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NEW RECORDS OF *Perccottus glenii* DYBOWSKI, 1877 FROM SOUTH-WESTERN ROMANIA: INVASION IN TIMIŞ AND ARANCA RIVERS

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ABSTRACT. *Perccottus glenii continues its upstream distribution on the hydrographic network from Banat region, south-western Romania. In 2014, we identified five new distribution localities, one in the Aranca River and four in the Timiş River hydrographical basin.*

KEY WORDS: *invasive fish, altered hydrographic network, distribution, Romania.*

Perccottus glenii is a native fish for eastern Asia, which in the last years invaded numerous European freshwaters (see in: Reshetnikov 2004, 2013). Although its distributions have climatic barriers and *P. glenii* have already invaded the majority of favourable areas (Reshetnikov & Ficetola 2011), in Europe new distribution localities are permanently discovered (e.g. Reshetnikov & Schliewen 2013, Kutsokon et al. 2014, Rechulicz et al. 2015, Kvach et al. 2016). Recently this species was identified also in Romania, initially in the eastern (Nalbant et al. 2004), south-western (Popa et al. 2006) and then in the western regions of the country (Copilaş-Ciocianu & Pârvulescu 2011, Covaciu-Marcov et al. 2011). In eastern and southern Romania, this species invasion seems to be very rapid, as shown by the increasing amount of information (Rau et al. 2017, Imecs & Nagy 2016, Covaciu-Marcov et al. 2017, Telcean & Cicort 2016). Unlike this, even if near western Romania, in the Tisa River region, there is a huge agglomeration of *P. glenii* distribution localities (see in: Reshetnikov 2013), until now in western Romania it was mentioned only in two localities, in the

basins of Mureş and Bega rivers (Copilaş-Ciocianu & Pârvulescu 2011, Covaciu-Marcov et al. 2011). This note mentions the presence of *P. glenii* in five new localities from western Romania, where it seems that this species really advances upstream on the watercourses (Covaciu-Marcov et al. 2011).

The amur sleepers were captured in 8 and 9 March 2014, while we investigated amphibians. Fish were captured accidentally with a round net fixed on a long metallic handle, with a 50 cm diameter opening. The mesh had 1 mm large holes. This net, designed to capture frogs, was also used in western Romania in other ichthyologic studies (e.g. Telcean et al. 2014 a, b, Sas-Kovacs et al. 2015). The study was performed in the Banat region, western Romania, close to the border with Serbia and Hungary (Figure 1). We investigated 16 localities, but we did not find amur sleepers in all sites.

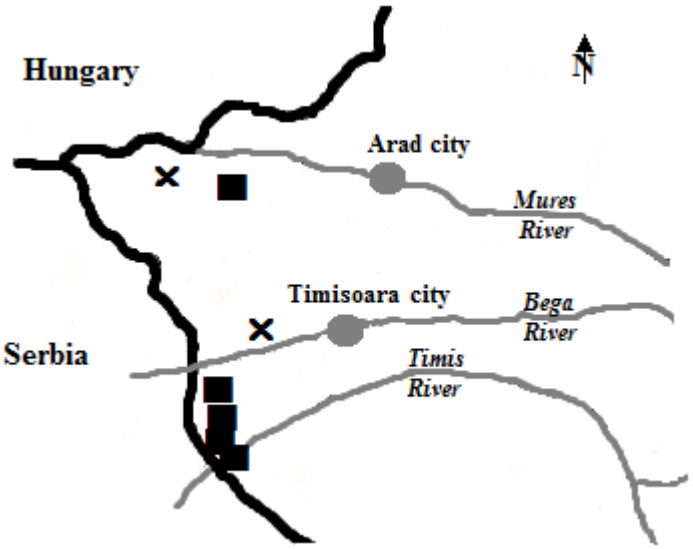

Figure 1. Distribution of *P. glenii* in Banat, Romania (x - old records from 2009: Copilaş-Ciocianu and Pârvulescu, 2011; Covaciu-Marcov *et al.*, 2011; ■ - new records; black line - state border; grey line - rivers)

P. glenii was encountered in five localities from Banat region, Timiş County, western Romania (Figure 1). One locality (Sânpetru Mare) is situated in the Aranca River hydrographical basin. The other four localities (Cruceni,

between Foieni and Ionel, Ionel, Otelec) are situated in the Timiş River basin. Because we aimed frogs, our method was not a quantitative one. Nevertheless, at Cruceni and Ionel we captured even 2-3 individuals in a single net. Totally we captured 24 amur sleepers (Table 1), from which we conserved 2 from Sânpetru Mare and 4 from Cruceni. The individuals from Sânpetru Mare had an overall size range between 46 and 49 mm, the mean size being 47.5 with a standard deviation of SD=2.12. The overall size range of the individuals from Cruceni varied between 41 and 57 mm, having a mean size of 49.75 and a standard deviation of SD=6.6. The individuals from the other localities had approximately the same size range. The length of the individuals from Banat was alike with the ones captured with the same methods in other regions of Romania (Covaciu-Marcov et al. 2017). Generally, the habitats have shallow water, rich aquatic vegetation, slow-flowing or even stagnant water (Table 1). Being heavily modified, alongside *P. glenii* in this habitats we captured other non-native fish, like *Lepomis gibbosus*, *Carassius gibelio* and *Pseudorasbora parva* (Table 1).

Table 1. The new *P. glenii* localities, the number of captured individuals, the presence of other non native fishes and habitat types (*Pg - P. glenii*, *Cg - C. gibelio, Pp - P. parva, Lg - L. gibbosus*)

Localities	Coordinates	*Pg*	*Cg*	*Pp*	*Lg*	Habitat type
Sânpetru Mare	46˚03'21.82"N/ 20˚48'45.72"E	2	-	x	x	Small watercourse
Cruceni	45˚28'50.87"N/ 20˚52'37.87"E	7	-	-	x	Artificial ditch
Foieni / Ionel	45˚31'16.25"N/ 20˚51'50.64"E	1	-	-	-	Small watercourse
Ionel	45˚34'50.90"N/ 20˚51'28.67"E	9	x	x	-	Artificial ditch
Otelec	45˚36'20.29"N/ 20˚50'38.10"E	5	x	-	-	Artificial ditch

Our results seem to be the first record of *P. glenii* in the Romanian section of Timiş River. The fish fauna from Timiş River was recently investigated, but *P. glenii* was not mentioned, although one locality (Cruceni), in which we found it, was previously sampled (Bănăduc et al. 2013). Even if it is possible that *P. glenii* had spread in the area after the previous study, more probably it was not found because that study aimed

the main river channel using electro narcosis (Bănăduc et al. 2013). The method we used, allowed us to analyze only small aquatic habitats, like artificial channels, roadside ditches, or small watercourses, all heavily altered. The channels` network that had linked the region's initially natural watercourses seems to favour the spreading of *P. glenii* (Copilaş-Ciocianu & Pârvulescu 2011). Unfortunately, in the plains from Banat these channels seem to be the only habitats for amphibians (Bogdan et al. 2013) and even these are occupied by the amur sleeper. The capacity of *P. glenii* to use such habitats, including roadside ditches, is well known (e.g. Reshetnikov & Chibilev 2009). *P. glenii* have negative effect upon amphibians and other native biodiversity components (see in: Reshetnikov 2003, 2013), a fact that can be observed in Banat. Thus, in two of the five habitats populated by *P. glenii* we did not find amphibians. In other two habitats we registered only some *Lissotriton vulgaris* individuals, and in the third one only some *Pelophylax ridibundus*. Unlike these, in other similar habitats without *P. glenii*, situated near the same localities, *Triturus dobrogicus* and *Bombina bombina* were present. Thus, the rapid advancement of *P. glenii* on the hydrographical network from Banat, seems to be the last blow for the amphibians, already strongly affected (Bogdan et al. 2013).

Taking into account the fact that we spent only two days in field and we focused on amphibians not on fish, the number of localities occupied by *P. glenii* is high, compared with the previous data from the region (Copilaş-Ciocianu & Pârvulescu 2011, Covaciu-Marcov et al. 2011). These data prove that *P. glenii* is not an accidental presence in the area, but has stable populations, spreading upstream on the watercourses (Covaciu-Marcov et al. 2011). Even if this species is not good on spreading upstream on rivers (see in: Reshetnikov 2013), in Banat its penetration is favoured by the highly modified and interconnected hydrographical network (Burghelea et al. 2013).

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