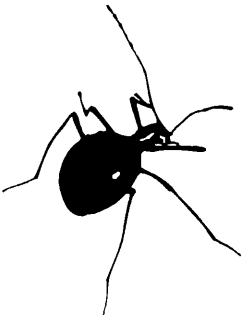

LJUBLJANA, JUNE 2004 Vol. 12, No. 1: 123–128

XVII. SIEEC, Radenci, 2001

FUNCTIONAL FEEDING GROUPS OF TRICHOPTERA ALONG THE VÖRÖSKŐ VALLEY RILL, BÜKK MTS., NORTH HUNGARY

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Abstract. - 36 species with a total number of 3709 individuals were categorized into functional groups and the portions of the various groups were expressed in percentages. Collectors–filterers and predators accounted for the largest portion of the collections (80.39 %), represented by two species, followed by predators with 5.9 % of the individuals from 6 species. Collectors–filterers and shredders–herbivores accounted for 3.28 % and 2.85 % of the total number of individuals represented by two and one species, resp. Shredders–detritivores composed 2.69 % of the collections and were represented by six species. Although shredders–detritivores and herbivores only accounted for 2.02 % of the collected individuals, they were represented by the largest number of species (11). Shredders–detritivores and predators, scrapers and shredders were poorly represented; 1.32 %, 0.91 %, and 0.1 %, respectively.

KEY WORDS: Trichoptera, functional feeding groups, rill, Bükk Mts., North Hungary

Izvleček SKUPINE PO NAČINU HRANJENJA MLADOLETNIC VZDOLŽ POTOČKA V DOLINI VÖRÖSKŐ, POGORJE BÜKK, SEVERNA MADŽARSKA

36 vrst s skupnim številom 3709 primerkov smo razvrstili v skupine in deleže skupin izrazili v odstotkih. Zbiralci-filtratorji in plenilci, zastopani z dvema vrstama, zavzemajo največji delež v zbirkah (80,39 %). Sledijo plenilci s 5,9 % primerkov, pripadajočih 6 vrstam. Zbiralci-filtratorji in drobilci-rastlinojedci so zastopani s po 3,28 % in 2,85 % od skupnega števila primerkov. Pripadajo dvema in eni vrsti. Drobilci-drobirojedci sestavljajo 2,69 % zbirk in so zastopani s 6 vrstami. Čeprav

predstavljajo drobilci-drobirojedci in rastlinojedci le 2,02 % zbranih primerkov, so zastopani z največjim številom vrst (11). Drobilci-drobirojedci in plenilci, strgalci in drobilci so slabo zastopani, s po 1,32 %, 0,91 % in 0,1 %.

KLJUČNE BESEDE: Trichoptera, skupine po načinu hranjenja, potoček, pogorje Bükk, severna Madžarska

Introduction

Trichoptera were investigated along the Vöröskő valley rill via larva investigation and light trapping in two years. The objective of this study is to identify the trophic relationships of the trichopteran species inhabiting the rill and determine the portions of the various functional groups, obtaining an overview of the source of nutritional resources.

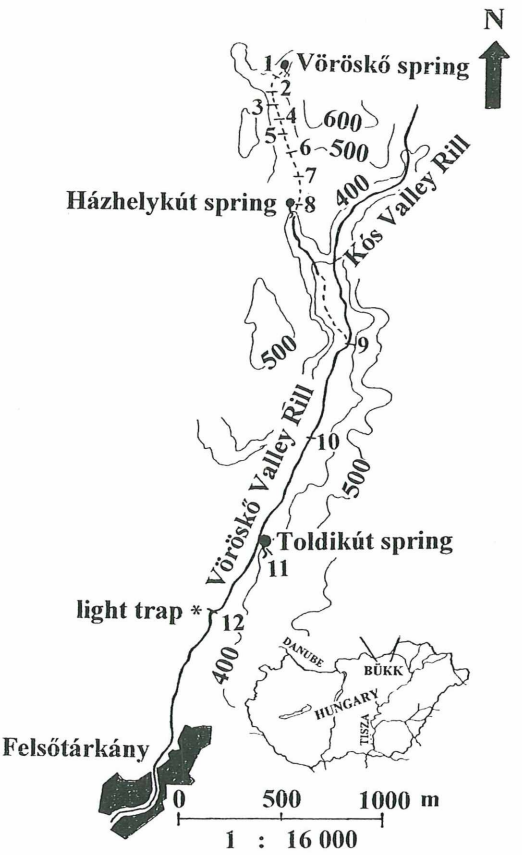

Fig. 1. Map of the study area

Study Area

The Vöröskő valley rill is situated in the Bükk Mts. (Fig. 1.) at 320-460 m a.s.l. The water of the spring breaks its way onto the surface in the form of a well spring of about 1 m high where the clay shale appears from under the limestone. The rill has an intermittent upstream reach of about 2000 m with water flow in April and May and a downstream reach of about 6000 m with continuous water flow due to the inflow of a small spring (Házhelykút spring), a rill (Kós valley rill), and seepage waters (Toldikút). The riparian vegetation consists of brittle willow (*Salix fragilis* L.), white vine (*Clematis vitalba* L.), and elderberry (*Sambucus nigra* L.). The rill bed is shady, of 40-50 cm in width and 6-20 cm in depth. The water temperature ranges between 8.8°C and 13.6°C from

April to October, i.e. in the larval development phase. The rill bed is covered with small and large limestones with accumulations of detritus and silt in the rapids and on the rill side.

Material and Methods

The data are taken from the investigations carried out in 1981 and 1982, when sample collecting and light trapping as well as observations and measurements were made monthly at 12 sampling sites from April – October.

The larvae of Trichoptera were collected using the methods of Kamler and Riedel (1960) and Macan (1958). The trichopteran imagines were captured in a light trap (Kiss, 1984a,b) set up in the garden of a forester's lodge (Varró ház) at 250 m a.s.l. The thermal and chemical conditions were recorded. For the identification of larvae and imagines Hickin (1967) and Malicky (1973) were used, resp.

The collected species of Trichoptera are listed in functional groups using the categories and guideline of Merritt and Cummins (1984) and Moog (1995). The portions of the different functional feeding groups (Table 1) for the Vöröskő valley rill are expressed in percentages of the total number of individuals.

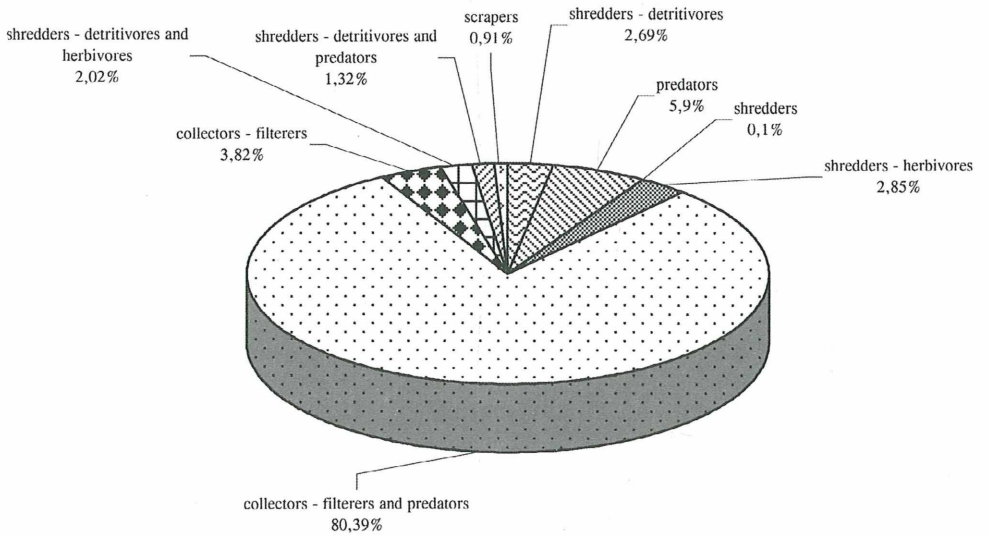

Fig. 2. Diversity and abundance of functional feeding groups of Trichoptera along the Vöröskő valley rill, Bükk Mts., North Hungary

Tab. 1. Functional feeding groups of Trichoptera along the Vöröskő valley rill, Bükk Mts., North Hungary

	SPECIES	FUNCTIONAL FEEDING GROUPS
	Limnephilidae	
1	*Anabolia furcata* (B.,1857)	shredders - detritivores
2	*Chaetopteryx fusca* (B., 1857)	shredders - detritivores
3	*Ecclisopteryx madida* (McL., 1867)	shredders - detritivores
4	*Grammotaulius nigropunctatus* (R., 1783)	shredders
5	*Grammotaulius nitidus* (M., 1764)	shredders
6	*Halesus digitatus* (S., 1781)	shredders - herbivores
7	*Limnephilus affinis* (C., 1834)	collectors - filterers
8	*Limnephilus auricula* (C., 1834)	shredders - detritivores and herbivores
9	*Limnephilus extricatus* (McL., 1865)	shredders - detritivores and herbivores
10	*Limnephilus flavicornis* (F., 1787)	shredders - detritivores and herbivores
11	*Limnephilus griseus* (L., 1758)	shredders - detritivores and herbivores
12	*Limnephilus lunatus* (C., 1834)	shredders - detritivores and herbivores
13	*Limnephilus politus* (McL., 1865)	shredders - detritivores and herbivores
14	*Limnephilus rhombicus* (L., 1758)	shredders detritivores and herbivores
15	*Limnephilus sparsus* (C., 1834)	shredders - detritivores and herbivores
16	*Limnephilus vittatus* (F., 1798)	shredders - detritivores and herbivores
17	*Micropterna nycterobia* (McL., 1875)	shredders - detritivores and herbivores
18	*Micropterna testacea* (G., 1790)	shredders - detritivores and herbivores
19	*Potamophylax nigricornis* (P., 1834)	shredders - detritivores
20	*Stenophylax permistus* McL., 1895	shredders - detritivores
	LEPTOCERIDAE	
21	*Mystacides longicornis* (L., 1758)	shredders - detritivores
22	*Oecetis notata* (R., 1842)	predators
23	*Oecetis ochracea* (C., 1825)	predators
	POLYCENTROPODIDAE	
24	*Neureclipsis bimaculata* (L., 1758)	collectors - filterers
25	*Plectrocnemia conspersa* (C.,1834)	predators
	ODONTOCERIDAE	
26	*Odontocerum albicorne* (S., 1763)	shredders - detritivores and predators
	PHRYGANEIDAE	
27	*Phryganea grandis* (L., 1758)	shredders - detritivores
	RHYACOPHILIDAE	
28	*Rhyacophila fasciata* (H., 1859)	predators
29	*Rhyacophila tristis* (P., 1834)	predators
	SERICOSTOMATIDAE	
30	*Sericostoma personatum* (K. et S., 1826)	shredders - detritivores
	GOERIDAE	
31	*Silo nigricornis* (P., 1834)	scrapers
32	*Silo pallipes* (F., 1781)	scrapers
	GLOSSOSOMATIDAE	
33	*Synagapetus moselyi* U., 1938	scrapers
	HYDROPSYCHIDAE	
34	*Hydropsyche bulbifera* McL., 1878	collestors - filterers and predators
35	*Hydropsyche instabilis* (C., 1834)	collectors - filterers and predators
	ECNOMIDAE	
36	*Ecnomus tenellus* (R., 1842)	predators

Results

In 1981 and 1982 the total number of individuals were 3709 of 36 species. Collectors–filterers and predators accounted for the largest portion (80.39 %) due to the huge numbers of individuals of *Hydropsyche instabilis* and represented by the above species and *Hydropsyche bulbifera.* Predators composed 5.9 % of the collections, and were represented by *Rhyacophila fasciata, Rh. tristis, Plectrocnemia conspersa, Oecetis notata, O. ochracea*, and *Ecnomus tenellus.* They are followed by collectors–filterers (3.28 %), represented by *Limnephilus affinis* and *Neureclipsis bimaculata.* Shredders–herbivores accounted for 2.85 % and were only represented by one species: *Halesus digitatus.* Shredders–detritivores only composed 2.69 % of the collections but were represented by six species (*Anabolia furcata, Chaetopteryx fusca, Ecclisopteryx madida, Mystacides longicornis, Phryganea grandis, Potamophylax nigricornis, Sericostoma personatum*, and *Stenophylax permistus*). Shredders–detritivores and herbivores accounted for 2.02 % and were represented by the largest number of species, by eleven *Limnephilus* species. Shredders–detritivores and predators (1.32 %) were only represented by *Odontocerum albicorne.* Scrapers (0.91 %) were represented by *Silo nigricornis, Silo pallipes* and *Synagapetus moselyi.* Shredders accounted for 0.1 % from two species (*Grammotaulius nigropunctatus* and *G. nitidus*, Fig. 2.).

This diversity of trophic relationships of Trichoptera shows the availability of diverse nutritional resources. It may be stated that together with the 36 caddisfly species collected in the Vöröskő valley rill, the total number of trichopteran species increased to 113 in the Bükk Mts., and similarly to the data obtained for other study areas of the Bükk Mts., collectors–filterers and predators composed the largest portion of the collections.

Acknowledgements

This study was financially supported by the Hungarian National Science Fund (OTKA, Grant No T: 026479), the Foundation for Hungarian Higher Education and Research (AMFK Grant No 310/98), and the Líceum Pro Scientiis Fund, Eger

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