

A New Species of *Teratomyza*, the First Fern Fly from New Guinea (Diptera, Teratomyzidae)

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ABSTRACT. A distinctive new species of the genus *Teratomyza* Malloch, 1933 (s.l.) from high elevation mainland Papua New Guinea, *Teratomyza ismayi* sp. nov., is described and illustrated. Its affinities with other species of Australasian and Asian *Teratomyza* are discussed. This is the first species of Teratomyzidae described from New Guinea.

Introduction

Teratomyzidae, the fern flies, have been little studied, mainly because the family consists of small, inconspicuous insects of somewhat restricted geographic distribution. Fern flies are relatively rarely collected by passive methods such as malaise traps and most adult specimens are obtained by sweeping their host plants. Teratomyzidae are generally classified as members of the cyclorrhaphous superfamily Opomyzoidea (Pape *et al.*, 2011), but evidence for this association is incomplete and its placement within that superfamily, including the identity of its sister-group, has not been demonstrated with convincing support (Winkler *et al.*, 2010). Alternatively, an affinity with Sphaeroceroidea was recently proposed, with fern flies placed as close relatives of Heleomyzidae (or Heteromyzidae) and Paraleucopidae (Bayless *et al.*, 2021).

Of the seven described fern fly genera, only one, *Teratomyza*, spans multiple biogeographic regions. The type species is the only known fern fly from New Zealand (Rodrigues *et al.*, 2016). Three *Teratomyza* species are endemic to Australia, and thirteen have been described from Southeast Asia. McAlpine & de Keyzer (1994) established the subgenus *Vitila* for all *Teratomyza* not occurring in New Zealand, and Papp (2011) separated some Asian species into *Teratomyza* (*Poecilovitila*), but all subgenera were later synonymized (D. K. McAlpine, 2012).

Herein the first fern fly from Papua New Guinea, the only known member of its species group, is described. It is distinct from Asian, Australian, or New Zealand *Teratomyza* in terms of wing venation, head shape, head chaetotaxy (Fig. 1), and male genitalia (Fig. 2). The ventral processes of the tarsal claws (Figs 3, 4) are reduced compared to other *Teratomyza*. Small acalyptrate flies of Papua New Guinea deserve greater attention as much remains to be discovered.

Materials and methods

Morphological terminology specific to Teratomyzidae follows that of D. K. McAlpine & de Keyzer (1994), D. K. McAlpine (2012). Thoracic pleural sclerites and wing venation terminology follows Cumming & Wood (2017). In wing venation, crossvein *dm-m* is the “discal crossvein” *sensu* D. K. McAlpine & de Keyzer (1994), which is *m-cu* *sensu* J. F. McAlpine, 1981; $M_4 = \text{vein5} = \text{CuA}; \text{CuA} + \text{CuP} = \text{vein6} = \text{CuA}_2 + \text{A}_1$. The structure that D. K. McAlpine & de Keyzer (1994) termed the propleuron is considered to be the proepimeron *sensu* Cumming & Wood (2017), the sternopleuron is the katapisternum, and postvertical setae refer to postocellar setae.

Macrophotography was performed on a Visionary Digital BK Plus photography system using a Canon EOS 7D Mark II camera (Canon Inc, Tokyo) with macro lenses attached to Mitutoyo microscope objectives. Series of images were

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