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Revision of Neotropical aphrophorine spittlebugs, part 2: tribe Orthoraphini (Hemiptera, Cercopoidea)

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Abstract

The tribe Orthoraphini is validated by diagnosis to include the new-world fauna of *Orthorapha* Westwood with 21 species from Brazil and 2 newly recorded from Bolivia, including 9 new species: *boliviana* from an unknown locality in Bolivia and *decorata, inscripta, inflata, invidia, irregularis, oculata, sagittata* and *sphaerata* from Brazil. There are also 10 new combinations from *Lepyronia* Amyot & Serville: *bufo* Walker, *concinna* Stål, *frontalis* Stål, *fusconotata* Stål, *geminata* Jacobi, *obscurata* Amyot & Serville, *obliqua* Jacobi, *quadrimaculata* Lallemand, *rana* Walker and *subfasciata* Amyot & Serville. Keys are presented to the new-world species and 3 subgenera, including *Lepyronoxia* Melichar, stat.nov. (= *Balsana* Metcalf, syn.nov.) and *Balsania* subg.nov. In addition, the tribe contains 15 genera of old-world Aphrophorinae with an estimated 290 species from Pacific islands; of these, the previously undescribed male genitalia from 25 species in 8 genera are illustrated and antennal characters for *Orthorapha* and 14 Pacific island genera of Orthoraphini are compared to those of Cloviini, Philaenini and Aphrophorini. This is the first tribe of Cercopoidea to be described as limited to the Southern Hemisphere.

Key words: Cercopidae, Aphrophorinae, *Orthorapha, Balsana, Lepyronoxia*, new species

Introduction

Cercopoidea or froghoppers are a poorly studied superfamily of approximately 3000 species with ill-defined supraspecific taxa. Morphological analysis supports three monophyletic families (Hamilton 2001) with "family Aphrophoridae" (Metcalf & Wade 1962) restored to subfamily status under Cercopidae or spittlebugs. Revisionary studies of the Aphrophorinae began more than 30 years ago with a synopsis of the genera inhabiting a few islands in the South Pacific where the fauna is limited to 127 species (Hamilton 1980a,b, 1981a,b; Hamilton & Morales 1992) and the generic boundaries are fairly easy to ascertain. Since that time, a world-wide analysis of most of the hundreds of described genera of Cercopoidea is nearing completion, and regional faunas of selected tribes and subfamilies are now possible.

This contribution is the third in a synopsis of the new-world fauna of Aphrophorinae. The first discussed the Nearctic genera and species of nearctic Philaenini (Hamilton 1979) and the second concerned the largely tropical Ptyelini (Hamilton 2012) and its only neotropical genus. This contribution delimits the only named tribe of exclusively Southern Hemisphere tribe of spittlebugs, Orthoraphini, and places its new-world taxa in a world context, completing the South Pacific study by incorporating their characters of antennae and male genitalia.

Orthoraphini as originally catalogued by Metcalf (published posthumously by Virginia Wade) grouped two beetlelike genera from South America (Figs. 1A–B) that resemble members of *Lepyronia* Amyot & Serville (Cloviini) in having a hindwing fold between Cu_1 and Cu_2, that interrupts the marginal vein (Metcalf 1917: fig. 16). The original use of this tribal name was not accompanied by a description and the features that differentiate the South American genera from the holarctic "Lepyroniini," also not characterized, remain unknown. This study revises these neotropical taxa and places them in a world context. It presents evidence that the two described genera are closely related to each other but not to the Northern Hemisphere genus *Lepyronia.* They appear to be related instead to most South Pacific genera of Aphrophorinae (Figs. 1C–K, and see Hamilton 1980a,b, 1981a,b). This delimits Orthoraphini as the only named tribe of exclusively Southern Hemisphere spittlebugs.

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