Universitatea Ştefan cel Mare Suceava

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Societatea Lepidopterologică din România

Volumul de lucrări al Simpozionului „Biodiversitatea şi Managementul Insectelor din Romania"

Suceava, 24-25 septembrie 2010

In memoria entomologului bucovinean Ioan Nemeş

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Prefaţă

În perioada 24-25 septembrie 2010 s-au desfăşurat la Suceava lucrările simpozionului organizat în memoria entomologului bucovinean Ioan NEMEŞ (1924-2009), intitulat „Biodiversitatea şi managementul insectelor din Romania" Acesta a fost organizat de Facultatea de Silvicultură din cadrul Universităţii „Ştefan cel Mare" Suceava împreună cu Societatea Lepidopterologică Română, la iniţiativa prof. dr. Ioan DĂNILĂ şi sub patronajul rectorului universităţii, prof univ. dr. ing. Adrian GRAUR.

Prof. Ioan NEMEŞ, un îndrăgostit al lumii insectelor, în special al lepidopterelor, pasiune extraprofesională, a alcătuit o colecţie entomologica, unica prin diversitate şi număr de exemplare şi o deosebită bibliotecă de specialitate Pasiunea s-a concretizat în peste 63 de publicaţii de specialitate, participări la simpozioane şi descoperirea a noi specii de fluturi.

La simpozion au participat specialişti din cinci centre universitate din ţara şi străinătate (Universităţile „Al. I.Cuza" Iaşi, „Babeş-Bolyai" Cluj Napoca, „Lucian Blaga" Sibiu, „Ştefan cel Mare" Suceava, Universitatea Naţionala „Yuriy Fedkovych" Cernăuţi), din trei institute ce cercetări (Institutul de Cercetari Biologice Bucureşti, Institutul de Cercetări şi Amenajări Silvice, Staţiunea Câmpulung Moldovenesc şi Institutul de Zoologie din cadrul Academiei Republicii Moldova), din muzee de Ştiinţe ale Naturii (Sibiu, Craiova, Dorohoi şi Galaţi), licee, şi nu în ultimul rând, a unor pasionaţi entomologi de diverse profesii.

Referatele au cuprins o varietate de abordări de sistematică, dar şi de management al insectelor, producătoare de daune în ecosistemele agricole şi silvice, permiţând un schimb de vederi privind activitatea de monitorizare a biodiversităţii, dar şi de îmbunătăţire a schemelor de management. Un schimb fructuos de idei şi abordări s-a realizat şi prin vizita rezervaţiei ştiinţifice Codrul secular Giumalău, unde participanţi au luat cunoştinţă de cercetările efectuate de entomologi în această zona. Desfăşurarea acestei vizite s-a realizat cu sprijinul Direcţiei Silvice Suceava, a cărei reprezentanţii au prezentat numeroase aspecte privind importanţa acestei rezervaţii naturale în menţinerea biodiversităţii.

Editorii

Spiders of Chernivtsi city (Ukraine): a comparison actual species composition and species recorded by A. Roşca (1930-1938)

Mariia FEDORIAK, Evgeni ZHUKOVETS

1. Introduction

Many studies have described the effect of urbanization on species composition and richness. These studies indicate that urbanization can increase or decrease species richness, depending on several reasons. Some of these reasons include: taxonomic group, spatial scale of analysis, and intensity of urbanization (McKinney, 2008). The influence of urbanization on spiders diversity is still poorly understood (Shochat et al., 2004; Horvat et al., 2010; Varet et al., 2010). The results of recent investigations show a rising number of spider species which were introduced to Europe (Kobelt and Nentwig, 2008). These lead us to the retrospective analysis of the spiders which inhabit the territory of modern Chernivtsi city. The aim of this work was to compare spider species composition within the urboecosystem of Chernivtsi city during 1930-1938 and 2005-2010 according to records by Roşca and the results of our researches.

2. Materials and methods

We collected our material in Chernivtsi city using different methods (hand collecting, pitfall taps, sweeping with a net and beating) in such habitats as sub-*urban forest and meadow, city parks, green spaces around buildings, lawns and* buildings of different types (viz., rooms, stairways, basements, outside walls) during 2002-2010. Some species were previously recorded by us (Fedoriak and Brushnivska, 2005; Fedoriak and Rudenko, 2007; Fedoriak et al., 2010 a; Fedoriak et al., 2010 b) and other species we are reporting for the first time.

The data on spiders which inhabit Chernivtsi about 80 years ago we received as the result of analyses of six publications by Roşca on spiders of Bukovyna (Roşca, 1930, 1935, 1936 a, b, 1937, 1938).

We used systematic names and nomenclature suggested by *The world spider catalog*, version 11.0. (Platnick, 2010) with some changes according to certain works (Zyuzin, 1985; Zyuzin and Logunov, 2000; Oliger et al., 2002).

3. Results

During this study we collected a total of 13 526 spiders representing 26 families, 112 genera, 207 species. We placed the information on these species in

the first column of the table. Then we continued to fill in the table using the data obtained from analysis of Roşca publications.

Alexandru Roşca [Romanian: A. Roşca; English: A. Roshka; Ukrainian: О. Рошка] (Oct. 2, 1895 – Aug. 7, 1969) is a famous Romanian arachnologist. 6 of 17 Roşca's works highlight the results of studies conducted in Bukovyna. In three of these publications the author gives descriptions of new species (Roşca, 1935, 1936 a, 1937). The other 3 works (Roşca, 1930, 1936 b, 1938) contain information about the fauna and ecology of spiders of Bukovyna, including the territories that now belong to the administrative boundaries of Chernivtsi. We have compiled a list of the species, provided them with actual names according to "The world spider catalog" (Platnick, 2010) and analyzed the distribution of species on the territory of Bukovyna.

The only publication in which Roşca provides information about places of region is «Contribuţiuni la cunoaşterea Arachnoidelor din Bucovina» (1930). Among other localities, the author mentioned Chernivtsi (Cernăuţi), Tsetsino (Ţeţino), Hot Urban (Horecea), Klokuchka (Clocucica), Rocha (Roşa). The last 4 settlements later became a part of Chernivtsi. Therefore, we have placed all species for which Roşca pointed these localities in the table in the second column. We also added to this column such species which had been discovered in Chernivtsi by Roşca later and mentioned in his other works. In total Roşca recorded 89 species for Chernivtsi in the modern territorial sense.

Then we analyzed the information about those species which were collected by us in Chernivtsi but were not mentioned by Roşca for the city. Thus, the author indicates species that are common throughout Bukovyna (frecventă în toată Bucovina) or Ciscarpathia (Zona Precarpatică). Therefore, for species that we found in Chernivtsi, and Roşca said that they were distributed everywhere in Bukovina, rightly believing that they also inhabited Chernivtsi. For example, *Diplocephalus cristatus* (Blackwall, 1833), *Linyphia triangularis* (Clerck, 1757), *Alopecosa pulverulenta* (Clerck, 1757), *Pholcus phalangioides* (Fuesslin, 1775) and others, which now are also common in Chernivtsi. The information about these species we have placed in the third column of the table. The information on the species that Roşca found in localities outside the city of Chernivtsi we put in the fourth column, and on those for which localities are not indicated – in the fifth column. The last column contains information on species that Roşca did not find on the territory of Bukovyna in the first half of the XX century, but we found them in the beginning of the XXI century in the city of Chernivtsi.

We added to the species which were collected by Roşca in Chernivtsi in modern territory boundaries (the first column) those, which were recorded by the author as common throughout Bukovyna (Ciscarpathia) (the second column) and we have come to the conclusion, that in general no less than 160 species in 91 genera and 24 families inhabited Chernivtsi city in the first half of the XX century. As we found 207 species in Chernivtsi, 118 species are common for both lists and there are 42 species which were recorded by Roşca but lacking in our list. In the same time there are 89 species which we collected in recent years in Chernivtsi but they were not recorded by Roşca. In total our table contains 249 species in 28 families (table).

Table 1. Spiders of Chernivtsi city on the basis of our data (2005-2010) and information on them from publications by Roşca (1930-1938)
Tabelul 1. Păianjenii din oraşul Cernauţi, pe baza cercetărilor proprii (2005-2010) şi informaţii din lucrările lui Roşca (1930-1938)

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Agelenidae						
Agelena labyrinthica (Clerck, 1757)	+	+	+			
Agelenopsis potteri (Blackwall, 1846)	+					abs.
Allagelena gracilens (C. L. Koch, 1841)	+		+			
Histopona torpida (C. L. Koch, 1837)	+				+	
Malthonica ferruginea (Panzer, 1804)	+	+	+			
Malthonica pagana (C. L. Koch, 1840)	+					abs.
Malthonica picta (Simon, 1870)	+				+	
Tegenaria agrestis* (Walckenaer, 1802)*	+					abs.
Tegenaria atrica* (C. L. Koch, 1843)*	+	+	+			
Tegenaria domestica* (Clerck, 1757)*	+		+			
Tegenaria parietina (Fourcroy, 1785)	+		+			
Amaurobiidae						
Amaurobius ferox (Walckenaer, 1830)	+	+	+			
Callobius claustrarius (Hahn, 1833)	+		+			
Coelotes atropos (Walckenaer, 1830)	abs.	+	+			
Eurocoelotes falciger (Kulczyn'ski, 1897)	+			Bălcăuţi, Calafindeşti Pătrăuţi		
Eurocoelotes inermis (L. Koch, 1855)	+	+	+			
Anyphaenidae						
Anyphaena accentuata (Walckenaer, 1802)	+		+			
Araneidae						
Araneus diadematus (Clerck, 1757)	+	+	+			
Araneus marmoreus Clerck, 1757	+			Baranca, Costînca, Cosmin		
Araneus quadratus (Clerck, 1757)	+			Rarău, Pojorâta, Cârlibaba		
Araneus saevus (L. Koch, 1872)	+				+	
Araniella cucurbitina (Clerck, 1757)	+	+	+			
Araniella opisthographa (Kulczyn'ski, 1905)	+		+			
Argiope bruennichi* (Scopoli, 1772)*	+		+			
Gibbaranea gibbosa (Walckenaer, 1802)	+		+			
Larinioides ixobolus (Thorell, 1873)	+			Bălăceana, Pr. Negru, Baranca		
Larinioides sclopetarius (Clerck, 1757)	+				+	
Mangora acalypha (Walckenaer, 1802)	+		+			
Singa nitidula (C. L. Koch, 1844)	+		+			

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Clubionidae						
Clubiona brevipes (Blackwall, 1841)	+					abs.
Clubiona caerulescens (L. Koch, 1867)	abs.	+	+			
Clubiona comta (C. L. Koch, 1839)	+					abs.
Clubiona germanica (Thorell, 1871)	+		+			
Clubiona lutescens (Westring, 1851)	+	+	+			
Clubiona marmorata (L. Koch, 1866)	+				+	
Clubiona neglecta (O. P.-Cambridge, 1862)	+		+			
Clubiona pallidula (Clerck, 1757)	+		+			
Corinnidae						
Phrurolithus festivus (C. L. Koch, 1835)	+		+			
Cybaeidae						
Cybeus angustiarum (L. Koch, 1868)	abs.	+	+			
Dictynidae						
Cicurina cicur (Fabricius, 1793)	+		+			
Dictyna arundinacea (Linnaeus, 1758)	+				+	
Dictyna civica* (Lucas, 1850)*	+				+	
Dictyna uncinata (Thorell, 1856)	+	+				
Lathys humilis (Blackwall, 1855)	+		+			
Nigma walckenaeri* (Roewer, 1951)*	+				+	
Dysderidae						
Dysdera crocata* C. L. Koch, 1838*	+	+	+			
Harpactea rubicunda* (C. L. Koch, 1838)*	+				+	
Harpactea saeva (Herman, 1879)	+					abs.
Gnaphosidae						
Drassodes pubescens (Thorell, 1856)	+				+	
Drassyllus pusillus (C. L. Koch, 1833)	+				+	
Haplodrassus signifer (C. L. Koch, 1839)	+					abs.
Haplodrassus silvestris (Blackwall, 1833)	+	+	+			
Micaria nivosa (L. Koch, 1866)	+					abs.
Micaria pulicaria (Sundevall, 1831)	+					abs.
Micaria subopaca (Westring, 1861)	+					abs.
Scotophaeus scutulatus (L. Koch, 1866)	+		+			
Hahniidae						
Hahnia nava (Blackwall, 1841)	+					abs.
Linyphiidae						
Agyneta decora (O. P.-Cambridge, 1871)	+					abs.
Araeoncus humilis (Blackwall, 1841)	abs.	+	+			
Bathyphantes gracilis (Blackwall, 1841)	+					abs.
Bathyphantes nigrinus (Westring, 1851)	+		+			
Centromerita bicolor (Blackwall, 1833)	+			Hliniţa, Cosmin		
Centromerus ludovici (Bösenberg, 1899)	abs.	+				
Centromerus sylvaticus (Blackwall, 1841)	+		+			

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Ceratinella major (Kulczyn'ski, 1894)	+					abs.
Dicymbium nigrum (Blackwall, 1834)	+		+			
Dicymbium tibiale (Blackwall, 1836)	+		+			
Diplocephalus cristatus (Blackwall, 1833)	+		+			
Diplocephalus latifrons (O. P.-Cambridge, 1863)	+				+	
Diplocephalus picinus (Blackwall, 1841)	+				+	
Diplostyla concolor (Wider, 1834)	+	+				
Dismodicus bifrons (Blackwall, 1841)	+					abs.
Drapetisca socialis (Sundevall, 1833)	+		+			
Entelecara acuminata (Wider, 1834)	+		+			
Erigone atra (Blackwall, 1833)	abs.	+	+			
Erigone dentipalpis (Wider, 1834)	+	+	+			
Erigone remota L. (Koch, 1869)	abs.	+*	+*			
Erigone tirolensis L. (Koch, 1872)	abs.	+*				
Frontinellina frutetorum (C. L. Koch, 1834)	abs.	+	+			
Helophora insignis (Blackwall, 1841)	+					abs.
Hylyphantes graminicola (Sundevall, 1830)	+		+			
Hypomma bituberculatum (Wider, 1834)	abs.	+	+			
Hypomma cornutum (Blackwall, 1833)	+					abs.
Lepthyphantes leprosus (Ohlert, 1865)	+		+			
Lepthyphantes minutus (Blackwall, 1833)	+					abs.
Linyphia hortensis (Sundevall, 1830)	+		+			
Linyphia triangularis (Clerck, 1757)	+		+			
Macrargus rufus (Wider, 1834)	+					abs.
Mansuphantes mansuetus (Thorell, 1875)	abs.	+	+			
Megalepthyphantes nebulosus (Sundevall, 1830)	+					abs.
Megaleptyphantes pseudocollinus (Saaristo, 1997)	+		+*			
Meioneta fuscipalpa (C. L. Koch, 1836)	+			Ilişeşti, Stupca, Drăgoieşti		
Meioneta innotabilis (O. P.-Cambridge, 1863)	+					abs.
Meioneta mollis (O. P.-Cambridge, 1871)	+					abs.
Meioneta rurestris (C. L.Koch, 1836)	+				+	
Micrargus herbigradus (Blackwall, 1854)	+				+	
Micrargus subaequalis (Westring, 1851)	+					abs.
Microlinyphia pusilla (Sundevall, 1830)	+		+			
Microneta viaria (Blackwall, 1841)	+	+	+			
Moebelia penicillata (Westring, 1851)	+					abs.
Nematogmus sanguinolentus (Walckenaer, 1841)	+					abs.
Neriene clathrata (Sundevall, 1830)	+			Pârteşti, Strigoaia,		

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
				Baranca		
Neriene emphana (Walckenaer, 1841)	abs.	+				
Neriene montana (Clerck, 1757)	+	+	+			
Neriene peltata (Wider, 1834)	abs.	+	+			
Neriene radiata (Walckenaer, 1841)	abs.	+	+			
Oedothorax apicatus (Blackwall, 1850)	+	+				
Oedothorax fuscus (Blackwall, 1834)	abs.	+	+			
Oedothorax insignis (Bösenberg, 1902)	abs.	+				
Oedothorax retusus (Westring, 1851)	+				+	
Porrhomma calypso (Bertkau, 1883) Nomina dubia	abs.	+				
Porrhomma pygmaeum (Blackwall, 1834)	+					abs.
Saloca kulczynskii Miller & Kratochvil, 1939	+					abs.
Stemonyphantes lineatus (L., 1758)	+				+	
Tapinocyba pallens (O. P.-Cambridge, 1872)	+					abs.
Tenuiphantes cristatus (Menge, 1866)	+	+	+			
Tenuiphantes flavipes (Blackwall, 1854)	+		+			
Tenuiphantes mengei (Kulczyn'ski, 1887)	+	+	+			
Tenuiphantes tenebricola (Wider, 1834)	+	+	+			
Tenuiphantes tenuis (Blackwall, 1852)	+		+			
Tenuiphantes zimmermanni (Bertkau, 1890)	+		+			
Thyreostenius parasiticus (Westring, 1851)	+				+	
Trematocephalus cristatus (Wider, 1834)	+		+			
Walckenaeria cucullata (C. L. Koch, 1836)	+	+				
Walckenaeria fusca (Roşca, 1935)	abs.	+				
Walckenaeria mitrata (Menge, 1868)	+					abs.
Walckenaeria obtusa (Blackwall, 1836)	+		+			
Liocranidae						
Agroeca brunnea (Blackwall, 1833)	+		+			
Lycosidae						
Allohogna singoriensis* (Laxmann, 1770)*	abs.	+				
Alopecosa accentuata (Latreille, 1817)	+	+				
Alopecosa barbipes (Sundevall, 1833)	abs.	+	+			
Alopecosa cuneata (Clerck, 1757)	+			Hlinița		
Alopecosa pulverulenta (Clerck, 1757)	+		+			
Alopecosa roeweri (Rosca, 1937)	abs.	+				
Alopecosa trabalis (Clerck, 1757)	abs.	+	+			
Arctosa figurata (Simon, 1876)	abs.	+	+			
Arctosa stigmosa (Thorell, 1875)	abs.	+				
Aulonia albimana (Walckenaer, 1805)	+				+	
Pardosa agrestis (Westring, 1861)	+	+	+			
Pardosa agricola (Thorelll 1856)	+				+	
Pardosa alacris (C. L. Koch, 1833)	+					abs.
Pardosa amentata (Clerck, 1757)	+		+			

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Pardosa fulvipes (Collett, 1876)	+					abs.
Pardosa lugubris (Walckenaer, 1802)	+		+			
Pardosa monticola (Clerck, 1757)	+			Rarău, Poiana Stampei		
Pardosa nigriceps (Thorell, 1856)	+					abs.
Pardosa paludicola (Clerck, 1757)	+		+			
Pardosa palustris (Linnaeus, 1758)	+	+	+			
Pardosa prativaga (L. Koch, 1870)	+	+	+			
Pardosa pullata (Clerck, 1757)	+		+			
Pardosa sphagnicola (Dahl, 1908)	+	+	+			
Pirata hygrophilus (Thorell, 1872)	+	+	+			
Pirata piraticus (Clerck, 1757)	abs.	+	+			
Triccosta lutetiana (Simon, 1876)	abs.	+	+			
Trochosa robusta (Simon, 1876)	abs.	+	+			
Trochosa ruricola (De Geer, 1778)	+		+			
Trochosa terricola (Thorell, 1856)	+		+			
Xerolycosa miniata (C. L. Koch, 1834)	+				+	
Mimetidae						
Ero aphana (Walckenaer, 1802)	+		+			
Ero furcata (Villers, 1789)	+		+			
Miturgidae						
Cheiracanthium erraticum (Walckenaer, 1802)	abs.	+	+			
Cheiracanthium mildei (L. Koch, 1864)	+					abs.
Cheiracanthium oncognathum (Thorell, 1871)	abs.	+	+			
Nesticidae						
Nesticus cellulanus (Clerck, 1757)	+				+	
Philodromidae						
Philodromus albidus (Kulczyn'ski, 1911)	+					abs.
Philodromus aureolus (Clerck, 1757)	+	+	+			
Philodromus cespitum (Walckenaer, 1802)	+	+	+			
Philodromus collinus (C. L. Koch, 1835)	+				+	
Philodromus dispar (Walckenaer, 1826)	+	+				
Philodromus poecilus (Thorell, 1872)	abs.		+			
Thanatus arenarius (L. Koch, 1872)	abs.	+	+			
Tibellus oblongus (Walckenaer, 1802)	+	+	+			
Pholcidae						
Pholcus alticeps (Spassky, 1932)	+					abs.
Pholcus opilionoides* (Schrank, 1781)*	+		+			
Pholcus phalangioides* (Fuesslin, 1775)*	+		+			
Pholcus ponticus (Thorell, 1875)	+					abs.
Spermophora senoculata* (Duges, 1836)*	+					abs.
Pisauridae						
Pisaura mirabilis (Clerck, 1757)	+	+	+			

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Salticidae						
Asianellus festivus (C. L. Koch, 1834)	+		+			
Ballus chalybeius (Walckenaer, 1802)	+	+	+			
Evarcha arcuata (Clerck, 1757)	abs.	+	+			
Evarcha falcata (Clerck, 1757)	+	+	+			
Evarcha laetabunda (C. L. Koch, 1846)	abs.	+	+			
Heliophanus auratus C. L. Koch, 1835	+		+			
Heliophanus cupreus (Walckenaer, 1802)	+	+	+			
Heliophanus flavipes (Hahn, 1832)	+				+	
Heliophanus tribulosus (Simon, 1868)	abs.	+	+			
Myrmarachne formicaria (De Geer, 1778)	+	+	+			
Salticus scenicus (Clerck, 1757)	+		+			
Salticus zebraneus (C. L. Koch, 1837)	+				+	
Sibianor aurocinctus (Ohlert, 1865)	+					abs.
Sitticus pubescens* (Fabricius, 1775)*	+		+			
Scytodidae						
Scytodes thoracica* (Latreille, 1802)*	+					abs.
Segestriidae						
Segestria senoculata (Linnaeus, 1758)	+		+			
Tetragnathidae						
Metellina mengei (Blackwall, 1870)	+	+	+			
Metellina segmentata (Clerck, 1757)	+	+	+			
Pachygnatha clercki (Sundevall, 1823)	+		+			
Pachygnatha degeeri (Sundevall, 1830)	+		+			
Pachygnatha listeri (Sundevall, 1830)	+				+	
Tetragnatha dearmata (Thorell, 1873)	+					abs.
Tetragnatha extensa (Linnaeus, 1758)	+		+			
Tetragnatha montana (Simon, 1874)	+		+			
Tetragnatha nigrita (Lendl, 1886)	abs.		+			
Tetragnatha obtusa (C. L. Koch, 1837)	+	+	+			
Tetragnatha pinicola (L. Koch, 1870)	+				+	
Theridiidae						
Asagena phalerata (Panzer, 1801)	+				+	
Cryptachaea riparia (Blackwall, 1834)	+		+			
Dipoena melanogaster (C. L. Koch, 1837)	+				+	
Enoplognatha latimana (Hippa et Oksala, 1982)	+					abs.
Enoplognatha ovata (Clerck, 1757)	+		+			
Enoplognatha thoracica (Hahn, 1833)	+					abs.
Neottiura bimaculata (Linnaeus, 1767)	+		+			
Ohlertidion ohlerti (Thorell, 1870)	abs.	+	+			
Paidiscura pallens (Blackwall, 1834)	+		+			
Parasteatoda lunata (Clerck, 1757)	abs.	+	+			
Parasteatoda simulans (Thorell, 1875)	+	+	+			

Actual family and species names	Our data	Data on spiders of Bukovyna by Roşca				
	1	2	3	4	5	6
Parasteatoda tabulata* (Levi, 1980)*	+					abs.
Parasteatoda tepidariorum* (C. L. Koch, 1841)*	+		+			
Phylloneta impressa (L. Koch, 1881)	+	+	+			
Platnickina tincta (Walckenaer, 1802)	+		+			
Robertus arundineti (O. P.- Cambridge, 1871)	+					abs.
Steatoda albomaculata (De Geer, 1778)	+					abs.
Steatoda bipunctata (Linnaeus, 1758)	+	+	+			
Steatoda castanea* (Clerck, 1757)*	+	+	+			
Steatoda grossa* (C. L. Koch, 1838)*	+		+			
Steatoda triangulosa* (Walckenaer, 1802)*	+				+	
Theridion mystaceum (L. Koch, 1870)	+					abs.
Theridion pictum (Walckenaer, 1802)	+		+			
Theridion pinastri (L. Koch, 1872)	+	+				
Theridion varians (Hahn, 1833)	+	+				
Thomisidae						
Diaea dorsata (Fabricius, 1777)	+		+			
Ebrechtella tricuspidata (Fabricius, 1775)	+		+			
Misumena vatia (Clerck, 1757)	+		+			
Ozyptila atomaria (Panzer, 1801)	+					abs.
Ozyptila praticola (C. L. Koch, 1837)	+	+	+			
Ozyptila pullata (Thorell, 1875)	abs.		+			
Ozyptila rauda (Simon, 1875)	+					abs.
Runcinia grammica (C. L. Koch, 1837)	abs.	+				
Xysticus acerbus (Thorell, 1872)	+	+	+			
Xysticus audax (Schrank, 1803)	+	+	+			
Xysticus bifasciatus (C. L. Koch, 1837)	+		+			
Xysticus cristatus (Clerck, 1757)	+	+	+			
Xysticus erraticus (Blackwall, 1834)	+				+	
Xysticus kochi (Thorell, 1872)	+	+	+			
Xysticus lanio (C. L. Koch, 1835)	abs.	+	+			
Xysticus luctuosus (Blackwall, 1836)	abs.	+	+			
Xysticus ulmi (Hahn, 1831)	+	+	+			
Zodariidae						
Zodarion rubidum* Simon, 1914*	+					abs.
Zoridae						
Zora pardalis (Simon, 1878)	abs.	+				

Note. abs. is absent – the species was not found by us in Chernivtsi or wasn't recorded by Roşca for Bukovyna;* – finding requires additional information which is provided in the text. ** – alien spider species (according to the List by Kobelt and Nentwig, 2008) are indicated in bold. 1 – spider species collected by us in Chernivtsi during 2002-2010; 2-6 – species recordet by Roska (1930-1938): 2 – Chernivtsi city; 3 – common for the whole territory of Bukovyna (Ciscarpathia); 4 – in certain localities outside Chernivtsi; 5 – without mentioning of localities; 6 – the author did not find on the territory of Bukovyna.

It is worth mentioning that the majority of species that we collected in Chernivtsi, Roşca had referred to the category "Common for the whole territory of Bukovyna (Ciscarpathia)". The part of such species is 68 % from general amount in our list. It means that everytopic species prevail in spider assemblages of the city.

As to the species which were recorded by Roşca but we could not find we consider that some of them belong to dubious species (for example, *Porrhomma calypso*). *Erigone remota* and *E. tirolensis* are recorded for Chernivtsi with the author's note, that they were collected on the bank of the Prut river in a pile of rubbish and likely were brought from somewhere to the findings. Recent studies have shown the presence of alpine species of Linyphiidae in the Carpathians (Gnelitsa, 2005). Certain species, for example, *Cybeus angustiarum, Allohogna singoriensis, Parasteatoda lunata* were recorded by Roşca from Chernivtsi but we found them only outside of urboecosystem. They probably are not tolerant to anthropogenic pressure and were superseded from the city.

On the other hand there are species (eg, *Eurocoelotes falciger*) which we collected in Chernivtsi, while our predecessor had shown them in certain localities in the region outside the city.

Also among the 207 species which we found in Chernivtsi 5 have been described after 1930: *Megaleptyphantes pseudocollinus* Saaristo, 1997; *Saloca kulczynskii* Miller & Kratochvil, 1939; *Pholcus alticeps* Spassky, 1932; *Enoplognatha latimana* Hippa et Oksala, 1982 and *Parasteatoda tabulata* (Levi, 1980). *Megaleptyphantes pseudocollinus* was proved to be distributed in Europe (Saaristo, 1997; Helsdingen, 2010) and in Chernivtsi (Fedoriak et al., 2010 b) so we consider that this species was mentioned by Roşca (1930) as *M. collinus*.

The important role in the transformation of spider species composition also belongs to the alien species. For animals including spiders the increase in the number of alien species on all continents is shown (Delivering Alien...., 2007; Kobelt & Nentwig, 2008). We analyzed the quantity of species which were introduced to Europe both in our and in Roşca's lists in accordance with the List of all alien spider species in Europe by Kobelt & Nentwig (2008). Among our 207 species 19 are alien (they are indicated in bold in the table). It makes 9 % of general amount. Among 160 of Roşca's list 11 (7 %) are alien. It proves the increasing of the part of alien species (neobiota) for the inventoried city. So we have come to the conclusion, similar to that which was recently shown by Andrew R. Solow and Christopher J. Costello that the discovery record of introduced species reflects a combination of introduction process and the discovery process (Solow & Costello, 2004).

4. Conclusion

In total we identified 207 spider species from 112 genera and 26 families in different habitats of Chernivtsi city. While analyzing Roşca' six publications on spiders of Bukovyna (Roşca, 1930, 1935, 1936 a, b, 1937, 1938) we have compiled a list of 160 spider species from 91 genera and 24 families for inventoried city.

During our research we did not manage to find 42 species which were recorded by Roşca for Chernivtsi city. The possible reasons are discussed in the article. At the same time there are 89 and 49 species which we collected in recent years in Chernivtsi but they were not recorded by Roşca for Chernivtsi and Bukovyna correspondently. We have discovered the increasing of spider species number that inhabits different habitats of Chernivtsi city in the early twenty-first century (2005-2010) in comparison with the first half of the twentieth century (1930-1938). We consider that the most significant reason for mentioned increasing is combination of the introduction process and further discovery of araneofauna.

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Abstract

In total we identified 207 spider species from 112 genera and 26 families in different habitats of Chernivtsi city. While analyzing Roşca' publications on spiders of Bukovyna (Roşca, 1930, 1935, 1936 a, b, 1937, 1938) we have compiled a list of 160 spider species from 91 genera and 24 families for inventoried city. During our research we did not manage to find 39 species which were recorded by Roşca for Chernivtsi city. The possible reasons are discussed in the article. At the same time there are 89 and 49 species which we collected in recent years in Chernivtsi but they were not recorded by Roşca for Chernivtsi and Bukovyna correspondently. We have discovered the increasing of spider species number that inhabits different habitats of Chernivtsi city in the early twenty-first century (2005-2010) in comparison with the first half of the twentieth century (1930-1938). We consider that the most significant reason for mentioned increasing is combination of the introduction process and further discovery of araneofauna.

Keywords: spiders, Chernivtsi city, A. Roşca, retrospective analysis.

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