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Taxonomic exploration of Neotropical Microdontinae (Diptera: Syrphidae) mimicking stingless bees

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ABSTRACT

Several species of Neotropical Microdontinae (Diptera: Syrphidae) are mimics of stingless bees. Most of these species have previously been grouped in *Ubristes* Walker, 1852, with *Carreramyia* Doesburg, 1966, *Hypselosyrphus* Hull, 1937 and *Stipomorpha* Hull, 1945 treated as synonyms in recent literature. The species of the recently described genus *Mermerizon* Reemer, 2013 are also treated in the present paper. Recent evidence (Reemer and Ståhls 2013a, b) supports an independent origin for all of these taxa, which is why they are now treated as different genera. The present paper revises all specific taxa previously associated with these genera. A total number of 52 species is treated, 22 of which are described as new. These are divided among the genera as follows: *Carreramyia* (4 species, 2 new: *C. megacera, C. tigrina*), *Ceratophya* (5 species, 1 new: *C. argentinensis*), *Hypselosyrphus* (12 species, 6 new: *H. helvus, H. marshalli, H. maurus, H. pingo, H. pseudorhoga, H. vexillipennis*), *Mermerizon* (3 species, 2 new: *M. mellosus, M. mesmerizus*), *Stipomorpha* (25 species, 9 new: *S. crematogastri, S. dichromata, S. elcopala, S. fallax, S. maculipennis, S. mendax, S. panamana, S. spuria, S. zophera*), *Ubristes* (3 species, 2 new: *U. ictericus, U. jaguarinus*). *Microdon scolopus* Shannon, 1927, previously classified in *Ubristes*, was recently transferred to *Ceratophya* Wiedemann, 1824, which is why this genus is also treated in this paper. *Ceratophya longicornis* Wiedemann, 1824 is excluded from *Ceratophya* and treated as a species *incertae sedis*. Two other species are excluded, because they belong to other groups of Microdontinae not treated in the present paper: *Microdon angulatus* Hull, 1943 (now in *Microdon* subgenus *Chymophila* Macquart, 1834) and *Ubristes chrysopygus* Giglio-Tos, 1892 (now in *Peradon* Reemer, 2013). Three new synonyms are proposed: *Microdon procteri* Curran, 1941 syn. nov. = *Microdon procedens* Curran, 1941 syn. nov. = *Ubristes flavitibia* Walker, 1852; *Microdon triangularis* Curran, 1940 syn. nov. = *Microdon lacteipennis* Shannon, 1927. Two specific taxa previously considered as synonyms are rendered valid status: *Ubristes litoralis* Papavero, 1964 stat. rev. (placed in *Stipomorpha*) and *Ubristes plaumanni* Curran, 1940 stat. rev. (placed in *Hypselosyrphus*). One new name is introduced to replace a junior primary homonym: *Hypselosyrphus amazonicus* nom. nov. for *Microdon scutellaris* Shannon, 1927, preoccupied by Schummel (1842). Lectotypes are designated for *Stipomorpha goettei* (Shannon, 1927) and *Stipomorpha lactipennis* (Shannon, 1927). A key to the genus-groups and to the species is given. The genus *Rhoga* Walker, 1857 is included in the key to the genus-groups, but specific taxonomy is not worked out. The paper concludes with some considerations on mimicry as a possible drive for speciation, and on species of *Stipomorpha* visiting flowers.

Key words: revision, new species, key, mimicry of Meliponini

INTRODUCTION

Mimicry of noxious Hymenoptera commonly occurs in hoverflies (Diptera: Syrphidae). For instance, approximately 22% of all European species are considered to be mimics of bees or aculeate wasps to varying extent (Gilbert 2005). The potential selective advantage of mimicking noxious insects is obvious. It may come as a surprise, therefore, that several species of Syrphidae seem to mimic apparently harmless models of aculeate Hymenoptera: the stingless bees (Apidae: Apinae: Meliponini), which are characterized by their rudimentary sting. Harmless these bees may seem, but certain taxa are known to secrete formic acid from cephalic glands, which can cause an itching or even burning sensation when bitten by such a bee (Roubik *et al*. 1987). Such chemical properties of stingless bees may be an explanation for the noxiousness underlying their use of models for the evolution of mimicry.

Stingless bees are found all over the tropics, but their greatest diversity (about 75% of 500 species) occurs in the Neotropics (Costa *et al*. 2003). Likewise, this seems to be the only region in which many species of Syrphidae have evolved as mimics of stingless bees. Unpublished observations by the author in Surinam indicate that