

***Tsoukatosia subaii* spec. nov. (Gastropoda: Pulmonata: Clausiliidae), a third representative of a relict genus from Greece.**

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Abstract: *Tsoukatosia subaii* spec. nov. is described from the vicinity of Amfissa (Sterea Ellas), as the third species of a relict genus that so far was known only from the southern Peloponissos region. The zoogeographical significance of this new clausiliid and its relationship to other Greek members of the Serrulina group are discussed.

Introduction: The Serrulina group (Serrulinini) constitutes a geographically separate western branch of the mainly East and Southeast Asian Phaesusinae subfamily of clausiliids. (For the disputed systematic position of Serrulinini see: NORDSIECK, 1999; SZEKERES, 1999; NORDSIECK, 2002: 97.) In the Tertiary period this group had numerous members reaching most of Southern and Central Europe. Presently it has a distinct relict character (ZILCH, 1960; LIKHAREV, 1962; NORDSIECK, 1978), with only few species that are restricted to a narrow forested strip along the Caucasus ranges and the southern shores of the Caspian and Black Seas, as well as a few isolated occurrences in southern Anatolia and south-eastern Europe (Fig. 1). Since several of these are highly endemic clausiliids of subterranean habitats, 10 out of the 20 extant species of the Serrulina group have been discovered only in the past three decades.

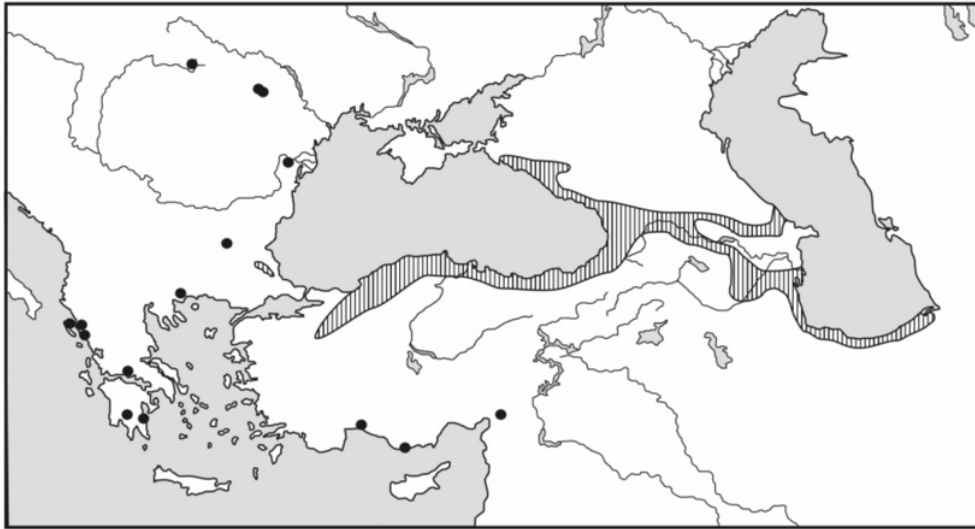


Fig. 1: Recent distribution of the Serrulina group. More or less continuous ranges are shown as hatched areas, isolated occurrences are indicated with circles.

Except for the widely distributed *Serrulina serrulata* (L. PFEIFFER 1847), European members of the Serrulina group are confined to the Balkan Peninsula. In Greece they had been known from the north-western part of the country (three species of *Sciocochlea* C. BOETTGER 1935) and the north-east (*Graecophaedusa sperrlei* RÄHLE 1982), when the surprising report of *Tsoukatosia liae*

GITTENBERGER 2000 from the southern Peloponnissos indicated that discoveries of further serrulinoid species could also be expected from the central and southern parts of the country (GITTENBERGER, 2000). Soon thereafter another species of this genus, *T. christinae* A. & P. L. REISCHÜTZ 2003 was described from the vicinity of Kalamata (REISCHÜTZ and REISCHÜTZ, 2003), and also found at four other locations on the west side of the Taigetos Mountains (REISCHÜTZ and REISCHÜTZ, 2004). In this paper we describe a third species of *Tsoukatosia*, which was discovered by the first author during his field trip to central Greece in 2007.

The type material of the new species is deposited in the collections of the Haus der Natur, Cismar (HNC), the Hungarian Natural History Museum, Budapest (HNHM), the Nationaal Natuurhistorisch Museum, Leiden (RMNH), the Senckenberg Naturmuseum und Forschungsinstitut, Frankfurt am Main (SMF), and in the private collections of A. HUNYADI (HU, Budapest), P. SUBAI (SU, Aachen) and M. SZEKERES, (SZ, Szeged).

Tsoukatosia subaii spec. nov.

Fig. 2



Fig. 2: *Tsoukatosia subaii* spec. nov., holotype (HNHM 96864), H = 10.4 mm

Diagnosis: The new species differs from *T. liae* GITTENBERGER by the serrate parietal lip of the peristome, whereas from *T. christinae* A. & P. REISCHÜTZ by its smaller size, finer sculpture and less prominent basal furrow.

Type material: Greece, Sterea Ellas, right side of the Eratini to Lidoriki road at 800 m from the first junction to Malandrino (38°25'13" N, 22°14'32" E), 700 m, UTM FH05. Holotype HNHM 96864, paratypes (body whorl + apex) HNC 68894/1+1, RMNH 109480/1+1, SMF 331076/1+1, HU/1+1, SU/1+1, SZ/1+1 (A. HUNYADI leg., 15/4/2007); further paratypes from the same locality HNHM 96910/1+1, HU/5+5 (A. HUNYADI leg., 6/10/2007).

Description: The dextral, translucent shell of $8\frac{1}{4}$ whorls (holotype) is club-shaped, with a somewhat bent axis. The broad apex is entirely smooth. Towards the aperture the whorls are covered by fine, blunt riblets of gradually increasing height, which become stronger only over the basis and the slightly inflexed neck. At the basis the ribs are interrupted by a furrow, forming a crest-like structure on the outer surface of the shell.

The aperture is relatively large. The protracted peristome has a thick, serrate rim. Its parietal side is decorated by 9 to 12 short, uniform plicae of variable strength. The plicae of the columellar side are longer, sharper and less evenly spaced. The moderately high lamella superior is continuous with the spiralis. The lamella inferior descends along the columella, then turns abruptly and reaches the peristome margin around the lower quarter of the aperture. Right below it ends the uninterrupted lamella subcolumellaris. The well developed plica principalis extends slightly deeper than the lunella

on the lateral side. The upper end of the moderately bent lunella is fused to the short remnant of the plica superior.

Shell height 10.4 mm (holotype), shell width 2.0-2.4 mm, aperture height 2.2-2.6 mm, aperture width 1.7-2.1 mm.

Etymology: The new species is dedicated to and named after PETER SUBAI, who inspired malacological studies in the Lidorikou region and helped this work with valuable discussions.

Biotope: The bleached and, except for the holotype, broken shells were found in fine-grained soil material accumulated in a small crack of the limestone wall parallel to the Eratini to Lidoriki road. This indicates that, like *T. liae* and *T. christinae*, *T. subaii* spec. nov. is a ground-dwelling species. The soil samples that yielded the type material also contained *Cecilioides tumulorum* (BOURGUIGNAT), *Mediterranea hydatina* (ROSSMÄSSLER) and *Vitrea* sp.

Remarks: Species of the Serrulina group show strong preference for constant environmental conditions, with high humidity and only mild variation of the temperature (SUBAI and SZEKERES, 1999). Accordingly, they can be found in decaying wood or rock crevices, often in deep underground habitats. Specimens of all the known endemic species of Greece seem to derive from subterranean cavities of karstic regions, frequently from the inside or immediate vicinity of caves. Recent observations of some Turkish and Iranian species of similar habitat preference suggest that, in contrast to earlier expectations, these snails are not true troglobionts. Live specimens of *Nothoserrulina subterranea* NÉMETH & SZEKERES, *Pontophaedusella ofensis* NORDSIECK and *Serrulinella senghanensis* GERMAIN have been collected from narrow crevices along roots and insect passages in soil-covered limestone screes at depths of 30 to 50 cm. The Greek species are assumed to live under similar conditions, though they may need the protection of even deeper cavities in the arid summer periods. Accordingly, the connection of these narrow underground habitats to caves may be advantageous by ensuring their proper aeration and drainage.

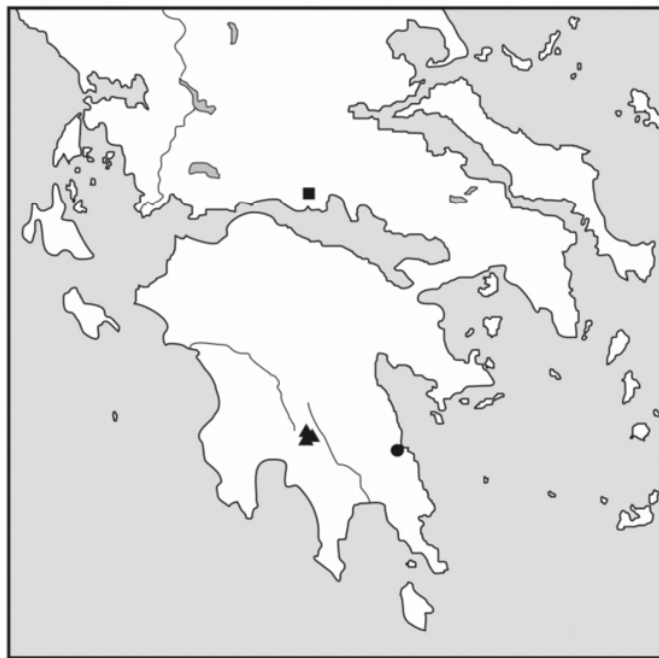


Fig. 3: The occurrence of *Tsoukatosia* species in Greece.

The symbols correspond to *liae* (circle), *christinae* (triangle) and *subaii* spec. nov. (square).

The discovery of the new *Tsoukatosia* species is in good agreement with earlier expectations that in Greece there might be more species of Serrulinini (GITTEBERGER, 2000), and that these would likely occur in climatically well balanced regions near the coastline (SUBAI and SZEKERES, 1999). The relatively close localities of the earlier described two *Tsoukatosia* species in the southern Peloponnissos suggested that, like *Sciocochlea* in Ipiros, this genus could also be confined to a small region. Therefore, the discovery of *T. subaii* spec. nov. from Sterea Ellas has major zoogeographical significance. It shows that, despite their subterranean habitats, *Tsoukatosia* species have a fairly broad range of distribution (Fig. 3). Furthermore, the occurrence of the new species in central Greece

provides an important link between the southern and north-western localities of the Serrulina group in this country, proving that these clausiliids were once continuously distributed over the southern Balkans.

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