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Description of the preimaginal stages of *Enochrus* (*Hugoscottia*) *variegatus* (Steinheil, 1869) and *E.* (*Methydrus*) *vulgaris* (Steinheil, 1869) (Coleoptera: Hydrophilidae), with emphasis on larval morphometry and chaetotaxy

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Abstract

The morphology of the preimaginal stages of *Enochrus* Thomson (Coleoptera: Hydrophilidae) is investigated. Descriptions and detailed illustrations of the egg cases, all three larval instars, and pupae of the Neotropical species *E.* (*Hugoscottia*) *variegatus* (Steinheil, 1869) and *E.* (*Methydrus*) *vulgaris* (Steinheil, 1869) are presented. The larval morphology of these species is studied on the basis of chaetotaxic and morphometric analyses of selected structures (head capsule, head appendages and legs). A key to larval instars of *Enochrus* is also presented. The larval instars can be separated by means of morphometry and chaetotaxy of the head capsule, cephalic appendages and legs. Several characters common to the five subgenera known as larvae are discussed. The primary chaetotaxy plan for the maxilla is updated on the basis of observations made on *Enochrus* larvae as well as on additional hydrophilid taxa.

Key words: Water scavenger beetles, Hydrophilini, Acidocerina, egg cases, larval morphology, pupa, setae and pores

Introduction

The genus *Enochrus* Thomson, 1859 includes 215 species of small-sized aquatic hydrophilids distributed in all biogeographical regions (Hansen 1999; Short & Hebauer 2006). According to Hansen (1999), *Enochrus* belongs to the tribe Hydrophilini, subtribe Acidocerina, and contains six subgenera: *Enochrus* (s. str.) Thomson, 1859, *Hydatotrephis* MacLey, 1871, *Methydrus* Rey, 1885, *Lumetus* Zaitzev, 1908, *Holcophilydrus* Kniz, 1911, and *Hugoscottia* Knisch, 1922. In the Neotropical Region the genus is represented by about 60 species; from Argentina, 17 species have been recorded so far. The first treatment of *Enochrus* in Argentina was published by Bruch (1915) and more recently Fernández (1988; 1989; 1994; 1997; 2006) described and redescribed several species from the country.

Although *Enochrus* is a very species-rich genus, few in-depth descriptions of the immature stages are available in the literature. The first contribution was given by Schiødte (1862), who described the egg case, larva and pupa of a European species, *Enochrus* (*L.*) *bicolor.* Subsequently, Richmond (1920) and Wilson (1923) described the immatures of some Nearctic species (Table 1). Larvae of *E.* (*L.*) *testaceus* were treated with some detail by Moulins (1959). This work represented the first attempt to provide illustrations with details of setae and pores, though it was not stated which larval instar was figured. Only two contributions involving morphometry of larvae of *Enochrus* are known. Gundersen (1967) presented information of the head capsule of *E.* (*M.*) *ochraceus* (Melsheimer, 1844) and *E.* (*L.*) *hamiltoni* (Horn, 1890), and Fernández (1992) gave several measures of the head capsule and head appendages of *E.* (*H.*) *scutellaris* (Bruch, 1915) and *E.* (*M.*) *vulgaris* (Steinheil, 1869). Williams (1936) described the immature stages of *E.* (*M.*) *pygmaeus nebulosus* (Say, 1824), but it is doubtful that the Hawaiian specimens he studied belong to *E. pygmaeus nebulosus*, as the distribution of this species is exclusively Nearctic (Hansen 1999). Hayashi (2008) described

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