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The larvae of *Heteragrion majus* Selys and *H. atrolineatum* Donnelly, with a key to known species from Costa Rica (Odonata: Megapodagrionidae)

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Abstract

The final larval stadium of *Heteragrion majus* Selys, 1886 and *H. atrolineatum* Donnelly, 1992 are described and illustrated for the first time, using reared material from Costa Rica, and compared with other species of the genus known from the country. All species were very similar as larvae, but they can be separated by the presence and distribution of antennal setae, spines on the posterior margin of the abdominal segments, and size. A key to separate all five species known for Costa Rica is provided.

Key words: Odonata, Zygoptera, Megapodagrionidae, *Heteragrion majus*, *Heteragrion atrolineatum*, taxonomy, larvae, Costa Rica

Resumen

Se describen e ilustran las larvas de último estadio de *H. majus* Selys, 1886 y *H. atrolineatum* Donnelly, 1992 de Costa Rica, y se comparan con las otras especies conocidas del país. Ambas especies son similares como larvas, pero se separan por la presencia y distribución de las setas de las antenas, las espinas del margen posterior de los segmentos abdominales y por su tamaño. Se provee una clave para separar las cinco especies que se conocen de Costa Rica.

Palabras clave: Odonata, Zygoptera, Megapodagrionidae, *Heteragrion majus*, *Heteragrion atrolineatum*, taxonomía, larva, Costa Rica

Introduction

The damselfly genus *Heteragrion* has 48 species, making it the largest genus in the family Megapodagrionidae (Garrison et al. 2010). The genus reaches its highest diversity in tropical South America, with only 11 species present from Panama to Mexico. Of these, 5 have been reported for Costa Rica. The larvae of *Heteragrion* are poorly known, and only 11 of the 48 species have been described as larvae (Garrison et al. 2010). Of the five species known for Costa Rica, three were previously described as larvae: *H. albifrons* Ris, 1918 (Novelo-Gutiérrez 1987), *H. erythrogastrum* Selys, 1886 (Ramírez 1992), and *H. mitratum* Williamson, 1919 (DeMarmels 2004).

In this study, we describe and illustrate the final larval stadium of two additional *Heteragrion* species, *H. majus* Selys, 1886 and *H. atrolineatum* Donnelly, 1992. In addition, we provide a discussion of all major characteristics separating known *Heteragrion* larvae for Costa Rica, along with a key to facilitate their identification.

Methods

Morphological terminology follows Corbet (1953) for the labium, Watson (1956) for mandibles, and Snodgrass