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A review of Bulgarian pseudoscorpions (Arachnida, Pseudoscorpionida)

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ABSTRACT

The paper is an outline survey on Bulgarian pseudoscorpions. Until now 43 species belonging to 8 families and 18 genera are reported from Bulgaria. The most diverse are the genera *Chthonius* C. L. Koch, 1843 (Chthoniidae) with 7 species and *Neobisium* Chamberlin, 1930 (Neobisiidae) with 12 species. Other genera are represented by 1-4 species each. Twelve species are endemic to the country. The taxonomic status and distribution of some chernetid and cheliferid pseudoscorpions are not clear yet. Also the data on the distribution of all species are insufficient.

Considering that the pseudoscorpion fauna of neighbouring countries (Romania, Yugoslavia, Macedonia, Greece) is rich - especially in endemics and relicts, it may be expected that the fauna of false scorpions in Bulgaria is much more diverse than is presently known.

INTRODUCTION

The Bulgarian pseudoscorpion fauna is not well researched, both in biogeographical and taxonomical aspects. Only some cavernicolous species of genera *Chthonius*, *Neobisium* and *Roncus* are comparatively better known. Speleologically studied caves in Bulgaria are over 4500. At the moment the biospeleological data are available from only 650 caves (Beron 1994) and most of them are incompletely studied. For about 25 of them is known to be inhabited by pseudoscorpions. A big amount of data on the distribution of false scorpions in the country (Beron in litt.) is still unpublished. Poorly known are litter, bark and soil dwelling species.

HISTORICAL BACKGROUND

The first known contribution to the knowledge of Bulgarian false scorpions was provided by Redikorzev (1928). He reported 15 species (5 new for science), mainly from caves. In 1930 Buresch reported ten species new for the country. His collection has been sent to V. Redikorzev in St. Petersburg. In 1932 Beier described *Pselaphochernes balcanicus* from Bulgarian part of

Thrace. In 1940 Hadži added eight species, three of them as new for the science. An addition to the fauna of pseudoscorpions with inadequate scientific value is due to the agronomist D. Shikrenov. In 1961, the latter reported *Lamprochernes nodosus* (Schrank), collected from unknown storehouse for grain. Beier (1963) described cavernicolous *Neobisium beroni* and, on its base described a new subgenus - *Heoblothrus*. Beron (1967) supplemented for the fauna of Bulgaria two atemnid and three chernetid pseudoscorpions. Mahnert (1971, 1974) reported two new cavernicolous neobisiids for the Balkan fauna and recorded the occurrence of the subgenus *Blothrus* in Bulgarian caves.

Ćurčić (1975) described a new genus - *Balkanoroncus* for *Roncus buresch* Hadži. In 1978 the same author assigned *Neobisium bureschi* to the genus *Balkanoroncus* and united two cavernicolous neobisiids described by Redikorzev into one species - *Neobisium bulgaricum*. In 1981 Ćurčić and Beron reported new localities for *Roncus parablothroides* Hadži and described a new cave-dwelling species - *Roncus mahnerti*. Recently, Harvey (1990) replaced the name *Balkanoroncus praeceps* Ćurčić, 1978 with the new name *Balkanoroncus hadžii*. Beron (1996) reported two new families - Geogarypidae and Olpiidae for the fauna of Bulgaria. Today Bulgarian fauna of false scorpions comprises 43 species.

SPECIES ACCOUNT

The list includes all species of pseudoscorpions in Bulgaria. All localities are given; type localities are indicated with (Loc. typ.); the authors of the reports are given in square brackets. Classification is after Harvey (1990).

Family **Chthoniidae** Daday, 1888

Genus ***Chthonius*** C. L. Koch, 1843

The genus is represented by seven species. Only one is a typical cave-dweller.

C. **(*Chthonius*)** ***cavophilus*** Hadži, 1940: cave Dolnata peshtera, village Zlatna Panega, Distr. Lovetch (Loc. typ.) [Hadži 1940]. The description is based on a single male. Although the specimen was collected in a cave, it was not cavernicolous (four eyes, well pigmented). It may be expected in other similar biotopes in the region.

C. **(*Chthonius*)** ***ischnocheles*** (Hermann, 1804): Mountain hut Rai, Central Stara Planina Mt., 1600 m, [Buresch 1930]. Reported only once, the species is probably common in Bulgaria.

C. **(*Chthonius*)** ***tenuis*** L. Koch, 1873: cave Lednika near town of Kotel, Eastern Stara Planina Mt. [Redikorzev 1928]. The occurrence of the species in the caves is accidental. Bulgaria is the eastern boundary of its distribution in Europe, probably a common species in the country.

C. (***Chthonius***) ***troglodytes*** Redikorzev, 1928: cave Kassapnitzite, village Karlukovo, Distr. Lovetch (Loc. typ) [Redikorzev 1928]; cave Haidushkata peshtera, village Devintci, Distr. Pleven [Buresch 1930]; cave Haidushka dupka, village Karlukovo, Distr. Lovetch [Hadži 1940]. Typical cavernicolous resident. Inhabits many caves in Karlukovo-Kunino karstic region.

C. (***Ephipiochthonius***) ***microtuberculatus*** Hadži, 1937: Lyulin Mt. near Sofia, 1000 m, [Hadži 1940]. The distribution is not known.

C. (***Ephipiochthonius***) ***serbicus*** (Hadži, 1937): cave Temnata dupka, village Lukovit, Distr. Lovetch [Hadži 1940]. Only a single male examined. The species was identified as *Ch.* (*E.*) *serbicus* basing on its pedipalpal measurements. Both species status and its occurrence in northern Bulgaria are doubtful.

C. (***Ephipiochthonius***) ***tetrachelatus*** (Preyssler, 1790): Vitosha Mt. above Sofia, 1000 m, [Buresch 1930]. Widely distributed in Europe and adjacent to the country regions, the species is reported from a single locality in Bulgaria. Doubtless, it inhabits different habitats all over the country.

Family **Geogarypidae** Chamberlin, 1930

Genus ***Geogarypus*** Chamberlin, 1930

G. minor L. Koch, 1873: Kresna gorge, Kresnensko Hanche, Distr. Blagoevgrad [Beron 1996]. The species is common all over the Mediterranean region, in Bulgaria it is known only from Struma river valley, but is probably common in SE part of the country (Eastern Rhodops Mt., Sakar Mt. and Strandja Mt.)

Family **Olpiidae** Banks, 1895

Genus ***Olpium*** L. Koch, 1873

O. pallipes balcanicum Beier, 1931: Primorsko, Distr. Bourgas, South Bulgarian Black Sea coast [Beron 1996]. According to Beier (1963) the species occurs in the eastern part of the Mediterranean basin, it is probably common in all Black Sea coastal regions.

Family **Neobisiidae** Chamberlin, 1930

Genus ***Balkanoroncus*** Ćurčić,1975

The genus has disjunct distribution and occurs in the caves in Bulgaria and NE Italy. Its representatives are concidered to be descendants of an ancient faunal complex. Two species are known from Bulgaria.

B. bureschi (Hadži, 1940): cave Razishkata peshtera, railway station Lakatnik, Iskur river gorge, Distr. Sofia (Loc. typ.) [Hadži 1940]. It is a typical cave-dweller which inhabits only one cave and probably will not be found in other caves in the karstic region of Lakatnik railway station.

B. hadžii Harvey, 1990: cave Seevata dupka, village Malka Brestnitza, Distr. Lovetch (Loc. typ.) [Redikorzev 1928]; cave Djebin trap, village Gradeshnitza, Distr. Lovetch [Ćurčić 1978]. Because of the similarities in genesis of all caves and other subterranean habitats in Teteven's karstic regions and own data (Petrov in lit.), the species inhabits some other caves in this area also.

Genus ***Neobisium*** Chamberlin, 1930

The most variable genus of false scorpions in Bulgaria, comprising 12 species. The occurrence of two of them is doubtful; three are cavernicolous. Many new species, mainly from caves in Western Stara Planina Mt. (Beron in litt.) are yet to be described.

N. (***Neobisium***) ***carcinoides*** (Hermann, 1804): Pirin Mt., top Kameniti, 2700 m, [Redikorzev 1928]; Vitosha Mt. above Sofia, 1000 m, [Buresch 1930, Hadži 1940]. In Bulgaria may be expected in mountain regions above 900 m.

N. (***Neobisium***) ***cephalonicum*** (Daday, 1888): Vitosha Mt. above Sofia, 1200 m; Lyulin Mt. above Sofia, 1000 m; unknown locality in Sakar Mt., Distr. Haskovo [Hadži 1940]. Probably widespread in Bulgaria, up to 1500 m.

N. (***Neobisium***) ***fuscimanum*** (C. L. Koch, 1843): Osogovo Mt., Distr. Kyustendil [Buresch 1930]; Vitosha Mt. above Sofia, 1200 m; unknown locality in Sakar Mt. [Hadži 1940]. Probably a common species.

N. (***Neobisium***) ***hellenum*** (Simon, 1885): cave Kassapnitzite, village Karlukovo, Distr. Lovetch [Redikorzev 1928]. Single female determined by Redikorzev. The occurrence of this western European species in the eastern part of the Balkan peninsula is doubtful.

N. (***Neobisium***) ***intermedium*** Mahnert, 1974: cave Prolazkata peshtera, village Prolaz, Distr. Turgovishte [Mahnert 1974]. The species is not cavernicolous and probably occurs in other karstic regions of the country.

N. (***Neobisium***) ***macrodactylum*** (Daday, 1888): cave Drenovskata, near town of Kotel, Central Stara Planina Mt. [Redikorzev 1928]. Occurrence of this species in the cave is accidental. The distribution in Bulgaria is unclear.

N. (***Neobisium***) ***praecipuum*** (Simon, 1879): Borovetz, Rila Mt., 1400 m, [Buresch 1930]. Western European species, its occurrence in the country is doubtful.

N. (***Neobisium***) ***simile*** (L. Koch, 1873): cave Kassapnitzite, village Karlukovo, Distr. Lovetch [Redikorzev 1928]. Occurrence in Bulgaria is doubtful.

N. (***Neobisium***) ***sylvaticum*** (C. L. Koch, 1835): Vitosha Mt. above Sofia [Buresch 1930]; village Narechen, Western Rhodops Mt., Distr. Plovdiv [Hadži 1930]. Some preliminary data (Petrov in litt.) shows that this species is widespread in the country.

N. (***Blothrus***) ***kwartirnikovi*** Mahnert, 1971: cave Duhlata, village Bosnek, Distr. Pernik (Loc. typ.) [Mahnert 1971]. The only representative of the subgenus *Blothrus* in Bulgaria. Typical cave-dweller.

N. (***Heoblothrus***) ***beroni*** Beier, 1963: cave Svinskata peshtera, railway station Lakatnik, Iskur river gorge, Distr. Sofia (Loc. typ.) [Beier 1963]. Subgenus *Heoblothrus* was erected by Beier (1963) due to the presence of granulations on the pedipalpal femur. As suggested by Ćurčić (1978), sugenus might be considered accurate with some reservations.

N. (***Helobothus***) ***bulgaricum*** (Redikorzev, 1928): cave Yelovitza, cave Toplya, both village Golayma Golyazna, Distr. Lovetch (Loc. typ.) [Redokorzev 1928]. After reexamination of the type material, Ćurčić (1978) united of the male of *Neobisium subterraneum* erected by Redikorzev (1928) with the male of the present species. It probably occurs in some other caves in the same karstic region.

Genus ***Roncus*** L. Koch, 1873

Until now, four species of the genus are known from Bulgaria. Two of them are cavernicolous, occurrence of one on the Balkans is doubtful.

R. euchirus E. Simon, 1879: cave Devetashkata peshtera, village Devetaki, Distr. Lovetch [Redikorzev 1928]. Single female had been examined by Redikorzev. Considering the distribution of that species (France), its occurrence in Bulgaria is doubtful. The author's own observations in the same cave show a presence of another *Roncus* species - *R. parablothroides*.

R. lubricus L. Koch, 1873: cave Yavoretz, village Lakatnik, West Stara Planina Mt., 1000 m, [Redikorzev 1928]; above hut Rai, Central Stara Planina Mt., 1600 m [Buresch 1930]. Because of its the distribution range, the specimen(s) identified by Redikorzev under its present name, may be assumed as uncertain.

R. mahnerti Ćurčić *et* Beron, 1981: cave Vodnata dupka, village Botunya, Distr. Vraca (Loc. typ) [Ćurčić & Beron 1981]. The species is closely related to *R. parablothroides*, but has typical cavernicolous appearance (absence of eyes or eye spots, ellongated appendages).

R. parablothroides Hadži, 1937: top Persenk, West Rhodops Mt., 1800 m, [Hadži 1940]; cave Haidushka dupka, village Devintzi, Distr. Pleven; cave Dyado-Draganovata peshtera, town of Teteven, Distr. Lovetch; cave Mecha dupka, village Lepica, Distr. Vraca [Ćurčić & Beron 1981]. Described from Macedonia, the species seems to be widely distributed in the Balkans (caves and other habitats); occurs also in southern part of European Turkey (Ćurčić & Beron 1981) and Caucasus (Dashdamirov & Schawaller 1992). The species is closely related to many East Serbian *Roncus* species. Own

observations show *R. parablothroides* to be polytypic species occupying different habitats in Bulgaria. Future morphometric surveys will clarify the similarity between remote populations of that interesting representative of the genus.

Family **Atemnidae** Chamberlin, 1931

Genus ***Atemnus*** Canestrini, 1883

A. politus (E. Simon, 1878): site Poda, close to river Kamchiya, Bulgarian Black Sea coast, Distr. Varna [Beron 1968]. According to Beier (1963) the species is widespread in the whole Mediterranean region. It is probably common in Bulgarian lowlands.

Genus ***Diplotemnus*** Chamberlin, 1933

D. ophtalmicus Redikorzev, 1949: village German near Sofia; village Dulgopol, Distr. Varna; village Staro Jelezare, Distr. Plovdiv; village Streltzi, Distr. Plovdiv [Beron 1968]. Own data shows that the species has wide distribution in the whole country in different habitats.

Family **Cheliferidae** Risso, 1826

Genus ***Chelifer*** Geoffroy, 1762

C. cancroides (Linnaeus, 1758): town of Sofia; town of Bourgas, Bulgarian seaside [Redikorzev 1928]; village Ludjene (now Velingrad), Distr. Pazardjik; German monastery, Lozen Mt., 700 m, Distr. Sofia; village Sadovo, Distr. Plovdiv; village Bankya near Sofia [Buresch 1930]; Borovetz, Rila Mt., 1350 m, near town of Samokov, Distr. Sofia; village Karlukovo, Distr. Lovetch [Hadži 1940]. Known as synantropic, the species can also be found under stones, in nests of birds and other habitats in Bulgaria up to 1350 m.

Genus ***Dactylochelifer*** Beier, 1932

D. latreillei (Leach, 1817): Atanasovsko lake near town of Bourgas, Bulgarian seaside [Buresch 1930]. Despite its single locality, the species has wider distribution in the country.

Genus ***Hysterochelifer*** Chamberlin, 1932

H. meridianus (L. Koch, 1873): Kresna gorge, Struma river valley, Distr. Blagoevgrad [Buresch 1930]; town of Petrich, Struma river valley, Distr. Blagoevgrad; village Velichkovo, village Ognyanovo, both Distr. Pazardjik [Beron 1968]. The species is probably widely distributed in Bulgaria.

Genus ***Rhacochelifer*** Beier, 1932

R.(?) balcanicus (Redikorzev, 1928): town of Bourgas, Bulgarian seaside (Loc. typ.) [Redikorzev 1928]. A single specimen of uncertain sex (female?) was discribed by Redikorzev as a new species. Beier (1963) did not include it in the key of the genus, but noticed that it may belongs to the genus *Rhacochelifer*.

Family **Chernetidae** Menge, 1855

Genus ***Allochernes*** Beier, 1932

A. bulgaricus Hadži, 1940: Vitosha Mt. above Sofia [Hadži 1940]. A single male specimen was examined by Hadži. Its status and distribution are unclear.

Genus ***Chernes*** Menge, 1855

C. cimicoides (Fabricius, 1793): village Iskretz, West Stara Planina Mt., Distr. Sofia [Beron 1968]. Widely distributed in Europe and probably common in Bulgaria.

C. hahnii C. L. Koch, 1839: site Poda, close to river Kamchiya, Bulgarian Black Sea coast, Distr. Varna [Beron 1968]. The species seems widespread in the country.

C. similis (Beier, 1933): Vitosha Mt. above Sofia [Hadži 1940]. Reported as *Allochernes* (*Toxochernes*) *karamani* Hadži, 1937, later synonymised by Beier (1963) and finally placed into the present genus by Mahnert (1978). The species has broad distribution in different habitats in Bulgaria.

Genus ***Dendrochernes*** Beier, 1932

D. cyrneus (L. Koch, 1873): village Krivo-pole, Distr. Haskovo [Redikorzev 1928]. Although single juvenile specimen was examined by Dr. V. Redikorzev, the species doubtless occurs in the country.

Genus ***Lamprochernes***, Tomosvary, 1882

L. chyzeri (Tomosvary, 1882): river Chukurska reka (?), 800 m, West Rhodops Mt. [Buresch 1930] - Probably common in different habitats in the country.

L. nodosus (Schrank, 1761): Borovetz, Rila Mt., 1400 m, [Buresch 1930]. Reported also by Shikrenov (1961) under the name *Chelifer nodosus* Schrnk (sic!) and indicated to 'occur in barley's supplies in storagehouse for grains'. The mentioned storagehouse is probably situated in the vicinity of town of Plovdiv, central south Bulgaria.

Genus ***Pselaphochernes*** Beier, 1932

P. balcanicus Beier, 1932: Novo selo (?), Mt. Botev(?), Thracia [Beier 1932]. In the Bulgarian part of Thrace there are five villages with the name Novo selo, so the exact mapping the locality is almost impossible. Probably it is a good species; Harvey (1990) indicated Turkey in its distribution range.

P. scorpioides (Hermann, 1804): city park in the town of Sofia [Beron 1968]. As in all of Europe, perhaps widely distributed in Bulgaria.

Family **Withiidae** Chamberlin, 1931

Genus ***Withius*** Kew, 1911

W. hispanus (L. Koch, 1873): village Fandukli (?) (probably village Shkorpilovtzi), Distr. Varna, Bulgarian Black Sea coast, [Hadži 1940]. Beier

(1963) indicated that the species is distributed in South Europe from Spain to the Balkan peninsula. Probably it is common in Eastern Bulgaria.

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