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# A comment on the Siberian, *Acipenser baerii*, and Russian, *Acipenser gueldenstaedtii*, sturgeons

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**Synopsis**

Contrary to the opinion of Kynard et al. (2002), the Siberian sturgeon, *Acipenser baerii*, does not belong to the Ponto-Caspian species. It inhabits Siberian rivers and Lake Baikal. *Acipenser baerii* is a typical potamodromous species and the comparison of the behavior of its embryos and larvae with those of the anadromous Russian sturgeon, *Acipenser gueldenstaedtii*, should be done with understanding that these species have different life histories. The statement by Kynard et al. (2002) that larvae of the Russian sturgeon 'do not migrate' contradicts results of previous studies.

We were surprised to find that Kynard et al. (2002) report that the Siberian sturgeon, *Acipenser baerii*, does not inhabit Siberia (Asia), but 'the Ponto–Caspian region' (p. 412) and belongs to 'the Ponto–Caspian species' (p. 419). This statement was repeated several times throughout the publication. We feel that this mistake must be corrected because of the confusion that it could create.

As described in a review of *A. baerii* by one of us (Ruban 1997), this species lives in Siberian rivers (Ob, Yenisei, Lena, Yana, Indigirka, Kolyma, and several smaller rivers) and in Lake Baikal, but not in the Ponto–Caspian region. We have performed extensive studies on the morphology of this species (Ruban 1999a,b), as well as compared different populations using molecular methods (Doukakis et al. 1999). The Siberian sturgeon does not belong to the Ponto–Caspian species – a group of sturgeon species that basically consists of the anadromous Russian sturgeon, *Acipenser gueldenstaedtii*, stellate sturgeon, *Acipenser stellatus*, ship sturgeon, *Acipenser nudiventris*, and the beluga, *Huso huso*, as well as the fresh-water or potamodromous (in terms of Myers 1949, Bemis & Kynard 1997, Pavlov et al. 2001) species, the sterlet *Acipenser ruthenus.* It is true that phylogenetically *A. baerii* is closely related to *A. gueldenstaedtii* (Birstein & DeSalle 1998, Birstein et al. 2002), and, possibly, originated from an ancestral form of the latter species (Birstein et al. 2000).

From the results of recent studies it is clear that we still know very little about the genetic structure of *A. gueldenstaedtii* (Birstein et al. 2000, Jenneckens et al. 2000, Birstein & Doukakis 2001). According to mitochondrial DNA data, the Caspian Sea population of this species consists of at least three genetic forms: the *gueldenstaedtii*-like or 'typical' *A. gueldenstaedtii*, the *baerii*-like form (up to 30% of the population), and the *naccarii*-like form. Potentially, each of these genetic forms could have its own 'ontogenetic behavior' and, therefore, it is necessary to identify what particular genetic form has been used in behavior experiments.

Also, in our opinion *A. baerii* is not an anadromous species as stated in Bemis & Kynard (1997) and Kynard et al. (2002). The Siberian sturgeon is a typical potamodromous species like the North American lake sturgeon, *Acipenser fulvescens*. Therefore, the comparison of the behavior of embryos and larvae of *A. gueldenstaedtii* and *A. baerii* should be done with clear understanding that these two species have different life histories.

The statement by Kynard et al. (2002) that larvae of the Russian sturgeon 'do not migrate' (p. 418) contradicts results of previous studies. Apparently, they tried to extrapolate their experimental data to natural conditions. However, in a detailed monograph Pavlov et al. (1981) described the speed of the downstream migration of the larvae of *A. gueldenstaedtii* in the Volga River as 80–90% of the speed of the water flow. The difference between the conclusions made by Kynard et al. (2002) on the basis of their experimental results and the situation in the Volga River is probably due to the difference in feeding in the experiments and in the wild. In the Volga River, the speed of the downstream migration of larvae and juveniles of all three anadromous species, *A. gueldenstaedtii*, *A. stellatus*, and *H. huso*, depends on their swimming ability which varies directly with feeding (Khodorevskaya 2002). When fed poorly, larvae and juveniles of the three species are carried along with the river current and thus their migration in the Volga River occurs quickly. During their experiments, Kynard et al. (2002) fed the larvae five times a day. Therefore, the larvae were well fed and their swimming ability was high. As a result, the larvae could withstand the water flow. So, the conditions created by Kynard et al. (2002) in their experiments differed considerably from those existing in the Volga River and the authors' results would not necessarily relate directly to the natural conditions.

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