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Review of the family Veliidae in Romania (Hemiptera: Heteroptera: Gerromorpha)

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Abstract

A critical review of the family Veliidae (Hemiptera: Heteroptera: Gerromorpha) in Romania is provided. In total, two genera and eight species (*Microvelia* Westwood, 1834—3 species, *Velia* Latreille, 1804—5 species) are known from the country. *Microvelia buenoi* Drake, 1920 and *Velia serbica* Tamanini, 1951 are recorded for the first time from Romania. The occurrence of *V. affinis filippii* Tamanini, 1947 and *V. mancinii mancinii* Tamanini, 1947 is confirmed by additional records. Based on proven or suspected misidentifications, *V. currens* (Fabricius, 1794) and *V. rivulorum* (Fabricius, 1775) are excluded from the Romanian fauna. A checklist of the Veliidae of Romania and updated distribution maps are provided. Biogeographical aspects of the fauna are summarized.

Key words: Veliidae, *Microvelia*, *Velia*, aquatic insects, Carpathians, Romania, Mediterranean species, distribution

Introduction

The family Veliidae, in its traditional concept, is the largest group of semiaquatic bugs (Hemiptera: Heteroptera: Gerromorpha) living in a wide variety of semiaquatic, marine, and even terrestrial habitats (Andersen 1982; Andersen & Weir 2004; Chen *et al.* 2005; Damgaard 2008; Polhemus 2009; Moreira *et al.* 2010). At present, about 60 genera and over 960 species of veliids are known worldwide (Polhemus 2009). Only 5 genera occur in Euro-Mediterranean region (understood here to include Europe, Macaronesia, North Africa, Transcaucasia, Asian Turkey, Syria, Lebanon, Israel, Jordan, and Sinai Peninsula): *Microvelia* Westwood, 1834—8 species, *Rhagovelina* Mayr, 1865—3 species (+ 1 subspecies), *Tenagovelina* Kirkaldy, 1908—1 species; *Xiphoveloidea* Hoberlandt, 1950—1 species, and *Velia* Latreille, 1804—22 species (+ 5 subspecies) (Andersen 1995; Polhemus & Polhemus 2008; Aukema *et al.* 2013). However, most of the Veliidae biodiversity in the Euro-Mediterranean region is concentrated in the Mediterranean area, and only two genera and five species occur in Europe north of the Alps (*Microvelia*—3 species, *Velia*—2 species) (Andersen 1995; Aukema *et al.* 2013).

Taxonomically, Microveliinae is one of the most neglected subfamilies of the Veliidae (see Rúdio & Moreira 2011) but, in the Euro-Mediterranean region, the situation is satisfactory due to the low number of species (cf. Andersen 1982, 1995; Aukema *et al.* 2013). On the other hand, taxonomy of the species rich, mostly Palaearctic, genus *Velia* was much confused until an essential taxonomic revision of the genus was performed by Livio Tamanini. He revised the genus in a series of papers (e.g., Tamanini 1947, 1949, 1951, 1955, 1959, 1971) which re-evaluated the diagnostic characters used in taxonomy of *Velia* and established the present concepts of the particular *Velia* species, based mostly on the structure of the male genitalia. For this reason, identifications of the *Velia* species before Tamanini (1947) and his supplementary revisions cannot be accepted without re-examination.

The Romanian territory represents a transition zone between Mediterranean and Central European ecosystems (Doniță *et al.* 2005) and thus, it can harbor diverse fauna. Despite this, studies concerning Veliidae are scarce and they are considered rare in this country (Davideanu 1999; Ilie & Davideanu 2007; Ilie 2009). So far, two genera and seven species have been recorded (*Microvelia*—2 species, *Velia*—5 species) (Paina 1975; Davideanu 1999; Ilie