

## AN OVERVIEW OF HARVESTMEN (ARACHNIDA: OPILIONES) IN BOSNIA AND HERZEGOVINA

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**Novak, T.: An overview of harvestmen (Arachnida: Opiliones) in Bosnia and Herzegovina. Nat. Croat., Vol. 14, No. 4, 301–350, 2005, Zagreb.**

A critical review of the literature on harvestmen from Bosnia and Herzegovina was performed, and data from major collections of harvestmen in Bosnia and Herzegovina have been listed to provide an overview of recent knowledge on the topic. Where needed, comments and/or corrections have been added to avoid further confusion. At the moment, 54 valid species and two subspecies have been identified of 59 nominal species in Bosnia and Herzegovina. Six nominal species must be confirmed with respect to taxonomical status and validity. Systematic taxonomical revisions are strongly required in the *travuniid* genera and in *Paranemastoma*. Six further species may be present in the country, and the discovery of new species cannot be excluded. According to present knowledge, the richness of the harvestman fauna of Bosnia and Herzegovina is comparable to that in the surrounding countries.

**Key words:** arachnids, bibliography, Bosnia and Herzegovina, Opiliones

**Novak, T.: Pregled faune kosaca (Arachnida: Opiliones) Bosne i Hercegovine. Nat. Croat., Vol. 14, No. 4, 301–350, 2005, Zagreb.**

U svrhu dobivanja trenutnog stanja poznavanja teme rada, donosi se kritički pregled literature o koscima Bosne i Hercegovine te podaci iz glavnih zbirki kosaca u Bosni i Hercegovini. Da bi se izbjegle eventualne daljnje greške dodani su i komentari i/ili ispravci. U Bosni i Hercegovini sa sigurnošću su utvrđene 54 važeće vrste i jedna podvrsta od 59 nominalnih vrsta. Za šest nominalnih vrsta potrebne su taksonomske revizije, što je pogotovo nužno u *travuniidnim* rodovima te u rodu *Paranemastoma*. Potencijalno tu živi još šest vrsta, a ne treba isključiti ni otkrivanje novih. Prema sadašnjim spoznajama bogatstvo faune kosaca Bosne i Hercegovine može se usporediti s faunama kosaca susjednih zemalja.

**Ključne riječi:** paučnjaci, bibliografija, Bosna i Hercegovina, Opiliones

## INTRODUCTION

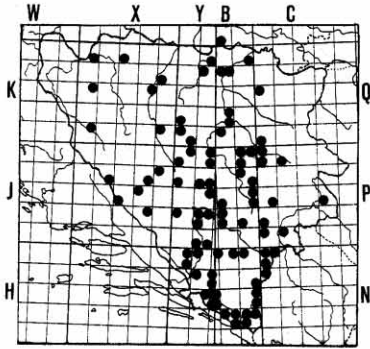
The first citation of opilionids in Bosnia and Herzegovina was provided by MÖLLENDORFF (1873), and 30 years later by DAHL (1903). Subsequently, the most knowledge was added by ABSOLON (1913, 1914, 1927), ABSOLON & KRATOCHVÍL (1932), ROEWER (1910, 1911, 1912, 1914, 1915, 1917, 1923, 1935, 1950, 1951, 1956, 1957, 1966), HADŽI (1926/27, 1932, 1933, 1940, 1942, 1965, 1973a, b), KRATOCHVÍL (1936, 1937, 1946, 1958), and MARTENS (1969, 1978a, b), among others. In this contribution the aim was to perform a review of harvestmen inhabiting Bosnia and Herzegovina, based on both bibliographic data and collection records. The published data were critically examined in terms of their taxonomic and biogeographic values, and data from some of the most important collections containing opilionids from Bosnia and Herzegovina were recorded. The 10 × 10 km<sup>2</sup> UTM codes (Figs. 1–1 to 1–30) were determined according to the corresponding UTM grid (SURVEY, 1969), and the atlas of Croatia (GROŠELJ, 2002). Where available, the altitude was added. The system followed that of BLICK & KOMPOSCH (2004). The photographs and drawings were made using Olympus CH30 microscope with a drawing tube, and the Olympus C 4040 Zoom Digital Camera.

## Abbreviations and symbols used

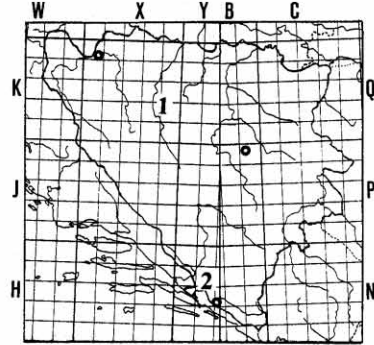
•	general record for Bosnia and Herzegovina or a part thereof
YH44	UTM code
*	expected in Bosnia and Herzegovina
□ <i>italics</i>	wrong or doubtful citation or determination, or no concrete record available
?	uncertain taxonomic status, possible synonymy
IBU	Coll. Institute of Biology, University of Ljubljana
JH	(remains of) J. HADŽI Coll.
JM	Coll. J. MARTENS
NHMW	Coll. Naturhistorisches Museum, Wien
PANW	Coll. Instytut Zoologiczny, Polska Akademia Nauk, Warszawa
PMSL	Coll. Slovene Museum of Natural History, Ljubljana
R	Coll. C. F. ROEWER
SMF	Coll. Senckenberg-Museum, Frankfurt/Main
TN	Tone NOVAK determination
ZMB	Coll. Zoologisches Museum Berlin
m, mm	male(s)
f, ff	female(s)
pl.	plural, many of them
juv.	juvenile
sub	published under the name

**Figs. 1-1 to 1-30.** The UTM grid with marked squares 20x20 km of Bosnia and Herzegovina recorded for harvestmen (blank circles – literature data, full circles – collection data).

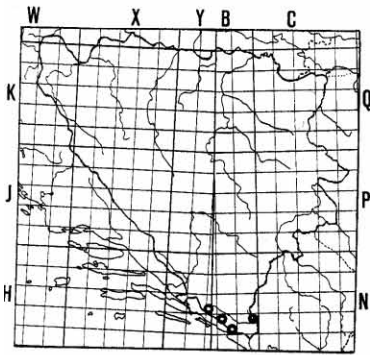
⇒



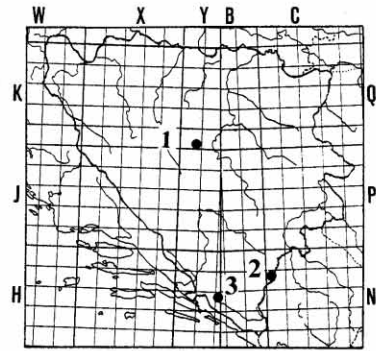
1-1 UTM squares related to the presented data



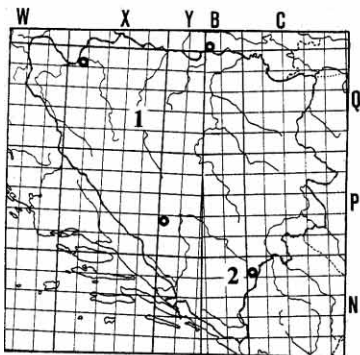
1-2 1 *Mitostoma chrysomelas* (HERMANN, 1804), and 2 *Cyphophthalmus duricorius duricorius* JOSEPH, 1868



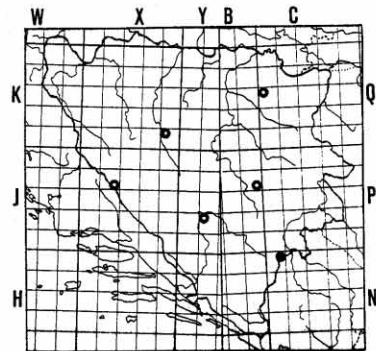
1-3 *Abasola troglodytes* (ROEWER, 1915)



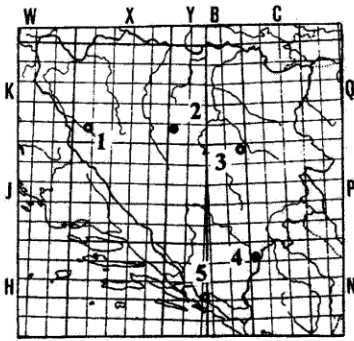
1-4 1 *Nemastoma bidentatum pluridentatum* (HADŽI, 1973), and 2 *Travunia borisi* (HADŽI, 1973), and 3 *T. vjetrenicae* HADŽI, 1932



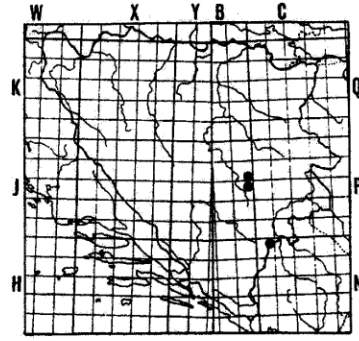
1-5 1 *Nemastoma bidentatum sparsum* GRUBER & MARTENS, 1968, and 2 *Holoscotolemon jaqueti* (CORTI, 1905)



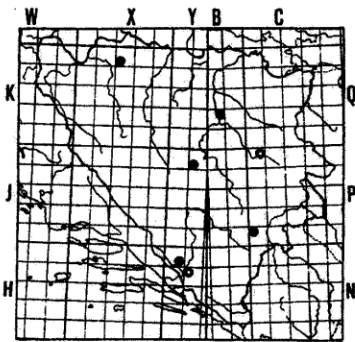
1-6 *Carinostoma carinatum* (ROEWER, 1914)



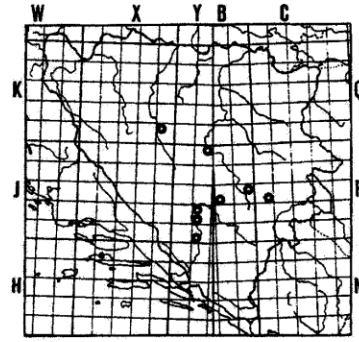
1-7 1 *Hadzinia karamani* (HADŽI, 1940), 2 *Pyza bosnica* (ROEWER, 1919), 3 *Mitostoma cancellatum* (ROEWER, 1917), 4 *Carinostoma ornatum* (HADŽI, 1940), and 5 *Trogulus tricarinatus hirtus* DAHL, 1903



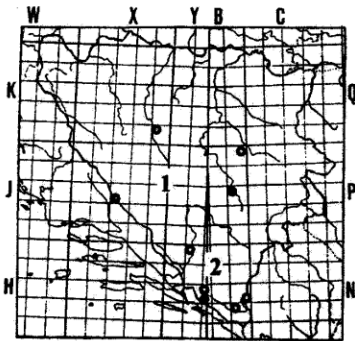
1-8 *Histricostoma dentipalpe* (AUSSERER, 1867)



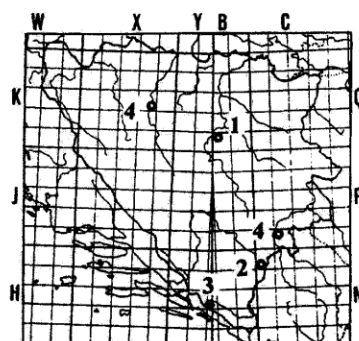
1-9 ● *Paranemastoma armatum* (KULCZYNSKI, 1909), and ● *P. radewi* (ROEWER, 1926)



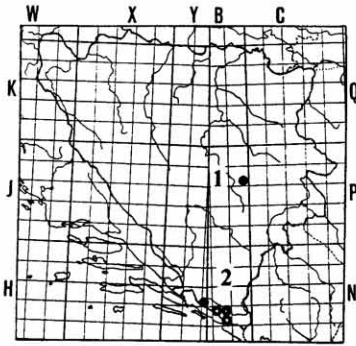
1-10 *Paranemastoma moesiacum* ROEWER, 1917



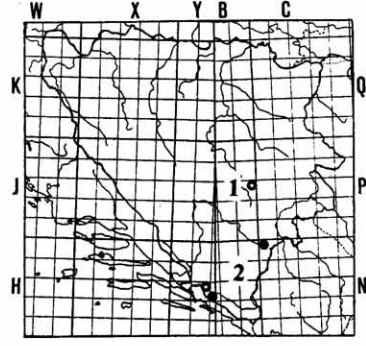
1-11 1 *Dicranolasma scabrum* (HERBST, 1799), and 2 *D. verhoeffi* DAHL, 1903



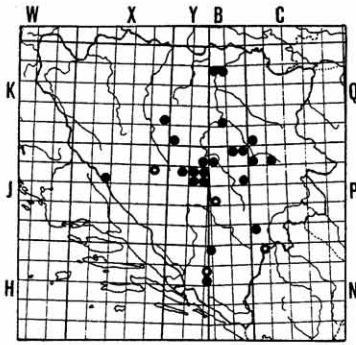
1-12 1 *Anelasmaocephalus hadzii* MARTENS, 1978, 2 *Trogulus closanicus* AVRAM, 1971, 3 *T. squamatus* C. L. KOCH, 1839, and 4 *T. tingiformis* C. L. KOCH, 1848



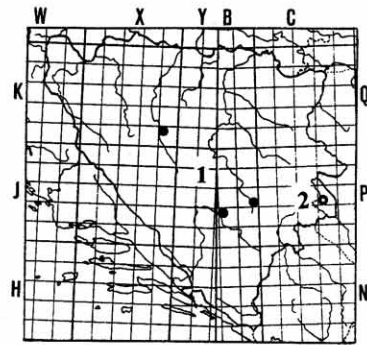
1-13 1 *Paranemastoma quadripunctatum* (PERTY, 1833), and 2 *Troglus torosus* SIMON, 1885



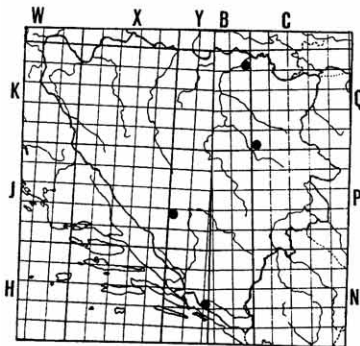
1-14 1 *Ischyropsalis hellwigii hellwigii* (PANZER, 1794), and 2 *Opilio saxatilis* C. L. KOCH, 1839



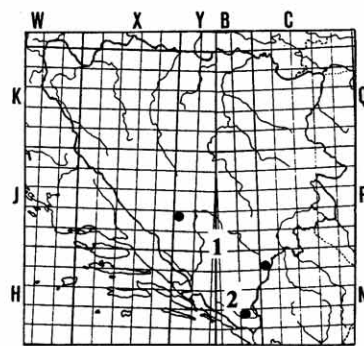
1-15 *Amilenus aurantiacus* (SIMON, 1881)



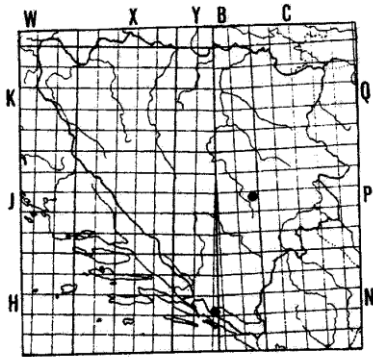
1-16 1 *Egaenus convexus* (C. L. KOCH, 1835), and 2 *Lophopilio palpinalis* (HERBST, 1799)



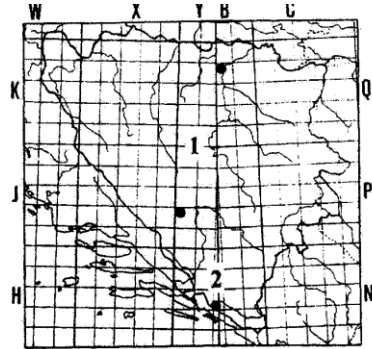
1-17 *Lacinius dentiger* (C. L. KOCH, 1848)



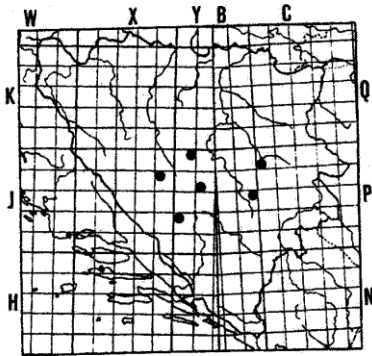
1-18 1 *Lacinius ephippiatus* (C. L. KOCH, 1835), and 2 *Odiellus lendli* (SØRENSEN, 1894)



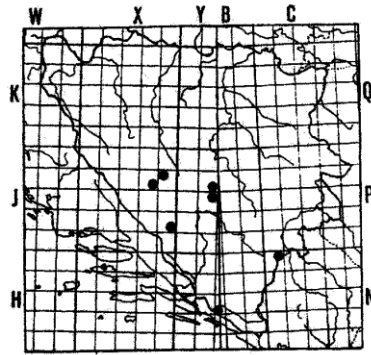
1-19 *Lacinius horridus* (PANZER, 1794)



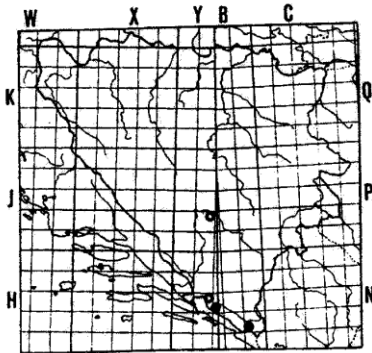
1-20 1 *Metaplatybus carnelutti* HADŽI, 1973, and 2 *Platybunus hadži* KRATOCHVÍL, 1935



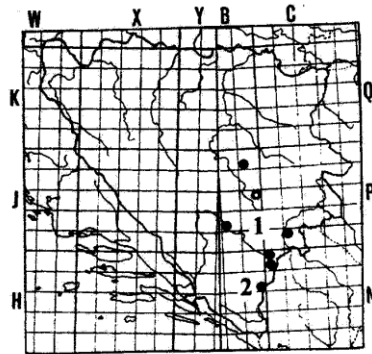
1-21 *Mitopus morio* (FABRICIUS, 1799)



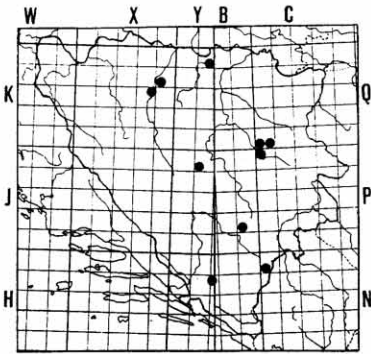
1-22 *Oligolophus tridens* (C. L. KOCH, 1836)



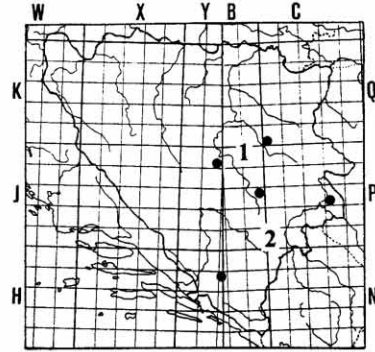
1-23 *Opilio dinaricus* ŠILHAVY, 1938



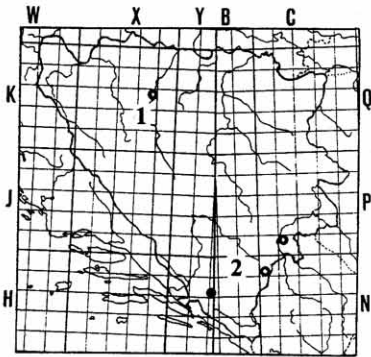
1-24 1 *Opilio ruzickai* ŠILHAVY, 1938, and 2 *Platybunus bucephalus* (C. L. KOCH, 1835)



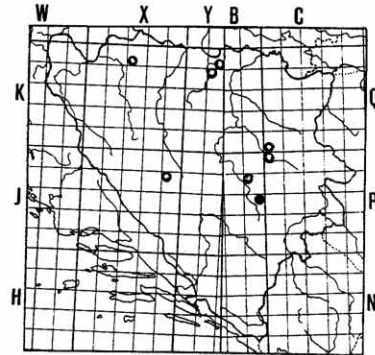
1-25 *Phalangium opilio* LINNAEUS, 1758



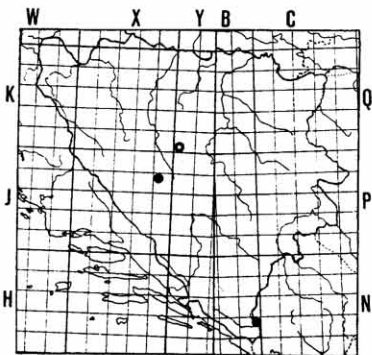
1-26 1 *Rilaena triangularis* (HERBST, 1799), and 2 *Zachaeus crista* (BRULLÉ, 1832)



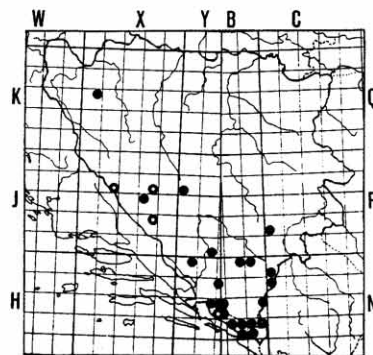
1-27 1 *Astrobunus helleri* (AUSSENER, 1867), and 2 *A. dinaricus* ROEWER, 1915



1-28 *Gyas titanus* SIMON, 1879



1-29 *Leiobunum rupestre* (HERBST, 1799)



1-30 *Nelima troglodytes* ROEWER, 1910

## SYSTEMATIC PART

## CYPHOPHTHALMI

## Sironidae

*Cyphophthalmus duricorius duricorius* Joseph, 1868; Fig. 1–2

- **Bosnia and Herzegovina** (KRATOCHVÍL, 1937, sub *Siro d. duricorius*)
- 1. **Zavala, YH44**, Popovo polje (MARTENS, 1978b, sub *S. duricorius*)

## Collection records

1. **Zavala, YH44**, Popovo polje, ca. 300 m E of **Vjetrenica** cave, shrubs, ca. 300 m, sieving, 04.06.1968, GRUBER leg.: 100 mm, 63 ff, 1 juv. (NHMW 2987; 6 mm, 4 ff don. to MARTENS, 09.1968); **ibid.**, S of Zavala, shrubs, ca. 300 m, sieving, 06.06.1968, GRUBER leg.: 4 mm, 4 ff, 1 juv. (NHMW 2988); **ibid.**, SE of Vjetrenica cave, shrubs, ca. 350 m, sieving, 06.06.1968, GRUBER leg.: 24 mm, 10 ff (NHMW 2989)

The genus *Cyphophthalmus* has recently been revived because of monophyly and an independent lineage of sironids in the Balkans (BOYER *et al.*, 2005). In the country, some further species of the genus are in the course of investigation (KARAMAN, pers. com.; own data).

## LANIATORES

## Travuniidae

- *Abasola hofferi* (Šilhavý, 1936)

## Erroneous citation

1. □ *Dejanova pećina cave, Bileća* (HADŽI, 1973b: endem, eucaval)

HADŽI (1973b) mismatched the type localities of *Abasola hofferi* (correct loc. typ.: Pokljuka gornja cave in the Orjen Mts. in Montenegro; ŠILHAVÝ, 1936) and *A. borisi* (correct loc. typ.: Dejanova pećina cave near Bileća, Bosnia and Herzegovina; HADŽI, 1973a). Nevertheless, it is certain that *A. hofferi* also inhabits the south-eastern part of Bosnia and Herzegovina, as the Orjen Mts. are situated on the border between the two countries. According to ABSOLON & KRATOCHVÍL (1932), *Travunia* appears in »all caves« in the Orjen region.

*Abasola troglodytes* (Roewer, 1915); Fig. 1–3

- **Herzegovina** (HADŽI, 1973b, sub *Travunia anophthalma* Absolon et Kratochvíl, 1920, endem, eucaval; GUÉORGUIEV, 1977, sub *T. anophthalma* Absolon et Kratochvíl, 1932: Grepci, Lastva, Bihovo)



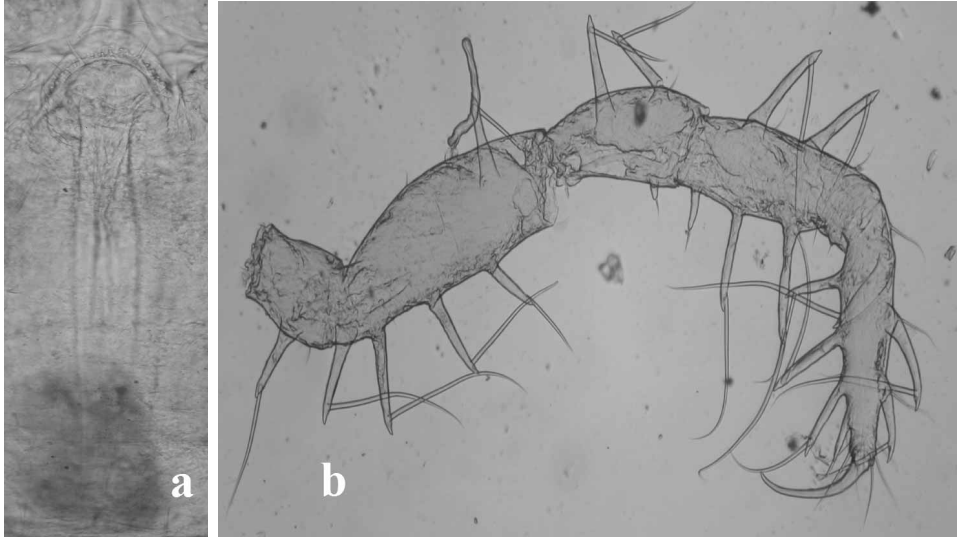


Fig. 31. The penis – the glans surrounded by the genital opercle – (a), and the left palp (b) of *Travunia borisi* (Hadži, 1973), medial view; original HADŽI'S preparation.

- **Orjen** Mts. (ABSOLON, 1927, sub *Travunia anophthalma*: Coin d'Orjen) – Bosnia and Herzegovina were not explicitly mentioned, but the Orjen Mts. are in the border region)
1. **Babina** pećina cave, **YH44** (KRATOCHVÍL, 1946, sub *T. anophthalma*)
  2. **Grabovica** pećina cave, **BN13**, Zaton, Grebci (ROEWER, 1935, sub *T. anophthalma*, 07.07.1914: 1 m, 1 f – types microsc. prep. Coll. Mus. Berlin; KRATOCHVÍL, 1946, sub *T. anophthalma*)
  3. **Torina jama** cave, **BN22**, Bihovo (ABSOLON & KRATOCHVÍL, 1932, sub *T. anophthalma*, 12.11.1917: 1 f; ROEWER, 1935, sub *T. anophthalma*: 12.11.1917: 1 f, microsc. prep. coll. Mus. Berlin; WOLF, 1934–38: Torina pećina, sub *Travunia* ~, *Absolonia* ~ and *Abasola troglodytes*)
  4. **Vilina** pećina cave, **BN43**, E of Lastva (ABSOLON & KRATOCHVÍL, 1932, sub *T. anophthalma*, 16.08.1917: 1 juv.; *ibid.*, 11.11.1917: 1 juv.; ROEWER, 1935, sub *T. anophthalma*: 16.08.1917: 1 pullus, microsc. prep. in Coll. Mus. Berlin; *ibid.*, 11.11.1917: 1 pullus, microsc. prep. in Coll. Mus. Berlin; WOLF, 1934–38: Villina pećina, sub *Travunia* ~, *Absolonia* ~ and *Abasola troglodytes*; KRATOCHVÍL, 1946, sub *T. anophthalma*)
  5. **Babić** pećina cave, **BN43**, Lastva (ABSOLON & KRATOCHVÍL, 1932, sub *T. anophthalma*, 15.08.1917: 2 ff; ROEWER, 1935, sub *T. anophthalma*: 15.08.1917: 2 ff, types, microsc. prep. coll. Mus. Berlin; WOLF, 1934–38: Papić pećina, sub *Travunia* ~, *Absolonia* ~ and *Abasola troglodytes*)

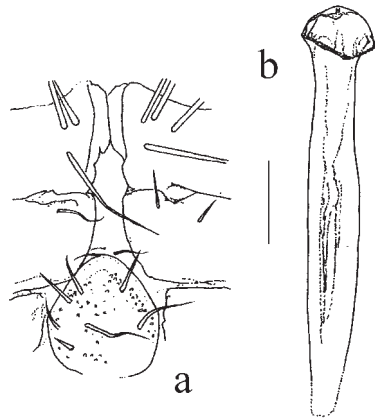


Fig. 32. The thoracic complex with the genital opercle (a), and the penis shape (b) of *Travunia borisi* (Hadži, 1973). Bar 100  $\mu$ m.

?*Travunia borisi* (Hadži, 1973), new comb., Figs. 1–4, 31, 32

1973 *Abasola borisi* Hadži, 1973a, Razpr. SAZU, IV., 16(1): 20.

1. **Dejanova** pećina cave, **BN45**, near Bileća (HADŽI, 1973a, Figs. 14a-č, 15a-č; holotype, 24.08.1965, SKET leg.: 1 ex.; GUÉORGUIEV, 1977: Bileća)

#### Collection records

1. **Dejanova** pećina cave, **BN45**, near Bileća, 24.08.1965, SKET leg., male holotype of *Travunia borisi* (Hadži, 1973): 1 m (TN 1/2005), Figs. 31, 32; the cave is now submerged in an artificial lake (KARAMAN, 2005)

In his description of *Abasola borisi*, HADŽI (1973a) wrote that the sex of the holotype is unrecognizable. His original drawings of the species were obviously made free-hand, and further deformations of appendages appeared in the Canada balsam, therefore the drawings do not correspond to the real shapes. Furthermore, the penis, more robust in comparison to that in *T. vjetrenicae*, is visible within the holotype (Fig. 31a), and the allegedly lateral view of the left palp in HADŽI'S (1973a) drawing 15a is in fact its medial side (Fig. 31b). The penis general shape departs little from that in *T. vjetrenicae*, but clearly from the shape in *Abasola hofferi* (see KARAMAN, 2005). Although a redescription starting out from undeformed specimens is required, it is justified to treat *T. borisi* as a separate species.

?*Travunia vjetrenicae* Hadži, 1932; Figs. 1–4, 33

• **Popovo polje** (GUÉORGUIEV, 1977, sub *Dinaria vjetrenicae*)

1. **Vjetrenica** cave, **YH44**, Zavala, Popovo polje (HADŽI, 1932, 1933; 27.08.1931: 1 m, and 28.08.1931: 1 f – HADŽI noticed the probable need to introduce the new genus *Dinaria* for the species; WOLF, 1934–38; ROEWER, 1935: type microsc. prep. Coll. HADŽI, Ljubljana; HADŽI, 1936, sub *D. vjetrenicae*; KRATOCHVÍL, 1936, sub *D. vjetrenicae*; KRATOCHVÍL, 1946, sub *D. vjetrenicae*: 1931: 1 m, 1 f; PRETNER, 1963; HADŽI, 1973a, sub *D. vjetrenicae*, endemite, eucaval; SKET, 1980)

### Collection records

1. **Vjetrenica cave, YH44**, Zavala, Popovo polje, 27.08.1931, HADŽI det., sub *Absolonia*? male: 1 m, holotype (TN 2/2005), microscopic preparation; **ibid.**, 08.1931, Jarmarsko društvo leg., HADŽI det.: type for female: 1 f (TN 3/2005), microscopic preparation; **ibid.**, Absolonov kanal, 09.1963: 1 m (TN 495/1981), microscopic preparation

The female type was originally labelled by HADŽI, while there is no denotation of the male holotype. As in some cases, detaching of HADŽI'S old labels was in evident, the same probably occurred with the corresponding label. The position of the prepared *Travunia* parts (e. g. the penis, Fig. 33) coincides with the drawings in the original description, and as only a pair of *T. vjetrenicae* were known at the time of this description (HADŽI, 1932, 1933) there is no doubt about the male type, and no need to make a revision according to the new rules of Zoological Nomenclature. The penis of *Travunia vjetrenicae* Hadži, 1932, has been investigated (HADŽI, 1932, 1933).

*Dinaria vjetrenicae* Hadži, 1932, is a funny case of what can happen in taxonomy. First, it is a special case of autonymy. In his description of *Travunia vjetrenicae*,

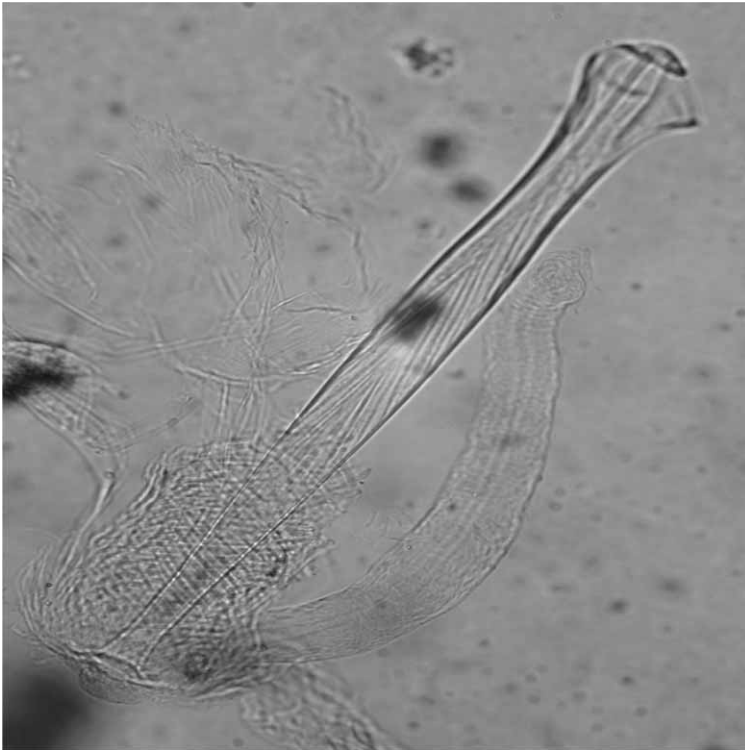


Fig. 33. *Travunia vjetrenicae* Hadži, 1932, the holotype penis; HADŽI'S original preparation.

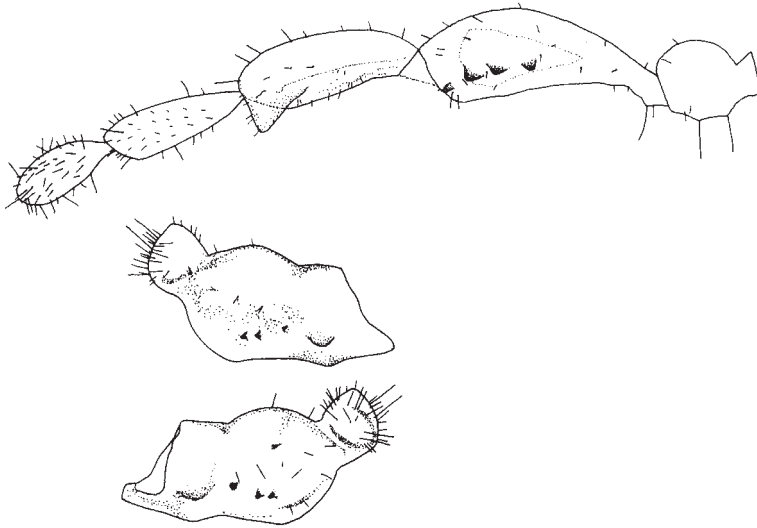


Fig. 34. *Nemastoma ?bidentatum pluridentatum* Hadži, 1973, the holotype pedipalp, medial view, and chelicera, medial (above) and lateral view (below).

HADŽI (1932, 1933) did not mention the name *Dinaria*, although he wrote (HADŽI, 1932: 136) in the discussion that he had »... found it necessary to order the new opilionids into a new genus »(*Dinaria*)«...«. Nevertheless, he formally never founded the new genus, while the name in parentheses corresponds to the subgeneric status. ROEWER (1935: 75) – supposing HADŽI to be a Czech – incorrectly summarized his work, using HADŽI's *nomen nudum* as a valid genus name »*Dinaria* HADŽI«, but citing HADŽI's contribution as: »*Travunia* (= *Dinaria*) HADŽI 1932«, as if HADŽI had undertaken *Travunia* under the synonymy of *Dinaria*. In fact, under »*Dinaria* HADŽI«, ROEWER made the first formal description of the genus, although reduced to the number of tarsal articles. Further on, under the species name »*Dinaria vjetrenicae* HADŽI« he ascribed to *Dinaria* the subspecific character: »*Travunia (Dinaria) vjetrenicae* HADŽI«. Later on, the name *Dinaria* was published in the works of most other authors dealing with the species either under *Dinaria* ROEWER (e.g. MARTENS, 1978b) or *Dinaria* HADŽI (e.g. KURY, 2005). There is a need to prove the possibility that *T. vjetrenicae* is congeneric with *Abasola troglodytes*. The genitalia of *A. troglodytes* (ROEWER, 1915) from southern Dalmatia – the first described travuniid in the region – have not been treated, while those of *A. hofferi* Šilhavý, 1936 (Montenegro) have recently been studied (KARAMAN, 2005). This way, the validity of the genus *Travunia* would also be checked.

### Cladonychiidae

*Holoscotolemon jaqueti* (Corti, 1905); Fig. 1–5

1. Suha – Čemerno, CN08 (MARTENS, 1978b, AUSOBSKY leg.)

## PALPATORES

### Nemastomatidae

*Carinostoma carinatum* (ROEWER, 1914); Fig. 1–6

- **Bosnia** (ŠILHAVÝ, 1939, sub *Nemastoma carinatum*)
- **Foča – Suha** (MARTENS, 1978b)
- 1. **Čelebić, XJ36** (MARTENS, 1978b)
- 2. **Jajce, XK81** (ROEWER, 1917, sub *N. carinatum*)
- 3. the **Vrba** River source, **XK81** (ROEWER, 1917, sub *N. carinatum*)
- 4. **Jablanica, YJ23** (ROEWER 1914, sub *N. carinatum*: 8 (m f); ROEWER, 1917, sub *N. carinatum*; ROEWER, 1923: 8 ex. (mm, ff), type Coll. ROEWER; ROEWER, 1951: Jablanica, sub *Mitostoma carinatum*: 1 m (type), 1 f (paratype) – RI/13/949; HADŽI, 1973a, sub *M. (Carinostoma) carinatum*; MARTENS, 1978b)
- 5. **Sarajevo, BP45** (ROEWER, 1917, sub *N. carinatum*)
- 6. **Doboj, BQ05** (ROEWER, 1917, sub *N. carinatum*)

#### Collection records

1. **Volujak, CN19**, Tjentište, Camp de Sutjeska, 25.10.1980, DEELEMEN-REINHOLD leg.: 2 mm, 2 ff (Coll. DEELEMEN-REINHOLD)

*Carinostoma ornatum* (Hadži, 1940); Fig. 1–7

#### Collection records

1. **Suha – Čemerno, CN08**, 700–780 m (ex Op. 74/13h), 18.09.1974, AUSOBSKY leg.: 3 mm, 3 ff (JM)

*Hadzinia karamani* (Hadži, 1940); Fig. 1–7

- **Bosnia and Herzegovina** (VANDEL, 1964, sub *Nemastoma karamani*; MARCELLINO, 1982)
- 1. **Resanovačka pećina** or **Ledenica** cave, **XK11**, Drvar (HADŽI, 1940, sub *N. karamani*, 1500–2000 m inside, 08.08.1935, S. KARAMAN leg.: 1 m; KRATOCHVÍL, 1958, sub *Buresiolla karamani*; HADŽI, 1973a: Resanovačka pećina cave near Resanovci, sub *Buresiolla karamani*); GUÉORGUIEV, 1977: Drvar) – in the original label, HADŽI wrote: »a cave near Drvar«, S. KARAMAN leg., HADŽI det., sub *N. karamani* sp. n.: 1 m (TN 35/1986), microscopic preparation of the holotype

#### Erroneous citation

1. □ *Titova pećina* cave, **XK11**, *Drvar* (HADŽI, 1965, sub *N. karamani* Hadži, 1933: Tito-Höhle)

HADŽI (1965) stated that a new genus must be founded for *N. karamani*. ROEWER (1966) did this one year later, taking *Nemastoma karamani* Hadži, 1940, as the *typus generis* of the genus *Hadzinia*. During the Second World War, the ex-Yugoslav leader

Josip Broz Tito was hiding out for a short time in a cave near Drvar, which was afterwards named Titova pećina cave. In honour of him, HADŽI (1965) misleadingly noted this cave as the *locus typicus*.

*Histicostoma dentipalpe* (Ausserer, 1867); Fig. 1–8

- **Bosnia** (ROEWER, 1923, sub *Nemastoma dentipalpe* Ausserer, 1869: pl. mm, ff, type Mus. Wien; Mus. Wien, Berlin, Coll. ROEWER etc.; ROEWER, 1951, sub *N. dentipalpe* Ausserer, 1869: 5 (m, f), Coll. ROEWER – RI/13/947, and 1 m, Coll. ROEWER – RI/13/948; HADŽI, 1973a sub *N. (N.) dentipalpe*)
  - a cave in the **Miljačka** valley, E of Sarajevo (KRATOCHVÍL, 1946, sub *N. dentipalpe*)
1. **Mt. Trebević, BP45**, 1225 m (ROEWER, 1917: Trebevic, sub *N. dentipalpe*)
  2. **Sarajevo, BP45** (KRATOCHVÍL 1946; ROEWER, 1951: Sarajewo, sub *N. dentipalpe* Ausserer, 1869: 12 (m, f) Coll. ROEWER – RI/13/1396)
  3. **Suha, CN19** (MARTENS, 1978b)

#### Collection records

1. **Pećina Đatlo** cave, **BN46**, Korita, 31.7.1964, PRETNER leg.: 1 m (TN 572/1983)
2. **Mt. Igman, BP45**, 1220 m, 26.05.1989, POTOČNIK leg.: 3 ff (TN 191/2002)
3. **Perušica, CN19**, Tjentište, primeval *Piceeto-Fagetum*, 06.07.1976, DEELEMANN-REINHOLD leg.: 1 f (TN 1319/1998)

*Mitostoma cancellatum* (Roewer, 1917); Fig. 1–7

- **Bosnia** (HADŽI, 1973a, sub *M. (M.) cancellatum*, endem)
1. **Sarajevo, BP39** (ROEWER, 1917, sub *Nemastoma cancellatum*: 1 m, 1 f; ROEWER, 1923, sub *N. cancellatum*: 1 m, 1 f, type Coll. ROEWER; ŠILHAVÝ, 1939: vicinity of Sarajevo, sub *N. cancellatum*; ROEWER, 1951: Sarajewo: 1 m (type), 1 f (paratype), Coll. ROEWER – RI/13/1401) – Sarajevo is probably the museum town

*Mitostoma chrysomelas* (Hermann, 1804); Fig. 1–2

- **Bosnia** (ROEWER, 1917, sub *Nemastoma chrysomelas*; ROEWER, 1951: 1 f, Coll. ROEWER – RI/13/942, and: 5 mm, 5 ff, Coll. ROEWER – RI/13/945; HADŽI, 1973b, sub *M. (M.) chrysomelas*, and *M. (M.) chr. chrysomelas*)
1. **Jajce, XK18** (ROEWER, 1917, sub *N. chrysomelas*)
  2. **Sarajevo, BP39** (ROEWER, 1917: Serajevo, sub *N. chrysomelas*)

?*Nemastoma bidentatum pluridentatum* (Hadži, 1973); Figs. 1–4, 34

- **Bosnia** (HADŽI, 1973b, endem)
1. **Paljenik, YK10**, Mt. Vlašić planina (HADŽI, 1973a, sub *Nemastoma (Lugubrostoma) triste pluridentatum*, partialy, 18.06.1962, PRETNER leg.: 2 mm, 1 f; Figs. 33a, c) – in Coll. HADŽI det.: a part of the male holotype: 1 m (TN 4/2005) microscopic preparation

Under the name *Nemastoma (Lugubrostoma) triste pluridentatum* HADŽI (1973a) described more specimens. While those from Slovenia belong to *N. b. bidentatum* (cf. MARTENS, 1978; NOVAK & GRUBER, 2000), the specimens from Mt. Vlašić belong either to a separate subspecies of *N. bidentatum*, or to a separate species. HADŽI'S (1973a; Figs. 33a, c) drawings do not correspond to the real shapes (compare Fig. 34 in this work). Only a part of HADŽI'S original preparation of the specimen has been preserved, consisting solely of a chelicera, a pedipalp and four legs; therefore further material is required to define the status of this taxon of HADŽI.

*Nemastoma bidentatum sparsum* Gruber & Martens, 1968; Fig. 1–5

- **Bosnia** (ROEWER, 1923, sub *N. bidentatum*; HADŽI, 1973a, sub *N. (Lugubrostoma) bidentatum*)
- 1. **Mt. Plasa, YJ03**, 1400 m (ROEWER, 1917, sub *N. bidentatum*; GRUBER & MARTENS, 1968; MORITZ, 1971: Herzeg. Plasá, 1700 m, VERHOEFF leg.: 1 m, 1 f paratypes, ZMB –11616; MARTENS, 1978b, 1400 m, Coll. SMF)
- 2. **Jajce, XK18** (ROEWER, 1917, sub *N. bidentatum*; MORITZ, 1971: Jajce, VERHOEFF leg., September: 4 ff paratypes, Coll. ZMB – 11617)
- 3. **Bosanski Brod, BR00** (MORITZ, 1971: Bird a. d. Save, VERHOEFF leg., September: 3 mm, 2 ff paratypes, Coll. ZMB – 11619)

□ *Nemastoma lugubre* (Müller, 1776)

#### Doubtful and wrong citations

- **Bosnia** (ROEWER, 1951, sub *N. l. bimaculatum*: 4 (m, f), Coll. ROEWER –RI/13/926; HADŽI, 1973a, sub *N. (Lugubrostoma) l. bimaculatum*)
- 1. **Jajce, XK18** (ROEWER, 1917, sub *N. l. bimaculatum* (incl. *unicolor*))
- 2. **Mt. Trebević, BP45**, 1225 m (ROEWER, 1917: Trebevic, sub *N. l. bimaculatum* (incl. *unicolor*))

GRUBER & MARTENS (1968) noted that two series from ex-Yugoslavia were also revised, but neither they nor MARTENS (1978b) cited the localities. ROEWER mismatched *Nemastoma* species. A confirmational finding is needed to add *N. lugubre* to the harvestman list of Bosnia and Herzegovina.

?*Paranemastoma armatum* (Kulczynski, 1909); Fig. 1–9

- **Bosnia and Herzegovina** (HADŽI, 1973a, sub *N. (N.) armatum*)
- **Neretva valley** (ROEWER, 1923, sub *N. quadripunctatum armatum*)
- 1. **Opličići, YH27** (ABSOLON, 1913: Domanović /correct: Domanovići/, sub *N. armatum*, KARLINSKI leg.; ROEWER, 1914, sub *N. q.-armatum*: mm, ff; ROEWER, 1917: Domanovic, sub *N. q. var. armatum*; ROEWER, 1951: Herzogewina, Domanovis, sub *N. q. armatum*: mm, ff, Fig. 7 Tab. I, the place of the type deposition not known – non vidi)
- 2. **Brateljevića pećina cave, CP19**, Kladanj, Smolna planina, 36°19', 44°13' (ABSOLON, 1913, sub *N. armatum*, APFELBECK, ABSOLON leg.: many of mm, ff; WOLF, 1934–38:

Bataljevička pećina, sub *N. armatum*, and *N. q. armatum*; KRATOCHVÍL, 1946, sub *N. armatum*)

See comments under *P. thessalum*.

?*Paranemastoma aurosum* (L. Koch, 1869)

- **Bosnia** (ROEWER, 1951, sub *Nemastoma quadripunctatum aurosum*: 1 m, Coll. ROEWER – RI/13/966 Fig. 6 Tab. I; HADŽI, 1973a, sub *N. (N.) aurosum* (C. L. Koch, 1869))

See comments under *P. thessalum*.

□*Paranemastoma bicuspidatum* (C. L. Koch, 1835)

- □**Bosnia** (ROEWER, 1951, sub *Nemastoma bicuspidatum*: 1 m, 1 f – RI/13/962; HADŽI, 1973a, sub *N. (N.) bicuspidatum*)

This Alpine species does not live in Bosnia and Herzegovina. Either both citations refer to *P. titaniacum*, because ROEWER (1917, sub *Nemastoma quadripunctatum* var. *bicuspidatum*; 1923, sub *N. q. bicuspidatum*) generally cited this species for the Balkan countries, or this is a further case of mismatching localities by ROEWER himself.

?*Paranemastoma bimaculosum* (Roewer, 1951)

- **Bosnia** (ROEWER, 1951: Sarajewo, sub *Nemastoma bimaculosum*: 1 m (type), 1 f (paratype) – RII/6216/83, Fig. 39 Tab. V)

After being revised, the species will probably be submitted as a synonymy with *P. titaniacum*. For further comments on the synonymies concerning *P. titaniacum*, see KARAMAN, 1995; NOVAK, 2004).

?*Paranemastoma longipes* (Schenkel, 1947)

- **Bosnia** (HADŽI, 1973a, sub *Nemastoma (Dromedostoma) longipes*)

?*Paranemastoma moesiicum* Roewer, 1917; Fig. 1–10

- **Bosnia** (ROEWER, 1923, sub *Nemastoma moesiicum*: pl. mm, ff, type and cotypes Mus. Berlin, cotypes Coll. ROEWER)
- **Neretva** valley (ROEWER, 1917: Narenta-Tal, sub *N. q. var. moesiicum*; ROEWER, 1951, sub *N. moesiicum*: 4 (m, f), paratypes, Coll. ROEWER – RI/13/644)
- **Komodina** spring, where? (ROEWER, 1917: Kosmadina Quelle, sub *N. q. var. moesiicum*; MORITZ, 1971, sub *N. moesiicum*, ROEWER det. 1917, Nr. 3010, ZMB 11940: 3 exemplars, syntypes; **ibid.**: Narenta, Kanadina Quelle, VERHOEFF leg., ROEWER det. 1917, Nr. 3006, ZMB 11946: 5 exemplars, syntypes)
- 1. **Vrbas** spring, **XK81**, Jajce (ROEWER, 1917: Jajce, Urbas-Ufer, sub *N. q. var. moesiicum*; MORITZ, 1971, sub *N. moesiicum*, VERHOEFF leg., ROEWER det. 1917, Nr. 3009, ZMB 11949: 1 m, syntypes)
- 2. **Jajce**, **XK81** (ROEWER, 1917: Jajce, sub *N. q. var. moesiicum*; MORITZ, 1971: Jajce, sub *N. moesiicum*, VERHOEFF leg., ROEWER det. 1917, Nr. 3012, ZMB 11943: 1 m, 1 f, syntypes)



3. **Radobolja valley, YJ20** (ROEWER, 1917, sub *N. q. var. moesiacum*; MORITZ, 1971, sub *N. moesiacum*, near a brook, VERHOEFF leg., ROEWER det. 1917, Nr. 3055, ZMB 11948: 1 m, 1 f, 1 pullus, syntypes, »type«)
4. **Jablanica, YJ23** (ROEWER, 1917: Jablonica, sub *N. q. var. moesiacum*; MORITZ, 1971: Jablonica, Narentatal, sub *N. moesiacum*, VERHOEFF leg., ROEWER det. 1917, Nr. 3008, ZMB 11945: 1 m, 1 f, syntypes)
5. **Zenica, YJ39** (MORITZ, 1971, sub *N. moesiacum*, near a brook, VERHOEFF leg., ROEWER det. 1917, Nr. 3007, ZMB 11939: 6 exemplars, syntypes)
6. **Ivan, BP14** (MORITZ, 1971, sub *N. moesiacum*, VERHOEFF leg., ROEWER det. 1917, Nr. 3015, ZMB 11944: 9 exemplars, syntypes)
7. **Mt. Trebević, BP45**, 1225 m (ROEWER, 1917: Trebevic, sub *N. q. var. moesiacum*; MORITZ, 1971: Trebevic, sub *N. moesiacum*, 1100–1600 m, VERHOEFF leg., ROEWER det. 1917, Nr. 3011, ZMB 11938: 3 mm, 2 ff, syntypes; *ibid.*, 1200–1300 m, IX.-X., ROEWER det. 1917, Nr. 3056, ZMB 11947: 1 f, syntype, »cotype«)
8. **Sarajevo, BP45** (ROEWER, 1917, sub *Nemastoma quadripunctatum var. moesiacum*; MORITZ, 1971, sub *N. moesiacum*, VERHOEFF leg., ROEWER det. 1917, Nr. 3013, ZMB 11941: 3 exemplars, syntypes)

KARAMAN (1995) assumes that in the middle Balkans *Paranemastoma moesiacum* can be conspecific with *P. radewi*, and in that case the valid name of this taxon.

*Paranemastoma quadripunctatum* (Perty, 1833); Fig. 1–13

- **Bosnia** (ROEWER, 1917: Sarajevo /the museum town/, sub *Nemastoma q. var. quadripunctatum*; ROEWER, 1923: Sarajevo, sub *N. q. quadripunctatum*; ROEWER, 1951, sub *N. q. quadripunctatum*; Fig. 5 Tab. I; 8 mm, 7 ff – RI/13/952; HADŽI, 1973a, sub *N. (N.) quadripunctatum* (Ferty, 1833))

### Collection records

1. **Mt. Igman, BP45**, 1220 m, 26.05.1989, POTOČNIK leg.: 1 f (TN 192/2002)

?*Paranemastoma radewi* (Roewer, 1926); Fig. 1–9

- **Bosnia and Herzegovina** (ROEWER, 1951, sub *Nemastoma polonicum*: 1 m, 1 f, paratypes, SMF – RII/9508/124; STARÊGA, 1965, sub *P. polonicum*, found that these specimens are both males)
- **Bosnia** (HADŽI, 1973a, sub *N. (Dromedostoma) radewi*, endem; HADŽI, 1973b, sub *N. (D.) radewi*)
- vicinity of **Sarajevo** (KRATOCHVÍL, 1946, sub *N. Radewi*)
- a cave in the **Miljačka valley**, E of Sarajevo (KRATOCHVÍL, 1946, sub *N. Radewi*, KRATOCHVÍL leg.)
- 1. **Mokra Megara cave, BQ13**, Maglaj (HADŽI, 1973a, sub *N. (D.) megarae*, loc. typ., 30.06.1962, PRETNER leg.: 1 m, 1 f)

### Collection records

- **Vranica Mts.**, 2112 m, 24.05.1989, POTOČNIK leg.: 3 mm (TN 185/2002)
- 1. **Kozarac, XK48**, Prijedor, 06.05.1987: 1 f (TN 1095/1998)
- 2. **Donji Studenci, YH18**, near the Studenčnica river, Čapljina, 14.09.1987, HORVAT, SIVEC leg.: 5 juv. (TN 1167/1998)
- 3. near the **Kruščica** spring, **YJ28**, Krupa, Gornji Vakuf, 08.07.1987: 1 f (TN 329/2002)
- 4. **Mokra Megara** cave, **BQ13**, 13.06.1962, HADŽI det. sub *N. (D.) radewi*: 1 m, 1 juv. (TN 239/1985)
- 5. **Popov most, CP01**, Tjentište, 17.09.1987, HORVAT, SIVEC leg.: 1 f (TN 1186/1998)

For Bosnia, HADŽI (1973a) cited a *Paranemastoma* species, sub *Nemastoma (Dromedostoma) strasseri* Roewer, 1951. While in the South-Tyrolia Dolomites, the locus typicus, it is the synonym of *P. quadripunctatum*, in Bosnia, HADŽI probably mismatched it with *P. radewi* because of its dorsal spots and spines (cf. ROEWER, 1951, Fig. 28). See comments under *P. thessalum*. For a discussion of *P. polonicum*, see NOVAK & GRUBER (2000).

?*Paranemastoma sillii* (Hermann, 1871)

- **Bosnia** (ROEWER, 1914, sub *Nemastoma quadripunctatum-sillii*: 3 ff; ROEWER, 1917: northeastern Bosnia, sub *N. q.* var. *sillii*; ROEWER, 1923, sub *N. q. sillii*; ROEWER, 1951, sub *N. q. sillii*: 8 mm, 7 ff – RI/13/959; HADŽI, 1973a, sub *N. (N.) sillii*)

### Doubtful citation

1. □ *Jama u Ulice cave, BN33*, Trebinje (ROEWER, 1935: *Jama de Ulice*, sub *N. q. sillii*, 23.07.1911: 1 f – Nr. 501; KRATOCHVÍL, 1946, sec. ROEWER, 1935: the Trebinje district, sub *Nemastoma sillii*)

This Carpathian species may also inhabit north-eastern Bosnia, but not south-eastern Herzegovina (Trebinje), therefore its presence in Bosnia and Herzegovina should be confirmed by further findings.

□? *Paranemastoma thessalum* (Simon, 1885)

- **Neretva** valley (ROEWER, 1923, sub *Nemastoma quadripunctatum thessalum*)

SIMON (1885, sub *Nemastoma thessalum*) described the species in Greece; its presence in Bosnia and Herzegovina must be confirmed. On the other hand, its taxonomical status, the synonymies of *Paranemastoma aurosum* (L. Koch, 1869), *P. armatum* (Kulczynski, 1909), *P. radewi* (Roewer, 1926) and other similar nominal taxa of the genus should be revised.

?*Paranemastoma titaniacum* (Roewer, 1914)

- **Bosnia** (ROEWER, 1914, sub *Nemastoma titaniacum*: 1 m; ROEWER, 1917, in many caves, sub *N. quadripunctatum* var. *titaniacum*; ROEWER, 1923, sub *N. titaniacum*: 1 m; type in Coll. ROEWER; ROEWER, 1951, sub *N. titaniacum*: 1 m, type – Fig. 1a Tab. I – Coll. ROEWER – RI/13/950; HADŽI, 1973a, sub *N. (Dromedostoma) titanicum*, endem, eucaval)

- **Herzegovina** (ROEWER, 1951, sub *N. acrospinusum*: 1 m, 6 ff paratypes, Coll. ROEWER – RII/5043/67)

#### Erroneous citation

- ?*Herzegovina* (RAMBLA & JUBERTHIE, 1994, sub *Nemastoma gabbrovicae*); the species described by HADŽI (1973a), sub *Nemastoma (Dromedostoma) grabovicae*, and erroneously mentioned by him sub *N. (D.) grabovicae* (HADŽI, 1973b), was described as being from Montenegro, and taken into synonymy with *Paranemastoma titaniacum* by KARAMAN (1995).

Generally, three groups of *Paranemastoma* occur in Bosnia and Herzegovina: *P. quadripunctatum*, the *P. radewi*-complex and the *P. titaniacum*-complex. *P. radewi*- and the *P. titaniacum*-complex have not been satisfactorily treated taxonomically. It seems likely that after revision, in these polymorphic groups only two or three valid species will be established. For further comments on synonymies, see KARAMAN (1995).

*Pyza bosnica* (Roewer, 1917); Fig. 1–7

- **Bosnia** (ROEWER, 1917: Serajevo /undoubtedly Sarajevo was cited as the museum town/, sub *Nemastoma bosnicum*: 1 m; ROEWER, 1923, sub *N. bosnicum*: 1 m, type in Coll. ROEWER; ROEWER, 1951, sub *N. bosnicum*: 1 m, holotype – RI/13/1395; HADŽI, 1973a, sub *N. (Lugubrostoma) bosnicum*, and sub *N. (L.) b. orientale*, endem) – probably the museum town
- a cave in the **Miljačka** valley (KRATOCHVÍL, 1958: Miljačkatal, sub *N. (L.) bosnicum*; STARÊGA, 1976)

#### Collection records

1. **Mt. Vlašić planina, YK01**, 18.06.1962, PRETNER leg.: 1 f (TN 235/1985)

For the other synonymy, see STARÊGA (1976) and GRUBER (1979).

#### Dicranolasmatidae

*Dicranolasma opilionoides* (L. Koch, 1867)

- **Herzegovina** (HADŽI, 1926/27)

GRUBER (1965) cited the species in the southern Balkan peninsula.

*Dicranolasma scabrum* (Herbst, 1799); Fig. 1–11

- **Bosnia** (DAHL, 1903; ROEWER, 1923: pl. mm, ff et juv. – Mus. Berlin and Coll. ROEWER; HADŽI, 1973a)

1. **Čelebić, XJ36**, 1080–1560 m (GRUBER, 1976; MARTENS, 1978b: Zelebić, ZMB, PANW)

2. **Jajce, XK81** (GRUBER, 1976: Jajce; MARTENS, 1978b, ZMB, PANW)

3. **Sarajevo, BP39** (GRUBER, 1976; MARTENS, 1978b, ZMB)

#### Collection records

1. **Vrelo Bosne spring, BP35**, 25.05.1989, POTOČNIK leg.: 1 f (TN 199/2002)

*Dicranolasma verhoeffi* Dahl, 1903; Fig. 1–11

- **Bosnia** (GRUBER, 1976)
  - **Herzegovina** (HADŽI, 1926/27, 1973a; GRUBER, 1976; KARAMAN, 1990: endemite)
  - **Southern Hercegovina** (DAHL, 1903; ROEWER, 1923; MORITZ, 1971: 1 m, Lectotype GRUBER, 1968: microscopic preparation by DAHL, VERHOEFF leg. – ZMB 13958; **ibid.**: 1 f, paralectotype: microscopic preparation by DAHL, VERHOEFF leg. – ZMB 13959; **ibid.**: 1 m, paralectotype: microscopic preparation by DAHL, VERHOEFF leg. – ZMB 13960)
1. **Baba pećina** cave near Čvaljina, **YH45** (KRATOCHVÍL, 1946, sub *D. Verhoeffi*)
  2. **Mostar**, **YJ20** (MORITZ, 1971: 1 m + penis, 2 ff, 2 pulli, paralectotypes, VERHOEFF leg. – ZMB 11604)
  3. **Radobolja** valley, **Mostar**, **YJ20** (MORITZ, 1971: Radoboljatal: 1 f, paralectotype: microscopic preparation by DAHL, VERHOEFF leg. – ZMB 13957; **ibid.**: 1 pullus, paralectotype: microscopic preparation by DAHL, VERHOEFF leg. – ZMB 13961; **ibid.**: 1 m, 1 f, 1 pullus, paralectotypes, 12.04.year?, VERHOEFF leg. – ZMB 11607)
  4. **Trebinje**, **BN33** (MORITZ, 1971: 2 pulli, paralectotypes, VERHOEFF leg. – ZMB 11608); **ibid.**: Klosterraum: 1 pullus, paralectotype, VERHOEFF leg. – ZMB 11609)
  5. **Konjsko**, **BN42** (MORITZ, 1971: Konjsko: 3 mm, paralectotypes, VERHOEFF leg. – ZMB 11605)

**Collection records**

1. in front of **Vjetrenica** cave, **YH44**, 06.09.1975, pitfall trap 85: 3 ff (TN 810/1981; det. J. Gruber)
2. **Vjetrenica** cave, **YH44**, 06.09.1975, pitfall trap 270: 1 f (TN 812/1981; det. J. Gruber); **ibid.**, pitfall trap 206: 1 f (TN 814/1981; det. J. Gruber)
3. **Dimina peć**, **YH44**, 06.09.1975, pitfall trap 232: 1 f (TN 813/1981; det. J. Gruber)
4. **Gubava** pećina cave, **YH44**, Zavala, Popovo polje, 09.1960, SKET leg.: 1 juv. (TN 601/1981)
5. **Baba pećina** cave near Strujići, **YH45**, Popovo polje, 30.08.2003., POLAK leg.: 1 m (TN 876/2003)

**Doubtful citation**

1. **Sarajevo**, **BP39** (KRATOCHVÍL, 1946, sub *D. Verhoeffi*, KRATOCHVÍL leg. – very probably the museum town)

**Trogulidae***Anelasmaocephalus hadzii* Martens, 1978; Fig. 1–12

1. **Nemila**, **BQ01** (MARTENS, 1978b, REITTER leg., NHMW) – **Nemila**, N of Zenica, REITTER leg.: 2 mm, 2 ff (NHMW)

□ *Trogulus aquaticus* Simon, 1879

#### Erroneous citations

□ *Bosnia* (DAHL, 1903, sub *T. aquaticus*; ROEWER, 1923: 8 ex. (mm, ff) – Coll. ROEWER; HADŽI, 1973b)

□ *Mitrino vrelo* spring, XK11, Drvar (HADŽI, 1942, sub *T. aquaticus*, S. KARAMAN leg.: 1 m, 4 juv., Fig. 15c)

This 12 mm long species, resembling *T. coriziformis* C. L. Koch, 1839, was described on the island of Corsica and had allegedly also been known in Spain (SIMON, 1879). It has not been recognized in any intermediate country between France and Bosnia, and no specimen has been recorded in Bosnia and Herzegovina in the last hundred years. DAHL (1903) obviously mismatched the species with some other one, and HADŽI'S (1942) drawing reveals an immature specimen of the *T. nepaeformis*-group. According to SCHÖNHOFER (2004), the taxon from the island of Corsica is genetically a unique species; therefore the name *T. aquaticus* should be used only for this species. Thus *T. aquaticus* is to be excluded from the fauna of Bosnia and Herzegovina.

*Trogulus closanicus* Avram, 1971; Fig. 1–12

1. **Gacko, CN08** (NEUFFER, 1980: Gačko: 1 m, Coll. NHMW 5861, penis type V)

\**Trogulus graecus* Dahl, 1903

#### Erroneous citation

1. □ *Sarajevo, BP93* (ROEWER, 1923, sub *T. corcyraeus*: 1 f – Coll. ROEWER; STARĚGA, 1976)

Without doubt, *T. graecus* does not live in Bosnia, but would be expected in south-eastern Herzegovina.

*Trogulus* gr. *nepaeformis* (Scopoli, 1763)

1. **Gacko, CN08** (MARTENS, 1978b: Gačko, AUSOBSKY leg.)

2. **Foča, CP21** (MARTENS, 1978b, AUSOBSKY leg.)

#### Collection records

1. near the **Ugrovača river, XJ91**, Poklečani, Posušje, Imotski, 23.04.1987, HORVAT, SIVEC leg.: 1 m (TN 1255/1998)

2. **Staro Selo – Jajce, XK18**, POTOČNIK leg., 23.05.1989: 1 m (TN 165/2002)

3. **Zavala, YH44**, Popovo polje, date?, SKET leg.: 1 f, 1 juv. (TN 545/1981)

4. **Vučja bara, CN08**, near Gacko, STURANY leg., VII.1900: 1 m, 1 f (NHMW 5861)

5. **Mt. Romanija, CP05**, 1200 m, 28.05.1989, POTOČNIK leg.: 1 f (TN 195/2002)

See comments under *T. gr. tricarinatus*.

*Trogulus squamatus* C. L. Koch, 1839; Fig. 1–12

#### Collection records

1. a small valley S of **Zavala, YH44**, Popovo polje, ruderal landscape, ca. 280 m, under a stone, 06.06.1968, GRUBER leg. and det.: 1 f (NHMW 3153)
2. S of **Zavala, YH44**, Popovo polje, shrubs, ca. 300 m, sieving, 06.06.1968, GRUBER leg.: 1 m (NHMW 3152)

*Trogulus tingiformis* C. L. Koch, 1847; Fig. 1–12

1. 10 km S of **Banja Luka, XK75** (MARTENS, 1978b, AUSOBSKY leg.)
2. **Foča, CP21** (MARTENS, 1978b, AUSOBSKY leg.)

*Trogulus torosus* Simon, 1885; Fig. 1–13

1. **Bjelušnica** cave, **YH44**, Zavala, Popovo polje (HADŽI, 1936: Bjelušica: 1 m; KRATOCHVÍL, 1946: Bjelušica)
2. **Orlica** pećina cave, **YH44**, SW of Zavala, Popovo polje (KRATOCHVÍL, 1946)
3. **Pećina kod Manastira** cave, **YH44**, Zavala, Popovo polje (KRATOCHVÍL, 1946)
4. **Vjetrenica** cave, **YH44**, Zavala, Popovo polje (KRATOCHVÍL, 1946)
5. **Pćelina** pećina cave, **BN13**, Nevada (KRATOCHVÍL, 1946)
6. **Ilijina** pećina cave, **BN22**, near Bihovo (KRATOCHVÍL, 1946)
7. **Vučja** pećina cave, **BN32**, Vrbanje near Trebinje (KRATOCHVÍL, 1946)

#### Collection records

1. **Bjelušnica** cave, **YH44**, Zavala, Popovo polje, 22.10.1968, A. VIGNA leg.: 1 juv. (JM 1216)

HADŽI (1973b) forgot to cite *T. torosus* for Herzegovina.

*Trogulus* gr. *tricarinatus* Linnaeus, 1758

- **Bosnia and Herzegovina** (DAHL, 1903)
- **Bosnia** (ROEWER, 1950: 30 (m, f) – RI/12/1354)
- **Herzegovina** (ROEWER, 1923: *Trogulus tricarinatus tricarinatus* Dahl)

#### Collection records

1. **Nemila, BQ01**, N of Zenica, REITTER leg.: 1 f (NHMW)
2. **Gacko, CN08**, PENTHER leg., X.1900, (A.N.), ROEWER det., GRUBER rev., 1973: 1 f (NHMW 5867)

Taxonomically, the genus *Trogulus* has been recognised as the most difficult of the European harvestmen (MARTENS, 1988). To date, the taxonomical status of *T. tricarinatus* and of *T. nepaeformis* in particular have not been satisfactorily solved. Most data in the literature comply with more species (MARTENS, in lit.; NOVAK *et al.*, 2002; SCHÖNHOFER, 2004).

*Trogulus tricarinatus hirtus* Dahl, 1903; Fig. 1–7

- **southern Herzegovina** (DAHL, 1903, sub *T. tricarinatus* var. *hirta*; ROEWER, 1923: 1 ex. (m or f?), type in Coll. DAHL, Mus. Berlin?; HADŽI, 1973a, endem)
- **Kosusko**, where?, 1000 m, *Quercetum* (MORITZ, 1971, sub *T. t. hirta*: 1 ex., holotype, ZMB–11697)

#### Collection records

1. **Zavala, YH44**, Popovo polje, ca. 250 m, under stones, 06.06.1968, SCHMID, GRUBER leg., GRUBER det. 1968: 3 juv. (NHMW 3155); **ibid.**, SE of the Vjetrenica cave, shrubs, ca. 350 m, sieving, 06.06.1968, GRUBER leg.: 2 mm, 3 juv. (NHMW 3154)

#### Ischyropsalididae

*Ischyropsalis hellwigii hellwigii* (Panzer, 1794); Fig. 1–14

- **Bosnia** (ROEWER, 1923, sub *I. hellwigi*: pl. mm, ff – Mus. Wien, Coll. ROEWER; KRATOCHVÍL, 1946, Bosnian mountains, sub *I. Helwigii*; ROEWER, 1950: 5 (m, f), Coll. ROEWER – RI/11/971: many mm, ff; 1 m and 1 f type (m) and paratype (f) – RI/11/981, Figs. 7a-d Tab. 1; HADŽI, 1973b, sub *I. hellwigi*)
  - the **Bjelašnica** Mts. (HADŽI, 1942, sub *I. muellneri*, KRATOCHVÍL leg.: 1 m, with the note that it is probably *I. h. hellwigi*; MARTENS, 1969, sec. HADŽI, 1942, sub *I. muellneri*)
1. **Dovlići** on Mt. Trebević, **BP45**, 1225 m, near Sarajevo (HADŽI, 1954, sub *I. taunica*, 15.10.1911, WINNEGUTH leg.: 1 m; MARTENS, 1969, sec. HADŽI, 1954; MARTENS, 1978b)

□ *Ischyropsalis kollari* C. L. Koch, 1839

#### Erroneous citation

- □ **Bosnia** (ROEWER, 1914, sub *I. bosnica*, locality unknown; KRATOCHVÍL, 1946, Bosnian mountains, sub *I. bosnica*; ROEWER, 1950, sub *I. bosnica*)

*I. bosnica* Roewer, 1914, was found to be a synonym of *I. kollari*, but the localities of this species in Bosnia (type series, SMF/RI/971: 2 mm) are undoubtedly incorrect (MARTENS, 1969). See comments under *I. manicata*.

□ *Ischyropsalis manicata* L. Koch, 1869

#### Erroneous citations

□ **Bosnia** (ROEWER, 1923: pl. mm, ff – Mus. Wien, Coll. ROEWER; ROEWER, 1950: 1 m, 1 f – RI/11/979, Figs. 21a-d Tab. 4; MARTENS, 1969: the citations for Bosnia: 1 m – SMF RI/979 – are undoubtedly erroneous)

*I. manicata* does not inhabit Bosnia and Herzegovina. According to ROEWER (1923), KRATOCHVÍL (1946) cited three *Ischyropsalis* species (sub *I. Helwigii*, *I. manicata*, *I. bosnica*) from the Bosnian mountains, although in Bosnian, Herzegovinan, Dalmatian and Montenegrin caves he did not find any *Ischyropsalis*. For further comments,

see MARTENS (1969, 1978b) and NOVAK & GRUBER (2000). So far, *I. h. hellwigii* is the only ischyropsalidid harvestman confirmed for Bosnia and Herzegovina.

□ *Ischyropsalis muellneri* Hamann, 1898

#### Erroneous citations

- □ *Bosnia* (HADŽI, 1973b)
- □ a cave on *Mt. Bjelašnica*, 1000 m (HADŽI J, 1942, sub *I. muellneri*, 26.07.1932, KRATOCHVÍL leg.: 1 m)

*I. muellneri* does not inhabit Bosnia and Herzegovina. HADŽI (1942) noted that the photographed specimen in ŠILHAVÝ'S (1936, Photo 2) paper, labelled: »*Ischyropsalis muellneri* Hamann z černohorských jeskyn« (= *I. m.* from the Montenegrin caves) probably relates to the same specimen. KRATOCHVÍL later (1946: 173) wrote: »Rod *Ischyropsalis*... nebyl v jeskynních Bosny, Hercegoviny, Dalmacie a Černe Hory zastížen.« (The genus *Ischyropsalis*... has not been found in caves of Bosnia, Herzegovina, Dalmatia and Montenegro.) MARTENS (1969, 1978b) supposed that the species could live also in Bosnia and Herzegovina, but he made it clear that the specimen from Bjelašnica Mt. (HADŽI, 1942) is certainly not *I. muellneri*. The species is an endemic of the Julian Alps/Venezia Giulia; further comments, in NOVAK & GRUBER (2000).

#### Phalangiidae

*Amilenus aurantiacus* (Simon, 1881); Fig. 1–15

- **Bosnia and Herzegovina** (HADŽI, 1973a, sub *Nelima aurantiaca*)
  - **Bosnia** (ROEWER, 1910, sub *N. aurantiaca*, more localities, mm, ff, juv., VERHOEFF leg., Mus. Berlin; ROEWER, 1923, sub *N. aurantiaca*; KRATOCHVÍL, 1946, sub *N. aurantiaca*)
  - **Herzegovina** (KULCZYNSKI, 1909, sec. ABSOLON, 1913; ROEWER, 1910, sub *N. aurantiaca*; m, f, KARLINSKI leg., Coll. KULCZYNSKI; ROEWER, 1923, sub *N. aurantiaca*; KRATOCHVÍL, 1946, sub *N. aurantiaca*, sec. ABSOLON, 1913)
1. Čelebić, XJ36 (MARTENS, 1978a, b)
  2. Stolac, YH47 (MARTENS, 1978a, b)
  3. Megara pećina cave, BP14, Ivan, Orlovac on Mt. Maslina (ABSOLON, 1913, sub *N. aurantiaca*, ABSOLON leg., 13.10.1908: more than 100 juv. mm, juv. ff; ROEWER, 1923, sub *N. aurantiaca*: 1 m, 1 f, Coll. KULCZYNSKI, Mus. Brno; WOLF, 1934–38, sub *N. aurantiaca*; KRATOCHVÍL, 1946, sub *N. aurantiaca*, near the entrance, ABSOLON leg., 1903: 100 ex.; MARTENS, 1978a, b)
  4. Mt. Maglič, CN19, 2386 m (MARTENS, 1978b, AUSOBSKY leg.)

#### Collection records

- the **Jahorina Mts.**, 1800 m, 27.05.1989, POTOČNIK leg.: 1 m (TN 198/2002)
1. **Kupreška vrata**, XJ87, 1384 m, Bugojno, 10.09.1983, SIVEC leg.: 7 juv. (TN 101/2002)



2. **Skender Vakuf, XK92**, 820 m, 19.10.1990, HORVAT, SIVEC leg.: 4 juv. (TN 1260/1998)
3. **Pavlovica, YJ17**, Gornji Vakuf, 950 m, 18.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1252/1998)
4. 6 km SW of **Fojnica, YJ26**, Mt. Vranica, 1210 m, 17.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1168/1998)
5. 8 km W **Fojnica, YJ26**, Vranica planina, 1410 m, 17.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1158/1998)
6. **Fojnica, YJ27**, 790 m, 17.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1251/1998)
7. 5 km SW of **Fojnica, YJ27**, Mt. Vranica, 1400 m, 17.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1165/1998)
8. **Željeznica, YJ36**, Dusina, Fojnica, 830 m, 18.10.1990, HORVAT, SIVEC leg.: 2 mm subad., 1 f subad. (TN 1152/1998)
9. **Fojnica, YJ37**, 710 m, 17.10.1990, HORVAT, SIVEC leg.: 1 m subad. (TN 1246/1998)
10. **Ravan, YJ38**, Busovača, Zenica, 13.05.1986, HORVAT, SIVEC leg.: 1 f (TN 1235/1998)
11. **Šišave, YK00**, Travnik, Vlasieć planina, 1050 m, 19.10.1990, HORVAT, SIVEC leg.: 3 subad. (TN 1150/1998)
12. **Obrnja, BP08**, Kalinovik, 15.09.1987, HORVAT, SIVEC leg.: 1 juv. (TN 1173/1998)
13. **Rogoj, BP29**, below the mountain-pass, Dobro polje, 15.09.1987, HORVAT, SIVEC leg.: 2 juv. (TN 1178/1998)
14. **Sarajevo, BP39**, 15.09.1987, HORVAT, SIVEC leg.: 2 juv. (TN 1176/1998)
15. **Mt. Igman, BP45**, 1220 m, 26.05.1989, POTOČNIK leg.: 1 f (TN 189/2002)
16. **Mt. Trebević, BP45**, 1225 m, 27.05.1989, POTOČNIK leg.: 1 m, 1 f (TN 202/2002)
17. **Zavidovići, BQ12**, Ravan planina, 480 m, 15.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1167/1998)
18. **Tajan, BQ07**, Kamenica, Zavidovići, Ravan planina, 650 m, 15.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1278/1998)
19. **Grab, CN09**, 17.09.1987, HORVAT, SIVEC leg.: 1 f subad. (TN 1162/1998)
20. near the left influx of the **Sutjeska River, CN09**, Čemerno, 17.09.1987, HORVAT, SIVEC leg.: 1 juv. (TN 1263/1998)
21. **Dobra voda cave, CP01**, Borija, Bosna, 28.1.1956, PRETNER leg., HADŽI det. sub *Nelima aurantiaca*: 1 m, 1 f (TN 676/1983)
22. **Popov most, CP01**, Tjentište, 17.09.1987, HORVAT, SIVEC leg.: 1 juv. (TN 1187/1998)
23. **Boganovići, CP08**, Kladanj, 570 m, 15.10.1990, HORVAT, SIVEC leg.: 2 juv. (TN 1280/1998)
24. **Petrovići, CP28**, Kladanj, 780 m, 14.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1276/1998)

25. near the **Drinjača** River, **CQ00**, Budim Potok, Konjuh planina, 800 m, 14.10.1990, HORVAT, SIVEC leg.: 2 juv. (TN 1191/1998)
26. 5 km S of **Mačkovac**, **CQ00**, Mt. Konjuh, 600 m, 13.10.1990, HORVAT, SIVEC leg.: 3 juv. (TN 1244/1998)

*Egaenus convexus* (C. L. Koch, 1835); Fig. 1–16

- **Bosnia** (MÖLLENDORFF, 1873; ROEWER, 1912, many mm, ff and juv., Mus. Wien and Budapest)

#### Collection records

1. **Staro Selo – Jajce**, **XK81**, POTOČNIK leg., 23.05.1989: 1 f (TN 166/2002)
2. above the **Boračko jezero [lake]**, **BP12**, Mt. Prenj, Konjic, 06.06.1985, leg. SIVEC: 1 f (TN 1224/1998)
3. **Mt. Trebević**, **BP45**, 1225 m, STURANY leg., don. (1898.XXI.), ROEWER det.: 3 ff, 2 juv. (NHMW 3842)

*Lacinius dentiger* (C. L. Koch, 1847); Fig. 1–17

- **Bosnia** (ROEWER, 1912, 22 ex., vidi; ROEWER, 1923; ROEWER, 1957: 1 f RI/6/701; HADŽI, 1973a)
- **Herzegovina** (ROEWER, 1912: 1 f, vidi; ROEWER, 1923)

#### Collection records

- **Poljana**, where?, Mt. Prenj, Konjic, 05.06.1985, SIVEC leg.: 1 juv. (TN 1257/1998)
1. **Lukavac** spring, **YH44**, near Vjetrenica cave, Popovo polje, 29.09.2003, POLAK leg.: 1 juv. (TN 879/2003)
  2. **Zavala**, **YH44**, Popovo polje, shrubs, ca. 300 m, ca 300 m E of Vjetrenica cave, 04.06.1968, sejano, GRUBER leg. et det.: 1 juv. (NHMW 3721); **ibid.**, shrubs, ca. 280 m, in front of Vjetrenica cave, 04.06.1968, GRUBER leg. et det.: 3 juv. (NHMW 3720)
  3. **Mt. Plasa**, **YJ03**, 2116 m, PENTHER leg., 05.1901, ex *Mitopus morio*, GRUBER rev. 1973: 12 juv. (NHMW 3719)
  4. **Brezici**, **BQ48**, Doboje, Mt. Ozren, 04.10.1986, HORVAT, SIVEC leg.: 1 f (TN 1121/1998)
  5. near the **Drinjača** River, **CQ00**, Budim Potok, Konjuh planina, 800 m, 14.10.1990, HORVAT, SIVEC leg.: 2 mm (TN 1192/1998)

*Lacinius ephippiatus* (C. L. Koch, 1835); Fig. 1–18

#### Collection records

1. **Mt. Plasa**, **YJ03**, 2116 m, Jablanica, (1901.V.), PENTHER leg., ex *Mitopus morio*, GRUBER rev. 1973: 2 ff (NHMW 3707)
2. **Vučja bara**, **CN08**, near Gacko, STURANY leg., VII.1900: 1 f, 2 juv. (NHMW 3706)

*Lacinius horridus* (Panzer, 1794); Fig. 1–19

1973 *Lacinius zavalensis* Hadži, 1973a, Razpr. SAZU, IV., 16(1): 71.

- **Bosnia** (ROEWER, 1957: 14 ex. (mm, ff) – RI/6/706; HADŽI, 1973b)
- 1. **Golubinac** above Zavala, **YH44**, Popovo polje (HADŽI, 1973a, sub *L. zavalensis*, SKET leg.: 2 ff, endem; HADŽI, 1973b, sub *L. zavalensis*, type) – (TN 632/1983)

#### Collection records

- **Mt. Bjelašnica**, STURANY leg., 1898, ROEWER det.: 1 juv. (NHMW 5402)
  - **Popovo polje**, 09.1963: 1 f (TN 46/1981) – legs with »*bulgaricus*«-like dorns, GRUBER'S remark
  - 1. **Zavala, YH44**, Popovo polje, shrubs, ca. 300 m, E of the Vjetrenica cave, macchia, underneath stones, 04.06.1968, leg. et det. GRUBER: 2 juv. (NHMW 5394); **ibid.**, on the rock wall in front of the Vjetrenica cave, ca. 280 m, 04.06.1968, leg. et det. GRUBER: 1 juv. (NHMW 5395); **ibid.**, shrubs, ca. 300 m, ca. 300 m E of the Vjetrenica cave, sieving, 04.06.1968, leg. et det. GRUBER: 3 juv. (NHMW 5396); **ibid.**, SE of the cave Vjetrenica, shrubs, ca. 350 m, sieving, 06.06.1968, leg. GRUBER: 1 juv. (NHMW 5398); **ibid.**, 07.09.1975: 10 ff (TN 807/1981); **ibid.**, 04.09.1975: 5 ff, 1 subad. (TN 809/1981; J. Gruber det.); **ibid.**, near the entrance of Vjetrenica cave, 31.05.1989, POTOČNIK leg.: 2 juv. (TN 187/2002)
  - 2. in front of **Vjetrenica** cave, **YH44**, 06.09.1975, pitfall trap 205: 1 f (TN 805/1981); **ibid.**, pitfall trap 203: 1 f (TN 806/1981); **ibid.**, pitfall trap 202: 3 ff (TN 808/1981)
  - 3. in front of **Orlica** pećina cave, **YH44**, SW of Zavala, Popovo polje, ca. 350 m S of Zavala, underneath stones, 05.06.1968, leg. det. GRUBER: 4 juv. 5397
  - 4. **Kijevo, BP45**: Kievo, STURANY leg. (XXIII.30.906): 1 m (NHMW 5399)
- Both females described as *L. zavalensis* (HADŽI, 1973a) are typical *L. horridus*, having legs with »*bulgaricus*«-like spines.

*Lophopilio palpinalis* (Herbst, 1799); Fig. 1–16

- 1. **Foča, CP21** (MARTENS, 1978b, AUSOBSKY leg.)

*Metaplatybnus carneluttii* Hadži, 1973; Fig. 1–20

#### Collection records

- the **Prenj Mts.**, PENTHER leg., 1901, ROEWER det. sub *Platybnus pinetorum*, GRUBER rev.: 1 m (NHMW 11689)
- 1. **Mt. Plasa, YJ03**, Jablanica, 1900, PENTHER leg. (A.N. 1900 XVI.?-), ROEWER det. sub *Platybnus pinetorum?*, GRUBER rev.: 13 ex. (NHMW 11688)
- 2. **Tajan, BQ02**, Kamenica, Zavidovići, Ravan planina, 650 m, 15.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1279/1998)

*Mitopus morio* (Fabricius, 1799); Fig. 1–21

- **Bosnia** (ROEWER, 1912, sub *Mitopus bosnicus*, and *M. scaber*: 1 m, 1 f – the allegedly male specimen is a transverse gynandromorph, with the male anterior portion (COKENDOLPHER & SISSOM, 1988; holotype and female paratype – RII/744, Coll. SMF); ROEWER, 1923, sub *M. scaber*: 1 m, 1 f – type Coll. ROEWER; ROEWER, 1957: ca. 30 ex. (mm, ff), Coll. ROEWER – RI/6/740, and sub *M. scaber*: 1 m (type), 1 f (paratype) – Coll. ROEWER RI/6/744); HADŽI, 1973a, sub *M. scaber*, endem)

#### Collection records

- **Mt. Bjelašnica**, STURANY leg., (1898.XXI.), ROEWER det.: 1 f, 4 juv. (NHMW 3636)
- 1. **Kupreška vrata**, XJ87, 1384 m, Bugojno, 10.09.1983, SIVEC leg.: 1 m, 1 f (TN 103/2002)
- 2. **Mt. Plasa**, YJ03, 2116 m, Jablanica, PENTHER leg. (1901.V.), ROEWER det.: 11 mm, 19 juv. (NHMW 3637)
- 3. **Travnik**, YJ19, leg.?, date?: 1 ex. (TN 65/1983) – badly preserved microscopic preparation); **ibid.**, 05.1931, HADŽI leg. and det.: 1 juv. (TN 70/1983) microscopic preparation
- 4. near **Prekopsko jezero** lake, YJ26, Fojnica, Vranica planina, 680 m, 17.10.1990, HORVAT, SIVEC leg.: 1 m (TN 1273/1998)
- 5. **Mt. Igman**, BP45, 1220 m, 26.05.1989, POTOČNIK leg.: 1 juv. (TN 190/2002)
- 6. **Vučja bara**, CN08, near Gacko, STURANY leg., 07.1900: 2 juv. (NHMW 3684)

*Odiellus lendli* (Sørensen, 1894); Fig. 1–18

#### Collection records

- 1. Trebinje, BN33, 28.8.1952, 506, NIKOLIĆ leg.: 1 juv. (TN 681/1983)

*Oligolophus tridens* (C. L. Koch, 1836); Fig. 1–22

- **Bosnia** (ROEWER, 1957: 9 ex. (mm, ff) – RI/10/754; HADŽI, 1973a: ex-Yugoslavia)

#### Collection records

- **Mt. Prenj**, PENTHER leg., 1901, ROEWER det. sub *Odiellus palpinalis*, GRUBER rev.: 1 m, 1 juv. (NHMW 3692)
- 1. **Gornji Malovan**, XJ76, Kupreško polje, 10.10.1983: 1 f (TN 96/2002)
- 2. **Kupreška vrata**, XJ87, 1384 m, Bugojno, 10.09.1983, SIVEC leg.: 3 mm, 3 ff (TN 102/2002)
- 3. **Skender Vakuf**, XK92, 820 m, 19.10.1990, HORVAT, SIVEC leg.: 3 ff (TN 1261/1998)
- 4. **Jasenik**, YJ35, Konjic, Bitovnja pl., 1130 m, 18.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1185/1998)
- 5. **Željeznica**, YJ36, Gojevići, Fojnica, 710 m, 18.10.1990, HORVAT, SIVEC leg.: 1 m subad. (TN 1245/1998)

6. **Vjetrenica** cave, **YH44**, Zavala, Popovo polje, HOLLENDER, SCHMID, GRUBER leg., GRUBER det., 02.06.1968: 1 ad. ex.
7. **Rakova noga**, **BP66**, Kiseljak, 530 m, 17.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1249/1998)
8. **Kraljeva svijeska (sutjeska?)**, **BP79**, Kakanj, Ravan planina, 1010 m, 15.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1269/1998)
9. 3 km S of **Tajan**, **BQ07**, Kamenica, Zavidovići, Ravan planina, 1000 m, 15.10.1990, HORVAT, SIVEC leg.: 1 m, 4 ff (TN 1250/1998)
10. **Zavidovići**, **BQ12**, Ravan planina, 480 m, 15.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1266/1998)
11. **Donji Rakovac**, **BQ73**, Maglaj, 290 m, 12.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1168/1998)
12. **Brezici**, **BQ75**, Doboj, Mt. Ozren, 04.10.1986, HORVAT, SIVEC leg.: 2 mm (TN 1123/1998)
13. **Perušica**, **CN19**, Tjentište, 06.07.1976, DEELEMEN-REINHOLD leg.: 1 juv. (TN 1311/1998); *ibid.*, primeval *Piceeto-Fagetum*, 06.07.1976, DEELEMEN-REINHOLD leg.: 1 juv. (TN 1318/1998)

*Opilio dinaricus* Šilhavý, 1938; Fig. 1–23

- **Bosnia** (HADŽI, 1973a)
- NW of **Mostar** (MARTENS, 1978b, AUSOBSKY leg.)
- 1. **Crnulja jama** cave, **YH35**, Turkovići, Popovo polje, (ŠILHAVÝ, 1938, loc. typ., KRATOCHVÍL leg., 1935: 8 mm, 2 ff; KRATOCHVÍL, 1946: ponor Trebinjčice /right: Trebišnjice; = the sinkhole of Trebišnjica River/; MARTENS, 1978b)
- 2. **Konjic**, **YJ33** (RAFALSKI, 1962; MARTENS, 1978b)

#### Collection records

- **Dabarsko polje**, 17.09.1987, VELKOVHR leg.: 1 f, 1 f subad. (TN 119/1997)
- **Mt. Prenj**, PENTHER leg., 1901, ROEWER det. sub. *O. parietinus*; ex ds., rev. GRUBER 1974: 3 ff (NHMW 3982)
- 1. **Zavala**, **YH44**, Popovo polje, shrubs, ca. 300 m, ca. 300 m E of Vjetrenica cave, 04.06.1968, sieving, GRUBER leg. et det.:?1 juv.; *ibid.*, in front of Orlica pećina cave, ca. 350 m S of Zavala, under a stone, 05.06.1968, leg. det. GRUBER:?? juv.; *ibid.*, ca. 250 m, under stones, 06.06.1968, SCHMID leg., GRUBER det.: 1 m (NHMW 3856)
- 2. in front of **Vjetrenica** cave, **YH44**, 04.09.1975, pitfall trap 207: 1 juv. (TN 822/1981)
- 3. a cave near **Rupa**, **BN32**, Dražin, S of Trebinje, Z. KRATOCHVÍL leg., 24.07.1969, DEELEMEN-REINHOLD det.: 1 m (JM 1086)

□ *Opilio magnus* Hadži, 1973

**Erroneous citation**

1. □ *Draganj* (HADŽI, 1973a, 15.08.1966, PRETNER leg.: 7 ex.; HADŽI, 1973b, loc. typ., endem)

KARAMAN (1995) found that there is no place named Draganj in Herzegovina, and that the citation probably refers to the settlement of Dragalj near Grahovo in Montenegro.

*Opilio parietinus* (De Geer, 1778)

- **Bosnia** (MÖLLENDORFF, 1873; ROEWER, 1957: 9 ex. (mm, ff) – RI/8/593; HADŽI, 1973a: ex-Yugoslavia)

**Collection records**

- the **Prenj Mts.**, PENTHER leg., 1901, ROEWER det.: 3 mm, 5 ff, 1 juv. (NHMW 3919)

*Opilio ruzickai* Šilhavý, 1938; Fig. 1–24

- NW of **Mostar** (MARTENS, 1978b, AUSOBSKY leg.)
  - **Foča – Suha** (MARTENS, 1978b, AUSOBSKY leg.)
1. **Kijevo, BP45** (MARTENS, 1978b: Kievo, STURANY leg., 1906) – XXIII.30.906., GRUBER det. 1965: 1 f (NHMW 3878)

**Collection records**

1. near the **Boračko jezero** lake, **BP12**, 07.09.1984, SIVEC leg.: 2 mm (TN 1253/1998)
2. **Borci, BP12**, Mt. Prenj, 06.09.1984, SIVEC leg.: 1 m (TN 1157/1998)
3. **Sarajevo, BP39**, Trnovo, 15.09.1987, HORVAT, SIVEC leg.: 1 m (TN 1177/1998)
4. **Čemerno, CN08**, 17.09.1987, HORVAT, SIVEC leg.: 1 f (TN 1166/1998)
5. **Grab, CN09**, 17.09.1987, HORVAT, SIVEC leg.: 2 ff (TN 1161/1998)
6. **Čelikovo polje, CP21**, Foča, 10.09.1984, SIVEC leg.: 1 f (TN 1254/1998)

*Opilio saxatilis* C. L. Koch, 1839; Fig. 1–14

1. **Crnulja** cave, **YH35**, Turkovići, Popovo polje, (ŠILHAVÝ, 1938, KRATOCHVÍL leg.; KRATOCHVÍL, 1946, sub *O. saxatilis* C. L. Koch, 1934)

**Collection records**

- **Mt. Prenj**, PENTHER leg., 1901, ROEWER det. sub *O. parietinus*, ex ds. GRUBER rev. 1974: 1 f (NHMW 3931)
1. in front of **Orlica** pećina cave, **YH44**, ca. 350 m SW of Zavala, under a stone, 05.06.1968, GRUBER leg. and det.: 1 f (NHMW 3949)
  2. **Zavala, YH44**, the pathway to the Vjetrenica cave, Zavala, Popovo polje, ca. 280 m, under a stone, 03.06.1968, GRUBER leg. and det.: 1 m (NHMW 3940); **ibid.**, shrubs, ca. 300 m, ca. 300 m E of Vjetrenica cave, 04.06.1968, GRUBER leg. and

- det.: 1 m, 1 juv. (NHMW 3941); **ibid.**, the monastery garden, ca. 300 m, under a stone, 05.06.1968, GRUBER leg. and det.: 1 m (NHMW 3942); **ibid.**, ca. 250 m, under stones, 06.06.1968, SCHMID, GRUBER leg., GRUBER det. 1968: 1 m, 2 ff, 1 juv. (NHMW 3939); **ibid.**, 06.09.1975: 3 mm, 2 ff (TN 815/1981); **ibid.**, 04.09.1975: 1 m, 1 f (TN 821/1981)
3. small valley S of **Zavala**, **YH44**, Popovo polje, ruderal landscape, ca. 280 m, under a stone, 06.06.1968, leg. GRUBER leg. and det.: 1 m (NHMW 3943)
  4. in front of **Vjetrenica** cave, **YH44**, 06.09.1975, pitfall trap 85: 1 f (TN 804/1981); **ibid.**, 4.09.1975, pitfall trap 212: 1 f (TN 816/1981; det. GRUBER); **ibid.**, pitfall trap 202: 1 juv. (TN 819/1981; det. GRUBER)
  5. **Vjetrenica** cave, **YH44**, 06.09.1975, pitfall trap 86: 1 f (TN 817/1981; det. GRUBER); **ibid.**, pitfall trap R3: 2 juv. (TN 818/1981; det. GRUBER)
  6. **Dimina peć**, **YH44**, 06.09.1975, pitfall trap 232: 1 juv. (TN 820/1981; det. GRUBER)
  7. S of **Čemerno**, **CN09**, 06.06.1985, SIVEC leg.: 1 juv. (TN 1188/1998)

\**Opilio transversalis* Roewer, 1956

The occurrence of the species is expected along the Adriatic coast of Bosnia and Herzegovina.

*Phalangium opilio* Linnaeus, 1758; Fig. 1–25

- **Bosnia and Herzegovina** (HADŽI, 1973a: ex-Yugoslavia)
- **Bosnia** (ROEWER, 1957: 7 ex. (mm, ff) – RI/7/692)

#### Collection records

1. **Gornji Malovan**, **XJ76**, Kupreško polje, 10.10.1983: 1 m (TN 95/2002)
2. **Kupreška vrata**, **XJ87**, 1384 m, Bugojno, 10.09.1983, SIVEC leg.: 1 f (TN 100/2002)
3. **Stolac**, **YH47**, PENTHER leg., 1905, ROEWER det.: 2 mm, 10 ff, 3 juv. (NHMW 3815)
4. **Kruščica**, **YJ28**, Vitez, Travnik, 12.07.1968, GRUBER det.: 2 juv. (TN 641/1983)
5. **Mt. Zelengora**, **BP40**, near the mountain cabin, 08.09.1984, SIVEC leg.: 2 ff (TN 1147/1998)
6. **Brezici**, **BQ48**, Doboje, Mt. Ozren planina, 04.10.1986, HORVAT, SIVEC leg.: 1 m (TN 1122/1998)
7. **Gacko**, **CN08**, STURANY leg., 10.1900, ROEWER det.: 5 mm (NHMW 3814)
8. **Čemerno**, **CN08**, below the mountain pass, Gacko, 05.06.1985, SIVEC leg.: 1 juv. (TN 1243/1998)
9. **Radačići**, **CP09**, Kladanj, 680 m, 15.10.1990, HORVAT, SIVEC leg.: 1 m (TN 1270/1998)
10. near the **Drinjača** river, **CQ00**, Budim Potok, Konjuh planina, 800 m, 14.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1190/1998)

11. 19 km N of **Kladanj, CQ10**, Mt. Konjuh planina, 890 m, 14.10.1990, HORVAT, SIVEC leg.: 1 f (TN 1247/1998)

*Platybunus bucephalus* (C. L. Koch, 1835); Fig. 1–24

#### Collection records

1. **Korita, BN46**, 30.05.1989, near a cave, POTOČNIK leg.: 1 m (TN 194/2002)

*Platybunus hadzii* Kratochvíl, 1935; Fig. 1–20

#### Collection records

- near the **Cetina** river, 2 km from the spring, 35° N bank slope, underneath stones, 11.04.1966, HARMS leg.: 1 f (JM 472)

1. S of **Zavala, YH44**, Popovo polje, 05.06.1968, GRUBER leg.: 1 f (NHMW 8227)

□ *Platybunus pinetorum* (C. L. Koch, 1839)

#### Erroneous citation

?*Bosnia and Herzegovina* (HADŽI, 1973b: ex-Yugoslavia)

?*Herzegovina* (ROEWER, 1911, sub *P. pinetorum*, PENTHER leg.: pl. – Hofmus. Wien; ROEWER, 1912, sub *P. pinetorum*; many mm, ff, PENTHER leg., Hofmus. Wien, vidi)

According to GRUBER'S revision of ROEWER'S determinations of specimens held in the Natural History Museum in Vienna, ROEWER'S (1911) citation of *Platybunus pinetorum* relate to *P. strigosus* and *Metaplatybunus carneluttii* (see there). *P. pinetorum* does not inhabit Bosnia and Herzegovina. Perhaps ROEWER also mismatched the species with *P. bucephalus* (KARAMAN, 1995; NOVAK, 2004).

\**Platybunus strigosus* (L. Koch, 1867)

The species would be expected in the very south-eastern parts of Herzegovina.

*Rilaena triangularis* (Herbst, 1799); Fig. 1–26

- **Bosnia**, unknown locality (MARTENS, 1978b)

#### Collection records

- **Herzegovina**, PENTHER leg., ROEWER det. sub *Platybunus triangularis*: 2 mm (NHMW 3995)

1. **Ravan, YJ38**, Busovača, Zenica, 13.05.1986, SIVEC, HORVAT leg.: 2 juv. (TN 1236/1998)

2. 15 km N of **Kladanj, CQ00**, Konjuh planina, 830 m, 14.10.1990, HORVAT, SIVEC leg.: 1 juv. (TN 1277/1998)

*Zachaeus crista* (Brullé, 1832); Fig. 1–26

1. **Stolac, YH47** (MARTENS, 1978b, sub *Zacheus*, NHMW)



### Collection records

1. **Stolac, YH47**, PENTHER leg., 1905, ROEWER det. sub *Zacheus variegatus*; GRUBER rev.: 3 ff (NHMW 4136)
2. **Mt. Trebević, BP45**, 1225 m, STURANY leg., 1898, GRUBER rev. (ex *Egaenus convexus*): 1 juv. 4135
3. **Višegrad** (probably this town; GRUBER's remark), **CP64**, PENTHER leg., 1905; ROEWER det. sub *Zacheus hungaricus*, GRUBER rev.: 1 m, 1 f (NHMW 4137)

### Sclerosomatidae

*Astrobunus dinaricus* Roewer, 1915; Fig. 1–27

1. **Gacko, CN08** (MARTENS, 1978b: Gačko, AUSOBSKY leg.)
2. **Foča, CP21** (MARTENS, 1978b, AUSOBSKY leg.)

### Collection records

1. **Vjetrenica cave, YH44**, 06.09.1975, pitfall trap 213: 1 f (TN 810/1981)

*Astrobunus helleri* (Ausserer, 1867); Fig. 1–27

- **Bosnia and Herzegovina** (MARCELLINO, 1987)
1. **Banja Luka, XK75** (MARTENS, 1978b, AUSOBSKY leg.)

*Astrobunus laevipes* (Canestrini, 1872)

- **Bosnia** (ROEWER, 1912: unknown locality, sub *A. bosnicus*: 1 ex.; ROEWER, 1923, sub *A. bosnicus*: 1 m – type in Coll. ROEWER /2 mm – 1 m from Bosnia, and 1 m from southern Hungary/, and sub *A. meadi*: 1 m – Coll. ROEWER; ROEWER, 1957, sub *A. bosnicus*: 1 m (type) – RI/11/914, and sub *A. meadi*: 1 m RI/11/1210; HADŽI, 1973a, sub *A. bosnicus*, endem, and sub *A. meady*; MARTENS, 1978b)

*Gyas titanus* Simon, 1879; Fig. 1–28

1. **Kupreška vrata, XJ87**, Bugojno, 1200 m, 10.9.1983, Coll. BIOS 2606, SIVEC leg.: 1 m – TN 406/1985 (NOVAK *et al.*, 2000)
2. **Kozarac, XK48**, Prijedor, 06.05.1987, SIVEC, HORVAT leg.: 2 subad. – TN 1096/1998 (NOVAK *et al.*, 2000)
3. **Vranica pl., YJ27**, 1400 m, 5 km SW of Fojnica, 17.10.1990, SIVEC, HORVAT leg.: 2 juv. – TN 1264/1998)
4. **Ravan, YJ38**, Busovača, Zenica, 13.05.1986, SIVEC, HORVAT leg.: 1 subad., 1 juv. – TN 1234/1998 (NOVAK *et al.*, 2000)
5. **Ponor Bijambare cave, Čevljanovići, BP37**, 28.07.1968, PRETNER leg.: 1 juv. – TN 233/1985 (NOVAK *et al.*, 2000)
6. **Mt. Maglić, CN19**, 2386 m (MARTENS, 1978b, AUSOBSKY leg.)
7. **Radačići, CP09**, Kladanj, 680 m, 15.10.1990, SIVEC, HORVAT leg.: 1 juv. – TN 1271/1998 (NOVAK *et al.*, 2000)

8. **Konjuh planina, CQ00**, 890 m, 16 km N of Kladanj, 14.10.1990, SIVEC, HORVAT leg.: 2 juv. – TN 1256/1998 (NOVAK *et al.*, 2000)

#### Collection records

1. **Jahorina, BP45**, Mt. Jahorina, Sarajevo, 01.05.2004, KALIGARIČ leg.: 1 juv. (TN 8/2004)

□ *Leiobunum limbatum* L. Koch, 1861

#### Erroneous citation

- □ *Bosnia* (ROEWER, 1957: 1m, 1 f RI/5/24)

*L. limbatum* does not live in Bosnia and Herzegovina. Undoubtedly, it refers either to an erroneous locality citation or to another species.

□ *Leiobunum rotundum* (Latreille, 1798)

#### Doubtful citations

□ *Bosnia* (ROEWER, 1957, sub *Liobunum*: 5 ff – RI/5/19; HADŽI, 1973a, sub *Liobunum*)

Perhaps the species could be expected in the north-western lowland region of Bosnia and Herzegovina, but further records must be provided to prove the presence of the species in the country.

?*Leiobunum cf. rumelicum* Šilhavý, 1965

#### Collection records

1. **Proboj, YH08**, Čapljina, 14.09.1987, SIVEC leg.: 1 m (TN 1170/1998), the penis damaged

*Leiobunum rupestre* (Herbst, 1799); Fig. 1–29

- **Bosnia** (ROEWER, 1957: 3 ex. (m, f) – RI/5/8; HADŽI, 1973a, sub *Liobunum*)

1. 14 km W of **Travnik, YK00** (MARTENS, 1978b, AUSOBSKY leg.)

#### Collection records

1. **Kupreška vrata, XJ87**, 1384 m, Bugojno, 10.09.1983, SIVEC leg.: 2 mm (TN 99/2002)

2. **Vilinska jama cave, BN43**, BABIĆ det.: 4 mm, 1 juv. – 1916: 4 ff (TN rev. 703/1984), *ibid.*, 20.8.1916: 1 juv. (TN rev. 705/1984)

*Nelima troglodytes* Roewer, 1910; Fig. 1–30

- caves in **Bosnia and Herzegovina** (ROEWER, 1957: 12 ex. (mm, ff), paratypes, Coll. ROEWER RI/5/18; VANDEL, 1964: ex-YU karst; HADŽI, 1973a: eucaval)
- caves in **Herzegovina** (ABSOLON, 1913: caves in Trebinje – Bihovo – Gluha smokva – Zavala, caves in Popovo polje; WEIDNER, 1959: Höhlen, 7 paratypes, from Coll. ROEWER; MORITZ, 1971, VERHOEFF leg., ZMB 12713: 3 mm, 5 ff, 1 pullus, syn-types)

- caves in **Popovo polje** (NOSEK, 1905, sub *Liobunum* sp.; SKET, 1980)
  - where? (MORITZ, 1971: Acheron, VERHOEFF leg., ZMB 12711 (1 f, 3 pulli, syntypes)
  - **Jamutina** cave, where?, Orlje glavice, S of Gajić (KRATOCHVÍL, 1946)
1. **Begova** jama cave (= Snježnjača cave), **XJ36**, Mt. Mušica, 1597 m, 5 km NW of Čelebić (KRATOCHVÍL, 1946)
  2. **Mala Golubnjača** cave, **XJ65**, ca. 5 km N of Kablič near Livno (KRATOCHVÍL, 1946)
  3. **Pećina pri Izvoru** cave, **XJ65**, Livno (KRATOCHVÍL, 1946)
  4. **Batša** pećina cave, **XJ73**, 2 km W of Kovači near Tomislavgrad /= Duvno/, W Duvanjsko polje (KRATOCHVÍL, 1946: Kovači)
  5. **Lisičine** cave, **XJ73**, ca. 3 km SW of Gornji Brišnik (KRATOCHVÍL, 1946)
  6. **Listvača** pećina cave, **XJ73**, near Gornji Brišnik (KRATOCHVÍL, 1946)
  7. **Pećina kod Donjeg Brišnika** cave, **XJ73**, Tomislav- Imotski (KRATOCHVÍL, 1946)
  8. **Pećina u Guču** cave, **XJ73**, E of Gornji Brišnik (KRATOCHVÍL, 1946)
  9. **Tavnica u pećina** cave, **XJ73**, near Gornji Brišnik (KRATOCHVÍL, 1946)
  10. **Velika Golubnjača** cave, **XJ76**, 4 km N of Kablič, 1100 m, ca. 8 km NW of Livno (KRATOCHVÍL, 1946)
  11. **Bjelušnica** cave, **YH44**, Zavala, Popovo polje (KRATOCHVÍL, 1946: Bjelušica; NOVAK *et al.*, 1995, 04.–12.09.1975, pitfall traps: 1 m, 1 f, 20 juv.)
  12. **Dimina** peć, **YH44**, Zavala, Popovo polje (NOVAK *et al.*, 1995, 08.–14.09. 1975, pitfall traps: 4 juv.)
  13. **Duga** peć cave, **YH44**, Mureve ljati, Zavala, Popovo polje (KRATOCHVÍL, 1946)
  14. **Gubava** pećina cave, **YH44**, Zavala, Popovo polje (KRATOCHVÍL, 1946)
  15. **Jama za Kolenikom** cave, **YH44**, Mt. Brenkovac, Zavala, Popovo polje (KRATOCHVÍL, 1946)
  16. **Orlica** cave, **YH44**, SW of Zavala, Popovo polje (KRATOCHVÍL, 1946)
  17. **Pećina kod Manastira** cave, **YH44**, Zavala, Popovo polje (KRATOCHVÍL, 1946)
  18. **Vjetrenica** cave, **YH44**, Zavala, Popovo polje (HADŽI, 1932, 1933, HADŽI leg.; WOLF, 1934–38; PRETNER, 1963; SKET, 1980; NOVAK *et al.*, 1995, 05./06.–12./13.09. 1975, pitfall traps: 3 ff, 111 juv.)
  19. **Baba** pećina cave, **YH45**, Čvaljina (HADŽI, 1932, 1933: Pećina pod Čvaljinom, 21.–29.08.1931: 7 ex.; KRATOCHVÍL, 1946; NOVAK *et al.*, 1995, 06.–14.09.1975, pitfall traps: 1 f, 12 juv.)
  20. **Duboka** peć cave, **YH45**, kod Čvaljinskih staja, Čvaljina, Popovo polje (KRATOCHVÍL, 1946)
  21. **Vukotina** peć cave, **YH45**, near Čvaljinske staje, Čvaljina, Popovo polje (KRATOCHVÍL, 1946)

22. **Medja** peć cave, **BN04**, near Sedlari (KRATOCHVÍL, 1946)
23. **Grabova** pećina cave, **BN04**, Sedlari (KRATOCHVÍL, 1946)
24. **Trovnata** pećina cave, **BN04**, Sedlari (KRATOCHVÍL, 1946)
25. **Vodena** pećina cave, **BN04**, Sedlari (KRATOCHVÍL, 1946)
26. **Baba** pećina kod **Strujića** cave, **BN05** (KRATOCHVÍL, 1946)
27. **Grabovica** pećina cave, **BN13**, Zaton, Grebci (KRATOCHVÍL, 1946; MORITZ, 1971: Grabovizahöhle, VERHOEFF leg., ZMB 12710: 2 mm, syntypes; *ibid.*, VERHOEFF leg., 13.04., ZMB 12714: 2 mm, syntypes)
28. **Kali** pećina cave, **BN13**, Grebci (KRATOCHVÍL, 1946)
29. **Pćelina** pećina cave, **BN13**, Nevada (KRATOCHVÍL, 1946)
30. **Pećina kod Nevade** cave, **BN13**, near Nevada (KRATOCHVÍL, 1946)
31. **Poganjača** cave, **BN13**, Grebci above Popovo polje (NOVAK *et al.*, 1995, 09.–15. 09.1975, pitfall traps: 1 f, 4 juv.)
32. **Reznica** cave, **BN13**, Grebci above Popovo polje (NOVAK *et al.*, 1995, 09.–15. 09.1975, pitfall traps: 3 juv.)
33. **Stara Đurkovića** cave, **BN13**, Grebci above Popovo polje (NOVAK *et al.*, 1995, 09.–15.09.1975, pitfall traps: 3 juv.)
34. **Luginja** pećina cave, **BN19**, Nevesinje, 02.10.1962, GRUBER det. 1985: 1 juv. (TN 244/1983)
35. **Ilijina** pećina cave, **BN82**, near Bihovo (ROEWER, 1910: Eliashöhle, many individuals, VERHOEFF leg., Mus. Berlin; ROEWER, 1923: Eliashöhle, type Mus. Berlin, cotype: many mm, ff, pulli, Coll. ROEWER; HADŽI, 1932, 1933; WOLF, 1934–38: Eliashöhle; KRATOCHVÍL, 1946)
36. **Torina** jama cave, **BN22**, Bihovo (KRATOCHVÍL, 1946)
37. **Pećina kod Taleže** cave, **BN23**, near Talež (KRATOCHVÍL, 1946)
38. **Vučja** pećina cave, **BN32**, Vrbanje near Trebinje (ROEWER, 1910: Wolfshöhle, plenty individuals, VERHOEFF leg., Mus. Berlin; ROEWER, 1923: Wolfshöhle, type Mus. Berlin, cotype: pl. mm, ff, pull., Coll. ROEWER; HADŽI, 1932, 1933, VERHOEFF leg.; ROEWER, 1935: Grotte du Loup de Vrbanje, 12.07.1911: 1 m, 1 f, Coll. ROEWER Nr. 499; WOLF, 1934–38: Vukova jama; KRATOCHVÍL, 1946; MORITZ, 1971: Wolfshöhle, 17.IV., VERHOEFF leg., ZMB 12708: 4 mm, 2 ff, 1 pullus, syntypes)
39. **Jama kod Hrupjela** cave, **BN33**, Trebinje (KRATOCHVÍL, 1946)
40. **Pećina kod Jasena** cave, **BN33**, NE of Trebinje, 36° 04´; 42°44´–42°45´ (NOSEK, 1905: a cave near Jasen, an incomplete description of the species, sub *Liobunum* sp., leg. G. PAGANETTI-HUMMLER: 2 ff; ABSOLON, 1913: a cave near Jasen, PAGANETTI-HUMMLER leg.; HADŽI, 1932, 1933: Pećina »Jasen«, J. PAGANETTI-HUMMLER leg. in about 1890; KRATOCHVÍL, 1946)
41. a cave in **Trebinje**, **BN33** (ROEWER, 1957: Trebinje: 2 mm, 2 ff, Coll. ROEWER RII/5423/67)

42. **Zovića jama** cave, **BN33**, Trebinje (KRATOCHVÍL, 1946)
43. a cave in **Gluha smokva**, **BN34** (ABSOLON, 1913, VERHOEFF leg., 1877, ABSOLON leg., 1912; ROEWER, 1935: Grotte von Gluha-Smokva, 02.11.1911: 4 ex. (m f), Coll. ROEWER Nr. 494)
44. **Pećina u Vrečkovi na Dolinama** cave, **BN34** Gluha Smokva (KRATOCHVÍL, 1946)
45. **Provalija jama** cave, **BN34**, Gluha smokva (KRATOCHVÍL, 1946)
46. **Babić pećina** cave, **BN43**, Lastva (KRATOCHVÍL, 1946)
47. **Pećina pod Humom** cave, **UTM BN 63**, Trebinjska šuma, Popovo polje, Trebinje, BIH (MORITZ, 1971: Oudhöhle, Schuma, VERHOEFF leg., ZMB 12712: 1 f syntype)
48. **Ilijina pećina** cave, **BN 82**, Bihovo, Trebinje, 1000 m (MORITZ, 1971: Eliashöhle, VERHOEFF leg., ZMB 12707: 3 mm, 5 ff, 1 pullus, syntypes)
49. **Pećina kod Bileće**, cave, **BN 95**, Bileća (MORITZ, 1971: Bilekhöhle, VERHOEFF leg., ZMB 12709: 8 ff, 1 pullus, syntypes)
50. **Bezdan pod Licem** cave, **BN64**, Belenići, Zavala (KRATOCHVÍL, 1946)
51. **Bitumišlja vrelo**, UTM YH 44, Zavala, Popovo polje (HADŽI, 1932, 1933: Izvor Bitomišlja, spring, 21.–29.08.1931: 1 ex.)

#### Collection records

1. **Titova pećina** cave, **XK11**, Drvar, 19.09.1963, PRETNER leg.: 1 m, 1 f (TN 378/ 1983)
2. **Pećina Mali Duman** cave, **XJ65**, Livno, 20.09.1963, PRETNER leg.: 1 m, 10 ff, 6 juv. (TN 652/1983)
3. **Pećina Propunta** cave, **XJ65**, Livno, 20.09.1963, leg.: PRETNER leg.: 4 mm (TN 660/1983)
4. **Pećina Suhača** cave, **XJ65**, Suhača, Livno, 20.09.1963, PRETNER leg.: 1 m, 3 ff (TN 658/1983)
5. **Izvor špilja Vrilo** cave, **XJ73**, Vrilo, Buško blato, 22.09.1963, PRETNER leg.: Pećina Vrelo: 1 m, 2 ff, 2 juv. (TN 663/1983)
6. **Pećina Jezero** cave, **XJ73**, Vrilo, Buško blato, 22.09.1963, PRETNER leg.: 1 f (TN 669/1983)
7. **Pećina kod Vrila** cave, **YH19**, Gornji Studenci, 21.08.1965, PRETNER leg.: 1 m (TN 575/1983)
8. **Crnulja** cave, **YH35**, 07.09.1975: 1 m, 5 ff (TN 798/1981)
9. **Žira** cave, **YH35**, Turkovići, Popovo polje, 25.09.1963, PRETNER leg., HADŽI det.: 1 m (TN 659/1983); *ibid.*, 07.09.1975: 3 ff, 4 pulli (TN 790/1981)
10. **Baba pećina** cave, **YH44**, Čvaljina, Popovo polje, 04.06.1968, SCHMID leg.: 6 mm, 4 ff, 6 juv. (NHMW 3582); *ibid.*, POLAK leg.: 2 mm, 1 subad., 3 juv. (TN 875/2003); *ibid.*, 28.09.2003., POLAK leg.: 4 mm, 1 juv. (TN 878/2003); *ibid.*, 28.09.2003., POLAK leg.: 2 mm, 2 ff, 4 subad., 4 juv. (TN 881/2003)

11. **Bjelušnica** cave, **YH44**, Zavala, Popovo polje, 26.08.1965: 2 mm (TN 269/1983); **ibid.**, 08.1965: 1 juv. (TN 292/1983); **ibid.**, 04.06.1968, SCHMID leg.: 2 mm (NHMW 3583); **ibid.**, 22.10.1968, A. VIGNA leg.: 2 mm, 2 ff (JM 1219); **ibid.**, 14.09.1975: 2 ff (TN 732/1981); **ibid.**: 1 f (TN 735/1981)
12. **Dimina peć**, **YH44**, 06.09.1975, pitfall trap 230: 1 pullus (TN 783/1981); **ibid.**, pitfall trap 281: 1 pullus (TN 797/1981); **ibid.**, pitfall trap 283: 2 pulli (TN 800/1981); **ibid.**, pitfall trap 232: 1 juv. (TN 801/1981); **ibid.**, pitfall trap 282: 1 juv. (TN 803/1981); **ibid.**, pitfall trap 232: 1 juv. (TN 801/1981)
13. **Lukavac** spring, **YH44**, near Vjetrenica cave, Popovo polje, 29.09.2003, POLAK leg.: 2 ff, 2 juv. (TN 880/2003)
14. **Pećina Orlica** cave, **YH44**, SW of Zavala, Popovo polje, 23.12.1958, PRETNER leg., HADŽI det.: 1 m (TN 273/1983); **ibid.**, 05.06.1968, GRUBER, SCHMID leg.: 8 mm, 2 ff, 2 juv. (NHMW 3581)
15. **Popovo polje**, **YH44**, 06.09.1975, pitfall trap 307: 1 pullus (TN 786/1981); **ibid.**: 1 pullus (TN 787/1981)
16. **Vjetrenica** cave, **YH44**, Zavala, Popovo polje, 21.08.1931, A 240: 1 juv. (TN 602/1981) and: 1 m, 1 juv. (TN 604/1981; penis damaged); **ibid.**, 29.08.1931, B 240: 1 f (TN 628/1981); **ibid.**, 22.08.1931 A 240: 1 juv. (TN 631/1981); **ibid.**, 20.08.1931, HADŽI leg.: 2 juv. (TN 247/1982); **ibid.**, 21.08.1931, HADŽI leg.: 1 f (TN 256/1982); **ibid.**, 16.6.1939: 5 mm, 1 f, 1 juv. (TN 639/1983); **ibid.**, 02.06.1968, GRUBER, SCHMID leg.: 1 m, 1 f, 1 juv. (NHMW 3580); **ibid.**, 06.09.1975, pitfall trap 29: 1 f, 7 pulli (TN 734/1981); **ibid.**, pitfall trap R38: 1 f, 2 pulli (TN 736/1981); **ibid.**, pitfall trap 25: 3 juv. (TN 737/1981); **ibid.**, pitfall trap R43: 1 pullus (TN 738/1981); **ibid.**, pitfall trap 585: 1 juv. (TN 739/1981); **ibid.**, pitfall trap R2: 1 juv. (TN 740/1981); **ibid.**, pitfall trap 10: 2 juv. (TN 741/1981); **ibid.**, pitfall trap 14: 1 juv. (TN 742/1981); **ibid.**, pitfall trap 17: 1 juv. (TN 743/1981); **ibid.**, pitfall trap R34: 6 pulli (TN 744/1981); **ibid.**, pitfall trap 38: 1 juv. (TN 745/1981); **ibid.**, pitfall trap R40: 1 m, 6 juv. (TN 746/1981); **ibid.**, pitfall trap 308: 1 juv. (TN 747/1981); **ibid.**, pitfall trap R1: 1 juv. (TN 748/1981); **ibid.**, pitfall trap 31: 4 pulli (TN 749/1981); **ibid.**, pitfall trap 19: 1 juv. (TN 750/1981); **ibid.**, pitfall trap 23: 1 pullus (TN 751/1981); **ibid.**, pitfall trap R12: 1 pullus (TN 752/1981); **ibid.**, pitfall trap 11: 5 pulli (TN 753/1981); **ibid.**, pitfall trap 17: 1 pullus (TN 754/1981); **ibid.**, pitfall trap R15: 2 pulli (TN 755/1981); **ibid.**, pitfall trap 15: 5 pulli (TN 756/1981); **ibid.**, pitfall trap 13: 2 pulli (TN 757/1981); **ibid.**, pitfall trap 21: 2 pulli (TN 758/1981); **ibid.**, pitfall trap 35: 1 pullus (TN 759/1981); **ibid.**, pitfall trap R42: 2 juv. (TN 760/1981); **ibid.**, pitfall trap 299: 2 juv. (TN 761/1981); **ibid.**, pitfall trap 40: 1 pullus (TN 762/1981); **ibid.**, pitfall trap R28: 2 juv. (TN 763/1981); **ibid.**, pitfall trap 16: 2 juv. (TN 764/1981); **ibid.**, pitfall trap 12: 4 pulli (TN 765/1981); **ibid.**, pitfall trap 8: 1 juv. (TN 766/1981); **ibid.**, pitfall trap 1: 2 pullus (TN 767/1981); **ibid.**, pitfall trap 56: 1 pullus (TN 768/1981); **ibid.**, pitfall trap 2: 2 ff, 3 pulli (TN 769/1981); **ibid.**, pitfall trap R25: 1 f (TN 770/1981); **ibid.**, pitfall trap 551 juv. (TN 771/1981); **ibid.**, pitfall trap R19: 1 pullus (TN 772/1981); **ibid.**, pitfall trap 21: 1 pullus (TN 773/1981); **ibid.**, pitfall trap 9: 7 juv. (TN 774/1981); **ibid.**, pitfall trap 30: 4 pulli (TN 775/1981); **ibid.**, pitfall trap

- 41: 2 pulli (TN 776/1981); **ibid.**, pitfall trap 28: 4 pulli (TN 777/1981); **ibid.**, pitfall trap 30: 2 pulli (TN 778/1981); **ibid.**, pitfall trap 298: 3 juv. (TN 779/1981); **ibid.**, pitfall trap R32: 2 pulli (TN 780/1981); **ibid.**, pitfall trap 13: 10 pulli (TN 781/1981); **ibid.**, pitfall trap 39: 1 juv. (TN 782/1981); **ibid.**, pitfall trap 297: 1 pullus (TN 784/1981); **ibid.**, pitfall trap 364: 2 juv. (TN 785/1981); **ibid.**, pitfall trap R43: legs (TN 792/1981); **ibid.**, pitfall trap 496: 1 pullus (TN 799/1981)
17. **Pećina pod Čvaljinom** cave, **YH45**, Zavala, Popovo polje, 25.08.1931: 1 m, 1 juv. (TN 630/1981); **ibid.**, HADŽI det. J. D. 241: 1 f (TN 60/1983 m); **ibid.**, HADŽI det., J. D. 241: 1 m (TN 61/1983 microscopic preparation)
18. **Danjilina** pećina cave, **YH47**, Dabarsko polje, 28.09.1962, PRETNER leg.: 4 mm, 3 ff (TN 252/1983); **ibid.**, 23.08.1965, PRETNER leg.: 2 ff, 1 juv. (TN 251/1983)
19. **Ponikva** cave, **YH47**, Stolac, Dabarsko polje, 27.07.1975, IZRK 216, NOVAK leg.: 2 mm, 7 ff, 5 juv. (TN 826/1981); **ibid.**, 08.1987, VELKOVHR leg.: 1 m, 1 subad. (TN 115/1997)
20. **Pećina** cave, **YH47**, Žegilja, Stolac, 23.09.1963, PRETNER leg.: 1 f (TN 614/1983)
21. **Pećina Podosoje** cave, **YH47**, Stolac, Dabarsko polje, 28.07.1975, IZRK 228, NOVAK leg.: 2 mm, 1 subad. (TN 827/1981)
22. **Visibaba** cave, **YH47**, Stolac, Dabarsko polje, 28.07.1975, IZRK 199, NOVAK leg.: 1 juv. (TN 839/1981)
23. **Pećina kod Vakufa** cave, **YJ06**, Ljubuški, 27.08.1962 (?): 3 juv. (TN 605/1983)
24. **Baba** pećina cave, **BN05**, Strujići, Popovo polje, 06.06.1968, SCHMID leg.: 1 f (NHMW 3584); **ibid.**, 30.08.2003., POLAK leg.: 5 juv. (TN 877/2003); **ibid.**, 30.08.2003., POLAK leg.: 3 mm, 2 ff (TN 882/2003)
25. **Đurkovića** cave, **BN13**, Grebci, 06.09.1975, pitfall trap 350, SKET *et al.* leg.: 1 juv. (TN 791/1981); **ibid.**, 10.09.1975: 1 juv. f, 1 pullus (TN 796/1981)
26. **Poganjača** cave, **BN13**, Grebci, 09.09.1975: 2 mm, 4 ff, 6 pulli, SKET *et al.* leg. (TN 733/1981); **ibid.**, pitfall trap 494: 1 pullus (TN 788/1981); **ibid.**, pitfall trap 415: 1 pullus (TN 789/1981); **ibid.**, pitfall trap 477: 1 f (TN 793/1981); **ibid.**, pitfall trap 484: 1 f, 1 pullus (TN 794/1981); **ibid.**, pitfall trap 470: 1 juv. (TN 802/1981)
27. **Reznica** cave, **BN13**, Grebci, 09.09.1975: 3 mm (TN 795/1981); **ibid.**, 09.09.1975, IZRK 10951, SIVEC leg.: 1 m (TN 855/1981)
28. **Doli** pećina cave, **BN22**, Bihovo, Trebinje, 01.22.1966.: 3 mm, 1 f (TN 635/1983)
29. **Provalija** pećina cave, **BN29**, Plužine, E of Nevesinje, 14.09.1987, VELKOVHR leg.: 1 juv. (TN 1548/1998)
30. **Pećina kod Rupa** cave, **BN32**, Dražin, S of Trebinje, KRATOCHVÍL leg., DEELEMAN-REINHOLD det. 24.07.1969: 2 mm, 1 f (JM 1087)
31. **Pećina u Braveniku** cave, **BN32**, Grab, 19.07.1968, DROVENIK leg.: 1 f (TN 647/ 1983)
32. **Matulić** pećina cave, **BN33**, Rapti, Trebinje, 03.11.1966: 2 juv. (TN 638/1983)
33. **Babina jama** cave, **BN33**, Gomiljani, 28.10.1966: 3 mm, 1 f, 6 juv. (TN 636/ 1983)

34. a cave near **Suha Smokva, BN33**, Trebinje, APFELBECK leg., 1897: 4 mm, 1 f, 1 juv. (TN 129/1983)
35. **Pećina Mali Zazubac** cave, **BN33**, Rasovac, Trebinje, 11.11.1966, PRETNER leg.: 1 f (TN 668/1983); *ibid.*, 25.11.1966, PRETNER leg.: 1 juv. (TN 684/1983)
36. **Pećina Veliki Zazubac** cave, **BN33**, Rasovac, Trebinje, 11.11.1966, PRETNER leg.: 1 m (TN 654/1983)
37. **Pećina Provalija** cave, **BN39**, Kifino selo, Nevesinje, 30.07.1968, PRETNER leg.: 1 f (TN 274/1983)
38. **Pećina Šnjetica** cave, **BN39**, Kifino selo, Nevesinje, 30.07.1968, PRETNER leg.: 1 m (TN 570/1983)
39. **Špilja** cave, **BN45**, Bileća, 31.08.–01.09.1952, P-370: 1 f (TN 657/1983)
40. **Velika** pećina cave, **BN86**, Fatničko polje, 04.09.1984, VELKOVHR leg.: 4 mm, 2 ff, 1 juv. (TN 127/1997)
41. **Vilina** pećina cave, **CN07**, Milinkovići, Avtovac, 07.08.1960, PRETNER leg.: 2 ff (TN 571/1983)
42. **Čemerno**, **CN08**, 27.07.1967, PRETNER leg.: 6 juv. (TN 564/1983); *ibid.*, 31.08.1968, PRETNER leg.: 1 f (TN 631/1983)
43. **Lukovička** pećina cave, **CN08**, Čemerno, 27.02.1964, PRETNER leg.: 4 juv. (TN 573/1983)
44. **Vodena** pećina cave, **XN08**, Ponikve, Gacko, 09.11.1962, PRETNER leg.: 1 m, 1 f (TN 376/1983)
45. **Ledenjača** cave, **CP02**, Donji Budanj, Miljevina, 10.08.1968, PRETNER leg.: 2 ff (TN 630/1983)

Note. KRATOCHVÍL (1946) erroneously cited some locations in Herzegovina and Montenegro under Southern Dalmatia, thus introducing an incorrect regional geographic position.

\**Nelima doriae* (Canestrini, 1871)

Occurrence of the species has been expected along the Adriatic coast of Bosnia and Herzegovina.

### **Incertae sedis**

There is no evidence that *Opilio* n. sp., cited for Bosnia by MÖLLENDORFF (1873), is preserved anywhere; this species can not be identified.

## **DISCUSSION**

Knowledge about the harvestmen in Bosnia and Herzegovina is incomplete mainly because of unsystematic and irregular collection in the country, and taxonomic difficulties in some taxa. The opilionids were only partially systematically investigated



by HADŽI (1932, 1933, 1973a, b) and KRATOCHVÍL (1936, 1937, 1946, 1958). Unfortunately, HADŽI introduced a lot of invalid names. Nevertheless, one can estimate that the majority of harvestmen species in Bosnia and Herzegovina has been found, and that any incompleteness is mostly related to biogeographic distribution.

At the present, 54 proven harvestman species and one subspecies inhabit Bosnia and Herzegovina. Five further nominal species must be tested for their taxonomic status and validity, raising the potential number to 59 species. Six further species may be present in the country, a few new ones are in the course of description (KARAMAN, in lit.), and the discovery of new species cannot be ruled out. As for new taxa in the country, some of these could be expected, especially in the regions bordering Croatia, Montenegro and Serbia. In this respect, high mountains, and soil and hypogean habitats are the most promising. In comparison to neighbouring countries, the harvestman fauna in Bosnia and Herzegovina is quite rich compared to those of better-investigated Croatia (64 species and one subspecies; NOVAK, 2004) and Serbia and Montenegro (66 species; KARAMAN, 1995).

A low level of taxonomic knowledge is especially true of the travuniid species from the nominal genera *Travunia*, *Dinaria* and *Abasola*, and numerous nominal *Paranemastoma* species (KARAMAN, MITOV in lit.). The revision of *Paranemastoma* has been started by KARAMAN (1995). The revision of *Trogulus* species from the groups *T. nepaeformis* and *T. tricarinatus* is also required. Some recurring problems are caused by HADŽI'S (1973a) insufficient and inconsistent descriptions of a few dozen opilionid species from the central Balkans and Slovenia. Further comments in NOVAK (2004).

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## INDEX OF NAMES CITED (synonyms in parentheses)

- |   |  |
|---|--|
| <i>Abasola</i> 303, 308–310, 312, 341             | ( <i>armatum</i> , <i>Nemastoma</i> ( <i>Nemastoma</i> )) 315      |
| (- <i>anophthalma</i> ) 308, 309                  | ? <i>armatum</i> , <i>Paranemastoma</i> 304, 315                   |
| (- <i>borisi</i> ) 308, 310                       | (- <i>armatum</i> , <i>Nemastoma quadripunctatum</i> )             |
| - <i>hofferi</i> 308, 310, 312                    | 315, 316   |
| - <i>trogloodytes</i> 303, 309, 312               | ( <i>aurantiaca</i> , <i>Nelima</i> ) 324, 325                     |
| ( <i>Absolonia</i> ) 309, 311                     | <i>aurantiacus</i> , <i>Amilenus</i> 305, 324                      |
| (- <i>trogloodytes</i> ) 309                      | ( <i>aurosum</i> , <i>Nemastoma</i> ( <i>Nemastoma</i> )) 316      |
| ( <i>acrospinosum</i> , <i>Nemastoma</i> ) 319    | ? <i>aurosum</i> , <i>Paranemastoma</i> 316, 318                   |
| <i>Amilenus</i> 305, 324                          | ( <i>aurosum</i> , <i>quadripunctatum</i> , <i>Nemastoma</i> ) 316 |
| - <i>aurantiacus</i> 305, 324                     | <i>Astrobunus</i> 333  |
| ( <i>anophthalma</i> , <i>Abasola</i> ) 308, 309  | (- <i>bosnicus</i> ) 333   |
| ( <i>anophthalma</i> , <i>Travunia</i> ) 308, 309 | - <i>dinaricus</i> 307, 333  |
| <i>Anelasmocephalus</i> 304, 320                  | - <i>helleri</i> 307, 333  |
| - <i>hadzii</i> 304, 320                          | - <i>laevipes</i> 333  |
| <i>aquaticus</i> , <i>Trogulus</i> 321            | (- <i>meadi</i> ) 333  |
| (- <i>armatum</i> , <i>Nemastoma</i> ) 315, 316   | (- <i>meady</i> ) 333  |

- bicuspidatum, Nemastoma*) 316  
*(bicuspidatum, Nemastoma quadripunctatum)* 316  
*bicuspidatum, Paranemastoma* 316  
*bidentatum, Nemastoma* 312, 314, 315  
*bidentatum, Nemastoma bidentatum* 315  
*(bidentatum, (Nemastoma (Lugubrostoma))* 315  
*bidentatum sparsum, Nemastoma* 303, 315  
*?bidentatum pluridentatum, Nemastoma* 303, 312, 314  
*(bimaculosum, Nemastoma)* 316  
*?bimaculosum, Paranemastoma* 316  
*(borisi, Abasola)* 308, 310  
*borisi, Travunia* 303, 309, 310  
*(bosnica, Ischyropsalis)* 314  
*bosnica, Pyza* 304, 319  
*(bosnicum, Nemastoma)* 319  
*(bosnicum, Nemastoma (Lugubrostoma))* 319  
*(bosnicum orientale, Nemastoma (Lugubrostoma))* 319  
*(bosnicus, Astrobunus)* 333  
*(bosnicus, Mitopus)* 328  
*bucephalus, Platybunus* 306, 332  
*(bulgaricus horridus, Lacinius)* 327  
*(bulgaricus, Lacinius horridus)* 327  
*(Buresiolla)* 313  
*(- karamani)* 313  
*(Burešiolla)* 313  
*(- karamani)* 313  
*cancellatum, Mitostoma* 314  
*(cancellatum, (Mitostoma (Mitostoma))* 314  
*(cancellatum, Nemastoma)* 314  
*carinatum, Carinostoma* 303, 313  
*(carinatum, Mitostoma)* 313  
*(carinatum, Mitostoma (Carinostoma))* 313  
*(carinatum, Nemastoma)* 313  
*Carinostoma* 313  
*- carinatum* 303, 313  
*- ornatum* 304, 313  
*carneluttii, Metaplatybunus* 306, 327, 332  
*crista, Zachaeus* 307, 332  
*(crista, Zacheus)* 332  
*(chrysomelas chrysomelas, Mitostoma)* 314  
*chrysomelas, Mitostoma* 303, 314  
*(chrysomelas chrysomelas, Mitostoma (Mitostoma))* 314  
*(chrysomelas, Nemastoma)* 314  
*closanicus, Trogulus* 304, 321  
*convexus, Egaenus* 305, 326, 333  
*(corcyraeus, Trogulus)* 321  
*coriziformis, Trogulus* 321  
*Cyphophthalmus* 308  
*- duricorius* 308  
*- - duricorius* 303, 308  
*dentiger, Lacinius* 305, 326  
*dentipalpe, Histicostoma* 304, 314  
*(dentipalpe, Nemastoma)* 314  
*Dicranolasma* 319, 320  
*- opilionoides* 319  
*- scabrum* 304, 319  
*- verhoeffi* 304, 320  
*(- Verhoeffi)* 320  
*(Dinaria)* 310-312, 341  
*(- vjetrenicae)* 310-312  
*dinaricus, Astrobunus* 307, 333  
*dinaricus, Opilio* 306, 329  
*doriae, Nelima* 340  
*duricorius duricorius, Cyphophthalmus* 303, 308  
*(duricorius duricorius, Siro)* 308  
*(duricorius, Siro)* 308  
*Egaenus* 326, 333  
*- convexus* 305, 326, 333  
*ephippiatus, Lacinius* 305, 326  
*(gabbrovicae, Nemastoma)* 319  
*(gabrovicae, Nemastoma (Dromedostoma))* 319  
*(grabovicae, Nemastoma (Dromedostoma))* 319  
*graecus, Trogulus* 321  
*Gyas* 333  
*- titanus* 307, 333

- hadzii*, *Anelasmacephalus* 304, 320  
*hadzii*, *Platybunus* 306, 332  
*Hadzinia* 313  
- *karamani* 304, 313  
*helleri*, *Astrobinus* 307, 333  
*hellwigii hellwigii*, *Ischyropsalis* 305, 323, 324  
*hellwigi hellwigi*, *Ischyropsalis* 323  
*hellwigi*, *Ischyropsalis hellwigi* 323  
*hellwigii*, *Ischyropsalis hellwigii* 305, 323, 324  
(*helwigi*, *Ischyropsalis*) 323  
(*Helwigii*, *Ischyropsalis*) 323  
(*hirta*, *Trogulus tricarinatus*) 323  
*hirtus*, *Trogulus tricarinatus* 304, 323  
*Histicostoma* 314  
- *dentipalpe* 304, 314  
*hofferi*, *Abasola* 308, 310, 312  
*Holoscotolemon* 312  
- *jaqueti* 303, 312  
*horridus*, *Lacinius* 306, 327  
(*hungaricus*, *Zacheus*) 332  
*Ischyropsalis* 323, 324  
(- *bosnica*) 323  
- *hellwigi* 323  
- *hellwigii* 323, 324  
- - *hellwigi* 323  
(- *helwigi*) 323  
- - *hellwigii* 305, 323, 324  
(- *Helwigii*) 323  
- *kollari* 323  
- *manicata* 323  
- *muellneri* 323, 324  
(- *müllneri*) 324  
(- *taunica*) 323  
*jaqueti*, *Holoscotolemon* 303, 312  
(*karamani*, *Buresiolla*) 313  
(*karamani*, *Burešiolla*) 313  
*karamani*, *Hadzinia* 313  
(*karamani*, *Nemastoma*) 313  
*kollari*, *Ischyropsalis* 323  
*Lacinius* 326, 327  
(- *bulgaricus*, *horridus*) 327  
- *dentiger* 305, 326  
- *ephippiatus* 305, 326  
- *horridus* 306, 327  
(- *horridus bulgaricus*) 327  
(- *zavalensis*) 327  
*laevipes*, *Astrobinus* 333  
*Leiobunum* 334  
- *limbatum* 334  
- *rotundum* 334  
- *rumelicum* 334  
- *rupestre* 307, 334  
*lendli*, *Odiellus* 305, 328  
*limbatum*, *Leiobunum* 334  
(*Liobunum*) 334  
(- *rotundum*) 334  
(*longipes*, *Nemastoma (Dromedostoma)*) 316  
? *longipes*, *Paranemastoma* 316  
(*lugubre bimaculatum*, *Nemastoma*) 315  
*lugubre*, *Nemastoma* 315  
*manicata*, *Ischyropsalis* 323  
(*meadi*, *Astrobinus*) 333  
(*meady*, *Astrobinus*) 333  
(*megarae*, *Nemastoma (Dromedostoma)*) 317  
*Lophopilio* 327  
- *palpinalis* 305, 327  
*magnus*, *Opilio* 330  
*Metaplatybunus* 327, 332  
- *carneluttii* 306, 327, 332  
*Mitopus* 326, 328  
(- *bosnicus*) 328  
- *morio* 306, 328  
(- *scaber*) 328  
*Mitostoma* 313, 314  
- *cancellatum* 304, 314  
(- *carinatum*) 313  
- *chrysomelas* 303, 314  
(*Mitostoma (Carinostoma)*) 313

- (- *carinatum*) 313  
 (*Mitostoma* (*Mitostoma*)) 314  
 (- *cancellatum*) 304, 314  
 (- *chrysomelas*) 314  
 (*moesiicum*, *Nemastoma*) 316  
 (*moesiicum*, *Nemastoma quadripunctatum*) 317  
 ?*moesiicum*, *Paranemastoma* 304, 316, 317  
*morio*, *Mitopus* 306, 328  
*muellneri*, *Ischyropsalis* 323, 324  
 (*müllneri*, *Ischyropsalis*) 324  
*Nelima* 324, 325, 334, 340  
 (- *aurantiaca*) 324, 325  
 - *doriae* 340  
 - *troglodytes* 307, 334  
*Nemastoma* 301, 312-319  
 (- *acrospinosum*) 319  
 (- *armatum*) 315, 316  
 (- *armatum*, *quadripunctatum*) 315, 316  
 (- *bicuspidatum*) 316  
 (- *bicuspidatum*, *quadripunctatum*) 316  
 - *bidentatum* 312, 314, 315  
 - *bidentatum bidentatum* 315  
 -? *bidentatum pluridentatum* 303, 312, 314  
 - *bidentatum sparsum* 303, 315  
 (- *bimaculatum*, *lugubre*) 315  
 (- *bimaculosum*) 316  
 (- *bosnicum*) 319  
 (- *cancellatum*) 314  
 (- *carinatum*) 313  
 (- *chrysomelas*) 314  
 (- *dentipalpe*) 314  
 (- *gabbrovicae*) 319  
 (- *karamani*) 313  
 - *lugubre* 315  
 (- *lugubre bimaculatum*) 315  
 (- *moesiicum*) 316  
 - *pluridentatum*, *bidentatum* 303, 314  
 (- *polonicum*) 317, 318  
 (- *quadripunctatum armatum*) 315, 316  
 (- *quadripunctatum-armatum*) 315  
 (- *quadripunctatum bicuspidatum*) 316  
 (- *quadripunctatum moesiicum*) 316  
 (- *quadripunctatum sillii*) 318  
 (- *quadripunctatum-sillii*) 318  
 (- *quadripunctatum thessalum*) 318  
 (- *Radewi*) 317  
 (- *sillii*) 318  
 - *sparsum*, *bidentatum* 303, 315  
 (- *thessalum*) 318  
 (- *titanicum*) 318  
 (*Nemastoma* (*Dromedostoma*)) 316-321  
 (- *gabbrovicae*) 319  
 (- *gabbrovicae*) 319  
 (- *longipes*) 316  
 (- *megarae*) 317  
 (- *radewi*) 317, 318  
 (- *strasseri*) 318  
 (- *titanicum*) 318  
 (*Nemastoma* (*Lugubrostoma*)) 314, 315, 319  
 (- *bidentatum*) 315  
 (- *bosnicum*) 319  
 (- *bosnicum orientale*) 319  
 (- *orientale*, *bosnicum*) 319  
 (- *triste pluridentatum*) 314  
 (*Nemastoma* (*Nemastoma*)) 314-318  
 (- *armatum*) 315  
 (- *aurosom*) 316  
 (- *aurosom*, *quadripunctatum*) 316, 318  
 (- *quadripunctatum*) 317  
 (- *quadripunctatum aurosom*) 316, 318  
 (- *sillii*) 318  
*nepaeformis*-group, *Trogulus* 321  
*Odiellus* 328  
 - *lendli* 305, 328  
 (- *palpinalis*) 328  
*Oligolophus* 328  
 - *tridens* 306, 328



- Opilio* 329–331, 340  
 - *dinaricus* 306, 329  
 - *magnus* 330  
 - *parietinus* 329, 330  
 - *saxatilis* 305, 330  
 - *ruzickai* 306, 330  
 - *transversalis* 331  
*opilio*, *Phalangium* 307, 331  
*opilionoides*, *Dicranolasma* 319  
 (*orientale*, *Nemastoma* (*Lugubrostoma*) *bosnicum*) 319  
*ornatum*, *Carinostoma* 304, 313  
*palpinalis*, *Lophopilio* 305, 327  
 (*palpinalis*, *Odiellus*) 328  
*Paranemastoma* 301, 315–319  
 -? *armatum* 304, 315  
 -? *aurosum* 316, 318  
 - *bicuspidatum* 316  
 -? *bimaculosum* 316  
 -? *longipes* 316  
 -? *moesiicum* 304, 316, 317  
 (- *polonicum*) 317, 318  
 - *quadripunctatum* 305, 317  
 -? *radewi* 304, 317, 318  
 - *sillii* 318  
 -? *thessalum* 316, 318  
 -? *titaniacum* 316, 318, 319  
*parietinus*, *Opilio* 329, 330  
*Phalangium* 331  
 - *opilio* 307, 331  
*pinetorum*, *Platybunus* 327, 332  
*Platybunus* 327, 332  
 - *bucephalus* 306, 332  
 - *hadzii* 306, 332  
 - *pinetorum* 327, 332  
 - *strigosus* 332  
 (- *triangularis*) 332  
*pluridentatum*, *Nemastoma*? *bidentatum* 303, 312, 314  
 (*pluridentatum*, *Nemastoma* (*Lugubrostoma*) *triste*) 314  
 (*polonicum*, *Nemastoma*) 317  
 (*polonicum*, *Paranemastoma*) 317, 318  
*Pyza* 319  
 - *bosnica* 304, 319  
 (*quadripunctatum armatum*, *Nemastoma*) 315, 316  
 (*quadripunctatum-armatum*, *Nemastoma*) 315  
 (*quadripunctatum aurosum*, *Nemastoma*) 316, 318  
 (*quadripunctatum bicuspidatum*, *Nemastoma*) 316  
 (*quadripunctatum moesiicum*, *Nemastoma*) 317  
 (*quadripunctatum*, *Nemastoma* (*Nemastoma*)) 317  
 (*quadripunctatum sillii*, *Nemastoma*) 318  
 (*quadripunctatum-sillii*, *Nemastoma*) 318  
 (*quadripunctatum thessalum*, *Nemastoma*) 318  
*quadripunctatum*, *Paranemastoma* 305, 317  
 (*Radewi*, *Nemastoma*) 317  
 (*radewi*, *Nemastoma* (*Dromedostoma*)) 317, 318  
 ? *radewi*, *Paranemastoma* 304, 317, 318  
*Rilaena* 332  
 - *triangularis* 307, 332  
*rotundum*, *Leiobunum* 334  
 (*rotundum*, *Liobunum*) 334  
*rumelicum*, *Leiobunum* 334  
*rupestre*, *Leiobunum* 307, 334  
*ruzickai*, *Opilio* 306, 330  
*saxatilis*, *Opilio* 304, 330  
 (*scaber*, *Mitopus*) 328  
*scabrum*, *Dicranolasma* 304, 319  
*sillii*, *Paranemastoma* 318  
 (*sillii*, *Nemastoma*) 318  
 (*sillii*, *Nemastoma quadripunctatum*) 318  
 (*sillii*, *Nemastoma* (*Nemastoma*) *quadripunctatum*) 318

- Siro* 308  
 (- *duricorius*) 308  
 (- *duricorius*) 308  
*sparsum*, *Nemastoma bidentatum* 303, 315  
*squamatus*, *Trogulus* 304, 322  
 (*strasseri*, *Nemastoma (Dromedostoma)*) 318  
*strigosus*, *Platybunus* 332  
 (*taunica*, *Ischyropsalis*) 324  
 ?*thessalum*, *Paranemastoma* 316, 318  
 (*thessalum*, *Nemastoma*) 318  
 (*thessalum*, *Nemastoma quadripunctatum*) 318  
*tingiformis*, *Trogulus* 304, 322  
*titanus*, *Gyas* 307, 333  
*torosus*, *Trogulus* 305, 322  
*transversalis*, *Opilio* 331  
*tridens*, *Oligolophus* 306, 328  
 (*triste pluridentatum*, *Nemastoma (Lugubrostoma)*) 314  
 (*titaniacum*, *Nemastoma*) 318  
 (*titaniacum*, *Nemastoma (Dromedostoma)*) 318  
 ?*titaniacum*, *Paranemastoma* 316, 318, 319  
 ?*Travunia* 308-312, 341  
 (- *anophthalma*) 308, 309  
 - *borisi* 303, 309, 310  
 - *vjetrenicae* 303, 310-312  
*triangularis*, *Rilaena* 307, 332  
 (*triangularis*, *Platybunus*) 332  
*tricarinatus*-group, *Trogulus* 321, 322, 341  
*tricarinatus hirtus*, *Trogulus* 304, 323  
 (*tricarinatus hirta*, *Trogulus*) 323  
 (*troglogytes*, *Absolonia*) 309  
*troglogytes*, *Abasola* 303, 309, 312  
*troglogytes*, *Nelima* 307, 334  
*Trogulus* 321-323, 341  
 - *aquaticus* 321  
 - *closanicus* 304, 321  
 - *coriziformis* 321  
 (- *corcyraeus*) 321  
 - *graecus* 321  
 (- *hirta*, *tricarinatus*) 323  
 - *hirtus*, *tricarinatus* 304, 323  
 - *nepaeformis*-group 321  
 - *squamatus* 304, 322  
 - *tingiformis* 304, 322  
 - *torosus* 305, 322  
 - *tricarinatus*-group 321, 322, 341  
 (- *tricarinatus hirta*) 323  
 - *tricarinatus hirtus* 304, 323  
 (*variegatus*, *Zacheus*) 332  
*verhoeffi*, *Dicranolasma* 304, 320  
 (*Verhoeffi*, *Dicranolasma*) 320  
 (*vjetrenicae*, *Dinaria*) 310-312  
*vjetrenicae*, *Travunia* 303, 310, 311  
*Zachaeus* 332  
 - *crista* 307, 332  
 (*Zacheus*) 332  
 (- *crista*) 332  
 (- *hungaricus*) 332  
 (- *variegatus*) 332  
 (*zavalensis*, *Lacinius*) 327