

A record of *Bythinella* cf. *opaca* (Gallenstein 1848) (Gastropoda: Prosobranchia: Hydrobiidae) in Bulgaria

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Specimens of *Bythinella* cf. *opaca* were collected from a stream in Sredna Gora Mts. (West Bulgaria) on 24 Nov 2007 and 17 April 2008. The locality was situated west from village of Djulevo, close to Streltchenska Luda Yana River, UTM-grid: KH80, GPS coordinates: 42°27'15.6" N, 24°20'27.1" E, 393 m a.s.l. We determined the species considering the male genital system structure, but the shell morphology also was looked upon. It was the first record of such species in Bulgaria. After this report the Bulgarian *Bythinella* species rose to 3: *B. austriaca*, *B. hansboetersi* and *B. cf. opaca*. According to the fact that the species *B. austriaca* previously recorded in the country was not studied anatomically we consider its occurrence here as not proved.

Key words: *Bythinella*, Balkans, new locality

Introduction

From Bulgaria, two species of *Bythinella* Moquin-Tanton 1855 were known till now. The species *Bythinella austriaca* (Frauenfeld 1856) was reported from the mountains mainly in the west of the country (Western Rhodopes, Rila, Vitosha, Sredna Gora, and Stara Planina Mts.) (ANGELOV 1960, 2000). The recorded specimens were determined on the base of shell morphology (ANGELOV 1960). *B. austriaca* was reported and for Sarnena Gora Mts. by GEORGIEV (2005) but this record refers to a *Belgrandiella* Wagner 1927 – species. The other Bulgarian species is probably endemic, and was recently described from the spring of river Cherni Osam (Central Stara Planina Mts.) and named *Bythinella hansboetersi* GLÖER & PEŠIĆ (2006).

Considering the literature there is and another, relatively widely distributed species in south-east Europe – *Bythinella opaca* (GALLENSTEIN 1848) reported from the neighbouring Serbia (RADOMAN 1976) and Turkey (YILDRIM 2006) which occurrence in Bulgaria was expected. Here we report the first finding of specimens having similar shell morphology and male genital system in the country.

Material and methods

Specimens of *Bythinella* were collected by hand from a stream in Sredna Gora Mts. (West Bulgaria) on 24 Nov 2007 and 17 April 2008. It was studied under a microscope and determined on the base of anatomical specifications of the male genitalia according GLÖER & PEŠIĆ (2006) and HAASE et al. (2007). Also as a supporting sign the shell morphology was considered according the same authors,

and also using the published collection of Prof. Radoman (JOVANOVIĆ 1991). Measurements were taken using a caliper. The material of 19 shells (17 adult, 2 juvenile) and 20 adult specimens preserved in 75% alcohol (4 male individuals were dissected) was deposited in the collection of the first author.

Results

Locality (Fig. 1): Sredna Gora Mts., west from village of Djulevo, south of Streltcha town, close to Streltchenska Luda Yana River, in a stream flowing into it with a small pond near to its spring (the gastropods were found only in the running water), UTM-grid: KH80, GPS coordinates: 42°27'15.6" N, 24°20'27.1" E, 393 m a.s.l.

Habitat (Fig. 2): a small stream, flowing from beneath of a limestone hill and passing a volcanic rock, an influx of a medium sized river (Streltchenska Luda Yana). The stream was surrounded by a forest of *Carpinus orientalis* and *Quercus* sp.

Shell morphology and dimensions (Fig. 3): Despite the shell morphology is not considered as a sure indicator for species identification, our shells were very similar to those of *B. opaca* published by JOVANOVIĆ (1991), GLÖER & PEŠIĆ (2006), and HAASE et al. (2007). They were elongated, with approximately 4 whorls, and well defined suture.

The shell height and width were measured in eight best preserved shells (Table 1). These shell dimensions were fit with the size variations of the species estimated by HAASE et al. (2007).

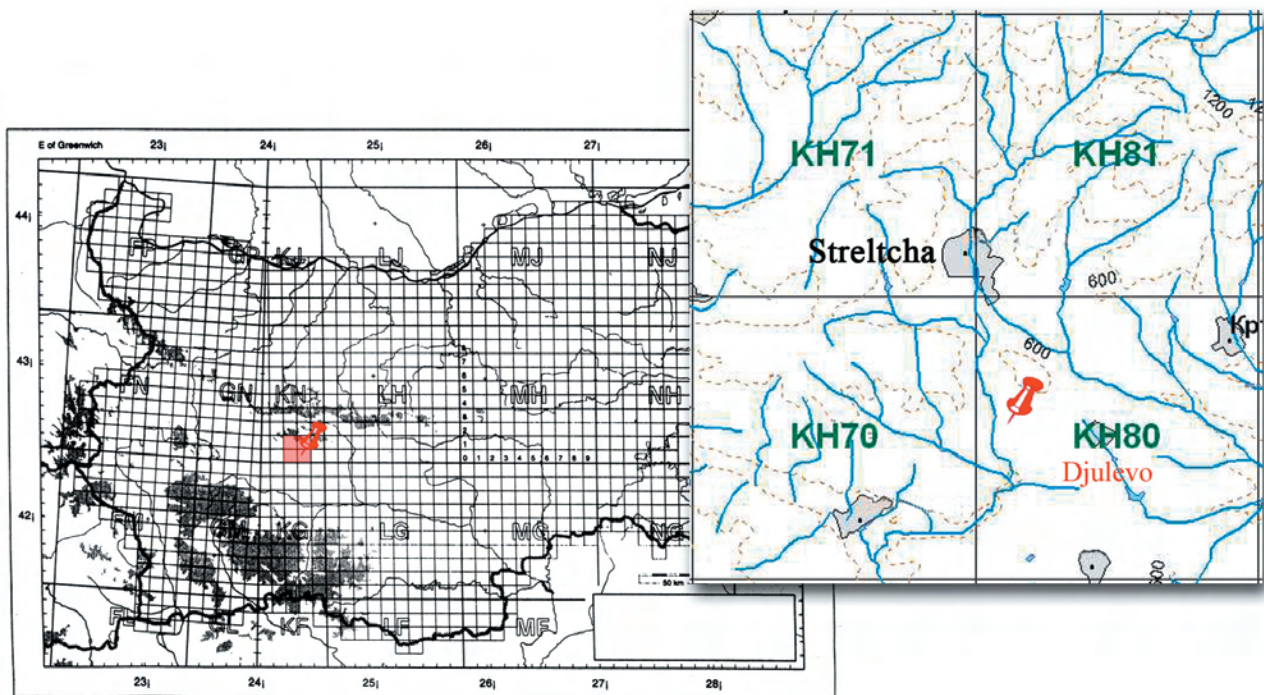


Fig. 1. Locality of the first finding of *Bythinella* cf. *opaca* in Bulgaria.



Fig. 2. Habitat of *Bythinella* cf. *opaca* at the locality of its first finding in Bulgaria (Sredna Gora, west of Djulevo village).

Male genital system (Fig. 3, 4, 5): The penis was longer than the large tubular accessory gland (tg), which is typical for this species (GLÖER & PEŠIĆ 2006). The male genital system of *B. opaca* differs from these of *B. austriaca* and *B. hansboetersi* by its longer penis (longer or equal to the tg), in *B. austriaca* it is slightly longer than the half of the length of the tg, and in *B. hansboeteri* is much shorter,

according authors cited. The penis of individuals studied was narrowing upwards, had relatively rounded apex and broader base. The tg had wide upper part, and a little protruded corpus. We determined specimens found as *Bythinella* cf. *opaca* because according HAASE et al. (2007) a molecular data is needed for sure species identification of the species from this genus.



Fig. 3. Shell of *Bythinella* cf. *opaca* specimen collected in the stream, west from village of Djulevo, Sredna Gora, Bulgaria.

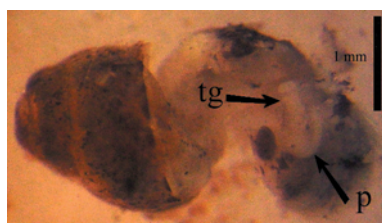


Fig. 4. One of dissected male individuals of *Bythinella* cf. *opaca* collected in the stream, west from village of Djulevo, Sredna Gora, Bulgaria with a view of the genital system. Abbreviations: p – penis, tg – tubular accessory gland.

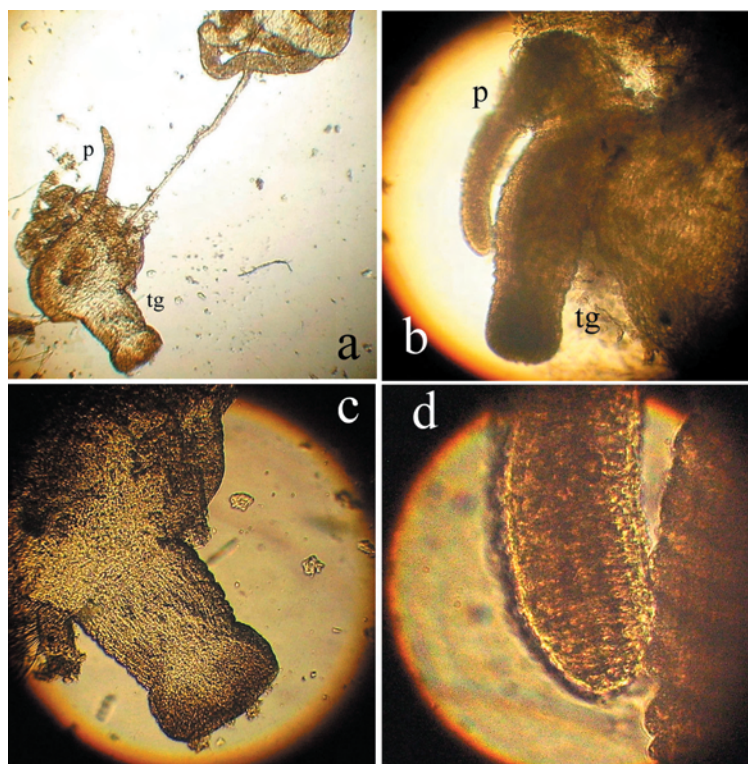


Fig. 5. Light microscopic pictures of the male genitalia of *Bythinella* cf. *opaca* from Sredna Gora: a, b – penes (p) and tubular accessory glands (tg) of two different dissected individuals (the penis of the specimen on right is bent, with not well visible base), c – close view of the tubular accessory gland of the first specimen, d – apical part of the penis of the second specimen.

Other freshwater malacofauna in the locality: no other aquatic gastropods were found in the whole stream. The only mollusks co-existing with *B. opaca* in this locality were mussels from the genus *Pisidium* C. Pfeiffer 1821.

Table 1. Shell measurements of *Bythinella* cf. *opaca* specimens collected from Bulgaria.

№	height [mm]	width [mm]
1	3.1	1.8
2	2.7	1.5
3	3.1	1.7
4	2.6	1.5
5	2.9	1.7
6	2.6	1.6
7	2.4	1.3
8	3.1	1.7
mean	2.8	1.6
SD	0.27	0.16

Conclusion

This paper represents the first record of specimens having characteristics of *B. opaca* in Bulgaria. According the fact

that species *B. austriaca* previously recorded in the country was not studied anatomically we consider its occurrence here as not proved. Considering and that in the genus of *Bythinella* existing cryptic species (HAASE et al. 2007), which could be determined only by the support of genetic studies we recommend detailed investigations on the Bulgarian populations. Both *B. austriaca* and *B. opaca* might be more restricted to Central Europe and the Bulgarian populations indeed could be separate species. Therefore the species we described here could be an entire new species of *Bythinella*.

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