

Faunistical data on the spiders (Arachnida: Araneae) of the Nemira Mountain's bog complex with two new species for the Romanian fauna

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Abstract

This paper presents spider faunistical data obtained on a joint expedition by Babeş-Bolyai (Cluj-Napoca, Romania) and Szeged Universities (Szeged, Hungary) to the Fagul Rotund and Apa Lenta bog complex (Nemira Mountain, Romania). We collected 394 specimens, 250 adults (74 males and 146 females) and 144 juveniles. 34 species of 11 families were identified. *Notioscopus sarcinatus* (OP-Cambridge, 1872) and *Haplodrassus moderatus* (Kulczynski, 1897) are new for the Romanian fauna.

Rezumat

Date privind arachnofauna (Arachnida: Araneae) complexului de tinoave din Munții Nemira cu două specii noi pentru fauna României

Programului de cercetare s-a desfășurat prin colaborarea între Universitatea "Babeş-Bolyai" din Cluj-Napoca, Romania și Universitatea "Szeged" din Szeged, Ungaria. Lucrea de față prezintă materialul arahnologic colectat în tinovul Fagul Rotund și complexul de tinoave Apa Lentă, din Munții Nemira. Materialul biologic a fost colectat în iulie, 1998 cu capcane tip Barber. Au fost capturate 394 aranee, 250 adulți (74 masculi și 146 femele) și 144 juvenili, din 34 specii, 11 familii. *Notioscopus sarcinatus* (OP-Cambridge, 1872) și *Haplodrassus moderatus* (Kulczynski, 1897) sunt semnalate pentru prima dată în fauna României.

Keywords: Aranea, taxonomy, faunistics, first records, Romania

Introduction

Natural peatlands can be found in Northern Europe, but they are very rare in Central Europe (KOPONEN 2002a). The proportion of peatlands in Romania is very low, only small patches are located in the higher mountains. There are several natural and semi-natural bogs situated in the Eastern Carpathians. These are known as glacial refuges for rare and of high value plant species (e.g. RUPREHT & SZABÓ 1999, MARGÓCZI et al. 2000). The arachnological knowledge of these bogs is poor (GALLÉ & URÁK 2001). The aim of this study is to give a faunistical survey of Fagul Rotund and Apa Lenta bogs.

The Apa Lenta marsh complex (46°11' N, 26°17' E) is in a valley next to Fagul Rotund (2,5-3,5 km away) at cca. 1000 m above sea level. It is a mosaic of eutrophic and oligo-mesotrophic marsh patches. The following habitat types were sampled: an open sedge meadow (*Caricetum rostratae* Rübel 1912), a peat bog with sparse birch and spruce trees (*Eriophoro vaginati-Sphagnetum recurvi* Hueck 1925) and a dense willow and birch forest (*Salici pentandrae-Betuletum pubescentis* Soó (1934) 1955). *Sphagnum* species were present in the moss layer at every site. The richness of the flora of these eutrophic and oligotrophic bogs are known from various studies (e.g. POP 1937, SOÓ 1940, COLDEA & KOVÁCS 1967, RUPREHT & SZABÓ 1999).

Study area

The Fagul Rotund - Apa Lenta bog complex lies in the Nemira Mountains, one of the easternmost mountains of the Eastern Carpathians.

Fagul Rotund (46°11' N, 26°21' E) is a small marsh at cca. 1100 m above sea level. The sample sites: an open peat bog (*Eriophoro vaginati-Sphagnetum* Pop et al. 1987) and a sparse Scots pine forest with a dense moss layer and blueberry bushes (*Vaccinio-Pinetum silvestris* Kleist 1929).

Materials and methods

We used pitfall traps for sampling the spider communities as a widely used technic of sampling spiders in peat bogs (KOPONEN 2002b). The traps were plastic jars with 6 cm diameter, filled with saturated NaCl-solution. Fifteen traps worked at each site, they were arranged at least 5 meters from each other, in a 3x5 grid. The sampling was carried out between 20 and 28 July 1998.

Spiders were identified using various keys

(LOCKET & MILLIDGE 1951, LOKSA 1969, 1972, FUHN & NICULESCU-BURLACU 1985, STERGHIU 1985, HEIMER & NENTWIG 1991, FUHN & GHERASIM 1995). The species list was ranged taxonomically according to world spider catalog by PLATNICK (2000).

Results and discussion

The material comprised 394 specimens, including 250 adult and 144 juvenile individuals, with represent 34 species of 11 families. 28 species of 10 families were identified in the Fagul Rotund marsh and 14 species of 6 families in the Apa Lenta bog complex (Table 1). From these species 8 are common, 20 were sampled only in the Fagul Rotund marsh and 6 species only in the Apa Lenta bog complex (Fig. 1).

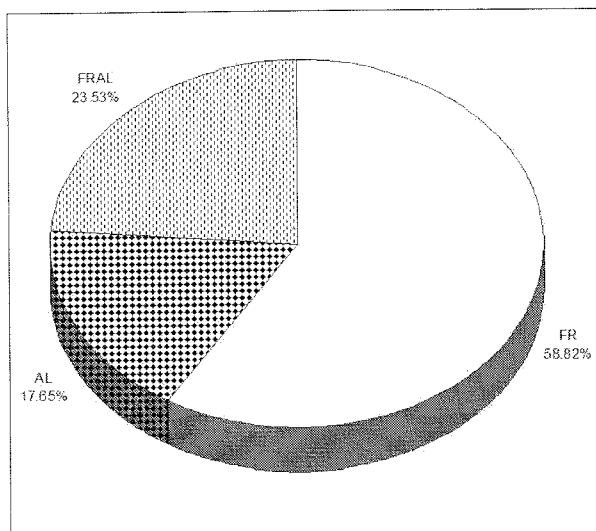


Fig. 1. The species number in study areas (FR = Fagul Rotund, AL = Apa Lenta, FRAL = Fagul Rotund and Apa Lentă).

The representation of spider families according to the number of specimens and species is given in Fig. 2. The richest families in species are Linyphiidae (38,23%, 13 species) and Lycosidae (20,58%, 7 species). Gnaphosidae are represented by 3 species (8,82%), Liocranidae, Zoridae and Salticidae by 2 species (5,88%). The rest of five families (Theridiidae, Tetragnathidae, Hahniidae, Clubiidae and Thomisidae) are represented by a single species (2,94%). The most of specimens belong to the family Lycosidae (80,96%, 319 specimens) followed by Linyphiidae (12,69%, 50 specimens). The rest of nine families are represented by 5 or less than 5 specimens. This distribution of species was presumably determined by both the environmental condition of studied habitats and the collection methods. The pitfall traps capture successfully the epigeal species, with active hunter lifestyle. Whereas the arboreal species, the web builders or plant wanderers fall

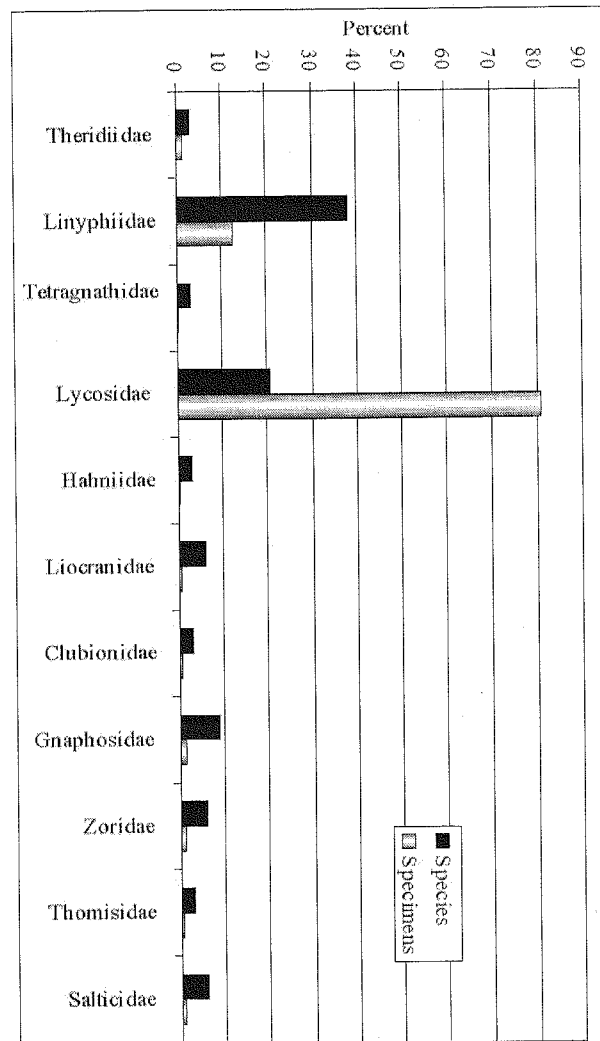


Fig. 2. The percentile representation of species.

into the traps accidentally.

The most frequent species in these bogs was *Pardosa sphagnicola* (Dahl, 1908), from family of Lycosidae. 144 adult specimens (100 males and 44 females) were captured, that is 57,6% of whole number of captured adult specimens. Other common lycosids were *Pirata hygrophilus* Thorell, 1872, *Pirata uliginosus* (Thorell, 1856) and *Trochosa spinipalpis* (F.O.P.-Cambridge, 1895).

The two new for the Romanian fauna were *Notioscopus sarcinatus* (OP-Cambridge, 1872), sampled in both studied area (Fagul Rotund: as. *Eriophoro vaginati-Sphagnetum* Pop et al. 1987, *Vaccinio-Pinetum silvestris* Kleist 1929; ApaLenta: as. *Eriophoro vaginati-Sphagnetum recurvi* Hueck 1925) in a considerable number (14 females), and *Haplodrassus moderatus* (Kulczynski, 1897), sampled only in the Fagul Rotund bog (as. *Eriophoro vaginati-Sphagnetum* Pop et al. 1987). Both species occur on peatbogs in Lithuania and Finland (RÉLYS et al. 2002, RÉLYS & DAPKUS 2002).

Gnaphosa nigerrima L.Koch, 1877 was first identified in Romania at Vaslobeni (Giurgeului Basin, near the spring of River Mures) recently (GALLÉ &

The list of the species.

Table 1.

TAXA		♂	♀	J	Σ	Study area
I	Fam. Theridiidae	5			5	
1	<i>Euryopsis flavomaculata</i> (C.L.Koch, 1836)	5			5	FR; AL
II	Fam. Linyphiidae	4	33	13	50	
2	<i>Agyneta cauta</i> (O.P.-Cambridge, 1902)		1		1	FR
3	<i>Dicymbium nigrum</i> (Blackwall, 1834)		1		1	FR
4	<i>Gonattium rubellum</i> (Blackwall, 1841)		3		3	FR
5	<i>Linyphia triangularis</i> (Clerck, 1757)		1		1	AL
6	<i>Nematogmus sanguinolentus</i> (Walckenaer, 1842)	1			1	AL
7	<i>Notioscopus sarcinatus</i> (OP-Cambridge, 1872)		14		14	FR; AL
8	<i>Oedothorax gibbosus</i> (Blackwall, 1841)	1	1		2	AL
9	<i>Pocadicnemis pumila</i> (Blackwall, 1841)		2		2	FR
10	<i>Tenuiphantes alacris</i> (Blackwall, 1853)		1		1	FR
11	<i>Walckenaeria atrotibialis</i> O.P.-Cambridge, 1878	2			2	FR
12	<i>Walckenaeria cucullata</i> (C.L.Koch, 1836)		3		3	FR
13	<i>Walckenaeria kochi</i> (O.P.-Cambridge, 1872)		5		5	FR; AL
14	<i>Walckenaeria nudipalpis</i> (Westring, 1851)		1		1	AL
III	Fam. Tetragnathidae		1		1	
15	<i>Pachygnatha degeeri</i> Sundevall, 1830		1		1	FR
IV	Fam. Lycosidae	59	138	122	319	
16	<i>Pardosa pullata</i> (Clerck, 1757)		2		2	FR
17	<i>Pardosa sphagnicola</i> (Dahl, 1908)	40	100		140	FR; AL
18	<i>Pirata hygrophilus</i> Thorell, 1872	2	9		11	FR; AL
19	<i>Pirata latitans</i> (Blackwall, 1841)	1	1		2	FR; AL
20	<i>Pirata uliginosus</i> (Thorell, 1856)	15	12		27	FR; AL
21	<i>Trochosa spinipalpis</i> (F.O.P.-Cambridge, 1895)	1	13		14	FR; AL
22	<i>Trochosa terricola</i> Thorell, 1856		1		1	FR
V	Fam. Hahniidae		1		1	
23	<i>Antistea elegans</i> (Blackwall, 1841)		1		1	AL
VI	Fam. Liocranidae	1	1		2	
24	<i>Agroeca brunnea</i> (Blackwall, 1833)		1		1	FR
25	<i>Phrurolithus festivus</i> (C.L.Koch, 1835)	1			1	FR
VII	Fam. Clubionidae			2	2	
26	<i>Clubiona</i> sp.			2	2	FR
VIII	Fam. Gnaphosidae	2	1	2	5	
27	<i>Gnaphosa nigerrima</i> L.Koch, 1877	1			1	AL
28	<i>Haplodrassus moderatus</i> (Kulczynski, 1897)	1			1	FR
29	<i>Zelotes subterraneus</i> (C.L.Koch, 1833)		1		1	FR
IX	Fam. Zoridae	1	1	2	4	
30	<i>Zora nemoralis</i> (Blackwall, 1861)	1			1	FR
31	<i>Zora spinimana</i> (Sundevall, 1833)		1		1	FR
X	Fam. Thomisidae			2	2	
32	<i>Xysticus</i> sp.			2	2	FR
XI	Fam. Salticidae	2		1	3	
33	<i>Evarcha falcata</i> (Clerck, 1757)	1			1	FR
34	<i>Heliophanus cupreus</i> (Walckenaer, 1802)	1			1	FR

Abbreviations: ♂ = number of male specimens, ♀ = number of female specimens, J = number of juvenile specimens, Σ = total number of specimens, FR = Fagul Rotund, AL = Apa Lentă.

URÁK 2001) and now were sampled in the Apa Lenta bog complex, in open sedge meadow (as. *Caricetum rostratae* Rübél 1912). This species prefers wet habitats, damp grasslands and oligotrof marshes (GRIMM 1985).

Walckenaeria kochi (O.P.-Cambridge, 1872) is another rare species, which prefers wet habitats. The presence of this species in Romanian spider fauna was also proved recently (GALLÉ & URÁK 2001). The former

data (FUHN & OLTEAN 1970) could not be confirmed, because of the absence of specimens in collections from Romania. We collected in Fagul Rotund bog (as. *Eriophoro vaginati-Sphagnetum* Pop et al. 1987) and Apa Lenta bog complex (as. *Eriophoro vaginati-Sphagnetum recurvi* Hueck 1925).

Conclusions

Besides the high of value flora, the epigeic spider fauna of the Fagul Rotund and Apa Lenta bog complex

is also rich. Out of the 34 recorded species, two are new to Romania.

The data presented in this paper confirm the intentions to protect these rare habitats of the region as a nature reserve.

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