

Topmouth gudgeon *Pseudorasbora parva*: a side effect of fish stocking

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Abstract. The topmouth gudgeon *Pseudorasbora parva* is an eastern-Asian cyprinid species, which in relatively short time has colonised nearly the whole Europe. In some regions it has become a notable reproduction success and significantly disrupted native ecosystems. Such a fast expansion is most probably caused by uncontrolled transfers of stocking fish, mainly Asian carps, i.e., *Ctenopharyngodon idella*, and *Hypophthalmichthys* spp. The case of *P. parva* invasion demonstrates the risk of translocations of fish, as well as urgent need of more caution and prevention in order to avoid further such unexpected guests.

Key Words: alien species, biodiversity, introductions, invasive species, *Pseudorasbora parva*.

Streszczenie. Czubaczek amurski *Pseudorasbora parva* jest wschodnioazjatycką rybą karpiowatą, która w relatywnie krótkim czasie skolonizowała niemal całą Europę, lokalnie odnosząc niebywały sukces reprodукcyjny i istotnie zaburzając funkcjonowanie autochtonicznych ekosystemów. Najprawdopodobniej ekspansja tego gatunku została spowodowana niekontrolowanymi translokacjami ryb hodowlanych, głównie ciepłolubnych ryb azjatyckich, amura białego *Ctenopharyngodon idella* oraz tołpyg *Hypophthalmichthys* spp. Przykład inwazji *P. parva* uzmysławia potrzebę większej ostrożności przy jakimkolwiek przemieszczaniu materiału zarybieniowego i zagrożenia, jakie może to spowodować.

Słowa kluczowe: bioróżnorodność, gatunki inwazyjne, gatunki obce, introdukcje, *Pseudorasbora parva*.

Short Communication. The topmouth gudgeon (or stone moroko) *Pseudorasbora parva* (Temminck et Schlegel, 1842) is a small cyprinid fish, belonging to the subfamily Gobioninae (Nowak et al 2008a). Its native distribution range consists of the drainage areas of Amur, Yang-tze and Huang-ho Rivers, Japanese islands, western and southern parts of the Korean Peninsula and Taiwan (Bănărescu 1964; Witkowski 2006). The fish reaches up to 110 mm in total length, whereas most specimens do not exceed 90 mm and 20 g in body mass (Witkowski 2006).

In Europe *P. parva* was recorded for the first time in 1961 in southern Romania, namely in the fish farm Nucet within the Dâmbovița River system (Bănărescu 1964; Witkowski 2006; Gavriloiae & Falka 2006; Gavriloiae et al 2008). It is considered that the species has reached that country somehow earlier, as it has already been well established in the 1960s. Since that time, *P. parva* has been found in a number of European countries (Witkowski 2006). Among other countries, it was recorded in Poland in 1990, and as in the case of Romania, it is thought to be introduced earlier, in the 1980s (Witkowski 1991; Nowak et al 2008b). Appearance of *P. parva* in that country was connected with import of stocking material of carp *Cyprinus carpio* L. from Hungary, when it has spread together with young herbivorous fishes, i.e., grass carp *Ctenopharyngodon idella* (Valenciennes, 1844), silver carp *Hypophthalmichthys molitrix* (Valenciennes, 1844), and bighead carp *Hypophthalmichthys nobilis* (Richardson, 1845) (Witkowski 1991, 2006; Nowak et al 2008b).

In the places where *P. parva* has established and formed self-sustaining populations it may seriously affect native ecosystems. The species concur with native cyprinids for the feeding resources and became a significant element of the piscivorous fauna diet (e.g., Musil & Adámek 2007; Kapusta et al 2008). Moreover, it is thought a host of a dangerous pathogen (Gozlan et al 2005).



Figure 1. *Pseudorasbora parva*, cca. 65 mm SL, Stracha River, Poland
(photo by P. Szczerbik, in 2009).

Such a fast spreading, since its first record in the early 1960s in Romania to nearly all the European countries in the end of the 20th century, cannot be only due to natural dispersion from an initial locality (Witkowski 2006; Gavriloie & Falka 2006). The second way of arrival to many new places were unambiguously transfers of stocking fish, especially the mentioned already Asian herbivorous carps, but also of common carp *Cyprinus carpio* Linnaeus, 1758 (Witkowski 1991, 2006, 2009; Gavriloie & Falka 2006). Moreover, an additional way of dispersion should not be skipped, that is, usage of *P. parva* as a bait fish by anglers, connected with a common practice of releasing unnecessary baits into new water bodies (Witkowski 2006, 2009).

The second way of the present above seems especially important for at least two main reasons. First, it makes possible fast transfer on a long distance, as clearly shows the case of import of common carp material from Hungary to Poland in the 1980s (Witkowski 1991). Next, the small size of the body of *P. parva* significantly facilitates it being an admixture to stocking material, and makes division it from the young carps hardly possible (Nowak & Szczerbik, pers. observ.).

Thus, the case of the invasion of *P. parva* into European water bodies explicitly shows the danger of uncontrolled transfers of stocking material within and among the countries. A special care should be put on the process of checking the material to be despatched in order to prevent any admixtures of unwanted species. Over all, it seems that transfer of fish should be avoided as much as only it is possible (Nowak et al 2008b).

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