

Notes on land snails of Epirus (Greece)

(Gastropoda: Pulmonata, Prosobranchia)

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Abstract

Summarizing the existing data, an attempt is made to show distributional patterns of some snail taxa in Epirus, Greece: *Cochlostoma*, *Jaminia*, *Chondrula*, *Orcula*, *Pupilla*, *Poiretia*, *Helicodonta*. Taxonomical notes and anatomical drawings of some *Monacha* specimens from Epirus are given. A lectotype of *Helix* (*Xerophila*) *emigrata* WESTERLUND, 1894, is designated.

Key words: Pulmonata, Prosobranchia, land snails, *Monacha*, Greece, Epirus, distribution, anatomy, taxonomy, lectotype designation.

Zusammenfassung

Unter Berücksichtigung der existierenden Daten wird der Versuch unternommen, die Verbreitungsmuster einiger Schnecken-Taxa in Epirus (Griechenland) zu zeigen: *Cochlostoma*, *Jaminia*, *Chondrula*, *Orcula*, *Pupilla*, *Poiretia*, *Helicodonta*. Taxonomische Anmerkungen und anatomische Abbildungen einiger *Monacha* von Epirus werden präsentiert. Ein Lectotypus von *Helix* (*Xerophila*) *emigrata* WESTERLUND, 1894, wird festgelegt.

Introduction

From a biogeographical view Epirus possesses a fauna with transitional character, influenced by the Dinaric as well as by the Greek fauna. Some land gastropod groups like slugs, Zonitides, Clausiliides, Enids and Helicoides are covered rather well by different specialists, whereas very little is known about taxonomy and distribution of other groups. Land gastropods collected by Sattmann in 1988 and 1990 in Epirus are listed and remarkable taxa are commented. In contrast to the list published by REISCHÜTZ & SATTMANN (1990) the material presented here was collected mostly in high mountain areas.

REISCHÜTZ & SATTMANN (1990) already pointed out the difficulties in distinguishing the *Monacha* - species. Therefore the results of further investigations of the genital tract shall be presented here.

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Results and discussion

A. Distributional notes

Cochlostoma gracile (PFEIFFER, 1849) (fig. 1 - 3) mainly occurs in the northwestern Balkan peninsula, one of the most southern forms, *C. g. martensianum* (MOELLENDORF, 1873) reaches northern Albania. The first record of *C. gracile* in Greece was the original description of the small subspecies *C. g. subaiorum* SCHÜTT, 1977, from the lowlands south of Joannina. SATTMANN & REISCHÜTZ (1988) recorded *C. gracile* ssp. from the Grammos mountains and REISCHÜTZ & SATTMANN (1990) from Amarantos Loutra northeast of Konitsa. New findings of *C. gracile* are from Mega Peristeri and from Monodendri.

Cochlostoma pageti KLEMM, 1962 (fig. 4 - 5) was originally described from places in the Tsumerka mountains. He interpreted the new species as most closely related to *C. gracile martensianum*. Following this idea *C. pageti* should be placed as a subspecies of *C. gracile*. New findings of *C. pageti* are recorded from the Tsumerka mountains in Epirus and western Thessalia.

Cochlostoma tessellatum excisum (MOUSSON, 1859) is an endemic form of Epirus and southern Albania. New findings extend the known distribution in Greece more to the northeast. Lots in the Natural History Museum Vienna prove *C. t. excisum* to occur as far as Elbasan in middle Albania. The nominotypical form also occurs at the Epirus coast line.

Orcula schmidtii transversalis (WESTERLUND, 1894) (fig. 11): HAUSDORF (1987) has rediscovered this (sub)species almost a hundred years after its first description. Now some new localities can be added. The northern distribution border is supposed to be somewhere in southern Albania. The nominal form occurs in Dalmatia and Croatia.

Jaminia aff. *thiesseana* (WESTERLUND, 1894) (fig. 12): *Jaminia* has not yet been recorded from Epirus. The specimens collected at Kakolakos and Tsumerka resemble *Jaminia thiesiana*, which is known from Euboea, Doris and Boeotia (HELLER 1976), and not *J. albanica*. The shells have 9 - 10 whorls, a narrow mouth, a thickened peristome, 2 outer and 2 (in one case 3) inner teeth, a well developed angular knot and callus. The one specimen from Mega Peristeri is smaller and has 8 whorls. Evaluation of the taxonomic status needs more material.

Pupilla muscorum emigrata WESTERLUND, 1897 (fig. 7) was found only in high altitudes of Peristeri mountains. It differs from *P. m. muscorum* by a toothless aperture.

Chondrula pindica (WESTERLUND, 1894) (fig. 9 - 10) is known from the Peristeri mountains. New findings extend the known distribution northward to the Albanian border.

Helicodonta obvoluta albanica WAGNER, 1814: *Helicodonta* is not yet known from Epirus and possibly not at all from Greek mainland. *Helicodonta o. albanica* is described from the Northern Albanian Alps.

Poiretia delesserti (BOURGUIGNAT, 1852) and *Poiretia compressa* (MOUSSON, 1859) seem to live sympatrically in the AOs valley near Konitsa. *Poiretia compressa* was also found recently in the Tomor mountains in southern Albania.

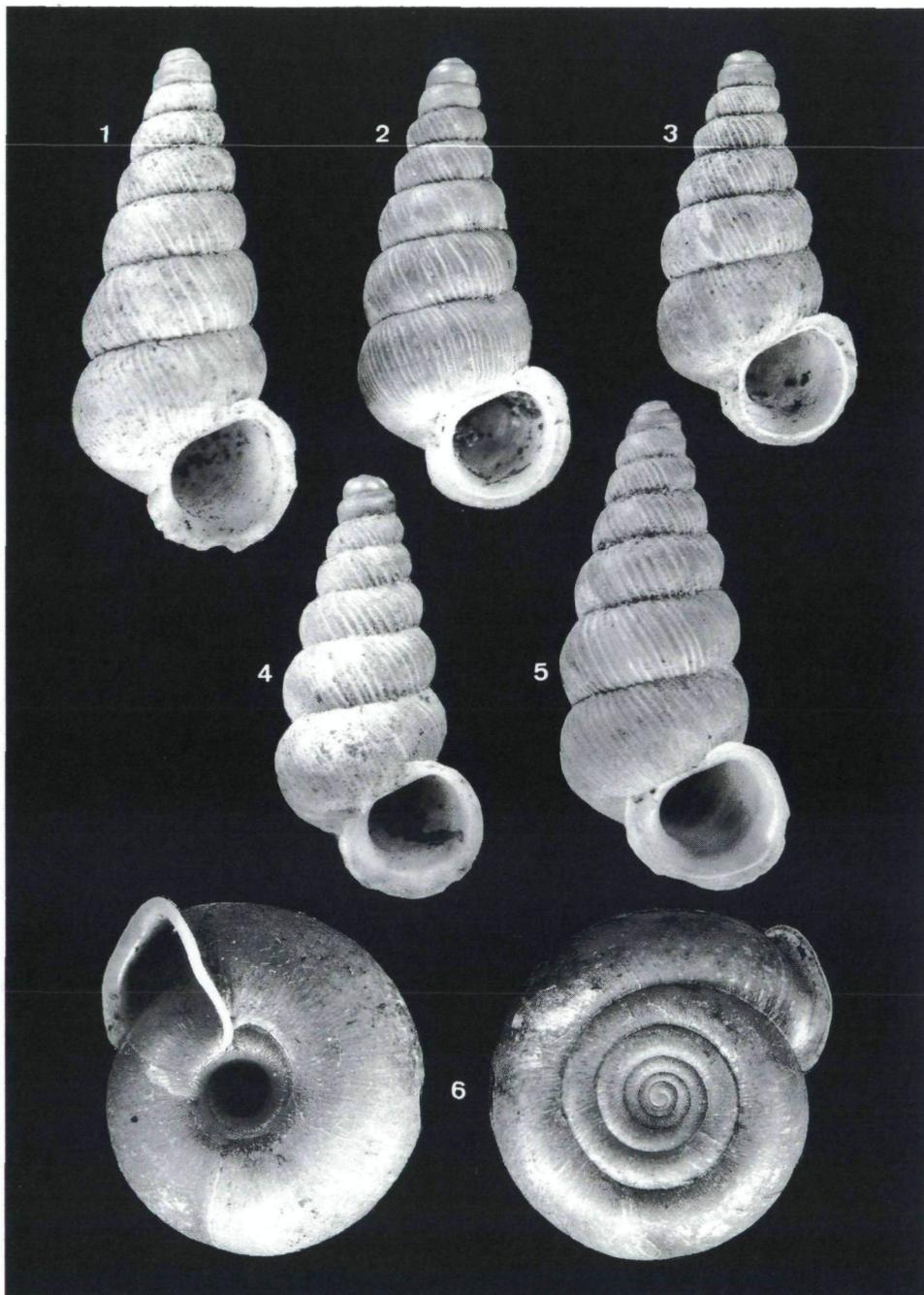


Fig. 1 - 6: (1) *Cochlostoma gracile*, Amarantos Loutra, 7,6 mm, (2) *C. gracile*, Mega Peristeri, 6,8 mm, (3) *C. gracile*, Monodendri, 5,7 mm, (4) *C. pageti*, Katara, 6,6 mm, (5) *C. pageti*, Tsumerka, 7,6 mm, (6) *Helicodonta o. albanica*, Konitsa, 15,0 mm.

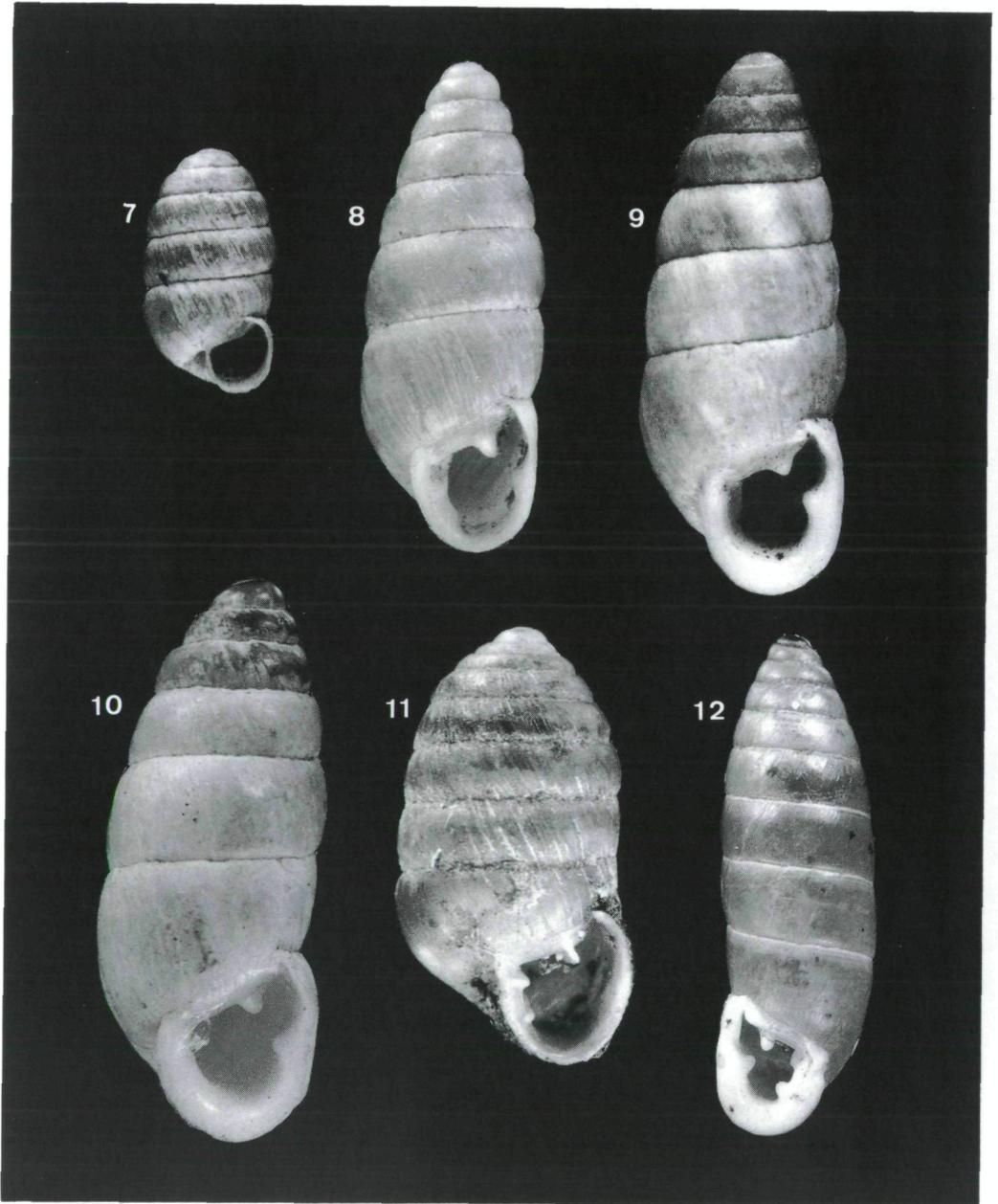


Fig. 7 - 12: (7) *Pupilla m. emigrata*, Peristeri, 2,9 mm, (8) *Chondrula pindica*, Konitsa, 6,9 mm, (9) *C. pindica*, Holotypus (Göteborg Museum), (10) *C. pindica*, Peristeri, 7,8 mm, (11) *Orcula s. transversalis*, Timpfi, 6,0 mm, (12) *Jaminia* aff. *thiesseana*, Dusko, 14,1 mm.

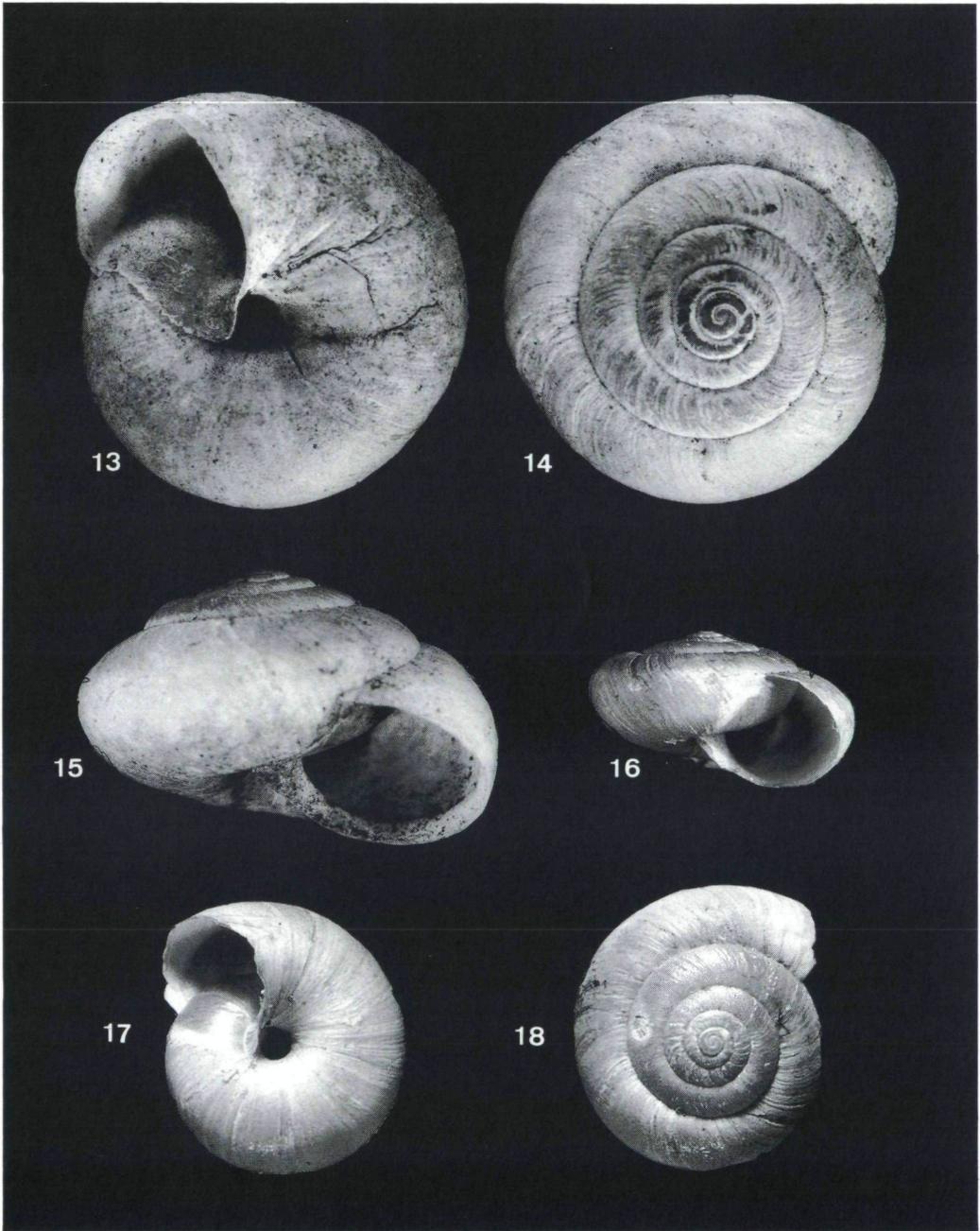


Fig. 13 - 15: *Monacha emigrata*, Paralectotype, Göteborg Museum 998a: B: 9,7 mm; H 6,5 mm.
Fig. 16 - 18: *Monacha* sp. Timphi, Gamila, B: 14 mm.

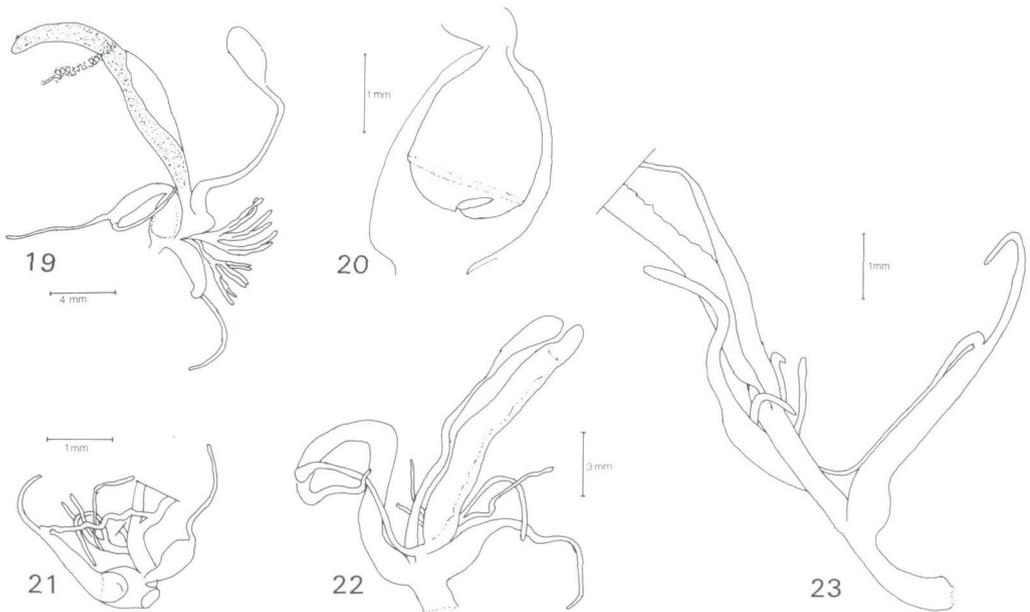


Fig. 19 - 23: genital anatomy of (19 - 20) *Monacha haussknechti*, Neraida-Gardiki, East Epirus, (21 - 22) *Monacha emigrata*, Peristeri mountains, (23) *Monacha* sp., Timphi, Gamila.

The species mentioned above show interesting distributional patterns. *Pupilla m. emigrata* and *Chondrula pindica* are endemic to Epirus/Pindos; the latter may reach the mountains of southern Albania. Different forms of *Cochlostoma gracile*, *O. s. transversalis* and *H. o. albanica* from Epirus seem to be the most southern extensions of Dinaric species, which show their main distribution on the northwestern Balkan peninsula. Since the mountains of Eastern Albania are almost unknown malacologically, it cannot be proven, if those species show disjunctive distribution. In the more western areas of southern Albania those forms have not been found although this region is relatively well represented in the collections and was also examined recently by the first author. Further investigations may show a distribution which follows the mountain ranges east of the line Lake Prespa - Lake Ohrid - upper Drin river. *Jamina* aff. *thiesseana* shows the most northern extension in northern Pindos. *Cochlostoma tessellatum*, also an endemic species seems to have its dispersal center at the Ionian coast.

Table 1: Discriminating characters of *M. haussknechti* and *M. emigrata*.

	<i>M. haussknechti</i>	<i>M. emigrata</i>
tubular glands	short	long and thin
stimulator	cylindric	hemispheric
flagellum	length of penis	half length of penis
base of the spermathecal duct	clearly swollen	not thickened

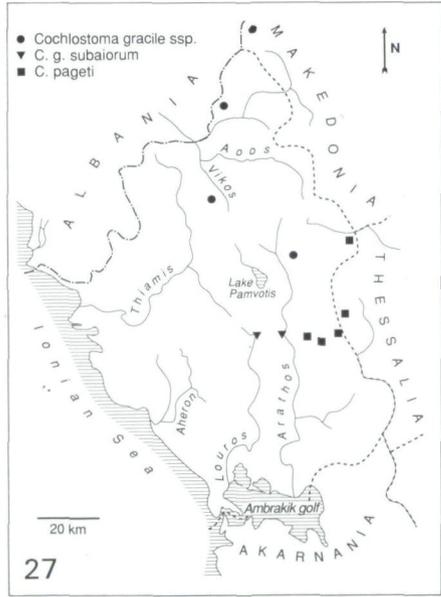
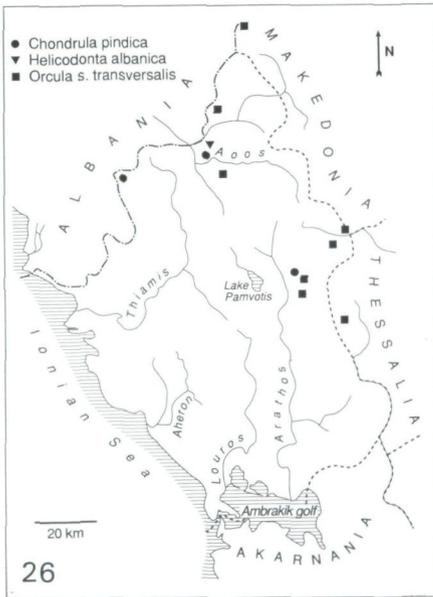
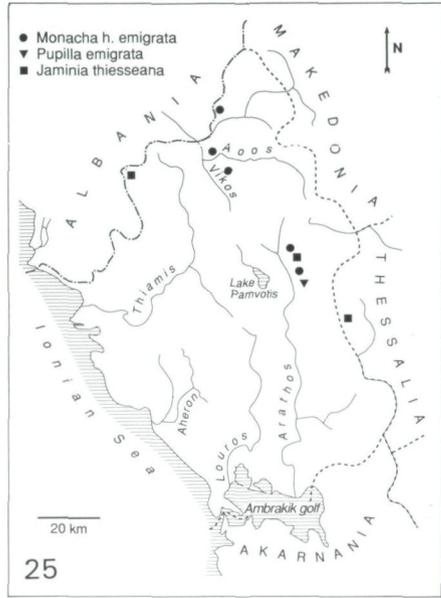
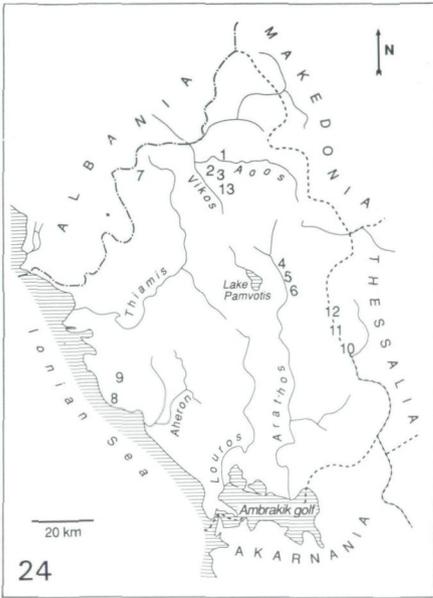


Fig. 24: Finding localities of 1988/90 collecting by Sattmann. 1: Konitsa-Aoos; 2: Papingo; 3: Timpfi-Gamila; 4: Katara-Mega Peristeri; 5: Lakmos Peristeri; 6: Peristeri-Kalarites; 7: Dusko; 8: Parga; 9: Parga-Agia; 10: Tsumerka-Theodoriani; 11: Tsumerka- Neraida; 12: Tsumerka-Gardiki; 13: Zagoria-Kipi-Monodendri.

Fig. 25 - 27: Distributional maps; data based on 1988/90 collecting by Sattmann and papers by SATTMANN & REISCHÜTZ (1988), REISCHÜTZ & SATTMANN (1990) and some data mentioned in the text.

Table 2: List of species collected by Sattmann in 1988 and 1990.

SPECIES	LOCALITIES	ALTITUDE
<i>Cochlostoma gracile</i> (PFEIFFER, 1849) (ssp.)	Mega Peristeri	800 m
<i>Cochlostoma pageti</i> KLEMM, 1962	Tsumerka	1100 - 1600 m
<i>Cochlostoma t. tessellatum</i> (ROSSMAESSLER, 1837)	Dusko, Parga	150 - 1000 m
<i>Cochlostoma t. excisum</i> (MOUSSON, 1859)	Dusko, Konitsa, Zagoria, Peristeri	650 - 1400 m
<i>Pomatias elegans</i> (MÜLLER, 1774)	Dusko, Konitsa, Zagoria, Tsumerka, Mega Peristeri, Parga	50 - 1500 m
<i>Pyramidula rupestris</i> (DRAPARNAUD, 1801)	Dusko, Zagoria, Tsumerka, Peristeri	850 - 2100 m
<i>Chondrina c. clienta</i> (WESTERLUND, 1883)	Dusko, Zagoria, Tsumerka, Timpfi, Mega Peristeri, Peristeri	800 - 1900 m
<i>Granaria frumentum</i> DRAPARNAUD, 1801 aggr.	Dusko	1000 m
<i>Granopupa rhodia</i> (ROTH, 1839) (ssp.)	Parga	800 m
<i>Orcula schmidti transversalis</i> (WESTERLUND, 1894)	Zagoria, Tsumerka, Peristeri	850 - 1900 m
<i>Pupilla muscorum emigrata</i> WESTERLUND, 1897	Peristeri	1900 - 2100 m
<i>Chondrula pindica</i> (WESTERLUND, 1894)	Dusko, Konitsa, Peristeri	650 - 2100 m
<i>Ena monticola</i> (ROTH, 1856)	Parga, Zagoria	700 - 1000 m
<i>Ena cf. obscura</i> (MÜLLER, 1774)	Konitsa	900 m
<i>Jaminia aff. thiesseana</i> (WESTERLUND, 1894)	Dusko, Tsumerka, Mega Peristeri	800 - 1400 m
<i>Mastus pupa</i> (BRUGUIERE, 1792)	Tsumerka, Parga	150-1600 m
<i>Zebrina detrita</i> (MÜLLER, 1774)	Tsumerka, Mega Peristeri	800 - 1500 m
<i>Albinaria sen. epirotica</i> MOUSSON, 1859	Parga	150 - 800 m
<i>Carinigera</i> sp.	Tsumerka	1600 m
<i>Idyla cast. crenilabris</i> (BOETTGER, 1885)	Peristeri	2000 - 2100 m
<i>Montenegrina irmengardis</i> KLEMM, 1962	Zagoria	850 m
<i>Montenegrina i. konitsae</i> NORDSIECK, 1972	Konitsa, Timpfi	650 - 1850 m
<i>Montenegrina janinensis</i> (MOUSSON, 1859)	Peristeri	2000 m
<i>Siciliaria pantocratoris</i> (BOETTGER, 1889) (ssp.)	Dusko	1000 - 1400 m
<i>Siciliaria stigmatica</i> (ROSSMAESSLER, 1836)	Parga	50 - 800 m
<i>Strigilodelima conspersa</i> (PFEIFFER, 1848)	Dusko, Konitsa, Zagoria, Peristeri, Tsumerka	750 - 1400 m
<i>Poiretia compressa</i> (MOUSSON, 1859)	Konitsa, Zagoria, Tsumerka, Parga	50 - 1200 m

<i>Poiretia delesserti</i> (BOURGUIGNAT, 1852)	Duska, Konitsa, Zagoria	650 - 1400 m
<i>Vitrina reitteri</i> (BOETTGER, 1880)	Dusko, Peristeri	1000 - 2100 m
<i>Allaegopsis ionicus</i> (KÄUFEL, 1930)	Parga	800 m
<i>Allaegopsis kerketianus</i> RIEDEL, 1993	Peristeri	1900 m
<i>Allaegopsis meridionalis</i> RIEDEL, 1986	Tsumerka	950 - 1600 m
<i>Allaegopsis transiens</i> (MOUSSON, 1859)	Peristeri	170 - 2100 m
<i>Oxychilus glaber</i> (ROSSMAESSLER, 1835)	Dusko, Konitsa, Zagoria	750 - 1400 m
<i>Oxychilus ionicus</i> RIEDEL & SUBAI, 1978	Peristeri	1300 m
<i>Vitrea illyrica</i> (WAGNER, 1907)	Peristeri	2000 m
<i>Vitrea</i> sp.	Dusko, Parga	800 - 1000 m
<i>Daudebardia</i> sp., juv.	Tsumerka	1200 m
<i>Lehmania</i> sp., juv.	Dusko	1300 m
<i>Limax conemenosi</i> BOETTGER, 1882	Konitsa	850 m
<i>Candidula rhabdotooides</i> (WAGNER, 1927)	Parga	150 m
<i>Xeromunda vulgarissima</i> (MOUSSON, 1859)	Dusko, Mega Peristeri, Zagoria	800 - 1100 m
<i>Monacha</i> sp.	Zagoria, Timpfi, Tsumerka	850 - 2200 m
<i>Monacha cartusiana</i> (MÜLLER, 1774)	Zagoria, Parga	50 - 850 m
<i>Monacha haussknechti</i> (BOETTGER, 1886)	Konitsa, Tsumerka, Peristeri	650 - 1900 m
<i>Monacha emigrata</i> (WESTERLUND, 1894)	Timpfi, Peristeri	1300 - 2100 m
<i>Monacha parumcincta</i> (ROSSMAESSLER, 1837)	Dusko, Mega Peristeri, Parga	50 - 1400 m
<i>Helicodonta obvoluta albanica</i> WAGNER, 1914	Konitsa	800 m
<i>Lindholmiola corcyrensis</i> FERUSSAC, 1839	Tsumerka, Parga	50 - 1100 m
<i>Chilostoma hemonica</i> THIESSE, 1884	Mega Peristeri, Peristeri	800 - 2000 m
<i>Chilostoma reischuetzi</i> SUBAI, 1990	Konitsa	650 m
<i>Chilostoma subzonata subzonata</i> MOUSSON, 1859	Parga	150 - 800 m
<i>Chilostoma subzonata pindica</i> BOETTGER, 1886	Dusko, Konitsa, Zagoria	750 - 1400 m
<i>Chilostoma subzonata</i> ssp.	Parga	700 m
<i>Chilostoma</i> sp.	Konitsa	1200 m
<i>Helix secernenda schlaefflii</i> MOUSSON, 1859	Dusko, Konitsa, Zagoria, Timpfi, Mega Peristeri, Tsumerka, Parga	650 - 1200 m

B. Anatomical and taxonomical notes

Monacha sp.: most probably this *Monacha*-species is new to science. The shape of the shell is very similar to that of *M. beieri* KLEMM, 1962, however anatomically the species differs greatly (compare fig. 23 and fig. 16 - 18 in this paper and fig. 5 in REISCHÜTZ & SATTMANN 1990).

Helix (*Theba*) *dirphica* var. *diploa* WESTERLUND, 1894, is an older name of *Monacha beieri* KLEMM, 1962. But the description is very poor, so that an absolute decision can hardly be made - especially since no type material is available. The short description agrees quite well with the presented material, but the shell should be with "pilis parvis mollibus longis obsita".

Monacha emigrata (WESTERLUND, 1894) is an older name of *M. haussknechti kataphigii* KLEMM, 1962. Between *M. emigrata* and *M. haussknechti* (BOETTGER, 1886) there are several differences, which is why both must be seen as separate species until further investigations of more material.

Designation of a lectotype of *Helix* (*Xerophila*) *emigrata* WESTERLUND, 1894: Naturhistoriska Museet Göteborg (Coll. Westerlund), Nr. 998a, Gr. Pindus, Peristeri, Kr(üper leg.), 998b two Paralectotypes from the same locality, 998c Paralectotype *M. Pindus* (fig. 13 - 15).

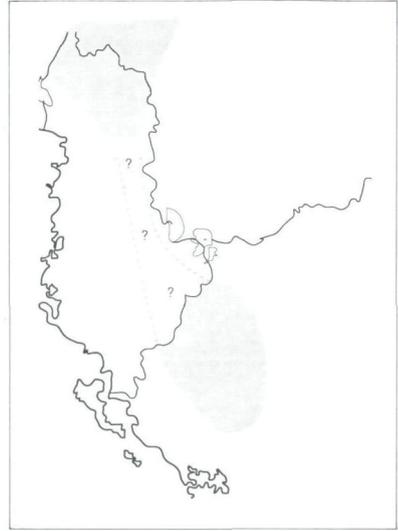


Fig. 28: Eastern Albania: distributional gap or terra incognita?

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