



<http://dx.doi.org/10.11646/zootaxa.3716.1.3>

<http://zoobank.org/urn:lsid:zoobank.org:pub:ACC79DA0-EA3E-4113-979D-D1D23F8C848E>

The South American wolf spider genus *Birabenia* Mello-Leitão, 1941 (Araneae: Lycosidae: Lycosinae)

LUIS N. PIACENTINI¹ & ALVARO LABORDA²

¹ División Aracnología, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Av. Ángel Gallardo 470, C1405DJR, Buenos Aires, Argentina. E-mail: piacentini@macn.gov.ar

² Sección Entomología, Facultad de Ciencias, Universidad de la República, Iguá 4225, CP 11400, Montevideo, Uruguay.

Abstract

The wolf spider genus *Birabenia* Mello-Leitão, 1941 is revalidated, comprising *B. birabeniae* Mello-Leitão (type species) and *B. vittata* (Mello-Leitão) **comb. n.** The monotypic genus *Melloicosa* Roewer is synonymised with *Birabenia* by the transfer of its type species *Gnatholycosa vittata* Mello-Leitão. Three species, *Hogna taeniata* (Mello-Leitão), *Geolycosa sanogastensis* (Mello-Leitão) and *Paratrochosina murina* (Mello-Leitão) are considered junior synonyms of *B. birabeniae*. Representatives of *Birabenia* show affinities with *Trochosa* C. L. Koch but can be distinguished by the presence of one pair of apical spines or none on the ventral side of tibia I of females, the presence of four teeth on the cheliceral retromargin, a shorter furrow on the prolateral side of the tegulum on the male bulb and by having more than seven macrosetae at the tip of cymbium. *Birabenia* is distributed from north-western Argentina to southern Uruguay.

Key words: Arachnida, taxonomy, Neotropical

Introduction

The genus *Birabenia* was erected by Mello-Leitão (1941) for *Birabenia birabeniae* Mello-Leitão, from La Rioja (north-west of Argentina) and was characterised by the eye disposition and sizes, and by the shape of the cephalic region, the presence of four teeth on the retromargin of chelicerae and by having only one pair of apicoventral spines on tibiae I. The same author added to the genus a second species, *Birabenia taeniata* Mello-Leitão based on an immature female from Bell Ville, Córdoba in central Argentina. Capocasale (1990) examined the type series of *B. birabeniae* along with a male that had been determined by Mello-Leitão and was from Calchaquí, in the Vera department of Santa Fe. In that work he reillustrated the male and female genitalia and concluded that *B. birabeniae* belongs in the genus *Hogna* Simon, based on characters of the copulatory organs only, since the condition of the type series not allowed to observe somatic characters. *Birabenia taeniata* was transferred by Capocasale (1990) to the Pisaurid genus *Tetragonophthalma* Karsch, and was reinstated to *Hogna* by Silva *et al.* (2009). During the study of the collections at the Museo Argentino de Ciencias Naturales (Buenos Aires) and Facultad de Ciencias (Montevideo) we were able to identify several specimens belonging to *B. birabeniae* and *Gnatholycosa vittata* Mello-Leitão, the type species of the monotypic genus *Melloicosa* Roewer. The aim of this work is to revalidate *Birabenia*, redescribe *B. birabeniae* and *G. vittata* and propose *Melloicosa* as a junior synonym of *Birabenia* by the transfer of its type species *B. vittata* (Mello-Leitão) **comb. n.** We also consider *Birabenia taeniata*, *Lycosa sanogastensis* (Mello-Leitão) and *Alopecosa murina* (Mello-Leitão) as junior synonyms of *B. birabeniae*.

Material and methods

Specimens and figures. Specimens are deposited in the Arachnological collection of the Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, Argentina (MACN-Ar, curator Cristina L. Scioscia), Museo de La Plata, Argentina (MLP, curators Luis Pereira and Cristina Damborenea), the Natural History

Museum, London (BMNH, curator Janet Beccaloni), Facultad de Ciencias, Montevideo (FCE, curator Miguel Simó). Drawings were made using a camera lucida mounted on Olympus BH–2 compound microscope or in a Leica M165 C stereoscopic microscope. The internal genitalia were cleared in clove oil, and, in the cases of non-type specimens, digested with Enzymatic Cleaner (Ultrazyme®). Photographs of the preserved specimens were taken with a Leica DFC 290 digital camera mounted on a Leica M165 C stereoscopic microscope. The focal planes were combined with Helicon Focus 4.62 Pro (www.heliconsoft.com). Measurements are given in millimetres. The distributions maps were created with Simple Mappr (<http://www.simplemappr.net>), the localities where the coordinates are not provided on the label were estimated using the coordinates of the locality obtained using Google Earth (<http://www.google.com/earth/index.html>) and annotated between brackets, in the case where the data in the label is only the province, the point is located in the centre of such province and marked with an asterisk.

Abbreviations and terminology. The species descriptions and measurements follow Piacentini and Grismado (2009). The macrosetae notation follows Ramírez (2003). The nomenclature of the copulatory organs follows Sierwald (2000), Langlands & Framenau (2010) and Logunov (2010). The following abbreviations are used in species descriptions:

AER	anterior eye row
AL	abdomen length
ALE	anterior lateral eyes
AME	anterior median eyes
CH	carapace height
CL	carapace length
CW	carapace width, taken in the fovea zone
PLE	posterior lateral eyes
PME	posterior median eyes
TL	total length

Taxonomy

Lycosidae Sundevall

Lycosinae Sundevall

Remarks. The presence of a transverse median apophysis with a ventrally directed spur and a sinuous channel on its dorsal surface (Fig. 8e) allow us to place *Birabenia* in the subfamily Lycosinae *sensu* Dondale 1986.

Birabenia Mello-Leitão

Birabenia Mello-Leitão 1941: 137 (Type species *Birabenia birabeniae* Mello-Leitão, 1941, by original designation). Roewer 1960: 1005.

Melloicosa Roewer 1960: 1005. Type species: *Gnatholycosa vittata* Mello-Leitão, 1945. **New synonymy.**

Hogna: Simon 1885: 9; Capocasale 1990: 137.

Diagnosis. The representatives of *Birabenia* can be distinguished from other genera of Lycosinae by the relatively short legs (Fig. 1d) and the deep anterior epigynal pockets. (Fig. 5b) These characters are also present in *Trochosa* C. L. Koch, 1847 from which it can be differentiated by having more than seven macrosetae at the tip of cymbium (Fig. 3f), a shorter furrow (Fig. 3b) on the prolateral side of the tegulum on the male bulb, the presence of only one pair of short apicoventral spines on female tibia I, or none and four cheliceral teeth on the female retromargin (Fig. 4e). Both males and females lack the typical dark stripes on the anterior part of the median light band of the carapace, characteristic of *Trochosa* (Dondale & Redner 1990).

Remarks. We propose diagnostic characters to distinguish *B. birabeniae* from *Trochosa ruricola* (De Geer), the type species of genus.

Description. Medium sized wolf spiders (males 4.92–8.91, females 7.05–12.64), carapace brown with a light median band and paler marginal bands, radial pattern indistinct. Sternum uniformly coloured, pale. Chelicerae with four retromarginal teeth, except in males of *B. vittata*, which have three teeth (Fig. 4e). Abdomen brownish yellow with two dark olive gray lateral bands; venter brownish yellow with two middle dark lines (Fig. 1). Leg formula 4123. Femur I with one prolateral apical spine, and three pairs of ventral spines in males and none in females. Scopulae on legs I and II from ventral distal half of metatarsi (Figs 4c, 9c), on legs III and IV present ventrally in two lines on prolateral and retrolateral side of the tarsi, and spinules on ventral side (Fig. 4d).



FIGURE 1. *Birabenia birabena* Mello-Leitão, habitus. **a–c** female (MACN-Ar 28971); **d–f** male (MACN-Ar 27521); **a, d** dorsal; **b, e** lateral; **c, f** ventral. Scale bars, **a–c** 2.00 mm, **d–f** 5.00 mm.

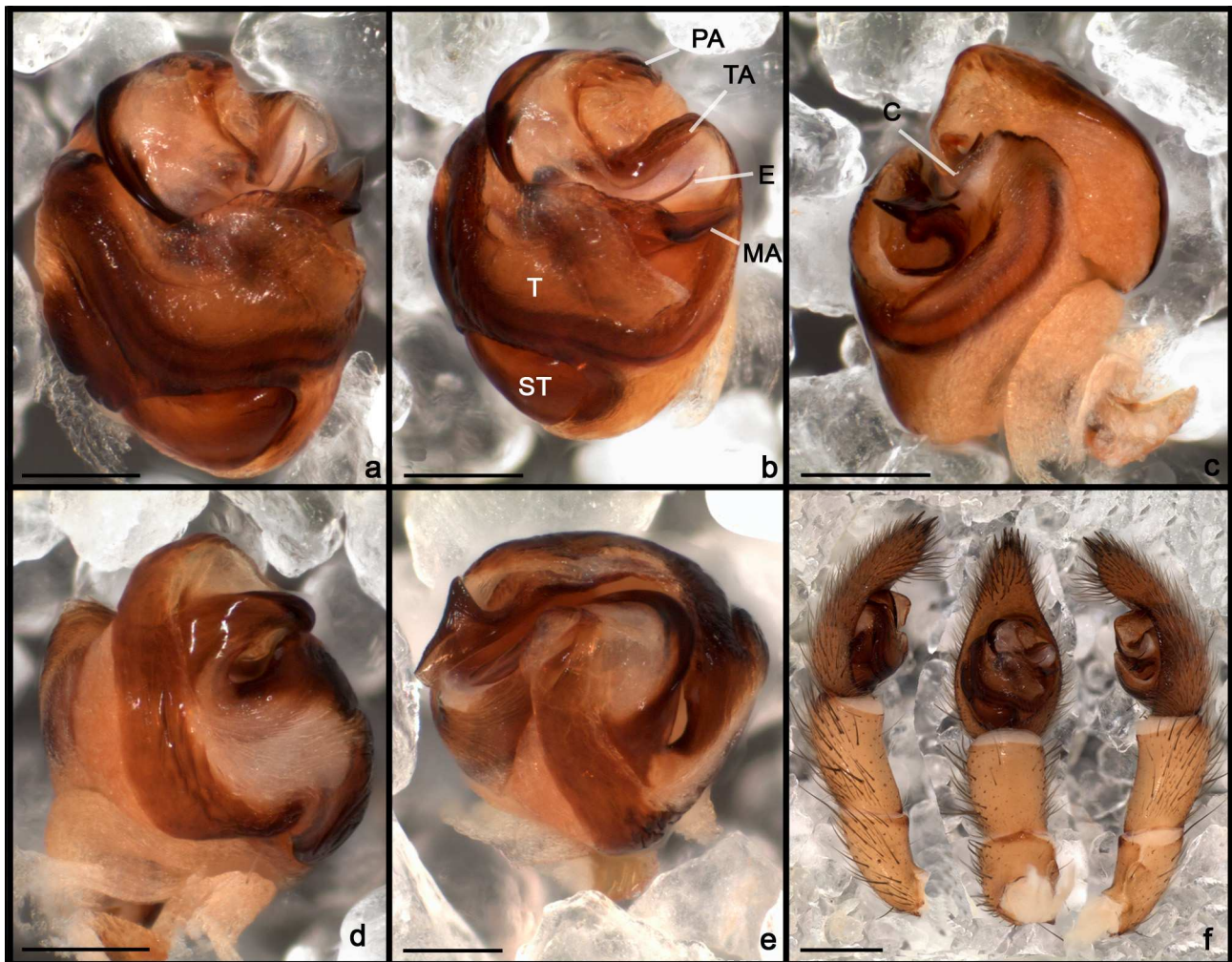


FIGURE 2. *Birabenia birabena* Mello-Leitão, male genitalia (MACN-Ar 27521), a–e bulb, a prolateral; b ventral; c retrolateral; d dorsal; e apical; f pedipalp, general view. Scale bars, a–e 0.20 mm, f 0.50 mm. Abbreviations: C conductor, E embolus, MA median apophysis, PA palea, ST sub tegulum, T tegulum, TA terminal apophysis.

Palp with tibia longer than wide (Fig. 2f), with a file on distal tibia (Fig. 3e), facing a crest (scraper) on the proximal tarsus (Fig. 3g). Cymbium with distal macrosetae (Fig. 3f); tegulum large occupying most of ventral side of bulb (Fig. 2b); median apophysis transversal, triangular in shape, with a distal ventral process (Figs 2b–e, 3b–d); embolus C-shaped arising on prolateral margin of palea, moderately long, slender, concealed, in part, by median apophysis; terminal apophysis slightly curved apicad (Figs 2a–b, 3b); subterminal apophysis parallel to the embolus (Fig. 8e).

Epigyne with inverted T-shaped median septum set in shallow atrium with two anterior pockets (Figs 4a, 5a); copulatory openings located on or at lateral margins of median septum (Fig. 4b). Spermathecae with short stalk (Figs 4b, 5b).

Composition. Two species *B. birabena* and *B. vittata*.

Distribution. North-western and central Argentina (Jujuy, Salta, Tucumán, La Rioja, Mendoza, San Luis, Córdoba, Santa Fe, Entre Ríos and Buenos Aires Provinces) and southern Uruguay (Canelones, Maldonado and Rocha Departments) (Fig. 11).

***Birabenia birabena* Mello-Leitão**

(Figs 1–5, 11)

Birabenia birabena Mello-Leitão 1941: 137, plate 6, figs 27, 33–34; 1 female lectotype, 1 female and 1 immature female paralectotypes (from Argentina, La Rioja, Sañogasta [−29.316°, −67.600°], MLP 14720, examined) and 1 male paralectotype (from Argentina, Tucumán, Bañados [−26.422°, −65.962°], MLP 14721, examined), here designated.

Hogna birabena: Capocasale 1990: 137, figs 8–11.

Birabenia taeniata Mello-Leitão 1943: 108, fig. 9; subadult female holotype from Argentina, Córdoba, Bell Ville [-32.620°, -62.689°], in MLP 15710 examined. **New synonymy.**

Hogna taeniata: Capocasale 1990: 138; Silva, Lise and Carico (2009).

Alopecosa murina Mello-Leitão 1941: 122, fig. 19; subadult female holotype from Argentina, La Rioja, Anillaco [-28.807°, -66.952°], deposited in MLP 14672, examined. **New synonymy.**

Tarentula murinella: Roewer 1951: 441 (unnneeded replacement name, *A. m.* not thought congeneric with *Lycosa murina* Nicolet, 1849).

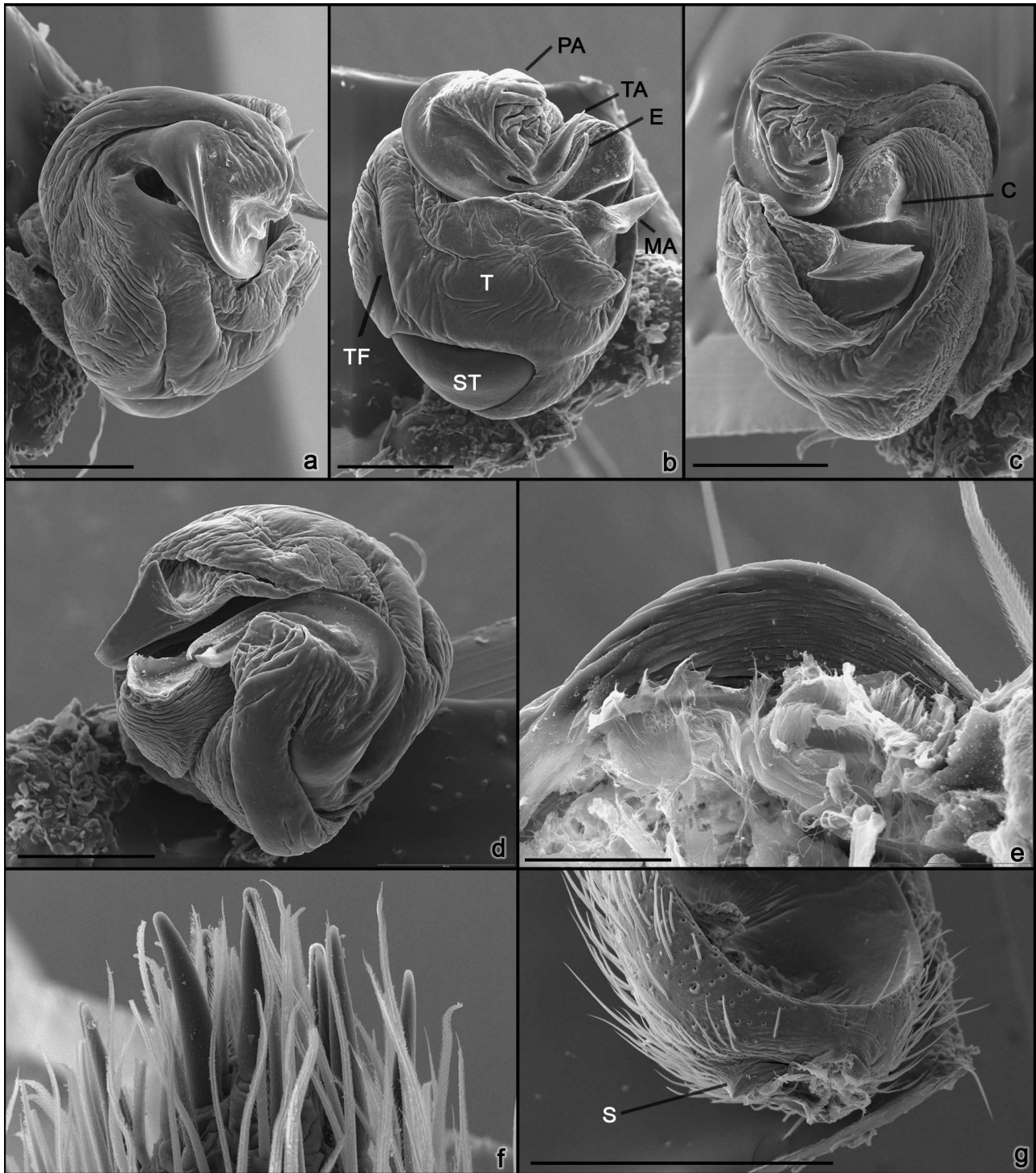


FIGURE 3. SEM images of *Birabenia birabena* Mello-Leitão, male genitalia (MACN-Ar 27521). **a** Left bulb, prolateral; **b** ventral; **c** retrolateral; **d** apical; **e** retrolateral view of the tibial apical part; **f** apical part of cymbium, ventral view; **g** distal part of cymbium, retroventral view. Scale bars, **a–d** 0.20 mm, **e** 0.05 mm, **g** 0.50 mm. Abbreviations: **C** conductor, **E** embolus, **MA** median apophysis, **PA** palea, **S** scraper, **ST** sub tegulum, **T** tegulum, **TA** terminal apophysis, **TF** tegular furrow.

Paratrochosina murinella: Roewer 1955: 282.

Lycosa sanogastensis Mello-Leitão 1941: 133, fig. 31, plate. 6, fig. 25; female holotype from Argentina, La Rioja, Sañogasta [-29.316°, -67.600°], deposited in MLP 14700, examined. **New synonymy.**

Scaptocosa sanogastensis: Roewer 1955: 292.

Remarks. In the original publication, Mello-Leitão (1941) did not distinguish between the holotype and paratype, but the vial MLP 14720 contains one female isolated from the rest of the specimens, labelled with the author's handwriting as "typus"; we choose this specimen as lectotype. The vial MLP 14721 is labelled as "alotypus" and is considered here as a paralectotype.

Capocasale (1990) transferred *B. birabena* to *Hogna* based only on characters of the copulatory organs, morphological features such as chelicerae dentition or coloration seem useful to distinguish between genera with very similar genitalia, e.g., *Alopecosa* Simon (Dondale & Redner 1990), *Trochosa* (Brady 1980) and *Tigrosa* Brady (Brady 2012). The relative short legs, the presence of four retromarginal teeth on the cheliceral retromargin and the deep anterior epigynal pockets excludes to *B. birabena* from *Hogna*.

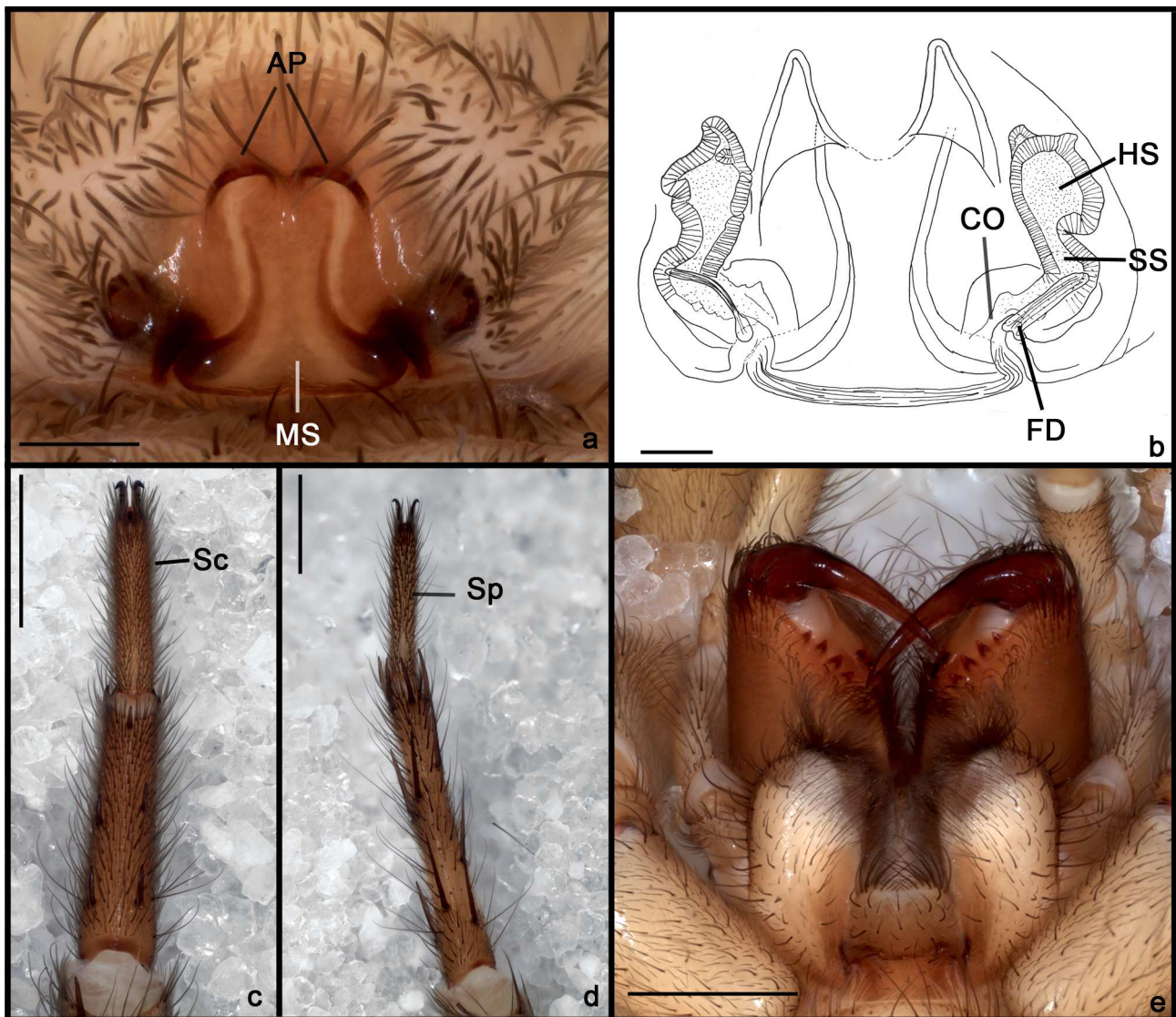


FIGURE 4. *Birabenia birabena* Mello-Leitão, female genitalia (MACN-Ar 28971), **a** epigyne ventral view, **b** vulva dorsal view, **c** metatarsus and tarsus of leg I ventral, **d** metatarsus and tarsus of leg IV ventral, **e** endites ventral. Scale bars, **a** 0.20 mm, **b** 0.10 mm, **c–e** 1.00 mm. Abbreviations: **AP** anterior pockets, **FD** fertilization ducts, **HS** head of spermatheca, **MS** median septum, **Sc** scopulae, **Sp** spinules, **SS** stalk of spermatheca.

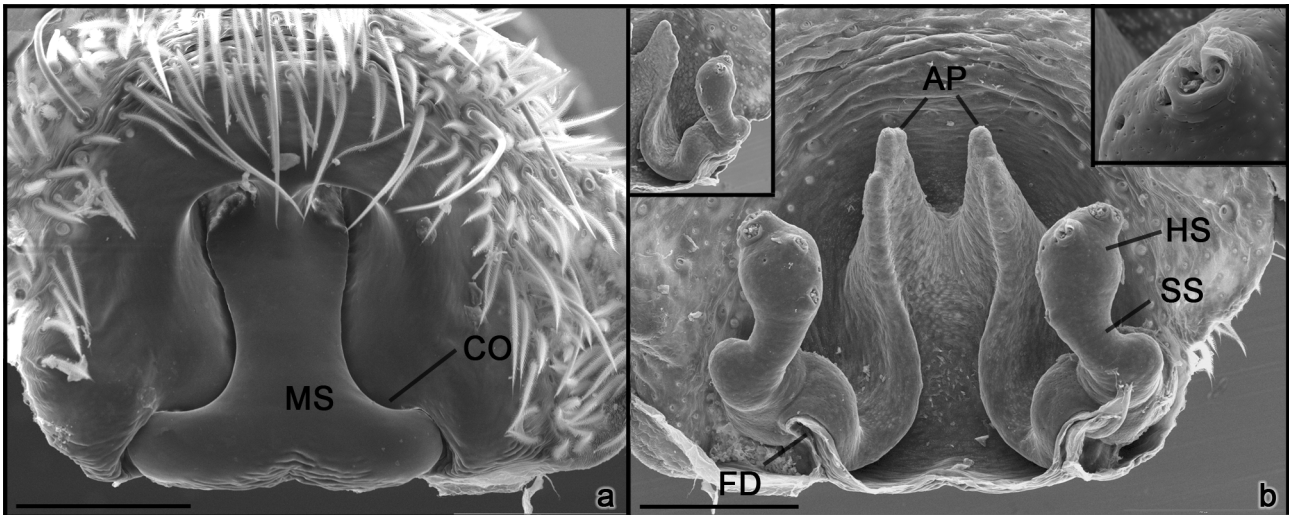


FIGURE 5. SEM images of *Birabenia birabena* Mello-Leitão, female genitalia (MACN-Ar 28971), **a** epigyne ventral view, **b** vulva dorsal view, upper right corner in **b**, detail of the head of spermatheca pore, Upper left corner in **b**, lateral view of the left spermatheca. Scale bars, **a**, **b** 0.20 mm. Abbreviations: **AP** anterior pockets, **CO** copulatory opening, **FD** fertilization ducts, **HS** head of spermatheca, **MS** median septum, **SS** stalk of spermatheca.

Other material examined. ARGENTINA: Jujuy: San Pedro [-24.231°, -64.867°], 12.V.1947, Birabén, M., 1 ♀ (MACN-Ar 30513). Salta: Urundel [-23.630°, -64.399°], XI.1948, Birabén, M., 1 ♂ 1 ♀ (MACN-Ar 24083). La Rioja: Embarcadero Los Sauces [-28.463°, -67.086°], X.1965, Maury, E., 1 ♀ (MACN-Ar 23915); Patquia [-30.056°, -66.882°], 16.X.1936, Galiano, M.E., 1 ♀ (MACN-Ar 23881). Mendoza: San Rafael, Camping Rayuela [-34.795°, -68.450°], 4–11.II.2008, Piacentini, L. N. & Fernández, C. M., 1 ♀ (MACN-Ar 30637). San Luis: no further location [-33.861°, -66.057°], 01.XII.1949, Birabén, M., 1 ♀ (BMNH). Córdoba: Los Cocos [-30.924°, -64.499°], IX–X.2008, Rumboll, M., 1 ♂ 1 ♀ (MACN-Ar 30636); Depto de Juárez Celman, Uchacha, Reserva Natural de Fauna Laguna La Felipa [-33.107°, -63.521°], 21–23.III.2006, Izquierdo, M., 1 ♀ (MACN-Ar 28971); same locality and collector, 21.X.2006, 1 ♂ (MACN-Ar 28972); same locality and collector, 4.XI.2006, 2 ♂ (MACN-Ar 28970); same locality and collector, 4.XI.2006, 1 ♂ (MACN-Ar 28973). Santa Fé: Calchaquí [-29.889°, -60.286°], 7.XII.2010, Ortega, I., 1 ♀ (MACN-Ar 30638); Venado Tuerto, [-33.820°, -61.969°], 5.IX.2010, Piacentini, L.N., 1 ♂ (MACN-Ar 27521). Entre Ríos: Paraná, Villa Urquiza [-31.655°, -60.369°], 17.I.1998, Goloboff, P.A. & Szumik, C., 1 ♂ (MACN-Ar 24007). Buenos Aires: Atucha [-33.972°, -59.299°], 27.VII.1984, Goloboff, P.A. & Ramírez, M.J., 1 ♀ (MACN-Ar 24018); Mercedes [-34.654°, -59.428°], 21.VIII.2010, Paoletta, M., 2 ♀ (MACN-Ar 30639). Ciudad Autónoma de Buenos Aires: Reserva Ecológica Costanera Sur, Chilcal 2 cortafuego [-34.614°, -58.347°], 2.XI.2012, Zapata, L., 1 ♂ (MACN-Ar 29402).

Diagnosis. Males and females of *B. birabena* can be differentiated from those of *B. vittata* by the paler colour (Fig. 1), males of *B. birabena* have a longer terminal apophysis (Figs 2b, 3b), and females have longer median septum (Figs 4a, 5a) and irregular marginal pale bands on the carapace (Figs 1a–c).

Description.

Female (MACN-Ar 28971).

Colour in ethanol (Figs 1 a–c): carapace brown with a light median band and yellowish irregular marginal bands. Sternum uniformly yellowish, sparsely covered with brown bristles, more abundant on the margins. Labium brown. Chelicerae darker than labium, reddish-brown; covered with brown bristles; two promarginal and four retromarginal teeth, similar in size (Fig. 4e). Abdomen yellowish brown with two dark olive grey lateral bands; venter yellowish brown with two median dark lines; spinnerets yellow. Femora brownish yellow, patellae, tibiae, tarsi and metatarsi with dark annulations, darker in the leg I and II. Scopulae on legs I and II from ventral distal half of metatarsi (Fig. 4c), on legs III and IV only on tarsi (Fig. 4d).

Epigyne with inverted T-shape median septum set in shallow atrium with two anterior deep pockets (Figs 4a, 5a); copulatory openings located at the lateral margins of median septum (Fig. 4b). Vulva: spermathecae with a short stalk and a triangular head (Figs 4b, 5b).

Leg formula 4123. Spination pattern: femur **I** p 0-0-d1 d 1-1-0, **II** p 0-0-d1 d 1-1-0, **III** p d1-d1 d 1-1-0 r 0-d1, **IV** d 1-1-0 r 0-0-d1; patella **III** p 1 r 1, **IV** p 1 r 1; tibia **I** v 0-0-2ap, **II** v 0-0-2ap, **III** p 1-1 d 0-1-0 r 1-1 v 2-2-2ap, **IV** p 1-1 d 0-1-0 r 1-1 v 2-2-2ap; metatarsus **I** p 0-0-t1ap r 0-0-1ap v 2-2-0, **II** p 0-0-1ap r 0-0-1ap v 2-2-1ap, **III** p 1-1-2ap r 1-1-2ap v 2-2-1ap, **IV** p 1-1-2ap r 1-1-2ap v 2-2-1ap.



FIGURE 6. *Birabenia vittata* (Mello-Leitão), habitus. **a–c** female (FCE-2807); **d–f** male (FCE-2807); **a, d** dorsal; **b, e** lateral; **c, f** ventral. Scale bars, **a–f** 2.00 mm.

Male (MACN-Ar 27521).

Colour in ethanol (Figs 1 d–f): as in female. Palp with tibia longer than wide, lacking apophyses (Fig. 2f), with a file on distal part of tibia (Fig. 3e), facing a crest (scraper) on the proximal part of cymbium (Fig. 3g). Cymbium with seven macrosetae at the tip (Fig. 3f); tegulum large, occupying most of ventral side of bulb (Fig. 2b); median

apophysis transversal, triangular in shape, with a distal ventral process (Figs 2b–e, 3b–d); embolus arising from the prolateral margin of palea, moderately long, slender, concealed in part by median apophysis (Figs 2a–e, 3 a–d); terminal apophysis curved slightly, apicad, reaching the hyaline conductor (Figs 2a–b, 3b); subterminal apophysis parallel to the embolus.

Leg formula 4123. Spination pattern: femur **I** p 0-0-d1 d 1-1-0 r 0-1-0, **II** p 1-1 d 1-1-0 r 1, **III** p d1-d1 d 1-1-1 r d1-d1, **IV** p d1-d1 d 1-1-0 r 0-0-d1; patella **III** p 1 r 1, **IV** p 1 r 1; tibia **I** p 0-1 v 2-2-2ap, **II** p d1-d1 v p1-2-2ap, **III** p 1-1 d 0-1-0 r 1-1 v 2-2-2ap, **IV** p 1-1 d 0-1-0 r 1-1 v 2-2-2ap; metatarsus **I** p 0-1-1ap r 0-0-1ap v 2-2-1ap, **II** p 0-1-1ap r 0-0-1ap v 2-2-1ap, **III** p 1-1-2ap r 1-1-2ap v 2-2-1ap, **IV** p 1-1-2ap r 1-1-2ap v 2-2-1ap.

Measurements. Female, MACN-Ar 28971 (Male, MACN-Ar 27521): TL 10.11 (8.38), CL 5.33 (4.00), CW 3.67 (3.00), CH 1.80 (1.20), AL 4.93 (4.00). Eyes: AME 0.18 (0.20), ALE 0.15 (0.10), PME 0.35 (0.28), PLE 0.28 (0.25). Row of eyes: AER 0.92 (0.73), PME 1.10 (0.77), PLE 1.33 (1.10). Sternum (length/width) 2.27/1.87 (1.93/1.60). Labium (length/width) 0.77/0.73 (0.57/0.55) Legs: length of segments (femur + patella/tibia + metatarsus + tarsus =total length): **I** 2.73 + 4.07 + 2.00 + 1.20 = 10.00, **II** 2.80 + 3.60 + 1.87 + 1.20 = 9.47, **III** 2.53 + 2.73 + 2.07 + 1.20 = 8.53, **IV** 4.00 + 4.33 + 3.67 + 1.40 = 13.40 (**I** 3.07 + 4.00 + 2.40 + 1.53 = 11.00, **II** 2.80 + 3.47 + 2.13 + 1.27 = 9.67, **III** 2.60 + 2.67 + 2.27 + 1.20 = 8.74, **IV** 1.67 + 4.40 + 4.00 + 2.00 = 14.07).

Variation. Female (male) (range, mean \pm s.d.): TL 9.18–10.64, 10.11 \pm 0.66; PL 4.27–5.33, 4.78 \pm 0.44; PW 3.07–3.67, 3.40 \pm 0.28; n = 5 (TL 5.99–7.58, 7.00 \pm 0.63; PL 3.67–6.67, 4.81 \pm 1.39; PW 2.80–5.20, 3.64 \pm 1.13; n = 6). Cheliceral dentition: female MACN-Ar 24018 with four teeth on right retromargin and three on the left. Male MACN-Ar 28972 with three teeth on both chelicerae; male MACN-Ar 24007 with two retromarginal teeth on the right and three in the left. Number of macrosetae at the tip of cymbium from 7 to 12.

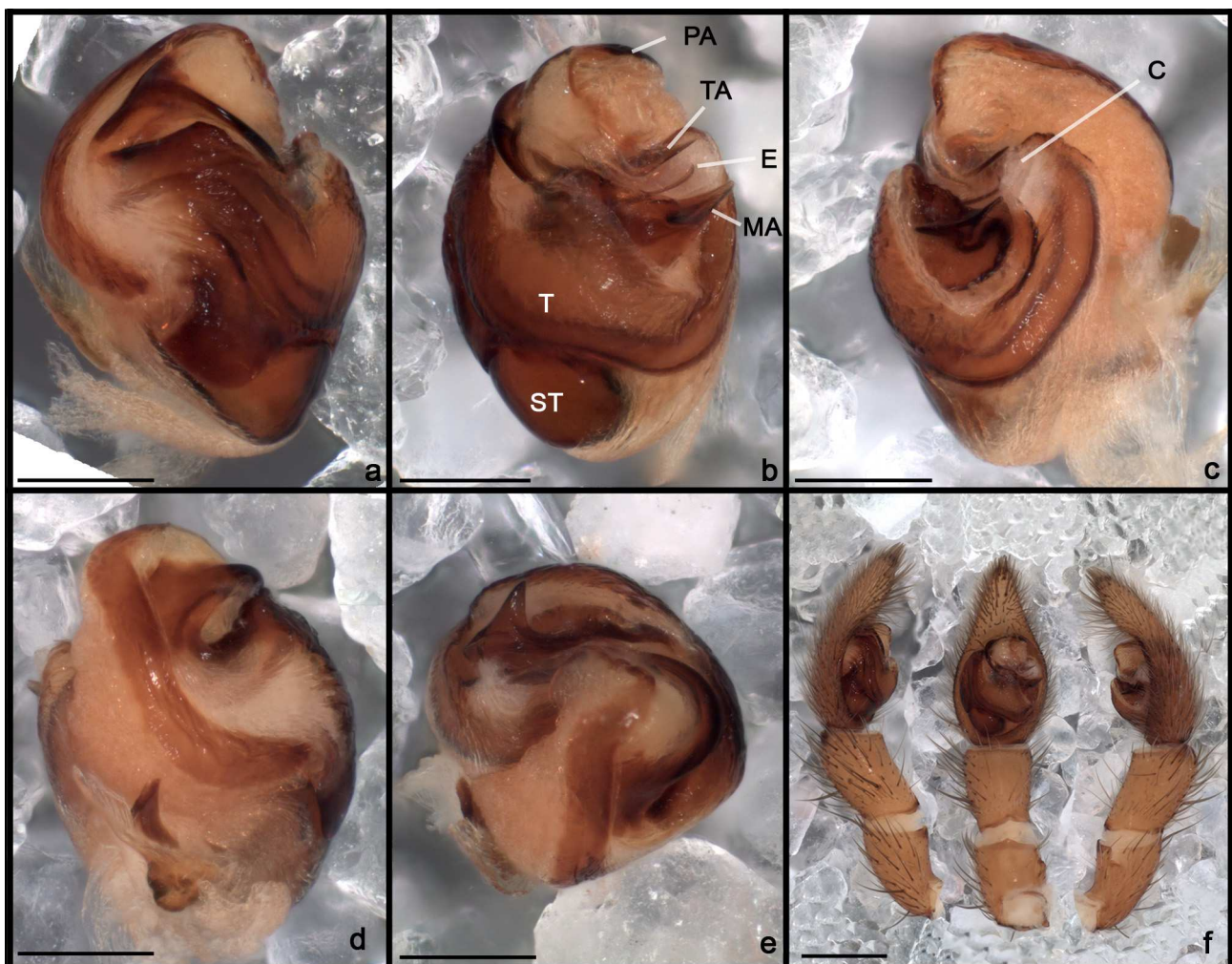


FIGURE 7. *Birabenia vittata* (Mello-Leitão), male genitalia (FCE-2807), **a–e** bulb, **a** prolateral; **b** ventral; **c** retrolateral; **d** dorsal; **e** apical; **f** pedipalp, general view. Scale bars, **a–e** 0.20 mm, **f** 0.50 mm. Abbreviations: C conductor, E embolus, MA median apophysis, PA palea, ST sub tegulum, T tegulum, TA terminal apophysis.

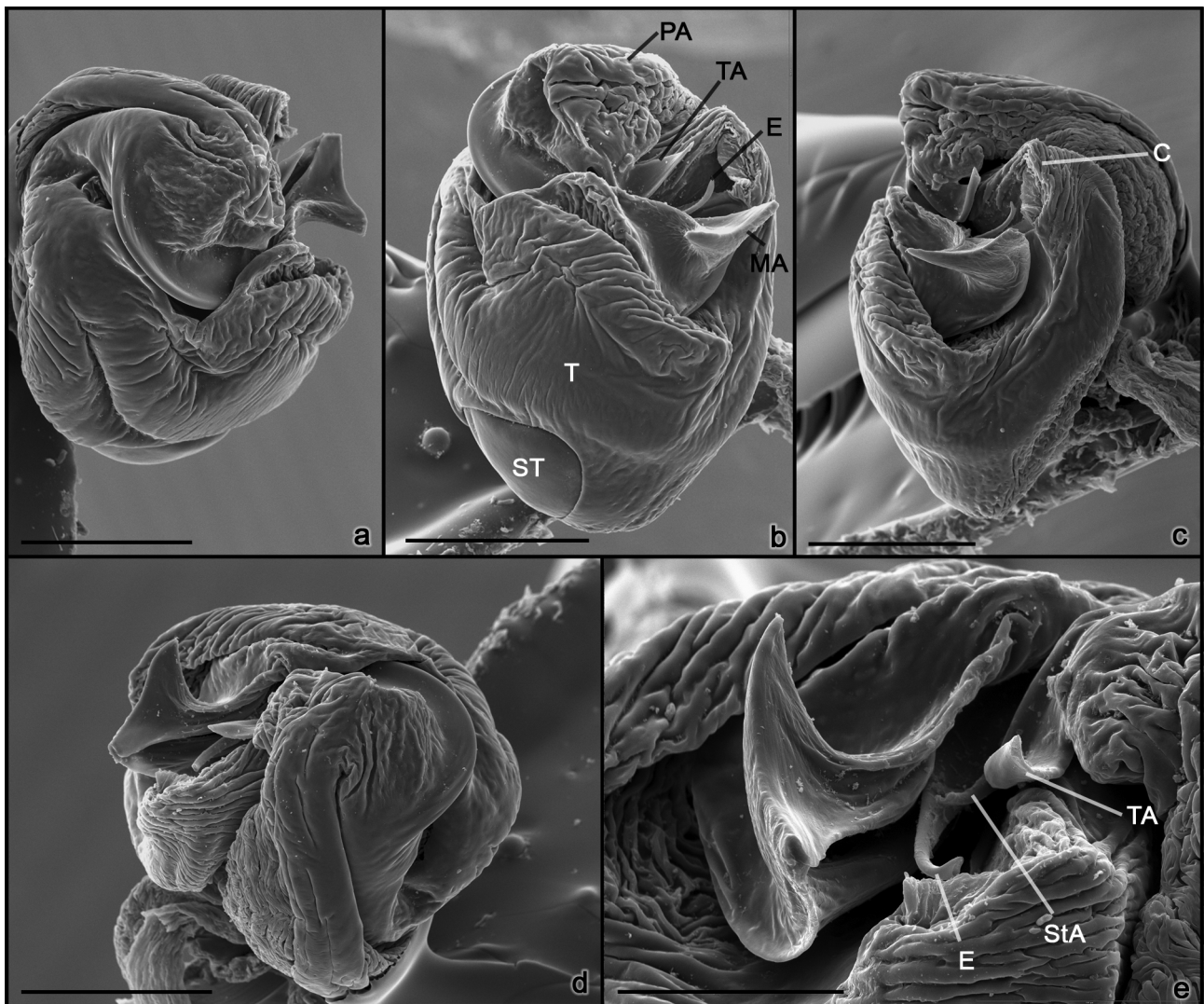


FIGURE 8. SEM images of *Birabenia vittata* (Mello-Leitão), male genitalia (FCE-1161), **a** Left bulb, prolateral; **b** ventral; **c** retrolateral; **d** apical; **e** detail of the terminal part of the bulb in apical view. Scale bars, **a** 0.20 mm, **a–d** 0.20 mm, **e** 0.10 mm. Abbreviations: C conductor, E embolus, MA median apophysis, PA palea, StA subterminal apophysis, ST sub tegulum, T tegulum, TA terminal apophysis.

Synonymy. The types of *B. birabeneae* were compared with *L. sanogastensis* and show no significant morphological differences. The type specimen of *A. murina* is a subadult female from Anillaco, close to 80 km from Sañogasta, the type locality of *B. birabeneae*, and shows the same morphological characters used to recognise *Birabenia*, although Mello-Leitão wrongly reported only two teeth on the cheliceral retromargin. The body shape, coloration and spination pattern led us to consider *A. murina* as junior synonym of *B. birabeneae*. The holotype of *B. taeniata* is a subadult female from Bell Ville, Córdoba province near other known localities of this species (Fig. 11) and also shows the same combination of above mentioned morphological characters of *B. birabeneae*.

Distribution. North-western and central Argentina (Jujuy, Salta, Tucumán, La Rioja, Mendoza, San Luis, Córdoba, Santa Fe, Entre Ríos and Buenos Aires Provinces) (Fig. 11).

Natural history. The specimens from Córdoba were in pitfall traps placed in flooding areas at Reserva Natural de Fauna Laguna La Felipa lake (M. Izquierdo pers. com.), the male collected in Santa Fe was collected under stones in a house garden.

***Birabenia vittata* (Mello-Leitão, 1945) new combination**

(Figs 6–11)

Gnatholycosa vittata Mello-Leitão, 1945: 249; sub-adult female holotype from Argentina, Entre Ríos, Puerto Constanza [-33.830°, -59.039°], in MLP 16500, examined.

Melloicosa vittata: Roewer 1955: 278.

Remarks. Mello-Leitão described *G. vittata* from a subadult female from Puerto Constanza, Entre Ríos; the type specimen presents a dark coloration pattern, relatively short legs, four retromarginal teeth on the chelicerae, and tibia I without ventral spines, all characters distinctive of *Birabenia*. We recognised the adults of this species from material collected in Brazo Largo, Entre Ríos, at about 42 km of Puerto Constanza.

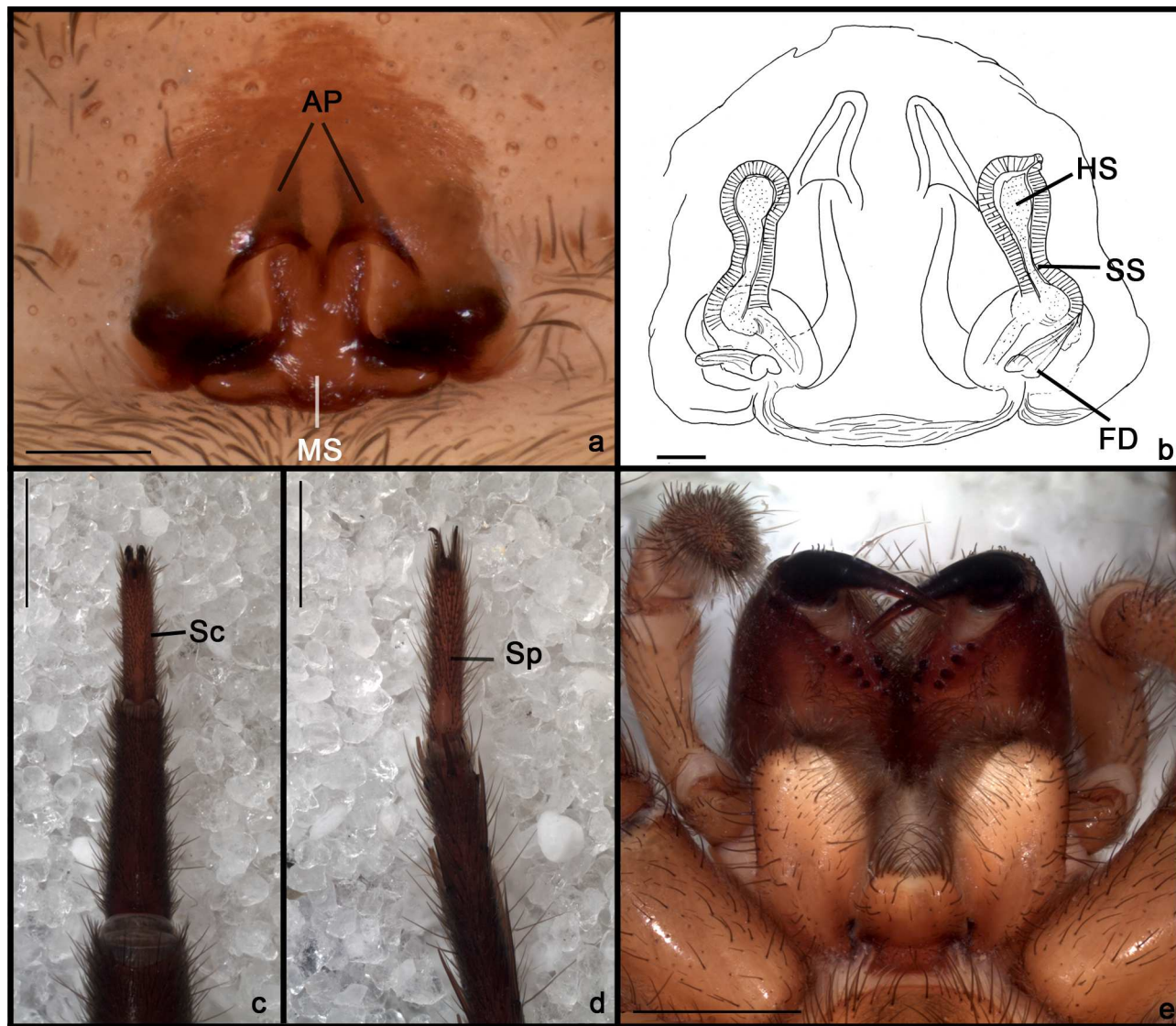


FIGURE 9. *Birabenia vittata* (Mello-Leitão), female genitalia (FCE-2807), **a** epigyne ventral view, **b** vulva dorsal view, **c** metatarsus and tarsus of leg I ventral, **d** metatarsus and tarsus of leg IV ventral, **e** endites ventral. Scale bars, **a** 0.20 mm, **b** 0.10 mm, **c–e** 1.00 mm. Abbreviations: **AP** anterior pockets, **FD** fertilization ducts, **HS** head of spermatheca, **MS** median septum, **Sc** scopulae, **Sp** spinules, **SS** stalk of spermatheca.

Other material examined. ARGENTINA: Santa Fe: Tambo, a 15 Km al norte de Esperanza, lindero al Río Salado [-31.369°, -60.902°], 04.XII.2011, Sarquis, A., 1 ♀ (MACN-Ar 30477). Entre Ríos: Brazo Largo [-33.786°, -58.599°], 7.XII.1979, Zanetic & Goloboff, P.A., 1 ♂ (MACN-Ar 24042); Arroyo Gualeguaychú y ruta 2 [-32.959°, -58.582°], IX.1982, Goloboff, P.A. 2 ♀ (MACN-Ar 24017). Buenos Aires: San Pedro [-33.682°, -59.665°], 9.XI.1979, Goloboff, P.A., 1 ♀ (MACN-Ar 24049); Reserva Natural Otamendi, pastizal [-34.234°, -

58.896°], 25.X.1997, Fuentes B., 1 ♀ (MACN-Ar 29400); same locality and collector, 18.X.1997, 1 ♂ (MACN-Ar 29399); same locality and collector, 25.X.1997, 6 ♂ (MACN-Ar 27553); same locality and collector, 14.XII.1997, 1 ♀ (MACN-Ar 29396); same locality and collector, 7.II.1998, 1 ♂ (MACN-Ar 29398); same locality and collector, 29.II.1998, 1 ♀ (MACN-Ar 29397); same locality and collector, 1998, 1 ♀ (MACN-Ar 29401). URUGUAY: Canelones: INIA Las Brujas [-34.671°, -56.341°], 23.X.2004, Simó, M., 2 ♂ (FCE 1161); same locality and collector, 4.XI.2004, 1 ♂ (FCE 1381). Maldonado: Entrada al camino hacia el cerro Caracol, sobre la ruta 39 [-34.649°, -54.885°], 10.XII.2005, Labarque, F., Ojanguren, A. & Mattoni, C., 1 ♀ (MACN-Ar 24209). Rocha: Cabo Polonio [-34.390°, -53.799°], 1–18.I.2005, F. Achaval, 2 ♀ (FCE 2815); same locality and collector, 1.2002, 1 ♂ (FCE 2800); same locality and collector, 21–23.XII.2004, 1 ♀ (FCE 2809); same locality and collector, 19.I-01.III.2005, 1 ♂ 6 ♀ (FCE 2807): Potrero Grande [-33.899°, -53.728°], 4.IV.2001, 1 ♀ (FCE 2813); same locality, 23.XI.2000, 1 ♀ (FCE 2812): Bocas del Sarandí [-34.233°, -53.950°], 28.X.1994, Pérez-Miles, F., 1 ♂ (FCE 2510); Parque Nacional "San Miguel" [-33.724°, -53.579°], 9.XI.1979, 1 ♀ (MACN-Ar 24061).

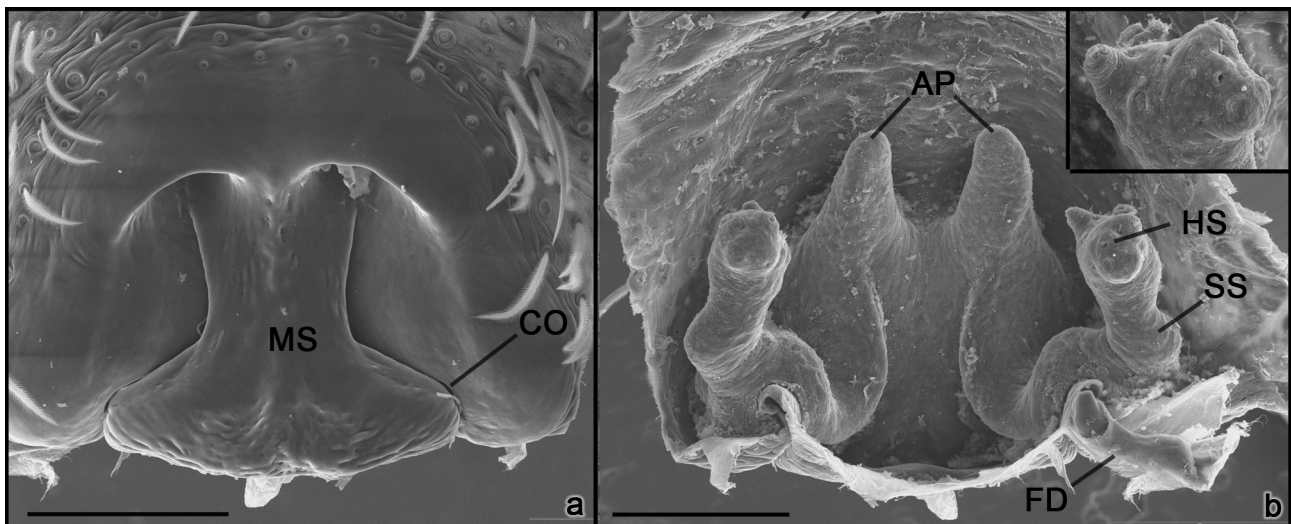


FIGURE 10. SEM images of *Birabenia vittata* (Mello-Leitão), female genitalia (FCE-2807), **a** epigyne ventral view, **b** vulva dorsal view, upper right corner in **b**, detail of the head of spermatheca pore. Scale bars, **a**, **b** 0.20 mm. Abbreviations: **AP** anterior pockets, **CO** copulatory opening, **FD** fertilization ducts, **HS** head of spermatheca, **MS** median septum, **SS** stalk of spermatheca.

Diagnosis. Males and females of *B. vittata* have darker body pigmentation than those of *B. birabeneae* (Fig. 6); males have a slightly short and broad terminal apophysis (Figs 7b, 8b); in females, the base of epigynal septum is shorter and broader and the anterior pockets deeper and longer (Figs 9a, b, 10).

Description.

Female (FCE 2807).

Colour in ethanol (Fig. 6a–c): carapace brown with a light median band and yellowish brown marginal bands. Sternum yellowish brown, sparsely covered with brown bristles, more abundant on the margins. Labium brown. Chelicerae darker than labium, reddish-brown; covered with brown bristles; three promarginal and four retromarginal teeth, similar in size (Fig. 9e). Abdomen brownish yellow with two dark olive grey lateral bands; venter brownish yellow with two middle dark lines; spinnerets yellow. Legs dark brown, legs I and II uniform, legs III and IV paler with annulations. Scopulae on legs I and II from ventral distal half of metatarsi (Fig. 9c), on legs III and IV only in tarsi (Figs 9d). Epigyne with inverted T-shape median septum set in shallow atrium with two anterior deep pockets (Fig. 9a, 10a); copulatory openings located on the lateral margins of median septum. Vulvae: spermathecae with a short stalk and rounded head (Fig. 9b, 10b).

Spination pattern (FCE 2807): femur **I** p 0-0-d1 **d** 1-1-0, **II** p 0-0-d1 **d** 1-1-0, **III** p d1-d1 **d** 1-1-0 **r** d1-d1, **IV** **d** 1-1-0 **r** 0-0-d1; patella **III** **p** 1 **r** 1 **IV** **p** 1 **r** 1; tibia **III** **p** 1-1 **d** 0-1-0 **r** 1-1 **v** 2-2-2ap, **IV** **p** 1-1 **d** 0-1-0 **r** 1-1 **v** 2-2-2ap; metatarsus **I** **p** 0-0-1ap **r** 0-0-1ap **v** r1-0-0, **II** **p** 0-0-1ap **r** 0-0-1ap **v** 2-2-1ap, **III** **p** 1-1-2ap **r** 1-1-2ap **v** 2-2-1ap, **IV** **p** 1-1-2ap **r** 1-1-2ap **v** 2-2-1ap.

Male (FCE-2807).

Colour in ethanol (Figs 6d–f): as in female. Palp with tibia longer than wide (Fig. 7f), with a file on distal tibia,

facing a crest (scraper) on the proximal part of cymbium. Cymbium with ten macrosetae at the tip (Fig. 7f); tegulum large occupying most of ventral side of bulb (Figs 7b, 8b); median apophysis transversal, triangular in shape, with a distal ventral process (Figs 7b–e, 8b–d); embolus arising on prolateral margin of palea, moderately long, slender, concealed, in part, by median apophysis (Figs 7a–c, 8a–d); terminal apophysis short curved apicad, hyaline conductor short and triangular in shape (Figs 7b–d, 8b–d); subterminal apophysis parallel to the embolus (Fig. 8e).

Measurements. Female. FCE 2807 (Male, FCE 2807): TL 12.64 (6.65), CL 4.67 (3.33), CW 3.67 (2.67), CH 1.40 (1.20), AL 6.67 (3.00). Eyes: AME 0.15 (0.12), ALE 0.13 (0.10), PME 0.38 (0.27), PLE 0.33 (0.22). Row of eyes: AER 0.82 (0.62), PME 0.95 (0.72), PLE 1.33 (1.02). Sternum (length/width) 2.13/1.60 (1.67/1.33). Labium (length/width) 0.58/0.67 (0.42/0.42). Legs: length of segments (femur + patella/tibia + metatarsus + tarsus = total length): **I** 3.00 + 3.67 + 1.93 + 1.07 = 9.67, **II** 2.60 + 3.33 + 1.93 + 1.00 = 8.86, **III** 2.53 + 2.93 + 2.00 + 1.07 = 8.53, **IV** 3.40 + 4.33 + 3.67 + 1.40 = 12.80 (**I** 2.60 + 3.33 + 2.00 + 1.13 = 9.06, **III** 2.13 + 2.47 + 2.20 + 1.07 = 7.87, **IV** 3.00 + 3.67 + 3.53 + 1.40 = 11.6).

Variation. Female (male) (range, mean \pm s.d.): TL 7.05–12.64, 10.13 \pm 1.71; PL 3.53–4.67, 4.08 \pm 0.46; PW 2.73–3.73, 3.27 \pm 0.37; n = 7 (TL 4.92–8.91, 6.86 \pm 1.09; PL 3.00–4.20, 3.60 \pm 0.43; PW 2.27–3.33, 2.77 \pm 0.36; n = 7). Number of macrosetae at the tip of cymbium, from 8 to 11.

Spination pattern (MACN-Ar 29399): femur **I** p 0-0-d1 d 1-1-0, **II** p 0-0-d1 d 1-1-0, **III** p d1-d1 d 1-1-0 r 0-0-1ap, **IV** p d1-0-d1 d 1-1-0 r 0-0-1ap; patella **III** p 1 r 1, **IV** p 1; tibia **I** v r1-2-2ap, **II** v r1-r1-2ap, **III** p 1-1 d 0-p1 r 1-1 v p2-2-2ap, **IV** p 1-1 d p1-p1 r 1-1 v 2-2-2ap; metatarsus **I** p 0-0-1ap r 0-0-1ap v 2-2-0, **II** p 0-0-1ap r 0-0-1ap v 2-2-0, **III** p d1-1-2ap r 1-1-2ap v 2-2-2ap, **IV** p 1-1-2ap r 1-1-2ap v 2-2-2ap.

Distribution. East-central Argentina (Entre Ríos and Buenos Aires Provinces) and southern Uruguay (Canelones, Maldonado and Rocha Departments) (Fig. 11).

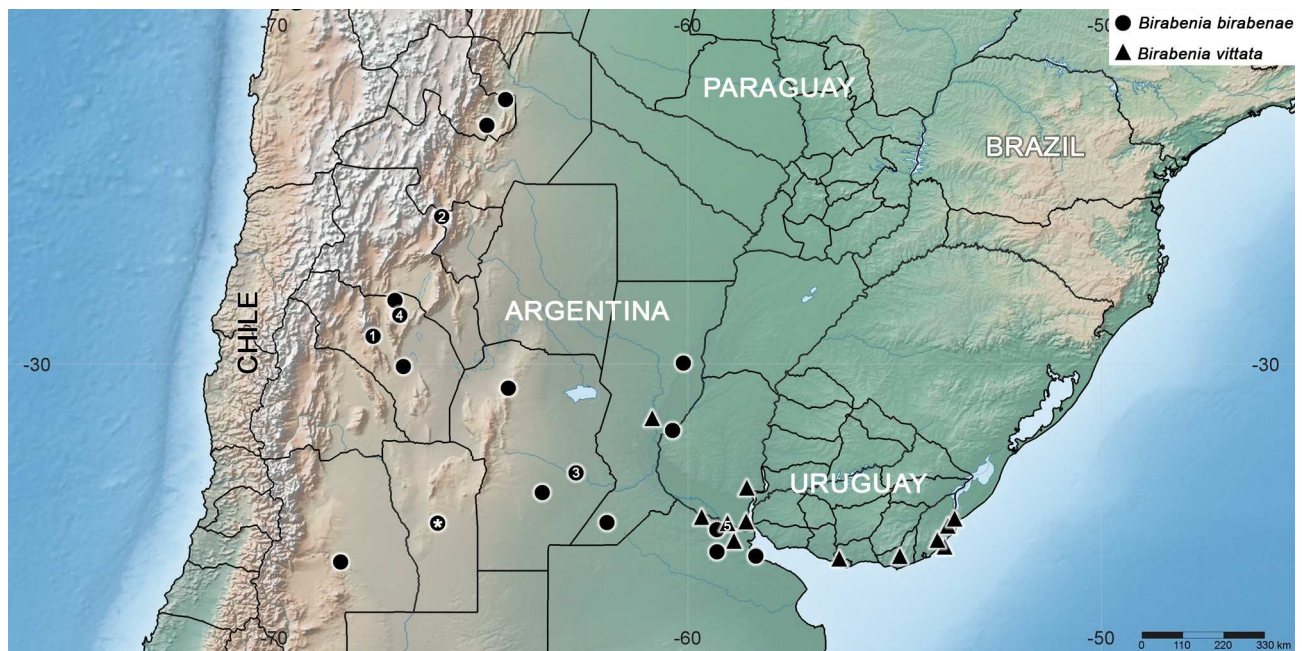


FIGURE 11. Records of *Birabenia* Mello-Leitão. Numbers in the circle are the type locality of each type: 1 *B. birabena* and *Lycosasanogastensis*; 2 paralectotype of *B. birabena*; 3 *Birabenia taeniata*; 4 *Alopecosa murina*; 5 *Gnatholycosa vittata*. In case where location data in the label gave only the province, the point is located in the centre of the province and marked with an asterisk.

Acknowledgments

We thank Luis Pereira and Mónica Tassara (Museo de La Plata) for loaning the relevant type specimens under their care and for granting permission to examine the collections. I am grateful to Miguel Simó (FCE) for the loan of material, Jannet Beccaloni (NHM) for allowing the examination of the collection and Daniel Roccatagliata and

Marcela Cosarinsky (Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires) for providing material of *B. birabeneae* for this study. Thanks to the reviewers, Estevam Cruz da Silva and Yuri Marusik and to the editor Cor Vink, for the suggestions that improved the manuscript. Thanks to Martín Ramírez, Cristian Grismado and Matías Izquierdo for suggestions and constant support. Piacentini gives special thanks to Cecilia Mercedes Fernández for constant patience and support. Support for this study was provided by Museo Argentino de Ciencias Naturales and grants FONCyT PICT-2007-01393, and CONICET PIP 112-200801-03209 to Martín Ramírez.

References

- Brady, A.R. (1980) Nearctic species of the wolf spider genus *Trochosa* (Araneae: Lycosidae). *Psyche, Cambridge*, 86, 167–212.
<http://dx.doi.org/10.1155/1979/46401>
- Brady, A.R. (2012) Nearctic species of the new genus *Tigrosa* (Araneae: Lycosidae). *Journal of Arachnology*, 40, 182–208.
<http://dx.doi.org/10.1636/k11-77.1>
- Capocasale, R.M. (1990) Las especies de la subfamilia Hippasinae de America del Sur (Araneae, Lycosidae). *Journal of Arachnology*, 18, 131–141.
- Dondale, C.D. (1986) The subfamilies of wolf spiders (Araneae: Lycosidae). *Actas X Congreso Internacional de Aracnología, Jaca, España*, 1, 327–332.
- Dondale, C.D. & Redner, J.H. (1990) *The insects and arachnids of Canada, Part 17. The wolf spiders, nurseryweb spiders, and lynx spiders of Canada and Alaska. Araneae: Lycosidae, Pisauridae, and Oxyopidae*. Agriculture Canada, Ottawa, 388 pp.
- Langlands, P.R. & Framenau, V.W. (2010) Systematic revision of *Hoggicosa* Roewer, 1960, the Australian 'bicolor' group of wolf spiders (Araneae: Lycosidae). *Zoological Journal of the Linnean Society*, 158, 83–123.
<http://dx.doi.org/10.1111/j.1096-3642.2009.00545.x>
- Logunov, D.V. (2010) On new central Asian genus and species of wolf spiders (Araneae: Lycosidae) exhibiting a pronounced sexual size dimorphism. *Proceedings of the Zoological Institute of the Russian Academy of Sciences*, 314, 233–263.
- Mello-Leitão, C.F. de. (1941) Las arañas de Córdoba, La Rioja, Catamarca, Tucumán, Salta y Jujuy colectadas por los Profesores Birabén. *Revista del Museo de La Plata, Nueva Serie (Sección Zoología)*, 2, 99–198.
- Mello-Leitão, C.F. de. (1943) Arañas nuevas de Mendoza, La Rioja y Córdoba colectadas por el Professor Max Birabén. *Revista del Museo de La Plata, Nueva Serie (Sección Zoología)*, 3, 101–121.
- Mello-Leitão, C.F. de. (1945) Arañas de Misiones, Corrientes y Entre Ríos. *Revista del Museo de La Plata, Nueva Serie (Sección Zoología)*, 4, 213–302.
- Piacentini, L.N. & Grismado, C.J. (2009) *Lobizon* and *Navira*, two new genera of wolf spiders from Argentina (Araneae: Lycosidae). *Zootaxa*, 2195, 1–33.
- Ramírez, M.J. (2003) The spider subfamily Amaurobioidinae (Araneae, Anyphaenidae): a phylogenetic revision at the generic level. *Bulletin of the American Museum of Natural History*, 277, 1–262.
[http://dx.doi.org/10.1206/0003-0090\(2003\)277<0001:TSSAAA>2.0.CO;2](http://dx.doi.org/10.1206/0003-0090(2003)277<0001:TSSAAA>2.0.CO;2)
- Roewer, C.F. (1951) Neue Namen einiger Araneen-Arten. *Abhandlungen herausgegeben vom Naturwissenschaftlichen Verein zu Bremen*, 32, 437–456.
- Roewer, C.F. (1955) *Katalog der Araneae von 1758 bis 1940, bzw. 1954*. Bruxelles, 2, 1–1751.
- Roewer, C.F. (1960) Araneae Lycosaeformia II (Lycosidae) (Fortsetzung und Schluss). *Exploration du Parc National de l'Upemba - Mission GF de Witte*, 55, 519–1040.
- Sierwald, P. (2000) Description of the male of *Sosippus placidus*, with notes on the subfamily Sosippinae (Araneae, Lycosidae). *Journal of Arachnology*, 28, 133–140.
[http://dx.doi.org/10.1636/0161-8202\(2000\)028\[0133:DOTMOS\]2.0.CO;2](http://dx.doi.org/10.1636/0161-8202(2000)028[0133:DOTMOS]2.0.CO;2)
- Silva, E.L.C. da, Lise, A.A. & Carico, J.E. (2009) On the taxonomic placement of *Tetragonophthalma taeniata* (Araneae, Lycosidae, Pisauridae). *Biociências*, 17, 106.
- Simon, E. (1885) Etudes sur les Arachnides recueillis en Tunisie en 1883 et 1884 par MM. A. Letourneux, M. Sédillot et Valéry Mayet, membres de la mission de l'Exploration scientifique de la Tunisie. In: *Exploration scientifique de la Tunisie*. Imprimerie Nationale, Paris, pp. 1–55.