

<https://doi.org/10.11646/zootaxa.4457.4.5>
<http://zoobank.org/urn:lsid:zoobank.org:pub:9F90D5DD-7E59-4983-A640-6B9F0BCBF4F6>

A new species of *Polyamia* DeLong (Hemiptera: Cicadellidae: Deltocephalinae: Deltocephalini) representing the first record of the genus from South America

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Abstract

Polyamia (Polyamia) choromorica sp. n., representing the first record of the genus *Polyamia* DeLong from South America, is described and illustrated. Previously described species of *Polyamia* DeLong appear to be restricted to North America. Color illustrations of *Polyamia (Copolyamia) caperata* (Ball), *Polyamia (Copolyamia) similaris* DeLong & Davidson and *Polyamia (Polyamia) weedi* Van Duzee are also provided for comparison. A species checklist and distribution summary for the genus is provided. Notes on other South American species of Deltocephalini with supernumerary forewing crossveins are also provided.

Key words: Auchenorrhyncha, morphology, taxonomy, new species

Introduction

DeLong (1926) established the deltocephaline leafhopper genus *Polyamia* DeLong with the type species *Deltocephalus weedi* Van Duzee. Sinada and Blocker (1994) revised the genus and divided it into two subgenera: the nominotypical subgenus and *Copolyamia* Sinada & Blocker. They reported the genus as occurring from Canada to Chile but all the species they included appear to be restricted to North America. *Amplicecephalus cekalovici* (DeLong & Martinson), described from Chile, was originally placed in *Polyamia* DeLong based on the presence of numerous crossveins in the forewing clavus, but transferred to *Amplicecephalus* DeLong by Linnauori and DeLong (1977) based on the apically bifid aedeagus. Until now, *Polyamia* DeLong comprised forty-one species. In this paper, a new species is described from Argentina, representing the first record of the genus from South America. Color illustrations of *Polyamia (Copolyamia) caperata* (Ball), *Polyamia (Copolyamia) similaris* DeLong & Davidson and *Polyamia (Polyamia) weedi* Van Duzee are also provided for comparison. A species checklist and distribution summary for the genus is provided. Notes on other South American species of Deltocephalini with supernumerary forewing crossveins are also provided.

Material and methods

The material studied here is deposited in Museo de La Plata, La Plata, Argentina (MLP) and the Illinois Natural History Survey (INHS). Morphological terminology follows Dietrich (2005). 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.

Taxonomy

***Polyamia* DeLong**

Polyamia DeLong, 1926: 62. Type: *Deltocephalus weedi* Van Duzee, 1892.

Remarks. Sinada and Blocker (1994) described this genus adequately. This genus can usually be recognized by the supernumerary crossveins in the forewing. It is morphologically heterogeneous and its phylogenetic status needs to be tested through phylogenetic analysis.

Distribution. Argentina, Canada, China, Cuba, Honduras, Mexico, Panama, USA.

Checklist of *Polyamia* DeLong

Polyamia (Copolyamia) Sinada & Blocker
alboneura DeLong, 1918. USA.
apicata Osborn, 1900. Canada, USA.
brevipennis DeLong & Davidson, 1935. USA.
caperata Ball, 1900. USA.
compacta Osborn & Ball, 1897. USA.
delongi Kramer, 1963. Mexico.
dilata DeLong, 1937. USA.
herbida DeLong, 1935. USA.
interrupta DeLong, 1916. USA.
lobata Beamer & Tuthill, 1934. USA.
maeata Sinada & Blocker, 1994. USA.
multicella Beamer & Tuthill, 1934. USA.
nana Beamer & Tuthill, 1934. USA.
obtecta Osborn & Ball, 1898. Cuba, USA.
ritana Beamer & Tuthill, 1934. USA.
rossi DeLong, 1937. USA.
sabina Beamer & Tuthill, 1934. USA.
satur Ball, 1899. Mexico, USA.
similaris DeLong & Davidson, 1935. USA.
tantilla Beamer & Tuthill, 1934. Mexico, USA.
tolteca Kramer, 1965. Mexico.
viridis Osborn, 1920. USA.
yavapai Tuthill, 1930. USA.
Polyamia (Polyamia) DeLong
arachnion Kramer, 1963. Mexico.
choromorica sp. n. Argentina.
cuerna DeLong, 1984. Mexico.
gangamon Kramer, 1963. Mexico.
gridina DeLong & Linnauori, 1979. Mexico.
nidula DeLong & Thambimuttu, 1973. Mexico.
penistenuis Zhang & Duan, 2004. China.
pulla Beamer & Tuthill, 1934. USA.
randa DeLong & Thambimuttu, 1973. Mexico, Panama.
reticulata Linnauori, 1959. Mexico.
santana Beamer & Tuthill, 1934. USA.
scina DeLong & Thambimuttu, 1973. Mexico.
singularis Beamer & Tuthill, 1934. USA.
tepata DeLong, 1984. Honduras, Mexico.

texana DeLong, 1926. Honduras, Mexico, USA.
triplehorni DeLong & Thambimuttu, 1973. Mexico.
tulara DeLong & Thambimuttu, 1973. Mexico.
umniata Sinada & Blocker, 1994. Mexico.
weedi Van Duzee, 1892. USA.

Polyamia (Copolyamia) Sinada & Blocker

Diagnosis. Members of this subgenus may usually be recognized by the presence of supernumerary crossveins only in the clavus of the forewing, the relatively short, stout aedeagus, and the female seventh abdominal sternite, which has a broad posterior median lobe overlapping smaller paired lateral lobes.

Remarks. This subgenus is relatively well defined and homogeneous morphologically. Most of the included species are restricted to the temperate and subtropical warm season grasslands of the USA and Mexico. To facilitate comparison with subgenus *Polyamia (Polyamia)* DeLong and the new species of that subgenus described below, color illustrations are provided for two common North American species of *Polyamia (Copolyamia)* (Figs 1–4).

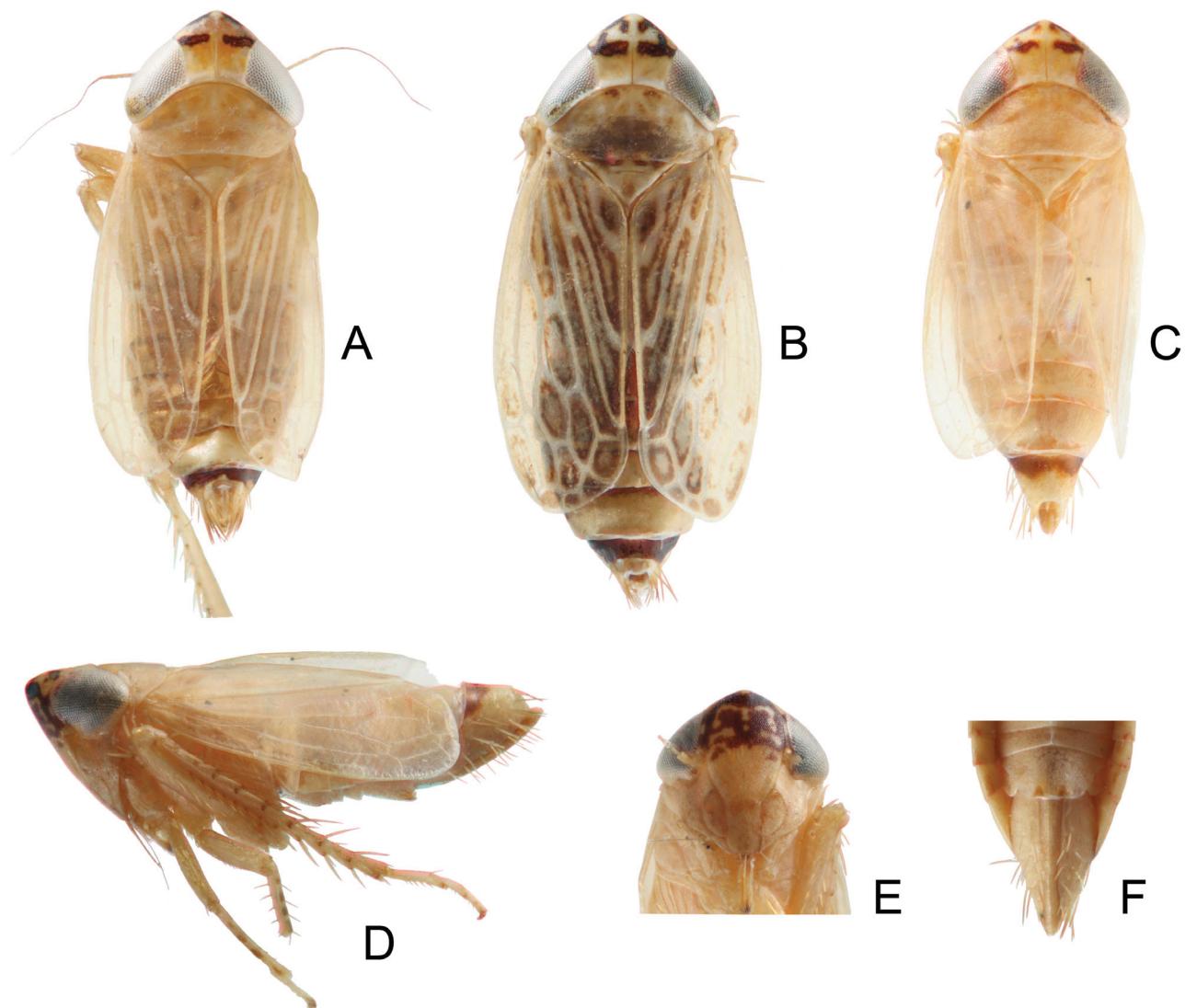


FIGURE 1. *Polyamia (Copolyamia) caperata* A–C: habitus, dorsal view; D: habitus, lateral view; E: face; F: the end of female abdomen, ventral view. A–B: male; C–F: female.

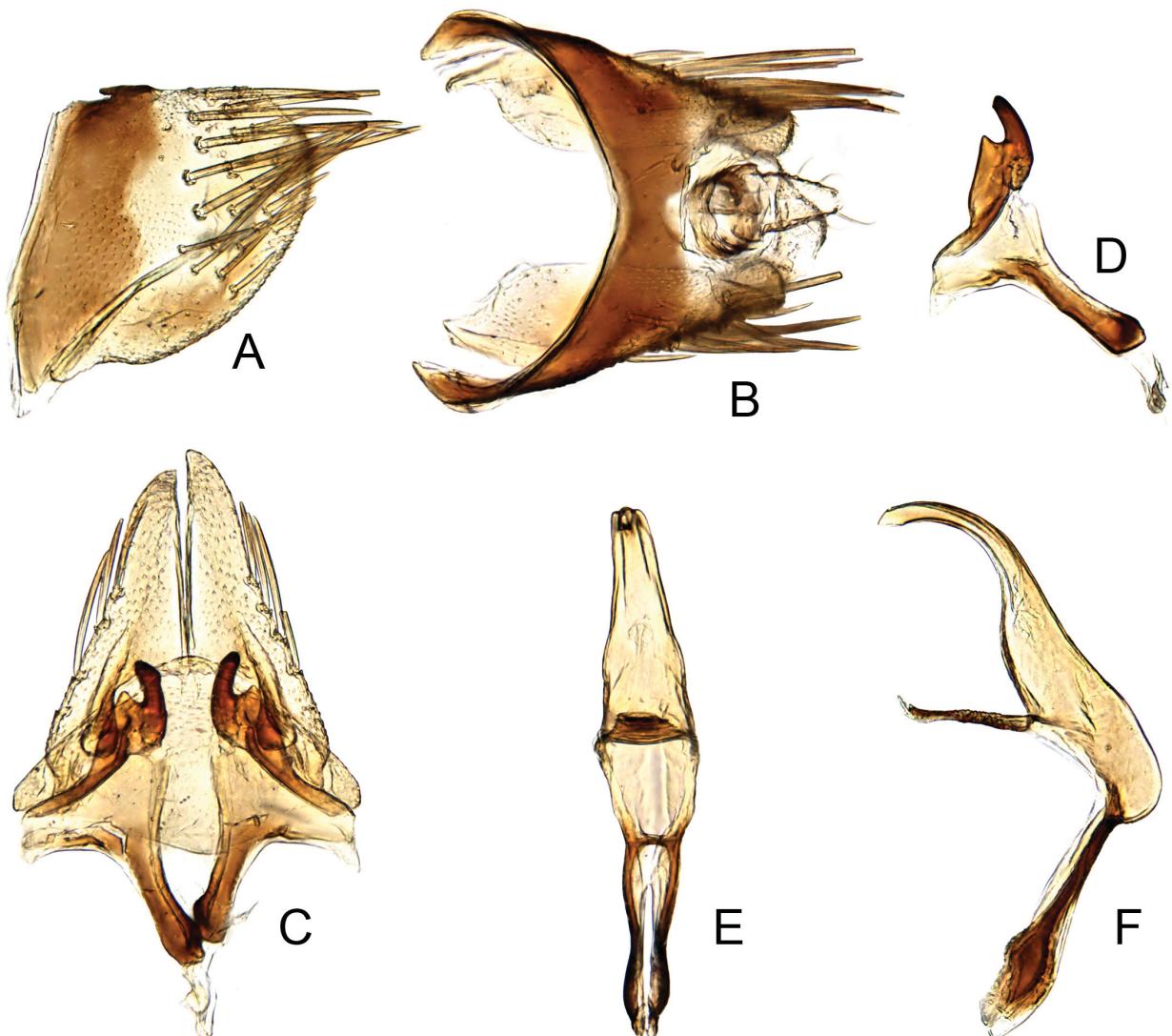


FIGURE 2. *Polyamia (Copolyamia) caperata* A: male pygofer lobe, lateral view; B: male pygofer and segments X–XI, dorsal view; C: valve, subgenital plates and styles, ventral view; D: style, dorsal view; E, F: connective and aedeagus, dorsal and lateral view, respectively.

Polyamia (Copolyamia) caperata (Ball)
(Figs 1–2)

Deltocephalus caperatus Ball, 1900: 343.

Deltocephalus vinnulus Crumb, 1915: 192.

Polyamia caperata, DeLong & Sleesman, 1929: 89.

Polyamia grama DeLong, 1935: 156.

Polyamia (Copolyamia) caperata, Sinada & Blocker, 1994: 775.

Material examined. 4♂, USA: Illinois: Mason Co., Revis Hill Prairie, 6 September 2008, Hill Prairie, A.M. Wallner, Vacuum (INHS); 1♂, 1♀, USA: Wisconsin, Kimball, Minong, August 25 1945, H.R. Ross, Prairie scrub mix (INHS).

Remarks. Sinada and Blocker (1994) have described this species adequately. We provide the first color illustrations of this species, which is highly variable in coloration, ranging from very pale (e.g., Fig. 1C–D) to much darker (Fig. 1B) in mature individuals.

Distribution. USA.

***Polyamia (Copolyamia) similaris* DeLong & Davidson**
(Figs 3–4)

Polyamia similaris DeLong & Davidson, 1935: 164.
Polyamia (Copolyamia) similaris Sinada & Blocker, 1994: 782.

Material examined. 2♂, 2♀, USA: Arkansas, Rogers, 6 June 1946, M.W. Sanderson (INHS).

Remarks. Sinada and Blocker (1994) have described this species adequately. We provide the first color illustrations of this species.

Distribution. USA.

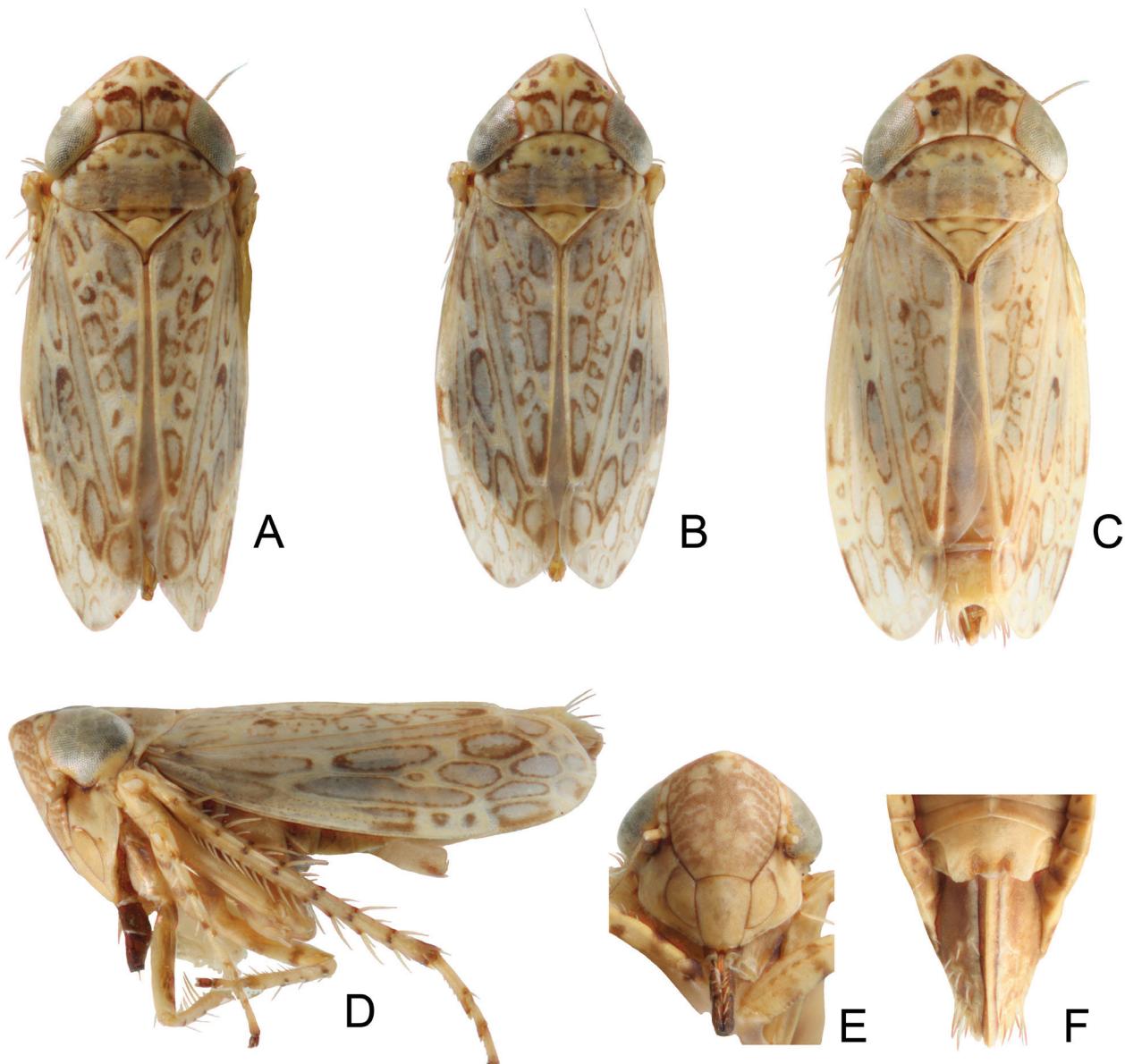


FIGURE 3. *Polyamia (Copolyamia) similaris* A–C: habitus, dorsal view; D: habitus, lateral view; E: face; F: the end of female abdomen, ventral view. A–B: male; C–F: female.

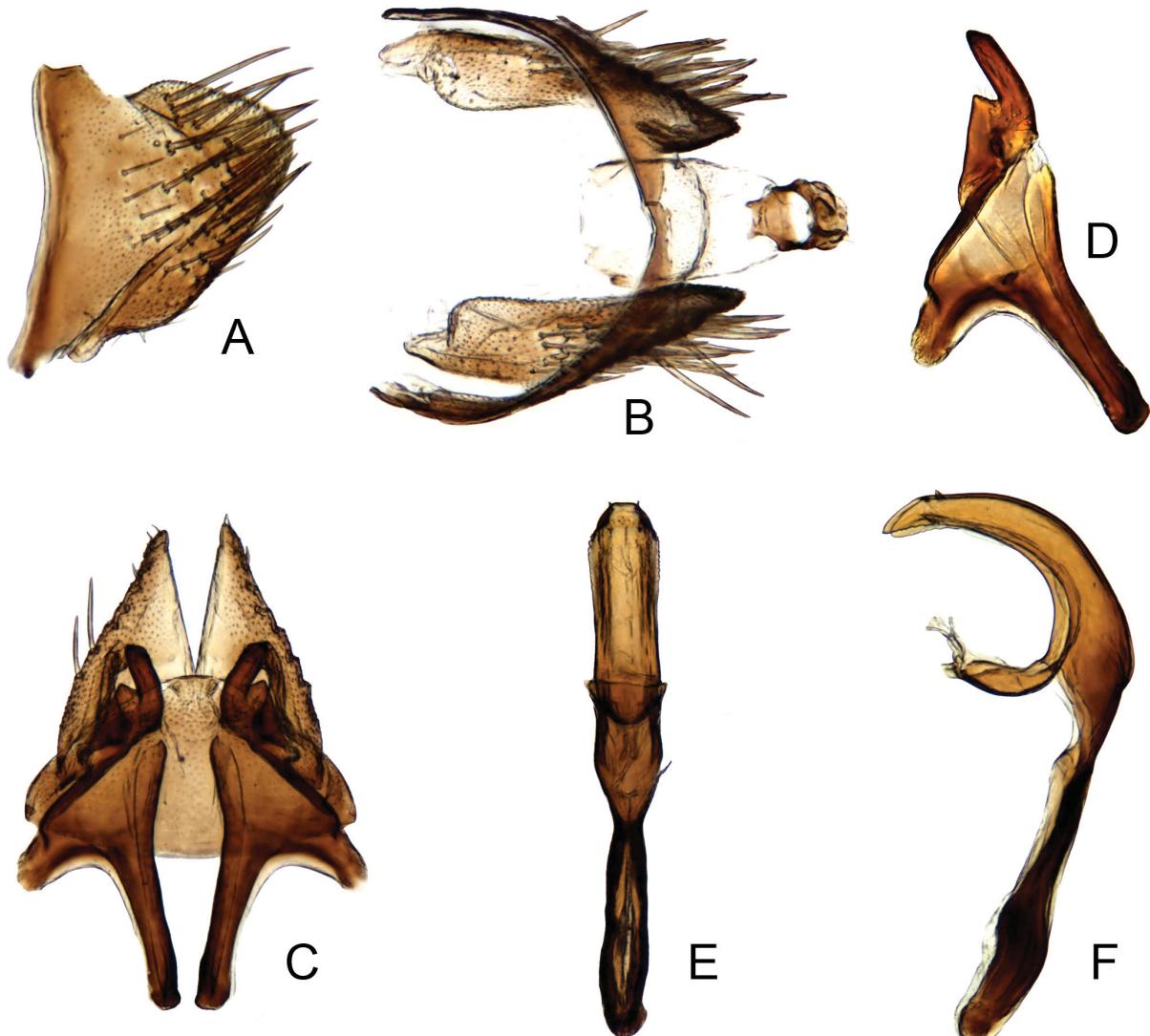


FIGURE 4. *Polyamia (Copolyamia) similaris* A: male pygofer lobe, lateral view; B: male pygofer and segments X–XI, dorsal view; C: valve, subgenital plates and styles, ventral view; D: style, dorsal view; E, F: connective and aedeagus, dorsal and lateral view, respectively.

Polyamia (Polyamia) DeLong

Diagnosis. Members of this subgenus may usually be recognized by the presence of supernumerary crossveins in both the clavus and corium of the forewing, the relatively long, slender aedeagus, and the medial posterior lobe of female abdominal sternite VII either absent or no wider than the lateral lobes.

Remarks. This subgenus is less well defined and more morphologically heterogeneous than *Polyamia (Copolyamia)* Sinada & Blocker. Most species occur in subtropical and tropical grasslands of Mexico and Central America, although the type species, *P. (P.) weedi* Van Duzee, illustrated below (Figs 7–8), is widespread in the eastern USA. Here we describe the first species of the subgenus (and genus) recorded from South America.

Polyamia (Polyamia) choromorica sp. n. (Figs 5–6)

Length. Male: 3.0–3.1 mm; female: 3.2–3.6 mm.

Coloration and morphology. Ground colour pale brownish marked with brown, fuscous (Fig. 5A–C). Crown white with brown, fuscous marks. Pronotum with small paired fuscous spots anteriorly and six longitudinal brown stripes. Mesonotum and scutellum with fuscous marks (Fig. 5A–B). Face mostly dark brown, with paired white arcs (Fig. 5D). Forewing pale brownish, veins white, cell borders dark brown (Fig. 5A–C). Mesosternum dark brown. Femora and tibiae with fuscous marks (Fig. 5C–D).

Head wider than pronotum, anterior margin distinctly angulate in dorsal view. Crown longer than distance between eyes (Fig. 5A–B). Clypeal sulcus absent. Anteclypeus tapering to apex, extending beyond normal curve of genae. Lorum semicircular, narrower than anteclypeus, well separated from lateral margin of face (Fig. 5D). Pronotum slightly longer than vertex or nearly as long as vertex (Fig. 5A–B). Forewing exposing apex of pygofer or not, with numerous extra crossveins, especially in clavus (Fig. 5A–C).

Male genitalia. Pygofer lobe long, apex rounded, with numerous macrosetae in distal half (Fig. 6A–B). Valve angulate caudally. Subgenital plate 3x length of valve, subtriangular, lateral margin incurved, apex acute, with macrosetae arising laterally (Fig. 6C). Style with short articulatory arm; preapical lobe rectangular; apophysis digitate, apex acute, slightly laterally curved (Fig. 6D). Connective slightly shorter than aedeagus. Aedeagus with shaft in lateral view moderately long and slender, slightly tapered from base to apex and curved slightly dorsad, apex obliquely tapered; in ventral view slightly tapered, apex truncate with pair of small lateral projections (Fig. 6E–F).

Female. Sternite VII with posterior margin undulate, without posterolateral lobes (Fig. 5E).

Material examined. **Holotype:** ♂, Argentina: Tucumán, 23 rd km W Choromoro, 1180 m, 26°23'41"S, 65°31'19"W, 20 January 2008, C.H. Dietrich, vacuum, AR29–1 (MLP). **Paratypes:** 2♂, 2♀, same data as holotype (INHS).

Remarks. This species runs to *P. (P.) randa* DeLong & Thambimuttu (couplet 1) in the key of Sinada and Blocker (1994) and is similar to that species, recorded from Mexico and Panama, in form and coloration, including structure of the male genitalia and female abdominal sternite VII. *Polyamia (P.) choromorica* sp. n. is easily distinguished by the much less strongly curved aedeagal shaft, the vestigial dorsal aedeagal apodeme, and lack of a distinct emargination at the shaft apex. *Polyamia (P.) randa* DeLong & Thambimuttu has the distal half of the aedeagal shaft oriented perpendicularly to the basal part and connective in lateral view.

Distribution. Argentina

Etymology. The specific epithet is based on the type locality.

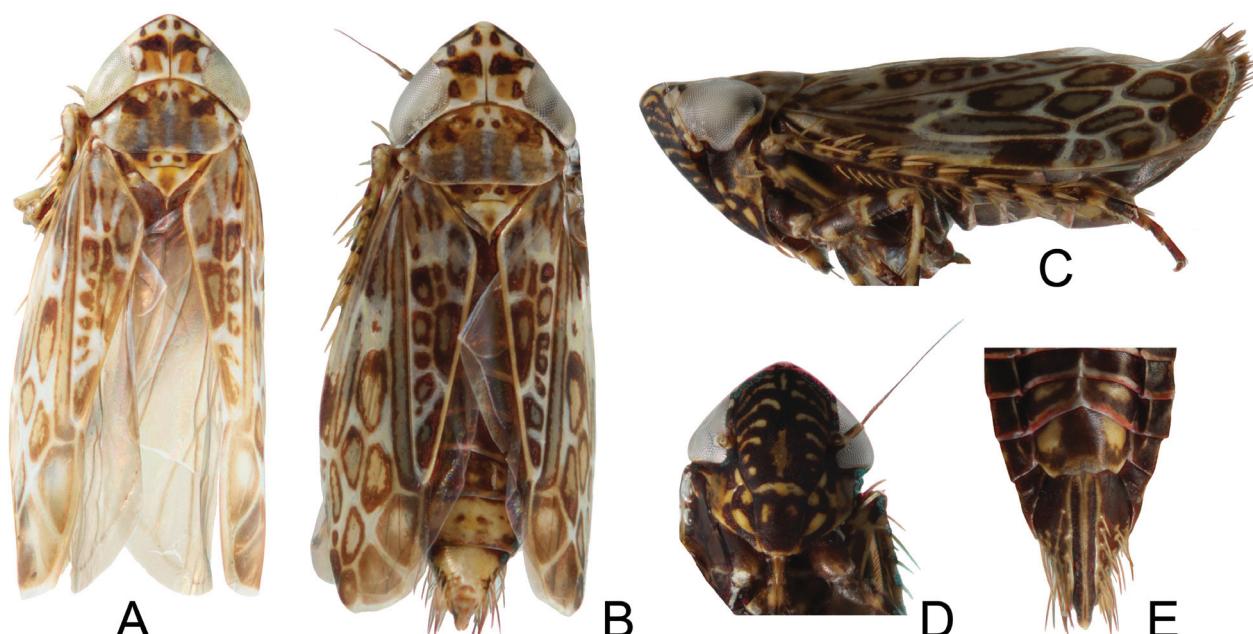


FIGURE 5. *Polyamia (Polyamia) choromorica* sp. n. A–B: habitus, dorsal view; C: habitus, lateral view; D: face; E: the end of female abdomen, ventral view. A: male; B–E: female.

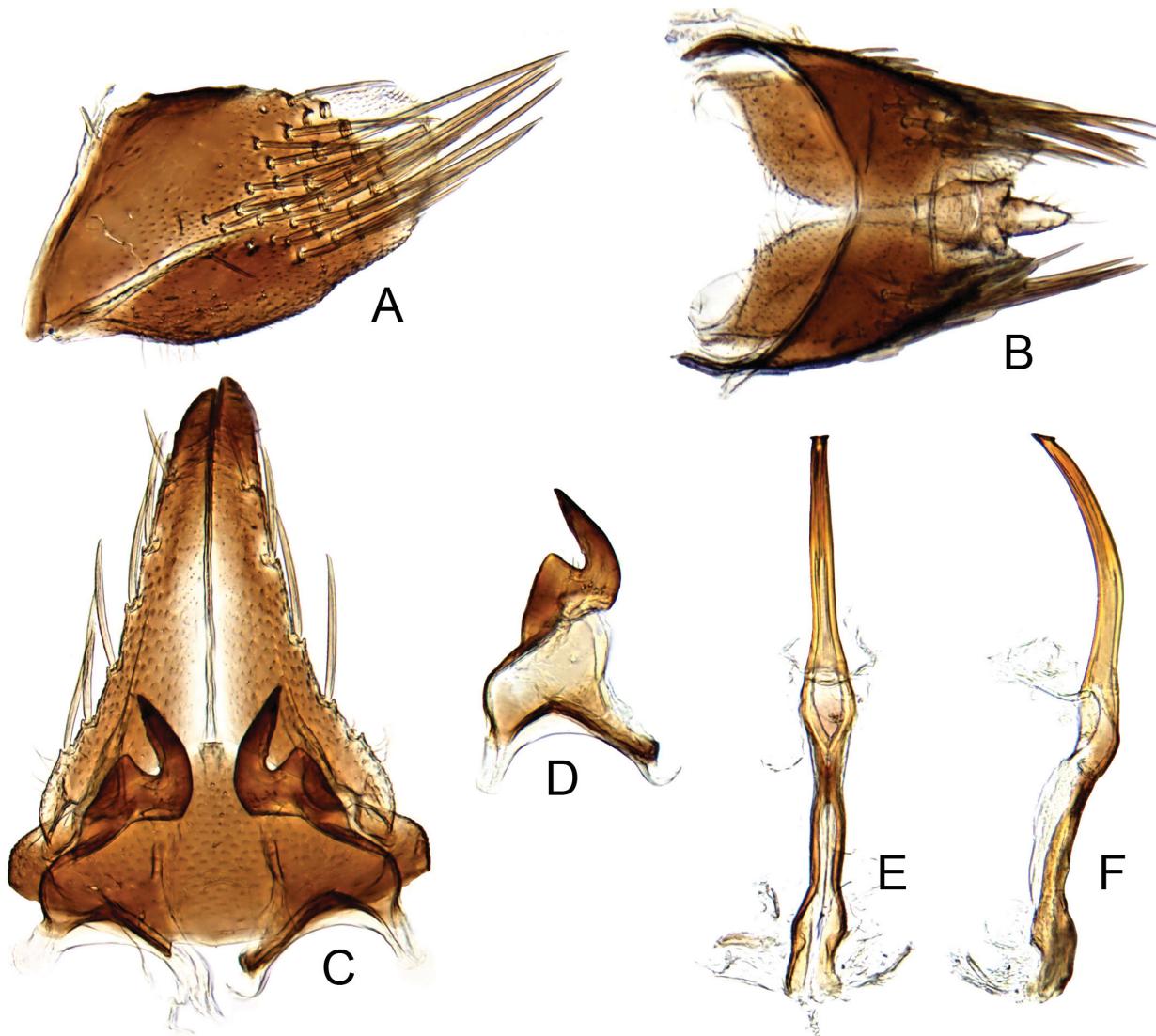


FIGURE 6. *Polyamia (Polyamia) choromorica* sp. n. A: male pygofer lobe, lateral view; B: male pygofer and segments X–XI, dorsal view; C: valve, subgenital plates and styles, ventral view; D: style, dorsal view; E, F: connective and aedeagus, dorsal and lateral view, respectively.

***Polyamia (Polyamia) weedi* Van Duzee**
(Figs 7–8)

Deltocephalus weedi Van Duzee, 1892: 306.

Deltocephalus (Polyamia) weedi, DeLong, 1926: 46.

Polyamia (Polyamia) weedi, Sinada & Blocker, 1994: 792.

Material examined. 2♂, USA: Illinois, Mahomet, Lake of the Woods, 7 August 1959, J. Kingsolver, taken on *Muhlenbergia* sp. (INHS).

Remarks. Sinada and Blocker (1994) have described this species adequately. We provide the first color illustrations of the male of this common and widespread species.

Distribution. USA.

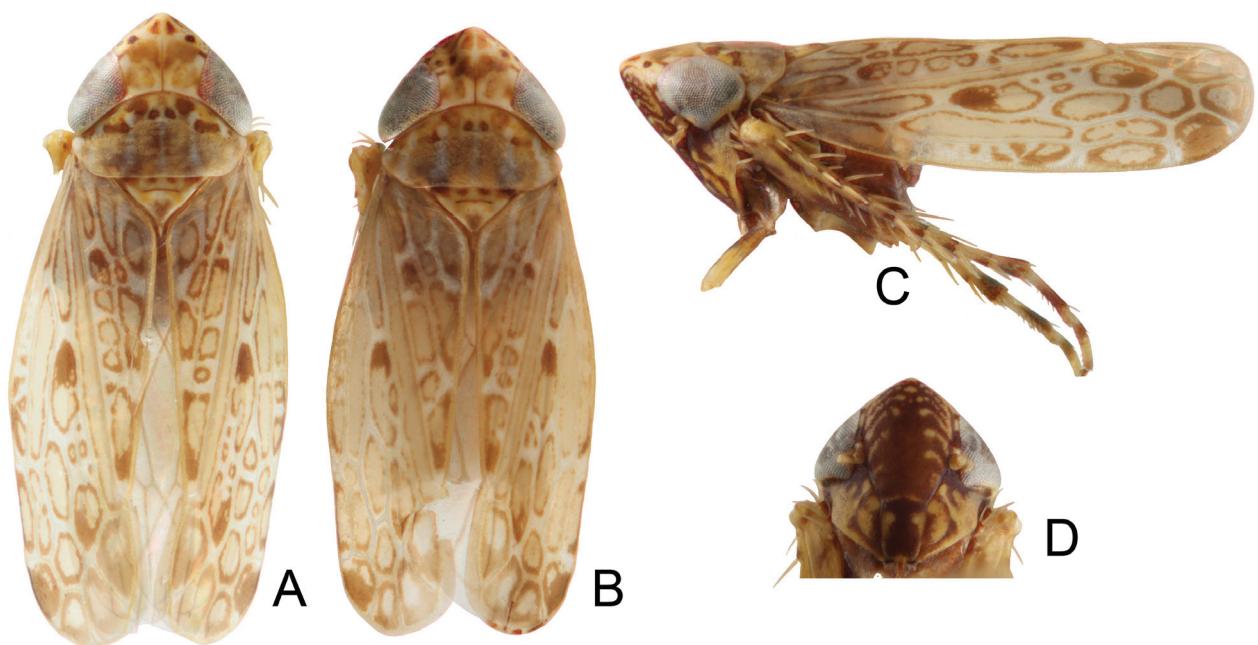


FIGURE 7. *Polyamia (Polyamia) weedi* A–B: habitus, dorsal view; C: habitus, lateral view; D: face.

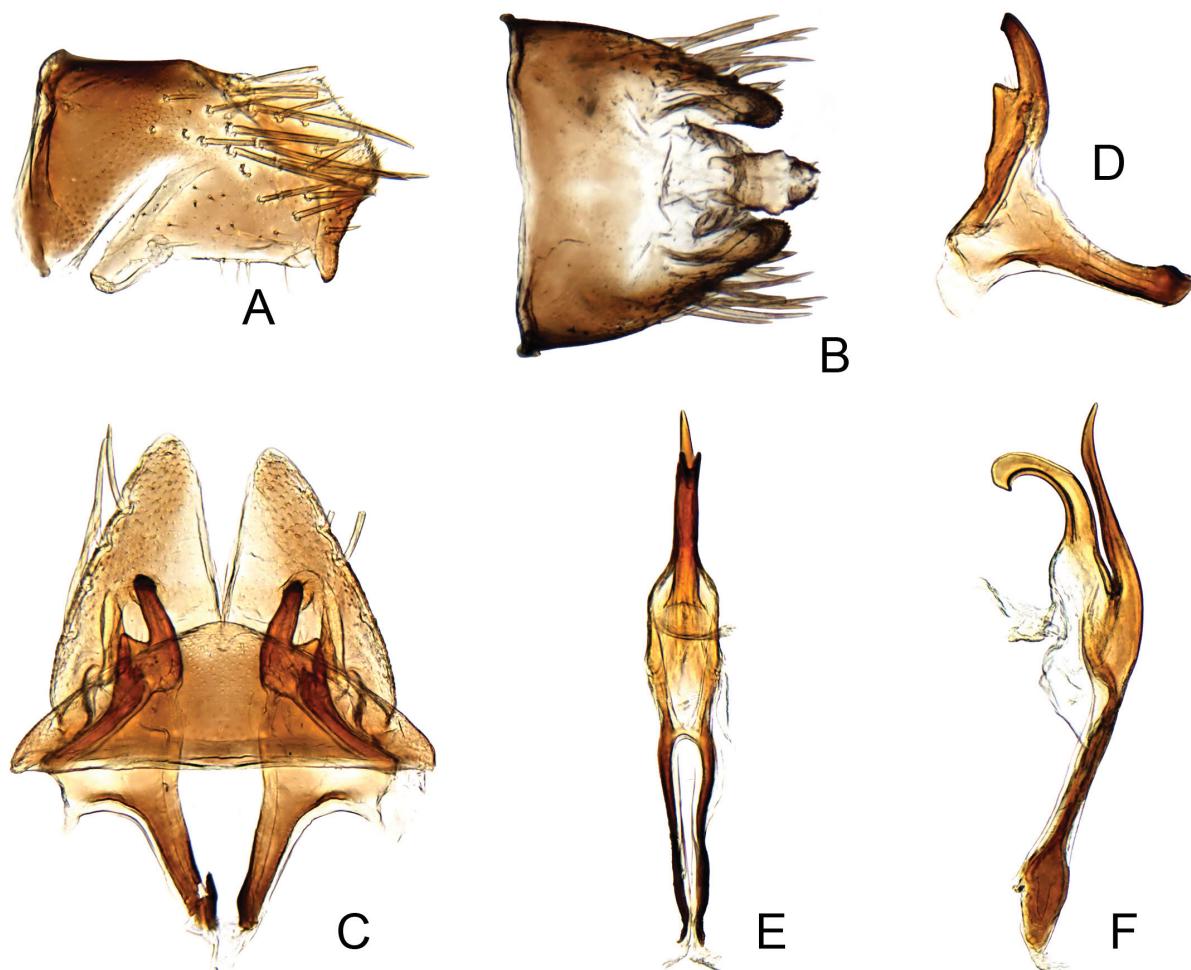


FIGURE 8. *Polyamia (Polyamia) weedi* A: male pygofer lobe, lateral view; B: male pygofer and segments X–XI, dorsal view; C: valve, subgenital plates and styles, ventral view; D: style, dorsal view; E, F: connective and aedeagus, dorsal and lateral view, respectively.

Discussion

Polyamia (P.) choromorica sp. n. is the only species of *Polyamia* DeLong confirmed to occur in South America. Most previously described species of the genus appear to be restricted to North America, although some are recorded as far south as Panama. Placement of the new species in *Polyamia* DeLong is based on the presence of numerous extra crossveins in the forewing (Fig. 5A–C) and the undivided aedeagus apex (Fig. 6E–F). Other South American Deltcephalini with extra crossveins in the forewing mostly belong to *Amplicecephalus* (*Nanctasus*) Linnauori, which differs in having the apex of the aedeagus with a well developed median cleft in ventral view. The Chilean species, *Amplicecephalus cekalovici* (DeLong & Martinson) (unplaced to subgenus), also has extra crossveins in the forewing clavus and a distally bifid aedeagus.

Acknowledgements

We express our sincere thanks to J.R. Schrock, Emporia State University, USA for commenting on an earlier draft of this paper. This research is supported by the National Natural Science Foundation of China (31000968), Anhui Provincial Natural Science Foundation (1608085MC55), Anhui Provincial Outstanding Young Talent Support Plan Key Projects (gxyqZD2016036), and Anhui Provincial Colleges and Universities Natural Science Foundation (KJ2015A006) to the first author and U.S. National Science Foundation grant DEB-1639601 to C.H.D. The senior author was supported by the National Scholarship Fund of China to pursue research at the University of Illinois at Urbana-Champaign, USA, from August 2013 to August 2014.

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