



A key to genera of South American Deltocephalini (Hemiptera: Cicadellidae: Deltocephalinae) with descriptions of new taxa and nomenclatural changes

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Abstract. A key to genera of South American Deltocephalini Dallas, 1870 based on adult males is presented. Two new genera, each based on a single new species from Argentina are described and illustrated: *Corrientesia* gen. n. based on type species *C. ochrescens* sp. n. and *Salnogia* gen. n. based on type species *S. fletcheri* sp. n. A new species of *Graminella* DeLong, 1936, *G. schrocki* sp. n. from Argentina is also described and illustrated. *Graminella stelliger* (Berg, 1884) equals *Fusanus acristylus* Cheng, 1980, syn. n. A new combination, *Limpica pallida* (Linnavuori & DeLong, 1979) comb. n., transferred from *Reventazonia* Linnavuori, 1959, is also proposed. *Quaziptus* Kramer, 1965, is returned from Paralimnini Distant, 1908 to Deltocephalini Dallas, 1870.

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INTRODUCTION

The grass-specialist leafhopper tribe Deltocephalini is a diverse group comprising 70 genera and >600 species distributed worldwide. Morphological and molecular phylogenetic analyses to date suggest that it is monophyletic and closely related to Paralimnini, but further taxon sampling in these large tribes and more data are needed. The two tribes together appear to be related to Tetartostyliini Wagner, 1951 which also possesses the tapered clypeus and linear connective. Many genera and species of Deltocephalini are morphologically quite similar to each other. Revisions of many genera and identification keys, especially of the Neotropical fauna, are needed (Zahniser & Dietrich, 2013). Species of this tribe are abundant in both native grasslands and agroecosystems and include vectors of plant pathogens. The group is distinguished by the linear (not Y-shaped) connective fused to the aedeagus in the male genitalia (Webb & Viraktamath, 2009). The fauna of this tribe in South America is highly diverse. Linnavuori (1959) provided the first key to Neotropical genera of the tribe, including 16 of the genera currently placed in Deltocephalini. Cheng (1980) provided a key to the 10 genera of Deltocephalini recorded from Paraguay. The South American Deltocephalini fauna now comprises 27 genera (17 endemic) and >150 known endemic species,

but new species continue to be discovered, especially by vacuum sampling in native grasslands (Duan et al., 2016a, b, 2017a, b, 2018a, b). Although the genus-level classification of Deltocephalini is somewhat unstable and in need of comprehensive revision, most of the recently discovered South American species have been referable to previously described genera. Here we provide a comprehensive key to South American genera of the tribe and describe two new genera to accommodate some species that do not appear to be closely related to previously described genera. We also describe a new *Graminella* species, propose new generic placements for two previously described species from Brazil and Paraguay, and transfer a genus previously placed in Paralimnini to Deltocephalini.

MATERIAL AND METHODS

The material studied here is deposited in the Museo de La Plata, La Plata, Argentina (MLP) and the Illinois Natural History Survey, Champaign, USA (INHS). Morphological terminology follows Dietrich (2005) and Zhang (1990). Digital photographs were taken with a QImaging Micropublisher 3.3 digital camera mounted on an Olympus BX41 stereo microscope and with a Nikon D1x digital SLR camera configured with lenses by the Microptics, Digital Lab XLT system. Photographs were modified with Adobe Photoshop CS.

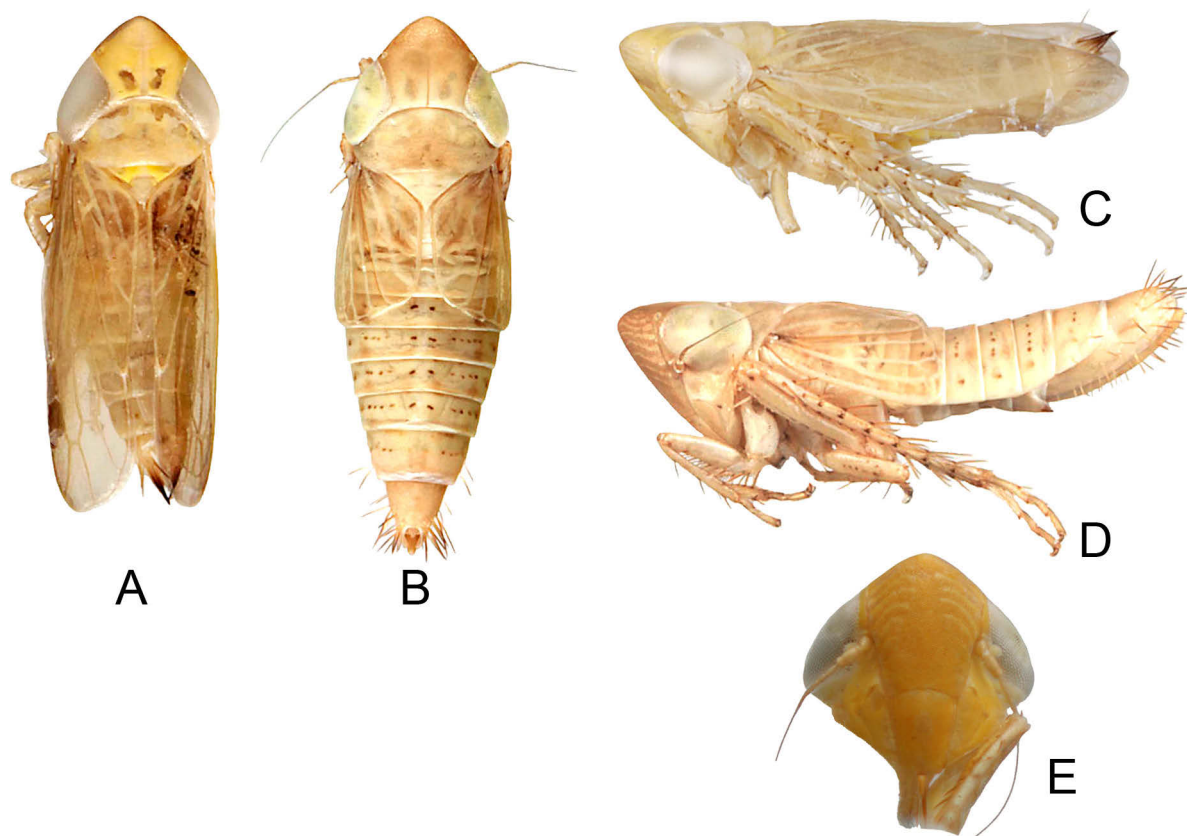


Fig. 1. *Cortona minuta* Oman, 1938 (A, C, E – male; B, D – female). A, B – habitus, dorsal view; C, D – habitus, lateral view; E – face (after Duan et al., 2017a).

RESULTS

Key to South American genera of Deltocephalini (males)

Note: *Sanluisia* Linnavuori, 1959, known from a single female specimen, is not included.

- 1 Forewing with two anteapical cells; male macropterous, female usually brachypterous; head, pronotum and mesonotum pale yellow or orange, without dark spots or longitudinal stripes (Fig. 1A–D) *Cortona* Oman, 1938

- Forewing with three anteapical cells or, if only two present, male brachypterous; head, pronotum and mesonotum usually with dark spots, longitudinal stripes and/or transverse bands of contrasting color (Fig. 5A–D) 2

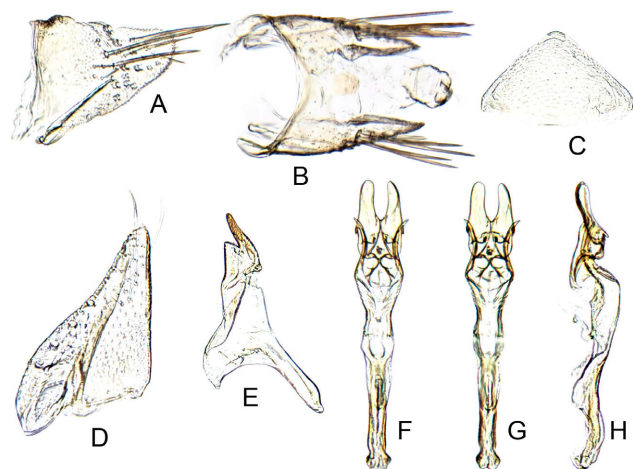


Fig. 2. *Cortona minuta*. A – male pygofer lobe, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve, ventral view; D – subgenital plate, ventral view; E – style, dorsal view; F, G, H – connective and aedeagus, dorsal, ventral and lateral view, respectively (after Duan et al., 2017a).

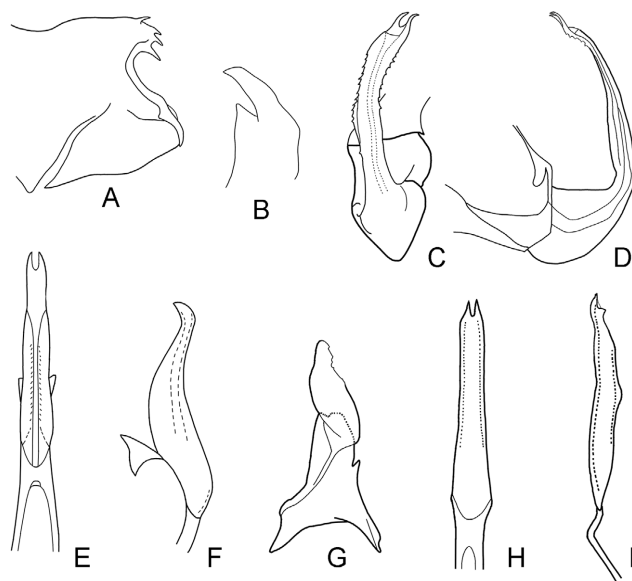


Fig. 3. A–D. *Neodeltocephalus asper* Linnavuori, 1959 (after Linnavuori, 1959); E, F – *Bolivaia spinosa* Linnavuori & DeLong, 1979 (after Linnavuori & DeLong, 1979b); G–I – *Mattogrossus colonoides* (Linnavuori, 1959) (after Linnavuori, 1959). A – male pygofer lobe, median view; B – apex of style; C, E, H – aedeagus, ventral view; D, F, I – aedeagus, lateral view; G – style.

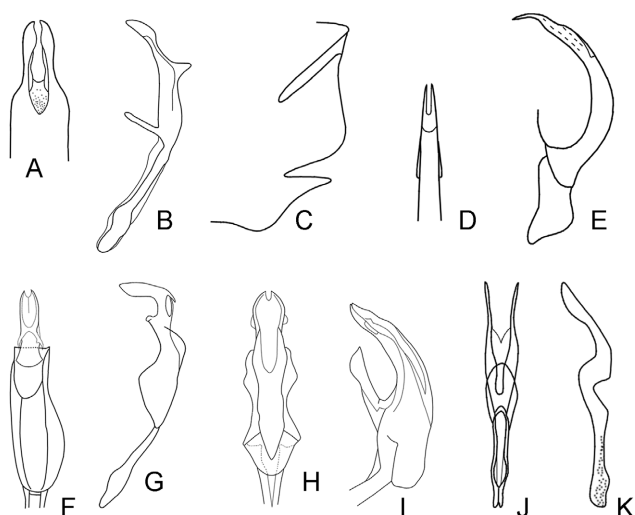


Fig. 4. A, B – *Amblysellus punctatus* (Osborn & Ball, 1898) (after Kramer, 1971); C–E – *Unerus colonus* (Uhler, 1895) (after Freytag, 1983); F, G – *Toldoanus marginellus* (Osborn, 1923) (after Linnavuori, 1959); H, I – *Reventazonia atrifrons* Linnavuori, 1959 (after Linnavuori, 1959); J, K – *Limpica forcata* (after Cheng, 1980). A, D – apex of aedeagus, ventral view; B, E, G, K – connective and aedeagus, lateral view; C – posterior margin of male pygofer lobe, lateral view (without macrosetae); F, H – aedeagus, ventral view; I – aedeagus, lateral view; J – connective and aedeagus, ventral view.

- 2 Aedeagus without long paired basal or distal processes; short paired or unpaired teeth or flanges (each shorter than its basal width) or longitudinal cleft that separates shaft into left and right lobes distally may be present (Fig. 26E, F)..... 3
- Aedeagus with slender, paired or unpaired basal or distal processes (in addition to sides of distal longitudinal cleft, when cleft present), each process longer than its basal width (usually much longer) (Fig. 20E, F)..... 14
- 3 Aedeagus apex with distinct median longitudinal cleft in posterior or ventral view (Fig. 3H) 4
- Aedeagus with apex entire, without median cleft (Fig. 18E) 22
- 4 Pygofer with large sclerotized process or processes, lobe emarginate distally (Fig. 3A) 5
- Pygofer without large sclerotized processes, lobe rounded distally, at most with small tooth or thickening on posteroventral margin (Fig. 26A) 6
- 5 Aedeagus asymmetrical, lateral margins of shaft serrate (Fig. 3C, D) *Neodeltocephalus* Linnavuori, 1959
- Aedeagus symmetrical, lateral margins of shaft entire (Fig. 3E, F) *Bolivaia* Linnavuori & DeLong, 1979
- 6 Aedeagal shaft elongate, slender, tubular through most of length, sometimes with pair of short preapical ventrolateral flanges (Fig. 4D, E); crown usually with pair of large black lateral preapical spots 7

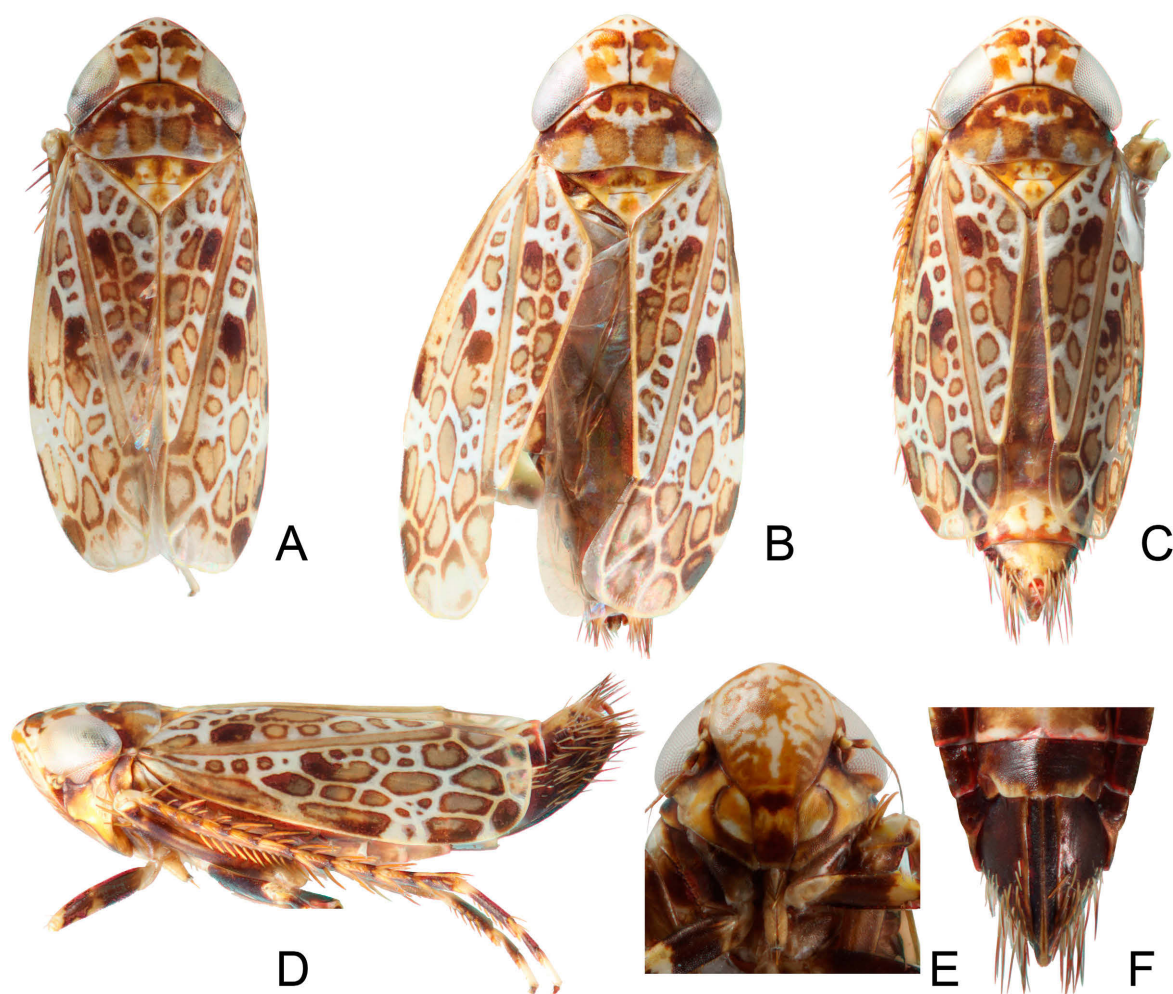


Fig. 5. *Amplicecephalus (Nanctasus) paralbivenosus* Duan & Dietrich, 2018 (A – male; B–F – female). A, B, C – habitus, dorsal view; D – habitus, lateral view; E – face; F – the end of female abdomen, ventral view (after Duan et al., 2018a).

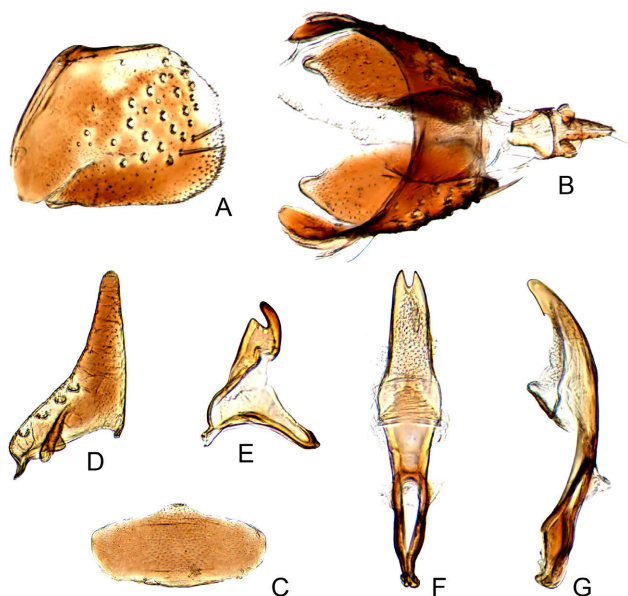


Fig. 6. *Amplicephalus (Nanctasus) paralbivenosus*. A – male pygofer lobe, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve, ventral view; D – subgenital plate, ventral view; E – style, dorsal view; F, G – connective and aedeagus, dorsal and lateral view, respectively (after Duan et al., 2018a).

- Aedeagal shaft shorter and broader with dorsal surface flattened, troughlike or membranous, without short lateral preapical flanges (Fig. 4F); crown color variable but lateral preapical spots, if present, little or no larger than submedial spots 9
- 7 Aedeagus with dorsal apodeme present and well sclerotized (Fig. 4B) 8
- Aedeagus without dorsal apodeme (Fig. 3H, I)
..... *Mattogrossus* Linnavuori, 1959
- 8 Aedeagus apex enlarged or, if not, pygofer without toothlike ventral preapical process (Fig. 4A, B)
..... *Amblysellus* Sleesman, 1929
- Aedeagus apex not enlarged, pygofer usually with toothlike ventral preapical process (Fig. 4C–E)
..... *Unerus* DeLong, 1936
- 9 Gonopore large, on ventral surface of aedeagus preapically (Fig. 4F, G) 10
- Gonopore on dorsal surface of aedeagus or poorly defined (Fig. 6F, G) 12
- 10 Body relatively broad and depressed, head nearly four times as wide as median length in dorsal view (Fig. 7A), aedeagus only shallowly emarginate apically in ventral view (Fig. 4F)
..... *Toldoanus* Linnavuori, 1954
- Body relatively narrow and cylindrical, head less than three times as wide as median length in dorsal view (Fig. 7B), aedeagus with gonopore preapical on ventral surface (Fig. 4H, I) 11

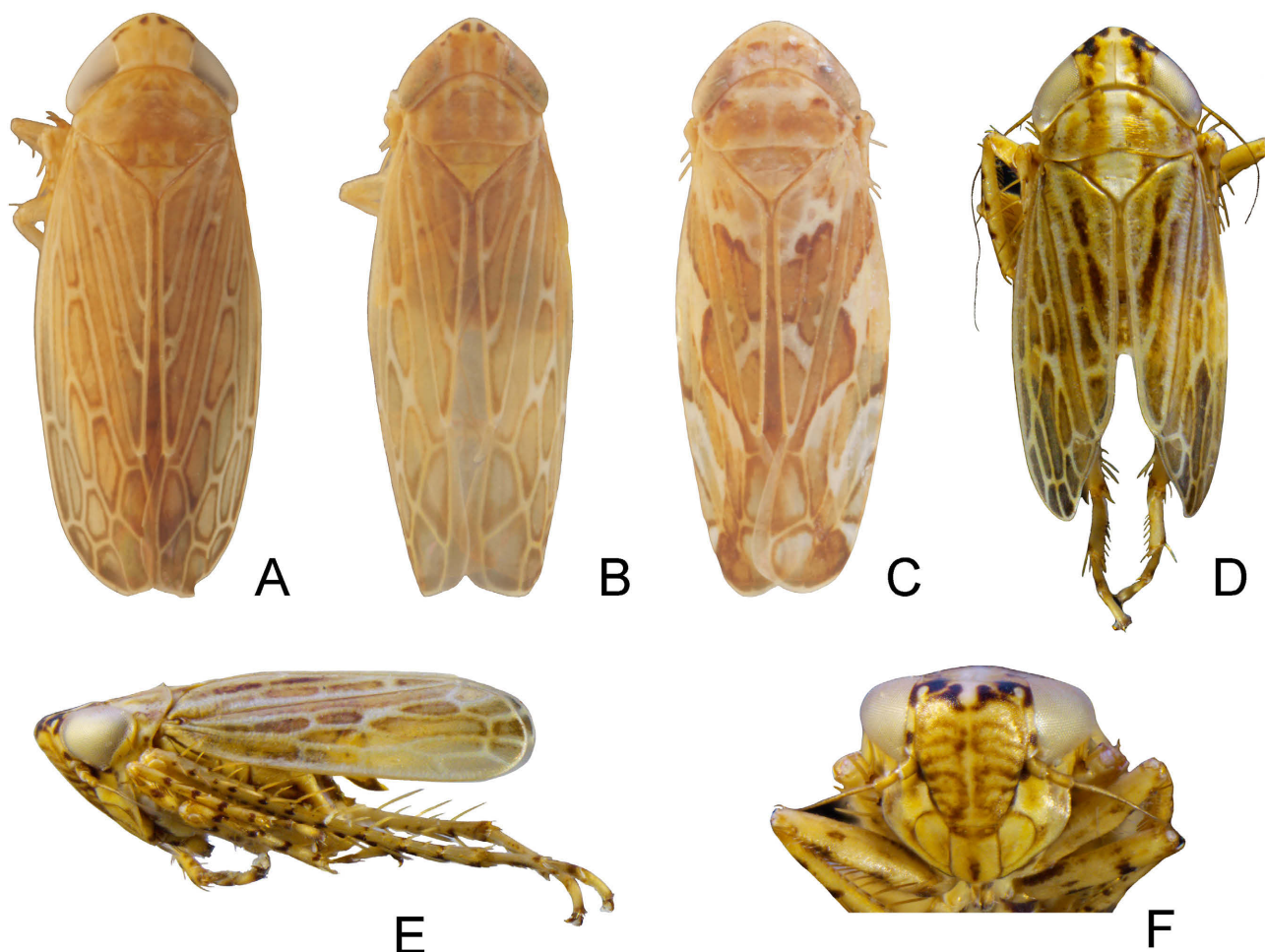


Fig. 7. A – *Toldoanus marginellus*; B – *Reventazonia artrifrons* Linnavuori, 1959; C – *Sanctanus (Cruciatus) dampfi* DeLong & Hershberger, 1946; D–F – *Quaziptus chapini* (holotype, male). A–D – habitus, dorsal view. E – habitus, lateral view; F – face.

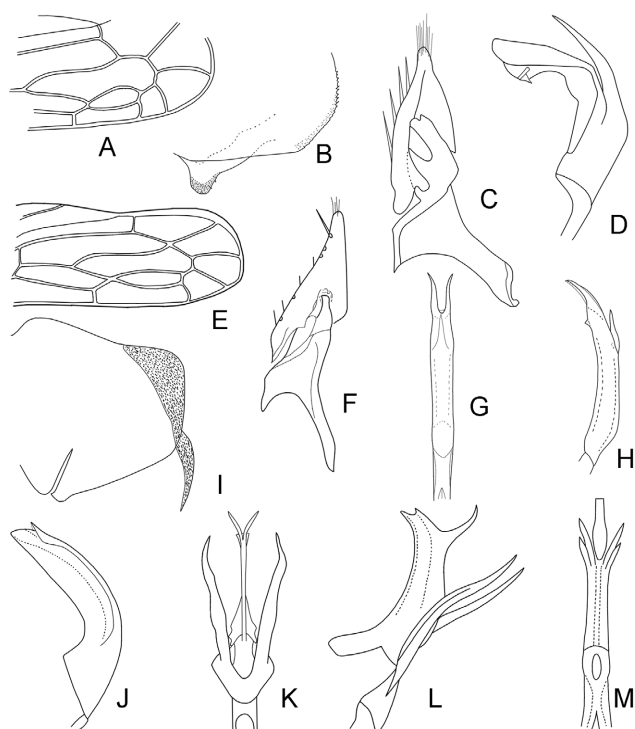


Fig. 8. A–D – *Bolarga nigriloba* Linnavuori, 1959 (after Linnavuori, 1959); E–H – *Cruzeilla trispinosa* Linnavuori & DeLong, 1979 (after Linnavuori & DeLong, 1979a); I, J – *Tumupasa harpago* Linnavuori, 1959 (after Linnavuori, 1959); K, L – *Haldorus (Haldorus) capreolus* Linnavuori, 1959 (after Linnavuori, 1959); M – *Quaziptus chapini* (after Kramer, 1965). A, E – apex of forewing; B – apex of male pygofer lobe, lateral view (without macrosetae); C, F – subgenital plate and style; D, H, J, L – aedeagus, lateral view; G, K, M – aedeagus, ventral view; I – male pygofer lobe, lateral view (without macrosetae).

- 11 Aedeagus apex only shallowly emarginate in ventral view (Fig. 4H) *Reventazonia* Linnavuori, 1959
- Aedeagus with median longitudinal cleft occupying more than half length of shaft with gonopore at base of cleft (Fig. 4J) *Limpica* Cheng, 1980
- 12 Forewing usually with only two closed anteapical cells (Fig. 25A, B), preapical lobe of style usually sharply angulate (Fig. 26D) *Graminella* DeLong, 1936
- Forewing with three or more closed anteapical cells, preapical lobe of style blunt 13
- 13 Dorsal coloration consisting of symmetrical spots and longitudinal stripes, without bold orange, brown or white bands (Fig. 5A–C) [Note: The type species of *Nullamia* DeLong, 1970 will also apparently key here, see below.] *Amplicephalus* DeLong, 1926
- Dorsal coloration including contrasting white and orange or brown bands in addition to smaller spots (Fig. 7C) *Sanctanus* Ball, 1932
- 14 Aedeagus with single unpaired process arising preapically on ventral surface of shaft and extended distad (Fig. 8D); forewing with branches of vein R reflexed (Fig. 8A) 15
- Aedeagus with paired processes in various configurations (Fig. 20E, F); forewing with branches of vein R not reflexed (Fig. 19A–C) 16
- 15 Forewing with posterior branch of R strongly reflexed, outer apical cell about half as long as adjacent apical cell; pygofer lobe with sclerotized process arising on dorsal margin and extended anteroventrad into genital capsule; subgenital plate

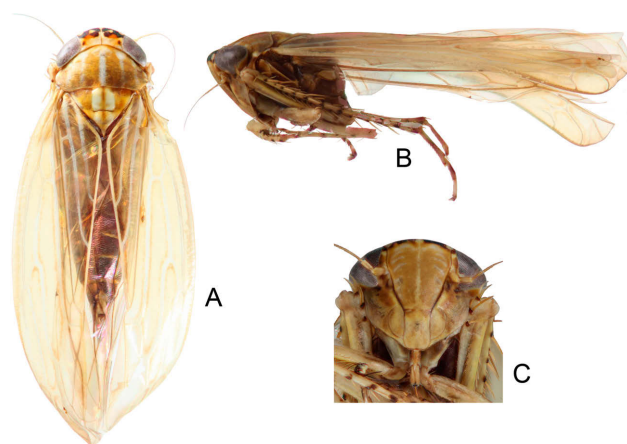


Fig. 9. *Parandanus longistylus* Duan, 2016. A – habitus, dorsal view; B – habitus, lateral view; C – face (after Duan et al., 2016a).

- with dense group of macrosetae at apex (Fig. 8A–C) *Bolarga* Oman, 1938
- Forewing with posterior branch of R only slightly reflexed, outer apical cell nearly as long as adjacent apical cell; pygofer lobe without sclerotized process; subgenital plate without dense group of macrosetae at apex (Fig. 8E, F) *Cruzeilla* Linnavuori & DeLong, 1979
- 16 Pygofer with one or more sclerotized processes (Fig. 8I) *Tumupasa* Linnavuori, 1959
- Pygofer without processes (Fig. 20A) 17
- 17 Aedeagus with well sclerotized dorsal apodeme at base, with at least one pair of processes arising near base of shaft and usually with additional paired processes (Fig. 8K, L) [Note: *Nullamia bicornis* Linnavuori & DeLong, 1977 also keys here, see below.] *Haldorus* Oman, 1938
- Aedeagus without well sclerotized dorsal apodeme at base, processes usually arising distad of shaft midlength (Fig. 20E, F) 18

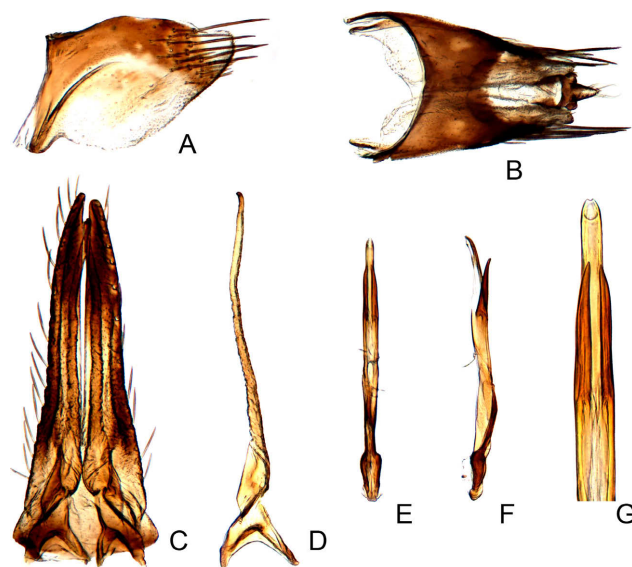


Fig. 10. *Parandanus longistylus*. A – male pygofer side, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve, subgenital plates and styles, ventral view; D – style, dorsal view; E, F – connective and aedeagus, dorsal and lateral view, respectively; G – apex of aedeagus, dorsal view (after Duan et al., 2016a).

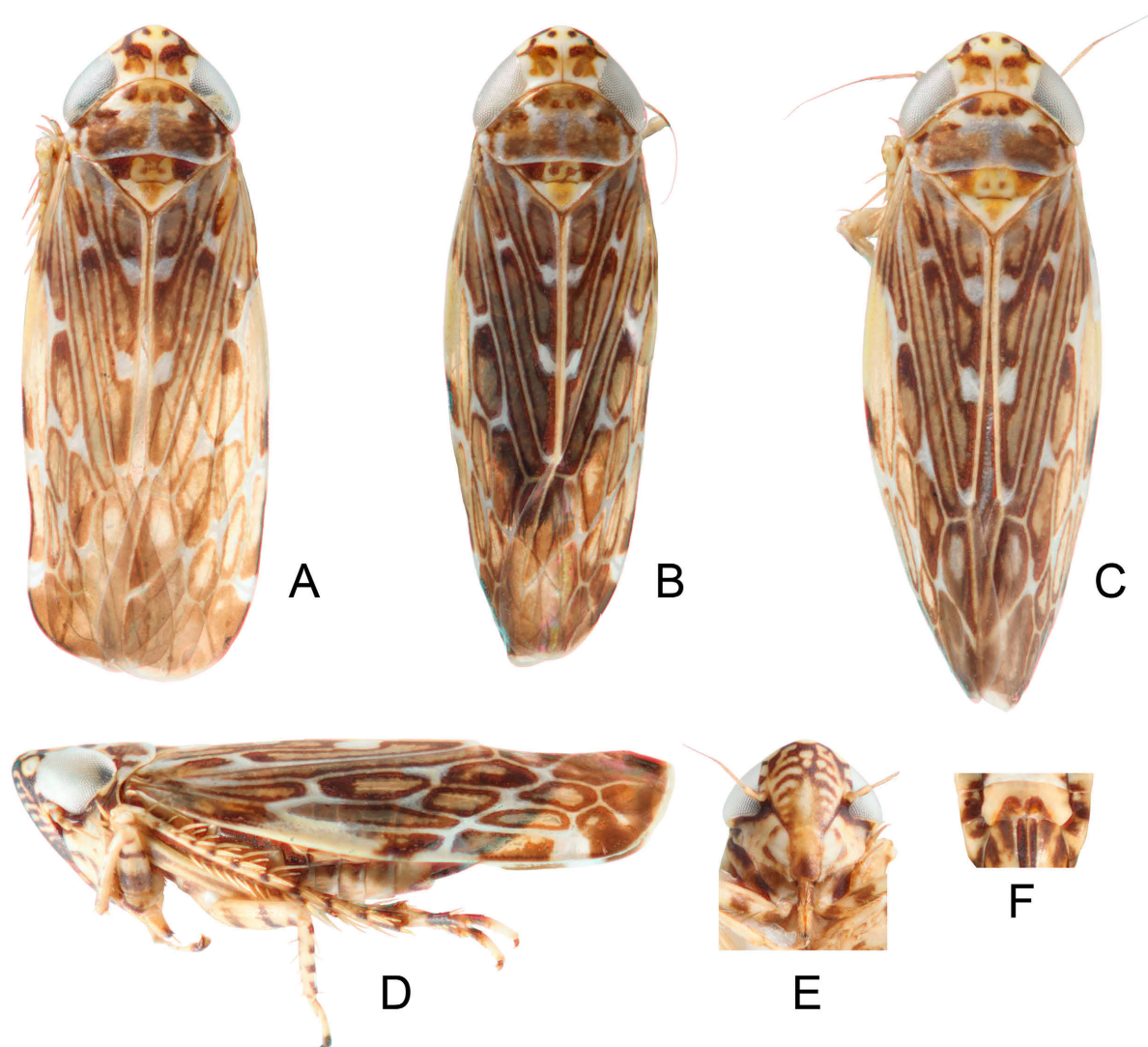


Fig. 11. *Loreta (Loreta) ornaticeps* Linnavuori, 1959 (A, B – male; C–F – female). A, B, C – habitus, dorsal view; D – habitus, lateral view; E – face; F – subapical part of female abdomen, ventral view (after Duan et al., 2016b).

- | | | | |
|-------|--|-------|---|
| 18 | Aedeagus with shaft tubular, little or no wider in ventral view than in lateral view (Fig. 20E, F)..... | 19 | of short lateral preapical flanges (Fig. 13A, B) |
| – | Aedeagus with shaft depressed, much wider in ventral view than in lateral view (Fig. 23I–L)..... | 21 | <i>Planicephalus</i> Linnavuori, 1954 |
| 19 | Processes of aedeagus arising at apex, distad of gonopore and extended basolaterad (Fig. 20E, F)..... | – | Pygofer with lobes broadly connected by sclerotized tergite basally, with falcate ventral preapical process; aedeagus with pair of short dorsoapical projections (Fig. 13C–E) |
| – | Processes of aedeagus arising preapically, basad of gonopore (Fig. 10E–G)..... | | <i>Vicosa</i> Linnavuori & DeLong, 1978 |
| 20 | Crown with anterior margin produced and bluntly angulate (Fig. 7D), body length < 4 mm, aedeagus with two pairs of processes (Fig. 8M) | 24 | Forewing with supernumerary crossveins (Fig. 14A, B)..... |
| – | Crown with anterior margin not or only weakly produced, rounded, body length > 6 mm (Fig. 9A) | | <i>Polyamia</i> DeLong, 1926 |
| | <i>Parandanus</i> Linnavuori & DeLong, 1976 | – | Forewing without supernumerary crossveins (Fig. 17A–E)... |
| 21 | Aedeagal processes arising from apex of shaft (Fig. 12F, G); dorsal color pattern including paired brown or black spots or bands (Fig. 11A–C)..... | 25 | Aedeagus with three ventral longitudinal keels (Fig. 16A, B) |
| – | Aedeagal processes arising from near midlength of shaft (Fig. 23I–L); dorsum without paired spots or bands (Fig. 22A, B) | | <i>Fusanus</i> Linnavuori, 1955 |
| | <i>Salnogia</i> gen. n. | – | Aedeagus without ventral longitudinal keels (Fig. 18E, F).26 |
| 22 | Pygofer with distal process (Fig. 13A)..... | 26 | Gonopore large, apical, well defined, apex of aedeagus blunt (Fig. 16E–G)..... |
| – | Pygofer without process (Fig. 18A, B)..... | |27 |
| 23 | Pygofer with lobes dorsally separated to base of segment IX, with dorsoapical distal digitiform process; aedeagus with pair | – | Gonopore poorly defined, preapical, apex of aedeagus acuminate (Fig. 16C, D)..... |
| | | | <i>Picchiaia</i> Linnavuori & DeLong, 1979 |
| | | 27 | Aedeagus apex spatulate with depressed flange on each side of gonopore (Fig. 16E–G) |
| | | – | Aedeagus apex not spatulate, without lateral depressed flange, paired lateral teeth sometimes present (Fig. 18E, F) |
| | | | <i>Mendozellus</i> Linnavuori, 1959 |

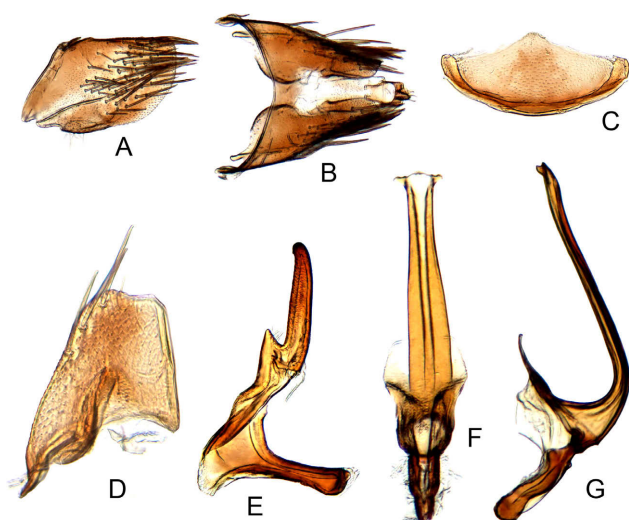


Fig. 12. *Loreta (Loreta) ornaticeps*. A – male pygofer lobe, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve, ventral view; D – subgenital plate, ventral view; E – style, dorsal view; F, G – connective and aedeagus, dorsal and lateral view, respectively (after Duan et al., 2016b).

Genus *Corrientesia* gen. n.

ZooBank taxon LSID:

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Type species: *Corrientesia ochrescens* sp. n.

Description. Coloration. Ground color off white, symmetrically marked with light to dark orange brown. Most of forewing veins white, bordered with dark brown, cells light brown. Hind tarsi with fuscous marks.

Morphology. Body robust, not depressed. Head much wider than pronotum, crown depressed, anterior margin distinctly angulate in dorsal view, slightly shorter than distance between eyes; ocellus small, less than half ocellar diameter from eye. Face moderately convex, length shorter than width; area between lateral frontal suture and eye strongly and evenly narrowed from antennal pit to crown

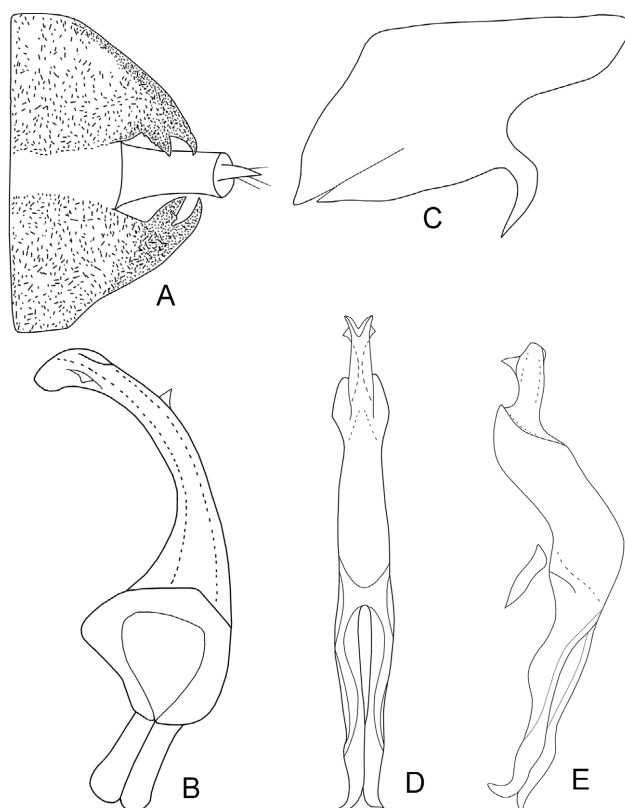


Fig. 13. A, B – *Planicephalus flavicosta* (Stål, 1862) (after Linnavuori, 1959); C–E – *Vicosia bicornis* Linnavuori & DeLong, 1978 (after Linnavuori & DeLong, 1978). A – male pygofer, dorsal view (without macrosetae); B, E – connective and aedeagus, lateral view; C – male pygofer lobe, lateral view (without macrosetae); D – connective and aedeagus, ventral view.

margin, mesal margin of eye entire; frontoclypeus relatively narrow; antenna as long as width of head; clypeal sulcus poorly delimited or absent; anteclypeus tapered at base, but parallel sided through most of length, apex even with ventral margin of gena; lorum semicircular, narrower than anteclypeus, well separated from lateral margin of

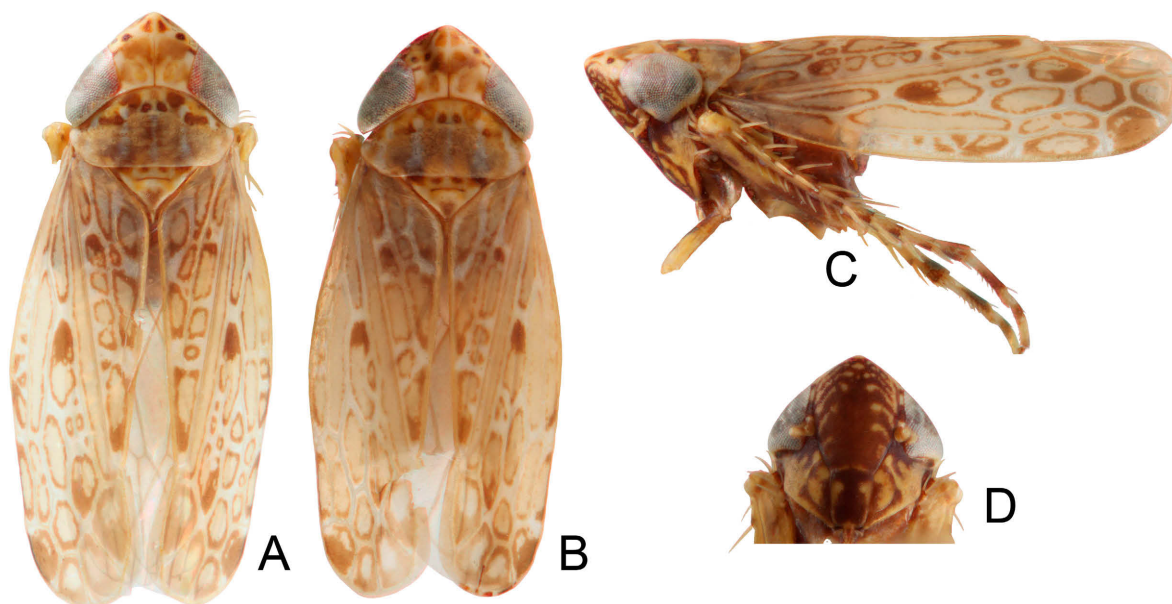


Fig. 14. *Polyamia (Polyamia) weedi* (Van Duzee, 1892). A, B – habitus, dorsal view; C – habitus, lateral view; D – face.

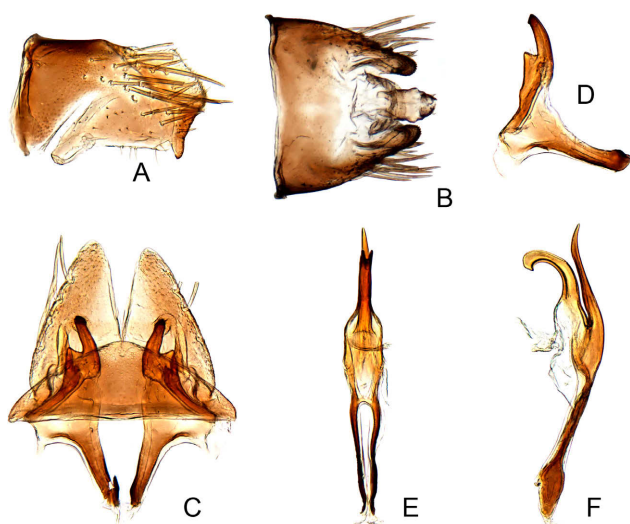


Fig. 15. *Polyamia (Polyamia) weedi*. A – male pygofer lobe, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve, subgenital plates and styles, ventral view; D – style, dorsal view; E, F – connective and aedeagus, dorsal and lateral view, respectively.

face. Pronotum with lateral margin very short, eye nearly touching wing base. Forewing submacropterous in both sexes, apex obliquely truncate, appendix very narrow, vein R1 strongly reflexed, four closed anteapical cells present (central anteapical cell divided by crossvein), one or more supernumerary crossveins present in clavus and sometimes in corium. Front femur row AV with ~7 short, stout setae in basal half; row IC with ~6 fine pale setae. Front tibia dorsal macrosetae 1+4. Hind femur macrosetal formula 2+2+1. Hind tibial rows PD, AD and AV with ca. 8, 9 and 12 macrosetae, respectively; PD with one seta about half as long as macrosetae between successive macrosetae; AD with 1–4 short, stout setae between successive macrosetae. Hind tarsomere I with two well delimited plantar rows of stout, tapered setae; pecten with 4–5 platellae. Male and female abdominal tergite VIII with group of macrosetae near lateral margin.

Male genitalia. Pygofer well sclerotized dorsally in basal half; lobe without processes, with membranous postero-dorsal section, and numerous long macrosetae restricted to well-sclerotized section of distal half. Segment X short and weakly sclerotized, without processes. Valve subtriangular, wider than long, posterior margin bluntly angulate. Subgenital plate triangular, apex sharply pointed, macrosetae arranged in uniseriate lateral row. Style with articulating arm short; preapical lobe distinct, angulate; apophysis moderately long and stout, digitiform. Connective shorter than aedeagus with arms slightly bowed laterad near midlength. Aedeagus with dorsal apodeme slender, platelike in posterior view; shaft slender, tubular, with pair of asymmetric apical processes; gonopore small but well delimited, preapical on ventral surface.

Female. Sternite VII with posterior margin broadly and shallowly concave (Fig. 21E). First valvula dorsal sculpturing imbricate, continuous with granulose ventral sculptured area near apex (Fig. 21A, B). Second valvula nearly uniform in width through most of length, dorsal margin

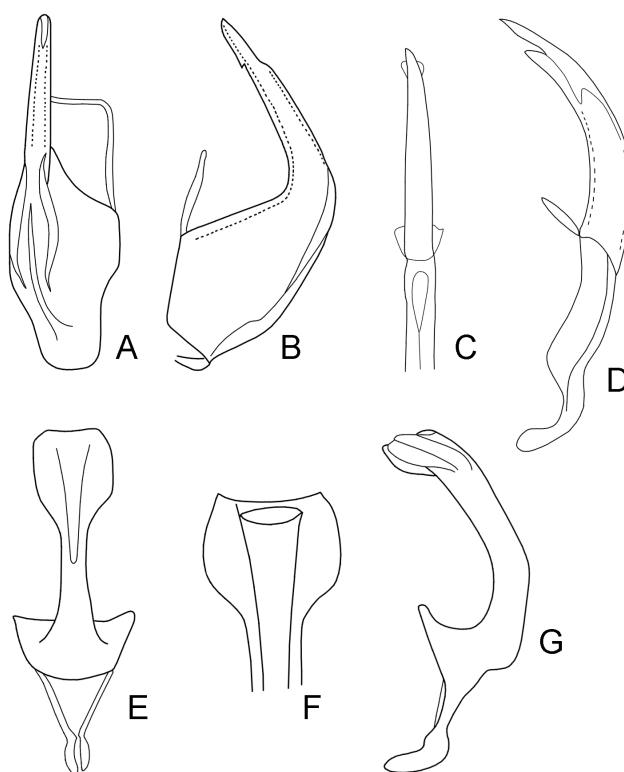


Fig. 16. A, B – *Fusanus chacoensis* (Linnavuori, 1955) (after Linnavuori, 1959); C, D – *Picchuia pungens* Linnavuori & DeLong, 1979 (after Linnavuori & DeLong, 1979a); E–G – *Spathifer fusca-tus* Linnavuori, 1955 (after Linnavuori, 1959). A, C – aedeagus, ventral view; B – aedeagus, lateral view; D, G – connective and aedeagus, lateral view; E – connective and aedeagus, ventral view; F – apex of aedeagus, ventral view.

with sclerotized tooth in middle of unpigmented area near midlength, distal toothed section occupying less than half total length, with several evenly spaced conical teeth each separated by 2–5 smaller teeth, apex somewhat attenuated (Fig. 21C–D).

Etymology. The genus name is based on that of the Argentine province from which the only known specimens were collected; gender feminine.

Distribution. Argentina.

Remarks. This genus is similar to the mostly North American genus *Polyamia* in having the forewing submacropterous with extra crossveins but differs in having the pygofer lobe with a poorly sclerotized posterodorsal section and the aedeagus with pair of long apical processes. Some species of the South American genus *Loreta* also have long, paired apical processes on the aedeagus, but the wings are fully developed, the aedeagal shaft is strongly depressed and straplike, and the forewing lacks supernumerary crossveins (Duan et al., 2016b). A group of macrosetae near the lateral margin of abdominal tergite VIII also occurs in *Cortona* but only in the female.

***Corrientesia ochrescens* sp. n.**

(Figs 19–21)

ZooBank taxon LSID:

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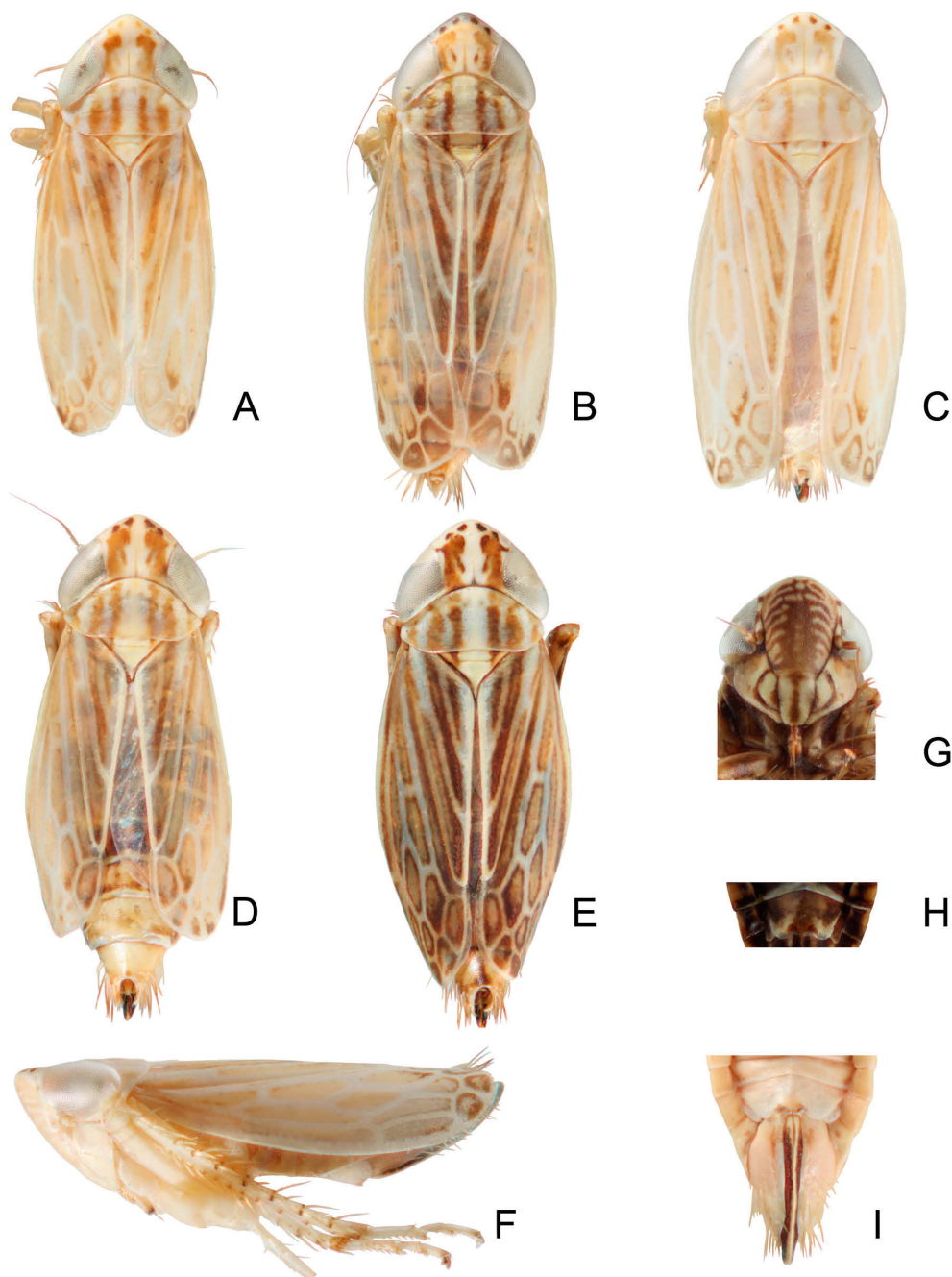


Fig. 17. *Mendezellus asunctia* Cheng, 1980 (A, B – male; C–I – female). A–E – habitus, dorsal view; F – habitus, lateral view; G – face; H, I – the end of female abdomen, ventral view (H – without apex) (after Duan et al., 2017b).

Length. Male: 2.6–2.7 mm; female: 2.8 mm.

Description. Coloration. Vertex with brown marks (Fig. 19A, B). Forewing pale brown with veins bordered with brown or fuscous (Fig. 19A–C). Face mostly pale brown with paired white arcs corresponding to muscle scars of frontoclypeus (Fig. 19D).

Morphology. Forewing submacropterous, with four apical and three anteapical cells, central anteapical cell constricted and divided, inner anteapical cell closed basally, appendix narrow (Fig. 19A–C).

Male genitalia. Pygofer lobe with membranous posterodorsal area forming convex area in sclerotized section distally, caudal margin truncate (Fig. 20A, B). Subgenital plate lateral margin weakly concave (Fig. 20C). Style

preapical lobe rectangular; apophysis slightly laterally curved (Fig. 20D). Aedeagus with atrium enlarged, ventral margin semicircular in lateral view; shaft evenly curved dorsad in lateral view, with 2–4 short asymmetrically arranged teeth on each side basad of gonopore; distal processes extended basolaterad, slightly less than half length of shaft (Fig. 20E, F).

Material examined. Holotype: ♂, Argentina: Corrientes, jct. Rt. 14 & 119 [50 km WSW Pucheta], 30°4'35"S, 57°59'57"W, 5.i.2008, C.H. Dietrich, vacuum, AR3–1 (MLP). Paratypes: 1♂, same data with holotype (INHS); 1♂, Argentina: Corrientes P. N. Mburucuyà campground, 100 m, 28°0'56"S, 58°2'15"W, 10.i.2008, C.H. Dietrich, vacuum, AR9–14 (INHS); 2♂, 1♀, Argentina: Chaco P.N. Chaco, 70 m, 26°48'50"S, 59°36'52"W,

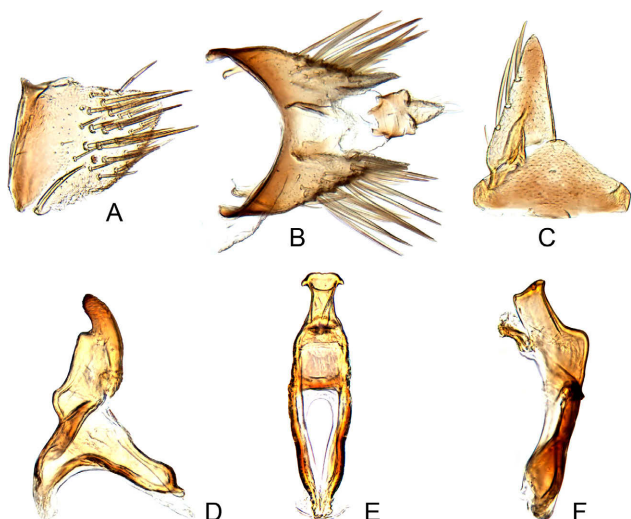


Fig. 18. *Mendozellus asunctia*. A – male pygofer lobe, lateral view; B – male pygofer and segments X and XI, dorsal view; C – valve and subgenital plate, ventral view; D – style, dorsal view; E, F – connective and aedeagus, dorsal and lateral view, respectively (after Duan et al., 2017b).

10.–13.i.2008, C.H. Dietrich et al., vacuum (INHS); 1♀, Argentina: Entre Rios Rt 14, km 43, 20 m, 33°13'31"S, 58°41'31"W, 24.i.2008, C.H. Dietrich, vacuum, AR39–1 (INHS).

Type locality. 50 km WSW Pucheta, Corrientes (Argentina).

Etymology. The species name refers to the ochrescent dorsal markings.

Distribution. Argentina.

Genus *Salnogia* gen. n.

ZooBank taxon LSID:

10BD9BC5-FCB5-407F-B965-96EAD1036E88

Type species: *Salnogia fletcheri* sp. n.

Description. Coloration. Dorsum mostly yellow, without paired spots or maculae, anterior margin or crown and most of thoracic venter and legs dark brown to black. Forewing veins pale, membrane translucent, infused with brown pigment. Abdomen mostly yellow; male pygofer and female segments VII, VIII and genital capsule dark brown.

Morphology. Body robust, depressed. Head wider than pronotum, crown anterior margin broadly angulate in dor-

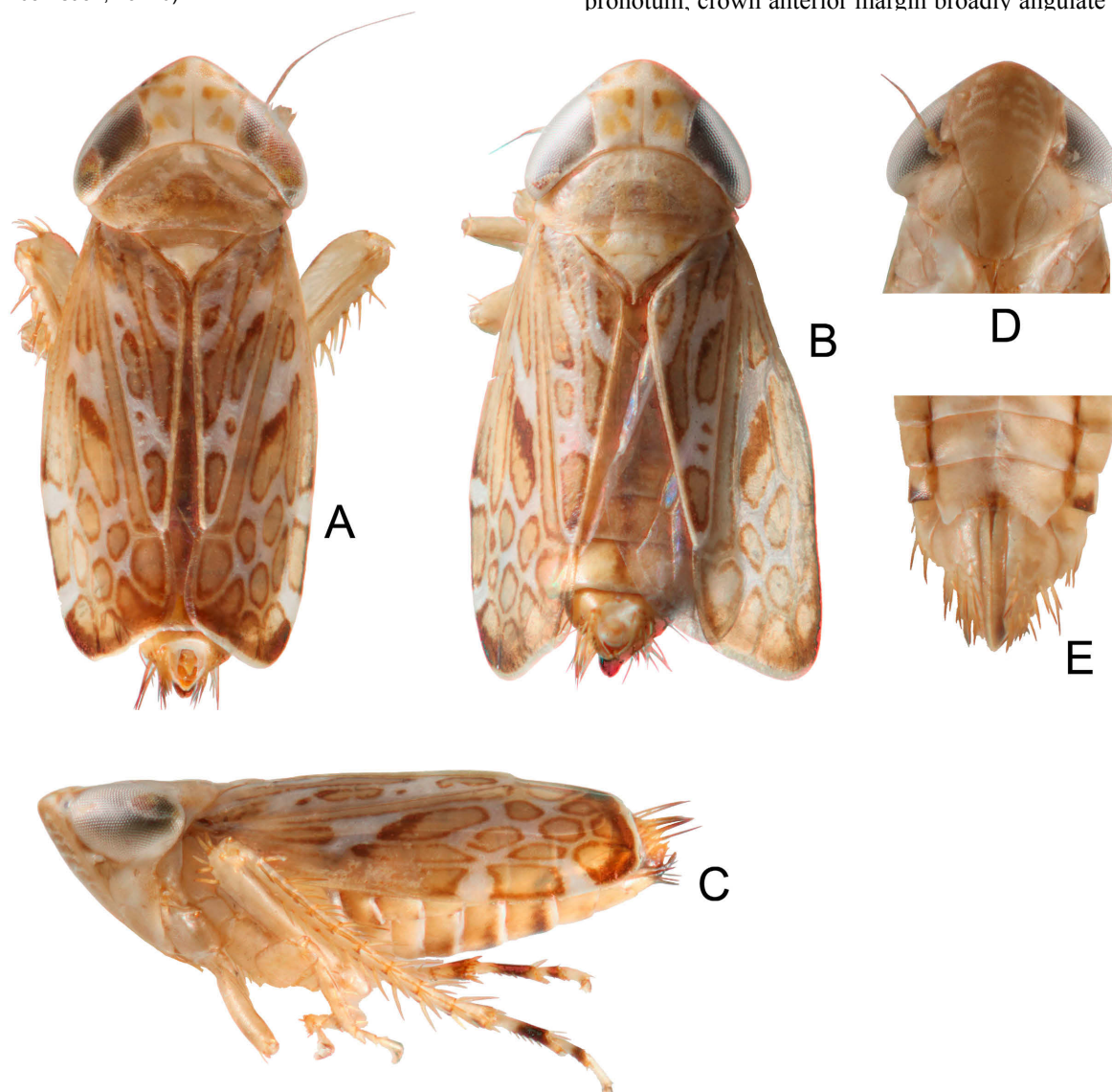


Fig. 19. *Corrientesia ochrescens* sp. n. (A–D – holotype, male; E – paratype, female). A, B – habitus, dorsal view; C – habitus, lateral view; D – face; E – the end of female abdomen, ventral view.

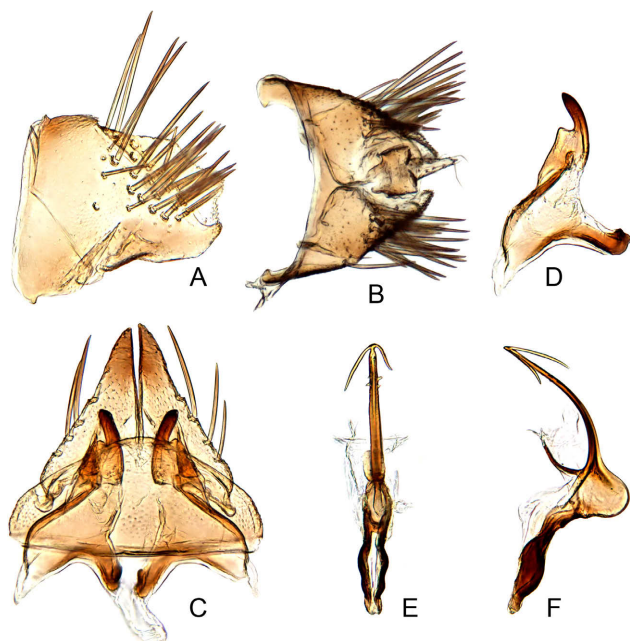


Fig. 20 *Corrientesia ochrescens* sp. n. (holotype, male). A – pygofer lobe, lateral view; B – pygofer and segments X and XI, dorsal view; C – valve, subgenital plates and styles, ventral view; D – style, dorsal view; E, F – connective and aedeagus, dorsal and lateral view, respectively.

sal view, shorter than distance between eyes; ocellus small, separated from eye by slightly more than one ocellar diameter. Face relatively flat, width greater than length; area between lateral frontal suture and eye slightly narrowed from

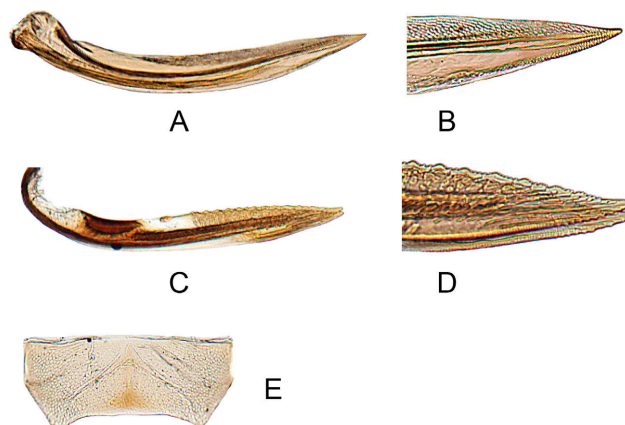


Fig. 21. *Corrientesia ochrescens* sp. n. (paratype, female). A – first valvula; B – detail of first valvula; C – second valvula; D – detail of second valvula; E – sternite VII, ventral view.

antennal pit to crown margin, mesal margin of eye strongly emarginate adjacent to antennal base; antenna shorter than head width; frontoclypeus broad, weakly convex; clypeal sulcus prominent; anteclypeus tapering, extending to lower margin of genae; lorum semicircular, narrower than anteclypeus, well separated from lateral margin of face. Pronotum with lateral margin relatively long, eye well separated from wing base. Forewing fully developed, without extra crossveins, apex rounded, appendix narrow, R1 and R2 + 3 not reflexed, three anteapical cells present, inner cell closed or open basally, central cell rarely divided. Front femur row AV with several short, stout setae in basal half,

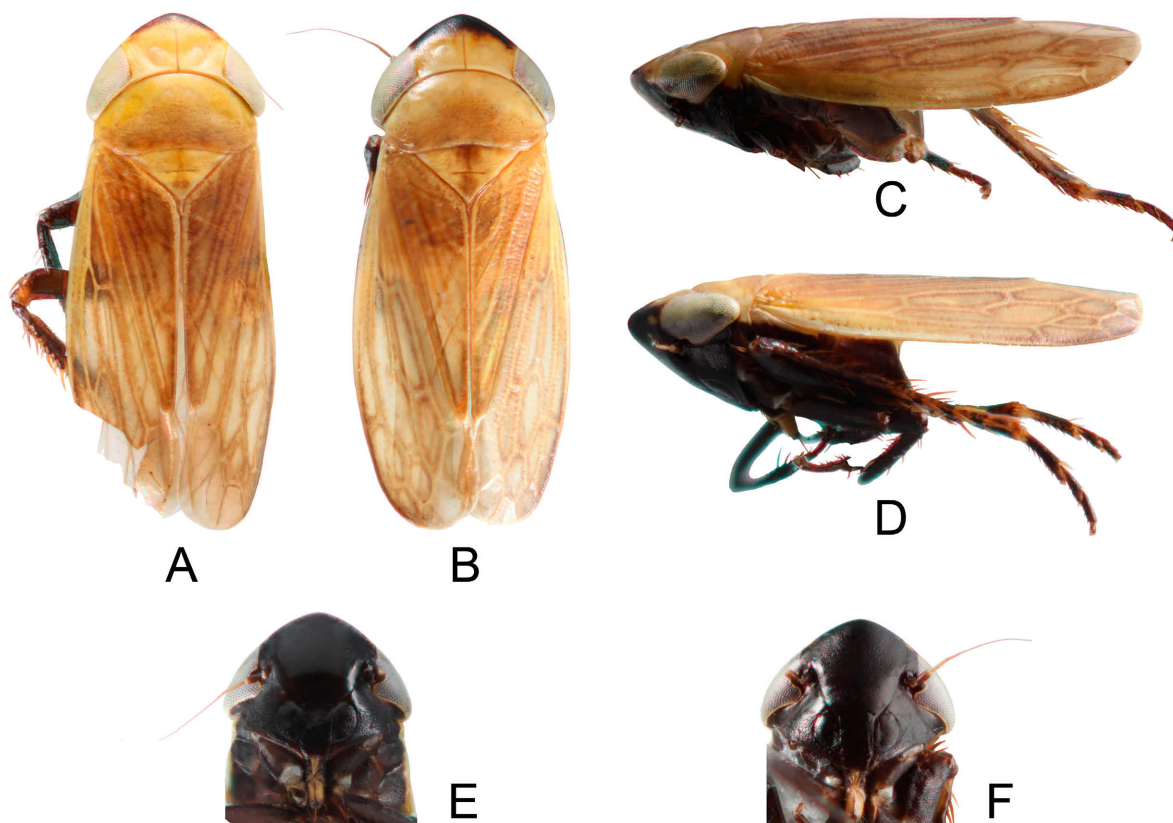


Fig. 22. *Salnogia fletcheri* sp. n. (A, C, E – holotype, male; B, D, F – paratype, male). A, B – habitus, dorsal view; C, D – habitus, lateral view; E, F – face.

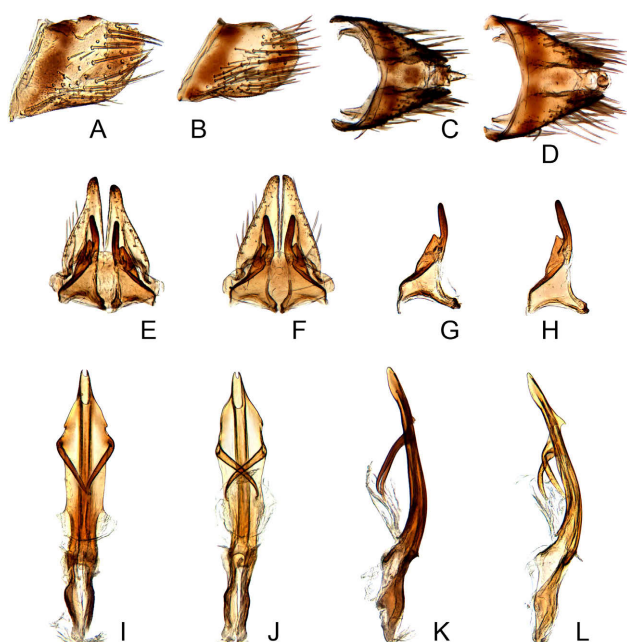


Fig. 23. *Salnogia fletcheri* sp. n. (A, C, E, G, I, K – holotype, male; B, D, F, H, J, L – paratype, male). A, B – pygofer lobe, lateral view; C, D – pygofer and segments X and XI, dorsal view; E, F – valve, subgenital plates and styles, ventral view; G, H – style, dorsal view; I, J – connective and aedeagus, dorsal view; K, L – same, lateral view.

somewhat irregularly arranged; row IC with ~8 fine setae. Front tibia dorsal macrosetae 3 + 4. Hind femur macrosetal formula 2 + 1 + 1. Hind tibial rows PD, AD and AV with ca. 9, 10 and 11 macrosetae, respectively; PD with seta about half as long as macrosetae between successive macrosetae; AD with 1–4 short, stout setae between successive macrosetae. Hind tarsomere I with two well delimited plantar rows of stout, tapered setae; pecten with 4–5 platellae.

Male genitalia. Pygofer well sclerotized dorsally in basal two thirds; lobe without appendage, with numerous macrosetae scattered over distal two thirds. Segment X short and weakly sclerotized. Valve much broader than long, posterior margin bluntly angulate. Subgenital plate triangular, apex blunt, macrosetae uniseriate along lateral margin. Style with articulating arm moderately long; preapical lobe angulate; apophysis long and stout, digitiform. Connective shorter than aedeagus with arms slightly bowed laterad near midlength. Aedeagus without sclerotized dorsal apodeme, shaft strongly depressed, well sclerotized, with pair of long, slender subapical processes and paired lateral preapical flange, apex shallowly bifid; gonopore preapical on dorsal surface, well delimited.

Female. Sternite VII with posterior margin deeply concave (Fig. 24E). First valvula with dorsal sculpturing irregularly imbricate to granulate, continuous with ventral granulate sculptured area at apex (Fig. 24A, B). Second valvula somewhat broadened near midlength, toothed distal section occupying approximately half total length, with several evenly spaced conical teeth, each separated by two smaller teeth, apex somewhat attenuated (Fig. 24C, D).

Etymology. The generic name is an arbitrary combination of letters; gender feminine.

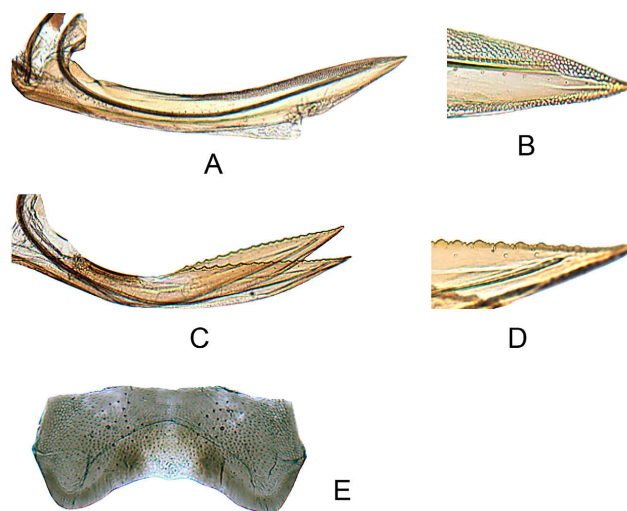


Fig. 24. *Salnogia fletcheri* sp. n. (paratype, female). A – first valvula; B – detail of first valvula; C – second valvula; D – detail of second valvula; E – sternite VII, ventral view.

Distribution. Argentina.

Remarks. This genus is unusual among Deltocephalini in its relatively depressed broad body form and also differs in the following combination of traits: (1) dorsum yellow, without paired spots, or stripes; (2) face and thoracic venter black; (3) forewing without extra crossveins; (4) aedeagus with a pair of subapical flanges and pair of long subapical appendages, apex bifid.

***Salnogia fletcheri* sp. n.**

(Figs 22–24)

ZooBank taxon LSID:

4E37BF76-13C7-46F7-8060-80AE888B115B

Length. Male: 2.9–3.0 mm; female 3.3 mm.

Description. Coloration. Fore margin of vertex dark, coronal suture pale brown. Mesonotum and scutellum with fuscous longitudinal band (Fig. 22A, B). Forewing brown with veins pale (Fig. 22A–D). Face dark (Fig. 22E, F).

Morphology. Forewing macropterous, with four apical and three anteapical cells, inner anteapical cell open or closed basally; appendix broad (Fig. 22A–D).

Male genitalia. Pygofer lightly sclerotized dorsally; lobe long, caudal margin round (Fig. 23A–D). Subgenital plate subtriangular, lateral margin concave, with macrosetae arising laterally (Fig. 23E, F). Style preapical lobe angulate; apophysis stout, long (Fig. 23G, H). Connective shorter than aedeagus. Aedeagal shaft apex shallowly split, slightly curved dorsad; subapical long appendages extended ventromesad to or beyond midline (Fig. 23I–L).

Material examined. Holotype: ♂, Argentina: Salta, Rt 9, km 1547 Los Nogales, 800 m, 24°48'19"S, 65°0'47"W, 19.i.2008, C.H. Dietrich, vacuum, AR25–1 (MLP). Paratypes: 2♂, 1♀, same data with holotype (INHS).

Type locality. Salta (Argentina).

Etymology. This species is named for Dr. M.J. Fletcher who has made outstanding contributions to leafhopper classification.

Distribution. Argentina.

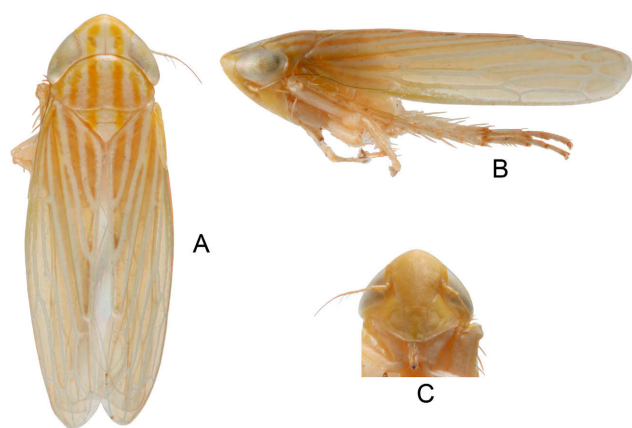


Fig. 25. *Graminella schrocki* sp. n. (holotype, male). A – habitus, dorsal view; B – habitus, lateral view; C – face.

Genus *Graminella* DeLong, 1936

Graminella DeLong, 1936: 218. Type species: *Thamnotettix aureovittata* Sanders & DeLong, 1920.

Diagnosis. Crown usually with fuscous spots. Clypeal sulcus obscure. Forewing usually with only two closed anteapical cells. Preapical lobe of style usually sharply angulate. Aedeagus apex usually with distinct median longitudinal cleft in posterior or ventral view.

Distribution. North and South America, China.

Remarks. Until now, *Graminella* comprised 29 species including ten recorded from South America (Blocker et al., 1995). Below we describe a new species from Argentina, and propose a new synonymy for two other South American taxa belonging to this genus.

Graminella schrocki sp. n.

(Figs 25–26)

ZooBank taxon LSID:

BB6B1827-98CE-4906-BC6D-2B4A3273AB82

Length. Male: 3.7 mm (female unknown).

Description. Coloration. Dorsum with pair of orange longitudinal submedial bands extended from apex of crown to forewing clavus, coronal suture light brown. Pronotum lateral pair of longitudinal bands extended across mesonotum to clavus (Fig. 25A). Forewing membrane opaquely sclerotized orange brown in basal half, veins white, distal part of wing pale translucent (Fig. 25A, B). Face mostly pale yellow (Fig. 25C). Venter of thorax and legs pale yellow, unmarked (Fig. 25B, C).

Morphology. Head wider than pronotum, crown depressed, anterior margin distinctly angulate in dorsal view, slightly shorter than distance between eyes (Fig. 25A); ocellus next to eye on anterior margin (Fig. 25B). Face relatively flat, length greater than width; frontoclypeus relatively narrow; clypeal sulcus not prominent; anteclypeus parallel-sided, apex even with lower margin of gena; lorum semicircular, narrower than anteclypeus, well separated from lateral margin of face (Fig. 25C). Forewing inner anteapical cell open basally, central anteapical cell not divided (Fig. 25A, B).

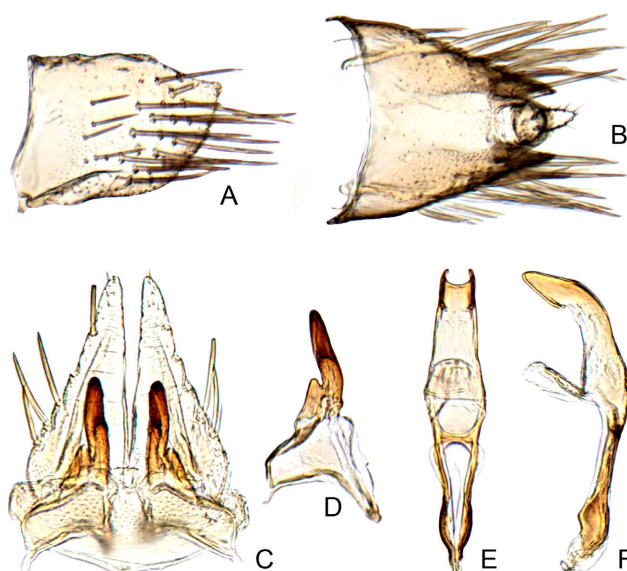


Fig. 26. *Graminella schrocki* sp. n. (holotype, male). A – pygofer lobe, lateral view; B – pygofer and segments X and XI, dorsal view; C – valve, subgenital plates and styles, ventral view; D – style, dorsal view; E, F – connective and aedeagus, dorsal and lateral view, respectively.

Male genitalia. Pygofer lightly sclerotized dorsally; lobe relatively short, with numerous macrosetae in distal half, caudal margin angulate (Fig. 26A, B). Valve short, caudal margin obtuse angulate. Subgenital plate subtriangular, lateral margin weakly concave, apex acute (Fig. 26C). Style with articulating arm moderate long, preapical lobe angulate but weakly produced; apophysis stout, long, straight (Fig. 26D). Connective nearly as long as aedeagus. Aedeagal shaft poorly sclerotized dorsally, apex shallowly and widely split, curved 50° dorsad, dorsal surface with small triangular subapical lobe on either side; gonopore apical but poorly delimited (Fig. 26E, F).

Material examined. Holotype: ♂, Argentina: Tucumán, rt 9 km 1346 54 km N Tucumán, 770 m, 26°23'41"S, 65°18'13"W, 20.i.2008, C.H. Dietrich, vacuum, AR28–1 (MLP).

Type locality. Tucumán (Argentina).

Etymology. This species is named for Dr. J.R. Schrock who has helped the senior author revise many manuscripts.

Distribution. Argentina.

Remarks. This species is somewhat similar to the North American species *Graminella floridana* DeLong & Mohr, 1937 in coloration and the structure of the genitalia but differs in lacking dark spots on the anterior margin of the crown, having three pairs of longitudinal stripes on the pronotum, and in having the base of the aedeagus rounded and forming a continuous curve with the connective rather than sharply angulate ventrally in lateral view.

Graminella stelliger (Berg, 1884)

Athysanus stelliger Berg, 1884: 29.

Fusanus acristylus Cheng, 1980: 79, **syn. n.**

Remarks. Cheng's (1980) description and illustrations of *F. acristylus* indicate that this taxon is a synonym of *G. stelliger*, which was re-described and illustrated by Lin-

navuori (1959). The apex of the aedeagus of this species varies somewhat in shape intraspecifically. The similarity of *F. acrostylus* to *Fusanus griseostriatus* Linnavuori, 1955, noted by Cheng (1980) is superficial because the style of the former has a strongly and acutely produced preapical lobe, a feature characteristic of most *Graminella* species, including *G. stelliger*. Species of *Fusanus* have the style preapical lobe rounded.

***Limpica pallida* (Linnavuori & DeLong, 1979), comb. n.**

Reventazonia pallida Linnavuori & DeLong, 1979: 49.

Remarks. *Limpica* was originally established based on a single species, *Limpica forcata* Cheng, 1980, from Paraguay. Comparison of Cheng's (1980) original description and illustrations of the type species of the genus with those of Linnavuori & DeLong's (1979) species clearly indicates that the two species are closely related. Species of *Reventazonia* have the gonopore situated on the ventral side of the shaft apex and extended basad, but the shaft apex is only slightly notched, not deeply divided as in *Limpica*. Based on the original descriptions and illustrations, *L. pallida* and *L. forcata* are identical in size and very similar in coloration but the latter differs in having the distal lobes of the aedeagus more slender and the subgenital plate with fewer macrosetae. The type specimens of both species need to be compared to determine whether the two taxa should continue to be treated as separate species.

Genus *Quaziptus* Kramer, 1965, reinstated tribal placement

Quaziptus Kramer, 1965: 29. Type species: *Quaziptus chapini* Kramer, 1965.

Remarks. This monotypic genus was originally unplaced to tribe within Deltocephalinae but Oman et al. (1990) listed it as belonging to Deltocephalini. Kamitani (1999) transferred the genus to Paralimnini and this placement was followed by Zahniser & Dietrich (2013). The type species, *Q. chapini*, clearly has the connective linear and fused to the aedeagus, so the genus is here returned to Deltocephalini and may be separated from other South American genera by the key given above.

Genus *Nullamia* DeLong, 1970

Nullamia DeLong, 1970: 118. Type species: *Nullamia fuegoensis* DeLong, 1970.

Remarks. DeLong (1970) described this genus based on two male specimens of one new species (*N. fuegoensis*) from southern Chile, placing it in Deltocephalinae, but not indicating a tribal placement. Linnavuori & DeLong (1977) placed the genus in Deltocephalini and described a second species, *N. bicornis*, also from Chile. Although Linnavuori & DeLong (1977) described *N. bicornis* as being similar to the type species of *Nullamia* "in general structure" published illustrations of the male genitalia of both species cast doubt on whether they are congeneric. DeLong's (1970) illustrations of the aedeagus of *N. fuegoensis* indicate that this species has a simple aedeagus,

without processes and with a shallowly emarginate apex, whereas *N. bicornis* has a pair of long aedeagal processes arising near the midlength of the shaft and extended distad, with the shaft apex entire. As indicated in the above key, these two species will key to *Amplicephalus* and *Haldorus*, respectively. Unfortunately, DeLong's (1970) original description and drawings of *N. fuegoensis* are insufficient to establish its relationship to *Amplicephalus* with confidence and, although the male genitalia of *N. bicornis* resemble those of *Haldorus*, the latter genus has the forewings fully macropterous, rather than shortened as in *Nullamia*. Thus, further comparative study of both *Nullamia* species will be necessary to determine the status and relationships of the genus.

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