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A review of the New World *Coproica* (Diptera: Sphaeroceridae) with a description of 8 new species

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Abstract

The New World species of *Coproica* Rondani, 1861 (Diptera: Sphaeroceridae) are reviewed on the basis of over 17,000 examined specimens. The genus is divided into three major clades: the *C. acutangula*, *C. vagans*, and *C. urbana* species groups. Eight new species (*C. bifurcata*, *C. bispatha*, *C. brachystyla*, *C. diabolica*, *C. emarginata*, *C. galapagosensis*, *C. novacula*, and *C. testudinea*) are described, and redescriptions are provided for eleven additional species. Included are two keys (one for the twenty New World species only and one for all described species), updated New World distribution records, and illustrations of male and female genitalic structures.

Key words: Limosiniinae, taxonomy, small dung flies, key, new species, *Coproica*

Introduction

The cosmopolitan genus *Coproica* Rondani includes 43 species of small (0.9 to 2.4mm), generally dull brown Limosiniinae distinguishable from almost all other sphaerocerids by the presence of several small setae on the scutellar disc (Figs. 9–12). Most species of *Coproica* are associated with ungulate dung and some can be spectacularly abundant on the dung of horses and cows. Several species associated with the dung of domesticated animals have become secondarily widespread, and 6 of the 43 known species of *Coproica* are now cosmopolitan. Other species are now recognized as occurring in widely separated areas; for example, *Coproica rohaceki* Carles-Tolrá was described from the Mediterranean, but is here newly recorded from Brazil, Argentina, and Chile.

The *Coproica* of the Old World are relatively well known, with 29 recognized species, but only 5 New World species were formally described prior to this study. There have been many regional studies specifically focused on *Coproica* in the Old World (Carles-Tolrá 1990; Hayashi 1991, 2005; Papp 1973, 1979, 2008), but relatively little attention has been given to the New World species. Malloch (1913) described *C. mitchelli* from Texas, Duda (1925, 1929) described *C. hirtuloidea* and *C. setulosa* from South America, and Richards (1960) described *C. cacti* and *C. urbana* from the Nearctic Region. Richards (1960) was previously the only published key to New World species of *Coproica*, and does not include *C. mitchelli* since the paratypes Richards examined were in poor condition and he was not certain whether the species belonged in *Coproica* or *Rachispoda*. Including those described here, 27 species of *Coproica* have been discovered since Richards' review (Papp 1973, 1979, 2008; Carles-Tolrá 1990; Hayashi 1991, 2005). Prior to this revision the genus *Coproica* was the only remaining significant sphaerocerid genus not yet revised for the Nearctic Region. Almost all of the remaining 300 or so described Nearctic species of Sphaeroceridae belong to genera revised in the last thirty years. Many more genera remain to be described or revised in the Neotropical region.

We here provide a key to the New World species as well as a key to all described species in the genus (*C. insulaepasqualis* (Enderlein) excepted), across all zoogeographic regions.

Natural History

Coproica adults are most abundant on feces from ungulates but some species have been recorded from dog dung, bear scats, poultry manure, pig droppings, grass piles, decaying vegetation, compost heaps, decaying fungus and various types of vertebrate and invertebrate carrion. Species of *Coproica* are typically the first insects to arrive at fresh horse dung, showing up in as little as 1 or 2 minutes after defecation (Hafez 1949). The adult flies are typically found either on the surface of the dung or the grass and surfaces surrounding it (Lachmann 1990). Lachmann (1990) observed that males of *C. lugubris* (Haliday) establish their territories on blades of grass surrounding feces, and this was where most copulating pairs were found. Hafez (1949) noted that *Coproica* would take refuge in tunnels in the dung made by scarab beetles (like *Philocoprella* Richards), probably seeking higher temperatures and humidity.

A few species of *Coproica* can be found in very specific microhabitats. *Coproica testudinea* sp. nov. has been reared from the contents of gopher tortoise burrows in Florida, yet it has never been collected from pan traps outside the nest entrances. Individuals of this species have reduced eyes, as is typical for many burrow or cave-dwelling sphaerocerid species (Marshall & Peck 1984; Papp & Plachter 1976), but are fully macropterous. The