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New combinations, sex association, behavioural notes and potential host record for two Neotropical species of *Pseudomethoca* Ashmead, 1896 (Hymenoptera: Mutillidae)

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Abstract

The present paper transfers *Mutilla pumila* Burmeister, 1854 and *Mutilla pergrata* Cresson, 1902 to the genus *Pseudomethoca* Ashmead, and a lectotype is designated for *Mutilla pumila*. The male of this species, previously known only from the female sex, is described and the female is redescribed and illustrated for the first time. Sex association was based on laboratory mating trials. Field observations in a montane Atlantic forest site in southern Brazil provided us behavioural notes on attempts of parasitism in nests of the halictine bee *Dialictus seabrai* (Moure, 1956).

Key words: Mutillidae, *Pseudomethoca*, velvet ants, taxonomy, parasitism, Halictinae, Neotropical region

Introduction

Mutillidae (Hymenoptera) are parasitoid wasps of the prepupae and pupae of other insects, including the orders Hymenoptera, Coleoptera and Diptera (Mickel 1928; Brothers 1972, 1995). They are found commonly in abundance in aggregations of their hosts (Brothers *et al.* 2000). Unlike most insects, where males and females are easily associated based on morphological similarities, most mutillid wasps are strongly sexually dimorphic, with winged males and apterous females, plus, other characteristics, including size, shape, coloration, and setal patterns, often differ between the sexes of the same species (Mickel 1928; Brothers 1989; Pilgrim & Pitts 2006). As a consequence, many species are described from a single sex and many of these species turn out to be synonyms of species described from the opposite sex (Pilgrim *et al.* 2008).

Pseudomethoca Ashmead, 1896 includes about 112 described species (Quintero & Cambra 1994; Cambra and Quintero 2008) and is one of the most widely distributed genera in the Americas (Quintero & Cambra 1996). Brothers (1972) described the biology and immature stages of *Pseudomethoca frigida* (Smith, 1855), the most studied species for the genus so far and perhaps for the whole family. Krombein (1992) made a brief review of the host associations for *Pseudomethoca* and suggested that solitary and communal bees, including Halictinae, may be the only hosts within the genus.

Although the Mutillidae represent a large family in Hymenoptera, there are few studies addressing their biology and natural history, due in part to the taxonomic problems found in this group. The purpose of this paper is to contribute to the taxonomic and natural history knowledge of the family, using as object of study *Pseudomethoca pumila* (Burmeister, 1855). We indicate new combinations for the species, describe the male, redescribe the female and point out the halictine bee *Dialictus seabrai* (Moure, 1956) as the first potential host record for the species. We also provide behavioural records of parasitism attempts under field conditions and notes on courtship behaviour during mating trials conducted in the laboratory.

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