

# Review of Australian Sarginae Soldier Fly Genera (Diptera: Stratiomyidae), with First Records of *Cephalochrysa*, *Formosargus* and *Microchrysa*

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**ABSTRACT.** A taxonomic treatment to genera is provided for the Australian members of the soldier fly subfamily Sarginae. This includes an updated identification key for the Australian genera, along with the diagnosis and illustration of *Ptecticus* Loew, 1855 and *Sargus* Fabricius, 1798, and three newly recorded genera: *Cephalochrysa* Kertész, 1912 (*Cephalochrysa gsellii* (Hill, 1919) comb. nov.), *Formosargus* James, 1939 and *Microchrysa* Loew, 1855. Two new species are also described: *Formosargus melanogrammus* Lessard & Woodley, sp. nov. and *Microchrysa wrightae* Lessard & Woodley, sp. nov. A new Australian record is presented for *Ptecticus longipes* (Walker, 1861), also known from New Guinea and the Solomon Islands, and a taxonomic change is made for *Formosargus lineata* (de Meijere, 1913) comb. nov., from New Guinea, transferred from its previous position within *Chrysochlora* Latreille, 1829. Five genera and 10 species of Sarginae are now recognized from Australia.

## Introduction

The Sarginae are a moderate-sized subfamily of soldier flies, with more than 530 species described in 23 genera, distributed on every continent, excluding Antarctica (Woodley, 2001). Prior to this study, the Australian Sarginae comprised only two cosmopolitan genera, *Ptecticus* Loew, 1855 and *Sargus* Fabricius, 1798 (Woodley, 2001). Little is known regarding the biology of the Australian fauna, although sargines from overseas are usually associated with vegetation and have an underappreciated role in decomposition. Adults swarm during mating and can be found on vegetation and flowers (Rozkošný, 1982; Woodley, 2001). Females are usually located near larval food sources and oviposit in decaying fruits, bases of palm leaves and freshly cut logs, whereas males frequent these sites in search of mates (Woodley,

2001). Larvae are often associated with decaying organic matter, including grass, compost heaps (Woodley, 2001) and animal faeces (Rozkošný, 1982).

Woodley (2001) defined the Sarginae as usually slender flies with the antennal flagellum formed of five flagellomeres, with the first four reduced, compact and rounded to form a basal complex, and the apical flagellomere being aristate, and wings with crossvein *m-cu* connected to vein  $M_4$  by presence of  $dM_{3+4}$  (previously *bm-cu*; see Lessard *et al.*, 2019). He noted that African and Madagascan flies vary by having additional flagellomeres and by lacking wing vein  $dM_{3+4}$  (i.e., *Gongrosargus* Lindner, 1959; Hauser *et al.*, 2017: 41, fig. 182), leading him to call for a worldwide generic revision. In his phylogenetic hypothesis based on morphology (Woodley, 2001: 17, fig. 1), the Sarginae recovered as sister to the Chrysochlorininae, forming a

**Keywords:** taxonomy; biodiversity; entomology; Diptera; Stratiomyidae; Sarginae; *Sargus*; *Ptecticus*

**Taxonomic registration:** urn:lsid:zoobank.org:pub:184539DF-E8DD-4A48-8E38-70B7860D6134

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**Received:** 8 March 2019 **Accepted:** 20 February 2020 **Published:** 24 June 2020 (in print and online simultaneously)

**Publisher:** The Australian Museum, Sydney, Australia (a statutory authority of, and principally funded by, the NSW State Government)

**Citation:** Lessard, Bryan D., David K. Yeates, and Norman E. Woodley. 2020. Review of Australian Sarginae soldier fly genera (Diptera: Stratiomyidae), with first records of *Cephalochrysa*, *Formosargus* and *Microchrysa*. *Records of the Australian Museum* 72(2): 23–43.

<https://doi.org/10.3853/j.2201-4349.72.2020.1683>

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