

TAXONOMIC STATUS OF THE EUROPEAN GENERA OF TRAVUNIIDAE (ARACHNIDA, OPILIONES, LANIATORES)

Adriano B. Kury* and Amanda C. Mendes*

* Departamento de Invertebrados, Museu Nacional/UFRJ. Quinta da Boa Vista, São Cristóvão, 20.940-040, Rio de Janeiro - RJ – BRAZIL. E-mails: adrianok@gmail.com and amanda.mendes@gmail.com

[**Kury, A. B. & Mendes, A. C.** 2007. Taxonomic status of the European genera of Travuniidae (Arachnida: Opiliones: Laniatores). *Munis Entomology & Zoology* 2 (1): 1-14]

ABSTRACT: The taxonomic status of the generic names of European Travuniidae is studied. Although the generic name *Abasola* Strand, 1928 is widely used, *Travunia* Absolon, 1920 is a valid replacement name for *Absolonia* Roewer, 1915, junior homonym of *Absolonia* Börner, 1901 (Collembola), while *Abasola* is a superfluous replacement name for the same. Type species of *Travunia* is *Absolonia troglodytes* Roewer, 1915. *Travunia anophthalma* Absolon, 1920 is an objective synonym of *Absolonia troglodytes* Roewer, 1915. The authorship of *Dinaria* is Roewer, 1935 (who first provided a formal proposal of the generic name as such), not Hadži, 1932 (who cited this as a *nomen nudum*). Type species of *Dinaria* is *Travunia vjetrenicae* Hadži, 1932. *Peltonychia* Roewer, 1935 and *Kratochviliola* Roewer, 1935 are unavailable names, being published after 1930 without an explicit designation of a type species among the species originally included. Since it was based on an unavailable name, Peltonychiinae Kratochvíl, 1958 is also unavailable. The authorship of *Peltonychia* must be credited to Martens, 1978 (who first gave a diagnosis and designated a type species), but the available generic name *Hadziana* Roewer, 1935, currently under the synonymy of *Peltonychia*, has priority and must be used instead of it, with *Hadziana postumicola* Roewer, 1935 as type species. The correct name of a superfamily including the Travuniidae and the Triaenonychidae should be Triaenonychoidea, not Travunioidea. The following new combinations are made: *Abasola sarea* Roewer, 1935, is newly combined as *Hadziana sarea*; *Phalangodes navarica* Simon, 1879 (currently *Kratochviliola navarica*) is newly combined as *Hadziana navarica*; *Abasola hofferi* Šilhavý, 1937 is newly combined as *Travunia hofferi*; *Phalangodes claviger* Simon, 1879 (currently *Peltonychia clavigera*) is newly combined as *Hadziana clavigera*; *Peltonychia gabria* Roewer, 1935 is newly combined as *Hadziana gabria*; *Scotolemon leprieurii* Lucas, 1860 (currently *Peltonychia leprieurii*) is newly combined as *Hadziana leprieurii*; *Scotolemon piochardi* Simon, 1872 (currently *Peltonychia piochardi*) is newly combined as *Hadziana piochardi* and *Peltonychia tenuis* Roewer, 1935 is newly combined as *Hadziana tenuis*.

KEY WORDS: Laniatores, Phalangodidae, Karst, hypogean fauna, Europe, Alps, Dinarids, Pyrenees.

TABLE OF CONTENTS

Introduction	2
Systematic and nomenclatural history of the Travuniidae	3
1. The genera <i>Travunia</i> / <i>Absolonia</i>	3
2. The family name Travuniidae.....	4
3. The genus <i>Dinaria</i>	5
4. The genera <i>Hadziana</i> / <i>Peltonychia</i> / <i>Kratochviliola</i>	6
5. The genera <i>Arbasus</i> and <i>Buemarinoa</i>	7
6. The subfamily Peltonychiinae	7

7. The superfamily Travunioidea.....	8
Discussion.....	8
Conclusion.....	9
Acknowledgements.....	10
References.....	10

INTRODUCTION

Travuniidae Absolon & Kratochvíl 1932 is a family of Travunioidea, a well defined group but with no consensus in relation to the systematic status of the family group taxa (Maury, 1988; Hunt & Hickman, 1993; Karaman, 2005). Karaman (2005), when describing a new genus of Travunioidea, gave as comparison fine illustrations of genital and body outer morphology of *Abasola hofferi* Šilhavý, 1936 based on material from the type locality. Karaman used the same approach as Maury (1988), who gave up assigning his new genus *Picunchenops* to any family of Travunioidea.

The Travuniidae are represented by 17 species of tiny delicate laniatorids of the northern temperate areas, mainly in southeastern Europe (15 species, see Table 1), with one species from lava tubes in Western USA and another cave-dwelling in Japan (Roewer, 1935; Briggs, 1974; Suzuki, 1975; Martens, 1978). They have been repeatedly regarded as relictual members of disappeared biotas and most of the known species have been found only in caves. Because of the unique special claw structure called the peltonychium, the Travuniidae have been accepted relatively early in the literature (e.g. Roewer, 1935), while the related family Cladonychiidae Hadži, 1935 did not have such acceptance until being rediscovered by Briggs (1969), but it was then called Erebomastriidae, while the original name was only much later unearthed by Cokendolpher (1985). Many current travuniid species were originally included in the Phalangodidae Simon, 1879. In the last 30 years no new species of Travuniidae has been described. Novak & Gruber (2000) and Novak (2004; 2005) critically summarized the records of the Travuniidae for Slovenia, Croatia and Bosnia & Herzegovina respectively.

Adequate descriptions lack for most species, more acutely regarding genital morphology. In the present paper the systematic status of the European nominal genera of Travuniidae is studied. The species of these genera are distributed in the Pyrenees, Southeastern/central Northern Alps, Sardinia and the Southern Dinarids. Non observance of ICZN rules by past authors caused some nomenclatural problems which will be addressed below. A detailed historic account of the circumstances which defined the creation of the family Travuniidae and its relevant generic and suprageneric names is given below each in a different section.

Systematic and nomenclatural history of the Travuniidae

The family Travuniidae constitutes one of the worst problems of the laniatorid taxonomy in the 20th century. The first travuniid to be described was *Scotolemon leprieuri* Lucas 1860, initially placed in Phalangodidae. It was followed by three species also placed in pre-existing phalangodid genera: *Phalangodes claviger* Simon 1879, *Scotolemon piochari* Simon 1892 and *Phalangodes caecus* Simon 1911. Roewer (1935) reviewed the European Laniatores and described many new genera and species in Travuniidae, also placing in this family the phalangodid species cited above. Roewer (1935) misunderstood the taxonomic problems in Travuniidae, mainly by his ignorance on Absolon's (1916; 1920) nomenclatural acts, explained in Czech, which he evidently did not understand. He also mistook Hadži's (1932) Serbian language for Czech. This was the starting point of a series of nomenclatural errors which will be treated next.

1. The genera *Travunia* / *Absolonia*

Karel Absolon on 19th August 1913 found a juvenile laniatorid in the cave Đurović pećina, Močići near Cavtat in Southern Dalmatia (Croatia). He passed along this material to Roewer for identification. Based on a letter from Roewer dated 26th September 1913, stating it was an undescribed *Scotolemon* species, Absolon called his find "a blind *Scotolemon*" (Absolon, 1914: 222). Roewer (1915: 14), based on Absolon's original material created the new genus *Absolonia* (which is a junior homonym of *Absolonia* Börner, 1901, Collembola – homonymy first noted by Absolon, 1920) and new species *Absolonia troglodytes*. Absolon (1916) described as new the same specimen from Đurović pećina, calling it *Scotolemon anophthalmum* (which turns the specific name *anophthalmum* into an objective synonym of *troglodytes*). Absolon (1920: 596) created the genus *Travunia* as a valid replacement name for *Absolonia*, but unaware of nomenclatural rules, used again the specific name *anophthalma*, forming *Travunia anophthalma* to replace *Absolonia troglodytes*. "Travunia" is the Latin name of the region around the city Trebinje in Herzegovina. Roewer (1923: 85) continued calling the species from Đurović pećina *Absolonia troglodytes*. Later, Absolon & Kratochvíl (1932a: 154; 1932b: 209) noted the mistake in creating *anophthalma* and correctly treated the species as *Travunia troglodytes*. In the first part of the same paper, the authors (1932a: 155) cited new records for *T. troglodytes* from Herzegovina (Babić pećina near Lastva, Torina jama near Bihovo and Vilina pećina E of Lastva). Oblivious of the creation (or the implications) of *Travunia*, Strand (1928) proposed the superfluous replacement name *Abasola* to take the place of *Absolonia*.

Roewer (1935: 79) stated that both species — *Abasola troglodytes* (material from Croatia) and *Travunia anophthalma* (material from Herzegovina) — were clearly different. The problem is that both names were based on the same Croatian material (making them objective synonyms) and the Herzegovinan material was only added 12 years later of the creation of the name *Travunia anophthalma*. Whether the Croatian and the Herzegovinan species are different or not is irrelevant to the present discussion.

Šilhavý (1936) described the new species *Abasola hofferi* from the cave Pokljuka Gornja, near the village of Knežlaz, Krivošije Mts., Montenegro, then Yugoslavia. Kratochvíl (1937), described a new species of *Travunia*, *T. jandai*, from a cave near the summit of the mountain Grabov in the island of Mljet, Dalmatia in Croatia. He provided a key to identify the five species of Travuniidae of Yugoslavia. The other four were *Abasola hofferi*, *Abasola troglodytes*, *Dinaria vjetrenicae* Hadži, 1932 and *Travunia anophthalma*.

The status of the species of *Travunia* in the Balkans is very complex and requires further study, we still do not know how many valid species live in the region (Novak, pers. comm.) but from the nomenclature point of view, *Abasola* is a synonym of *Travunia*. Subsequent authors (e. g. Hadži, 1932; 1973a-b; Roewer, 1935; Šilhavý, 1937; Juberthie, 1972; Martens, 1978; Karaman, 2005; Novak, 2004; 2005) ignored this and continued using *Abasola* instead of/along with *Travunia* creating a situation of *Abasola* being regarded as a different genus, but including the type species of *Travunia*.

Absolon's (1920) proposal of *Travunia* as a new generic name for *Absolonia*, although extremely short, apparently complies with ICZN articles 12.1: "To be available, every new name published before 1931 must satisfy the provisions of Article 11 and must be accompanied by a description or a definition of the taxon that it denotes, or by an indication." and article 12.2.5: the word "indication" denotes only the following: "in the case of a new genus-group name, the use of one or more available specific names in combination with it, or clearly included under it, or clearly referred to it by bibliographic reference, provided that the specific name or names can be unambiguously assigned to a nominal species-group taxon or taxa." Likewise, being published before 1930, *Travunia* does not have to comply with article 13.1 "To be available, every new name published after 1930 must satisfy the provisions of Article 11 and must 13.1.3. be proposed expressly as a new replacement name (nomen novum) for an available name..."

2. The family name Travuniidae

All the six species of Travuniidae known in the 1920's/early 1930's were originally placed in the Phalangodidae (e. g. Roewer, 1923). The

family Travuniidae was recognized (but not published as such) by Hadži — see his claims (Hadži 1932; 1933). Hadži started to share his knowledge with Kratochvíl, who acted quickly and had it published first (Absolon & Kratochvíl 1932a-b). For this family these authors used the name Peltaeonychidae. Upon its creation the family included only the generic name *Travunia*. The family name Peltaeonychidae was not based on the name of an included genus, being unavailable. Advised of that, the authors a few months later (Absolon & Kratochvíl, 1932c) proposed the family name Travuniidae as a replacement for Peltaeonychidae.

3. The genus *Dinaria*

In August 1931, the “Gesellschaft für Höhlenforschung” (Society of Speleology) in Ljubljana (today in Slovenia, then in Yugoslavia) organized an expedition to the famous Vjetrenica cave in the southern margin of the Popovo polje in Herzegovina. Based on the material from this expedition, Hadži (1932) published the description of a new species of *Travunia*, *T. vjetrenicae*, in a paper written in Serbian. The paper was reissued (Hadži, 1933) as a German translation with all the species being cited again as “new”. Hadži provided a lengthy description, with many illustrations and a long winded discussion complaining sourly about Absolon and specially Kratochvíl. Hadži (1932; 1933) also stated that initially, when he discovered the new species, he thought *Travunia vjetrenicae* should constitute a new genus he was to name as *Dinaria*. But finally, he reconsidered and included the new species in a pre-existing genus, citing *Dinaria* only as a kind of name *in schedula*. He continued treating *T. vjetrenicae* as a member of *Travunia*, and it is clear that he did not mean to create a new genus *Dinaria*. Besides, he did not gave diagnostic characteres to make this genus available. Hadži therefore created the non-available generic name *Dinaria*.

Roewer (1935: 75) reconciled Hadži’s paradox (the invalid creation of *Dinaria*) considering that *Dinaria* had been proposed as a subgenus of *Travunia* and as if he (Roewer) was elevating its rank to full genus. This is evident by Roewer’s use of the standard subgeneric formula “*Travunia (Dinaria)*” in the specific heading of *T. vjetrenicae*. But on the other hand, in the generic heading “Gattung: *Dinaria* Hadzi” Roewer used the synonymic formula “*Travunia (= Dinaria)*”. Novak (2005: 311) was already aware of the problem and called the “funny” creation of *Dinaria* an “autosynonymy”.

In accordance with Novak (2005), we conclude that:

(1) Hadži’s (1932; 1933) use of *Dinaria* failed to meet ICZN articles 11.5: “To be available, a name must be used as valid for a taxon when proposed”, 11.6: “A name which when first published in an available work was treated as a junior synonym of a name then used as valid is

not thereby made available” and 13.1. “To be available every new name published after 1930 must satisfy the provisions of Article 11 and must” 13.1.1 “be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon or” 13.1.2 “be accompanied by a bibliographic reference to such a published statement...or” 13.1.3 “be proposed expressly as a new replacement name (nomen novum) for an available name, whether required by any provision of the Code or not.”

(2) The description of *Dinaria* by Roewer (1935) who provided a type species (*Travunia vjetrenicae* Hadži, 1932 by monotypy) and a diagnosis formally satisfied ICZN rules. So, the authorship of *Dinaria* is Roewer, 1935, not Hadži, 1932.

4. The genera *Hadziana*/*Peltonychia*/*Kratochviliola*

Roewer (1935: 55) created the genus *Peltonychia*, giving a diagnosis and a key to the six included species. He did not, however, explicitly choose a type species, which by the ICZN renders this generic name unavailable (see below). Roewer (1935: 64) described *Kratochviliola*, with three included species without designating a type species, which falls in the same case as *Peltonychia* being an unavailable name. Roewer (1935: 69) described the monotypic genus *Hadziana*, which has no nomenclatural problems.

Martens (1978) cast doubt on the validity of many genera of Travuniidae, but formally proposed only one generic and few specific synonymies. The only relevant point for us here is the synonymy of *Hadziana* with *Peltonychia* and the synonymy of two of the species of *Kratochviliola* under species of *Peltonychia*. Martens (1978: 70) wrote on *Peltonychia*: “Type species (designation by Rower, 1935): *Scotolemon leprieuri* Lucas, 1860”. That mentions an original designation by Roewer. We were unable to find any such designation of a type species for this or another genus in Roewer’s text. However, as Martens (1978) gave a diagnosis and mentioned explicitly the type species *S. leprieuri*, the authorship of *Peltonychia* must be attributed to Martens, 1978.

Novak et al. (1985) criticized the records of two species of *Peltonychia* — *P. postumicola* and *P. tenuis* — from Slovenia. According to their intensive search of the species, and following Thaler’s (1996) findings, Novak & Gruber (2000) concluded that Roewer original indications of type localities for three species of *Peltonychia* in Slovenia and in the adjacent regions of Italy are in error and that Travuniidae are to be removed from the faunal lists of Slovenia and northeastern Italy. Likewise, Novak & Gruber (2000) cast serious doubt on the existence of real species of *Peltonychia* in the Triestine Karst, concluding that *P. tenuis* and *P. gabria* are very similar to the Pyrenean *P. clavigera* and

P. postumicola belong to the general type of *P. clavigera* and is very similar to “*P. sarea*”, although these authors did not propose formal synonymies or combinations.

The diagnosis of *Kratochviliola* (Roewer 1935), is different from that of *Hadziana* only in the number of tarsomeres in leg II (6 versus 7-8). This is unconvincing, but Martens (1978), not having studied the type species of *Kratochviliola*, recognized both genera as valid. We do not think there is any justification for keeping these genera distinct, so the only species remaining in *Kratochviliola* should be combined under *Hadziana*.

Roewer's creation of *Kratochviliola* and *Peltonychia* collides with ICZN article 13.3: “To be available, every new genus-group name published after 1930... must... be accompanied by the fixation of a type species in the original publication.” So, both names are unavailable. In the case of *Peltonychia*, the description given by Martens (1978) satisfied ICZN rules, but *Hadziana*, treated in the same paper as a junior synonym of *Peltonychia*, in fact has priority over it and must be used.

5. The genera *Arbasus* and *Buemarinoa*

Arbasus Roewer, 1935 and *Buemarinoa* Roewer, 1956 are monotypic genera. *Arbasus caecus* (Simon, 1911) is known only from a cave in the Pyrenees and *Buemarinoa patrizii* Roewer, 1956 from a cave in Sardinia. Both look superficially like members of *Hadziana*, but with clearly troglomorph traits such as depigmentation, absence of eyes or eye mound, effacing of scutal grooves, elongate legs, slender pedipalps and very long basichelicerae. Both genera are defined exclusively by tarsal segmentation – *Arbasus* has tetramere distitarsus II and *Buemarinoa* has trimere tarsus III – so their status is very doubtful.

6. The subfamily Peltonychiinae

Travuniidae was divided into two subfamilies – Peltonychinae [sic] (should be properly Peltonychiinae) and Travuniinae (with single genus *Travunia*) – by Kratochvíl (1958). This division, based only on the number of distitarsomeres of leg I, mirrored the misleading Roewerian dichotomy Phalangodinae versus Tricommatinae and subsequent authors did not adopt them. The three genera described later, *Buemarinoa* Roewer, 1956, *Yuria* Suzuki, 1964 and *Speleonychia* Briggs, 1974 have not been assigned to any of Kratochvíl's subfamilies and they are not mentioned by any other author.

Original spelling of the subfamily name created by Kratochvíl (1958) is incorrect, it should be Peltonychiinae instead of Peltonychinae. In any case this is an unavailable name because it is based on the (then) non-available generic name *Peltonychia*. Should the family Travuniidae be subdivided into subfamilies, new names will have to be created, because there is no available name besides the nominotypic Travuniinae.

7. The superfamily Travunioidea

Hadži considered both Travuniidae (1932) and Cladonychiinae (1935) as subfamilies of Triaenonychidae. By doing this, Hadži created the concept of the Travunioidea (*sensu* Kratochvíl, 1958; Martens, 1980) as equivalent to Insidiatores (*sensu* Kury, 2002). Hadži deserves credit for the Insidiatores (Travunioidea + Triaenonychoidea) hypothesis, which lasted half a century and still has to be convincingly tested to be ruled out.

Kratochvíl (1958) resurrected Hadži's idea (1932; 1935) that Cladonychiidae and Travuniidae were closely related to the Triaenonychidae and proposed the superfamily Travunioidea [sic] to include the three cited families. The spelling was later corrected to Travunioidea by Shear (1977). Martens (1980) supported this hypothesis, which went largely unchallenged until Kury (2002) suggested that the Triaenonychidae as currently understood was a paraphyletic group, forming two clades, the Travunioidea and the Triaenonychoidea, the latter being sister group to the Grassatores Kury, 2002. A detail no one has noticed is that by ICZN rules, if the Insidiatores Loman 1900 is to be retained as the Hadži/Kratochvíl/Martens concept, then Triaenonychoidea Sørensen, 1886 has priority over Travunioidea Absolon & Kratochvíl, 1932 as the superfamily name. This oversight, starting with Kratochvíl (1958) was propagated through many authors (Shear, 1977; Martens, 1980; Kury, 2003; Hallan, 2006). The precedence of Triaenonychoidea was first noted in a letter from Miguel Angel Alonso-Zarazaga (2003, in litt.) to A. Kury, and then later independently in another message from Wojciech Starega (2004, in litt.) to the same.

DISCUSSION

An examination on the penial morphology as published (Juberthie, 1972; Martens, 1976; 1978; 1986; Chemini, 1985; Thaler, 1996; Karaman, 2005 and Novak, 2005) lets us recognize two sharply distinct groups of genera of Travuniidae (Pyrenean/Alpine versus Dinarid): 1) *Hadziana* endemic of the Pyrenees and the Southeastern/central Northern Alps with (a) muscle restricted to bulbous basal part of truncus, (b) glans capsule clearly articulated with truncus and (c) aletae

absent or much reduced; 2) *Dinaria* and *Travunia*, endemic of the Southern Dinarids (penis of type species of *Travunia* unknown, holotype of *Travunia troglodytes* is a juvenile) with (a) muscle stretched along truncus, thicker in the middle, (b) glans capsule undefined and (c) aletae well developed as large “ears”.

Abasola is a synonym of *Travunia*, so judging only by the nomenclature, all species of *Abasola* should be allocated in *Travunia*. This is indeed the case of *Abasola hofferi* Šilhavý, 1937 which should be under *Travunia*. But on the other hand, *Abasola sarea* geographically and morphologically belongs to the Pyrenean travuniids and should be accordingly newly combined under *Hadziana*.

The genital structure of species of *Hadziana* as described above is clearly more similar to the Cladonychiidae than to traditional Travuniidae. If it proves to be synapomorphic, it would render the Travuniidae paraphyletic relative to the Cladonychiidae. It is clear that much basic taxonomic work is still needed to clarify the complex relationships among the Travuniidae and related families. The current simplistic view of Dinarid Travuniidae is likely to be greatly expanded and refined by just recognizing a diversity greater than earlier acknowledged.

CONCLUSIONS

A series of changes are introduced in the classification of the family Travuniidae. A synoptic classification of the relevant names of Travuniidae reflecting these changes is shown in the Table 2. Our conclusions follow:

(1) Triaenonychoidea Sørensen, 1886 has priority over Travunioidea Absolon & Kratochvíl, 1932 as the superfamily name including the Travuniidae + Triaenonychidae.

(2) Peltonychiinae Kratochvíl, 1958 is an unavailable name because it is based on the (then) non-available generic name *Peltonychia*.

(3) *Travunia* Absolon, 1920 is a valid replacement name for *Absolonia* Roewer, 1915 and *Abasola* Strand, 1928 is a superfluous replacement name for *Absolonia*. Type species of *Travunia* is *Absolonia troglodytes* Roewer, 1915, by monotypy.

(4) *Scotolemon anophthalmum* Absolon, 1916 is a *nomen nudum*, this species was only formally described as *Travunia anophthalma* Absolon, 1920. *T. anophthalma* is an objective synonym of *Absolonia troglodytes* Roewer, 1915. The combination for this species should be *Travunia troglodytes* (Roewer, 1915).

(5) *Dinaria* as described by Hadži (1932) is not a valid name and it was first given a formal description by Roewer (1935). The authorship of the genus is thus *Dinaria* Roewer, 1935, type species *Travunia vjetrenicae* Hadži, 1932, by monotypy.

(6) *Arbasus* Roewer, 1935 and *Buemarinoa* Roewer, 1956 are both available and valid generic names, but their taxonomic status is uncertain pending further study of their type species.

(7) *Peltonychia* as described by Roewer (1935) is not a valid name and was first given a formal description by Martens (1978). The authorship of the genus is thus *Peltonychia* Martens, 1978, type species *Scotolemon leprieurii* Lucas, 1860, by original designation.

(8) *Peltonychia* Martens, 1978 is newly proposed as a junior subjective synonym of *Hadziana* Roewer, 1935. All the species currently included in *Peltonychia* should be combined under *Hadziana*.

(9) *Kratochviliola* Roewer, 1935 is not an available name and its only currently included species, *Phalangodes navarica* Simon, 1879 (currently *Kratochviliola navarica*) is newly combined as *Hadziana navarica* (Simon, 1879).

(10) *Abasola sarea* Roewer, 1935 is newly combined as *Hadziana sarea* (Roewer, 1935).

(11) *Abasola hofferi* Šilhavý, 1937 is newly combined as *Travunia hofferi* (Šilhavý, 1937).

ACKNOWLEDGEMENTS

We thank Luis Eduardo Acosta (Córdoba), Ivo M. Karaman (Novi Sad), Tone Novak (Maribor) and Miguel Ángel Alonso-Zarazaga (Madrid) for comments on different versions of the draft text. We also thank Vlastimil Růžička (Czech Academy of Sciences) for help with literature. This study was supported by grant # 520406/98-2 from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) to ABK and a scholarship from Coordenação de Pessoal de Ensino Superior (CAPES) to ACM.

LITERATURE CITED

- Absolon, K.** 1914. Výsledky výzkumných cest po Balkáně. Část třetí. [Results of research trips in the Balkans. 3rd part]. Časopis moravského musea zemského, Brno, 14: 216-222. [In Czech].
- Absolon, K.** 1916: Výsledky výzkumných cest po Balkáně. Část IV. [Results of research trips in the Balkans. 4th part]. Časopis moravského musea zemského, Brno, 15 („1915“) (2): 242-309 + II. [In Czech].

Absolon, K. 1920: O mikrofotografování neprůhledných drobných předmětů. Druhé sdělení. [On microphotographing of opaque small objects. 2nd part]. Časopis moravského musea zemského, Brno, 17-19 [1918-1920]: 582-601. [In Czech].

Absolon, K. & Kratochvíl, J. 1932a. Peltaeonychidae, une famille nouvelle des Opilionides aveugles des grottes balcaniques [1]. Příroda, Brno, 25 (5): 153-156.

Absolon, K. & Kratochvíl, J. 1932b. Peltaeonychidae, une famille nouvelle des Opilionides aveugles des grottes balcaniques [2]. Příroda, Brno, 25 (6): 206-212.

Absolon, K. & Kratochvíl, J. 1932c. Zur Kenntnis der höhlenbewohnenden Araneae der illyrischen Karstgebiete. Mitteilungen über Höhlen- und Karstforschung [Zeitschrift des Hauptverbandes Deutscher Höhlenforscher], Berlin, 1932 (3): 73-81.

Börner, C. J. B. 1901. Über einige theilweise neue Collembolen aus den Höhlen der Gegend von Letmathe in Westfalen. Zoologischer Anzeiger, Jena, 24 (645): 333-345.

Briggs, T. S. 1969. A new Holarctic family of laniatorid phalangids (Opiliones). The Pan-Pacific Entomologist, San Francisco, 45 (1): 35-50.

Briggs, T. S. 1974. Troglobitic harvestmen recently discovered in North American Lava tubes (Travuniidae, Erebomastriidae, Triaeonychidae: Opiliones). The Journal of Arachnology, 1 (3): 205-214, 15 figs.

Chemini, C. 1985. Descrizione del maschio di *Peltonychia leprieuri* (Lucas) e ridescrizione di *Mitostoma orobicum* (Caporiacco) (Arachnida, Opiliones). Bollettino della Società Entomologica Italiana, Genova, 117 (4-7): 72-75.

Cokendolpher, J. C. 1985. Erebomastriidae; replaced by Cladonychiidae. Entomological News, Philadelphia, 96 (1): 36.

Hadži, J. 1932. Prilog poznavanju pećinske faune Vjetrenice. (Pseudoscorpionidea: *Neobisium (Blothus) vjetrenicae* sp. n., Opilionidea: *Travunia vjetrenicae* sp. n., *Nelima troglodytes* Roewer). Glas Srpske Kraljevske Akademije [Report Serbian Kraljevske Academy], Beograd, Prvi razred [= first part], 75: 103-157. [In Serbian].

Hadži, J. 1933. Beitrag zur Kenntnis der Fauna der Höhle Vjetrenica. Bulletin de l'Académie des Sciences Mathématiques et Naturelles, Beograd, B, Sciences naturelles, 1: 49-79.

Hadži, J. 1935. Ein eigentümlicher neuer Hölen-Opilionid aus Nord-Amerika, *Cladonychium corii* g.n. sp. n.. Biologia Generalis, Wien, 11 (1): 49-72.

Hallan, J. 2006. Biology Catalog — lists of genera [including synonyms] for all groups of organisms, both living and fossil. Last accessed on May 10, 2006. <http://entowww.tamu.edu/research/collection/hallan/OpilRpt2.txt>

Hunt, G. S. & Hickman, J. L. 1993. A revision of the genus *Lomanella* Pocock and its implications for family level classification in the Travunioidea (Arachnida: Opiliones: Triaeonychidae). Records of the Australian Museum, Sydney, 45 (1): 81-119.

Juberthie, C., 1972. Notes sur *Abasola sarea* Roewer, opilion Travuniidae troglobie. Annales de Spéléologie, Paris, 27 (1): 129-138, 7 figs.

Karaman, I. M. 2005. *Trojanella serbica* gen. n., sp. n., a remarkable new troglobitic travunioide (Opiliones, Laniatores, Travunioidea). Revue suisse de Zoologie, Genève, 112 (2): 439-455.

Kratochvíl, J. 1937. *Lola insularis* nov. gen. nov. spec. (fam. Phalangodidae) a *Travunia* (?) *jandai* nov. spec. (fam. Travuniidae), dva noví jeskynní sekáči z jihodalmatinských ostrovů. [*Lola insularis* nov. gen. nov. spec. (fam. Phalangodidae) et *Travunia* (?) *jandai* nov. spec. (fam. Travuniidae), deux opilions cavernicoles nouveaux des îles de la Dalmatie méridionale]. Entomologické Listy [Folia Entomologica], Brno, 1: 44-54 + 2 plates.

Kratochvíl, J. 1958. Die Höhlenweberknechte Bulgariens (Cyphophthalmi und Laniatores). Práce Brněnské základny Československé akademie věd (= Acta Academiae Scientiarum Czechoslovenicae Basis Brunensis), Brno, 30 (375): 371-396.

Kury, A. B. 2002. Intercontinental relationships among Southern Gondwanian Triaenonychidae (Opiliones, Laniatores, Insidiatores). 7th African Arachnological Colloquium: unnumbered page.

MARTENS, Jochen, 1976. Genitalmorphologie, System und Phylogenie der Weberknechte (Arachnida: Opiliones). *Entomologica Germanica*, Stuttgart, 3(1/2): 51-68.

Martens, J. 1978. Spinnentiere, Arachnida: Weberknechte, Opiliones. Die Tierwelt Deutschlands. Vol. 64. G. Fischer Verlag, Jena. 464 pages.

Martens, J. 1980. Versuch eines Phylogenetischen Systems der Opiliones. pp. 355-360. In: Jürgen Gruber (Schriftleitung). 8. Internationaler Arachnologen-Kongress. Wien 1980. Verhandlungen. Verlag H. Egerman, Wien 1980, 506 pp + XIV.

Martens, J. 1986. Die Grossgliederung der Opiliones und die Evolution der Ordnung (Arachnida). In J.A. Barrientos (ed.) Actas del X Congreso Internacional de Aracnologia (Jaca, Spain, September 1986). v. 1, pp. 289-310. Barcelona: Juvenil. x+428 pp.

Maury, E. A. 1988. Triaenonychidae sudamericanos V. Un nuevo género de opiliones cavernícolas de la Patagonia (Opiliones, Laniatores). Mémoires de Biospéologie, Moulis, 15: 117-131.

Novak, T. 2004. An overview of harvestmen (Arachnida: Opiliones) in Croatia. *Natura croatica*, Zagreb, 13 (3): 231-296.

Novak, T. 2005. An overview of harvestmen (Arachnida: Opiliones) in Bosnia and Herzegovina. *Natura croatica*, Zagreb, 14 (4), 301-350.

Novak, T. & Gruber, J. 2000. Remarks on published data on harvestmen (Arachnida: Opiliones) from Slovenia. *Annales Ser. hist. nat., Koper*, 10, 2 (21): 281-308.

Novak, T., Gruber, J. & Slana, L. 1985. Remarks on Opiliones from cavities in Slovenia (Yugoslavia). Mémoires de Biospéologie, Moulis, 11 (1984): 185-197.

Roewer, C.-F. 1935. Opiliones. Fünfte Serie, zugleich eine Revision aller bisher bekannten Europäischen Laniatores. *Biospeologica*. LXII. Archives de Zoologie Expérimentale et Générale, Paris, 78 (1): 1-96.

Shear, W. A. 1977. *Fumontana deprehendor*, n. gen., n. sp., the first triaenonychid opilionid from eastern North America (Opiliones: Laniatores: Triaenonychidae). *The Journal of Arachnology*, (1975), 3 (3): 177-183.

Šilhavý, V. 1936. Nový jeskynní sekáč z Jugoslávie, *Abasola Hofferi* n. sp. [New cave harvestman from Yugoslavia]. *Sborník Entomologického Oddelení Národního Musea v Praze* [= Acta entomologica Musei Nationalis Pragae], Praha, 14: 208-212.

Suzuki, S. 1975. The harvestmen of family Travuniidae from Japan (Travunoidea, Opiliones, Arachnida). Journal of Science of the Hiroshima University, Series B, Division 1 (Zoology), 26 (1): 53-63.

Thaler, K. 1996. Neue Funde europäischer Krallenweberknechte (Arachnida, Opiliones: Phalangodidae, Travuniidae). Berichte des Naturwissenschaftlich-Medizinischen Vereins in Innsbruck, Innsbruck, 83: 135-148.

Table 1. Summary of the current taxonomy of the European Travuniidae. Use of *Abasola* vs *Travunia* is inconsistent in the literature (see text for details).

Abasola Strand, 1928

Abasola sarea Roewer, 1935

Abasola hofferi Šilhavý, 1937

Abasola troglodytes (Roewer, 1915)

Arbasus Roewer, 1935

Arbasus caecus (Simon, 1911)

Buemarinoa Roewer, 1956

Buemarinoa patrizii Roewer, 1956

Dinaria Roewer, 1935

Dinaria vjetrenicae (Hadži, 1932)

Kratochviliola Roewer, 1935

Kratochviliola navarica (Simon, 1879)

Peltonychia Roewer, 1935 (= *Hadziana* Roewer, 1935)

Peltonychia clavigera (Simon, 1879)

Peltonychia gabria Roewer, 1935

Peltonychia leprieuri (Lucas, 1860)

Peltonychia piochardi (Simon, 1872)

Peltonychia postumicola (Roewer, 1935)

Peltonychia tenuis Roewer, 1935

Travunia Absolon, 1920

Travunia borisi (Hadži, 1973)

Travunia jandai Kratochvíl, 1937

Travunia anophthalma Absolon, 1920

Table 2. Proposed classification of the European Travuniidae (*indicates type species; ? indicate doubtful species):

Arbasus Roewer, 1935

**Arbasus caecus* (Simon, 1911) – France

Buemarinoa Roewer, 1956

**Buemarinoa patrizii* Roewer, 1956 – Sardinia

Dinaria Roewer, 1935

**Dinaria vjetrenicae* (Hadži, 1932) – Bosnia and Herzegovina.

Hadziana Roewer, 1935 [= *Peltonychia* Roewer, 1935, unavailable name, ICZN 13.3, = *Peltonychia* Martens, 1978].

Hadziana clavigera (Simon, 1879) new combination – France,

Spain.

?*Hadziana gabria* (Roewer, 1935) new combination – “Italy”.

Hadziana leprieurii (Lucas, 1860) new combination – Italy,

Switzerland.

Hadziana navarica (Simon, 1879) new combination – France, Spain.

Hadziana piochardi (Simon, 1872) new combination – Spain.

?**Hadziana postumicola* Roewer, 1935 – “Italy, Slovenia”.

Hadziana sarea (Roewer, 1935) new combination – France.

?*Hadziana tenuis* (Roewer, 1935) new combination –

“Slovenia”.

Travunia Absolon, 1920 [= *Absolonia* Roewer, 1915, homonym, = *Abasola* Strand, 1928]

Travunia borisi (Hadži, 1973) – Bosnia and Herzegovina.

Travunia hofferi (Šilhavý, 1937) new combination –

Montenegro.

Travunia jandai Kratochvíl, 1937 – Croatia

* *Travunia troglodytes* (Roewer, 1915) – Bosnia and

Herzegovina, Croatia.