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***Bythinella melovskii* n.sp., a new species from R. Macedonia (Gastropoda: Hydrobiidae)**

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Received 25 March 2015 | Accepted 28 March 2015 | Published online 29 March 2015.

Abstract

A new *Bythinella* species has been found in the Balkans, *Bythinella melovskii* n. sp. from Macedonia. The holotypes as well as the penis morphology are depicted. In addition a distribution map of the *Bythinella* spp. of this region is provided.

Key words: new description, Gastropoda, Macedonia.

Introduction

Bythinella is the most diverse genus of the Rissooidea, of which Yıldırım *et al.* (2015) counted 132 accepted species in Europe. The species of this genus prefer spring habitats (Boeters 1998) but lives also in spring outlets and associated creeks, rarely in caves and groundwater and in the profundal of Lakes (Boeters & Knebelsberger 2014).

A decade ago only a few *Bythinella* spp. have been known from the Balkan Peninsula but recently many species have been described from Romania (Falniowski *et al.* 2009 a,b, Glöer 2013), Bulgaria (Glöer & Pešić 2006, Georgiev 2009, Georgiev & Glöer 2013, 2014, Glöer and Georgiev 2009, 2011) and Montenegro (Glöer & Pešić 2010). While Schütt (1980) believed that only three *Bythinella* spp. occur in Greece, Falniowski and Szarowska (2011) could report on 11 *Bythinella* clades in Continental Greece. From Turkey Yıldırım (1999) could list three *Bythinella* species, but new investigations expanded this list to seven species (Odabsi & Georgiev 2014, Yıldırım *et al.* 2015).

From the W Balkan from Croatia to Montenegro and Serbia 12 *Bythinella* spp. are known (Glöer & Pešić 2014) while from Albania and R. Macedonia only one species (Fig. 1), i.e. *Bythinella drimica drimica* Radoman 1976, is known. The species richness of R. Macedonia is possibly underestimated because many parts of this region are unexplored and ongoing investigations in the Balkan are needed.

This paper is intended to (i) describe *Bythinella melovskii* n. sp. and (ii) to expand the knowledge about the freshwater gastropod diversity of R. Macedonia.

Material and Methods

The snails were collected by hand netting from small streams created by the surplus water draining from the mire complex. Numerous such streams created river Belichka Reka (Jablanica Mt, R. Macedonia). The specimens were sorted from other macroinvertebrates 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. The *Bythinella* spp. of the surrounding countries of Macedonia and the sampling site of *Bythinella melovskii* n. sp. (red dot). **1:** *Bythinella taraensis* Glöer & Pešić, 2010; **2:** *B. dispersa* Radoman, 1976; **3:** *B. luteola* Radoman, 1976; **4:** *B. pesterica* Glöer, 2008; **5:** *B. opaca* (M. von Gallenstein, 1848); **6:** *B. istoka* Glöer & Pešić, 2014; **7:** *B. drimica alba* Radoman, 1976; **8:** *B. drimica drimica* Radoman, 1976; **9:** *B. slaveyae* Glöer & Georgiev, 2011; **10:** *B. walkeri* Glöer & Georgiev, 2009; **11:** *B. kleptuzica* Glöer & Georgiev, 2011; **12:** *B. gloeri* Georgiev, 2009; **13:** *B. ravnogorica* Glöer & Georgiev, 2009; **14:** *B. rhodopoensis* Glöer & Georgiev, 2011; **15:** *B. dierckingi* Glöer & Georgiev, 2011.

Systematics

Family Hydrobiidae Troschel, 1857

Genus *Bythinella* Moquin-Tandon, 1856

Type species: *Bulimus viridis* Poirét, 1801

Bythinella melovskii n. sp. (Figures 2-5)

Holotype: Shell height 2.5 mm, shell width 1.4 mm. 19.10.2014 V. Slavevska-Stamenković leg., ZMH 79902.

Paratypes: 7 specimens ZMH 79903, 5 specimens coll. Institute of Biology, Faculty of Natural Science and Mathematics, Skopje, 5 specimens coll. Glöer, 6 specimens destroyed by dissection.

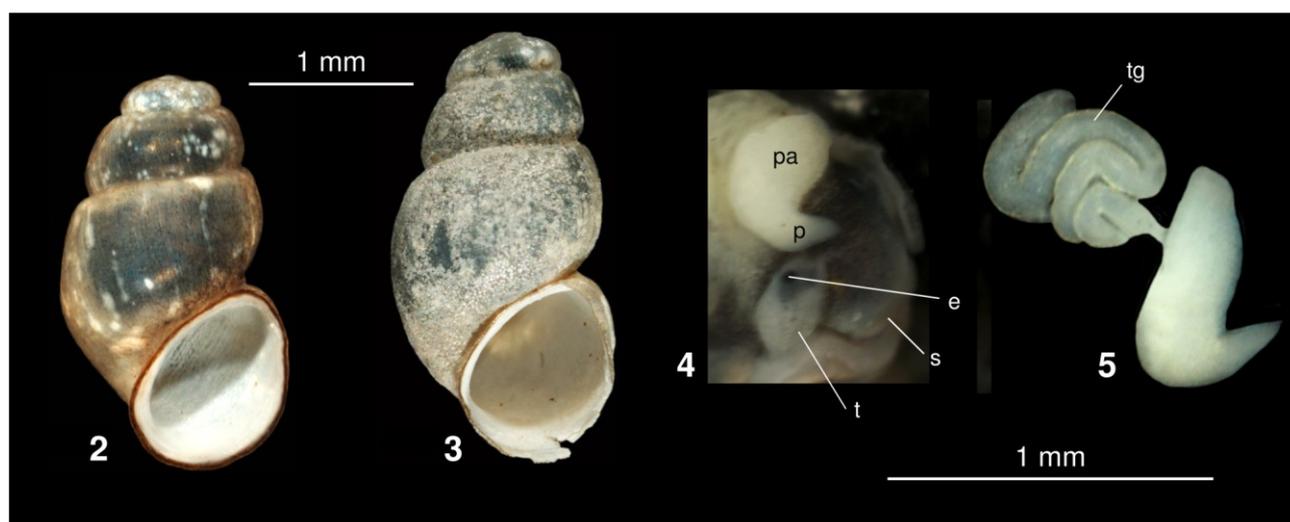


Figure 2-5. *Bythinella melovskii* n. sp. **2:** holotype, **3:** paratype, **4:** penis in situ from paratype, **5:** penis with tubular gland (paratype). Abbreviations: e = eye spot, p = penis, pa = penial appendix, s = snout, t = tentacle, tg = tubular gland (flagellum).

Locus typicus: R. Macedonia, Jablanica Mt., small stream near river Belichka Reka, 41°13'56.7" N, 20°31'27.0" E, 1866 m alt.

Etymology: Named after Prof. Dr Ljupčo Melovski, in appreciation of his significant contribution for nature conservation in R. Macedonia.

Description

Shell. Shell greyish and fragile, cylindrical with 4.5 slightly convex whorls with a moderately deep suture. The first two whorls small in height, the other whorls are fast growing. Apex obtuse, umbilicus closed. Aperture oval, angled at its top. Shell height 2.4-2.7 mm, width 1.4–1.6 mm, aperture height to shell height ratio 0.44-0.47.

Soft body. Mantel black with a white border, head dark with a whitish neck, tentacles light with eye spots visible.

Morphology of the penis. Penis shorter than penial appendix, flagellum long and regularly thick, translucent.

Differentiating features: From the only *Bythinella* sp. known of this region, *Bythinella drimica drimica*, it differs in shell morphometry: shell height 1.97-2.31 in *B. d. drimica* vs. 2.4-2.7 mm in *B. melovskii*, and shell width 1.13-1.30 in *B. d. drimica* vs. 1.4-1.6 mm in *B. melovskii* (measurements of *B. d. drimica* after Radoman 1983). The umbilicus in *B. d. drimica* is slit-like, closed in *B. melovskii* n. sp., and the aperture is in *B. d. drimica* not angled. The anatomy and penis morphology of *B. drimica* is unknown. From *B. slaveyae* it differs in size (shell height of *B. slaveyae* 2.3 mm vs. 2.7 mm in *B. melovskii* n. sp.) and the tubular gland which is not regularly thick but thickened distally.

Habitat and ecology: The new species inhabits small, shallow and slow flowing streams created by the surplus water draining from the mire complex. Snails were found on hard substrates at 1866 m altitude.

Distribution: R. Macedonia, known only known from the type locality (Fig. 6).

Acknowledgements

We like to thank two anonymous reviewers for helpful comments. The research has been conducted under the Critical Ecosystem Partnership Fund (CEPF) funded project "Water for lakes, bogs, streams and people on Jablanica Mountain", implemented by Macedonian Ecological Society (MES).



Figure 6. Photo of the type locality (small stream near river Belichka Reka, Jablanica Mt) of *Bythinella melovskii* n.sp. Photo. Lj. Melovski.

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