

Notes on the continental malacofauna of Rhodes, with two new species for the fauna of the island

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Data for 15 terrestrial and freshwater snail (Gastropoda) species are given from 35 localities on Rhodes Island. An invasive species, *Haitia acuta* (Draparnaud, 1805), and a species occurring in brackish waters, *Ovatella firminii* (Payraud, 1826) are new species and genus to the fauna of the island. This is the second record of *O. firminii* from Greece, which is interesting from another point of view; it was found in freshwater (not brackish) about 6 km from the sea.

Key words: Greece, Rhodes, Gastropoda, *Ovatella firminii*, faunistics

Introduction

The malacofauna of Rhodes (Greece) is relatively well known, but malacologists have mostly focused on the terrestrial snails (e.g. FRANK 1997, MAASSEN 1981, PAGET 1976). During the collecting tour of the Aquatic Macroinvertebrates Research Group of University of Pécs, we visited 58 aquatic sampling sites, mainly rivers and streams in Rhodes, between 12 and 26 February 2007. The main goal of the field trip was to decipher the aquatic insect fauna of the island. As additional result terrestrial and freshwater snails were collected. The aim of this paper is to provide an overview of the terrestrial and freshwater snails collected by our research group.

Material and methods

Aquatic macroinvertebrates (including snail specimens) were captured by sweeping with a long handled pond net (mesh size 0.5 mm) just above the substrate, on water surface, and among the submerged or emergent vegetation. Beyond netting, specimens were captured by manual singling from surface of submerged stones, woodstocks, etc. At some non-aquatic sampling sites additional collecting was made by manual singling terrestrial snail specimens. All captured specimens were preserved in small vials filled with 70% ethanol.

The nomenclature follows the Gastropoda chapter of Fauna Europaea webpage (BANK 2007). For the identification of the snails we used the above-mentioned literatures and the first author's comparative private collection. The *Albinaria* taxa living in Rhodes are sometimes hard to determinate. *A. olivieri* differs from *A. brevicollis* by the sculpture of the neck and the typical oval aperture. Shells and alcohol material are deposited in the private collection of Barna Páll-Gergely. The list of sampling sites which provided snail specimens [in alphabetic order, sorted by Municipalities of Rhodes, with accurate co-ordinates (WGS 84),

collecting method, abbreviations of collectors and type of sampling] are given in Table 1. The numbers after the collection data indicates the total number of the collected specimens. Except for the clausiliids, all of the samples are in 70 %ethanol.

Results and discussion

The main aim of present paper is to give faunistical data about malacofauna of the island Rhodes. So far two books and an article dealt with the snails of Rhodes. Other faunistical and taxonomic information can be found in literatures not directly about the island. The book of PAGET (1976) contains 45 species, MAASSEN (1981) reports 44 species from 28 localities. The book of FRANK (1997) is mainly about Helicidae s.l. species, and after a literature survey she mentions 54 taxa of the island Rhodes.

Our samplings resulted in the capture of 275 individuals of freshwater and terrestrial snails (142 terrestrial and 133 freshwater) belonging to 15 taxa (3 freshwater and 12 land snails). Because our work focused to freshwater samplings only 13 species previously known from Rhodes were found, but two further recently collected species proved to be new in the fauna of the island: *Ovatella firminii* and *Haitia acuta*.

Until our samplings, *Ovatella firminii* (Fig. 1) was known only from Kephallinia from Greece (RAHLE 1980), and from the neighbouring countries, Turkey (SCHÜTT 2001) and Italy (COSSIGNANI & COSSIGNANI 1995). One fresh shell has been collected from Rhodes in the Valley of Butterflies (Petaloudes). This occurrence is very interesting, because the species thought to live in brackish waters (SCHÜTT 2001), but this habitat is characterized by freshwater. We can not be sure about that single *Ovatella* shell is originated from freshwater, while the stream runs towards the sea, but the locality where this shell was found lies about 6 km from the sea.

Table 1. List of localities where snail specimens were collected. (Abbreviations in the head: Lon. (N): longitude (N), Lat. (E): latitude (E), leg.: collectors; abbreviations in column “Method”: KS: kick and sweep water netting, WN: water netting above the substrate and among the vegetation, MS: manual singling; abbreviations in column “leg.”: CsZ: Zoltán Csabai, KA: András Kálmán, KZ: Zoltán Kálmán, PZs: Zsuzsanna Pap, SN: Nándor Soós; abbreviations in column “Type”: A: Aquatic sampling, T: terrestrial sampling)

Collecting sites	Lon. (N)	Lat. (E)	Method	leg.	Type
Municipality of Afandou					
Arhipoli: River Loutanis 2	36°16'03"	28°04'08"	KS, MS	CsZ-KA-KZ-SN	A
Arhipoli: River Loutanis 3	36°15'59"	28°03'30"	KS, MS	CsZ-KA-PZs-SN	A
Arhipoli: River Loutanis 4	36°15'34"	28°06'01"	KS, MS	CsZ-KA-KZ-SN	A
Kolympia: River Loutanis 1	36°15'24"	28°06'55"	KS, MS	CsZ-KA-KZ-SN	A
Kolympia: M. Tsampika, Panagia Tsampika	36°14'10"	28°09'01"	MS	KA-KZ-PZs-SN	T
Municipality of Arangelos					
Arangelos: stream 2	36°12'42"	28°08'11"	KS, MS	CsZ-KA-KZ-SN	A
Arangelos: stream 3	36°12'39"	28°08'27"	KS, MS	CsZ-KA-KZ-SN	A
Charaki: River Gadouras	36°09'23"	28°03'53"	KS, MS	CsZ-KA-KZ-SN	A
Epta Piges (Seven Springs): lake 1	36°15'15"	28°06'57"	WN, MS	CsZ-KA-KZ-SN	A
Epta Piges (Seven Springs): spring	36°15'11"	28°06'49"	KS, MS	CsZ-KA-KZ-SN	A
Epta Piges (Seven Springs): stream 1	36°15'13"	28°06'48"	KS, MS	CsZ-KA-KZ-SN	A
Epta Piges (Seven Springs): stream 3	36°15'17"	28°06'50"	KS, MS	CsZ-KA-KZ-SN	A
Municipality of Attavyros					
Kritinia: Castle of Kritinia	36°15'50"	27°48'32"	MS	KA-KZ-PZs-SN	T
Mandriko: River Mandriko	36°17'28"	27°51'24"	KS, MS	CsZ-KA-KZ-SN	A
Municipality of Kalithea					
Faliraki: Olympia apartman	36°21'14"	28°12'11"	MS	KA-KZ-PZs-SN	T
Psinthos: dry dam lake, stream	36°18'43"	28°05'50"	KS, MS	CsZ-KA-KZ-SN	A
Municipality of Kamiros					
Apollona: River Gadouras 3	36°12'58"	27°57'35"	KS, MS	CsZ-KA-PZs-SN	A
Apollona: River Gadouras 4	36°13'23"	27°57'31"	KS, MS	CsZ-KA-KZ-SN	A
Apollona: stream	36°11'13"	27°57'31"	KS, MS	CsZ-KA-KZ-SN	A
Dimylia: River Platis	36°17'37"	28°00'23"	KS, MS	CsZ-KA-KZ-SN	A
Eleousa: stream	36°16'17"	28°02'23"	KS, MS	CsZ-KA-PZs-SN	A
Salakos: River Argiros 1	36°18'43"	27°56'19"	KS, MS	CsZ-KA-KZ-SN	A
Salakos: River Argiros 2	36°17'52"	27°57'20"	KS, MS	CsZ-KA-KZ-SN	A
Municipality of Lindos					
Lardos: River Kontari	36°03'59"	27°59'08"	KS, MS	CsZ-KA-KZ-SN	A
Lardos: River Lardos	36°05'07"	28°01'01"	KS, MS	CsZ-KA-KZ-SN	A
Lindos: Akropolis	36°05'27"	28°05'20"	MS	KA-SN	T
Municipality of Petaloudes					
Kremasti: River Kremastinos	36°24'32"	28°06'41"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 2	36°20'05"	28°03'47"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 3	36°20'06"	28°03'47"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 4	36°20'07"	28°03'47"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 5	36°20'11"	28°03'45"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 7	36°20'15"	28°03'42"	KS, MS	CsZ-KA-KZ-SN	A
Petaloudes (Valley of butterflies): stream 9	36°20'22"	28°03'36"	KS, MS	CsZ-KA-KZ-SN	A
Municipality of Rhodes					
Rhodes town: Rodini park, artificial fountain	36°25'37"	28°13'13"	WN, MS	CsZ-KA-KZ-SN	A
Rhodes town: Rodini park, stream	36°25'36"	28°13'08"	KS, MS	CsZ-KA-KZ-SN	A
Rhodes town: Old town, dry castel moat	36°26'43"	28°13'20"	MS	KA-KZ-PZs-SN	T
Rhodes town: Monte Smith, Akropolis	36°26'24"	28°12'38"	MS	KA-KZ-PZs-SN	T
Municipality of South Rhodes					
Apolakkia: River Apolakkias	36°05'09"	27°47'48"	KS, MS	CsZ-KA-KZ-SN	A

Haitia acuta is also new to the fauna of Rhodes (see FRANK 1997). The origin of this species is North-America, but this invasive species is now widely distributed in almost all European countries (ANDERSON 2003). Both are new species and genera to the fauna of the island.

Three species of freshwater snails were found, the most common being *Melanopsis buccinoidea* and *Galba truncatula*. The first species mainly occurs in oxygen-rich running waters, while the second one prefers mainly warm and shallow standing waters (lakes, ponds) and slow flowing rivers. *Galba truncatula* tolerates lower oxygen

levels (personal observations). The two species have not been found sympatrically in waterbodies of Rhodes.

Collected taxa with localities

The data are listed in order: locality, date of collection, the number of found specimens.

Melanopsis buccinoidea (Olivier, 1801) – Apollona: River Gadouras 3, 22 Feb 2007, 2; Arangelos: stream 2, 24 Feb 2007, 2; Arangelos: stream 3, 24 Feb 2007, 3; Arhipoli: River Loutanis 4, 19 Feb 2007, 6; Epta Piges

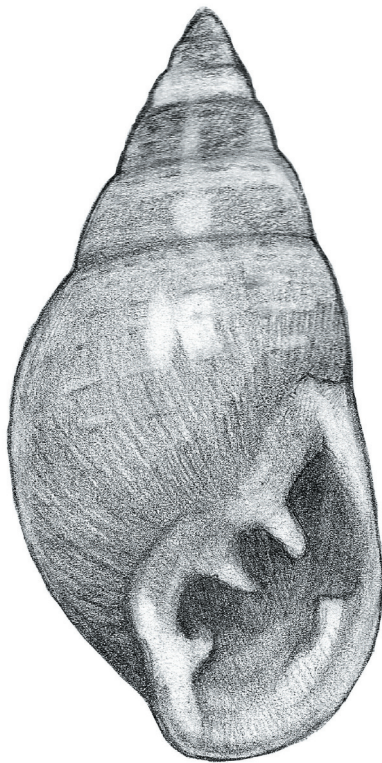


Fig. 1. Habitus of the shell of *Ovatella firminii*, a new species and genus to the fauna of Rhodes (Greece, Rhodes, Petaloudes; Valley of butterflies 7., original drawing by Csaba Horváth). Actual height: 8.3 mm.

(Seven Springs): spring, 14 Feb 2007, 8; Epta Piges (Seven Springs): stream 1, 14 Feb 2007, 2; Epta Piges (Seven Springs): stream 3, 15 Feb 2007, 1; Kolympia: River Loutanis 1, 19 Feb 2007, 21; Kremasti: River Kremastinos, 21 Feb 2007, 1; Petaloudes (Valley of butterflies): stream 2, 21 Feb 2007, 7; Petaloudes (Valley of butterflies): stream 3, 21 Feb 2007, 2; Petaloudes (Valley of butterflies): stream 4, 21 Feb 2007, 2; Petaloudes (Valley of butterflies): stream 5, 21 Feb 2007, 2; Petaloudes (Valley of butterflies): stream 7, 21 Feb 2007, 2; Petaloudes (Valley of butterflies): stream 9, 21 Feb 2007, 2; Psinthos: dry dam lake, stream, 25 Feb 2007, 2; Rhodes town: Rodini park, stream, 23 Feb 2007, 5.

Galba truncatula (O.F. Müller, 1774) – Apolakkia: River Apolakkias, 16 Feb 2007, 8; Arhipoli: River Loutanis 2, 19 Feb 2007, 5; Arhipoli: River Loutanis 3, 22 Feb 2007, 23; Arhipoli: stream, 19 Feb 2007, 1; Eleousa: stream, 22 Feb 2007, 2; Epta Piges (Seven Springs): lake 1, 14 Feb 2007, 5; Mandriko: River Mandriko, 20 Feb 2007, 1; Rhodes town: Rodini park, artificial fountain, 23 Feb 2007, 1; Salakos: River Argiros 1, 20 Feb 2007, 5; Salakos: River Argiros 2, 20 Feb 2007, 4.

Ovatella firminii (Payraudeau, 1826) – Petaloudes (Valley of butterflies): stream 7, 21 Feb 2007, 1.

Haitia acuta (Draparnaud, 1805) – Rhodes town: Rodini park, artificial fountain, 23 Feb 2007, 6; Rhodes town: Rodini park, stream, 23 Feb 2007, 2.

Orculella ignorata Hausdorf, 1996 – Charaki: River Gourdouras, 24 Feb 2007, 1.

Mastus emarginatus turgidus (Kobelt, 1877) – Kolympia: M. Tsampika, Panagia Tsampika, 19 Feb 2007, 1; Lardos: River Kontari, 17 Feb 2007, 1.

Zebrina fasciolata (Olivier, 1801) – Faliraki: Olympia apartman, 16 Feb 2007, 12.

Rumina decollata (Linnaeus, 1758) – Rhodes town: Old town, dry castel moat, 13 Feb 2007, 2.

Albinaria brevicollis koskinensis (Pollonera, 1916) – Kolympia: M. Tsampika, Panagia Tsampika, 19 Feb 2007, 10; Lindos: Akropolis, 24 Feb 2007, 25.

Albinaria klemmi Paget, 1971 – Kolympia: M. Tsampika, Panagia Tsampika, 19 Feb 2007, 2.

Albinaria olivieri (Roth, 1839) – Rhodes town: Monte Smith, Akropolis, 13 Feb 2007, 20; Rhodes town: Old town, dry castel moat, 13 Feb 2007, 41; Rhodes town: Rodini park, stream, 23 Feb 2007, 2.

Cochlicella acuta (O.F. Müller, 1774) – Lardos: River Lardos, 17 Feb 2007, 19.

Metafruticicola pellita pellita (J. Férussac, 1819) – Rhodes town: Old town, dry castel moat, 13 Feb 2007, 1.

Metafruticicola pellita depressa (Kobelt, 1904) – Kritinia: Castle of Kritinia, 20 Feb 2007, 1.

Eobania vermiculata (O.F. Müller, 1774) – Apolakkia: River Apolakkias, 16 Feb 2007, 1; Kolympia: M. Tsampika, Panagia Tsampika, 19 Feb 2007, 2.

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