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## **MANAGING THE EFFECTS OF MULTIPLE STRESSORS ON AQUATIC ECOSYSTEMS UNDER WATER SCARCITY**

**1<sup>st</sup> GLOBAQUA International Conference  
11-12 JANUARY 2016, FREISING (GERMANY)**



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## The first evidence of cryptic species *Ferrissia fragilis* (Tryon, 1863) (Pulmonata, Basommatophora) in the Sava River

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The North American gastropod *Ferrissia fragilis* (Tryon, 1863) has been recorded for the first time in the Sava River at the Lukavec Posavski locality (2012). Later, the species was found at sites Jasenovac, Duboko and Makiš (Figure 1). In previous studies, *F. fragilis* (Figure 2) was detected in the Korana and Ilova rivers (tributaries of Kupa and Lonja which flow into the Sava - Beran, 2013). *F. fragilis* has been identified in the past variously in different European and Asian countries under several names: *Pettancylus petterdi* (Johnston, 1879), *P. australicus* (Tate, 1880), *Ferrissia wautieri* (Mirolli, 1960), *F. clessiniana* (Jickelli, 1882) (Son, 2007). Nevertheless, molecular methods (Walther et al., 2006, Marrone et al., 2011) have revealed that these small European limpets are in fact single Nearctic (North American) species, *F. fragilis* (Tryon, 1863). This snail was found in the shallow zone (depth < 0.5 m) with dense aquatic vegetation, which is under the numerous environmental stressors (high temperature, freezing, drying, flooding, etc.). This unfavourable conditions *F. fragilis* could sustain due to their ability to form egg capsules stage. The number of individuals was low in all samples (Table 1). All individuals are deposited in the molluscan collection at the Department for Hydroecology and Water Protection, Institute for Biological Research "Siniša Stanković" (IBISS).

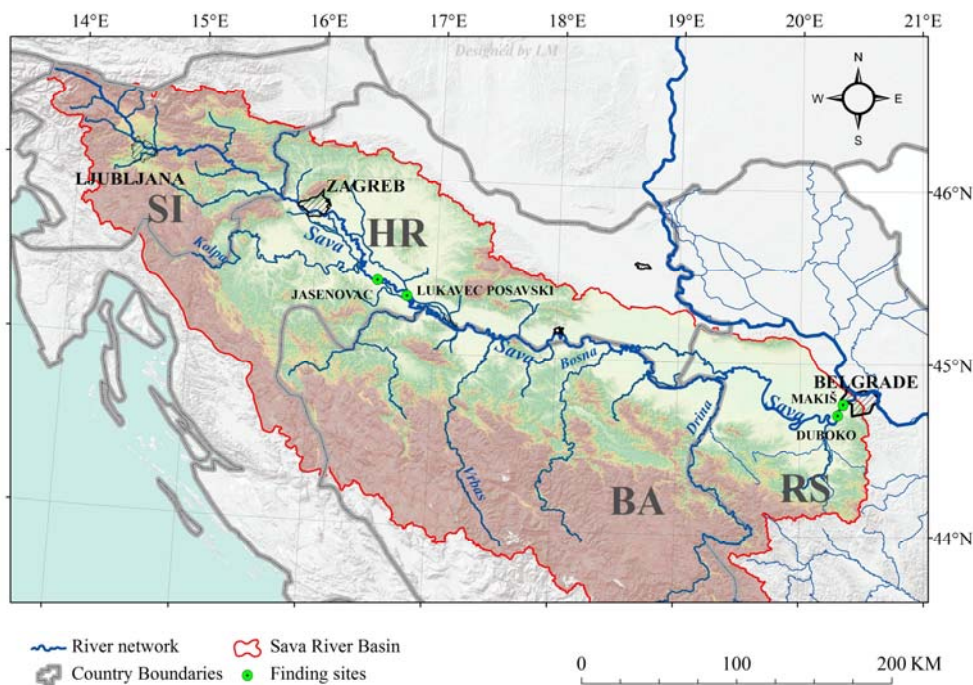


Figure 1: The localities where *Ferrissia fragilis* was recorded.



Figure 2: *Ferrissia fragilis* - a. Dorsal view of the shell. b. Ventral view of the shell and soft parts (Photo: M. Raković).

Table 1. Records of the North American gastropod *Ferrissia fragilis* in the Sava River

Location	Location coordinates		Date of record	Individuals
	Latitude, °N	Longitude, °E		
Lukavac Posavski	45.409711	16.519804	05 09 2012	2
Jasenovac	45.263476	16.894248	05 09 2015	4
Duboko	44.660536	20.279603	17 03 2015	1
Makiš	44.686615	16.519804	09 09 2015	1

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