

On the Lycosidae (Araneae) occurring on the pebble banks of the River Siret and its tributaries, Ciscarpathia (Ukraine)

О Lycosidae (Araneae) обитающих на галечниках реки Сирет и ее притоков, Предкарпатье (Украина)

M.M. FEDORYAK¹ & K.V. EVTUSHENKO²
М.М. ФЕДОРИЯК¹ & К.В. ЕВТУШЕНКО²

¹ Yu. Fedkovich Chernovtsy National University, 2, Kotsubinskogo street, Chernovtsy, 58012, Ukraine. email: maspider2002@ukr.net

¹ Черновицкий национальный университет имени Юрия Федьковича, ул. Коцюбинского, 2, Черновцы, 58012, Украина. email: maspider2002@ukr.net

² Shmalgauzen Institute of Zoology, B. Khmel'nitskogo street 15, Kyiv-30, 01601, Ukraine. email: narolsky@izoology.kiev.ua

² Институт Зоологии им. Шмальгаузена, ул. Б. Хмельницкого 15, Киев-30, 01601, Украина. email: narolsky@izoology.kiev.ua

ABSTRACT. This paper provides a faunistic account of the Lycosidae species dwelling on the exposed riverine sediments in the Carpathian Mountains (Bukovina region), in the upper reaches of the Siret River. Nine species in four genera are recorded.

РЕЗЮМЕ. Работа представляет собой фаунистический обзор видов Lycosidae, обитающих на галечниках рек Карпатских гор (Буковина), в районе истока р. Сирет. Выявили 9 видов из 4 родов.

KEY WORDS: Lycosidae, Araneae, exposed riverine sediments.

КЛЮЧЕВЫЕ СЛОВА: Lycosidae, Araneae, прибрежные галечники.

Introduction

The Lycosidae spiders of the Carpathian Mountains are poorly known [Legotai & Tarasyuk, 1964; Mikhailov, 1997]. There are no works specifically dealing with the lycosids of riverside biotopes in the Carpathians, though spider assemblages of these biotopes have been investigated in a number of European countries; for a brief review of the literature see Eyre *et al.* [2002]. Here, we provide preliminary data on the species composition and distribution of the Lycosidae inhabiting the exposed riverine sediments of the six mountain rivers in the upper reaches of the Siret River (Chernovtsy Area).

Chernovtsy Area is covered with a dense network of rivers, accounting for an average river density of about 0.90 km/km² [Gerenchuk, 1978]. Therefore, riverside biotopes and particularly exposed riverine sediments (ERS), are very common and widespread in this region. Research was carried out in the territory of the Carpathian Mountains (Bukovina region), in the upper reaches of the Siret River (left tributary of the River Danube) and its tributaries (the average altitude of the study area was 1100 m a.s.l.). The stone riverside biotopes investigated differed from one another in their exposure to insolation and flooding, dimension of the stones and the character of their deposition.

Each investigated river (section) was sampled in three stations (see Table): near the water (0 m) and approximately 1 m and 2 m away from the water line. Each series consisted of 50 samples. The distance between samples in the series was 2 m. Each sample also included spiders collected using a quadrat of 0.25×0.25 m (0.0625 m²). The nomenclature of spiders follows the catalogue of Mikhailov [1997].

Results and discussion

In total, 573 lycosid specimens belonging to nine species in four genera: *Pardosa*, *Arctosa*, *Xerolycosa* and *Pirata* (Table), were collected.

Among the 150 samples taken from the ERS of the Chernech River only 32 specimens of the five lycosid species were found (Table). The density of spiders in this site was lowest among the six rivers studied. This can be explained by the higher level of shade at this site compared to the other river banks.

The ERS of Bursunkiv River, which was more open compared to the previous site, showed the highest density and dominance of *P. knorri* (Table); among 144 specimens collected, 128 belonged to *P. knorri*. The average density of *P. knorri* near the water line was 8.3 ± 2.6 specimens/m²; at the 1 m and 2 m distances from the water the densities were 12.8 ± 3.4 and 24.3 ± 5.6 respectively. Such high densities of *P. knorri* were apparently due to the occurrence of numerous flat stones. The number of these stones increased with distance from the water towards the forest. *A. stigmosa*, a typical river bank-dweller [see Legotai & Tarasyuk, 1964], was found only at this site.

The Petrivets River, which had a similar degree of insolation as the Bursunkiv River, had a less dense wolf spider fauna (Table), e.g., *P. wagleri* was the most abundant species and had an average density lower than 3.8 ± 1.3 specimens/m². The absence of suitable flat stones seemed to be the reason for the low density of *P. knorri* (only one specimen was collected).

A relatively dense population of Lycosidae was found on the ERS of Zubinets River (Table). In contrast to Bursunkiv River, where *P. knorri* predominated, Zubintets River banks had relatively high densities of *P. wagleri*. Along

the series of samples, the average density for *P. wagleri* was (1) 7.2 ± 2.1 specimens/m², (2) 6.4 ± 1.6 specimens/m² and (3) 5.1 ± 1.9 specimens/m². The density of *P. knorri* was (1) 14.7 ± 4.7 specimens/m² and (2) 3.2 ± 2.1 specimens/m². The species *X. nemoralis* was found in this site only. The coexistence of Lycosidae with different microhabitat preferences is probably due to the specific structure of non-shaded, multi-layered pebbles.

Only two species of Lycosidae were collected on the ERS of the Siret River (Table): a single specimen of *P. latitans* and 71 samples of *P. wagleri*, with average densities of (1) 8.0 ± 2.1 specimens/m², (2) 8.3 ± 2.1 specimens/m² and (3) 6.4 ± 1.3 specimens/m².

In contrast to the above-mentioned sites (apart from the River Siret), two banks of the Zvarash River had no shade and plenty of stones of different sizes, which formed two to four layers. The bank of Zvarash River had the highest abundance of Lycosidae (Table). *P. wagleri* was found in 113 samples, and its average density in the series of samples was (1) 18.9 ± 2.4 specimens/m², (2) 12.5 ± 2.4 specimens/m² and (3) 12.5 ± 1.4 specimens/m². *P. knorri* was less common and observed in 24 samples; its density was (1) 3.5 ± 1.1 specimens/m², (2) 1.9 ± 1.0 specimens/m² and (3) 1.6 ± 0.8 specimens/m².

None of the nine lycosid species occurring on the ERSs studied was found in all six sites. The most common dwellers of the ERSs were *P. knorri* and *P. wagleri*, both were found in five of the six sites and both occurred in large numbers. The highest observed densities of *P. wagleri* and *P. knorri* were 18.9 ± 2.4 and 24.3 ± 5.6 specimens/m², respectively. The average density data for these species suggests that *P. wagleri* prefers unshaded ERS of small substrate size, whereas *P. knorri* lives chiefly on shaded ERS with two or more layers of large-sized stones.

ACKNOWLEDGEMENTS. We wish to thank Dr D.V. Logunov (Manchester, UK) for help with preparing this work.

References

- Eyre M.D., Woodward J.C. & Luff M.L. 2002. The spider assemblages (Araneae) of exposed riverine sediments

Table.
Таблица.

Number of lycosid specimens collected on the pebble banks of the six rivers of Ciscarpathia.

Количество экземпляров ликозид, собранных на галечниках шести рек Прикарпатъя.

Species	Bursunkiv River			Chernech River			Petrivets River			Siret River			Zubrinets River			Zvarach River			Total	
	Distance			Distance			Distance			Distance			Distance			Distance				
	0 m	1 m	2 m	0 m	1 m	2 m	0 m	1 m	2 m	0 m	1 m	2 m	0 m	1 m	2 m	0 m	1 m	2 m		
<i>Arctosa maculata</i> (Hahn, 1822)																1			1	2
<i>Arctosa stigmosa</i> (Thorell, 1875)			1																	1
<i>Arctosa</i> sp.				2		4														7
<i>Pardosa agrestis</i> (Westring, 1861)							3													7
<i>Pardosa agricola</i> (Thorell, 1856)					4	2														6
<i>Pardosa amentata</i> (Clerck, 1758)	6	2	4									16								28
<i>Pardosa wagleri</i> (Hahn, 1822)					4	4	13	12	25	26	20	24	20	16	35	39	39			273
<i>Pirata latitans</i> (Blackwall, 1841)			2				5			1		12	4		2					26
<i>Pirata knorri</i> (Scopoli, 1763)	20	40	68	2	8	2	1					46	10	13	6	5				221
<i>Xerolycosa nemoralis</i> (Westring, 1861)													2							2
Total	26	42	75	4	12	12	22	12	25	27	20	98	36	16	49	50	47			573

- in Scotland and northern England // Bull. Br. Arachnol. Soc. Vol.12. Pt.6. P.287–294.
- Gerenchuk K. (ed.). 1978. [Priroda Chernivetskoi oblasti]. Lviv: High school. 160 p. [in Ukrainian].
- Legotai M.V. & Tarasiyk G.D. 1964. [Ecological distribution of the Ciscarpathian arachnofauna] // [Ecol. Ins. Invert. Soviet Carpathians. Proc. Interuniv. Conf.]. Uzhgorod: Uzhgorod University. S.54–59 [in Russian].
- Mikhailov K.G. 1997. Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Aranei) // Sbornik trudov Zool. Muzeya MGU. Moscow: Zool. Museum, Moscow State Univ. Vol.37. 416 p.