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A new feeding group within larval Drusinae (Trichoptera: Limnephilidae): the *Drusus alpinus* Group *sensu* Schmid, 1956, including larval descriptions of *Drusus franzi* Schmid, 1956, and *Drusus alpinus* (Meyer-Dür, 1875)

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Abstract

This paper presents a description of the hitherto unknown larvae of *Drusus franzi* Schmid, 1956, and *Drusus alpinus* (Meyer-Dür, 1875). Information on the morphological and genetic identification of both species is given, and the most important diagnostic features are illustrated. Their systematic position within the genus *Drusus* is affirmed and zoogeographical and ecological notes are added.

Key words: identification, distribution, ecology, mitochondrial DNA

Introduction

The small caddisfly subfamily Drusinae is of European origin with some endemic species also occurring in Asia Minor and the Caucasus region. Their patchy distribution and high proportion of micro-endemic species makes the group ideal for studying processes of isolation, specialisation and speciation. Most Drusinae are restricted to crenal areas at altitudes above 1000 m.asl.

Larval Drusinae are commonly classified as algal scrapers as most of them have spoon-shaped mandibles (e.g., Décamps & Pujol 1975, Szczesny 1978, Waringer 1985, Graf 1993). Feeding studies and descriptions of larvae of *D. discolor* (Rambur, 1842) (Bohle 1983) and *D. romanicus* Murgoci & Botosaneanu, 1953 (Botosaneanu 1959), *Crypthotrix nebulicola* McLachlan, 1867 (Bohle 1987), *D. chrysotus* (Rambur, 1842) (Waringer 1987) and *D. muelleri* McLachlan, 1868 (Graf *et al.* 2005) revealed a second ecological line, which consists of predators that catch their prey with special adapted devices such as filtering bristles on legs and characteristic head and pronotal designs which are unique morphological features within the family Limnephilidae.

So far, 24 Drusinae species are reported from Austria, Germany and Switzerland (Lubini-Ferlin & Vicentini 2005; Malicky 1999, 2004; Robert 2001, 2004). Four of them (*Drusus alpinus*, *D. chapmani* McLachlan, 1901, *D. franzi* and *D. noricus* Malicky, 1981) are still unknown in the larval stage. Recently, we investigated larval specimens of *D. franzi* from Austria and *Drusus alpinus* from Switzerland whose identities were confirmed by genetic association with adults. With respect to mandible shape, both species can be assigned to an unexpected third group, the omnivorous shredders. The newly presented material enabled us to discover reliable diagnostic characters, permitting integration of both species into the larval key by Waringer and Graf (1997, 2004).

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