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Checklist of water bugs (Hemiptera: Heteroptera: Nepomorpha, Gerromorpha) of Slovakia

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Abstract

The water bugs represent a significant component of the freshwater biota, play an important role in trophic webs, and may have considerable economic importance. Nevertheless, systematic research of this group has been underdeveloped in Slovakia (central Europe) for decades. This work presents a list of water bug species of Slovakia based on an exhaustive review of the literature (time span: 1808–2013) and on more than 14,000 individuals collected during extensive field campaigns (2010–2014) or obtained from insect collections. Fifty-six species belonging to 11 families of Heteroptera were recorded from a total of 767 sites. Seven species were recorded for the first time from Slovakia during our research. Among those, the first exact records of *Corixa panzeri* Fieber, 1848, *Sigara (Subsigara) distincta* (Fieber, 1848), *Notonecta (Notonecta) lutea* Müller, 1776, *Notonecta (Notonecta) maculata* Fabricius, 1794 and *Microvelia (Microvelia) buenoi* Drake, 1920 are provided here. Confusion concerning the records of two additional species, *Arctocoris carinata carinata* (C. R. Sahlberg, 1819) and *Hesperocoris parallela* (Fieber, 1860) is clarified. The water bugs species inventory appears to be nearly complete (~97 %) given an asymptotic richness estimate. The occurrence of other species is discussed taking into account their habitat requirements and distribution in neighbouring countries. Recommendations for future research are provided.

Key words: Diversity, species richness, inventory, *Corixa panzeri*, *Sigara distincta*, *Notonecta lutea*, *Notonecta maculata*, *Microvelia buenoi*

Introduction

The aquatic and semi-aquatic Heteroptera (water bugs) represent a significant component of the world's aquatic insect biota. Most of the approximately 4800 known species belong to the infraorders Gerromorpha and Nepomorpha, and 623 species of these were recently catalogued in the Palaearctic Region (including China) (Polhemus *et al.* 1995; Andersen 1995; Aukema *et al.* 2013). These two infraorders differ in ecology and habitat preferences. True water bugs (Nepomorpha) are nectonic (e.g., Corixidae, Micronectidae, Naucoridae, Notonectidae, Pleidae) or benthic species (e.g., Nepidae, Aphelocheiridae), with the exception of ripicolous Ochteridae and Gelastocoridae, whereas semi-aquatic bugs (Gerromorpha) are pleustonic or settled in sub-humid terrestrial habitats (e.g., Gerridae, Hebridae, Hydrometridae, Mesoveliidae, Veliidae) (Polhemus *et al.* 1992). Water bugs inhabit a wide range of aquatic habitats, play an important role in food webs and may be of considerable economic importance (e.g., Schuh & Slater 1995; Papáček 2000, 2001). Nevertheless, in Slovakia (central Europe) systematic research of water bugs has been underdeveloped for decades and the group has received far less attention than in neighbouring countries (e.g., Poland—Jaczewski & Wróblewski 1976, 1978; Wróblewski 1980; Austria—Rabitsch 2005a; Czech Republic—Kment & Smékal 2002; Hungary—Boda *et al.* 2015).

The first evidence of water bugs from the area of Slovakia dates back to the Austro-Hungarian Empire. Besides