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Revision of Nearctic *Dasysyrphus* Enderlein (Diptera: Syrphidae)

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Abstract

Dasysyrphus Enderlein (Diptera: Syrphidae) has posed taxonomic challenges to researchers in the past, primarily due to their lack of interspecific diagnostic characters. In the present study, DNA data (mitochondrial cytochrome c oxidase subunit I—COI) were combined with morphology to help delimit species. This led to two species being resurrected from synonymy (*D. laticaudus* and *D. pacificus*) and the discovery of one new species (*D. occidentalis* sp. nov.). An additional new species was described based on morphology alone (*D. richardi* sp. nov.), as the specimens were too old to obtain COI. Part of the taxonomic challenge presented by this group arises from missing type specimens. Neotypes are designated here for *D. pauxillus* and *D. pinastri* to bring stability to these names. An illustrated key to 13 Nearctic species is presented, along with descriptions, maps and supplementary data. A phylogeny based on COI is also presented and discussed.

Key words: Diptera, Syrphidae, *Dasysyrphus*, revision, flower flies, hover flies, key, new species, Nearctic Region

Introduction

Dasysyrphus Enderlein 1938 is mainly a Holarctic genus. Thirty-six of the 43 currently recognized species are known to occur in North America, Europe and Asia, with eight species recorded from the Oriental region and one species recorded from the Neotropical region (some species occur in more than one region; Pape & Thompson 2010a). This is not an unusual distribution for a syrphine genus (Vockeroth 1969).

Little is known about the biology of *Dasysyrphus*. The majority of biological information we have comes from studies done in Europe. No larvae are known from endemic Nearctic species and as a result only adult ecology can be discussed. Much of what is known from the Nearctic and what will be discussed has been gathered from specimen label data.

Larvae are mottled, resemble bark and are easily recognized by a pair of long tapering projections on the anal segment, which help them to blend into their surroundings (Fig. 1A; Rotheray & Gilbert 2011; Rotheray 1993). They are known to be arboreal in both coniferous and deciduous trees (Rotheray 1993). Larvae are predatory and feed mainly on homopterans, but records of them feeding on other insects have been noted. Rojo *et al.* (2003) provide a catalogue to *Dasysyrphus* species and their larval prey. Their review of the literature suggests that the