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Water mites 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 mites of the genus *Unionicola* Haldeman, 1842 (Hygrobatoidea: Unionicolidae) found in the fauna of Russia during the long-term survey period of 1969–2013. The review includes (re)descriptions and illustrations of 21 *Unionicola* species found in this country: *Unionicola intermedia* (Koenike, 1882), *U. crassipes* (O.F. Müller, 1776), *U. rossica* **sp.n.**, *U. figuralis* (Koch, 1836), *U. gracilipalpis* (Viets, 1908), *U. markovensis* Tuzovskij, 1990, *U. minor* (Soar, 1900), *U. hankoi* Szalay, 1927, *U. aculeata* (Koenike, 1890), *U. aculeatella* **sp.n.**, *U. bonzi* (Claparède, 1869), *U. inusitata* Koenike, 1914, *U. rezvoi* Sokolow, 1931, *U. samaraensis* **sp.n.**, *U. setipella* **sp.n.**,

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U. setipes Sokolow, 1931, *U. tricuspis* (Koenike, 1895), *U. japonensis* Viets, 1933, *U. primoryensis* **sp.n.**, *U. ypsilophora* (Bonz, 1783), *U. arcuata* (Wolcott, 1898). A key is presented for the *Unionicola* species of Russia based on males and females.

Key words: water mites, Unionicolidae, *Unionicola*, morphology, identification keys, new species, Russia

Introduction

The world fauna of the genus *Unionicola* currently includes 251 species grouped in 57 subgenera (Edwards & Vidrine 2013). The water mites of this genus are free-living in lakes, reservoirs, ponds and rivers; however, the most species include symbionts that occupy the mantle cavities of freshwater mussels and snails. Larvae of the genus *Unionicola* are known to parasitize on the femora and tibia of mid and hind legs and abdominal region of imagos of the family Chironomidae from the subfamily Chironominae, and abdomen of Trichoptera: Leptoceridae (Smith and Oliver, 1986). In the monograph "Limnofauna Europe", K.O. Viets (1978) reported 14 species in Europe: *Unionicola aculeata*, *U. bonzi*, *U. crassipes*, *U. figuralis*, *U. finis-belli*, *U. gracilipalpis*, *U. hankoi*, *U. intermedia*, *U. inusitata*, *U. minor*, *U. parvipora*, *U. parvula*, *U. tricuspis* and *U. ypsilophora.* From the territory of the former USSR, the following 10 species were recorded by Sokolow (1940): *Unionicola aculeata, U. crassipes, U. bonzi, U. figuralis*, *U. gracilipalpis, U. intermedia*, *U. japonensis, U. rezvoi, U. setipes* and *U. ypsilophora.* Investigations of water mites from different regions of Russia over the past 30 years allowed us to describe one more species, *U. markovensis* Tuzovskij (Tuzovskij 1990) from the Magadan Province. In addition, three more species have been found in the territory of Russia: *U. dresscheri* from Magadan Province (Tuzovskij 1985), *U. minor* from the Yaroslavl Province (Tuzovskij 1996) and Samara Province (Tuzovskij 1997) and *U. hankoi* from the Samara Province (Tuzovskij 1997).

The aim of the paper is to study the morphology of adults of the genus *Unionicola* collected in Russia and to give identification keys for the males and females.

Material and methods

Specimens were collected by the authors in standing and 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 of species. The descriptions are based on the type series, deposited in the research collections of the Institute for Biology of Inland Waters, Borok, Russia (IBIW) and the Institute of Biology and Soil Science, Vladivostok, Russia (IBSS).

More detailed distribution of the Far Eastern unionicolids reported by Semenchenko (2008, 2010).

Idiosomal setae are named according to Tuzovskij (1987): *Fch*—frontales chelicerarum, *Fp*—frontales pedipalporum, *Vi*—verticales internae, *Ve*—verticales externae, *Oi*—occipitales internae, *Oe*—occipitales externae, *Hi*—humerales internae, *He*—humerales externae, *Hv*—humerales ventralia, *Sci*—scapulares internae, *Sce*—scapulares externae, *Li*—lumbales internae, *Le*—lumbales externae, *Si*—sacrales internae, *Se*—sacrales externae, *Ci*—caudales internae, *Pi*—praeanales internae, *Pe*—praeanales externae (Figs 1A–B).

Furthermore, the following abbreviations are used: P-1–5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); I-Leg-1–6, first leg, segments 1–6 (trochanter, basifemur, telofemur, genu, tibia and tarsus) i.e. III–Leg–3 = genu of third leg; L—length, W—width; n = number of specimens measured; all measurements are given in micrometrs (μm).

Results

Family Unionicolidae Oudemans, 1909

Subfamily Unionicolidae Oudemans, 1909

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