



## **New Neotropical Saicinae: new species of *Buninotus* Maldonado Capriles, *Caprilesia* Gil-Santana, Marques & Costa, and *Pseudosaica* Blinn (Hemiptera: Reduviidae)**

**Valentina Castro-Huertas, Dimitri Forero & María Cecilia Melo**

To cite this article: Valentina Castro-Huertas, Dimitri Forero & María Cecilia Melo (2022): New Neotropical Saicinae: new species of *Buninotus* Maldonado Capriles, *Caprilesia* Gil-Santana, Marques & Costa, and *Pseudosaica* Blinn (Hemiptera: Reduviidae), *Annales de la Société entomologique de France (N.S.)*, DOI: [10.1080/00379271.2022.2147864](https://doi.org/10.1080/00379271.2022.2147864)

To link to this article: <https://doi.org/10.1080/00379271.2022.2147864>



Published online: 20 Dec 2022.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

## New Neotropical Saicinae: new species of *Buninotus* Maldonado Capriles, *Caprilesia* Gil-Santana, Marques & Costa, and *Pseudosaica* Blinn (Hemiptera: Reduviidae)

Valentina Castro-Huertas <sup>a\*</sup>, Dimitri Forero <sup>b</sup> & María Cecilia Melo <sup>a</sup>

<sup>a</sup>CONICET, División Entomología, Museo de La Plata, Universidad Nacional de La Plata, Paseo del Bosque s/n B1900FWA, La Plata, Buenos Aires, Argentina; <sup>b</sup>Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia

(Accepté le 9 novembre 2022; publié en ligne le 20 décembre 2022)

**Summary.** *Buninotus palikur* n. sp. (French Guiana), *Caprilesia napuruna* n. sp. (Ecuador), *Caprilesia sikuani* n. sp. (Colombia), and *Pseudosaica charrua* n. sp. (Argentina) are described. Detailed descriptions of coloration patterns, external morphology and genitalia are offered and discussed for each genus and species. Digital images of external morphological characters and of the genitalia are provided. Updated keys to the species of *Buninotus*, *Caprilesia*, and *Pseudosaica* are presented to facilitate the identification of the species.

**Résumé.** Nouveaux Saicinae néotropicaux : nouvelles espèces de *Buninotus* Maldonado Capriles, *Caprilesia* Gil-Santana, Marques & Costa, et *Pseudosaica* Blinn (Hemiptera : Reduviidae). *Buninotus palikur* n. sp. (Guyane française), *Caprilesia napuruna* n. sp. (Équateur), *Caprilesia sikuani* n. sp. (Colombie) et *Pseudosaica charrua* n. sp. (Argentine) sont décrits. Des descriptions détaillées des motifs de coloration, de la morphologie externe et des organes génitaux sont proposées et discutées pour chaque genre et espèce. Des photographies des caractères morphologiques externes et des organes génitaux sont fournies. Des clés mises à jour des espèces de *Buninotus*, *Caprilesia* et *Pseudosaica* sont présentées pour faciliter l'identification des espèces.

<https://zoobank.org/60839D75-6775-44DF-B234-FE79F6B19046>

**Keywords:** Heteroptera; morphology; Neotropical region; taxonomy; South America

Saicinae comprises 25 genera and 155 species worldwide (Putshkov & Putshkov 1985; Maldonado Capriles 1990; Gil-Santana & Marques 2005; Melo & Coscarón 2005; Gil-Santana 2011; Gil-Santana et al. 2015, 2020). Morphologically, this group is characterized by the absence of ocelli; the second visible segment of the labium is bulbous and expanded basally; the labium and the gular region have usually spiniform setae; and the presence of the scopula on the tarsi (Melo & Coscarón 2005; Gil-Santana et al. 2015; Schuh & Weirauch 2020). Eleven genera are known from the Neotropical region (Gil-Santana 2011; Gil-Santana et al. 2015, 2020), the remaining taxa being distributed in the Afrotropical, Australian and Oriental regions (Villiers 1969, 1979; Rédei & Tsai 2009, 2010), more than half of all genera being monotypic. In the Neotropical region, the most diverse genera are *Oncerotrachelus* Stål, 1868 (14 species) and *Saica* Amyot & Serville, 1843 (13 species) (Gil-Santana et al. 2015, 2020), and six genera are monotypic: *Bagriella* McAtee & Malloch, 1923, *Buninotus* Maldonado Capriles, 1981, *Caprilesia* Gil-Santana,

Marques & Costa, 2006, *Kiskeyana* (Weirauch & Forero, 2007b), *Quasitagalis* Gil-Santana, Oliveira & Zampaulo, 2020, and *Saicireta* Melo & Coscarón, 2005.

The biology and natural history for most Saicinae are poorly or totally unknown. A few species are commonly collected at light traps (Melo & Coscarón 2005; Weirauch et al. 2014; Gil-Santana et al. 2015; Schuh & Weirauch 2020); *Tagalis evavilmae* Gil-Santana et al., 2010 is an inhabitant of birds' nests (Gil-Santana et al. 2010, 2015); *Tagalis inornata cubensis* McAtee and Malloch, 1923 and *Kiskeyana palassaina* (Weirauch & Forero 2007a) were found in leaf litter (Blinn 2008; Weirauch & Forero 2007a); *Quasitagalis afonsoi* Gil-Santana, Oliveira & Zampaulo, 2020 is an inhabitant of caves; *Polytoxus esakii* Ishikawa & Yano, 1999 was collected in grass; and Japanese species of *Polytoxus* Spinola, 1850 were found associated with monocot plants (Ishikawa & Yano 2002; Ishikawa & Okajima 2003). Weirauch & Forero (2007a) surmised that the scopula holds on to smooth plant surfaces. Beyond this information, at least for the

\*Corresponding author. Email: valeoptera@gmail.com

Neotropical Saicinae fauna, the biology is practically unknown.

In this paper, we describe four new species belonging to *Buninotus*, *Caprilesia*, and *Pseudosaica* Blinn, 1990. The monotypic genus *Buninotus* is characterized by having the first visible labial segment with spiniform setae ventrally; the pronotum with four protuberances, one pair on the anterior region and posterior region; the humeral angles projected into long spines; the scutellum with a long, inclined process; the procoxae, profemora and protibiae with spiniform setae; the protibiae curved; and the forewings with four closed cells. *Buninotus niger* Maldonado Capriles, 1981 was described based on a female collected from Fortuna, Chiriquí (Panama), and the male is unknown. *Caprilesia* is characterized by the protuberant posterior lobe of the head; all visible labial segments with spiniform setae ventrally; the anterior lobe of the pronotum with paired anterior and posterior protuberances; the humeral angles, scutellum and mesoscutum with spines; the procoxae, profemora and protibiae with spiniform setae; the protibiae curved, and the forewings with two closed cells. *Caprilesia almirantiana* Gil-Santana, Marques & Costa, 2006 was described based on a female collected in Bahia (Brazil), and the male is unknown. *Pseudosaica* is characterized by the long spines on humeral angles, mesoscutum, and scutellum; in males, the posteromedial process of the pygophore is an acute protruding process; in females, the abdominal sclerites 8 and 9 are nearly horizontally positioned, and the anterior margin of proepisternal supracoxal lobe projecting into a subconical process. The genus is composed of two species, *Pseudosaica panamaensis* Blinn, 1990 (Panama, Argentina), the type species, and *P. florida* (Barber, 1953) (USA and Brazil). These species are differentiated by the coloration pattern, wing venation, and slight variations in the posteromedial process of pygophore, but the structure of the phallus is still unknown (Blinn 1990; Gil-Santana & Marques 2005).

In this paper, the new species described are *Buninotus palikur* n. sp. (from French Guiana), *Caprilesia napuruna* n. sp. (from Ecuador), *Caprilesia sikuaní* n. sp. (from Colombia), and *Pseudosaica charrua* n. sp. (from Argentina), for which images of the external morphology and genitalia are provided; and updated keys to the species of *Buninotus*, *Caprilesia*, and *Pseudosaica* are presented.

## Material and methods

### Examined specimens

The examined specimens are deposited in the following entomological collections: Jean-Michel Bérenger, personal collection, France (JMB); Museo Javeriano de Historia Natural, Pontificia Universidad Javeriana, Bogotá, Colombia (MPUJ ENT); Museo de la Plata, La Plata, Argentina (MLPA); Muséum national d'Histoire naturelle, Paris, France (MNHN); Museo de Entomología de la Universidad del Valle, Cali, Colombia

(MUSENUV); Pontificia Universidad Católica de Ecuador, Quito, Ecuador (QCAZ); and Smithsonian Tropical Research Institute (STRI). In the examined material, the acronym SEAG corresponds to the Société entomologique Antilles Guyane.

When citing label data, a slash indicates a separate label. Labels are cited verbatim, only the date of collection has been transcribed to be in the format of the journal, and the missing geographic coordinates are included between square brackets.

### Genitalia dissections and imaging

Dissection and imaging of genital structures follow Forero & Weirauch (2012). Dissected structures were documented with a Canon EOS Rebel T7i digital camera (Taiwan), equipped with Helicon Remote software v3.9.11W (Heliconsoft 2020, [www.heliconsoft.com/heliconsoft-products/helicon-focus](http://www.heliconsoft.com/heliconsoft-products/helicon-focus)), and stacked in Helicon focus v8.1.0. Adobe Photoshop CS6 v13.1.2 (Adobe Inc. 2019, [www.adobe.com/products/photoshop.html](http://www.adobe.com/products/photoshop.html)) was used to adjust image light levels and create composite image plates.

### Measurements

Measurements were taken with an ocular micrometer and are given in millimeters. Maximum and minimum values and total averages are provided for *Buninotus palikur* n. sp.

### Terminology

For external structures, we follow Weirauch & Forero (2007a), Weirauch (2008a) and Schuh & Weirauch (2020). For labial segments, we follow Weirauch (2008a, 2008b), in which the first visible labial segment is actually the second labial segment, including dorsal and ventral definitions of the labium. For genitalia, we follow the terminology of Forero & Weirauch (2012), Castro-Huertas & Forero (2014) and Varela & Melo (2017).

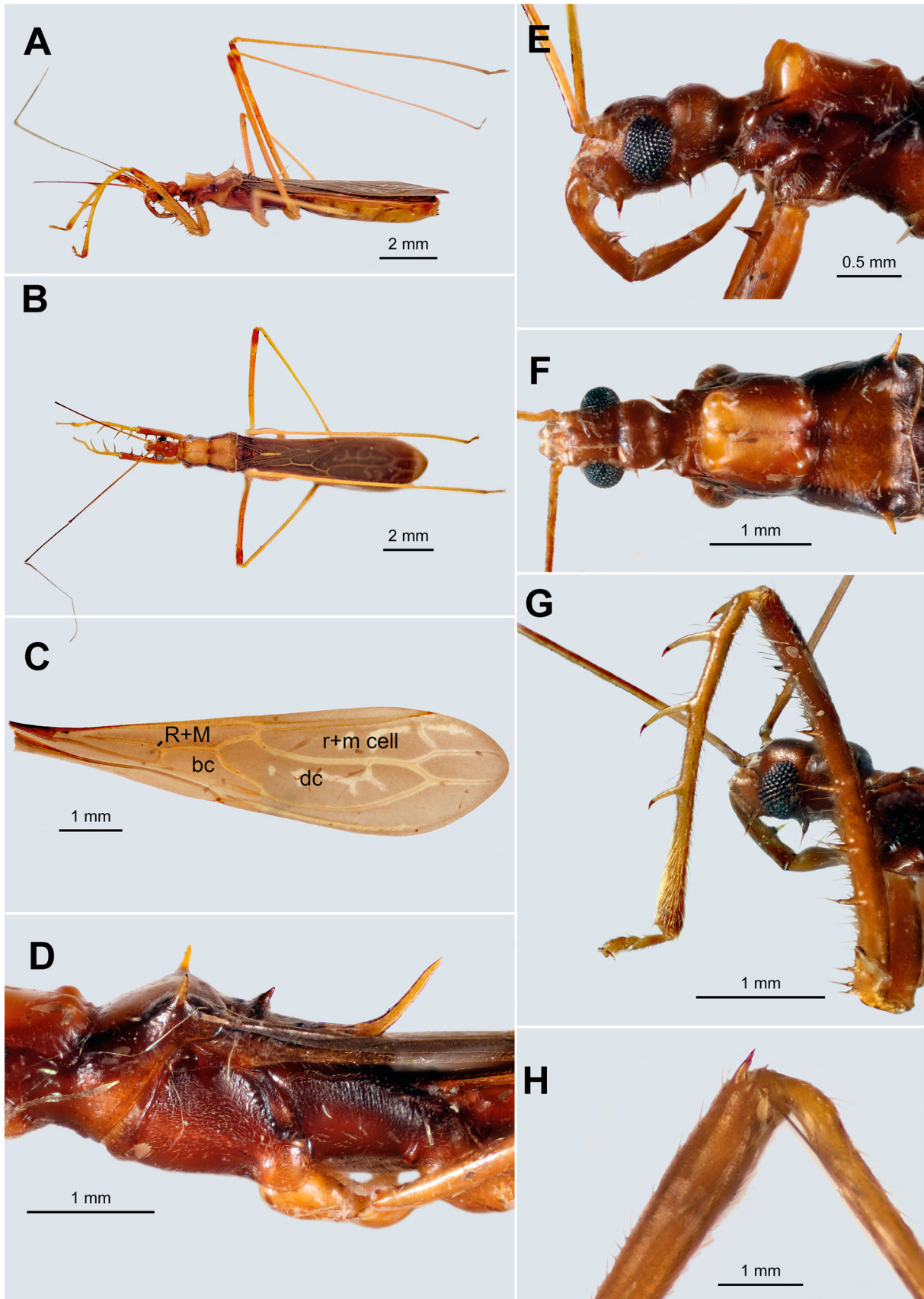
Cuticular processes are very important taxonomic characters to distinguish genera in Saicinae. Weirauch & Forero (2007a) discussed two distinct types of processes found on the proleg armature of Saicinae and its different names across several studies, which they denoted “spines” for elongate integumental processes with a short apical seta, and “setae” for simple and stout setae inserted on the flat integument. While examining Saicinae specimens for this study, we found similar cuticular processes on the ventral surface of the head and labium, which we called here “spiniform setae” and “strong setae”, respectively. We argue that both types of processes are setae and not simple multicellular cuticular projections (i.e. spines) (Richards & Richards 1979), thus calling some of them “spines” would be misleading. These two types of setae differ by the thickness of the seta itself and the structure of the cuticle surrounding its base as argued by Weirauch & Forero (2007a). Setae without thickening are called “simple setae” or “setae”. Furthermore, this new terminology will help us code homologous characters for future phylogenetic analyses.

## Results and discussion

### *Buninotus palikur* n. sp. (Figures 1, 2)

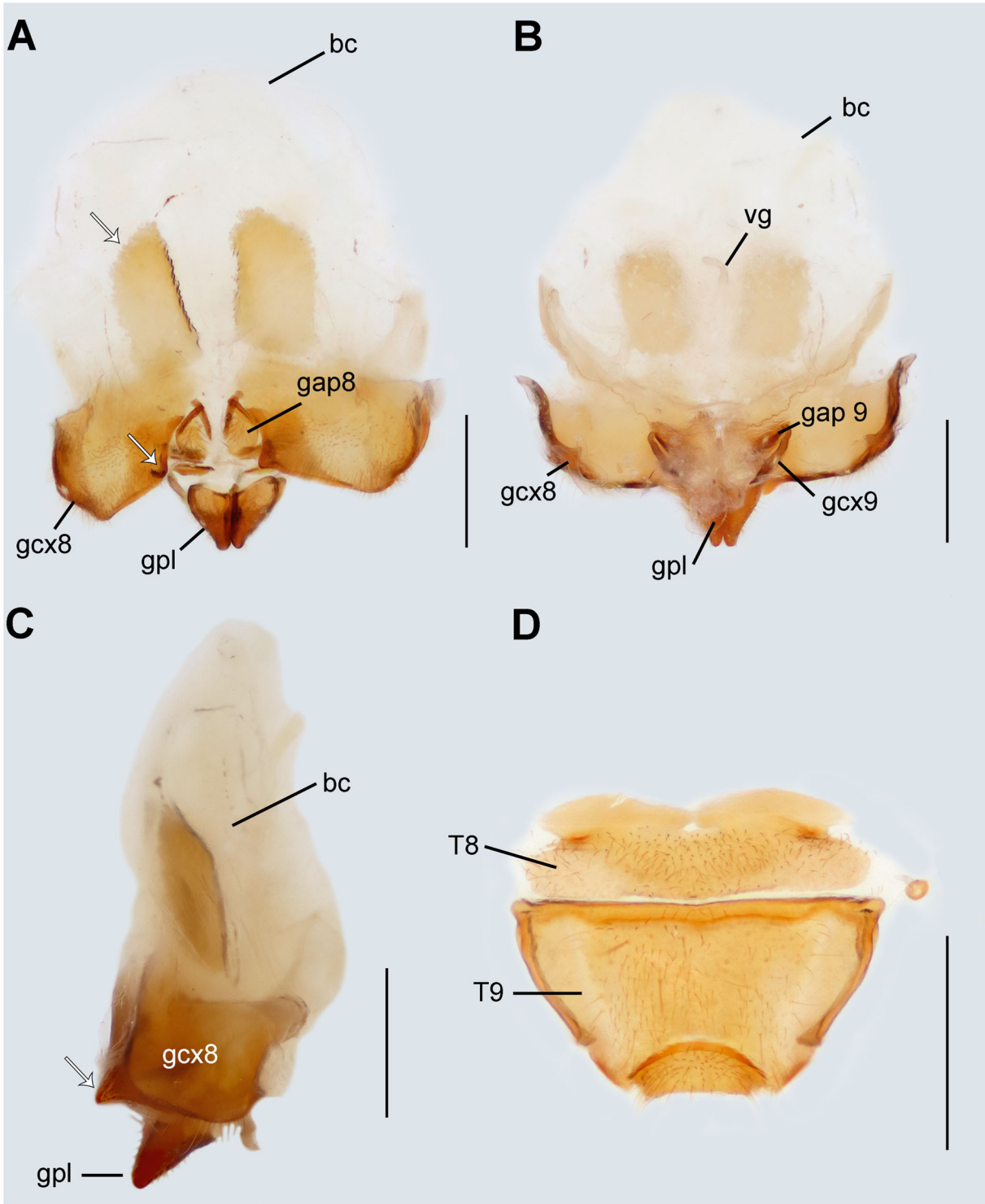
#### Type material

**Holotype.** ♀, French Guiana: Saül [3°37'N 53°12'W], 1.VII.2008, PL, SEAG réc / *Buninotus palikur* Castro-Huertas, Forero & Melo 2022 (MNHN).



**Figure 1.** *Buninotus palikur* n. sp., female holotype. **A**, lateral view; **B**, dorsal view; **C**, forewing; **D**, meso- and metathorax, lateral view; **E**, head and anterior pronotal lobe, lateral view; **F**, head and prothorax, dorsal view; **G**, proleg, lateral view; **H**, apex of mesofemur, spiniform process. Abbreviations: bc, basal cell; dc, discal cell; R + M, radial and medial veins; r + m cell, radial and medial cell.





**Figure 2.** *Buninotus palikur* n. sp., female genitalia. **A**, ventral view; **B**, dorsal view; **C**, lateral view; **D**, tergites 8 and 9, caudal view. Abbreviations: bc, bursa copulatrix; gap8, gonapophysis 8; gap9, gonapophysis 9; gcx8, gonocoxa 8; gcx9, gonocoxa 9; gpl, gonoplac; T8, tergite 8; T9, tergite 9; vg, vermiform gland. Scale bars: 0.5 mm. White arrows indicate diagnostic characters for the species: bursa copulatrix with a pair of sclerites medially and process of the posterior angle of gonocoxa 8.

**Paratypes.** French Guiana: 1♀, Kaw, PK 37.5, Malaise, 29.XII.2001, Cerda, J. leg. (MLPA); 1♀, Mt Chevaux, 11.VII.2009, vitre, SEAG réc (JMB); 1♀, Mt des Chevaux,

7.XI.2011, Piège vitre, SEAG réc (JMB); 1♀, Patawa, PK37, malaise, 3.IV.2002, J. Cerda leg. (JMB); 1♀, Nouragues I, 23.II.2011, Vitre Camp, SEAG réc (JMB).

**Additional examined material of *Buninotus niger***

**Panama.** 1♀, Panama Province, Barro Colorado Is, 20.V.2012, (8°59'N 79°33'W), Light trap LT-WHE1-MAY2012-A, Bobadilla, Rodríguez, Hernández, Pérez / BCI53469 (STRI); 1♀, 14.XI.2012, (9°9'17"N 79°50'53" W), Light trap LT-ARM4-NOV2012-A, Bobadilla, Rodríguez, Hernández, Pérez / BCI63348 (STRI); 1♀, Light trap LT-ARM3-NOV2012-A, Bobadilla, Rodríguez, Hernández, Pérez / BCI62746 (STRI); 1♀, 5–6.IX.2013, (8°59'N 79°33'W), Light trap LT-WHE1-SEP2013-B, Bobadilla, Pérez, Bonilla, López / BCI76588 (STRI).

**Diagnosis**

Recognized by the pale brown anterior and medial regions of the pronotum (Figure 1B, F); the forewings hyaline brown with whitish spots (Figure 1C); the protuberances on the anterior region of the prothorax slightly triangular (Figure 1E); the process formed by the medial posterior angle of gonocoxa 8 (Figure 2A, C); and the bursa copulatrix ventrally with a pair of medial rectangular sclerites (Figure 2A).

**Description of female**

**Measurements.** Holotype: total length: 10.70 (clypeus–apex of abdomen), 10.90 (clypeus–apex of membrane). Head width (across eyes): 1.00, length: 1.40. Antennal segments length: scape: 7.20, pedicel: 2.40, basiflagellomere: 2.60, distiflagellomere: 1.60. Labial segments length: first: 0.96, second: 0.56, third: 0.28. Prothorax width: 1.20, length: 2.30. Prolegs: procoxae: 1.30, profemora: 3.80, protibiae: 3.20 mm.

Paratypes (N = 5): total length: 9.50–11.40, 10.17 (clypeus–apex of abdomen), 9.70–11.60, 10.55 (clypeus–apex of membrane). Head width (across eyes): 0.80–1.10, 0.92, length: 1.20–1.40, 1.33. Antennal segments length: scape: 3.60–7.20, 4.63, pedicel: 1.80–2.60, 2.13, basiflagellomere: 2.00–2.60, 2.30, distiflagellomere: 0.90–2.10, 1.43. Labial segments length: first: 0.74–0.96, 0.85, second: 0.50–0.62, 0.55, third: 0.28–0.36, 0.32. Prothorax width: 1.20–1.60, 1.48, length: 1.80–2.30, 2.03. Prolegs: procoxae: 0.90–1.30, 1.13, profemora: 3.00–3.90, 3.52, protibiae: 2.70–3.20, 3.03.

**Coloration.** Head brown (Figure 1E, F). Antennae brown, scape pale brown. Labium pale brown, third visible labial segment brown.

Thorax brown (Figure 1D, F); medial region of anterior pronotal lobe and spines of humeral angles yellowish; proepisternal and proepimeral supracoxal lobes with a longitudinal dark brown band; spine on mesonotum brown; spine on metanotum yellowish. Legs pale brown (Figure 1A, B, G). Forewings semi-hyaline, uniformly brown (Figure 1C).

Abdomen pale brown (Figure 1A).

**Vestiture.** Body with fine and suberect setae. Head with paired spiniform setae on ventral margin of maxillary plate and adjacent to posteroventral eye margin (Figure 1E); gular region with four strong setae, one pair on anterior and posterior region, respectively. Scape with sparse, short setae. Labium: first segment with a pair of spiniform setae on ventral margin, second segment with a pair of strong setae on ventral margin, third segment glabrous.

Thorax dorsally with fine and suberect setae; proepisternal supracoxal lobe with a pair of anteroventral processes, a spiniform seta dorsally and a strong seta ventrally. Legs with scarce setae; procoxae with a dorsobasal, and three ventral spiniform setae; protochanters with four ventral spiniform setae; profemora with a row of five spiniform setae anterodorsally, as long as femoral width; ventral region with a row of five spiniform setae, about half femoral width, intermixed with dense decumbent setae and sparse erect, long setae (Figure 1G); protibiae with four anterodorsal spiniform setae on basal third, basal and apical ones less than twice longer than femoral width, middle ones about twice as long as femoral width (Figure 1G). Meso- and metalegs with simple setae, apex of the meso- and metafemora with a pair of short spiniform setae (Figure 1H); scopula present on apex of third tarsomere of all legs.

**Structure.** Head (Figure 1E, F): antocular region nearly as long as postocular region; postocular region globose, nearly as long as eye; interocular sulcus deep, almost straight; clypeus flat in lateral view. Eyes (Figure 1E, 1F) hemispherical in dorsal view, elongate in lateral view, not reaching dorsal and ventral margins of head. Labium (Figure 1E): first segment the longest; second segment basally swollen, about as long as third; third segment tapering towards apex.

Thorax (Figure 1A, D–F): pronotum longer than wide; anterior lobe subquadrate; disc rugose; anterior and posterior margins with a pair of lateral protuberances, anterior pair larger and more widely spaced than posterior pair of protuberances; posterior lobe trapezoidal, about as long as anterior lobe, disc rugose, posterior margin strongly emarginate; humeral angles projecting into spines; transverse furrow deeply impressed. Mesoscutum with broad base, medially depressed, laterally forming a ridge, apex truncated, tapering into a short spine (Figure 1D). Metanotum with a posterior long spine. Prosternum with a proepisternal process projected, apex pointed; stridulitrum narrow; prosternal process very small; mesosternum nearly as long as prosternum; metasternum slightly shorter than mesosternum. Legs (Figure 1G): Procoxae cylindrical; protochanters triangular; profemora thin; protibiae curved, apically slightly expanded, with flat protibial comb; tarsi three-segmented, basal segment longest, apical segment globose; claws simple, slender and curved. Meso- and metalegs similar in structure, meso- and metacoxae ovoid; meso- and metatrochanters triangular; meso- and

metafemora thinner than profemora; meso- and metatibiae slender; meso- and metatarsi similar to protarsi. Forewings with three closed cells; basal cell nearly trapezoidal and smaller, with a long prolongation of the R+M vein basally; discal cell oval elongated (Figure 1C).

Abdomen elongate ovoid (Figure 1A), lateral margins smooth, sternites 2 and 3 with a longitudinal medial carina.

Genitalia (Figure 2A–D): tergite 8 (T8) transversely oval, posteromedial margin entire, medially with short, semierect setae (Figure 2D); tergite 9 (T9) trapezoidal, posteromedial margin concave, medially with long, semierect setae (Figure 2D); gonocoxa 8 (gcx8) nearly rectangular, medial posterior angle projecting into a process, anterior and posterior margins straight, lateral anterior prolongation short and wide, medial margin slightly projected (Figure 2A, C); gonoplac (gpl) two triangular fused sclerites, tapering apically, apex rounded (Figure 2A–C); gonapophysis 9 (gap9) sclerotized anteriorly (Figure 2B); bursa copulatrix (bc) ovoid, medially with a pair of ventral, rectangular sclerites (Figure 2A).

### Male

Unknown.

### Etymology

This new species is named after the indigenous communities “Palikur” or “Palikour” that live in the Northeast and Central regions of French Guiana where the holotype and paratypes of this species were collected. The name is treated as a noun in apposition.

### Biology

The specimens were collected from areas of dense tropical rainforest with Malaise or flight interception traps.

### Distribution

Only known from localities near the communes of Régina, Roura, and Saül in French Guiana.

### Discussion

Detailed examination of *Buninotus palikur* n. sp. and additional material of *B. niger* (STRI) shows that two diagnostic characters of the genus could have been misinterpreted. One of them is the presence of “spines” only on the ventral surface of the first visible labial segment (Maldonado Capriles 1981; Gil-Santana et al. 2020). A detailed examination of the specimens shows that the first visible labial segment has a pair of spiniform setae, and the second visible labial segment has a pair of very conspicuous strong setae. Other characters used to recognize *Buninotus* are the four closed cells of the forewings

(Maldonado Capriles 1981; Gil-Santana et al. 2020). We examined an image of the holotype of *B. niger* and it is very difficult to see the forewing vein structure without removing the forewings from the body because of the semi-hyaline to brown coloration. Using additional specimens of *B. niger* and of *B. palikur* n. sp., we removed the forewings and we found three closed cells in both species (Figure 2C, 3B). Thus, *Buninotus* could be characterized by having the first visible labial segment with a pair of spiniform setae, the second visible labial segment with a pair of strong setae; the anterior pronotal lobe with four protuberances, a pair on each anterior and posterior regions; the humeral angles projecting into long spines; the scutellum with a long, inclined process; the procoxae, profemora and protibiae with long spiniform setae; the protibiae curved; the meso- and metafemora with a pair of spiniform setae at the apex; and the forewings with three closed cells.

Similar spiniform setae at the apex of the meso- and metafemora occur in *Paratagalis spinosus* Monte, 1943, but the total body length of *Buninotus* is longer than *Paratagalis*, and the prothorax and forewings are different. *Paratagalis* have four spines on the anterior pronotal lobe and two closed cells in the forewings (Gil-Santana & Costa 2009). The external morphology between females of *B. niger* (Figure 3A–D) and *B. palikur* n. sp. is very similar, but the new species is easily distinguished by the triangular protuberances on the anterior region of the prothorax (protuberances rounded in *B. niger*) and the acute and conspicuous processes on the posterior angle of the gonocoxa 8 which is visible without dissection (absent in *B. niger*).

### Key to *Buninotus* species

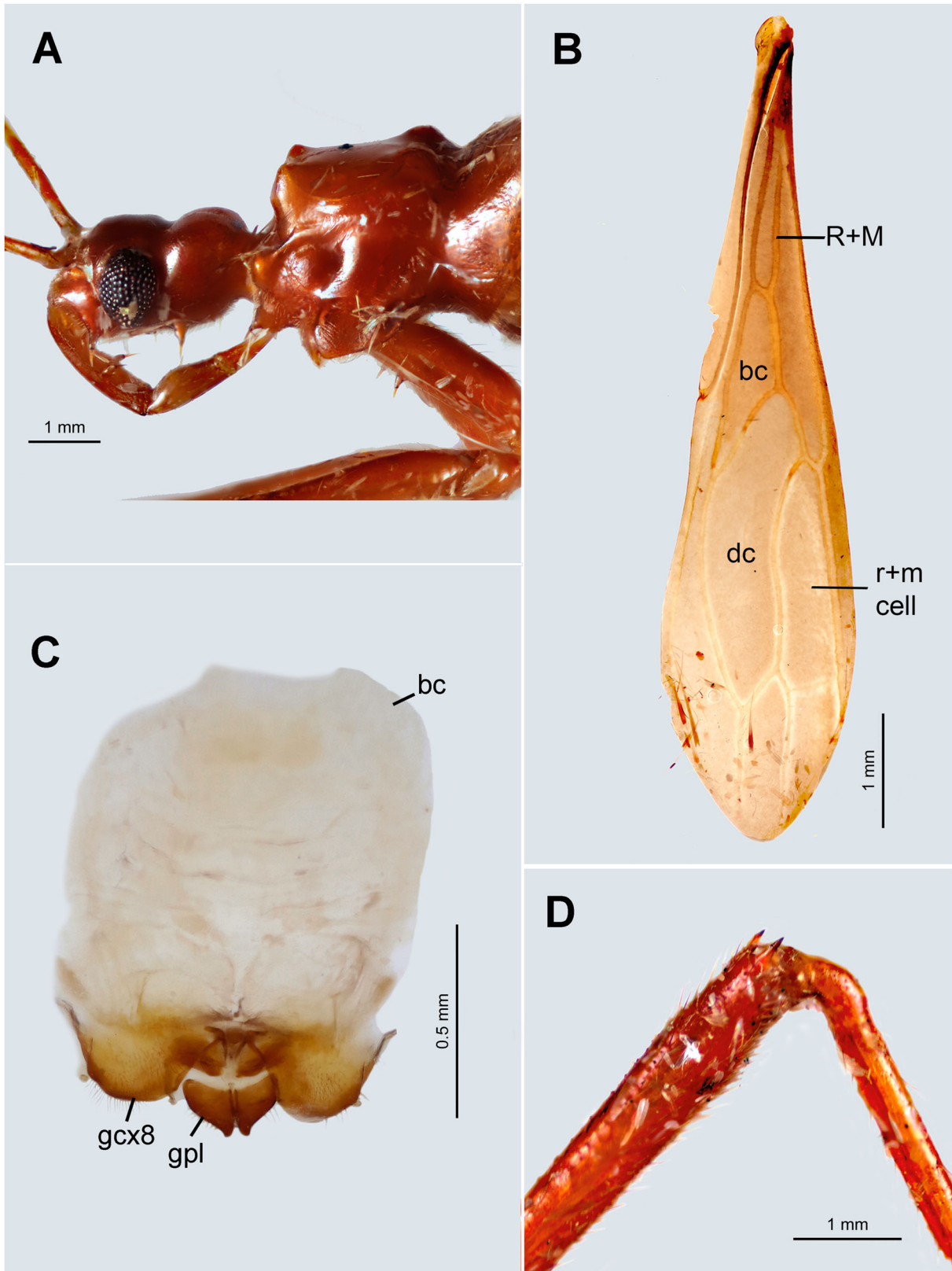
1. Body coloration entirely dark brown, forewings entirely brown (Figure 3B), protuberances on the anterior region of the prothorax in lateral view slightly rounded (Figure 3A), posterior angles of gonocoxa 8 entire (Figure 3C) ..... *B. niger* Maldonado Capriles
- Body coloration brown with the anterior and medial regions of the prothorax pale brown, forewings brown with whitish spots (Figure 1C), protuberances on the anterior region of the prothorax in lateral view slightly triangular (Figure 1E), posterior angles of the gonocoxa 8 with a protruding triangular process (Figure 2A, C) ..... *B. palikur* n. sp.

### *Caprilesia napuruna* n. sp. (Figures 4, 5)

#### Type material

**Holotype.** ♀, Ecuador, Napo, Sacha Wagra Lodge, Rio Hollin, 10 km from Archidona, 730 m, 0.96°S 77.75°W, 29.XI.2009, D. Forero [EC09\_L4] [fogging] / UCR\_ENT 00002682 / *Caprilesia napuruna* Castro-Huertas, Forero & Melo 2022 (QCAZ).





**Figure 3.** *Buninotus niger* Maldonado Capriles. **A**, head and thorax, lateral view; **B**, forewing; **C**, female genitalia, ventral view; **D**, apex of mesofemur with spiniform process. Abbreviations: bc, bursa copulatrix; gcx8, gonocoxa 8; gcx9, gpl, gonoplac. Abbreviations: bc, basal cell; dc, discal cell; R + M, radial and medial veins; r + m cell, radial and medial cell.



**Diagnosis**

Recognized by the mostly dark brown body with dorsum of head, labium, pronotum, legs and abdominal laterotergites whitish (Figure 4A, B); forewings variegated with dark areas small and fragmented, and veins whitish (Figure 4B).

**Description of female holotype**

**Measurements.** Total length: 3.21 (clypeus–apex of abdomen), 3.53 (clypeus–apex of membrane). Head width (across eyes): 0.49, length: 0.62. Antennal segments length: scape: 1.22, pedicel: 0.65, basiflagellomere: 0.27, distiflagellomere: absent. Labial segments length: first: 0.38, second: 0.26, third: 0.22. Prothorax width: 0.67, length: 0.72. Prolegs: procoxae: 0.63, profemora: 1.86, protibiae: 1.65.

**Coloration.** Head dark brown, dorsally whitish (Figure 4D, E). Antennae whitish, basiflagellomere with a pair of narrow dark brown bands apically. Labium with the first segment whitish and a brown band basally; second segment brown; third segment basally whitish, distally brown.

Thorax (Figure 4B, C) dark brown; pronotum dorsally, supracoxal lobes, and pro-, meso- and metanotal spines whitish. Legs (Figure 4B, F): procoxae and protochanters whitish; profemora whitish with a brown band on the medial and apical regions, spiniform setae brown; protibiae whitish with apical and distal regions pale brown, spiniform setae dark brown; protarsi whitish. Meso- and metacoxae and trochanters whitish; meso- and metafemora whitish; mesofemora with a subapical pale brown band; meso- and metatibiae whitish, meso- and metatarsi whitish. Forewings semi-hyaline, variegated, with dark brown spots (Figure 4B).

Abdomen pale brown, dorsally whitish, abdominal sternites laterally dark brown (Figure 4A).

**Vestiture.** Body with fine and suberect setae. Head densely setose; postocular lobe with short setae dorsally; ventral margin of maxillary plate, posteroventral eye margin, and gular region with spiniform setae (Figure 4C). Antennae: scape with sparse, long setae. Labium: first and second segments with a pair of spiniform setae ventrally (Figure 4D), third segment with strong setae ventrally, not visible in Figure 4.

Thorax dorsally with fine and suberect setae; proepisternal supracoxal lobe with a pair of anteroventral spiniform setae. Legs: procoxae with a dorsobasal (Figure 4D) and three ventral spiniform setae; protochanters with four ventral spiniform setae; profemora with a row of eight long spiniform setae on the anterodorsal region, about as long as femoral width, ventral region with a row of eight spiniform setae, about as long as femoral width, intermixed with very short spiniform setae, dense decumbent setae

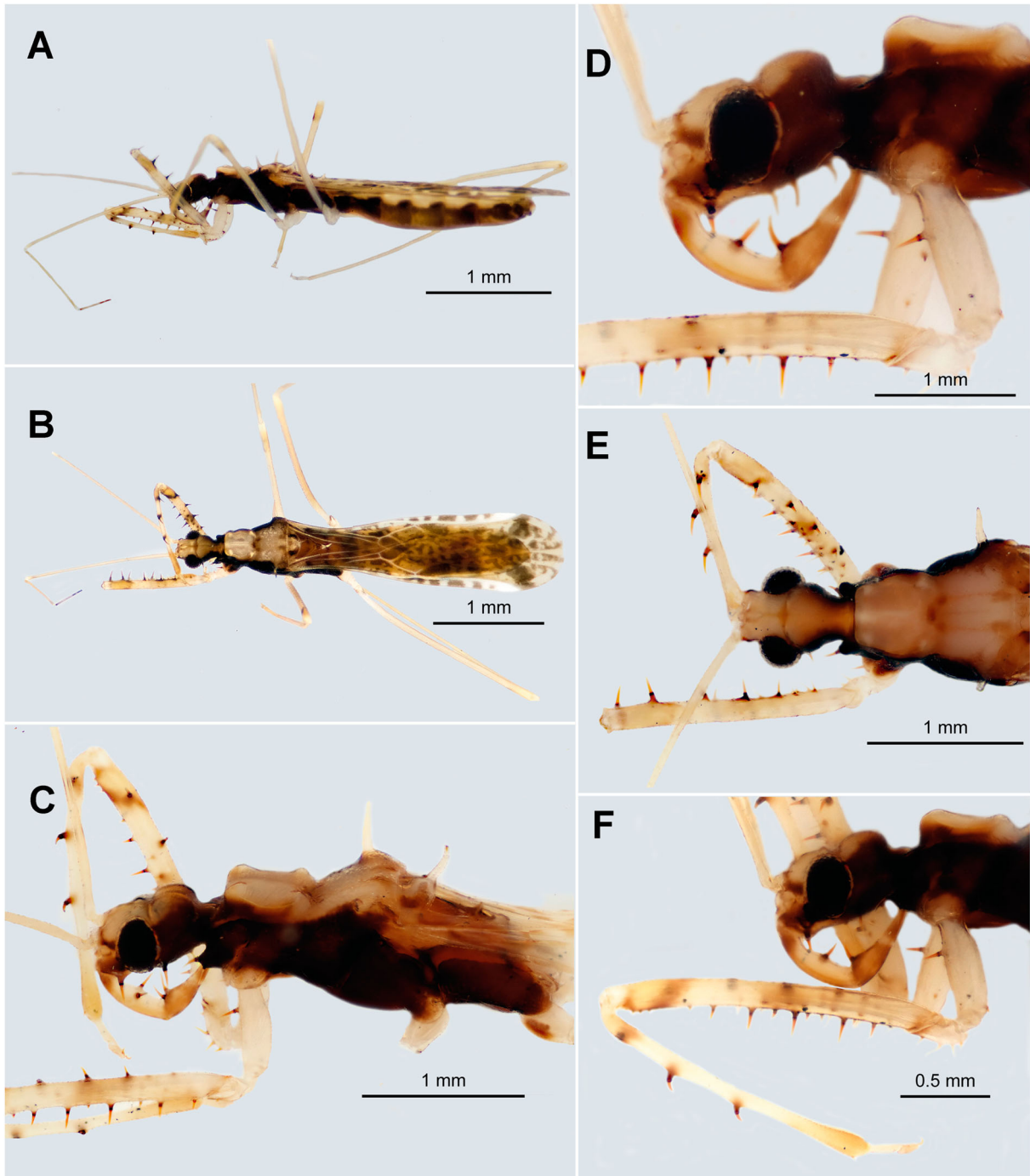
and sparse, erect long setae; protibiae with three large anterodorsal spiniform setae, on basal two thirds, about twice as long as tibial width, apical region with one stout seta, close to protibial comb; scopula present on apex of third tarsomere of all legs.

**Structure.** Head (Figure 4D, E): antecocular region shorter than postocular region; postocular region globose, nearly as long as eye; interocular sulcus deep, almost straight; clypeus flat. Eyes (Figure 4D, E) hemispherical in dorsal view, elongate ovoid in lateral view, nearly reaching the dorsal and ventral margins of head. Labium (Figure 4D): first segment the longest, basally swollen; second segment basally swollen, about as long as third, third segment tapering towards apex, about as long as second.

Thorax (Figure 4C): pronotum longer than wide; anterior lobe subquadrate; disc of anterior lobe rugose; anterior and posterior margins of the anterior lobe with a lateral pair of protuberances each, anterior pair larger and more widely spaced than posterior pair of protuberances; posterior lobe trapezoidal, about as long as anterior lobe, disc rugose; humeral angles projecting into long spines; transverse furrow impressed. Mesoscutum with broad base, medially depressed, laterally forming a ridge, apex truncated, tapering into a long erect spine (Figure 4C). Metanotum with a posterior short spine. Prosternum with proepisternal processes projected, apex pointed; stridulitrum narrow; prosternal process very short; mesosternum slightly longer than prosternum; metasternum slightly shorter than mesosternum. Legs (Figure 4F): procoxae cylindrical; protochanters triangular; profemora stout; protibiae slightly curved, apically slightly expanded, with flat protibial comb; tarsi three-segmented, apical tarsomere globose; claws simple, slender, and curved. Mesolegs similar in structure to prolegs; mesocoxae ovoid; mesotrochanters triangular; mesofemora and tibiae long and slender; mesotarsi similar to protarsi; metalegs missing. Forewings with two closed cells, basal cell nearly trapezoidal and smaller, with a long prolongation of the R + M vein basally; discal cell elongated (Figure 4B).

Abdomen elongate ovoid (Figure 4A), lateral margins smooth, sternites 2–3 with a longitudinal medial carina.

Genitalia (Figure 5A–D): tergite 8 (T8) nearly oblong, posteromedial margin entire (Figure 5D); tergite 9 (T9) trapezoidal, posteromedial margin straight (Figure 5D); gonocoxa 8 (gcx8) nearly triangular, anterior margin medially emarginated, posterior margin slightly pronounced, lateral anterior prolongation short and wide, medial margin not projected (Figure 5A, C); gonoplac (gpl) composed by two fused U-shaped sclerites, rounded apically (Figure 5A–C); bursa copulatrix (bc) ovoid, lateral pouches present, and medially membranous (Figure 5A).



**Figure 4.** *Caprilesia napuruna* n. sp., female holotype. **A**, lateral view; **B**, dorsal view; **C**, head and thorax, lateral view; **D**, head and anterior pronotal lobe, lateral view; **E**, head and prothorax, dorsal view; **F**, proleg, lateral view.

**Male**

Unknown.

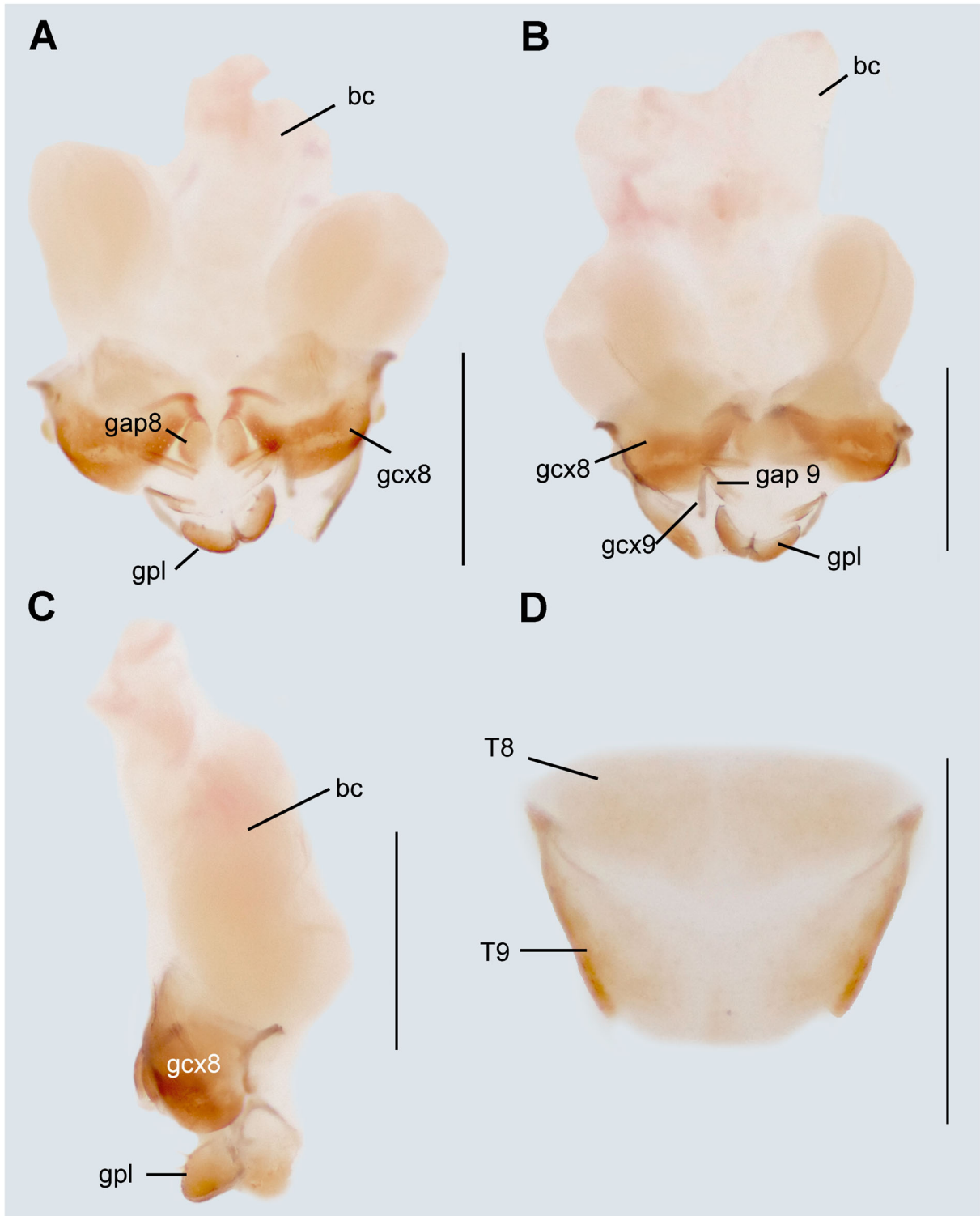
**Etymology**

This new species is named after the indigenous communities “Napuruna” that live in the Napo region of

Ecuador where the holotype of this species was collected. The name is treated as a noun in apposition.

**Biology**

The single examined specimen was collected with pyrethroid fogging in a lowland, humid tropical forest.



**Figure 5.** *Caprilesia napuruna* n. sp., female genitalia. **A**, ventral view; **B**, dorsal view; **C**, lateral view; **D**, tergites 8 and 9, caudal view. Abbreviations: bc, bursa copulatrix; gap8, gonapophysis 8; gap9, gonapophysis 9; gcox8, gonocoxa 8; gcox9, gonocoxa 9; gpl, gonoplac; T8, tergite 8; T9, tergite 9. Scale bars: 0.5 mm.

**Distribution**

Only known from Napo, Ecuador.

**Discussion**

One of the most important diagnostic characters of the genus *Caprilesia* is the presence of “spines” on the ventral surface of the three visible labial segments (Gil-Santana et al. 2006). Nonetheless, after examining specimens of this genus, it was evident that the cuticular labial processes are different among the segments: the first and second visible labial segments have a pair of spiniform setae each, whereas the third visible labial segment has one strong seta, difficult to see by the position in *C. napuruna* n. sp. and *C. sikuani* n. sp., but nonetheless present.

The female genitalic structures of *C. almirantiana* and *C. napuruna* n. sp. were not fully compared in this study because Gil-Santana et al. (2006) only illustrated tergites 8 and 9 of *C. almirantiana* “in situ” and the internal genitalic structures were not documented. Despite this, *Caprilesia* females are easily distinguished by the coloration pattern, particularly of the forewings: brown with a conspicuous, curved, and pale yellowish band in *C. almirantiana* and pale with dark spots in *C. napuruna* n. sp. So far, as has been documented in other Saicinae, coloration patterns could be congruent with genital structures, being extensively used as diagnostic characters at the species level. This reinforces the idea that the examined specimens correspond to different species.

***Caprilesia sikuani* n. sp. (Figures 6, 7)****Type material**

**Holotype.** ♂, Colombia, Meta, Remolinos, Centro Cafam Llanos, 55 km W de Puerto Gaitán, 165 m, 4.274963°N 72.540814°W, 30.IV.2010, A. García et al., Bosque de galería, pitfall. / *Caprilesia sikuani* Castro-Huertas, Forero & Melo 2022 / MPUJ\_ENT 0010541 (MPUJ).

**Diagnosis**

Recognized by the mostly yellowish body (Figure 6A), with meso- and metacoxae whitish (Figure 6F); forewings pale brown with large dark spots (Figure 6B); posteromedial process of the pygophore short and wider than long (Figure 7D); parameres short, curved, and with a subapical process (Figure 7C).

**Description of male holotype**

**Measurements.** Total length: 3.89 (clypeus–apex of abdomen), 4.15 (clypeus–apex of membrane). Head width (across eyes): 0.40, length: 0.70. Antennal segments

length: scape: 1.60, pedicel: 0.70, basiflagellomere: 0.90, distiflagellomere: broken Labial segments length: first: 0.34, second: 0.22, third: 0.16. Prothorax width: 0.60, length: 0.70. Prolegs: procoxae: 0.30, profemora: 1.5, protibiae: 1.2.

**Coloration.** Head uniformly yellowish (Figure 5D, E). Antennae: scape pale brown; pedicel yellowish; basiflagellomere and distiflagellomere brown.

Thorax (Figure 6B, C) uniformly yellowish, meso- and metathorax pale brown. Legs (Figure 6A, F) uniformly yellowish, meso- and metacoxae whitish. Forewings semi-hyaline, pale brown with large dark brown spots (Figure 6B).

Abdomen uniformly yellowish (Figure 6A).

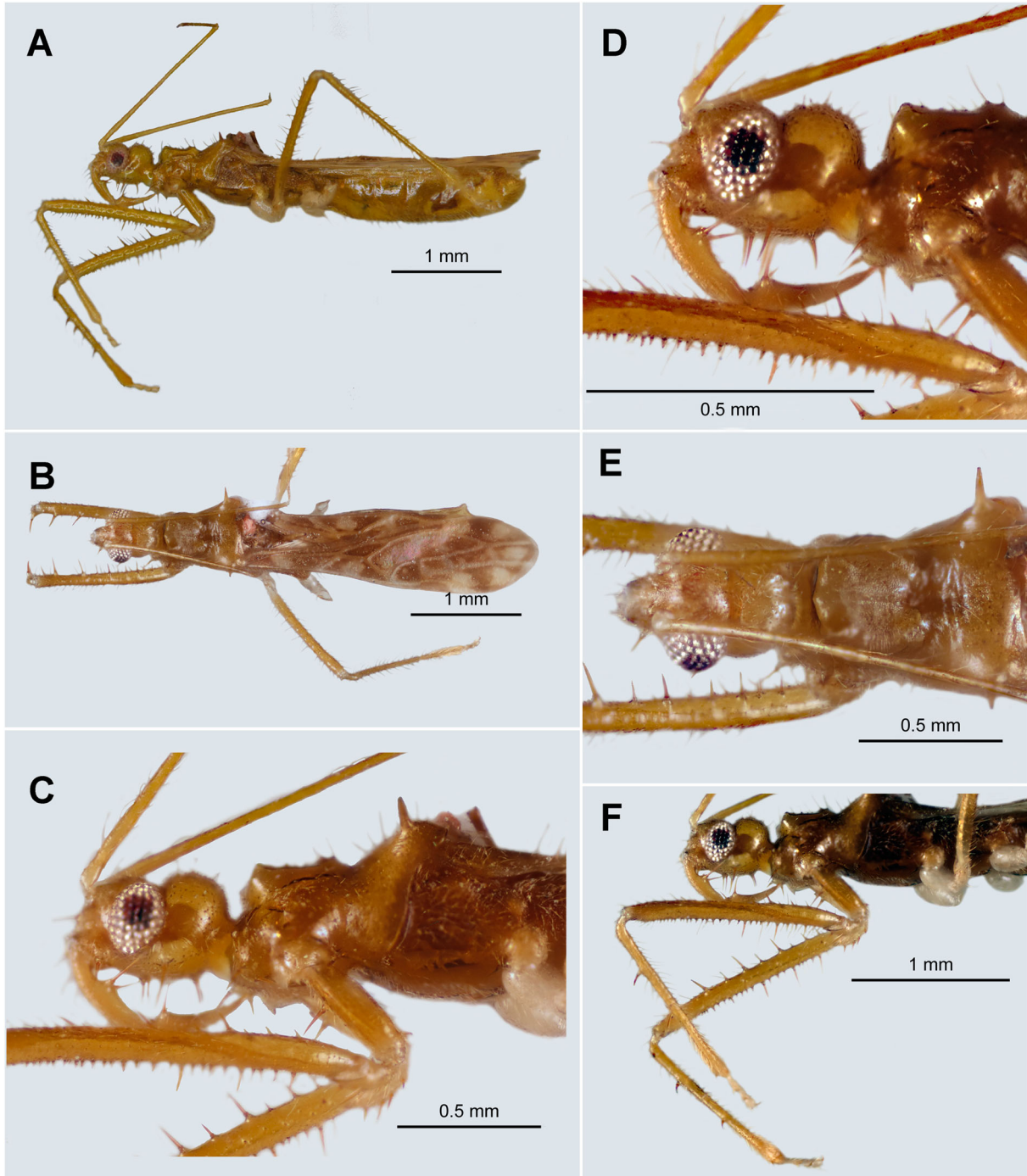
**Vestiture.** Body with fine and suberect setae. Head densely setose; postocular lobe with long, erect setae dorsally; ventral margin of maxillary plate, posteroventral eye margin, and gular region with spiniform setae. Antennae: scape with sparse, long setae. Labium: first and second segments with a pair of spiniform setae, third segment with a strong seta.

Thorax dorsally with fine and suberect setae; proepisternal supracoxal lobe with a pair of anteroventral spiniform setae. Legs: procoxae with a dorsobasal and three ventral spiniform setae; prothorax with four ventral spiniform setae; profemora with a row of eight long spiniform setae on the anterodorsal region, half as long as femoral width and half shorter than femoral width, ventral region with a row of eight spiniform setae, a few as long as femoral width and the remaining less than half the femoral width, intermixed with very short spiniform setae, dense decumbent setae and sparse, erect long setae; protibiae with three large anterodorsal spiniform setae on basal two thirds, as long as tibial width, and one short, stout seta apically, close to protibial comb, shorter than tibial width; scopula present on apex of third tarsomere of all legs.

**Structure.** Head (Figure 6D, E): anteocular region shorter than postocular region, postocular region globose, nearly as long as eye; interocular sulcus deep, almost straight; clypeus flat. Eyes (Figure 6D, E) hemispherical in dorsal view, elongate ovoid in lateral view, nearly reaching the dorsal margin of head. Labium (Figure 6D): first segment the longest, basally swollen; second segment basally swollen, about as long as third; third segment tapering towards apex, about as long as second.

Thorax (Figure 6C): pronotum longer than wide, anterior lobe subquadrate, disc rugose, anterior and posterior margins of the anterior lobe with a pair of lateral protuberances each, nearly equal in size, distance between posterior protuberances smaller than between anterior protuberances; posterior lobe trapezoidal, about as long as anterior lobe, disc rugose; humeral angles projecting into spines; transverse furrow impressed. Mesoscutum with broad base, medially depressed, laterally forming a ridge,

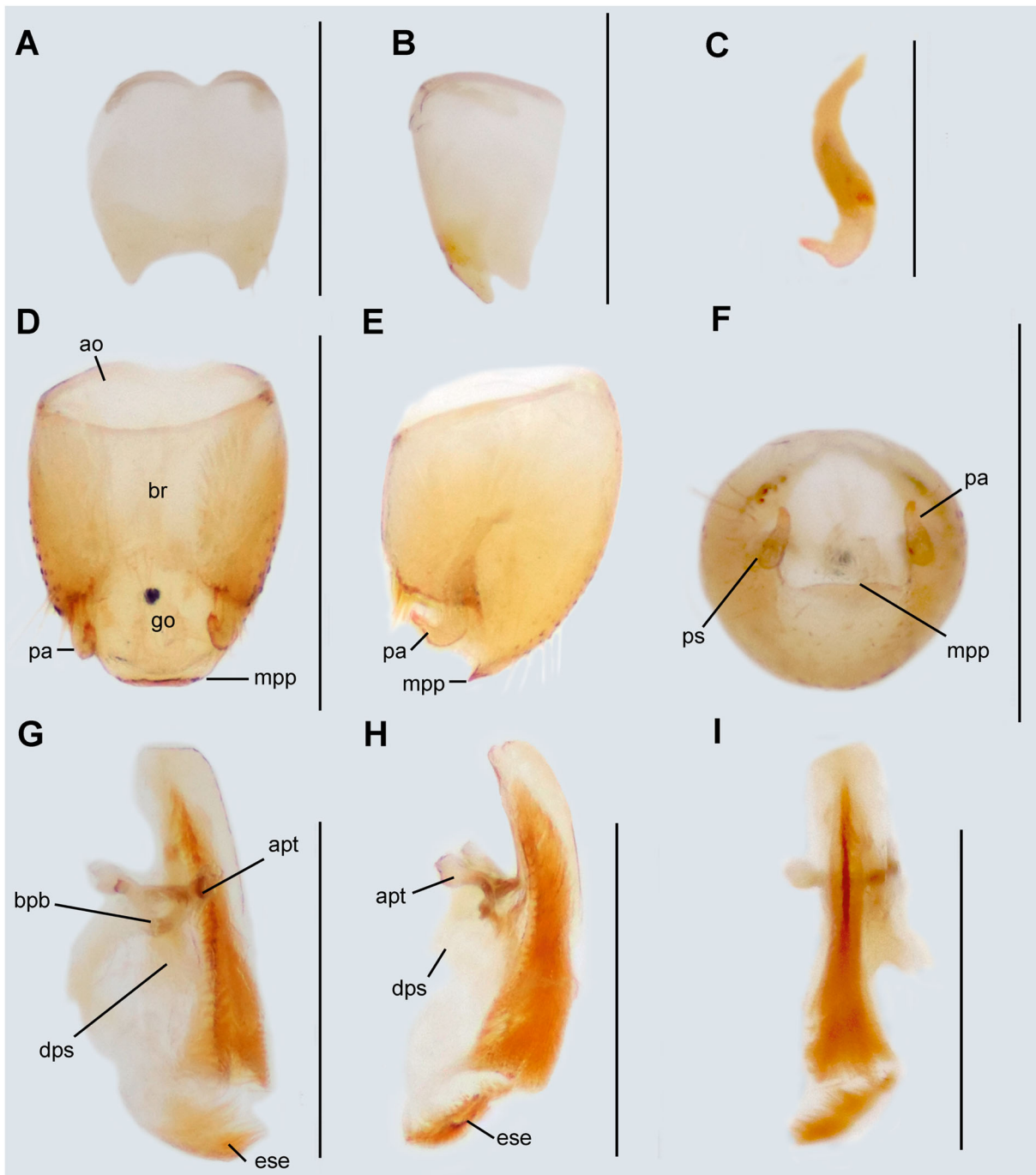




**Figure 6.** *Caprilesia sikuani* n. sp., male holotype. **A**, lateral view; **B**, dorsal view; **C**, head and prothorax, lateral view; **D**, head and anterior pronotal lobe, lateral view; **E**, head and anterior pronotal lobe, dorsal view; **F**, proleg, lateral view.

apex truncate, tapering into spine (broken in the holotype) (Figure 6C). Metanotum with a posterior long spine. Prosternum with proepisternal processes projected, apex pointed; stridulitrum narrow; prosternal process very small; mesosternum slightly longer than prosternum; metasternum slightly shorter than mesosternum. Legs (Figure 6F): procoxae cylindrical; protrochanters

triangular; profemora stout; protibiae slightly curved, slightly expanded apically, with flat protibial comb; tarsi three-segmented, apical segment globose; claws simple, slender and curved. Mesolegs similar in structure, mesocoxae ovoid; mesotrochanters triangular; mesofemora and tibiae long and slender; mesotarsi similar to protarsi. Metalegs missing. Forewings with two closed cells, basal



**Figure 7.** *Caprilesia sikuani* n. sp., male genitalia. **A, B**, sternite 8: **A**, ventral view; **B**, lateral view; **C**, paramere in lateral view. **D–F**, pygophore: **D**, dorsal view; **E**, lateral view; **F**, caudal view. **G–I**, aedeagus: **G**, dorsal view; **H**, lateral view; **I**, ventral view. Abbreviations: ao, anterior opening of pygophore; apt, arms of articulatory apparatus; bpb, basal plate bridge; br, transverse bridge of pygophore; ese, endosomal sclerites; dps, dorsal phallosclerite; go, genital opening of pygophore; mpp, posteromedial process of pygophore; pa, paramere; ps, paramere socket. Scale bars: 0.5 mm, except C (0.25 mm).

cell nearly trapezoidal and smaller, with a long prolongation of the R + M vein basally; discal cell elongated (Figure 6B).

Abdomen elongate ovoid (Figure 6A), lateral margins smooth; sternites 2 and 3 with a longitudinal medial

carina; sternite 8 nearly rectangular with the lateral margins curved dorsally, anterior and posterior margins emarginated (Figure 7A, B).

Male genitalia: pygophore ovoid (Figure 7D), posteromedial process margin horizontal, not strongly dorsally

projected but only slightly projecting caudad (Figure 7D, E); genital opening (go) and anterior opening (ao) separated by a very long transverse bridge (br) (Figure 7D); area surrounding paramere socket (ps) with long, delicate setae (Figure 7D); area dorsal to ps flat (Figure 7F). Paramere short and strongly curved (Figure 7C), apex not reaching margin of pygophore (Figure 7D, E), distal region approximately equal width as basal half, with a subapical blunt process (Figure 7C). Arms of articulatory apparatus (apt) short and separated, basal plate bridge (bdp) present. Phallosoma with short dorsal phallosomal sclerite (dps) nearly rectangular, with the anterior margin emarginated (Figure 7G, H). Endosoma membranous with several short and elongated processes (ese) and microtrichia (Figure 7G–I).

### Female

Unknown.

### Etymology

This new species is named after the indigenous communities “Sikuani”, victims of forced displacement, originally from the Orinoquía region, but now living in areas between the Guaviare, Meta, and Arauca rivers of Colombia, where the holotype of this species was collected. The name is treated as a noun in apposition. The name of this new species is a reminder of the ancestral right to territory of these indigenous communities.

### Biology

The single examined specimen was collected in a pitfall trap in a humid, tropical lowland gallery forest.

### Distribution

Only known from Remolinos, in the municipality of Meta (Colombia). This area is part of the Orinoquía region. This is the first record of *Caprilesia* from Colombia and Ecuador, extending the known distribution to northern South America. Notably, both *C. napuruna* n. sp. and *C. sikuani* n. sp. are associated with humid, tropical lowland forests.

### Discussion

*Caprilesia sikuani* n. sp. can be easily distinguished by its unique coloration pattern. Both *C. sikuani* n. sp. and *C. napuruna* n. sp. have a pale forewing with a variegated pattern of darker areas. These two species can be separated by the size of the darker areas of the forewings: in *C. sikuani* n. sp. the dark areas are large, whereas in *C. napuruna* n. sp. they are much smaller and more fragmented.

This is the first time that the genitalia of a male *Caprilesia* is described. Gil Santana et al. (2006) considered *Caprilesia* to be related to *Paratagalis* and *Buninotus* because of the external morphological similarities. Although no males are known for *Buninotus*, comparing the structure of *C. sikuani* n. sp. to the male genitalia of documented species of *Paratagalis*, we observed that the pygophore is different as it does not have a large posteromedial process as in *Paratagalis* (Gil-Santana & Costa 2009). Other structures, such as the parameres and endosoma, seem to share some structural similarities. We expect that future phylogenetic studies might clarify the relationships among these genera.

### Key to *Caprilesia* species

1. Forewings brown with a conspicuous curved, yellowish band; body coloration uniformly pale brown .....  
.....*C. almirantiana* Gil-Santana, Marques & Costa  
– Forewings pale with dark spots ..... 2
2. Body and legs coloration uniformly yellowish-brown (Figure 6A).....*C. sikuani* n. sp.  
– Body coloration dark brown, with dorsal areas of pro-, meso- and metanotum whitish, legs whitish with the subapical region of femora pale brown (Figure 4A, B)..... *C. napuruna* n. sp.

### *Pseudosaica charrua* n. sp. (Figures 8, 9)

#### Type material

**Holotype.** ♂, Argentina, Entre Ríos, D<sup>o</sup> Concordia Federación, I.1981, coll. Martínez. / *Pseudosaica charrua* sp. nov. Castro-Huertas, Forero & Melo, 2022 (MLPA).

**Paratype.** 1♂, same data as holotype (MLPA).

#### Additional examined material of *Pseudosaica panamaensis*

**Colombia.** 1♂, Valle, Cali, 1000 m, domicilio, 17.I.1994, G. Guevara (MUSENUV).

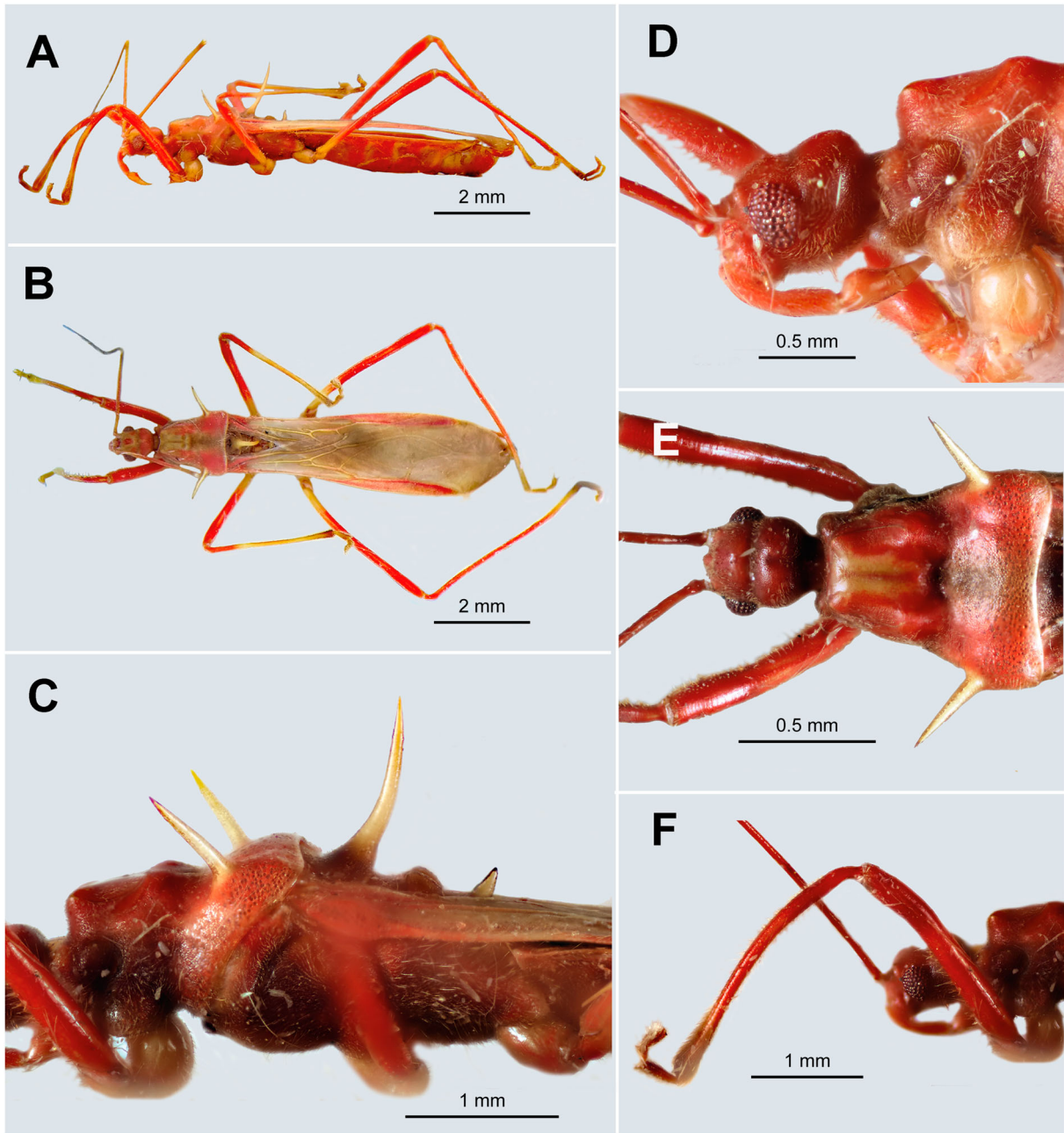
#### Diagnosis

Recognized by the mostly reddish body (Figure 8A); large, yellowish thoracic spines (Figure 8C); yellowish forewing venation (Figure 8B); apex of posteromedial process of pygophore with a ventral, short carina (Figure 9E, F); and asymmetric dorsal phallosomal sclerite (Figure 9G).

#### Description of male

**Measurements.** Holotype: total length: 9.20 (clypeus–apex of abdomen), 9.40 (clypeus–apex of membrane).





**Figure 8.** *Pseudosaica charrua* n. sp., male holotype. **A**, lateral view; **B**, dorsal view; **C**, thorax, lateral view; **D**, head and anterior pronotal lobe, lateral view; **E**, head and prothorax, dorsal view; **F**, proleg, lateral view.

Head width (across eyes): 0.70, length: 1.30. Antennal segments length: scape: 2.8, pedicel: 1.10, basiflagellomere: 2.10, distiflagellomere: absent. Labial segments length: first: 0.62, second: 0.34, third: 0.24.

Prothorax width: 1.50, length: 1.60.

Prolegs: procoxae: 0.50, profemora: 2.10, protibiae: 2.50.

Paratype: (N = 1): Total length: 8.50 (clypeus–apex of abdomen), 8.30 (clypeus–apex of membrane).

Head width: 0.80, length: 1.00. Antennal segments length: scape: 2.70, pedicel: 1.00, basiflagellomere: 2.20,

distiflagellomere: 1.20. Labial segments length: first: 0.58, second: 0.26, third: 0.22.

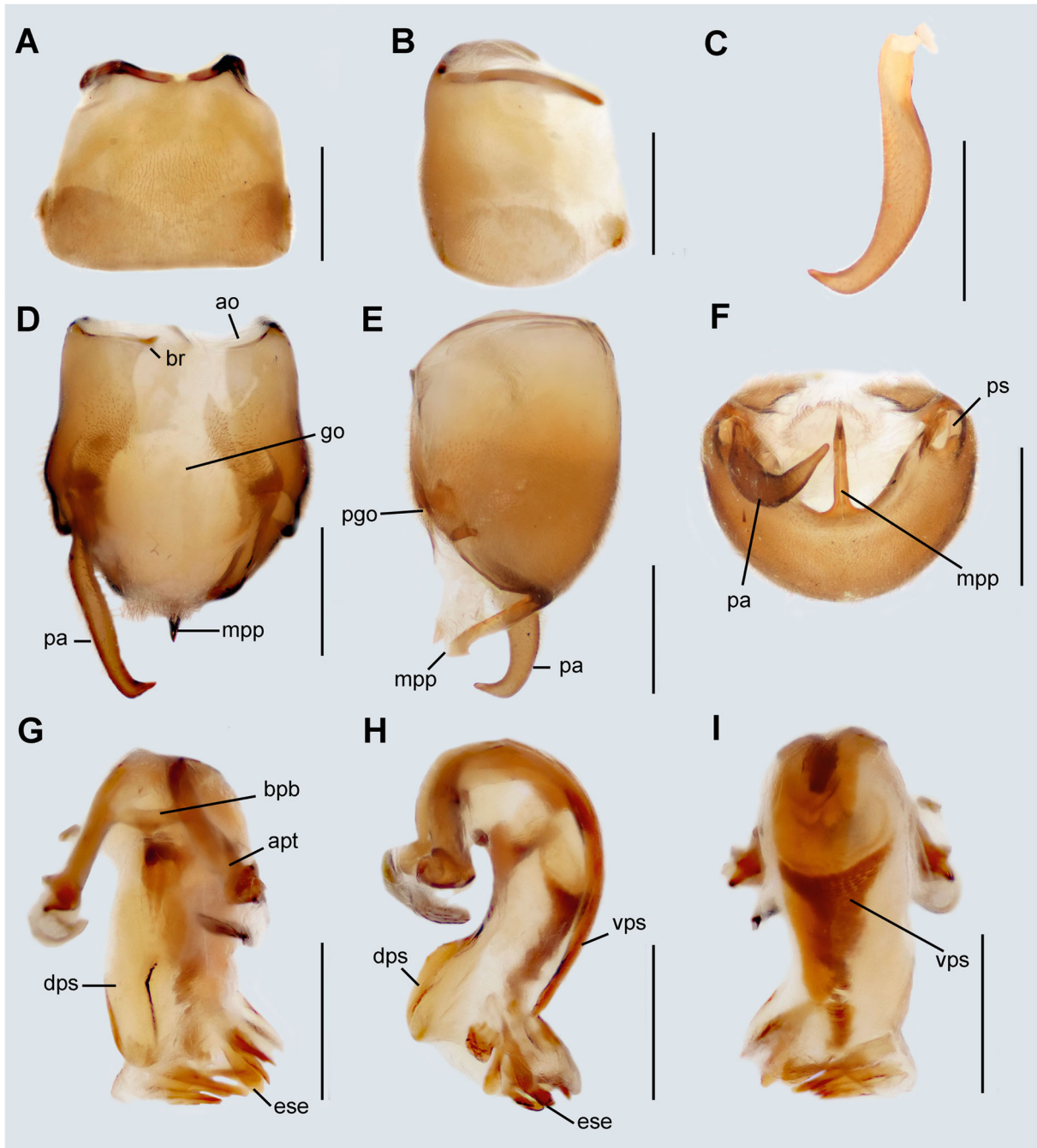
Prothorax width: 1.60, length: 1.70.

Prolegs: procoxae: 0.60, profemora: 2.20, protibiae: 2.60.

**Coloration.** Head uniformly reddish (Figure 8D, E). Antennae: scape reddish, pedicel and flagellomeres brown. Labium: first segment reddish, second segment orange, third segment yellowish.

Thorax (Figure 8C, E) uniformly reddish; disc of anterior lobe with a medial longitudinal yellowish band,





**Figure 9.** *Pseudosaica charrua* n. sp., male genitalia. **A, B**, sternite 8: **A**, ventral view; **B**, lateral view; **C**, paramere in lateral view; **D–F**, pygophore, left paramere removed: **D**, dorsal view; **E**, lateral view; **F**, caudal view. **G–I**, aedeagus: **G**, dorsal view; **H**, lateral view; **I**, ventral view. Abbreviations: ao, anterior opening of pygophore; apt, arms of articular apparatus; bpb, basal plate bridge; br, transverse bridge of pygophore; ese, endosomal sclerites; dps, dorsal phallosclerite; go, genital opening of pygophore; mpp, posteromedial process of pygophore; pa, paramere; pgo, process of genital opening; ps, paramere socket; vps, ventral phallosclerite. Scale bars: 0.5 mm.

posterior lobe reddish with posterior margin and spines of the humeral angles yellowish; meso- and metanotal spines yellowish; supracoxal lobes with the posterior margins yellowish. Legs (**Figure 8B, F**): procoxae yellowish; protrochanters and profemora reddish; protibiae reddish with the distal region pale brown; protarsi pale brown. Meso-

and metacoxae yellowish; meso- and metatrochanters yellowish; meso- and metafemora reddish with a small basal portion yellowish; meso- and metatibiae reddish with the distal region pale brown; meso- and metatarsi pale brown. Forewings semi-hyaline, pale orange, pterostigma reddish, veins yellowish (**Figure 8B**).

Abdomen yellowish, sternites 3–5 with a transversal reddish band, laterotergites reddish, pygophore pale brown (Figure 8A).

**Vestiture.** Body with sparse, fine, suberect setae. Head densely setose, ventral margin of maxillary plate and posteroventral eye margin with a tuft of strong setae. Antennae: scape with sparse, long setae; remaining segments with short setae. Labium: first and third segments with simple, short setae ventrally; second segment with a tuft of strong setae ventrally.

Thorax with sparse, fine, suberect setae. Legs: procoxae with long setae; prothorax with a pair of ventral tufts of strong setae; profemora with a ventral row of strong setae, intermixed with dense decumbent setae, anterodorsal surface with a row of strong setae on medial and distal regions; protibiae with dense, suberect setae; scopula present on apex of third tarsomere of all legs.

**Structure.** Head (Figure 8D, E): anteocular lobe shorter than postocular lobe, postocular lobe globose; interocular sulcus deep, almost straight; clypeus flat. Eyes (Figure 8D, E) hemispherical in dorsal view, ovoid in lateral view. Labium (Figure 8D): first segment stout; second segment basally swollen, about as long as third; third segment tapering towards apex, about as long as second.

Thorax (Figure 8C): pronotum longer than wide. Anterior lobe subquadrate, disc rugose, anterior and posterior margins of anterior lobe with a pair of lateral protuberances each, anterior pair larger and more closely spaced than posterior pair of protuberances. Posterior lobe trapezoidal, about as long as anterior lobe; humeral angles projecting into long spines; transverse furrow impressed, posterior margin gently emarginated. Mesoscutum with broad base, medially depressed, laterally forming a ridge, apex truncate, tapering into a long, erect spine (Figure 8C); scutellum with a posterior blunt process, emarginate posteromedially; metanotum with a reclined short spine (Figure 8C). Prosternum with proepisternal process projected, apex pointed; stridulitrum narrow; prosternal process small; mesosternum longer than prosternum; metasternum slightly shorter than mesosternum. Legs: procoxae cylindrical; prothorax triangular; profemora stout; protibiae curved, slightly expanded apically (Figure 8F), with flat protibial comb; tarsi three-segmented, basal segment the longest; apical segment globose; claws simple, slender and curved. Metalegs slightly longer than mesolegs (Figure 8B); meso- and metacoxae ovoid; meso- and metatrochanters triangular; meso- and metafemora and meso- and metatibiae long and slender; meso- and metatarsi similar to protarsi. Forewings with two closed cells, basal cell nearly triangular and smaller, with short prolongation of the R + M vein basally; discal cell trapezoidal and longer (Figure 8B).

Abdomen elongate ovoid (Figure 8A), lateral margins smooth. Segment 8 with the anterior margin slightly concave, posterior margin entire, spiracles not projected (Figure 9A, B).

Genitalia: pygophore ovoid in dorsal view (Figure 9D), posteromedial process (mpp) reclined at about 45° (Figure 9E), compressed laterally, tapering apically, with a preapical carina ventrally (Figure 9F); process of the genital opening (pgo) short and triangular, with acute apex and projecting dorsally (Figure 9E); genital opening (go) and anterior opening (ao) separated by a narrow transverse bridge (br) (Figure 9D); area surrounding paramere socket (ps) with short setae (Figure 9F); area dorsal to ps smooth (Figure 9F). Paramere long and gently curving apically, slightly wider on the medial region, apical half slightly compressed apically, long delicate setae on dorsal and ventral surfaces of apical half before curvature, apex acute (Figure 9C). Arms of articulatory apparatus (apt) strongly curved in dorsal view; with basal plate bridge (bpb) well developed. Phallosoma with dorsal phallosomal sclerite (dps) elongated, asymmetric, dorsally curved, apically rounded (Figure 9G, H). Endosoma ventrally with a sclerite (vps), distally with about eight elongate sclerites (ese), each one rounded apically (Figure 9G–I).

### Female

Unknown.

### Etymology

This new species is named after the indigenous communities “Charrua” that live in the region between Parana and Uruguay Rivers in Argentina where the holotype of this species was collected. The name is treated as a noun in apposition.

### Biology

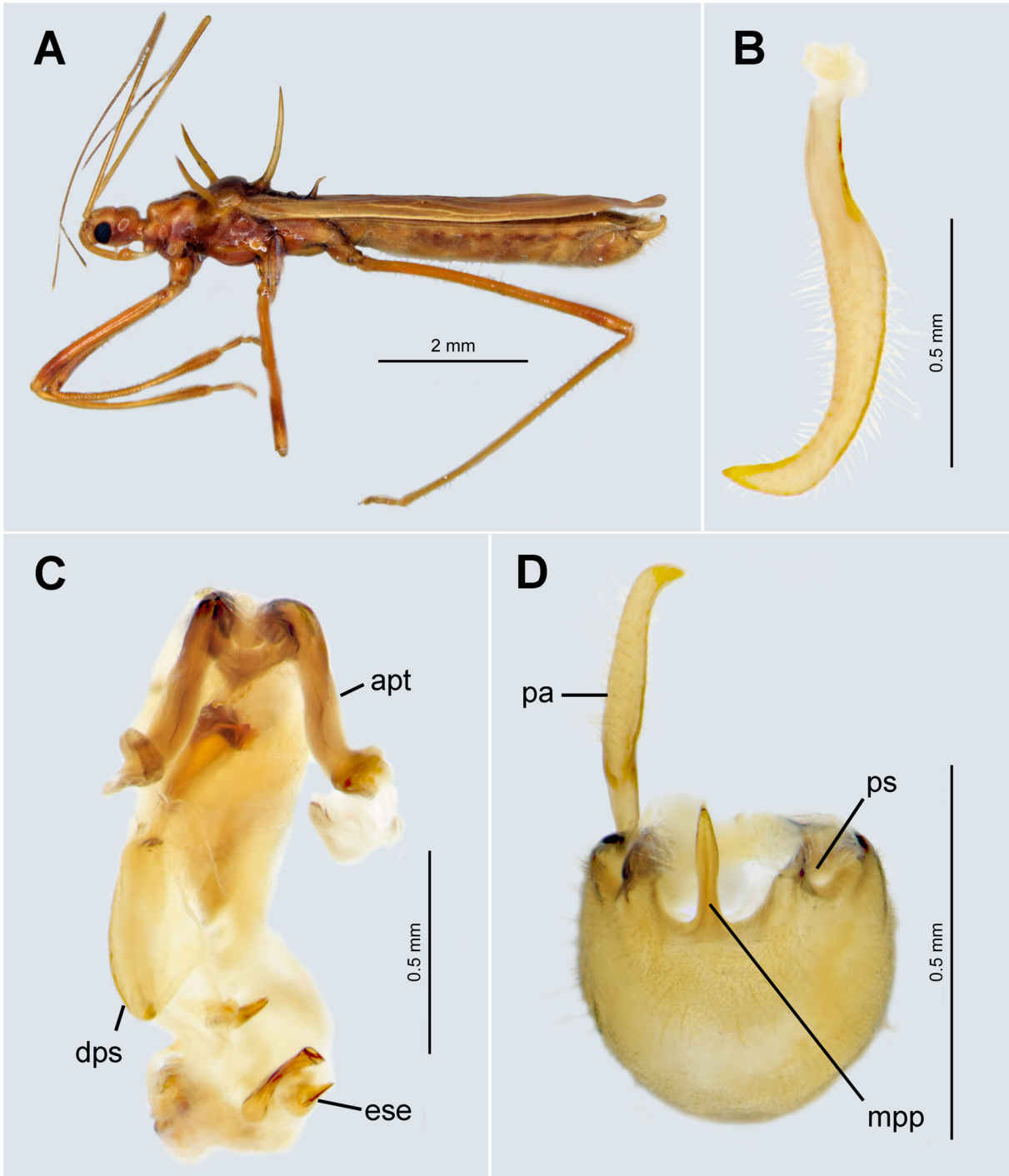
The two male specimens were collected in a temperate subtropical forest.

### Distribution

Only known from between Concordia and Federación localities, in the Province of Entre Ríos, Argentina.

### Discussion

Species included in *Pseudosaica* are mostly distinguished by the coloration pattern, the forewing venation, the structure of the posteromedial process of pygophore, and the paramere shape. The body coloration pattern in the three known species is conspicuously different: *P. florida* is pale brown with a longitudinal dark band dorsally and all femora with a transversal dark brown band on the subapical region (Barber 1914); *P. panamaensis* is uniformly pale brown to yellowish (Blinn 1990) (Figure 10A), and *P. charrua* n. sp. is mostly reddish with spiniform thoracic processes, the apex of all tibiae and anterior wing venation yellowish. The forewing venation is similar in



**Figure 10.** *Pseudosaica panamaensis* Blinn. **A**, Habitus, lateral view; **B**, paramere, lateral view; **C**, aedeagus, lateral view; **D**, pygophore, left paramere removed, caudal view. Abbreviations: apt, arms of articulatory apparatus; ese, endosomal sclerites; dps, dorsal phallosomal sclerite; mpp, posteromedial process of pygophore; pa, paramere; ps, paramere socket.

*P. panamaensis* and *P. charrua* n. sp. with a short prolongation of the R + M vein, whereas in *P. florida* this prolongation is absent. However, Gil-Santana & Marques (2005) identified a specimen from Brazil as *P. florida*, with a venation pattern similar to *P. panamaensis* and discussed the possibility of intraspecific variation.

Blinn (1990) described and illustrated the posteromedial process of pygophore and parameres “in situ” of two species of *Pseudosaica*. The posteromedial process of pygophore is tapering apically in *Pseudosaica* species, but in *P. charrua* n. sp. and *P. panamaensis* it has an apical keel. Gil-Santana & Marques (2005) offered an image of the posteromedial

process of pygophore in lateral view of *P. florida*, where it is possible to see a similar apical keel which was not described by Blinn (1990). In addition, the posterior margin of the pygophore is strongly emarginated in *P. panamaensis* and *P. charrua* n. sp., and almost straight in *P. florida*. The concavity on the posterior margin of the pygophore is slightly angulated in *P. charrua* n. sp. (Figure 9F) and rounded in *P. panamaensis* (Figure 10D). The parameres are elongated, relatively thin, and curved. *Pseudosaica florida* apparently has parameres slightly wider than the other two species (Gil-Santana & Marques 2005, fig. 8). The paramere structure is similar in *P. charrua* n. sp. and *P. panamaensis* (Figure 10B), but the apex is slightly more acute in the new species (Figure 9C).

The phallus is usually symmetric in Saicinae genera, but genital asymmetry has been recorded in *Gallobelgicus* Distant, 1906 and *Polytoxus* (Ishikawa & Yano 1999, 2002; Rédei & Tsai 2009, 2010). Detailed examination of *Pseudosaica charrua* n. sp. and additional material of *P. panamaensis* show an asymmetric phallus, visible in the dorsal phallosclerite and the endosomal sclerites (Figures 9G, 10C). Unfortunately, the internal male genital structure is unknown in *P. florida*. Examining additional material of *P. florida* could confirm if asymmetric genitalia is a common character for the genus.

The genitalic structure of *Pseudosaica* seems to be of taxonomic importance at the species level and could probably offer additional diagnostic characters for the genus. Future studies focusing on documenting the external and internal structures, for comparative, taxonomic, and systematic studies could help to resolve these questions.

#### Key to *Pseudosaica* species (based in part on Blinn 1990)

1. Body uniformly yellowish to pale brown (Figure 10A), postocular region usually dark brown, posterior margin of the pygophore with a rounded concavity on either side of the posteromedial process (Figure 10D)..... *P. panamaensis* Blinn
- Body uniformly reddish or pale brown with a longitudinal dark band dorsally, postocular region concolorous to body, posterior margin of pygophore entire or with a slightly angulated concavity on either side of the posteromedial process ..... 2
2. Body pale brown with a longitudinal dark band dorsally, all femora with a transversal dark brown band on the subapical region, posterior margin of the pygophore entire on either side of the posteromedial process ..... *P. florida* (Barber)
- Body reddish, spiniform processes on the thorax yellowish, legs reddish with the apex of tibiae yellowish (Figure 8A), posterior margin of the pygophore with a slightly angulated concavity on each side of the posteromedial process (Figure 9F) ..... *P. charrua* n. sp.

## Conclusion

Saicinae is a poorly known reduviid group, in part because they are not usually collected, and thus, specimens are scarce in entomological collections. Focusing efforts to collect with light traps, canopy fogging, and manual capture in low, humid forests, could improve the representation of the group. In addition, studies on comparative morphology and taxonomic descriptions will serve as the basis of future phylogenetic analyses that will furnish hypotheses on their evolutionary relationships, and help delimitate supraspecific taxa (i.e. genera).

## Acknowledgements

We thank the curators and collection managers who facilitated the loan of the specimens studied: Jean-Michel Bérenger (JMB); María Alejandra Rodríguez (MPUJ), Carolina Londoño (MUSENUV), Yves Basset and Alejandro Ramirez (STRI). The comments of two anonymous reviewers helped improve the manuscript. Financial support was provided by CONICET Latin-American postdoctoral fellow for VCH.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

This work was supported by the CONICET [Latin-American postdoctoral fellow].

## ORCID

Valentina Castro-Huertas  <http://orcid.org/0000-0002-9173-7387>

Dimitri Forero  <http://orcid.org/0000-0002-6358-757X>

María Cecilia Melo  <http://orcid.org/0000-0003-4612-452X>

## References

- Amyot CJB, Serville JCA. 1843. Histoire naturelle des insectes. Hémiptères. lxxv. Paris. <https://doi.org/10.5962/bhl.title.8471>
- Barber HG. 1914. Insects of Florida. II. Hemiptera. Bulletin of the American Museum of Natural History. 33:495–535. <http://hdl.handle.net/2246/482>
- Barber HG. 1953. A change of name in the family Reduviidae. Hemiptera. Proceedings of the Entomological Society of Washington. 55:142. <https://www.biodiversitylibrary.org/page/16178837>
- Blinn RL. 1990. *Pseudosaica panamaensis*, a new genus and species of Assassin Bug from Panama (Heteroptera: Reduviidae: Saicinae). Journal of the New York Entomological Society. 98 (3):347–351. <https://www.biodiversitylibrary.org/part/180560>
- Blinn RL. 2008. *Tagalis inornata cubensis* McAtee & Malloch (Hemiptera: Heteroptera: Reduviidae: Saicinae): first record



- from the continental United States. *Zootaxa*. 1912:66–68. doi:10.11646/zootaxa.1912.1.4
- Castro-Huertas V, Forero D. 2014. First record of the genus *Tagalis* Stål, 1860 (Hemiptera: Reduviidae: Saicinae) from Colombia with the description of two new species. *Zootaxa*. 3838(4):475–485. doi:10.11646/zootaxa.3838.4.6
- Distant WL. 1906. *Oriental Reduviidae*. *Annals and Magazine of Natural History*. 18(107):363–371. doi:10.1080/00222930608562629
- Forero D, Weirauch C. 2012. Comparative genitalic morphology in the New World resin bugs Apiomerini (Hemiptera, Heteroptera, Reduviidae, Harpactorinae). *Deutsche Entomologische Zeitschrift*. 59(1):5–41.
- Gil-Santana HR. 2011. Three new species of *Tagalis* Stål (Hemiptera: Heteroptera: Reduviidae: Saicinae) from Brazil. *Zootaxa*. 2996(1):33–48. doi:10.11646/zootaxa.2996.1.2
- Gil-Santana HR, Costa LAA. 2009. A new species of *Paratagalis* Monte from Brazil with taxonomical notes and a key to New World genera of Saicinae (Hemiptera: Heteroptera: Reduviidae: Saicinae). *Zootaxa*. 2197(1):20–30. doi:10.11646/zootaxa.2197.1.2
- Gil-Santana HR, Forero D, Weirauch C. 2015. Assassin bugs (Reduviidae excluding Triatominae). In: Panizzi AR, Grazia J, editors. *True bugs (Heteroptera) of the neotropics*. Dordrecht: Springer; p. 307–351. [http://link.springer.com/chapter/10.1007/978-94-017-9861-7\\_12](http://link.springer.com/chapter/10.1007/978-94-017-9861-7_12)
- Gil-Santana HR, Marques OM. 2005. Primeiro registro de *Saica* Osborn & Drake para o Brasil e *Pseudosaica florida* (Barber), com notas taxonômicas e chave para os gêneros de Saicinae do Brasil (Hemiptera, Reduviidae). *Revista Brasileira de Zoologia*. 22(2):405–409. doi:10.1590/S0101-81752005000200015
- Gil-Santana HR, Marques OM, Costa LAA. 2006. *Caprilesia almirantiana* gen. nov. and sp. nov. of Saicinae from Brazil (Hemiptera, Reduviidae). *Revista Brasileira de Zoologia*. 23(2):392–394. doi:10.1590/S0101-81752006000200012
- Gil-Santana HR, Oliveira J, Zampaulo RdA. 2020. *Quasitagalis afonsoi*, a new genus and a new species of Saicinae (Hemiptera, Reduviidae) inhabiting a cave in Brazil, with an updated key to the genera of Saicinae of the New World. *Zookeys*. 966(966):9–39. doi:10.3897/zookeys.966.52930
- Gil-Santana HR, Pinto Gouveia FB, Zeraik SO. 2010. *Tagalis evavilmae* sp. nov. (Hemiptera: Heteroptera: Reduviidae: Saicinae), an inhabitant of birds' nests in Amazonas, Brazil with taxonomical notes and a key to the species of *Tagalis* Stål. *Zootaxa*. 2721:1–14. doi:10.11646/zootaxa.2721.1.1
- Ishikawa T, Okajima S. 2003. The Assassin Bug genus *Polytoxus* (Insecta: Heteroptera: Reduviidae) from Vietnam, with the description of a new species. *Species Diversity*. 8:133–140. doi:10.12782/specdiv.8.133
- Ishikawa T, Yano S. 1999. A new *Polytoxus* (Heteroptera, Reduviidae) from Taiwan. *Japanese Journal of Systematic Entomology*. 5(2):341–345.
- Ishikawa T, Yano S. 2002. A revision of the genus *Polytoxus* (Heteroptera: Reduviidae) from Japan. *Entomological Science Journal*. 5(3):341–360.
- Maldonado Capriles J. 1981. A new *Ghilianella* and a new saicine genus, *Buninotus* (Hemiptera: Reduviidae) from Panama. *Journal of Agriculture of the University of Puerto Rico*. 65(4):401–407. doi:10.46429/jaupr.v65i4.7620
- Maldonado Capriles J. 1990. Systematic catalogue of the Reduviidae of the world (Insecta: Heteroptera). *Universidad de Puerto Rico*. 694.
- McAtee WL, Malloch JR. 1923. Notes on American Bactrodinae and Saicinae (Heteroptera: Reduviidae). *Annals of the Entomological Society of America*. 16:247–255. doi:10.1093/aesa/16.3.247
- Melo MC, Coscarón MC. 2005. *Saicireta correntina*, a new genus and species of assassin bug from Argentina (Heteroptera, Reduviidae, Saicinae) with a key to the New World genera. *Deutsche Entomologische Zeitschrift*. 52(2):245–249. doi:10.1002/mmnd.200410017
- Monte O. 1943. Notas sobre Saicinae (Hemiptera, Reduviidae). *Revista Brasileira de Biologia*. 3(3):361–364.
- Putshkov VG, Putshkov PV. 1985. A catalogue of assassin-bug genera of the world (Heteroptera, Reduviidae). *Kiev*. 137 pp.
- Rédei D, Tsai JF. 2009. A new species of *Gallobelgicus* Distant, 1906 from Taiwan (Insecta: Heteroptera: Reduviidae: Saicinae). *Annalen des Naturhistorischen Museums in Wien. Serie B für Botanik und Zoologie*. 110:77–84.
- Rédei D, Tsai JF. 2010. A survey of the Saicine assassin bugs of Taiwan (Hemiptera: Heteroptera: Reduviidae). *Acta Entomologica Musei Nationalis Pragae*. 50(1):15–32. [https://www.aemnp.eu/data/article-1267/1248-50\\_1\\_15.pdf](https://www.aemnp.eu/data/article-1267/1248-50_1_15.pdf)
- Richards AG, Richards PA. 1979. The cuticular protuberances of insects. *International Journal of Insect Morphology and Embryology*. 8(3-4):143–157. doi:10.1016/0020-7322(79)90013-8
- Schuh RT, Weirauch C. 2020. *True bugs of the world (Hemiptera: Heteroptera)*. Classification and natural history. 2nd ed. Manchester (UK): Siri Scientific Press.
- Spinola M. 1850. Tavola sinottica dei generi spettanti alla classe degli insetti artroidignati, Hemiptera, Linn. Latr. Rhyngota, Fab. – Rhynchota, Burm. Camera, Modena, 138 pp. [also published in *Memorie de Matematica e di Fisica delle Società Italiana delle Scienze*]. 25(1) [1852]:43–178. <https://www.biodiversitylibrary.org/page/9231875>
- Stål C. 1868. Hemiptera Fabriciana. *Kungliga Svenska Vetenskapsakademiens Handlingar*. 7:1–232. <https://www.biodiversitylibrary.org/part/41938>
- Varela PS, Melo MC. 2017. A new species of *Tagalis* Stål, 1860 (Hemiptera, Reduviidae, Saicinae) from Argentina. *Proceedings of the Entomological Society of Washington*. 119(1):122–129. doi:10.4289/0013-8797.119.1.122
- Villiers A. 1969. Revision des Reduviides africains. IV. Saicinae. *Bulletin de l'Institut Française d'Afrique Noire, Série A*. 31:1186–1247.
- Villiers A. 1979. Faune de Madagascar. 49. Insectes Hémiptères Reduviidae. (2eme partie). *Office de la Recherche Scientifique et Technique Outre-mer, Centre National de la Recherche Scientifique*. 49:1–202.
- Weirauch C. 2008a. Cladistic analysis of Reduviidae (Heteroptera: Cimicomorpha) based on morphological characters. *Systematic Entomology*. 33:229–274. doi:10.1111/j.1365-3113.2007.00417.x
- Weirauch C. 2008b. From four- to three-segmented labium in Reduviidae (Hemiptera: Heteroptera). *Acta Entomologica Musei Nationalis Pragae*. 48(2):331–344. [https://www.aemnp.eu/data/article-1179/1160-48\\_2\\_331.pdf](https://www.aemnp.eu/data/article-1179/1160-48_2_331.pdf)
- Weirauch C, Bérenger JM, Berniker L, Forero D, Forthman M, Frankenberg S, Freedman A, Gordon E, Hoey-Chamberlain R, Hwang WS, et al. 2014. An illustrated identification key to assassin bug subfamilies and tribes (Hemiptera: Reduviidae). *Canadian Journal of Arthropod Identification*. 26:1–115. [http://www.biology.ualberta.ca/bsc/ejournal/wetal\\_26/wetal\\_26.html](http://www.biology.ualberta.ca/bsc/ejournal/wetal_26/wetal_26.html)
- Weirauch C, Forero D. 2007a. *Kiskeya palassaina*, new genus and new species of Saicinae (Heteroptera: Reduviidae) from the Dominican Republic. *Zootaxa*. 1468:57–68. doi:10.11646/zootaxa.1468.1.2
- Weirauch C, Forero D. 2007b. *Kiskeyana* new replacement name for the assassin bug *Kiskeya* (Hemiptera: Heteroptera: Reduviidae). *Zootaxa*. 1530:68. doi:10.11646/zootaxa.1530.1.7