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The first morphological description of the immature stages of *Thiasophila* Kraatz, 1856 (Coleoptera; Staphylinidae) inhabiting ant colonies of the Formica rufa group

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Abstract

This article for the first time presents the morphology of the egg, three larval instars, pupal cocoon, prepupa and pupa of myrmecophilous rove beetle *Thiasophila angulata* (Erichson, 1837) along with illustrations of structural features and chaetotaxy. Morphological comparisons are made between larval instars, and between the mature larva of *T. angulata* and other known larvae of Aleocharinae belonging to the tribes Athetini, Hoplandriini, Liparocephalini, Lomechusinii and Oxypodini. Pupae of *T. angulata* and two other species of Aleocharinae: *Pella laticollis* (Märkell, 1844) and *Haploglossa picipennis* (Gyllenhal, 1827) are compared. The mature larvae of *T. angulata* were observed to vary morphologically depending on the ant host species (*Formica polyctena, F. rufa* or *F. truncorum*). Host-related variation was observed in median larval body length, head and pronotum width and structure of the antennae.

Key words: Aleocharinae, Oxypodini, developmental stages, larva, egg, pupa

Introduction

The genus *Thiasophila* includes 15 species, distributed in the USA, Colombia, Eurasia, and Japan (Newton & Thayer 2005). *Thiasophila angulata* (Erichson, 1837), (Fig. 76), as majority of the species from this genus, is a small myrmecophile (body length: 1.9–4.3 mm) inhabiting ant colonies of: *Formica aquilonia*, *F. lugubris*, *F. polyctena*, *F. pratensis*, *F. rufa*, *F. sanguinea, F. uralensis*, *Lasius brunneus* and *L. fuliginosus* (Päivinen *et al.* 2002, 2003), as well as *F. truncorum* (Staniec & Zagaja 2008). It was also sporadically encountered on the forest floor in the vicinity of ants' pathways of *F. polyctena* (Zagaja *et al*. current study), among fallen leaves (Tenenbaum 1913) and on dunes (Wolender & Zych 2007).

T. angulata is a Palaearctic species and was reported from Europe (Great Britain, France, Italy, Croatia, Bosnia, Ukraine, Ireland, Denmark, Latvia and Russia), Kazakhstan, Uzbekistan, as well as West Asia and East Siberia (Collingwood 1979; Burakowski *et al*. 1981; Smoleński 1996; Anderson 1997; Päivinen *et al*. 2002; Löbl & Smetana 2004; Telnov 2004; Duff 2008; Shavrin 2008). In Poland, it probably occurs throughout the country, except for the higher zones of the mountains (Burakowski *et al*. 1981; Ruta & Melke 2002; Staniec & Zagaja 2008). Faunistic studies on Staphylinidae associated with ant colonies, conducted in central-eastern Poland, revealed that *T. angulata* is a dominant species in the assemblages of those beetles. It constitutes approximately 22% of all rove beetles captured in ant colonies (Staniec & Zagaja 2008). The available information concerning its general, ecological requirements and morphological interspecific variability currently concerns only the adult form (Lohse 1974; Burakowski *et al.* 1981; Koch 1989). This, and lack of any data on the morphology of the immature stages of this myrmecophilous genus, were the inspiration for undertaking the research issue specified in the title.

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