The terrestrial snails of the Hungarian section of the three Körös/Criş and the Berettyó/Barcău[1] rivers and their zoogeographical evaluation

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Introduction

The article is summarising the results of the collections effectuated in the last 36 years along the Körös and Berettyó rivers. In the exploration of the Körös river system district, our malacologist mate, Gy.Kovács had an initiatory role. The authors consider the deceased an honorary co-author.

Abstract

The three authors summarise the results of the collections effectuated in the last 36 years along the Körös/Criş and Berettyó/Barcău rivers. Gy. Kovács who deceased in 1996 is considered honorary author considering his initiatory attitude and his results.

The Körös/Criş rivers after the flow meeting of the Fehér-Körös/Crişul Alb and Fekete-Körös/Crişul Negru are forming the Kettős-Körös river. After the inflow of the Sebes-Körös/Crişul Repede is named Hármas-Körös. The Berettyó river is flows in the Sebes Körös/Criş. The rivers Berettyó, the Fekete and Fehér Körös spring from Romania. From the Körös/Criş rivers, divided into six units there were accounted 55 species. The species set of the sole-standing units is influenced by the scarce exploration (in the case of Berettyó and the Hármas-Körös), and the pollution of waters (Sebes-Körös). Other influencing factors are the high percentage of the agricultural territories, the low degree of the forests (5,4%), the high degree of the daily and annually oscillation of the temperature, the soil-water rich in sodium-bicarbonate - helping the soil-sodification. As a consequence of the enumerating, the percentage of the continental fauna-circles is high, especially those

1 The first name is Hungarian, and the second Romanian.

of the holarctic fauna-circles, marking cultural influences. For the explored territory the most characteristic are the dacico-podolical *Hygromira kovácsi* and *Chilostoma banatica,* immigrated from the catchment area.

Materials and methods

The collection of the terrestrial-fauna of the three Körös and Berettyó rivers is a result of the collecting activity of three authors: Kovács (1974-1988), his results are communicated by Pintér et all. (1979). Bába (1980-1993) began the data collection in 1973 (Bába, 1980), Domokos (1980-1995). In the exploration of the territory there were co-operating Majoros G. (Domokos 1987), Podani J., Parászka L., Varga A. (Pintér et all 1980) also. The first table divides the founded species in six compartments (parts) of the river. The units are: Sebes-Körös (1), springs from Romania, Fekete-Körös (2), Fehér-Körös (3), the Kettős-Körös (4), formed by the meeting of Fekete- and Fehér-Körös, the Berettyó (5), inflow into the Sebes-Körös, and the Hármas-Körös (6), formed after the meeting of the above named Körös/Criş rivers. The column (7) contains the total data. The table contains also the fauna-circles made up with area-analytical method of the zoogeographical partition based on the studies of Bába (1982, 1986). The percentage values of the Table 2. were calculated based on the presence of the species.

The list of species didn't contain the deadly found species from the stream deposits: *Sphyradium doliolum* (Bourg. 1972). Kovács (1980), the species settled in the inner territories of towns, in gardens, parks and cemeteries due to antropogenous influence, or dragged from outside *Arion fasciatus* (Nilsson, 1822), *Heliodiscus singleyanus* (Pilsbry, 1890), (Benoit 1862) Kovács-Domokos 1987, *Oxychilus draparnaudi* in many places, *Balea biplicata* (Montagu 1803), Domokos 1994, *Cepaea nemoralis* (Linné 1758), *Cepaea hortensis* (O.F. Müller 1774) Kovács 1980, the last was found in many points of the country in horticulture. In the summarised assembling were included the synanthropical species found in oxbows, wave areas, drained share-lawns and in the woods: Limax maximus, *L. flavus, Arion hortensis* and *Oxychilus draparnaudi, Cepaea hortensis* (Szarvas, near the Holt-Körös, collecting Domokos). The relation between the river sections was examined with Niclas 2 Clusteranalyse and Princoor Principal Coordonates Analyse (Podani, 1988).

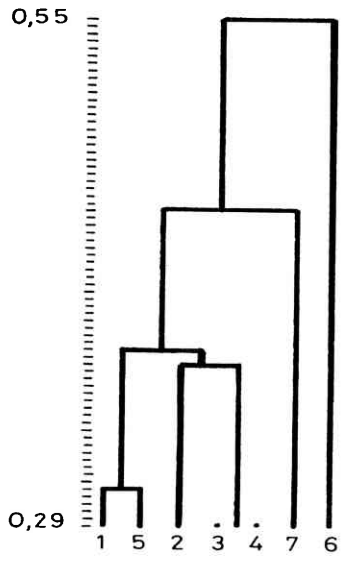

Fig. 1. Niclas 2 average linkage diagram

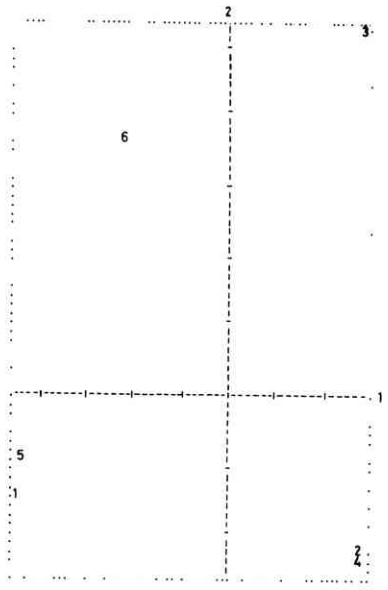

Fig. 2. Princoor: Principal Co-ordinates analysis

The environmental factors determining the presence of the species

The explored part of the Tiszántúl botanically belongs to the Crisicum flora-district (Soó 1964). From the point of view of the river sections, the plain between the Körös/Criş and Maros/Mureş, and the Körös district are parts of natural-geographical landscapes (Somogyi 1990). The flora district is characterised by Pécsi, Somogyi, Jakucs (1972) as being deforestation by the many century agricultural activity, and are characterising the two landscapes as a "continental wooded-steppe plain, dominantly agricultural landscape type", soils of which, on the drained territories are meadow-like, and due to the draining were sodificated. The forestation of the two districts, in the face of the Alföld's forestation (16%) is low. The plain between the Körös-Maros, on the north part of which is flowing the Hármas-Körös is deforested 1,5%. The Körös district is 5,4% wooded Danszky (1963). The most part of the forests is planted. Along the Fehér-, Fekete- and the Kettős-Körös, there are remains of grove-forests. Near the Hármas-Körös and the Berettyó there are willows, but they are often not compact at all. After the data of Directory Department of Waters from Szeged, the water of the Sebes-Körös/Crişul Repede arrives polluted in the country, that influences the fauna-transport of the snails by the river. In the deforested

territories, the climate is continental; the rainwater of the vegetation period is 320-330 mm (Marosi, Somogyi, 1990). The annually oscillation of the temperature is 25 °C. The monthly oscillation is also considerable. The hot days number is above 40, the number of the rain lacking days is between 20-30. The aridity index (the quotient of the sums of the median temperature of April-August and those of the gravity measured of rain between October-August C/100 mm) in the period of 1931-1992 is the highest on this territory. In 1992 it was between 10-12. The value between 6-8 marks a moderate drought (Pálfai 1993).

The characteristics of the species composition

The data included in the table 1. are confirmed by the data referring on the deforested area, climatic and water pollution: the fewest number of species were found near the Sebes-Körös, Berettyó and near the Hármas-Körös. In the same time these three territories are the most scarcely explored. The greatest number of species was found in the near-nature grove-forests remains, the richest near of the Fekete-, Fehér-, and Kettős-Körös rivers. It can be due to the influence of some environmental factors, the continental climate, the strength of the cultural influences (agricultural activity, forest settlings, forest handing, mowing), that on this territory there were found only 13 from the 20 fauna-circles found on the plain district (Bába, 1982), the most of them belongs to 8 fauna-circles (56%) from the continental fauna-circle, this in some river-sections reaches is 64-68% (Table 2.) The cultural effects are presented by, in many river-parts, the synanthropic naked-snails appearing in the wave-share, as *Arion hortensis, Limax maximus, L. flavus* and at a single place the *Cepacea hortensis.* The influences of the fauna transportation by the running water coming from Romania is showed by the followings: tracian (5.2.1) *Oxychilus inopinatus,* the illirian-moesiac (5.2.2) *Malacolimax tenellus, Milax budapestiensis,* the holomediterranian (8) *Vitrea contracta, Oxychilus hydatinus.* The most characteristic elements of the Körös/Criş valley sand and also of the Plain-country (Alföld's) malacofauna are the ponto-pannonical (5.3) *Helix lutescens,* the dacico-podolian (4.5) *Hygromia kovácsi* and that of *Chilostoma banatica.* The species are deriving from the source of the Sebes-, Fekete and Fehér Körös rivers. It is known from near the Fekete-Körös arriving from Transylvania (Domokos, 1992).

The distribution of the fauna-circles

The common characteristic of the explored Körös/Criş river sections is, that the climatic continentally is expressed by the high percentage (tab. 2) of the continental

fauna-circles. Inside of them, the district is characterised by the high percentage of the wide supporting *Holarctic* fauna-circles percentage, its emerging values we find along the Sebes-Körös and Berettyó. The high percentage of the continental fauna-circles is characteristic for the settled and cultivated forests, for the mowed fields (Bába, 1992, 1993). Compared with other plain-region rivers it is too high the percentage of the ponto-pannonical fauna-circle in the named river sections. The dacical-podolical fauna-circle, by his species, represents only the five Middle-European mountain-range fauna-circle groups around the Körös rivers, far the carpatic, carpato-sudetic, carpato-baltic, alp-carpatic fauna-circles are absent.

From the subatlantical fauna-circles, the illiric-moesiac fauna-circle is not present due to the collecting insufficiency, or to the absence of trees, along the Sebes-, Hármas-Körös and Berettyó rivers. A similar sense has the absence of the atlanto-mediterranian fauna-circle on the marked sections. On the Hármas-Körös river, the *Cepaea hortensis* is synanthropical.

Similarly to the ponto-pannionical fauna-circle, the percentage of the many xeromesophil species containing holomediterranian fauna-circle is the highest also on the named river sections.

The relation of the river sections

Based on the distribution of the fauna-circles, the resemblance between the different river sections is different. Based on cluster analysis, three cluster-nucleus are forming: the 1, 5 the Sebes- and Hármas-Körös; the 2, 3, 4 the Fekete-, Fehér- and Kettős-Körös, and the furthest distance from the two group-nucleus the 6 the Berettyó, and 7 the totalled Körös/Criş district (Fig. 1).

The ordering (Pincoor: Fig. 2) strengthens the strongly nearby standing of the Sebes- and Hármas-Körös rivers. The Fekete- and Kettős-Körös based on the dendrogram presents any resemblance. Instead of the Fehér-Körös by the lack of the adriato-mediterranian fauna-circle and by the low species number. The scarcely explored fauna of the Berettyó is separated from that of other river-sections. Diversities Shannon-Wiener are the lower along the Sebes-Körös/Criş and Berettyó river (Tab. 2).

Summary

The authors were studying the species components and zoogeographical composition from the environment of the rivers springing from Romania, of the Sebes-, Fekete-, and Fehér-Körös, of the Berettyó rivers and that of the Kettős- and Hármas-Körös formed by

Table 1. Distribution of specimens in the Körös/Criş-sections

Fauna circles-species	Sebes-Körös	Fekete-Körös	Fehér-Körös	Kettős-Körös	Hármas-Körös	Berettyó	The Körös region
	1.	2.	3.	4.	5.	6.	7.
1.1. East-siberian							
1.Carichium minimum O.F.Müller 1774	+	+	+	+	+	+	+
2.Pupilla muscorum /Linné 1758/	+	+	+	+	-	+	+
3.Succinea putris /Linné 1758/	+	-	-	-	-	-	+
4.Punctum pygmaeum /Draparnaud 1801/	+	+	+	+	+	+	+
5.Arion subfuscus /Draparnaud 1805/	+	-	+	+	+	-	+
6.Nesovitrea hammonis /Ström 1765/	-	+	-	+	-	-	+
7.Bradybaena fruticum /O.F.Müller 1774/	-	+	+	+	+	-	+
8.Perforatella rubiginosa /A.Schmidt 1853/	+	+	+	+	+	-	+
1.2.West-siberian							
9.Vestigo pygmea /Draparnaud 1801/	+	+	+	+	+	+	+
10.Succinea oblonga Draparnaud 1801	+	+	+	+	+	+	+
1.3.Eurosiberian							
11.Deroceras laeve /O.F.Müller 1774/	+	+	-	+	-	-	+
12.Deroceras agreste /Linné 1758/	-	+	+	+	+	-	+
13.Deroceras reticulatum /O.F.Müller 1774/	-	+	-	+	-	-	+
1.4.Holarctic							
14.Cochlicopa lubrica /O.F.Müller 1774/	+	+	+	+	+	+	+
15.Vertigo antivertigo /Draparnaud 1801/	+	-	+	+	+	-	+
16.Vallonia pulchella /O.F.Müller 1774/	+	+	+	+	+	+	+
17.Vallonia costata /O.F.Müller 1774/	+	+	+	+	+	+	+
18.Acanthinula aculeata /O.F.Müller 1774/	-	+	+	+	-	-	+
19.Vitrina pellucida /O.F.Müller 1774/	+	+	+	+	+	-	+
20.Zonitoides nitidus /O.F.Müller 1774/	+	+	+	+	+	+	+
21.Euconulus fulvus /O.F.Müller 1774/	-	+	-	+	+	+	+
2.2.Turkestanian							
22.Cochlicopa lubricella //Porro 1836/	+	+	+	+	+	+	+
3.Kaspian-sarmatian							
23.Vallonia enniensis /Gredler 1856/	-	+	-	-	+	-	+
24.Euoruphalia strigella /Draparnaud 1801/	-	+	+	+	-	-	+
25.Cepaea vindobonensis /Férussac 1821/	+	+	+	+	+	+	+
5.3.Pontian-pannonian							
26.Helix lutescens Rossmässler 1837	+	+	+	+	-	-	+
27.Helicella obvia /Menke 1828/	-	-	+	+	+	-	+
28.Helicopsis striata /O.F.Müller 1774/	-	-	+	+	-	-	+
29.Helix pomatia Linné 1758	+	+	+	+	+	+	+
9.5.Dacian-podolian							
30.Hygromia kovácsi Varga et Pintér 1972	-	+	+	+	-	-	+
31.Chilostoma banaticum /Rossmässler 1838/	-	+	-	-	-	-	+

Fauna circles-species	Sebes-Körös	Fekete-Körös	Fehér-Körös	Kettős-Körös	Hármas-Körös	Berettyó	The Körös region
	1.	2.	3.	4.	5.	6.	7.
5.2.1.Tracian							
32.Granaria frumentum /Draparnaud 1801/	-	-	+	+	-	+	+
33.Aegopinella minor /Stabile 1864/	+	+	+	+	+	-	+
34.Oxichilus inopinatus /Uličný 1887/	+	-	+	+	-	-	+
5.2.2.Illyrian-moezian							
35.Tandonia budapestiensis /Hazay 1881/	-	+	+	+	-	-	+
36.Malacolimax tenellus O.F.Müller 1774	-	-	-	+	+	-	+
37.Clausilia pumila C.Pfeiffer 1828	-	+	-	-	-	-	+
38.Laciniaria plicata /Draparnaud 1801/	-	+	-	-	-	-	+
6.Adriato-mediterranean							
39.Arion hortensis Férussac 1819	-	-	-	+	+	-	+
40.Vitrea crystallina /O.F.Müller 1774/	-	+	-	-	-	-	+
41.Cochlodina laminata /Montagu 1803/	-	+	-	-	-	-	+
42.Limax cinereoniger Wolf 1803	+	-	-	-	-	-	+
7.Atlanto-mediterranean							
43.Arion circumscriptus Johnston 1828	-	+	+	+	-	-	+
44.Cepaea hortensis /O.F.Müller 1774/	-	-	-	-	+	-	+
8.Holomediterranean							
45.Carichium tridentatum /Risso 1826/	+	+	+	+	-	-	+
46.Oxyloma elegans /Risso 1826/	+	+	+	+	+	+	+
47.Truncatellina cylindrica /Férussac 1807/	+	+	+	+	+	+	+
48.Chondrula tridens /O.F.Müller 1774/	+	+	+	+	+	+	+
49.Vitrea contracta /Westerlund 1871/	+	+	-	-	-	-	+
50.Oxychilus draparnaudi /Beck 1837/	-	-	-	-	+	-	+
51.Oxychilus hydatinus /Rossmässler 1838/	-	+	-	-	-	-	+
52.Limax maximus Linné 1758	-	-	+	+	+	-	+
53.Limax flavus Linné 1758	-	-	-	+	-	+	+
54.Cecilioides acicula /O.F.Müller 1774/	+	-	+	+	+	-	+
55.Monacha carthusiana /O.F.Müller 1774/	+	+	+	+	+	+	+
	29	**40**	**36**	**43**	**31**	**19**	**55**

Table 2. Distribution of species number and faunacircles

Fauna circles	Sebes-Körös		Fekete-Körös		Fehér-Körös		Kettős-Körös		Hármas-Körös		Berettyó		The Körös region	
	1.		2.		3.		4.		5.		6.		7.	
Σ 1.Siberian-Asian	15	51,72	18	45,00	16	44,44	20	46,51	15	48,38	10	52,63	21	38,18
1.1.East-siberian	6	20,68	6	15,00	6	16,66	7	16,27	5	16,12	3	15,78	8	14,54
1.2.West-siberian	2	6,89	2	5,00	2	5,55	2	4,65	2	6,45	2	10,52	2	3,63
1.3.Eurosiberian	1	3,44	3	7,50	1	2,77	3	6,97	1	3,22	-	-	3	5,45
1.4.Holarctic	6	20,68	7	17,5	7	19,44	8	18,60	7	22,58	5	26,31	8	14,54
2.2.Turkestanian	1	3,44	1	2,50	1	2,77	1	2,32	1	3,22	1	5,26	1	1,81
3.Kaspian-sarmatian	1	3,44	3	7,50	2	5,55	2	4,65	2	6,45	1	5,26	3	5,45
5.3.Pontian-pannonian	2	6,89	2	5,00	4	11,11	4	9,30	2	6,45	1	5,26	4	17,27
9.5.Dacian-podolian	-	-	2	5,00	1	2,77	1	2,32	-	-	-	-	2	3,63
Σ Continental	19	65,51	26	65,00	24	66,66	28	65,11	20	64,51	13	68,42	31	56,36
Σ Ponto-mediterranean	2	6,89	4	10,00	4	11,11	5	11,62	2	6,45	1	5,26	7	12,72
5.2.1.Tracian	2	6,89	1	2,50	3	8,33	3	6,97	1	3,22	1	5,26	3	5,45
5.2.2.Illyrian-moezian	-	-	3	7,50	1	2,77	2	4,65	1	3,22	-	-	4	7,27
6.Adriato-mediterranean	1	3,44	2	5,00	-	-	1	2,32	1	3,22	-	-	4	7,27
7.Atlanto-mediterranean	-	-	1	2,50	1	2,77	1	2,32	1	3,22	-	-	2	3,63
8.Holomediterranean	7	24,13	7	17,50	7	19,44	8	18,60	7	22,58	5	26,31	11	20,00
Σ Subatlantic	10	34,48	14	35,00	12	33,33	15	34,88	11	35,48	6	31,57	24	43,46
Σ Number of species	29		40		36		43		31		19		55	
Diversity (Shannon-Wiener)	2,90		3,39		3,18		3,31		3,12		2,82		3,41	

the meeting of the firsts. At the evaluation, were not taken into consideration the species artificially settled and immigrated in towns, parks, gardens, cemeteries, and the dead exemplars found in the stream deposits.

The explored territory, where the Körös/Criş-river sections extend, is a low forested, mainly agriculturally used drained unit. Comparing with other parts of the Plain Region (Alföld) it has an accentuated temperature-oscillation and an ordinarily found high aridity index.

It can be stated, that the absence of trees, otherwise in the territory under strong anthropogenical influences (mowing, water-draining, forest settling and cultivation) in the condition of an extreme continental climate, the percentage of the continental fauna-circles is considerably high.

It is characteristic the high percentage of the holarctical and ponto-pannonical fauna-circles. In the most forest-covered parts of the Körös/Criş rivers district the dacico-podolical Hygromia and Chilostoma is representing the characteristically species for the Körös/Criş district. Resembling to the holarctical, the high percentage of the ponto-mediterranian fauna-circle, and at any river sections, the lack of the illir-moesiac and atlanto-mediterranian fauna-circles are marking the species-deficient formed as a consequence of the climate and anthropogenic influences.

References

Bába, K. (1980): A csigák mennyiségi viszonyai a Crisicum ligeterdeiben. - Der Quantitativen Verhaltisse der Schnecken in dem Auwaldern des Criscium. - A Békés Megyei Múzeumok Közleményei 6,: 85-101

Bába, K. (1982): Eine neue zoogeographische Gruppierung der ungarischen Landmollusken und die Wertung des Faunabildes. - Malakologia, 22 (1-2),: 441-454

Bába, K. (1986): A Szabadkígyósi Nagyerdő Mollusca faunájának ökológiai vizsgálata. - Környezet és Természetvédelmi Évkönyv 6, Békéscsaba,: 235-273

Bába, K. (1986): Állatföldrajzi besorolások. A fauna értékelése. - Zoogeographische Einstufung. Bewertung der Fauna. - Soósiána 14,: 35-44

Bába, K. (1992): The influence of sylviculture on the structure on snail assemblages. - Proc. Of the Ninth Internat. Malacological Congress, Edinborough 1986, Leiden,: 27-34

Bába, K. (1993): Kiszáradó láprétek, alföldi mocsárrétek, sziki sásrétek csigaegyütteseiről. - Malakológiai Tájékoztató 12,: 67-74

Danszky, J. (1963): VI Nagyalföld erdőgazdasági tájcsoport. - Országos Erdészeti Főigazgatóság, Budapest,: 1-783

Domokos, T. (1986): Adatok Békéscsaba malakofaunájának kialakulásához. - Állattani Közlemények LXXIII,: 11-19

Domokos, T. (1987): Beszámoló a 11. Magyar Malakológus Találkozóról. - Soósiána 15,: 1-4

Domokos, T., Kovács, Gy. (1988): A békéscsabai Széchenyi-liget Mollusca faunájáról (Heliodiscus singleyanus, Vitrea contracta, Oxychilus hydatinus együttes előfordulásáról). - On the Mollusca-fauna of Békéscsaba Széchenyi-Gardens. - Malakológiai Tájékoztató 8,: 15-21
Domokos, T. (1988): Néhány malakológiai érdekesség a Dél illetve Délkelet-Alföldről. - Some curiosities out of the S. and SE-Lawlands. - Malakológiai Tájékoztató 8,: 23-25
Domokos, T. (1989): Doboz térségének csigái és kagylói. Dobozi tanulmányok. -Békés Megyei Múzeumok Közleményei 14, Békéscsaba,: 53-63
Domokos, T. (1992): Javaslat a Sitkai erdő egy részének védetté nyilvánítására. (A Hygromia kovácsi és a Helicigona banatica együttes előfordulása). - Malakológiai Tájékoztató 11,: 55-56
Domokos, T. (1993): A Hármas-Körös 45-50 töltéskilométere közötti szakaszának (Szarvas) malakológiai és cönológiai viszonyai annak hullámtéri és mentett oldalán. - Malakológiai Tájékoztató 12,: 59-68
Domokos, T. (1994): A Balea biplicata (Montagu) békéscsabai előfordulása. - On the occurrence of Balea biplicata (Montagu) at Békéscsaba (SE Hungary). - Malakológiai Tájékoztató 13,: 55-56
Domokos, T. (1994): Javaslat a Fekete-Körös egyik hullámtéri füzesének védetté nyilvánítására (A Helicigosa banatica és a Vitrea crystallina előfordulása). - Malakológiai Tájékoztató 13,: 57-59
Kovács, Gy. (1974): Békéscsaba és környéke puhatestű faunája. - Állattani Közlemények. LXI, 1-4,: 35-42
Kovács, Gy. (1980): Békés-megye Mollusca-faunájának alapvetése. - A Békés Megyei Múzeumok Közleményei 6,: 51-83
Kovács, Gy., Domokos, T. (1987): Újabb adatok Békés megye Mollusca faunájához.- Further data to the Mollusca-Fauna of Country Békés. - Malakológiai Tájékoztató 7,: 23-28
Kerney, M.P., Cameron, R.A.D., Jungbluth, J.H. (1983): Die Landschnecken Nord und Mitteleuropas, Paul Parey, Hamburg-Berlin,: 1-384
Somogyi, S. (1990): Magyarország kistájainak katasztere I. - MTA Földrajztudományi Kutató Intézet, Budapest,: 1-475
Pálfai, J. (1993): Az 1992 évi aszály Magyarországon. - Vízügyi Közlemények. , LXXV, 3,: 223-236
Pécsi, M., Somogyi, S., Jakucs, P. (1972): Magyarország tájtipusai. - Földrajzi értesítő, 21, 1,: 5-12
Pintér, L., Richonovszky A., Szigethy, A.S. (1979): A magyarországi recens puhatestűek elterjedése. Soósiána Suppl. 1, 1-350
Pintér, L., Szigethy, A.S. (1979): Die Verbreitung der rezenten Mollusken Ungarns: Neunachweise und Berichtungen I. - Soósiána 7,: 97-108
Pintér, L., Szigethy, A.S. (1979): Die Verbreitung der rezenten Mollusken Ungarns: Neunachweise und Berichtungen II. - Soósiána 8,: 65-80
Podani, J. (1988): Syn-Tax III. User's Manual. - Abstracta Botanica 12,: 11-183
Soó, R. (1964): A Magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve I. - Akad. Kiadó, Budapest,: 1-589
Viktor, A., Szigethy, A.S. (1982-1983): The distribution of slugs in Hungary (Gastropoda: Pulmonata). - Soósiána 10-11,: 87-111

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