

# FIRST RECORDS OF *TRUNCATELLINA* SPECIES FROM ARABIA (GASTROPODA: VERTIGINIDAE)

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*Abstract* There were no records of *Truncatellina* species from the Arabian Peninsula so far. We report two *Truncatellina* species from the 'Asir Mountains in southwestern Saudi Arabia. *Truncatellina asirensis* n. sp. is characterised by a very small, finely striate shell of 4.5–5 whorls, a callous palatalis that is visible in frontal view and low, deeply situated parietal and columellar denticles. The second *Truncatellina* species is a very small, edentate, ribbed form that resembles *T. brandti* Zilch 1960 from the Cyrenaica and *T. linearis* (Lowe 1852) from Madeira in size and sculpture.

*Key words* *Truncatellina*, *Vertiginidae*, *systematics*, *Saudi Arabia*

## INTRODUCTION

*Truncatellina* Lowe 1852 is a group of minute, cylindrical vertiginids without or with one to three teeth in the aperture including more than forty extant species. Some of the species are widely distributed. Since the last revision of the genus by Pilsbry (1920–1921) many additional species with narrow ranges have been described (Pilsbry & Cockerell, 1933; Germain, 1934; Pilsbry, 1935; Klemm, 1943; Adam, 1954, 1957; Venmans, 1957; Zilch, 1960; Winter, 1990; Hutterer & Groh, 1993; Bruggen, 1994a, b; Štamol, 1995; Tattersfield, 1995; Triantis *et al.*, 2004; Pokryszko *et al.*, 2009). However, the distribution of most of these species is only poorly known because of their small size. Although *Truncatellina* is distributed throughout the Palaearctic and Ethiopian regions, there were no records for the Arabian Peninsula so far (Neubert, 1998). Here we report two *Truncatellina* species from the 'Asir Mountains in south-western Saudi Arabia and describe one of those as a new species.

## MATERIAL AND METHODS

The counting of the shell whorls (in 0.25 whorl units) follows Kerney & Cameron (1979: 13). Shell measurements were taken with an ocular micrometer (accuracy 0.05 mm).

The material on which this study is based is kept in the Zoological Museum of the University of Hamburg (ZMH).

## SYSTEMATIC DESCRIPTIONS

Vertiginidae Fitzinger 1833

*Truncatellina* Lowe 1852

*Truncatellina asirensis* n. sp.

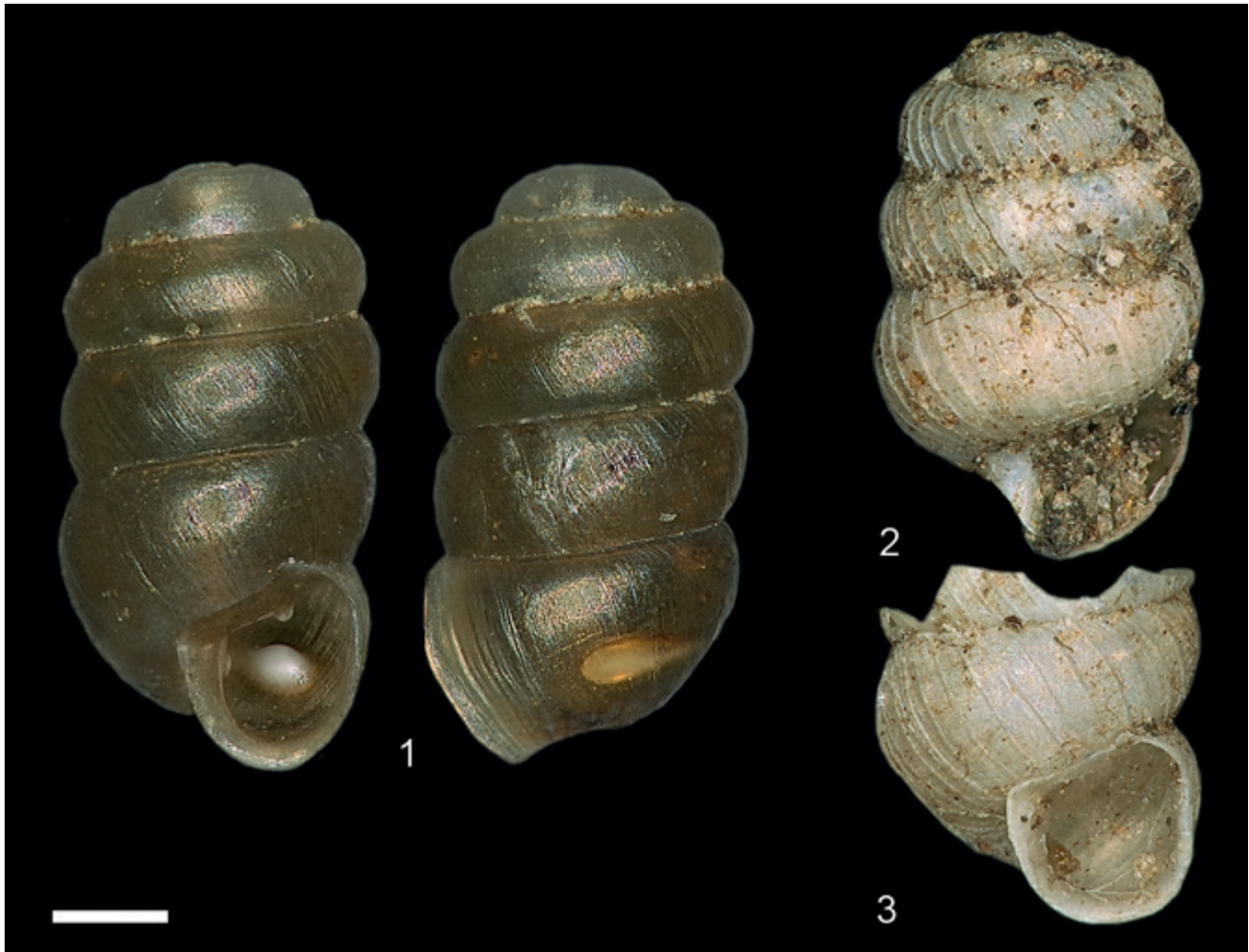
*Holotype* Saudi Arabia, 'Asir province: Abha: Raydah Protected Area, *Juniperus* forest, 1520 m altitude, 18°12'03"N 42°24'39"E (ZMH 79122, leg. T. Wronski, November 2010. Measurements: diameter = 0.70 mm; height = 1.35 mm).

*Paratypes* Saudi Arabia, 'Asir province: Abha: Raydah Protected Area, *Juniperus* forest, 1520 m altitude, 18°12'03"N 42°24'39"E (ZMH 79143).

*Type locality* Saudi Arabia, 'Asir province: Abha: Raydah Protected Area, *Juniperus* forest, 1520 m altitude, 18°12'03"N 42°24'39"E.

*Diagnosis* *Truncatellina asirensis* differs from other *Truncatellina* species in the very small, finely striated shell with 4.5–5 whorls, a callous palatalis that is visible in frontal view and low, deeply situated parietal and columellar denticles.

*Shell* (Fig. 1) dextral, cylindrical with 4.5–5 strongly inflated whorls separated by a deep



**Figures 1–3** *Truncatellina* spp., Saudi Arabia: Abha: Raydah Protected Area. 1 *Truncatellina asirensis* n. sp. (Holotype ZMH 79122). 2–3 *Truncatellina* cf. *brandti* Zilch (ZMH 79123). Scale bar = 0.25 mm.

suture. The protoconch is smooth. The light corneous, glossy, translucent teleoconch is finely striated. The body whorl is basally rounded and does not descend towards the squarish-oval aperture. The peristome is slightly expanded and hardly thickened inside. There is no crest behind the peristome. The margins of the peristome are connected by a thin callus. The low parietalis does not reach the edge of the peristome. The columellaris is a low, deeply situated denticle in the middle of the columellar edge. There is a callous palatalis visible in frontal view. Perforate. Measurements see Table 1.

*Derivation of name* This species is named after its occurrence in the 'Asir Mountains.

*Geographic range and habitat* *Truncatellina asirensis* is known only from a *Juniperus* forest in

the Raydah Protected Area near Abha in Saudi Arabia so far, but is probably more widespread in the 'Asir Mountains.

*Remarks* *Truncatellina asirensis* shares a palatalis that is visible in frontal view with the following species: *T. babusarica* Auffenberg & Pokryszko 2009, *T. callicratis* (Scacchi 1833), *T. klemmi* Zilch 1960, *T. lardea* (Jickeli 1875), *T. portosantana* Hutterer & Groh 1993, *T. prainhana* Hutterer & Groh 1993, *T. pretoriensis* (Melville & Ponsonby 1893), *T. purpuraria* Hutterer & Groh 1993, and *T. velkovrhi* Štamol 1995. *Truncatellina asirensis* differs from *T. babusarica* from Pakistan, *T. pretoriensis* from South Africa, and *T. velkovrhi* from Croatia in the presence of a parietalis. It differs from the western Palaearctic *T. callicratis*, *T. klemmi* from the Cyrenaica, *T. lardea* from Eritrea, *T. portosantana* from Porto Santo,

**Table 1** Shell measurements and ratios of *Truncatellina asirensis* n. sp., Saudi Arabia: Abha: Raydah Protected Area ( $n=8$ ).

Measurement	Minimum	Maximum	Mean $\pm$ s.d.
Diameter (mm)	0.65	0.70	0.69 $\pm$ 0.02
Height (mm)	1.25	1.55	1.38 $\pm$ 0.09
Diameter/height	0.452	0.560	0.502 $\pm$ 0.032
Diameter of aperture (mm)	0.35	0.45	0.41 $\pm$ 0.03
Height of aperture (mm)	0.40	0.50	0.46 $\pm$ 0.03
Diameter of aperture/ height of aperture	0.800	1.000	0.891 $\pm$ 0.054
Height of aperture/shell height	0.538	0.643	0.591 $\pm$ 0.038
Number of whorls	4.5	5.0	4.7 $\pm$ 0.2

*T. prainhana* from Madeira, and *T. purpuraria* from the Canary Islands in the only finely striated shell. Moreover, the shell of *T. asirensis* is narrower and has fewer whorls than the shells of all these species with the exception of *T. velkovrhi*. The size difference makes it unlikely that *T. asirensis* is an extreme variety of the widespread *T. callicratis*, of which exceptionally smooth specimens are known. *T. callicratis* is usually 0.8–0.9 mm broad and 1.65–2.0 mm high (Pilsbry, 1921) and has 5.5–6.5 whorls. Even the smallest known specimens from Malta are 0.78–0.87 mm broad and 1.43–1.87 mm high (Giusti *et al.*, 1995) and, thus, distinctly broader than *T. asirensis*, which is 0.7 mm broad at most. The geographically closest record of *T. callicratis* from southern Iran (Biggs, 1962) is still separated by almost 2000 km linear distance from the range of *T. asirensis*.

The phylogenetic relationships among the *Truncatellina* species are unknown. It is possible that *T. asirensis* originated from an isolate of the *T. callicratis* group. However, the close zoogeographical relations of the 'Asir Mountains with the adjacent regions of Africa might indicate a closer relation of *T. asirensis* with the *Truncatellina* species described from Eritrea of which *T. lardea* is the most similar.

#### *Truncatellina* cf. *brandti* Zilch 1960

*Material examined* Saudi Arabia, 'Asir province: Abha: Raydah Protected Area, *Juniperus* forest, 1520 m altitude, 18°12'03"N 42°24'39"E (ZMH 79123).

*Remarks* The second *Truncatellina* species is a very small, edentate, ribbed form (Figs 2–3). It resembles *T. brandti* Zilch 1960 from the Cyrenaica and *T. linearis* (Lowe 1852) from Madeira in size

and sculpture. No substantial differences between these taxa are known (Hutterer & Groh, 1993). The Arabian specimens are narrower (0.70 mm broad, 1.40 mm high; the only complete specimen crashed during examination) and have fewer whorls than the populations from the Cyrenaica, but fall in the size variation described for the Madeiran populations (Hutterer & Groh, 1993). The occurrences in Arabia and in the Cyrenaica are separated by more than 2500 km linear distance across a region from which no *Truncatellina* records are available so far. It is possible that the Arabian specimens are only superficially similar to *T. brandti* and *T. linearis*, but represent a separate species. So far, no edentate *Truncatellina* species are known from Eritrea. Towards the north the geographically next occurrences of *Truncatellina* are from Israel, where the widespread edentate species *T. cylindrica* (Férussac 1807) and the endemic edentate species *T. haasi* Venmans 1957 occur (Heller, 2009). Both species are larger than the edentate specimens from Saudi Arabia.

#### ACCOMPANYING MOLLUSC FAUNA

The following land snail species have been found together with the two *Truncatellina* species in the *Juniperus* forest in the Raydah Protected Area near Abha: *Lauria cylindracea* (Da Costa 1778), *Boysia boysii* (L. Pfeiffer 1846), *Cecilioides acicula* (O.F. Müller 1774), *Homorus splendens* (Thiele 1910), *Gulella schweinfurthi* (Thiele 1910), *Paralaoma servilis* (Shuttleworth 1852), *Araboxychilus sabaeus* (Martens 1889), *Oxychilus profundus* Neubert 1998, *Arabivitrina arabica* (Thiele 1910), and *Lejeania leucosticta* (Martens 1889). Most of these species have already been recorded from the Raydah area by Neubert (1998).



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