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New leafhopper genera and species (Hemiptera: Cicadellidae) which feed on Velloziaceae from Southern Africa, with a discussion of their trophobiosis

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Abstract

Four new species in two new genera of leafhoppers (Hemiptera, Auchenorrhyncha, Cicadellidae, Deltocephalinae) are described. All are associated with *Xerophyta* species (Velloziaceae, Pandanales), and are usually tended by ants. Observations and discussions of the ant associations are provided. The new leafhopper genera and species are: *Xerophytavorus furcillatus* gen.n & sp.n., from Malawi, and the following from South Africa, *Xerophytavorus rastrullus* gen.n & sp.n. (Opsini), *Xerophytacolus claviverpus* gen.n & sp.n. and *Xerophytacolus tubuerverpus* gen.n & sp.n. (Opsini).

Key words: Afrotropical, phytophagous, ants, *Xerophyta* spp, Cicadellidae, Auchenorrhyncha

Introduction

This paper describes and illustrates two new leafhopper genera with four new species from Southern Africa, all associated with *Xerophyta* (Velloziaceae, Pandanales). The new taxa are allocated to the Deltocephalinae, which now comprises more than 6200 species (Zahniser & Dietrich 2010). This is a rare occurrence in Opsini of a trophobiotic relationship with ants on a monocotyledon [Trophobiosis – the relationship in which ants (Formicidae) receive honeydew from members of the Auchenorrhyncha and provide these insects with protection in return (Torre-Bueno 1989)]. Trophobiosis has been reported on *Terminalia* spp. (Combretaceae) by Knight (1973) between the ant, *Camponotus* and the leafhopper, *Hishimonus viraktamathi* Knight. More well known examples are in Macrostelini (*Dalbullus* DeLong) on *Zea* (Moya-Raygoza & Nault 2000; Moya-Raygoza & Larsen 2008) and Balcluthini (*Balclutha* Kirkaldy) on *Calamagrostis* (Steiner *et al.* 2004). One of the new genera, *Xerophytavorus*, was often observed in groups with ants in attendance on *Xerophyta*. This plant genus is distributed throughout Central and Southern Africa, Madagascar and Arabia (Stevens 2001). *Xerophyta retinervis* Baker has mainly been examined in South Africa for the presence of ants and by sweeping for leafhoppers. Some populations in South Africa and elsewhere (*e.g.* *Xerophyta* sp., in Swaziland, Figs 22, 23, and Zimbabwe, Fig. 24) were devoid of leafhoppers, possibly as a result of regular fires or competition from aphids (personal observation). Some plants have hairy leaves (Fig. 25) from which the other new genus, *Xerophytacolus* was also collected, but more rarely with ants. Most observations were undertaken in a nature reserve within an urban environment (Fig. 27). No leafhopper species have yet been found on the low-growing *Xerophyta viscosa* Baker. None of the 190 examined adult leafhopper specimens showed signs of parasitism by Strepsiptera, Dryinidae or Diptera. Four nymphs of *Xc. claviverpus* carried pupal cases of dryinids on their abdomens.

Ant associations with leafhoppers

Regular anecdotal personal observations concerned mainly colonies of adults and nymphs of *Xerophytavorus* species attended by ants (Figs 15–21). Aphid colonies were common and always tended by ants, whereas leafhopper colonies were never found on the same plant with aphids, and rarely with more than one leafhopper