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Bithynia shapkarevi n.sp., a new species from Prespa Lake, R. Macedonia (Gastropoda: Bithyniidae)

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Abstract
From Macedonia only *Bithynia prespensis* Hadžišče, 1963 is known so far. Recent investigations in Prespa Lake revealed a new *Bithynia* species, *Bithynia shapkarevi* n. sp. which is described here. Holotype and a paratype in addition to the penis morphology are depicted. The new *Bithynia* species has been compared with all known *Bithynia* spp. from the surrounding countries.

Key words: Macedonia, new description, *Bithynia shapkarevi* n. sp., Prespa Lake.

Introduction

The highest species richness of the Bithyniidae can be found in Greece with seven *Bithynia* spp. and nine *Pseudobithynia* spp. (Glöer *et al*. 2010). From Bulgaria only two *Bithynia* spp. are known, i.e. *Bithynia tentaculata* (Linnaeaus, 1758) and *B. danubialis* Glöer & Georgiev, 2012 (Georgiev & Hubenov 2013), in addition to an uncertain record of *Bithynia leachi* (Angelov 2000: 15). From Serbia *B. tentaculata* is known, in addition to uncertain records of *B. leachii* (Sheppard, 1823) and the two species *Bithynia schwabii* (Frauenfeld, 1865), and *Bithynia walderdorffii* (Frauenfeld, 1865), both of unclear taxonomical status (Bank 2011). From Montenegro four *Bithynia* spp. are known (Glöer & Pešić 2007) and from Albania only *B. tentaculata* from the region of Skadar Lake has been mentioned (Dhora & Welter-Schultes 1996).

From Macedonia only *Bithynia leachii* (Sheppard, 1823) has been reported (Bank 2011) which has possibly been confused with *Bithynia prespensis* Hadžišče, 1963, both are of the same size and have swollen whorls, however, the southernmost records of *B. leachii* are known from Hungary (Glöer & Georgiev 2012). Recent investigations in Prespa Lake revealed a second *Bithynia* species, distinct from *B. prespensis* and new for science.

This paper is intended to (i) expand the knowledge about the biodiversity of Macedonia and (ii) to describe the new *Bithynia* species mentioned above.

Material and Methods

The specimens of new species were collected from Macedonian part of the Prespa Lake, near village Asamati, from 4 m depth (Fig. 1). Bottom samples were taken with an Ekman's grab (225 cm^2) and preserved in 75% ethanol.

The dissections and measurements of the genital organs and the shells were carried out using a stereo microscope (Zeiss), the photographs were made with a Leica digital camera system. The type material is stored in the Zoological Museum of Hamburg (ZMH). The species has been compared with all known Bithyniidae of the surrounding countries.

Figure 1. Map of the study area with the sampling site of *Bithynia shapkarevi* n. sp.

Systematics

Family Bithyniidae Gray, 1857

Genus *Bithynia* Leach, 1818

Type species: *Bithynia tentaculata* (Linnaeus, 1758)

Bithynia shapkarevi n. sp.

(Figs. 2-6)

Holotype: shell height 4.8 mm, width 3.3 mm. 26.03.2010 I. Shoreva leg., ZMH 79896.

Paratypes: 1 specimen, ZMH 79897, 1 specimen coll. Slavevska-Stamenković, 1 specimen coll. Glöer, 2 specimens destroyed by dissection.

Locus typicus: R. Macedonia, Prespa Lake near village Asamati, 40°59' 23" N, 21°02' 21" E, 842 m alt.

Etymology: Named in memory of Prof dr Jonče Šapkarev, in appreciation of his significant contribution for zoological science in R. Macedonia.

Description

Shell. The light yellowish to horn-coloured conical shell is glossy, the surface is finely striated. The 4.5 whorls are slightly convex with a clear visible but not deep suture (Figs. 2-3), umbilicus closed, the aperture height takes 0.5 of the shell height. The females are as large as the males, thus a sexual dimorphism is not visible. The operculum is oval. Shell height 4.5-4.8 mm, width 3.2-3.3 mm. All shells have been covered with a thin layer of chalk.

Soft body. The mantle is light with reticular dark patterns. The head is grey with a whitish snout.

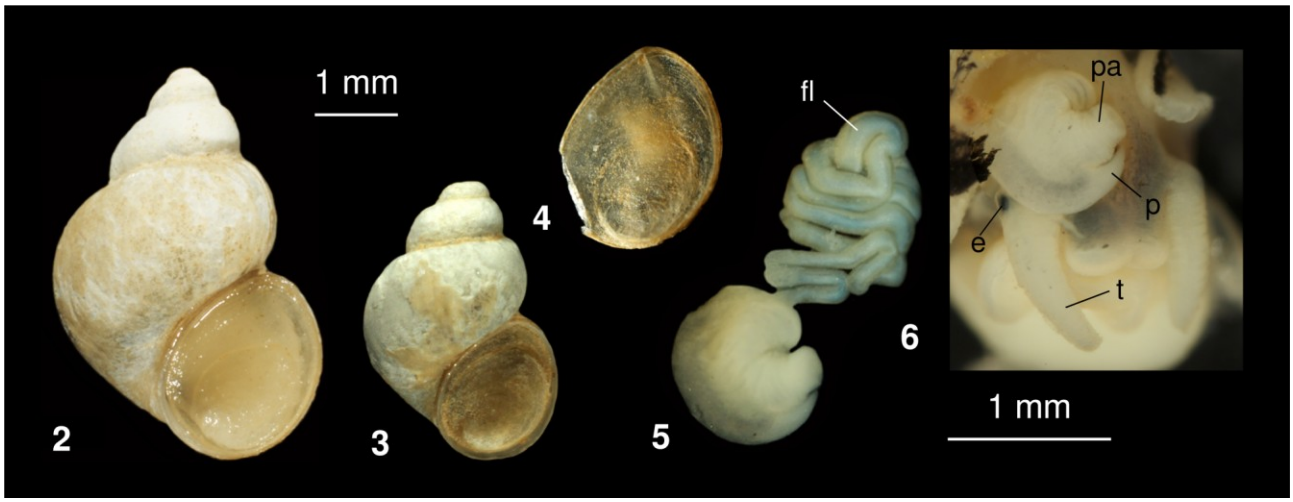

Figure 2-6. *Bithynia shapkarevi* n.sp. **2**: shell of adult (holotype), **3**: shell of juv. (paratype), **4**: operculum, **5**: penis with flagellum (tubular gland) from paratype, **6**: head with penis in situ (paratype). Abbreviations: e = eye spot, fl = flagellum, p = penis, Pa = penial appendix, t = tentacle.

Morphology of the penis. Penis and penial appendix are very short. The distal part of the penis is as long as the penial appendix (figs 5, 6), the flagellum is long (Fig. 4).

Differentiating features: Penis, flagellum and operculum are similar to *Bithynia prespensis*, but the whorls are less convex as in *B. prespensis*, sutures less deep and no sexual dimorphism as found in *B. prespensis*. There is no *Bithynia* species known in the Balkan which has such a short distal part of the penis than the species from Prespa Lake.

Habitat and ecology: The new species was found from the shallower part of the lake (4 m depth), among sand and silt bottom sediment from the type locality.

Associated gastropods: *Valvata (Cincinna) piscinalis* O.F. Müller, 1774, *Pyrgohydrobia (Prespopyrgula) prespaensis* (Urbanski, 1939), *Planorbarius corneus corneus* (Linnaeus, 1758).

Figure 7. Photo of the type locality (Prespa Lake, near village Asamati) of *Bithynia shapkarevi* n.sp. Photo. I. Shoreva.

Distribution: Republic of Macedonia, only known from the type locality (Fig. 7), possibly a local endemic species.

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