

The fauna of salt-oak forests
(*Festuco pseudovinae-Quercetum roboris*
Máthé 1933, Soó 1962)

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Abstract: The helical fauna of the secondary forest-type found in the woody steppe climate of the Great Hungarian Plain is lesser-known. The research of the species composition of the secondary forest-type was treated as an important task by the author.

Key words: salt-oak forest, division of speciesgroups, derivative forests

Material and method

In the examined forest the author used aniformly 10×25×25 sized qudrates for the exploration of the mollusca fauna.

The collecting places: (i) Csévharaszt; area of Pusztaháza 1971. 06. 22. (ii) Ujszentmargita; Tilalmas forest 1974. 06. 28. Undergrowth: *Polygonetosum latifolii*. (iii) Woody pusta 1974. 07. 05. Undergrowth: *Stachys silvatica*, *Cércea lutetiana*. (iv) Derekegyháza 1970. 07. 10. 3–4 km from the Korogy brooklet. Undergrowth: *Pseucedanum officinalis*. The forest is 45 years old. (v) Ohat 1972. 06.15. Undergrowth: *Polygonetosum latifolii*. The forest is 90 years old. The 10 percent origin of the this forest is by sprit. The listed forests are sodificated oak-ash and oak-hornbeam secondary forests. (vi) Földeák, between the Száraz brooklet, it is a 20 years old lick, introduced forest 1970 06. 24. The forests of Ujszenmargita and Ohat in Hortobágy, the others in Békés county, and at Csévharaszt is in Pest county at near Monor, on the Pest-plain (1. Table).

The assessment happend help with 3 speciesgroups. Considering the work of Lozek I created 4 habitat type (HT) groups: RU riparian ubiquist, B bush forest dweller, HF hygrophilous forest dweller, ST steppe dweller.

The feding habit based on laboratory essay of Frömning (1954): O omnivore, H herbivore, SP saprofagous.

The fauna domains based on Bába (1982) can be divided into Continentale and Subatlantic groups. Members of theContinentale group: 1. Belonging to the Siberian-Asian group: 1.1. East-Siberian, 1.2. West-Siberian, 1.3. Euro-Siberian, 1.4. Holartic fauna-circles, 2.2. Turkestanian, 3. Caspian-Sarmatian, 5.3. Ponto-Pannonian. The members of the Subatlantic group: 5.2.1. Trazian, 8. Holo-Mediterranean fauna-circles (1. Table).

Position of the salt-oak forests

Their existence is due to sodification of the soil of *Fraxino-Ulmetum*, *Quero-Carpinetum* (Bába, K. 1986, Soó, R. 1964). Their origin means danger for the forests stucked out of the

No	Ht	Fh	Fd	1		2		3		4		5		6		
				F%		F%		F%		F%		F%		F%		
1	RU	O	1,2		1		10									
				Succinea oblongea Draparnaud 1801												
2	B	O	1,4													
				Cochlicopa lubrica (O.F.Müller 1774)												
3	St	O	2,2	2	20	1	10	6	30						2	10
				Cochlicopa lubricella (Porro 1838)												
4	St	Sp	1,4													
				Vallonia pulchella (O.F.Müller 1774)												
5	St	O	1,4		1	10		1	10							
				Vallonia costata (O.F.Müller 1774)												
6	B	Sp	1,1		1	10										
				Punctum pygmaeum (Draparnaud 1805)												
7	HF	O	1,1	4/1	30											
				Arion hortensius (Draparnaud 1805)												
8	B	O	6												2/2	10
				Arion subtuscius Ferrusac 1819												
9	B	O	1,4	6/2	30	6/6	60	2	20			2/2	20			
				Virrina pellucida costata (O.F.Müller 1774)												
10	B	O	5,21	10/5	60			10	60	28/4	90				7/3	50
				Aegopinella minor (Stabile 1864)												
11	B	O	1,1			5/5	40					8/4	70			
				Nesovitrea hammonis (Störm 1765)												
12	RU	O	1,3		2	20										
				Deroceras laeve (O.F.Müller 1774)												
13	RU	O	1,3	2/1	20						1	10				
				Deroceras agreste (Linné 1758)												
14	B	O	1,4	1/1	10											
				Euconulus fulvus (O.F.Müller 1774)												
15	RU	H	1,1	1/1	10											
				Perforatella rubiginosa (A.Schmidt 1853)												
16	B	H	3													
				Euomphalia strigella (Draparnaud 1801)												
17	B	H	3			+		1	10	5/4	30	1	10	4/3	30	
				Cepaea vindobonensis (Ferrusac 1821)												
18	B	H	5,3	6/5	60						3/1	30				
				Helix pomatia Linné 1758												
				2/20		17/11		20		37/26		11/6		16/8		
				Number of individuals												
				8		7		5		4		3		5		
				Species number												
				2,7		1,7		1,3		1,6		1,0		1,1		
				Species thicket												
				62,5		64,0				70,0		54,0		50,0		
				% of juvenile												

1. Table. Divisions of the species and species groups of the Festuco pseudovinae-Quecetur roboris Máthé 1933 and Soó 1962

dikes after the control of the river Tisza, for example at the Hortobágy the Tilalmas forest (2) at Ujszentmargita and forest of Csevharaszt, this forest origins are *Quero-Carpinetum* (1) (1. Table). The sodification started through the sodification of the underlying soil. The surface soil of the two forests in Hortobágy is also sodic. The sodification started in the

presence of different meadowy and brown soils as surface soil (Sodfriedt, J. 1978): brown forest soil at Csevharaszt, hard adobe at Derekegyhaza and meadowy clay ground at Foldeak.

The species

18 species were found in the 6 measured forests. The richest in species were the forest of Csevharaszt (1) and Újszentmargita (2), with 8 and 7 species. The number of the species are upper in the original gallery forests. The forests of Ohat (5) and Derekegyháza (4) were poorest with 3 and 4 species. At the Great Hungarian Plain 66 species came to light from the *Fraxino-Ulmetum* (Bába, K. 2000). The subassociatum of *circaetosum* as underwood of Faspusztá forest (3) where came to light 37 species from undisturbed *Fraxino-Ulmetum* (Bába, K. 1986). The most frequented (F%) species are the *Aegopinella minor*, *Nesovitrea hammonis* and the *Vitrina pellucida* with the 10 utmost regional frequency species of the *Fraxino-Ulmetum* and *Quercu-Carpinetum* (Bába, K. 1986, 2000) (1. Table). Specially valid for protected areas of Csévharaszt and the sodic upper soil in forest of Újszentmargita where the species number is highest. In the 90 years old forest of Ohat forestry treatment had already happened: acctetion-enchanging thinning at the age of 60. This sodic upper soils forests are the poorest in species. The forest of Derekegyháza has been forestry treatment too (thumb selective thinning at the age of 40).The species numbers of the Fáspusztá forest (3) and the forest of Földeák which was planted 20 years ago are moderate as compared to others forests.

The species thicket is the highest in the first two forest, too. The forest which disturbed by sodification and forestry treatment the percent of juvenile are high.

Habitat type						
	1	2	3	4	5	6
RU	9,37	17,58	–	2,70	–	–
HF	12,5	–	–	–	–	–
B	71,87	76,46	100,0	97,28	99,99	50,0
St	6,25	5,88	–	–	–	–
Feeding habit						
O	78,12	94,04	95,0	78,37	90,90	68,75
H	21,87	–	5,0	21,61	9,09	25,0
Sp	–	5,88	–	–	–	6,25
Fauna domains						
1,1	15,62	35,29	–	–	72,72	–
1,2	–	5,88	–	–	–	–
1,3	6,25	11,70	–	2,70	–	–
1,4	21,87	41,17	15,0	–	18,18	18,75
2,2	6,25	5,88	30,0	–	–	–
3	–	–	5,0	13,57	9,09	25,0
5,3	18,75	–	–	8,10	–	–
EC	68,74	99,92	50,0	24,31	99,99	43,75
5,21	31,25	–	50,0	75,67	–	43,75
6	–	–	–	–	–	12,5
ESa	31,25	–	50,0	75,67	–	56,25

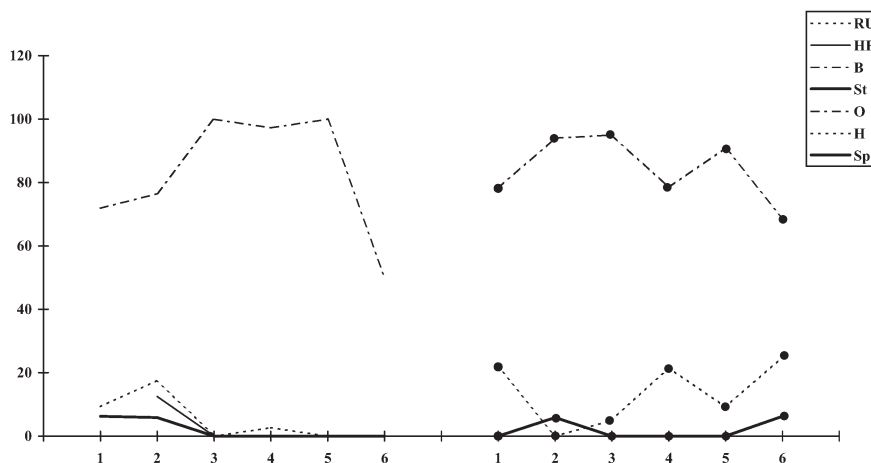
2. Table. Percent of the divisions of the species groups

Division of species groups

In consequence of the sodification disturbing and the forestry treatment the number of individuals, species numbers and species thicket are lower values (1 Table). The bush forest dwellers (B) are the dominant in all measured forests (1a. Figure). The dominance of hygophilous forest dwellers (HF) typically in the naturally, original forests. Only at Csévharaszt from the measured forests had been showed the low value of the dominance of HF, and in the original forests typically the Riparian ubiquitous (RU) highest rates.

The absolute dominants from the feeding habit species group is the Omnivores, which is consequence of secondary origin (1b. Figure).

The dominants from fauna domains the Continentale fauna domains. The 2 combined fauna domains groups are complementary behaviour in the forests. The Continentale are dominant in the 1, 2, 5 forests, while the Subatlantic fauna domains typically in the other forests (2. Figure). The values of the secondariness are the higher dominance values of the holarctic fauna domains, as the euryecios species. The typically percent of the Caspian-Sarmatian elements characteristic in the 3, 6 forests, which species group (3) revealing for the lawns. This areas and the high values of the Subatlantic fauna domains show us the loose closed feafage.



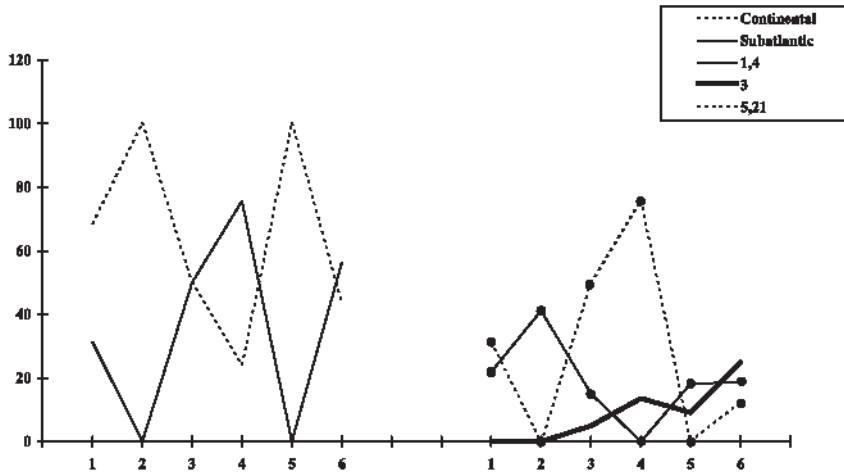
1.a, 1b. Figures. Divisions of the Habitat type and Feeding habit

Summary

The author measured the two forestry stage of the mineralogene succession line in the sodification oak-forests: *Festuco pseudovinae*, *Quercetum roboris* which measured for malacological by Máthé 1933 and Soó 1962. the diverse upper soils (brown forest soil, meadowy clay, adobe) sodification by lower soils. The sodification would reach the upper soils (Ohat). The groundwater and the changing water supply take part in the sodification.

The lower values of the species number, species thicket and number of species are typically in the sodic oak-forests. The 3 frequent-dominant species (*Vitrina*, *Aegopinella*,

Nesovitrea) of this secondary forests relate to the frequent-dominant species of the original forests. The absolute dominant are the bush forest dwellers and the Omnivores. In the 3, 4, 6 forests the Subatlantic, the Ponto-Caspian and the Holarctic elements are high dominant values, so the faeafage of this forests are loose closed. Over an above the sodification and the forestry treatment in the 40 and 80 aged, influenced the division of the species groups and members of the species.



2. Figure. The cumulative curve of the Continental and Subatlantic faunadomains and the dominant faunadomains

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