

Unveiling some unknown jumping spiders (Araneae: Salticidae) from Argentina: descriptions of seven new species

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Abstract. We present a taxonomic study with descriptions of the following seven new species from Argentina: *Ceriumura intaca* **sp. nov.** (♂♀) from Misiones; *C. lacinia* **sp. nov.** (♂♀) from Misiones; *Thiodina tefyta* **sp. nov.** (♂♀) from Salta, Tucumán and Córdoba; *Lumptibiella demagistrisi* **sp. nov.** (♂♀) from Buenos Aires; *Zygoballus chekokue* **sp. nov.** (♂♀) from Misiones and Corrientes; *Akela scaloneta* **sp. nov.** (♂♀) from Misiones; and *Philira toroi* **sp. nov.** (♂♀) from Jujuy. The misassignment of the paratype of *C. damborskyae* is resolved.

Keywords. salticid, South America, taxonomy

Introduction

Salticidae is the most diverse spider family both in terms of genera and species among the 130 recognized families of spiders. It accounts for 15.6% of all genera and 12.8% of described species (WSC 2023), mainly in tropical and subtropical regions, where they have the highest number of species worldwide. According to the Catalog of Spiders of Argentina (CAA 2023), 106 genera and 263 species are currently known in the country, representing 15.8% and 4% respectively of the total described in this family. The province of Misiones has the highest number of species recorded for the country (Argañaraz et al. 2017; Rubio et al. 2018a, 2019b; Rubio et al. 2019), a fact attributable to various factors, including the presence of a megadiverse environment including the Atlantic Forest and the humid Araucaria forest only present in that province within the Argentine territory, the suitable climate, as well as a greater sampling effort compared to other provinces such as Salta or Jujuy, which have larger dimensions and great diversity of environments, some of which are similar (Rubio 2016).

The study of salticids in the region begins with the collections made by Holmberg between 1875 and 1876, in which he described three species of salticids. Contributions from Simon and the Peckhams followed later in the 19th century. Subsequently, significant intensification occurred with the works of the great Brazilian zoologist Mello-Leitão, between the beginning and the middle of the 20th century. Mello-Leitão described 66 of the 263 species recorded in Argentina, as the author who contributed quantitatively the most to our knowledge of this family within the country. From the 1960s on, a new stage began, led by the Argentine researcher María Elena Galiano. Galiano not only described 20% (n=53) of the species known for the country, but also analyzed numerous type specimens, providing updated descriptions. In addition, she synonymized numerous species, giving a solid structure to the taxonomy of this group in South America.

In recent years, the study of salticids in Argentina has intensified due to the contribution of the authors of this work who, as the *Grupo de Investigación de Salticidas de Argentina* (GISA), have been conducting intense

sampling in central-northern Argentina, particularly in the province of Misiones (Rubio 2014, 2015, 2016). Over a period of 8 years, the authors added 58 species to the list of Argentina, describing 4 new genera and 17 new salticid species. During the last year, the sampling area was expanded to other provinces in Argentina, with the purpose of analyzing the diversity of salticid spiders in understudied areas and estimating the real number of species that could be inhabiting them.

In this paper, we describe seven new species of jumping spiders collected in the provinces of Jujuy, Salta, Misiones, Tucumán, Corrientes, Córdoba and Buenos Aires, belonging to six different genera and four tribes.

Materials and methods

Specimens were examined from, and retained in, the collection of the Instituto de Biología Subtropical (IBSI-Ar, G. Rubio). Descriptions style, terms, abbreviations and measurements follow one of the most current holistic studies of salticids by Edwards (2015). Female genitalia were dissected as described by Levi (1965), examined after digestion in a hot ~15% NaOH solution, and cleared in clove oil to examine their internal structure. Temporary preparations (on a slide) were observed and photographed using a Leica DM500 compound microscope and a Leica M60 stereomicroscope. Structures were sketched from incident light photograph models using a computer system for drawing and image processing (Wacom digitizer tablet with GIMP software). Measurements were taken directly from a microscope ocular lens with an ocular micrometer and are expressed in millimeters. Plates were edited and composed in Corel Draw.

Acronyms used in the text and figures are as follows: AEs = anterior eyes; AG = accessory gland (female genitalia); ALE = anterior lateral eye; AME = anterior median eye (AMEs, plural); At = atrium; CD = copulatory duct (CDs, plural); CDH = copulatory duct head; CO = copulatory opening (COs, plural); CP = coupling pocket; Cy = cymbium; CyA = cymbial (proximodorsal) apophysis; E = embolus; EB = embolus base; EH = embolic haematodocha; FD = fertilization duct; pCP = posteriorly-opening coupling pocket; PEs = posterior eyes; PLE = posterior lateral eye (PLEs, plural); PME = posterior median eye; pRL = proximal retrolateral lobe of TDD; RTA = retrolateral tibial apophysis; Sp = spermatheca; T = tegulum; TgT = tegular tab; TBD = tegulum basal division; TDD = tegulum distal division; vRTA = ventral retrolateral tibial apophysis.

Results/Taxonomy

Family **Salticidae** Blackwall, 1841

Subfamily **Salticinae** Blackwall, 1841

Tribe **Gophoini** Simon, 1901

Genus **Ceriomura** Simon, 1901

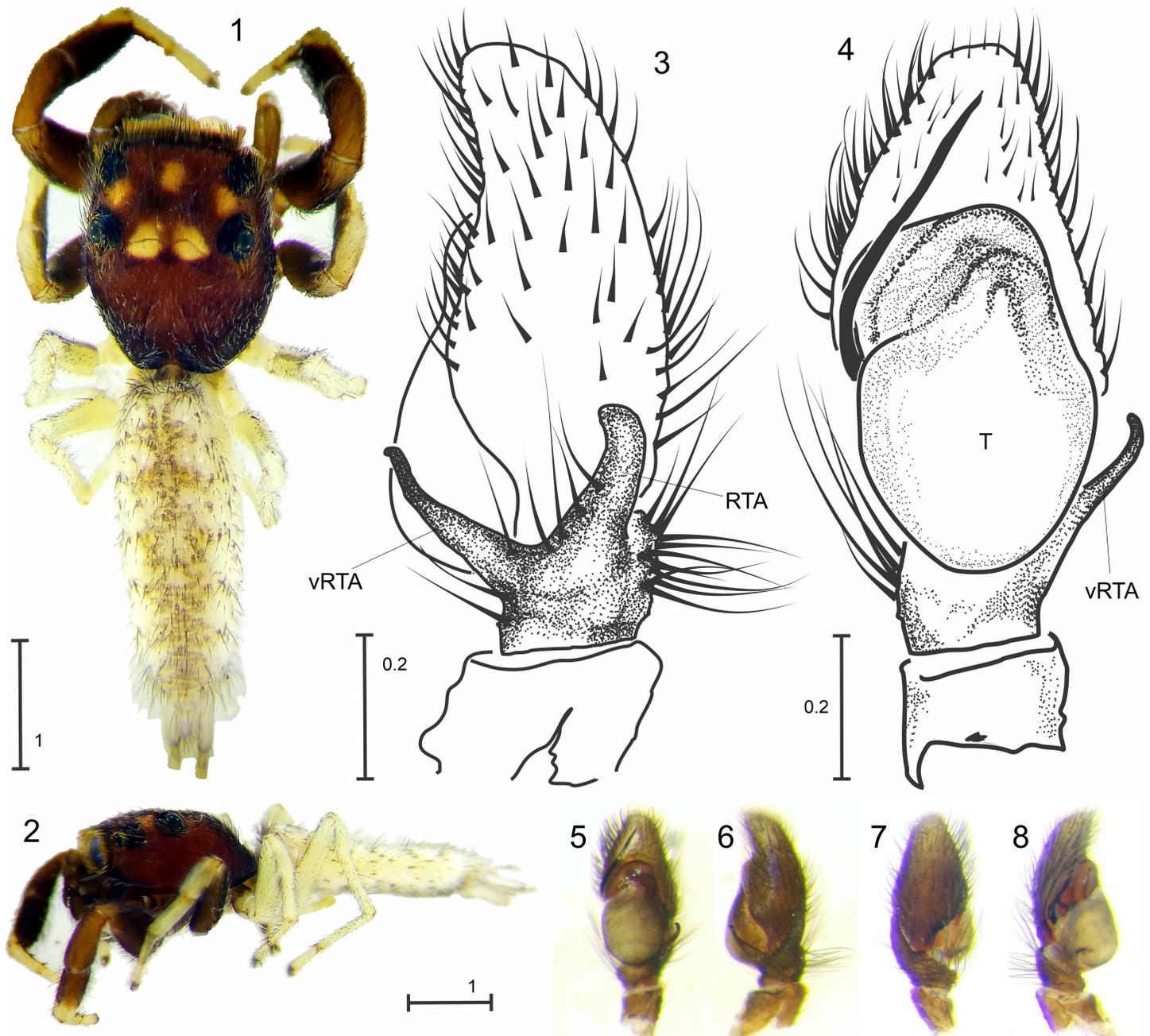
***Ceriomura intaca* Rubio, Baigorria & Stolar, sp. nov.**

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Figures 1-12

Type material. Male holotype (IBSI-Ar 1392) from Argentina, Misiones, Cerro Azul, INTA Experimental Station, (S27.6575°, W55.4374°, 283 m a.s.l.), 12 November 2019, C. Stolar coll. Female allotype (IBSI-Ar 1015), same locality as holotype, 20 October 2017, G. Rubio coll.

Etymology. The specific name is a noun in apposition derived from the initials of the “Instituto Nacional de Tecnología Agropecuaria (INTA), Cerro Azul (CA),” in whose crops most of the specimens were collected.

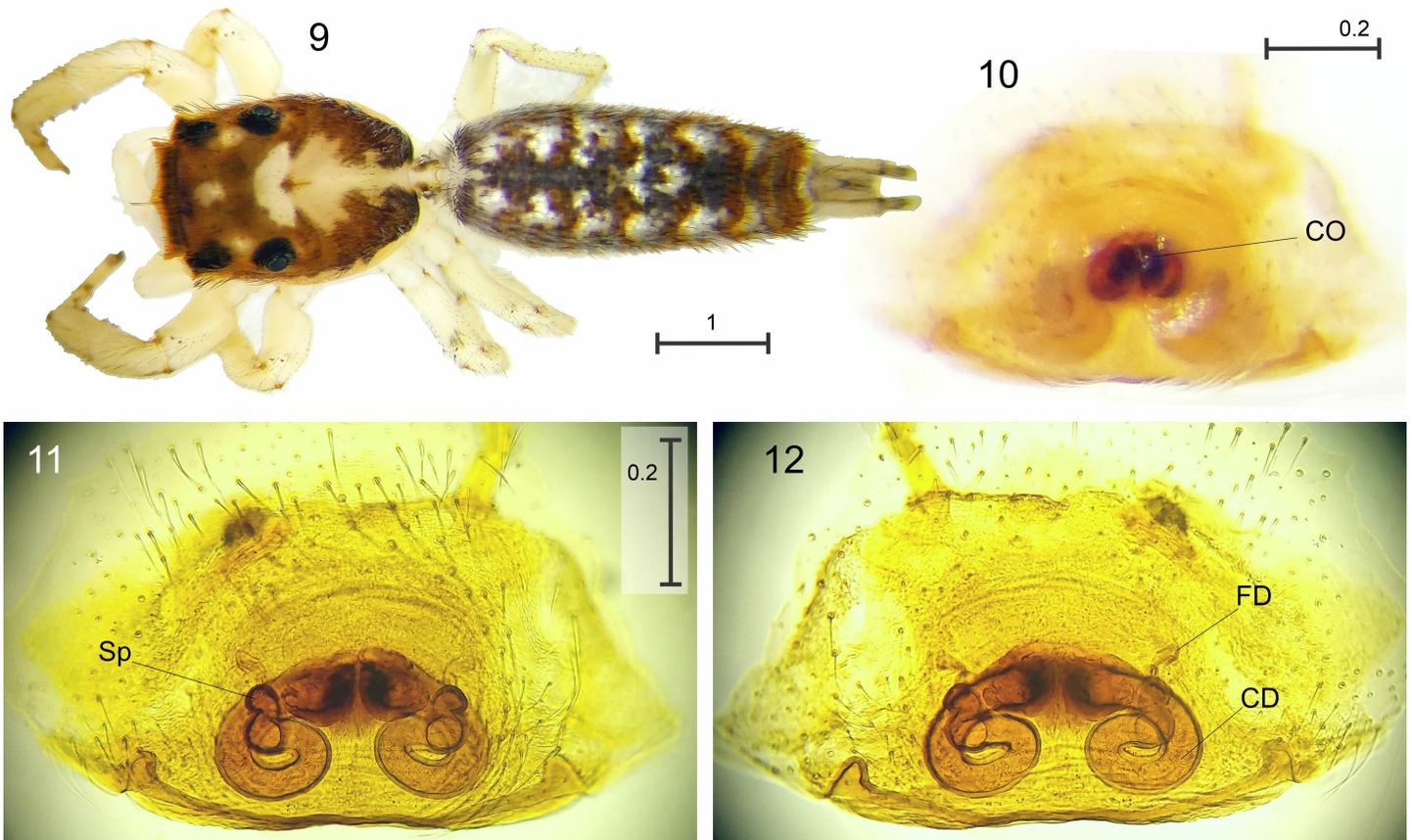


Figures 1-8. Male of *Ceriomura intaca* sp. nov. (holotype IBSI-Ar 1392). 1, Habitus dorsal. 2, Same, lateral. 3, Left palp, retrolateral view. 4, Same, ventral. 5, Same, ventral. 6, Same, retrolateral. 7, Same, dorsal. 8, Same, prolateral.

Diagnosis. *Ceriomura intaca* sp. nov. can be easily distinguished from other *Ceriomura* by having conspicuous and relatively longer RTA and vRTA; compare Figures 1-2, 14-17 in this paper with fig. 1e in Rubio and Baigorria 2016, fig. 1c in Galvis 2017 and figs. 7, 10 in Suarez-Martinez et al. 2022. The female resembles that of *C. cruenta* (Peckham & Peckham, 1894), with a similar external epigyne, with the COs medially close together (Figure 10), but differs in that the CDs take a single turn versus at least two turns in *C. cruenta*; compare Figures 11-12 in this paper with figs. 25-26 in Suarez-Martinez et al. 2022.

Description. Male (holotype). Carapace length 2.05, width 1.64; abdomen length 2.78. Carapace (Figures 1, 2) low, dark mahogany, cephalic region with five conspicuous yellow spots contrasting; anterior median eyes encircled by tufts of yellowish orange setae, other eyes encircled by black rings; no fovea mark in the center. Clypeus brown, mahogany, low, with few translucent hairs on the lower edge. Chelicerae dark brown, vertical,

with two teeth on promargin and one tooth on retromargin. Palp dark brown, tibia with conspicuous RTA and vRTA, both with long setae. RTA directed dorsally, long, broad, round-tipped; and vRTA long, thin, nail-like tip, well-sclerotized. Embolus well-sclerotized, cylindrical, long and thin, straight in its apical half and tapering towards the tip, arising on the dorsal side of the bulb between this and the cymbium, at the level of the division between the TBD and TDD when viewed prolaterally; tip of the embolus accommodated on the cymbium. Spermophore visible. Legs I and II stout (the first stoutest); I blackish brown, metatarsus and tarsus pale; femur II blackish brown, prolateral margin of patella and tibia darker. Legs III and IV pale yellow, covered with black scattered hairs. Tibia I with two pairs of bulbous setae in ventrally positioned. Abdomen cylindrical but somewhat flattened dorsoventrally, elongated (Figure 2); coloration in ethanol pale, whitish, with grayish scattered spots; dorsum covered with sparse long black hairs, like small thorns; venter grayish with scattered darker spots. Spinnerets long, pale and grayish. Live specimens show a conspicuous hairiness on the posterior third of the abdomen.



Figures 9-12. Female of *Ceriomura intaca* sp. nov. (allotype IBSI-Ar 1015). **9**, Habitus dorsal. **10**, Epigyne, ventral view. **11**, Same, cleared. **12**, Same, dorsal view.

Female (Allotype). Carapace length 2.59, width 1.98; abdomen length 3.70. Carapace (Figure 9) low, pale-yellow general integument, cephalic region and thoracic slope brown, except in the fovea and three small patches on the cephalic region, with a few sparse black hairs. Eyes encircled by black rings. Clypeus very low with abundant white hairs. Chelicerae pale yellow, vertical with four small teeth on promargin and two teeth on retromargin. Labium and endites pale yellow; sternum slightly lighter than the mouthparts. Leg I slightly stouter than the rest, all pale yellow, covered with sparse gray hairs. Legs 4312. Tibia I with two pairs of bulbous setae in 2-2-0-0 ventrally (and slightly prolateral) positioned. Abdomen oval, elongated (Figure 9); gray and reddish dorsal coloration, with ten bilaterally paired white guanine spots, and abundant hairiness mainly on the posterior half; white guanine reticulum on laterals of abdomen, venter gray. Spinnerets pale-light brown, long. Live pattern as preserved specimens, except for many visible reddish scales and conspicuous grayish hairiness on the spinnerets. Epigyne with a small plate, weakly sclerotized; with two small copulatory

openings, relatively close together that look like two red dots (Figure 10); copulatory ducts, coiled, left course running clockwise in ventral view, connecting to a small S-shaped spermatheca (Figures 11, 12). Fertilization duct anterior to spermatheca.

Natural history. Mostly specimens were found in tea crops (*Camellia sinensis* (L.) Kuntze).

Distribution. Known from central and northeastern Misiones, Argentina.

Other material examined. 1 female (IBSI-Ar 1010), from Argentina, Misiones, Cerro Azul, INTA Experimental Station, (S27.6575°, W55.4374°, 283 m a.s.l.), 20 October 2017, G. Rubio coll.; 2 females (IBSI-Ar 1084), same data; 1 male (IBSI-Ar 1195), from Karadya Bio-Reserve (S25.859°, W53.961°, 404 m a.s.l.), 15 October 2017, J. Baigorria coll.

***Ceriomura lacinia* Rubio, Baigorria & Stolar, sp. nov.**

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Figures 13-23

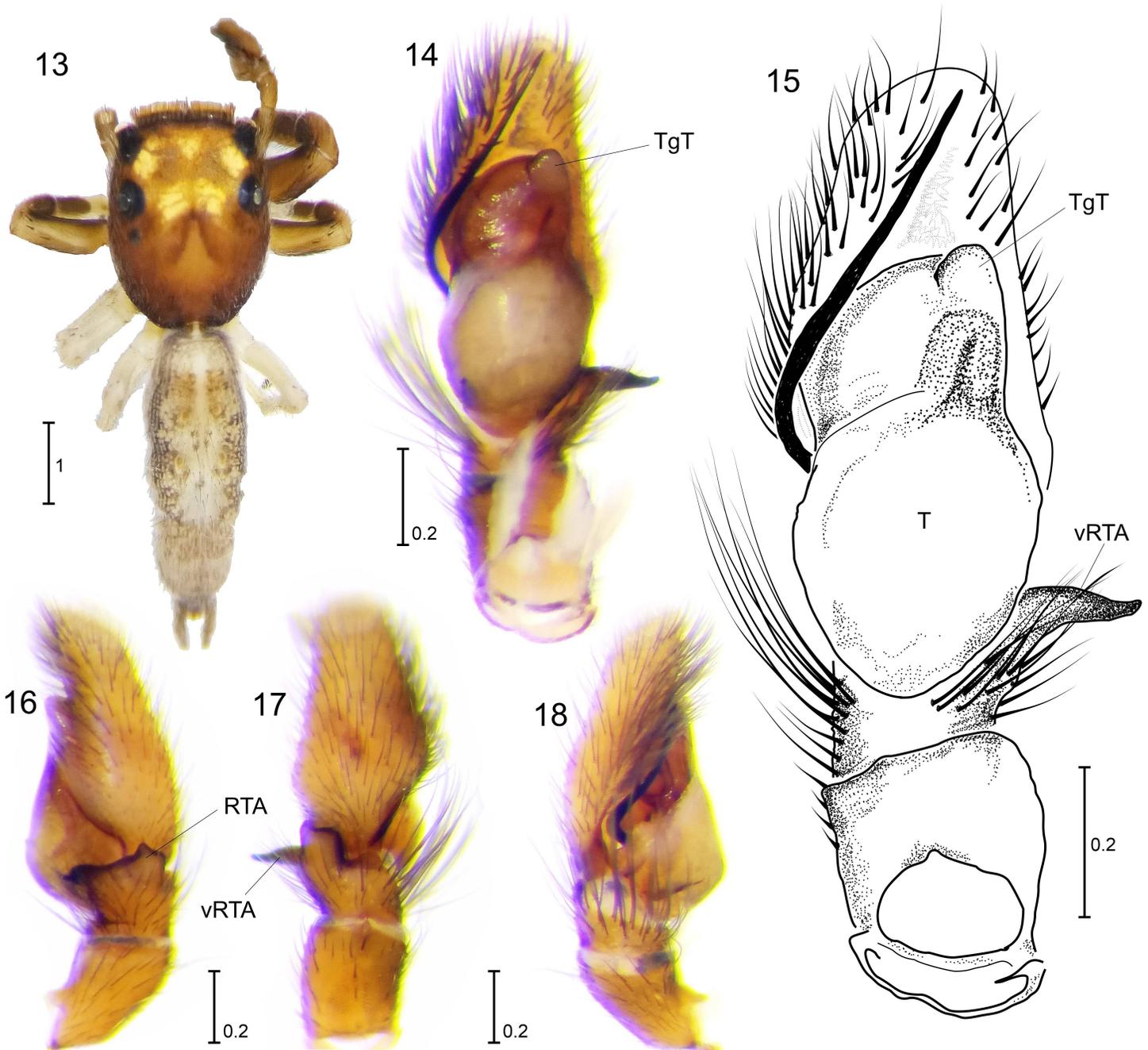
Type material. Male holotype (IBSI-Ar 1191) from Argentina, Misiones, Karadya Bio-Reserve (S25.859°, W53.961°, 404 m a.s.l.), 15 October 2018, J. Baigorria coll.

Systematic note. The female of *C. lacinia* sp. nov. is the single specimen available, and corresponds to a misassigned female (IBSI-Ar 0254) as paratype to *C. damborskyae* Rubio & Baigorria, 2016 (see other material examined). The conspecificity was determined by the habitus pattern of a subadult male specimen (IBSI-Ar 1823) found with the holotype, which is exactly the same as that of the female IBSI-Ar 0254 (Figures 19-23). *Ceriomura damborskyae* is now known only from the male.

Etymology. The specific epithet is a noun in apposition originated from the Latin word *lacinia*, meaning a tab and referring to the presence of the tab-like extension on the tegulum basal division of the male palp.

Diagnosis. *Ceriomura lacinia* sp. nov. can be easily distinguished from other *Ceriomura* by having the TBD with a distinctive tab-like extension (tegular tab: TgT – see Edwards 2015) that is oriented in a retrolateral apical direction; furthermore, male has the vRTA with the tip pointing retrolaterally (Figures 14-15). The female resembles that of *C. cruenta* (Peckham & Peckham, 1894) in a similar body pattern, but differs in the COs, which are less advanced, closer to the epigastric furrow (fig. 2 in Rubio & Baigorria 2016).

Description. Male (holotype). Carapace length 2.59, width 2.00; abdomen length 3.60. Carapace (Figure 13) low, mahogany brown, cephalic region with five conspicuous yellow spots contrasting; anterior median eyes encircled by tufts of yellowish orange setae, other eyes encircled by black rings; thoracic region with an inverted U-shaped dark curved line in the center. Clypeus brown, very low, with white, somewhat translucent hairs on the lower edge. Chelicerae dark brown, vertical, with four teeth (the third proximal larger) on promargin and two teeth on retromargin. Palp brown, tibia wide with RTA and vRTA. RTA directed dorsally, flattened and short, with a very small point; vRTA pointed, directed retrolaterally, well-sclerotized. Embolus slightly flattened, well-sclerotized, arises on the dorsal side of the bulb between this and the cymbium, at the level of the division between the TBD and TDD when viewed ventrally; tip of the embolus accommodated on the cymbium. Spermophore visible in the TBD. Legs I and II stout, dark brown; prolateral margin of femur, patella and tibia darker. Legs III and IV pale yellow, covered with scattered hairs. Tibia I with two pairs of bulbous setae in ventrally positioned. Abdomen cylindrical, elongated (Figures 13, 19); coloration pale light brown, with grayish and dark brown scattered spots, more concentrated on the sides; dorsum covered with sparse black hairs; venter dark grayish. Spinnerets long, grayish. Live specimens have irregular orange spots arranged in bilateral symmetry.



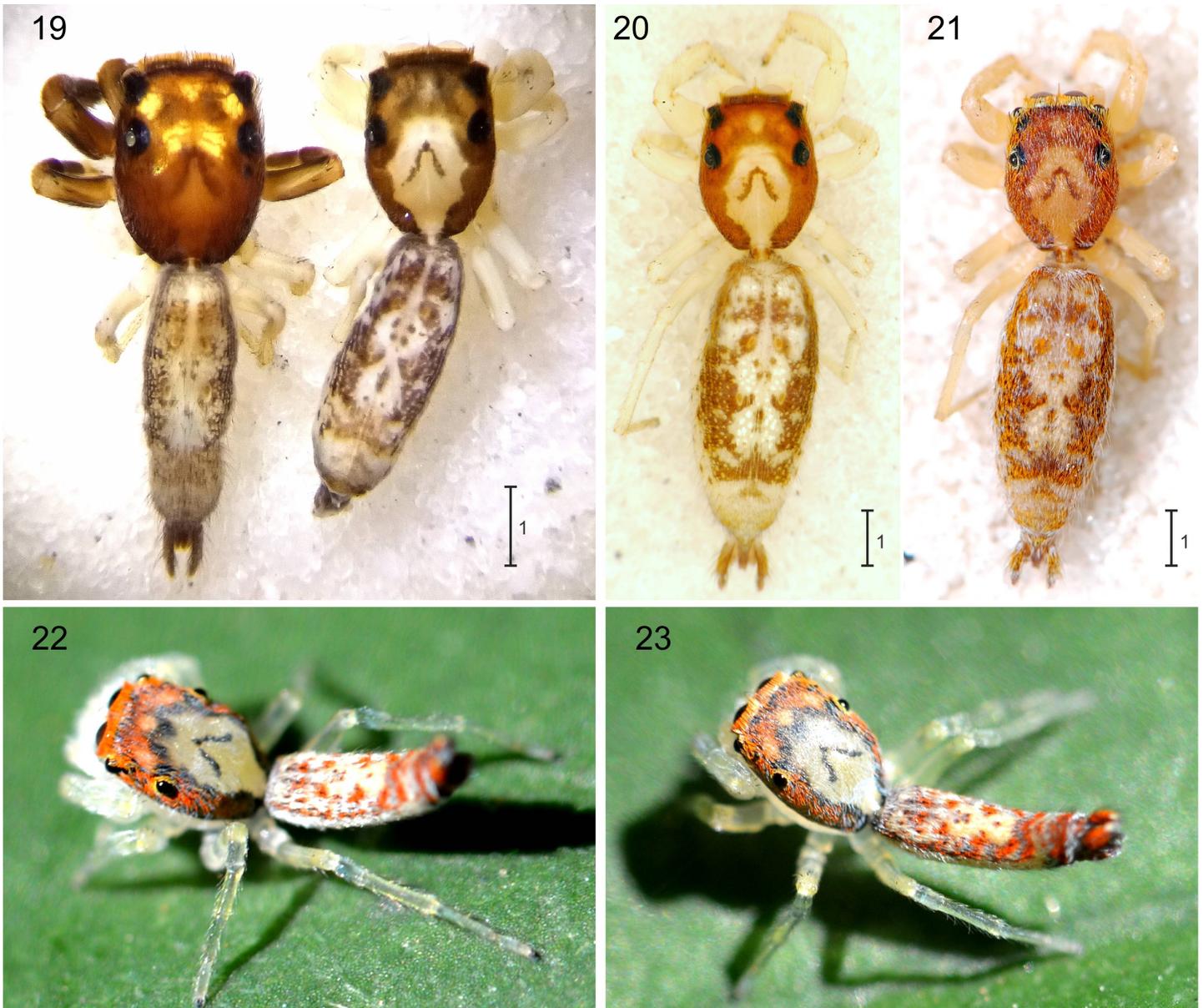
Figures 13-18. Male of *Ceriomura lacinia* sp. nov. (holotype IBSI-Ar 1191). **13**, Habitus dorsal. **14**, Left palp, ventral view. **15**, Same, drawn. **16**, Same, photo retrolateral view. **17**, Same, dorsal. **18**, Same, prolateral.

Female (misassigned paratype of *C. damborskyae* IBSI-Ar 0254): For full description see Rubio & Baigorria (2016: 270, fig. 2). Habitus as in Figures 20-23.

Natural history. Specimens were sampled in small-fruit crop surrounded by primary growth forest with many creepers.

Distribution. Only known from northeast of Misiones, Argentina.

Other material examined. 1 female (IBSI-Ar 0254), from Argentina, Misiones, Karadya Bio-Reserve (S25.859°, W53.961°, 404 m a.s.l.), 10 November 2014, J. Baigorria coll.; 1 male subadult (IBSI-Ar 1823) same locality and coll., 15 October 2018.



Figures 19-23. Dorsal habitus of *Ceriomura lacinia* sp. nov. specimens. 19, Male and subadult male in ethanol. 20, Same, female. 21, Same, dry. 22-23, Photographs from nature of an immature.

Tribe **Thiodinini** Simon, 1901
Genus *Thiodina* Simon, 1900

***Thiodina tefyta* Rubio, Baigorria & Stolar, sp. nov.**

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Figures 24-39

Type material. Female holotype (IBSI-Ar 1663) from Argentina, Salta, National Route 81, near Hickmann (S23.1904°, W63.6401°), 3 December 2021, C. Stolar coll. Paratypes: 3 males, 2 females (IBSI-Ar 1757) from Argentina, Salta, Animaná (S25.9684°, W65.9531°), 8 July 2022, same coll.

Note. Due the reduced body size and the general appearance, *T. tefyta* **sp. nov.** could be part of the *minuta* group proposed by Bustamante and Ruiz (2017), with *T. minuta* (Galiano, 1977), *T. perian* Bustamante & Ruiz, 2017, *T. camilae* Bustamante & Ruiz, 2020 and *T. tyrioni* Bustamante & Ruiz, 2020.

Etymology. The specific name is a contraction of *Estefanía*, referring to the daughter of the first author; the gender is feminine.

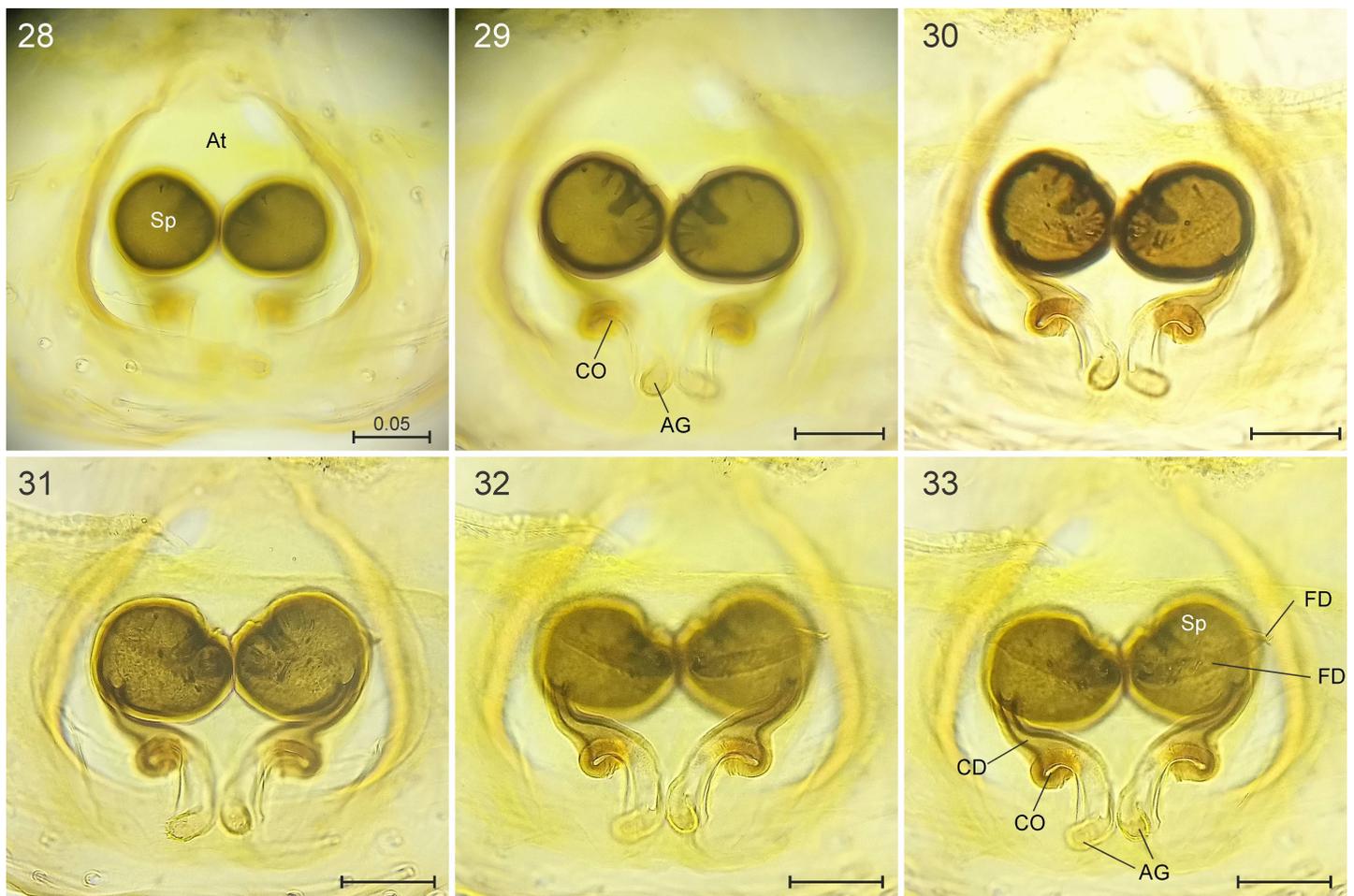


Figures 24-27. Female of *Thiodina tefyta* **sp. nov.** (holotype IBSI-Ar 1663). 24, Habitus frontal. 25, Same, dorsal. 26, Same, ventral. 27, Same, lateral.

Diagnosis. *Thiodina tefyta* **sp. nov.** resembles the other *Thiodina* in having a pattern of dark/clear longitudinal stripes on the abdomen, like *T. firme* Bustamante & Ruiz, 2017 and *T. minuta* somewhat discontinued (Figures 25, 27); also resembles the other *Thiodina* in the general pattern of female genitalia. Females of *T. tefyta* **sp. nov.** are easily distinguished from other *Thiodina* by having a more circular atrium, as long as wide, in the other *Thiodina* being wider than long and with a horseshoe shape (except in *T. minuta* which is oval), and by having more spherical spermathecae (Figures 28-33). Male resembles that of *T. nicoleti* Roewer, 1951 in the general

structure of copulatory organ, but can be distinguished from this by having a shorter, slightly straighter embolus, not resting proximally on the bulb, and by having a keel on the outer portion of the paturon of each chelicera; it also differs by having a different dorsal abdominal pattern; compare Figure 34 in this paper with fig. 1 in Bustamante et al. (2015).

Description. Female (holotype). Carapace length 1.41; abdomen length 1.84. Carapace (Figures 24-25, 27) light brown-orange, slightly darker on thoracic slope, covered evenly with few recumbent black separate setae and with creamy feathery hairs (visible in life). Eyes rimmed with black. Clypeus with white setae, most visible in living specimen. Chelicerae pale, vertical, with a slight convexity on the anterior middle of the paturon, and a few setae near claw; four promarginal and two to three (left) retromarginal teeth. Palps and legs yellowish-pale colored, without rings. Abdomen dorsum pale yellow, with one longitudinal brown stripe, sides with brown spots aligned longitudinally (in dorsal view as three stripes), venter and spinnerets pale yellow (Figure 26). Epigyne with a conspicuous atrium from which two spermathecae are clearly visible, and short copulatory ducts posteriorly and dorsally connected (Figures 28-33).



Figures 28-33. Cleared epigyne of *Thiodina tefyta* sp. nov. (holotype IBSI-Ar 1663). **28**, Ventral view. **29-30**, Same, different focus. **31**, Same, dorsal view. **32-33**, Same, different focus.

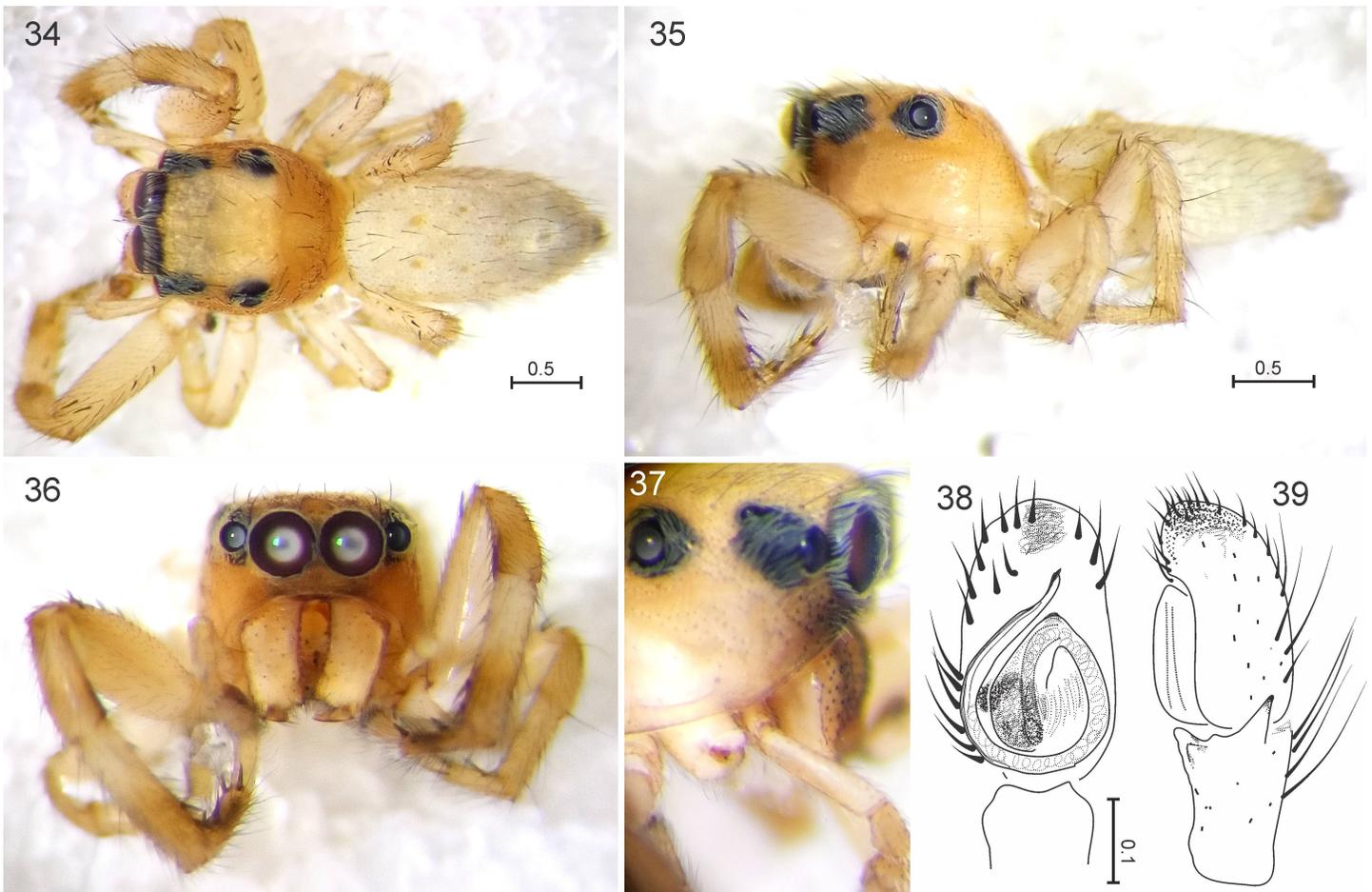
Male (paratype) IBSI-Ar 1757. Carapace length 1.45; abdomen length 1.80. Carapace (Figures 34-36) as in the female. Clypeus brown, with few translucent setae. Chelicerae vertical, spine-like setae on the anterior face of the paturon, a depression on inner portion and a keel on the outer portion of the paturon of each chelicera; three promarginal teeth and one (absent right) retromarginal tooth. Palps and legs yellowish-pale colored, without rings. Palp small, bulb spherical; small vRTA, something square; RTA thin, with the tip curved pointing to dorsum of cymbium; cymbium small, barely protruding from bulb; embolus fixed to tegulum, arising

prolaterally; embolus tip with a small curvature (Figures 38-39). Abdomen dorsum pale yellow, homogeneous, without marks, covered evenly with few black scattered setae; the other paratypes as the female holotype. Venter and spinnerets pale yellow (Figure 35).

Natural history. Specimen was sampled with beating on xerophilous shrubs.

Distribution. Known from central and northwest Argentina, in Salta, Tucumán and Córdoba provinces.

Other material examined. 1 male, 2 females, 1 subadult male (IBSI-Ar 1756) from Argentina, Tucumán, Rincón de Quilmes (S26.4814°, W66.0638°), 10 July 2022, C. Stolar coll.; 1 male (IBSI-Ar 1859) from Córdoba, Capital (S31.3384°, W64.1304°), July 2015, morphospecies #45 in Argañaraz's doctoral thesis, C. Argañaraz coll.



Figures 34-39. Male of *Thiodina tefyta* sp. nov. (paratype IBSI-Ar 1757). **34**, Habitus dorsal. **35**, Same, lateral. **36**, Same, frontal. **37**, Right anterolateral carapace. **38**, Left palp, ventral view. **39**, Same, retrolateral.

Tribe **Dendryphantini** Menge, 1879

Genus ***Lumptibiella*** Rubio, Baigorria & Stolar, 2022

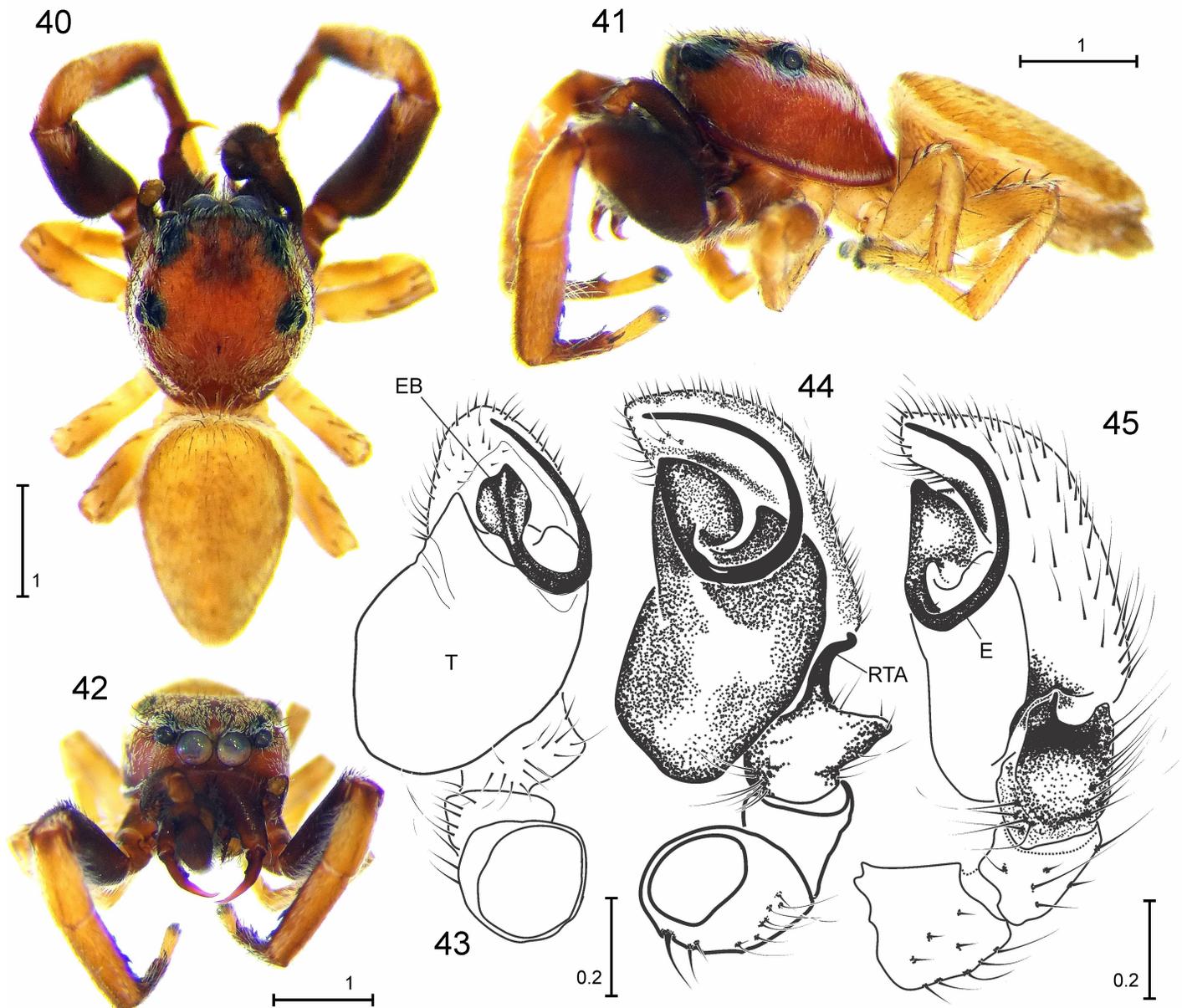
***Lumptibiella demagistrisi* Rubio, Baigorria & Stolar, sp. nov.**

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Figures 40-49

Type material. Male holotype (IBSI-Ar 1879) from Argentina, Buenos Aires, Partido de la Costa, Punta Médanos (S36.8884°, W56.7021°), 28 November 2022, A. De Magistris coll. Paratype: 1 female (IBSI-Ar 1873) from Partido de la Costa, San Clemente Del Tuyú, Reserva Municipal Punta Rasa (S36.3205°, W56.7566°), same date and collector.

Etymology. The specific name is a patronym in honor of Dr. Alberto Antonio De Magistris, great friend, devoted conservationist and better scientist who collected many salticid species in Argentina, and helped preserve several areas that they inhabit.

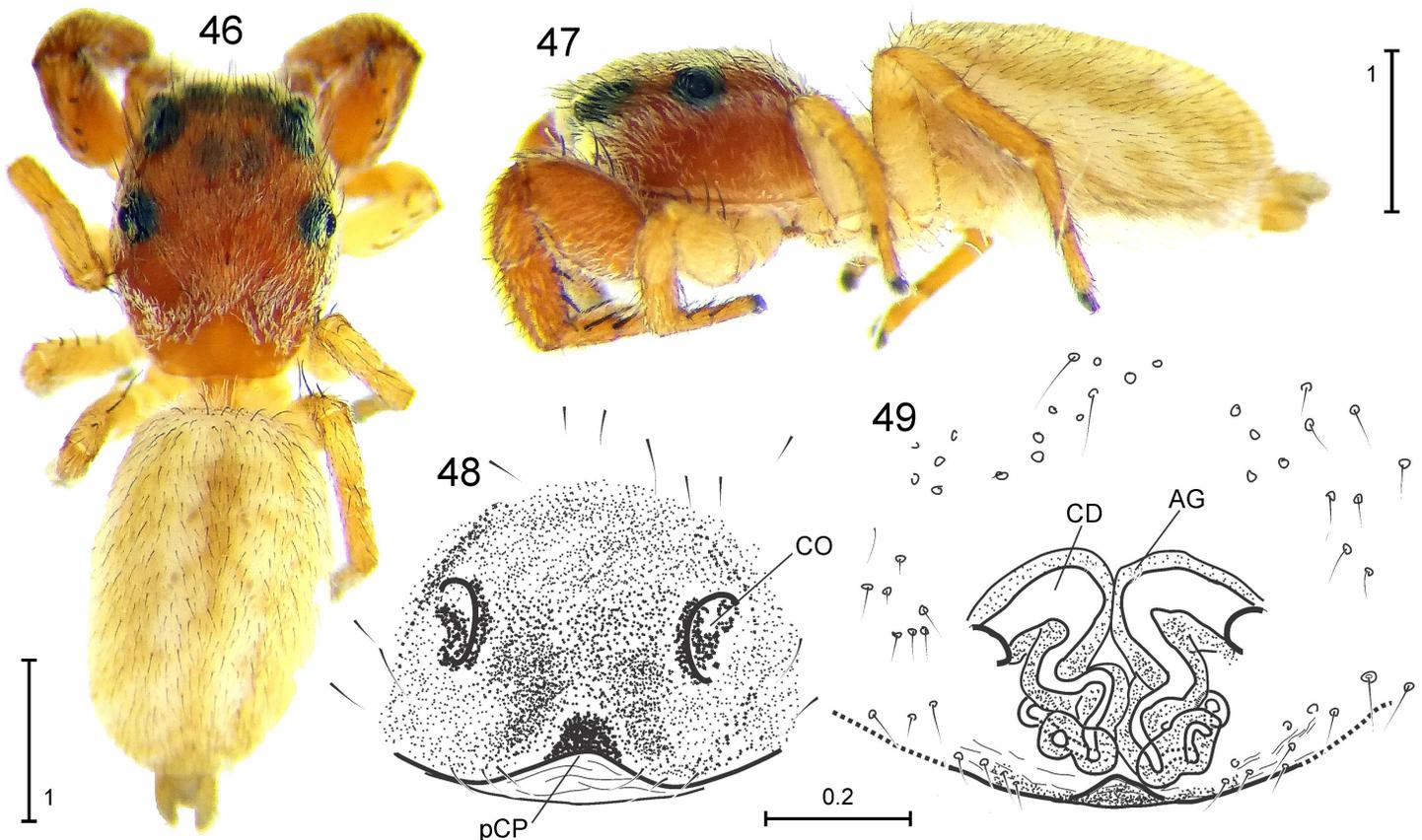


Figures 40-45. Male of *Lumptibiella demagistrisi* sp. nov. (holotype IBSI-Ar 1879). **40**, Habitus dorsal. **41**, Same, lateral. **42**, Same, frontal. **43**, Left palp, ventral view. **44**, Same, retroventral. **45**, Same, retrolateral.

Diagnosis. *Lumptibiella demagistrisi* sp. nov. resembles *L. camporum* Rubio, Baigorria & Stolar, 2022 and *L. chacoensis* Rubio, Baigorria & Stolar, 2022 in having the RTA with an elongated, double curved nail shape and the lump tibial process pointed (Figure 44), and *L. camporum* in having the embolus longer, with a loop of one turn (unique to these two species) and the female anterior stretch of CD non-sclerotized first section (Figure

49); but *L. demagistrisi* **sp. nov.** differs from those mentioned and the other of the genus by having a sclerotized drop-shaped embolus base (EB) (Figures 43-45; compare with illustrations in Metzner, 2023) and COs that enter laterally to the CD stretch (not anteriorly) (Figures 48-49; compare with illustrations in Metzner, 2023); the female also differs from *L. camporum* in the absence of an atrium.

Description. Male (holotype IBSI-Ara 1879). Carapace length 2.08, width 1.70; abdomen length 2.28. Carapace (Figures 40-42) mahogany, orange, with a darker spot in the middle between the ALE and PLE; covered with a few translucent scale-like setae and slightly longer black hairs; eye area trapezoidal with PEs wider than AEs, eyes rimmed in black. Two lines of conspicuous white setae, each from the ALE to the thoracic slope passing below the PEs. Thoracic slope pronounced. Clypeus dark brown, narrow with some long hairs, somewhat aligned. Chelicerae vertical; one large promarginal tooth and two retromarginal teeth (one very large and one very small), claw with a conspicuous medial anterior tooth (Figure 42). Palp dark brown, blackish; cymbium with black scattered hairs, lighter, shorter and denser at the apex, with an apical retrolateral groove where the embolus fits (Figures 43-44). RTA with nail shape of broad base when seen dorsally, and another lump-shaped process on the tibia retrolateral side. Embolus long, with a loop of one turn, sclerotized with a drop-shaped basal part (EB), tip towards apex (Figure 43). Legs II to IV light brown colored; leg I stronger, femur blackish, same on ventral side of tibia and metatarsus, tarsus pale. Abdomen yellowish orange, in dorsal view bordered by a conspicuous band of white setae that closes completely at the level of the anal tubercle (Figures 40-41).



Figures 46-49. Female of *Lumpitibiella demagistrisi* **sp. nov.** (paratype IBSI-Ar 1873). 46, Habitus dorsal. 47, Same, lateral. 48, Epigyne, ventral view. 49, Same, cleared.

Female (paratype). Carapace length 1.90, width 1.52; abdomen length 2.60. Carapace (Figures 46-47) orange, light brown, with two slightly darker spots in the middle between the PME and PLE, covered with a few translucent scale-like setae (more on sides and thoracic slope) and isolated black hairs; eye area trapezoidal as

in male. Thoracic slope pronounced. Clypeus narrow with numerous scaly yellow hairs, aligned. Chelicerae vertical; two promarginal teeth and one retromarginal tooth. Palps and legs light brown, forelegs slightly darker. Abdomen pale, slightly darker on the cardiac area. Epigyne (Figures 48-49) medium size plate, sclerotized, without atrium, a small posterior pocket inverted U-shaped (Figure 48). CDs starting in two COs that enter laterally in a broad stretch and directed first medially then posteriorly with some coils. Spermatheca very small, somewhat spherical, located posteriorly.

Natural History. Inhabits grasslands between low sand dunes.

Distribution. Only known from Partido de la Costa, in Buenos Aires.

Other material examined. 1 male (IBSI-Ar 1874) from Argentina, Buenos Aires, Partido de la Costa, Punta Médanos (S36.8884°, W56.7021°), 28 November 2022, A. De Magistis coll.; 1 female (IBSI-Ar 1876) from Partido de la Costa, San Clemente Del Tuyú, Reserva Municipal Punta Rasa (S36.3205°, W56.7566°), 27 November 2022, same coll.

Genus *Zygoballus* Peckham & Peckham, 1885

***Zygoballus chekokue* Rubio, Baigorria & Stolar, sp. nov.**

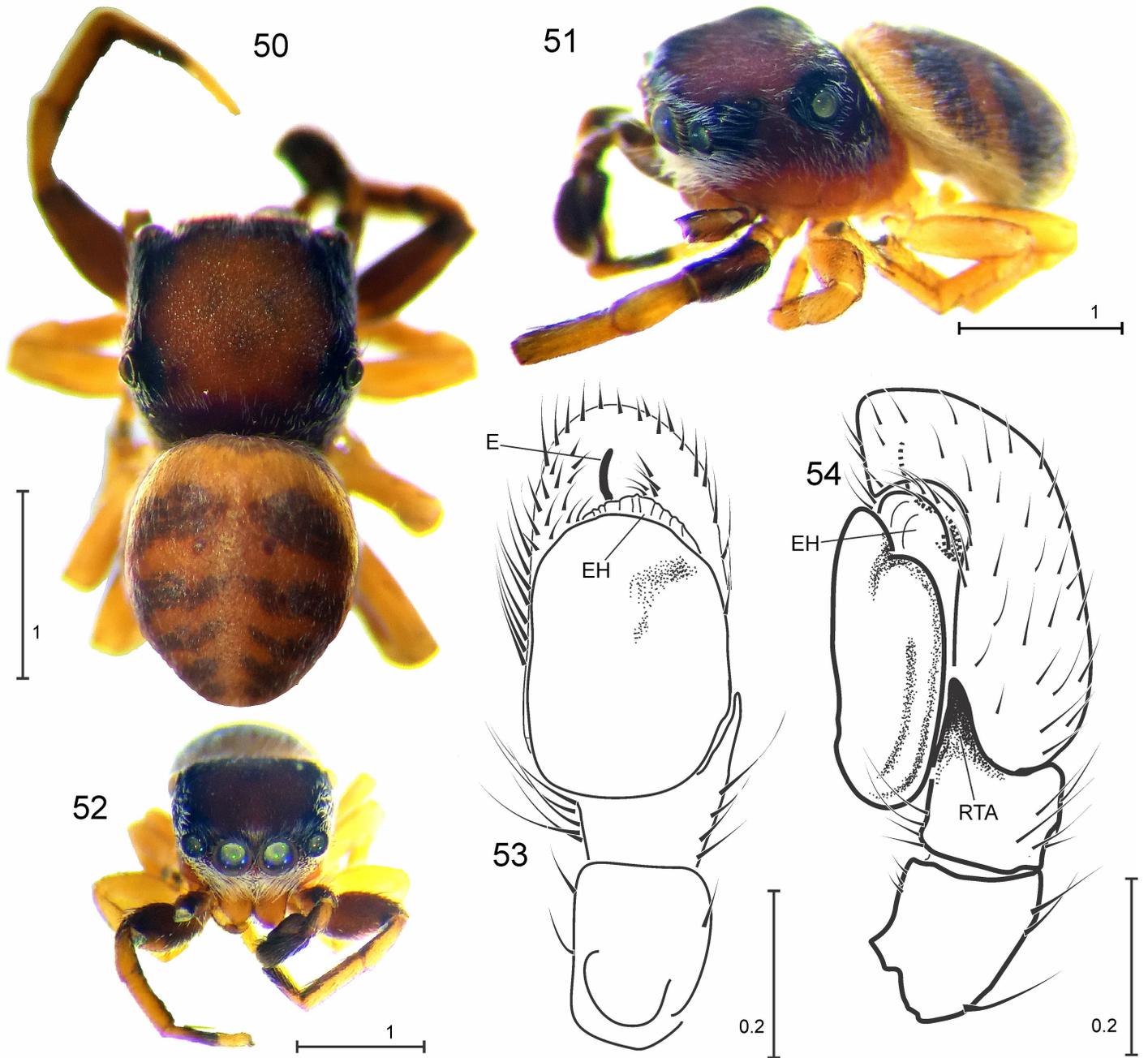
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Figures 50-61

Type material. Male holotype (IBSI-Ar 1592) from Argentina, Misiones, Candelaria, Urutaú Natural Reserve (S27.4802°, W55.7925°), 5 February 2021, G. Rubio, J. Baigorria & C. Stolar coll. Paratypes: 1 male, 1 female (IBSI-Ar 0638) from Corrientes, Iberá, Cambyretá (S27.8586°, W56.8735°), 7 November 2013, G. Avalos coll.

Etymology. The specific name *chekokue* is an indigenous Guaraní word combination meaning *that live in my farm* (*kokue* refers to a farm or field).

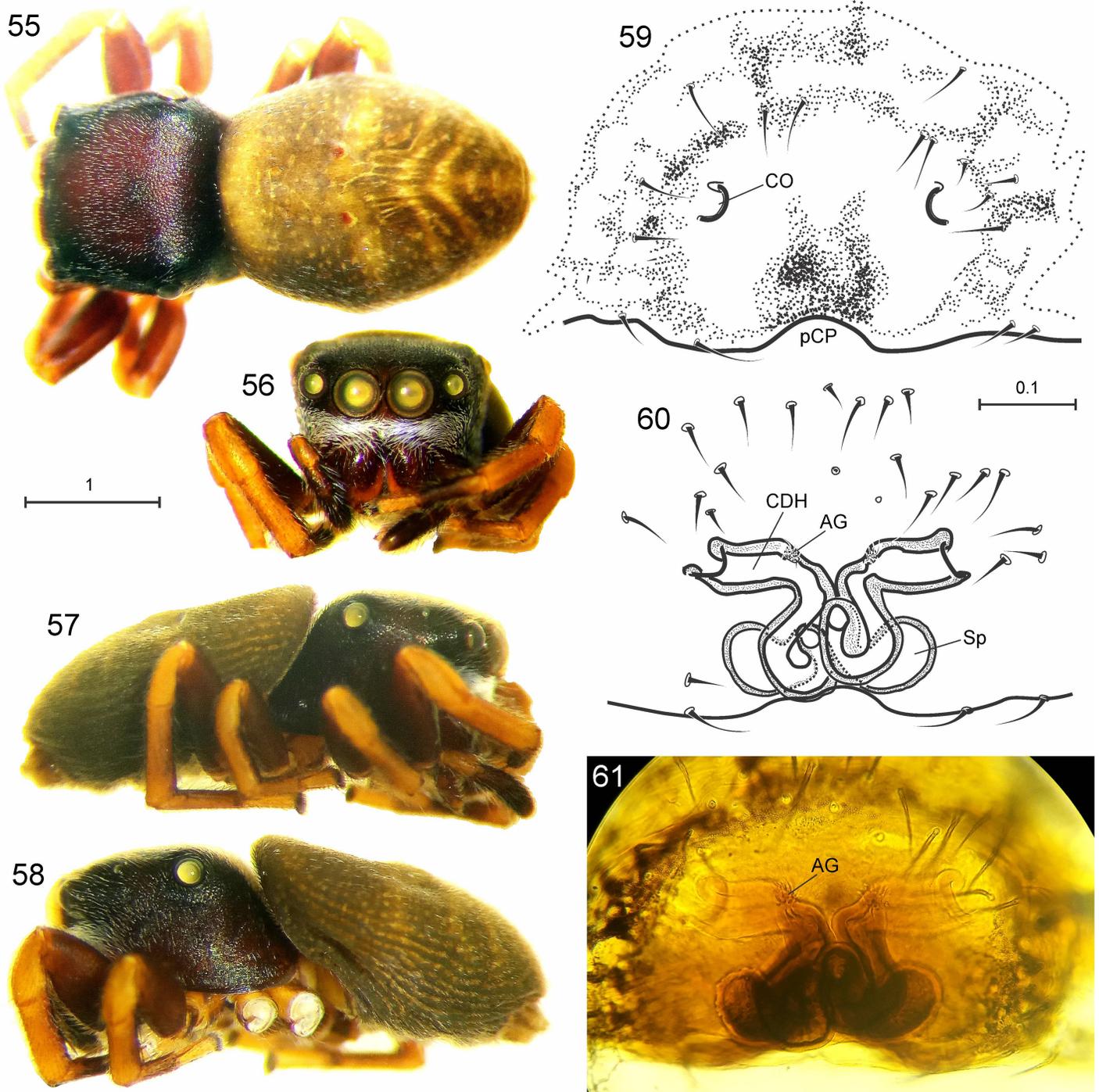
Diagnosis. Specimens of *Z. chekokue* sp. nov. resemble *Z. rufipes* Peckham & Peckham, 1885 and *Z. minutus* Peckham & Peckham, 1896 in having a thin embolus emerging behind the embolic haematodocha (EH), being barely visible, and a bulb relatively elongate, ovoid (Figure 53); the female resembles *Z. rufipes* in having a similar epigynal plate and duct scheme: CDs enter laterally in a broad stretch and directed first medially then posteriorly with some coils (Figures 59-61). *Zygoballus chekokue* sp. nov. can be distinguished from other congeners by the unique abdominal pattern of orange and yellowish brindle coloration (Figures 50, 55), and from *Z. rufipes* by the small, non-projecting male chelicerae and the shorter, somewhat right-angled scheme of the CDs (Figures 52, 60; compare with illustrations in Metzner, 2023).

Description. Male (holotype). Carapace length 1.45, width 1.27; abdomen length 1.70. Carapace (Figures 50-52) dark mahogany, darker on the eyes and lighter towards basal edges; rough integument, something granulated, covered with translucent setae; eye area trapezoidal with PEs wider than AEs, with the PLE area highest, and the thoracic slope very pronounced. Clypeus medium 0.15, with numerous scaly white hairs, aligned towards the chelicerae. Chelicerae light brown, small, vertical; two promarginal teeth and one retromarginal tooth (hard to see). Sternum orange. Palp dark brown, cymbium blackish with scattered hairs, denser at the apex. RTA small, with nail shape. Embolus short, thin, emerging behind the embolic haematodocha (EH), being barely visible, tip towards the apex and ventrally directed (Figure 53). Legs II to IV light brown, orange; leg I darker, mainly femur and metatarsus (Figures 51-52). Abdomen dark brown, mahogany, with some stripes and chevrons orange colored (Figures 50-51). Live specimens present a bluish-gray coloration with conspicuous red legs, and the stripes observed in preserved specimens are almost imperceptible.



Figures 50-54. Male of *Zygoballus chekokue* sp. nov. (holotype IBSI-Ar 1592). **50**, Habitus dorsal. **51**, Same, dorsolateral. **52**, Same, frontal. **53**, Left palp, ventral view. **54**, Same, retrolateral.

Female (paratype). Carapace length 1.80, width 1.62; abdomen length 2.50. Carapace (Figures 55-58) dark brown, blackish, darker on the eyes; rough integument, something granulated, covered with a few translucent setae; eye area trapezoidal as in male; thoracic slope also as in male. Clypeus medium 0.22, with numerous scaly white hairs, aligned towards the chelicerae. Chelicerae mahogany, small, vertical; two promarginal teeth and one bicuspid retromarginal tooth. Sternum reddish brown. Palps and legs orange brown, femurs and metatarsus darker. Abdomen dark gray, with some spots and chevrons yellowish colored (Figure 55). Epigyne (Figures 59-61) small plate, sclerotized; without atrium, a small posterior coupling pocket on the epigastric furrow (Figure 59). Two conspicuous submedial COs, the CD enter laterally in a broad stretch of the CDH (see Edwards 2015) with accessory gland on the duct (Figures 60-61). Spermatheca small, somewhat spherical, located posteriorly; fertilization ducts not visible.



Figures 55-61. Female of *Zygoballus chekokue* sp. nov. (paratype IBSI-Ar 0638). **55**, Habitus dorsal. **56**, Same, frontal. **57**, Same, lateral right. **58**, Same, lateral left. **59**, Epigyne, ventral view. **60**, Same, cleared. **61**, Same, photo.

Natural History. Specimens from southern Misiones were collected within the ecoregion known as Southern Cone Mesopotamian Savanna. The species is apparently restricted to wetlands, to tall and well-preserved humid grasslands, dominated by *Sorghastrum* and *Andropogon* grasses.

Distribution. Mesopotamia Argentina, in the Campos and Malezales ecoregion (southern Misiones) and Iberá wetlands (Corrientes).

Other material examined. 1 female (IBSI-Ar 0635) from Argentina, Corrientes, Iberá, Cambyretá (S27.8586°, W56.8735°), 7 November 2013, G. Avalos coll.; 1 male (IBSI-Ar 0659), same data as above; 1 male (IBSI-Ar 1700) from Misiones, Candelaria, Santa Cecilia Ranch (S27.4507°, W55.7171°), 7 December 2021, J. Baigorria coll. **Material examined for comparison.** Female holotype (Museo de La Plata –MLP 16785) of *Gastromicans sexpunctata* (= *Zygoballus melloleitaoi* Galiano, 1980) from Argentina, Misiones, Puerto Victoria, May 1941, C. Zenzes coll.

Tribe **Aelurillini** Simon, 1901

Genus *Akela* Peckham & Peckham, 1896

***Akela scaloneta* Rubio, Baigorria & Stolar, sp. nov.**

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Figures 62-72

Type material. Male holotype (IBSI-Ar 1838) from Argentina, Misiones, Candelaria, Urutaú Natural Reserve (S27.4802°, W55.7925°), 5 February 2021, G. Rubio, J. Baigorria & C. Stolar coll. Paratypes: 1 male, 1 female (IBSI-Ar 1579), same data as holotype.

Etymology. The specific name is a noun (nickname) in apposition that refers to the Argentina's national team of soccer, a sort of symbolic van with the coach Lionel Scaloni at the wheel.

Diagnosis. Males of *A. scaloneta* sp. nov. differ from those of other *Akela* species by having an embolus thin and long, and one tooth on the promargin of the chelicerae (Figures 64-65; compare with illustrations in Metzner, 2023). Females resemble those of *A. charlottae* Peckham & Peckham, 1896 in having two coupling pockets, but differ from this and any other *Akela* by having longer copulatory ducts making a complete turn (Figures 71-72; compare with illustrations in Metzner, 2023).

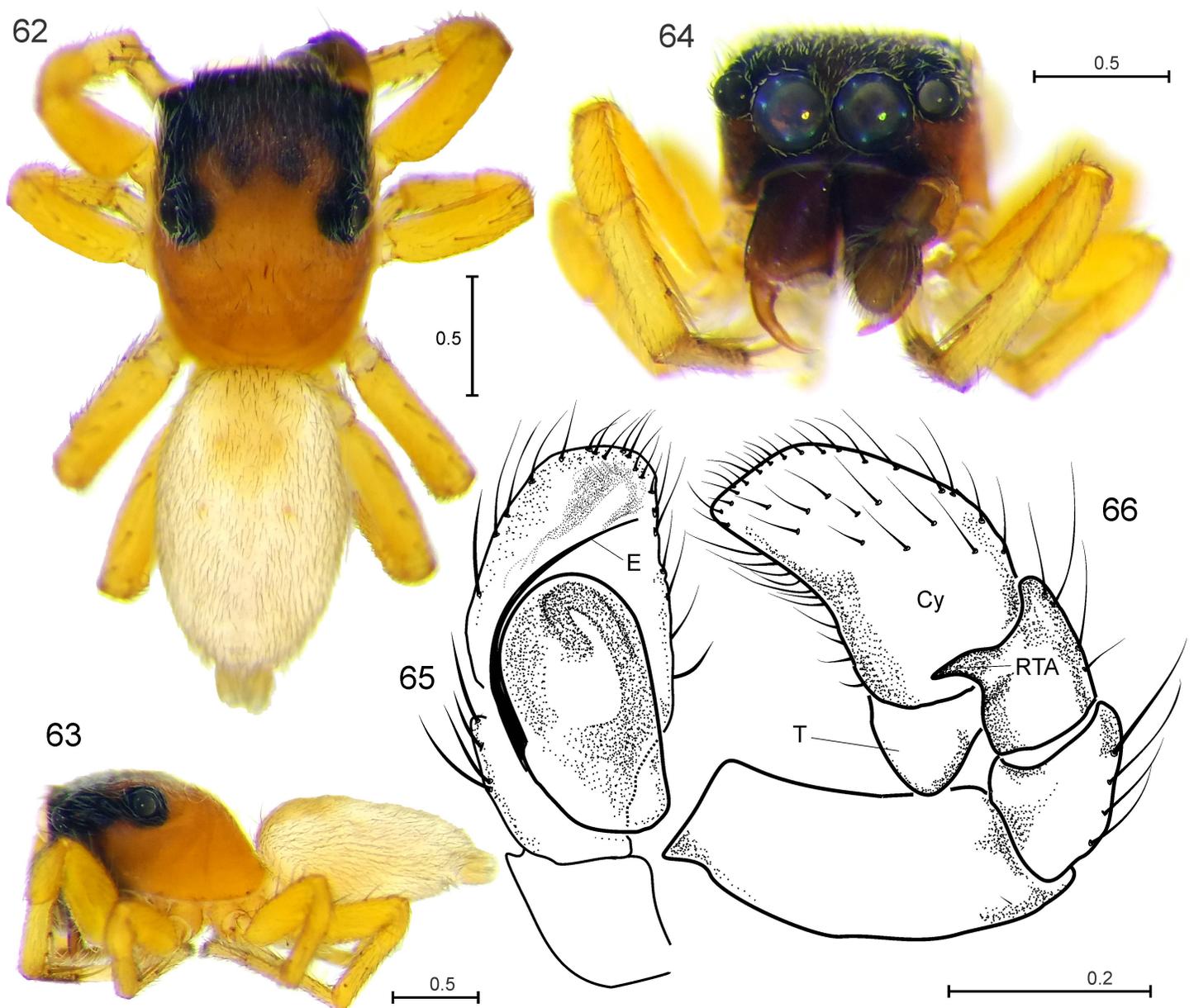
Description. Male (holotype). Carapace length 1.27, width 0.94; abdomen length 1.25. Carapace (Figures 62-64) intense orange color, cephalic region black, except among PLEs which is orange (dorsal view), covered with small translucent white hairs, thoracic slope covered with few black separate setae. Clypeus low, black. Anterior face of chelicerae dark brown, blackish, the rest brown; outer edge of the paturon with a keel; one promarginal tooth and one retromarginal tooth. Legs without rings, yellow colored, palps darker, something orange. Palp small, bulb elongated; embolus thin and long, arising and fixed prolaterally to tegulum, embolus tip on apex retrolaterally; RTA small, with the tip curved pointing ventrally; bulb protruding basally from the cymbium. Abdomen dorsum pale yellow, homogeneous, covered evenly with many grey scattered setae; venter and spinnerets pale yellow (Figures 62-63).

Female (paratype). Carapace length 1.37, width 1.04; abdomen length 2.00. Carapace (Figures 67-69) light brown, yellowish orange, cephalic region black-greyish, except among PLEs which is light brown, hairiness as in the male. Clypeus low, light brown-yellow. Chelicerae light brown; two promarginal teeth and one retromarginal tooth. Palps and legs light brown, yellowish-orange colored, without rings. Abdomen dorsum as in male, darker posteriorly (completely darker when in life), venter and spinnerets pale yellow (Figure 68). Epigyne with a small plate, slightly sclerotized, two coupling pockets (CP) and two spermathecae barely visible (Figure 70), copulatory duct making a complete turn (e.g. left CD clockwise when viewed ventrally) and dorsally connected to each spermatheca (Figures 71-72).

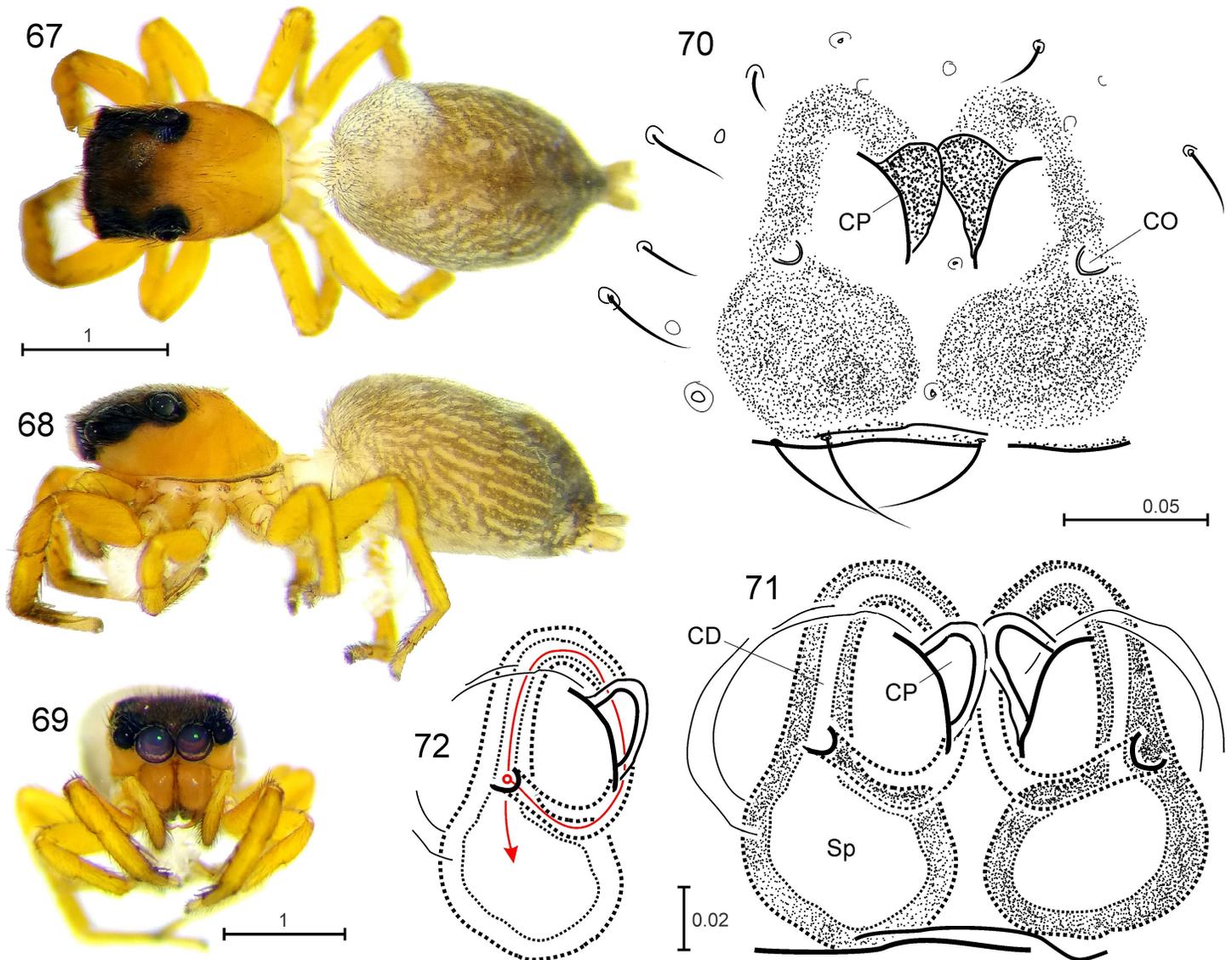
Natural history. *Akela scaloneta* **sp. nov.** was found at Urutaú Natural Reserve, within the ecoregion known as Southern Cone Mesopotamian Savanna. All individuals were collected at dry restored grassland at former grazing plots, dominated by tall grass species like *Sorghastrum* and *Paspalum*, mixed with medium sized bushes like *Baccharis dracunculifolia*. Cattle and fire were absent from the area for at least 5 years before the sampling. The spiders were collected at the lower section of grass species, always near the ground.

Distribution. Only known from northeast of Argentina, in the south of Misiones.

Other material examined. 2 males, 2 females (IBSI-Ar 1612) from Argentina, Misiones, Candelaria, Urutaú Natural Reserve (S27.4802°, W55.7925°), 5 February 2021, G. Rubio, J. Baigorria & C. Stolar coll.



Figures 62-66. Male of *Akela scaloneta* **sp. nov.** (holotype IBSI-Ar 1838). **62,** Habitus dorsal. **63,** Same, lateral. **64,** Same, frontal. **65,** Left palp, ventral view. **66,** Same, retrolateral.



Figures 67-72. Female of *Akela scaloneta* sp. nov. (paratype IBSI-Ar 1579). 67, Habitus dorsal. 68, Same, lateral. 69, Same, frontal. 70, Epigyne, ventral view. 71, Same, cleared. 72, Same, CD course detail.

Genus *Philira* Edwards, 2015

***Philira toroi* Rubio, Baigorria & Stolar, sp. nov.**

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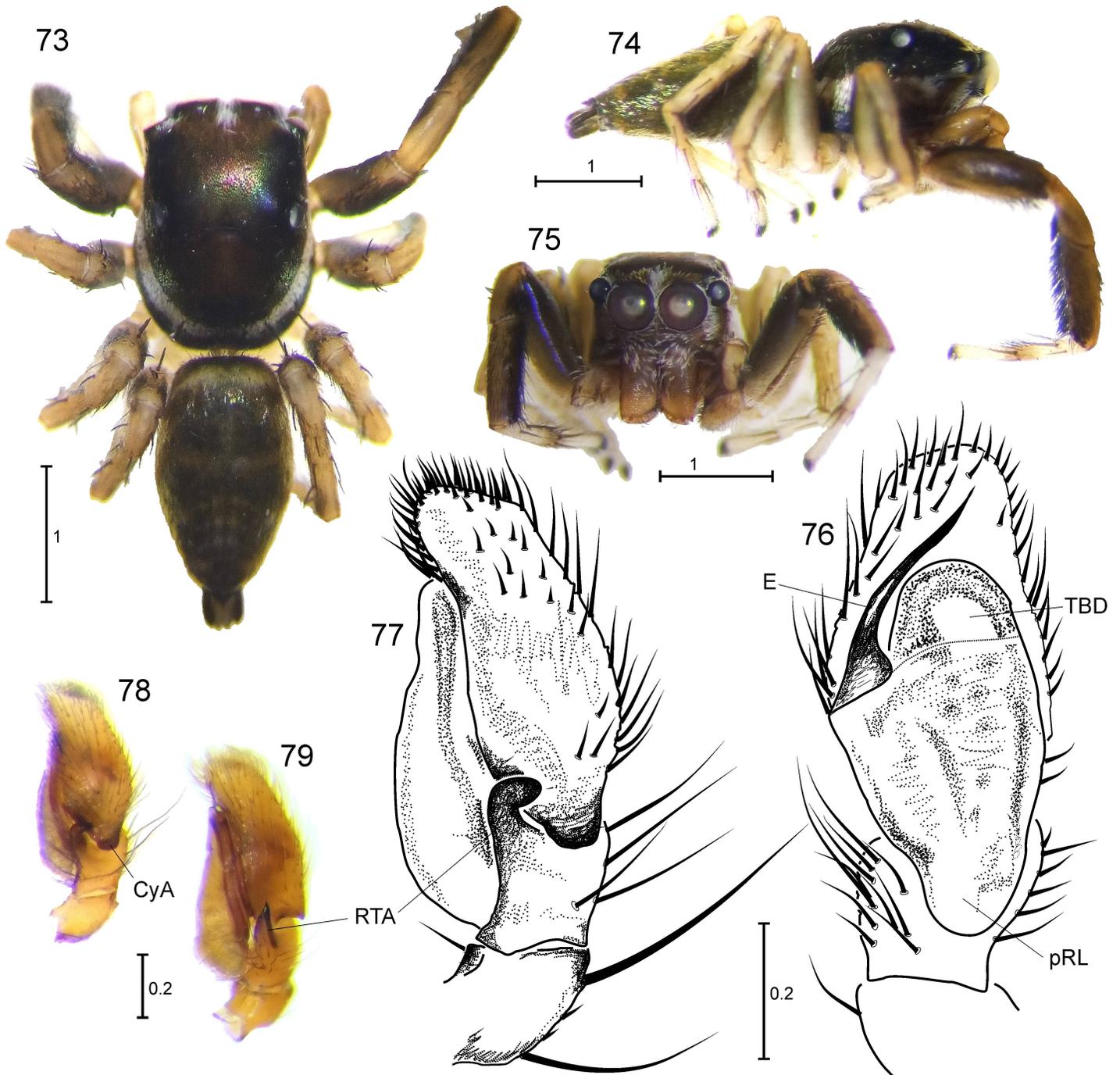
Figures 73-88

Type material. Male holotype (IBSI-Ar 1709) from Argentina, Jujuy, Fraile Pintado (S23.9394°, W64.8068°), 22 February 2022, A. Toro coll. Female allotype (IBSI-Ar 1821), same data as holotype.

Etymology. The specific name is a genitive patronym in honor of Alejandro Toro, who found and collected the type specimens.

Diagnosis. The male of *P. toroi* sp. nov. can be easily distinguished from that of *P. micans* (Simon, 1902) by the presence of a finger-shaped RTA directed dorsally towards the cymbial proximodorsal apophysis (compare Figures 77-79). The female of *P. toroi* sp. nov. is distinguished from *P. micans* by having shorter CDs, with its lateral course closer to the spermatheca (farther apart in *P. micans*), and by having the COs closer together

(farther apart in *P. micans*) (compare Figures 83-88). The female also differs from that of *P. superba* (Caporiacco, 1947) by the dorsal abdominal pattern: *P. superba* with dark markings oriented longitudinally and joined at posterior part (Caporiacco 1948: fig. 142), while *P. toroi* **sp. nov.** has markings oriented transversely, and clearly separated at posterior part (Figure 80).

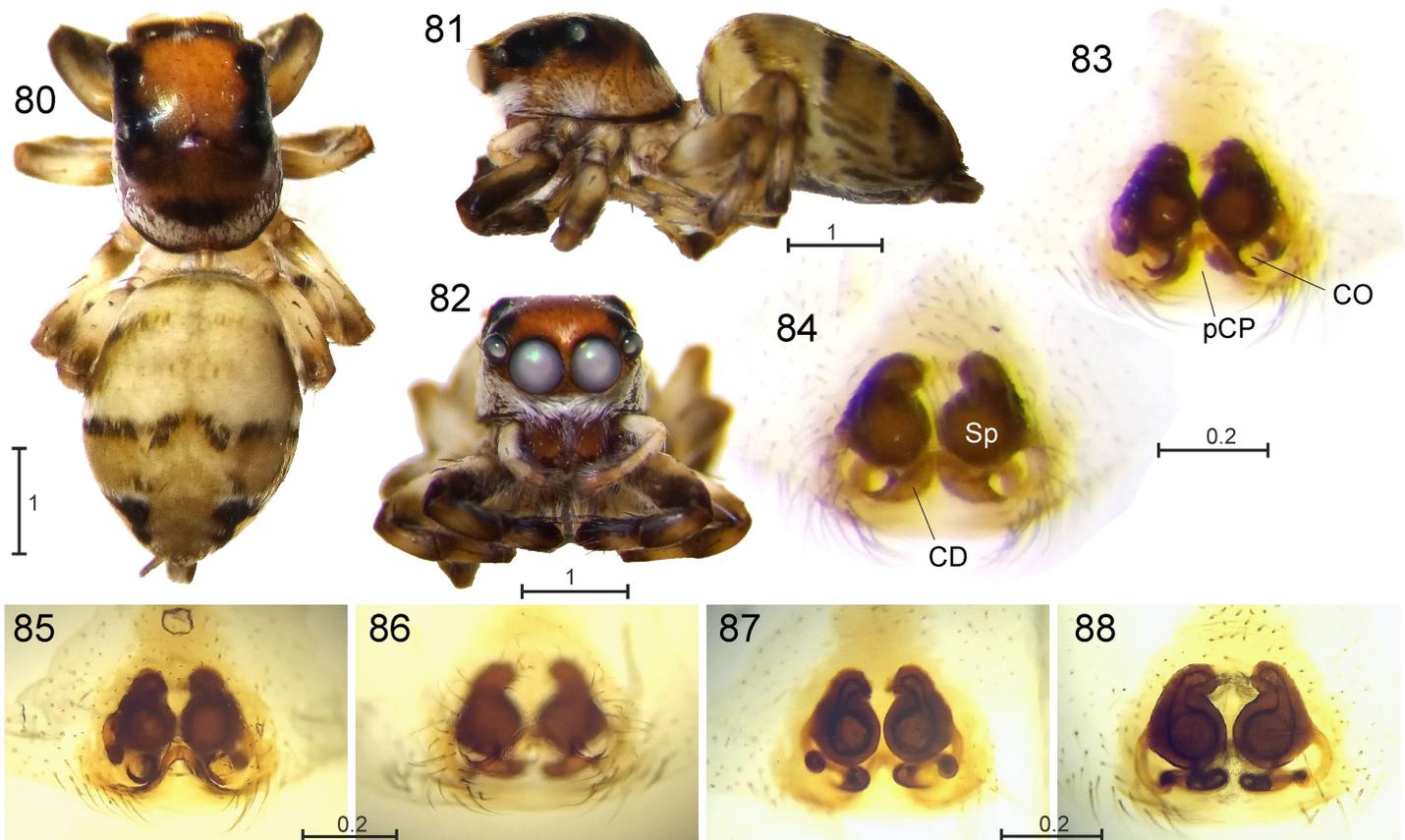


Figures 73-79. 73-78, Male of *Philira toroi* **sp. nov.** (holotype IBSI-Ar 1709). 73, Habitus dorsal. 74, Same, lateral. 75, Same, frontal. 76, Left palp, ventral view. 77, Same, retrolateral. 78, Same, photo. 79, Same, *Philira micans* (IBSI-Ar 1564) for comparison.

Description. Male (holotype). Carapace length 1.90; abdomen length 1.75. Carapace (Figures 80-82) very dark brown, blackish with a broad stripe of white hairs (submarginal band) from each AME to join at thoracic slope; a tuft of white hairs over and between the AMEs. Clypeus brown, with a few feathery white setae, somewhat translucent. Chelicerae brown, lighter at the apex of the paturon, vertical, with feathery white setae

near the clypeus. Two promarginal teeth and one retromarginal tooth. Palp light brown, with a conspicuous RTA; cymbium with proximodorsal apophysis (CyA) (Figures 77-78). Tegulum divided, with the border between TBD and TDD transverse in ventral view. TDD with pRL wide. Embolus curved, arises from prolateral side, sclerotized with broad base (Figure 76). Conspicuous finger-shaped RTA, with the apex more sclerotized and directed dorsally on the cymbium. Legs pale yellow, brownish, darker in femora, patellae and tibiae; the first pair with a conspicuous ventral fringe of black setae on the tibia and patella. Abdomen (Figures 73-74) uniform color scheme, metallic greenish, with a pale submarginal anterior band. Lightly marked chevrons on posterior dorsal half. Anal tubercle and spinnerets blackish color, except the median spinnerets (pale yellow).

Female (allotype). Carapace length 2.15; abdomen length 2.93. Carapace (Figures 80-82) orange color, darkened on eyes part and on the thoracic slope, with a white broad submarginal band from each AME to join at thoracic slope; a tuft of white hairs over and between the AMEs. Clypeus densely covered with white feathery hairs. Chelicerae brown, with a few feathery setae near clypeus; teeth as in male. Palps and legs pale yellow, brownish; distally dark ringed on each segment, the first pair darker. Abdomen pale yellow covered with golden scales, with paired transversely-oriented bands and spots (Figures 80-81). Epigyne with two posterolateral COs and a large pCP between them; CDs relatively short, meander posteriorly and laterally, entering the spherical spermathecae from the lateral side (Figures 83, 85, 87).



Figures 80-88. 80-83, 85, 87, Female of *Philira toroi* sp. nov. (allotype IBSI-Ar 1821). 80, Habitus dorsal. 81, Same, lateral. 82, Same, frontal. 83, Cleared epigyne, ventral view under stereomicroscope. 85, Same, under microscope. 87, Same, dorsal view. 84, Cleared epigyne of *Philira micans* (IBSI-Ar 0617) for comparison, ventral view under stereomicroscope. 86, Same, under microscope. 88, Same, dorsal view.

Note. The original illustration of the epigyne of *P. superba* is deficient, so it has not been possible to make a reliable comparison; nor has the type material been accessed for examination. However, the dorsal pattern of the abdomen of *P. superba* plus its original description are very different from that of this new species.

Natural history. Specimen was sampled on shrubs at the edge of a forest in a matrix with annual crops.

Distribution. Only known from northwest Argentina, from the type locality (Jujuy).

Other material examined for comparison. *Philira micans*: 1 female (IBSI-Ar 0617) from Argentina, Salta, Cabra Corral dam (S25.2861°, W65.4273°), G-Vacuum sampling, 6 March 2007, G. Rubio coll.; 1 male, 1 female (IBSI-Ar 1564) from Argentina, Misiones, Candelaria, Urutaú Nature Reserve (S27.4802°, W55.7925°), beating, 6 February 2021, G. Rubio, J. Baigorria & C. Stolar coll.

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