Acta Musei Nationalis Pragae, Series B, Historia Naturalis, 50(1994)(1 –4): 93–106 issued December 1995

THE ARACHNOFAUNA OF BOHEMIAN PEATBOGS. SPIDERS (ARANEIDA) OF TWO PEATBOGS IN THE ŠUMAVA MOUNTAINS

ANTONÍN KŮRKA
Department of Zoology, National Museum, Václavské nám. 68, 115 79 Praha 1, Czech Republic

Kůrka, A. (1995): The arachnofauna of Bohemian peatbogs. Spiders (Araneida) of two peatbogs in the Šumava Mountains - Acta Mus. Nat. Pragae, Ser. B, Hist. Nat., 50(1994)(1-4): 93-106. Praha. ISSN 0036-5343

Abstract. The spider communities of two peatbogs situated in the Šumava Mts. (SW Bohemia) were investigated. Pitfall trapping, sieving, beating, sweeping and individual sampling applied during 1982 - 1984 gave a total of 84 species in the dwarf pine canopy and 71 species in the sedge meadow. Comparison of the spider communities of both investigated habitats showed a negative relationship. In the dwarf pine canopy *Centromerus arcanus* and *Pardosa sphagnicola* were eudominant. *Antistea elegans*, *Bathyphantes gracilis*, *Pardosa pullata* and *Pirata piraticus* predominated in the sedge meadow.

■ peatbog, dwarf pine canopy, sedge meadow, spider communities, size groups, temperature requirements, degree of relictness.

Received March 3, 1992

Introduction

There are over 150 protected peatbogs in Bohemia and Moravia, mainly in the border mountains. The spider fauna of these seriously endangered wetlands has only been examined at a few localities: Rejvíz in the Jeseníky Mts (Kratochvíl et Miller 1947, Miller 1951), Pančická louka and Violík in the Giant Mountains (Krkonoše) (Buchar 1967), peatbog in the Orlické Mts (Buchar 1977), some peatbogs in the Třeboň Basin (Buchar 1981), Borkovická blata in the Třeboň Basin (Chalupská 1983), Na Skřítku in the Jeseníky Mts (Majkus 1987). Overall investigations of the spider fauna of peatbogs in the Šumava Mts have only been made two localities so far, at Jezerní slať (Buchar 1963) and Mrtvý luh (Kůrka 1990).

Study areas and methods of research

Some data on the spider faunas of another two peatbogs in the Šumava Mts near the village Horská Kvilda (mapping square No. 6947, Fig.1) are given in this paper:

a) Zhůřská slať (altitude 1130 m). An intact part of a large peatbog complex was chosen for the research. The study area is owergrown by the dwarf pine (*Pinus mugo*) covering 85 per cent of the peatbog and by the dominant *Eriophorum vaginatum* and *Vaccinium vitis-idaea*,

b) moist sedge meadow with *Carex fusca*, *Agrostis canina*, *Calamagrostis villosa* and *Sphagnum recurvum*. Formerly a farmed meadow degraded by the spontaneous succession, with numerous springs (according to Kučera, unpublished).

Ground-dwelling spiders were sampled by the quantitative method of pitfall trapping. Glass jars (height 15 cm, diameter 9 cm, ten jars in each study area) filled up to one third with 4% formalin served as pitfall traps. They were installed in the dwarf pine stand from May 27 to October 14, 1982 and from May 5 to November 1, 1983 and in the sedge meadow from May 5 to November 1, 1983 and from May 3 to November 14, 1984. Spiders living on the dwarf pine were collected by beating (200 strikes once a month). Sweeping was used for sampling in the herbaceous layer in the sedge meadow (200 sweeps at each visit). Sieving and individual sampling were used in both habitats.

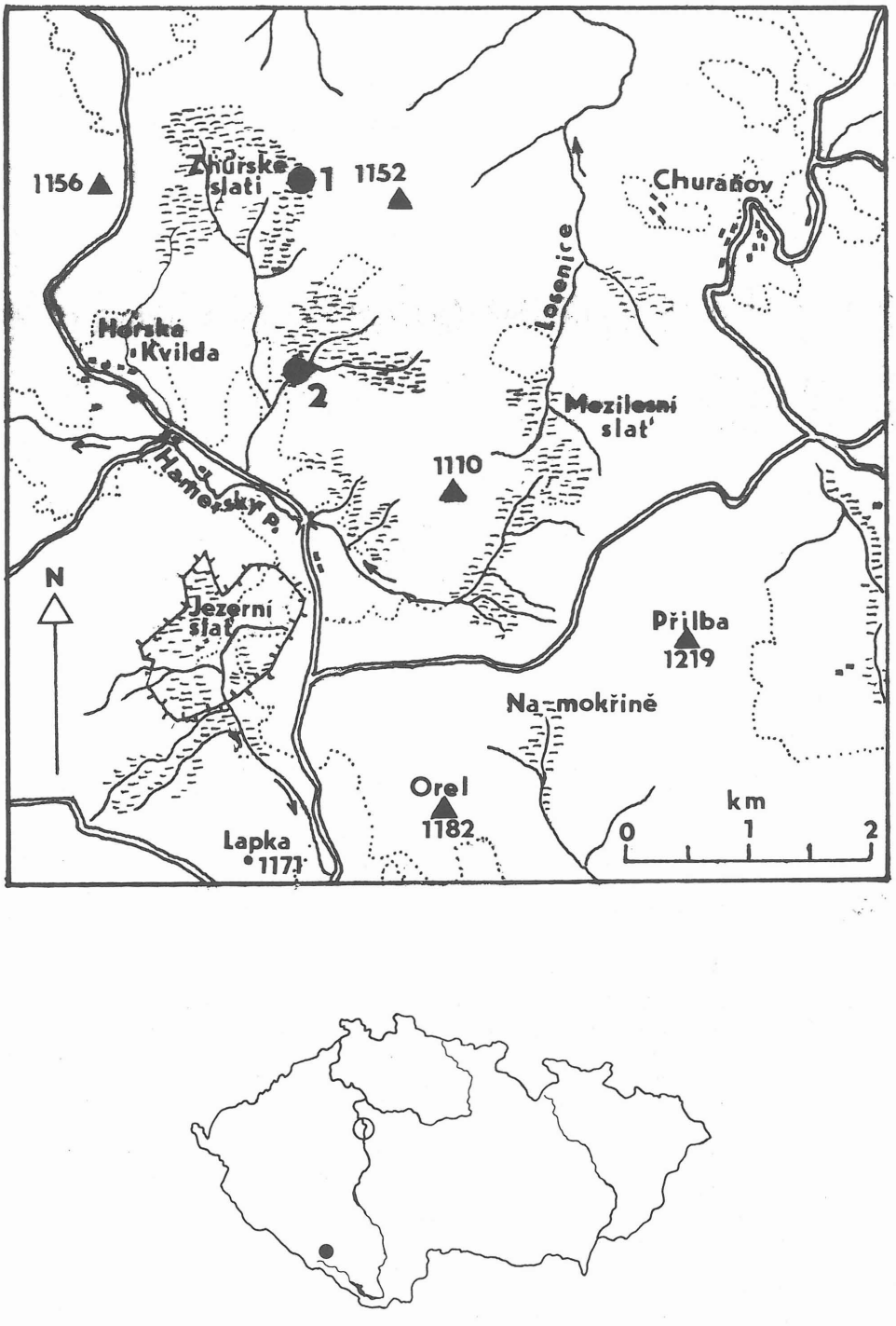

Fig. 1. Map of the investigated areas. 1 – dwarf pine in Zhůřská slať, 2 – sedge meadow

Results (table 1)

In the years 1982 - 1984, 3512 adult specimens were obtained in both habitats, 1325 in the dwarf pine canopy (84 species), 2187 in the sedge meadow (71 species).

Size groups

Růžička (1985) described the size structure of communities of epigeic spiders occurring in meadows. Spiders obtained by pitfall trapping were divided into four size groups (SG) for „in the case of epigeic animals the disproportion in the size of animals in wiped out by the use of the pitfall trap methods for collecting material". This method „wipes out this difference because the big species mostly show a higher movement activity and therefore can in the material obtained in this way appear as dominant as well." The size groups were determined by the cephalothorax length, viz the 1st SG up to 1.30 mm, the 2nd SG 1.31 - 2.00 mm, the 3rd SG 2.01 - 3.20 mm (up to 3.50 mm in females), the 4th SG over 3.21 mm.

I divided the spider species into corresponding groups according to the sizes given by Růžička (1985) and Miller (1971) as well as my own measurements (Fig. 2) after Růžička (1985) and Kůrka (1994).

Spider communities of the peatbog Zhůřská slať

Epigeic arachnofauna

Abundant dominance (Table 1)

Altogether 970 individuals of epigeic spiders were collected from the pitfall traps. The species *Centromerus arcanus* and *Pardosa sphagnicola* were eudominant (more than 10%) in this sample, *Centromerus pabulator* and *Hilaira tatrica* were dominant (5-10%). The index of concentrated dominance was 0.12.

Temperature requirements (Table 2)

The psychrophilic component (according to Buchar, 1975, 1989) predominanted in the total sample of the epigeic spider fauna. The nonspecific component was represented by two species (*Coelotes terrestris* - 45 specimens, *Alopecosa pulverulenta* - 1 specimen). The thermophilic component was not present.

Degree of relictness

The relict character of the epigeic spider fauna is shown in Table 2. The relict species predominated in the total sample, i.e., the degree of relictness was very high (according to Buchar's classification 1983, 1989). The expansive component made up a mere 4.6% in the total sample, which was much less than the top value for nature reserves and others protected habitats untouched by man (45% according to Růžička 1986).

Arachnofauna of the shrub layer

We obtained a total of 19 species (288 samples) of spiders inhabiting the shrub layer of *Pinus mugo*. The most abundant species were *Dismodicus elevatus* (P, RI, 138 specimens), *Theridion ohlerti* (P, RI, 96 specimens) and *Clubiona trivialis* (N, R, 20 specimens). The remaining species were represented by 1-7 specimens. RI species were represented by *Agyneta cauta*, *Heliophanus dampfi* and *Lepthyphantes obscurus*. The relict species (RI+R) made up 94,8 per cent of the total sample. The spiders living on the dwarf pine were mostly psychrophilous (P = 87.5%). Only one species (*Heliophanus dubius*) was thermophilic.

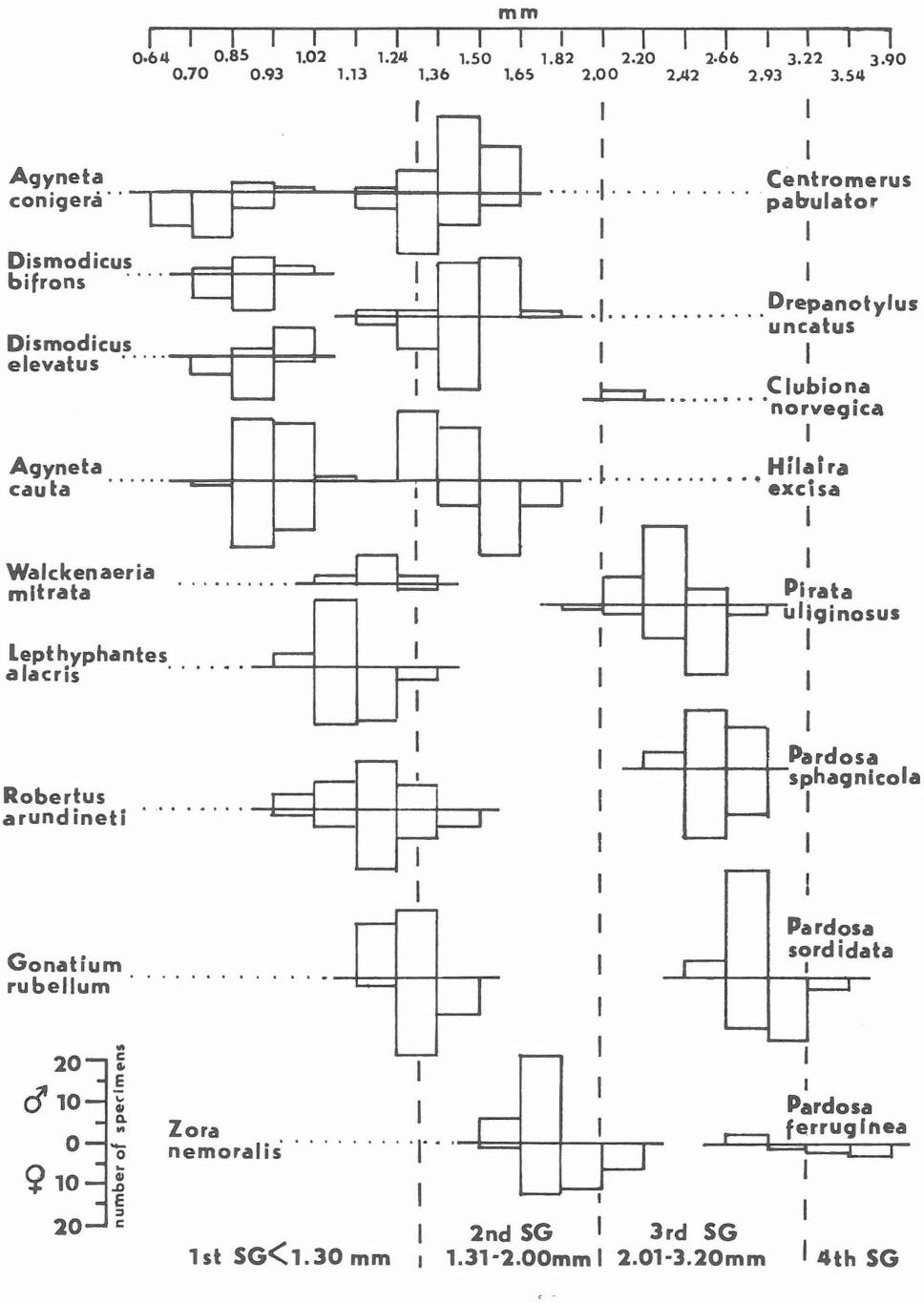

Fig. 2. Ranges of the cephalothorax length in some spider species. (Measurement and graph according to Růžička 1985)

Spider communities in the sedge meadow

Epigeic arachnofauna

Abundant dominance

Altogether 1893 specimens were found in the pitfall traps. The species *Antistea elegans*, *Bathyphantes gracilis*, *Pardosa pullata* and *Pirata piraticus* were eudominat in the total sample (Table 1), *Allomengea vidua* and *Trochosa spinipalpis* were dominant. The index of concentrated dominance was 0.14.

Temperature requirements and degree of relictness

The psychrophilic component predominated (Table 2), no thermophilic species was present. The expansive component amounted to 43.3% of the total sample owing to two leading species, *Pardosa pullata* and *Pirata piraticus*, which together made up 38.8%. Such proportion of the expansive species is near to the limit determined by Růžička (1986) for nature reserves and other protected habitats i.e. 45%.

Arachnofauna of the herbaceous layer

Of a total of 23 species (138 specimens) obtained by sweeping a large number of individual spiders (46) was only found in *Microlinyphia pusilla*. The nonspecific component was well represented (72.5%) in the sample. The degree of relictness of the spider fauna of the herbaceous layer is low, as the expansive species made up 73.9% of the sample.

Notes on some species

Latithorax faustus

This subarctic boreal species was found in the peatbogs Rejvíz (Miller 1951) and Na Skřítku (N Moravia, Majkus 1987), in a peatbog near Borkovice (Třeboň Basin, S Bohemia, Miller 1951) and in the Ore Mts (Krušné hory, Mrtvý rybník, lgt. K. Absolon). Our finding of four females and one male in the sedge meadow in the third report from Bohemia.

Clubiona norvegica

This is the second finding of this rare species in Bohemia. Hitherto only three males were found in the peatbog Jezerní slať in the Šumava Mts (Buchar 1963, 1989).

Pardosa ferruginea

This rare wolf spider was also found only in the Šumava Mts (Jezerní slať, one male found in a sparse spruce forest at the edge of a peatbog, Buchar 1972, 1989).

TABLE 1.

List of the identified species, relictness, temperature requirements and dominance of the epigeic spider fauna.

Legend: re = relictness, RI = relict of the first order, R = relict of the second order, E = expansive species, t = temperature requirements, M = mesothermic component, N = nonspecific component, P = psychrophilic component, T = thermophilic component, ? = unidentified component; FT = eudominant species (over 10 %), D = dominant species (5 – 10 %), sd = subdominant species (2 – 5 %), r = receding species (1 – 2 %), sr = subreceding species (under 1 %), BE = beating, SW = sweeping, SI = sieving, IS = individual sampling

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Family: AGELENIDAE														
Coelotes inermis (L. KOCH, 1855)	R	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Coelotes terrestris (WIDER, 1834)	R	N	45	4.6	r	–	–	–	4	0.2	sr	–	–	–
Family: ARANEIDAE														
Aculepeira ceropegia (WALCK., 1802)	R	P	–	–	–	–	–	–	–	–	–	2	–	–
Araneus diadematus CLERCK, 1757	E	N	–	–	–	–	–	2	–	–	–	7	–	–
Araneus quadratus CLERCK, 1757	E	N	–	–	–	–	–	–	–	–	–	14	–	–
Araneus marmoreus CLERK, 1757	R	M	–	–	–	1	–	–	–	–	–	–	–	–
Araniella cucurbitina (CLERCK, 1757)	E	N	–	–	–	2	–	–	–	–	–	–	–	–
Araniella displicata (HENTZ, 1847)	RI	N	–	–	–	–	–	–	–	–	–	1	–	–
Larinioides cornutus (CLERCK, 1757)	RI	P	–	–	–	–	–	–	–	–	–	1	–	–
Mangora acalypha (WALCKENAER, 1802)	E	N	–	–	–	–	–	–	–	–	–	6	–	–
Family CLUBIONIDAE														
Agroeca brunnea (BLACKWALL, 1833)	R	N	11	1.1	r	–	–	–	–	–	–	–	–	–
Agroeca proxima (CAMBRIDGE, 1871)	R	P	4	0.4	sr	–	–	–	–	–	–	–	–	–
Clubiona diversa (CAMBRIDGE, 1862)	R	N	–	–	–	–	–	–	–	–	–	–	1	–
Clubiona norvegica (STRNAD, 1900)	RI	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Clubiona reclusa (CAMBRIDGE, 1863)	R	P	–	–	–	–	–	–	–	–	–	–	1	–
Clubiona trivialis (C. L. KOCH, 1843)	R	N	–	–	–	20	–	–	–	–	–	–	–	–
Family: CTENIDAE														
Zora nemoralis (BLACKWALL, 1861)	R	N	1	0.1	sr	–	–	–	–	–	–	–	–	–
Family CYBAEIDAE														
Cybaeus angustiarum (L. KOCH, 1868)	R	P	–	–	–	–	–	1	7	0.4	sr	–	–	–
Family: DYSDERIDAE														
Harpactes lepidus (C. L. KOCH, 1839)	R	P	3	0.3	sr	–	–	–	–	–	–	–	–	–

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Family: GNAPHOSIDAE														
Gnaphosa badia (L. KOCH, 1866)	RI	P	5	0.5	sr	–	–	–	–	–	–	–	–	–
Gnaphosa microps HOLM, 1939	RI	P	3	0.3	sr	–	–	–	–	–	–	–	–	–
Haplodrassus signifer (C. L. K., 1839)	E	N	5	0.5	sr	–	–	–	–	–	–	–	–	–
Zelotes clivicola (L. KOCH, 1870)	R	P	–	–	–	–	1	–	–	–	–	–	–	–
Zelotes latreillei (SIMON, 1878)	R	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Family: HAHNIDAE														
Antistea elegans (BLACKWALL, 1841)	R	P	10	1.0	r	–	1	–	398	21.0	ED	–	2	–
Hahnia montana HARM, 1966	RI	P	1	0.1	sr	–	1	–	–	–	–	–	–	–
Hahnia pusilla C. L. KOCH, 1841	R	P	–	–	–	–	2	–	–	–	–	–	–	–
Family: LINYPHIIDAE														
Agyneta cauta (CAMBRIDGE, 1902)	RI	P	3	0.3	sr	1	–	–	–	–	–	–	–	–
Agyneta conigera (CAMBRIDGE, 1863)	RI	P	2	0.2	sr	1	–	–	–	–	–	–	–	–
Agyneta ramosa JACKSON, 1912	?	?	2	0.2	sr	–	–	–	–	–	–	–	–	–
Agyneta subtilis (CAMBRIDGE, 1863)	R	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Allomengea vidua (CAMBRIDGE, 1879)	RI	P	–	–	–	–	–	–	129	6.8	D	1	3	–
Araeoncus humilis (BLACKWALL, 1841)	E	N	–	–	–	–	–	–	–	–	–	2	–	–
Bathyphantes gracilis (BL., 1841)	R	N	3	0.3	sr	–	–	–	203	10.7	ED	3	–	–
Bathyptantes nigrinus (WESTR., 1851)	R	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Bolyphantes alticeps (SUND., 1832)	R	P	2	0.2	sr	1	–	–	10	0.5	sr	2	2	–
Centromerita bicolor (BL., 1833)	E	P	–	–	–	–	–	–	33	1.7	r	–	–	–
Centromerus arcanus (CAMBR., 1873)	RI	P	256	26.4	ED	–	16	–	–	–	–	–	1	–
Centromerus pabulator (CAMB., 1875)	RI	P	55	5.7	D	–	1	–	6	0.3	sr	–	–	–
Centromerus sylvaticus (BL., 1841)	E	N	2	0.2	sr	–	–	–	9	0.5	sr	–	–	–
Ceratinella brevipes (WESTR., 1851)	R	P	10	1.0	r	–	–	–	2	0.1	sr	1	–	–
Ceratinella brevis (WIDER, 1834)	R	N	1	0.1	sr	–	1	–	–	–	–	–	–	–
Dicymbium tibiale (BLACKWALL, 1836)	RI	N	20	2.1	sd	–	–	–	–	–	–	–	–	–
Diplocephalus latifrons (CAM., 1863)	R	N	1	0.1	sr	–	–	–	–	–	–	–	–	–

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Diplocephalus permixtus (CAM., 1871)	RI	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Dismodicus bifrons (BLACKW. 1841)	R	P	–	–	–	–	–	–	24	1.3	r	4	3	–
Dismodicus elevatus (C. L. K., 1838)	RI	P	–	–	–	138	–	–	1	0.1	sr	–	–	–
Drapetisca socialis (SUND., 1832)	R	P	–	–	–	4	–	–	–	–	–	–	–	–
Drepanotylus uncatus (CAMBR., 1873)	RI	P	–	–	–	–	–	–	37	2.0	r	–	39	–
Erigone atra (BLACKWALL, 1833)	E	N	–	–	–	2	–	–	5	0.3	sr	11	1	–
Erigone dentipalpis (WIDER, 1834)	E	P	–	–	–	–	–	–	–	–	–	–	–	–
Erigonella ignobilis (CAMBR., 1871)	RI	P	–	–	–	–	–	–	–	–	–	–	46	–
Gonatium rubellum (BLACKWALL, 1841)	R	P	3	0.3	sr	–	–	–	–	–	–	–	–	–
Gonatium rubens (BLACKWALL, 1833)	RI	P	–	–	–	–	–	–	–	–	–	–	–	–
Gongylidiellum vivum (CAMBR., 1871)	R	P	–	–	–	–	1	–	1	0.1	sr	–	6	–
Hilaira excisa (CAMBRIDGE, 1871)	RI	P	1	0.1	sr	–	–	–	1	0.1	sr	–	1	–
Hilaira tatrica KULCZYNSKI, 1915	RI	P	82	8.5	D	–	1	–	2	0.1	sr	–	3	–
Latithorax faustus (CAMBR., 1900)	RI	P	–	–	–	–	–	–	1	0.1	sr	–	4	–
Lepthyphantes alacris (BL., 1853)	R	P	17	1.8	r	–	–	–	–	–	–	–	–	–
Lepthyphantes cristatus (MENGE, 1866)	R	P	15	1.5	r	–	–	–	–	–	–	–	–	–
Lepthyphantes flavipes (BL., 1854)	R	N	–	–	–	–	–	–	–	–	–	1	–	–
Lepthyphantes mengei KULCZ., 1887	E	N	–	–	–	–	–	–	1	0.1	sr	–	–	–
Lepthyphantes monticola (KUL., 1881)	RI	P	6	0.6	sr	–	–	–	–	–	–	–	–	–
Lepthyphantes nodifer SIMON, 1884	RI	P	5	0.5	sr	–	–	–	–	–	–	–	–	–
Lepthyphantes obscurus (BL., 1841)	RI	P	–	–	–	2	–	–	–	–	–	1	–	–
Lepthyphantes tenebricola (WIDER, 1834)	R	P	1	0.1	sr	–	–	–	–	–	–	–	–	–
Leptorhoptrum huthwaiti (CAM., 1861)	R	P	–	–	–	–	–	–	3	0.2	sr	–	1	–
Lophomma punctatum (BLACKWALL, 1841)	RI	P	–	–	–	–	–	–	8	0.4	sr	–	1	–
Macrargus rufus (WIDER, 1834)	R	N	1	0.1	sr	–	–	–	–	–	–	–	–	–
Maro lepidus CASEMIR, 1963	RI	P	–	–	–	–	–	–	3	0.2	sr	–	6	–
Meioneta beata (CAMBRIDGE, 1906)	RI	P	–	–	–	–	–	–	–	–	–	–	1	–
Meioneta rurestris (C. L. KOCH, 1836)	E	N	–	–	–	6	–	–	9	0.5	sr	5	5	–
Meioneta saxatilis (BLACKWALL, 1844)	E	N	–	–	–	–	–	–	5	0.3	sr	–	1	–
Metopobactrus prominulus (CAM., 1872)	RI	P	–	–	–	–	–	–	–	–	–	–	3	–

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Micrargus herbigradus (BL., 1854)	E	P	32	3.3	sd	–	6	–	6	0.3	sr	–	1	–
Microlinyphia pusilla (SUND., 1829)	E	N	–	–	–	–	–	–	–	–	–	46	–	–
Minyriolus pusillus (WIDER, 1834)	R	P	–	–	–	–	1	–	–	–	–	–	–	–
Notioscopus sarcinatus (CAMBR., 1872)	RI	P	6	0.6	sr	–	–	–	–	–	–	–	–	–
Oedothorax gibbosus (BLACKWALL, 1841)	R	P	–	–	–	–	–	–	15	0.8	sr	8	6	–
Pityohyphantes phrygianus (C. L. K., 1836)	R	P	1j	–	–	7	–	–	–	–	–	–	–	–
Silometopus elegans (CAMBR., 1872)	RI	P	–	–	–	–	–	–	6	0.3	sr	–	–	–
Sintula cornigera (BLACKWALL, 1856)	RI	P	7	0.7	sr	–	–	–	–	–	–	–	–	–
Tapinocyba affinis LESSERT, 1907	R	P	4	0.4	sr	–	–	–	–	–	–	–	–	–
Tallusia experta (CAMBR., 1871)	R	P	–	–	–	–	–	–	1	0.1	sr	–	1	–
Walckenaeria antica (WIDER, 1834)	R	N	15	1.5	r	–	–	–	1	0.1	sr	2	–	–
Walckenaeria atrotibialis (CAMBR., 1879)	R	N	10	1.0	r	–	–	–	–	–	–	–	–	–
Walckenaeria cucullata (C. L. K., 1836)	R	P	3	0.3	sr	–	–	–	–	–	–	–	–	–
Walckenaeria cuspidata (BL., 1813)	R	P	–	–	–	–	–	–	1	0.1	sr	–	–	–
Walckenaeria dysderoides (WID., 1834)	R	P	7	0.7	sr	–	–	–	–	–	–	–	–	–
Walckenaeria mitrata (MENGE, 1868)	R	N	10	1.0	r	–	–	–	–	–	–	–	–	–
Walckenaeria nudipalpis (WEST., 1851)	R	P	3	0.3	sr	–	–	–	2	0.1	sr	–	–	–
Family: LYCOSIDAE														
Alopecosa taeniata (C. L. K., 1848)	RI	P	27	2.8	sd	–	–	3	–	–	–	–	–	–
Alopecosa cuneata (CLERCK, 1758)	E	N	–	–	–	–	–	–	1	0.1	sr	–	–	–
Alopecosa pulverulenta (CLERCK, 1758)	E	N	1	0.1	sr	–	–	–	14	0.7	sr	–	–	–
Arctosa alpigena lamperti (DAHL, 1908)	RI	P	1	0.1	sr	–	–	–	–	–	–	–	–	–
Pardosa ferruginea (L. KOCH, 1870)	RI	P	1	0.1	sr	–	–	–	–	–	–	–	–	–
Pardosa lugubris (WALCKENAER, 1802)	R	N	2	0.2	sr	–	–	–	–	–	–	–	–	–
Pardosa nigriceps (THORELL, 1856)	RI	M	1	0.1	sr	–	–	–	–	–	–	–	–	–
Pardosa pullata (CLERCK, 1757)	E	N	–	–	–	–	–	–	301	15.9	ED	–	1	1
Pardosa riparia (C. L. KOCH, 1833)	RI	N	9	0.9	sr	–	–	–	–	–	–	–	–	–
Pardosa sordidata (THORELL, 1875)	RI	P	2	0.2	sr	–	–	–	–	–	–	–	–	–
Pardosa sphagnicola (DAHL, 1908)	RI	P	178	19.3	ED	–	–	25	23	1.2	r	–	–	1

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Pirata hygrophilus THORELL, 1872	R	P	1	0.1	sr	–	–	–	18	1.0	r	–	–	–
Pirata latitans (BLACKWALL, 1841)	E	M	1	0.1	sr	–	–	–	1	0.1	sr	–	–	–
Pirata piraticus (CLERCK, 1758)	E	P	1	0.1	sr	–	–	–	433	22.9	ED	–	6	2
Pirata uliginosus (THORELL, 1856)	RI	P	10	1.0	r	–	–	–	36	1.9	r	–	–	–
Trochosa spinipalpis (CAMBR., 1895)	R	P	11	1.1	r	–	2	–	117	6.2	D	–	2	–
Family: MIMETIDAE														
Ero furcata (VILLERS, 1789)	R	N	1	0.1	sr	–	–	–	–	–	–	–	–	–
Family: PHILODROMIDAE														
Philodromus collinus C. L. KOCH, 1835	R	P	–	–	–	–	–	–	–	–	–	3	–	–
Family: PISAURIDAE														
Dolomedes fimbriatus (CLERCK, 1757)	R	P	–	–	–	–	–	–	7	0.4	sr	1	–	–
Family: SALTICIDAE														
Heliophanus dampfi SCHENKEL, 1924	RI	P	–	–	–	1	–	–	–	–	–	2	–	–
Heliophanus dubius C. L. KOCH, 1835	R	T	–	–	–	1	–	–	–	–	–	–	–	–
Family: TETRAGNATHIDAE														
Meta merianae (SCOPOLI, 1763)	E	P	–	–	–	–	–	1	–	–	–	–	–	–
Meta mengei (BLACKWALL, 1869)	R	P	–	–	–	1	–	–	–	–	–	–	–	–
Meta segmentata (CLERCK, 1757)	E	P	–	–	–	1	–	–	–	–	–	–	–	–
Tetragnatha extensa (LINNAEUS, 1758)	R	M	–	–	–	–	–	–	–	–	–	5	–	–
Family: THERIDIIDAE														
Robertus arundineti (CAMBRIDGE, 1871)	E	N	–	–	–	–	–	–	2	0.1	sr	2	1	–
Robertus lividus (BLACKWALL, 1836)	R	P	35	3.6	sd	–	2	–	–	–	–	–	–	–
Robertus scoticus JACKSON, 1914	RI	P	1	0.1	sr	–	–	–	–	–	–	–	–	–
Theridion bimaculatum (L., 1767)	E	N	–	–	–	–	–	–	–	–	–	2	–	–

Species	re	t	dwarf pine						sedge meadow					
			FT	%	d	BE	SI	IS	FT	%	d	SW	SI	IS
Theridion impressum L. KOCH, 1881	E	N	–	–	–	–	–	–	–	–	–	3	–	–
Theridion ohlerti THORELL, 1870	RI	P	1	0.1	sr	96	–	–	–	–	–	–	–	–
Theridion sisyphium CLERCK, 1757	E	P	–	–	–	1	–	–	–	–	–	–	–	–
Theridion varians HAHN, 1833	E	N	–	–	–	1	–	–	–	–	–	–	–	–
Family: THOMISIDAE														
Oxyptila trux (BLACKWALL, 1846)	E	P	3	0.3	sr	–	–	–	–	–	–	–	–	–
Xysticus acerbus THORELL, 1872	RI	N	1	0.1	sr	–	–	–	–	–	–	–	–	–
Xysticus audax (SCHRANK, 1803)	E	N	–	–	–	1	–	–	–	–	–	–	–	–

Table 2. Thermopreference and relictness in the total sample from the pitfall traps

ns = number of species, ni = number of specimens; for remaining symbols see Table 1

t	dwarf pine				sedge meadow			
re	ns	%	ni	%	ns	%	ni	%
P	40	65.6	827	85.3	35	72.9	1337	70.6
M	2	3.3	2	0.2	1	2.1	1	0.1
N	18	29.5	139	14.3	12	25.0	555	29.3
?	1	1.6	2	0.2	-	-	-	-
RI	24	39.3	666	68.7	15	31.2	256	13.5
R	29	47.5	257	26.5	20	41.7	817	43.2
RI+R	52	85.2	923	95.2	35	72.9	1073	56.7
E	7	11.5	45	4.6	13	27.1	820	43.3
?	1	1.6	2	0.2	-	-	-	-
Total	61	100	970	100	48	100	1893	100

Pardosa sphagnicola

This species is a typical tyrphobiont occurring in the Czech mountain peatbogs (Miller 1951, Buchar 1963, 1977, 1989, Kůrka 1990), preferring original intact habitats. Buchar (1963) found this wolf spider as the leading species of a spider community habiting a growth of *Sphagnum* partly shaded by dispersed tufts of *Pinus mugo* and low spruces. On the other hand, these spiders were found neither on unshaded *Sphagnum* nor in the exploited part of the peatbog. In agreement with Buchar's are the results of my investigation of the spider community in the peatbog Borová Lada (Šumava Mts), where *Pardosa sphagnicola* was eudominant in the dense canopy of *Pinus mugo*, but this species was not found in the neighbouring exploited unshaded area with solitary shrubs of *Pinus mugo* and trees of *Betula pubescens*. The eudominant position of *Pardosa sphagnicola* in the sedge meadow at Zhůřská slať is in keeping with both results mentioned above. The occurrence of *P. sphagnicola* in the sedge meadow is a first demonstration of the presence of this species in such an open, unshaded and secondary habitat.

Comparison of the spider communities of both investigated habitats

The markedly low value of Renkonen index (6.7%) showed a negative relationship of the epigeic arachnofauna in both habitats. Very conspicuous is the difference in the degrees of relictness of epigeic arachnofauna. The proportion of the expansive component in the sedge meadow is markedly higher (more than nine times !) when compared with the expansive component in the dwarf pine stand. However, the expansive component at the two localities does not reach the top value for protected areas.

Comparison with some other peatbogs in Bohemia and Moravia

The eudominant species *Pardosa sphagnicola*, *Centromerus arcanus* and the dominant *Centromerus pabulator* and *Hilaira tatrica* made up 59.8% of the total sample of the epigeic spiders at the locality Zhůřská slať (canopy of dwarf pine). These four species were not

found together as leading elements in other peatbogs which had been investigated. The eudominant *P. sphagnicola* was found by Buchar (1963) at the locality Jezerní slať (Šumava Mts, dispersed tufts of dwarf pine and spruce), the dominant *Centromerus arcanus* and the eudominant *C. pabulator* were found in the exploited part of the same locality. *C. pabulator* was eudominant at the locality Violík (Giant Mountains). For the first time, *Hilaira tatrica* was found to be dominant at our localities while the typical peatbog species *Pirata uliginosus* and *Gnaphosa microps* were receding. The four leading species of the epigeic spider fauna occurring in the sedge meadow are typical of considerably moist habitats. The eudominant occurance of *Antistea elegans* is an isolated case. This hygrobiont was only dominant or subdominant in the peatbog Mrtvý luh (Kůrka 1990) and it was not found dominant even in moist meadows (Buchar 1963, Růžička 1987). Another three leading species were eudominant in the exploited part of the peatbog Kvildská slať (*Pardosa pullata*, Buchar 1963), at Pančická louka (*Pirata piraticus*, Buchar 1967) and in sedge stands (Mrtvý luh, *Bathyphantes gracilis*, Kůrka 1990).

SUMMARY

The spider fauna of two peatbogs in the Šumava Mts (SW Bohemia) was investigated in 1982 - 1984. In total, 3512 adult specimens were obtained by pitfall trapping, sweeping, beating and individual sampling.

1. Zhůřská slať. A psychrophilous relict spider fauna was found in the investigated area densely owergrown by the dwarf pine. The relict component of the epigeic arachnofauna predominated in the total sample as well as in the size groups. Leading species were *Pardosa sphagnicola*, *Centromerus arcanus*, *C. pabulator* and *Hilaira tatrica*.

2. Sedge meadow. The psychrophilous arachnofauna also occurred in the open habitat without shrub layer. Compared with the epigeic spider community living in the former habitat the relict degree was markedly lower in this secondary habitat.

The epigeic species were classified into the corresponding size groups by the length of the cephalothorax and comparisons were made with the spider faunas of some of the other peatbogs in Bohemia and Moravia.

REFERENCES

Buchar, J. (1963): Luční společenstva pavouků. [Meadow spider communities]. - Dissertation, Fac. Sci. Charles Univ., Prague. (In Czech)

Buchar, J. (1967): Pavoučí zvířena Pančické louky a blízkého okolí. [Die Spinnenfauna der Pančická louka und der nahen Ungebung]. - Opera Concortica, 4: 79-93. (In Czech, with German summary)

Buchar, J. (1972): Rozbor pavoučí zvířeny Čech. [Analysis of the Bohemian spider fauna]. - Inaugural dissertation, Fac. Sci. Charles Univ., Prague. (In Czech)

Buchar, J. (1975): Arachnofauna Böhmens und ihr thermophiler Bestandteil. - Věst. Čs. Spol. Zool., 39(4): 241-25O.

Buchar, J. (1977): Pavoučí zvířena [Spider fauna]. - In Roček, Z.(ed.): Příroda Orlických hor a Podorlicka. [The nature of the Orlické hory Mts and Podorlicko]. - SZN Praha, 443-467 pp. (In Czech)

Buchar, J. (1981): Pavouci Třeboňska ze sbírky gymnaziálního profesora J. Martínka. [Die Spinnen der Třeboň-Umgebung aus der Sammlung von Gymnasial-Professor J. Martínek]. - Acta sci. nat. Mus. Bohem. merid., České Budějovice, 21: 1-12. (In Czech, with German summary)

Buchar, J. (1983): Klasifikace druhů pavoučí zvířeny Čech jako pomůcka k bioindikaci kvality životního prostředí. [Die Klassifikation der Spinnenarten Böhmens als ein Hilfsmittel für die Bioindikation der Umwelt]. - Fauna Bohem. Septemtr., Ústí n.L., 8: 119-135. (In Czech, with German summary)

Buchar, J. (1989): Poznání současné arachnofauny Čech a jeho využití k posouzení vývoje přírodních poměrů. [Recent Bohemian spider fauna and its employment for the estimation of the development of the natural conditions]. - Doctoral dissertation, Prague. (In Czech)

Chalupská, E. (1983): Pavoučí zvířena SPR Borkovická blata. [Spiders of the State Nature Reserve „Borkovická blata"]. - Thesis, Fac. Sci. Charles Univ., Prague. (In Czech)

Kratochvíl, J., Miller, F. (1947): Poznámka k znalosti zvířeny pavouků rašelinišť u Rejvízu. [Notice a la connaissance des araignées de la tourbiere pres de Rejvíz]. - Ent. Listy, 10: 112-116. (In Czech)

Kůrka, A. (1990): The arachnofauna of Bohemian peat bogs. Spiders (Araneida) of the State Nature Reserve Mrtvý luh, Šumava Mts. - Acta Mus. Nat ♀. Pragae, B, 46: 37-77.

Kůrka, A. 1994: Pavouci (Araneida) chráněného území Sedlecké skály v Praze. [Spiders (Araneida) of the protected area Sedlecké skály in Prague]. - Čas. Nár. Muzea, Ř. přírod., 162, 1-4: 101-115. (In Czech, with English summary)

Majkus, Z. (1987): Fauna pavouků (Araneida) státní přírodní rezervace Rašeliniště na Skřítku. [Die

Spinnenfauna (Araneida) des Naturschutzgebiets Moosweichten (Na Skřítku)]. - Acta Fac. Paed. Ostrav., E-17, 103: 85-102. (In Czech, with German summary)
Miller, F. (1951): Pavoučí zvířena vrchovišť u Rejvízu v Jesenících. [Araneous-fauna of the peat-bogs near Rejvíz, High-Jeseník, ČSR]. - Přír. Sborn. Ostrav. kraje 12: 202-247. (In Czech, with English summary)
Miller, F. (1971): Řád Pavouci - Araneida. [Order Spiders - Araneida]. - In: Daniel, M., V. Černý (eds): Klíč zvířeny ČSSR. IV. [Key of the fauna of Czechoslovakia. IV.]. ČSAV, Praha, 51-306 pp. (In Czech)
Růžička, V. (1985): The size groups in the spiders (Araneae) and carabids (Col. Carabidae). - Acta Univ. Carol. - biol. (1982 - 1984): 77-107.
Růžička, V. (1986): The structure of spider communities based upon the ecological strategy as the bioindicator of landscape deterioration. - Proc. IV.Int. Conf. „Bioindicatores deteriorisationis Regionis", 1982, České Budějovice, 211-219 pp.
Růžička, V. (1987): An analysis of spider communities in the meadows of the Třeboň basin. - Acta Sci. Nat. Brno, 21(5): 1-39.