

Short communication

First record of the invasive Ponto-Caspian tubenose goby *Proterorhinus marmoratus* (Pallas, 1814) from the River Pripyat, Belarus

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Abstract

The invasive Ponto-Caspian gobiid fish *Proterorhinus marmoratus* has been recorded in August 2007 for the first time in the upper and middle sections of the River Pripyat (Republic of Belarus), a principal invasion corridor of European inland waters. This species was found mainly in river oxbows characterized by depths of 0.3–1.0 m, aquatic vegetation and muddy substrata. Tubenose goby invasion of the River Pripyat basin was via reservoirs on the River Dnieper, which was invaded by the species during the late-1970s.

Key words: alien species, gobiids, distribution, invasion corridor

The inland waters of Belarus have been previously invaded by three Ponto-Caspian gobiid fish species: *Neogobius melanostomus* (Pallas, 1814), *Neogobius fluviatilis* (Pallas, 1814) and *Neogobius gymnotrachelus* (Kessler, 1857). These Ponto-Caspian species invaded the River Pripyat River basin (Vorontzov 1937, Gulugin and Kunitsky 1999) via the Ukrainian part of the River Dnieper, with the two latter species spreading along this river basin to the rivers Bug and Vistula via the Bug-Pripyat canal (Kostrzewa and Grabowski 2003). This invasion corridor (Figure 1) is now being used by the tubenose goby *Proterorhinus marmoratus* (Pallas, 1814) (Figure 2), which was recorded for the first time in August 2007 during a biological survey of five locations along the upper and middle parts of the River Pripyat (Figure 1). In total, 30 specimens were captured using hand nets in the littoral zone of the river oxbows. The capture locations were characterized by lentic waters of 0.5–1.0 m depth, with dense aquatic vegetation and muddy substrata. At the time of

capture, water temperatures were 24–26°C and oxygen concentrations were 4.2–6.0 mg L⁻¹. The numbers of tubenose goby captured varied between locations (Figure 1), which may reflect differences in the local character of the study sites.

Prior to its recent expansion (reviewed in Copp et al. 2005), tubenose goby occupied the fresh, brackish and salt waters of the basins of the Black, Caspian and Azov Seas, widely distributed along all of the coasts in small bays, lagoons and coastal ponds with underwater plants (Miller 2003, Naseka et al. 2005). After the opening of the Rhine-Main-Danube waterway in 1992, tubenose goby moved across from the Danube basin and began to colonize the rivers Main and Rhine, especially the lentic or slightly lotic areas (Von Landwüst 2006). A rapid expansion of tubenose goby in a system of lowland reservoirs and adjacent rivers in the south-east of the Danube River basin has also been reported (Prasek and Jurajda 2005). Similar to the case of the River Danube (Wiesner 2005),



Figure 1. Map of Belarus with sites on the Pripjat River where tubenose goby *Proterorhinus marmoratus* were collected 12–15 August 2007 (see also Annex). Arrow indicates the Bug-Pripjat canal.



Figure 2. Male tubenose goby *Proterorhinus marmoratus* (45 mm total length), caught on 9 August 2007 at site 1 in Figure 1 (Photograph by V. Rizevsky).

inland water shipping is a most likely pathway of tubenose goby invasion of the River Pripjat, with the Kiev Reservoir as the likely donor area. The records of tubenose goby in upper part of the River Prypyat, along with high rate of its spread, suggest that this species will subsequently invade the rivers Bug and Vistula Rivers (Poland) via the Bug-Pripjat canal (Figure 1).

Supplementary material

The following supplementary material is available for this article:

Annex. Records of *Proterorhinus marmoratus* in Pripjat River, Belarus in 2007.

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References

- Copp GH, Bianco PG, Bogutskaya N, Erős T, Falka I, Ferreira MT, Fox MG, Freyhof J, Gozlan RE, Grabowska J, Kováč V, Moreno-Amich R, Naseka AM, Peňáz M, Povž M, Przybylski M, Robillard M, Russell IC, Stakėnas S, Šumer S, Vila-Gispert A and Wiesner C (2005) To be, or not to be, a non-native freshwater fish? *Journal of Applied Ichthyology* 21: 242-262, <http://dx.doi.org/10.1111/j.1439-0426.2005.00690.x>
- Gulugin SY and Kunitsky DF (1999) New data on spread genus *Neogobius*: *N. fluviatilis*, *N. melanostomus*, *N. gymnotrachelus*. Thesis of International Scientific Conference, Kaliningrad, Vol.1, p 5
- Kostrzewa J and Grabowski M (2003) Opportunistic feeding strategy as a factor promoting the expansion of racer goby (*Neogobius gymnotrachelus* Kessler, 1857) in the Vistula basin. *Lauterbornia* 48: 91–100
- Miller PJ (2003) The Freshwater Fishes of Europe. Vol. 8/I Mugilidae, Atherinidae, Atherionopsidae, Blennidae, Odontobutidae, Gobiidae 1. Vol. 8/II Gobiidae 2. AULA-Verlag
- Naseka AM, Boldyrev VS, Bogutskaya NG and Delitsyn VV (2005) New data on the historical and expanded range of *Proterorhinus marmoratus* (Pallas, 1814) (Teleostei: Gobiidae) in eastern Europe. *Journal of Applied Ichthyology* 21: 300-305, <http://dx.doi.org/10.1111/j.1439-0426.2005.00685.x>
- Prasek V and Jurajda P (2005) Expansion of *Proterorhinus marmoratus* in the Morava River basin (Czech Republic, Danube R. watershed). *Folia Zoologica* 54 (1-2): 189-192
- Von Landwust C (2006) Expansion of *Proterorhinus marmoratus* (Teleostei, Gobiidae) into the River Moselle (Germany). *Folia Zoologica* 55: 107-111
- Vorontzov EM (1937) Composition ichthyofauna of waterbodies of West region and BSSR, and characterization of ichthyofauna upper part Dnieper River basin. *Fauna and Ecology, Smolensk* 3: 59-86
- Wiesner C (2005) New records of non-indigenous gobies (*Neogobius* spp.) in the Austrian Danube. *Journal of Applied Ichthyology* 21: 324-327, <http://dx.doi.org/10.1111/j.1439-0426.2005.00681.x>

Annex. Records of *Proterorhinus marmoratus* in Pripyat River, Belarus in 2007.

Site no (Map Ref.)	Location	Record coordinates		Date of record	Biotope	Number of collected speci-mens	Collector
		Latitude, °N	Longitude, °E				
1	Pripyat River, near Pinsk	52°02.993'	26°09.818'	9 August 2007	Oxbow (1.0 m depth) with dense aquatic vegetation and muddy bottom	10	A. Leschenko M. Pluta
2	Pripyat River	52°09.481'	27°20.328'	11 August 2007	Littoral zone of river (0.7 m depth) with dense aquatic vegetation and peaty bottom	17	A. Leschenko M. Pluta
3	Pripyat River, Mykashevich y	52° 06.620'	26° 06.267'	12 August 2007	Littoral zone of canal (0.5 m depth) with rare aquatic vegetation and sandy bottom	1	M. Pluta
4	Pripyat River	52°11.731'	27°23.049'	13 August 2007	Littoral zone of river(0.5 m depth) with rare aquatic vegetation and silty bottom	1	A. Leschenko M. Pluta
5	Pripyat River, Petrikov	52°06.533'	28°32.716'	15 August 2007	Oxbow (0.4 m depth)) with rare aquatic vegetation and silty bottom	1	M. Pluta