



Description of the preimaginal stages of three species of the genus *Tropisternus* Solier, subgenus *Streptitornus* Hansen (Coleoptera: Hydrophilidae), with emphasis on morphometry and chaetotaxy

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Abstract

The morphology of immature stages of the genus *Tropisternus* Solier is investigated on the basis of the description of immatures of the subgenus *Streptitornus* Hansen. The egg cases, all three larval instars and pupae of *T. collaris* (Fabricius), *T. parananus* Sharp and *T. scutellaris* Castelnau are described with an emphasis on the chaetotaxy and morphometry of selected structures. Comparisons with other species of *Tropisternus* known as larvae are included. The larval instars can be separated by means of morphometric relationships and chaetotaxy of the cephalic appendages and legs. Most morphometric measures among the species described here have overlapped ranges, suggesting that the larval morphology of the examined taxa is very similar.

Key words: Water scavenger beetles, Hydrophilidae, *Tropisternus*, larval morphology, chaetotaxy, morphometry

Introduction

The genus *Tropisternus* Solier, 1834 comprises medium-sized hydrophilids belonging to the tribe Hydrophilini, subtribe Hydrophilina (Hansen 1999). This genus of aquatic beetles is exclusively American, and includes 59 species and 17 subspecies (Hansen 1999; Short & Hebauer 2006) inhabiting a wide range of aquatic habitats. Adult members of *Tropisternus* have been revised by Sharp (1883), d'Orchymont (1921, 1922), and more recently by Spangler (1960). Five subgenera are currently recognized: *Tropisternus* (s. str.) (25 species), *Pleurothomus* Sharp, 1883 (1), *Homostethus* d'Orchymont, 1921 (3), *Pristoternus* d'Orchymont, 1936 (27), and *Streptitornus* Hansen, 1989 (3). Members of the subgenus *Streptitornus* are widely distributed in the continent, from northeastern USA to central Argentina.

Traditionally, it was considered that the subgenus *Streptitornus* included two species complexes: the *T. collaris* complex in South America (including *T. collaris* (Fabricius, 1775), *T. scutellaris* Castelnau, 1840 and *T. parananus* Sharp, 1883) and the *T. mexicanus* complex in North America (including *T. mexicanus* Castelnau, 1840, *T. proximus* Sharp, 1883, *T. striolatus* (LeConte, 1855), and *T. viridis* Young & Spangler, 1956). However, some authors stated that there is no clear-cut species delimitation between these complexes, as intermediate forms occur in some areas (Young & Spangler 1956; Wooldridge 1964, 1965; Dancis 1967; Young 1965c, 1967). According to these workers, the intermediate forms are very similar in morphology, but can be separated into geographic populations based on differences in minor attributes such as color pattern (of the head, pronotum and elytra), body form and distribution. In a series of papers, Young (1958b, 1961, 1965a, b,