

Heterothripidae



Australian fauna

No member of this Family is known from Australia.

Biology

Of the 90 species currently listed in this family, all but the five *Aulacothrips* species are considered to be phytophagous. They feed and breed in flowers, presumably exhibiting a high level of host specificity (Mound & Marullo, 1996), and pupate in a silken cocoon at soil level. *Aulacothrips* species breed on, and pupate on, the tergites of particular Homoptera, feeding as ectoparasites on these bugs (Izzo *et al.*, 2002; Cavalleri & Kaminski, 2014).

Geographic distribution

Members of this family are known only from the Americas, and keys to many species are provided by Mound & Marullo (1996), and Pereyra & Cavalleri (2012). Species of *Heterothrips* have been described between New York and Illinois in the North and Argentina in the South, whereas the species of the other three genera are known only from the Neotropics.

Recognition

Species of Heterothripidae all have nine antennal segments, the distal segments being more or less distinct from each other, and the sensoria on segments III and IV form a continuous band. In most species this sensorium is only around the segment apex, but in *Lenkothrips* it extends as a loop to the midpoint of both segments, and in *Aulacothrips* it is looped and highly convoluted (Cavalleri & Kaminski, 2014). In the head the tentorial bridge is not developed, and sternite VII in females lacks the pair of accessory setae retained in Aeolothripidae that are considered to be derived from the ancestral sternite VIII. The metanotal median setae are close to the posterior margin, but the fore wings are slender with two almost continuous rows of veinal setae. Prominent setae are developed only in *Aulacothrips*, but most species have conspicuous microtrichial combs on the posterior margins of the tergites.



Heterothrips arisaemae, female



Heterothrips arisaemae, antenna



Heterothrips arisaemae, antennal segments III-IV



Aulacothrips dictyotus, antennal segments IV-IX



Heterothrips arisaemae, head & pronotum



Heterothrips arisaemae, wings



Heterothrips arisaemae, mesonotum & metanotum



Heterothrips arisaemae, tergites I-III



Heterothrips peixotoae, tergites II-III

Genus and species diversity

Four genera are recognised in this family, with a further three genera known only from fossils (ThripsWiki 2020). *Heterothrips* includes almost 80 species, *Lenkothrips* and *Aulacothrips* each include five species, and *Scutothrips* four species.

Family relationships

Heterothripidae species are unusual in having the sensoria on the third and fourth antennal segments forming a continuous band, a condition also found in a few Melanthripidae. However, no Heterothripidae have a pair of lobes at the posterior margin of sternite VIII as in Melanthripidae and Merothripidae. Bhatti (2006) proposed that the family Heterothripidae should be considered as a superfamily, Heterothripodea, and he placed *Aulacothrips* in a new family Aulacothripidae. The unusual structure of *Aulacothrips* species is presumably related to their remarkable ectoparasitic biology, and there is no reason to consider the genus sister taxon to the other Heterothripidae (Mound & Morris, 2007).

Thysanoptera systematics

The classification adopted here is a compromise between practicality and the ideal of a classification based on phylogenetic relationships. The two sub-orders, Terebrantia and Tubulifera, are probably sister-groups (Buckman *et al.*, 2013), but relationships among the eight families of Terebrantia remain far from clear (and there are also five families based on fossils - see ThripsWiki 2020). A radically different classification was proposed by Bhatti (1994, 1998, 2006) that recognised two Orders, 10 superfamilies and 40 families. This classification is based on autapomorphies rather than synapomorphies, and thus is essentially phenetic rather than phylogenetic.

References

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