

# Two new genera and four new species of Neotropical Ecritotarsini (Heteroptera, Miridae, Bryocorinae)

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## Abstract

In this study two new genera and four new species of Ecritotarsini (Hemiptera: Heteroptera: Miridae: Bryocorinae) are described. *Thomasomiris* **gen. nov.** is established to accommodate *Thomasomiris setosus* **sp. nov.** (from Panama) and *Egerocoris* **gen. nov.**, is described for *E. ecuatorianus* **sp. nov.** (the type species), *E. dimorphus* **sp. nov.** (both from Ecuador) and *E. chaparensis* **sp. nov.** (from Bolivia). Adult habitus and male genitalia photographs are provided for each species. A key to species is also provided and the affinities of the new genera are discussed.

## Key Words

Insecta, Hemiptera, Bolivia, Ecuador, Panama

## Introduction

Ecritotarsini is the most diverse among the five tribes currently recognized in Bryocorinae (Hemiptera: Heteroptera: Miridae) (Namyatova et al. 2016), with about 115 genera (Konstantinov and Knyshov 2015; Schuh and Weirauch 2020) and more than 628 species worldwide (Ferreira et al. 2015; Konstantinov et al. 2018; Henry and Menard 2020). The New World has the greatest diversity with over 70 genera and more than 450 species (Ferreira et al. 2015; Henry and Menard 2020). Carvalho and Ferreira (1995) keyed 66 Neotropical genera and Ferreira and Henry (2011) provided a key to 18 genera occurring in Minas Gerais, Brazil.

Neotropical ecritotarsines can be recognized by the reduced scent gland evaporative area; the large disc-shaped pulvilli covering nearly the entire inner surface of the claws, with a comb-like row of long setae on its outer surfaces (Konstantinov and Knyshov 2015; Namyatova et al. 2016; Konstantinov et al. 2018; Schuh and

Weirauch 2020); the bothrium of femoral trichobothria being deeply recessed and tuberculate (Konstantinov and Knyshov 2015; Namyatova et al. 2016; Schuh and Weirauch 2020); the asymmetrical setiform parempodia (Konstantinov and Knyshov 2015; Konstantinov et al. 2018; Schuh and Weirauch 2020); and the female genitalia possessing an asymmetric, complexly sclerotized vestibulum (Namyatova et al. 2016).

The Ecritotarsini have a great morphological heterogeneity, including their general appearance, size, coloration, and genitalia (Konstantinov and Knyshov 2015; Namyatova et al. 2016; Konstantinov et al. 2018). Males exhibit several projections around the aperture of the genital capsule (Mu and Liu 2012; Henry and Howard 2016; Konstantinov and Zinovjeva 2016; Konstantinov et al. 2018; Menard and Schwartz 2018; Henry and Menard 2020), and internally (Menard and Schwartz 2018). The parameres are diverse, with the right paramere usually being larger and more complex than the left one (Konstantinov 2003; Namyatova et al. 2016;

Konstantinov et al. 2018; Menard and Schwartz 2018; Henry and Menard 2020; Henry 2022). The aedeagus can be simple, membranous, or complex with sclerotizations in different areas (Kerzhner and Konstantinov 1999; Konstantinov 2003; Henry and Howard 2016; Konstantinov et al. 2018). The ductus seminis is entirely membranous or with its apical part typically sclerotized and may be needle-shaped, extends to mouth of the phalotheca in repose, and can be attached to the endosoma (Kerzhner and Konstantinov 1999; Konstantinov 2003; Konstantinov et al. 2018; Menard and Schwartz 2018; Henry and Menard 2020; Henry 2022). According to Namyatova et al. (2016) *Eccritotarsini* is the sister group of *Bryocorini*, but the phylogenetic relationships among its genera are poorly resolved.

In the present contribution two new genera, the first one with one new species from Panama and the other one with three new species from Ecuador and Bolivia, are described and illustrated, and their affinities are discussed. Colour images of the adult male and female and of the male genitalia, except for one of the species that is known only from females, are provided, together with a key to facilitate identification of the species.

## Materials and methods

Specimens are deposited in the Museo de La Plata, La Plata, Argentina (MLP) and the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM).

Label data are cited verbatim. Lines on labels are separated with '/', contents of different labels are separated with '//', remarks are given between square brackets '[]'.

All measurements are given in millimetres; measurements of the holotype between brackets; identical measurements of the same structure of different specimens are provided only once. Anterior width of pronotum is defined as the width across behind margin of collar, and posterior width of pronotum as the width across humeral angles. Genital structures were dissected under stereomicroscope, cleared in 85% lactic acid solution for 45 min, washed in distilled water and preserved in vials with glycerinol. Terminology for male genitalia follows Kerzhner and Konstantinov (1999), Konstantinov (2003) and Menard and Schwartz (2018), except for the endosoma which follows Cassis (2008).

Images were captured using a cellphone Galaxy A52s 5G attached to an Olympus stereomicroscope SZX7 for dorsal habitus, and with a Canon EOS Rebel T7i with a Professional Grade Raynox DCR 150 DSLR Objective Tube Lens and an Objective PLAN Achromatic LWD infinity 5X for external morphology and 10X for dissected genitalia, mounted on a WeMacro's automatic focus stacking rail. Multiple focal planes were taken with Helicon Remote software and merged using Helicon Focus software. Maps were built using QGIS 3.2, localities were georeferenced with Google Earth Pro.

## Results

### Taxonomy

#### *Thomasomiris* gen. nov.

<https://zoobank.org/9FF34EA5-DAB6-426D-87B7-D9BD97CA0EC5>

#### **Type species.** *Thomasomiris setosus* sp. nov.

**Diagnosis.** Head, collar, posterior pronotal lobe, scutellum, and hemelytra with short, erect setae; eyes small, stylate, directed anteriorly (Fig. 1A), less than half head height (Figs 2A, 3A); vertex with a medial longitudinal depression; antennal segment I about half the length of vertex width and almost 4 times as short as antennal segment II; anterior pronotal lobe depressed in lateral view; cuneal fracture extending to middle of corium; cuneus wider than long (Fig. 1A); veins angled at the middle of membrane, slightly surpassing apex of cuneus; and tibiae wide, with abundant semierect setae.

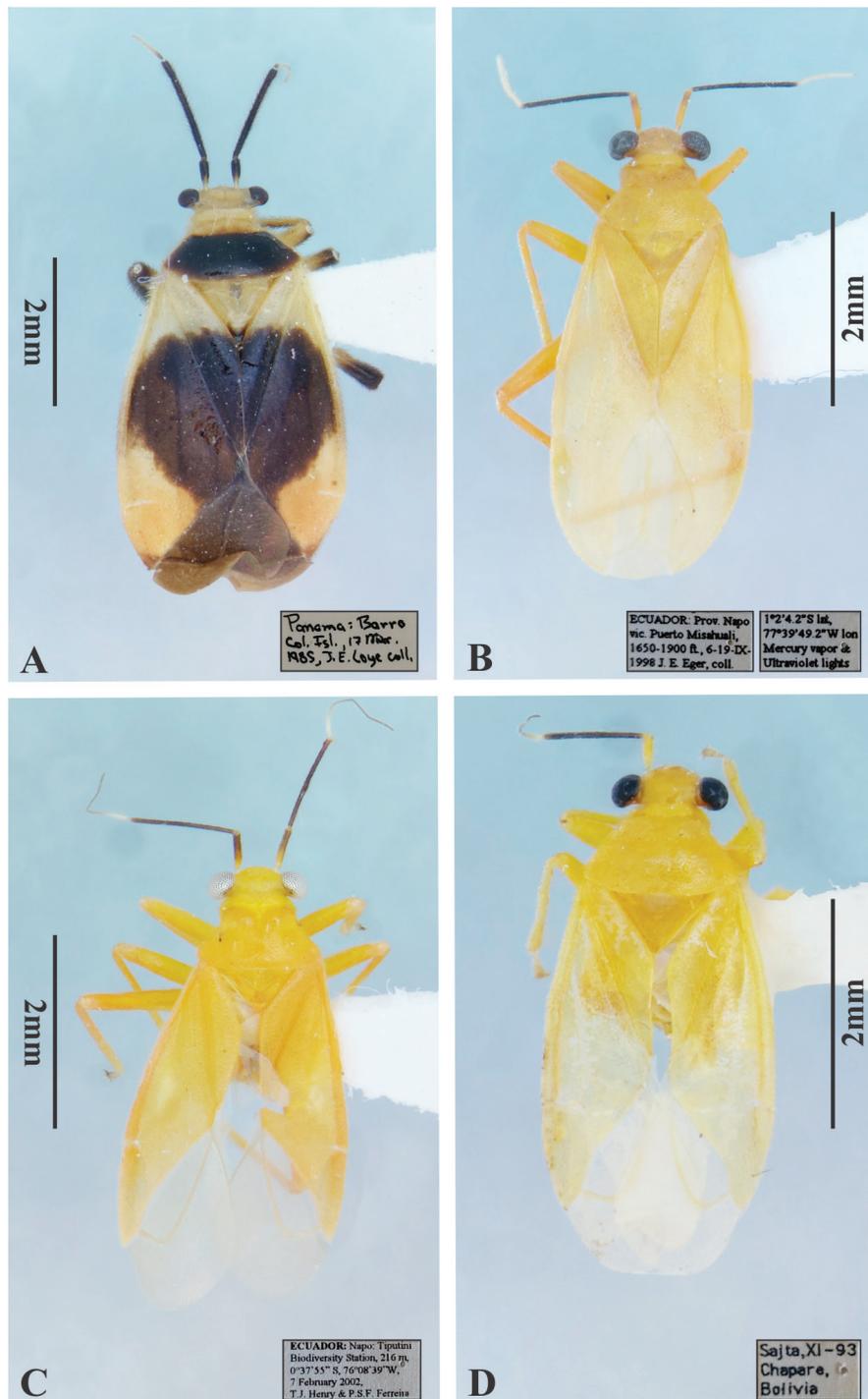
**Description.** *Macropterosus female.* Body length to apex of membrane 5.6–5.7; body length to apex of cuneus 4.6–4.7.

**Surface** shiny, pilose; posterior pronotal lobe evenly punctate. Head with short and erect setae (Fig. 3A); antennal segment I with recumbent setae on distal half (Fig. 3A), antennal segments II–IV with short, recumbent and longer, semierect setae. Collar, posterior pronotal lobe, scutellum and hemelytra with short, erect setae.

**Structure.** Head width more than twice its length. Clypeus flat in lateral view (Fig. 3A), not visible from above. Frons flat in lateral view. Eyes small, less than half head height (Figs 2A, 3A), stylate, directed upwards and anteriorly, interior and posterior margins straight, interior margin at same level with lateral collar margins (Fig. 1A). Maxillary plates rectangular, large, long. Labium extending to base of abdomen. Antennal segment I shortest, about half the length of vertex width, narrower basally; segment II almost 4 times as long as antennal segment I; segment III thinner than II (Fig. 1A); segment IV shorter and thinner than III. Thorax: pronotum trapeziform, slightly directed downwards. Anterior pronotal lobe clearly distinguished from posterior pronotal lobe, depressed in lateral view (Fig. 3A); collar wider than antennal segment I; calli evident, medium-sized, depressed and separated from each other by a median depression. Posterior pronotal lobe flat, with shallow lateral depressions before humeral angles, posterior margin convex (Fig. 1A). Hemelytron flat in lateral view; lateral margin convex (Fig. 1A); embolium flat, thin and slightly expanded in posterior margin; medial fracture visible, adjacent to R+M vein; cuneus wider than long (Fig. 1A); veins angled at middle of membrane and directed posteriorly behind posterior margin of cuneus. Legs: femora flat; metafemora slightly curved; tibiae robust; protibiae flat on distal interior face.

**Male.** Unknown.

**Geographic distribution.** Panama (Fig. 11).



**Figure 1.** *Thomasomiris* gen. nov. and *Egerocoris* gen. nov. new species, dorsal habitus and labels. **A.** *T. setosus* sp. nov., female holotype; **B.** *E. dimorphus* sp. nov., male holotype; **C.** *E. ecuatorianus* sp. nov., male holotype; **D.** *E. chaparensis* sp. nov., male holotype.

**Etymology.** The name of the new genus is formed from the given name of our friend and colleague Dr Thomas J. Henry, who has published numerous important papers on Heteroptera, including many on Miridae, combined with *miris* in reference to its assignment to the family Miridae. Gender masculine.

**Discussion.** The first couplet of the key to the Neotropical ecritotarsine genera (Carvalho and Ferreira 1995) refers to the development of male hemelytra; we assumed

that males of *Thomasomiris* have normal hemelytra, with clavus and corium distinguished and membrane present, so we followed to couplet 3. The two monotypic genera identified in the couplet 2, *Aztecariella* Carvalho, 1951 and *Coleopteromiris* Carvalho, 1946 show different characters from *Thomasomiris*, as a pronotum coarsely punctate and females without division of clavus, corium and cuneus, and without membrane in *Aztecariella*, and sessile eyes and females with coleopteroid hemelytra in *Coleop-*

*teromiris*. Following the key, *Thomasomiris* runs to the couplet 8 where the genera *Hesperolabops* Kirkaldy, 1902 and *Aztecarina* Carvalho, 1974 are identified and are discriminated by male genitalia characters, but unlike *Thomasomiris*, *Hesperolabops* shows strongly pedunculated eyes, a lobate collar, a longer antennal segment I, and a cuneus longer than width, and *Aztecarina* shows a strongly punctate pronotum with its posterior margin sinuated and antennal segments I and II of similar length. Four Neotropical genera were omitted in the Carvalho and Ferreira' key, *Perissobasis* Reuter, 1892, *Eurycipitia* Reuter, 1905, *Bugabacoris* Carvalho & China, 1959 and *Pycnoderiella* Henry, 1993, and five genera were described after 1995, *Cubanomiris* Hernández & Stonedahl, 1996 and *Agaveocoris*, *Laterospinocoris*, *Nigrotomocoris* and *Schaffnerocoris*, described by Henry and Menard 2020 including some species with neotropical distribution. The medium size, the stylate eyes, the labium extending at least to the metacoxae, and the convex lateral margins of hemelytra are similar to those found in species of *Neoneella* Costa Lima, 1942. However, the short, erect setae, the upward and anteriorly directed eyes located far from the collar, the antennal segment II almost 4 times as long as antennal segment I, the flattened anterior pronotal lobe clearly separated from the evenly punctate posterior pronotal lobe with the posterior margin convex, the short, wide cuneus, and the concave posterior margin of cell on membrane forming an acute angle at the middle, distinguish this new genus from *Neoneella* and from all other ecritotarsines.

***Thomasomiris setosus* sp. nov.**

<https://zoobank.org/8F6E7B92-1FB9-4259-8AC5-B99C4B492E56>

Figs 1A, 2A, 3A

**Diagnosis.** Pale yellow with extensive dark areas (Fig. 1A); clypeus longer than half of head height; vertex more than two and a half times as wide as eye width; antenna shorter than length from apex of clypeus to apex of abdomen; scutellum with basal depression extended longitudinally; embolium bent upwards from its anterior end to more than half its length; cuneal fracture long; and cell in membrane with the interior margin anteriorly concave.

**Description. Macropterous female.** Coloration. Head pale yellow (Fig. 1A). Clypeus apex black (Figs 2A, 3A). Labium pale yellow, segments III–IV darker. Eyes black. Antennal segment I dark brown, base pale yellow; segment II dark brown, with faint basal ring yellow; segments III–IV brown. Thorax: collar and calli pale yellow. Posterior pronotal lobe dark brown, lateral margins pale yellow. Scutellum pale yellow, apex dark brown. Pleural area pale yellow, excepting metaepisternum dark brown dorsally. Hemelytron: embolium pale yellow; clavus basal half pale yellow and posterior half dark brown; corium anterior and posterior areas pale yellow, and medially dark brown; external apex of corium and cuneus orange, cuneus apex dark brown; membrane dark brown with dark brown veins. Legs: coxae, trochanters, femora

except apex and basal three quarters of inner face of protibiae pale yellow; apex of femora, rest of protibiae, meso- and metatibiae dark brown; tarsi dark brown with segments I–II paler. Abdomen dark brown.

**Surface.** Head with short, erect setae, more abundant on posterior margin and area adjacent to eyes in dorsal view (Fig. 1A). Labium with semierect setae. Antennal segments II–IV with abundant recumbent setae and some longer semierect setae. Collar, posterior pronotal lobe, scutellum, and hemelytra with abundant, short, erect, yellowish setae, except those on dark brown areas of hemelytra darker. Calli glabrous (Fig. 3A). Veins with very short erect setae. Pleura and abdomen with longer and more dispersed erect setae than dorsum. Coxae, trochanters, femora and tarsi with semierect setae. Tibiae with abundant dark recumbent and semierect setae, thicker than the ones in the femora.

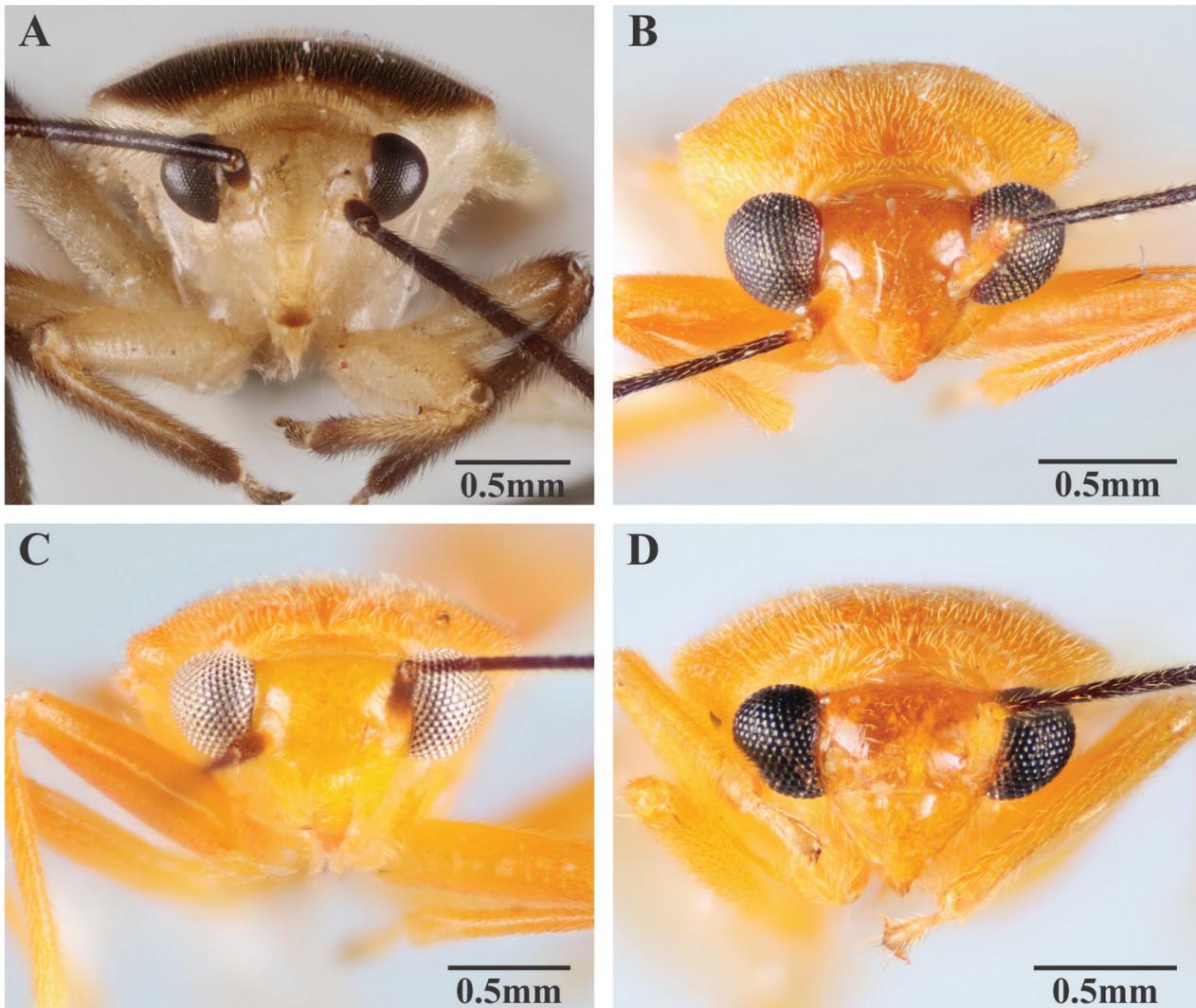
**Structure.** Head: vertex almost twice length of antennal segment I; upper margin at eye level (Fig. 2A), with median longitudinal depression. Labrum not extending half way on labial segment I (Fig. 3A). Gular area not visible. Antennal segment II thinner and between 3–4 times as long as antennal segment I. Antennal segment III almost twice the length of antennal segment I. Thorax: anterior collar margin concave and posterior margin convex, posterior sulcus shallow medially (Fig. 1A). Posterior pronotal margin width more than twice its length; anterior pronotal width less than half posterior pronotal margin width. Calli not attaining lateral pronotal margins. Scutellum with triangular basal depression extended longitudinally. Hemelytron: embolium bent upwards from its anterior end to more than a half its length. Medial fracture shorter than one quarter of corium length. Claval commissure longer than scutellum and half of pronotum length together. Cuneal fracture evident, straight, attaining half of corium width. Interior margin of cuneus concave. Membrane with interior margin concave anteriorly, and posterior margin straight with middle weakly concave (Fig. 1A).

**Measurements** (n: 2): Body length to apex of membrane (5.60), 5.70; body length to apex of cuneus 4.60, (4.70). Head: width 1.28; interocular distance 0.73, (0.74), and (1.38), 1.42 times head height. Labium: segment I length 0.80, (0.86); II, 0.91, (0.96); III, (0.32), 0.34; IV, 0.27, (0.29). Antenna: segment I length (0.40), 0.41; II, 1.55; III, (0.75), 0.80; IV, (0.62), 0.66. Pronotum: length (0.92), 0.95; anterior width 0.95; posterior width 1.92, (1.97). Scutellum: length 0.72, (0.74); width 0.85. Cuneus: length 1.00; anterior width 1.04. Membrane cell (2.06), 2.16 times longer than wide.

**Geographic distribution.** Panama (Fig. 11).

**Type material. Holotype** ♀: Panama: Barro / Col[orado] Isl., 17 Mar. / 1985, J. E. Loye coll. [9°9'N, 79°51'W] (USNM). **Paratype** ♀: Panama: Barro / Col[orado] Isl., 17 Mar. / 1985, J. E. Loye coll. // *Neoneella* / sp. / det. T. J. Henry 1987 (MLP).

**Etymology.** The specific epithet is the Latin adjective *setosus*, -a, -um, meaning 'bristly', in allusion to the abundant short, erect setae of the dorsal surface.



**Figure 2.** *Thomasomiris* gen. nov. and *Egerocoris* gen. nov. new species, head frontal view. **A.** *T. setosus* sp. nov., female holotype; **B.** *E. dimorphus* sp. nov., male holotype; **C.** *E. ecuatorianus* sp. nov., male holotype; **D.** *E. chaparensis* sp. nov., male holotype.

***Egerocoris* gen. nov.**

<https://zoobank.org/10DAE851-82DB-4BD4-9E51-2DEEFD77F055>

**Type species.** *Egerocoris ecuatorianus* sp. nov.

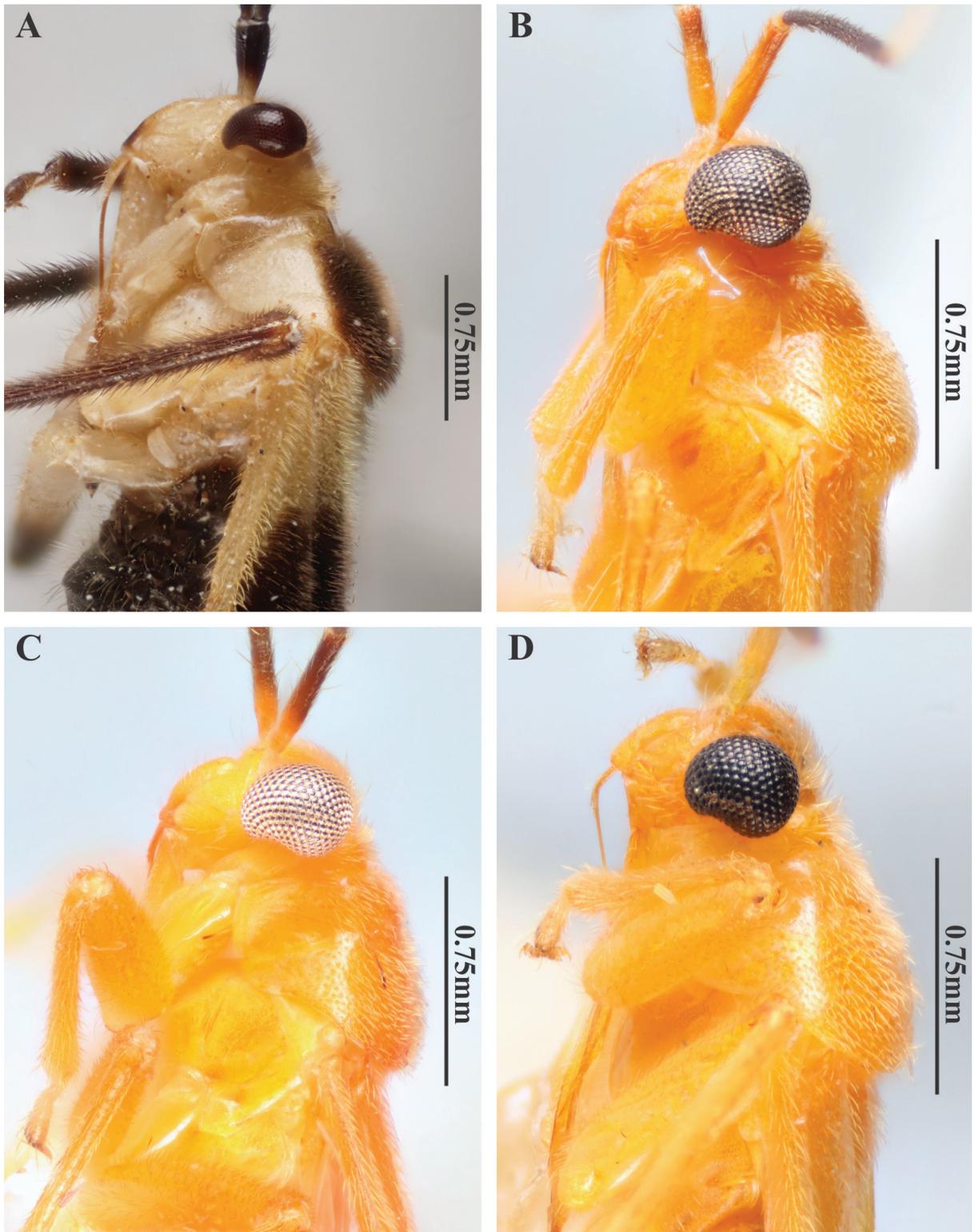
**Included species.** *Egerocoris chaparensis* sp. nov., *E. dimorphus* sp. nov., *E. ecuatorianus* sp. nov.

**Diagnosis.** Eyes large, stylate (Fig. 1B–D), partly covering collar in lateral view (Fig. 3B–D); labrum short, less than half labial segment I length; antennal segment I slightly narrowing on distal half and wider than antennal segment II; collar wider than antennal segment I; embolium flat, bent upwards from its anterior end to less than a half its length; dorsal wall of genital capsule sclerotized, left wall shorter than right wall (Fig. 6); left paramere body triangular, with apical process initially curved and V-shaped in frontal view (Fig. 8); and, ductus seminis basally expanded (Fig. 10A, B).

**Description.** *Macropterous male.* Body length to apex of membrane 4.42–4.66; body length to apex of cuneus 3.95–4.66; body width 1.94–2.43.

**Surface** shiny; posterior pronotal lobe evenly punctate. Head, collar, pronotum and hemelytra with abundant short, recumbent setae.

**Structure.** Head width more than twice length. Clypeus rounded in lateral view, not visible from above. Frons rounded in lateral view (Fig. 3B–D). Vertex flat (Fig. 2B–D), wider than head length. Eyes large, more than half head height, stylate, interior margin straight and at lateral collar margins level (Fig. 1B–D). Gular area not visible. Labium extending at least to metacoxae; segment I concave ventrally. Antennal segment I slightly narrowing on distal half. Antennal segment II straight, slender. Antennal segment III narrowing towards the apex, more slender than segment II. Antennal segment IV straight. Thorax: collar wider than antennal segment I; anterior margin concave and posterior margin straight. Pronotum slightly directed downwards. Calli evident, small to large, separated by a median depression, sometimes attaining to pronotal lateral margins. Posterior pronotal lobe with shallow lateral depressions before humeral angles; posterior margin straight (Fig. 1B–D). Mesoscutum exposed (Fig. 1B). Scutellum with anterior



**Figure 3.** *Thomasomiris* gen. nov. and *Egerocoris* gen. nov. new species, head and pronotum lateral view. **A.** *T. setosus* sp. nov., female holotype; **B.** *E. dimorphus* sp. nov., male holotype; **C.** *E. ecuatorianus* sp. nov., male holotype; **D.** *E. chaparensis* sp. nov., male holotype.

depression. Hemelytron flat in lateral view; lateral margin convex (Fig. 1B–D). Embolium flat, straight to slightly expanded on posterior margin, bent upwards. Medial fracture visible, shorter than half the corium length. Cuneus longer than wide (in one species the length sexually dimorphic as in Fig. 4). Veins angled in middle of membrane before

posterior margin of cuneus; cell with interior and posterior margins straight (Fig. 4). Legs: profemora broader at base. Metafemora slightly curved. Protibiae wider than meso- and metatibiae. Male genitalia: genital capsule length variable relative to abdomen length, longer than wide. Right wall more developed than left wall. Dorsal wall in lateral view

straight, well developed laterally, with sclerotized processes (Fig. 5B, D, F); posterior margin concave. Ventral wall in lateral view oblique, more developed than the dorsal wall (Fig. 6); posterior margin sinuate. Subgenital plate with two processes, one on the left side and one on the right side (Fig. 7); each one embedded with corresponding paramere. Genital opening broad, dorsally directed. Left paramere (Fig. 8) smaller or larger than right paramere; body broad, triangular; apical process well developed, basally curved; expanded or not at apex. Right paramere (Fig. 9) simpler than left paramere; uniformly wide; slightly to strongly curved. Aedeagus (Fig. 10) small and simple; phallosome membranous on basal half, sclerotized on distal half. Ductus seminis basally expanded, membranous and not folded; sclerotized behind last curvature; apex extending to middle of phallosome; endosoma membranous to sclerotized.

**Macropterous female.** Body length to apex of membrane 4.28–4.94; body length to apex of cuneus 3.7–4.51; body width 1.97–2.09. Lateral margins of hemelytra either convex or (in species with sexual dimorphism) parallel with less well developed cuneus.

**Geographic distribution.** Bolivia, Ecuador (Fig. 11).

**Etymology.** The name of the genus is formed from the family name of Joe Eger, who has extensively collected Heteroptera, including one of the specimens studied herein, and published several papers on the group, combined with the latinized Greek noun *coris*, meaning “true bug”. Gender masculine.

**Discussion.** *Egerocoris* resembles *Neella* in general appearance, but in *Neella* the eyes are stylated but not covering the lateral margins of collar, the postocular region of head present a patch of setae, the antennal segment I is straight and as wide as II, the subgenital plate lacks processes and the parameres are simpler.

*Egerocoris* runs to the couplet 8 in the key to the Neotropical ecritotarsine genera (Carvalho and Ferreira 1995) where the genera *Hesperolabops* Kirkaldy, 1902 and *Aztecacarina* Carvalho, 1974 are identified. These gen-

era are quite different from *Egerocoris*, since *Hesperolabops* shows strongly pedunculated eyes, a lobate collar, and a curved spiniform projection in the genital capsule, and *Aztecacarina* shows a strongly punctate pronotum with its posterior margin sinuated and antennal segments I and II of similar length. The character states of the large, stylate eyes that partly cover the collar in lateral view, the short labrum, the long labium extending at least to metacoxae, the slightly narrowing antennal segment I on the distal half and wider than antennal segment II, the collar being wider than antennal segment I, the posterior pronotal lobe evenly punctate with its posterior margin straight, and the embolium being flat, bent upwards from its anterior end to less than a half its length, combined with characters of the male genitalia, including the presence of sclerotizations in the dorsal wall of the genital capsule, the processes on the subgenital plate embedding the parameres, and the triangular left paramere with a well-developed apical process, allow the recognition of this genus from the four genera omitted in Carvalho and Ferreira’s key and the five genera described afterwards detailed in the *Thomasomiris* discussion above.

*Egerocoris dimorphus* sp. nov. shows sexual dimorphism in the shape and length of cuneus similar to *Proneella* Carvalho, 1960, but the hemelytra are slightly more convex, and the cuneus is wider relative to its length. This species runs to the couplet 13 in the Carvalho and Ferreira’s key (1995) where *Proneella* and *Neoneella* Costa Lima, 1942 are identified. According to Carvalho (1960), the sexual dimorphism relates *Proneella* with *Neoneella*, and in both genera the included species also share several characters from internal and external morphology. Among the three species of *Egerocoris* two of them lack sexual dimorphism, but share several characters from the male genitalia and from the external morphology allowing us to infer a close relationship and justifying the inclusion of these species in the same genus, besides the absence of sexual dimorphism in *E. ecuatorianus* sp. nov. and *E. chaparensis* sp. nov.

## Key to species of *Egerocoris*

- 1 Antennal segment I unicolorous (Fig. 3D). Clypeus length less than or equal to half head height. Labial segment I deeply concave ventrally. Internal margins of cell separated with hemelytra in repose (Fig. 1D). Right paramere larger than left, C-shaped in dorsal view (Fig. 9F). Right process of subgenital plate ending in numerous asymmetric teeth (Fig. 7E, F) ..... *E. chaparensis* sp. nov.
- Antennal segment I bicolored, darker distally (Fig. 3B, C). Clypeus length greater than half head height. Labial segment I slightly concave ventrally. Internal margins of cell overlapping in anterior half with hemelytra in repose (Fig. 1B). Right paramere smaller than left, “V”-shaped in dorsal view (Fig. 9B, D). Right process of subgenital plate ending in simple pointed apex (Fig. 7A–D) ..... 2
- 2 Antennal segment III yellow (Fig. 1B). Labial segment I shorter than vertex width. Embolium longer than abdomen. Claval commissure shorter than twice scutellum length. Internal margin and length of cuneus sexually dimorphic (males with concave internal margin and cuneus extending to posterior margin of membrane, without contacting each other with hemelytra in repose; females with cuneus short, not extending to posterior margin of membrane) (Fig. 4). Female subgenital plate equal to or shorter than anterior margin width ..... *E. dimorphus* sp. nov.
- Antennal segment III basally yellow and distally darker (Fig. 1C). Labial segment I longer than vertex width. Embolium shorter than abdomen. Claval commissure longer than twice scutellum length. Internal margin and length of cuneus not sexually dimorphic, not extending to posterior margin of membrane on both sexes. Female subgenital plate longer than anterior margin width ..... *E. ecuatorianus* sp. nov.

***Egerocoris dimorphus* sp. nov.**

<https://zoobank.org/B4381DE7-5D26-4F18-A037-F2B845E097F5>

Figs 1B, 2B, 3B, 4, 5A, B, 6A, B, 7A, B, 8A, B, 9A, B, 10A

**Diagnosis.** Antennal segment I bicolored, darker distally (Figs 1B, 3B), segment III whitish; femora yellow and irregularly tinged with orange; level of vertex not attaining dorsal margin of eyes; labium extending to metacoxae and segment I slightly concave ventrally; calli large, not attaining pronotal lateral margins; embolium longer than abdomen; internal margin of cell straight; sexual dimorphism on internal margin and length of cuneus (Fig. 4A, B), which is concave in males and reaches posterior margin of membrane without contacting each other with hemelytra in repose; cell 3 times as long as wide; genital capsule with a dorsal sclerotized tooth in right side (Figs 5B, 6A); left process of subgenital plate smaller than the right, sclerotized and asymmetrically forked (Fig. 7A, B); left paramere larger than right paramere.

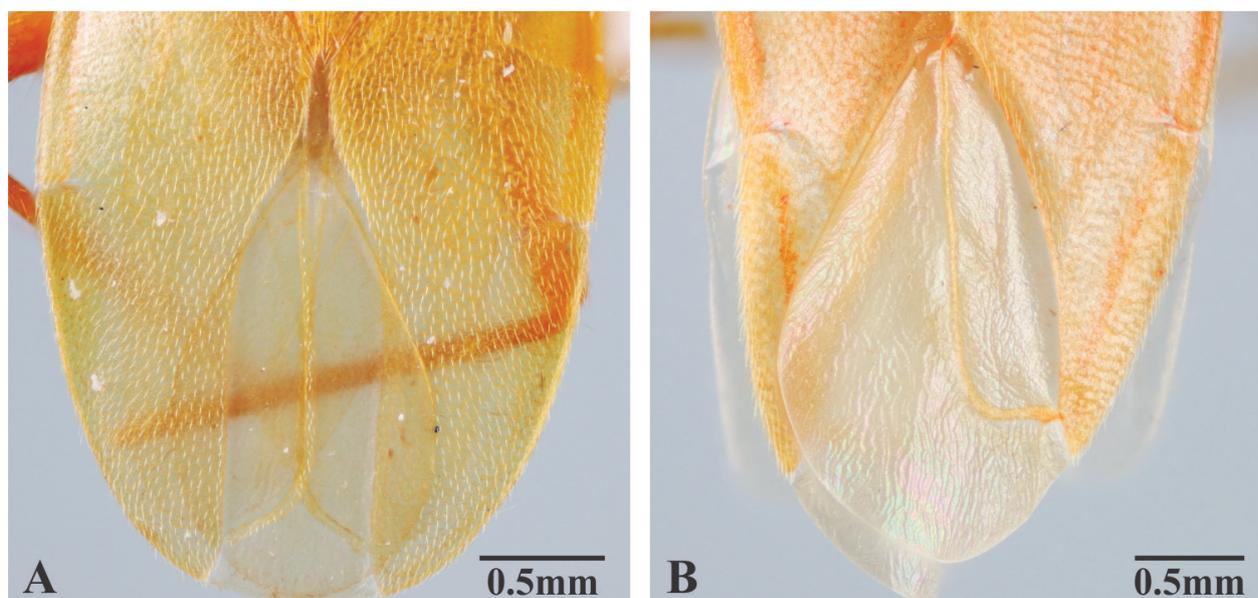
**Description. Macropterous male.** Coloration. Head yellow; labium yellow; eyes black. Antennal segment I yellow, darker distally; II dark brown; III pale yellow; IV pale yellow. Thorax: collar, pronotum, scutellum and pleural area yellow. Hemelytron yellow, irregularly tinged with orange; membrane yellowish; veins yellow. Legs yellow, femora and tibiae tinged with orange, tarsi darker distally, claws brown. Abdomen yellow.

**Surface.** Antennal segment I with recumbent setae and a few erect setae (Fig. 3B); segment II with semierect setae. Pleura and abdomen with longer, more dispersed setae than dorsum. Coxae, trochanters, femora and tarsi with semierect setae; tibiae with abundant, short, recumbent setae.

**Structure.** Head: level of vertex not attaining dorsal margin of eyes (Fig. 2B). Maxillary plates large. Labium extending to metacoxae and slightly concave ventrally. Antennal segment II more than 2.5 times as long as antennal segment I. Thorax: posterior pronotal margin 2 times

as wide as pronotum length. Calli large not attaining lateral pronotal margins. Pronotal width across calli half as wide as posterior margin width. Hemelytron: embolium straight, bent upwards from its anterior end to less than a half its length. Claval commissure longer than scutellum length and half of pronotal length together. Cuneus extending to posterior membrane margin, apex not contacting each other with hemelytra in repose (Fig. 4), internal margin concave. Male genitalia: Genital capsule more than one third abdomen length. Dorsal wall on right apex with one sclerotized tooth, tapering towards apex; left apex blunt and sclerotized. Left process of subgenital plate directed dorsally as a sclerotized wall, dorsally expanded, and divided into two short branches, the internal blunt and the external pointed and extended outside the genital capsule (Figs 5A, B, 6A, 7A, B). Right process of subgenital plate longer than left process, tapering towards apex, curved (Fig. 7A, B), with a basal, internal expansion. Left paramere (Fig. 8A, B) larger than the right paramere, with a sclerotized and pointed dorsal projection; apical process with tiny teeth on dorsal margin, dorsally expanded at apex. Right paramere (Fig. 9A, B) with body wider than basal and apical processes, curved; apical process blunt, with a sclerotized, pointed tooth. Aedeagus (Fig. 10A) phallosome tapering towards apex; endosoma membranous.

**Measurements** (n: 2): Body length to apex of membrane 4.42, (4.66); body length to apex of cuneus 4.42, (4.66); body width 2.23, (2.43). Head: width 1.19, (1.31); interocular distance 0.53, (0.56), 1.20 (1.27) times as wide as head length. Labium: segment I length 0.43, (0.52); II, 0.52, (0.60); III, 0.20; IV, 0.20. Antenna: segment I length 0.48, (0.56); II, 1.36, (1.49); III, 0.78, (0.85); IV, 0.84, (absent). Pronotum: length 0.74, (0.82); anterior width (0.86), 0.88; posterior width 1.49, (1.58). Scutellum: length 0.53, (0.60); width 0.77. Cuneus: length 1.58, (1.70); anterior width 0.90, (0.95). Cell 3.00 times as long as wide.



**Figure 4.** *Egerocoris dimorphus* sp. nov., dorsal view of cuneus. **A.** Male holotype; **B.** Female paratype.

**Macropterous female.** Similar to male in size, coloration, surface, and structure. Lateral margins of hemelytra parallel; cuneus less developed, without extending to posterior membrane margin, 1.5 times as long as anterior margin width, and internal margin concave with apex truncate; posterior veins margin straight. Body length to apex of membrane 4.94; body length to apex of cuneus 4.51; body width 2.02. Head: width 1.23; interocular distance 0.58. Labium: segment I length 0.46; II, 0.62; III, 0.19; IV, 0.2. Antenna: segment I length 0.52; II, 1.36; III, 0.74; IV, 0.79. Pronotum: length 0.82; anterior width 0.89; posterior width 1.66. Scutellum: length not measured; width 0.76. Cuneus: length 1.28; anterior width 0.84.

**Geographic distribution.** Ecuador (Fig. 11).

**Etymology.** The specific epithet is from the Greek *di* (two), and *morphe* (form), referring to the sexual dimorphism in cuneal development.

**Type material.** **Holotype** ♂: Ecuador: Prov. Napo [Orellana] / vic. Puerto Misahuali, / 1650–1900 ft, 6–19–IX– / 1998, J. E. Eger, coll. // 1°2'4.2"S, 77°39'49.2"W / Mercury vapor & / Ultraviolet lights (USNM). **Paratypes:** ♂, Ecuador: NAPO [Orellana] Res. Ethnica / Waorani, 1 km S. Onkone Gare / Camp, Trans. Ent. 21 June 1994 / 220m 00°39'10"S, 076°26'00"W / T. L. Erwin, et al. // Insecticidal fogging of mostly bare / green leaves, some with covering / of lichenous or bryophytic plants in / terre firme forest At 8 x-trans, / 94 m mark Project MAXUS Lot 708 (MLP); ♀, Ecuador: Napo [Orellana], Tiputini / Biodiversity Station, 216 m, / 00°37'55"S, 76°08'39"W, /

9 February 1999 / T.L Erwin et al., collectors // Insecticidal fogging of mostly / bare green leaves, some with / covering of lichenous or / bryophytic plants; / Lot #2002, Transect #T–1 (USNM).

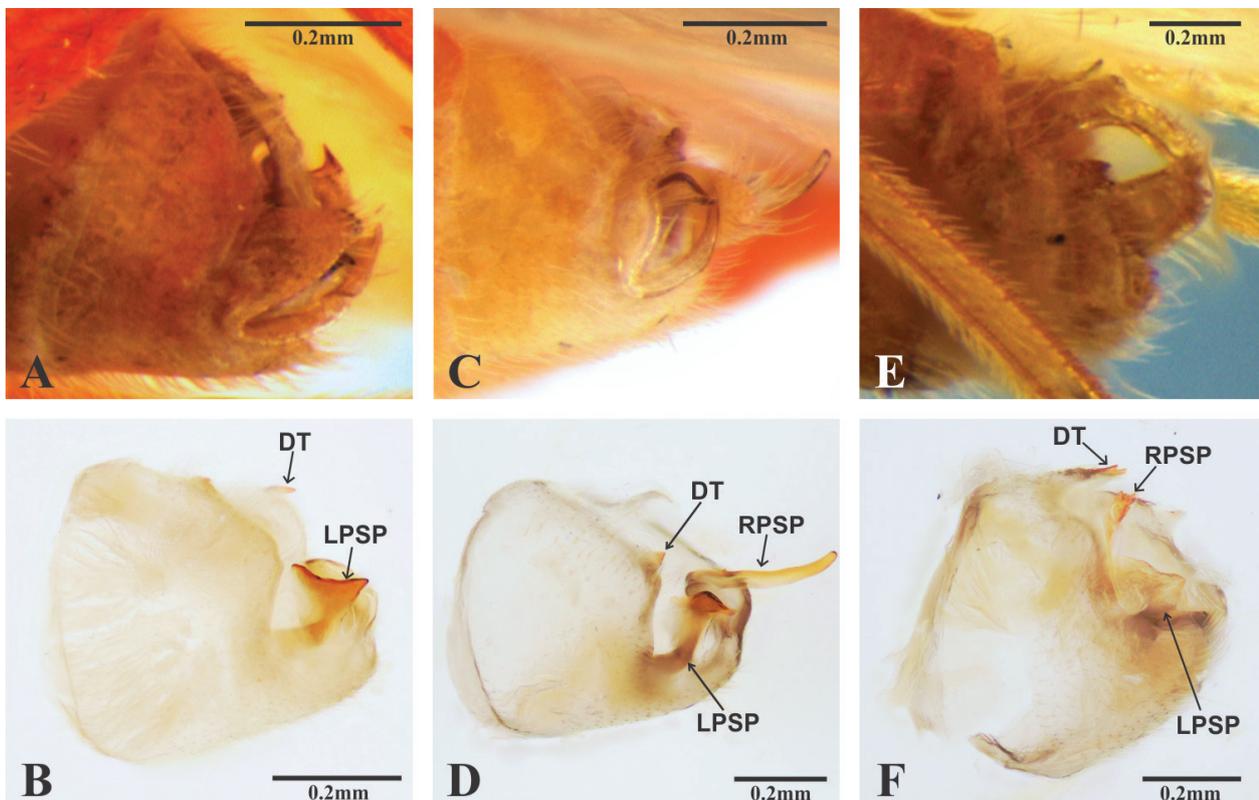
**Remarks.** This species is sexually dimorphic in the shape and length of cuneus (Fig. 4), and in this respect it is similar to species of *Proneella*, which have the lateral margins of the hemelytra slightly convex and the cuneus narrower relative to its length. Also, in species of *Proneella* the eyes are sessile, the level of vertex attains the dorsal margin of the eyes, the antennal segment I is straight, the antennal segment II is widest in the central or distal area, the calli are small, and the posterior margin of the cell is straight.

***Egerocoris ecuatorianus* sp. nov.**

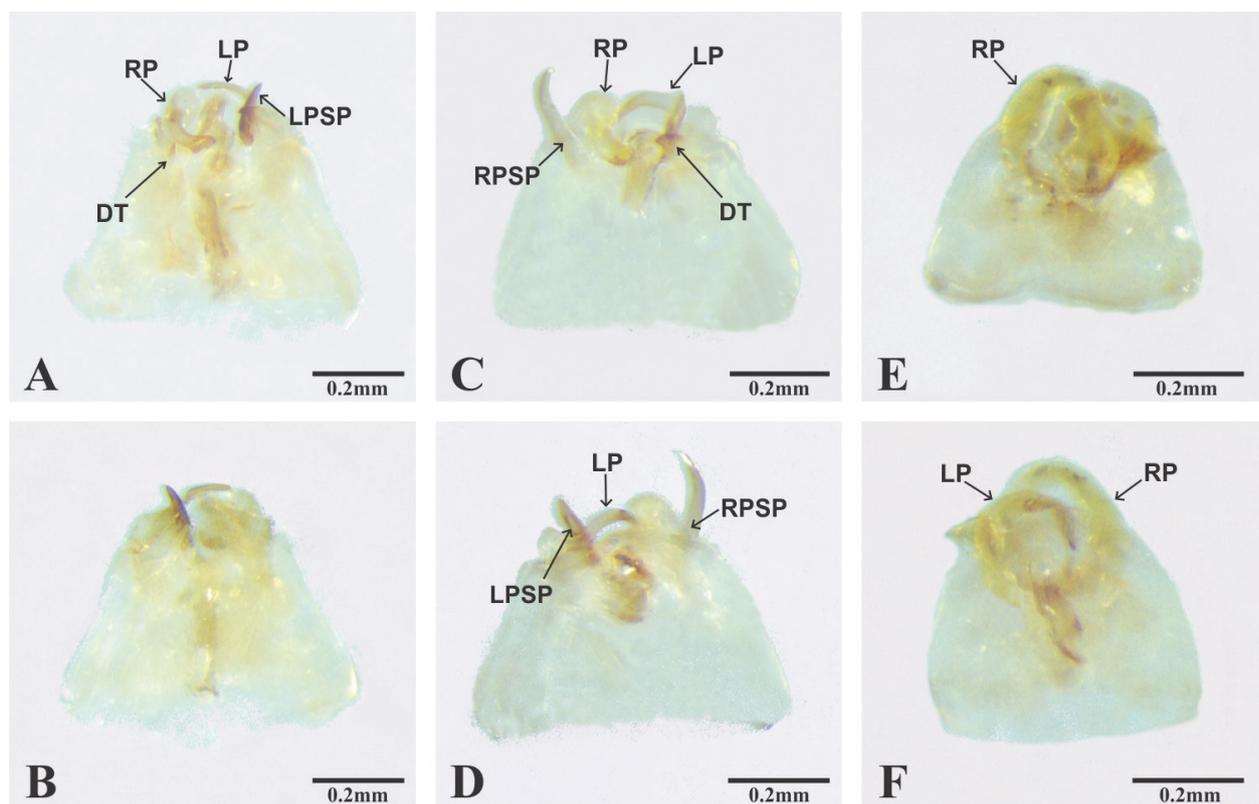
<https://zoobank.org/EB3EE0D7-40C1-4FF0-BAB9-ECE165ED5521>

Figs 1C, 2C, 3C, 5C, D, 6C, D, 7C, D, 8C, D, 9C, D, 10B

**Diagnosis.** Antennal segment I bicolored, lighter basally (Figs 2C, 3C), and segment III with basal half pale yellow, distal half darker; femora yellow and irregularly tinged with orange; level of vertex not attaining the dorsal margin of eyes (Fig. 2C); labium extending to abdominal segment III and segment I slightly concave ventrally; calli large, attaining lateral pronotal margins; embolium shorter than abdomen; internal margin of cell straight; internal margin and length of cuneus not sexually dimorphic



**Figure 5.** *Egerocoris* gen. nov. new species, left lateral view of genital capsule. **A, B.** *E. dimorphus* sp. nov.; **C, D.** *E. ecuatorianus* sp. nov.; **E, F.** *E. chaparensis* sp. nov.; **A, C, E.** Genital capsule not dissected; **B, D, F.** Genital capsule dissected; **DT**–dorsal tooth; **LPSP**–left process of subgenital plate; **RPSP**–right process of subgenital plate.



**Figure 6.** *Egerocoris* gen. nov. new species, dorsal and ventral views of genital capsule. **A, B.** *E. dimorphus* sp. nov.; **C, D.** *E. ecuratorianus* sp. nov.; **E, F.** *E. chaparensis* sp. nov.; **A, C, E.** Genital capsule dorsal view; **B, D, F.** Genital capsule ventral view; **DT**—dorsal tooth; **RP**—right paramere; **LP**—left paramere; **LPSP**—left process of subgenital plate; **RPSP**—right process of subgenital plate.

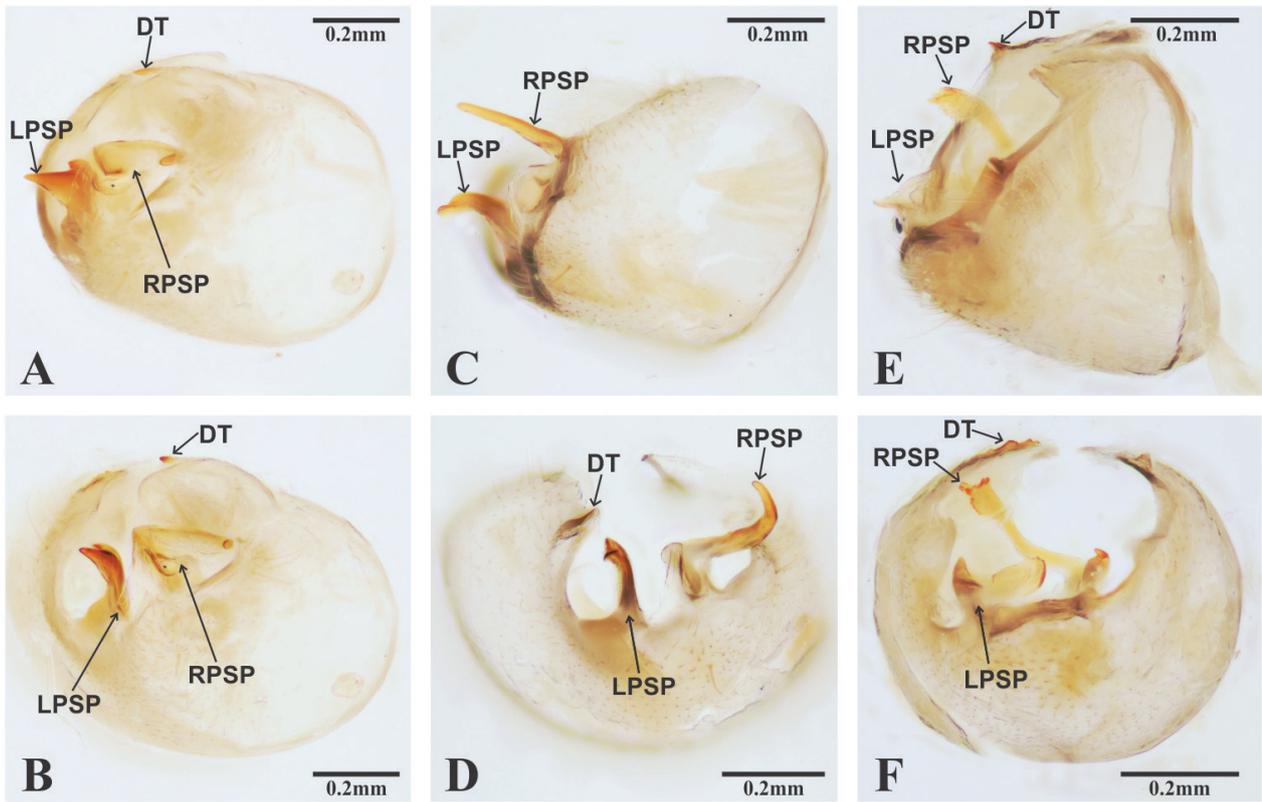
(Fig. 1C); genital capsule with a sclerotized broad tooth on left apex of posterior margin (Figs 5D, 6C); left process of the subgenital plate sclerotized, pointed, curved (Fig. 7C); left paramere same size as right paramere; and female subgenital plate longer than anterior margin width.

**Description. Macropterous male.** Coloration. Head yellow. Clypeus apex reddish. Labrum reddish. Labium yellow, segments II–IV pale yellow. Eyes silver. Antennal segment I brown, base yellow; II, brown; III, basal half pale yellow, distal half darker; IV, brown. Thorax: collar yellow. Pronotum orange. Mesoscutum yellow. Scutellum yellow, apex orange. Pleural area yellow. Hemelytron orange. Membrane and veins yellow. Legs: coxae and trochanters pale yellow. Femora and tibiae yellow and irregularly tinged with oranges. Tarsi pale yellow. Claws brown. Abdomen yellow.

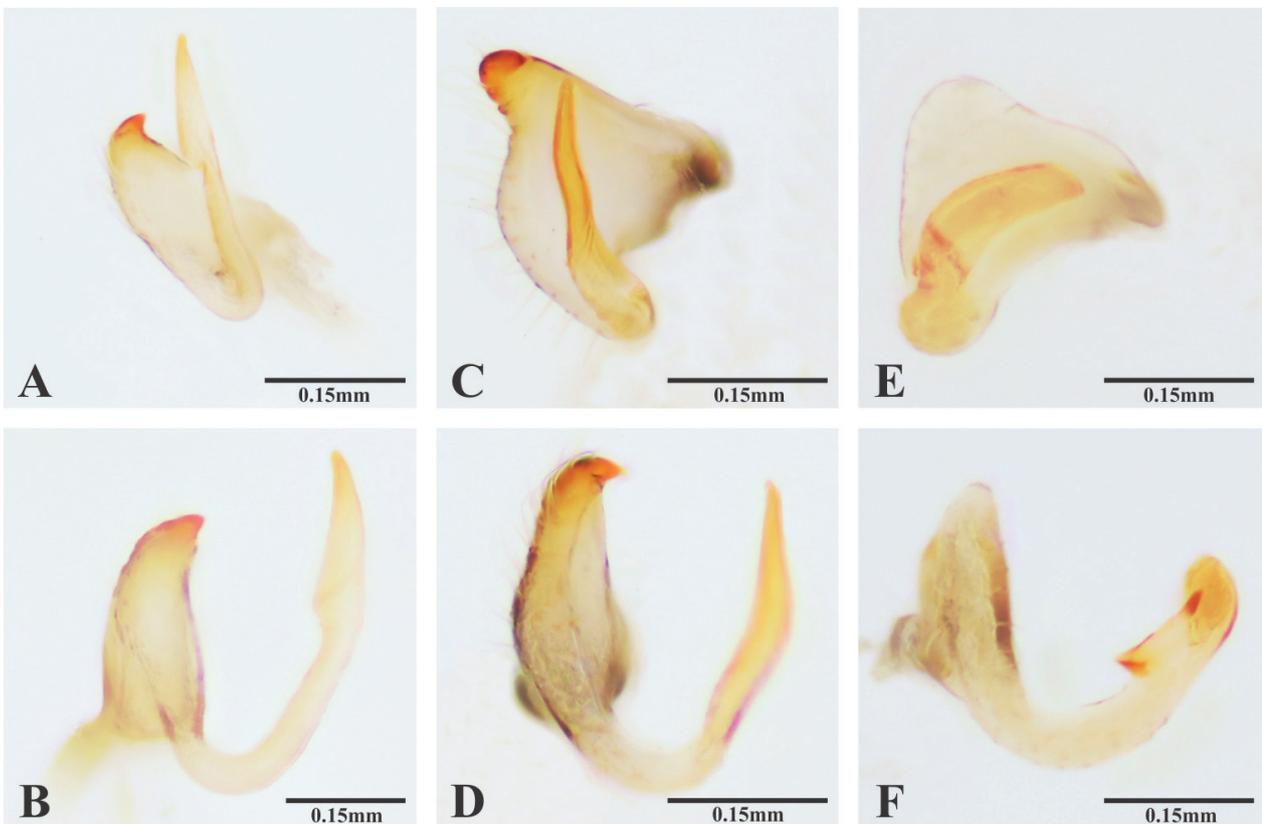
**Surface.** Antennal segment I with recumbent setae and a few erect setae (Fig. 3C). Antennal segments II–III with semierect setae and some erect setae. Antennal segment IV with semierect setae. Pleural area and abdomen with longer and more dispersed setae than dorsum. Coxae, trochanters, femora, and tarsi with semierect setae. Tibiae with abundant recumbent setae.

**Structure.** Head: level of vertex not attaining dorsal margin of eyes (Fig. 2C). Maxillary plates medium-sized, wide. Labium extending to abdominal segment III, segment I extending to procoxae and slightly concave ventrally. Antennal segment II more than 2 times as long as

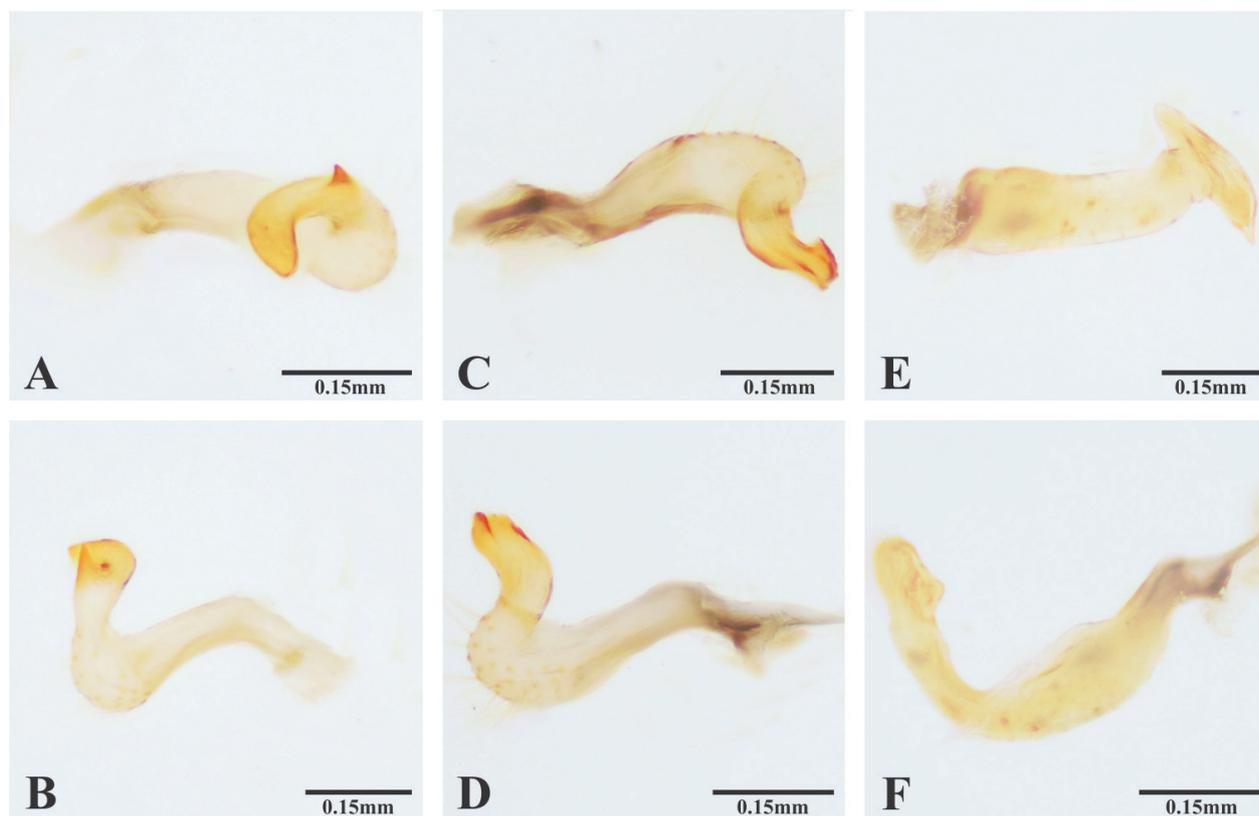
antennal segment I. Thorax: posterior pronotal margin 2 times as wide as pronotum length. Calli attaining lateral pronotal margins. Pronotal width across calli more than half of posterior margin width. Hemelytron: embolium slightly wider at posterior margin, bent upwards from its anterior end to less than a half its length. Internal margin of cuneus concave (Fig. 1C). Male genitalia: genital capsule less than one quarter abdomen length, almost 2 times as wide as long. Right wall straight. Left wall convex on anterior half and concave on posterior half. Dorsal wall at left apex with evident concavity, adjacent margin sclerotized and bent upwards as a broad tooth (Figs 5C, D, 6C). Left process of subgenital plate smaller than right process, flat and broad internally, curved at pointed apex (Fig. 7D). Right process of subgenital plate longer than left process, broad basally and tapered towards apex, curved, with a left basal expansion (Fig. 7C, D). Left paramere (Fig. 8C, D) almost the same size as right paramere, with a sclerotized and pointed dorsal projection; ventral margin concave; apical process tapering towards the sclerotized apex. Right paramere (Fig. 9C, D) with body wider than basal and apical processes, curved; apical process narrower apically, curved, apex rounded, flat and bent, appearing as an internal, flat, broad tooth. Aedeagus (Fig. 10B) phallosoma sclerotized on distal half dorsally and at middle as a stripe. Ductus seminis sclerotized at the same level as phallosoma dorsally; endosoma membranous, base sclerotized.



**Figure 7.** *Egerocoris* gen. nov. new species, subgenital plate. **A, B.** *E. dimorphus* sp. nov.; **C, D.** *E. ecuatorianus* sp. nov.; **E, F.** *E. chaparensis* sp. nov.; **A.** Subgenital plate right posterolateral view; **C, E.** Subgenital plate right lateral view; **B, D, F.** Subgenital plate posterior view; **DT**–dorsal tooth; **LPSP**–left process of subgenital plate; **RPSP**–right process of subgenital plate.



**Figure 8.** *Egerocoris* gen. nov. new species, left paramere. **A, B.** *E. dimorphus* sp. nov.; **C, D.** *E. ecuatorianus* sp. nov.; **E, F.** *E. chaparensis* sp. nov.; **A, C, E.** Interior view; **B, D, F.** Posterior view.



**Figure 9.** *Egerocoris* gen. nov. new species, right paramere. **A, B.** *E. dimorphus* sp. nov.; **C, D.** *E. ecuatorianus* sp. nov.; **E, F.** *E. chaparensis* sp. nov.; **A, C, E.** Interior view; **B, D, F.** Dorsal view.

**Measurements:** Body length to apex of membrane 4.61; body length to apex of cuneus 4.3; body width 2.18. Head: width 1.13; interocular distance 0.54, 1.17 times as wide as head length and 1.08 times as wide as antennal segment length. Labium: segment I length 0.56; II, 0.66; III, 0.23; IV, 0.22. Antenna: segment I length 0.5; II, 1.26; III, 0.77; IV, 0.67. Pronotum: length 0.71; anterior width 0.80; posterior width 1.42. Scutellum: length 0.48; width 0.72. Claval commissure more than 2 times as long as scutellum. Cuneus: length 1.18; anterior width 0.67. Cell 2.55 times as long as wide.

**Macropterous female.** Similar to males in size, coloration, surface, and structure, with medial fracture longer than half of corium. Body length to apex of membrane 4.84; body length to apex of cuneus 4.37; body width 2.02. Head: width 1.16; interocular distance 0.54; vertex 1.22 times as wide as head length and 1.14 times as wide as antennal segment I length. Labium: segment I length 0.58; II, 0.68; III, 0.22; IV, 0.22. Antenna: segment I length 0.50; II, 1.18; III, 0.80; IV, 0.78. Pronotum: length 0.74; anterior width 0.84; posterior width 1.50. Scutellum: length 0.47; width 0.73. Cuneus: length 1.03; anterior width 0.68. Cell 2.63 times as long as wide.

**Geographic distribution.** Ecuador (Fig. 11).

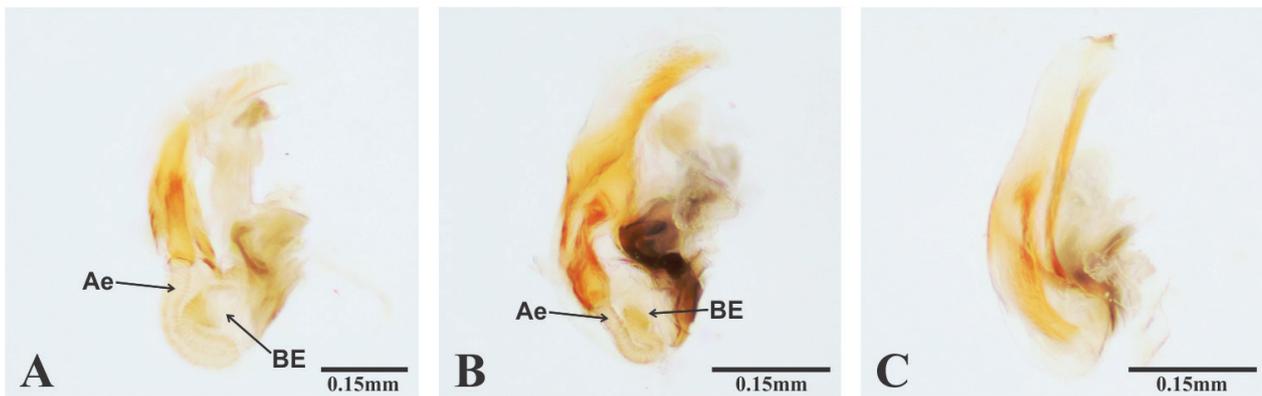
**Etymology.** The specific epithet is a latinized adjective created from the Spanish adjective *ecuatoriano*, -a, meaning “related to the Ecuador”, in reference to the country Ecuador, where the specimens were collected.

**Type material.** **Holotype** ♂: Ecuador: Napo [Orellana]: Tiputini / Biodiversity Station, 216 m, / 0°37'55"S, 76°08'39"W, / 7 February 2002, / T. J. Henry & P. S. F. Ferreira (USNM). **Paratype** ♀: Ecuador: Napo [Orellana]: Tiputini / Biodiversity Sta., Tower 1, / 0°37'55"S, 76°08'39"W, / 216 m, 3 February 2002, / T. J. Henry & P. S. F. Ferreira / Ex. Mercury vapor light (USNM).

***Egerocoris chaparensis* sp. nov.**

<https://zoobank.org/7664DCA6-2FCC-4A6C-9C82-8BD4BD8C999B>  
Figs 1D, 2D, 3D, 5E, F, 6E, F, 7E, F, 8E, F, 9E, F, 10C

**Diagnosis.** Antennal segment I yellow (Fig. 3D), segment III with basal half pale yellow, distal half darker; femora yellow; level of vertex attaining dorsal margin of eyes (Fig. 2D); labium extending at least to metacoxae and segment I deeply concave ventrally and narrowing distally; calli small, not attaining lateral pronotal margins; embolium longer than abdomen; internal margin of cell convex; without sexual dimorphism on internal margin and length of cuneus (Fig. 1D); dorsal wall of genital capsule well developed, with two tiny medial and sclerotized teeth (Figs 5F, 7E, F); left process of subgenital plate C-shaped in dorsal view, divided into two broad branches; right process ending in many asymmetrical teeth (Fig. 7E, F); left paramere smaller than the right paramere; right paramere curved, with apex expanded dorsoventrally (Fig. 9E); and aedeagus less than or as long as the genital capsule.



**Figure 10.** *Egerocoris* gen. nov. new species, aedeagus right lateral view. **A.** *E. dimorphus* sp. nov.; **B.** *E. ecuatorianus* sp. nov.; **C.** *E. chaparensis* sp. nov.; Ae–aedeagus; BE–basal expansion.



**Figure 11.** Distributional map of the species included in the genera *Thomasmiris* gen. nov. and *Egerocoris* gen. nov. Blue dot represents occurrence of *Thomasmiris setosus* sp. nov.; yellow dots represent occurrences of *Egerocoris dimorphus* sp. nov.; orange dot represents occurrence of *E. ecuatorianus* sp. nov.; in grey the province Chapare (Bolivia) where *E. chaparensis* sp. nov. occurs.

**Description. Macropterous male.** Coloration. Head yellow. Labium yellow. Eyes black with silver spots. Antennal segment I yellow; II, dark brown; III, basal half whitish, more than distal half brown. Thorax: collar, pronotum, scutellum and pleural area yellow. Hemelytron, legs and abdomen yellow, tarsi whitish.

**Surface.** Antennal segment I–II with recumbent setae, and a few semierect setae, more abundant on segment II. Antennal segments III with semierect setae and a few erect setae. Pleural area and abdomen with longer

and more disperse setae than dorsum. Coxae, trochanters, femora, and tarsi with semierect setae. Tibiae with abundant recumbent setae.

**Structure.** Head: level of vertex attaining dorsal margin of eyes (Fig. 2D). Maxillary plates long and thin. Labium just beyond metacoxae; segment I, deeply concave ventrally and narrowing distally; II, thin and long; III–IV, wider and short. Antennal segment II more than 2 times as long as antennal segment I. Thorax: posterior pronotal margin 2 times as wide as pronotum length.

Calli small, not attaining lateral pronotal margins. Pronotal width across calli more than half of posterior margin width. Hemelytron: embolium straight, bent upwards from its anterior end to more than anterior third; longer than abdomen. Claval commissure longer than scutellum and half pronotum length combined. Internal margin of cuneus concave (Fig. 1D). Male genitalia: genital capsule more than one third abdomen length. Dorsal wall with two tiny, medial, sclerotized teeth directed upwards; the left tooth larger than the right (Figs 5E, F, 7E, F). Subgenital plate with two large processes at the level of paramere insertions. Left process, shorter than right process, flat, broad basally and forked. Right process longer, thinner, extremely broad basally with small external tooth, C-shaped, apex with several asymmetrical teeth (Fig. 7E, F). Left paramere (Fig. 8E, F) smaller and broader than right paramere, with a blunt dorsal projection, apical process with an internal, triangular, tooth, apex flat, thin and sclerotized. Right paramere (Fig. 9E, F) curved; body wide basally, narrowed distally; apical process expanded dorsoventrally, dorsal expansion blunt, with ventral expansion pointed. Aedeagus (Fig. 10C) phallosome sclerotized on left side, with a dorsal stripe and a ventral oblique stripe sclerotized; endosoma sclerotized.

**Measurements:** Body length to apex of membrane 4.46; body length to apex of cuneus 3.95; body width 1.94. Head: width 1.08; interocular distance 0.56, 1.22 times as wide as head length and 1.47 times as wide as antennal segment I length. Labium: segment I length 0.52; II, 0.62; III, 0.17; IV, 0.18. Antenna: segment I length 0.38; II, 0.91; III, not measured; IV, absent. Pronotum: length 0.71; anterior width 0.80; posterior width 1.46. Scutellum: length 0.50; width 0.74. Cuneus: length 0.98; anterior width 0.76. Cell 2.78 times as long as wide.

**Macropterous female.** Similar to males in size, coloration, surface, and structure. Antennal segment II basally yellow, distally dark brown; IV, brown.

**Structure.** Antennal segment II more than 2.5 times as long as antennal segment I. Thorax: posterior pronotal margin more than twice as wide as pronotum length. Pronotal width across calli less than half of posterior margin width. Hemelytron: embolium bent upwards from its anterior end to a half or more than a half its length. Medial fracture attaining half corium length. Claval commissure equal to or longer than scutellum and half pronotal length combined. Cuneus not bent downwards.

**Measurements** (n: 4): Body length to apex of membrane 4.28–4.79; body length to apex of cuneus 3.7–4.23; body width 1.97–2.09. Head: width 1.07–1.10; interocular distance 0.54–0.59, 1.20–1.34 times as wide as head length and 1.50–1.64 times as wide as antennal segment I length. Labium: segment I length 0.48–0.54; II, 0.49–0.65; III, 0.18–0.19; IV, 0.18. Antenna: segment I length 0.36–0.37; II, 0.92–1.0; III, 0.44–0.46; IV, 0.58–0.62. Pronotum: length 0.74–0.80; anterior width 0.77–0.82; posterior width 1.54–1.58. Scutellum: length 0.49–0.55; width 0.72–0.77. Cuneus: length 0.98–1.09; anterior width 0.74–0.78. Cell 2.34–2.8 times as long as wide.

**Geographic distribution.** Bolivia (Fig. 11).

**Etymology.** The specific epithet refers to Chapare Province, Bolivia, where the specimens were collected. Adjective.

**Type material.** *Holotype* ♂: Sajta, XI-93 / Chapare, Bolivia (USNM). *Paratypes*: 4♀, same data as the holotype (2 USNM, 2 MLP).

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