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Standard malacofaunistical work of Sălaj county and western part of the Plopişului/Şesului Mountains (Romania)

Tamás Domokos¹ & József Lennert²

¹Museologist. Councilor of Körös-Maros National Park. H-5600 Békéscsaba, Rábay u.11. email: tamasdomokos@freemail.hu

²School teacher. Primary and Secondary School of City. H-5600 Békéscsaba, Haán L. u. 2/4. email: hygromia123@freemail.hu

Abstract. The malacofaunistical data of the studied area (Northern part of the West Carpathians /Munţii Apuseni) were compiled on the basis of references (Table 1) and our collected malacological material (60 new collection sampling sites). The faunistical investigation was concentrated first on the following land snail taxa: Familia Clausiliidae, *Bradybaena fruticum*, *Monachoides vicina*, *Drobacia/Helicigona banatica*, *Helix lutescens*, *Helix pomatia*, *Kovacsia kovacsi* and *Lozekia transsylvanica*. The malacofauna of the area studied consists of 87 terrestrial snails, seven freshwater snails (Gastropoda) and three mussels (Bivalvia), a total of 97 taxa, 644 new units altogether.

Short conspectus of the area (topography, hydrography, petrology, soil condition, meteorology)

Sălaj County and western part of the Şesului/Plopişului Mountains were studied. The study area is marked out approximately by border of Sălaj County, except the SW side. On this side, between Ciucea and Uileacu de Criş, the border runs

along the national primary road marked 1 or E 60. From Uileacu de Criș the border changes in the direction of Brusturi –Tria – Marghita – Suplacu de Barcău. The study area is positioned on the sketch map (Fig.1).

The studied area is divided by us into three parts:

1. Sălaj hilly landscape (Măgura Șimleului 596 m) with the wide catchment basin valley of the Someș, the Crasna and the Barcău. This unit is covered by Tertiary layers (Eocene limestone tables, Oligocene deposits). The Tertiary hilly area slopes along the fault line towards the Great Plain. At the western side of the hilly area, it is loess-covered, sandy. The annual mean temperature is 8–10°C, and the annual precipitation is between 800 and 850 mm. The catchment area of Crasna receives less water than the inner parts: 500–700 mm.

2. Meseș Mountains /Munții Meseșului (Măgura Mare 918 m) and Plopiș Mountains/ Munții Plopișului or Șesului (Măgura Priei 996 m) up to the Crișul Repede River. Both mountains are situated on the northern part of the Apuseni Mountains. Crystalline shale is the base of both. The Plopișului is almost uncovered, on the Meseș there is Eocene limestone lying on the block of the crystalline shale.

The W part of M. Plopișului/ Șesului is to be found in Bihor County. In the Plopișului Mountains, the annual mean temperature is 6–8°C; the annual precipitation is 700–1000 mm. In the Meseș, it is only 7–9 °C and 600–700mm.

3. Almaș and Agrij drainage Basin (Basarabi 501 m) and Cluj-Dej hilly landscape (Vf., Dealului 627m). The catchment basin is located surrounded by the Meseș Mountains and the dacite tuff hills of Cluj-Dej belong also to the Câmpia Transilvaniei proper. In it, Oligocene and Eocene deposits come to the surface all around from under the Miocene sediments. The annual mean temperature and precipitation are 7–8°C and 600–700 mm (Andó 1999).

The Someș, the Crasna, the Barcău and the Crișul Repede drain the waters of study area (Fig.1).

Malacofaunistical introduction

History of the malacofaunistical research of this area is not too rich. The past malacofaunistical data from the area comes from Csiki (1906) (Table 1: column 1), Bába & Kovács (1975) (Table 1: 2), Váncsa (2006) (leg.: Kovács, 1977) (Table 1: 3), Sárkány-Kiss et al. (1997) (Table 1: 4, 5, 6), Sárkány-Kiss et al. (1999) (Table 1: 7, 8, 9), Bába & Sárkány-Kiss (1999) (Table 1: 10) and Nordsieck (2006) (Table 1: 1).

Table 1. Sampling sites and taxa (40) of the studied area on the basis of references

1. Élesd/Aleșd: *Bulgarica vetusta*, *Bradybaena fruticum*, *Helicigona banatica*, *Helix pomatia*, *Pseudalinda stabilis*, *Radix peregra* (Csiki 1906), *Macrogastra borealis bielzi* (Nordsieck 2006); Nagy-Bárod/Borod: *Cochlodina orthostoma*, *Laciniaria plicata*, *Perforatella dibothrion*, *Pseudalinda stabilis*; 2. Cornișel, Pasul Piatra Craiului, near the restaurant; 3. Ciucia, Cast. Boncza/Goga; 4. Tusa, Spring Barcău; 5. Boghiș, Barcău, 6. Suplacu de Barcău, Barcău; 7. Letca, Someș. 8. Someș Odorhei, Someș. 9. Ticău, Someș. 10. Benesat, oak-hornbeam-grown.)

Taxa	Sampling site										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
<i>Alinda biplicata</i>		+	+								
<i>Ancylus fluviatilis</i> aquatic				+	+			+	+		
<i>Anodonta cygnaea</i> aquatic								+	+		
<i>Arion ater</i>											+
<i>Bielzia coerulans</i>											+
<i>Bradybaena fruticum</i>	+									+	+
<i>Bulgarica vetusta</i>	+		+								+
<i>Carpathica calophana</i>											+
<i>Cochlicopa lubrica</i>		+									
<i>Cochlodina laminata</i>		+	+								
<i>Cochlodina orthostoma</i>	+										
<i>Deroceras reticulatum</i>											+
<i>Deroceras transcaucasicus</i>											+
<i>Deroceras transsylvanicus</i>											+
<i>Euomphalia strigella</i>		+									
<i>Galba truncatula</i> aquatic							+	+	+		
<i>Helicigona banatica</i>	+		+							+	
<i>Helix pomatia</i>	+										
<i>Hygromia transsylvania</i>		+	+							+	
<i>Laciniaria plicata</i>	+		+								+
<i>Lehmannia marginata</i>											+
<i>Limax cinereoniger</i>											+
<i>Lytopenia occidentalis</i>											+
<i>Macrogastra borealis bielzi</i>	+										
<i>Oxychilus glaber</i>			+								
<i>Oxyloma elegans</i>							+				
<i>Perforatella dibothrion</i>	+										+
<i>Phenecolimax annularis</i>			+								
<i>Physa acuta</i> aquatic							+	+	+		
<i>Planorbis planorbis</i> aquatic									+		
<i>Pseudalinda fallax</i>		+									
<i>Pseudalinda stabilis</i>	+	+									
<i>Radix auricularia</i> aquatic									+		
<i>Radix peregra</i> aquatic	+			+	+						
<i>Ruthenica filograna (gallinae)</i>			+								
<i>Sphyradium doliolum</i>		+	+								
<i>Trichia bielzi</i>										+	
<i>Unio crassus</i> aquatic					+			+	+		
<i>Vallonia pulchella</i>			+								
<i>Vitrina pellucida</i>		+	+								

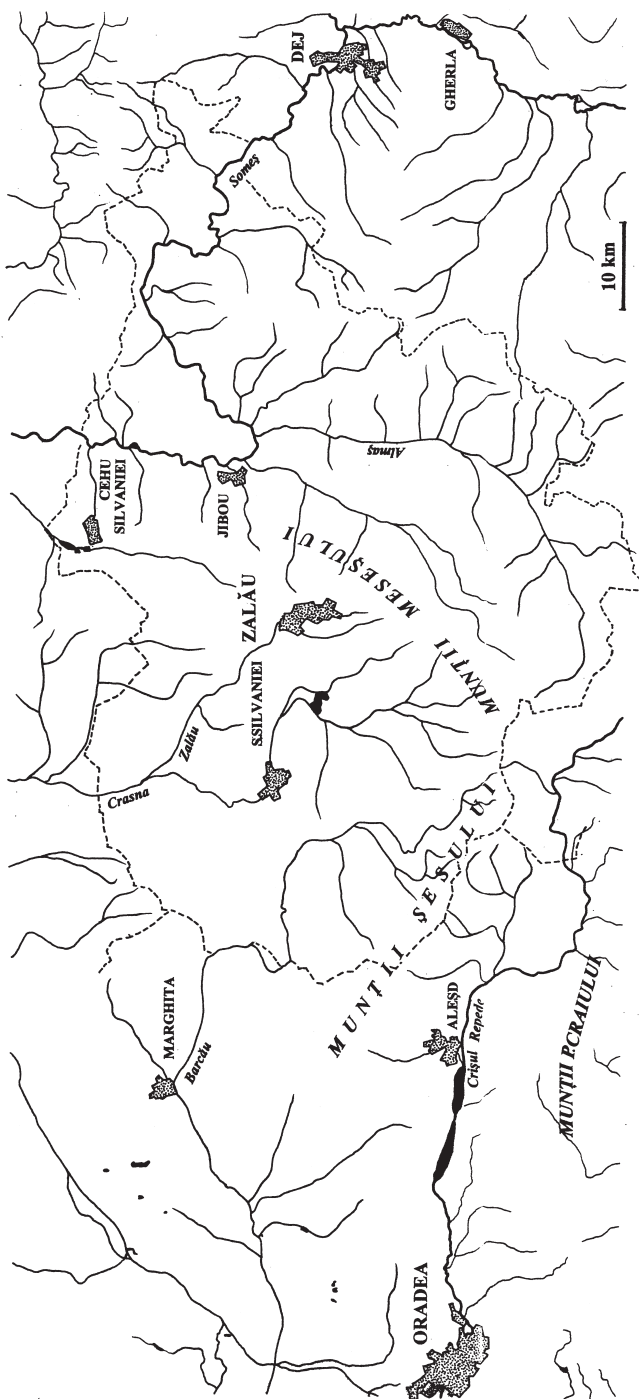


Fig.1. The topographic sketch map of the study area (Sălaj county –thin pecked line – and western part of the Şesului /Plopişului Mts.).

Some more information is to be found in Grossu's book (1983; Table 1:11.: *Arion ater*, *Bielzia coerulans*, *Carpathica calophana*, *Deroceras reticulatum*, *Deroceras transcaucasicus*, *Deroceras transsylvanicus*, *Lehmannia marginata*, *Limax cinereoniger*, *Lytopenia occidentalis*) and in the malacological collection of the Hungarian Natural History Museum (Budapest) [Table 1: 11.:Élesd/Aleșd, Sólyomkői-erdő/forest: *Perforatella dibothrion* (Nr.18563); Zilah/Zalău, Vármező/ Castle-field: *Bradybaena fruticum* (Nr.18634); Ciucea: *Bulgarica vetusta* (Nr. 3113), *Laciniaria plicata* (Nr. 3107)].

In the mollusks collection of Alexandru V. Grossu from the study area anything cannot be found in Muzeul Țării Crișurilor, Oradea (Gagiu 2007).

Taking everything in account, number of discovered species in the study area is 40.

Description of the sampling sites

The sampling sites are presented in chronological order (Fig. 2):

1. Almașu/Váralmás, Cetatea Almașului – the ruin of the castle made of metamorphic and sand stones. Near the ruins, there are bushes (hazel) and trees (*Carpinus*, *Acer*). Dry dead leaves of forest and broken fragments of the ruins.
27 May 2007.
2. Cheile (Țicău Pass) between Țicău (Jud. Maramureș) and Benesat. The site is near the parking place on the left Someș River side. We collected under poplars in humed dead leaves and also from 20 cm deep of the fluvial sediment (sand).
27 May 2007.
3. County boundary between Țicău and Benesat. A steep hillside with metamorphic stones. Dry dead leaves of forest (*Carpinus*, *Acer*). The soil is covered by *Allium*.
27 May 2007.
4. Someș Guruslău – the right side of the Someș. The sampling site is 100 m S from the bridge. Salicetum on the flood plain, rubbish bushes and great burdock (*Urtica*, *Robinia*).
27 May 2007.
5. Jibou– 2km NW from the settlement. The great burdock found on the left side of the Șoimuș brook. Thin dead leaves of forest on the sandy soil. A relatively open and warm biotope on the skirts of arable land. A forest can be found on the right (south) side of the brook.
27 May 2007.

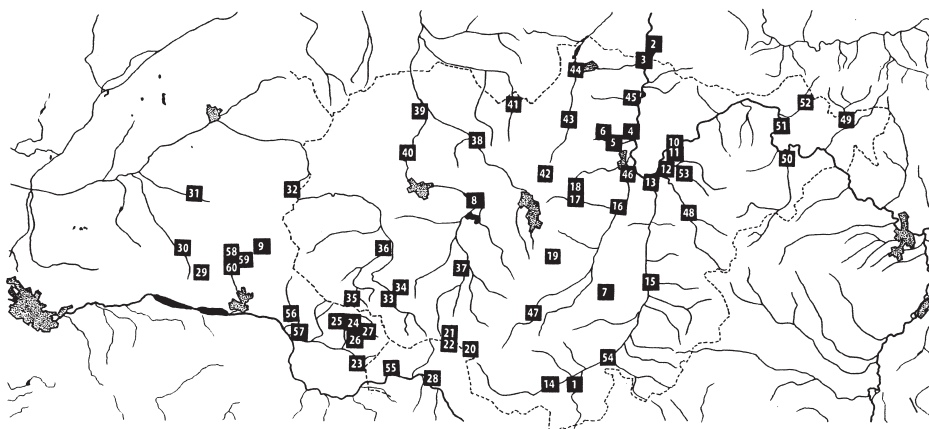


Fig. 2. The sketch map of the sampling sites in chronological order.

6. Jibou – 2km NW from the settlement. The forest is situated near the road between Jibou and Șoimuș. Dry dead leaves of forest (*Acer*, *Carpinus*).
27 May 2007.
7. Poarta Sălajului– a mountain pass (300m) 3 km SE from the settlement. The alluvia covered with very dry dead leaves of forest (*Acer*) are situated near the road bend. A relatively open biotope.
28 May 2007.
8. Vârșolț/Varsolc– the left side of the Crasna brook at the bridge. A humed great burdock biotope NW from the bridge.
28 May 2007.
9. Aleșd/Élesd (Jud. Bihor) – 9,6 km N from the settlement (road No.1H). A side valley with water ooze. Thick dead leaves of forest (*Fagus*); the ground covered by twigs and great burdock. A humed biotope.
28 May 2007.
10. Ciocmani– on left side of the Someș River. The flood plain between vehicular and railway bridge. Loamy alluvial soil on stratified loamy sandy and silty substratum.
21 October 2007.
11. Ciocmani – on the left side of the Someș River. The stony bank of an unknown brook with trees (*Alnus*), near the bridge and the road.
21 October 2007.
12. Surduc – the sand wall in the settlement near the railway. A grassy area exposed to sun.
21 October 2007.

13. Tihău – partly face with concrete, on the left side of the Almaş brook, near the bridge of the road (No. 1H). The 5-m-wide green corridor (*Populus*, *Salix*, *Amorpha*; *Urtica*, *Rubus*) of the brook, 25 m NW from the bridge. Thick humed and mouldy dead laeves of forest.
21 October 2007.
14. Almaşu/Váralmás, Valea Almaş, 1 km SW from the settlement at the bridge (road No.1G). The 5-m-wide green corridor (*Salix*, *Alnus*, *Populus*; great burdock) of the Almaş brook. Sandy and silty substratum.
22 October 2007.
15. Baica, Valea Printre – the wooded (*Robinia*, *Amorpha*, *Salix*), high bank of the Printre Văi brook, near the bridge. 2 km W from Sânpetru Almaşului. The site is open and faces south. The sandy soil is covered by fragments of concrete.
22 October 2007.
16. Between Lupoiaia and Creaca – near bridge of the Agrij brook. The right side is S from the bridge. In the green corridor (*Salicetum*), small sand-hills covered by *Urtica* and *Rubus* are to be found.
22 October 2007.
17. Between Moigrad-P. and Ortelec – the left sandy bank of the Ortelec brook covered by great burdock (*Urtica*, *Petasites*, *Equisetum*). A very humid sampling site. The brook flows by the forest (*Carpinus*). The biotope is opened and exposed to sun. The green corridor is only 5–3-meters-wide.
22 October 2007.
18. Between Moigrad-P. and Ortelec. The sampling site faces south and is to be found by the road, on grassy calcareous stones (Eocene) and under bushes bordering the road hillside. A dry biotope.
22 October 2007.
19. Zalău – 3 km S from Poarta Meseşului (pass). The dry dead leaves biotope is to be found NE from Meseş (600), near the big road bend, in a sparse forest (*Fagus*).
22 October 2007.
20. Vânători (Jud. Cluj) – 10 km NE from Ciucia in the direction of Huta, 1,5 km N from Magura Priei (996m). The woody (*Alnus*) sampling area can be found on both side of the Poicu brook, near the road. The soil is very stony and humed.
23 October 2007.
21. Vânători (Jud. Cluj), Plopiş (610 m) – a mountain pass near the boundary of two counties (Cluj/Sălaj). A grassy area, a sheep-run near by the road.

A mossy and stony biotope at the crucifix.

23 October 2007.

22. Vânători (Jud. Cluj), Plopiș (610m) – a mountain pass near the boundary of two counties (Cluj/ Sălaj). The couloir in the forest (*Fagus*) by the grassy area on the N side of the road.

23 October 2007.

23. Groapa Iepii, Cornișel (Jud. Bihor), Pasul Piatra Craiului (mountain pass 582 m) – a forest (*Fagus*) on the N side of the road (E60), near Inn Kojak. A dead leaves biotope facing W. The sampling area is humid (*Fagus*, *Urtica*, *Rubus*) or rather very humid (*Carex*, *Pteridium*). The first snail data were gathered in 1973 by Kovács (Bába & Kovács 1975).

23 October 2007.

24. Borod (Jud. Bihor) – 3km N from the road (E60). The green corridor (*Salix*, *Alnus*; *Urtica*) of the Răchita brook. Humid dead leaves of forest on the left brook-side.

23 October 2007.

25. Borod (Jud. Bihor) – 3 km N from the road (E60). The sample is from the first concrete dam of the Răchita brook. The malacological specimens are fixed on the concrete.

23 October 2007.

26. Borod (Jud. Bihor) – 3km N from the road (E60). The coppice [green corridor (*Salix*, *Alnus*, *Urtica*)] on the left side of the Răchita brook in front of the bridge.

23 October 2007.

27. Borod (Jud. Bihor) – 3km N from the road (E60) A grassy area on the left side of the Șerani brook. A relatively open and warm mossy biotope.

23 October 2007.

28. Ciucea (Jud. Cluj) – at the foot of the wall rock to be found under castle called Ady-Goga Museum. A stony sampling site near the road (E60). Dead leaves of forest and stony debris (metamorphic crystalline rocks).

28 October 2007.

29. Cuieșd (Jud. Bihor) – 500 m SE from the settlement (5,2 km from the junction Țigănești de Cris) in the direction of Lugașu de Cris. Scum and Mollusks taken from the right-hand-side of the brook, near the plough-land. On the brook side: alder, hasel, walnut, *Rubus*, *Urtica*. On the left-hand-side of the brook, a forest road and a *Fagus* forest on the downhill can be found.

08 July 2008.

30. Piculeu (Jud. Bihor) – on the right-hand-site of the Fânetelor brook, near the

plough-land at the settlement-plate of Brusturi, in the direction of Varasău. Clusters of willow trees, in a 10-meter-wide ruderal strip of land.

08 July 2008.

- 31.** Tria (Jud. Bihor) – at the eastern end of the settlement. The humid silty scum in the Salicetum of the Tria brook.

08 July 2008.

- 32.** Suplacu de Barcău/Berettyószéplak (Jud. Bihor) – the left-hand-side bank of the Barcă River, at the vehicular bridge. The sampling site covered by great burdock (bramble, nettle). The scum was empty.

09 July 2008.

- 33.** Preoteasa – Cheile of the Barcă River (4 km from the Vf. Hulupiştii: 727m), at the S end of the settlement. The sampling site faces SE and is to be found at the foot of the hill on cristalline rocks. Dead leaves, logging stumps and fine logging woody debris of hornbeam grove.

09 July 2008.

- 34.** Preoteasa – swampy hillside with cluster of dwarf alder tree above NE from the settlement.

09 July 2008.

- 35.** Sub Cetate, Ruină de Cetate Valcău – near the Barcău River on the Castle hill (422m). The site is shady and faces SW. It is a nettle and stony biotope. The soil is covered by fragments of wall and dead leaves of forest (*Robinia*, elm).

09 July 2008.

- 36.** Boghiş/Szilágybagos – at the vehicular bridge of the Jaz brook. The sampling site is on the right-hand-side of the brook. It is a willow, great burdock (bramble, nettle, hop) biotope.

09 July 2008.

- 37.** Horoatu Crasnei/Krasznahorvát – 0,5 km S from the settlement, on the left-hand-side of the green corridor (willow, great burdock) of the Crasna brook.

10 July 2008.

- 38.** Bocşa – near railway station, at the vehicular bridge. Left-hand-side of the Zalău brook. The scum (fine stem broken by water-borne transport) band (0,10–0,20 meters wide) on the cut great burdock is to be found on the 1,5 m height of the brook on steep bank above.

10 July 2008.

- 39.** Moiad – at the vehicular bridge of the Crasna. The some meters wide green corridor (great burdock) with many living specimens.

10 July 2008.

40. Uileacu Șimleului/Somlyóújlak – on the left-hand-side of the Crasna brook. The steep willowy bank covered by great burdock. There are many living specimens.
10 July 2008.
41. Achid/Szilágykerked – the green corridor (willowy, great burdock) of the Șerpelit brook and its canal, at the vehicular bridge.
10 July 2008.
42. Cristur-Criseni/Szilágyfőkeresztúr – the sampling site is exposed to SE and to be found on the hilly landscape. The hornbeam-oak grove near to the road. Dry soil and dead leaves of forest.
11 July 2008.
43. Naimon/ Nagymon – the green corridor (willowy and great burdock) of the Sălaj brook, at the vehicular bridge, in the direction of settlement of Șoimuș. It is a relatively humid biotope.
11 July 2008.
44. Cehu Silvaniei/Szilágycseh – the green corridor (willowy, great burdock) of the Sălaj brook, in the direction of Hodod, 100 meters from the road junction.
11 July 2008.
45. Inău – the nettle bank of the Inău brook at the settlement. Both sides of the brook are full off rubbish.
11 July 2008.
46. Jibou – the green corridor (willowy, nettle, bramble) at the industrial park. We took samples from a sunny and a shady biotope, too.
11 July 2008.
47. Between Buciumi and Răstolț – a comparatively wide green corridor (aldery, willowy, nettle, bramble) because the Agrij brook near the bridge divides into several arms. The ground is covered with dead trees and branches, dead leaves, litter and fine woody debris. It is a relatively humid biotope in the plough-land periphery.
11 July 2008.
48. Fabrica – 1 km S from the settlement, at the bridge. The silty scum of the Brâglez brook. We collected scum on either side of the brook. The scum is composed of dead wood (big dead trees, branches, fine logging woody, unclassified debris)
11 July 2008.
49. Poiana Plenchii, Cheile Babei. We took samples in the middle of the gorge, at foot of the rock wall exposed to NE. The biotope was shrub detritic limestone rock, and the soil was covered by moss and nettle.
12 July 2008.

- 50.** Rus – near the vehicular bridge. A sonny and shady willowy band on the right-hand-side of the Şimişna brook.
12 July 2008.
- 51.** Dabaceni – N from the end of the settlement, a 200-meter-wide flood plain. The willowy sampling site is to be found on right-hand-site slop bank of the Someş River. The sandy soil covered by dead wood and great burdock. It is a very humid biotope.
12 July 2008.
- 52.** Ileanda – the 5-meter-wide alder forest belt of the Ileanda brook, near the bridge, in the direction of Măleni.
12 July 2008.
- 53.** Criştoţel – the green corridor (willow-alder, great burdock) of the Criştoţel brook. It extends 200 meters W from the settlement, near the bridge.
12 July 2008.
- 54.** Bozolnia – the willowy left-hand-side of the Almaş brook. The biotope is in two steps and very rich in malacofauna.
12 July 2008.
- 55.** Negreni, Lacu Crişului. The pine-grown slope of hill at curve in the road, near a filling station. We took samples from under the litter (shavings).
13 July 2008.
- 56.** Cetea – S from the settlement, near the vehicular bridge. The green corridor (alder, ach, great burdock) of the Cetea brook. The sampling site 10 m W from the bridge. Here and there a 0,1-0,2 meters wide scum (fine stem broken by water-borne transport).
13 July 2008.
- 57.** Cetea – S from the settlement, near the vehicular bridge. The green corridor of the Cetea brook. (See site Nr. 56.) The stony bed of the Cetea brook.
13 July 2008.
- 58.** Aleşd/Élesd – 3 km N from the settlement. Ruins of Cetatea Şinteului (484 m). The site faces south. It is a grassy and cavernous limestone biotope. The ground is covered by fragments of wall.
13 July 2008.
- 59.** Alesd/Élesd – the foot of the rock wall (karstic limestone) under the ruin of the Cetatea Şinteului (→**58.**). Humid ground with broken fragments of rock and dead leaves of forest.
13 July 2008.
- 60.** Aleşd/Élesd – alder in both side of the Secătura brook. The sampling site is found in the great burdock near **59th** sampling site.
13 July 2008.

Methods

We took the samples from dead leaves of forest, big standing dead trees (snag), litters and fine woody debris, etc only via singling (60 minutes/site). It is generally known that singling increases the proportion of the the species of larger-size; therefore, we took the sampling via singling.

After cleaning and drying, we selected out and classified shells coming from malacological material or anatomical investigation. In order to identify the species we used the taxonomic books or papers from Soós (1943); Grossu (1981, 1983); Kerney et al (1983); Kiss, Pintér (1985). Our nomenclature follows A.V. Grossu (1993) approximately with some modifications. Among from the enumeration of species we reduced the subspecies and different forms, with the exception of Familia Clausiliidae. In this case, we used nomenclature according to M. Szekeres.

Results

During the standard examination (compilation, collecting) time 97 Mollusca taxa and 644 new units were found (Check list, Table 1, 2, 3).

The number of terrestrial species is 87.

Among the species of relatively large size we found the rare (the frequency was lower than 20%) *Isognomostoma isognomostoma*, *Alinda biplicata*, *Agardhiella lamellata*, *Argna bielzi*, *Bulgarica cana*, *Campylea faustina*, *Perforatella bidentata*, *Pseudalinda stabilis*, *Bulgarica vetusta*, *Clausilia pumila*, *Kovacsia kovacsi*, *Macrogastra borealis*, *Perforatella dibothrion* (In increasing order of the frequency), etc.

Ruthenica filigrana, *Trichia hispida*, *Helicigona banatica*, *Laciniaria plicata*, *Helix lutescens*, *Monachoides vicina*, *Cochlodina laminata*, *Helix pomatia*, *Euomphalia strigella*, *Bradybaena fruticum* (in increasing order of the frequency) are relatively frequent on the northern part of Apuseni Montains.

The number of aquatic snails (Gastropoda) is seven and of mussels (Bivalvia) is three.

Table 2/1. Sampling sites and terrestrial snail taxa of the study area

	Taxa	Sampling site														
		0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	1 3	1 4	1 5
1.	<i>Achanthinula aculeata</i>															
2.	<i>Acicula perpusilla</i>															
3.	<i>Acicula polita</i>															
4.	<i>Aegopinella epipedostoma</i>			•							•					
5.	<i>Aegopinella minor</i>	•		•		•		•			•				•	
6.	<i>Agardhiella lamellata</i>		•													
7.	<i>Alinda biplicata</i>									•				•		•
8.	<i>Arion circumscriptus</i>				•										•	
9.	<i>Arion subfuscus</i>															
10.	<i>Argna bielzi</i>															
11.	<i>Bradybaena fruticum</i>	•	•	•	•	•			•		•	•		•	•	•
12.	<i>Bulgarica cana</i>								•							
13.	<i>Bulgarica vetusta</i>					•										
14.	<i>Campylea faustina</i>										•					
15.	<i>Carpathica calophana</i>															
16.	<i>Carychium minimum</i>				•									•		
17.	<i>Carychium tridentatum</i>		•												•	
18.	<i>Cepaea vindobonensis</i>	•				•			•		•	•		•		•
19.	<i>Chondrina clienta</i>															
20.	<i>Chondrula tridens</i>															•
21.	<i>Clausilia pumila</i>					•										•
22.	<i>Cochlicopa lubrica</i>			•	•				•		•	•		•	•	•
23.	<i>Cochlicopa lubricella</i>												•	•	•	•
24.	<i>Cochlodina laminata</i>		•	•	•	•				•	•	•		•	•	•
25.	<i>Columella edentula</i>													•	•	•
26.	<i>Deroceras</i> sp.				•				•		•				•	•
27.	<i>Discus perspectivus</i>															
28.	<i>Ena montana</i>			•												
29.	<i>Euconulus fulvus</i>	•													•	
30.	<i>Euomphalia strigella</i>	•	•	•		•							•	•		•
31.	<i>Granaria trumentum</i>	•														
32.	<i>Helicella obvia</i>	•														•
33.	<i>Helicigona banatica</i>		•	•	•					•	•	•				•
34.	<i>Helicodiscus singleyanus</i>															
35.	<i>Helix lutescens</i>	•	•	•	•	•			•		•	•		•	•	•
36.	<i>Helix pomatia</i>		•		•			•		•	•	•	•	•		
37.	<i>Isognomostoma isognomostoma</i>					•										
38.	<i>Kovaccia kovacsi</i>															
39.	<i>Laciniaria plicata</i>		•	•	•						•			•		•
40.	<i>Lehmanna marginata</i>															
41.	<i>Limax maximus</i>				•			•	•							
42.	<i>Macrogastra borealis</i>													•	•	•
43.	<i>Malacolimax tenellus</i>															
44.	<i>Merdigera obscura</i>			•		•										
45.	<i>Monacha cartusiana</i>	•							•							
46.	<i>Monachoides vicina</i>			•	•	•				•	•			•	•	•
47.	<i>Nesovitreia hammonis</i>															
48.	<i>Oxychilus draparnaudi</i>										•			•		•
49.	<i>Oxychilus glaber</i>		•													
50.	<i>Oxychilus inopinatus</i>															
51.	<i>Oxychilus montivagus</i>															
52.	<i>Oxychilus orientalis</i>													•		
53.	<i>Perforatella bidentata</i>										•	•				
54.	<i>Perforatella dibothrion</i>					•				•						
55.	<i>Phenacolimax pellucida</i>	•	•							•	•		•		•	•
56.	<i>Pseudolinda stabilis</i>		•	•						•						
57.	<i>Punctum pygmaeum</i>															
58.	<i>Pupilla muscorum</i>															
59.	<i>Ruthenica filigrana</i>		•													•
60.	<i>Sphyradium dolium</i>		•	•												
61.	<i>Succinea oblonga</i>					•								•		
62.	<i>Succinea putris</i>				•			•		•						
63.	<i>Trichia bielzi</i>															
64.	<i>Trichia hispida</i>				•						•	•			•	
65.	<i>Truncatellina cylindrica</i>	•												•		•
66.	<i>Vallonia costata</i>	•												•		•
67.	<i>Vallonia pulchella</i>													•		•
68.	<i>Vertigo angustior</i>		•													
69.	<i>Vertigo pygmaea</i>													•		
70.	<i>Vitrea contracta</i>		•													
71.	<i>Vitrea crystallina</i>										•					
72.	<i>Vitrea diaphana</i>			•		•				•						
73.	<i>Vitrea subrimata</i>															
74.	<i>Zenobiella rubiginosa</i>		•		•	•			•					•		
75.	<i>Zonitoides nitidus</i>				•	•			•		•					
	Numbers of taxa	12	16	15	15	16	0	3	10	10	19	12	4	22	14	18

Table 2/2. Sampling sites and terrestrial snail taxa of the study area

	Taxa	Sampling site														
		1	1	1	1	2	2	2	2	2	2	2	2	2	3	
		6	7	8	9	0	1	2	3	4	6	7	8	9	0	
1.	<i>Achanthinula aculeata</i>									•				•		
2.	<i>Acicula perpusilla</i>															
3.	<i>Acicula polita</i>															
4.	<i>Aegopinella epipedostoma</i>					•								•		
5.	<i>Aegopinella minor</i>	•			•				•					•		
6.	<i>Agardhiella lamellata</i>													•		
7.	<i>Alinda biplicata</i>								•		•			•		
8.	<i>Arion circumscriptus</i>			•												
9.	<i>Arion subfuscus</i>	•				•										
10.	<i>Argna bielzi</i>															
11.	<i>Bradybaena fruticum</i>	•	•	•									•	•	•	
12.	<i>Bulgarica cana</i>															
13.	<i>Bulgarica vetusta</i>			•												
14.	<i>Campylea faustina</i>									•						
15.	<i>Carpathica calophana</i>					•	•		•	•				•		
16.	<i>Carychium minimum</i>															
17.	<i>Carychium tridentatum</i>															
18.	<i>Cepaea vindobonensis</i>				•					•			•		•	
19.	<i>Chondrina clienta</i>									•						
20.	<i>Chondrula tridens</i>	•		•						•						
21.	<i>Clausilia pumila</i>															
22.	<i>Cochlicopa lubrica</i>	•						•							•	
23.	<i>Cochlicopa lubricella</i>			•				•					•	•		
24.	<i>Cochlodina laminata</i>	•	•		•					•				•		
25.	<i>Columella edentula</i>															
26.	<i>Deroceras sp.</i>	•												•		
27.	<i>Discus perspectivus</i>															
28.	<i>Ena montana</i>															
29.	<i>Euconulus fulvus</i>															
30.	<i>Euomphalia strigella</i>	•	•												•	
31.	<i>Granaria frumentum</i>				•											
32.	<i>Helicella obvia</i>				•											
33.	<i>Helicigona banatica</i>	•	•											•		
34.	<i>Helicodiscus singleyanus</i>															
35.	<i>Helix lutescens</i>	•	•	•												
36.	<i>Helix pomatia</i>	•	•						•	•	•		•		•	
37.	<i>Isognomostoma isognomostoma</i>															
38.	<i>Kovacsia kovacsi</i>				•	•					•			•		
39.	<i>Laciniaria plicata</i>							•	•				•			
40.	<i>Lehmannia marginata</i>				•	•										
41.	<i>Limax maximus</i>								•					•		
42.	<i>Macrogastra borealis</i>			•												
43.	<i>Malacolimax tenellus</i>															
44.	<i>Merdigera obscura</i>															
45.	<i>Monacha cartusiana</i>			•												
46.	<i>Monachoides vicina</i>	•	•			•				•	•			•		
47.	<i>Nesovittrea hammonis</i>						•									
48.	<i>Oxychilus draparnaudi</i>	•														
49.	<i>Oxychilus glaber</i>															
50.	<i>Oxychilus inopinatus</i>															
51.	<i>Oxychilus montivagus</i>	•			•											
52.	<i>Oxychilus orientalis</i>	•	•													
53.	<i>Perforatella bidentata</i>															
54.	<i>Perforatella dibothrion</i>								•							
55.	<i>Phenacolimax pellucida</i>	•	•		•				•					•	•	
56.	<i>Pseudolinda stabilis</i>								•							
57.	<i>Punctum pygmaeum</i>															
58.	<i>Pupilla muscorum</i>						•									
59.	<i>Ruthenica filograna</i>	•							•	•		•	•	•		
60.	<i>Sphyradium dolium</i>									•				•		
61.	<i>Succinea oblonga</i>	•												•	•	
62.	<i>Succinea putris</i>													•		
63.	<i>Trichia bielzi</i>															
64.	<i>Trichia hispida</i>	•														
65.	<i>Truncatellina cylindrica</i>				•			•		•				•		
66.	<i>Vallonia costata</i>			•				•					•			
67.	<i>Vallonia pulchella</i>							•					•			
68.	<i>Vertigo angustior</i>												•			
69.	<i>Vertigo pygmaea</i>							•							•	
70.	<i>Vitrea contracta</i>															
71.	<i>Vitrea crystallina</i>															
72.	<i>Vitrea diaphana</i>									•		•				
73.	<i>Vitrea subinata</i>															
74.	<i>Zenobiella rubiginosa</i>	•														
75.	<i>Zonitoides nitidus</i>	•	•													
	Numbers of taxa	21	16	8	7	6	8	2	12	12	5	5	6	18	8	

Table 2/3. Sampling sites and terrestrial snail taxa of the study area

	Taxa	Sampling site														
		3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
		1	2	3	5	6	7	8	9	0	1	2	3	4	5	
1.	<i>Achanthinula aculeata</i>															
2.	<i>Acicula perpusilla</i>															
3.	<i>Acicula polita</i>															
4.	<i>Aegopinella epipedostoma</i>															
5.	<i>Aegopinella minor</i>				•											
6.	<i>Agardhiella lamellata</i>															
7.	<i>Alinda biplicata</i>															
8.	<i>Arion circumscriptus</i>								•		•	•				
9.	<i>Arion subfuscus</i>		•							•						
10.	<i>Argna bielzi</i>															
11.	<i>Bradybaena fruticum</i>	•	•			•	•	•	•	•	•		•	•		
12.	<i>Bulgarica cana</i>															
13.	<i>Bulgarica vetusta</i>				•											
14.	<i>Campylea faustina</i>															
15.	<i>Carpathica calophana</i>			•												
16.	<i>Carychium minimum</i>															
17.	<i>Carychium tridentatum</i>															
18.	<i>Cepaea vindobonensis</i>	•					•	•	•	•	•		•			
19.	<i>Chondrina clienta</i>															
20.	<i>Chondrula tridens</i>							•			•					
21.	<i>Clausilia pumila</i>															
22.	<i>Cochlicopa lubrica</i>	•						•						•		
23.	<i>Cochlicopa lubricella</i>		•					•						•		
24.	<i>Cochlodina laminata</i>	•		•	•											
25.	<i>Columella edentula</i>															
26.	<i>Deroceras sp.</i>									•			•			
27.	<i>Discus perspectivus</i>							•								
28.	<i>Ema montana</i>															
29.	<i>Euconulus fulvus</i>	•														
30.	<i>Euomphalia strigella</i>	•	•			•	•	•		•	•			•		
31.	<i>Granaria frumentum</i>															
32.	<i>Helicella obvia</i>															
33.	<i>Helicigona banatica</i>			•		•										
34.	<i>Helicodiscus singleyanus</i>							•								
35.	<i>Helix lutescens</i>		•			•		•	•	•	•		•	•	•	
36.	<i>Helix pomata</i>			•	•			•	•	•			•	•		•
37.	<i>Isognomostoma isognomostoma</i>															
38.	<i>Kovacsia kovacsi</i>			•												
39.	<i>Laciniaria plicata</i>			•												
40.	<i>Lehmannia marginata</i>															
41.	<i>Limax maximus</i>		•			•		•								
42.	<i>Macrogastra borealis</i>															
43.	<i>Malacolimax tenellus</i>			•												
44.	<i>Merdigera obscura</i>															
45.	<i>Monacha cartusiana</i>	•	•					•		•			•			
46.	<i>Monachoides vicina</i>	•					•	•								
47.	<i>Nesovitreia hammonis</i>															
48.	<i>Oxychilus draparnaudi</i>							•					•			
49.	<i>Oxychilus glaber</i>															
50.	<i>Oxychilus inopinatus</i>							•								
51.	<i>Oxychilus montivagus</i>				•											
52.	<i>Oxychilus orientalis</i>															
53.	<i>Perforatella bidentata</i>			•												
54.	<i>Perforatella dibothrion</i>															
55.	<i>Phenacolimax pellucida</i>	•	•	•		•					•					
56.	<i>Pseudolinda stabilis</i>			•												
57.	<i>Punctum pygmaeum</i>															
58.	<i>Pupilla muscorum</i>															
59.	<i>Ruthenica filograna</i>			•	•											
60.	<i>Sphyradium dolium</i>			•	•											
61.	<i>Succinea oblonga</i>	•	•					•					•			
62.	<i>Succinea putris</i>							•	•	•			•	•		
63.	<i>Inchia bielzi</i>															
64.	<i>Inchia hispida</i>															
65.	<i>Truncatellina cylindrica</i>															
66.	<i>Vallonia costata</i>															
67.	<i>Vallonia pulchella</i>	•	•					•					•			
68.	<i>Vertigo angustior</i>															
69.	<i>Vertigo pygmaea</i>															
70.	<i>Vitrea contracta</i>															
71.	<i>Vitrea crystallina</i>															
72.	<i>Vitrea diaphana</i>															
73.	<i>Vitrea subornata</i>															
74.	<i>Zenobiota rubiginosa</i>	•						•			•		•			
75.	<i>Zonitoides nitidus</i>	•						•			•		•			
	Numbers of taxa	13	10	13	6	6	4	20	5	8	9	3	14	4	1	

Table 2/4. Sampling sites and terrestrial snail taxa of the study area

	Taxa	Sampling site															
		4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	1-
		6	7	8	9	0	1	2	3	4	5	6	8	9	0		60
1.	<i>Acharanthinula aculeata</i>																2
2.	<i>Acicula perpusilla</i>				•												1
3.	<i>Acicula polita</i>				•												1
4.	<i>Aegopinella epipedostoma</i>												•	•			7
5.	<i>Aegopinella minor</i>				•												12
6.	<i>Agardhiella lamellata</i>				•												2
7.	<i>Alinda biplicata</i>			•						•		•					10
8.	<i>Arion circumscriptus</i>		•					•		•							8
9.	<i>Arion subfuscus</i>																4
10.	<i>Argna bielzi</i>				•												2
11.	<i>Bradybaena fruticum</i>	•			•		•		•	•		•				•	34
12.	<i>Bulgarica cana</i>		•	•													2
13.	<i>Bulgarica vetusta</i>				•								•				7
14.	<i>Campylea faustina</i>				•									•			4
15.	<i>Carpathica calophana</i>											•					7
16.	<i>Carychium minimum</i>						•										3
17.	<i>Carychium tridentatum</i>				•											•	4
18.	<i>Cepaea vindobonensis</i>	•				•			•	•			•				23
19.	<i>Chondrina clienta</i>													•			2
20.	<i>Chondrula tridens</i>	•		•						•							9
21.	<i>Clausilia pumila</i>							•		•		•				•	7
22.	<i>Cochlicopa lubrica</i>	•	•			•	•	•				•					19
23.	<i>Cochlicopa lubricella</i>			•			•					•					12
24.	<i>Cochlodina laminata</i>		•		•				•	•		•	•	•			26
25.	<i>Columella edentula</i>							•									3
26.	<i>Deroceras</i> sp.																9
27.	<i>Discus perspectivus</i>																1
28.	<i>Ena montana</i>																1
29.	<i>Euconulus fulvus</i>				•	•						•					6
30.	<i>Euomphalia strigella</i>	•		•		•		•	•	•		•		•			26
31.	<i>Granaria frumentum</i>				•								•		•		6
32.	<i>Helicella obvia</i>	•		•		•											1
33.	<i>Helicigona banatica</i>		•	•					•			•		•	•		18
34.	<i>Helicodiscus singleyanus</i>																1
35.	<i>Helix lutescens</i>					•	•			•							22
36.	<i>Helix pomatia</i>	•					•	•				•		•	•		26
37.	<i>Isognomostoma isognomostoma</i>																1
38.	<i>Kovacsia kovacsi</i>												•	•	•		8
39.	<i>Laciniaria plicata</i>	•	•	•	•					•		•	•	•			18
40.	<i>Lehmannia marginata</i>																2
41.	<i>Limax maximus</i>			•			•										10
42.	<i>Macrogastra borealis</i>		•	•		•				•							8
43.	<i>Malacolimax tenellus</i>																1
44.	<i>Merdigera obscura</i>											•		•			4
45.	<i>Monacha cartusiana</i>	•		•								•					12
46.	<i>Monachoides vicina</i>	•	•	•				•		•		•			•		24
47.	<i>Nesovitreia hammonis</i>											•					2
48.	<i>Oxychilus draparnaudi</i>	•					•					•					9
49.	<i>Oxychilus glaber</i>																1
50.	<i>Oxychilus inopinatus</i>				•												2
51.	<i>Oxychilus montivagus</i>				•												4
52.	<i>Oxychilus orientalis</i>				•												4
53.	<i>Perforatella bidentata</i>						•					•					4
54.	<i>Perforatella dibothrion</i>				•											•	8
55.	<i>Phenacolimax pellucida</i>		•				•	•		•			•	•	•		25
56.	<i>Pseudalinda stabilis</i>								•								6
57.	<i>Punctum pygmaeum</i>													•			1
58.	<i>Pupilla muscorum</i>																3
59.	<i>Ruthenica filograna</i>				•			•				•					12
60.	<i>Sphyradium dolium</i>				•												8
61.	<i>Succinea oblonga</i>	•	•	•				•	•	•		•			•		17
62.	<i>Succinea putris</i>		•	•			•	•	•	•					•		16
63.	<i>Trichia bielzi</i>				•		•	•	•	•				•			3
64.	<i>Trichia hispida</i>		•				•	•	•	•		•			•		12
65.	<i>Truncatellina cylindrica</i>					•											8
66.	<i>Vallonia costata</i>		•			•						•					10
67.	<i>Vallonia pulchella</i>			•				•									10
68.	<i>Vertigo angustior</i>																2
69.	<i>Vertigo pygmaea</i>																1
70.	<i>Vitrea contracta</i>																1
71.	<i>Vitrea crystallina</i>		•		•		•			•		•					6
72.	<i>Vitrea diaphana</i>				•												6
73.	<i>Vitrea subimata</i>				•												1
74.	<i>Zenobiota rubiginosa</i>		•	•		•	•					•					14
75.	<i>Zonitoides nitidus</i>	•		•			•	•	•			•					16
	Numbers of taxa	13	15	22	20	12	15	14	9	17	2	23	8	16	12		634

Table 3. Sampling sites and terrestrial snail taxa of the study area

	Taxa	Sampling site								
		23	25	31	34	38	41	48	57	1-60
1.	<i>Ancylus fluviatilis</i>		•						•	2
2.	<i>Anisus spirorbis</i>			•						1
3.	<i>Galba truncatula</i>					•	•	•		3
4.	<i>Physa acuta</i>					•				1
5.	<i>Radix peregra</i>		•		•					2
1.	<i>Pisidium</i> sp.	•								1
	Numbers of taxa	1	2	1	1	2	1	1	1	10

Checklist in systematic order (Grossu 1993) of the mollusks**Class Gastropoda****Subclass Prosobranchia**

Familia Aciculidae Gray, 1850

Acicula polita Hartmann, 1840**Comment:** It is found only in Cheile Babei (Poiana Plenchii).*Acicula perpusilla* Reinhardt, 1880

Comments: This species is known from Hungary, from the alluvia (scum) of the Tisza River, at the settlement Tiszatelek (EU53) (Pintér & Suara 2004). Maybe these scums resulted from the catchment area of the Someș River. By Grossu's opinion, this species can be present in southwestern Transylvania (Grossu 1993).

Subclass Pulmonata

Familia Ellobiidae Adams, 1855

Carychium minimum O.F. Müller, 1774*Carychium tridentatum* (Risso, 1826)

Familia Physidae Fitzinger, 1833

Physa acuta Draparnaud, 1805

Familia Lymnaeidae Rafinesque, 1815

Lymnaea palustris (O.F. Müller, 1774)*Radix auricularia* (Linnaeus, 1758)

Comments: In the Someş River. (Sárkány-Kiss et al., 1999).

Radix peregra (O.F. Müller, 1774)

Galba truncatula (O.F. Müller, 1774)

Familia Ancyliidae Rafinesque, 1815

Ancylus fluviatilis O.F. Müller, 1774

Comments: Found in rapid flowing clean water of the brook fixed on stones.

Familia Planorbidae Rafinesque, 1815

Planorbis planorbis (Linnaeus, 1758)

Comments: In the Someş River. (Sárkány-Kiss et al. 1999).

Anisus spirorbis (Linnaeus, 1758)

Armiger crista (Linnaeus, 1758)

Familia Succinaeidae Beck, 1857

Succinea oblonga Draparnaud, 1805

Succinea putris (Linnaeus, 1758)

Oxyloma elegans (Risso, 1826)

Comments: In the site of the Someş River (Sárkány-Kiss et al., 1999). In this area, it is very often difficult to tell them (*Succinea putris* and *Oxyloma elegans*) apart on the basis of shell morphology.

Familia Cochlicopidae Pilsbry, 1900

Cochlicopa lubrica (O.F. Müller, 1774)

Cochlicopa lubricella (Porro, 1838)

Comments: Both species frequently in the study area.

Familia Orculidae Pilsbry, 1913

Sphyradium doliolum (Bruguière, 1792)

Argna bielzi (Rossmässler, 1859) (→ Fig.4.)

Comments: It is found in the scum of the Brâglez brook, near the settlement of Fabrica and in the redeposited silt of the gorge/Cheile Babei. *Argna bielzi* became known in the Rodna Mountains (Valea Mare, before Arieș – Bába & Sárkány-Kiss, 1999a) and in Hungary, from the alluvia (scum) of the Tisza River, at settlements of Tiszatelek (EU53) and Szeged (DS32)(Pintér & Suara, 2004). Maybe these scums result from the catchment area of the Someș River.

Aghardiella lamellata (Clessin, 1887) (→ Fig.4.)

Comments: It is found in Țicău and Babei Pass. By Grossu's opinion (Grossu, 1993) this species lives in the Făgăraș Mountains, Brezoi, Olt River Valley. It became known as *Argna lamellata* in Hungary, in the alluvia (scum) of the Tisza River, at the settlements of Tiszatelek (EU53) and Újkenéz (EU94) (Pintér & Suara, 2004). Maybe these scums result from the catchment area of the Someș River.

Familia Valloniidae, Morse, 1864

Vallonia pulchella (O.F. Müller, 1774)

Vallonia costata (O.F. Müller, 1774)

Acanthinula aculeata (O.F. Müller, 1774)

Familia Vertiginidae Fitzinger, 1833

Vertigo pusilla (O.F. Müller, 1774)

Vertigo pygmaea (Draparnaud, 1801)

Vertigo angustior Jeffrey, 1830f

Columella edentula (Draparnaud, 1805)

Truncatellina cylindrica (Férussac, 1822)

Familia Pupillidae Turton, 1821

Pupilla muscorum (Linnaeus, 1758)

Familia Chondrinidae Steenberg, 1925

Granaria frumentum (Draparnaud, 1801)

Chondrina clienta (Westerlund, 1883)

Chondrula tridens (O.F. Müller, 1774)

Ena montana (Draparnaud, 1801)

Comments: Only in the humed dead leaves of forest in Cheile Țicău (Țicău Pass). Because of its broken shell (apical fragments), it may belong to the genus *Mastus* (T. Deli ex verbis).

Merdigera obscura (O.F. Müller, 1774)

Familia Clausiidae Schmidt, 1857

Cochlodina laminata (Montagu, 1803) (→ Fig.21.)

Cochlodina orthostoma (Menke, 1830)

Comments: This species is known only from references (Csiki, 1906).

Ruthenica filograna (Rossmässler, 1836) (→ Fig.15.)

Comments: Frequently in the Western Carpathian Mountains. The dimension of shells is very varied.

Clausilia pumila C. Pfeiffer, 1828 (→ Fig.10.)

Comments: Only in Munții Șesului/Plopișului.

Macrogastra borealis (Boettger, 1878) (→ Fig.12.)

Comments: This species and its forms are present as *M. latestriata* in 'The catalogue of the Mollusks from Romania'. (Grossu, 1993). It was found in Hungary, in the alluvia (scum) of the Tisza River, at the settlements of Tiszaszalka, Tiszavid (EU93), Tiszatelek (EU53), Szolnok (DT32) and Szeged (DS31, 32). Maybe these scums result from the catchment area of the Szamos/Someș River (Almaș and Agrij drainage Basin). It was found also in the scum of the Kraszna/Crasna River, at the settlement of Vásárosnamény (EU93) (Pintér & Suara, 2004). It is a typical river transport.

Laciniaria plicata Draparnaud, 1805 (→ Fig.18.)

Balea biplicata (Montagu, 1803) (→ Fig.14.)

Comments: This genus is in the Grossu's catalogue (Grossu, 1993) *Balea biplicata*. by Szekeres's opinion *Alinda biplicata*.

Balea stabilis (I. Pfeiffer, 1847) (→ Fig.8.)

Comments: This genus is in the Grossu's catalogue (Grossu, 1993) *Balea stabilis*. By Szekeres's view *Pseudalinda stabilis*.

Pseudalinda falax Westerlund, 1878

Comments: This species is found only at the Pasul Piatra Craiului (Bába & Kovács 1975). By our opinion *Pseudalinda stabilis*.

Bulgarica vetusta (Rossmässler, 1836) (→ Fig.9.)

Comments: In our thinkings, this genus is relatively common in the Western Charpathian Mountains, on the western part of Mții. Apuseni. (Domokos & Lenner, 2007)

Bulgarica cana (Held 1836) (→ Fig.5)

Comments: Rare in the area studied. It can be found only in the scum of the Brâglez brook (Fabrica) and in the inundation area of the Agrij brook, at bridge between the settlements Buciumi and Răstolț.

Familia Ferussaciidae Bruguière, 1883

Cecilioides acicula (O.F. Müller, 1774)

Familia Endodontidae Pilsbry, 1894

Punctum pygmaeum (Draparnaud, 1805)

Familia Helicodiscidae H. B. Baker, 1927

Helicodiscus singleyanus (Pilsbry, 1890)

Comments: Only from the scum of the Zalău brook at the settlement Bocșa. According to the CLECOM, its name is *Lucilla singleyana*. This species was published from Romania by Domokos and Lennert firstly (Domokos & Lennert 2007, Domokos & Majoros 2008).

Familia Patulidae Tryon, 1866

Discus perspectivus (Mühlfeld, 1818)

Comments: This species is very rare in the area studied. Only from scum of the Zalău brook at the settlement Bocşa.

Familia Arionidae Gray, 1841

Arion ater Linnaeus, 1758

Comments: In Munții Șesului. (Grossu 1983)

Arion subfuscus Draparnaud, 1801*Arion circumscriptus* Johnston, 1828

Comments: Both species are determined on the basis of the specimens's morphology and colour.

Familia Vitrinidae Fitzinger, 1883

Phenacolimax pellucida (O.F. Müller, 1774)*Phenacolimax annularis* Studer, 1820

Comments: This species is known from references (Váncsa, 2006) and can be found in the malacological collection of Hungarian Natural History Museum (Budapest).

Familia Zonitidae Mörch, 1864

Zonitoides nitidus (O.F. Müller, 1774)*Vitrea diaphana* (Studer, 1820)*Vitrea crystallina* (O.F. Müller, 1774)*Vitrea subrimata* (Reinhardt, 1871)*Nesovitrea hammonis* (Ström, 1765)*Aegopinella minor* (Stabile, 1864) (= *Retinella nitens* auct.)*Aegopinella epipedostoma* (Fagot, 1869) (= *Retinella nitidula* auct.)

Comments: In some instances (mobile, latency states of existence) this species was determined by help of anatomical investigation, with the aid of B. Páll-Gergely.

Oxychilus draparnaudi (Beck, 1837)

Oxychilus glaber (Westerlund, 1881)

Oxychilus inopinatus (Ulični, 1887)

Comments: Found only from scum because of collection methods.

Oxychilus montivagus (M. Kimakowicz, 1890)

Oxychilus orientalis (Clessin, 1887)

Familia Daudebardiidae Pilsbry, 1908

Carpathica calophana Westerlund, 1881

Comments: In a few instances, it was determined by G. Majoros by the help of anatomical investigation.

Familia Limacidae Rafinesque, 1815

Limax maximus Linnaeus, 1758

Limax cinereoniger Wolf, 1803

Comments: In Munții Șesului and Meseșului. (Grossu 1983)

Lehmannia marginata O: F. Müller, 1774

Comments: These species was determined anatomically by G. Majoros.
In Munții Meseșului. (Grossu 1983)

Bielzia coerulans (M. Bielz, 1851)

Comments: Cited by Grossu (1983) from Munții Meseșului.

Deroceras reticulatum (O.F. Müller, 1758)

Comments: In the eastern Part of Sălaj county (Grossu 1983).

Deroceras transcaucasicus (Simroth, 1901)

Comments: In Munții Meseșului. (Grossu 1983)

Deroceras transsylvanicus Grossu, 1969

Comments: In Munții Șesului and Meseșului (Grossu 1983).

Deroceras sp.

Comments: *Deroceras* genus without anatomical investigations.

Lytopelte occidentalis Grossu et Lupu, 1966

Comments: In Munții Meseșului. (Grossu 1983)

Familia Euconulidae H. B. Baker, 1928

Euconulus fulvus (O.F. Müller, 1774)

Comments: Based on the CLECOM this species is *Euconulus praticola* (Reinhardt, 1883). According to Kerney et al.1983, it is *Euconulus alderi* (Gray, 1840) [syn.: *E.fulvus* var. *alderi* (Gray)]

Familia Bradybaenidae Pilsbry, 1939

Bradybaena fruticum (O.F. Müller, 1774) (→ Fig.24.)

Comments: Common in the studied area.

Familia Helicidae Refinesque, 1815

Helicella obvia (Menke, 1828)

Monacha cartusiana (O.F. Müller, 1774)

Perforatella bidentata Gmelin, 1788) (→ Fig.7.)

Perforatella dibothrion M. Kimakowicz, 1890) (→ Fig.13.)

Monachoides vicina (Rossmässler 1842) (→ Fig.20.)

Comments: This species is absent from the Munții Codru-Moma.(Domokos & Lennert 2007). The young *Monachoides vicina* individuals are easily mixed up with *Hygromia/Lozekia transsylvanica* (Westerlund, 1876) or *Hygromia kovacsi* Varga et Pintér, 1972 individuals (Fehér et al. 2008).

Zenobiella rubiginosa (A. Schmidt, 1853)

Trichia bielzi (A. Schmidt, 1860)

Trichia hispida (O.F. Müller, 1774) (→ Fig.16.)

Euomphalia strigella (Draparnaud, 1801) (→ Fig.23.)

Lozekia transsylvanica (Westerlund, 1876) or *Hygromia kovacsi* Varga et Pintér, 1972 (→ Fig.11.)

Comments: The racial affiliation is problematic [*Hygromia/Lozekia transsylvanica* (Westerlund, 1876) or *Hygromia kovacsi* Varga et Pintér, 1972, or rather *Kovacsia kovacsi* Falkner et al. 2001]. By our opinion, this genus is a second clad (k-2) of the *Kovacsia kovacsi* (Fehér et al. 2008), because *Kovacsia kovacsi* can be found in the Munții Pădurea Craiului, Munții Codru-Moma and Munții Zărand (Fehér et al. 2008).

Isognomostoma isognomostoma (Gmelin, 1788) (→ Fig.3.)

Comments: This species is very rare in the studied area. Only from the brook side of the Șoimuș at the settlement of Jibou.

Helicigona banatica (Rossmässler, 1838) (→ Fig.17.)

Comments: This species is generally received in the area studied and also in the Munții Apuseni (Domokos & Lennert, 2007). It can be found in Hungary (Deli & Farkas 2006), in the green corridor of the Szamos River, at the settlements of Olcsva (EU93?), Cégénydányád (FU10) and Komlódtótfalu (FU20).

Campylea faustina (Rossmässler, 1835) (→ Fig.6.)

Cepaea vindobonensis (Férussac, 1821)

Helix pomatia Linnaeus, 1758 (→ Fig.22.)

Helix lutescens (Rossmässler, 1837) (→ Fig.19.)

Comment: Common in the area studied. This species is absent in the Munții Codru-Moma (Domokos & Lennert 2007).

Class Bivalvia**Subclass Palaeiheterodonta Newell, 1965**

Familia Unionidae Fleming, 1828

Unio crassus Philipsson, 1788**Comments:** In the Someş and Barcău Rivers (Sárkány-Kiss et al., 1997, 1999)*Anodonta cygnaea* Linné 1758**Comments:** In the Someş River (Sárkány-Kiss et al., 1999)**Subclass Heterodonta Newmayer, 1884**

Familia Pisidiidae Gray, 1857

Pisidium sp.**Dedication**

This paper is dedicated to the great Hungarian poet, Endre Ady (1877–1919) and to the malacologist Károly Bába (1935-2007).

Poet Endre Ady took his final examination at the Lutheran secondary school in Zilah/Zălau (1896). The titles of his physical thesis: a) Possibility of transmission of the heat; b) The snail.

Professor Dr. Károly Bába is one of the founders (1955) of the scientific research of the Tisza River Basin. Since 1991, he participated in the work of a multidisciplinary team coordinated by the 'Tisza Klub' (Szolnok, Hungary) and the 'Pro Europa Liga' (Târgu Mureş, Romania).

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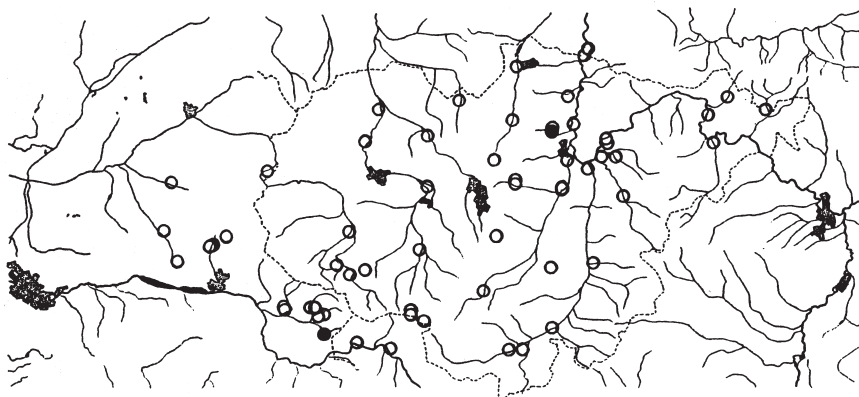


Fig. 3. Distribution of *Isognomostoma isognomostoma* in Sălaj county and the western part of the Şesului/Plopişului Mts. (Full circles where *I.i.* was found.)

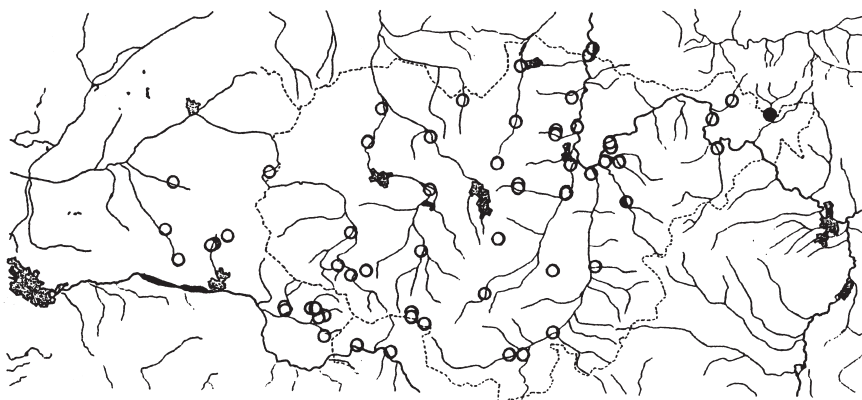


Fig. 4. Distribution of *Agardhiella lamellata* (semi-full circles / from left to right white and black) and the *Argna bielzi* (semi-full circles /from left to right black and white) in Sălaj county and the western part of the Șesului/Plopișului Mts. The co-presence is marked with full circles.

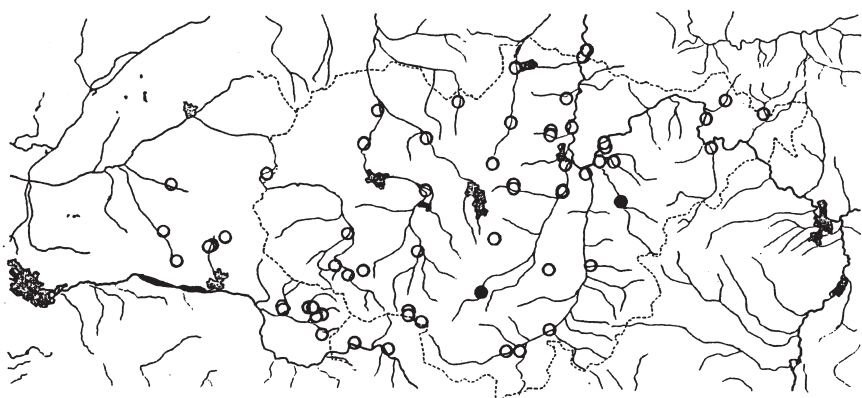


Fig. 5. Distribution of *Bulgarica cana* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *B.c.* was found.)

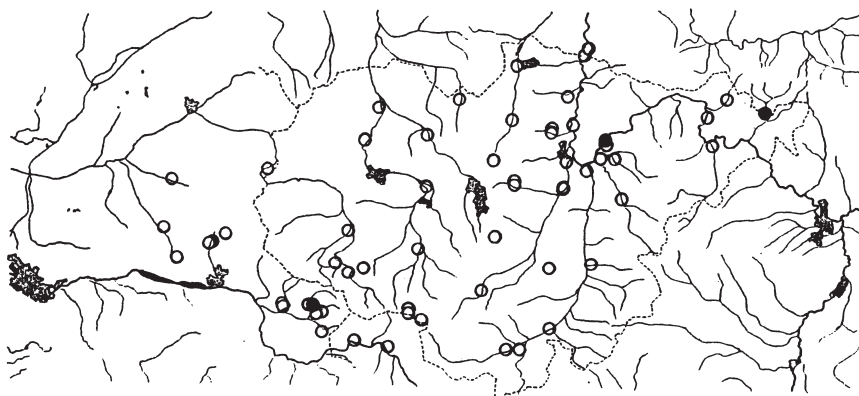


Fig. 6. Distribution of *Campylea faustina* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *C. f.* was found.)

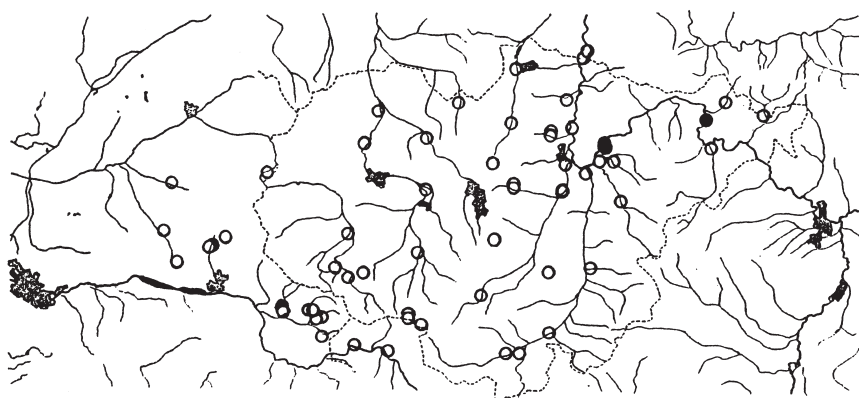


Fig. 7. Distribution of *Perforatella bidentata* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *P. b.* was found.)

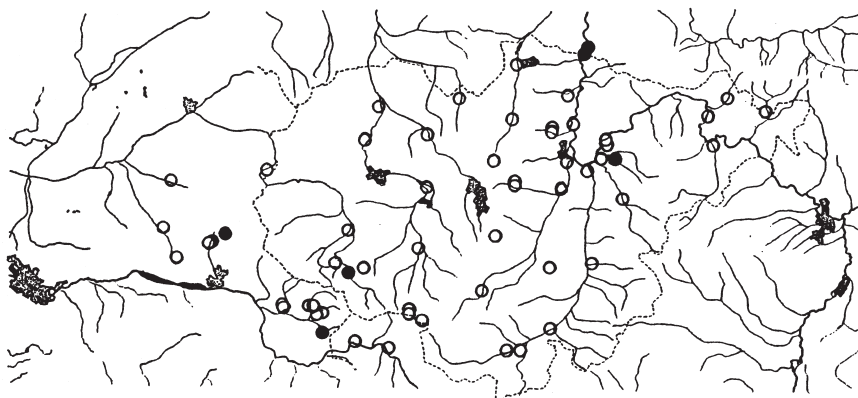


Fig. 8. Distribution of *Pseudalinda stabilis* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *P. s.* was found.)

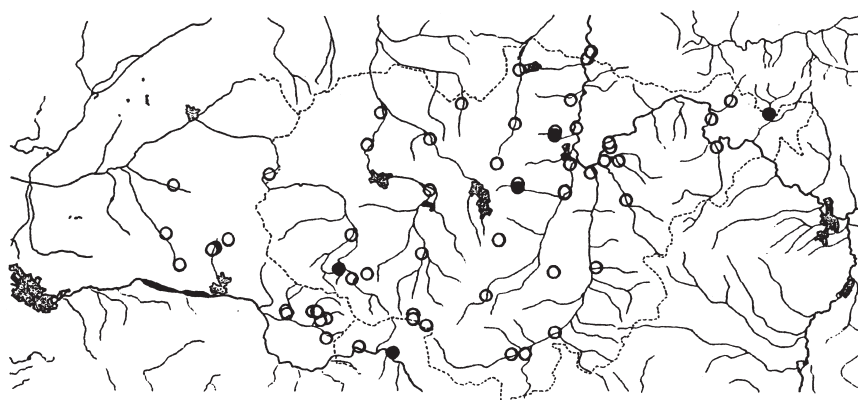


Fig. 9. Distribution of *Bulgarica vetusta* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *B. v.* was found.)

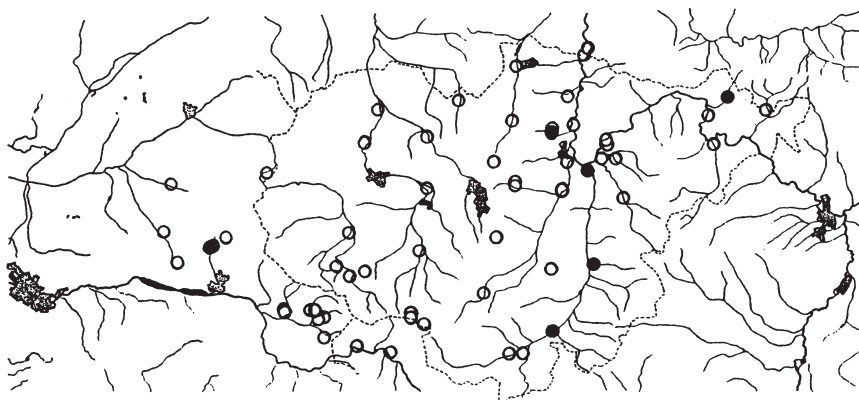


Fig.10. Distribution of *Clausilia pumila* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *C. p.* was found.)

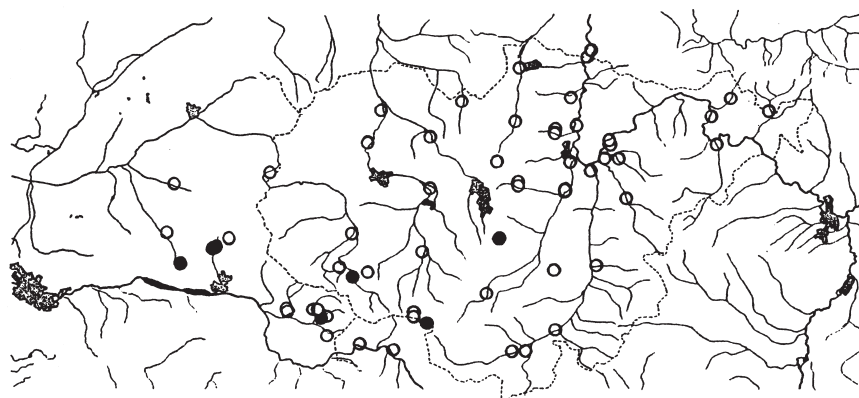


Fig.11. Distribution of *Kovacsia kovacsi* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *K. k.* was found.)

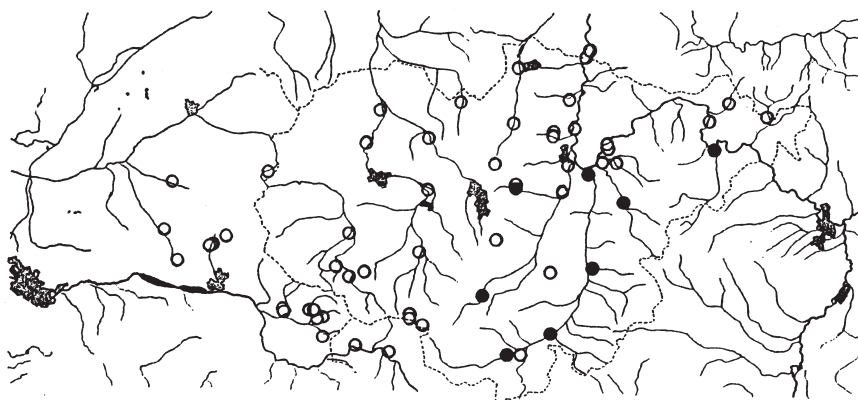


Fig.12. Distribution of *Macrogastrea borealis* in Sălaj county and the western part of the Şesului/Plopişului Mts. (Full circles where *M. b.* was found.)

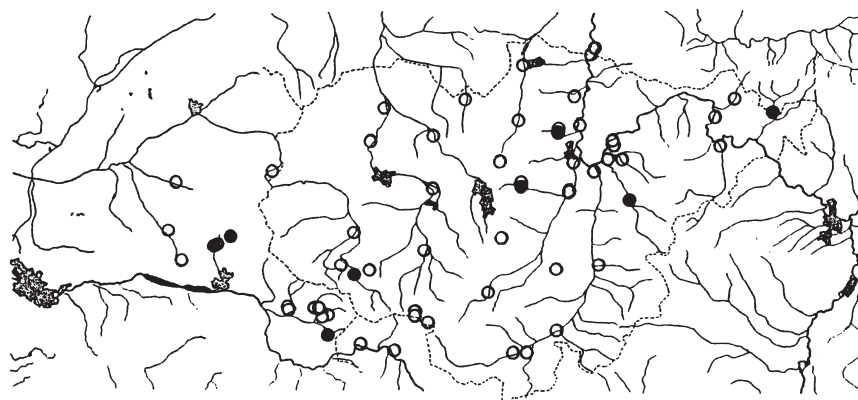


Fig.13. Distribution of *Perforatella dibothrion* in Sălaj county and the western part of the Şesului/Plopişului Mts. (Full circles where *P. d.* was found.)

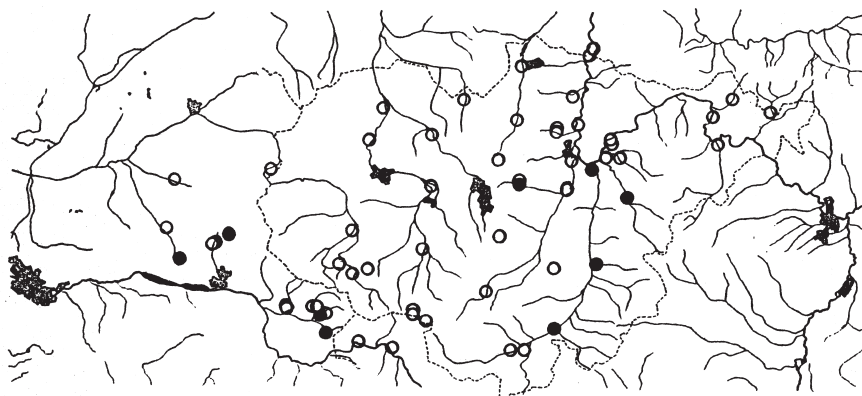


Fig.14. Distribution of *Alinda biplicata* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *A. b.* was found.)

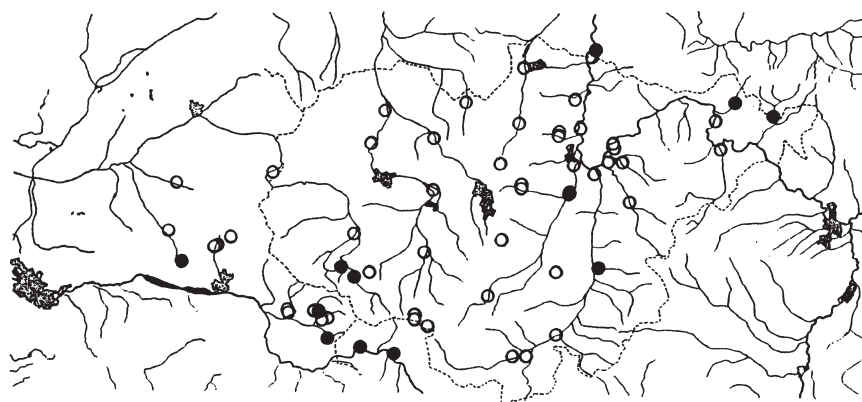


Fig.15. Distribution of *Ruthenica filograna* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *R. f.* was found.)

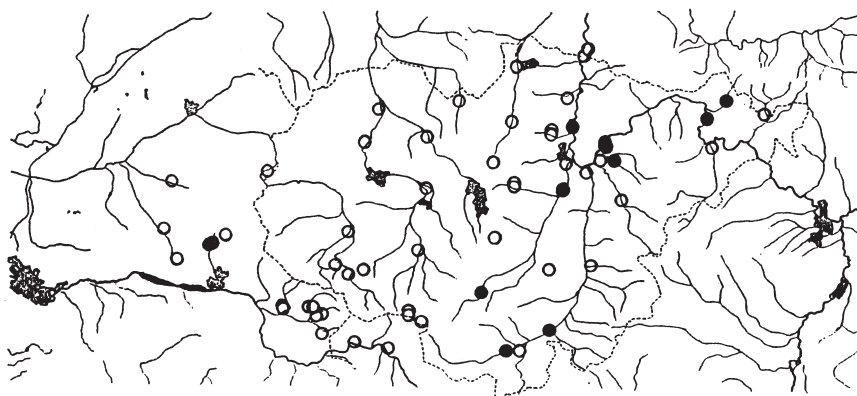


Fig. 16. Distribution of *Trichia hispida* in Sălaj county and the western part of the Șesului/Plopișului Mts.(Full circles where *T. h.* was found.)

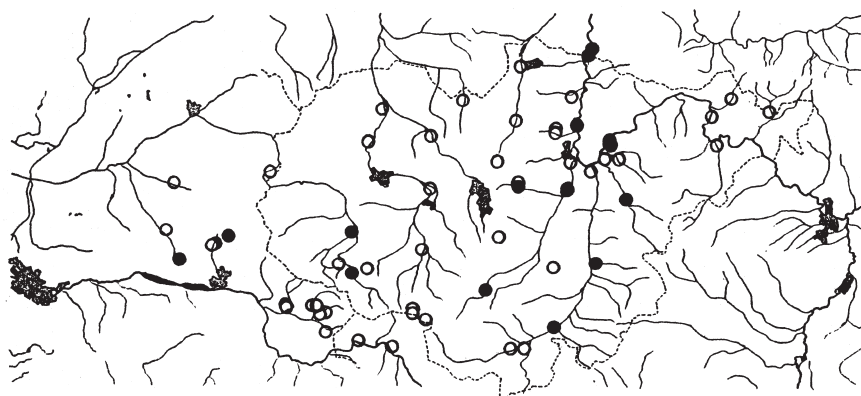


Fig. 17. Distribution of *Helicigona banatica* in Sălaj county and the western part of the Șesului/Plopișului Mts.(Full circles where *H. b.* was found.)

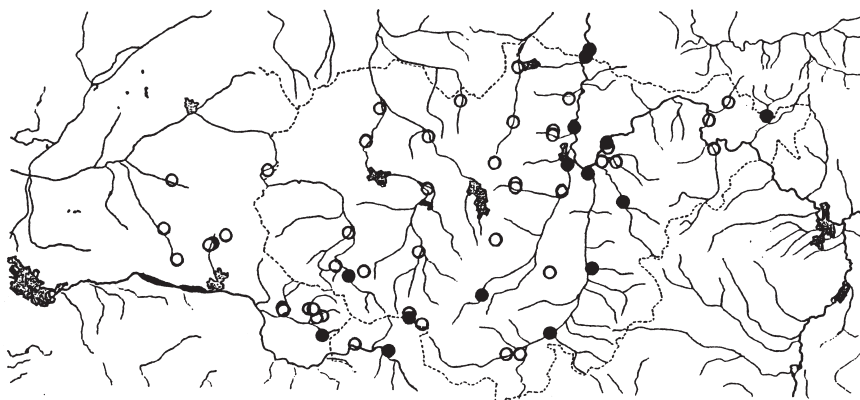


Fig. 18. Distribution of *Laciniaria plicata* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *L. p.* was found.)

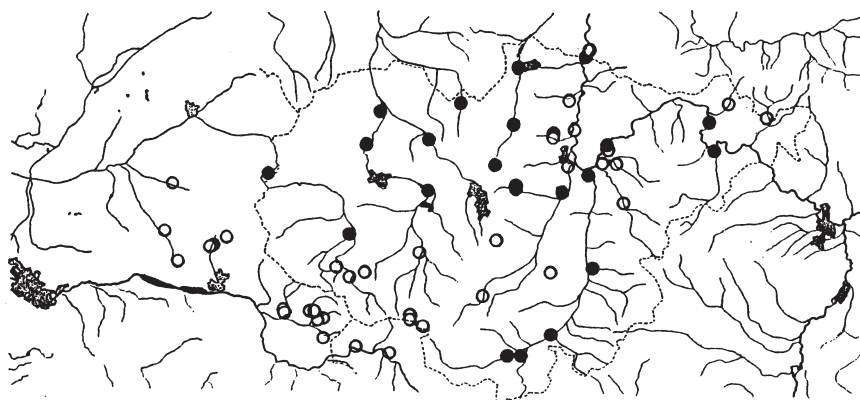


Fig. 19. Distribution of *Helix lutescens* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *H. l.* was found.)

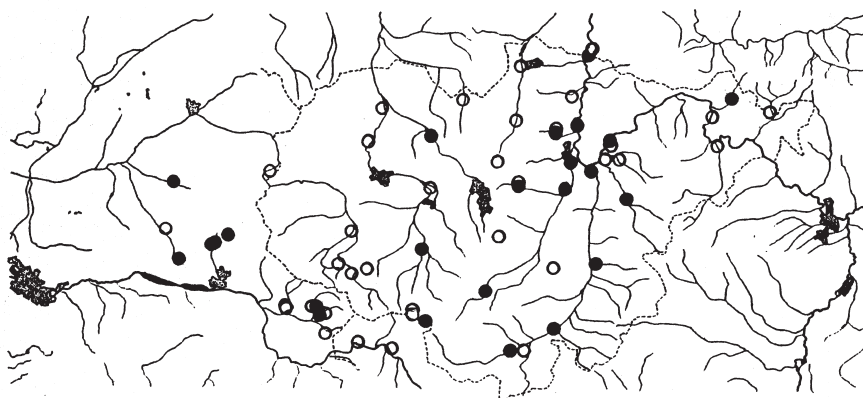


Fig. 20. Distribution of *Monachoides vicina* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *M. v.* was found.)

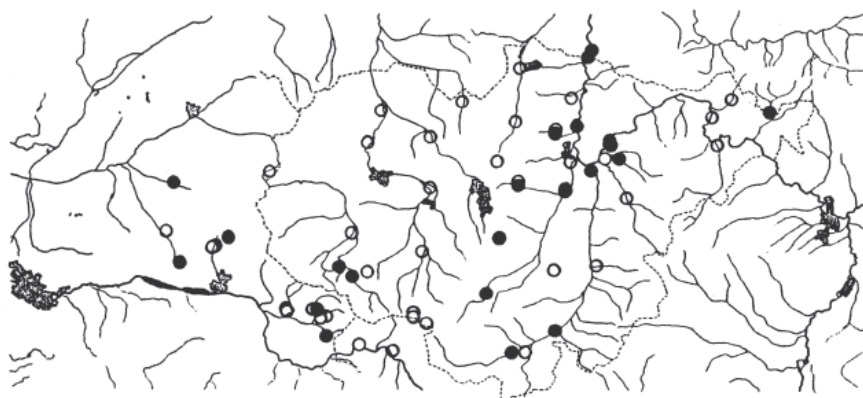


Fig. 21. Distribution of *Cochlodina laminata* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *C. l.* was found.)

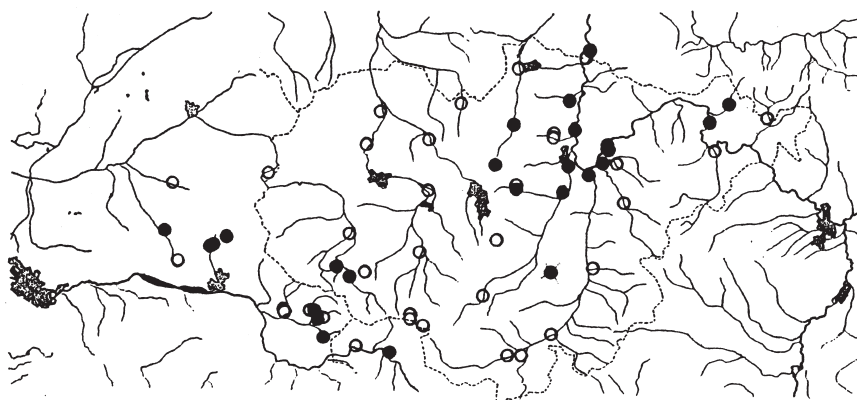


Fig. 22. Distribution of *Helix pomatia* in Sălaj county and the western part of the Plopișului Mts. (Full circles where *H. p.* was found.)

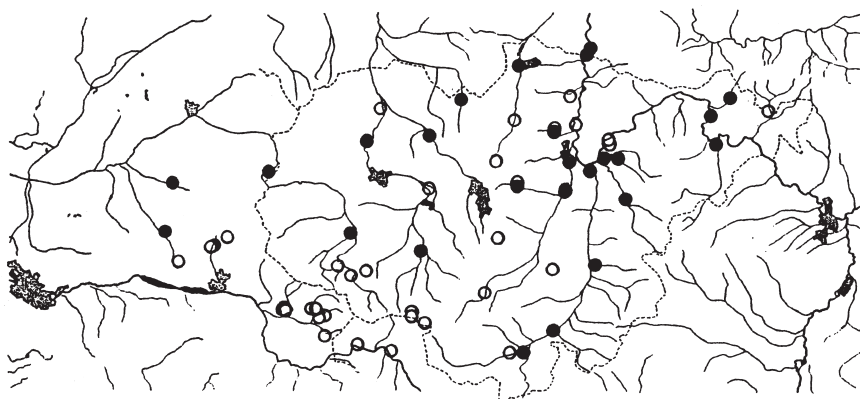


Fig. 23. Distribution of *Euomphalia strigella* in Sălaj county and the western part of the Șesului/Plopișului Mts. (Full circles where *E. s.* was found.)

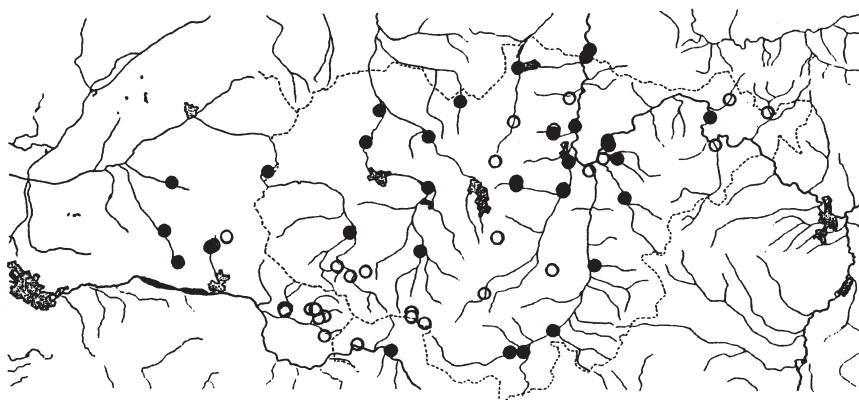


Fig. 24. Distribution of *Bradybaena fruticum* in Sălaj county and the western part of the Şesului/Plopişului Mts. (Full circles where *B. f.* was found.)