus broad, evenly rounded, nearly reaching middle of first antennal segment. Eyes small, touching antero-lateral margins of pronotum. Ocelli minute, interocellar space 0.42. Length head 0.69; width head 0.83; interocular space 0.56. Antenna brown, scapus, pedicellus except apex, and basiflagellomere sub-basally paler. Clothed with decumbent setae, more abundant towards apex; scapus with a few semierect stiff setae. Antennal length: scapus 0.36, pedicellus 0.62, basiflagellomere 0.60, distiflagellomere 0.67. Rostrum extending between mesocoxae; length rostral segments I: 0.48; II 0.51; III 0.48; IV 0.26.

*Thorax*: Pronotum with middle anterior margin paler, with transverse impression shallow, calli impunctate; posterior lobe with scattered, shallow punctures. Lateral margins carinate, straight. Anterior and posterior margins slightly concave. Length pronotum 0.88; width 1.50. Scutellum smooth. Macropterous; clavus with 3 rows of punctures and

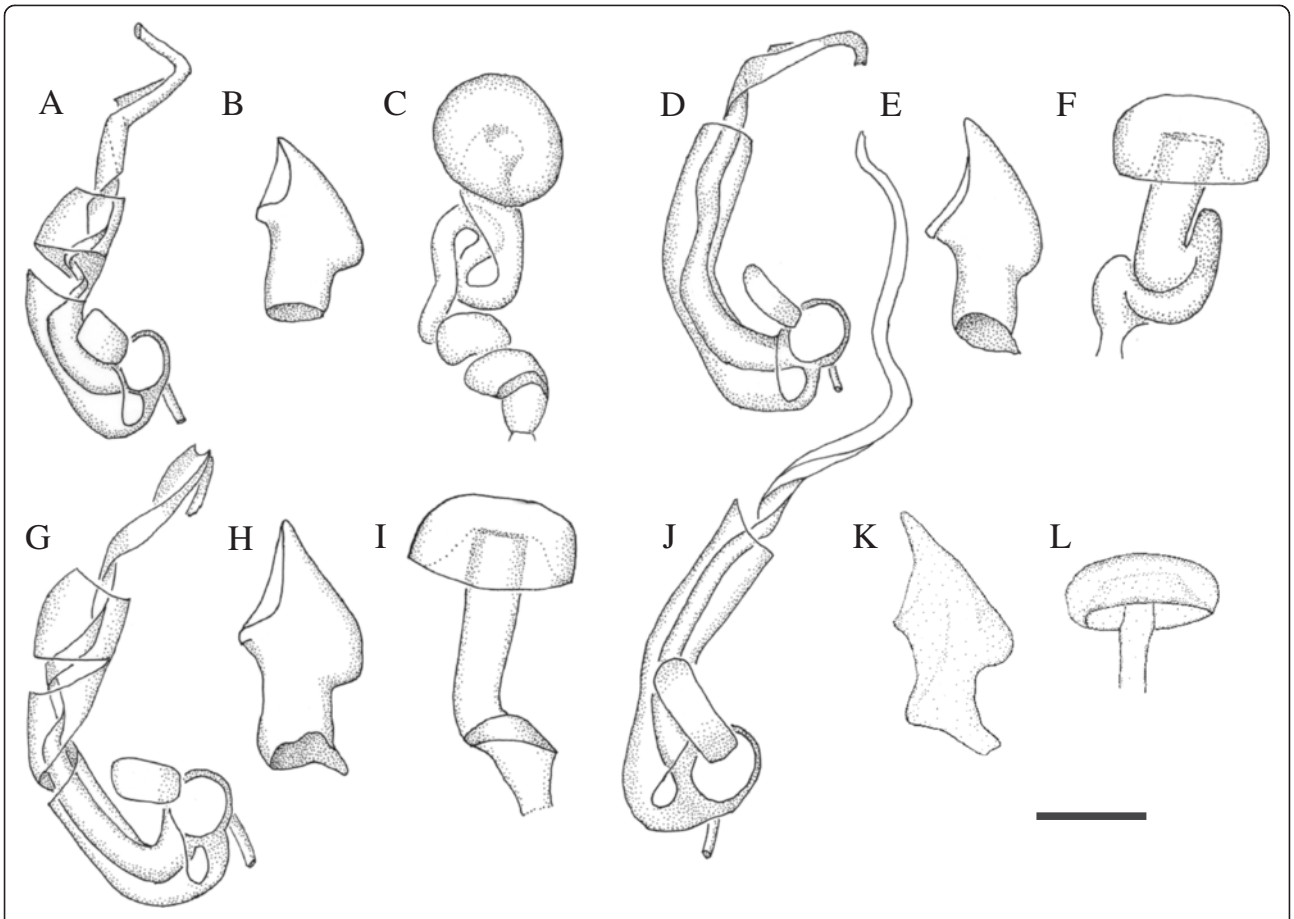


**Figure 8** Male genitalia of *Cryphula* species. *C. australis* **(A)** paramere, **(B)** sperm reservoir, and **(C)** spermatheca. *C. brunnea* n. sp. **(D)** sperm reservoir, **(E)** paramere, and **(F)** spermatheca. *C. humeralis* n. sp. **(G)** sperm reservoir, **(H)** paramere, and **(I)** spermatheca. *C. rivierei* n. sp. **(J)** sperm reservoir, **(K)** paramere, and **(L)** spermatheca. Scale bar: 0.1 mm.

a few scattered punctures between inner and median rows; with regions between rows of punctures and adjacent margin to corium whitish. Basal half of exocorium whitish, apical half dark brown; endocorium pale brown, veins paler. Membrane [broken apically]; distance apex clavus-apex corium 0.84; distance apex corium-apex abdomen 0.84. Metathoracic scent gland auricle slightly curving posteriorly; evaporative area covering approximately ventral 2/3 of metapleuron, dorsal margin straight. Pleurae dark brown, acetabular areas paler. Coxa, trochanter; and basal 4/5 of profemur brown; apical 1/5 of profemur, tibiae, and tarsi pale brown; meso- and metafemur darker. Femora and tibiae with short decumbent setae. Profemur incrassate, ventral region slightly concave with three short spiniform setae on apical third and two long stiff setae at middle on anterior margin. Tibia with long semierect spiniform setae, restricted on ventral and apical region on protibia.

*Abdomen*: Dark brown, shiny, setose. Spermatheca (from paratype indicated) as in Figure 8F.

### *Male*

Genitalia (from paratype indicated) as in Figure 8D,E.

### *Brachypterous female*

Membrane reduced reaching anterior margin of 7th abdominal tergite; clavus and corium fused (Figure 6E). Clavus and corium with short decumbent setae. Measurements: Total length 1.90. Interocellar space 0.40. Length head 0.64; width head 0.83; interocular space 0.53. Antennal length: scapus 0.30, pedicellus 0.58, basiflagellomere 0.54, distiflagellomere 0.60. Rostral segments length I: 0.48; II 0.43; III 0.43; IV 0.30. Length of pronotum 0.75; width 1.28. Distance apex corium-apex abdomen 0.89.

### *Etymology*

From the Latin root '*brunne*' for 'brown' referring to the dark brown and uniformly colored pronotum.

#### Type material

Holotype: 1♀, **Argentina**: *Entre Ríos*: Colón, Ruinas del Viejo Molino, 6-II-2003, T. luz, Grandinetti & Cichino cols. (MLP); Paratypes: *Córdoba*: 1♂ (dissected and illustrated), Valle Hermoso, Sierras de Córdoba, 20-IV-1962, Wygodzinsky & de Ferras cols. (UCMS); 1♂ 1♀, El Sauce, 27-IV-[19]70, Williner col. (MACN); *Corrientes*: 1♀, Ituzaingó, Reserva Santa María, 27-IV-2003, T. luz, M. Chayle col. (MLP); 1♀, same data, 29-IV-2003, T. luz, P. M. Dellapé col. (MLP); *Entre Ríos*: 1♀, Liebig, I-2003, T. luz, L. Caire col. (MACN); 1♀, Colón (MLP); *Jujuy*: 1♀, San Salvador de Jujuy, X-21-1968, L. & C.W. O'Brien col. (UCMS); *Santiago del Estero*: 3♀, Añatuya, II-1999, luz, D.L. Carpintero col. (MACN); 1♀, same data, XII-1998 (MACN). **Paraguay**: 5♀ (one dissected and illustrated), Asunción, verano, B. Podtiaguin col. (UCMS); 1♀ Asunción, 22-I-1965, R. Goldbach (MLP). **Uruguay**: 1♀ Montevideo, 29-VI-1968, L. & C.W. O'Brien cols. (UCMS) (Figure 7).

### *Cryphula dubia* (Berg 1883)

#### Material examined

Lectotype ♂, [*Buenos Aires*] Chacab.[uco], F. Lynch [col.] *Tropisthetus dubius* Berg typus, #1480 (MLP) (Figure 6F); *Buenos Aires*: 1♀, ruta prov. 26, km 22.7 Sierra de los Difuntos, 18-XII-2003/13-II-2004, Farina, Cicchino, Grandinetti cols. (MLP); 1♂ 1♀, San Isidro, 16-V-[19]48, N. Kormilev col. (MACN); 1♂, Tandil, zona lago, 12-IV-2008, P.M. Dellapé col. (MLP); 1♂, Tandil, Parque Independencia, IX-2003, pitfall, P.M. Dellapé (MLP) (Figure 7).

### *Cryphula humeralis* n. sp.

#### Diagnosis

Scutellum dark brown, without pale spots; pronotum trapezoidal, brown, with pale humeral angles; corium light brown, posterior half with darker areas but not forming a rounded spot; hemelytra with short, erect setae (Figure 6G).

#### Description of macropterous male holotype

Total length 3.15. *Head* dark brown, shiny, polished, tylus paler; convex across vertex, and declivent anteriorly; tylus broad, evenly rounded. Eyes small, touching antero-lateral margins of pronotum. Ocelli minute, interocellar space 0.38. Length head 0.64; width head 0.72; interocular space 0.48. Antenna brown, scapus, pedicellus except apex paler; clothed with decumbent setae, more abundant towards apex; scapus with a few semierect stiff setae. Antennal length: scapus 0.24, pedicellus 0.48, basiflagellomere 0.46, distiflagellomere 0.58. Rostrum extending between mesocoxae; length rostral segments I: 0.30; II 0.42; III 0.37; IV 0.24.

*Thorax*: Pronotum dark brown except middle anterior margin and humeral angles paler, shiny, polished, with short erect setae. Transverse impression shallow, calli impunctate; posterior lobe with shallow punctures. Lateral margins carinate, straight. Anterior and posterior margins slightly concave. Length pronotum 0.74; width 1.25. Scutellum dark brown, slightly paler apically, pruinose, glabrous, with scattered punctures. Clavus light brown with margin adjacent to scutellum darker; with 3 rows of punctures and a few scattered punctures between inner and median rows. Corium light brown, irregularly darker posteriorly, punctures darker. Clavus and corium with long erect setae. Distance apex clavus-apex corium 0.62; distance apex corium-apex abdomen 0.48. Metathoracic scent gland auricle slightly curving posteriorly; evaporative area covering approximately ventral 2/3 of metapleuron, dorsal margin straight. Pleura brown, acetabula and metaepimeron paler; proepimeron yellowish dorsally. Coxa, trochanter; and basal 4/5 of profemur brown, apical 1/5 of profemur, meso- and metafemur, tibiae and tarsi pale brown. Femora and tibiae with long decumbent setae. Profemur incrassate, ventral region slightly concave with three short spiniform setae on apical third and two long stiff setae at middle. Metafemur with a spiniform setae ventrally near apex. Tibia with long semierect spiniform seta, restricted on ventral and apical regions on protibia.

*Abdomen*: Brown with short recumbent setae. *Genitalia* (from paratype indicated): Sperm reservoir and paramere as in Figure 8G,H.

#### Female

Spermatheca (from paratype indicated) as in Figure 8I.

#### Brachypterous form (n = 2♂, 3♀)

Hemelytra reaching anterior half of sixth tergite. Clavus and corium fused. Distance apex clavus-apex corium ♂ 0.43, ♀ 0.48; distance apex corium-apex abdomen ♂ 0.48, ♀ 0.75 to 0.89.

#### Etymology

The specific epithet refers to the pale pronotal humeral angles.

#### Type material

Holotype ♂, **Argentina**, *Córdoba*, Dto. Tulumba, Cerro Colorado, XI-1998, Cicchino col. (MLP). Paratypes: *Buenos Aires*: 1♂ 3♀, San Miguel, P. Riviere P.J. (MACN); 1♂ 3♀, San Isidro, N. Kormilev col. (MACN); 1♀, XI-1964, Carpintero col. (MACN); 1 ♀, Lujan, PBA, III-1972, Carpintero col. (MACN), 1♀, XI-1964, Carpintero col. (MACN); 1♀, III-1972, Carpintero col. (MACN); 1♂ 2♀, Verónica-Punta Indio, I-1997, D.L. Carpintero col. (MACN); 1♀, Berisso, XII-1995, D.L. Carpintero col. (MACN); 1♀, Otamendi, XI-1964, (UCMS); 1♀, La Plata, Los Hornos, 2-II-2001, P. Martínez col. (MACN); 1♀, Ciudad de Buenos Aires, Reserva Costanera Sur, 23-XII-2008, Carpintero, D.L. col., luz (MACN); 1♀, same data,

17-XII-2008 (MACN); 2♀, same data, 28-I-2009 (MACN); *Córdoba*: 1♀, La Verde, II-1999, D.L. Carpintero col. (MACN); 1♂, Dto. Tulumba, Cerro Colorado, XI-1998, Cicchino col. (MLP); *Entre Ríos*: 1♀, Gualeguaychú, I-2012, J. Siches & C. Limeres cols. (MLP); 1♂, Colón (MLP); 1♀, Colón, 6-II-2003, Grandinetti & Cicchino cols. (MLP); 1♀, Liebig, 29-X/23-XI-2004, T. luz, L. Caire col. (MLP); 3♀, La Paz, 17-I-1951, J. Foerster col. (USNM); 1♂ 1♀ (dissected and illustrated, on same pin), Villaguay, 3/9-II-1959, Ajmat - Bennasar cols. (IFML); *La Pampa*: 1♀, Santa Rosa, 14-III-2011, J.J. Martínez col. (MACN); 1♂, Gral. Acha, 12-III-2008, P.M. Dellapé col. (MLP); *Santa Fe*: 1♀, Santa Fe, 18-XI-[19]30, Bridarolli, S.J. col. (MACN); *Santiago del Estero*: 1♀, Añatuya, III-1999, D.L. Carpintero col. (MACN). **Brazil**: 1♀, Rio de Janeiro, Silva Jardin, March 1974, F.M. Oliveira (AMNH) (Figure 7).

### *Cryphula rivierei* n. sp.

#### *Diagnosis*

This species can be distinguished by the particular coloration pattern of pronotum, scutellum, and hemelytra: Pronotum brown except middle anterior margin, lateral margins, and most of posterior lobe paler; posterior lobe at middle and two small maculae on humeral angles darker; scutellum brown, with two pale spots laterally and slightly paler apically; and hemelytron mostly light brown with two large maculae medially. Scutellum with three small and diffuse spots; meso- and metafemur light brown (Figure 6H).

#### *Description of male holotype*

Total length 3.43 (Figure 6H).

*Head*: Dark brown, shiny, tylus paler; convex across vertex, not declivent anteriorly; tylus broad, evenly rounded. Eyes small, touching antero-lateral margins of pronotum. Ocelli minute, interocellar space 0.35. Length head 0.56; width head 0.80; interocular space 0.50. Antenna brown, scapus paler, pedicellus darkened towards apex; clothed with decumbent setae, more abundant towards apex; scapus with a few semierect stiff setae. Antennal length: scapus 0.34, pedicellus 0.53, basiflagellomere 0.46, distiflagellomere 0.58. Rostrum extending between mesocoxae; length rostral segments I: 0.56; II 0.42; III 0.38; IV 0.30.

*Thorax*: Pronotum brown except middle anterior margin, lateral margins and most of posterior lobe paler; posterior lobe at middle and two small maculae on humeral angles darker. Dull, with short decumbent setae. Transverse impression indistinguishable. Calli impunctate, rest of pronotum with scattered shallow punctures. Lateral margins carinate, straight. Anterior margin straight, posterior margins slightly concave. Length of pronotum 0.72; width 1.24. Scutellum brown, with two pale spots laterally and slightly paler apically, pruinose, impunctate, with short decumbent setae. Brachypterous, membrane very reduced; clavus and corium fused. Mostly light brown with two large maculae medially, punctures darker. Clavus and corium with short decumbent setae. Distance apex corium-apex abdomen 0.58. Metathoracic scent gland auricle slightly curving posteriorly; evaporative area covering approximately ventral 2/3 of metapleuron, dorsal margin straight. Pleura brown, acetabula and metaepimeron paler; proepimeron yellowish dorsally. Coxae, protrochanter, and basal 4/5 of profemur brown; meso- and metatrochanter, apical 1/5 of profemur, meso- and metafemur, tibiae and tarsi pale brown. Femora and tibiae with decumbent setae. Profemur incrassate, ventral region slightly concave with three short spiniform setae on apical third and two long stiff setae at middle on anterior margin. Metafemur with a spiniform seta on subapical ventral region. Tibia with long semierect spiniform setae, restricted on ventral and apical regions of protibia.

*Abdomen*: Brown, with abundant short recumbent setae. *Genitalia* (from paratype indicated): Sperm reservoir as in Figure 8J, paramere as in Figure 8K.

#### *Female*

Spermatheca (from paratype indicated) as in Figure 8L.

#### *Etymology*

The specific epithet refers to the collector of most of the specimens known of this new species, Hermes A. Riviére.

#### *Type material*

Holotype ♂, Arg., *Bs. As.*, San Miguel, 24-VI-[19]55, P. Riviére, S.J. (MACN). Paratypes: *Buenos Aires*: 2♂ 3♀, San Miguel, P. Riviére, S.J. (MACN); 4♀, same data, 7-VI-[19]55 (MACN); 1♀, San Miguel, 1-VII-[19]55, P. Riviere, S. J. col. (MACN) [specimen dissected to illustrate spermatheca]; 1♀, same data, 5-VII-55 (MACN); 1♀, 2-VII-[19]55 (MACN); 2♂, same data, 14-VI-[19]55 (MACN) [one male dissected to illustrate male genitalia]; 1♂, same data, 17-VI-[19]55; 1♂, same data, 24-VI-[19]55 (MACN); 1♀, same data, 27-VI-[19]55 (MACN); 1♂ same data, 30-VI-[19]55 (MACN); 2♂, Martinez, 10-VI-[19]26, Bridarolli, S.J. col. (MACN); 1♂, same data, 1-VI-[19]25 (MACN); 1♀, same data, IX-[1932] (MACN); 2♂ 1♀, Tigre, 5-VIII-[19]57, Viana, M.J. col. (MACN); 2♀, Las Flores, 28-V-[19]32, Daguerre, J.B. col. (MACN). 1♂, Otamendi, XI-1964, Col. Dr. Carpintero (MACN); 1♂, Temperley, April 1906, R. Thaxter (UCMS). *Entre Ríos*: 5♂, Isla Germania, Paraná Guazú, V-27-1952, Juan Foerster col (USNM) (Figure 7).

### *Esuris* Stål 1874

This monotypic genus is known from Brazil and Argentina. *Esuris terginus* Stål 1874 is known from Buenos Aires Province (Dellapé and Carpintero 2012) and is here

recorded from Córdoba, Chubut, and La Pampa provinces (Figure 2).

### *Esuris terginus* Stål 1874

#### *Material examined*

*Buenos Aires*: 1♀, Laguna Nahuel Buta, Mar Chiquita, pitfall, I/III-2005, Cicchino col. (MLP); 3♀, R.N. 226, km 22.7, Sierra de los Difuntos, 18-XII-2003/13-II-2004, Farina, Cicchino & Grandinetti cols. (MLP); 1♂, Tandil, Parque Independencia, IX-2003, pitfall trap, P. Dellapé col. (MLP); 1♀, same data, 11-IV-2001, P. Dellapé col. (MLP); 1♀, Tandil, I-2001, trampa de luz, P. Dellapé col. (MLP); 1♂, Tandil, Viana col. (MACN); 1♂, Otamendi, X-1965, Carpintero col. (MACN); 1♂ 2♀, Tandil, III-1963, Carpintero col. (MACN); 1♂ 2♀, Tandil, (UCMS). *Córdoba*: 2♀, La Falda, VIII-1988 (MLP); 1♀, La Serranita, VI-1976, Carpintero col. (MACN); 1♂ 1♀, V. Hermoso, 1965, Carpintero col. (MACN). *Chubut*: 1♂, Península Valdés, Ea. El Progreso, 21-II-2007, P. Dellapé col. (MLP); 1♂ 3♀, Ea. San Pablo, 42°38′39.3″ S-64°10′34.7″ W, 76 msnm, 15-IV-2005, G. Cheli col. (MLP); 1♂, Chacay, Ea. Cañadon Blando, 1-XI-2012, G. Cheli col. (MLP). *La Pampa*: 2♀, Gral. Acha, 12-III-2008, P. Dellapé col. (MLP) (Figures 2 and 9A,B,C,D).

#### *Remarks*

The specimens from Chubut Province show a V-shaped iridescent spot on the head (Figure 9C), which is different from the sub-quadrangular spot (Figure 9D) present in the rest of the studied specimens (also present in the type material); nevertheless, all the specimens share the external morphology and exhibit the particular highly modified paramere characteristic of the species (O'Donnell 1991).

### *Lipostemmata* Berg 1879

This genus comprises three species ranging from Central America to Argentina and Uruguay. All three species have been recorded from Argentina: *Lipostemmata humeralis* Berg 1879 from Buenos Aires, Chaco, and Corrientes provinces (López Ruf and Mazzucconi 1998; Melo et al. 2004, 2011), and herein recorded from Entre Ríos, Misiones, Santa Fe, and Santiago del Estero provinces; *L. major* Ashlock 1970 from Buenos Aires, Chaco, Corrientes, and Formosa provinces (Ashlock 1970; Mazzucconi and López Ruf 1999; Melo et al. 2004, 2011), and herein recorded from Entre Ríos and Misiones provinces; *L. scutellatus* Ashlock 1970 from Buenos Aires, Chaco, Entre Ríos, and Formosa provinces (Ashlock 1970; Melo et al. 2011), and herein recorded from Corrientes, Salta, and Santiago del Estero provinces. Ashlock (1970) provided a key to species (Figures 10A,B,C and 11).

### *Lipostemmata humeralis* Berg 1879

#### *Material examined*

Lectotype ♂, *Buenos Aires*, #1483/1 (MLP); 2 paralectotypes ♂♀, Buen.[os] Ai. [res], Günther [col.], #1483/2-3 (MLP); paralectotype ♀, Buen.[os] Ai. [res], Günther [col.], *L. humeralis* P.D. Ashlock, #1483/2 (MLP); *Buenos Aires*: 1♂, La Plata, 12-VII-1921, J.H. Jurrianse col. (RMNH); 1♂, San Fernando, Delta, 8-I-[19]99, Perez Goodwyn, P. col. (MLP); *Entre Ríos*: 1♂ 2♀, Colón, 6-II-2003, t. de luz, Grandinetti-Cicchino cols.; *Chaco*: 1♀, P.

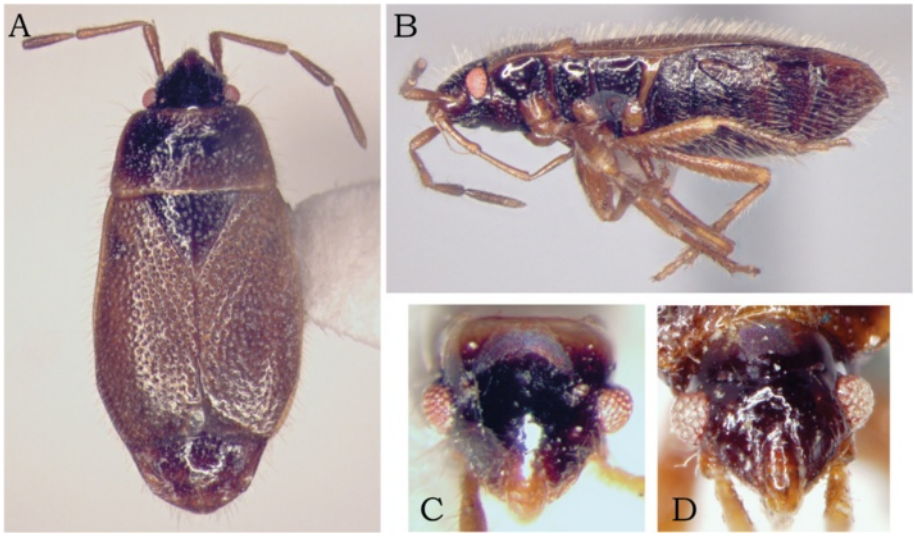


**Figure 9** *Esuris terginus*. **(A)** Dorsal habitus; **(B)** lateral view; **(C)** head of specimen from Chubut Province, V-shaped iridiscent spot; **(D)** head of specimen from Buenos Aires Province, subquadrangular iridiscent spot.

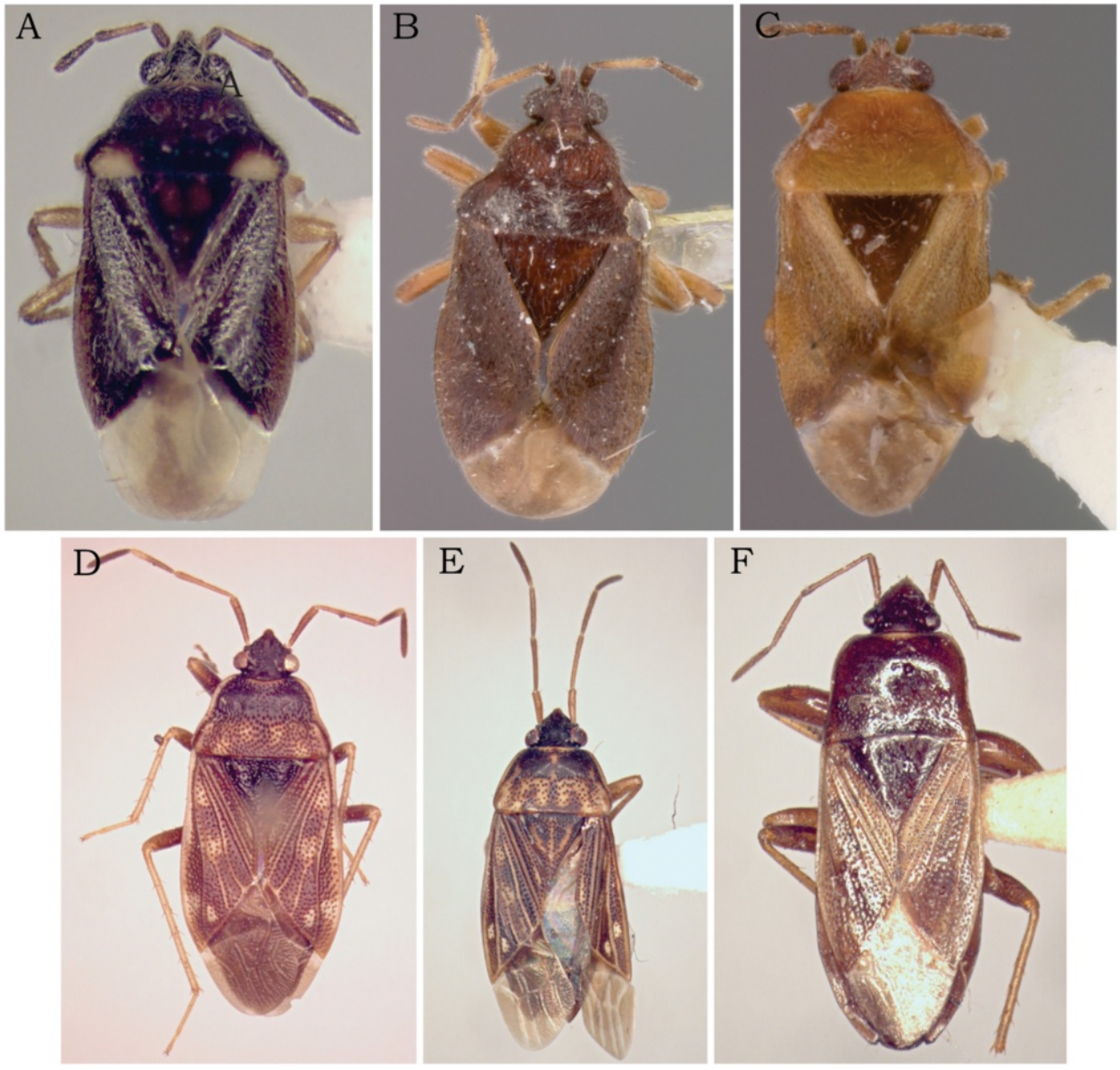


**Figure 10** *Lipostemmata*, *Neopetissius*, *Petissius*, and *Rhaptus* species. **(A)** *L. humeralis* dorsal habitus; **(B)** *L. major* dorsal habitus; **(C)** *L. scutellatus* dorsal habitus; **(D)** *N. perplexus* dorsal habitus; **(E)** *P. spinipes* dorsal habitus; **(F)** *R. quadricollis* dorsal habitus.

N. Chaco, park rangers' house, 26°48′25″ S-59°36′26.5″ W, 76 msnm, 25-IX-2009, light trap, Melo, M.C. col. (MLP); *Corrientes*: 1♀, Colonia C. Pellegrini, 6-XII-2001, Dellapé, P.M. col. (MLP); 7♂ 9♀, Ea. San Nicolás (casco), 64 m, −28.12805895 S, −57.4349311 W, 27-XI-2010, t. de luz, Muzón et al. cols. (MLP); 1♀, Arroyo Carambolas, −28.18472378 S, −57.44228875 W, 61 m, 27-XI-2010, t. de luz, Muzón et al. cols. (MLP); *Misiones*: 3♀ 2♂, Loreto, 5-II-1931 (ZIN); *Santa Fé*: 1♀, Reconquista, VIII-1974, Carpintero col. (MACN); *Santiago del Estero*: 1♀, Añatuya, XII-1998, T. de luz, D.L. Carpintero col. (MLP) (Figures 10A and 11).

### *Lipostemmata major* Ashlock 1970

#### *Material examined*

Paratype ♀, *Formosa*, Mojón de Fierro, 2-XII-48, R. Golbach, *L. major* Ashlock #1484 (MLP); *Buenos Aires*: 1♀, San Fernando, Delta, 8-I-[19]99, en luz, Perez Goodwyn, P. col. (MLP); 1♂, Hudson, VI-1995, UWC, D.L. Carpintero col. (MLP); 1♀, Reserva Costanera Sur, vivero, luz, 30-X/31-XI-[20]08, D.L. Carpintero col. (MACN); *Chaco*: 1♀, Resistencia, 1-X-[19]36 (MLP); 1♀, P.N. Chaco, 26°48′25″ S-59°36′26.5″ W, 26-IX-2009, t. de luz, P.M. Dellapé & M. C. Melo cols. (MLP); *Corrientes*: 1♀, Colonia C. Pellegrini, 2-XII-2001, t. de luz (MLP); 1♂, same data, 7-XII-2001, P.

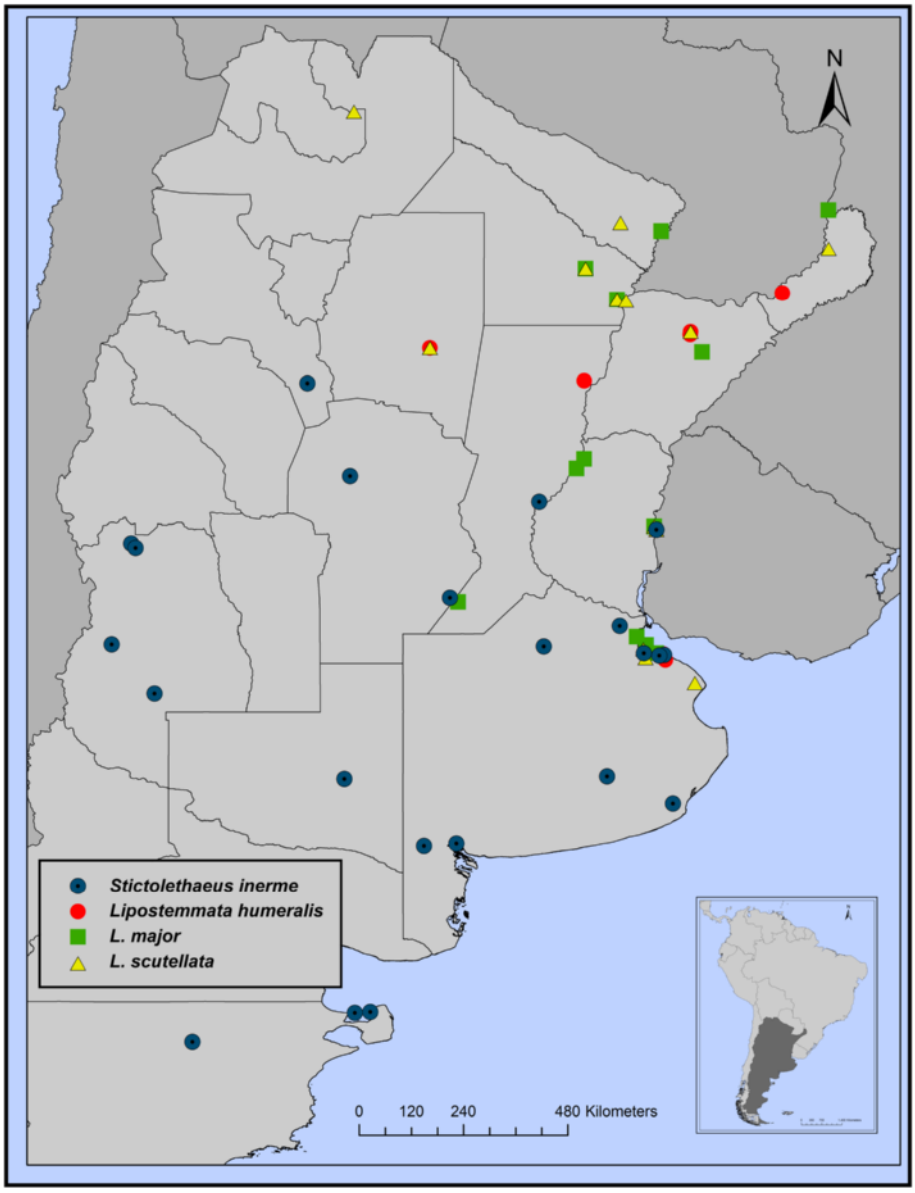


**Figure 11** Distributional map of *Lipostemmata* and *Stictolethaeus* species.

M. Dellapé col. (MLP); *Entre Ríos*: 1♂, Liebig, Colón, verano 2003, luz, L. Caire col.; 1♂ 1♀, Colón, Ruinas del Viejo Molino, 6-II-2003, T. de luz, Grandinetti-Cichino cols.; 1♂ 2♀, Santa Elena, XII-1972, Carpintero col. (MACN); 12♂ 10♀, La Paz, XII-1972, Carpintero col. (MACN); *Misiones*: 1♀, Puerto Iguazú, UV lamp, X-1980, Dr. Carpintero col. (MLP); 1♀, Wanda, VII-1972, Carpintero col. (MACN); *Santa Fe*: 2♂ 4♀, Maggiolo, X-1967, Carpintero col. (MACN) (Figures 10B and 11).

### *Lipostemmata scutellatus* Ashlock 1970

#### *Material examined*

Paratype ♀, **Argentina** Rep., Terr. *Formosa*, Gran Guardia, 2-X-1953, Juan Foerster, *Lipostemmata scutellatis* [sic] Ashlock #1485 (MLP); *Buenos Aires*: 1♀, Glew, 1981, D.L. Carpintero col. (MLP); 1♀, Verónica, 1-III-1998, T. de luz, D.L. Carpintero col. (MLP); 2♂ 10♀, Lanús, I-1979, D.L. Carpintero col. (MLP), 1♀, same data, XII-[19]78 (MACN); *Chaco*: 1♀, P.N. Chaco, 26°48′25″ S-56°26′ 36.5″W, 17/28-X-2009, t. de luz, Pfoh, R. col. (MLP); 3♂ 1♀, Paraje La Gringa, II- 2008, Marino, P.I. col. (MLP); 9♂ 8♀, Resistencia, 10-X-[19]36 (MLP); 1♀, same locality, 1950, Hook col. (MLP); 1♀, Castelli, 29-3-1978 (MACN); 1♂, same locality, III-[19]78, A. Martínez, (BPBM); *Corrientes*: 1♂, 28°57′17″ S-58°34′4″ W, 77 m, 8-XI-2000, trampa de luz, Coscarón col. (MLP); 2♂, Ea. San Nicolás (casco), −28.12805895 S, −57.4349311 W, 64 m, 27-XI-2010, Muzón et al. cols., t. de luz (MLP);

*Entre Ríos*: 1♂ 7♀, Colón, Liebig, I- 2003, T. de luz, L. Caire col. (MLP); *Misiones*: 1♂ 2♀, Ape-Pu, X-[19]80 (MACN); *Salta*: 1♂, Urundel, III-1959, Martínez col. (MACN), 1♂ 2♀, Gran Abra Adi., 28-II-1967, R. Goldbach (MLP); *Santiago del Estero*: 7♂ 10♀, Añatuya, XII- 1998, T. de luz, D.L. Carpintero col. (MLP); 2♀, same data, II-1999 (MLP) (Figures 10C and 11).

### *Neopetissius* O'Donnell 2001

This genus comprises six species ranging from Mexico and the West Indies to Argentina. The only species recorded from Argentina, *Neopetissius perplexus* O'Donnell 2001, is known from Buenos Aires, Corrientes, and Entre Ríos provinces (Carpintero et al. 2006), and herein is also recorded from Santa Fe and Santiago del Estero provinces (Figure 12).

### *Neopetissius perplexus* O'Donnell 2001

This species can be recognized by its most allied species, *Neopetissius froeschneri* O'Donnell, by the presence of fine punctures on the pronotal calli that are absent in the former species and the different sperm reservoir (O'Donnell 2001) (Figure 10D).

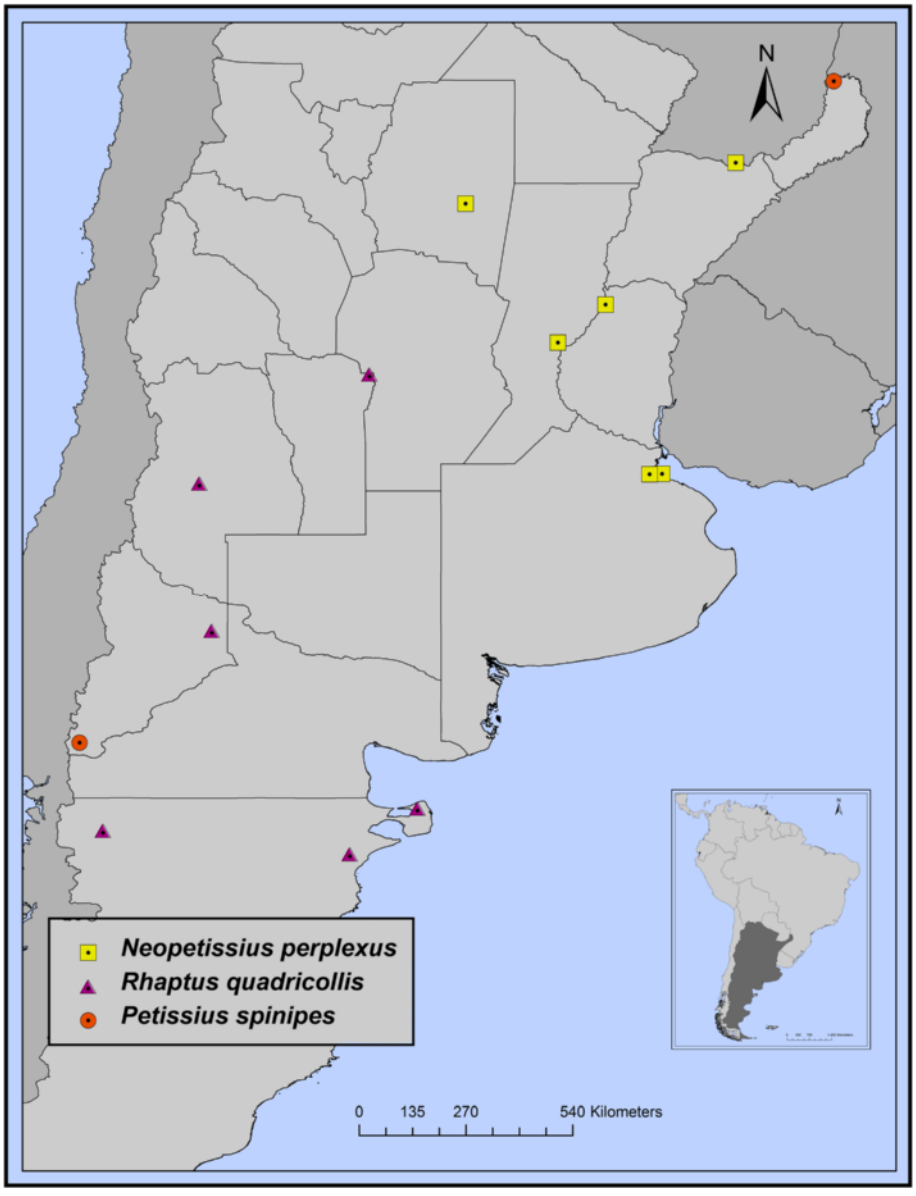


**Figure 12** Distributional map of *Neopetissius*, *Petissius*, and *Rhaptus* species.

#### Material examined

*Buenos Aires*: 1♀, Ciudad de Buenos Aires, Reserva Costanera Sur, 10-XI-[20]08, Turienzo col., pitfall (MACN); *Corrientes*: 1♀, Villa Olivari, X-1995, CDC, D.L. Carpintero col. (MLP); 1♂, Ituzaingo, Reserva Santa María, t. de luz, 26-IV-2003, M. Chayle col. (MLP); *Entre Ríos*: 1♀, La Paz, XII-[19]27, Vanasco Cl. (MACN); *Santa Fé*: 1♀, Santa Fe, 14-I-31, Bridarolli col. (MACN); *Santiago del Estero*: 1♂, Añatuya, II-1999, Luz, D.L. Carpintero col. (MLP).

### *Petissius* Distant 1893 first country record

This genus comprises two species mostly known from Central to northern South America. Herein we record the genus and species *P. spinipes* Stål 1874 from Argentina for the first time (Figure 12).

### *Petissius spinipes* Stål 1874

This species can be distinguished by the profemur of the male with a field of tuberculate hairs postero-ventrally and the presence of four distal femoral spines (Baranowski and Slater 2005, following O'Donnell 1986) (Figure 10E).

#### Material examined

*Misiones*: 1♂, Iguazú National Park, Centro de Investigaciones Subtropicales (CIES), 13/16-XI-2009, light trap, Lestani, E. col. (MLP); 1♂, same locality, 8-XII-2013, light trap, Dellapé, P.M. col. (MLP); 1♀, Iguazú National Park, Centro de Investigaciones Subtropicales (CIES), 31-XI-2012, on *Phylodendron* (MLP); *Neuquén*: 1♀, Cerro Bayo, 40.74895° S-71.60832° W, 1,510 m, I-2005, pitfall traps, Werenkraut, V. col. (MLP).

### *Rhaptus* Stål 1874

This genus comprises only one species, *Rhaptus quadricollis* (Spinola 1852), from Argentina and Chile. In Argentina, it had been recorded from Corrientes and Mendoza provinces (Berg 1880), but at least the record from Corrientes Province is doubtful. Herein we record *R. quadricollis* from Chubut, Neuquén, and San Luis provinces (Figure 12).

Comparing the specimens from Argentina with two male specimens from Chile, we noticed that Chilean specimens are larger with a more quadrangular pronotum, a shorter rostrum (barely exceeding the procoxa in one specimen), and a darker general coloration. The specimens from Argentina show a trapezoidal pronotum, a longer rostrum, most of the time reaching the mesocoxae, and a lighter coloration, especially on the hemelytra. This last feature is absent in the specimens from western Chubut (near Esquel). Despite these differences, the male genitalia are conspecific with the specimens examined and, therefore, we consider all material *R. quadricollis*.

Nothing is known about the biology of this species; the specimens found near Esquel (Chubut Province) were collected under rocks in an herbaceous steppe (60% to 70% coverage) affected by sheep grazing. The dominant vegetation of this area is composed of *Festuca argentina* (Speg.) Parodi, *F. pallescens* (St.-Yves) Parodi, *Bromus* sp., *Pappostipa speciosa* (Trin. & Rupr.) Romasch., *P. humilis* (Cav.) Romasch., and *Hordeum* sp. (Poaceae), *Acaena splendens* Hook. & Arn., and *A. platuacantha* (Rosaceae), *Valeriana* sp. (Valerianaceae), *Mulinum spinosum* Pers. (Apiaceae), and *Senecio filaginoides* DC. (Asteraceae) (Beeskow et al. 1987).

### *Rhaptus quadricollis* (Spinola 1852)

#### Material examined

*Chubut*: 6♂ 5♀, 25 km N Esquel, –42.744919400 – 71.096787600, 989 m (MLP); 4♂ 2♀, Los Alerces, XII-1971, Carpintero col. (MACN). 1♂, P. Valdés, Ea. La Falsa, 42°13′50.3″ S-63°52′00.8″ W, 42 m, 20-II-2007, G. Cheli col. (MLP); 1♂, P. Valdés, Ea. La Falsa, 42°13′30.3″ S-63°51′45.1″ W, 41 m, 14-II-2006, G. Cheli col. (MLP); 1♂, P. Valdés, Ea. La Falsa, 42°13′31.6″ S-63°51′44.4″ W, 45 m, 16-II-2005, G. Cheli col. (MLP); 1♂ 2♀, Gaiman, 7-01/02-2005, G. Cheli col. (MLP); 2♂ 1♀, Los Actares??, RN 25, III-2007, G. Cheli col. (MLP); 1♀, Gaiman, I/III-2006, luz, G. Cheli col. (MLP) ); 2♀, Gaiman, 7-01/021-2005, G. Cheli col. (MLP); *Neuquén*: 1♀, Ojos Agua-Añelo, 9-XI-[19]76, D. Ferraris col., ex coll. M. Gentili (IADIZA). *San Luis*: 1♂, Merlo, 11-XI-1970, M. Viana col. (MACN) (Figures 10F and 12).

### *Stictolethaeus* O'Donnell 1991

This monotypic genus is known from Argentina and Uruguay. In Argentina, *Stictolethaeus inerme* (Berg 1883) was recorded from Buenos Aires, Catamarca, Córdoba, Entre Ríos, and Santa Fe provinces (O'Donnell 1991, Dellapé and Coscarón 2004; Dellapé and Carpintero 2012); here it is also recorded from Chubut and Mendoza provinces (Figure 11).

### *Stictolethaeus inerme* (Berg 1883)

#### Material examined

Lectotype ♂, [*Buenos Aires*] Chacab.[uco], F. Lynch, 257, typus, # 1481 (MLP); paralectotype ♀, [*Buenos Aires*] Chacab.[uco], F. Lynch, 257, typus, # 1481 (MLP); *Buenos Aires*: 1♂ 4♀, Tandil, 12-IV-2008, P.M. Dellapé col. (MLP); 1♀, Bahía Blanca, 4-IV-2005, D.L. Carpintero col. (MLP); 2♂ 1♀, Salinas Chicas, 9-III-2008, P. Dellapé col. (MLP); 1♂ 1♀, General Acha, 12-III-2008, P. Dellapé col. (MLP); 1♀, Sierra de los Difuntos, ruta nacional 226 km 22,7, 14-XI-[20]03/18-XII-[20]03, Farina, Cicchino, Grandinetti cols. (MLP); 1♂ 2♀, same data, 16-III-[20]04/1-VI-[20]04 (MLP); 3♀, same data, 18-XII-[20]03/13-II-[20]04 (MLP); 2♂, same data, 1-VI-[20]04/6-VII-[20]04, Farina & Cantatore cols. (MLP); *Chubut*: 2♀, Península Valdés, Ea. El Progreso, 21-II-2007, P. Dellapé col. (MLP); 1♀, Península Valdés,

entre Ea. El Progreso y Punta Buenos Aires, 23-II-2007, P. Dellapé col. (MLP); 2♂, Chacay, Ea. Cañadon Blanco, 1-XI-2012, G. Cheli col. (MLP); *Entre Ríos*: 1♂, Colore, 15-VI-1994 (MLP); *Mendoza*: 1♀, Las Heras, Villavicencio, 32°30′ 44.58″ S-69°00′47.58″ W, 1,712 m, 13/23-II-06, G. Flores & A. Scollo cols. (MLP); 1♂, Malargüe, C. Nevado, campamento, 35°36′52.56″ S-68°31′44.94″ W, 2,608 m, 26-XII-05, S. Roig & G. Debandi cols. (MLP); 1♂, Carlos Res. Lag. Diamante, Alvarado, 34°14′37.5″ S- 69°25′1.44″ W, 2347 m, 13/23-II-06, S. Claver & R. Carrara cols. (MLP); 1♂, Las Heras, Monumento a Canota, ruta 52, 32°36′1.2″ S-68°55′24.84″ W, 1,053 m, 13/23-II-[20]06, S. Claver & A. Scollo cols. (MLP) (Figures 11 and 13A,B).

### *Valtissius* Barber 1918

This genus was erected by Barber (1918) to accommodate *Petissius diversus* Distant known from southern North America and Central America; it comprises three species mainly known from southern North America, the West Indies, and Argentina. The only species recorded from Argentina is *Valtissius distinctus* (Distant 1901) from Chaco Province (Melo et al. 2011); here it is also recorded from Corrientes, Entre Ríos, Formosa, Misiones, and Santiago del Estero provinces (Figure 2).

### *Valtissius distinctus* (Distant 1901)

This species is recognized by the strongly angled posteriorly scent gland; the absence of short, stout spines distally on the profemur; and the darkened corium distally (Figure 13C).

#### *Material examined*

*Chaco*: 6♂ 7♀, P.N. Chaco, park rangers' house, 26°48′ 25″ S-59°36′36.5″ W, 17/28-X-2009, light trap, R. Pfoh col. (MLP); 1♂ 2♀, same data, 26-IX-2009, light trap, P. M. Dellapé & M.C. Melo cols. (MLP); 2♂, same data, M. C. Melo col. (MLP); 1♂, P.N. Chaco, Puente colgante, 26°48′20.1″ S-59°36′32.1″ W, 27-IX-2009, P.M. Dellapé & M.C. Melo cols. (MLP); *Corrientes*: 1♀, Ituzaingó, Reserva Santa María, T. luz, 29-IV-2003, M.C. Melo col. (MLP); *Entre Ríos*: 2♂ 1♀, Liebig, verano 2003, T. luz, L. Caire col. (MLP); 1♂ 1♀, same data, 29-X/23-XI-2004 (MLP); 3♂ 2♀, Colón (MLP); *Formosa*: 3♂ 3♀, Ea. La Marcela, 35 km E El Colorado, VIII-2003, J. Williams col. (MLP); *Misiones*: 3♂ 3♀, Eldorado, XI-2004, T. luz (MLP); 1♀, Garupa, 2005, G. Spinelli col. (MLP); 2♂ 6♀, Pto. Iguazú, X-1978, D. Carpintero col. (MACN); 1♀, same data, XII-1979 (MACN); 1♀, Api-pé, X-1980, Carpintero col. (MACN); 3♀, Loreto, 5-II-[1]931, [collector's name in Russian] (ZIN); 1♂ 1♀, Loreto, 12-13-XII-[1] 930, [collector's name in Russian] (ZIN); 1♀, same locality, 16-I-[1]931, [collector's name in Russian] (ZIN); 1♀, same locality, 4-IV-[1]930, [collector's name in Russian] (ZIN); 1♂, same locality, 10-I-[1]931, [collector's name in Russian] (ZIN); 1♂, same locality, 16-XII-[1]930, [collector's name in Russian] (ZIN); 1♂, same locality, 15-I-[1]931, [collector's name in Russian] (ZIN); 1 ?sex, same locality, 1928-[1]929, [collector's name in Russian] (ZIN); *Santiago del Estero*: 2♂, Añatuya, XII-1998, T. luz, D.L. Carpintero col. (MLP); 1♀, same data, II-1999 (MACN) (Figure 2).

## Discussion

Previous works have reported 9 genera and 15 species of Lethaeini from Argentina, with the addition of the genus and the species *Petissius*, *Cistalia binotata*, and *C. neotropicalis* as new records and four new species, *Cistalia parva*, *Cryphula brunnea*, *C. humeralis*, and *C. rivierei*;

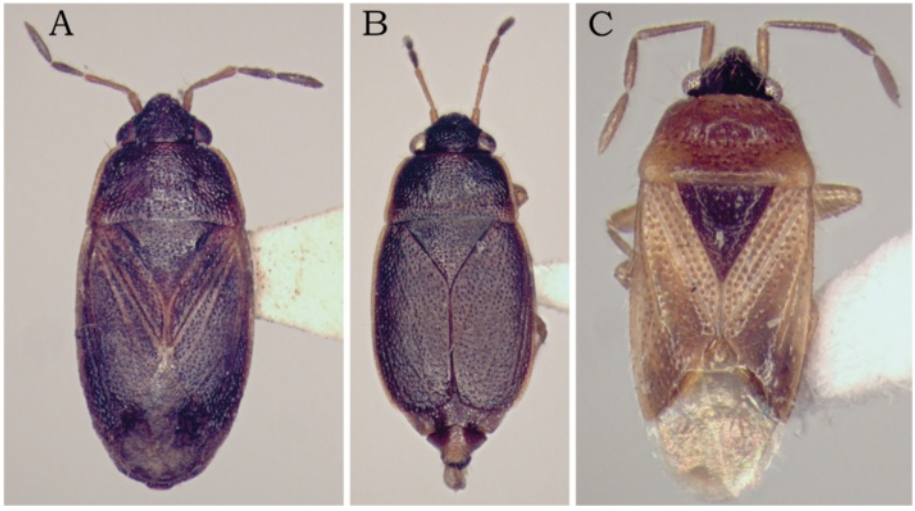


**Figure 13** *Stictolethaeus* and *Valtissius* species. **(A)** *S. inerme* dorsal habitus, macropterous form; **(B)** *S. inerme* dorsal habitus, brachypterous form; **(C)** *V. distinctus* dorsal habitus.

the lethaeine fauna of Argentina is increased to 10 genera and 22 species.

The distribution of the tribe in the country is mainly Neotropical into the Chacoan Subregion, with most of the species distributed in the Chacoan and Pampean provinces (Chacoan Domain) and Parana Forest Province (Parana Domain) (Morrone 2014). The most common species in central Argentina is *Stictolethaeus inerme*, with its distribution extending to the South American Transition Zone (Monte Province). The entomofauna of this area shows an overlap of Neotropical and Andean insect taxa, and according to Morrone (2006), Monte Province fauna is basically of Chacoan origin with some elements from the Patagonian, Prepunan, and Subantarctic areas. As it has been suggested, the Monte represents an impoverished Chaco (Willink 1988). Only *Rhaptus quadricollis* appears to be an Andean element, with most of the known records from the South American Transition Zone (Monte Province).

The Patagonian records of *S. inerme*, *Esuris terginus*, and *Petissius spinipes* suggest that the lethaeine fauna from southern Argentina, an area scarcely explored, could be more diverse than we currently know. The only two records of *P. spinipes*, one from Iguazú National Park (Paranaense forest) and the other from Cerro Bayo (*Nothophagus* forest), are 2,300 km away from each other and show a big gap between records; this can be explained by the geophilous habits of the lethaeines that require a specific collecting method.

## Conclusions

The knowledge about the diversity and distribution of this group of seldom collected rhyparochromids in Argentina is far from complete, and more thorough explorations are needed to improve the understanding of this tribe.

#### Competing interests

The authors declare that they have no competing interests.

#### Authors' contributions

The work presented here was carried out in collaboration among all authors. Introduction, descriptions, keys, and discussions were made in collaboration. PMD and JEO did the genitalic dissections and figures; MCM prepared the maps and took most of the measurements. All authors read and approved the final manuscript.

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We express our gratitude to Harry Brailovsky (Universidad Nacional Autónoma de México) for the photograph of *Bubaces castaneus*, and Luca Picciau (Museo Regionale di Scienze Naturali) for the photograph of the type specimen of *Rhaptus quadricollis*. This study was supported by the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina, and the following grant: PIP 0255 (2010-2012).

#### Author details

[1]División Entomología, Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, Paseo del Bosque s/n, 1900 La Plata, Argentina. [2]Department of Ecology and Evolutionary Biology, University of Connecticut, Unit 3043, Storrs, CT 06269-3043, USA. [3]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina.

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