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Description of the larvae of *Drusus ramae* Marinković-Gospodnetić and *Drusus medianus* Marinković-Gospodnetić (Trichoptera: Limnephilidae) with some genetic, distributional, ecological, faunal and conservation notes

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Abstract

In this study we present morphological features of the last instar larvae of *Drusus ramae* Marinković-Gospodnetić, 1971, and *Drusus medianus* Marinković-Gospodnetić, 1976, both of which are endemic species from Bosnia and Herzegovina. Using the mitochondrial cytochrome oxidase I gene (COI), larvae of these species were successfully associated with adult specimens. We present the most important diagnostic features enabling separation from larvae of the other *Drusus* species and an identification key for the known larvae of *Drusus* species in the Balkan Peninsula. Notes on the distribution and ecology of both species are given. Additionally, faunistics and possible conservation implications for studied springs are discussed.

Key words: *Drusus*, Balkan Peninsula, Bosnia and Herzegovina, larval description, mitochondrial DNA, distribution, conservation

Introduction

Within Europe the Balkan Peninsula is an area with pronounced processes of speciation and endemism. The high biodiversity in this area is the result of the interplay of specific geographical, climatic, geomorphological, and hydrological features (Krystufek & Reed 2004). The region is recognized as an important centre of biodiversity and endemism for different groups of animals (e.g., Bedek et al. 2006, Deltshev 2004, Džukić & Kalezić 2004, Gottstein Matočec et al. 2002, Ozimec 2004, Župančić & Bogutskaya 2002), including also Trichoptera (Kumanski 1988, Kumanski & Malicky 1999, Malicky 2005, Marinković-Gospodnetić 1976, 1978a). Within Trichoptera, one of the most interesting genera is *Drusus* with 28 species recorded for the Balkans, 90% of which are endemic to this region (Krušnik 1987, Kumanski 1988, Malicky 2004, 2005, Marinković-Gospodnetić 1976, 1978a, 1979). A large number of these species are endemic to particular mountain areas (Marinković-Gospodnetić 1976). *Drusus* species usually inhabit springs and crenal sections of mountain streams and rivers with low water temperature and small annual variations. This important life history trait determines their distribution patterns, especially the isolation of mountain populations (Marinković-Gospodnetić 1976, Previšić et al. 2009) and high species diversity (Kumanski 1988, Malicky 2004, 2005, Marinković-Gospodnetić 1979).

Some geographic, taxonomic, and ecological features are known for a majority of *Drusus* species of the Balkan Peninsula (Čepić 1980, Kučinić et al. 2008, Krušnik 1987, Kumanski 1988, Malicky 2004, 2005,

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