

First records of *Cecilioides tumulorum* (Gastropoda: Ferussaciidae) in Bulgaria

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Abstract. First records of *Cecilioides tumulorum* (Bourguignat, 1956) in Bulgaria were reported: 1. deposits of Karabayska River, near village of Sladun, Sakar Mountain; 2. deposits of Stara Reka River, near Peshtera town, Western Rhodopes Mountain; 3. deposits of Byala Reka River, near village of Mandritza, Eastern Rhodopes Mountain; 4. Ivaylovgrad town, Eastern Rhodopes Mountain. After this report, the known species from the genus *Cecilioides* in Bulgaria are: *C. acicula*, *C. janii*, *C. spelaeus* and *C. tumulorum*.

Key words: *Cecilioides*, localities, Balkans.

Introduction

The genus *Cecilioides* (Müller 1774) consists of small elongate-conical shelled and unpigmented snails. On the Balkans there are 5 species from the genus found: *Cecilioides acicula* (Müller, 1774) (all over the area), *Cecilioides tumulorum* (Bourguignat, 1856) (in Turkey, Cyprus, Greece and Albania), *Cecilioides michoniana* (Bourguignat, 1864) (in Turkey, Cyprus and Greece), *Cecilioides janii* (De Betta & Martinati, 1855) (according Welter-Schultes (2012) = *C. veneta* (Strobel, 1855)) (in Slovenia and Bulgaria), and *Cecilioides spelaeus* (A. Wagner, 1914) (in Bulgaria, Croatia, Hercegovina and Montenegro) (Wächtler 1929; Damyanov & Likharev 1975; Schütt 1996; Dhora & Welter-Schultes 1996; Welter-Schultes 1998, 2012). The last of the species is with unclear taxonomical status (Damyanov & Likharev 1975).

As it was evident 3 species of *Cecilioides* were reported for the territory of Bulgaria. The most widely distributed in the country is *C. acicula* (met up to 1000 m a.s.l.): Danube River Valley, Stara planina Mountains, Black Sea Coast (Damyanov & Likharev 1975; Hubenov 2005), Upper Thracian Lowland (Irikov & Georgiev 2002), Sakar (Georgiev 2005a), Sredna Gora (Georgiev 2005b), and Rhodope Mountains (Irikov & Dedov 2004; Irikov & Mollov 2006). The second species, *C. janii* is known from the south of the country in deposits of Maritza River at Plovdiv city, Upper Thracian Lowland (Wagner 1927), Black Sea Coast at the mouth of Veleka River, and from west at Struma and Mesta Valleys (Damyanov & Likharev 1975). In north Bulgaria this species was reported from the deposits of Yantra River at Veliko Tarnovo town, Stara planina Mountains (Urbański 1960). The third species was registered in few localities of Bulgaria: deposits of Maritza River in Plovdiv city (Wagner 1927), “possibly the northern low limestone areas of the Rhodopes Mountain” (Damyanov &

Likharev 1975), Stara Zagora city in the Upper Thracian Lowland (Irikov & Georgiev 2002), and Sarnena Sredna Gora Mountain (Georgiev 2005b).

All over the warm, southern parts of Bulgaria where the Mediterranean climate influence is high both of the Mediterranean species which were not found in Bulgaria till now could be expected: *C. michoniana* and *C. tumulorum*. In this paper we represent the first localities of the second species in the country.

Material and Methods

Terrestrial gastropod shells were collected by examination of river deposits using a system of two sieves (2x2 and 1x1 mm). Four rivers were investigated: 1. 03 May 2006, Karabayska River (Sakar Mountain, near village of Sladun, Southern Bulgaria, near the Turkish border), 2. 20 May 2006, Stara Reka River, near Peshtera town (West Rhodopes Mountain), 3. 02 May 2008, Byala Reka River, near Mandritza village, and 4. a small river passing through Ivaylovgrad town (both in the Eastern Rhodopes Mountain, close to the Greek border). Some of the material was deposited in the Malacological Museum Haus der Natur Cismar (Germany), and the rest (with all the collection of D. Georgiev of terrestrial snails till 2013) in the Regional Natural History Museum (Plovdiv, Bulgaria).

Determination of the material was done following Wagner (1927), Damyanov & Likharev (1975), Kerney et al. (1983), Schütt (1996), and Welter-Schultes (2012).

Abbreviations: H – shell height, D – shell diameter, AH – aperture height, LH – last whorl height.

Results

According to the literature *C. tumulorum* has a glossy and shining spindle-shaped shell, with blunt apex, and pear-shaped aperture. The shell of *C. tumulorum* differs from those ones of *C. janii* and *C. spelaeus* by its smaller aperture, and more elongate shape. It is most similar to this one of *C. acicula*. Both shells of these species are thin and elongate, often with relatively rounded whorls and much or less deep suture. *C. tumulorum* differs from *C. acicula* by its longer (up to 8.0 mm), and wider shell (> 1.2 mm). The height of the aperture is larger than in *C. acicula* shells of the same shell height.

Shells with such morphology described above and refer to *C. tumulorum* we found in Bulgaria in some localities of its southern part (Fig. 2).

Locality № 1

Material examined: 03 May 2006, 1 shell (Fig. 1), deposits of Karabayska River, near village of Sladun, Sakar Mountain, about 3 km north from the Turkish border, N41° 51', E26° 27', UTM-grid: MG53, 100-150 m a. s. l.

Because the shell of the registered specimen was found in river bank deposits no habitat information was available. The closely situated dominating habitats were dry *Quercus* spp. forests and bushy grasslands occupied by *Carpinus orientalis*, *Jasminum fruticans* and *Paliurus spina-cristii*, with patches of small river bank forests of *Salix* spp. All these vegetation complexes were on limestone terrains.

Shell measurements: H = 4.8 mm, D = 1.5 mm, AH = 2.1 mm, LH = 3.3 mm.

Other terrestrial gastropod species found in the locality: *Carychium minimum* O. F. Müller, 1774, *Cochlicopa lubricella* (Rossmässler, 1835), *Vertigo antivertigo* (Draparnaud, 1801), *Vertigo pygmaea* (Draparnaud, 1801), *Truncatellina cylindrica* (Ferussac, 1821), *Vallonia costata* (O. F. Müller, 1774), *Vallonia pulchella* (O. F. Müller, 1774), *Mastus rosmaessleri* (L. Pfeiffer, 1846), *Succinea oblonga* (Draparnaud, 1801), *Cecilioides acicula* (O. F. Müller, 1774), *Vitrea neglecta* Damjanov et Pinter, 1969, *Vitrea pygmaea* (O. Boettger, 1880), *Vitrea vereae* Irikov, Georgiev et Riedel, 2004, *Oxychilus inopinatus* (Uličný, 1887), *Punctum pygmaeum* (Draparnaud, 1801), *Monacha ovularis* (Bourguignat, 1855).

Remark: All these species were published in the paper of Georgiev (2005a). The specimen of *C. tumulorum* was wrongly identified and reported as *Cecilioides spelaeus* by the author.

Locality № 2

Material examined: 20 May 2006, 3 shells, deposits of Stara Reka River, near Peshtera town, Western Rhodopes Mountain, N42° 01' E 24° 16', UTM-grid: KG75, about 500 m a.s.l.

The closely situated habitats were *Quercus* spp. and *Carpinus betulus* forest with small patches of dry grassy areas, and a river bank forest dominated by *Salix* sp. and *Alnus glutinosa*, all on a limestone terrain.

Shell measurements: №1 - H = 4.6 mm, D = 1.4 mm, AH = 1.9 mm, LH = 3.1 mm, №2 - H = 4.5 mm, D = 1.3 mm, AH = 1.8 mm, LH = 3.0 mm, №3 - H = 4.4 mm, D = 1.3 mm, AH = 1.8 mm, LH = 2.9 mm.

Other terrestrial gastropod species found in the locality: *Carychium* sp., *Cochlicopa lubricella* (Rossmässler, 1835), *Cochlicopa lubrica* (O. F. Müller, 1774), *Pyramidula pusilla* (Vallot, 1801), *Vertigo pusilla* O. F. Müller, 1774, *Truncatellina claustralis* (Gredler, 1856), *Truncatellina cylindrica* (Ferussac, 1821), *Pupilla sterri* (Voith, 1838), *Agardhiella parreyssii* (L. Pfeiffer, 1884), *Agardhiella rumelica* (Hesse, 1916), *Sphyradium doliolum* (Bruguere, 1792), *Vallonia costata* (O. F. Müller, 1774), *Vallonia pulchella* (O. F. Müller, 1774), *Vallonia enniensis* (Gredler, 1856), *Acanthinula aculeata* (O. F. Müller, 1774), *Merdigera obscura* (O. F. Müller, 1774), *Bulgarica denticulata* (Olivier, 1801), *Euconulus fulvus* (O. F. Müller, 1774), *Vitrea neglecta* Damjanov et Pinter, 1969, *Vitrea pygmaea* (O. Boettger, 1880), *Daudebardia rufa* (Draparnaud, 1801).

Locality № 3

Material examined: 02 May 2008, 1 shell, deposits of Byala Reka River, near village of Mandritza, East Rhodopes Mountain, N41° 23' 37.1" E26° 07' 40.4", UTM-grid: MF28, 56.4 m a.s.l.

The closely situated habitats were *Quercus* spp. and *Carpinus orientalis* forest, bushy pasture lands with *Juniperus* sp., and *Paliurus spina-christi*, and a river bank forest dominated by *Platanus orientalis*, *Salix* sp., and *Alnus glutinosa*, all on a volcanic base rock.

Shell measurements: H = 5.3 mm, D = 1.6 mm, AH = 2.4 mm, LH = 3.4 mm.

Other terrestrial gastropod species in the locality: *Carychium minimum* O. F. Müller, 1774, *Cochlicopa lubricella* (Rossmässler, 1835), *Pyramidula pusilla* (Vallot, 1801), *Vertigo pygmaea* (Draparnaud, 1801), *Truncatellina cylindrica* (Ferussac, 1821), *Vallonia costata* (O. F. Müller, 1774), *Vallonia pulchella* (O. F. Müller, 1774), *Vallonia enniensis* (Gredler, 1856), *Acanthinula aculeata* (O. F. Müller, 1774), *Mastus rossmaessleri* (L. Pfeiffer, 1846), *Bulgarica denticulata* (Olivier, 1801), *Cecilioides acicula* (O. F. Müller, 1774), *Euconulus fulvus* (O. F. Müller, 1774), *Vitrea riedeli* Damjanov et Pinter, 1969, *Vitrea pygmaea* (O. Boettger, 1880), *Balcanodiscus frivaldskyanus* (Rossmässler, 1848), *Oxychilus inopinatus* (Uličný, 1887), *Daudebardia rufa* (Draparnaud, 1801), *Punctum pygmaeum* (Draparnaud, 1801), *Lindholmiola girva* (Frivaldszky, 1835), *Monachoides incarnatus* (O. F. Müller, 1774), *Monacha carascaloides* (Bourguignat, 1855), *Monacha solidior* (Mousson, 1863).

Locality №4 (?)

For Albania Dhora & Welter-Schultes (1996) reported a form of *Cecilioides* which had shell characteristics similar both to *C. acicula* and *C. tumulorum*. The authors supposed that it was a hybrid form. In this locality we found a shell with morphology more like the first species but with a larger size than it, specific to the second. The maximal shell width of *C.*

acicula is 1.1 or 1.2 mm considering various authors (Damyanov & Likharev 1975). The shell of the specimen we found was wider such dimensions.

Material examined: 02 May 2008, 1 shell, alluvium soil of a small river passing through Ivaylovgrad town, Eastern Rhodopes Mountain, N41° 31' 29.3" E26° 07' 32.8", UTM-grid: MF29, 141 m a.s.l.

Habitat: river bank forest dominated by *Salix* sp. and *Juglans regia*, densely occupied by *Rubus* sp. The surrounding habitats were urbanized grass terrains of the Ivaylovgrad town. The base rock was a limestone.

Shell measurements: H = 4.4 mm, D = 1.3 mm, AH = 1.6 mm, LH = 2.8 mm.

Other terrestrial gastropod species in the locality: *Pomatias elegans* (O. F. Muller, 1774), *Agardhiella rumelica* (Hesse, 1916), *Vallonia pulchella* (O. F. Müller, 1774), *Oxychilus urbanskii* Riedel, 1963, *Zonitoides nitidus* (O. F. Müller, 1774), *Daudebardia rufa* (Draparnaud, 1801), *Tandonia kusceri* (H. Wagner, 1931), *Deroceras thersites* (Simroth, 1886), *Cepaea vindobonensis* (Ferussac, 1821), *Helix lucorum* Linnaeus, 1758, *Cernuela virgata* (da Costa, 1778), *Monacha carascaloides* (Bourguignat, 1855).



Fig. 1. Shells of the species from the genus *Cecilioides* known in Bulgaria: **A** - *C. tumulorum*, Sakar Mountain, near village of Sladun, **B** - *C. acicula*, Stara Zagora city, **C** - *C. jani*, Plovdiv city, **D**, **E** - *C. spelaeus*, Stara Zagora city (**D** - adult shell with broken periphery of the aperture, and **E** - enlarged subadult shell with fragmented apex, view on the aperture shape).

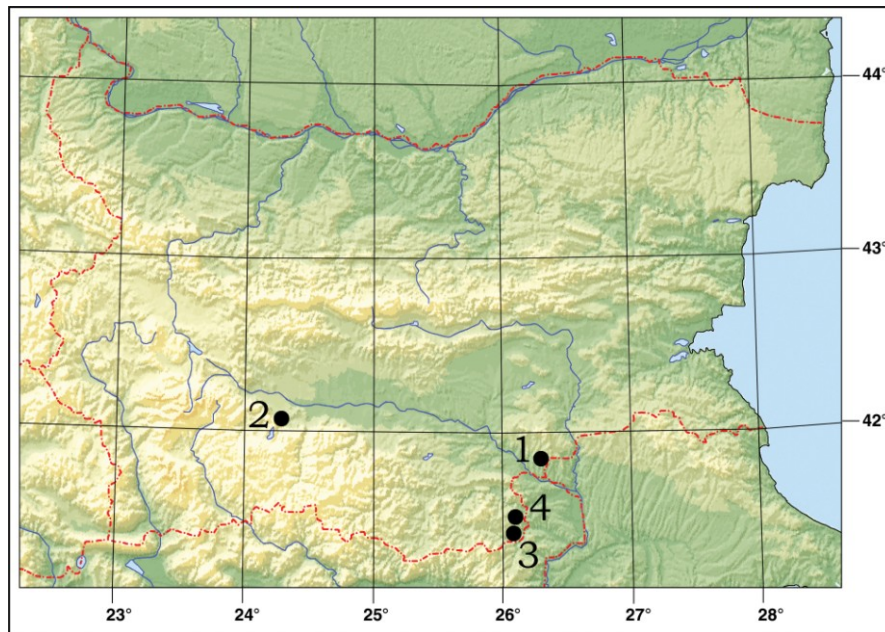


Fig. 2. Known localities of *Cecilioides tumulorum* in Bulgaria (locality numbers correspond with those in the text).

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