

A contribution to the knowledge of the spider fauna of the wider Haloze region (northeast Slovenia)

Rok KOSTANJŠEK

Department of Biology, Biotechnical Faculty, University of Ljubljana, Večna pot 111, SI-1000 Ljubljana, Slovenia. E-mail: rok.kostanjsek@bf.uni-lj.si

Abstract. A list of spider species collected in the wider Haloze region during the summer of 2002 is given. Altogether, 76 species belonging to 54 genera and 22 families were recorded at 43 localities, representing the first comprehensive spider list of Haloze. *Dipoena braccata* (Theridiidae) and *Scotophaeus scutulatus* (Ganphosidae) are new records for the Slovenian fauna. In addition, the water spider (*Argyroneta aquatica*), a vulnerable species in Slovenia, was found in one of the Drava River branches.

Keywords: spiders, Araneae, Slovenia, faunistics

Izveček. PRISPEVEK K POZNAVANJU FAVNE PAJKOV ŠIRŠEGA OBMOČJA HALOZ (SEVEROVZHODNA SLOVENIJA) - Predstavljen je seznam pajkov, nabranih poleti 2002 na širšem območju Haloz. Skupaj je bilo nabranih 76 vrst pajkov, pripadajočih 54 rodovom in 22 družinam, kar je tudi prvi detajlni seznam vrst pajkov Haloz. Vrsti *Dipoena braccata* (Theridiidae) in *Scotophaeus scutulatus* (Ganphosidae) sta bili prvič zabeleženi na ozemlju Slovenije. Poleg tega je bila v rokavu reke Drave najdena vrsta vodnega pajka *Argyroneta aquatica*, ki ima v Sloveniji status ranljive vrste.

Ključne besede: pajki, Araneae, Slovenija, favnistika

Introduction

North-eastern Slovenia is one of the least known regions as far as the spider fauna of Slovenia is concerned. Comprehensive data on spiders in the region consists of records from Kozjansko (Kuntner 1996, Kuntner & Baxter 1997) and southern Slovenske Gorice with the Drava valley around Središče (Kuntner 1999, Kuntner & Šereg 2002), but more opportunistic records are the species listed at a single locality near Ljutomer (Polenec 1974) and a record of the cave spider *Troglohyphantes thaleri* by Miller & Polenec (1975).

Haloze is an intensively cultivated area south of the Drava and Dravinja rivers. It reaches the hills of Boč, Donačka gora and Macelj in the south and stretches from the Croatian border in the east to south of Makole in the west. A spider species list of Haloze has not been available so far, except for the records of *Mendoza canestrinii* from Ptujsko jezero (Fišer & Kostanjšek 2001) and of four common species near Kidričevo (Vogrin 2002). The present study therefore provides the first comprehensive data on the spider fauna of Haloze.

Materials and methods

Spiders were collected during the summer of 2002 at 43 localities (see List of localities) by hand, sweep net, pitfall traps with ethylene glycol leaf litter sifting, and were fixed in 70 % ethanol. Various keys (Roberts 1993a, b, 1995, Nentwig et al. 2003) were used for species identification.

List of localities

The list of localities contains a short description of the collecting site, Gauss-Krüger coordinates, UTM square, altitude and date of the collection. Unless stated otherwise, all collections were made by the author and Tjaša Lokovšek.

1. meadow, N from the Church of St. Bolfenk near Majšperk, Haloze; coordinates: x: 130495, y: 558315; UTM: WM53; altitude 480 m; 10.7.2002
2. chapel, S from the Church of St. Bolfenk near Majšperk, Haloze; coordinates: x: 130214, y: 558182; UTM: WM53; altitude 520 m; 10.7.2002
3. vegetation along the road between the Church of St. Bolfenk and the village of Dol pri Stopercah, Haloze; coordinates: x: 129398, y: 557626; UTM: WM52; altitude 500 m; 10.7.2002
4. meadow, W from the village of Travni potok near Stoperce, Haloze; coordinates: x: 126611, y: 555943; UTM: WM52; altitude 300 m; 10.7.2002
5. damp meadow, W from Čret homestead near Žetale village, Haloze; coordinates: x: 125570, y: 562354; UTM: WM62; altitude 320 m.; 10.7.2002
6. meadow along the road, NW from Zgornje Ravno village, Haloze; coordinates: x: 128010, y: 563331; UTM: WM62; altitude 300 m; 10.7.2002
7. forest near the road between the villages of Cirkulane and Gradišča, Haloze; coordinates: x: 135024, y: 575938; UTM: WM73; altitude 240 m; 11.7.2002

8. meadow, W from Cirkulane village, Haloze; coordinates: x: 133861, y: 576589; UTM: WM73; altitude 210 m; 11.7.2002
9. meadow along the road, SW from the Church of St. Mohor, Korenjak region, Haloze; coordinates: x: 133683, y: 580984; UTM: WM83; altitude 260 m; 11.7.2002
10. meadow W from the road, SWW from the Church of St. Mohor, Korenjak region, Haloze; coordinates: x: 134305, y: 581055; UTM: WM83; altitude 300 m; 11.7.2002
11. vegetation in the gutter along the road, SWW from the Church of St. Mohor, Korenjak region, Haloze; coordinates: x: 134460, y: 581064; UTM: WM83; altitude 300 m; 11.7.2002
12. the Psičina stream, SW from Lah homestead, Velika Varnica region, Haloze; coordinates: x: 128297, y: 572047; UTM: WM72; altitude 260 m; 12.7.2002
13. meadow, SW from Lah homestead, Velika Varnica region, Haloze; coordinates: x: 128272, y: 572042; UTM: WM72; altitude 260 m; 12.7.2002
14. forest, SSW from Lah homestead, Velika Varnica region, Haloze; coordinates: x: 128205, y: 572094; UTM: WM72; altitude 280 m; 12.7.2002
15. meadow, SW from Johan homestead, Gruškovje region, Haloze; coordinates: x: 129467, y: 570725; UTM: WM72; altitude 280 m; 12.7.2002
16. meadow near the road, N from Šumek homestead, Gruškovje region, Haloze; coordinates: x: 128974, y: 569925; UTM: WM62; altitude 320 m; 12.7.2002
17. forest: 1500 m NNW from the Soviče village in Haloze; coordinates: x: 135407, y: 572355; UTM: WM73; altitude 260 m; 12.7.2002
18. meadow with goldenrods, SE from the beginning of Šturmovci Nature Park, Šturmovci near Ptuj; coordinates: x: 137535, y: 572480; UTM: WM73; altitude 220 m; 13.7.2002
19. meadow; SE from the beginning of Šturmovci Nature Park, Šturmovci near Ptuj; coordinates: x: 137799, y: 572173; UTM: WM73; altitude 220 m; 13.7.2002
20. swampy forest, SE from the beginning of Šturmovci Nature Park; coordinates: x: 137991, y: 571470; UTM: WM73; altitude 220 m; 13.7.2002
21. arid meadow, SE from the beginning of Šturmovci Nature Park; coordinates: x: 137993, y: 571574; UTM: WM73; altitude 220 m; 13.7.2002
22. right bank of the Drava river, downstream from Lake Ptuj; coordinates: x: 138503, y: 571733; UTM: WM73; altitude 210 m; 13.7.2002
23. S bank of the pond, W from the village of Videm pri Ptuj; coordinates: x: 136597, y: 567589; UTM: WM63; altitude 210 m; 13.7.2002
24. forest, ridge E from the summit of Donačka gora; coordinates: x: 124606, y: 557828; UTM: WM52; altitude 870 m; 14.7.2002
25. forest, W slope of Donačka gora, E from Polajžar homestead; coordinates: x: 124681, y: 557313; UTM: WM52; altitude 720 m; 14.7.2002
26. Belojača cave S of Makole village near Ptuj; coordinates: x: 128506, y: 550837; UTM: WM52; altitude 350 m; 16.7.2002
27. forest SSW from Preša village S of Majšperk; coordinates: x: 131224, y: 555776; UTM: WM53; altitude 300 m; 16.7.2002
28. vegetation near the Skralska stream, NW from the Gaj homestead, S of Majšperk; coordinates: x: 131270, y: 555776; UTM: WM53; altitude 270 m; 16.7.2002

29. abandoned house Videm 52, Videm Pri Ptujju; coordinates: x: 136480, y: 569863; UTM: WM63; altitude 220 m; 16.7.2002
30. meadow, N of Strmec homestead, Kočice region in Haloze; coordinates: x: 128122, y: 560161; UTM: WM62; altitude 350 m; 17.7.2002
31. Church of St. Mary in Žetale village, Haloze; coordinates: x: 125593, y: 560879; UTM: WM62; altitude 385 m; 17.7.2002
32. quarry, E of Podpeč near Žetale village, Haloze; coordinates: x: 126476, y: 562671; UTM: WM62; altitude 320 m; 17.7.2002
33. meadow, S of Vinarje homestead, Kočice region, Haloze; coordinates: x: 128956, y: 560812; UTM: WM62; altitude 310 m; 17.7.2002
34. meadow, S of the Church of St. Mary in Žetale village, Haloze; coordinates: x: 125520, y: 560801; UTM: WM62; altitude 370 m; 16.7.2002
35. Borl Castle, N of Dolane village, Haloze; coordinates: x: 137209, y: 577516; UTM: WM73; altitude 250 m ; 16.7.2002; collected by Urška Ferletič
36. stone wall covered with poison ivy, N of Borl Castle, near Dolane village in Haloze; coordinates: x: 137342, y: 557556; UTM: WM73; altitude 220 m; 15.7.2002; collected by Urška Ferletič
37. church in Cirkulane village, Haloze; coordinates: x: 134032, y: 576988; UTM: WM73; altitude 222 m; 14.7.2002; collected by Primož Presetnik
38. St. Ann's chapel, W of Stoperce village S of Majšperk; coordinates: x: 127850, y:554131; UTM: WM52; altitude 460 m; 15.7.2002; collected by Primož Presetnik
39. branch of the Drava river, NE from the Dravinja river tributary; coordinates: x: 136650, y: 5733181; UTM: WM73; altitude 200 m; 14.7.2002; collected by Maja Cipot
40. meadow, NW of Lašič homestead at Stanovno, N of Ormož; coordinates: x: 147464, y: 587755; UTM: WM84; altitude 240 m; August 2002; collected by Mojca Gorjak
41. vegetation along the pond, NW of Lašič homestead at Stanovno, N of Ormož; coordinates: x: 147471, y: 587799; UTM: WM84; altitude 240 m; August 2002; collected by Mojca Gorjak
42. forest, SE of Pongrašič homestead at Stanovno, N of Ormož; coordinates: x: 148253, y: 587156; UTM: WM84; altitude 280 m; August 2002; collected by Mojca Gorjak
43. slope along the road, SE of Stanovščak homestead, Ivanjkovci, N of Ormož; coordinates: x: 147172, y: 588530; UTM: WM84; altitude 280 m; August 2002; collected by Mojca Gorjak

Results and discussion

76 species belonging to 54 genera and 22 families were recorded at 43 localities of the wider Haloze region (Tab. 1). Two species, *Dipoena braccata* and *Scotophaeus scutulatus*, are new for the Slovenian spider fauna, and are briefly discussed below.

Table 1: List of spider species collected in the wider Haloze region. For each species, the number (see List of localities) is given, followed by the number of collected individuals in parentheses: number of males, females and immature spiders, respectively. Species marked with asterisk are new records for Slovenia. Systematics and nomenclature followed Platnick (2005).

Tabela 1: Seznam vrst pajkov, nabranih na širšem območju Haloz. Za vsako nabrano vrsto so navedene številke lokalitet (glej poglavje Seznam lokalitet), ki jim v oklepaju po vrsti sledi število nabranih samcev, samic in neodraslih osebkov. Vrste, označene z zvezdico, so novi podatki za Slovenijo. Sistematika in nomenklatura sta povzeti po Platnicku (2005).

Family and Species	Localities and number of individuals
Agelenidae	
<i>Agelena gracilens</i> C.L. Koch, 1841	40(1,0,0), 41(1,0,0), 43(3,0,0)
<i>Agelena labyrinthica</i> (Clerck, 1757)	5(0,1,0), 9(0,3,0), 7(0,1,0), 20(0,1,0), 30(0,3,0), 40(0,1,0), 43(3,1,0)
<i>Histoipona torpida</i> (C.L. Koch, 1834)	7(0,1,0), 14(0,3,0), 26(0,1,0)
<i>Tegenaria domestica</i> (Clerck, 1757)	40(0,1,0)
<i>Tegenaria ferruginea</i> (Panzer, 1804)	7(0,1,0), 26(0,1,0), 32(0,1,0), 40(0,1,0)
<i>Tegenaria parietina</i> (Fourcroy, 1785)	37(0,1,0), 40(0,1,0)
<i>Tegenaria silvestris</i> L.Koch, 1872	17(0,1,0)
Amaurobiidae	
<i>Amaurobius jugorum</i> L. Koch, 1868	27(0,1,0)
Araneidae	
<i>Araniella cucurbitina</i> (Clerck, 1757)	3(0,1,0), 17(0,1,0), 41(0,1,0)
<i>Araneus angulatus</i> Clerck, 1757	35(0,1,0)
<i>Araneus marmoreus</i> Clerck, 1757	15(1,0,0)
<i>Araneus diadematus</i> Clerck, 1757	10(0,1,0), 41(0,1,0), 42(0,2,1)
<i>Argiope bruennichi</i> (Scopoli, 1772)	8(1,0,0), 10(2,0,0), 11(0,1,0), 18(1,0,0), 19(1,0,0), 30(1,0,0)
<i>Cyclosa conica</i> (Pallas, 1772)	7(0,1,0)
<i>Hypososinga pygmaea</i> (Sundevall, 1831)	22(0,1,0)
<i>Larinioides cornutus</i> (Clerck, 1757)	23(2,2,0), 41(0,3,0)
<i>Mangora acalypha</i> (Walckenaer, 1802)	12(0,1,0), 21(0,1,0), 32(0,1,0)
<i>Zygiella thorelli</i> (Ausserer, 1871)	40(0,3,0)
Atypidae	
<i>Atypus affinis</i> Eichwald, 1830	13(0,1,0)
Clubionidae	
<i>Clubiona pallidula</i> (Clerck, 1757)	36(0,1,0)
Cybaeidae	
<i>Argyroneta aquatica</i> (Clerck, 1757)	39(0,1,0)
<i>Cybaeus tetricus</i> (C.L. Koch, 1839)	17(0,1,0), 26(0,1,0)
Dysderidae	
<i>Dysdera erythrina</i> (Walckenaer, 1802)	33(0,1,0)
<i>Harpactea rubicunda</i> (C. L. Koch, 1838)	40(0,1,0)
Dyctinidae	
<i>Nigma</i> sp.	40(0,0,2)
Gnaphosidae	
<i>Drassodes lapidosus</i> (Walckenaer, 1802)	16(0,1,0)
<i>Scotophaeus scutulatus</i> (L. Koch, 1866)	* 40(0,1,0)
Linyphiidae	
<i>Hylyphantes nigrinus</i> (Simon, 1881)	10(0,1,0)
<i>Linyphia hortensis</i> Sundevall, 1830	15(0,1,0), 28(0,1,0)
<i>Linyphia triangularis</i> (Clerck, 1757)	40(1,0,0), 42(1,0,0), 43(2,0,0)
<i>Melioneta rurestris</i> (C.L. Koch, 1836)	22(0,1,0)
<i>Neriene emphana</i> (Walckenaer, 1841)	25(0,1,0)
<i>Oedothorax appicatus</i> (Blackwall, 1850)	15(1,0,0)
<i>Tenuiphantes tenebricola</i> (Wider, 1834)	26(2,0,0)
<i>Tenuiphantes zimmermanni</i> (Bertkau, 1890)	24(0,3,0)
<i>Trichoncus hackmani</i> Millidge, 1953	27(0,1,0)
Lycosidae	
<i>Arctosa maculata</i> (Hahn, 1822)	22(0,1,0)

Family and Species	Localities and number of individuals
<i>Hogna radiata</i> (Latreille, 1819)	34(0,1,0), 40(0,4,0)
<i>Pardosa amentata</i> (Clerck, 1757)	22(0,1,0), 23(0,1,0)
<i>Pardosa lugubris</i> (Walckenaer, 1802)	3(0,1,0), 18(0,1,0), 27(1,2,0), 31(0,1,0), 32(0,2,0)
<i>Pardosa palustris</i> (Linnaeus, 1758)	32(0,2,0)
<i>Pirata knorri</i> (Scopoli, 1763)	22(2,0,0)
<i>Trochosa terricola</i> (Thorell, 1856)	27(0,1,3), 38(0,1,0), 40(0,1,0)
Miturgidae	
<i>Cheiracanthium punctorium</i> (Villers, 1789)	5(1,0,0), 18(4,1,0), 19(1,0,0)
Nesticidae	
<i>Nesticus cellulanus</i> (Clerck, 1757)	26(1,0,0), 32(0,1,0)
Philodromidae	
<i>Philodromus cespitum</i> (Walckenaer, 1802)	40(0,1,0)
Pholcidae	
<i>Pholcus opilionoides</i> (Schrank, 1781)	22(0,1,0)
<i>Pholcus phalangoides</i> (Fuesslin, 1775)	29(1,0,0)
Pisauridae	
<i>Pisaura mirabilis</i> (Clerck, 1757)	3(0,1,0), 32(0,1,0)
Salticidae	
<i>Evarcha arcuata</i> (Clerck, 1757)	1(0,1,0), 3(1,0,0), 4(2,1,0), 9(3,2,0), 10(2,1,0), 12(1,0,0), 13(0,1,0), 18(2,0,0), 30(1,0,0), 40(0,1,0), 42(0,1,0), 43(0,1,0)
<i>Evarcha falcata</i> (Clerck, 1757)	6(2,0,1), 30(1,0,0), 43(0,1,0)
<i>Heliophanus</i> sp.	1(0,0,1)
<i>Heliophanus cupreus</i> (Walckenaer, 1802)	3(2,0,0), 42(0,1,0), 43(0,1,0)
<i>Heliophanus flavipes</i> (Hahn, 1832)	4(0,1,0), 10(0,1,0), 30(0,1,0)
<i>Neon reticulatus</i> (Blackwall, 1853)	17(0,1,1), 27(0,1,0)
Sparassidae	
<i>Micrommata virescens</i> (Clerck, 1757)	4(0,1,1)
Segestriidae	
<i>Segestria senoculata</i> (Linnaeus, 1758)	17(0,1,1), 27(0,1,0)
Tetragnathidae	
<i>Metellina merianae</i> (Scopoli, 1763)	26(0,1,0)
<i>Metellina mendei</i> (Blackwall, 1870)	31(0,1,0)
<i>Tetragnatha extensa</i> (Linnaeus, 1758)	18(1,1,0), 22(2,0,0), 23(0,1,0)
<i>Tetragnatha montana</i> Simon, 1874	12(0,1,0), 18(0,1,0), 19(2,1,0), 22(5,0,0), 23(2,1,0)
<i>Tetragnatha pinicola</i> L. Koch, 1870	9(0,1,0), 11(0,2,0)
Theridiidae	
<i>Achaearanea tepidariorum</i> (C. L. Koch, 1841)	12(0,1,0), 22(0,1,0), 37(0,1,0), 40(1,7,0)
<i>Dipoena braccata</i> (C. L. Koch, 1841) *	10(1,0,0)
<i>Enoplognatha latimana</i> Hippa & Oksala, 1982	10(1,0,0)
<i>Enoplognatha ovata</i> (Clerck, 1757)	3(1,2,0), 6(0,1,0), 9(0,2,0), 12(0,1,0), 13(0,3,0), 15(0,2,0), 32(1,0,0), 40(0,1,0), 43(1,3,0)
<i>Steatoda bipunctata</i> (Linnaeus, 1758)	31(0,2,0), 40(1,1,0)
<i>Theridion betteni</i> Wiehle, 1960	2(0,2,0), 32(0,1,0)
Thomisidae	
<i>Misumena vatia</i> (Clerck, 1757)	4(0,2,0), 5(1,1,0), 13(1,0,0), 15(1,0,0), 16(0,1,0), 31(1,0,0), 40(0,1,0), 41(0,1,0)
<i>Misumenops tricuspidatus</i> (Fabricius, 1775)	9(1,0,0)
<i>Synaema globosum</i> (Fabricius, 1775)	40(0,1,0)
<i>Xysticus bifasciatus</i> C.L. Koch, 1837	6(0,1,0)
<i>Xysticus kochi</i> Thorell, 1872	6(0,1,0), 16(0,1,0)
<i>Xysticus ulmi</i> (Hahn, 1831)	41(0,1,0)
<i>Xysticus sabulosus</i> (Hahn, 1832)	40(0,1,0)
<i>Xysticus cristatus</i> (Clerck, 1757)	5(1,0,0)

Diplocephalus braccata (C.L. Koch, 1841) is distributed in Europe and in the Mediterranean (Platnick, 2005). According to Nentwig et al. (2003), the species inhabits warmer habitats and is rarely found. However, it has been recorded throughout Europe (Blick et al. 2004), including countries adjacent to Slovenia: Italy (Stoch 2003), Austria (Knoflach & Thaler 1998) and Hungary (Samu & Szinetár 1999). In the territory of the former Yugoslavia, the species has been recorded in Croatia (Nikolić & Polenec 1981) and Serbia (Deltshev et al. 2003).

Scotophaeus scutulatus (L. Koch, 1866) is distributed in Europe and Algeria (Platnick 2005). The species is commonly synanthropic and rare in natural habitats (Nentwig et al. 2003). It has been recorded in Northern and Central Europe (Blick et al. 2004), Italy (Stoch 2003), Austria (Knoflach 2004), Hungary (Samu & Szinetár 1999). In the territory of the former Yugoslavia, the species has been recorded in Croatia (Nikolić & Polenec 1981, Deltshev et al. 2003).

Argyroneta aquatica (Clerck, 1757), commonly known as the water spider, was found in a branch of the Drava River. *Argyroneta aquatica* is the only European spider adapted to spend most of its life underwater. Due to its dependence on standing waters, which have become endangered due to various human activities, and its apparent rarity, Kuntner (2001) proposed the species to be classified as vulnerable (IUCN status: V), and the Red data list of Slovenian spiders (Ur. l. RS MP 82/02: 8893-8975) lists it as such.

Although intensive cultivation considerably influences the environment in the area, humid meadows, areas in vicinity of the water sources, dry grasslands on the southern exposed slopes as well as fragments of mixed and deciduous forests are the habitats with seemingly higher abundances of spiders in the region. The results of the present study support further research of the spider fauna in Haloze, which would provide useful background for the regional conservation efforts, like Šturmovci Nature Park, and improve our scarce knowledge of the Slovenian spider fauna.

Povzetek

Favna pajkov severovzhodne Slovenije sodi med slabše raziskane v državi. Dosedanje raziskave pajkov v tem delu Slovenije so omejene na področje Kozjanskega (Kuntner 1996), Slovenskih Goric (Kuntner 1999, Kuntner & Šereg 2002) in na posamezne najdbe pajkov (Polenec 1974, Miller & Polenec 1975, Fišer & Kostanjšek 2001), medtem ko o pajkih Haloze ni podatkov.

Da bi dobili čim več podatkov o favni pajkov širšega območja Haloze, smo poleti 2002 vzorčili pajke na 43 lokalitetah. Skupaj je bilo nabranih 76 vrst, pripadajočih 54 rodovom in 22 družinam. Med nabranimi primerki sta bili vrsti *Dipoena braccata* (Theridiidae) in *Scotophaeus scutulatus* (Ganphosidae) prvič zabeleženi na ozemlju Slovenije. Poleg tega je bila v rokavu reke Drave najdena vrsta vodnega pajka *Argyroneta aquatica*, ki ima zaradi svoje redkosti ter splošne ogroženosti vodnih habitatov (Kuntner 2001) v Rdečem seznamu ogroženih vrst v Sloveniji (Ur. l. RS MP 82/02: 8893-8975) status ranljive vrste (IUCN: V).

Acknowledgements

I would like to thank Tjaša Lokovšek for her extensive help during the collecting and determination of spiders. Thanks go to Milan Režič and Jeremy Miller for their help with some problematic determinations of Dysderidae and Theridiidae. I am also grateful to Ali Šalamun and his colleagues at CKFF for database support, and to Matjaž Kuntner for the confirmation of determinations and constructive remarks on the manuscript.

Literature

- Blick T., Bosmans R., Buchar J., Gajdoš P., Hänggi A., Van Helsdingen P., Ružicka V., Starega W., Thaler K. (2004): Checkliste der Spinnen Mitteleuropas. Checklist of the spiders of Central Europe. (Arachnida: Araneae). Version 1, December 2004. On: http://www.arages.de/checklist.html#2004_Araneae.
- Deltshev C.C., Čurčić B.M.P., Blagoev G.A. (2003): The spiders of Serbia – Monographs volume VII. Institute of Zoology, Faculty of Biology, University of Belgrade, Belgrade 832 pp.
- Gams I., Višer I. (Eds.) (1998): Geografija Slovenije. Slovenska Matica, Ljubljana, 501 pp.
- Fišer C., Kostanjšek R. (2001): Prispevek k poznavanju favne pajkov skakačev v Sloveniji (Araneae, Salticidae). *Natura Sloveniae*, Ljubljana 3(2): 33-40.
- Knoflach B., Thaler K. (1998): Kugelspinnen und verwandte Familien von Österreich: Ökofaunistische Übersicht (Araneae: Theridiidae, Anapidae, Mysmenidae, Nesticidae). *Stapfia* 55: 667-712.
- Kuntner M. (1996): Prispevek k poznavanju favne pajkov Kozjanskega, vzhodna Slovenija (Arachnida: Araneae). In: Bedjanič M. (Ed.), Raziskovalni tabor študentov biologije Kozje '95. Zveza organizacij za tehnično kulturo Slovenije, Gibanje Znanost mladini, Ljubljana, pp. 49-60.
- Kuntner M. (1999): Prispevek k poznavanju favnistike in ekologije pajkov severovzhodne Slovenije (Arachnida: Araneae). *Natura Sloveniae* 1(1): 29-44.
- Kuntner M. (2001): Pajki (Araneae). In: Hlad B. et al. (Eds.), Pregled stanja biotske raznovrstnosti in krajinske pestrosti v Sloveniji. Ministrstvo za okolje in prostor Republike Slovenije, Agencija RS za okolje, Ljubljana, pp. 73-74.

- Kuntner M., Baxter I.H. (1997): A Preliminary investigation of spider species richness in an eastern Slovenian broadleaf forest. In: Zabka M. (Ed.), Proceedings of the 16th European Colloquium of Arachnology. Wydawnictwo Wyższej Szkoły Rolniczo-Pedagogicznej, Siedlce, pp. 173-182.
- Kuntner M., Šereg I. (2002): Additions to the spider fauna of Slovenia, with a comparison of spider species richness among European countries. *Bull. Br. arachnol. Soc.* 12(4): 185-195.
- Miller F., Polenec A. (1975): Neue Troglolyphanten-Arten aus Slowenien (Araneae, Linyphiidae). *Acta Ent. Bohemoslov.* 72: 55-61.
- Nentwig W., Hänggi A., Kropf C., Blick T. (2003): Spinnen Mitteleuropas - Bestimmungsschlüssel. Version 08.12.2003. On: <http://www.araneae.unibe.ch/index.html>.
- Nikolić F. Polenec A. (1981): Aranea. Catalogus Faunae Jugoslaviae III/4. SAZU Ljubljana, 135 pp.
- Platnick N.I. (2005): The World Spider Catalog, Version 5.5. The American Museum of Natural History. On: <http://research.amnh.org/entomology/spiders/catalog/>.
- Polenec A. (1974): Ekološko favnistična raziskovanja arahnidske favne v Slovenskih Goricah v združbi Querceto-Carpinetum subpanonicum. *Biološki vestnik* 22(2): 235-240.
- Roberts M.J. (1993a): Spiders of Great Britain and Ireland, (Part 1), Harley Books, Chelchester, 229 pp.
- Roberts M.J. (1993b): Spiders of Great Britain and Ireland, (Part 2), Harley Books, Chelchester, 204 pp.
- Roberts M.J. (1995): Spiders of Britain and Northern Europe. Collins field guide series. Harper Collins Publishers, London, 383 pp.
- Samu F., Szinetár C. (1999): Bibliographic check list of the Hungarian spider fauna. *Bull. Brit. Araneol. Soc.* 11(5): 161-184.
- Stoch F. (2003): Checklist of the Italian fauna. Version 03.12.2003. On: <http://www.faunaitalia.it/checklist/introduction.html>.
- Thaler K., Knoflach B. (2004): Zur faunistik der Spinnen (Araneae) von Österreich: Gnaphosidae, Thomisidae (Dionychia pro parte). *Linzer biol. Beitr.* 36: 417-484.
- Uradni list Republike Slovenije (2002): Pravilnik o uvrstitvi ogroženih rastlinskih in živalskih vrst v rdeči seznam MP82/02: 8893-8975. Version 2002. On: <http://www.uradni-list.si/1/ulonline.jsp?urlid=200282&dhid=44228>.
- Vogrin M. (2002): Ostale zanimive živali. In: M. Vogrin (Ed.), *Narava v občini Kidričevo*, Občina Kidričevo, Kidričevo, 107-111 pp

