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SPIDERS (ARANEIDA) FROM THE LESNÍ LOM QUARRY (BRNO-HÁDY)

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Abstract

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Spiders were collected in a partially reclaimed limestone quarry in the stone massif Hády at Brno. Collections were performed utilizing pitfall traps in 8 areas (4 lines at quarry terraces, 2 lines in the reclaimed areas, and 2 lines in the immediate vicinity of the quarry) in 2008. In total 67 species were identified from the total number of 1357 specimens determined. In total 1010 specimens were young spiders. Of all the species three are among the vulnerable *(Sitticus penicillatus*, *Dysdera ninnii*, and *Haplodrassus dalmatensis*) and one species is endangered *(Haplodrassus minor*). The species belong to total number of 16 families. The largest proportion of species belongs to the species that dwelling in thermophyticum (43%) and mesophyticum (43%). From the relict perspective, a higher number of relic species of type 1 (RI – 24%) and relic species (R – 38%) occurred within the observed area. Majority of spiders belong to the species preferring natural habitats (50%) or seminatural habitats (34%).

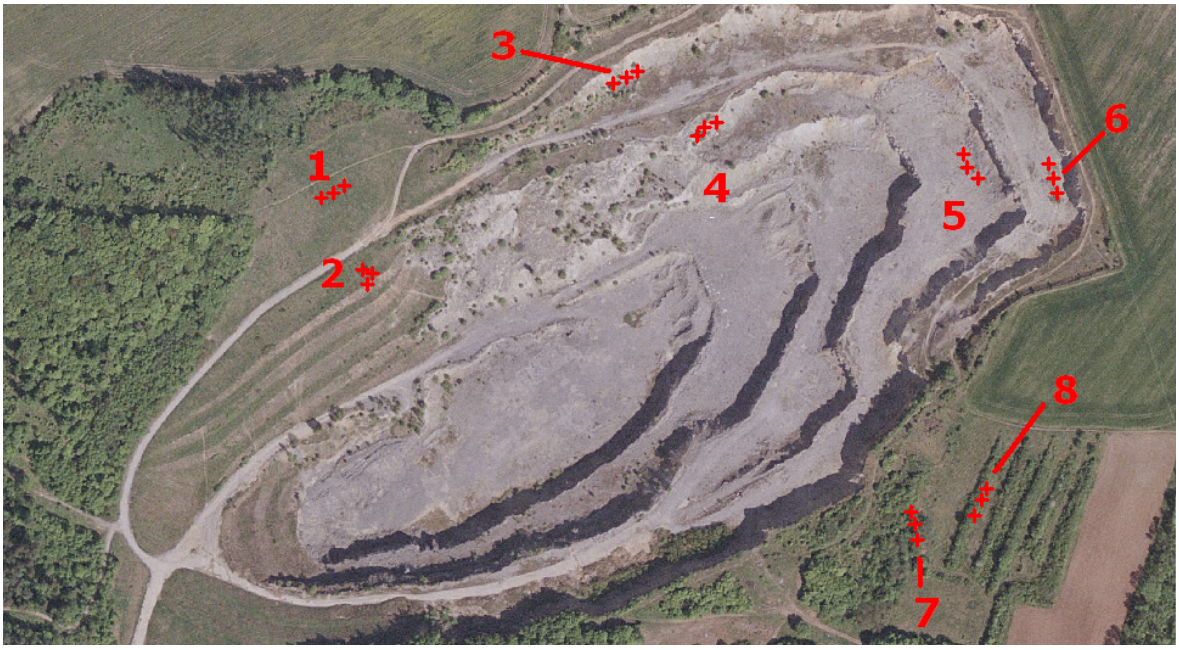
Araneida, Limestone Quarry, Brno-Hády, faunistics

The fauna of South Moravian spiders is relatively well explored. We have very good knowledge of the fauna of spiders in Pálava (Bryja *et al*., 2005), partial knowledge about some xerothermal lawns in southeast Moravia (Růžička, 1998) or Rokytenské slepence NNR (Bryja, 2002). In the immediate surroundings of Brno, there are only individual faunistic and taxonomic works (Kratochvíl & Miller, 1938; Kůrka, 1994, 1996, 1997, 1998, 2000a, 2001, 2003, 2004; Miller, 1943, 1949, Buchar, 1997 and others). The work from Hády by Miller (1967), however, dates back to the time when there were no such big limestone quarries. Some authors suggest that quarries host major types of spiders (Tropek 2007a; Tropek & Konvička, 2008; Tropek *et al*., 2008, 2010; Kůrka 2000b). However, there was never any arachnological investigation in the Quarries at Hády and there is only a very limited number of faunistic data from the quarries themselves (Buchar & Růžička, 2002). If any data exist at all, they are primarily from the Hádecká planinka NNR or other nature reserves in the massif Hády, but not from the already abandoned Lesní lom quarry which is a side of the most protected areas at Hády.

Quarries as such offer a variety of early succession stages of xerothermic habitats, which are already very rare in today's landscape – for example free growing trees on the slopes, short grass, etc. Quarries, as well as natural outcrops of rocks (i.e. rocks and similar habitats), are characterized by lack of moisture, continuous soil cover, and consequently limited vegetation cover. The aforementioned conditions guarantee the presence of interesting and rare species of spiders.

MATERIAL AND METHODS

Collections were carried out partly on reclaimed limestone quarry at the massif Hády near Brno (Lesní lom quarry – 49°13'24.662" N, 16°41'41.494" E). Collections were performed in 2008 utilizing pitfall traps in 8 areas: 4 lines (lines 3, 4, 5, 6) at quarry terraces, 2 lines (lines 1 and 2) in the reclaimed areas, and 2 lines (lines 7 a 8) in the immediate vicinity of the quarry (Fig. 1). Each line was composed of 3 pitfall traps with 4% formaldehyde solution. Any mining or reclamation works within this quarry finished 8 years before we pursued the research at this place, mining work ceased in 1997, reclamation in 2000. It is a hillside limestone quarry established for cement raw material extraction.



1: *Quarry map – location of individual trap lines (source: www.mapy.cz)*

Four lines were placed at each quarry terraces toward the center of the quarry with varying degrees of vegetation cover, from areas where there was a natural growth of trees (especially hornbeams and hazels – line 3 or of pines and birches – line 5) to the area with almost no vegetation (only individual clumps of *Epilobium dodonaei)* – line 6. The observed reclaimed areas can be characterized as areas with brought artificial soil horizon with young deciduous trees planted (line 1). Areas were heavily vegetated and with turf (mainly ruderal plant species), part of the area was with the vegetation of the black locust (line 2). Spiders have been observed even in the immediate vicinity of the quarry – in a black locust grove (line 7) and hedgerows between abandoned fields (line 8), which have xerothermal character today (Fig. 1).

The traps were placed on April 4th, 2008 and the specimen collections from them were made once a month on these dates: May 5, June 6, July 2, July 30, September 5, and September 30, 2008.

Evaluation of thermopreferences of spider taxocoenoses was carried out according to Buchar & Růžička (2002) and Růžička & Buchar (2008). Classification was made in the categories of species inhabiting mainly mesophyticum, thermophyticum, oreophyticum and synanthropic species. Evaluation of spider taxocoenoses rellictum was carried out by two methodologies, according to Buchar (1993) and Buchar & Růžička (2002). Both works have a somewhat different approach. Buchar (1993) developed a classification into three categories: RI – relic species of type 1 (species preferring climax and otherwise valuable habitat); R – relic species (abundant species with a clear link to the biotope), E – expansive species (species with non-specific binding to the habitat, often inhabiting biotopes strongly influenced by humans). Buchar & Růžička (2002), later a bit modified by Řezáč (2009), classified individual species into categories according to the occupied habitat: climax habitats (C), seminatural habitats (SN), disturb habitats (D), and category of artificial habitats (A). For our work we used for C category word natural habitat, becouse most of xerothermic habitats in the Czech Republic are not climax habitats (it is forest mainly). The advantage of this methodology is that individual species can be simultaneously in several categories (Tab. I). We transferred these categories into number scale and from this we computed our analyses.

Nomenclature and arrangement of families, genera and species follow that employed in Catalogue of spiders of the Czech Republic (Buchar & Růžička, 2002) and the most recent version of The world spider catalogue (Platnick, 2010) with extention of name Clerck, where we used recommendation (Art. 3.1) of ICZN (1999).

RESULTS AND DISCUSSION

In total 67 species were identified from the total number of 1357 specimens determined (+ 1010 young specimens), out of that three species belong among the vulnerable (*Sitticus penicillatus*, *Dysdera ninnii*, and *Haplodrassus dalmatensis*) and one species is endangered (*Haplodrassus minor*). The species belong to total number of 16 families. As in the case by Tropek (2007a, b), we also discovered much greater species diversity outside the quarry. Interesting is that all endangered species by Růžička (2005) were found only in the quarry itself and especially in non-reclaimed areas. Spectrum of spiders in the Lesní lom quarry is very rich and many species, that are in the open air almost absent, were found there. The most important finding is *Haplodrassus minor,*

which seems to prefer the mines as their biotope, as well as another recorded vulnerable species *Haplodrassus dalmatensis.* Another very important species is *Sitticus penicillatus,* which is tied to the bare substrates with the presence of empty shells of the snail *Xerolenta obvia* (Hula *et al.*, 2009). A vulnerable species of *Dysdera ninnii* is typically a pannonian species of spider found in one of its northernmost localities.

The largest proportion of species belongs to the species that dwelling in thermophyticum (43%) and mesophyticum (43%). Synanthropic species (5%) or species living in oreophyticum (9%) (Fig. 2) were also well represented here. Mesophyllic species prevailed in biotopes in the vicinity of the quarry (black locust grove and hedgerow), where also species living in oreophyticum were found. On the other hand, in the quarry types preferring thermophytium or mesophyticum prevailed.

From the relict perspective (Buchar, 1993), a higher number of relic species of type 1 (24%) and relic species (38%) occurred within the observed area, thus together more that 45%, which is the limit determined by Růžička (1996) for small-scale reserved areas (Fig. 3). The value of the area is confirmed by the protocol by Řezáč (2009), where the majority of spiders belong to the species preferring natural habitats (50%) or seminatural habitats (34%) (Fig. 4).

Annotated list of species found

Comments on particular species are mostly based on works by Buchar & Růžička (2002) and Růžička & Buchar (2008). Conservation status follows Růžička (2005) and is placed at the end of each particular species description – EN (endangered) and VU (vulnerable).

Pholcidae

Pholcus opilionoides (Schrank, 1781)

Very abundant species, under surface stones in sun-exposed scree slopes, under overhanging rocks and stones on rock steppes, in houses less common than *P. phalangoides* (Fuesslin, 1775). Interesting is, that one male was found on for this species unusual habitat in black-locust gowth (linie 7) relatively far from stone debris. Data: 9♂, 2♀, 5. 5.–6. 6. 2008, line 3; 4♂, 1♀, 30. 7.–5. 9. 2008, line 5; 1♂, 2. 7.–30. 7. 2008, line 7; 3♂, 5. 4.–5. 5. 2008, line 5; 7♂, 2. 7.–30. 7. 2008, line 5.

Dysderidae

Dysdera lantosquensis Simon, 1882

Rare species, taxonomic study shows that species *D. erythrina* is a complex of four closely related species. Two of them also occur in the Czech Republic: usually *D. erythrina* (Walckenaer, 1802) in Bohemia and *D. lantosquensis* in Moravia (Řezáč *et al.*, 2007). Recently published from Pálava PLA by Bryja *et al.* (2005) but no other recent records are available. Data: 1♂, 5. 5.–6. 6. 2008, line 3; 2♂, 5. 5.–6. 6. 2008, line 4; 2♂, 5. 5.–6. 6. 2008, line 7; 1♀, 5. 5.–6. 6. 2008, line 8; 1♂, 5.4–5. 5. 2008, line 2.

Dysdera ninnii Canestrini, 1868

Very rare species, confirmed recently only by Řezáč (pers. comm.) from 15 faunistic squares in Moravia (one near Dačice, South Bohemia). This species prefer xerothermic habitats and forest steppes. This record is one of the northernmost records in the Czech Republic. Data: 1♂, 5. 5.–6. 6. 2008, line 7; 1♂, 5. 5.–6. 6. 2008, line 8; 1♂, 5. 9.–30. 9. 2008, line 2. **VU**

Harpactea rubicunda (C. L. Koch, 1838)

Very abundant species, under stones and other debris in warm open and forest habitats, typical for dry upper margins of scree slopes, rock steppes and forest steppes, spoil heaps, quarries, often numerous in houses and their neighbourhood. This species is mentioned as common in quarries by Tropek (2007b). Data: 1♂, 5. 4.–5. 5. 2008, line 2; 2♂, 5. 5.–6. 6. 2008, line 2; 1♂, 5. 4.–5. 5. 2008, line 4; 1♂ 5. 5.–6. 6. 2008, line 4; 3♂, 3♀, 5. 5.–6. 6. 2008, line 7.

Theridiidae

Enoplognatha thoracica (Hahn, 1833)

Common and abundant species of detritus on diverse xerothermic habitats. Data: 1♂, 5. 5.–6. 6. 2008, line 1.

Steatoda phalerata (Panzer, 1801)

Very abundant species, common on xerothermic and diverse habitats with baren soil. Data: 1♂, 5. 5.–6. 6. 2008, line 1; 1♂, 1♀, 5. 5.–6. 6. 2008, line 2; 1♂, 5. 5.–6. 6. 2008, line 6; 1♂, 5. 5.–6. 6. 2008, line 7.

Linyphiidae

Bathyphantes parvulus (Westring, 1851)

Very abundant species of various habitats. Data: 1♂, 6. 6.–2. 7. 2008, line 7.

Centromerus sylvaticus (Blackwall, 1841)

Very abundant species, typical mainly for autumn and early spring months. Common among moss and detritus in a wide range of open and forest habitats. Data: 1♀, 5. 4.–5. 5. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 4.

Diplocephalus picinus (Blackwall, 1841)

Very abundant species mainly in wet habitats. Data: 2♂, 5. 4.–5. 5. 2008, line 7; 2♂, 5. 5.–6. 6. 2008, line 8.

Erigonella ignobilis (O. P.-Cambridge, 1871)

Scarce species typical mainly for mountaineous and submontaineous regions where it prefers mainly wet habitats like marshy meadows or pond margins, from Moravia not recorded, closely recorded from Orlické hory Mts. only (Buchar & Růžička, 2002). Unusual record on relatively xerothermic habitat, first record for South Moravia. Data: 1♂, 5. 4.–5. 5. 2008, line 7.

Meioneta saxatilis (Blackwall, 1844)

Very abundant and common species of various forest and open habitats. Data: 1♂, 5. 5.–6. 6. 2008, line 8; 1♂, 30. 7.–5. 9. 2008, line 8.

I: *Summary of species recorded: Habitat preference (Řezáč, 2009): C – climax, SN – seminatural, D – disturb, A – artificial; Relictum (Buchar, 1993): E – eurytopic species, R – relict species, RI – relict species of type 1, N – not stated; Thermopreferences (Buchar & Růžička, 2002; Růžička & Buchar, 2008): T – thermo, M – meso, O – oreo, S – synantrop. Bold means main preference, brackets mean minority preference.*

Species	♂	♀	Habitat preferences	Relictum	Thermopreferences
Pholcidae					
Pholcus opilionoides (Schrank, 1781)	24	3	C, SN, A	E	S
Dysderidae					
Dysdera lantosquensis Simon, 1882	6	1	C, A	N	**T**, M
Dysdera ninnii Canestrini, 1868	3	0	C	N	T
Harpactea rubicunda (C. L. Koch, 1838)	8	3	C, SN, A	E	T, M
Theridiidae					
Enoplognatha thoracica (Hahn, 1833)	1	0	C, SN, D	E	T, **M**
Steatoda phalerata (Panzer, 1801)	4	1	C, SN	R	(T), **M**, (O)
Linyphiidae					
Bathyphantes parvulus (Westring, 1851)	1	0	C, **SN**	E	(T), **M**
Centromerus sylvaticus (Blackwall, 1841)	0	2	C, SN, D	E	T, M, O
Diplocephalus picinus (Blackwall, 1841)	4	0	C, SN	R	(T), M, (O)
Erigonella ignobilis (O. P.-Cambridge, 1871)	1	0	C	RI	**M**, (O)
Meioneta saxatilis (Blackwall, 1844)	2	0	C, SN, (D)	E	M
Micrargus herbigradus (Blackwall, 1854)	3	0	C, SN	E	(T), **M**, O
Oedothorax agrestis (Blackwall, 1853)	0	1	**C**, SN	R	**M**, O
Palliduphantes pallidus (O. P.-Cambridge, 1871)	3	2	C, SN	RI	T, M, O
Walckenaeria dysderoides (Wider, 1834)	1	0	C, SN	R	(T), **M**
Walckenaeria furcillata (Menge, 1869)	0	1	C, SN	R	T, **M**
Lycosidae					
Alopecosa accentuata (Latreille, 1817)	15	10	**C**, SN	R	T, M
Alopecosa aculeata (Clerck, 1758)	2	0	C	R	M
Alopecosa cuneata (Clerck, 1758)	50	6	C, SN, D	E	T, M, (O)
Alopecosa pulverulenta (Clerck, 1758)	19	4	C, SN, D	E	T, M, O
Alopecosa trabalis (Clerck, 1758)	14	6	C, SN	RI	T, M
Aulonia albimana (Walckenaer, 1805)	68	17	C, SN	R	T, **M**
Pardosa agrestis (Westring, 1861)	6	18	SN, D	E	T, **M**
Pardosa alacris (C. L. Koch, 1833)	38	40	C, SN	R	**T**, (M)
Pardosa amentata (Clerck, 1758)	1	0	C, SN, D	E	T, M, O
Pardosa hortensis (Thorell, 1872)	276	123	C, SN, D	E	T
Pardosa lugubris (Walckenaer, 1802)	1	4	C, SN, D	R	T, M, O
Pardosa riparia (C. L. Koch, 1833)	47	35	C, SN	RI	T, M, O
Trochosa robusta (Simon, 1876)	0	13	**C**, SN	RI	**T**, M
Trochosa terricola Thorell, 1856	29	20	C, SN, D	E	T, M, (O)
Xerolycosa nemoralis (Westring, 1861)	2	0	C, SN	R	T, M, O
Agelenidae					
Tegenaria agrestis (Walckenaer, 1802)	3	1	C, SN, D	R	**T**, M
Tegenaria atrica C. L. Koch, 1843	3	1	SN, **A**	E	S
Tegenaria silvestris L. Koch, 1872	0	1	C, SN	R	**M**, (O)
Hahniidae					
Hahnia nava (Blackwall, 1841)	2	0	**C**, SN	RI	T, M
Dictynidae					
Cicurina cicur (Fabricius, 1793)	0	1	C, SN, D	E	(T), **M**
Amaurobiidae					
Amaurobius ferox (Walckenaer, 1830)	3	0	A	E	S

Species	♂	♀	Habitat preferences	Relictum	Thermopreferences
Coelotes terrestris (Wider, 1834)	7	6	C, SN	R	(T), M, O
Titanoecidae					
Titanoeca quadriguttata (Hahn, 1833)	4	0	C, SN	RI	**T**, M
Liocranidae					
Agroeca brunnea (Blackwall, 1833)	1	0	C, SN	R	T, **M**
Agroeca cuprea Menge, 1873	1	5	C	N	**T**, M
Zodariidae					
Zodarion rubidum Simon, 1914	45	7	C, SN	N	T
Gnaphosidae					
Drassodes lapidosus (Walckenaer, 1802)	21	9	C, SN	R	T, M
Drassodes pubescens (Thorell, 1856)	1	2	C, SN	R	T, M
Drassyllus praeficus (L. Koch, 1866)	19	19	**C**, SN	RI	T, **M**
Drassyllus pusillus (C. L. Koch, 1833)	4	1	C, SN, (D)	E	T, M
Drassyllus villicus (Thorell, 1875)	0	1	C	RI	T
Gnaphosa lucifuga (Walckenaer, 1802)	82	53	C	RI	T
Haplodrassus dalmatensis (L. Koch, 1866)	0	1	C	RI	T
Haplodrassus minor (O. P.-Cambridge, 1879)	1	0	C, D	N	(T, M)
Haplodrassus signifer (C. L. Koch, 1839)	13	5	C, SN, D	E	T, M, O
Micaria pulicaria (Sundevall, 1831)	2	0	C, SN	R	T, M, O
Trachyzelotes pedestris (C. L. Koch, 1837)	17	15	**C**, SN	RI	**T**, (M)
Zelotes clivicola (L. Koch, 1870)	0	1	C, SN	R	**M**, (O)
Zelotes latreillei (Simon, 1878)	3	9	C, SN, D	R	(T), **M**
Zelotes petrensis (C. L. Koch, 1839)	3	6	C, SN	R	T, M
Zelotes pygmaeus Miller, 1943	0	1	C	RI	T
Zoridae					
Zora spinimana (Sundevall, 1833)	1	4	C, SN, D	R	T, **M**, (O)
Thomisidae					
Ozyptila atomaria (Panzer, 1801)	5	4	C, SN	R	T, M
Ozyptila scabricula (Westring, 1851)	1	0	C	RI	**T**, M
Xysticus bifasciatus C. L. Koch, 1837	2	0	C, SN, D	E	(T), **M**, (O)
Xysticus cristatus (Clerck, 1758)	1	0	C, SN, D	E	T, **M**, (O)
Xysticus kochi Thorell, 1872	10	2	C, SN, (D)	E	T, M
Xysticus striatipes L. Koch, 1870	5	0	C	RI	T, M
Salticidae					
Heliophanus cupreus (Walckenaer, 1802)	0	1	C, SN	R	T, M
Phlegra fasciata (Hahn, 1826)	0	1	C, SN	R	T, M
Sitticus penicillatus (Simon, 1875)	0	1	C, SN	RI	T

Micrargus herbigradus (Blackwall, 1854)

Very abundant species living among leaf litter and detritus in all forest habitats, sporadicaly also in open habitats. Data: 1♂, 5. 5.–6. 6. 2008, line 8; 2♂, 6. 6.–2. 7. 2008, line 8.

Oedothorax agrestis (Blackwall, 1853)

Locally abundant species, common among gravel on gravel banks, sporadic in alder woods and other wetlands. From south Moravia recently published as rare by Bryja *et al.* (2005) from Pálava PLA. Data: 1♀, 5. 4.–5. 5. 2008, line 3.

Palliduphantes pallidus (O. P.-Cambridge, 1871)

Abundant species of different habitats. Data: 1♀, 30. 7.–5. 9. 2008, line 5; 2♂, 1♀, 5. 5.–6. 6. 2008, line 7; 1♂, 30. 7.–5.9. 2008, line 8.

Walckenaeria dysderoides (Wider, 1834)

Very abundant species of various humid habitats where it is common among moss and detritus. Data: 1♂, 5. 5.–6. 6. 2008, line 8.

Walckenaeria furcillata (Menge, 1869)

Scarce, among grass and detritus in forests, most numerous in oak forests and in birch forests on emission clearings. Data: 1♀, 5. 5.–6. 6. 2008, line 8.

Lycosidae

Alopecosa accentuata (Latreille, 1817)

Abundant species, typical for rock steppes and other dry biotopes, man-made habitats including. Data: 6♂, 2♀, 5. 4.–5. 5. 2008, line 1; 2♀, 6. 6.–2. 7. 2008, line 1; 3♂, 2♀, 5. 4.–5. 5. 2008, line 2; 3♀, 5. 5.–6. 6. 2008, line 2; 1♂, 5. 4.–5. 5. 2008, line 3; 1♂, 5. 4.–5. 5. 2008, line 5; 4♂, 1♀, 5. 4.–5. 5. 2008, line 8.

Alopecosa aculeata (Clerck, 1758)

Rare species long time not differentiated from *A. taeniata* (C. L. Koch, 1835). From Moravia only several recent records exist (e.g. Bryja *et al.*, 2005). Data: 2♂, 5. 5.–6. 6. 2008, line 1.

Alopecosa cuneata (Clerck, 1758)

Very abundant species inhabits various open habitats, such as rock steppes, dry meadows or field margins. Data: 17♂, 2♀, 5. 4.–5. 5. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 1; 28♂, 2♀, 5. 4.–5. 5. 2008, line 2; 2♂, 5. 5.–6. 6. 2008, line 2; 1♀, 6. 6.–2. 7. 2008, line 2; 1♂, 5. 4.–5. 5. 2008, line 3; 2♂, 6. 6.–2. 7. 2008, line 4.

Alopecosa pulverulenta (Clerck, 1758)

Typical species of humid or semi-humid meadows or other open habitats where it is often very abundant. Data: 9♂, 1♀, 5. 4.–5. 5. 2008, line 1; 3♂, 5. 4.–5. 5. 2008, line 2; 3♂, 1♀, 5. 4.–5. 5. 2008, line 3; 2♂, 1♀, 5. 4.–5. 5. 2008, line 7; 2♂, 1♀, 5. 5.–6. 6. 2008, line 8.

Alopecosa trabalis (Clerck, 1758)

Scarce species characteristic for xerothermic habitats like forest steppes, light south-exposed forests or dry meadows and field margins. Data: 1♀, 5. 5.–6. 6. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 7; 13♂, 4♀, 5. 5.–6. 6. 2008, line 8; 1♀, 2. 7.–30. 7. 2008, line 8.

Aulonia albimana (Walckenaer, 1805)

Abundant, on rock steppes, heathland and other dry open habitats, on forest edges. Data: 14♂, 1♀, 5. 5.–6. 6. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 1; 2♀, 2. 7.–30. 7. 2008, line 1; 2♀, 5. 4.–5. 5. 2008, line 2; 2♂, 5. 5.–6. 6. 2008, line 2; 1♂, 2♀, 6. 6.–2. 7. 2008, line 2; 1♂, 30. 7.–5. 9. 2008, line 2; 1♀, 5. 5.–6. 6. 2008, line 3; 4♂, 5. 5.–6. 6. 2008, line 5; 1♂, 2♀, 6. 6.–2. 7. 2008, line 6; 1♀, 2. 7.–30. 7. 2008, line 6; 1♂, 5. 5.–6. 6. 2008, line 7; 33♂, 3♀, 5. 5.–6. 6. 2008, line 8; 11♂, 2♀, 6. 6.–2. 7. 2008, line 8.

Pardosa agrestis (Westring, 1861)

Very abundant species of diverse disturbed open habitats – fields, spoil heaps in early stages of succession, ruderals, etc. Data: 1♂, 5. 5.–6. 6. 2008, line 1; 1♀, 5. 5.–6. 6. 2008, line 1; 8♀, 6. 6.–2. 7. 2008, line 1; 3♀, 2. 7.–30. 7. 2008, line 1; 1♀, 30. 7.–5. 9. 2008, line 1; 5♂, 5♀, 5. 5.–6. 6. 2008, line 2.

Pardosa alacris (C. L. Koch, 1833)

Common species of open and usually dry habitats, very numerous in forest steppe habitats. Data: 5♂, 5♀, 5. 5.–6. 6. 2008, line 7; 1♂, 6. 6.–2. 7. 2008, line 7; 1♀, 30. 7.–5. 9. 2008, line 7; 28♂, 8♀, 5. 5.–6. 6. 2008, line 8; 4♂, 10♀, 6. 6.–2. 7. 2008, line 8; 9♀, 2. 7.–30. 7. 2008, line 8; 4♀, 30. 7.–5. 9. 2008, line 8.

Pardosa amentata (Clerck, 1758)

The most recorded spider of the Czech Republic. Very abundant, in wetlands, most typically on river banks, also in wet meadows, fields and gardens. Data: 1♂, 6. 6.–2. 7. 2008, line 2.

Pardosa hortensis (Thorell, 1872)

Scarce, on rock steppes, on xerothermic slopes and warm forest margins; in quarries often in very high abundances (e.g. Tropek, 2007b; Kůrka, 2000b). Data: 38♂, 4♀, 5. 4.–5. 5. 2008, line 1; 4♂, 3♀, 5. 5.–6. 6. 2008, line 1; 3♂, 3♀, 6. 6.–2. 7. 2008, line 1; 4♀, 30. 7.–5. 9. 2008, line 1; 56♂, 12♀, 5. 4.–5. 5. 2008, line 2; 3♂, 7♀, 5. 5.–6. 6. 2008, line 2; 10♂, 7♀, 2. 7.–30. 7. 2008, line 2; 27♂, 9♀, 5. 4.–5. 5. 2008, line 3; 1♂, 5. 5.–6. 6. 2008, line 3; 2♀, 6. 6.–2. 7. 2008, line 3; 60♂, 12♀, 5. 5.–6. 6. 2008, line 4; 4♀, 5. 5.–6. 6. 2008, line 4; 2♂, 1♀, 6. 6.–2. 7. 2008, line 4; 1♀, 2. 7.–30. 7. 2008, line 4; 51♂, 6♀, 5. 4.–5. 5. 2008, line 5; 1♂, 22♀, 6. 6.–2. 7. 2008, line 5; 6♀, 2. 7.–30. 7. 2008, line 5; 12♂, 6♀, 5. 4.–5. 5. 2008, line 6; 1♂, 6♀, 5. 5.–6. 6. 2008, line 6; 1♂, 2♀, 2. 7.–30. 7. 2008, line 6; 2♀, 2. 7.–30. 7. 2008, line 6; 1♀, 5. 4.–5. 5. 2008, line 7; 1♂, 1♀, 5. 5.–6. 6. 2008, line 7; 5♂, 2♀, 5. 4.–5. 5. 2008, line 8.

Pardosa lugubris (Walckenaer, 1802)

Very abundant species of sun-exposed edges of all forests. Data: 1♀, 5. 5.–6. 6. 2008, line 5; 1♂, 5. 4.–5. 5. 2008, line 7; 3♀, 2. 7.–30. 7. 2008, line 7.

Pardosa riparia (C. L. Koch, 1833)

Abundant species of rock steppes and wet meadows, on heathland and in forest clearings. Data: 4♂, 2♀, 5. 5.–6. 6. 2008, line 1; 5♀, 6. 6.–2. 7. 2008, line 1; 1♂, 8♀, 2. 7.–30. 7. 2008, line 1; 10♂, 2♀, 5. 5.–6. 6. 2008, line 2; 3♂, 6. 6.–2. 7. 2008, line 2; 1♂, 5. 4.–5. 5. 2008, line 8; 19♂, 13♀, 5. 5.–6. 6. 2008, line 2; 8♂, 3♀, 6. 6.–2. 7. 2008, line 8; 1♂, 1♀, 2. 7.–30. 7. 2008, line 8; 1♀, 30. 7.–5. 9. 2008, line 8.

Trochosa robusta (Simon, 1876)

Scarce species of rock steppes and other xerotherms. Data: 6♀, 6. 6.–2. 7. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 2; 1♀, 5. 4.–5. 5. 2008, line 8; 2♀, 5. 5.–6. 6. 2008, line 4; 1♀, 2. 7.–30. 7. 2008, line 4; 1♀, 2. 7.–30. 7. 2008, line 5; 1♀, 5. 5.–6. 6. 2008, line 4.

Trochosa terricola Thorell, 1856

Very abundant species, on edges of all forests, also in adjacent open habitats. Data: 2♂, 3♀, 5. 4.–5. 5. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 1; 1♂, 1♀, 5. 9.–30. 9. 2008, line 1; 1♂, 5. 4.–5. 5. 2008, line 2; 1♀, 5. 5.–6. 6. 2008, line 2; 1♂, 5. 5.–6. 6. 2008, line 3; 9♂, 2♀, 6. 6.–2. 7. 2008, line 4; 2♀, 2. 7.–30. 7. 2008, line 5; 7♂, 1♀, 5. 4.–5. 5. 2008, line 7; 1♀, 5. 5.–6. 6. 2008, line 7; 2♀, 6. 6.–2. 7. 2008, line 7; 2♂, 5. 4.–5. 5. 2008, line 8; 1♂, 6. 6.–2. 7. 2008, line 8; 1♀, 2. 7.–30. 7. 2008, line 8; 1♂, 2♀, 30. 7.–5. 9. 2008, line 8; 3♂, 2♀, 5. 9.–30. 9. 2008, line 8.

Xerolycosa nemoralis (Westring, 1861)

Very abundant, in light (pine and oak) forests and on their edges, in dry open habitats – heathland, rock steppes, scree margins. Data: 1♂, 5. 5.–6. 6. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 2.

Agelenidae

Tegenaria agrestis (Walckenaer, 1802)
Scarce species, under stones on rock steppes, sporadic in other dry habitats, such as sand dunes, forest edges and in houses. Data: 1♀, 5. 5.–6. 6. 2008, line 4; 2♂, 30. 7.–5. 9. 2008, line 4; 1♂, 30. 7.–5. 9. 2008, line 7.

Tegenaria atrica C. L. Koch, 1843
Probably abundant species with typically synanthropic distribution, numerous inside houses and in sewage conduits, sporadic in quarries. Data: 1♂, 30. 7.–5. 9. 2008, line 3; 1♂, 5. 4.–5. 5. 2008, line 5; 1♀, 6. 6.–2. 7. 2008, line 6; 1♂, 5. 9.–30. 9. 2008, line 6.

Tegenaria silvestris L. Koch, 1872
Abundant species of diverse stony habitats. Data: 1♀, 5. 4.–5. 5. 2008, line 5.

Hahniidae

Hahnia nava (Blackwall, 1841)
Common to very common species of diverse xerothermic habitats like steppes, vineyards terraces, etc. Data: 1♂, 5. 4.–5. 5. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 8.

Dictynidae

Cicurina cicur (Fabricius, 1793)
Very abundant autumn and spring species of diverse habitats, also in scree slopes. Data: 1♀, 5. 4.–5. 5. 2008, line 8.

Amaurobiidae

Amaurobius ferox (Walckenaer, 1830)
Common species of cellars in cities, wine cellars, scree slopes and caves niches (Bryja *et al*., 2005). Data: 2♂, 6. 6.–2. 7. 2008, line 4; 1♂, 5. 4.–5. 5. 2008, line 8.

Coelotes terrestris (Wider, 1834)
Very abundant forest species, not recorded from floodplain forests. Data: 1♀, 5. 4.–5. 5. 2008, line 1; 1♀, 5. 4.–5. 5. 2008, line 7; 2♂, 30. 7.–5. 9. 2008, line 7; 1♀, 5. 4.–5. 5. 2008, line 8; 1♀, 5. 5.–6. 6. 2008, line 8; 4♂, 2♀, 30. 7.–5. 9. 2008, line 8; 1♂, 5. 9.–30. 9. 2008, line 8.

Titanoecidae

Titanoeca quadriguttata (Hahn, 1833)
Very abundant species of diverse xerothermic habitats, man-made including (motorway verges, railway embankments, etc.). Typical for various quarries (Tropek, 2007a, 2007b; Kůrka, 2000b). Data: 1♂, 5. 4.–5. 5. 2008, line 2; 3♂, 5. 5.–6. 6. 2008, line 2.

Liocranidae

Agroeca brunnea (Blackwall, 1833)
Very abundant species of various forest habitats. Data: 1♂, 5. 4.–5. 5. 2008, line 7.

Agroeca cuprea Menge, 1873
Scarce ground species of rock and forest steppes. Data: 1♂, 1♀, 6. 6.–2. 7. 2008, line 4; 1♀, 2. 7.–30. 7. 2008, line 5; 1♀, 5. 4.–5. 5. 2008, line 7; 1♀, 5. 4.–5. 5. 2008, line 8; 1♀, 5. 5.–6. 6. 2008, line 8.

Zodariidae

Zodarion rubidum Simon, 1914
Scarce species of different habitats, more common on man-made habitats (motorway verges, railway embankments). Found as very common in Pálava PLA (Bryja *et al*., 2005) what is in contrary to Buchar & Růžička (2002) which reported this species as relatively rare. This increasing number of records strongly support the theory about its spreading to the northern Europe (Pekár & Král, 2001). Data: 2♂, 1♀, 5. 5.–6. 6. 2008, line 2; 1♀, 30. 7.–5. 9. 2008, line 2; 11♂, 1♀, 5. 5.–6. 6. 2008, line 3; 1♂, 5. 4.–5. 5. 2008, line 4; 3♂, 5. 5.–6. 6. 2008, line 4; 17♂, 3♀, 5. 5.–6. 6. 2008, line 5; 1♂, 2. 7.–30. 7. 2008, line 5; 5♂, 5. 5.–6. 6. 2008, line 6; 1♂, 1♀, 6. 6.–2. 7. 2008, line 6; 1♂, 5. 4.–5. 5. 2008, line 8; 1♂, 5. 5.–6. 6. 2008, line 8; 2♂, 6. 6.–2. 7. 2008, line 8.

Gnaphosidae

Drassodes lapidosus (Walckenaer, 1802)
Very abundant species of all xerothermic habitats – on rock steppes, sun-exposed rock walls, upper margins of sun-exposed scree slopes, on spoil heaps, in dry forests. Data: 1♂, 30. 7.–5. 9. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 2; 1♂, 1♀, 2. 7.–30. 7. 2008, line 2; 4♂, 1♀, 5. 5.–6. 6. 2008, line 3; 1♂, 3♀, 6. 6.–2. 7. 2008, line 3; 1♂, 1♀, 5. 5.–6. 6. 2008, line 4; 1♀, 6. 6.–2. 7. 2008, line 4; 1♀, 2. 7.–30. 7. 2008, line 4; 1♂, 5. 4.–5. 5. 2008, line 5; 2♂, 5. 5.–6. 6. 2008, line 5; 3♂, 1♀, 2. 7.– 30. 7. 2008, line 5; 2♂, 5. 5.–6. 6. 2008, line 6; 4♂, 6. 6.–2. 7. 2008, line 6.

Drassodes pubescens (Thorell, 1856)
Very abundant species of rock and forest steppes, dry forest edges or pine forests. Data: 1♂, 1♀, 2. 7.–30. 7. 2008, line 5; 2♀, 2. 7.– 30. 7. 2008, line 8.

Drassyllus praeficus (L. Koch, 1866)
Abundant species prefering rock and forest steppes, xerothermic slopes and forest margins. Data: 3♂, 3♀, 5. 5.–6. 6. 2008, line 1; 1♂, 6. 6.–2. 7. 2008, line 1; 1♀, 2. 7.–30. 7. 2008, line 1; 7♂, 4♀, 5. 5.–6. 6. 2008, line 2; 3♂, 5♀, 6. 6.–2. 7. 2008, line 2; 2♀, 2. 7.–30. 7. 2008, line 2; 1♂, 5. 5.–6. 6. 2008, line 3; 4♂, 3♀, 6. 6.–2. 7. 2008, line 8; 1♀, 2. 7.– 30. 7. 2008, line 8.

Drassyllus pusillus (C. L. Koch, 1833)
Abundant species of bare soil of various open habitats – dry and wet meadows, rock steppes, forest clearings. Data: 2♂, 5. 4.–5. 5. 2008, line 1; 1♂, 1♀, 5. 5.–6. 6. 2008, line 1; 1♂, 5. 4.–5. 5. 2008, line 2.

Drassyllus villicus (Thorell, 1875)
Rare species characteristic for rock and forest steppes or sun-exposed scree slopes. Data: 1♀, 5. 9.–30. 9. 2008, line 2.

Gnaphosa lucifuga (Walckenaer, 1802)
Scarce, under stones on rock steppes. Characteristic species of different quarry habitats like scree,

terrace and non reclaimed habitats. Data: 4♂, 1♀, 5. 4.–5. 5. 2008, line 1; 2♂, 6. 6.–2. 7. 2008, line 1; 2♀, 2. 7.–30. 7. 2008, line 1; 4♂, 1♀, 30. 7.–5. 9. 2008, line 1; 4♀, 5. 4.–5. 5. 2008, line 2; 3♂, 6♀, 5. 5.–6. 6. 2008, line 2; 2♀, 6. 6.–2. 7. 2008, line 2; 1♂, 2♀, 2. 7.–30. 7. 2008, line 2; 1♂, 1♀, 30. 7.–5. 9. 2008, line 2; 1♂, 5. 9.–30. 9. 2008, line 2; 2♂, 1♀, 5. 5.–6. 6. 2008, line 3; 1♂, 3♀, 6. 6.–2. 7. 2008, line 3; 4♂, 2♀, 30. 7.–5. 9. 2008, line 3; 1♂, 6. 6.–2. 7. 2008, line 4; 2♂, 2. 7.– 30. 7. 2008, line 4; 1♂, 2♀, 30. 7.–5. 9. 2008, line 4; 9♂, 1♀, 5. 4.–5. 5. 2008, line 5; 13♂, 7♀, 5. 5.–6. 6. 2008, line 5; 5♂, 1♀, 6. 6.–2. 7. 2008, line 5; 4♂, 2♀, 2. 7.– 30. 7. 2008, line 5; 5♂, 1♀, 30. 7.–5. 9. 2008, line 5; 1♂, 5. 9.–30. 9. 2008, line 5; 5♂, 1♀, 5. 5.–6. 6. 2008, line 6; 3♂, 1♀, 6. 6.–2. 7. 2008, line 6; 3♂, 3♀, 2. 7.–30. 7. 2008, line 6; 5♂, 7♀, 30. 7.–5. 9. 2008, line 6; 3♂, 2♀, 5. 5.–6. 6. 2008, line 7; 1♂, 2. 7.–30. 7. 2008, line 7.

Haplodrassus dalmatensis (L. Koch, 1866)
Rare species of mainly rock steppes. Data: 1♀, 6. 6.–2. 7. 2008, line 3. **VU**

Haplodrassus minor (O. P.-Cambridge, 1879)
Very rare species found on a salt marsh, in a limestone quarry (Kůrka, 2000b), in a field or in steppe protected area (Prakšice, lgt. Majkus). Interesting record which confirmed quarry affinity from Čertovy schody quarry – it is possible, that this species needs special conditions which are in quarries. Data: 1♂, 5. 4.–5. 5. 2008, line 2. **EN**

Haplodrassus signifer (C. L. Koch, 1839)
Very abundant, at ground level in wide range of open and forest habitats. Data: 5♂, 6. 6.–2. 7. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 1; 5♂, 5. 5.–6. 6. 2008, line 2; 2♂, 2♀, 6. 6.–2. 7. 2008, line 2; 1♀, 5. 5.–6. 6. 2008, line 7; 1♀, 5. 5.–6. 6. 2008, line 8; 1♂, 6. 6.–2. 7. 2008, line 8.

Micaria pulicaria (Sundevall, 1831)
Very abundant, among grass and moss in various open habitats – on forest edges, in forest clearings, in mountain corries. Data: 1♂, 5. 4.–5. 5. 2008, line 1; 1♂, 5. 5.–6. 6. 2008, line 8.

Trachyzelotes pedestris (C. L. Koch, 1837)
Scarce, under stones and among detritus on rock and forest steppes, on a salt marsh and in floodplain forests. Data: 4♂, 1♀, 5. 5.–6. 6. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 1; 1♀, 2. 7.–30. 7. 2008, line 1; 3♂, 2♀, 5. 5.–6. 6. 2008, line 2; 2♂, 6. 6.–2. 7. 2008, line 2; 1♀, 5. 9.–30. 9. 2008, line 2; 1♀, 5. 5.–6. 6. 2008, line 3; 1♂, 2♀, 5. 5.–6. 6. 2008, line 4; 1♀, 6. 6.–2. 7. 2008, line 4; 1♂, 5. 5.–6. 6. 2008, line 5; 2♀, 2. 7.–30. 7. 2008, line 5; 1♀, 6. 6.–2. 7. 2008, line 7; 4♂, 5. 5.–6. 6. 2008, line 8; 2♂, 2♀, 6. 6.–2. 7. 2008, line 8.

Zelotes clivicola (L. Koch, 1870)
Abundant, under stones and among moss in peat bogs, in pine forests and in birch forests on emission clearings. Data: 1♀, 30. 7.–5. 9. 2008, line 8.

Zelotes latreillei (Simon, 1878)
Very abundant, under stones and among detritus in various open and forest habitats. Data: 1♂, 5. 4.–5. 5. 2008, line 5; 1♂, 1♀, 5. 4.–5. 5. 2008, line 7; 1♂, 5. 4.–5. 5. 2008, line 8; 1♀, 5. 5.–6. 6. 2008, line 8; 1♀, 6. 6.–2. 7. 2008, line 8; 6♀, 30. 7.–5. 9. 2008, line 8.

Zelotes petrensis (C. L. Koch, 1839)
Abundant, under stones on sand dunes, on rock steppes and forest steppes, in oak and pine forests. Data: 2♀, 5. 4.–5. 5. 2008, line 1; 1♂, 2♀, 5. 5.–6. 6. 2008, line 1; 1♀, 6. 6.–2. 7. 2008, line 1; 1♂, 1♀, 5. 5.–6. 6. 2008, line 2; 1♂, 5. 9.–30. 9. 2008, line 2.

Zelotes pygmaeus Miller, 1943
Generaly common (Hula, pevs. obs.), but from southern Moravia is recorded only as rare species of rock steppes and grasslands (Bryja *et al*., 2005). Data: 1♀, 2. 7.–30. 7. 2008, line 2.

Zoridae

Zora spinimana (Sundevall, 1833)
Very abundant, in various forest and open habitats. Data: 1♀, 6. 6.–2. 7. 2008, line 2; 1♀, 2. 7.– 30. 7. 2008, line 7; 1♀, 5. 5.–6. 6. 2008, line 8; 1♂, 6. 6.–2. 7. 2008, line 8; 1♀, 2. 7.–30. 7. 2008, line 8.

Thomisidae

Ozyptila atomaria (Panzer, 1801)
Scarce, among detritus on rock steppes and other xerothermic habitats. Data: 2♂, 5. 4.–5. 5. 2008, line 2; 1♀, 2. 7.–30. 7. 2008, line 2; 2♂, 2♀, 5. 9.–30. 9. 2008, line 2; 1♂, 5. 4.–5. 5. 2008, line 8; 1♀, 2. 7.–30. 7. 2008, line 8.

Ozyptila scabricula (Westring, 1851)
Probably rare, among grass and under stones on rock steppes. Data: 1♂, 5. 4.–5. 5. 2008, line 6.

Xysticus bifasciatus C. L. Koch, 1837
Very abundant, among grass in meadows and other open habitats. Data: 1♂, 5. 5.–6. 6. 2008, line 1; 1♂, 6. 6.–2. 7. 2008, line 8.

Xysticus cristatus (Clerck, 1758)
Very abundant, among grass in meadows and other open habitats, also in fields and in orchards. Data: 1♂, 5. 4.–5. 5. 2008, line 1.

Xysticus kochi Thorell, 1872
Abundant, among grass and on vegetation on rock steppes, meadows, in urban grasslands, in orchards and gardens. Data: 1♂, 1♀, 5. 4.–5. 5. 2008, line 1; 2♂, 5. 5.–6. 6. 2008, line 1; 3♂, 5. 4.–5. 5. 2008, line 2; 3♂, 5. 5.–6. 6. 2008, line 2; 1♂, 2. 7.–30. 7. 2008, line 5; 1♀, 2. 7.–30. 7. 2008, line 8.

Xysticus striatipes L. Koch, 1870
Scarce species living under stones and on herb vegetation on rock steppes, sand dunes and on heathland. Recorded from land-snail shells (Hula *et al*., 2009). Data: 5♂, 5. 9.–30. 9. 2008, line 1.

Salticidae

Heliophanus cupreus (Walckenaer, 1802)
Abundant, at ground level and on vegetation in open and forest habitats – on rock steppes, forest

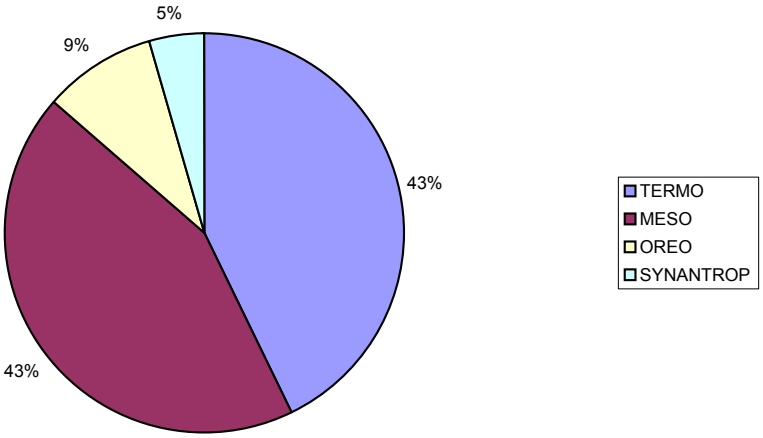
steppes, on forest edges, in sandpits and in quarries. Data: 1♀, 5. 5.–6. 6. 2008, line 2.

Phlegra fasciata (Hahn, 1826)

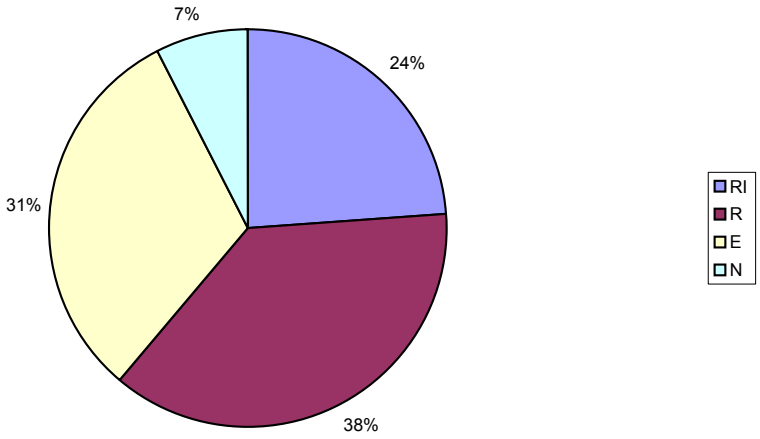
Abundant, among grass on rock steppes and xerothermic slopes, on forest steppes and forest edges, also on spoil heaps and road verges. Data: 1♀, 30. 7.–5. 9. 2008, line 2.

Sitticus penicillatus (Simon, 1875)

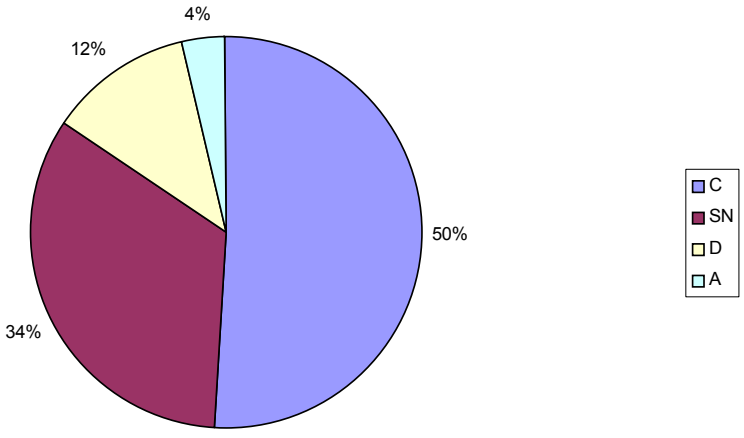
Rare species of different xerothermic habitats, in grass of steppes. Data: 1♀, 5. 5.–6. 6. 2008, line 2. **VU**



2: *Evaluation of spider taxocoenoses in the Lesní lom quarry according their thermopreferences carried out according to Buchar & Růžička (2002) and Růžička & Buchar (2008)*



3: *Categorization of spider taxocoenosis of the Lesní lom quarry by relictum of the spiders recorded, according to Buchar (1993) – for explanatory notes see Tab. I*



4: *Habitat preferences of spiders of the Lesní lom quarry by Řezáč (2009) – for explanatory notes see Tab. I*

SOUHRN

Pavouci (Araneida) Lesního lomu (Brno-Hády)

Sběry pavouků byly prováděny v částečně rekultivovaném vápencovém lomu na masivu Hády u Brna (Lesní lom – 49°13'24.662" N, 16°41'41.494" E). Námi sledovaný lom byl v době výzkumu již osm let bez jakýchkoli dobývacích či rekultivačních prací. Odběry byly prováděny do zemních pastí na osmi plochách (čtyři linie na lomových terasách, dvě linie na rekultivovaných plochách a dvě linie v bezprostředním okolí lomu) v roce 2008. Celkem bylo zjištěno 67 druhů v celkovém počtu 1357 determinovaných jedinců. 1010 kusů bylo mladých jedinců. Z celkového počtu patří tři druhy mezi zranitelné (*Sitticus penicillatus*, *Dysdera ninnii* a *Haplodrassus dalmatensis*) a jeden druh mezi ohrožené (*Haplodrassus minor*). Druhy náležejí celkem k 16 čeledím. Největší podíl ze zjištěného druhového spektra náleží k druhům obývajícím termofytikum (43 %) a mezofytikum (43 %). Byly zastoupeny i druhy synantropní (5 %) a druhy žijící v oreofytiku (9 %). Druhy mezofilní převládaly na biotopech v okolí lomu. Přímo na lomových terasách převládaly druhy termofilní, příp. mezofilní. Z pohledu reliktnosti se na sledované ploše vyskytovalo větší množství reliktů I. řádu (24 %) a druhů reliktních (38 %). Největší část pavouků náleží mezi druhy preferující přirozená stanoviště (50 %), případně polopřirozené biotopy (34 %).

pavouci, Brno-Hády, vápencový lom, faunistika

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