



***Gyalina melovskii* sp. n. (Gastropoda: Eupulmonata: Pristilomatidae), a New Terrestrial Snail Species from the Republic of North Macedonia**

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Abstract: A new species of the genus *Gyalina* Andreae, 1902 is described – *Gyalina (Gyalina) melovskii* sp. n. The species was discovered in Baltin Cave, Luben Mountain, Republic of North Macedonia.

Key words: taxonomy, terrestrial gastropods, Balkan Peninsula, cave fauna

Introduction

The genus *Gyalina* Andreae, 1902 is endemic to the southwestern Balkans (DEDOV & SUBAI 2012). Seven species of *Gyalina* are known from North Macedonia:

Gyalina (Spelaeopatula) korabensis (Riedel, 1970) from the Korab Mountain, in the Žirovnica and Kadina Dupka caves;

Gyalina (Gyalina) mirabilis Pintér & Riedel, 1973, which is the most widespread *Gyalina* species in Macedonia, occurring in the mountains Jablanica, Galičica, Šar and Kožuf;

Gyalina (Gyalina) rempei Gittenberger, 1975 from the Galičica Mountain and the shore of Lake Ohrid;

Gyalina (Spelaeopatula) gyalinaeformis (Riedel & Velkovrh, 1976) from the Jakupica Mountain, between Nežilovo and Čeples, 1100 m;

Gyalina (Gyalina) velkovrhi Riedel, 1985 from Kožuf Mountain, Stara River valley, south of Konopište, 800 m a.s.l. and in Ametkova Glava area, Korito Češma, 1000 m a.s.l.;

Gyalina (Gyalina) nautilopsis Dedov & Subai, 2012 from Ilinska Mountain, Iglar area, 1550 m a.s.l.;

Gyalina (Gyalina) hristovski Dedov, 2015 from Karaorman Mountain, Mlečnik Cave.

All species occur in the western part of the country and have a hidden subterranean way of life; with the exception of *G. mirabilis*, they have local (even single-spot) distribution (RIEDEL 1970, PINTÉR & RIEDEL 1973, GITTENBERGER 1975, RIEDEL & VELKOVRH 1976, RIEDEL 1985, DEDOV & SUBAI 2012, DEDOV 2015, 2021).

This article describes the eighth species of the genus *Gyalina* from North Macedonia – *Gyalina (Gyalina) melovskii* sp. n. from Luben Mountain, Baltin Cave (Fig. 1).

Materials and Methods

The gastropods were collected manually. The morphological examinations were carried out with a stereomicroscope Zeiss Discovery V12. The type material is deposited in the collections of the Institute of Bio-



Fig. 1. Map of the position of the Luben Mountain in North Macedonia, with the locality of *Gyalina melovskii* sp. n. and photo of the habitat of the new species inside the Baltin Cave.

diversity and Ecosystem Research, Bulgarian Academy of Sciences, No. BG-IBER-INV-00002386. The alternative number of the malacological collection is ID10837-1, specimens “a” and “b”.

The whorls were counting according to KERNY & CAMERON (1979).

All measurements are in millimetres.

Results

Gyalina (Gyalina) melovskii sp. n.

Type locality: Luben Mountain, the village of Zašle, Baltin cave, limestone, N41.380622° E21.120362°, 1330 m.

Type specimens: Holotype (BG-IBER-INV-000023869; ID10837-1a) and paratype (BG-IBER-INV-000023870, ID10837-1b). Collected by S. Hristovski (18 II 2016/ 2).

Habitat: The cave is situated in a shallow ravine on a limestone bedrock at the contact with phyllitic schists (DUMURDZANOV et al. 1979). The vegetation is represented by a beech forest, which develops on dystic cambisole (MASIS 2015). The specimens were found about 5 m from the entrance of the cave in a microhabitat of coarse soil particles (Fig. 1).

Description: Shell diameter 4.32–4.35 mm. Height of shell 1.86–1.92 mm. Shell pale, whitish-

yellow in colour, weakly transparent (in fresh shells) and flat (Fig. 2 A-C). Upper surface of shell (excluding 1.75-2 finely granulated embryonic whorls, visible under magnification, Fig. 2 D) with some short and randomly-situated radial stripes and distinct spiral threads. Three prominent and two vague threads on penultimate whorl (Fig. 2 E). External part of lower side of shell with clear spiral threads while surface around the umbilicus finely-sculptured. Whorls 4.25–4.75, with deep suture. Last whorl (0.93–1.02 mm) wider than penultimate whorl (0.51–0.69 mm). Aperture oval, moon-shaped, with short slit. Umbilicus widely open, with diameter of 1.2–1.35 mm; on c. 1/3 or slightly more of shell diameter, all whorls visible through it.

Measurements of the two available specimens are presented in Table 1.

Differential diagnosis: Among the known species of *Gyalina (Gyalina)* with a similar number of whorls, *G. (G.) melovskii* sp. nov. is characterised by its smallest size. Besides its small size, *G. (G.) melovskii* sp. nov. differs from *G. hristovski* and *G. nautilopsis* by its much prominent and coarser spiral threads; *G. (G.) melovskii* has shorter slit than *G. nautilopsis* and longer slit than *G. hristovski* and *G. velkovrhi*. *G. (G.) melovskii* has much more prominent sculpture on the bottom side of the shell and is

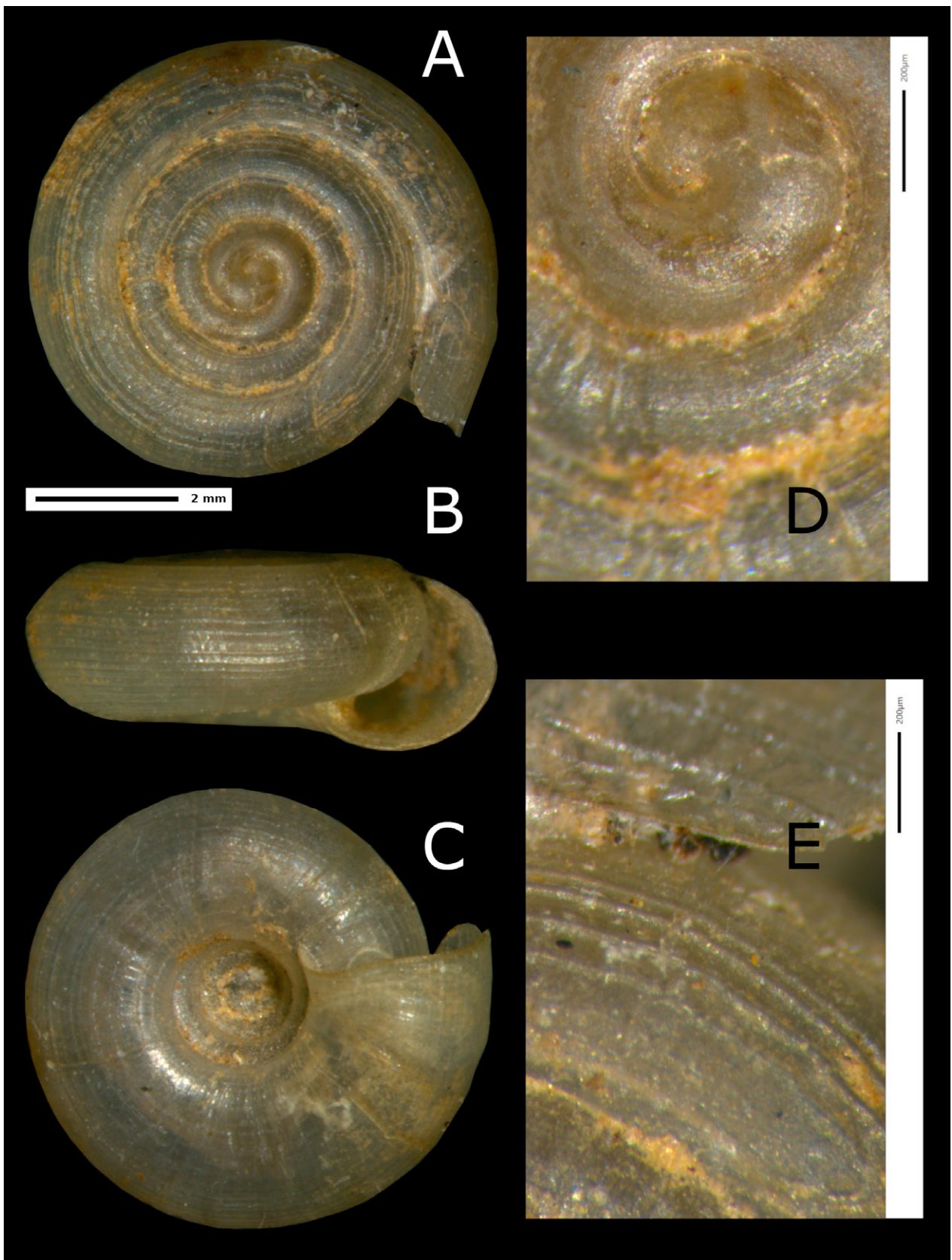


Fig. 2. *Gyalina melovskii* sp. n. Holotype, BG-IBER-INV-000023869. A. Top. B. Lateral view. C. Bottom. D. Embryonic whorls. E. Shell sculpture.

Table 1. Measurements (n = 2): No 1, holotype; No. 2, paratype. Abbreviations: W – total number of whorls; D – diameter of the shell; H – height of the shell; AD – diameter of the aperture; AH – height of the aperture; UD – diameter of the umbilicus; Dpw – diameter of the penultimate whorl; Dlw – diameter of the last whorl; Nsr – number of spiral threads on the penultimate whorl.

No.	W	D (mm)	H (mm)	AD (mm)	AH (mm)	UD (mm)	Dpw (mm)	Dlw (mm)	Nsr
1. (holotype)	4.75 (2 embryonic)	4.35	1.92	1.83	1.65	1.35	0.69	0.93	5 (3 clear + 2 vague)
2. (paratype)	4.25 (2 embryonic)	4.32	1.86	1.89	1.56	1.20	0.51	1.02	5 (3 clear + 2 vague)

visibly smaller than *G. mirabilis*. The shell of the new species is not as flat as that in *G. rempei*.

Etymology: This new species is named after my colleague, very good friend and fantastic personality Professor Ljupčo Melovski (Institute of Biology, Faculty of Natural Sciences and Mathematics, Ss. Cyril & Methodius University in Skopje). He participated in the field trip when the type material of the newly-described species was collected. He passed away at the age of 60.

Distribution: This species is known from its type-locality only.

Discussion

The new species *G. (G.) melovskii* has a single-spot distribution and inhabits a relatively poorly studied area (in terms of land snails) in North Macedonia (Luben Mountain). The closest mountain with published data on malacofauna is Ilinska Planina (DEDOV 2015, 2021), and the geographically closest known species of the genus *Gyalina* is *G. nautilopsis* (see DEDOV & SUBAI 2012), but it differs from the new species both by the larger size of the shell and the surface sculpture, and the longer slit between the last and penultimate whorl. After RIEDEL's (1985) summarising work on *Gyalina* from North Macedonia, the finding of new taxa of the genus continues (DEDOV & SUBAI 2012, DEDOV 2015, present work), showing the still insufficient exploration of the caves and carbonate massifs in the smaller mountains in the western part of North Macedonia. The members of the genus have a subterranean lifestyle, so new species can be expected both in unexplored caves and in humid habitats (open or forested) on porous carbonate layers (RIEDEL 1992).

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References

- DEDOV I. 2015. Contribution to the knowledge of the gastropods (Gastropoda, Pulmonata) of Ilinska and Plakenska Mountains (Republic of Macedonia). *ZooNotes* 77: 1–3.
- DEDOV I. 2021. Contribution to the knowledge on the gastropods (Mollusca, Gastropoda) of the Mountains Ilinska and Plakenska (Republic of North Macedonia). Part 2. *Acta Musei Macedonici Scientiarum Naturalium* 24: 19–22.
- DEDOV I. & SUBAI P. 2012. On *Gyalina* species from the Macedonian Republic and Greece, with description of new species (Gastropoda, Pristilomatidae). *Archiv für Molluskenkunde* 141 (2): 209–215.
- DUMURDZANOV N., STOJANOV R. & PETROVSKI K. 1979. In: Basic geologic map of the Socialist Republic of Macedonia. Interpretation manual for Krushevo. Federal Geologic Institute of SFRJ, Belgrade, p. 34–91.
- GITTENBERGER E. 1975. *Gyalina rempei* spec. nov., eine dritte rezente *Gyalina*-Art (Pulmonata, ?Zonitidae). *Basteria* 39: 75–78.
- KERNEY M. P. & CAMERON R. A. D. 1979. A field guide to the landsnails of Britain and North-west Europe. Collins, London, 288 p.
- MASIS 2015. Macedonian Soil Information System. www.maksoil.ukim.mk.
- PINTÉR L. & RIEDEL A. 1973. Die zweite rezente *Gyalina*-Art (Gastropoda, Zonitidae). *Bulletin de l'Académie Polonaise des Sciences, Série des Sciences Biologiques* 21 (6): 425–427.
- RIEDEL A. 1970. Zwei neue Zonitidae (Gastropoda) aus Albanien. *Annales Zoologici Musei Polonici Historiae Naturalis, Warszawa* 28: 4–13.
- RIEDEL A. 1985. Über die makedonischen *Gyalina*-Arten (Gastropoda, Zonitidae). *Fragmenta Balcanica, Musei Macedonici Scientiarum Naturalium* 12 (4): 31–43.
- RIEDEL A. 1992. Fauna Graeciae. Vol. 5. The Zonitidae (*sensu lato*) (Gastropoda, Pulmonata) of Greece. Athens: Hellenic Zoological Society, 194 p.
- RIEDEL A. & VELKOV R. F. 1976. Drei neue Balkanische Zonitiden (Gastropoda) und neue Funde einiger seltener Arten. *Biološki Vestnik, Ljubljana* 24 (2): 219–227.

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