

Occurrence of amphibiocorid bugs, water bugs and ground bugs in the catchment area of the River Someș/Szamos¹

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Abstract

The material was collected at 6 sampling sites along the river Someșul Mare and 7 that of the river Someșul „Unit“. We found 25 bug species altogether. We could not collect from the river Someșul Mic, though in the literature 38 species are mentioned. Considering our results and the literature, 21 species are recorded, indicating that the majority of these species can be found in the whole catchment area of the river Someș.

The water bugs (Hydrocorisae), the amphibiocorid bugs (Amphibiocorisae) and ground bugs (Saldidae) are represented in different proportions in stagnant waters and in the rivers. On the riverbanks the *Saldula* species are dominant, while in the river some representatives of the *Gerridae* family are frequent. In the stagnant waters some species of the *Hydrocorisae* suborder are the most common.

Keywords: Heteroptera, River Someș/Szamos

Introduction

There is no literature found referring directly to the water bug, amphibiocorid bug and ground bug fauna living in the Someș valley, but a great amount of data exist about the catchment area of the Someșul Mic. Such data came from localities along Pârâul Fizeș: Geaca (Horváth, G. 1877, 1918; Soós, Á. 1959; Benedek, P. 1970), from the surroundings of Sucutard (Horváth, G. 1918; Soós, Á. 1959; Prunescu-Arion, E., Elian, L. 1962; Benedek, P. 1970), Cătina (Benedek, P. 1970), Sic (Horváth, G. 1918; Soós, Á. 1959; Benedek, P. 1970), or other localities, like Cluj Napoca (Fuss, C. 1862; Horváth, G. 1878), Cojocna (Soós, Á. 1959), Someșeni (Horváth, G. 1877; Soós, Á. 1959; Benedek, P. 1970; Bucșa, C. 1972), Florești, Sălicea and the Fânațele Clujului Natural Reserve (Bucșa, C. 1970, 1972).

The greater part of the data mentioned came from fresh-water lakes or salty lakes and pools. Few data came from the catchment area of the „United“ Someș, all of them from the surroundings of Satu Mare (Horváth, G. 1899, 1909; Benedek, P. 1970).

We do not have data about the catchment area of the Someșul Mare.

The material has been collected in sampling sites along the Someșul Mare and the „United“ Someș. (Table 1.).

¹ The first name is Romanian, and the second Hungarian

Materials and methods

Because of the life habits of these groups of bugs we could not accomplish a quantitative only a qualitative survey. At every sampling point we tried to take samples proportionally to their frequency. We took the water bug and amphibiocorid bug samples with a pond net from the bottom and the surface of the water and from the leaves of floating plants. The ground bugs were simply caught by wet hands, except the *Macrosaldula* species, which could not be approached so close, and therefore they were caught by net.

The collected material, grouped according to the sampling sites and habitats, was stored in 70 % ethyl alcohol. The bugs were determined under stereomicroscope by their external morphological marks. When needed, we took into consideration genital characteristics as well.

Sampling sites

Someșul Mare:

1. Upstream Rodna Veche:

R1= rill along Maria brook with abundant vegetation, in some places the water is 40 cm deep;

R2= the Éger brook, a typical mountain-brook, with 15-20 sm wide stones on the banks;

S2= pool, 3 m in width and 20-30 cm deep with rich vegetation;

S1= three artificial pools with a surface of about 40x25 m, thick vegetation on the bank.

2. Downstream Rodna Veche:

R= the river is fast-running, there are willows on the bank in some places bending over the water, in other places the bank is stony;

S= pools, with a depth of 5-10 cm and without any vegetation.

3. Ilva brook

R= fast running river, the bank is covered with stones of 25-40 cm in diameter

4. Upstream Salva

R= the river with alternating fast and slow flowing reaches, here and there with roots hanging into the water from the bank; the bank is stony, pebbly or sandy and there are trees and bushes in some places;

S= pool with a surface of 4x7 m and a maximum depth of 40 cm, and without vegetation.

5. Downstream Salva

S= backwater with rich marsh vegetation.

6. Downstream Beclean

R= slow flowing river, rich marsh vegetation.

7. Letca

R= river, slow flow, with stony bank and muddy reaches;

S= pool, with a surface of 3x8 m and a depth of 40 cm, and with a muddy and grassy bank.

8. *Someș-Odorhei*

R= river, moderately rapid flow, with big stones on the bank;

S= pool, with muddy bottom, with about a surface of 2x4 m and with a depth of 20 cm.

9. *The Someș gorges (near Țicău)*

R= slow flowing river, with stony banks and muddy reaches;

S= wallows of 2,5 m width with 5-25 cm depth, far from the river.

10. *Sălsig*

S= permanent waters with a 1,5 m x 20 m basic area and with a depth of 5-30 cm, rich in vegetation.

11. *Near Pomi*

R= very slow flowing river, with bushes on the muddy bank.

12. *Upstream Satu-Mare*

R= slow flowing river, on the banks willows with roots hanging into the water and grass vegetation;

S= pool with a surface of 5x3 m and with a depth of 30 cm, with rough sand and pebbles on the banks.

13. *Downstream Satu-Mare*

S= pools, with a surface of 6x3 m and with a depth of 20-40 cm, with rough sandy banks.

Results and discussions

In the catchment area of the Someș 40 species were recorded, 38 of them in the Someșul Mic and 3 species in the „united“ Someș.

Along the Someșul Mare and the „united“ Someș 25 species were collected, 21 of which were also found in the Someșul Mic catchment area, while 4 species (*Chartoscirta cocksi*, *Macrosaldula scotica*, *Saldula arenicola* and *Saldula saltatoria*) were not to be found there at all.

The fact that many species can be found in all three river environs mentioned above leads to the conclusion that these bugs are widespread over the whole Someș river system. (Table 2.)

Whether considering the number of species or the number of individuals, we can state that water bugs, amphibiocorid and ground bugs are present in different proportions in the rivers and stagnant waters.

The water bugs in the rivers are represented by the Corixidae and Nepidae families, containing 25 % of the total number of species and a 3,5 % of the total number of individuals. In stagnant waters the Notonectidae, Corixidae, Nepidae and Naucoridae families represent the water bugs. These four families contain 66,7 % of the total number of species and 69,9 % of the total number of individuals.

The Gerridae family in both water types represents amphibiocorid bugs. In rivers only one sample of the Hydrometridae family was taken which represents 37,5 % of the total number species and 61,7 % of the total number of individuals, while in stagnant water these values are 22,2 %, and 25,1 % respectively.

On riverbanks ground bugs represent 37,5 % of the total number of species and 34,8 % of the total number of individuals, while in stagnant water they represent 11,5 % and 5 % respectively.

In rivers and on riverbanks the Gerridae and Saldidae families (*Saldula* genus) dominate, while stagnant waters show a great dominance of the species of the Hydrocorisae suborder.

Considering the short sampling time compared to the large measurement of the examined area, the investigations need to be completed, therefore these results cannot be generalised. (Figure 1.)

References

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Species	Someșul Mic	Someșul Unit
<i>Notonecta glauca</i>	Cluj and neighbourhood	
<i>Plea minutissima</i>	Fânațele Clujului	
<i>Micronecta griseola</i>	Geaca, Sucutard	
<i>Cymatia coleoprata</i>	Fânațele Clujului, Geaca, Sucutard	
<i>Cymatia rogenhoferi</i>	Cluj and neighbourhood	
<i>Callicorixa concinna</i>	Sucutard	
<i>Corixa affinis</i>	Sălicea	
<i>Corixa punctata</i>	Cluj and neighbourhood	
<i>Hesperocorixa sahlbergi</i>	Cluj and neighbourhood	
<i>Hesperocorixa linnei</i>	Cluj and neighbourhood, Geaca	
<i>Hesperocorixa parallela</i>	Sălicea	
<i>Sigara semistriata</i>	Sălicea, Geaca	
<i>Sigara falleni</i>	Sălicea, Geaca, Sucutard	
<i>Sigara fossarum</i>	Sucutard	
<i>Sigara lateralis</i>	Sucutard, Cluj and neighbourhood, Geaca	
<i>Sigara striata</i>	Geaca, Sucutard	
<i>Sigara nigrolineata</i>	Sucutard	
<i>Sigara assimilis</i>	Someșeni, Cojocna	
<i>Sigara limitata</i>	Cluj and neighbourhood, Sucutard	
<i>Nepa cinerea</i>	Cluj and neighbourhood	
<i>Ranatra linearis</i>	Cluj and neighbourhood	
<i>Naucoris cimicoides</i>	Cluj and neighbourhood	
<i>Aphelocheirus aestivalis</i>		Satu Mare
<i>Limnoporus rufoscutelatus</i>	Cluj, Someșeni	
<i>Aquarius paludum</i>	Cluj and neighbourhood	
<i>Gerris costae</i>	Sucutard	
<i>Gerris lateralis</i>	Cluj and neighbourhood	
<i>Gerris thoracicus</i>	Sucutard, Geaca	
<i>Gerris lacustris</i>	Cluj and neighbourhood, Sucutard, Geaca	
<i>Gerris gibbifer</i>	Cluj and neighbourhood	
<i>Gerris argentatus</i>	Cluj and neighbourhood, Geaca	Satu Mare
<i>Gerris odontogaster</i>	Cluj and neighbourhood, Geaca	
<i>Microvelia reticulata</i>	Geaca, Sucutard, Cătina	
<i>Mesovelia furcata</i>	Geaca	
<i>Hebrus pussilus</i>	Sucutard	
<i>Hydrometra stagnorum</i>	Sucutard	
<i>Hydrometra gracilentia</i>		Satu Mare
<i>Saldula pilosella</i>	Sucutard, Someșeni	
<i>Saldula pallipes</i>	Sucutard, Someșeni	
<i>Saldula opacula</i>	Sucutard, Sic	

Table 1. Data concerning the bug fauna of the catchment area of the Someș river system (based on Paina, 1975)

Species	Someșul Mare						Someșul Unit													Total																				
	1			2			3			4			5			6			7			8			9			10			11			12			13			
	R ₁	S ₁	R ₂	S ₂	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R		S	R	S	R	S	R	S	R	S	R	S	R	S	R	S					
<i>Hidrocorisae</i>																																								
<i>Notonecta glauca</i>																																								
<i>Corixa punctata</i>																																								
<i>Hesperocorixa linnei</i>																																								
<i>Sigara fossarum</i>																																								
<i>Sigara falleni</i>																																								
<i>Sigara lateralis</i>	1																																							
<i>Sigara striata</i>																																								
<i>Sigara nigrolineata</i>	1	1																																						
<i>Sigara limitata</i>																																								
<i>Nepa cinerea</i>	2	7																																						
<i>Ranatra linearis</i>																																								
<i>Naucoris cimicoides</i>																																								
<i>Amphibiocorisae</i>																																								
<i>Limnoporus</i>																																								
<i>rufoscutellatus</i>																																								
<i>Aquarius paludum</i>	1																																							
<i>Gerris costae</i>	2																																							
<i>Gerris lateralis</i>	4																																							
<i>Gerris thoracicus</i>																																								
<i>Gerris lacustris</i>	5	28		3	10																																			
<i>Hydrometra stagnorum</i>																																								
<i>Saldidae</i>																																								
<i>Charoscirta cocksi</i>																																								
<i>Macrosaldula scolica</i>	5																																							
<i>Saldula arenicola</i>																																								
<i>Saldula pallipes</i>																																								
<i>Saldula opacula</i>																																								
<i>Saldula saltatoria</i>	1																																							

R= river, S= stagnant water

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Table 2. The checklist of the species

R= river

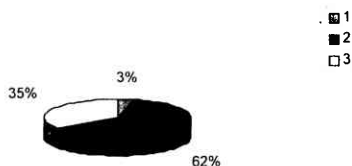
S= stagnant water

<p> <i>Notonecta glauca</i> (Linne) 1758, rC <i>Plea minutissima</i> (Fuessly) 1775, ? <i>Micronecta griseola</i> (Horvath) , ? <i>Cymatia coleoprata</i> (Fabricius) 1776, ? <i>Cymatia rogenhoferi</i> (Fieber) 1864, ? <i>Callicorixa concinna</i> (Fieber) , ? <i>Corixa affinis</i> (Leach) 1818, ? <i>Corixa punctata</i> (Illiger) 1807, rC <i>Hesperocorixa sahlbergi</i> (Fieber) 1848, ? <i>Hesperocorixa linnei</i> (Fieber) 1848 , C <i>Hesperocorixa parallela</i> (Fieber) , ? <i>Sigara semistriata</i> (Fieber) 1848, ? <i>Sigara falleni</i> (Fieber) 1848, rC <i>Sigara fossarum</i> (Leach) 1818, R <i>Sigara lateralis</i> (Leach) 1818, C <i>Sigara striata</i> (Linne) 1758, rC <i>Sigara nigrolineata</i> (Fieber) 1848, C <i>Sigara assimilis</i> (Fieber) ? <i>Sigara limitata</i> (Fieber) 1848, rC <i>Nepa cinerea</i> (Linne) 1758, C <i>Ranatra linearis</i> (Linne) 1758 , R <i>Naucoris cimicoides</i> (Linne) 1758, rC </p>	<p> <i>Aphelocheirus aestivalis</i> (Fabricius) 1794,Ex? <i>Limnoporus rufoscutellatus</i> (Latreille) 1807, R <i>Aquarius paludum</i> (Fabricius) 1794, C <i>Gerris costae</i> (Herrich-Schaeffer) 1853,R <i>Gerris lateralis</i> (Schummel) 1832, R <i>Gerris thoracicus</i> (Schummel) 1832, rC <i>Gerris lacustris</i> (Linne) 1758, C <i>Gerris gibbifer</i> (Schummel) 1832, ? <i>Gerris argentatus</i> (Schummel) 1832, ? <i>Gerris odontogaster</i> (Zetterstedt) 1828, ? <i>Microvelia reticulata</i> (Burmeister) 1835, ? <i>Mesovelia furcata</i>(Mulsant et Rey) 1852, ? <i>Hebrus pusillus</i> (Fallen) 1807, ? <i>Hydrometra stagnorum</i> (Linne) 1758, R <i>Hydrometra gracilentia</i> (Horvath) 1899, Ex? <i>Chartoscirta cocksi</i> (Curtis) 1835, R <i>Macrosaldula scotica</i> (Curtis) 1835, R <i>Saldula pilosella</i>(Thomson) 1871, ? <i>Saldula arenicola</i> (H.Scholtz)1846, C <i>Saldula pallipes</i> (Fabricius) 1794, C <i>Saldula opacula</i> (Zetterstedt) 1838, R <i>Saldula saltatoria</i> (Linneus) 1758, rC </p>
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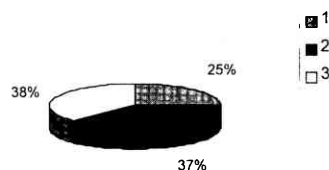
List of the bug species in the Someş catchment area

? - Species not found in the catchment area, but they have been recorded in the catchment area of the river Someşul Mic, where samples have not been taken during this expedition.

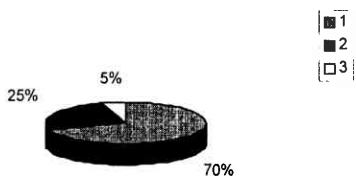
b) The distribution of the bug groups in the river based on the number of individuals



a) The distribution of the bug groups in the river based on the number of species



d) The distribution of the bug groups in the stagnant water based on the number of individuals



c) The distribution of the bug groups in the stagnant water based on the number of species

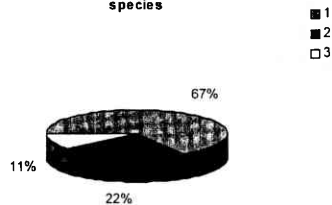


Figure 1. Distribution of the bugs on different water types

1. Hydrocorisae 2. Amphibiocorisae 3. Saldidae