



***Branchiobdella* Odier, 1823 (Annelida: Branchiobdellea), a New Genus for the Fauna of Serbia**

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Abstract: In the course of hydrobiological studies on the territory of Serbia in 2020, three species of the genus *Branchiobdella* (Annelida: Branchiobdellea) were recorded: *B. parasita* (Braun, 1805), *B. pentadonta* Whitman, 1882, and *B. hexadonta* Gruber, 1883. They were found on the stone crayfish *Austropotamobius torrentium* (Schrank, 1803) in the Magaška River (Delivoda locality, Southeast Serbia) and in the Rukjavica Stream (Eastern Serbia). This is the first record of the genus *Branchiobdella* and the three species on the territory of Serbia.

Key words: *Branchiobdella*, epibiont, *Austropotamobius torrentium*, Serbia

Introduction

The species of the genus *Branchiobdella* Odier, 1823 are epibionts of freshwater crustaceans of the family Astacidae, most often on the surface of the carapace and extremities; two of the European species, i.e. *B. astaci* Odier, 1823 and *B. hexadonta* Gruber, 1883, live in the gill chambers of the host (SUBCHEV 2014). SUBCHEV et al. (2020) and several other authors (reviewed in SUBCHEV et al. 2020) noticed that the attached cocoons of *B. astaci* may cause gill injuries of hosts such as melanisation and amputation of gill filaments. One of the assumptions is that adults of *B. astaci* may feed on host haemolymph, thus damaging gill filaments (SUBCHEV et al. 2020).

According to SUBCHEV (2014), eight species of the genus *Branchiobdella* are known from Europe. These are *B. parasita* (Braun, 1805), *B. astaci*, *B.*

pentadonta Whitman, 1882, *B. hexadonta*, *B. italica* Canegallo, 1928, *B. balcanica* Moszynski, 1938, *B. kozarovi* Subchev, 1978 and *B. papillosa* Neseemann & Hutter, 2002. Recently, *B. bulgariensis* Subchev & Rimcheska, 2021 was described from Bulgaria (SUBCHEV & RIMCHESKA 2021) and, thus, the number of the European *Branchiobdella* spp. increased to nine. So far branchiobdellidans have been recorded mostly on the autochthonous European astacids *Astacus astacus* (L., 1758), *A. leptodactylus* Escholtz, 1823, *Austropotamobius pallipes* Kessler, 1876 and *A. torrentium* (Schrank, 1803). However, there were also records on some invasive crustaceans such as *Orconectes limosus* (Rafinesque, 1817), *Pacifastacus leniusculus* (Dana, 1852) and *Procambarus* (*Scapulicambarus*) *clarkii* (Girard, 1852) (for details, see SUBCHEV 2014).

Serbia is the only country on the Balkans where branchiobdellidans have not been reported

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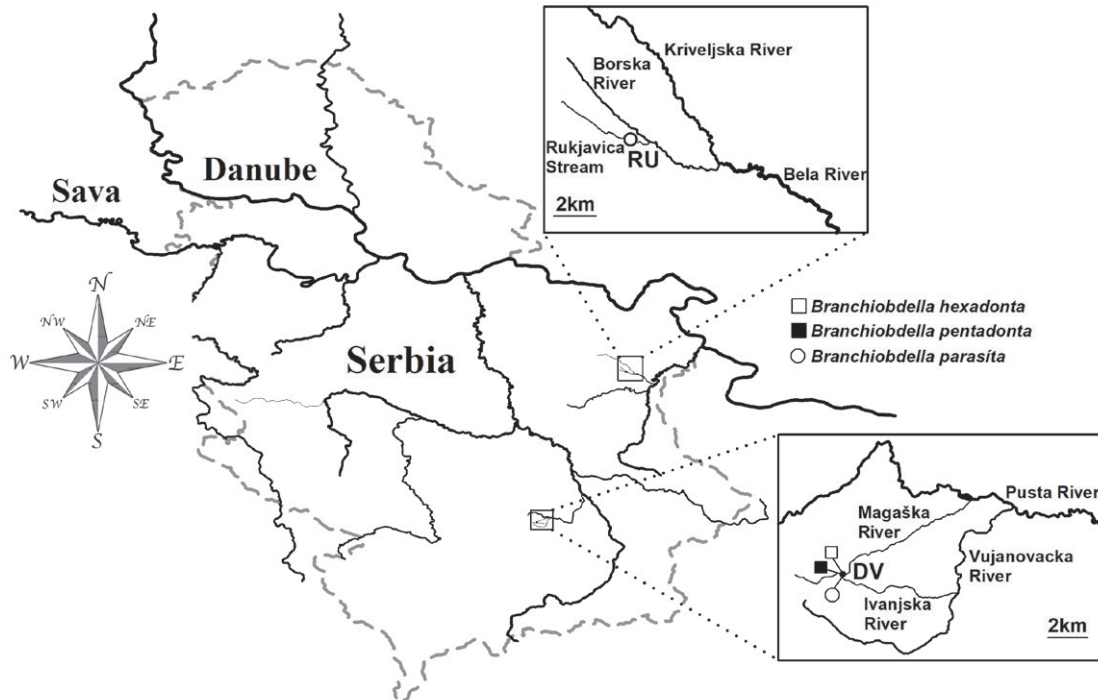


Fig. 1. Localities of the three species of the genus *Branchiobdella* found in Serbia.

(SUBCHEV 2011, 2014), despite some recent studies on their host species (SIMIĆ et al. 2008, PETROVIĆ et al. 2013, MARKOVIĆ et al. 2017, ZORIĆ et al. 2018). The present article reports the first record of the genus *Branchiobdella* in Serbia, thus contributing to knowledge of the geographical range of branchiobdellidans from the Balkan Peninsula.

Materials and Methods

Within the framework of the project Data acquisition and other services performed to establish the ecological network of the EU Natura 2000 plan as part of the ecological network of the Republic of Serbia, 2018-2020, the distribution of the stone crayfish *Austropotamobius torrentium* in Serbia was explored in 2020. In the course of this study, altogether 14 specimens of *A. torrentium* were collected and examined for branchiobdellidans. These were five males and two females (4.2–9.5 cm long) from the Magaška River (Delivoda locality, Southeast Serbia, N 43° 00' 29.4"; E 21° 32' 23.5"; June 5, 2020) and seven males (5.2 to 9.4 cm long) from the Rukjavica Stream (Eastern Serbia, N 44° 02' 28.6"; E 22° 09' 12.7"; June 20, 2020) (Fig. 1).

The specimens of stone crayfish were collected with a hand benthos net and fixed on site in 96 % ethanol. The crayfish were examined by a Zeiss Discovery V8 stereomicroscope (Carl ZEISS GmbH, Austria) and branchiobdellidans were removed from

the host body. Identification of the specimens of *Branchiobdella* was performed based on the shape and length of the body and the jaw dental formula following the keys by SUBCHEV & STANIMIROVA (1998) and GELDER et al. (1994).

Results

Three species of *Branchiobdella* were recorded on *A. torrentium* from the Magaška River. One *B. parasita* was found on the dorsal surface of the carapace. Three specimens of *B. pentadonta* were sampled from the ventral side of the carapace and from coxae of the abdominal legs. Five specimens of *B. hexadonta* were found in the gill chamber. From Rukjavica Stream, seven specimens of *B. parasita* were recorded on coxae of the abdominal legs and on the dorsal surface of the carapace; one *B. hexadonta* was found in the gill chamber.

Discussion

Our findings confirm the assumptions of SUBCHEV (2011, 2014) that most probably *B. hexadonta*, *B. parasita* and *B. pentadonta* inhabit Serbia because of their presence in neighbouring countries. The other species found in some neighbouring countries (SUBCHEV 2014, SUBCHEV & RIMCHESKA 2021) and thus cannot be excluded as potentially occurring in Serbia are *B. astaci*, *B. balcanica*, *B. bulgariensis*

and *B. kozarovi*. The only species not expected to occur in this country is *B. italica*, since the only known host of this species is *Austropotamobius pal-lipes* Kessler, 1876 (see SUBCHEV 2014), which does not occur in Serbia.

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