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Morphology of the prothorax and procoxa in the New World Cryptocephalini (Coleoptera: Chrysomelidae: Cryptocephalinae)

MARIA LOURDES CHAMORRO-LACAYO[1] & ALEXANDER S. KONSTANTINOV[2]

[1]*Department of Entomology, University of Minnesota, Saint-Paul, MN 55108, USA (email: cham0138@umn.edu);*

[2]*Systematic Entomology Laboratory, PSI, Agricultural Research Service, U.S. Department of Agriculture, c/o National Museum of Natural History, MRC 168, Washington, DC 20560, U.S.A. (email: akonstan@sel.barc.usda.gov).*

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Abstract

The comparative morphology of the prothorax and procoxae of New World Cryptocephalini was studied based on representatives of 11 of the 13 genera of the tribe. This study revealed a set of characters of obvious diagnostic and possible phylogenetic value supporting the currently accepted generic classification and two subtribes instead of the three currently recognized. Two general types

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of prothoracies were found, the first occurring in Cryptocephalina and Monachulina and the second in Pachybrachina. Previously undescribed for Polyphaga, a monocondylic joint between the coxa and trochantin, was found in all the genera studied. Possible movement of the trochanter, including the transfer of advance movement into rotation, is described and illustrated.

Keywords: Cryptocephalinae, prothorax, procoxa, comparative morphology, New World

Introduction

Cryptocephalini, are known as case-bearing leaf beetles, and are robust, cylindrical and compact beetles measuring between 2–7 mm long (Fig. 1). They can easily be distinguished from most beetles (including other leaf beetles) by the following features: head partially or completely concealed within the prothorax when viewed dorsally (hence their name); antennae filiform; base of the pronotum as wide as base of the elytra; seventh abdominal tergite usually visible beyond the elytra. The elytra of cryptocephalines bear distinct rows of punctures, which are sometimes useful diagnostically (White 1968). The sexes are easily separated by a deep, large, median, setose indentation in the female's seventh abdominal sternite. It is here where the egg is rotated while being coated in feces (Erber 1988).

Cryptocephalinae are currently divided into three tribes, Cryptocephalini, Chlamisini, and Clytrini (Reid 1995), previously regarded as subfamilies. Thirteen valid genera in three subtribes are presently recorded in New World Cryptocephalini: *Mastacanthus* Suffrian, *Sternoglossus* Suffrian, *Griburius* Haldeman, *Metallactus* Suffrian, *Pachybrachis* Chevrolat, and *Ambrotodes* Suffrian in subtribe Pachybrachina; *Heptarthrius* Suffrian, *Lexiphanes* Gistel, and *Stegnocephala* Baly in subtribe Monachulina; and *Cryptocephalus* Geoffroy, *Diachus* LeConte, *Bassareus* Haldeman, and *Triachus* LeConte in subtribe Cryptocephalina (Seeno & Wilcox 1982). For this study, specimens of *Mastacanthus* and *Sternoglossus* were not available due to their rarity in collections. Approximately 1,000 species of Cryptocephalini have been recorded in the New World (Blackwelder 1944, Riley et al. 2002, Wilcox 1975, White 1968), with *Cryptocephalus*, *Pachybrachis*, *Griburius*, *Lexiphanes* and *Metallactus* making up about 95% of the total diversity. This is merely an estimate of Cryptocephalini species diversity, as it is based on various general beetle checklists (Blackwelder 1944). The Cryptocephalinae fauna of the New World, excluding North America north of Mexico, is poorly known. Many genera have not been revised since they were initially described and many Neotropical species await description in museums and in the field.

The comparative morphology of Cryptocephalinae is not well studied. Some morphological data on cryptocephalines is available in comparative studies of certain structures or attributes of Chrysomelidae as a whole (Samuelson 1996), but in such studies usually only a few cryptocephaline genera were analyzed (Baccetti and Daccordi 1988, Suzuki 1988).

