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## AESTIVAL SPIDER (ARACHNIDA: ARANEAE) FAUNA FROM THE ȚARCU MOUNTAINS (ROMANIA) WITH REDESCRIPTION OF *PARDOSA SALTUARIA* (L. KOCH, 1870) FROM THE SOUTH- WESTERN CARPATHIANS

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Abstract. Species of the *saltuaria* group from the genus *Pardosa* have been reviewed in 1984 by Wunderlich. Although in the past years a lot of research has been done on the *P. saltuaria* group, the populations from Southern Carpathians were never closely investigated. The only description on the Romanian populations was made by Fuhn & Niculescu-Burlacu in 1971. The description is however very general and without details. The present paper presents a detailed morphological description and illustration of *Pardosa saltuaria* (L. Koch, 1870) specimens from the southern-western Carpathians. Also some faunistical data on spiders from the Țarcu Mountains are presented.

Résumé. Les espèces du genre *Pardosa* qui appartiennent au groupe *saltuaria* ont été revues en 1984 par Wunderlich. Au cours de ces dernières années de nombreuses recherches ont été faites sur le groupe *P. saltuaria*, mais les populations des Carpates méridionales n'ont jamais été étudiées d'une manière détaillée. La seule description sur les populations de Roumanie a été faite en 1971 par Fuhn et Niculescu-Burlacu, mais elle est très générale et sans détails. On présente dans le travail actuel la description et l'illustration morphologique détaillées des exemplaires de *Pardosa saltuaria* (L. Koch, 1870) du sud-ouest des Carpates. En outre on présente quelques données fauniques sur des araignées des monts Țarcu.

Key words: Araneae, fauna, *Pardosa saltuaria*, redescription, South-western Carpathians, Romania.

### INTRODUCTION

Although the arachnofauna from the South-western Romania was studied by: Frivaldsky (1876), Herman (1876-1879), Chyzer & Kulczyński (1891-1897), Fuhn & Niculescu-Burlacu (1969, 1970), Gherasim (1970), Orghidan, Dumitrescu & Georgescu (1979) and more recently by Duma, (2005, 2006), the Țarcu Mountains have never been studied from the faunistical point of view till this research. Therefore the present paper has the purpose to partially fill this lack of knowledge of this part of Romania.

The Țarcu Mountains are located in the South-western part of the Carpathians, in Banat region. They have a maximum height of 2,190 m in the Căleanu peak.

In the alpine zone, between grass, at an altitude of 2,000 meters, I found specimens of *Pardosa saltuaria* (L. Koch, 1870). This species was found in Romania only on five high Mountains: Căliman, Rodnei, Bucegi, Parâng and Retezat. All collecting places were above 1,800 meters.

This species belongs to the *saltuaria* grup which has, for the moment, six recognized species morphologically very similar (Wunderlich, 1984; Platnick, 2006). Five are in Europe: *Pardosa saltuaria* (L. Koch, 1870) in the Carpathians, *Pardosa hyperborea* (Thorell, 1872) in the northern Europe and Bohemian forests,

*Pardosa oreophila* (Simon, 1937) in the Alps and Pyrenees, *Pardosa drenskii* (Buchar, 1968) in Rilla Mountains from Bulgaria, *Pardosa evelinae* (Wunderlich, 1984) in the Giant Mountains and one in Altai Mountains in Central Asia: *Pardosa oksalai* (Marusik, Hippa & Koponen, 1996) (Marusik & al., 1996).

Recent studies, at the genetic level, made by Muster & Berendonk (2006) on 14 populations of *saltuaria* group (however none from the Southern Carpathians), infer that it should have only three species: *P. saltuaria* in central and northern Europe, *P. drenskii* in the Balkans and a hitherto unnamed species from the Pyrenees. The same authors mention also that it is still too soon to draw a conclusion and that the species of this group must be subjected to other genetic and morphological studies. Thus we can say that this group of wolf spiders still puzzles the taxonomists and further researches have to be done in the future.

Although in Europe a lot of studies have been done on the *Pardosa saltuaria* group, the populations from the Southern Carpathians (Romania) were never closely examined. The Romanian populations of this species were described only by Fuhn & Niculescu-Burlacu in 1971. However in the 70's, Fuhn made only a general description without focussing on the morphological details.

In this paper we will treat and illustrate the *Pardosa saltuaria* (L. Koch, 1870) from the Romanian mountains in detail.

#### MATERIAL AND METHOD

The material was captured on 20<sup>th</sup> - 27<sup>th</sup> of May 2005, 25<sup>th</sup> – 29<sup>th</sup> of June 2006 and on 17<sup>th</sup> – 24<sup>th</sup> of July 2006 from the Țarcu Mountains. For capturing specimens we used five collecting methods: aerial searching (Toti et al., 2000), ground searching (Toti et al., op. cit.), sweeping with a sweep net (net diameter 25 cm), beating (Scharff et al., 2003) and cryptic searching (Scharff et al., op. cit.). Because the time for the inventory was too short we didn't use the pitfalls. All the methods mentioned above have been chosen because they do not overlap one another and therefore insure a greater diversity of the spider catch (Scharff et al., op. cit.). As a result we have collected a few numbers of spiders but a great variety of species, considering the limited time.

The geographical coordinates and the altitude of the collecting places were obtained from the topographical maps of the area. The specimens were put immediately in alcohol 70% after the capture. For the identification of the specimens we used the papers signed by Fuhn & Niculescu-Burlacu (1971), Fuhn & Gherasim (1995), Sterghiu (1985). Spiders were identified to the lowest possible taxon. The majority of immature specimens were identified to family only. The material is deposited in the following collections: "Grigore Antipa" National Museum of Natural History from Bucharest and in I. Duma's private collection.

#### RESULTS

Biodiversity of spiders in Țarcu Mountains was represented by 20 families, 61 genera and 100 species (Tab. 1). The number of species found for a particular spider family ranged from 1 to 15.

Table 1

Species of spiders (Arachnida: Araneae) from the Țarcu Mountains.

Families/ Species	No. of specimens			Collecting place
	♂♂	♀♀	Juv.	
Family Scytodidae1.				
1. <i>Scytodes thoracica</i> (Latreille, 1802)	1♂			Poiana Mărului (CS); 25 VI 2006
Family Pholcidae				
2. <i>Pholcus phalangoides</i> (Fuesslin, 1775)	-	2♀	-	Mic Mountain (CS); 27 VI 2006
Family Dysderidae				
3. <i>Harpactea</i> sp. 1	-	-	1	Poiana Mărului (CS); 24 VI 2005
Family Uloboridae				
4. <i>Uloborus walckenaerius</i> Latreille, 1806	-	1♀	-	Poiana Mărului (CS); 26 VI 2006
Family Theridiidae				
5. <i>Archaearana tepidariorum</i> (C. L. Koch, 1841)	-	3♀	-	Oțelu Roșu (CS); 18 VII 2006
6. <i>Achaearana simulans</i> (Thorell, 1875)	-	1♀	-	Oțelu Roșu (CS); 17 VI 2006
7. <i>Enoplognatha ovata</i> (Clerck, 1757)	1♂	5♀	1	Poiana Mărului (CS); 25 VI 2006
8. <i>Enoplognatha latimana</i> Hippa & Oksala, 1982	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
9. <i>Episinus truncatus</i> Latreille, 1809	1♂	-	-	Oțelu Roșu (CS); 18 VII 2006
10. <i>Robertus arundineti</i> (O. P.-Cambridge, 1871)	-	2♀	1	Poiana Mărului (CS); 25 VI 2006
11. <i>Robertus truncorum</i> (L. Koch, 1872)	1♂	-	-	Oțelu Roșu (CS); 24 VII 2006
12. <i>Steatoda bipunctata</i> (Linnaeus, 1758)	1♂	-	-	Mic Mountain (CS); 27 VI 2006
13. <i>Steatoda grossa</i> (C. L. Koch, 1838)	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
14. <i>Theridion impressum</i> L. Koch, 1881	1♂	-	-	Borlova (CS); 20 VII 2006
15. <i>Theridion pictum</i> (Walckenaer, 1802)	-	1♀	-	Borlova (CS); 20 VII 2006
Family Linyphiidae				
16. <i>Lepthyphantes</i> sp.	-	-	1	Poiana Mărului (CS); 25 VI 2006
17. <i>Linyphia hortensis</i> Sundevall, 1830	-	2♀	-	Poiana Mărului (CS); 25 VI 2006
18. <i>Linyphia triangularis</i> (Clerck, 1757)	-	7♀	5	Borlova (CS); 20 VII 2006
19. <i>Neriene montana</i> (Clerck, 1757)	-	1♀	-	Poiana Mărului (CS); 29 VI 2006
20. <i>Neriene peltata</i> (Wider, 1834)	-	1♀	-	Borlova (CS); 20 VII 2006
21. <i>Porrhomma</i> sp.	-	-	1	Borlova (CS); 20 VII 2006
22. <i>Trichoncus</i> sp.	-	-	1	Oțelu Roșu (CS); 18 VII 2006
23. <i>Walckenaeria antica</i> (Wider, 1834)	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
Family Tetragnathidae				
24. <i>Metellina segmentata</i> (Clerck, 1757)	-	1♀	-	Poiana Mărului (CS); 26 VI 2006
25. <i>Pachignatha degeeri</i> Sundevall, 1830	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
26. <i>Tetragnatha extensa</i> (Linnaeus, 1758)	3♂	5♀	-	Poiana Mărului (CS); 26 VI 2006
Family Araneidae				
27. <i>Aculepeira ceropegia</i> (Walckenaer, 1802)	-	15♀	8	Poiana Mărului (CS); 25 VI 2006
28. <i>Araneus diadematus</i> Clerck, 1757	-	3♀	5	Poiana Mărului (CS); 25 VI 2006
29. <i>Araneus marmoreus</i> Clerck, 1757		-2♀	-	Poiana Mărului (CS); 26 VI 2006
30. <i>Araniella cucurbitina</i> (Clerck, 1757)	4♂	4♀	7	Poiana Mărului (CS); 25 VI 2006
31. <i>Argiope bruennichi</i> (Scopoli, 1772)	1♂	8♀	5	Borlova (CS); 20 VII 2006

Table 1 (continued)

Families/ Species	No. of specimens			Collecting place
	♂♂	♀♀	Juv.	
32. <i>Cercidia prominens</i> (Westring, 1851)	-	1 ♀	-	Poiana Mărului (CS); 29 VI 2006
33. <i>Cyclosa conica</i> (Pallas, 1772)	-	1 ♀	1	Poiana Mărului (CS); 25 VI 2006
34. <i>Gibbaranea bituberculata</i> (Walckenaer, 1802)	-	2		Poiana Mărului (CS); 25 VI 2006
35. <i>Mangora acalypha</i> (Walckenaer, 1802)	-	2 ♀	3	Poiana Mărului (CS); 25 VI 2006
36. <i>Nuctenea umbratica</i> (Clerck, 1757)	-	2 ♀	-	Poiana Mărului; 25 VI 2006
Family Lycosidae				
37. <i>Alopecosa cuneata</i> (Clerck, 1757)	-	1 ♀	-	Poiana Mărului (CS); 26 V 2005
38. <i>Hogna radiata</i> (Latreille, 1817)	2 ♂	2 ♀	4	Poiana Mărului (CS); 29 VI 2006
39. <i>Pardosa agrestis</i> (Westring, 1861)	-	2 ♀	-	Borlova (CS); 20 VII 2006
40. <i>Pardosa alacris</i> (C. L. Koch, 1833)	4 ♂	-	-	Poiana Mărului (CS); 25 VI 2006
41. <i>Pardosa blanda</i> (C. L. Koch, 1833)	-	1 ♀	-	Țarcu Peak (CS); 27 VII 2006
42. <i>Pardosa hortensis</i> (Thorell, 1872)	-	5 ♀	2	Poiana Mărului (CS); 25 VI 2006
43. <i>Pardosa lugubris</i> (Walckenaer, 1802)	-	2 ♀	-	Măru (CS); 23 V 2005
44. <i>Pardosa monticola</i> (Clerck, 1757)	-	2 ♀	-	Țarcu Peak (CS); 27 VI 2006
45. <i>Pardosa nigra</i> (C. L. Koch, 1834)	4 ♂	-	-	Țarcu Peak (CS); 23 VII 2006
46. <i>Pardosa palustris</i> (Linnaeus, 1758)	-	1 ♀	-	Poiana Mărului (CS); 25 VI 2006
47. <i>Pardosa riparia</i> (L. C. Koch, 1833)	-	1 ♀	-	Poiana Mărului (CS); 26 VI 2006
48. <i>Pardosa saltuaria</i> (L. Koch, 1870)	3 ♂	4 ♀	-	Țarcu Peak (CS); 23 VII 2006
49. <i>Pirata hygrophilus</i> Thorell, 1872	-	1 ♀	-	Poiana Mărului (CS); 25 VI 2006
50. <i>Pirata knorri</i> (Scopoli, 1763)	-	1 ♀	-	Poiana Mărului (CS); 25 VI 2006
51. <i>Trochosa ruricola</i> (De Geer, 1778)	-	2 ♀	-	Poiana Mărului (CS); 25 VI 2006
Family Pisauridae				
52. <i>Pisaura mirabilis</i> (Clerck, 1757)	1 ♂	4 ♀	2	Poiana Mărului (CS); 25 VI 2006
Family Agelenidae				
53. <i>Tegenaria domestica</i> (Clerck, 1757)	1 ♂	-	-	Poiana Mărului (CS); 28 VI 2006
Family Dictynidae				
54. <i>Dictyna arundinacea</i> (Linnaeus, 1758)	1	2 ♀	-	Poiana Mărului (CS); 26 VI 2006
Family Miturgidae				
55. <i>Cheiracanthium mildei</i> L. Koch, 1864	-	2 ♀	-	Oțelu Roșu (CS); 23 VII 2006
56. <i>Cheiracanthium pelasgicum</i> (C. L. Koch, 1837)	-	1 ♀	-	Poiana Mărului (CS); 25 VI 2006
Family Liocranidae				
57. <i>Agroeca brunnea</i> (Blackwall, 1833)	-	1 ♀	-	Mic Mountain (CS); 27 VI 2006
58. <i>Agroeca cuprea</i> Menge, 1873	-	1 ♀	-	Cuntu (CS); 27 VI 2006
Family Clubionidae				
59. <i>Clubiona neglecta</i> O. P.-Cambridge, 1862	-	1 ♀	-	Oțelu Roșu (CS); 19 VII 2006
60. <i>Clubiona pallidula</i> (Clerck, 1757)	-	2 ♀	-	Borlova (CS); 20 VII 2006
61. <i>Clubiona terrestris</i> Westring, 1851	1 ♂	-	-	Poiana Mărului (CS); 25 VI 2006
Family Gnaphosidae				
62. <i>Gnaphosa bicolor</i> (Hahn, 1833)	-	1 ♀	-	Mic Mountain (CS); 27 VI 2006

Table 1 (continued)

Families/ Species	No. of specimens			Collecting place
	♂♂	♀♀	Juv.	
63 <i>Gnaphosa lucifuga</i> (Walckenaer, 1802)	-	2♀	-	Poiana Mărului (CS); 29 VII 2006
64. <i>Gnaphosa</i> sp. A	-	-	3	Cuntu (CS); 27 VI 2006
65. <i>Gnaphosa</i> sp. B	-	-	1	Mic Mountain (CS); 27 VI 2006
66. <i>Gnaphosa</i> sp. C	-	-	1	Mic Mountain (CS); 27 VI 2006
67. <i>Drassylus praeficus</i> (L. Koch, 1866)	-	3♀	-	Mic Mountain (CS); 27 VI 2006
68. <i>Micaria pulicaria</i> (Sundevall, 1831)	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
Family Zoridae				
69. <i>Zora spinimana</i> (Sundevall, 1833)	-	-	3	Poiana Mărului (CS); 29 VI 2006
Family Philodromidae				
70. <i>Philodromus aureolus</i> (Clerck, 1757)	-	2♀	-	Oțelu Roșu (CS); 24 VII 2006
71. <i>Philodromus collinus</i> C. L. Koch, 1835	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
72. <i>Philodromus dispar</i> Walckenaer, 1826	1♂	-	-	Borlova (CS); 20 VII 2006
73. <i>Thanatus formicinus</i> (Clerck, 1757)	-	3♀	-	Oțelu Roșu (CS); 24 VII 2006
74. <i>Tibellus oblongus</i> (Walckenaer, 1802)	1♂	-	2	Poiana Mărului (CS); 25 VI 2006
Family Thomisidae				
75. <i>Misumena vatia</i> (Clerck, 1757)	1♂	1♀	2	Poiana Mărului (CS); 25 VI 2006
76. <i>Ozyptila atomaria</i> (Panzer, 1801)	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
77. <i>Ozyptila praticola</i> (C. L. Koch, 1837)	-	2♀	-	Poiana Mărului (CS); 26 VI 2006
78. <i>Ozyptila scabricula</i> (Westring, 1851)	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
79. <i>Pistius truncatus</i> (Pallas, 1772)	-	1♀	-	Borlova (CS); 20 VII 2006
80. <i>Synema globosum</i> (Fabricius, 1775)	1♂	-	-	Poiana Mărului (CS); 26 VI 2006
81. <i>Thomisus onustus</i> Walckenaer, 1805	2♂	-	-	Poiana Mărului (CS); 25 VI 2006
82. <i>Xysticus acerbus</i> Thorell, 1872	1♂	2♀	-	Poiana Mărului (CS); 25 VI 2006
83. <i>Xysticus audax</i> (Schränk, 1803)	-	2♀	-	Poiana Mărului (CS); 25 VI 2006
84. <i>Xysticus cristatus</i> (Clerck, 1757)	-	2♀	-	Borlova (CS); 20 VII 2006
85. <i>Xysticus kochi</i> Thorell, 1872	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
Family Salticidae				
86. <i>Evarcha arcuata</i> (Clerck, 1757)	1♂	-	3	Borlova (CS); 20 VII 2006
87. <i>Evarcha falcata</i> (Clerck, 1757)	2♂	-	1	Borlova (CS); 20 VII 2006
88. <i>Evarcha laetabunda</i> (C. L. Koch, 1846)	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
89. <i>Heliophanus auratus</i> C. L. Koch, 1835	-	1♀	-	Mărul (CS); 24 VII 2006
90. <i>Heliophanus cupreus</i> (Walckenaer, 1802)	2♂	-	-	Poiana Mărului (CS); 26 VI 2006
91. <i>Heliophanus flavipes</i> (Hahn, 1832)	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
92. <i>Heliophanus kochi</i> Simon, 1868	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
93. <i>Heliophanus patagiatus</i> Thorell, 1875	2♂	2♀	-	Mic Mountain (CS); 27 VI 2006
94. <i>Leptorchestes berlinensis</i> (C. L. Koch, 1846)	-	2♀	2	Măru (CS); 24 VII 2006

Table 1 (continued)

Families/ Species	No. of specimens			Collecting place
	♂♂	♀♀	Juv.	
95. <i>Pellenes nigrociliatus</i> (Simon, 1875)	1♂	-	-	Poiana Mărului (CS); 25 VI 2006
96. <i>Phlegra fasciata</i> (Hahn, 1826)	1♂	-	-	Oțelu Roșu (CS); 18 VII 2006
97. <i>Pseudicius encarpatus</i> (Walckenaer, 1802)	-	2♀	-	Poiana Mărului (CS); 26 VI 2006
98. <i>Salticus scenicus</i> (Clerck, 1757)	-	1♀	-	Oțelu Roșu (CS); 23 VII 2006
99. <i>Salticus zebraneus</i> (C. L. Koch, 1837)	-	1♀	-	Poiana Mărului (CS); 25 VI 2006
100. <i>Sitticus pubescens</i> (Fabricius, 1775)	2♂	-	-	Oțelu Roșu (CS); 19 VII 2006

The spiders found in this study belong to four zoogeographical complexes: Holarctic, European, Palaearctic and cosmopolitan. The great majority of spider species were Palaearctic with 55.4%, followed by Holarctic species with 23.9%, European ones with 17.4% and cosmopolitan species 3.3%.

*Pardosa nigra* and *Pardosa saltuaria* are mentioned for the first time for the South-western Romania, in Banat region.

*Heliophanus patagiatus* (Thorell, 1875), *Phlegra fasciata* (Hahn, 1826) and *Sitticus pubescens* (Fabricius, 1775) are mentioned for second time in the fauna of Banat. Till this paper these species were cited only by Kolosvary (1943), Chyzer & Kulczyński (1891-1897).

Also this study is presenting in detail the description of *Pardosa saltuaria* from Romania.

#### *Description of Pardosa saltuaria from South-western Carpathians*

The description is based on alcohol material. The material was collected from the Țarcu Mountains during the summer of 2006. We also examined the material from the "Grigore Antipa" National Museum of Natural History collected by I. Fuhn.

Measurements refer to specified individuals and are given in mm.

#### *Description of male.*

Total length: 4.5 – 4.70; carapace 2.45 long and 1.75 wide.

*Carapace* (Fig. 2). Dark brown with sharp and narrow yellowish median band. In some individuals the median band is less visible. Lateral bands are yellowish, narrow and continuous. The margins of the thoracic part are bordered by a brown band. The cephalic part is dark brown to black. In some individuals the black coloration appears only around the eyes. Clypeus is yellow as the lateral bands. Chelicerae yellowish at the base and brown at the apical part. On the anterior part of chelicerae longitudinal reddish-brown lines can be seen. Sternum grayish brown with a light median stripe.

*Abdomen* (Fig. 2). Dorsally brown with lanceolate yellowish stripe bordered by a black line. Rearwardly, five transverse bars usually hardly visible are present. Sides of the abdomen are grayish brown with yellowish spots. Venter is reddish brown and covered with dense white hairs. The length of these hair is of 0.09-0.1 mm. On each side of the ventral part of the abdomen a row of small white dots with

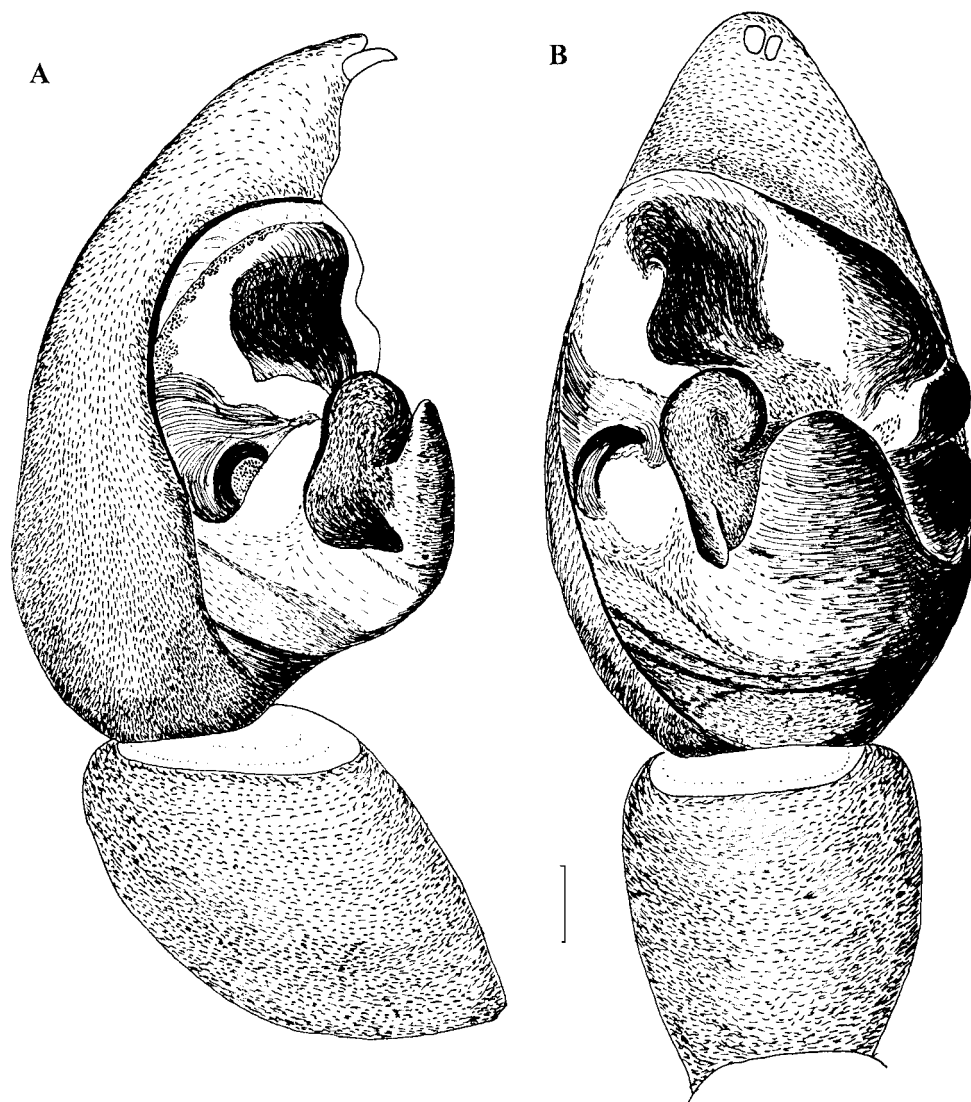


Fig. 1 – *Pardosa saltuaria* (L. Koch, 1870) (from South-western Carpathians). Male pedipalpus: A, lateral view; B, ventral view. Scale bars (in mm): 0.1.

brown margins is present. The spinnerets are completely black or dark brown. In some individuals only the base of spinnerets is of dark colour, the apical part being yellow.

*Legs* (Fig. 2). Yellowish, with brown longitudinal stripes on the dorsal part of the femora. Also the dorsal part of the coxae is brown. On the dorsal part of the tarsus and metatarsus I and II, in the basal half are two long spines: 3 times diameter. Also on the lateral parts of the metatarsus and tarsus I and II there are long spines. The dimensions of the leg segments can be seen in the table 2.

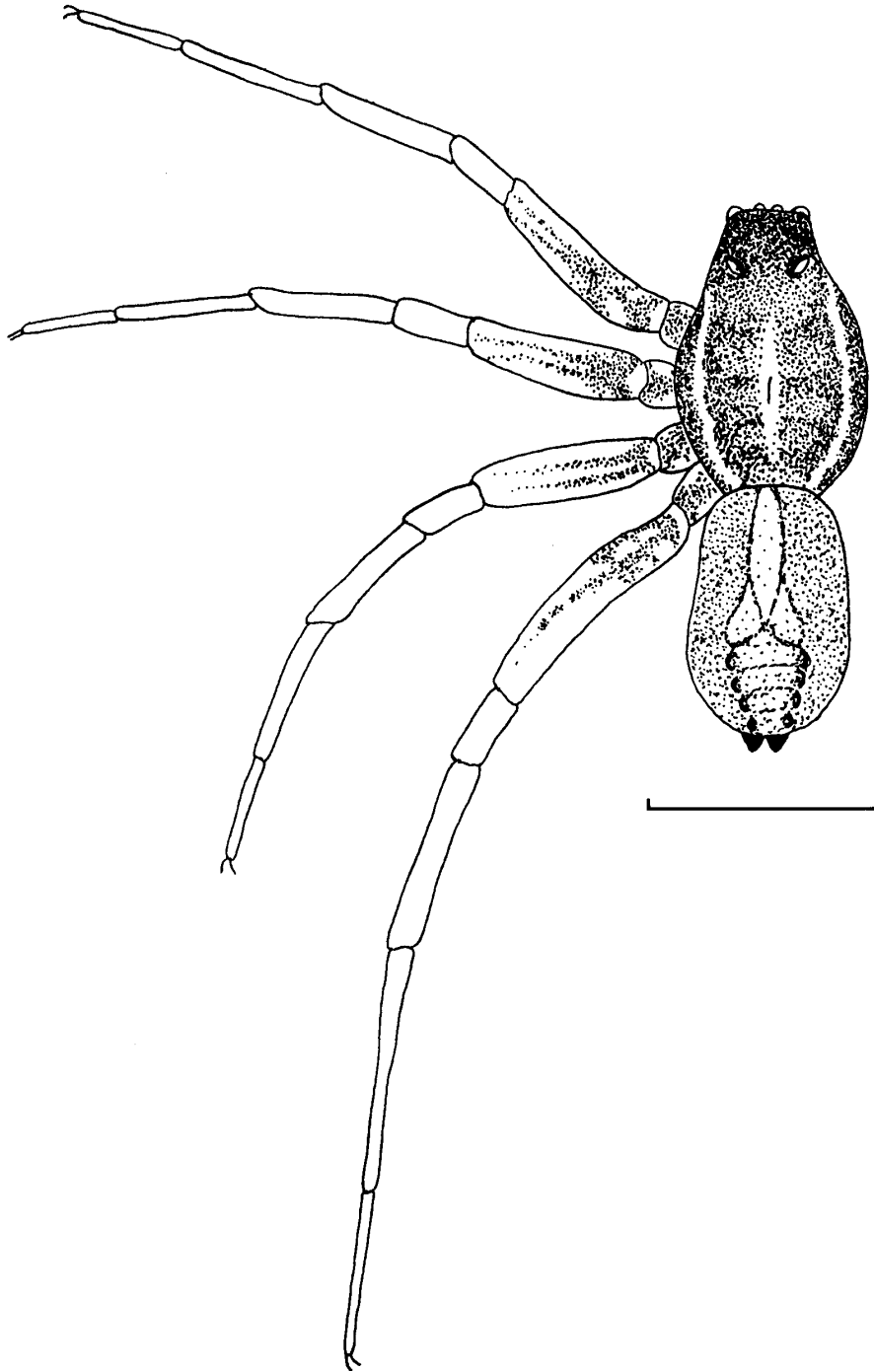


Fig. 2 – *Pardosa saltuaria* (L. Koch, 1870) (from South-western Carpathians). Dorsal habitus of male. Scale bars (in mm): 2.



Table 2

Measurements of leg segments in males of *Pardosa saltuaria*.

Leg	Femora	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.55	0.55	1.35	1.30	1.00	5.75
II	1.60	0.65	1.10	1.20	1.00	5.55
II	1.45	0.55	1.10	1.35	0.85	5.30
IV	2.00	0.80	1.70	2.25	1.20	7.95

*Palp* (Fig. 1 A, B). Femur, patella and tibia blackish brown and furnished with dark hairs.

Cymbium is short, brown in color and covered with dark hairs. Apically, there are two spines in the cymbium. All male specimens of *Pardosa saltuaria* collected from South-western Carpathians had two spines on the tip of the cymbium. The tegular apophysis is broad and rounded at the apical part. The length of the tegular apophysis is between 0.22 - 0.25 mm. The terminal apophysis (Fig. 3 C) is slightly different from that of other species of this group.

*Description of the female.*

Total length 5.25; carapace 2.75 long and 1.90 wide.

*Carapace.* The colours of the females are lighter than in male. The carapace is dark brownish with yellowish sharp median band and continuous yellowish lateral bands. The lateral bands are much broader than those in males. The margins of thoracic part are boarded by a dark narrow line. Clypeus yellowish. Chelicerae yellowish with reddish brown apical part. The darker longitudinal stripes present in males are less visible. Sternum grayish brown with a lighter spot in the center.

*Abdomen.* Dorsally with brownish lanceolate stripe bordered by a fine black line. Also five transversal bars clearly visible are present. Sides of the abdomen brownish with grey spots. Venter is yellowish brown and also covered with only white hairs. The spinnerets are dark brown completely or only at the base.

*Legs.* Brown yellowish with brownish longitudinal stripes on the dorsal part of coxae and femora. Also, on the tibia and metatarsus slight brown annulations are present. At the basal half of the tarsus I and II there are one or two dorsal spines 3 times the diameter. On the lateral part of the tarsus and metatarsus I and II long spines are also present.

Table 3

Measurements of leg segments in females of *Pardosa saltuaria*.

Leg	Femora	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.15	0.90	1.70	1.55	1.15	7.45
II	1.90	0.85	1.50	1.85	1.15	7.25
II	1.90	0.80	1.50	1.80	1.15	7.15
IV	2.55	1.10	2.10	2.90	1.45	10.10

*Epigyne.* The shape of the epigyne from the females collected in South-western Carpathians resembles that of *Pardosa evelinae*. The epigynal plate is broad and has rounded lateral wings. The lateral margins of the plate are slightly curved (Fig. 3 A).

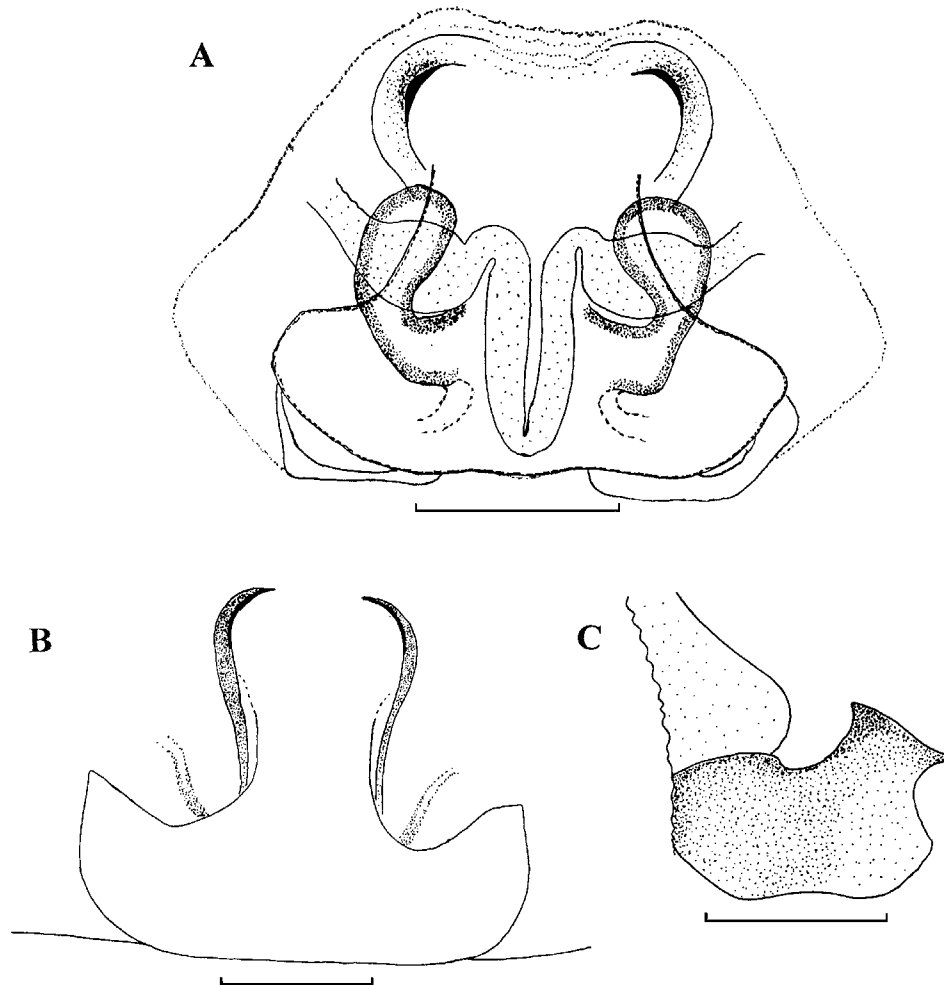


Fig. 3 – *Pardosa saltuaria* (L. Koch, 1870). A, dorsal vulva of female from South-western Carpathians; B, epigyne of female from northern Carpathians; C, terminal apophysis of male from South-western Carpathians. Scale bars (in mm): A, B, C, 0.2.

In specimens collected by Fuhrn from the northern Carpathians (including Bucegi Mountains), the epigynal plate is much narrower and has somehow a reverse T shape (Fig. 3 B). The lateral margins of the epigynal plate are strongly carved. In other words in these specimens the epigyne resembles perfectly that of *P. saltuaria* described from Tatra Mountains (Terra Typica of this species).

#### DISCUSSIONS

After a close examination of all material collected from Romania we can say that the specimens of *Pardosa saltuaria* from the Carpathians can be divided in two groups, morphologically. In the Northern Carpathians (Rodnei) including Bucegi Mountains, populations of *P. saltuaria* resemble exactly the specimens from Tatra

Mountains. Unfortunately, from these parts Fuhn collected only females and we can not say anything about the males from the above cited locations.

The populations from the South-western Carpathians (Retezat, Parâng and Țarcu Mountains) present a strange mixture of morphological characteristics (in 2003 Fetykó & Urák observed some morphological differences and reported *Pardosa oreophila* from the Retezat Mountains, too):

- the individuals are smaller: males have between 4.5-4.75 mm; females are between 5.25 and 5.5 mm;

- on the tip of the cymbium all males have two spines like in the case of *P. oreophila* and *P. hyperborea*;

- the terminal apophysis (Fig. 3 C) is slightly different from those of the other species described by Wunderlich (op. cit.);

- on the tarsus and metatarsus I and II there are two spines with a length 3 times the diameter, just like in *P. oreophila*, *P. saltuaria* and *P. evelinae*;

- on the lateral part of the tarsus and metatarsus I and II long hairs are present. This characteristic is also present in *P. oreophila* and *P. evelinae*;

- on the ventral part of the opisthosoma there are only white hairs (the brown hairs are missing) 0.09-0.14 mm long. This feature is different from all other species described by Wunderlich (op. cit.) in Europe;

- the epigyne and vulva of females are similar to *P. evelinae* from the Giant Mountains.

Till this moment, on the base of our investigations we can say that the populations of *P. saltuaria* from the South-western Carpathians are slightly different from those found in the Northern Carpathians.

They have a strange mixture of morphological characteristics of *P. oreophila* from Alps and of *P. evelinae* from the Giant Mountains and also some particular features. However for the time being we can't say if the populations from the South-western Carpathians belong to a new species in the *saltuaria* group or not.

The only way for solving this problem is by ethological approach like in the case of *Pardosa lugubris* group.

According to Mayr (1963), species are defined by having separate gene pools and mechanisms that insure the impossibility of mating with others. On this base we infer that future ethological researches must be made in the *saltuaria* group to determine if there are mechanisms that prevent mating between these species, or not.

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#### FAUNA ESTIVALĂ DE ARANEE (ARACHNIDA: ARANEAE) DIN MUNȚII ȚARCU (ROMÂNIA) CU REDESCRIEREA SPECIEI *PARDOSA SALTUARIA* (L. KOCH, 1870) DIN SUD VESTUL CARPAȚILOR

#### REZUMAT

Deși speciile acestui grup au fost investigate îndeaproape în ultimele decenii (Wunderlich J., 1984, Muster și colab., 2006) taxonomia grupului este departe de a fi elucidată. În plus putem spune că populațiile de *Pardosa saltuaria* din Carpații Românești nu au fost niciodată atent studiate. Singurele

semnalări și descrieri ale speciei sunt cele efectuate de Fuhn în anii 70. În acea perioadă autorul însă a efectuat o descriere relativ sumară neinsistând pe detalii. În lucrarea de față prezentăm redescoperirea morfologică detaliată a speciei *Pardosa saltuaria* (L. Koch, 1870) din sud-vestul Carpaților. Deasemenea sunt prezentate și date faunistice preliminare asupra arahnofaunei munților Țarcu.

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