

## New records of the genus *Euthria* (Mollusca, Buccinidae) in the Miocene Paratethys

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### Új adatok az *Euthria* nemzetség (Mollusca, Buccinidae) elterjedéséhez a miocén Paratethysben

#### Összefoglalás

Közelmúltbeli gyűjtőmunkák Letkés, Márkháza és Bánd miocén lelőhelyein új adatokkal egészítik ki a Buccinidae családnak tartozó *Euthria* nemzetség badeni elterjedését. Az első két helyszínen három ismert faj (*Euthria intermedia*, *E. puschi*, *E. curvirostris*) újabb előfordulásai dokumentálhatók, az utóbbi eddig ismeretlen volt hazánkból. A Bándon feltárt 2 m vastagságú alsó-badeni agyagos homokréteg molluscaösszletéből egy új faj, *E. viciani* n. sp. kerül leírásra.

Tárgyszavak: Mollusca, Buccinidae, *Euthria*, új taxon, badeni, középső-miocén, Bánd, Középső-Paratethys

#### Abstract

Newly collected gastropod assemblages from Middle Miocene localities of Hungary allow the designation of a new *Euthria* species: *E. viciani* n. sp., and, furthermore, the recording of the occurrence of *E. curvirostris* (GRATELOUP) for the first time in the country. In this paper the extended geographical range of the genus in Hungary is briefly described.

Key words: Mollusca, Buccinidae, *Euthria*, new taxon, Badenian, Middle Miocene, Bánd, Central Paratethys

#### Introduction

Results of recent fieldwork in Middle Miocene localities of Hungary have presented a more detailed picture of the Badenian gastropod diversity in the Neogene Pannonian Basin of the Central Paratethys. In this paper a new species, *Euthria viciani* n. sp. is designated on the basis of a recently collected early Badenian mollusc assemblage from Bánd (Bakony Mts, W Hungary), as well as new occurrences of four *Euthria* species (*E. intermedia*, *E. curvirostris*, *E. puschi*, *E. subnodosa*) are recorded from Letkés (Börzsöny Mts) and Márkháza (Cserhát Mts) (N Hungary) (Figure 1).

Bánd is known for rich Badenian invertebrate assemblages; molluscs were described by KÓKAY (1966), FEHSE & VICIÁN (2004), and DULAI (2005). The recently excavated section — characterised by clayey sand of 2 m thickness (Lower Badenian Pécsszabolcs Member of the Leitha Limestone Formation) — yielded a highly diverse gastropod material. The Badenian sites of Letkés and Márkháza were treated by VICIÁN et al. (2017) with additional references, the Miocene marine deposits of the Pannonian Basin were examined by NAGYMAROSY & HÁMOR (2012).

All specimens described herein were collected by Zoltán VICIÁN. The holotype and the paratype 2 are deposited in the Hungarian Natural History Museum, Budapest. The taxonomy and description terminology follow ROLÁN et al. (2003), FRAUSSEN & SWINNEN (2016), and FRAUSSEN & STAHLSCHEMIDT (2017). Shell lengths (SL) are given in mm.

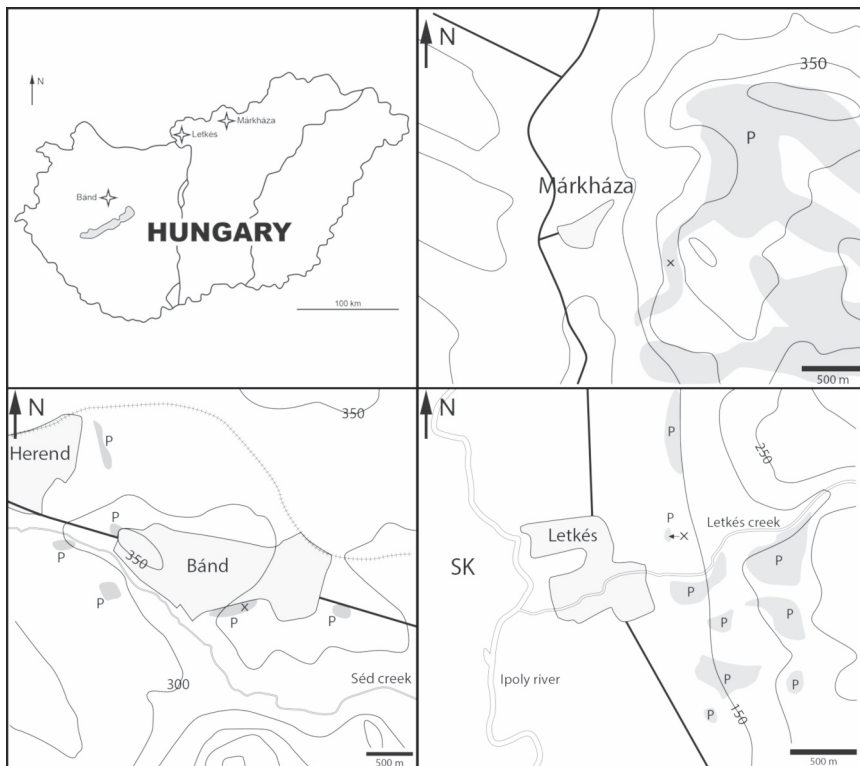
#### Systematic Palaeontology

Superfamily Buccinoidea RAFINESQUE, 1815  
Family Buccinidae RAFINESQUE, 1815  
Subfamily Pisaniinae GRAY, 1857  
Genus *Euthria* M. E. GRAY, 1850  
Type species: *Murex corneus* LINNAEUS, 1758

*Euthria viciani* n. sp.  
(Figures 2–9)

*Holotype*: PAL 2018.1.1. HNHM, Department of Palaeontology and Geology, SL 51 (Figures 2–3).

*Paratypes*: 1 and 3: Coll.V.2017.02–03, Collection VICIÁN (Figs 4–7), 2: PAL 2018.2.1. HNHM (Figures 8–9).



**Figure 1.** Locations and the Lower Badenian marine deposits of the sites mentioned in the text (P = Pécsszabolcs Member of the Leitha Limestone Formation, X = locality). (Modified from: <https://map.mbfsz.gov.hu/fdt100>)

**I. ábra.** A szövegben említett lelőhelyek és alsó-badeni tengeri üledékeik

(P = Lajtai Mész-kő Formáció, Pécsszabolcsi Tagozat, X = lelőhely) (<https://map.mbfsz.gov.hu/fdt100> alapján)

**Type strata and locality:** Lower Badenian clayey sand (Pécsszabolcs Member of the Leitha Limestone Formation), Bánd, Hungary.

**Derivation of name:** In honour of Zoltán VICIÁN, Hungarian fossil collector.

**Material:** 36 well-preserved specimens.

**Diagnosis:** Medium-sized *Euthria* species with paucispiral protoconch, flattened spire whorls (last whorl with weak subsutural concavity), recurved siphonal canal, smooth shell surface, and reticulate colour pattern.

**Description:** Medium-sized, broad, ovoid-fusiform shell (max. length 52 mm), with a protoconch of 1 1/4 smooth whorls. Moderately high, slightly pointed conical spire of six laterally-flattened whorls. The last whorl is about 80% of the total length, with shallow subsutural concavity. The aperture is ovate, the anal canal is deep and the parietal lip is smooth, there is a columellar lip with two elongated folds abapically, and 12 elongated denticles in the inner part of the outer lip. Siphonal canal narrow, elongated and slightly dorsally recurved. The sculpture of fine spiral threads and 8–11 axial riblets on the first three teleoconch whorls, and dense, fine spiral cords at the base, apart from these features the shell is smooth with fine growth lines. The colour pattern consists of a network of fine, reddish-brown, regular spiral and axial lines ornamenting the last three whorls, forming a reticulate pattern with 10–14 spiral bands of irregularly alternating

light or darker brownish rectangular blotches on the ramp and the convex part of the last whorl.

**Discussion:** Based on the observed morphology the new species is assigned to genus *Euthria*. Numerous *Euthria* species are known in the Middle Miocene Central Paratethys (Austria, Bulgaria, Hungary, Poland and Romania). *E. viciani* n. sp. can be distinguished mainly by its broad shell, flattened spire whorls and reticulate colour pattern. Additional morphological features are also compared to the congeners below.

**Comparison:** The type species, *E. cornea* is characterised by a highly variable shell morphology, but the spire is generally higher with rounded spire whorls. In the Miocene, *E. intermedia* (MICHELOTTI, 1839) is the most closely allied form. It is variable with respect to shell width, but differs by having a rounded last whorl without subsutural concavity; it has a less curved siphonal canal, somewhat rounded spire whorls, a reticulate sculpture on the early spire whorls, and spiral cords on the last three whorls (Figures 10–12, 19–20).

*E. subnodosa* (HOERNES et AUINGER, 1890) is sculptured by weakly-developed axial ribs (Figures 13–14). *E. fusco-cingulata* (HÖRNES in HOERNES & AUINGER, 1890) and differs due to its smaller size, higher spire, narrow pseudo-umbilicus, and its ornamentation (with 8–9 widely-spaced reddish-brown spiral lines on the last whorl). *E. friedbergi* BAŁUK, 1995 is a small form with a much higher spire. *E. puschi* (ANDRZEJOWSKI, 1830) bears tuberculate spiral sculpture (Figures 21–22), while *E. adunca* (BRONN, 1831) has rounded spire whorls with pronounced axial ribs. *E. curvirostris* (GRATELOUP, 1845) was recorded from the Middle Miocene NE Atlantic (France) and the Proto-Mediterranean Sea (Turkey) by LANDAU et al. (2013). The species can be documented in the Central Paratethys as well. Beside the new recording mentioned in this paper, the specimen with a recurved siphonal canal was illustrated by BAŁUK (1995, pl. 34, fig. 7) as *E. intermedia* and this agrees well with the type of *curvirostris* (GRATELOUP 1845, pl. 24, fig. 3). This species differs from *E. viciani* n. sp. with respect to its reticulate sculpture on the early spire whorls, its slightly shouldered whorls, and longer, strongly recurved siphonal canal (Figures 15–18). Among the Miocene *Euthria* species described by BELLARDI (1873) from Italy, three have a similar morphology. However, *E. magna* and *E. inflata* differ by having stronger sculpture, rounded spire whorls and a less curved canal; *E. patula* has straight siphonal canal (BRUNETTI & DELLA BELLA 2016).

## Early Badenian geographic distribution of *Euthria* in Hungary

Three widespread *Euthria* species have hitherto been known in the lower Badenian localities of Hungary (CSEPREGHY-MEZNERICS 1954, 1956, 1969, 1971–1972; KÓKAY 1966). *E. intermedia* was recorded from Szob, Borsodbóta and Bánd; *E. subnodosa* is known from Balaton and Borsodbóta; and *E. puschi* was described from Szob, Mátraverebély, Balaton and Borsodbóta. These records are completed herein with the Lower Badenian occurrences of *E. curvirostris* (new record in Hungary), *E. puschi* and *E. subnodosa* at Letkés, and *E. intermedia* at Letkés and Márkháza. *E. viciani* n. sp. is known only at Bánd, it was relatively abundant in the gastropod assemblage.

## Conclusion

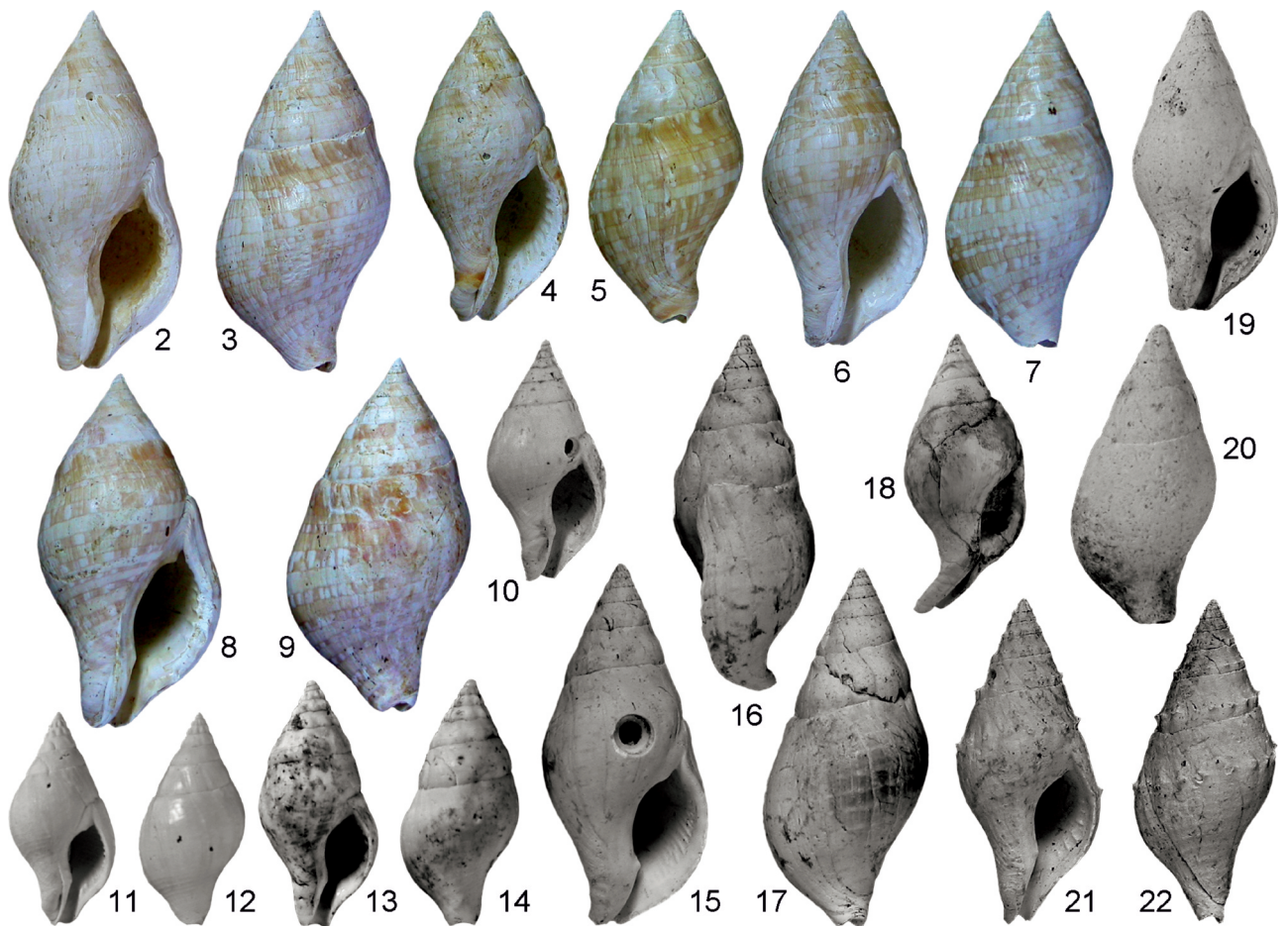
*Euthria viciani* n. sp., and the new records of other *Euthria* species contribute to the knowledge of the Middle Miocene marine gastropod faunas of the Central Paratethys. This study indicates that the genus is characterised by higher diversity and a more extended geographic range in the Neogene Pannonian Basin than was recognised before.

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**Figures 2–22.** Different *Euthria* species from Hungarian Lower Badenian localities

Figures 2–9. *Euthria viciani* n. sp.

2–3: holotype, SL 51 (1×).

4–5: paratype 1, SL 44 (1×).

6–7: paratype 3, SL 47 (1×).

8–9: paratype 2, SL 50 (1×).

Figures 10–12. *Euthria intermedia* (Michelotti). 10: Bánd, SL 23 (1.5×). 11–12: Márkháza, SL 19 (1.5×).

Figures 13–14. *Euthria subnodosa* (Hoernes et Auinger), Letkés, SL 14 (2.5×).

Figures 15–18. *Euthria curvirostris* (Grateloup). 15–17: Letkés, SL 51 (1×). 18: Letkés, SL 38 (1×).

Figures 19–20. *Euthria intermedia* (Michelotti), Letkés, SL 28 (1.5×).

Figures 21–22. *Euthria puschi* (Andrzejowski), Letkés, SL 46 (1×).