

## Taxonomic notes on the genus *Menemerus* Simon, 1868 in the fauna of Middle Asia (Araneae, Salticidae)

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**Key words:** *Menemerus*, Middle Asia, review.

### ABSTRACT

Critical review of the genus *Menemerus* in Middle Asia is presented. *M. marginatus* is recognised to be the only species occurring in the area. The neotype for *M. marginatus* is designated. *M. semilimbatus* and *M. taeniatus* are known from the neighbouring areas in the Caucasus but have not yet been found in Middle Asia. A distributional map is provided.

### INTRODUCTION

According to Prószyński (1990), about 52 species of *Menemerus* are known, 4 of them reported or described from Middle Asia (Nenilin 1984a, 1985). However, most of the records from Middle Asia are doubtful and should be verified:

1. *Menemerus taeniatus* (L. Koch, 1867) was reported by Saveljeva (1970) from the East Kazakhstan Area (s. Prószyński, 1976: map 15) and Spassky (1952) from the so-called 'Turan Zoogeographic Province' (with no precise localities). The study of material of *M. taeniatus* from neighbouring areas allows us to assume the species is restricted in the east by the Caucasus (Fig. 6).

2. *Menemerus indistinctus* (O. P.-Cambridge, 1872) (originally *Salticus i.*) has been repeatedly recorded in Middle Asia (Kroneberg 1875; Kharitonov 1932, 1969; Nenilin 1984a). Andreeva *et al.* (1981) recognised it as being a junior synonym of *Mogrus neglectus* (Simon, 1868), whereas the records in Middle Asia (Kharitonov 1969) were assumed by Logunov (1995) concern *Mogrus antoninus*. After restudying the Kharitonov's specimens of *M. indistinctus* it appeared to belong to *Mogrus antoninus* Andreeva, 1976 (1f (PSU), Bukhara Area, Yakkabag Distr., 1942, D. M. Fedorov; 1 m, 1f (PSU), Ishkent, 2.05.1942, D. M. Fedorov; and to *Mogrus larisae* Logunov, 1995 (2f (PSU), Kashkadariya Area, Yakkabag Distr., near Ishkent, 26-28.06.1942, D. M. Fedorov).

3. *Menemerus cronebergi* Charitonov, 1946 was described from Uzbekistan, Shakhrisjabz (Kharitonov 1946) and Tajikistan (Andreeva 1969, 1975, 1976). Nenilin (1984b) synonymized it with *M. marginatus* on the basis of circumstantial evidence as the holotype of *M. marginatus* was lost and neotype has not been designated. Because all the *Menemerus* specimens ever collected from Middle Asia turned out to belong to the only species (see below), and regarding that the type locality of *M. cronebergi* (Shakhrisjabz) is very close to that of *M. marginatus* (Samarkand), we support the idea of both specific names being synonyms. Therefore, we designate a neotype for *M. marginatus* to stabilise the synonymization proposed by Nenilin (1984b).

4. *Menemerus marginatus* Kroneberg, 1875 has been described and then repeatedly reported from Middle Asia (Kroneberg 1875; Andreeva 1975, 1976; Prószyński 1979; Spassky & Luppova 1945; etc.). It is the only representative of *Menemerus* occurring in Middle Asia.

The purpose of the study is to redescribe *M. marginatus* and to show all the known easternmost localities for *M. taeniatus* and *M. semilimbatus*, which were erroneously reported from Middle Asia.

## MATERIAL AND METHODS

The work is based on museum collections and newly collected materials from Middle Asia and the Caucasus. A total of 113 specimens of *Menemerus* were studied. Specimens were borrowed from or housed in the following museums:

ISE - the Zoological Museum of the Institute for Systematics and Ecology of Animals, Novosibirsk, Russia, D. V. Logunov,

PSU - the chair of Zoology, the Perm State University, Perm, Russia, S. L. Esyunin,

ZISP - the Zoological Institute of the Russian Academy of Science, St.-Petersburg, Russia, V. I. Ovtsharenko,

ZMMU - the Zoological Museum of the Moscow State University, Moscow, Russia, K. G. Mikhailov.

In most cases the names of collectors are abbreviated as follows: V.D. - Dr. V. V. Dubatolov; S.Z. - Dr. S. L. Zonshtein; D.L. - Dr. D. V. Logunov; S.O. - Mr. S. V. Ovtchinnikov; A.Z. - Dr. A. A. Zyuzin; V.K. - V. A. Krivokhatskiy; P.D. - P. M. Dunin.

Abbreviations used: ap - apically; d - dorsally; Fm - femur; Mt - metatarsus; pr - prolaterally; Pt - patella; rt - retrolaterally; Tb - tibia; v - ventrally.

The leg spination system is adopted from Ono (1988). The sequence of leg segments in measurement data is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are in mm. Only relevant literature sources are included in the text. For complete review see Kharitonov (1932, 1936) and Prószyński (1990).

## RESULTS AND DISCUSSION

### *Menemerus marginatus* (Kroneberg, 1875)

Figs. 1-6

*Marpessa marginata* Kroneberg, 1875: 47-48, f. 34 (syntypes from the ZMMU were lost, neotype is designated here).

*Menemerus marginatus*: Andreeva 1975: 340; Ibid. 1976: 94; Kharitonov 1932: 187; Kroneberg 1875: 156; Prószyński 1979: 313, ff. 200-206; Spassky & Luppova 1945: 50; Nenilin 1984: 1176-1177; 1984: 21; 1985: 130, 132; Mikhailov & Fet 1994: 517; Wesolowska 1996: f. 20.

*M. sp.*: Ovtsharenko & Fet 1980: 445

*M. cronebergi* Kharitonov, 1946: 31, ff. 59, 60 (m, holotype from the PSU, examined).

*M. cronebergi*: Andreeva 1969: 89-93; Prószyński 1976: map. 14; Nenilin 1984b: 1176-1177.

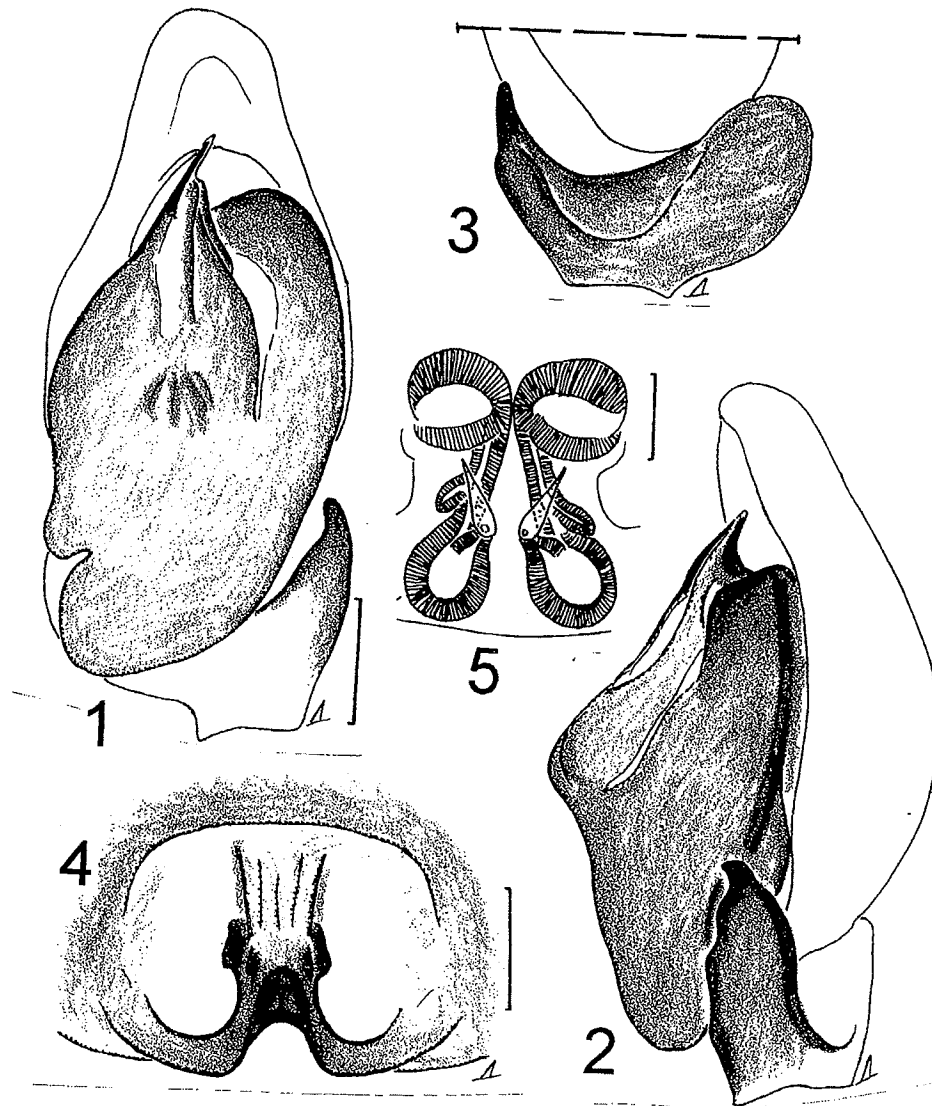
*M. kronebergi (lapsus calami)*: Andreeva 1975: 340; Ibid. 1976: 94; Nenilin 1984a: 20.

**Material examined.** Uzbekistan: 1m (ZMMU, neotype, designated here), 1m, 2f (ZISP, det. as *Marptusa marginata*), Samarkand Area, Andizhan, 09-winter, 1936, S. Spassky; 2m (ZMMU), Tashkent, A.B. Nenilin; 1m (PSU, holotype of *M. cronebergi*), Shahrizjabs, D. N. Fedorov, K. V. Arnol'di; 1f (ZMMU), Andizhan Area, Kurgantepinskiy Distr., Andijan-say valley, 3.04.1988, S.O., S.Z. Kazakhstan: 1m (ISE), S-Kazakhstan Area, Arys' Distr., Baymakhan locality, 21.05.1993, A.Z. Turkmenistan: 7m, 1f (ZISP), 1m (ISE), SE Karakum desert, Repetek Reservation, 6.05-10.06.1982, V.K.; 4m, 7f (ISE), Badkhyz, 10-12.04.1993, D.L.; 8m (ZISP), Sultanbent, 31.05.1929, Coll.?.; 1m (ISE), Ashgabad, 8.10.1990, A. N. Galkin; 1f (ISE), same locality, Chuli, 5.10.1991, A. N. Galkin; 1m (ISE), ~ 40 km SE of Ashabad, Yashlyk, 7.04.1993, A.Z.; 1f (ZMMU), SE Kopetdagh, Kara-Kala, 12.09.1988, A. V. Abramov; 1f (ISE), C Kopetdag 10 km W of Germab, Kurkulab, 17.07.1990, V.D.; 1m (ISE), Kizil-Arvat, 1-5.08.1988, A. V. Abramov. Kyrgyzstan: 1m, 3f (ISE), Dzhalaalabad Distr., Tash-Kumyr, 15.06.1992, A. A. Feodorov, A.Z. Tajikistan: 1f (ISE), Garavuti, 23.05.1978, Chernenko; 1m (ZISP), "Gar... in house 12.06. ?, label illegible, but it seems to be Garavuti". Azerbaijan: 1m (ISE), Nakhichevan, Dhul'fa, 25.07.1983, D.L. Russia: 1f (ISE), Chechnya, Grozny, 14.07.1988, A. S. Rjabukhin.

**Distribution.** Tajikistan: Ura-Tjube, Beshkentskaya Valley, 'Tigrovaya Balka' Reserve, Dushanbe, Varzob valley (Spassky & Luppova, 1945; Andreeva 1975, 1976: as *M. cronebergi*; Nenilin 1984a). Turkmenistan: Sultanbent, Repetek, Badkhyz, SE and C Kopetdagh Mts., Amudaryinskii Reserve, Yashlyk (Mikhailov & Fet, 1994; Ovtsharenko & Fet 1980; Nenilin 1984a; Wesolowska 1996). Uzbekistan: Samarkand, Tashkent, Shahrizjabs (Kroneberg 1875;

Kharitonov 1946, 1969: as *M. cronebergi*; Andreeva 1976; Prószyński 1979; Nenilin 1984a, b). Azerbaijan: Nakhichevan' (Nenilin 1985). Russia: Chechnya (original data). All the localities in Middle Asia are shown in Fig. 6.

**Habitat.** Tree trunks, clay cliffs and walls of buildings.



Figs. 1-5. The genitalia of *Menemerus marginatus*: 1 - male palp, ventral view; 2 - ditto, lateral view; 3 - tibial apophysis, reared view; 4 - epigyne; 5 - spermathecae. Scales: 1-4: 0.25 mm; 5: 0.1 mm. Specimens: male - neotype from Andizhan, Uzbekistan; female - Chuli, Turkmenistan.

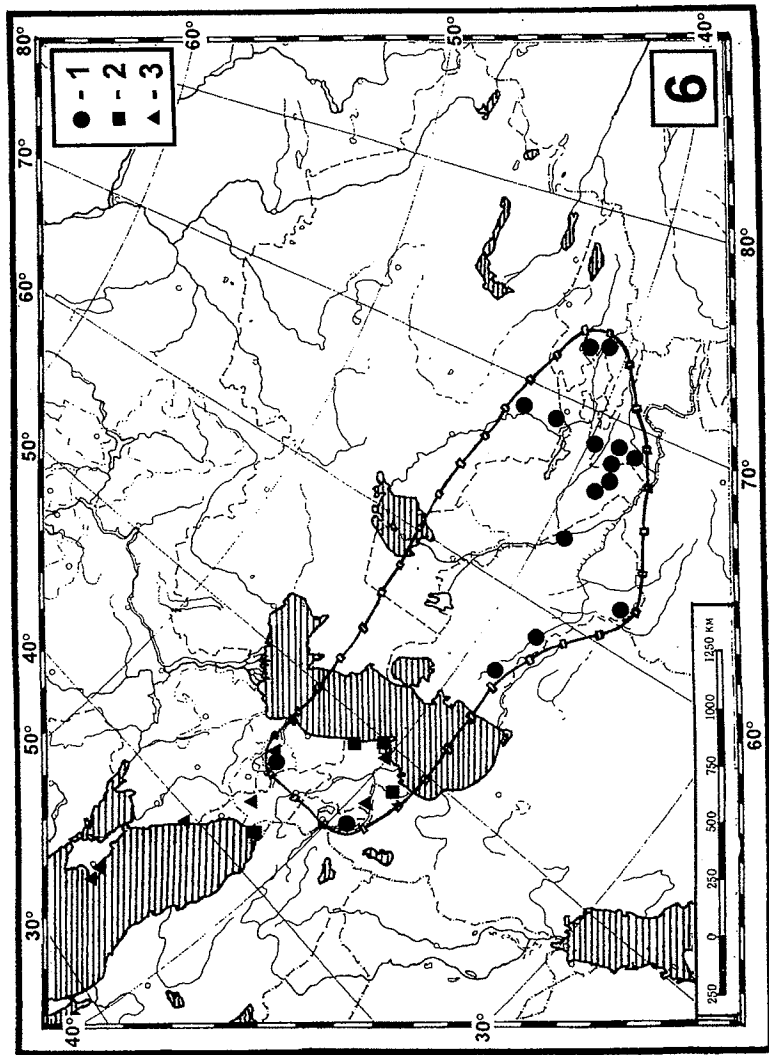


Fig. 6. Distribution of *Menemerus marginatus* (1) and the easternmost localities for *Menemerus semilimbatus* (2) and *Menemerus taeniatus* (3).

**Description.** Male from Sultanbent. Carapace 3.50 long, 3.30 wide, 1.35 high at PLE. Ocular area 1.50 long, 1.85 wide anteriorly and 1.75 wide posteriorly. Diameter of AME 0.50. Abdomen 4.00 long, 2.75 wide. Cheliceral length 1.25. Lengths of legs: leg I: 2.50+1.50+2.50+1.75+1.25; leg II: 2.00+1.25+1.75+1.50+1.00; leg III: 1.50+1.00+1.75+1.50+1.00; leg IV: 2.00+1.00+2.00+1.75+1.60. Leg spination: I: Fm d 1-1-2; Pt v 0-1; Tb v 2-2-1-2ap; Mt v 2-2ap. II: Fm d 1-1-2; Tb pr 0-0-1, v 2-2ap; Mt v 2-2ap. III: Fm d 1-2-3; Pt rt 0-1-0; Tb pr and rt 0-1, v 1-2ap; Mt d 2ap., pr and rt 1ap, v 1-2ap. IV: Fm d 1-1-3; Tb pr 1-1, rt 0-1-0, v 2-2ap; Mt d 2ap, pr and rt 1ap, v 1-2ap. Carapace orange, its margins covered with white hairs. Eye field brown, black around eyes. Eyes surrounded by short orange hairs. Sternum yellow. Chelicerae brown. Labium and maxillae orange. Abdomen grey with light dorsal lanceolate spot and light sides. Legs I and II grey-yellow, legs III and IV yellow. Palp structure as shown in Figs 1-3.

Female from Garavuti. Carapace 3.50 long, 2.75 wide, 1.25 high at PLE. Ocular area 1.25 long, 1.85 wide anteriorly and 1.75 wide posteriorly. Diameter of AME 0.50. Abdomen 5.00 long, 3.00 wide. Cheliceral length 1.25. Lengths of legs: I: 1.75+1.25+1.50+1.25+0.75; II: 1.50+1.25+1.25+1.00+0.85; III: 1.50+1.00+1.50+1.25+1.00; IV: 2.00+1.60+2.00+1.50+1.00. Leg spination: I: Fm d 1-1-2; Tb v 1-1-1-1; Mt v 2-2ap. II: Fm d 1-1-2; Tb pr 0-0-1, v 1-1; Mt v 2-2ap. III: Fm d 1-2-3; Tb pr and rt 0-1, v 1-2ap; Mt d 2ap, pr and rt 1ap, v 2ap. IV: Fm d 1-1-3; Tb pr 1-1, rt 0-1-0, v 1-2ap; Mt d 2ap, pr and rt 1ap, v 2-2ap. Carapace brown medially, its margins covered with white hairs. Eye field dark brown, covered with light hairs. Sternum grey. Chelicerae brown. Labium and maxillae light brown. Clypeus and AME surrounding covered with light hairs. Dorsum with light lanceolate spot and light margins. Legs I and II brown, legs III and IV grey-yellow. Epigyne and spermathecae as shown in Figs 4, 5.

*Menemerus semilimbatus* (Hahn, 1827)

*Menemerus semilimbatus*: Kharitonov 1932: 187; Nenilin 1985: 130; Dunin 1979: 39; Ibid. 1984: 58, 1989: 38; Prószyński 1990: 214.

**Material examined.** Azerbaijan: 1m (ISE), Apsheron, Baky, Zarya, 25.08.1971, P.D.; 2m, 1f (ISE), 1m, 1f (ZMMU), same locality, 20.03-20.09.1976, P.D.; 1m, 2f (ISE), same locality, 14.01-17.07.1977, P.D.; 2m (ZMMU), same locality, Yasamal valley, 14.06.1981, P.D.; 1m (ISE), same locality, Balandjary, 15.04.1983, P.D.; 1m (ZMMU), 2f (ISE), same locality, Yardymly, 9.06-12.08.1985, P.D.; 1m (ISE), Khachmasskiy Distr., Akhmetoba, 19.06.1989, Talybova; 4m, 1f (ISE), same distr., Hudat Mt., 14.06.1989, Talybova. Georgia: 1f (ZISP), Batumi, 07-08.1925, N. Slavski.

**Distribution.** From the Canary Islands (Wunderlich 1987) to Azerbaijan (original data) (Fig. 6). No records from Middle Asia (see Introduction); the

information of Kharitonov (1932) was based on the wrong identification of *Euophrys intenta* Blackwall and *M. semilimbatus* (s. Nenilin 1984a).

***Menemerus taeniatus* (L. Koch, 1867)**

*Menemerus taeniatus*: Prószyński 1976: map 15; Ibid. 1979: 313, ff. 209-216; Dunin 1979: 39; Ibid. 1984: 58; Ibid. 1989: 38; Nenilin 1984a: 21; Ibid. 1985: 130; Dunin, Mamedov 1992: 57.

*M. parietinus* Spassky 1934: 135-137, ff. 1-3 (syntypes from the ZISP, examined).

*M. parietinus*: Kharitonov 1936: 219. Synonymized with *M. taeniatus* by Prószyński 1979: 313.

**Material examined.** Russia: 1f (ZISP), Krasnodar Region, Adlor, Moldovka, 20.07.1979, M. S. Nenilin; 16m, 16f (ZISP, syntypes of *M. parietinus*), same region, Khosta, Chernomorsk, 08.1927-1930, S. A. Spasskiy; 1m (ISE), Chechnya, Grozny, 14.07.1988, A. S. Robuhin. Ukraine: 1m, 1f (ISE), Krym Peninsular, Bahchisaray, 24-26.06.1993, S. V. Vasilenko; 1m, 1f (ZISP), Krym Peninsular, Sevastopol, 26.07.1979, M. S. Nenilina. Azerbaijan: 1f (ISE), Fizuli, 10.08.1986, P.D.; 1m (ZMMU), Apsheron Peninsular, Primorsk station, 30.05.1976, P.D; 1f (ZMMU), Apsheron Peninsular, Mardjakajan, 1.05.1988, P.D; 1f (ZMMU), Caspian Sea, Glinjanyi Island, 15.07.1979, P.D.; 1f (ISE), near Mingechar, 20.04.1982, Shatrovskiy. Georgia: 1m (PSU, det. as *M. parietinus*), Kutaiskiy Distr., Bardedi, 10.04.1938, M. S. Mheidze.

**Distribution.** The Mediterranean species restricted in the east by the Caucasus (Fig. 6). No records from Middle Asia (see Introduction).

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About 125 km long and 80 km broad, the Šumava Mountains (Bohemian Forest), form an important part of the Czech border mountain system. Rising up 1,000 m, the edges of the Šumava Mts. lie on both sides of the Czech-German and Czech-Austrian borders. The tops of the highest peaks rise as much as 300 m and more above the flat mountain plateau.

Extensive primeval forests on mountain slopes and numerous great peatbogs on flat plateaus, gentle slopes and valleys form the main part of the Šumava National Park. Rokytská slat' is a part of Modravské Slati Natural Monument, a complex of numerous peat bogs in the spring area of Vydra river. It lies at an altitude of about 1,100 m, and is 195 ha in area. The annual average temperature is 3.45 °C, the average temperature in January is -4.7 °C, in July 12.2 °C. The annual precipitation amounts 1,486 mm, the snow cover persist on the average for 140 days (Dohnal *et al.* 1965). Dwarf pine (*Pinus mugo*) grows in the flat upper part of peat bogs, the area is full of small lakes, small shrubs (*Vaccinium uliginosum*, *Empetrum hermaphroditum*, *Vaccinium vitis-idaea*, *Vaccinium myrtillus*, *Oxycoccus quadripetalus*, *Andromeda polifolia*) are present, other vegetation is formed by *Eriophorum vaginatum*, *Drosera rotundifolia*, *Scheuchzeria palustris*, *Carex* spp. and *Sphagnum* spp. In the lower part, in terrain depressions along the Rokytka brook, numerous dwarf spruces are present (Fig. 1).

## METHODS

The material was collected using large desk pitfall traps made of rigid plastic, about 13 cm high and 10.5 cm in diameter. The traps contained a mixture of 7 % formalin and 10 % glycerol plus a few drops of detergent (Růžička 1982, 1988). These were positioned within of spruce canopy among dense branches. A piece of cloth was connected with a desk and spread on the branches, to enlarge the trap's surface. Three traps were positioned on the ground under the lowest branches (i.e. the desk was 13 cm above soil surface), nine traps were positioned in the canopy at least 1 m above ground; three traps in dry, dead spruces, whose branches were overgrown with lichens, six traps in living spruces.

## RESULTS AND DISCUSSION

A total of 233 spider individuals belonging to 44 species were collected (Tab. 1). The catch in living spruces was more numerous than that in dry spruces. The catch in near ground pitfalls was higher and more rich in species than that in traps situated high in the canopy. 14 species were collected exclusively by beating (all species of families Araneidae, Theridiidae, and e.g. *Metellina segmentata* and *Heliophanus dampfi*), 22 species were collected exclusively by pitfall traps, 8 species only were collected by both methods used. These facts document repeatedly great differences in species composition of material collected by different methods (Clausen 1987).

Tab. 1. Survey of material. M/F.

	pitfall traps		beeting
	near ground	above ground	
<b>Theridiidae</b>			
<i>Achaearanea ohlerti</i> (Thorell, 1870)	-	-	2/7
<i>Theridion sisypium</i> (Clerck, 1757)	-	-	-/1
<i>Theridion varians</i> Hahn, 1833	-	-	-/1
<b>Linyphiidae</b>			
<i>Agyneta conigera</i> (O. P.-Cambridge, 1863)	1/2	4/-	2/7
<i>Bolyphantes alticeps</i> (Sundevall, 1833)	-/3	-	-
<i>Centromerus arcanus</i> (O. P.-Cambridge, 1873)	1/-	-	-
<i>Centromerus sylvaticus</i> (Blackwall, 1841)	1/-	-	-
<i>Ceratinella brevis</i> (Wider, 1834)	5/8	1/2	1/-
<i>Dismodicus elevatus</i> (C. L. Koch, 1838)	-	-	-/1
<i>Drapetisca socialis</i> (Sundevall, 1833)	-	1/2	-
<i>Entelecara congenera</i> (O. P.-Cambridge, 1879)	-	1/-	-/1
<i>Erigone arta</i> Blackwall, 1833	-	-/1	-
<i>Erigone dentipalpis</i> (Wider, 1834)	-	-	-
<i>Gongylidiellum vivum</i> (O. P.-Cambridge, 1875)	-	-	1/-
<i>Hilaira tatraica</i> Kulczyński, 1915	-/1	-	-
<i>Lepthyphantes alacris</i> (Blackwall, 1853)	2/-	-	-
<i>Lepthyphantes cristatus</i> (Menge, 1866)	1/-	-	-
<i>Lepthyphantes mengei</i> Kulczyński, 1887	-	1/-	-/1
<i>Lepthyphantes obscurus</i> (Blackwall, 1841)	3/2	2/-	4/2
<i>Maso sundevalli</i> (Westring, 1851)	-/1	-	-
<i>Moebelia penicillata</i> (Westring, 1851)	1/-	-	-
<i>Neriere clathrata</i> (Sundevall, 1830)	1/-	-	-
<i>Neriere emphana</i> (Walckenaer, 1841)	-	-	-/1
<i>Pityohyphantes phrygianus</i> (C. L. Koch, 1836)	-/1	-/1	-/3
<i>Walckenaeria antica</i> (Wider, 1834)	1/1	-	-
<i>Walckenaeria nudipalpis</i> (Westring, 1851)	1/-	-	-
<b>Tetragnathidae</b>			
<i>Metellina segmentata</i> (Clerck, 1757)	-	-	-/1
<b>Araneidae</b>			
<i>Araneus diadematus</i> Clerck, 1757	-	-	-/1
<i>Larinioides patagiatus</i> (Clerck, 1757)	-	-	1/5
<i>Zilla diodia</i> (Walckenaer, 1802)	-	-	2/-
<b>Lycosidae</b>			
<i>Pardosa prativaga</i> (L. Koch, 1870)	13/1	-	-
<i>Trochosa spinipalpis</i> (F. O. P.-Cambridge, 1895)	2/-	-	-
<b>Hahniide</b>			
<i>Cryphoeca silvicola</i> (C. L. Koch, 1834)	33/5	36/3	-/6
<i>Hahnia pusilla</i> C. L. Koch, 1841	-	-	-/1
<b>Clubionidae</b>			
<i>Clubiona comta</i> C. L. Koch, 1839	-	-	-/1

Tab. 1 cont.

	pitfall traps		beeting
	near ground	above ground	
<i>Clubiona kulczynskii</i> Lessert, 1905	-/1	-	-
<i>Clubiona norvegica</i> Strand, 1900	1/3	2/1	-
<i>Clubiona trivialis</i> C. L. Koch, 1843	1/-	1/2	3/6
<b>Gnaphosidae</b>			
<i>Gnaphosa badia</i> (L. Koch, 1866)	-/1	-/1	-
<i>Haplodrassus signifer</i> (C. L. Koch, 1839)	-/1	-	-
<i>Micaria aenea</i> Thorell, 1871	-/1	-	-
<i>Zelotes latreillei</i> (Simon, 1878)	1/-	-	-
<b>Zoridae</b>			
<i>Zora nemoralis</i> (Blackwall, 1861)	1/-	-	-
<b>Salticidae</b>			
<i>Heliophanus dampfi</i> Schenkel, 1923	-	-	-/6
<b>Total number of specimens</b>	<b>102</b>	<b>62</b>	<b>69</b>
<b>Total number of species</b>	<b>26</b>	<b>12</b>	<b>22</b>

Tab. 2. Dominant species of needle trees in peat bogs in the Šumava Mountains. Rokytská Slat', 1,100 m a.s.l., Norway spruce, pitfall traps, 2. dtto, beeting, 3. Zhůrská Slat', 1,130 m, dwarf pine, beeting (Kůrka 1995b), 4. and 5. Mrtvý Luh, 740 m, dwarf pine, beeting on two localities (Kůrka 1990). The species with dominance reaching at least at one locality 4 % are given. + means less than 1 %. *Pardosa prativaga* as common epigeic species is not included.

	1	2	3	4	5
<i>Clubiona norvegica</i> Strand, 1900	4	-	-	-	-
<i>Ceratinella brevis</i> (Wider, 1834)	10	1	-	-	-
<i>Cryphoeca silvicola</i> (C. L. Koch, 1834)	47	9	-	-	-
<i>Agyneta conigera</i> (O. P.-Cambridge, 1863)	4	13	+	-	-
<i>Lepthyphartes obscurus</i> (Blackwall, 1841)	4	9	+	-	-
<i>Larinioides patagiatus</i> (Clerck, 1757)	-	9	-	-	-
<i>Achaearana ohlerti</i> (Thorell, 1870)	-	13	33	-	-
<i>Clubiona trivialis</i> C. L. Koch, 1853	2	13	7	17	46
<i>Entelecara congenera</i> (O. P.-Cambridge, 1879)	1	1	-	19	-
<i>Heliophanus dampfi</i> Schenkel, 1923	-	9	+	-	-
<i>Dismodicus elevatus</i> (C. L. Koch, 1838)	-	1	48	-	-
<i>Theridion varians</i> Hahn, 1833	-	1	+	22	10
<i>Dictyna arundinacea</i> (Linné, 1758)	-	-	-	6	6
<i>Xysticus audax</i> (Schrank, 1803)	-	-	+	4	4
<i>Dendryphantus rudis</i> (Sundevall, 1832)	-	-	-	3	5
<i>Dictyna pusilla</i> Thorell, 1856	-	-	-	6	8

*Cryphoeca silvicola*, *Ceratinella brevis*, *Agyneta conigera*, and *Clubiona norvegica* proved to be the most frequent spider species in canopies of dwarf Norway spruces (they were collected in at least four traps). All these species were found both in near ground and higher pitfalls.

*Cryphoeca silvicola*, *Ceratinella brevis*, *Agyneta conigera*, *Lepthyphantes obscurus* and *Clubiona trivialis* proved to be the most numerous, *Achaearanea ohlerti* and *Clubiona norvegica* were also numerous.

*Pardosa prativaga* was found exclusively in near ground traps. One specimen of *Gnaphosa badia* was collected at the height of 140 cm.

*Achaearanea ohlerti* and *Clubiona trivialis* were collected by beating predominantly in the canopies of dry spruces, *Heliophanus dampfi* was collected by beating of predominantly living spruces.

*Cryphoeca silvicola* is a typical inhabitant of Norway spruce trunks at an altitude of 1,100 m in the Bavarian Forest National Park (Weiss 1995).

Kůrka (1990, 1995b) obtained spider material by beating canopies of dwarf pines (*Pinus mugo*) on two peat bogs in the Šumava Mts. (Tab. 2). *Clubiona trivialis* only one species was found numerously on Rokytická Slat' peat bog and at these two comparative localities. *Theridion varians* and *Entelecara congenera* are characteristic species of dwarf pine in Mrtvý Luh peat bog. *Dismodicus elevatus* and *Achaearanea ohlerti* are characteristic for dwarf pine in Zhůrská Slat' peat bog. *Cryphoeca silvicola*, *Ceratinella brevis* and *Clubiona norvegica* had not been collected on dwarf pines in these localities.

*Clubiona norvegica*, *Gnaphosa badia*, *Micaria aenaea* and *Achaearanea ohlerti* occur in the Czech Republic exclusively in peat bogs in the Šumava Mts., lying at an altitude more than 1,000 m. These peat bogs represent severe semi-open wetland country, with sporadic dwarf needle trees. *Achaearanea ohlerti* lives on tree branches, *Clubiona norvegica* was collected in most cases also on trees, *Gnaphosa badia* lives both arboreal and epigeic, *Micaria aenaea* is epigeic species (Buchar 1989; Kůrka 1995a).

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