



Morphology and taxonomy of deutonymphs of the genus *Unionicola* Haldeman, 1842 (Acari, Hydrachnidia, Unionicolidae) in Russia

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Abstract

This study presents a detailed taxonomic review of water mite deutonymphs of the genus *Unionicola* Haldeman, 1842 (Hygrobatoida: Unionicolidae) found in the fauna of Russia during the long-term survey period of 1979–2013. The review includes descriptions and illustrations of 14 *Unionicola* species found in this country: *U. aculeata* (Koenike, 1890), *U. arcuata* (Wolcott, 1898), *U. bonzi* (Claparède, 1869), *U. hankoi* Szalay, 1927, *U. intermedia* (Koenike, 1882), *U. japonensis* Viets, 1933, *U. inusitata* Koenike, 1914, *U. tricuspis* (Koenike, 1895), *U. crassipes* (Müller, 1776), *U. gracilipalpis* (Viets, 1908), *U. markovensis* Tuzovskij, 1990, *U. minor* (Soar, 1900), *U. rossica* Tuzovskij & Semenchenko, 2015, *U. ypsilophora* (Bonz, 1783). Key to all species based on deutonymphs is presented.

Key words: water mites, Unionicolidae, *Unionicola*, morphology, deutonymphs, identification key, Russia

Introduction

The world fauna of the genus *Unionicola* currently includes over 250 species (Edwards & Vidrine 2013). The water mites of this genus are free-living in lakes, reservoirs, ponds and rivers; however, the most species includes simbiotes that occupy the mantle cavities of freshwater mussel and snails. Up to date 21 species of the genus *Unionicola* are known from Russia (Tuzovskij & Semenchenko 2015). Adult mites of the genus *Unionicola* are grouped in 8 subgenera (Viets 1956, Cook 1974), 10 subgenera (Viets 1987) or 57 subgenera (Edwards & Vidrine 2013); however, at larvae (Wainstein 1980) and deutonymphs (Tuzovskij 1990) subgeneric distinction is not revealed. Information on the morphology of deutonymphs of this genus has been published for five species on the base of material collected in Russia: *U. crassipes*, *U. gracilipalpis*, *U. markovensis*, *U. minor* and *U. dresscheri* (= *U. rossica*) (Tuzovskij 1990) and *U. hankoi* collected in Ukraine (Tuzovskij *et al.* 2011). Deutonymphal morphology of some species described below was studied insufficiently, and the following species were studied more detailed on the base of material from Germany: *U. aculeata*, *U. bonzi*, *U. crassipes*, *U. intermedia*, *U. inusitata*, *U. minor*, *U. tricuspis* and *U. ypsilophora* (Hevers 1979). Deutonymphs of the genus *Unionicola* are characterised by uniform morphology, especially genital field, and their identification is very difficult.

The purpose of this paper is to study the morphology of deutonymphs of the *Unionicola* species known in Russia and to give an identification key.

Material and methods

Specimens were collected by the authors in standing and slowly running waters of the European and Asian parts of Russia, preserved in modified Koenike's solution and mounted on slides using Hoyer's medium and glycerine-gelatine jelly. Material from Ukraine and Germany also was used for redescribing species. All material deposited in