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Neotropical Physoderinae revisited, with description of a new, sexually dimorphic species of *Leptophysoderes* Weirauch (Hemiptera: Reduviidae)

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Abstract

The small reduviid subfamily Physoderinae has the greatest species diversity in the Oriental region and Madagascar. Only the two monotypic genera *Cryptophysoderes* Wygodzinsky and Maldonado and *Leptophysoderes* Weirauch are currently known from the Neotropical region. We here describe and document a new, sexually dimorphic species of Physoderinae, *Leptophysoderes sarapiqui* **sp. nov.** from Costa Rica. The generic diagnosis of *Leptophysoderes* is modified to accommodate the new species. Females and immatures of *Leptophysoderes* are documented for the first time.

Key words: Assassin bug, Physoderinae, New World, Costa Rica, revised genus diagnosis

Introduction

The reduviid subfamily Physoderinae currently comprises 67 species in 15 genera (Maldonado 1990; Rédei 2012; Davranoglou 2014). Species are small to medium-sized, mostly brownish and tuberculate, and due to their cryptic habits in leaf litter, crevices in bark, and other obscure microhabitats (Hwang and Weirauch 2012; Rédei 2012) their biology is virtually unknown. The greatest morphological diversity, reflected in the relatively high number of genera (11 genera, with 27 spp.) is found in Madagascar and the Comoro Islands. The 38 species that are currently classified in the genus *Physoderes* Westwood occur in the Oriental and Indopacific regions (Maldonado 1990; Chlond 2011; Cao, Tomokuni and Cai 2011; Davranoglou 2014) and the monotypic genus *Porcelloderes* Rédei is exclusively known from the Eastern Arc Mountains in Tanzania. Neotropical representatives of the subfamily were first described in the second half of the 20th century with the discovery of the monotypic genus *Cryptophysoderes* Wygodzinsky and Maldonado from the Canal Zone in Panama, followed by a second monotypic genus, *Leptophysoderes* Weirauch, from Orellana province in Ecuador. Both species are only known from either the male holotype (*Leptophysoderes orellana* Weirauch) or the male holotype and one female paratype (*Cryptophysoderes fairchildi* Wygodzinsky and Maldonado) and both were collected at low-elevation sites. The two currently described Neotropical species share their cryptic habits with the Old World Physoderinae: the two specimens of *C. fairchildi* were found in a hollow tree and the single specimen of *L. orellana* retrieved from insecticidal fogging of lichen-and-moss-covered vegetation (Wygodzinsky and Maldonado 1972; Weirauch 2006). Entomologists rarely explore such microhabitats and this may explain why samples of New World Physoderinae are exceedingly rare in entomological collections.

Physoderinae appear to share their preference for cryptic microhabitats in tropical environments with putatively closely related taxa, species in the Neotropical genera *Microlestria* Stål and *Nalata* Stål: Hwang and Weirauch (2012) reported multiple species in both genera to be associated with the bark of trees, mostly fallen logs that are in various stages of decomposition (Weirauch, pers. obs.). The reduviine and physoderine clade (*Microlestria* + *Nalata* + Physoderinae) is fairly well supported in molecular analyses and these reduviine taxa also

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