

Review of the Australian Genus *Pentachaeta* (Diptera: Heleomyzidae), with Descriptions of Nine New Species

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ABSTRACT. The taxonomy of the forest-dwelling flies of the endemic Australian genus *Pentachaeta* McAlpine, 1985 (family Heleomyzidae or Heteromyzidae), is investigated, with particular reference to structure of the male genitalia. The number of described species is increased from one to ten. The following new species are described: *Pentachaeta edwardsi*, *P. bickeli*, *P. inserta*, *P. bassiana*, *P. skusei*, *P. gilliesi*, *P. impar*, *P. kirkspriggsi*, *P. pinguis*.

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The genus *Pentachaeta* has been known to me for many years, as indicated by the collection dates on some of the material listed below, but only the type species, *P. physopus* McAlpine, 1985, has yet been described. It now appears that sufficient material is available to characterise most of the species, at least for male specimens, but the females of some species cannot be easily identified from morphological characters.

I have placed *Pentachaeta*, together with the little known Chilean genus *Dioche* McAlpine, in the tribe Pentachaetini of the subfamily Trixoscelidinae (McAlpine, 1985; 2007). This classification is based on slender morphological evidence and should be subjected to detailed molecular evidence, when suitable material is available.

The structure of the protandrium, hypandrium, and aedeagus of the male abdomen varies greatly among the tribes of Heleomyzidae, so that it may be taken to indicate a polyphyletic origin for the so-called family (see Griffiths, 1972). However, some more detailed species-level studies (e.g., in the Allophylopsini by McAlpine, 1967, and the Borboroidini by McAlpine, 2007) indicate that gross

divergence in characters of the male postabdomen often begins during or immediately following the speciation process, so that major structural differences can occur between quite closely related groups.

In listing material the following collectors' names are abbreviated to the initials: H. Anderson, D. J. Bickel, B. W. Bradfield, D. H. Colless, G. Daniels, B. J. Day, G. H. Hardy, G. A. Holloway, D. S. Kent, R. de Keyzer, K. C. Khoo, R. Lossin, D. K. McAlpine, S. F. McEvey, E. F. Riek, C. N. Smithers, N. B. Tindale, M. S. Upton, J. C. Wiburd, G. A. Williams, and W. W. Wirth.

The following abbreviations refer to institutions holding collections:

AM	Australian Museum, Sydney
ANIC	Australian National Insect Collection, CSIRO, Canberra
MV	Museum Victoria, Melbourne
QM	Queensland Museum, Brisbane
SAM	South Australian Museum, Adelaide
USNM	National Museum of Natural History, Washington, D.C.