Systematics of Bulbostyla, a new subgenus of Sarcophaga Meigen, and change of status for Robackina Lopes (Diptera: Sarcophagidae)

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Abstract

Sarcophaga (Bulbostyla) subgen. nov. is described as a new subgenus of Sarcophaga Meigen to accommodate some species previously assigned to the subgenus S. (Neobellieria) Blanchard. Sarcophaga (Bulbostyla) contains nine species: S. airosalis sp. nov., S. cadyi sp. nov. (type species), S. cuautla sp. nov., S. fattigina sp. nov., S. ironalis sp. nov., S. semimarginalis Hall, S. sternalis (Reinhard), S. subdiscalis Aldrich and S. yorkii Parker. All species are described and illustrated and a key to the species is provided. The species within the subgenus are morphologically uniform externally and are distinguished mostly on male genitalic characters. Phylogenetic relationships within Bulbostyla are unresolved based on morphological characters and will require consideration of additional characters, such as molecular sequence data. The genus-group taxon Robackina Lopes is removed from synonymy with the subgenus Sarcophaga (Neobellieria) and reinstated as a valid subgenus of Sarcophaga (stat. nov.) to accommodate the single New World species Sarcophaga triplasia Wulp. A lectotype is designated for S. triplasia. The subgenus and species are redescribed and illustrated.

Key words: Neobellieria, flesh flies, Nearctic, Neotropical, taxonomy, phylogeny

Introduction

The cosmopolitan genus Sarcophaga Meigen s.l. includes over 875 described species divided into 161 subgenera (T. Pape, pers. comm.). A recent cladistic study of sarcophagine generic relationships, based on morphological characters, included 36 exemplar species of Sarcophaga, representing 31 subgenera (Giroux et al., 2010). That study provided support for the monophyly of Sarcophaga and preliminary resolution of some subgeneric relationships within the genus. However, species-level revisions at the subgeneric level are needed because the monophyly and relationships of most of the subgenera included in Sarcophaga have not been tested cladistically.

The phylogenetic analysis of Giroux et al. (2010) included four of the ten species assigned by Pape (1996) to the New World subgenus Neobellieria Blanchard. Neobellieria was found to be polyphyletic, with the four exemplar species comprising three separate clades. The type species S. (N.) polistensis Hall and S. (N.) bullata Parker formed a monophyletic clade that was the sister group to S. (Tolucamyia) sigilla Reinhard. That clade was, in turn, the sister group to S. (Pseudothyrsocnema) spinosa Villeneuve, Giroux & Wheeler (2009) redefined Neobellieria s. str. to include five of the species previously assigned to Neobellieria, including S. polistensis and S. bullata, the three species previously assigned to Tolucamyia Dodge and one new species. This left the remaining five species previously assigned to Neobellieria unplaced to subgenus.

Sarcophaga (Neobellieria) semimarginalis Hall was the sister group to Sarcophaga aldrichi Parker (not assigned to a subgenus). The fourth species, S. (Neobellieria) triplasia Wulp, was the sister group to the clade S. (Bellieriomima) uniseta Baranov + S. (Seniorwhitea) orientalis Parker. The genus-group name Robackina Lopes, treated as a synonym of Neobellieria by Pape (1996), is available to accommodate Sarcophaga triplasia. However, no existing subgeneric name is available for S. semimarginalis and the closely related species S. sternalis (Reinhard), S. subdiscalis Aldrich and S. yorkii Parker.