

New record of the Amur sleeper *Perccottus glenii* Dybowski, 1877 (Pisces: Odontobutidae), the first record in the Romanian Mureş River Basin

Denis COPILAŞ-CIOCIANU* and Lucian PÂRVULESCU

West University of Timișoara, Faculty of Chemistry, Biology and Geography, Department of Biology,
Pestalozzi 16A St., 300115, Timișoara, Romania.

* Corresponding author: D. Copilaş-Ciocianu, E-mail: denis.copilas@yahoo.com

Received: 15. January 2010 / Accepted: 01. December 2010 / Available online: 12. December 2010

Abstract. In November 2009 two specimens of *Perccottus glenii* were collected in the Mureş River basin, in the Silvia Canal, near the town of Sinnicolau Mare. This represents the first record of the species in the Romanian Mureş hydrographic basin and the fourth record of the species in the Romanian fauna.

Keywords: Amur sleeper, invasive fish species, *Perccottus glenii*, Mureş Basin.

The Amur sleeper (*Perccottus glenii*) was described in 1877 by B. Dybowski from the Ussuri River. Its natural distribution area is the Far East of Asia, mainly in the Amur River basin (Bogutskaya & Naseka 2002). This species occurs mostly in water bodies that are stagnant or have a weak current with well developed vegetation (Grabowska et al. 2009). It is able to spread easily through canals and stocked fish (Kottelat & Freyhof 2007). *Perccottus glenii* is an ecologically plastic species enduring significant variations of abiotic factors (water level, temperature, dissolved oxygen) (Bogutskaya & Naseka 2002). It reaches a maximum of 25 cm in total length, although the majority of the individuals do not exceed 12 cm (Berg 1949, Reshetnikov 2003).

Its presence in small water bodies affects the population of native amphibians and fish (Kottelat & Freyhof 2007). In waters colonized by Amur sleeper (*Perccottus glenii*), urodeles *Triturus vulgaris*, *Triturus cristatus* and anures *Rana arvalis*, *Rana temporaria*, *Rana lessonae* cannot reproduce successfully because it consumes their larvae (Reshetnikov 2003). Also negative correlations were revealed between the presence of Amur sleeper in water bodies and diversity of species of invertebrates (Reshetnikov 2003).

The spreading of the Amur sleeper began in 1916 in St. Petersburg. It was released into small ponds and spread throughout the drainage area of the Gulf of Finland (Kosco

et al. 2003). The second introduction took place in 1948 in Moscow, the Amur sleeper spread throughout the Moscow River system reaching into the upper Volga River basin (Spanovskaya et al. 1964) where it continues to spread westward, even into the Danube River Basin (Hegediš 2007). Other areas invaded by the Amur sleeper are the Russian Federation, Baltic Sea basin, Belarus, Kazakhstan, Uzbekistan, Turkmenistan (Reshetnikov 2003), Poland (Antichowicz 1994), Slovenia (Kautman 1999), Ukraine (Moshu & Guzun 2002), Hungary (Harka 1998), Italy (Edgar & Bird 2005), Serbia (Šipoš et al. 2004), Bulgaria (Jurajda et al. 2006).

First record of *Perccottus glenii* in Romania was in 2001, in the Suceava River, near Dornești (Nalbant et al. 2004). It has since been found in the Danube River, near Drobeta-Turnu Severin, in 2005 (Popa et al. 2006) and also in the Danube Delta in the Șontea-Fortuna lake complex in 2007, the Roșu-Puiu lake complex in 2008 (Năstase 2009a, Năstase 2009b), the Somova-Parceș and Meleaua Musura lake complex in 2009 (Oțel, Tulcea, pers. comm. 2010).

On the 24th of November 2009, 2 specimens of *Perccottus glenii* (Fig. 1) were caught in the Silvia Canal (a canal that drains water from the Mureş River into the Aranca River – Fig. 2) near the town of Sinnicolau Mare (46°04'58"N / 20°39'26"E), using a crayfish mesh trap. Both specimens were preserved in 90% alcohol and deposited in the collec-

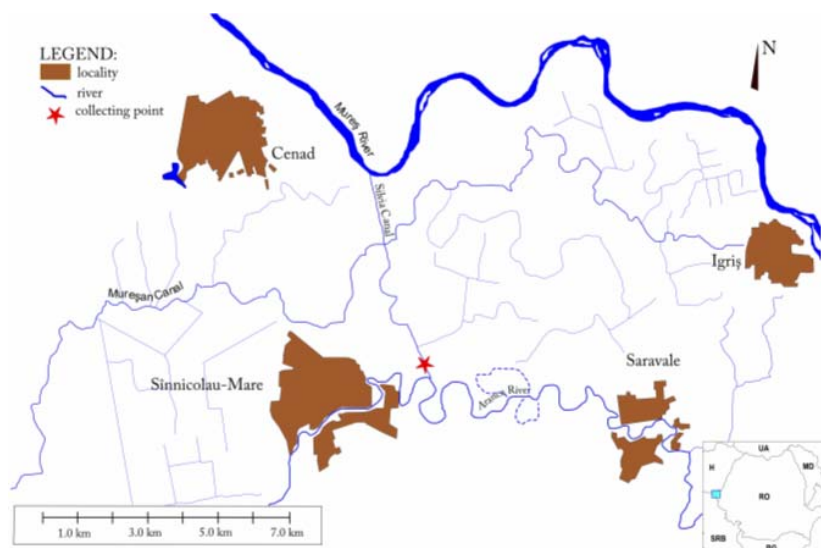


Figure 3. Map of the area where the 2 specimens of *Perccottus glenii* were collected.



Figure 1. The Amur sleeper (*Percottus glenii*) photographed by the authors (in aquarium).



Figure 2. The habitat in which *Percottus glenii* was collected.

tion of the Faculty of Chemistry, Biology and Geography, West University of Timișoara. The specimens measured a total length of 70.08 mm and respectively 72.40 mm. The dissection revealed that both specimens were females.

The habitat (Fig. 3) is a typical lowland drainage canal with rich vegetation (*Typha angustifolia*, *Typha latifolia*, *Phragmites australis*, *Potamogeton natans*, *Potamogeton crispus*, *Ceratophyllum submersum*, *Lemna sp*) and a muddy substrate. The average depth of the canal is 80 cm and the overall width is 3.5 m.

Considering the negative impact that the species has on the local fauna we present the fish species along which *P. glenii* appears: *Misgurnus fossilis*, *Cobitis elongatoides*, *Neogobius gymnotrachelus*, *Cyprinus carpio*, *Alburnus alburnus*, *Rhodeus amarus*, *Rutilus rutilus*, *Scardinius erythrophthalmus*, *Esox lucius*, *Carassius gibelio*, *Lepomis gibbosus*, *Ameiurus nebulosus*. The amphibian species that are also found together with *P. glenii* are *Rana ridibunda*, *Bombina bombina*, *Triturus vulgaris*.

This is the fourth occurrence of the Amur sleeper in Romania and the first one in the Romanian Mureș hydrographic basin. The collected specimens possibly originate from nearby Hungarian or Serbian populations from the Tisa river, spreading easily through the maze of irrigation and drainage canals that are very common in the pannonic steppes and marshes. This is the only possibility for the species to enter the area. Because the area in which the species has been collected is in the range of the Mureș Floodplain Natural Park, we recommend including the species in monitoring plans as a management measure for the conservation of protected species.

Acknowledgements. The authors wish to thank PhD. Vasile Oțel at the Danube Delta Research Institute for his help in identifying the species.

References

- Antichowicz, J. (1994): *Percottus glenii* in our waters. *Komunikaty rybackie* 2: 21-22. [in Polish]
- Berg, L.S. (1949): *Ryby presnyh vod SSSR I soprodelnyh stran*. Moskva - Leningrad, Akademii Nauk SSSR III, 929-1382. [In Russian].
- Bogutskaya, N., Naseka, A.M. (2002): Synopsis of nonindigenous *Percottus glenii* with bibliography. *Freshwater Fishes of Russia Zoological Institute RAS*.
- Edgar, P., Bird, D.R. (2005): Action Plan for the Conservation of the Italian Agile Frog (*Rana latatesti*) in Europe. Presented at Convention on the Conservation of European Wildlife and Natural Habitats, 25th meeting, Strasbourg.
- Grabowska, J., Grabowski, M., Pietraszewski, D., Gmur, J. (2009): Non-selective predator - the versatile diet of Amur sleeper (*Percottus glenii* Dybowski, 1877) in the Vistula River (Poland), a newly invaded ecosystem. *Journal of Applied Ichthyology* 25: 451-459.
- Harka, A. (1998): New fish species in the fauna of Hungary: *Percottus glenii* Dybowski, 1877. *Halaszat* 91: 32-33. [in Hungarian]
- Hegediš, A., Lenhardt, M., Mičković, B., Cvijanović, G., Jarić, I., Gačić, Z. (2007): Amur sleeper (*Percottus glenii* Dybowski, 1877) spreading in the Danube River Basin. *Journal of Applied Ichthyology* 23 (6): 705-706.
- Jurajda, P., Vassilev, M., Poláčik, M., Trichkova, T. (2006): A First Record of *Percottus glenii* (Perciformes: Odontobutidae) in the Danube River in Bulgaria. *Acta Zoologica Bulgarica* 58: 279-282.
- Kautman, J. (1999): *Percottus glenii* Dybowski, 1877 from Eastern Slovakian water bodies. *Chranene uzemia Slovenska, SAIP Banska Bystrica* 40: 20-22. [in Slovak]
- Kottelat, M., Freyhof, J. (2007): *Handbook of European Freshwater Fishes*. Kottelat, Cornol and Freyhof, Berlin, xiv + 646 pp.
- Kocco, J., Lusk, S., Halacka, K., Luskova, V. (2003): The expansion and occurrence of the Amur sleeper (*Percottus glenii*) in eastern Slovakia. *Folia Zoologica* 52 (3): 329-336.
- Moshu, A., Guzun, A. (2002): The first discovery of rotan *Percottus glenii* (Perciformes, Odontobutidae) in Dniester River. *Vestnik Zoologii* 36: 98. [in Russian]
- Nalbant, T., Battes, K.W., Pricope, F., Ureche, D. (2004): First record of the Amur sleeper *Percottus glenii* (Pisces: Odontobutidae) in Romania. *Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa"* 47: 279-284.
- Năstase, A. (2009a): First record of Amur sleeper *Percottus glenii* (Perciformes, Odontobutidae) in the Danube Delta (Dobrogea, Romania). *Acta Ichthyologica Romanica* II: 167-174.
- Năstase, A. (2009b): Cercetări asupra diversității ihtiofaunei din Delta Dunării pentru exploatarea durabilă a resurselor piscicole. Doctoral Thesis, Universitatea "Dunărea de Jos", Galați, Romania. [in Romanian]
- Popa, L.O., Popa, O., Pisciă, E., Iftime, A., Matacă, S., Diaconu, F., Murariu D. (2006): The first record of *Percottus glenii* Dybowski, 1877 (Pisces: Odontobutidae) and *Ameiurus melas* Rafinesque, 1820 (Pisces: Ictaluridae) from the Romanian sector of the Danube. *Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa"* 49: 323-329.
- Reshetnikov, A.N. (2003): The introduced fish, rotan (*Percottus glenii*), depresses populations of aquatic animals (macroinvertebrates, amphibians and a fish). *Hydrobiologia* 510 (1-3): 83-90.
- Reshetnikov, A.N., Manteifel Yu, B. (1997): Newt - fish interactions in Moscow province: a new predatory fish colonizer, *Percottus glenii*, transforms metapopulations of newts, *Triturus vulgaris* and *T. cristatus*. *Advances in Amphibian Research in the Former Soviet Union* 2: 1-12.
- Šipoš, S., Anović, B.M., Pelčić, L.J. (2004): The first record of Amur sleeper (*Percottus glenii* Dybowski, 1877, fam. Odontobutidae) in Danube River. *International Association for Danube Research* 35: 509-510.
- Spanovskaya, V.D., Savvaitova, K.A., Potapova, T.L., (1964): Ob izmenchivosti rotana (*Percottus glenii* Dyb. fam. Eleotridae) pri akklimatizatsii. *Voprosy Ikhtologii* 4: 632-643. [in Russian].