

## Review of the Borboroidini or Wombat Flies (Diptera: Heteromyzidae), with Reconsideration of the Status of Families Heleomyzidae and Sphaeroceridae, and Descriptions of Femoral Gland-baskets

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**ABSTRACT.** Reasons are given for reducing the Heleomyzidae and Sphaeroceridae to a single family, to be known as Heteromyzidae on grounds of priority. Some aspects of morphology and associated terminology are discussed. Difficulties in using male genitalia characters for higher classification are pointed out. The diverse gland-baskets, present on the hind femur of most *Borboroides* spp. are described and illustrated. The peculiar stridulatory organ on the fore leg of both sexes of *Borboroides musica* is described. The apparent groundplan characters of the Heteromyzidae are listed. The relationships of the Chyromyidae and Mormotomyiidae to the Heteromyzidae are briefly discussed and each is excluded from the Heteromyzidae. A provisional grouping of the Australasian heteromyzid tribes into subfamilies is put forward. A revised key to the Australian non-sphaerocerine genera of Heteromyzidae is given. Within this broadly defined family, the endemic Australian tribe Borboroidini includes the genera *Borboroides* (23 species) and *Heleomicra* (two species). The species of *Borboroides* are classified into six informal groups to reflect morphological diversity and probable phylogenetic relationships. The following new species are described: *Borboroides stewarti*, *B. musica*, *B. danielsi*, *B. lindsayae*, *B. tonnoiri*, *B. donaldi*, *B. perkinsi*, *B. dayi*, *B. staniochi*, *B. helenae*, *B. doreenae*, *B. parva*, *B. menura*, *B. gorodkovi*, *B. shippi*, *B. corynetes*, *B. petiolus*, *B. fimbria*, *B. bulberti*, *B. merzi*, *B. acumen*, *B. woodhilli*, *Heleomicra lenis*. Adults of some species of *Borboroides* and *Heleomicra* are attracted to old carrion or marsupial dung or both, and wombat dung is probably a suitable larval medium for some species.

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Malloch (1925) first described the genus *Borboroides* in the family Borboridae (= Sphaeroceridae). Richards (1973) transferred the genus to the Heleomyzidae. D. McAlpine (1985) established the endemic Australian heleomyzid tribe Borboroidini to include *Borboroides* and *Heleomicra*. D. McAlpine, and indicated that both genera contained undescribed species.

Recent field work has resulted in collection of good series of numerous species, particularly of *Borboroides*,

and it appears likely that most existing species, at least in southeastern Australia, are now available for description. Numerous species have only been found or were most frequently found in habitats of larger marsupials, particularly wombats, and have been collected at fresh (or fresh-frozen) wombat dung, or occasionally at wallaby or kangaroo dung. Some of these species have also been found at carrion, and *Borboroides menura* n.sp. and probably *B. petiolus* n.sp. have so far only been collected at carrion. Further ecological