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Fungus-feeding thrips from Australia in the worldwide genus *Hoplandrothrips* (Thysanoptera, Phlaeothripinae)

LAURENCE A. MOUND¹ & DESLEY J. TREE²

¹CSIRO Ecosystem Sciences, PO Box 1700, Canberra, ACT 2601. E-mail: laurence.mound@csiro.au

²Queensland Primary Industries Insect Collection (QDPC), Department of Agriculture, Fisheries and Forestry, Queensland, Ecosystems Precinct, GPO Box 267, Brisbane, Qld, 4001

Abstract

From Australia, 16 species of *Hoplandrothrips* are here recorded, of which 11 are newly described. An illustrated key is provided to 15 species, but *Phloeothrips leai* Karny cannot at present be recognised from its description. The generic relationships between *Hoplandrothrips*, *Hoplothrips* and some other Phlaeothripinae that live on freshly dead branches are briefly discussed.

Key words: fungus-feeding, *Hoplandrothrips*, *Hoplothrips*, Phlaeothripina, Hoplothripina

Introduction

Thrips are commonly thought of as phytophages, with the most well-known species breeding in flowers or damaging crops (Mound & Masumoto 2005; Mound & Minaei 2007). However, almost 50% of Thysanoptera species are fungivorous (Morse & Hoddle 2006), with about 700 species, the Idolothripinae, apparently ingesting fungal spores (Mound & Palmer 1983; Tree *et al.* 2010; Eow *et al.* 2011), and at least 1500 species of Phlaeothripinae feeding on fungal hyphae (Mound 2005). Many of these fungivorous thrips breed on dead branches of trees, others breed on dead leaves particularly when these remain hanging in bunches, and yet others breed almost exclusively in leaf litter (Mound & Marullo 1996; Tree & Walter 2012). Most of the species in the genus considered here, *Hoplandrothrips*, breed on dead branches and twigs. In eastern Australia, species of this genus have been found mainly in wet sclerophyll forest or rain forest, but two species are widespread across Australia on dead *Eucalyptus* branches in dry sclerophyll forests.

Judging from the diversity in size and structure within many species, the biology of fungivorous thrips that live on dead wood can involve strong competition, either for mates or for food. Individuals of some species vary greatly in size, sexual dimorphism is common, and polymorphism amongst males is often very great (Palmer & Mound 1978). This polymorphism is presumably related to competitive behaviour between males, although sexual behaviour has been studied in detail in only a few Phlaeothripidae (Crespi 1996, 1998). Fungivorous species that live in leaf litter rarely exhibit intra-specific structural diversity (Mound 2002); presumably such species are less likely to live in discrete colonies, with all the interactions that are associated with such a life style.

Of the 16 species considered here as members of the genus *Hoplandrothrips*, two new species are each described from single specimens, and several more new species are described from single samples. This low number of available specimens in no way reflects our extensive collecting efforts across the continent of Australia that have been directed toward discovering the thrips associated with dead plant tissues. Presumably the low numbers of specimens reflects in some way the population structure, and high diversity, of species in this type of habitat. Australia has a particularly high diversity of predatory ants and spiders on dead branches and in leaf litter, and this presumably both limits the individual population size of thrips that share these habitats, and contributes to driving the rate of diversification of the thrips fauna. Unfortunately, such low populations limit the security of taxonomic decisions, because optimally these should be based on extensive series in order to recognise intra-population structural variation (Mound & Marullo 1996: 306).