On the taxonomic relationship between *Theodoxus pallasi* and *T. astrachanicus* (Gastropoda: Neritidae) from the Ponto-Caspian region

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Abstract. Observations on the morphological variability of *Theodoxus pallasi* Lindholm, 1924 and *T. astrachanicus* Starobogatov in Starobogatov, Filchakov, Antonoova & Pirogov, 1994 from the Caspian Sea and the Sea of Azov populations reveal their close similarity. Statistical analyses of the morphometrics of shells, opercula, and radulae show very similar ranges of their measured parameters in all populations involved. No clear morphological distinction between individuals of these 2 nominal species was discovered. Data presented here support the hypothesis that these taxa are conspecific and should be considered as local morphotypes of a single species. Based on the principal of priority, the species should be named *T. pallasi*.

Key words. Caspian Sea, Sea of Azov, shell morphology, operculum, radula, taxonomic position, neritids.

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Introduction

Species of the gastropod genus *Theodoxus* Montfort, 1810 that inhabit the Ponto-Caspian basin (encompassing the Caspian, Aral, Azov, and Black seas) have puzzled taxonomists for a very long time (e.g. EICHWALD 1838, LINDHOLM 1924, ZHADIN 1952, STAROBOGATOV 1970, ANISTRATENKO et al. 1999, ZETTLER 2007). As early as the late 1700s, a Caspian neritid was mentioned by PALLAS (1771) under the name *Nerita pupa*. At present this species is attributed to the genus *Theodoxus* but as *T. pallasi* Lindholm, 1924. A century after Pallas a second species of *Theodoxus*, with a different shell shape, was recorded by O.A. GRIMM (1877) and named *Neritina schultzii*. Finally, STAROBOGATOV et al. (1994) described *T. astrachanicus* Starobogatov in STAROBOGATOV, FILCHAKOV, ANTONOVA & PIROGOV, 1994 from the Volga delta, increasing the number of Caspian *Theodoxus* species to 3. Subsequently, this last-named species was reported from several locations in the Utlyuk Liman, a bay in the northwestern part of the Sea of Azov (KHALIMAN et al. 2006, ANISTRATENKO et al. 2011).

For a clearer understanding of biodiversity and changes in the environment that usually trigger local biodiversity crises, we need to review the species composition and distribution at least of the most abundant mollusc taxa in the basin. The genus *Theodoxus*, whose representatives inhabit the whole Caspian Sea from the shore to depths of 100 m, is one of these taxa.

*Theodoxus schultzii* (Grimm, 1877) is one of the rarest gastropod species of the Caspian Sea. According to the literature, it inhabits the comparatively deep zone (20–100 m) in the middle and southern sectors of the sea (Grimm 1877, Kolesnikov 1947, Logvinenko & Starobogatov [1969]¹, Karpinsky 2002). Due to the scarcity of recently collected material this species is here excluded from consideration. *Theodoxus schultzii* has recently been reviewed and clear descriptions of its shell, operculum, and radula were published (ZETTLER 2007).

In the present communication, we focus only on neritids from the shallow waters of the Caspian Sea and from the Sea of Azov. This study describes the morphological variability of the shell, operculum, and radula of snails attributed to *T. pallasi* and *T. astrachanicus*. These data should resolve the core question—are there stable differences between snails attributed to these 2 species or are they conspecific?

¹The stated year of publication is 1968, but this work was actually published in March or April 1969 according to a written communication of Ya. Starobogatov to A. Kabat dated 25-xi-1993. It is listed in the Zoological Record for 1969 (vol. 106, section 9: 44; London 1972) with the date 1968 (D. Kadolsky, pers. comm.).