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Fungus-feeding Thysanoptera: Phlaeothripinae of the *Idiothrips* genus-group in Australia, with nine new species

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Abstract

In a group of fungus-feeding Phlaeothripinae characterized by complex body sculpture, identification keys are provided to three genera and 15 species from Australia, including nine new species. In the genus *Azaleothrips* one new species is described, and one Asian species is newly recorded from Australia. The genus *Stictothrips* is recorded from Australia for the first time, with two new species. Within the genus *Strepterothrips* considerable structural diversity is recorded including three new species in which antennal segment III is greatly reduced and bears no sense cones. Some species in this genus exhibit the unusual condition of having several setae on the pelta, the first abdominal tergite. Problems in the production of generic diagnoses within the Phlaeothripinae are discussed.

Key words: *Azaleothrips*, *Stictothrips*, *Strepterothrips*, mycophagous, new species

Introduction

Classification of the large number of fungus-feeding Thysanoptera that comprise the *Phlaeothrips*-lineage (Mound & Marullo 1996) within the subfamily Phlaeothripinae remains difficult. This situation has been discussed recently by Dang *et al*. (2014), by Okajima and Masumoto (2014), and also by Cavalleri *et al*. (2015). The essential problem involved in producing functional classifications is that a taxon above the species-level, such as a genus, cannot be "defined" as a class possessing a complete set of essential characters (Zachos 2014). The members of a genus will share most of the characters listed in a generic diagnosis, but because a genus is an evolutionary lineage not all related species will exhibit every one of the listed characters. The alternative is the proliferation of monotypic genera surrounding a paraphyletic stem taxon - a situation that inadequately reflects evolutionary relationships. In each of the three genera considered here, one new species is described that has one or more character states differing from the other members of the genus. To treat such species each in a monotypic genus would fail to indicate any possible relationship between them. Similar problems occur throughout the Phlaeothripinae, in genera as widely different as *Holopothrips* in the Neotropics (Mound & Marullo 1996), *Dactylothrips* in Australia (Crespi *et al*. 2004), and *Hoplandrothrips* worldwide (Mound & Tree 2013).

Members of the *Phlaeothrips*-lineage are generally fungus feeders, and the group is structurally highly diverse with many species exhibiting complex polymorphisms (Mound *et al*. 2013). Okajima and Masumoto (2014) emphasized that within the *Phlaeothrips*-lineage there are too many species with character-states in an intermediate condition for any clear definition of genus-groups. Thus *Alerothrips* and *Neurothrips* resemble members of the *Amphibolothrips* genus-group in having a long tenth abdominal segment and long anal setae. However, these two genera also resemble members of *Azaleothrips* in having remarkably complex body sculpture. Moreover, *Azaleothrips* is also considered related to a few other genera with strongly sculptured species, including *Strepterothrips* and *Walkerthrips*. These latter genera have been referred to as the *Idiothrips* genus-group (Mound & Ward 1971), in which there is a tendency for the fusion of the distal antennal segments, and reduction in numbers of sense cones on antennal segments III and IV. The problems discussed above concerning the diagnosis of genera

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