Two new species of the genus *Bythinella* Moquin-Tandona, 1856 from the Greek island of Evia (Gastropoda: Bythinellidae)

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Abstract

Aquatic snails of the genus *Bythinella* are among most abundant genera in springs of the Mediterranean region. In this paper we reported three species of the genus *Bythinella* from the springs on the island of Evia (Euboea, Euboia). Two species, i.e., *Bythinella kastanolongosensis* n. sp. and *B. reuselaarsi* n. sp., are described as new for science and photos of their shells and the penis are provided. New records are given for *B. dimitrosensis* Glöer & Reuselaars, 2020.

Key words: Evia Island, Greece, *Bythinella*, new species, taxonomy.

Introduction

The aquatic snails of the genus *Bythinella* Moquin-Tandona, 1856 are common and widespread in springs and spring-fed brooks of the Mediterranean region and include a number of highly isolated and stenotopic species (Glöer and Pešić 2014). Schütt (1980) in his paper on Greek hydrobiid snails stated that entire Greece, except the islands of Kos and Crete, was inhabited only by *B. charpentieri* Roth, 1855. More recently, Falniowski & Szarowska (2011) by using molecular genetic studies demonstrated that the Greek fauna of *Bythinella* is much more diverse, which has been confirmed by description of a large number of species of the latter genus during the last decade (e.g., Reischütz and Fischer 2008; Falniowski *et al.* 2016; Glöer and Hirschfelder 2019; Glöer and Hirschfelder 2020; Glöer and Reuselaars 2020a,b,c; Georgiev and Glöer 2020). To date, 23 species of the genus *Bythinella* have previously been described from Greece.

In this paper several new findings of the genus *Bythinella* are reported from the Southern Evia, Greece. Two species new to science are described. This paper aims to describe this material and enlarge our knowledge on the freshwater snails of Greece.

Material and Methods

The snails have been collected by the second author during his trip in 2007 on the island of Evia (Euboea, Euboia). The specimens were taken by hand and tweezers and immediately fixed in 80% ethanol.
The measurements of the shells were carried out using a stereo microscope (ZEISS) with an eye-piece micrometer; the photographs were made with a digital camera system (Leica R8). The type material is stored in the Zoological Museum Hamburg (ZMH).

Systematics

Genus *Bythinella* Moquin-Tandona, 1856

*Bythinella dimitrosensis* Glöer & Reuselaars, 2020

**New records** — Greece, Evia Island, the region of Mount Ochi: GR9 a big spring on road towards Lenosei village, 38°7'22.88"N, 24°29'14.88"E, 30.06.2007 leg. Pešić; GR16 Metochi spring in Metochi village, 38°0'32.91"N, 24°27'58.21"E, 30.06.2007 leg. Pešić.

**Remarks** — *Bythinella dimitrosensis* was recently described from the spring of Aghios Dimotros located in the southern part of Evia Island (Glöer and Reuselaars 2020a).

*Bythinella kastanolongosensis* n. sp.

https://zoobank.org/urn:lsid:zoobank.org:act:A6B46268-5A30-4100-A33F-F08B7F28ABFB

**Material examined** — Holotype (ZMH140809): shell height 3.1 mm, width 1.8 mm; paratypes: 96 specimens in isopropanol (ZMH140810), 16 specimens coll. Glöer.
Type locality — Greece, Evia Island, the region of Mount Ochi, GR15 Kastanolongos, helocrenic spring, 38°3'8.72"N, 24°28'15.83"E, 01.07.2007 leg. Pešić.

Etymology — Named after the beautiful chestnut tree forest (“Kastanolongos”) on the slopes of Mount Ochi (“Oche”) where the locus typicus of the new species is located.

Description

Shell — Cylindrical with 4.5 slightly convex whorls with a deep suture. The body whorl has a straight vertical tangent line. The aperture is ovate, slightly angled at the top. The peristome is sharp with a brown periostracum. The umbilicus is closed. The shell is 2.8-3.1 mm high and 1.8-1.9 mm broad.

Animal — The head is light-brown with a white border.

Anatomy — The penis is much shorter than the penial appendix (Fig. 7). Tubular gland thin at the proximal end, broader at the distal part, with four half-loops.

Differentiating characters — The new species resembles *Bythinella charpentieri*. The latter species was recently redescribed by Georgiev & Glöer (2020) on the basis of a syntype material from Hymettus, Attica. The shell of *B. charpentieri* is elongated conical and not cylindrical as in *B. kastanolongosensis* n. sp. Moreover the tangent line of the body whorl in *B. charpentieri* is not straight as in the new species (Fig. 2). The shell of *B. dimitrosensis*, a species known from southern part of the island of Evia, is ovate and the species is smaller than *B. kastanolongosensis* n. sp.

Due to its size the new species is similar to *B. reuselaarsi* n. sp. (see there for further discussion).

Habitat — Specimens were collected from the stones in a small seepage spring in old-growth chestnut wood (Fig. 11).

Distribution — Greece; only known from the type locality in the southern part of the island of Evia.
Bythinella reuselaarsi n. sp.
https://zoobank.org/urn:lsid:zoobank.org:act:FD39E451-4938-40DE-BD06-DE100A94AA53
Figs 9-10

Material examined — Holotype (ZMH140807): shell height 3.1 mm, width 1.9 mm; paratypes: 64 specimens in isopropanol (ZMH140808), 15 specimens in coll. Glöer.

Type locality — Greece, Evia Island, the region of Mount Ochi, GR4 limnocrene spring within Platanus grove along the road, near Melissonas village, 38°5'26.43"N, 24°23'54.97"E, 30.06.2007 leg. Pešić.

Etymology — Named after Robert Reuselaars (Assen, The Netherlands) in appreciation of his work in collecting Bythinella samples in Greece.

Description
Shell — Shell ovate-cylindrical with 4.5 slightly convex whorls separated by a deep suture. The aperture is ovate, somewhat oblique. The peristome is sharp. The umbilicus is closed. The shell is 3.1 mm high and 1.9 mm broad.

Anatomy — The penis is much shorter than the penial appendix. The tubular gland is thin at the proximal end and broad at the distal end (Fig. 10), with six half-loops.

Differentiating characters — The shell of Bythinella reuselaarsi n. sp. is ovate-cylindrical, not elongated like in B. charpentieri. On the other hand, B. dimitrosensis can be distinguished from the new species by a smaller size, ovate shell. The body whorl of B. reuselaarsi n. sp. is convex and not straight like in B. kastanolongosensis n. sp. The tubular gland of B. reuselaarsi n. sp. is longer (6 half-loops) vs. four half-loops in B. kastanolongosensis n. sp.

Habitat — Specimens were collected from a limnocrene spring with a well developed starwort (Callitriche sp.) vegetation (Fig. 12).

Distribution — Greece; Only known from the type locality in the region of the Mt. Ochi in the southern part of the island of Evia.

Figures 11-12. Photographs of sampling site. 11: GR15 heleocrene spring in old-growth chestnut wood, Kastanolongos, locus typicus of Bythinella kastanolongosensis n. sp. 12: GR4 limnocrene spring near Melissonas, locus typicus of B. reuselaarsi n. sp. Photos: V. Pešić.
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