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Short Communication

Nomenclatural changes in the grass-feeding Mexican leafhopper genus *Cocrassana* Blocker & Larsen (Hemiptera: Cicadellidae: Deltocephalinae: Athysanini)

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ABSTRACT

Two nomenclatural changes are proposed in the tribe Athysanini (Cicadellidae: Deltocephalinae). *Chlorotettix sexvarus* DeLong, 1959, is newly placed in the genus *Cocrassana* Blocker & Larsen and is a senior synonym of the type species of *Cocrassana*, *C. riepmai* Blocker & Larsen, 1991, **syn. nov.** A revised diagnosis and illustration of the species are provided.

Introduction

Deltocephalinae is the largest and most morphologically diverse group of leafhoppers worldwide. Every year many species are described as new, reclassified, or synonymized. In subtropical regions of Mexico, there is a high incidence of unusual leafhoppers in Deltocephalinae. D. M. Delong's original surveys of the Mexican leafhoppers led to the recognition of many monotypic genera and many of these remain little studied.

The genus *Chlorotettix* Van Duzee, 1892, is well represented in Mexico and comprises 25 species within the country. DeLong (1959) described *C. sexvarus* remarking on its three distinct pairs of black spots on the crown, pronotum, and scutellum. He illustrated the male genital capsule and showed the peculiar arrangement of pygofer spines and processes on the aedeagus. No additional information has been published on this species. Subsequently, while sorting leafhopper samples collected in Mexico from cultivated crops and their wild relatives (e.g., *Zea perennis* and *Z. mays*) Blocker & Larsen (1991) erected the deltocephaline genus *Cocrassana* with a single species, *C. riepmai*, noting that the genus may be easily separated from other deltocephalines by the combination of male genital features.

Examining the type of material of *C. riepmai* and *C. sexvarus* revealed that they are very similar and should be regarded as representatives of the same species. Thus, in compliance with International Code of Zoological Nomenclature (ICZN, 1999) according to Article 57.2 and 60, we propose a new synonymy and combination for taxonomic clarity.

Material and methods

The dry, pinned holotype specimens of both species, *C. riepmai* (Fig. 1) and *C. sexvarus* (Fig. 2), in addition to recently collected and preserved material in alcohol from Mexico were examined.

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Figure 1. *Cocrassana sexvarus* (DeLong) **comb. nov.**, male holotype. (A) Lateral habitus. (B) Dorsal habitus. (C) Labels and microvial containing genitalia of specimen.

Abdomens of specimens were removed and cleared in hot 10% KOH, rinsed in water and then stored in glycerine. Dissections of genital structures were performed in distilled water. Internal morphology was observed under a stereoscopic microscope (Carl Zeiss) and drawn using a camera lucida attached to the microscope. Images of habitus were taken using a Nikon camera. Multiple images were stacked to obtain precise pictures and edited in Photoshop to show fine details. Abbreviations cited in the text are as follows: The Ohio State University, Triplehorn Insect Collection (**OSUC**), Columbus, USA; Colección de Auchenorrhyncha de Jorge Adilson Pinedo Escatel (**CAJAPE**), Mexico; and U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C. (**USNM**).

Results

Cocrassana sexvarus (DeLong, 1959) **comb. nov.**
Chlorotettix sexvarus DeLong, 1959: 326 [n. sp.]
Cocrassana riepmai Blocker & Larsen, 1991: 124, **syn. nov.**

Remarks. As noted by Cwikla in his unpublished PhD dissertation (1988), this species was incorrectly placed in *Chlorotettix* by DeLong (1959). Cwikla (1988) proposed transferring the species to the genus *Crassana* DeLong & Hershberger but this action was never validated by publication as required by the ICZN. Species of *Chlorotettix* (currently placed in the tribe Pendarini) have the crown texture uniformly granulose, whereas *Cocrassana* and other "*Crassana*-like genera" sensu Blocker & Larsen (1991) have the posterior portion of the crown either smooth, shiny or with fine oblique striations. *Cocrassana* differs from other genera in the group in having paired fuscous spots rather than a transverse band on the crown and the aedeagus with paired processes at the base of the shaft.

Examination of the holotypes of the two taxa treated here as synonyms revealed that they are slightly different in body color including the relative sizes of the paired brown spots on the crown, pronotum, mesonotum and forewings, and the intensity of the dark longitudinal dorsal band on the abdomen. In the male genital capsule, the two specimens differ slightly in the size, length and thickness of the pygofer appendages, the length of style and the curvature of its apophysis (Fig. 3). These differences are not considered sufficient to justify recognizing the two taxa as distinct species.

Geographical distribution. Endemic to Mexico, reported from the following states: Jalisco (Amacueca; Zapopan; Autlán; El Grullo; El Arenal), Michoacán (Tuxpan), Morelos (Cuautla; Cuernavaca;

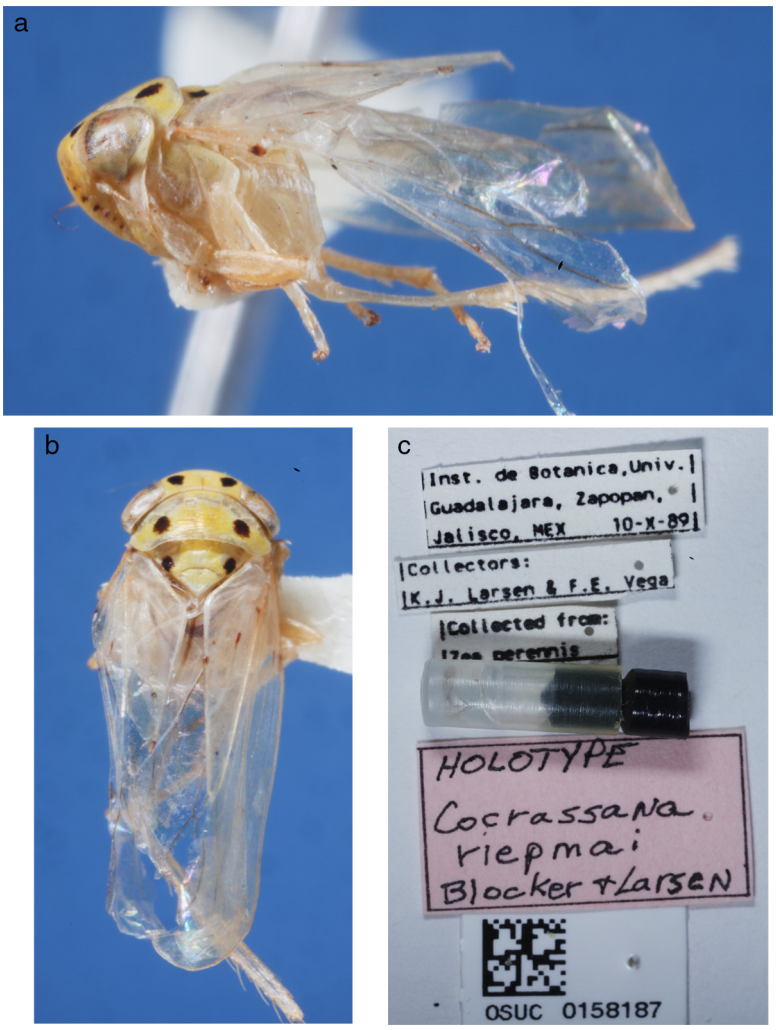

Figure 2. *Cocrassana sexvarus* (DeLong) **comb. nov.**, male holotype of junior synonym *C. riepmai* Blocker & Larsen. (A) Lateral habitus. (B) Dorsal habitus. (C) Labels and microvial of genitalia of specimen.

Tepalcingo), Campeche (Escárcega), San Luis Potosí (Huichihuayan), and Veracruz (Fortín).

Phenology and biological notes. Pinedo-Escatel & Moya-Raygoza (2015, 2018), reported specimens collected during February (four individuals) and December (four ind.) in 2013, and January (four ind.), February (one ind.), March (four ind.), April (eight ind.), May (two ind.) and October (one ind.) during 2014, May (one ind.) and December (one ind.) in 2017, and June (five ind.) in 2017. It is not reported as a vector of plant pathogens and no natural enemies have been found.

Host plant. Wild grasses, *Tripsacum pilosum*, *T. dactyloides*, *Zea perennis*, *Brachiaria plantaginea*, *Digitaria ciliaris*, *Cynodon plectostachyus*, *C. dactylon*, *Rhynchelytrum repens*, *Eleusine indica* (Poaceae), and the cultivated crops, *Z. mays*, *Citrus* × *limon* (Rutaceae), and *Ficus carica* (Moraceae).

Type of material examined. ***Cocrassana riepmai***—Holotype ♂ (OSUC), Instituto de Botanica, Univ. Guadalajara, Zapopan, Jalisco, MEX 10-X-89\Collectors: K. J. Larsen & F. E. Vega\Collected from: *Zea perennis*; Paratypes, 4 ♂, 5 ♀ (OSUC) same data as holotype; Paratype ♂ (OSUC)—Int. de Botanica, Univ. Guadalajara, Zapopan, Jalisco, MEX 27-III-90\Collected from: *Tripsacum pilosum*\Collectors: K. J. Larsen and W. E. Styer. ***Chlorotettix sexvarus***—Holotype ♂ (OSUC) X-8 Mexico\D-122\D. M. DeLong collection.

Other material examined. 1♂ (USNM) – MEXICO: Mor./Cuautla/IV-1965/N.L.H. Krauss; 3♂, 1♀ (CAJAPE) – MEXICO: Jalisco, Zapopan, Las Agujas, 20°44′38.14″N–103°30′44.45″O, a 1663 m, 10-Feb-2013, ex: pastos. Col. J.A. Pinedo-Escatel. 2 ♂, 9 ♀ (CAJAPE) – MEXICO: Jalisco, Zapopan, Las Agujas, 20°44′38.14″N–03°30′44.45″O, a 1663 m, 08–Enero–2013, ex: pastos. Col. J.A. Pinedo-Escatel. 1 ♂, 1 ♀ (CAJAPE)—MEXICO: Jalisco, Zapopan, Las Agujas, 20°44′38.14″N–103°30′44.45″O, a 1663 m, 01–Marzo–2013, ex: pastos. Col. J.A. Pinedo-Escatel.

Conflicts of interest

The authors declare no conflicts of interest.

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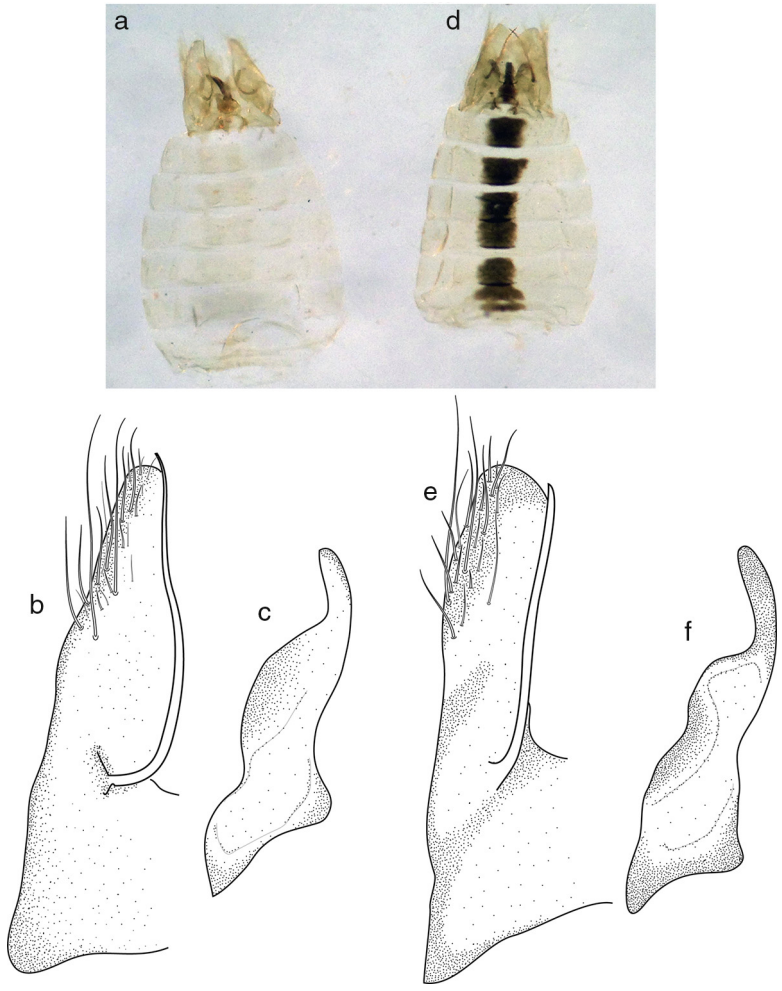

Figure 3. *Cocrassana sexvarus* (DeLong) **comb. nov.**, abdomens and male genitalia of (A-C) holotype of *Chlorotettix sexvarus* DeLong and (D-F) holotype of *Cocrassana riepmai* Blocker & Larsen. (A and D) Dorsal aspect of abdomen. (B and E) Pygofer and processes, ventral aspect. (C and F) Style, ventral aspect.

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