

УДК 595.2/582.32

ANALYSIS OF THE BRYOFAUNA OF SOME MOSS SPECIES

J. Varga

Аналіз бріофауни окремих видів мохів. – Я. Ворго. – Автор досліджував тваринні угруповання трьох видів мохоподібних на території національного парку Бюк (Угорщина). Кількість безхребетних, виявлених на мохоподібних становить 325 екземплярів при кількості визначених видів – 38.

Ключові слова: тваринні угруповання, безхребетні, мохоподібні

Адреса: Коледж ім. Естергазі Кароля, кафедра зоології, пл. Естергазі, 1, Егер, H-3301, Угорщина; e-mail: varga@ektf.hu

Analysis of the bryofauna of some moss species. – J. Varga. – The author investigated the zoocommunity of three bryophyte species in the area of Bükk National Park (Hungary). The number of invertebrate individuals explored from bryophytes is 325 and the number of the determined species is 38.

Key words: zoocommunities, invertebrates, bryophyte

Address: Eszterházy Károly College, Zoology Department, Eszterházy tér, 1, Eger, H-3301, Hungary; e-mail: varga@ektf.hu

Introduction

An intensive study of the zoocommunities in the bryophytes of Szarvaskő (Bükk Mountains, Hungary) has begun by the Zoology Department of the Eszterházy Károly College of Eger in 2006. The aim of the investigations was primarily to study the zoocommunities of the bryophyte species. This paper analyses the composition of zoocommunities (bryofauna) in colonies of *Plagiobrium zieri* (Hedw.) Linb., *Hypnum cupressiforme* Hedw., *Tortella tortuosa* (Hedw.) Limpr. bryophyte species.

The study site

Szarvaskő (approximately 10 km from Eger) and its surroundings belong to the protected area of the Bükk National Park. In the *Seslerietum heuflerianae* association of the study site, on diabase fundamental rock. Sampling was undertaken in an epirogenic valley of the Bükk Mountains, rich in protected plant and animal species. *Plagiobrium zieri* is a rare bryophyte species, this is the only place where can be found in the Bükk Mountains, and the presence is sporadic throughout Hungary.

Methods

Monthly collections of bryophyte cushions (sized 10 x 10 cm) of the investigated species, in May, August and October 2006. The zoocommunities of bryophyte species were examined by means of the funnel system which is widely used in bryofaunal investigations.

Results

Invertebrates living in bryophyte cushions, which with their associated bacteria, and fungi provide nutrients for many animal species, remain there for shorter or longer periods, some species spending their whole life cycle in the moss cushions (Koponen, A. and Koponen, T 1978, Gerson, U. 1982, Varga, J. et al. 1992, 2002.). The explored invertebrates were determined and separated into taxonomic groups. There were bryophyte-consuming, detritus-consuming species, carnivores, species developing in bryophytes and also species occurring seasonally in bryophytes.

The determined species according to bigger taxonomic groups:

Gastropoda: *Punctum pygmaeum* Drap, *Pumilla muscorum* L.

Crustacea: *Ligidium hypnorum* Cuvier.

Diplopoda: *Chromatoiulus unilineatus* L., *Polydesmus complanatus* L., *Polyxenus lagorus* L.

Chilopoda: *Lithobius muticus* C. Koch., *Monotarsobius aeruginosus* C. Koch., *Dignathodon microcephalum* Luc., *Lithobius mutabilis* C. Koch.

Protura: *Acerentomon campestre* JON., *Eosentomon transitorium* Berl.

Collembola: *Xenilla tullbergi* Börner., *Friesia stachi* Ksen., *Neanura muscorum* Temp., *Neanura conjuncta* (Stach.), *Onychiurus campatus* Gis., *Onychiurus granulatus* Stach., *Folsomia quadrioculata* (Tullberg), *Entomobrya multifasciata* Tullb., *Entomobrya muscorum* (Nicolet), *Orchesella flavescens* (Bourlet), *Tomacerus longicornis* Müll., *Sminthurus lubbocki* Tullb., *Sminthurus maculatus* Töm.

Heteroptera: *Acalypta gracilis* Fieb., *Acalypta musci* Schrank.

Coleoptera: *Stenus erichsoni* Rey., *Tachyporus ruficollis* Grav., *Gabrius femoralis* Hochhuth., *Pselaphus heisei* Herbst., *Brachysomus echinatus* Bonsd.

Hymenoptera: *Myrmica ruginodis* Nyl., *Formica polictena* Först.

Arachnoidea: *Neobisium muscorum* Stach., *Erigone atra* Blackw., *Oxyptylia blackwalli* Sim., *Euophris obsoleta* Sim.

Table 1. Number of animals found in the moss samples.

Animal species	Moss samples		
	<i>P. zierii</i>	<i>H. cupressiforme</i>	<i>T. tortuosa</i>
<i>Punctum pygmaeum</i> Drap.	3		
<i>Pumilla muscorum</i> L.	1		
<i>Ligidium hypnorum</i> Cuvier.		1	3
<i>Chromatoiulus unilineatus</i> L.		1	
<i>Polydesmus complanatus</i> L.			2
<i>Polyxenus lagorus</i> L.	7	3	
<i>Lithobius muticus</i> C. Koch.			2
<i>Monotarsobius aeruginosus</i> C. Koch.			1
<i>Dignathodon microcephalum</i> Luc.	1		2
<i>Lithobius mutabilis</i> C. Koch.		1	
<i>Acerentomon campestre</i> Jon.		1	
<i>Eosentomon transitorium</i> Berl.			1
<i>Xenilla tullbergi</i> Börner.	19	18	62
<i>Friesia stachi</i> Ksen.	6	5	
<i>Neanura muscorum</i> Temp.		10	14
<i>Neanura conjuncta</i> (Stach).	9	7	10
<i>Onychiurus campatus</i> Gis.	13	17	
<i>Onychiurus granulatus</i> Stach.	4	10	17
<i>Folsomia quadrioculata</i> (Tullberg)	4		
<i>Entomobrya multifasciata</i> Tullb.		2	5
<i>Entomobrya muscorum</i> (Nicolet)	4	5	4
<i>Orchesella flavescens</i> (Bourlet)	4	3	2
<i>Tomocerus longicornis</i> Müll.	4		3
<i>Sminthurus lubbocki</i> Tullb.		4	6
<i>Sminthurus maculatus</i> Töm.			3
<i>Acalypta gracilis</i> Fieb.			1
<i>Acalypta musci</i> Schrank.		1	
<i>Stenus erichsoni</i> Rey.		1	
<i>Tachyporus ruficollis</i> Grav.		1	1
<i>Gabrius femoralis</i> Hochhuth.			1
<i>Pselaphus heisei</i> Herbst.			1
<i>Brachysomus echinatus</i> Bonsd.			1
<i>Myrmica ruginodis</i> Nyl.	8		
<i>Formica polictena</i> Först.		7	
<i>Neobisium muscorum</i> Stach.	2		
<i>Erigone atra</i> Blackw.		1	
<i>Oxyptylia blackwalli</i> Sim.		2	1
<i>Euophris obsoleta</i> Sim		1	1
Total	89	102	134

89 individuals of 15 animal species were found in *Plagiobrium zierii*, 102 individuals of 22 species contained in *Hypnum cupressiforme* and 134

individuals of 23 species were found in *Tortella tortuosa* moss species.

1. Gerson, U. Bryophytes and invertebrates. In Bryophyte Ecology, ed. A. J. E. Smith. Chapman and Hall, London, New York. – 1982. – P. 291-332.
2. Koponen, A. and Koponen, T. Bryophytorum Bibliotheca, 13. – 1978. – P. 569-577.

3. Varga J. Analysis of the fauna of protected moss species. Biological Conversation, Elsevier publishers Ltd. England, 59. – 1992. – P. 171-173.
4. Varga, J., Naár, Z., Dobolyi, Cs. Selective feeding of collembolan species *Tomocerus longicornis* (Müll.) and *Orchesella cincta* (L.) on moss inhabiting fungi. Pedobiologia 46, –2002. – P. 526-538.

Отримано: 9 жовтня 2007 р.

Прийнято до друку: 1 листопада 2007 р.