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A taxonomic catalogue of the Dyspnoi Hansen and Sørensen, 1904 (Arachnida: Opiliones)

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Abstract

An update of the systematics and determination key of the Opiliones suborder Dyspnoi is provided. The included catalogue represents the first comprehensive species and synonymy listing since Roewer (1923). It summarises all taxonomic changes to date and attempts to be a sound basis against the exponential growing number of online errors, for which examples are given. Species taxonomy features most obvious changes within the Nemastomatidae. The number of species in the collective genus *Nemastoma* is reduced from 96 (Hallan 2005) to its sensu stricto definition of 7, and the excluded names are transferred to other genera or considered as nomina dubia, predominantly in *Paranemastoma*. The systematics of the superfamily Ischyropsalidoidea is discussed and family-level diagnoses are renewed to support taxonomical changes: The morphological heterogeneity in the Sabaconidae is resolved by reverting the family to its original monogeneric state. *Taracus* and *Hesperonemastoma* are separated as Taracidae **fam. n.**, and *Crosbycus* is tentatively transferred to this assembly. The remaining genera of Ceratolasmatidae, *Acuclavella* and *Ceratolasma,* are included as subfamily Ceratolasmatinae in the Ischyropsalididae and *Ischyropsalis* is assigned subfamily status, respectively. Other nomenclatural acts are restricted to species-group level with the following synonymies established: *Sabacon jonesi* Goodnight & Goodnight, 1942 **syn. n.** (=*cavicolens* (Packard, 1884)), *Dicranolasma diomedeum* Kulczyński, 1907 **syn. n.** (=*hirtum* Loman, 1894), *Mitostoma* (*Mitostoma*) *sketi* Hadži, 1973a **syn. n.** (=*chrysomelas* (Hermann, 1804)), *Mitostoma asturicum* Roewer, 1951 **syn. n.** (=*pyrenaeum* (Simon, 1879a)), *Nemastoma formosum* Roewer, 1951 **syn. n.** (=*Nemastomella bacillifera bacillifera* (Simon, 1879a)), *Nemastoma reimoseri* Roewer, 1951 **syn. n.** (=*Paranemastoma bicuspidatum* (C.L. Koch, 1835)), *Nemastoma tunetanum* Roewer, 1951 **syn. n.** (=*Paranemastoma bureschi* (Roewer, 1926)), *Phalangium flavimanum* C.L. Koch, 1835 **syn. n.** (=*Paranemastoma quadripunctatum* (Perty, 1833)), *Crosbycus graecus* Giltay, 1932 **syn. n.** (=*Paranemastoma simplex* (Giltay, 1932)), *Nemastoma bimaculosum* Roewer 1951 **syn. n.** (=*Paranemastoma titaniacum* (Roewer, 1914)), *Trogulocratus tunetanus* Roewer, 1950 **syn. n.** (=*Calathocratus africanus* (Lucas, 1849)), *Trogulus albicerus* Sørensen, 1873 **syn. n.** (=*Calathocratus sinuosus* (Sørensen, 1873)), *Metopoctea exarata* Simon, 1879a **syn. n.** (=*Trogulus aquaticus* Simon, 1879a), *Trogulus galasensis* Avram, 1971 **syn. n.** (=*Trogulus nepaeformis* (Scopoli, 1763)) and *Trogulus roeweri* Avram, 1971 **syn. n.** (=*Trogulus nepaeformis* (Scopoli, 1763)). *Paranemastoma werneri* (Kulczyński, 1903) is elevated from subspecies to species. *Ischyropsalis luteipes* Simon, 1872b is proposed as **nomen protectum**, taking precedence over *Lhermia spinipes* Lucas 1866 **nomen oblitum**. The same accounts for *Anelasmocephalus cambridgei* (Westwood, 1874) **nomen protectum**, taking precedence over *Trogulus violaceus* Gervais, 1844 **nomen oblitum**, *Trogulus closanicus* Avram, 1971 **nomen protectum** over *Trogulus asperatus* C.L. Koch, 1839a **nomen oblitum**, as well as *Trogulus martensi* Chemini, 1983 **nomen protectum** over *Trogulus tuberculatus* Canestrini, 1874 **nomen oblitum**. New combinations, all from *Nemastoma*, are *Histricostoma anatolicum* (Roewer, 1962), *Mediostoma globuliferum* (L. Koch, 1867), *Nemastomella hankiewiczii* (Kulczyński, 1909), *Nemastomella maarebense* (Simon, 1913), *Nemastomella monchiquense* (Kraus, 1961) and *Paranemastoma simplex* (Giltay, 1932); from *Mitostoma*: *Nemastomella armatissima* (Roewer, 1962). Revived combinations are *Nemastomella cristinae* (Rambla, 1969) (from *Nemastoma*) and *Nemastomella sexmucronatum* (Simon, 1911) (from *Nemastoma*). The following *Nemastoma* are transferred to *Paranemastoma* but suggested as nomina dubia: *aeginum* (Roewer, 1951), *amuelleri* (Roewer, 1951), *bolei* (Hadži, 1973a), *caporiaccoi* (Roewer, 1951), *carneluttii* (Hadži, 1973a), *ferkeri* (Roewer, 1951), *gigas montenegrinum* (Nosek, 1904), *gostivarense* (Hadži, 1973a), *ikarium* (Roewer, 1951), *quadripunctatum ios* (Roewer, 1917), *kaestneri* (Roewer, 1951), *longipalpatum* (Roewer, 1951), *macedonicum* (Hadži, 1973a), *multisignatum* (Hadži, 1973a), *nigrum* (Hadži, 1973a), *perfugium* (Roewer, 1951), *santorinum* (Roewer, 1951), *senussium* (Roewer, 1951), *sketi* (Hadži, 1973a), *spinosulum* (L. Koch, 1869). Further suggested nomina dubia are *Trogulus coreiformis* C.L. Koch, 1839a, *Trogulus lygaeiformis* C.L. Koch, 1839a and *Trogulus templetonii* Westwood, 1833.

Key words: Troguloidea, Ischyropsalidoidea, Ceratolasmatinae, Ischyropsalidinae, Taracidae fam. n., cyber-taxonomy, cyber-plagiarism, systematics, taxonomy

Introduction

When searching for taxonomic-systematic online resources on Opiliones one quickly discovers an extensive list managed by Joel Hallan (2005; the 'Hallan list') providing taxonomic and systematic information on many groups of animals. Its contribution to Opiliones is comprehensive, and the Hallan list is presently the only available digital entity, which gives most taxon names together with relevant taxonomic and additional information. Even with errors introduced, additional taxa described and systematics partly changed, these issues are recognisable for taxonomic experts, to whom the Hallan list serves as a good template. The main issue are other internet sites featuring taxonomy and systematics, approaching Hallan list information uncritically, multiplying initial errors and preserving outdated synonymies. Locating and correcting these errors throughout the Internet has already become a rather futile effort.

As an example, the Hallan list combined the genus *Centetostoma* Kratochvíl, 1958 with an incorrect authorship (*Centetostoma* Kratochvíl & Miller, 1958). A Google search in February 2011 retrieved 214 hits for "*Centetostoma* Kratochvíl & Miller, 1958" while the correct combination "*Centetostoma* Kratochvíl, 1958" had almost no hits, although being the only combination mentioned in all taxonomic-systematic literature investigated. The error likely originated from the misinterpretation of a preface article by Kratochvíl and Miller, followed by the description of *Centetostoma* by Kratochvíl alone (Martens pers. com.). Originating from the Hallan list, this example makes it obvious that most other online lists did not consult original taxonomic information but simply copied the source. The error seems to multiply further as the false authorship retrieved 346 hits only a year later (14 Feb. 2012) and 564 on 30 June 2012, but with the correct authorship having a higher number of hits, likely due to the available *Centetostoma* revision by Martens (2011). The whole matter appears almost absurd, as the genus *Centetostoma* and its species have never played an important role in systematics or in other scientific fields, not even in faunistics, while apparently receiving considerable online attention. Unfortunately, this is not a single incidence. Kratochvíl (1958) is the author of several valid genera, all given the same erroneous authorship in the Hallan list and subsequently having multiplied in the same manner. Other errors comprise insufficient incorporation of published synonymies, e.g. from important reference works as Martens (1978) for Nemastomatidae, influencing many open-source references, as e.g. Wikipedia.

Tracking other errors originating from the Hallan list suggests that a large proportion of taxonomic information on Opiliones online 1) is copied from the Hallan list without re-checking the taxonomy, 2) is not curated or worked through, subsequently, 3) results from a strong desire to compile and exhibit large, comprehensively looking lists for Internet projects, many of which do not cite the original source. This cyber-plagiarism is deleterious for taxonomic science, as the multiplying errors invite "Google hit" majority opinions, rather than considering peer-reviewed taxonomic-systematic publications. As these lists do and will aid as anchor points for scientific and community projects, the many known problems and criticisms of approaches neglecting taxonomy apply (Smith *et al.* 2011). Updating the Dyspnoi section of the Hallan list will follow the publication of this catalogue and may solve some of these problems. Providing a peer-reviewed publication as a template to update and correct any of the erroneous databases appears the most effective solution and is the aim of the presented taxonomic catalogue.

Aside the aforementioned rather formal problems, Opiliones is a group still in need of major revisions from suborder (e.g. Giribet *et al.* 2010, Hedin *et al.* 2012) to species level. For the suborder Dyspnoi a comprehensive overview is given by Gruber (2007), yet a summarizing approach listing all species is missing since Roewer (1923). Giribet *et al.* (2010) changed the systematics of the superfamily Ischyropsalidoidea, but some aspects, not only the placement of several genera, remained unclear. Diagnoses of groups within this superfamily presently do not provide distinguishing characters and lack support from molecular genetics used for their emendation. Revisiting all available information, including recent molecular genetic results, Ischyropsalidoidea is reorganised and characters supporting this systematics are discussed. Male genital morphology, accepted as key character in most other groups of Opiliones (see Schönhofer & Martens 2012) but neglected in the most recent emendations, is re-evaluated.

Having been studied for over two centuries, the Dyspnoi still exhibit many problems with species delineation and assignment. Many species have not been treated since their original description, and generic concepts have changed suggesting transfer of these species from their original placement (e.g. *Nemastoma* C.L. Koch, 1836b; Gruber & Martens 1968). This catalogue takes a pragmatic approach, to assign as many species as possible to a more reasonable systematic position or treat them otherwise. Being only a snapshot in time, this revision aims to provide a comprehensive starting point for future ventures, and highlights and comments on taxonomic and systematic issues of many taxa.

Material and methods

All taxon names associated with the Dyspnoi were tracked manually by following citations to the original description. 2,950 references were scanned or downloaded from acknowledged sources and from many single online providers not explicitly mentioned. If unavailable in the original pdf, text was made accessible with Adobe Acrobat Pro 9.3.1. This searchable database allowed data-mining and located even difficult records.

Taxonomic and systematic information was assessed as follows: 1) a list of all available species epithets associated with the Dyspnoi and generic names contained in the Dyspnoi was compiled; 2) the original descriptions were investigated; 3) perception of taxa over time was checked, including synonymies, alternative placements, and descriptions; 4) the last revising author's opinion was generally accepted; 5) if disagreement or unreasonable placements were found, correction upon available descriptions, and partly original material was attempted; 6) authors were followed if they suggested but not formally established more reasonable placements of species, e.g. when removing species from *Nemastoma* sensu stricto; 7) unrecognisable taxa, based on questionable descriptions and not further discussed, are treated as nomina dubia, excluding them from the species count, e.g. see *Paranemastoma* Redikorzew, 1936 and further comments on Roewer; 8) the Index of Organism Names (ION; http://www. organismnames.com) was searched, using all generic names to check for species names; obvious spelling errors were neglected.

The catalogue style follows a hierarchical and then alphabetical order. All taxa considered as valid are given in bold. Subgenera are mentioned in parentheses (e.g. *Mitostoma* (*Carinostoma*) Kratochvíl, 1958) to highlight historical taxonomic interpretations, but are currently not considered of importance in the Dyspnoi. Citations provided are limited to those of taxonomic-systematic relevance, e.g. original descriptions, synonymies, taxonomic transfers, alternative spellings, redescriptions and discussions of the taxon status. Mere faunistic citations, reiterative listings and misidentifications are omitted. Type genera of families and type species of genera are given by their original assignment and spelling, and their fixation is stated. Etymologies for all genera are provided. Citations and synonyms are arranged in chronological order of first appearance. If not unambiguously perceivable from this order, remarks outline taxonomic issues and list additional information. Taxon authors are always indicated by separating their name with a comma from the year of description. Others are treated as citations without a comma and are additionally separated by "—" from the species epithet or the species author. For author names of Cyrillic origin, transcribed into the Latin alhabet, the predominant spelling was selected (e.g. Mcheidze; alternative Mkheidze; Ljovuschkin; alternative Lyovushkin). The locus typicus (loc. typ.) is given for every species. Hierarchical order of administrative and/or geographic units using English names is preferred, and primary historical locality names are stated for clarification only. Cardinal directions are abbreviated. Type depositories are omitted; locality information better helps to explain associated taxonomic problems. Information about the types of spurious species is given in the remarks. Abbreviated type depositories are: BMNH - The Natural History Museum, London, UK; MHNP - Muséum national d'Histoire naturelle, Paris, France; NHMW - Naturhistorisches Museum, Vienna, Austria; SMF - Senckenberg Naturmuseum, Frankfurt am Main, Germany. Other abbreviations used are: compr. - comprising; redescr. - redescription. References in the catalogue aim to pinpoint page numbers of exact taxonomic statements, but in few cases page ranges are given or page numbers are omitted if not available. Fossil species were not considered.

To provide an additional online source, results will be available and frequently updated at the Tree of Life (ToL) project (Schönhofer & Hedin 2012). ToL will also feature phylogenetic information gathered when compiling this catalogue. Furthermore, a new version of the Biology Catalog managed by Joel Hallan will soon integrate the updated information on the Dyspnoi (http://pipedev.tamu.edu/Biocat/About/Introduction.aspx).

C.F. Roewer has been the most prolific harvestmen expert in terms of describing new species. However, his glory fades when having to deal with his often intangible mess of made-up species, invented species characters and false type localities. His inability to look through the growing maze partly caused him to misidentify his own species, describing them anew or assigning false type localities even where this would not have been necessary in order to describe new "geographic" species. Helversen and Martens (1972) and Novak and Gruber (2000) provided detailed criticism of Roewer's works. Especially Roewer's later works (1950, 1951) described numerous species upon variable characters such as spination and colour patterns, recognised as variable by many subsequent authors. This is perceivable from the extensive synonymy lists of many species, e.g. in *Ischyropsalis* C.L. Koch, 1839 and *Paranemastoma*. Collective groups of Roewer's 1951 *Nemastoma* species are therefore treated as nomina dubia (see *Paranemastoma)*. Remarks throughout this revision highlight other issues associated with Roewer, whose information is generally to be treated with caution.

Results and discussion

Species and genera counts and changes compared to previous approaches

Although new species and genera have been described since Pinto-da-Rocha *et al.* (2007) and the last update of the Hallan list (03.07.2005), the number of Dyspnoi species as recognised here (286) decreases by 13–14% (Hallan list: 323; Pinto-da-Rocha *et al.* 2007: 327). This substantial difference stems from acknowledging already published synonymies and defining many *Nemastoma* as nomina dubia within *Paranemastoma*. The Hallan list included 96 species in *Nemastoma* (including revalidated subgenera) while the actual species count as specified for the genus is only 7 (Gruber & Martens 1968). In *Ischyropsalis* the species count drops from 35 (Hallan list) to 22. The number of genera increased from 32 (Hallan list) to 38 in Pinto-da-Rocha *et al.* (2007), likely for over-counting Nemastomatidae genera, and is reported here as slightly lower (36). Changes in the grouping of genera are due to additions in the Nemastomatidae, new synonymies in the Trogulidae and re-establishment of genera in the Ortholasmatinae. The Hallan list also recognised the otherwise long abandoned superfamily Nemastomatoidea and listed six genera of Nemastomatidae as incertae sedis (Pinto-da-Rocha *et al.* 2007 listed them as Nemastomatinae incertae sedis). According to the definition by Martens (1978), summarising all West Palearctic genera within one subfamily, these have to be assigned to the Nemastomatinae, which is supported by phylogenetic data and morphology (Schönhofer & Martens 2012).

Higher taxonomic classification within the Dyspnoi

Following the taxonomic overview provided by Gruber (2007) the Dyspnoi are accepted to include the superfamilies Troguloidea and Ischyropsalidoidea. The Troguloidea comprise the families Dicranolasmatidae, Nemastomatidae, Nipponopsalididae and Trogulidae, with the Nipponopsalididae in an unresolved, but likely basal position (Giribet *et al.* 2010). Schönhofer and Martens (2010a) suggested uniting Dicranolasmatidae and Trogulidae based on molecular relationship and morphological traits, which remains a matter of taxonomic convenience. All genera within the Troguloidea can be clearly assigned to a respective family and systematic questions concern mainly relationships of genera within the families (Trogulidae: Schönhofer & Martens 2010a; Nemastomatidae: Schönhofer & Martens 2012) and the composition of several genera within the Nemastomatidae.

The situation is different in the second superfamily Ischyropsalidoidea, where the placement of the clear-cut genera in families is uncertain. Currently three families, Ceratolasmatidae, Ischyropsalididae and Sabaconidae, are recognised. Problems arise as the latest emendations and diagnoses provided no clear understanding of two of these families. In particular, the following issues concerning the Ischyropsalidoidea need to be considered:

1) The family Ceratolasmatidae was originally diagnosed upon external structures of legs and scutum to encompass its highly divergent genera (Shear 1986). Its composition has since changed, with *Hesperonemastoma* Gruber, 1970 having been transferred to Sabaconidae (Giribet *et al.* 2010) but retaining its proposed sister *Crosbycus* Roewer, 1914 (Shear 1986) in Ceratolasmatidae for which an updated diagnosis is necessary.

2) The emended diagnosis of Sabaconidae by Giribet *et al.* (2010) listed differences between the included genera, but no unambiguous diagnostic characters for the family. Molecular support, the main argument to retain *Taracus* Simon, 1879b and *Hesperonemastoma* close to *Sabacon* Simon, 1879a, was weak (Giribet *et al.* 2010) and Sabaconidae requires redefinition.

3) Shear (1986) downgraded the complex genital morphology of *Sabacon* as genus-specific to include *Taracus* within Sabaconidae. He rejected Martens (1976, 1983) and Martens *et al.* (1981) suggesting a monotypic family Sabaconidae.

4) Genital characters were disregarded for the classification of Ischyropsalidoidea, while metapeltidial sensory cones (with sensory capabilities assumed for one species in *Sabacon*; Juberthie *et al.* 1981) were assigned high significance without knowing their phylogenetic value (Shear 1986, Giribet *et al.* 2010).

Studies featuring molecular genetics will help draw a clearer systematic picture of Ischyropsalidoidea (Richart & Hedin in press, Schönhofer *et al.* 2013b). *Acuclavella* Shear, 1986 is most closely related to *Ceratolasma* Goodnight & Goodnight, 1942, which is also obvious in the morphological similarity of both genera, and both are next relatives to *Ischyropsalis* (Richart & Hedin in press). The composition of the complex sternal region, sharing isolated coxal endites II to IV and a large labium (Martens 1969, Gruber 1978, Shear 1986), and the peculiar penial morphology with a glans formed by two separate sclerotised areas only joined close to the stylus, support a close relationship of all three genera. Divergence estimates show that the split between *Ischyropsalis* and *Ceratolasma* is considerably younger than in other clades in Ischyropsalidoidea (Schönhofer *et al.* 2013b), and all evidence suggests including *Acuclavella* and *Ceratolasma* in Ischyropsalididae. Maintaining a subfamily Ceratolasmatinae for *Acuclavella* and *Ceratolasma* is proposed, here. It parallels a systematic and geographic situation that is roughly similar to the mainly European and Western North American distributed subfamilies within the Nemastomatidae.

The remaining Ischyropsalidoidea genera share palps with peculiar bottle-brush hairs (a plesiomorphic character) and have reduced (only on leg II) or missing coxapophyses. While uniting them in Sabaconidae accords with the weak molecular support (Giribet *et al.* 2010), the phylogenetic level of the two main Sabaconidae clades is much higher than in the Ischyropsalididae as proposed here (Schönhofer *et al.* 2013b). This coincides with the wide range of morphological characters outlined in the emended family diagnosis of Sabaconidae (Giribet *et al.* 2010). Recompiling and extending this diagnosis sensu Giribet *et al.* (2010) revealed no flaws by these authors and retrieved the same variable characters. However, this lack of shared morphological characters and weak molecular support does not add confidence to accept Sabaconidae in its present composition.

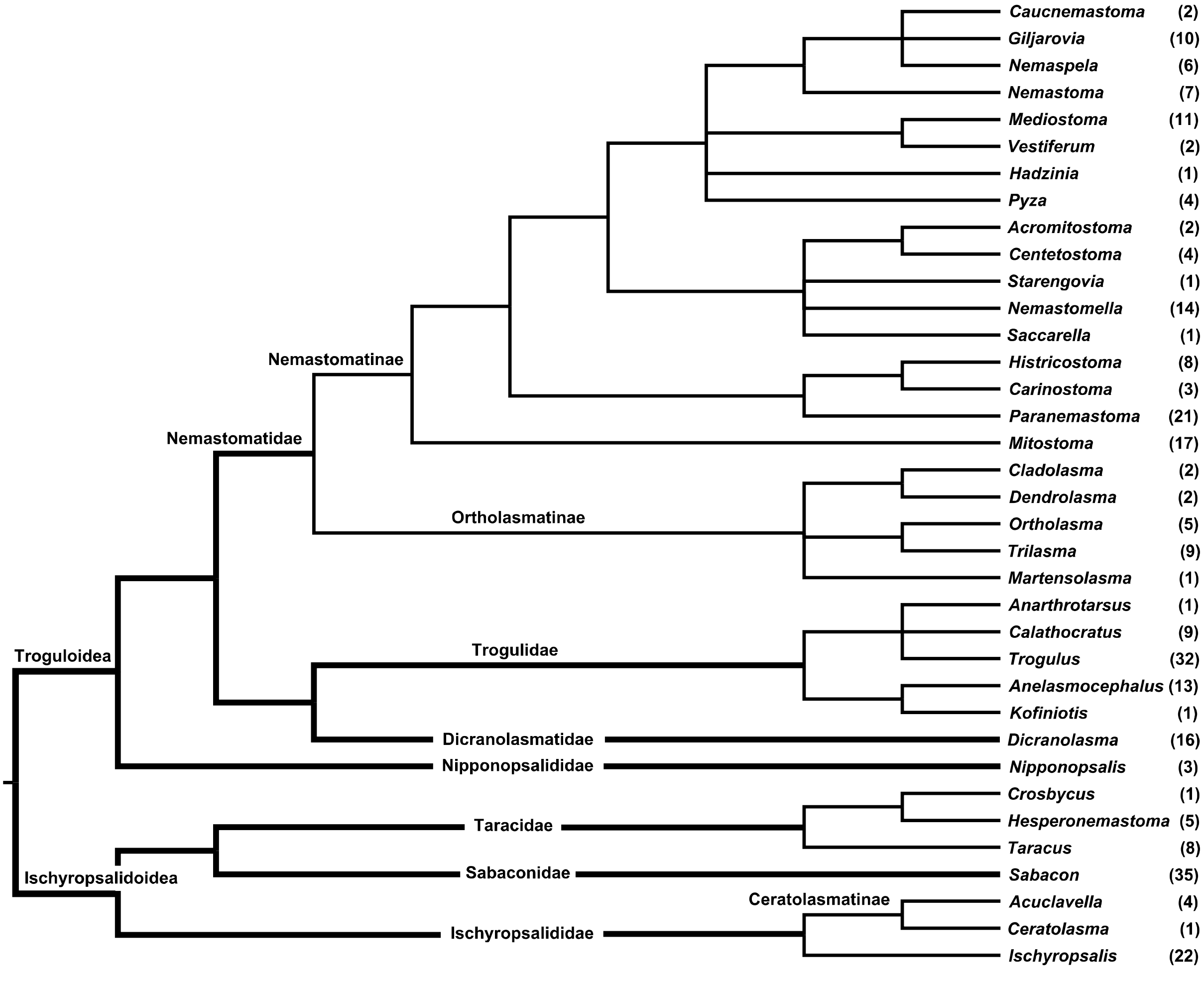

FIGURE 1. Cladogram summarising the classification and systematics of the Dyspnoi to genus level, incorporating hypotheses of this study, Giribet *et al.* 2010, Richart and Hedin in press, Shear 1986 and Schönhofer and Martens 2010a, 2012. The tree is a compilation and not based on a phylogenetic reconstruction. All genera are listed on the right, with corresponding species numbers in parentheses; family level lineages are indicated by bold branches.

Regarding the first of the two sabaconid clades, comprising only *Sabacon*, a simple generic rank has to be rejected. *Sabacon* is highly diversified, and its primary lineages are comparably older than most other genera within the superfamily and within the Dyspnoi (Schönhofer *et al.* 2013b). Its wide Holarctic distribution and a wealth of functional penis modifications reflects this divergence. Penis modifications in other Dysnoi, e.g. the Nemastomatidae, are characters perceived to outline separate generic levels (Schönhofer & Martens 2012). In the future it is likely that *Sabacon* will be split into several genera that should be enclosed in a taxon of family level. Highly distinct male genitals with a bent and deeply split penial base and a muscle concentrated at the base, and positioned outside the sclerotised truncus (Martens 1983), peculiar inflated palps with specialised tarsi, and the lack of coxapophyses (Gruber 2007, Tsurusaki & Song 1993, Thaler 1976), serve as distinct characters, justifying a taxonomic status clearly isolated within Ischyropsalidoidea and higher than the generic level (Gruber 1970, Martens *et al.* 1981, Martens 1983).

Consequently, the genera *Taracus* and *Hesperonemastoma* require evaluation if being recognisable as a distinct and separable unit. The two genera share a straight and generally short and massive penial truncus filled with a large muscle that is completely enclosed within the truncus, normal, uninflated palps and coxapophyses on coxae II (Gruber 2007). These characters also apply to *Crosbycus* (Gruber 2007), considered close to *Hesperonemastoma* in the original composition of Ceratolasmatidae (Shear 1986), but that is clearly different from the remaining Ceratolasmatidae. Molecular evidence strongly supports a grouping of *Hesperonemastoma* with *Taracus* (Schultz & Regier 2001; Giribet *et al.* 2002, 2010), while the placement of *Crosbycus* needs confirmation.

Restricting Sabaconidae to *Sabacon* and treating *Hesperonemastoma* and *Taracus* as a separate taxonomic unit provides a convincing number of diagnostic characters to accept both as well-defined entities which is in accordance with strong molecular support. Sabaconidae is thus restored to its original monogeneric state, and a new family Taracidae, based on the oldest taxon *Taracus*, is here proposed. Taracidae **fam. n.** further includes *Hesperonemastoma* sensu Giribet *et al.* (2010) and, tentatively, *Crosbycus*. Considering these clades as subfamilies within a higher taxon Sabaconidae resulted in the same problem of being unable to diagnose such a family.

Full diagnoses of all new or emended family level taxa in the Ischyropsalidoidea are given in the taxonomic section, followed by listing the genera and species included. A systematic overview, featuring a summary of all phylogenetic results and hypotheses presently available for the Dyspnoi, is given in Fig. 1.

Key to the higher groups within the Dyspnoi

The latest determination key for the higher groups within the Dyspnoi (Giribet 2007) needs to be presented in more detail and corrected, partly for disregarding the morphological diversity of the keyed taxa, partly due to newly described species (especially *Hesperonemastoma smilax* Shear, 2010b). The following also needs to be taken into account:

1) the number of metapeltidial sensory cones (spines on 2nd prosomal tergite) in *Ischyropsalis* can be as low as two (e.g. in *I. hellwigii* (Panzer, 1794)), which does not key to the genus;

2) a reflexed tarsus of the palp is not a static condition in *Sabacon*, as in both living and preserved animals the tarsus is at different angles to the tibia, some not different from other Dyspnoi;

3) soil crypsis is not a reliable character to identify Dicranolasmatidae and Trogulidae, because animals (adults) need to reach a certain age to acquire the soil cover (and sometimes they do not; often lacking in juveniles); it is also a feature of some Nemastomatinae (*Vestiferum* Martens, 2006) and Ortholasmatinae;

4) thin and elongated palps of identical shape are present in both *Crosbycus* and some *Hesperonemastoma* species.

The following key is remodelled and intended to feature external characters in adult animals. A key for identification to Trogulidae genera is given in Schönhofer (2009: 168, erroneously including *Dicranolasma* Sørensen, 1873). For a key to Ortholasmatinae see Shear (2010a: 16). For Nemastomatidae, a key based on external characters is difficult to establish and was therefore not attempted. Soil incrusted animals may require cleaning with a soft paintbrush to see relevant features.

1 Ventral opisthosomal sclerites with a median suture . . . . Trogulidae
- Ventral opisthosomal sclerites without a median suture 2
2 Chelicerae conspicuous and protruding, as long as and often much longer than body, body length in most cases clearly above 1 mm 3
- Chelicerae of moderate size, significantly shorter than body, if different, body length around 1 mm (troglomorph species) . . 5

3 Two or more spines on 2nd thoracic tergite; no diaphanous teeth in central part of cutting edges of chelae; Europe . . . . Ischyropsalis
- One or no spines on 2nd thoracic tergite; diaphanous teeth in central part of cutting edges of chelae; North America and Eastern Asia 4
4 No spine on 2nd thoracic segment; diaphanous teeth mostly restricted to central part of chelae, sometimes present in basal part; Japan and Korea . . . . *Nipponopsalis*
- A single prominent spine on 2nd thoracic segment; diaphanous teeth in central and distal third of chelae; North America and Far Eastern Russia . . . . *Taracus.*
5 Elaborate prosomal structures forming a basket-like cover over the chelicerae; if missing, dorsal ornamentation with extensive intersecting spines 6
- If structures covering chelicerae present, then these simple and spine-like; if dorsal ornamentation present, then this never consisting of extensive intersecting spines 7
6 Dorsal side of body covered with reticulate ornamentation; eyes close together on an eye mound; if present, then structures covering chelicerae originating from eye mound; America and Asia . . . . Ortholasmatinae
- Dorsal side of body covered with spines and tubercles; eyes widely separated and in the middle of each of two long processes anteriorly protruding from prosoma; Western Palearctic . . . . Dicranolasmatidae (*Dicranolasma*)
7 Distal articles of palps with club-shaped hairs (can be missing in males of some *Paranemastoma*: then dorsum smooth and black; respective species with prominent spines and/or golden colour pattern) . . . . Nemastomatinae
- Palps with bottlebrush-shaped hairs or without modified hairs 8
8 Walking legs with dense cover of long, partly curly hairs, palps as long as shortest walking legs, body size below 1 mm . . . . *Crosbycus*
- Walking legs without dense cover of hairs, hairs not curly, palps always shorter than walking legs, body length at least 1 mm 9
9 Palps set with bottlebrush-shaped hairs and without appressed microtrichia; palps conspicuous, either very long or with inflated distal segments 10
- Palps set with normal sensory setae and appressed microtrichia; palps of normal proportion, neither very long nor with inflated distal segments 11
10 Integument soft; pro- and opisthosoma never fused into a scutum magnum; distal segments of palps massive and inflated in most species. . . . . Sabaconidae (*Sabacon*)
- Integument sclerotised; pro- and opisthosoma fused into a scutum magnum; distal segments of palps not massive or inflated . . . . *Hesperonemastoma*
11 Frontal margin of prosoma with two horns lateral of eye mound, colouration grey to brown . . . . *Ceratolasma*
- Frontal margin of prosoma without horns, colouration black . . . . *Acuclavella*

Taxonomic catalogue

Suborder Dyspnoi Hansen & Sørensen, 1904

Dyspnoi Hansen & Sørensen, 1904: 81 (as tribus in Palpatores);—Roewer 1923: 3; Šilhavý 1961: 265–266 (as suborder); Martens 1969: 184 (as cohors); Shear 1974: 68 (as superfamily); Gruber 1974a: 258 (as superfamily); Shultz 1998: 259 (as clade combining superfamilies).

Remarks. The initial composition of the Dyspnoi included Ischyropsalidoidae, Nemastomatoidae and Troguloidae (Hansen & Sørensen 1904: 81). Later, Roewer (1923: 3) added his new family Acropsopilionidae. It was excluded from Dyspnoi, united with Caddidae, and the resulting group elevated to superfamily rank as Caddoidea Banks, 1893 by Shear (1974: 68), which was supported by Gruber (1974a: 258). This resulted in classifying Caddoidea, Eupnoi and Dyspnoi as independent superfamilies, making it necessary to replace the latter two names by Phalangioidea and Troguloidea, respectively (Shear 1974: 68). Shultz (1998: 259) transferred Caddoidea to Phalangioidea, restoring the suborder classification in Dyspnoi and Eupnoi, revalidating these names.

Superfamily Ischyropsalidoidea Simon, 1879a

Ischyropsalidae Simon, 1879a: 265 (compr. *Ischyropsalis*, *Sabacon*, *Taracus*);—Comstock 1913: 80; Roewer 1923: 680; 1950: 11.

Ischyropsalidoidea—Martens 1976: 66; 1978: 186 (compr. Ischyropsalididae, Sabaconidae); Gruber 1978: 107; Martens *et al.* 1981: 27; Shear 1986: 3 (compr. Ceratolasmatidae, Ischyropsalididae, Sabaconidae); **new composition** (compr. Ischyropsalididae, Sabaconidae, Taracidae **fam. n.**).

Family Ischyropsalididae Simon, 1879a

Ischyropsalidae Simon, 1879a: 265 (compr. *Ischyropsalis*, *Sabacon*, *Taracus*); type genus *Ischyropsalis* C.L. Koch, 1839b as inferable from the stem of the family name (ICZN 11.7.1.1);—Roewer 1914: 100 (compr. *Ischyropsalis*, *Sabacon*, *Taracus*, *Tomicomerus*), 1923: 680, 1950: 11; Dresco 1970: 1212 (compr. *Ischyropsalis*, *Nipponopsalis*, *Taracus*, *Tomicomerus*); Shear 1975: 11; Gruber 1978: 105.

Ischyropsalididae—Martens 1969: 184–186 (compr. *Ceratolasma*, *Nipponopsalis*, *Ischyropsalis*, *Sabacon*, *Taracus*); **new composition** (compr. *Acuclavella*, *Ceratolasma*, *Ischyropsalis)*.

Diagnosis. Dyspnoi of the superfamily Ischyropsalidoidea with a western Palearctic and western Nearctic distribution. Defined by peculiarities of glans penis morphology, composition of the sternal region, and supported by molecular phylogenetic evidence. Palps without bottlebrush-shaped hairs, distal articles with dense cover of microtrichia, claw rudiment present. Chelicerae of moderate size, enlarged in *Ischyropsalis*. Except for few cave-species in *Ischyropsalis* males with glandular fields on the dorsal cheliceral segment, these partly associated with apophyses. Truncus penis simple, filled up to two thirds with a single muscle; muscular tendon short; base of truncus divided into two short root-like structures.

Glans penis simple and conical, separated into two sclerotised areas: dorsally the continuously sclerotised portion of the truncus and ventrally an isolated sclerotised plate set with uniform spines of variable length; both sclerotised portions gradually tapering into and joined at the long stylus. Stylus simple, long and tapering, either bent at the base (*Ischyropsalis*) or set with indistinct hook-like structures. Ovipositor short and stout, without large papillae, opening cleft of vagina bordered by a seam of microspinules, medium-sized setae on apical part only, arranged into rows and clusters. Frontal margin of opisthosoma without a median furrow. Coxae II to IV with sternal apophyses, labium large. Two or more bump- or spine-like metapeltidial structures present, the median ones largest.

Subfamily Ceratolasmatinae Shear, 1986

Ceratolasmatidae Shear, 1986: 13 (compr. *Acuclavella*, *Ceratolasma*, *Crosbycus*, *Hesperonemastoma*); type genus *Ceratolasma* Goodnight & Goodnight, 1942, by original designation;—Giribet *et al.* 2010: 422 (compr. *Acuclavella*, *Ceratolasma*, *Crosbycus*).

Ceratolasmatinae; **new rank, new composition** (compr. *Acuclavella*, *Ceratolasma*).

Diagnosis. Dyspnoi of the family Ischyropsalididae with a narrow western Nearctic distribution (USA: N-California, Washington, Idaho). Defined by peculiarities of male genital morphology and morphological similarities concerning palps, armature of dorsum and tuber oculorum, supported by molecular phylogenetic evidence. Palps short and stout, tibia and tarsus similar to each other and almost equal in length. Chelicerae of moderate size; males with large glandular fields dorso-medially on basal cheliceral segments, glands associated with rather unspecialised but in most species large, plateau-like apophyses exposing the glandular fields to dorsal and dorso-caudal side. Truncus penis as described for Ischyropsalididae but generally slender; glans penis simple and conical, rarely inflated, with a long, narrow, sclerotised ventral plate, gradually tapering into a long stylus being simple, straight, but slightly contorted in few species and set with indistinct, hook-like structures. Ventral plate irregularly set with small uniform spines, pronounced and structured setation otherwise lacking. Tuber oculorum set with a long blunt spine. Dorsal armature with blunt tubercles and partially varying numbers of large paired cones or spines on opisthosoma. Two bump-like enlarged metapeltidial structures.

Genus *Acuclavella* Shear, 1986 (4 species)

Acuclavella Shear, 1986: 13; type species *Acuclavella cosmetoides* Shear, 1986 by original designation.

Etymology. Gender feminine; Latin neologism for “acute little spines” referring to the dorsal armament of the body.

cosmetoides Shear, 1986: 15; loc. typ.: USA, Idaho, Clearwater Co., Pierce.

merickeli Shear, 1986: 20; loc. typ.: USA, Idaho, Idaho Co., 20 mi ESE Lowell, Meadow Creek.

quattuor Shear, 1986: 22; loc. typ.: USA, Idaho, Idaho Co., 10 mi E Slate Creek.

shoshone Shear, 1986: 18; loc. typ.: USA, Idaho, Shoshone Co., Hobo Cedar Grove.

Genus *Ceratolasma* Goodnight & Goodnight, 1942 (1 species)

Ceratolasma Goodnight & Goodnight, 1942: 3; type species *Ceratolasma tricantha* Goodnight & Goodnight, 1942 by monotypy and original designation.

Etymology. Gender neuter; Greek, combination of "keratos" (genitive of "keras" = horn) for the horn-like processes, and „elasma" (plate), referring to similar prosomal structures in other genera of Dyspnoi, as e.g. *Dicranolasma, Ortholasma* or *Dendrolasma*.

tricantha Goodnight & Goodnight, 1942: 3; loc. typ.: USA, Oregon, near Forest Grove, Clear Creek;—Gruber 1978 (redescr.).

Subfamily Ischyropsalidinae Simon, 1879a

Ischyropsalididae Simon, 1879a (see there).
Ischyropsalidinae; **new rank** (compr. *Ischyropsalis*).

Diagnosis. Dyspnoi of the family Ischyropsalididae with a western Palearctic distribution. Defined by peculiarities of male genital morphology and enlarged chelicerae with glandular fields situated distally on the basal segment in males of most species. Palps long and thin, elongated to enable interaction with the chelicerae. Chelicerae massive and enlarged, longer than the body; in most species glandular fields of males associated with knob-like apophyses exposing the field to dorsal and/or distal side. Truncus penis as described for Ischyropsalididae; glans penis usually simple and conical, but inflated and distinct from the truncus in many species; the sclerotised ventral plate mostly short, from roughly rhombic to deeply bi-lobed at the base; sclerotised area of glans with several defined regions exhibiting dense fields of mostly very thick, long and backward-pointing hairs; glans gradually tapering into a long stylus, the latter simple and pointed, bent at the base but without contortion or additional structures. Tuber oculorum without spine. Dorsal armature mostly lacking, dorsum smooth, often glossy, in few species opisthosomal areas raised to low, pointed bumps. Two or many spine-like metapeltidial structures, arranged in a transversal row.

Genus *Ischyropsalis* C.L. Koch, 1839b (22 species, 4 subspecies)

Ischyropsalis C.L. Koch, 1839b: 23; type species *Ischyropsalis kollari* C.L. Koch, 1839b by subsequent designation (Thorell 1876: 467).
Lhermia Lucas 1866: 44; type species *Lhermia spinipes* Lucas 1866 by monotypy;—syn. Simon 1972b: 484 (because found to be a nomen nudum); Martens 1969: 213.
Ischiropsalis—Simon 1872a: 227 (misspelling).
Lermia—Simon 1872b: 484 (misspelling).
Ischyropsalis (*Odontopalpa*) Hadži, 1931: 113;—syn. Martens 1969: 189.

Remarks. Establishment of the present-day taxonomy and validating species-specific characters in *Ischyropsalis* have been mainly facilitated by the thorough revision of Martens (1969). Having been unable to borrow many types from the Iberian Peninsula, part of his work remained hypothetical for that local fauna, which was later corrected by Dresco (e.g. 1970, 1972), Luque (1991, 1992) and Prieto (1990a, 1990b). Of the 42 species described or emended by Roewer (1914, 1916, 1923, 1950, 1953a) only two remain valid. Species delineation and discovery of new species in northern Spain are still in progress (L. Labrada and C. Prieto, pers. comm.).

Etymology. Gender feminine; from Greek "ischyros" (robust, strong) and "psalis" (scissor), referring to the enlarged chelicerae.

adamii Canestrini, 1873; loc. typ.: Italian Peninsula, Golfo de Squillace.
Ischyropsalis adamii Canestrini, 1873: 50;—Martens 1969: 205 (redescr.). **Remarks.** Martens (1969: 205) reported Roewer's (1950: 33) lectotype of *adamii* (SMF RI/976) as invalid and SMF data indicate that the lectotype locality could be "Como", suggesting that the lectotype belongs to *I. carli*. A lectoype designation is only necessary if the species definition is questionable (ICZN 75), which is currently not the case.
Ischyropsalis apuanus Caporiacco, 1930: 125;—syn. Martens 1969: 205.
Ischyropsalis kratochvili Roewer, 1950: 32;—syn. Martens 1969: 205.
Ischyropsalis amseli Roewer, 1950: 33;—syn. Martens 1969: 205.
Ischyropsalis apuana—Roewer 1950: 36.
Ischyropsalis apuanus nanus Dresco, 1968b: 751; **syn. n.:** Dresco (1968b) described this subspecies, while Martens (1969) synonymised *I. apuana* likely without knowing about *nanus*.

cantabrica Luque & Labrada, 2012: 28; loc. typ.: Spain, Cantabria, Alfoz de Lloredo, Oreña Rogeria Cave.

carli Lessert, 1905; loc. typ.: Switzerland, Graubünden. **Remarks.** Schuls-Fettan (today Scuol-Ftan), the first of three localities listed by Lessert (1905) and separated from the others by a distance of 40 km, is to be favoured as explicit type locality.
Ischyropsalis carli Lessert, 1905: 658.
Ischyropsalis pentelica Roewer, 1950: 30;—syn. Martens 1969: 209.

dentipalpis Canestrini, 1872; loc. typ.: Italy, Aosta Valley, Gressoney-St. Jean.
Ischyropsalis dentipalpis Canestrini, 1872: 9;—Schönhofer & Martens 2010b: 4 (redescr.).
Ischyropsalis helvetica Roewer, 1916: 152;—syn. Schönhofer & Martens 2010b: 4.

dispar Simon, 1872a; loc. typ.: Spain, Vizcaya, Orduño, Cueva de Albia.
Ischiropsalis dispar Simon, 1872a: 227.
Ischyropsalis goodnighti Roewer, 1950: 31;—syn. Martens 1969: 256.
Ischyropsalis archeri Roewer, 1950: 48;—syn. Martens 1969: 256.
Ischyropsalis noltei Dresco, 1972: 121;—syn. Prieto 1990b: 286.

gigantea Dresco, 1968a: 308; loc. typ.: Spain, Santander, Cueva la Cañuela.

hadzii Roewer, 1950; loc. typ.: Slovenia, Mokritz Mountain, Ziavka Cave.
Ischyropsalis hadzii Roewer, 1950: 52;—Martens 1969: 242 (redescr.). **Remarks.** Originally described as *Phalangium cancroides* Schmidt, 1851: 61 Roewer (1950) assumed the name preoccupied (Müller 1776: 192) and changed it to *hadzii*. Müller (1776) might have referred to *Acarus cancroides* Linnaeus, 1758: 616 (transferred to *Phalangium* by Linnaeus 1767: 1028), now recognised as a pseudoscorpion. Meanwhile, the name *hadzii* is in frequent use and established, and should not be altered. Roewer (1923: 683; also Hadži 1954: 141) questioned a specimen labelled "*Ischyropsalis cavernosum* Schmidt" (Krain, Zoological Institute University of Vienna) being the type of *cancroides*, which was not verified.

hellwigii hellwigii (Panzer, 1794); loc. typ.: Germany, Elm Mountain (Elem) near Destedt, Braunschweig (reconstructed by Martens 1969). **Remarks.** Changes to the original spelling "*hellwigii*" are prohibited (ICZN 33.4).
Phalangium hellwigii Panzer, 1794: 18.
Ischyropsalis helwigii—C.L. Koch 1839b: 24.

Ischyropsalis herbstii C.L. Koch, 1847: 68;—syn. Martens 1969: 196.
Ischyropsalis hellwigii—Sørensen in Lendl 1894: 20.
Ischyropsalis taunica Müller, 1924: 418;—Roewer 1923: 683 (as nomen nudum); syn. Martens 1965: 144; Martens 1969: 197. **Remarks.** Roewer pre-published a description provided by Müller and acknowledged Müller to be the author, who officially named it a year later. Hadži (1954) placed *I. crassichelis* and *I. plicata* in the synonymy of *I. taunica*, the latter synonymised by Martens (1965).
Ischyropsalis plicata Roewer, 1923: 692;—Hadži 1954: 159; syn. Martens 1969: 197.
Ischyropsalis pectinifera Hadži, 1928: 30;—syn. Hadži 1954: 159; Martens 1969: 197.
Ischyropsalis frankenbergeri Bartoš, 1938: 155;—syn. Martens 1969: 197.
Ischyropsalis franzi Roewer, 1950: 22;—syn. Martens 1969: 197.
Ischyropsalis crassichelis Roewer, 1950: 25;—syn. Hadži 1954: 159; Martens 1969: 197.

hellwigii lucantei Simon, 1879a; loc. typ.: France, Dép. Hautes-Pyrénées, Grotte de Bétharram.
Ischyropsalis lucantei Simon, 1879a: 273;—Dresco 1966: 814.
Ischyropsalis superbus Simon, 1881a: 129;—syn. Martens 1969: 200.
Ischyropsalis superba—Simon 1881a: 130; Roewer 1914: 117.
Ischyropsalis hellwigii lucantei—Martens 1969: 200. **Remarks.** Dresco (1966: 814) found *lucantei* and *superba* conspecific but regarded the juvenile type of *lucantei* as invalid, an error corrected by Martens (1969: 200).

hispanica Roewer, 1953a; loc. typ.: Spain, Sierra de Ancares, Cabana vella.
Ischyropsalis hispanica Roewer, 1953a: 208;—Prieto 1990a: 319 (redescr.).
Ischyropsalis hispanum—Roewer 1953a: 208 (misspelling).

kollari C.L. Koch, 1839b; loc. typ.: Austria, Salzburg, Gastein.
Ischyropsalis kollari C.L. Koch, 1839b: 24—C.L. Koch 1840: 19 (description).
Ischyropsalis bosnica Roewer, 1914: 107;—syn. Martens 1969: 236.
Ischyropsalis (*Odontopalpa*) *triglavensis* Hadži, 1931: 113;—syn. Martens 1969: 236.
Ischyropsalis danubia Roewer, 1950: 21;—Hadži 1954: 152; syn. Martens 1969: 236.
Ischyropsalis strasseri Roewer, 1950: 22;—syn. Martens 1969: 236.
Ischyropsalis tirolensis Roewer, 1950: 23;—syn. Martens 1969: 236.
Ischyropsalis styriaca Roewer, 1950: 23;—syn. Martens 1969: 236.
Ischyropsalis reimoseri Roewer, 1950: 23;—syn. Martens 1969: 236.
Ischyropsalis spinichelis Roewer, 1950: 25;—Hadži 1954: 155; syn. Martens 1969: 236.
Ischyropsalis nivalis Roewer, 1950: 26;—Hadži 1954: 150; syn. Martens 1969: 236.
Ischyropsalis scutata Roewer, 1950: 26;—Hadži 1954: 156; syn. Martens 1969: 236.
Ischyropsalis segregata Roewer, 1950: 28;—syn. Martens 1969: 236.
Ischyropsalis troglodytes Roewer, 1950: 32;—syn. Martens 1969: 236.

lithoclasica Schönhofer & Martens, 2010b: 9; loc. typ.: Italy, Bergamo, Stalle del Möschel.

luteipes Simon, 1872b; **nomen protectum**; loc. typ.: France, Ariège, Massat, grotte de Le Quère.
Lhermia spinipes Lucas 1866: 44; **nomen oblitum**; Simon 1872b: 484. **Remarks.** Reviewing Lucas' (1866) description, *Lhermia spinipes* is presented in a sparse description, in a comparison with other harvestmen and with a distinct type locality. Simon's (1872b) decision to treat the name as a nomen nudum and to provide the new name, *Ischyropsalis luteipes*, is questionable, especially as he seems to have understood *Lhermia spinipes* and *I. luteipes* to be conspecific. However, it is proposed to maintain the use of *luteipes* (ICZN 23.9.1; nomen protecum) because *spinipes* (nomen oblitum) has not been used as a valid name after 1899 (ICZN 23.9.1.1) and *luteipes* has been used in at least 60 works between 1962 and 2012 (ICZN 23.9.1.2).
Ischyropsalis luteipes Simon, 1872b: 484 (replacement name).
Ischyropsalis pestae Roewer, 1950: 28;—syn. Martens 1969: 213.
Ischyropsalis caporiaccoi Roewer, 1950: 33;—syn. Martens 1969: 213.

Ischyropsalis caporioccoi—Martens 1969: 259 (misspelling).

Remarks. Dresco (1966: 598, 1970: 1205) defined three different forms or ecological races (*intermedia*, *longipes*, *brevipes*). Nothing is said about how to unambiguously recognise these forms, and they are of no nomenclatural relevance (ICZN 15.2).

magdalenae Simon, 1881a; loc. typ.: Spain, Galmádes, Cueva de la Magdalena.
Ischyropsalis magdalenae Simon, 1881a: 130;—Prieto 1990b: 289.
Ischyropsalis madalenae—Roewer 1914: 118 (misspelling).

manicata L. Koch, 1869; loc. typ.: Romania (“Siebenbürgen”; not further specified).
Ischyropsalis manicata L. Koch, 1869: 164.
Ischyropsalis ianotai / *ianotae* Wajgel 1874: 36 (alternative spellings). **Remarks.** Wajgel (1874) mentioned the name *ianotae* in *Ischyropsalis,* and Rafalski (1961: 15, then spelled *ianotai*) recognised it as a nomen nudum.
Ischiropsalis manicatus—Lebert 1875 (incorrect ending).
Ischyropsalis dacica Roewer, 1916: 153;—syn. Staręga 1966b: 148.
Ischyropsalis helvetica milleri Kratochvíl, 1934: 13;—syn. Martens 1969: 217.
Ischyropsalis kästneri Roewer, 1950: 19;—syn. Martens 1969: 217.
Ischyropsalis austriaca Roewer, 1950: 22;—syn. Martens 1969: 217.
Ischyropsalis balcanica Roewer, 1950: 30;—syn. Martens 1969: 217.
Ischyropsalis milleri—Hadži 1954: 193.

Remarks. Martens (1969) states 1865 as the publication date which is related to a typo on his personal copy. Later authors have adopted this error.

muellneri Hamann, 1898; loc. typ.: Slovenia, Častitljiva Cave.
Ischyropsalis müllneri Hamann, 1898: 535—Roewer 1950: 26.
Ischyropsalis mülleri—Hansen & Sørensen 1904: 5 (misspelling).
Ischyropsalis corcyraea Roewer, 1914: 108;—syn. Martens 1969: 245.
Ischyropsalis alfkeni Roewer, 1950: 19;—syn. Martens 1969: 245.
Ischyropsalis muellneri—Martens 1965: 144; Martens 1969: 246 (redescr.).

navarrensis Roewer, 1950; loc. typ.: Spain, Navarra. **Remarks.** Prieto (1990b) specified *nicaea* and *turki* as synonyms for having false type localities.
Ischyropsalis turki Roewer, 1950: 31;—syn. Prieto 1990b: 291.
Ischyropsalis nicaea Roewer, 1950: 36;—syn. Prieto 1990b: 291.
Ischyropsalis navarrensis Roewer, 1950: 44.
Ischyropsalis espagnoli Dresco, 1968c: 962;—syn. Prieto 1990b: 291.

nodifera Simon, 1879a; loc. typ.: France, Basses-Pyrénées, St. Jean de Luz.
Ischyropsalis nodifera Simon, 1879a: 270;—Luque 1991: 28 (see Remarks on *petiginosa*).
Ischyropsalis sharpi Simon, 1879c: 129;—syn. Simon 1881a: 128 (see Remarks on *petiginosa*).
Ischyropsalis janetscheki Roewer, 1950: 22;—syn. Martens 1969: 222; Prieto 1990a: 319.
Ischyropsalis moreana Roewer, 1950: 31;—syn. Martens 1969: 222; Prieto 1990a: 319.
Ischyropsalis corsica Roewer, 1950: 34;—syn. Martens 1969: 222; Prieto 1990a: 319.
Ischyropsalis asturica Roewer, 1950: 48;—syn. Martens 1969: 222; Prieto 1990a: 319.

petiginosa Simon, 1913; loc. typ.: Spain, Oviedo, Pimiango, Première grotte de Mazaculos.
Ischyropsalis petiginosa Simon, 1913: 384;—Luque 1991: 28.
Ischyropsalis pectiginosa—Mello-Leitao 1936: 12 (misspelling).

Remarks. Luque (1991) confirmed and redescribed *nodifera* and *petiginosa*, but did not unravel Martens’ synonymies (1969: 222; *petiginosa* and *sharpi* in syn. of *nodifera*). A revision of these *Ischyropsalis* species needs to comment on the validity of *petiginosa* and *sharpi*.

pyrenaea pyrenaea Simon, 1872b; loc. typ.: France, Ariège, Moulis, grotte de l'Estelas.
Ischiropsalis helwigi var. *pyrenaea* Simon, 1872b: 483.
Ischyropsalis pyrenaea—Bedel & Simon 1875: 128.
Ischyropsalis moreana Roewer, 1950: 31;—syn. Martens 1969: 228.
Ischyropsalis pyrenaea venasquensis Dresco, 1967a: 670;—syn. Martens 1969: 228.
Ischyropsalis pyrenaea pyrenaea—Martens 1969: 227.

pyrenaea alpinula Martens, 1978: 224; loc. typ.: Italy, Crissolo, Grotta di Rio Martino.

ravasinii Hadži, 1942: 11; loc. typ.: Italy, Cansiglio, Bus del Pal.

robusta Simon, 1872a; loc. typ.: Spain, Tras-os-Montes, Serra de Gerêz.
Ischiropsalis robusta Simon, 1872a: 230.
Ischyropsalis robusta—Simon 1879a: 276.
Ischyropsalis lusitanica Roewer, 1923: 692;—syn. Martens 1969: 233.

strandi Kratochvíl, 1936; loc. typ.: Italy, Monte Baldo, Malgre Prato Cave.
Ischyropsalis strandi Kratochvíl, 1936: 248.
Ischyropsalis ruffoi Caporiacco, 1947: 139;—syn. Juberthie 1963: 330.
Ischyropsalis knirschi Roewer, 1950: 27;—syn. Martens 1969: 249.

Family Sabaconidae Dresco, 1970

Sabaconidae Dresco, 1970: 1210 (only including *Sabacon*); type genus *Sabacon* Simon, 1879a by monotypy and original designation;—Martens 1978: 225; 1983: 269; Shear 1986: 3 (compr. *Sabacon, Taracus*); Giribet *et al.* 2010: 421 (compr. *Hesperonemastoma, Sabacon, Taracus*); **new composition** (compr. *Sabacon*).

Diagnosis. Dyspnoi of the superfamily Ischyropsalidoidea with a disjunct Holarctic distribution. Defined by peculiarities of male genital morphology, molecular phylogenetic evidence and the peculiar shape and functionality of palps. Palps densely set with bottlebrush-shaped hairs, inflated in all parts, most pronounced in females and juveniles; tarsus freely movable to dorsal and ventral side. Chelicerae small to moderate in size, in many species males with glandular fields on dorsal side of proximal cheliceral segment, often associated with large apophyses. Truncus penis of complex shape, with a deeply split base drawn out in two long roots, forming an upside-down Y-structure with the two basal branches bent towards the truncus. A single muscle situated outside the truncus and mounted between the truncus roots, connected with the distal part of the penis by a long tendon running through the truncus. Further characters of truncus, glans and stylus very variable, but penial stylus generally very long, if not modified. Ventral region poorly sclerotised, generally smooth and glossy without armature or microstructure. Labium absent, coxae without coxal apophyses. Frontal margin of opisthosoma with a median furrow. Two metapeltidial sensory cones.

Genus *Sabacon* Simon, 1879a (35 species, 4 subspecies)

Sabacon Simon, 1879a: 266; type species *Sabacon paradoxus* Simon, 1879a by monotypy.
Phlegmacera Packard, 1884: 203; type species *Phlegmacera cavicolens* Packard, 1884, by monotypy;—syn. Roewer 1914: 123.
Tomicomerus Pavesi, 1899: 533; type species *Tomicomerus bryantii* Banks, 1898 by monotypy;—syn. Shear 1986: 5 (see also Remarks on *bryantii*).
Parasabacon Hansen & Sørensen, 1904: 83; type species *Nemastoma crassipalpis* L. Koch, 1879 by monotypy;—syn. Roewer 1914: 123.

Remarks. Roewer (1914) and subsequent authors treated *Sabacon* as neuter in gender, while Gruber (2003) clarified it to be masculine, but did not list species names with corrected ending. In a list of species from France and Spain, Prieto (2008) stated that Gruber had corrected the endings. Additional mandatory changes made for the first time according to Gruber are indicated by “new ending”.

Etymology. Gender masculine; from Greek “Sabákon” (Egyptian king). For details see (Gruber 2003).

akiyoshiensis Suzuki, 1963; loc. typ.: Japan, Yamaguchi Pref., Miné-shi, Ōmine-machi, Satoyamase, Satoyamase-no-ana Cave.
Sabacon akiyoshiensis Suzuki, 1963: 156
Sabacon akiyoshiense—Suzuki 1974a: 102.

altomontanus Martens, 1983; loc. typ.: France, Dép. Hautes-Pyrénées, SW Lannemézan.
Sabacon altomontanum Martens, 1983: 290.
Sabacon altomontanus—Prieto 2008: 51.

astoriensis Shear, 1975: 24; loc. typ.: USA, Oregon, Clatsop Co., Fort Stevens State Park.

briggsi Shear, 1975: 26; loc. typ.: USA, California, Marin Co., Bolinas Ridge.

bryantii (Banks, 1898); loc. typ.: USA, Alaska, Mt. St. Elias, Malaspina Glacier. **Remarks.** Changes to the original spelling “*bryantii*” are prohibited (ICZN 33.4). The generic placement of *bryantii* remains to be investigated. It appears to have morphological traits of both *Sabacon* and *Taracus,* but new material is needed for further investigation (Shear 1975, 1986).
Phlegmacera bryantii Banks, 1898: 16.
Tomicomerus bryantii—Roewer 1914: 127.
Tomicomerus bispinosus Pavesi, 1899: 533;—syn. Roewer 1914: 127.
Tomicomerus bryanti—Shear 1975: 26 (incorrect subsequent spelling).
Sabacon bryanti—Shear 1986: 5.

cavicolens (Packard, 1884); loc. typ.: USA, Kentucky, Carter Co., Bat Cave.
Phlegmacera cavicolens Packard, 1884: 203.
Phlegmacera cavicoleus—Banks 1894b: 52; Banks 1901: 677 (misspellings).
Nemastoma inops Packard, 1884: 203;—syn. Shear 2010b: 107.
Sabacon spinosus Weed, 1893: 575;—syn. Banks 1894b: 40.
Sabacon jonesi Goodnight & Goodnight, 1942: 1; **syn. n. Remarks.** Shear (1975: 8) tentatively placed *jonesi* close to *cavicolens* which is accepted and the synonymy formally established here.
Hesperonemastoma inops—Gruber 1970: 138.
Sabacon cavicolens—Shear 1975: 13.

chomolongmae Martens, 1972: 312; loc. typ.: Nepal, Khumbu, Dhud-Kosi Valley, Lughla.

crassipalpis (L. Koch, 1879); loc. typ.: Siberia, Tunguska, 4 mi S om Podsk (see also Martens 1989: 370).
Nemastoma crassipalpis L. Koch, 1879: 111.
Sabacon crassipalpis—Roewer 1914: 125; Martens 1989: 370 (redescr.); Chemeris & Logunov 2000: 207 (redescr.).

dentipalpis Suzuki, 1949; loc. typ.: Japan, Kyoto suburbs, vicinity of Kibuné Shrine.
Sabacon dentipalpe Suzuki, 1949: 8; **new ending.**

dhaulagiri Martens, 1972: 314; loc. typ.: Nepal, Thakkola, ascend to Dapa-Col.

distinctus Suzuki, 1974a; loc. typ.: Japan, Kumamoto Pref., Kamimashiki-gun, Yabé-cho, Fusé-dô Cave.
Sabacon distinctum Suzuki, 1974a: 105; **new ending.**

franzi Roewer, 1953a: 208; loc. typ.: Spain, Sierra de Ancares.

gonggashan Tsurusaki & Song, 1993: 158; loc. typ.: China, Sichuan Prov., Kangding, W slope of Mount Gong-gashan.

imamurai Suzuki, 1964: 58; loc. typ.: Japan, Tokyo Pref., Nippara-dô Cave.

iriei Suzuki, 1974a: 103; loc. typ.: Japan, Kumamoto Pref., Yatsushiro-gun, Izumi-son, Ochiai, Yayama-daké-notateana.

jiriensis Martens, 1972: 317; loc. typ.: Nepal, Jiri, ascend to Chordung.

ishizuchi Suzuki, 1974a: 100; loc. typ.: Japan, Ehime Pref., Mount Ishizuchi.

makinoi makinoi Suzuki, 1949; loc. typ.: Japan, Hokkaido, Nopporo.
Sabacon makinoi Suzuki, 1949: 15.
Sabacon habei Suzuki, 1965: 41;—syn. Suzuki 1974a: 90.
Sabacon makinoi makinoi—Suzuki & Tsurusaki 1983: 232.

makinoi sugimotoi Suzuki & Tsurusaki, 1983: 232; loc. typ.: Japan, Akita Pref., L. Towada, Haka camping site.

martensi Tsurusaki & Song, 1993: 155; loc. typ.: China, Sichuan Prov., Kangding, W slope of Mount Gong-gashan.

mitchelli Crosby & Bishop, 1924; loc. typ.: USA, North Carolina, Yancey Co., Mt. Mitchell.
Sabacon mitchelli Crosby & Bishop, 1924: 23;—Shear 1975: 17 (redescr.).

occidentalis (Banks, 1894b); loc. typ.: USA, Washington, Olympia.
Phlegmacera occidentalis Banks, 1894b: 51.
Sabacon occidentalis—Shear 1975: 19 (redescr.).

okadai Suzuki, 1941: 16; loc. typ.: China, Manchukuo, Moukden.

palpogranulatus Martens, 1972; loc. typ.: Nepal, Khumbu, Lughla.
Sabacon palpogranulatum Martens, 1972: 319; **new ending.**

paradoxus Simon, 1879a; loc. typ.: France, Dép. Herault, caves.
Sabacon paradoxus Simon, 1879a: 266;—Gruber 2003: 6; Prieto 2008: 51.
Sabacon paradoxum—Roewer 1914: 124; 1923: 695; Martens 1983: 274.

pasonianus Luque, 1991; loc. typ.: Spain, Cantabria, Alto Asón-Miera.
Sabacon picosantrum p-asonianum Luque, 1991: 18.
Sabacon picosantrum asonianum—Luque 1992: 144 (misspelling).
Sabacon picosantrum asoniarum—Luque 1992: 144 (misspelling).
Sabacon p-asonianum—Luque 1992: errata.
Sabacon pasonianum—Luque 1993: 131.
Sabacon pasonianus—Prieto 2008: 51.
Remarks. The different spellings in Luque (1992) are listed in the errata of the same paper and probably reflect no flaw by the author.

picosantrum Martens, 1983: 292; loc. typ.: Spain, Picos de Europa, Asturias, “Walking Stick Pot” Cave. **Remarks.** Gruber (in Prieto 2008: 51) considered the species epithet a noun in apposition and therefore did not alter the ending (IUCN 31.2.1).

pygmaeus Miyosi, 1942a; loc. typ.: Japan, Ehime Pref., Saraga-Miné Mountains.
Sabacon pygmaeum Miyosi, 1942a: 165; **new ending.**

relictus Marten, 1972; loc. typ.: Nepal, Kathmandu Valley, Mount Phulchoki.
Sabacon relictum Marten, 1972: 320; **new ending.**

satoikioi Miyosi, 1942b; loc. typ.: Japan, Ehime Pref., Saraga-Miné Mountains.
Sabacon sato-ikioi Miyosi, 1942b: 49.
Sabacon satoikioi—Suzuki 1974a: 100.

sergeidedicatus Martens, 1989; loc. typ.: Siberia, Altai Mountains, Cherga, Artybash, Teletskoye Lake.
Sabacon sergeidedicatum Martens, 1989: 372;—Chemeris & Logunov 2000: 210 (redescr.); **new ending.**

sheari Cokendolpher, 1984: 989; loc. typ.: USA, Oregon, Benton Co., Marys Peak.

simoni Dresco, 1952: 123; loc. typ.: France, Dép. Alpes-Maritimes, Fôret de Turini.

siskiyou Shear, 1975: 22: loc. typ.: USA, California, Siskiyou Co., 3mi N McCloud.

unicornis Martens, 1972: 316; loc. typ.: Nepal, Gorapani Pass, betw. Pokhara and Kali-Gandaki Valley.

viscayanus viscayanus Simon, 1881a; loc. typ.: Spain, Orduña, Cueva de la Embajada.
Sabacon viscayanus Simon, 1881a: 128.
Sabacon vizcayanus—Dresco 1952: 122; Gruber 2003: 6; Prieto 2008: 51.
Sabacon viscayanum viscayanum—Martens 1983: 277.
Sabacon viscayasanum viscayasanum—Luque 1992: 143.
Sabacon inflatus **nomen nudum. Remarks.** Dresco (1952: 118) found a specimen labelled *inflatus* in Simon's collection to be identical with *viscayanus.* The name reappears as a mere notice in Dresco (1955: 42) and Rambla (1967: 10).

viscayanus ramblaianus Martens, 1983; loc. typ.: France, SW Lourdes, Val d'Ouzon, N. Ferrières.
Sabacon viscayanum ramblaianum Martens, 1983: 278.
Sabacon viscayanus ramblaianus—Prieto 2008: 51.

Family Taracidae fam. n.

Compr. *Crosbycus* (tentatively), *Hesperonemastoma, Taracus*; type genus *Taracus* Simon, 1879b.

Diagnosis. Dyspnoi of the superfamily Ischyropsalidoidea with predominantly Nearctic distribution; *Crosbycus* and one *Taracus* species in eastern Asia. Palps elongated, slender and segments not markedly inflated (except for species of *Hesperonemastoma* where males exhibit glandular structures in the palpal femur), set with bottlebrush-shaped hairs, tarsus movable to ventral side only. Chelicerae comparatively large to very large, segments elongated, pincer equipped with mainly diaphanous teeth and few coarse teeth, these predominantly in basal third. Glandular field on first cheliceral segment absent. Truncus penis simple and straight, filled for two thirds with a single muscle; muscular tendon short; base of truncus divided into two broad, root-like structures in line with truncus; truncus base partly opening to a wide cavity (*Hesperonemastoma*) but never exposing the muscle like in *Sabacon.* Glans penis simple and conical, without marked constriction towards truncus, mostly forming a uniformly sclerotised capsule set with uniform spines, tapering into the stylus. Stylus usually simple, relatively short, often bent to the side and sometimes with species-specific modifications (some elaborate, clasper-like mechanisms in *Taracus*). Ventral region moderately to strongly sclerotised. Coxae II with coxal apophyses; labium small. Frontal margin of opisthosoma with (*Taracus*) or without a median furrow. One prominent spine-like metapeltidial structures or none.

Crosbycus is here considered to belong to the Taracidae as it partly matches the given diagnosis, especially the similar structure of the penis and the presence of bottlebrush-shaped hairs on slender palps support this placement (Gruber 2007, Shear 1975). As character reduction in the minute *Crosbycus* is likely, its placement is tentative and should be verified by molecular evidence. *Tomicomerus bryantii*, here retained in its curent placement in the genus *Sabacon*, shows affinities to Taracidae as well, yet material for a comprehensive re-investigation is lacking.

Genus *Crosbycus* Roewer, 1914 (1 species)

Crosbycus Roewer, 1914: 168; type species *Nemastoma dasycnemum* Crosby, 1911 by monotypy.

Etymology. Gender masculine; in honour of C.R. Crosby, who described the type species.

dasycnemus (Crosby, 1911); loc. typ.: USA, Columbia State, Hinkson Creek. **Remarks.** The amphi-pacific populations of *Crosbycus dasycnemus* require investigation for specific distinction.
Nemastoma dasycnemum Crosby, 1911: 20.
Crosbycus dasycnemus—Roewer 1914: 168.

***Crosbycus* considered as invalid:** Gruber and Martens (1968) investigated most of the types of nominal *Crosbycus* species or revisited original literature, concluding that most of them belong to *Nemastoma* or other genera of Nemastomatidae, and thereby excluded *Crosbycus* from the European fauna. If discernible, names are assigned to distinct taxa in the Nemastomatidae. Non-assignable names are listed here. All three of these "species" were described by Roewer in 1951, one from Pentelikon and likely artificially assigned to this locality. This nominal species had not been considered for description before 1951, although Roewer claimed to have collected at this locality in 1927 and immediately described material from that expedition (see also Helversen & Martens 1972: *Ischyropsalis pentelica* Roewer 1950 is *I. carli*). Shear (2008: 67) assumed that the type locality of *Crosbycus goodnighti* is incorrect.

Crosbycus goodnighti Roewer, 1951: 151;—Gruber & Martens 1968: 138.
Crosbycus goodnightorum—Shear 2008: 67 (incorrect subsequent spelling).
Crosbycus pentelicus Roewer, 1951: 152;—Gruber & Martens 1968: 138.
Crosbycus speluncarum Roewer, 1951: 152;—Gruber & Martens 1968: 138.

Genus *Hesperonemastoma* Gruber, 1970 (5 species)

Hesperonemastoma Gruber, 1970: 129; type species *Nemastoma pallidimaculosa* Goodnight & Goodnight, 1945 by subsequent designation (Gruber 1970: 130).

Etymology. Gender neuter, from Greek "hesperos" (western) combined with "*Nemastoma*", referring to the Western distribution and the similarity to *Nemastoma*.

kepharti (Crosby & Bishop, 1924); loc. typ.: USA, North Carolina, Buncombe Co., Mt. Pisgah, South Hominy Creek.
Nemastoma kepharti Crosby & Bishop, 1924: 24.
Hesperonemastoma kepharti—Gruber 1970: 138.

modestum (Banks, 1894b); loc. typ.: USA, California and Washington (indifferent).
Nemastoma modesta Banks, 1894b: 52.
Nemastoma modestum—Roewer 1923: 677.
Hesperonemastoma modestum—Gruber 1970: 140.

packardi Roewer, 1914; loc. typ.: USA, Utah, E Lake Point, Clinton's Cave.
Nemastoma troglodytes Packard, 1877: 160.
Nemastoma packardi Roewer, 1914: 163 (replacement name).
Hesperonemastoma packardi—Gruber 1970: 142; Shear 2010b: 106.
Remarks. Roewer (1914: 163) applied the new name *packardi*, because he found that *Nemastoma troglodytes* is preoccupied by *Leiobunum troglodytes* Wankel, 1861, a species that Roewer also considered to belong in *Nemastoma*. While today these two would be placed in different genera, the replacement name is valid, being established before 1961 and in use (ICZN 59.3). Shear (2010b: 107) stated that *H. packardi* as redescribed by Gruber (1970) may represent a new species.

pallidimaculosum (Goodnight & Goodnight, 1945); loc. typ.: USA, Alabama, Marshall Co., S Oleander, Rock House Cave.
Nemastoma pallidimaculosa Goodnight & Goodnight, 1945: 241.
Hesperonemastoma pallidimaculosum—Gruber 1970: 134.

smilax Shear, 2010b: 107; loc. typ.: USA, West Virginia, Greenbrier Co., McClung's Cave.

Genus *Taracus* Simon, 1879b (8 species)

Taracus Simon, 1879b: 74; type species *Taracus packardi* Simon, 1879b by monotypy;—Roewer 1950: 52.

Remarks. Many species descriptions lack explicit type localities and are partly based on juvenile specimens. A revision is overdue and in progress (Shear pers. comm.).

Etymology. Gender masculine; from Greek "Tarakus", an Egyptian king (Gruber 2003).

birsteini Ljovuschkin, 1971: 127; loc. typ.: Far East Russia, southern Primorsky Krai, Belii Dvorets Cave. **Remarks.** A redescription was erroneously published under *Nipponopsalis coreana* (Chemeris 2000: 47).

gertschi Goodnight & Goodnight, 1942: 1; loc. typ.: USA, eastern Oregon.

malkini Goodnight & Goodnight, 1945: 242; loc. typ.: USA, California, Shasta Co., Lassen NP, Manzanita Lake.

nigripes Goodnight & Goodnight, 1943: 647; loc. typ.: USA, Colorado, Mineral Co., Wolf Creek Pass.

packardi Simon, 1879b: 74; loc. typ.: USA, Colorado.

pallipes Banks, 1894c: 161; loc. typ.: USA, Washington. **Remarks.** From 1914: 123 on Roewer states "Olympia" as type locality and added "Mt. Shasta" in 1923: 694, both likely errors. Banks (1894c: 161) mentioned only Washington State as locus typicus, while acknowledging T. Kincaid from Olympia to have sent him the material (Banks 1894c: 160). The label of the paratype in the Roewer collection (SMF RII/984) may not be reliable and should be checked against Banks' original label.

silvestrii Roewer, 1929: 10; loc. typ.: USA, Oregon, Josephine Co., Oregon Cave. **Remarks.** Frequently cited as 1930, the valid publication date is 06.Aug.1929.

spinosus Banks, 1894b; loc. typ.: USA, California. **Remarks.** Roewer (1914: 121) states "Southern California" without having seen material; probably an error.
Taracus spinosa Banks, 1894b: 51.
Taracus spinosus—Roewer 1914: 121.

Superfamily Troguloidea Sundevall, 1833

Trogulides Sundevall, 1833: 35 (defined as one of three families in Opiliones); type genus *Trogulus* Latreille, 1802 as inferable from the stem of the family name (ICZN 11.7.1.1).

Nemastomoidae—Thorell 1876: 466 (compr. *Anelasma*, *Dicranolasma*, *Ischyropsalis*, *Nemastoma*, *Trogulus*).

Troguloidea—Shear 1974: 67 (compr. Ischyropsalidae, Nemastomatidae, Trogulidae, Sabaconidae); Martens 1976: 64; 1978: 55, 186 (compr. Dicranolasmatidae, Nemastomatidae, Nipponopsalididae, Trogulidae).

Family Dicranolasmatidae Simon, 1879a

Dicranolasmatinae Simon, 1879a: 290 (compr. *Dicranolasma*, *Amopaum*); type genus *Dicranolasma* Sørensen, 1873 as inferable from the stem of the family name (ICZN 11.7.1.1);—Šilhavý, 1967: 176 (compr. *Dicranolasma*, genera of the Ortholasmatinae established later).

Dicranolasmidae—Pocock 1902: 509 (contains only *Dicranolasma*); Gruber 1974b: 34.

Dicranolasmatidae—Gruber 1974b: 36.

Genus *Dicranolasma* Sørensen, 1873 (16 species)

Dicranolasma Sørensen, 1873: 516; type species *Opilio scaber* Herbst, 1799 by subsequent designation (Martens 1978: 152);—Gruber 1974b: 34.

Amopaum Sørensen, 1873: 517; type species *Amopaum spinipalpe* Sørensen, 1873 by monotypy;—syn. Dahl 1903: 282.

Dicranalasma—Goodnight & Goodnight 1944: 3 (misspelling).

Remarks. Sørensen (1873: 516) assigned *scabrum* as type species for *Dicranolasma*, while he used a specimen of *opilionoides* for the morphological delineation of his genus. Thorell recognised additional species, also *D. opilionoides*, but confirmed the type species as *scabrum* (1876: 467). Later, Šilhavý (1956a) cited *opilionoides* as type, but without reference to ICZN 70.3.2 or further explanation, not qualifying this act as correcting the type species to the species used for the genus definition (ICZN 70.3). Martens (1978: 152; in reference to J. Gruber) suggested to use the original species *scabrum* sensu Herbst (1799) as type, which is in agreement with ICZN 70.3.1., and should be followed. Martens (1978) stabilised the situation further by redefining *scabrum*, giving a thorough description and specifying its type locality.

Etymology. Gender neuter; Greek from „di" (two) "kranion" (head) and "elasma" (plate), referring to the bifurcate head cap carrying the eyes and appearing like a split head.

apuanum Marcellino, 1971: 368; loc. typ.: Italy, Alpi Apuane, Pizzo Baldozzana.

cretaeum Gruber, 1998: 524; loc. typ.: Greece, Crete, Nomos Rethímnis, Perama.

cristatum Thorell, 1876; Italy, Florence.
Dicranolasma cristatum Thorell, 1876: 506;—Martens 1978: 160 (redescr.).

giljarovi Šilhavý, 1966b: 153; loc. typ.: Russia, Krasnodar, Krasnaja Poljana.

hirtum Loman, 1894: loc. typ.: Sumatra (erroneous; see Remarks).
Dicranolasma hirtum Loman, 1894: 156;—Chemini 1995: 4.
Dicranolasma diomedeum Kulczyński, 1907: 583; **syn. n.** by J. Gruber (see Remarks).
Dicranolasma napoli Goodnight & Goodnight, 1944: 3;—syn. Brignoli 1968: 288 (with *diomedeum*).
Dicranolasma diomedaeum—Brignoli 1968: 285 (misspelling).

Remarks. According to J. Gruber (pers. comm.) *D. diomedeum* has to be considered as a junior synonym of *D. hirtum*, and this nomenclatural act is here attributed to him. While the type locality of *D. hirtum* (Sumatra) is obviously an error, Gruber suggested considering "Southern Italy" as the real type locality. A narrower definition is proposed here, using the type locality of *D. diomedeum* (Italy, Tremiti Islands, S. Domino) for *D. hirtum*. Chemini (1995: 4) probably learned from Gruber about the synonymy and listed only *D. hirtum*.

hoberlandti Šilhavý, 1956b: 32; loc. typ.: Turkey, East Taurus, Suluhan.

kurdistanum Staręga, 1970: 475; loc. typ.: Iraq, Kurdistan, Erbil, Salahaddin.

mladeni Karaman, 1990: 144; loc. typ.: Montenegro, Manastir Morača.

opilionoides (L. Koch, 1867); loc. typ.: Greece, Corfu.
Trogulus opilionoides L. Koch, 1867: 883.
Amopaum spinipalpe Sørensen, 1873: 518;—syn. Dahl 1903: 291.
Dicranolasma kettyi Marcellino, 1968: 122;—syn. Gruber 1998: 535.
Dicranolasma kettyae—Staręga 1970: 276 (misspelling).

pauper Dahl, 1903; loc. typ.: Italy, NW of Lake Garda.
Dicranolasma pauper Dahl, 1903: 290;—Martens 1978: 161 (redescr.).

ponticum Gruber, 1998: 513; loc. typ.: Turkey, Vilayet Ordu, ca. 5 km NE Ulubey.

ressli Gruber, 1998: 507; loc. typ.: Turkey, Vilayet Konya, Sultandağ W Akşehir.

scabrum (Herbst, 1799); loc. typ.: Hungary. **Remarks.** Martens (1978: 156) redefined the type locality to be Romania, Sibiu, which was within the borders of Hungary in 1799.
Opilio scaber Herbst, 1799: 15.
Dicranolasma scabrum—Sørensen 1873: 516; Martens 1978: 153 (redescr.).
Dicranolasma schmidti Hadži, 1928: 11;—syn. Martens 1978: 153. **Remarks.** Martens (1978) stated to have received information from J. Gruber that led to this synonymisation.

soerensenii Thorell, 1876; loc. typ.: France, Nice. **Remarks.** Changing the original spelling "*soerensenii*" is prohibited (ICZN 33.4).
Dicranolasma soerensenii Thorell, 1876: 505.
Dicranolasma latifrons Simon, 1879a: 295;—syn. Martens 1978: 157.
Dicranolasma wiehlei Kraus, 1959: 295;—syn. Martens 1978: 157. **Remarks.** Martens (1978) stated to have received information from J. Gruber that led to this synonymisation.
Dicranolasma soerenseni—Marcellino 1980: 325 and most subsequent authors (incorrect subsequent spelling).

thracium Staręga, 1976; loc. typ.: Bulgaria, Isval near Čirpan.
Dicranolasma thracium Staręga, 1976: 308—Gruber 1998: 498. **Remarks.** Staręga (1976) stated *D. thracium* to be a nomen nudum and to be formally described by Gruber, but provided characters qualifying a description. Gruber (1980) later accepted Staręga as author (ICZN 50), designated a lectotype and depicted more typical penes of the species.

verhoeffi Dahl, 1903: 291; loc. typ.: not specified by Dahl (1903). Gruber (in Moritz 1971: 213) designated a lectotype from Southern Herzegovina, thereby fixing the type locality.

Family Nemastomatidae Simon, 1872a

Nemastomidae Simon, 1872a: 226 (compr. *Nemastoma*, *Ischyropsalis*); type genus *Nemastoma* C.L. Koch, 1836b as inferable from the stem of the family name (ICZN 11.7.1.1).
Nemastomatidae Simon, 1879a: 277 (*Nemastoma*).

Remarks. Later definitions of Nemastomatidae mostly added the many subsequently described genera, but did not feature substantial transfers between families. These changes in the composition of the family are not further listed, except for the following: described earlier, members of today's Ortholasmatinae were placed in Trogulidae (Banks 1894a: 11) and transferred to Nemastomatidae by Martens (1969: 185).

Subfamily Ortholasmatinae Shear & Gruber, 1983

Ortholasmatinae Shear & Gruber, 1983: 13; type genus *Ortholasma* Banks, 1894a by original designation;—Shear 2006: 192; Shear 2010a: 15.

Remarks. Gruber (1976) suggested organising Nemastomatidae in only two subfamilies which Martens (1978) followed, giving a new definition of Kratochvíl's (1958) Nemastomatinae. Martens (1978) stated Ortholasmatinae to be officially described by Gruber, who effected this in 1983 together with Shear. Shear and Gruber (1983) considered the names ending in "-lasma" as derived from *Dicranolasma*, therefore neuter, and changed endings of species names accordingly.

The Ortholasmatinae were partly revised by Shear (2010a), who expected more undiscovered species to occur in Central America and Asia, some of them presently studied.

Genus *Cladolasma* Suzuki, 1963 (2 species)

Cladolasma Suzuki, 1963: 40; Shear 2010a: 17; type species *Cladolasma parvula* Suzuki, 1963 by monotypy and original designation.

Remarks. Suzuki (1974b) synonymised *Cladolasma* with *Dendrolasma* when he was able to compare adult specimens of both genera. Revising the Ortholasmatinae, Shear (2010a) re-established *Cladolasma* for the Asian species.

Etymology. Gender neuter; Greek from "klados" (branch), referring to the multi-branched hood, and "elasma" (plate), both in reference to *Dendrolasma*.

angka (Schwendinger & Gruber, 1992); loc. typ.: Thailand, Chiang Mai Province, Doi Inthanon National Park.
Dendrolasma angka Schwendinger & Gruber, 1992: 57.
Cladolasma angka—Shear 2010a: 17.

parvulum Suzuki, 1963; loc. typ.: Japan, Shikoku, Ehime, Mt. Ishizuchi.
Cladolasma parvula Suzuki, 1963: 41.
Dendrolasma parvula—Suzuki 1974b: 122.
Dendrolasma parvulum—Shear & Gruber, 1983: 60.
Cladolasma parvulum—Shear 2010a: 17.

Genus *Dendrolasma* Banks, 1894a (2 species)

Dendrolasma Banks, 1894a: 12; type species *Dendrolasma mirabilis* Banks, 1894a by monotypy.

Etymology. Gender neuter; from Greek "dendron" (tree), referring to the multi-branched hood, and "elasma" (plate).

mirabile Banks, 1894a; loc. typ.: USA, Washington, Olympia.
Dendrolasma mirabilis Banks, 1894a: 12.
Dendrolasma mirabile—Martens 1978: 38; Shear & Gruber 1983: 51 (redescr.).

dentipalpe Shear & Gruber, 1983: 58; loc. typ.: USA, California, Humboldt Co., Carlotta.

Genus *Martensolasma* Shear, 2006 (1 species)

Martensolasma Shear, 2006: 192; type species *Martensolasma jocheni* Shear, 2006 by monotypy and original designation.

Etymology. Gender neuter; formed from “Martens” (German opilionologist) and „elasma“.

jocheni Shear, 2006: 193; typ. loc.: Mexico, Aguascalientes, Ciudad Aguascalientes.

Genus *Ortholasma* Banks, 1894a (5 species)

Ortholasma Banks, 1894a: 11; type species *Ortholasma rugosa* Banks, 1894a by monotypy.

Etymology. Gender neuter; combination of Greek “orthos” (straight), referring to the hood pointing horizontally, and “elasma” (plate).

colossus Shear, 2010a: 19; loc. typ.: USA, California, Tulare Co., Sequoia National Park, Bear Den Cave.

coronadense Cockerell, 1916; loc. typ.: USA, California, Coronado Islands, South Island.
Ortholasma coronadense Cockerell, 1916: 158.
Ortholasma coronadensis—Roewer 1923: 649.
Ortholasma setulipes Shear & Gruber, 1983: 38;—syn. Shear & Gruber 1987: 135.

levipes Shear & Gruber, 1983: 31; loc. typ.: USA, California, San Luis Obispo Co., Los Padres National Forest, La Panza, Navajo Camp.

pictipes Banks, 1911; loc. typ.: USA, California, Humboldt Co. (Humboldt Co. specified by Shear & Gruber 1983: 25 (redescr.)).
Ortholasma pictipes Banks, 1911: 417;—Shear & Gruber 1983: 25 (redescr.).

rugosum Banks, 1894a; loc. typ.: USA, Central California. **Remarks.** Shear and Gruber (1983: 15) restricted the type locality of *rugosum* to Central California. However, the type locality may be further specified, as they reported the syntype series of *rugosum* to include specimens of *levipes*, both known to co-occur in Sonoma County, only.
Ortholasma rugosa Banks, 1894a: 12; Roewer 1923: 648.
Ortholasma rugosum—Shear & Gruber 1983: 15 (redescr.).

Genus *Trilasma* Goodnight & Goodnight, 1942 (9 species)

Trilasma Goodnight & Goodnight, 1942: 7; type species *Trilasma bolivari* Goodnight & Goodnight, 1942 by monotypy and original designation;—Shear 2010a: 11.
Ruaxphilos Goodnight & Goodnight, 1945: 249; type species *Ruaxphilos petrunkevitchou* Goodnight & Goodnight, 1945 by monotypy and original designation;—syn. Gruber 1978: 106.

Remarks. Shear and Gruber (1983: 42) stated that they synonymised *Ruaxphilos*, effected earlier by Gruber (1978: 106), who tentatively assigned *Ruaxphilos petrunkevitchou* to *Ortholasma bolivari*.

Etymology. Gender neuter; combination of Greek “tria” (three) and „elasma“ (plate), referring to the three linear hood elements.

bolivari Goodnight & Goodnight, 1942; loc. typ.: Mexico, Puebla, Rio Friu.
Trilasma bolivari Goodnight & Goodnight, 1942: 7;—Shear 2010a: 38.
Ortholasma bolivari—Shear & Gruber 1983: 42 (redescr.).

Ruaxphilos petrunkevitchou Goodnight & Goodnight, 1945: 250;—syn. Gruber 1978: 106; Shear 2010a: 26. **Remarks.** Shear (2010a: 26) questioned the assignment of *petrunkevitchou* to *bolivari* because the localities seem very distant from each other.

chipinquensis Shear, 2010a: 37; loc. typ.: Mexico, Nuevo Léon, Monterrey, Chipinque Mesa.

hidalgo Shear, 2010a: 39; loc. typ.: Mexico, Hidalgo, Pachuco, El Chico.

petersprousei Shear, 2010a: 35; loc. typ.: Mexico, San Luis Potosí, S Aquismón, Hoya de las Guaguas.

ranchonuevo Shear, 2010a: 27; loc. typ.: Mexico, Tamaulipas, Rancho Nuevo.

sbordonii Šilhavý, 1973: 191; loc. typ.: Mexico, Tamaulipas, Gomez Farias, Cueva de la Perra. **Remarks.** *Trilasma sbordoni* differs in many respects from other *Trilasma* and also *Ortholasma*, as e.g. in exhibiting long, blade-like spines on a penial glans that seems inflated in comparison to the truncus (Šilhavý, 1973). Further investigation is recommended if *sbordonii* is to be treated as an independent lineage.

tempestado Shear, 2010a: 32; loc. typ.: Mexico, Nuevo Léon, S San Josecito, Cueva de Polvo Tempestado.

trispinosum Shear, 2010a: 29; loc. typ.: Mexico, Veracruz, Puerto del Aire.

tropicum Shear, 2010a: 41; loc. typ.: Honduras, “Las Ventas”. **Remarks.** Shear (2010a) could not locate Las Ventas in Honduras and advised to treat the geographical information with care.

Subfamily Nemastomatinae Simon, 1872a

Nemastomidae Simon, 1872a: 226; see Nemastomidae.

Nemastomatinae—Kratochvíl 1958: 530; type genus *Nemastoma* by subsequent designation (see Remarks); Gruber 1976: 800; Martens 1978: 93 (see Nemastomatidae).

Giljaroviinae Kratochvíl, 1958: 530; type species *Giljarovia rossica* Kratochvíl, 1958 by original designation;—syn. Gruber 1976: 800.

Mitostominae Kratochvíl, 1958: 530; type species *Phalangium chrysomelas* Hermann, 1804 by original designation;—syn. Gruber 1976: 800.

Remarks. The genus *Nemastoma* was redefined to contain only a small set of mainly Central European species (Gruber & Martens 1968), but up to now many other species of Nemastomatidae resided in their original placement as *Nemastoma*. Species are here pragmatically removed from *Nemastoma* sensu Gruber and Martens and assigned to other genera, while it is acknowledged that other authors were more careful in transferring species from *Nemastoma* to other genera (e.g. to *Nemastomella*; Prieto 2004).

Kratochvíl (1958) investigated many of the species known in his days and established a widely accepted taxonomy. He unfortunately only provided species counts for his genera and rarely listed species names. Generic assignment is only attributed to Kratochvíl when clearly perceivable.

Genus *Acromitostoma* Roewer, 1951 (2 species)

Acromitostoma Roewer, 1951: 150; type species *Acromitostoma rhinoceros* Roewer, 1951 by monotypy and original designation;—Kratochvíl 1958: 530; Gruber 1976: 799; Rambla 1983: 22.

Carinostoma (*Hispanostoma*) Kratochvíl, 1958: 530; type species *Carinostoma (Hispanostoma) hispanum* Roewer, 1917 by monotypy;—syn. Gruber 1976: 799; Rambla 1983: 22.

Etymology. Gender neuter; combination of the Greek “akros” (pointed), referring to the long, spine-like tubercle on the eye mound of the type species, combined with the genus name „mitostoma“.

hispanum (Roewer, 1917); loc. typ.: Spain, vicinity of Granada.

Nemastoma hispanum Roewer, 1917: 156.
Carinostoma (*Hispanostoma*) *hispanum*—Kratochvíl 1958: 530.
Acromitostoma hispanum—Gruber 1976: 799; Rambla 1983: 22, 24 (redescr.).

Remarks. Gruber (1976: 799) synonymised *Carinostoma* (*Hispanostoma*) with *Acromitostoma* while Rambla (1983: 22) assumed he did not, yet she reconfirmed the synonymy.

rhinoceros (Roewer, 1917); loc. typ.: Spain, near Malaga.

Nemastoma rhinoceros Roewer, 1917: 157.
Acromitostoma rhinoceros—Roewer 1951: 150; Kratochvíl 1958: 530; Gruber 1976: 799.
Acromitostoma rhinocerus—Rambla 1983: 21 (misspelling, redescr.).

Genus *Carinostoma* Kratochvíl, 1958 (3 species)

Mitostoma (*Carinostoma*) Kratochvíl, 1958: 530; type species *Nemastoma carinatum* Roewer, 1914 by original designation.
Carinostoma—Staręga 1976: 342; Martens 1978: 135.

Etymology. Gender neuter; combination of the Latin "carina" (keel), referring to the keels formed by anvil-shaped tubercles, and „stoma", in reference to *Nemastoma*.

carinatum (Roewer, 1914); loc. typ.: Herzegovina, Jablanica.

Nemastoma carinatum Roewer, 1914: 165.
Mitostoma (*Carinostoma*) *carinatum*—Kratochvíl 1958: 530; Hadži 1973b: 14.
Carinostoma carinatum—Martens 1978: 135.

elegans (Sørensen, 1894); loc. typ.: Hungary (not further specified).

Nemastoma elegans Sørensen in Lendl, 1894: 29
Nemastoma elegans var. *batorligetiense* Szalay, 1952: 308;—syn. Martens 1978: 137.
Mitostoma (*Carinostoma*) *elegans*—Kratochvíl 1958: 572.
Carinostoma elegans—Martens 1978: 137.
Carinostoma elegans batorligetiense—Loksa 1991: 685.

Remarks. Loksa (1991: 685) re-established *batorligetiense* as a subspecies, which is not followed here as the outlined characters should be considered as variants.

ornatum (Hadži, 1940); loc typ.: S Serbia (now Kosovo), Šar-Mountains, Kačanik.

Nemastoma ornatum Hadži, 1940: 8.
Mitostoma (*Mitostoma*) *ornatum*—Hadži 1973b: 14.
Carinostoma ornatum—Staręga 1976: 342.

Remarks. When defining *Carinostoma*, Kratochvíl (1958) listed only *carinatum* and *elegans*. One can assume that he also included *Nemastoma ornatum* in *Carinostoma* as he mentioned three species in this well-defined group. Staręga (1976) formally placed *ornatum* in *Carinostoma*.

Genus *Caucnemastoma* Martens, 2006 (2 species)

Caucnemastoma Martens, 2006: 180; type species *Caucnemastoma golovatchi* Martens, 2006 by monotypy and original designation.

Etymology. Gender neuter; abbreviation of "Caucasus", referring to the geographic origin, combined with "Nemastoma".

golovatchi Martens, 2006: 180; loc. typ.: Russia, Krasnodar Prov., pasture Abago near Guzeripl.

martensi Snegovaya, 2011 (in Snegovaya & Chumachenko 2011: 118); loc. typ.: Russia, Sochi, N Khosta, Caucasian State Natural Biospheric Reserve, yew and box-tree grove.

Genus *Centetostoma* Kratochvíl, 1958 (4 species)

Centetostoma (*Centetostoma*) Kratochvíl, 1958: 530; type species *Nemastoma centetes* Simon, 1881b by monotypy and original designation;—Martens 1978: 139; 2011: 38.

Remarks. Without providing species names, Martens (1978: 140) included *Nemastoma* of the *bacilliferum* group discussed by Dresco (1967b) and Rambla (1968) within *Centetostoma*. Staręga (1986: 303) assigned the older available name *Nemastomella* to this assembly, gave a full list of species (1986: 304) but mentioned *centetes* as relatively isolated. Prieto (2004: 108) resolved this heterogeneity by restoring *Centetostoma* for *centetes* and Martens (2011: 38) finally redefined *Centetostoma*, including *centetes* and three species previously in *Nemastoma*.

Etymology. Gender neuter; combination of probably Greek "kentetes" (piercer), repeating and referencing the type species' name (having rows of long, spine-like cones on the dorsal side) and „stoma", in reference to Nemastoma.

centetes (Simon, 1881b); loc. typ.: France, Dép. Alpes-Maritimes, St. Martin Lantosque.
Nemastoma centetes Simon, 1881b: 89;—Roewer 1923: 674.
Centetostoma centetes—Kratochvíl 1958: 530; Martens 1978: 140 (redescr.); 2011: 38; Prieto 2004: 108.
Mitostoma centetes—Marcellino 1975: 124.
Nemastomella centetes—Staręga 1986: 304.

juberthiei Martens, 2011: 47; loc. typ.: France, Dép. Pyrénées-Orientales, SW Quillan, Lac des Bouillouses.

scabriculum (Simon, 1879a); loc. typ.: France, Dép. Hautes-Pyrenées, Saint-Sauveur.
Nemastoma scabriculum Simon, 1879a: 284;—Rambla 1980: 198.
Centetostoma scabriculum—Martens 2011: 39 (redescr.).

ventalloi (Mello-Leitao, 1936); loc. typ.: Spain, Lleida Prov., Val d'Aran.
Nemastoma ventalloi Mello-Leitao, 1936: 9.
Centetostoma ventalloi—Martens 2011: 41 (redescr.).

Genus *Giljarovia* Kratochvíl, 1958 (10 species)

Giljarovia Kratochvíl, 1958: 530; type species *Giljarovia rossica* Kratochvíl, 1958 by monotypy;—Kratochvíl 1959: 1348; Gruber 1976: 797; Martens 2006: 151.
Malekia Kratochvíl, 1958: 530; type species *Malekia stridula* Kratochvíl, 1958 by monotypy;—syn. Gruber 1976: 797.

Remarks. Kratochvíl (1958) introduced and briefly defined *Giljarovia* and *Malekia* as new genera in 1958, but gave full descriptions in 1959, which was erroneously cited as the year of description by Martens (2006). Kratochvíl (1958) summarised both genera as Giljaroviinae on the basis of their unique stridulatory mechanism. Gruber (1976) rejected the subfamily and synonymised *Malekia* with *Giljarovia*, by claiming that stridulatory organs are not relevant at genus level.

Etymology. Gender feminine, as inferred from the feminine ending of species described together with the genus; in honour of the Russian arachnologist M.S. Giljarov.

kratochvili Snegovaya, 2011 (in Snegovaya & Chumachenko 2011: 119); loc. typ.: Russia, Sochi, N Khosta, Caucasian State Natural Biospheric Reserve, yew and box-tree grove.

redikorzevi (Charitonov, 1946); loc. typ.: Georgia, Sataplia Cave near Kutaissi.
Nemastoma redikorzevi Charitonov, 1946: 145;—Roewer 1951: 125.
Malekia redikorzevi—Staręga 1978: 201.
Giljarovia redikorzevi—Martens 2006: 165 (redescr.).

rossica Kratochvíl, 1958; loc. typ.: Russia, Krasnodar Prov., Kotch Mt. near Gorjacij Kljuc; *Giljarovia rossica* Kratochvíl, 1958: 530;—Kratochvíl 1959: 1344; Martens 2006: 167 (redescr.).

stridula (Kratochvíl, 1958); loc. typ.: Russia, Krasnodar Prov., Krasnaja Poljana.
Malekia stridula Kratochvíl, 1958: 530;—Kratochvíl 1959: 1348.
Giljarovia stridula—Gruber 1976: 798; Martens 2006: 151 (redescr.).

tenebricosa (Redikortsev, 1936); loc. typ.: Russia, Suchumi Distr., upper Tsebelda Valley.
Nemastoma tenebricosum Redikortsev, 1936: 34;—Staręga 1978, 204.
Giljarovia tenebricosa—Martens 2006: 152 (redescr.). **Remarks.** Martens (2006: 155) proposed an isolated position within the genus as this species is missing a stridulatory apparatus.

thoracocornuta Martens, 2006: 167; loc. typ.: Russia, Daghestan, upper Gunib.

triangula Martens, 2006: 156; loc. typ.: Georgia, Caucasus Major, Kazbegi.

trianguloides Martens, 2006: 159; loc. typ.: Russia, Krasnodar Prov., Caucasian State Reserve, Pslukh, ca. 20 km E of Krasnaya Polyana.

turcica Gruber, 1976: 782; loc. typ.: Turkey, Vilayet Amasya, S Amasya.

vestita Martens, 2006: 161; loc. typ.: Russia, Krasnodar Prov., Caucasian State Reserve, Pslukh, ca. 20 km E of Krasnaya Polyana, Mt. Kogot.

Genus *Hadzinia* Šilhavý, 1966a (1 species)

Hadzinia Šilhavý, 1966a: 71; type species *Nemastoma karamani* Hadži, 1940 by monotypy and original designation.

Remarks. Novak (2005: 313) erroneously gave Roewer as describing author.

Etymology. Gender feminine (not specified, inferred from ending; ICZN 30.2.4). In honour of the Yugoslavian zoologist J. Hadži, who described the type species.

karamani (Hadži, 1940); loc. typ.: SW Bosnia, Drvar, cave Resanovačka špilja Ledenica (clarification by Novak 2005: 313).
Nemastoma karamani Hadži, 1940: 2.
Buresiolla karamani—Kratochvíl 1958: 532.
Hadzinia karamani—Šilhavý 1966a: 71; Novak 2005: 313.
Hadzinia caramani—Šilhavý 1966a: 71 (misspelling).

Genus *Histricostoma* Kratochvíl, 1958 (8 species)

Histricostoma (*Histricostoma*) Kratochvíl, 1958: 529; type species *Histricostoma drenskii* Kratochvíl, 1958 by original designation.
Centetostoma (*Cretostoma*) Kratochvíl, 1958: 530; type species *Cretostoma creticum* Roewer, 1927 by monotypy and original designation;—syn. Martens 1978: 129.
Histricostoma—Gruber 1976: 799.

Remarks. Gruber (1976) rejected Kratochvíl's subgenera and restricted *Histricostoma* to include *argenteolunulatum*, *dentipalpe* and *drenskii*. By including *creticum*, Martens (1978) synonymised the monotypic *Cretostoma* (see *creticum*).

Etymology. Neuter; probably derived from Latin "histrio" (actor) combined with „stoma" in reference to *Nemastoma*. Maybe derived from "hystrix" (porcupine). The origin of this name remains uncertain.

anatolicum (Roewer, 1962); loc. typ.: Turkey, Western Taurus, two caves 20 km NW Dag (the small one referred to as "piccola", the large one as "In Dag", Turkish for "Dag Cave"). Dag is on the road from Antalya to Isparta, at the border of both provinces. **Remarks.** Brignoli reported details about the type locality to Gruber, who made the information available for this catalogue.

Nemastoma anatolicum Roewer, 1962: 15.

Histricostoma anatolicum **comb. n.:** The syntype series (SMF 13903) comprises females and juveniles only. Females are very characteristic in exhibiting transverse rows of anvil-shaped tubercles and pairs of very long spines which terminate into one or two smaller spines. According to Gruber (pers. comm.) the leg microsculpture is similar to that of *H. creticum* and the presence of similar *Histricostoma* from Anatolia is confirmed. Until males are available, a tentative placement in *Histricostoma* is advised. Staręga (1973: 132) mentioning *anatolicum* close to *Mediostoma cypricum*, which should be considered when revising these species.

argenteolunulatum (Canestrini, 1875); loc. typ.: Italy, Calabria.
Nemastoma dentipalpe var. *argenteo-lunulata* Canestrini, 1875: 4.
Nemastoma argenteolunulatum—Roewer 1923: 668.
Carinostoma argenteolunulatum—Šilhavý 1969: 496.
Histricostoma argenteolunulatum—Gruber 1976: 799.

caucasicum (Redikortsev, 1936); loc. typ.: Georgia, Adsharia, Suchumi Distr., Ažary and Lata.
Nemastoma caucasicum Redikortsev, 1936: 54.
Histricostoma (*Histricostoma*) *caucasicum*—Staręga 1966a: 394.
Histricostoma caucasicum—Staręga 1978: 201; Martens 2006: 192 (redescr).

creticum (Roewer, 1927); loc. typ.: Greece, Crete, Topolia.
Nemastoma creticum Roewer, 1927: 454;—Gruber 1963: 310.
Mitostoma creticum—Roewer 1951: 148; Martens 1966: 350 (redescr.).
Centetostoma (*Cretostoma*) *creticum*—Kratochvíl 1958: 530.
Histricostoma creticum—Martens 1978: 129; Gruber 1978: 569.

dentipalpe (Ausserer, 1867); loc. typ.: Austria, Innsbruck, Stubai-Valley, locality Husslhof.
Nemastoma dentipalpe Ausserer, 1867: 168.
Carinostoma dentipalpe—Šilhavý 1969: 496.
Nemastoma (*Lugubrostoma*) *dentipalpe*—Kratochvíl 1958: 539.
Histricostoma slovenicum Hadži, 1973a: 49;—syn. Martens 1978: 130.
Histricostoma dentipalpe—Gruber 1976: 799.

drenskii Kratochvíl, 1958: 570; loc. typ.: Bulgaria, Rhodope Mountains, Chvojna, locality "Peštera".

gruberi Snegovaya & Marusik, 2012: 62; loc. typ.: Turkey, Aydın, Kuşadası, Dilek Peninsula, Büyük Menderes Delta National Park.

mitovi Snegovaya & Marusik, 2012: 61; loc. typ.: Turkey, Bursa, İnegöl, Great Oylat Cave.

Genus *Mediostoma* Kratochvíl, 1958 (11 species)

Histricostoma (*Basostoma*) Kratochvíl, 1958: 529; type species *Nemastoma topolium* Roewer, 1951 by original designation;—syn. Gruber 1976: 799.
Histricostoma (*Mediostoma*) Kratochvíl, 1958: 529; type species *Nemastoma graecum* Roewer, 1917 by original designation (see *humerale*).
Mediostoma—Gruber 1976: 799.

Etymology. Gender neuter; Latin "medius" (in the middle) combined with „stoma“, in reference to *Nemastoma*. The name probably refers to the position of pseudoarticulations in the middle of the leg femora. In the original composition of subgenera in *Histricostoma* (Kratochvíl 1958) it was compared to the basal-positioned pseudoarticulations in *Basostoma*.

armatum Martens, 2006: 189; loc. typ.: Iran, Mazandaran, S Alamdeh.

ceratocephalum Gruber, 1976: 790. loc. typ.: Turkey, S Anatolia, Vilayet Içel, 10 km NE Silifke. **Remarks.** Gruber (1976: 794) discussed a placement of *ceratocephalum* in either *Giljarovia* or *Mediostoma* and decided for a tentative placement in the latter. Males of *ceratocephalum* are unavailable to confirm other generic characters.

cypricum (Roewer, 1951) loc. typ.: Cyprus (not further specified).
Nemastoma cypricum Roewer, 1951: 136.
Histricostoma (*Mediostoma*) *cypricum*—Kratochvíl 1958: 569.
Mediostoma cypricum—Gruber 1976: 799; Martens 2006: 184.

globuliferum (L. Koch, 1867); loc. typ.: Greece, Syros (=Syra).
Nemastoma globuliferum L. Koch, 1867: 893—Roewer 1923: 656.
Mediostoma globuliferum **comb. n.:** According to existing descriptions (L. Koch 1867: 893, Roewer 1923: 656) and the geographic origin of the type, this is most likely a *Mediostoma* species. The type seems lost (Roewer 1923: 656). Roewer's re-description is based on material from Naxos. It is here tentatively transferred to *Mediostoma* to exclude it from *Nemastoma* where it certainly does not belong. A revision is necessary.

haasi (Roewer, 1953a); loc. typ.: Israel, Jerusalem.
Mitostoma haasi Roewer, 1953a: 209.
Nemastoma haasi—Staręga 1973: 132.
Mediostoma haasi—Gruber 1976: 799; Martens 2006: 184.

humerale (C.L. Koch, 1839b); loc. typ.: Greece, Nauplia.
Nemastoma humerale C.L. Koch, 1839b: 38;—C.L. Koch 1847: 66.
Nemastoma quadripunctatum humerale—Roewer 1914: 148.
Nemastoma graecum Roewer, 1917: 152;—syn. Gruber 1976: 799.
Histricostoma (*Mediostoma*) *graecum*—Kratochvíl 1958: 529
Mediostoma humerale—Gruber 1976: 799; Mitov 2002: 1640.

nigrum Martens, 2006: 190; loc. typ.: Iran, Gilan Prov., seaside of Talysch Mountains.

pamiricum Staręga, 1986; loc. typ.: Tajikistan, West-Pamir, Vanč River Valley.
Centetostoma pamiricum—Staręga 1978: 200 (as nomen nudum).
Mediostoma pamiricum Staręga, 1986: 301.
Remarks. Staręga (1978: 200) mentioned the species name without giving a description) and tentatively placed it in *Centetostoma*. The intended description (cited as "Staręga 1979" in Staręga 1978) was postponed until 1986, objecting to the previous generic placement, as only a female was available. Snegovaya (2010: 353)

had no females to compare *pamiricum* with *Starengovia* which both occur in geographic proximity in an area with no other known members of the family.

stussineri (Simon, 1885a); loc. typ.: Greece, Ossa Mountains, Kokkino Vracho Cave.
Nemastoma stussineri Simon, 1885a: 217.
Histricostoma (*Mediostoma*) *stussineri*—Kratochvíl 1958: 569.
Mediostoma stussineri—Gruber 1976: 799; Mitov 2002: 1639.
Remarks. *M. stussineri* is the largest species within *Mediostoma*, matching body size of the related genus *Pyza* and also showing some genital-morphological affinities (Gruber 1979, Mitov 2002). Its relationships should be reinvestigated.

variabile Martens, 2006: 185; loc. typ.: Iran, Azerbaijan, Makidi near Kaleybar.

vitynae (Roewer, 1927); loc. typ.: Greece, Crete, Topolia Canyon.
Nemastoma vitynae Roewer, 1927: 455.
Mitostoma omalosum Roewer, 1951: 146;—syn. Martens 1966: 350.
Nemastoma topolium Roewer, 1951: 135;—syn. Gruber 1976: 799.
Mediostoma vitynae—Gruber 1976: 799.
Remarks. Gruber (1976) stated that two of the three species of *Basostoma*, *topolium* and *vitynae* (excluding *funebre*), are synonymous, and referred to Martens (1966). Martens listed only *vitynae* and Gruber probably referred to his description, thus synonymy of *topolium* with *vitynae* has to be attributed to Gruber. The type localities of *topolium* (Crete) and *vitynae* (Peleponnes) are geographically isolated and warrant reinvestigation.

Genus *Mitostoma* Roewer, 1951 (17 species, 3 subspecies)

Mitostoma Roewer, 1951: 140; type species *Phalangium chrysomelas* Hermann, 1804 by original designation;—Tedeschi & Sciaky 1997: 504.
Mitostoma (*Mitostoma*)—Kratochvíl 1958: 530.

Remarks. *Mitostoma* stands out of the bulk of Nemastomatidae in exhibiting a very complex, three-dimensionally structured penial glans. Molecular data (Schönhofer & Martens 2010a) corroborated a placement of *Mitostoma* in a basal and isolated position to the rest of the Palearctic Nemastomatinae. However, Kratochvíl's (1958) Mitostomatinae have not been accepted (Gruber 1976: 800), as his definition included unrelated genera.

Martens (1978) synonymised many of Hadži's (1973b) late nominal species. However, several species from the Central Balkan, rarely mentioned subsequently, appear to be valid (I. Karaman, pers. comm.) and are here treated as such. Types of Hadži are mainly lost or in bad shape (T. Novak, pers. comm.), so collecting at the type localities is necessary to redefine these species.

Etymology. Gender neuter; from Greek „mitos“ (thread) and „stoma“ (mouth) referring to the slender, glistening pedipalps, with regards to the etymology of *Nemastoma*.

alpinum (Hadži, 1931); loc. typ.: Slovenia, Triglav Massiv.
Nemastoma chrysomelas alpinum Hadži, 1931: 109.
Mitostoma chrysomelas multidenticulatum Hadži, 1973a: 54;—syn. Martens 1978: 147.
Mitostoma chrysomelas michielii Hadži, 1973a: 55;—syn. Martens 1978: 147.
Mitostoma alpinum—Martens 1978: 147.

anophthalmum (Fage, 1946); loc. typ.: Italy, Bergamo, Grotta grande della Cava di Burligo.
Nemastoma anophthalmum Fage, 1946: 328.
Buresiolla anophthalmum—Kratochvíl 1958: 533.
Mitostoma anophthalmum—Martens 1978: 149; Tedeschi & Sciaky 1997: 507.
Remarks. From the complex penis of this otherwise character-poor troglobiont, Fage (1946: 328) already inferred a closer relationship to *chrysomelas*, which later became the type species of *Mitostoma*. Considerable

size difference within this species warrants further investigation (Martens 1978: 149, Tedeschi & Sciaky 1997: 507).

atticum (Roewer, 1927); loc. typ.: Greece, Pentelikon Mountain, way up to Penteli Monastery.
Nemastoma atticum Roewer, 1927: 453.
Mitostoma atticum—Roewer 1951: 144.
Remarks. The type (SMF RII/239) is a female with only two remaining legs. Judging from this poor material, it seems morphologically very similar to specimens of *Mitostoma chrysomelas*. The same type locality was given by Roewer in the description of several invalid species (see *Crosbycus pentelicus*; Helversen & Martens 1972). It should be neglected if collections at this site cannot confirm the presence of similar animals.

cancellatum (Roewer, 1917); loc. typ.: Bosnia and Herzegovina, Sarajevo.
Nemastoma cancellatum Roewer, 1917: 154.
Mitostoma cancellatum—Roewer 1951: 147; Mitov 2000: 161.

carneluttii Hadži, 1973a: 57; loc. typ.: Montenegro, Vasojevičkem Komu. **Remarks.** Martens (pers. comm.) investigated the type in the Hadži Collection and assumed that it is close to *cancellatum*. A revision of both species is recommended.

chrysomelas (Hermann, 1804); loc. typ.: France, Alsace, Strasbourg.
Remarks. Many names have been assigned to this widespread Central European species, based on differences in the variable colouration and pattern of anvil-shaped tubercles. Most of them were synonymised by Martens (1978). He also mentioned that all *Mitostoma* described by Avram (1969, 1970) fall within the variation of *chrysomelas*, but did not list them as synonyms, having not seen the type material. They were officially synonymised by Weiss (1996: 263) based on good knowledge of the Romanian fauna. Subsequent publications (e.g. by Weiss and Babalean) did only cite *chrysomelas* for Romania. Tedeschi and Sciaky (1997: 510) considered some alpine populations of *chrysomelas* as distinct species, which remained unattended.
Phalangium chrysomelas Hermann, 1804: 108.
Nemastoma chrysomelas—C.L. Koch 1839b: 38.
Nemastoma quadricorne L. Koch, 1861: 142;—syn. Roewer 1914: 159.
Leiobunum troglodytes Wankel, 1861: 257;—syn. Šilhavý 1956a: 79. **Remarks.** According to Wankel's (1861) drawings the type is a juvenile *Mitostoma*, and according to the type locality (Czech Republic, Moravia caves) only *chrysomelas* applies (for *troglodytes* being preoccupied see also *Hesperonemastoma packardi*). Šilhavý (1956a) did not list *troglodytes* in the synonymy of *chrysomelas*.
Nemastoma troglodytes—Roewer 1923: 657.
Nemastoma saxonica Hnatewytsch in Kästner, 1928: 18;—syn. Spoek 1963: 17.
Nemastoma spinosum Hnatewytsch, 1929: 231;—syn. Spoek 1963: 18. **Remarks.** Spoek (1963: 17) first placed *spinosum* in the synonymy of *saxonica* and later (1963: 18) both in *chrysomelas*. See also extensive discussion in Spoek (1963).
Nemastoma janetscheki Schenkel, 1950: 766;—syn. Martens 1978: 142.
Mitostoma chrysomelas—Roewer 1951: 142.
Nemastoma silhavyi Roewer, 1951: 143;—syn. Staręga 1976: 335.
Mitostoma spinosum—Kratochvíl (1934: 8): 146; syn. Spoek 1963: 18.
Mitostoma hadzii Roewer, 1951: 146;—syn. Martens 1978: 142.
Nemastoma chrisomelas—Cîrdei 1956: 74 (misspelling).
Mitostoma vosagorum Rambla, 1956: 152;—syn. Meijer 1973: 125.
Mitostoma (*Mitostoma*) *chrysomelas*—Kratochvíl 1958: 530.
Crosbycus bükkensis Loksa, 1962: 265;—syn. Martens 1978: 142.
Crosbycus transdanubicus Loksa, 1962: 267;—syn. Martens 1978: 142.
Mitostoma chrysomelas confusum Spoek, 1963: 21;—syn. Martens 1978: 142.
Mitostoma chrysomelas romanicum Avram, 1965: 181;—syn. Staręga 1976: 335.
Mitostoma chrysomelas romanium—Šilhavý 1966a: 70 (misspelling).

Crosbycus buekkensis—Gruber & Martens 1968: 138.

Mitostoma dumitrescui Avram, 1969: 140;—Martens 1978: 144; syn. Weiss 1996: 263.

Mitostoma orghidani Avram, 1969: 144;—Martens 1978: 144; syn. Weiss 1996: 263.

Mitostoma moldavica Avram, 1970: 172;—Martens 1978: 144; syn. Weiss 1996: 263.

Mitostoma helenae Avram, 1970: 174;—Martens 1978: 144; syn. Weiss 1996: 263.

Mitostoma rodnae Avram, 1970: 178;—Martens 1978: 144; syn. Weiss 1996: 263.

Mitostoma (*Mitostoma*) *sketi* Hadži, 1973a: 50; **syn. n.:** According to Hadži's (1973a: 51) drawings and the locality (Zlot, Serbia) this is very likely *Mitostoma chrysomelas*.

Mitostoma chrysomelas francohorioni Hadži, 1973a: 52;—syn. Martens 1978: 142.

Mitostoma chrysomelas poleneci Hadži, 1973a: 56;—syn. Martens 1978: 142.

daccordii Tedeschi & Sciaky, 1997: 511; loc. typ.: Italy, Venetia, Monti Lessini, Cima Posta.

fabianae Tedeschi & Sciaky, 1997: 513; loc. typ.: Italy, Tuscany, Elba, N slopes of Mt. Tambora.

gracile (Redikortsev, 1936); loc. typ.: Russia, Gagari, Sochi (restricted by Staręga 1978: 202).

Nemastoma gracile Redikortsev, 1936: 39.

Mitostoma gracile—Roewer 1951: 150; Staręga 1978: 202; Martens 2006: 207.

macedonicum Hadži, 1973a: 58; loc. typ.: Republic of Macedonia (not further specified).

olgae olgae (Šilhavý, 1939); loc. typ.: Montenegro, Risan, Golodražnica.

Nemastoma olgae olgae Šilhavý, 1939: 108 (for species), 109 (for subspecies).

Mitostoma olgae olgae—Roewer 1951: 144.

Remarks. Novak (2004) considered the subspecies *decorum* and *kratochvili* as invalid, being based on characters showing high variability. While his argumentation is reasonable, a reinvestigation might be worthwhile because these populations occur within a zone of high endemism (e.g. in *Trogulus*; Schönhofer & Martens 2009). For this reason, the subspecies are maintained for the time being.

olgae decorum (Šilhavý, 1939): 109; loc. typ.: Montenegro, Nikšiće, Dragova Luka.

Nemastoma olgae decorum Šilhavý, 1939: 109.

Mitostoma olgae decorum—Roewer 1951: 144.

olgae kratochvili (Šilhavý, 1939): 109; loc. typ.: Croatia, Brač, Pučišća.

Nemastoma olgae kratochvili Šilhavý, 1939: 109.

Mitostoma olgae kratochvili—Roewer 1951: 144.

olgae zorae Hadži, 1973a: 60; loc. typ.: Republic of Macedonia, Šar Planina, Karaorman Mt.

orobicum (Caporiacco, 1949); loc. typ.: Italy, Bergamo, Monte Arera.

Nemastoma orobicum Caporiacco, 1949: 121.

Mitostoma orobicum—Chemini 1985: 72; Tedeschi & Sciaky 1997: 508.

Remarks. The species was transferred to *Mitostoma* and synonymised with *chrysomelas* by Martens (1978), stating that J. Gruber had seen the juvenile type. Chemini (1985) redescribed and revalidated *orobicum* based on adult males.

patrizii Roewer, 1953b; loc. typ.: Italy, Sicily, Grotta di San Giovanni Domusnovas.

Mitostoma patrizii Roewer, 1953b: 39;—Tedeschi & Sciaky, 1997: 505.

pyrenaeum (Simon, 1879a); loc. typ.: France, Ariége, Moulis, Château de la Brûlerie, Grotte d'Aubert.

Nemastoma pyrenaeum Simon, 1879a: 287.

Mitostoma asturicum Roewer, 1951: 147; **syn. n.:** The type locality (Spain, Asturia; Cave near Oviedo) is

doubtful as no new material from there is known (Prieto 2008). The male type was investigated (SMF RII/6210) and is very similar to specimens of *M. pyrenaeum*.
Mitostoma pyrenaeum—Roewer 1951: 149.

sabbadinii Tedeschi & Sciaky, 1997: 508; loc. typ.: Italy, Sardinia, Sassari, N slope of Mt. Limbara.

valdemonense Marcellino, 1974; loc. typ.: Italy, Sicily, Nebrodi, Portella di Femmina morta.
Mitostoma valdemonense Marcellino, 1974: 187;—Tedeschi & Sciaky 1997: 512.

zmajevicae Hadži, 1973a: 59; loc. typ.: Republic of Macedonia, Zmajevici.

Genus *Nemaspela* Šilhavý, 1966a (7 species)

Nemaspela Šilhavý, 1966a: 72; type species *Burešiolla sokolovi* Ljovuschkin & Starobogatov, 1963 by original designation;—Martens 2006: 169; Chemeris 2009: 286.

Remarks. Šilhavý mentioned only *Nemaspela sokolovi* in the definition of the genus, but also illustrated *abchasica* and *caeca* as *Nemaspela* (1966a: 68).

Etymology. Gender neuter; combination of "*Nemastoma*" and Latin "spelaeum" (cave), indicating a cave adaptation within Nemastomatidae.

abchasica (Ljovuschkin & Starobogatov, 1963); loc. typ.: Abchasia, Niznaja Sakuranskaja Cave.
Burešiolla abchasica Ljovuschkin & Starobogatov, 1963: 47.
Nemaspela abchasica—Šilhavý 1966a: 68; Martens 2006: 173; Chemeris 2009: 287.

birsteini Ljovuschkin, 1972; loc. typ.: Abchasia, Gudauta, Tarkiladze Caves.
Nemaspela birsteini Ljovuschkin, 1972: 66;—Chemeris 2009: 289 (redescr.).

caeca (Grese, 1911); loc. typ.: Ukraine, Crimea, unnamed cave near Skelja.
Nemastoma caecum Grese, 1911: 108.
Burešiolla caecum—Ljovuschkin & Starobogatov 1963: 43.
Nemaspela coeca—Šilhavý 1966a: 68 (misspelling).
Nemaspela caeca—Ljovuschkin 1972: 66; Chemeris 2009: 289 (redescr.).

femorecurvata Martens, 2006: 171; Georgia, Ratscha Mt. Range, Ambrolauri Distr., Sakishore Cave near Upper Tlugi.

kovali Chemeris, 2009: 293; loc. typ.: Russia, Central Caucasus, Kabardino-Balkaria, source of Belaya River, Fontanka Cave.

sokolovi (Ljovuschkin & Starobogatov, 1963); loc. typ.: Russia, Krasnodar Prov., Sochi, 15 km N of Khosta, Vorontsovskaya Cave.
Burešiolla sokolovi Ljovuschkin & Starobogatov, 1963: 47.
Nemaspela sokolovi—Šilhavý 1966a: 72; Martens 2006: 175; Chemeris 2009: 294.

taurica (Lebedinski, 1914); loc. typ.: Ukraine, Crimea, Ajutišik Cave.
Phalangodes taurica Lebedinski, 1914: 115;—Ljovuschkin 1972: 65.
Nemaspela taurica—Staręga 1978: 202; Martens 2006: 169.
Remarks. Ljovuschkin (1972) mentioned *Phalangodes taurica* but excluded it from species he listed under *Nemaspela*.

Genus *Nemastoma* C.L. Koch, 1836b (7 species, 4 subspecies)

Nemastoma C.L. Koch, 1836b: 70; type species *Phalangium bimaculatum* Fabricius, 1775 by subsequent fixation (Thorell 1876: 467) and subsequent delineation of the type species (Gruber & Martens 1968: 139).

Nemastoma (*Lugubrostoma*) Kratochvíl, 1958: 529; type species *Phalangium lugubre* Müller, 1776 by original designation;—syn. Gruber & Martens 1968: 139.

Nemastoma (*Stridulostoma*) Hadži, 1973a: 48; type species *Nemastoma* (*Stridulostoma*) *seliskari* Hadži, 1973a by monotypy;—syn. Gruber 1976: 797.

Remarks. *Nemastoma* has long been the sole genus of the family, and accumulated large numbers of species. The subsequent decline of species assigned to *Nemastoma* is directly correlated with elaborating the systematics and taxonomy of the family. After Roewer (1951) assigned the first *Nemastoma* species to new genera, the original genus still comprised 107 species. Kratochvíl (1958) further elaborated the systematics, but counted 86 *Nemastoma* species, of which he included 23 in the subgenus *Lugubrostoma*, that came closest to today's definition of *Nemastoma.* Gruber and Martens (1968) clarified the type species of *Nemastoma* (not *Paranemastoma quadripunctatum* as stated by Kratochvíl 1958) and restricted the generic name to a defined number of seven species.

Etymology. Gender neuter; from Greek „nema" (thread) and „stoma" (mouth), likely referring to the threadlike and glistening pedipalps.

bidentatum bidentatum Roewer, 1914; loc. typ.: The locality information (Romania, Comana Vlasca) was considered erroneous, as the type series also contained *triste* and *bidentatum sparsum*, with only the latter occuring in Romania, but not *bidentatum bidentatum* (Gruber & Martens 1968: 143). The type locality is to be corrected, but should await a revision of the subspecies complex and use a locality within the known distribution.

Nemastoma bidentatum Roewer, 1914: 141;—Gruber & Martens 1968: 141 (redescr.).

bidentatum pluridentatum Hadži, 1973a; loc. typ.: Bosnia, Mt. Vlašić.

Nemastoma (*Lugubrostoma*) *triste pluridentatum* Hadži, 1973a: 43.

Nemastoma (*Stridulostoma*) *seliskari* Hadži, 1973a: 48;—syn. Gruber 1976: 797.

Nemastoma seliskari—Gruber 1976: 797.

Nemastoma bidentatum pluridentatum—Novak 2005: 314.

Remarks. Hadži (1973a) mentioned *Stridulostoma seliskari* as distinct from *N.* (*L.*) *triste pluridentatum* by the presence or absence of assumed stridulatory structures only. Gruber (1976: 797) therefore rejected the subgenus *Stridulostoma* within *Nemastoma* and suggested a reinvestigation of the two "species". Later, the sole type specimen of *seliskari* was assumed to be a hybrid between *b. bidentatum* and *b. sparsum* (Novak & Gruber 2000: 286). Novak (2005) placed *pluridentatum* in the synonymy of *N. bidentatum* and regarded it as a valid subspecies, which is followed here. The subspecies in *bidentatum* are currently re-investigated.

bidentatum sparsum Gruber & Martens, 1968: 146; loc. typ.: Austria, Leitha Mountains, Sonnenberg.

bidentatum relictum Gruber & Martens, 1968: 147; loc. typ.: Austria, Salzburg, Kleinartal, Tappenkarsee.

bimaculatum (Fabricius, 1775); loc. typ.: Great Britain (not further specified).

Phalangium bimaculatum Fabricius, 1775: 440.

Nemastoma lugubre bimaculatum—Roewer 1923: 654.

Nemastoma bimaculatum—C.L. Koch 1836b: 71; Meade 1855: 412; Gruber & Martens 1968: 150 (redescr.).

dentigerum Canestrini, 1873: 51; loc. typ.: Italy, Padova, Altichiero.

Nemastoma dentigerum Canestrini, 1873: 51;—Gruber & Martens 1968: 153 (redescr.).

lugubre (Müller, 1776); loc. typ.: Denmark (not further specified).

Phalangium lugubre Müller, 1776: 192.

Nemastoma lugubre—Simon 1879a: 281; Gruber & Martens 1968: 156 (redescr.).
Nemastoma lugubre helvetica Lessert, 1917: 57;—syn. Gruber & Martens 1968: 156.
Nemastoma lugubre var. *striatum* Morin, 1934: 36;—syn. Gruber & Martens 1968: 156.
Nemastoma lugubre striatum—Roewer 1951: 127.
Nemastoma (*Lugubrostoma*) *lugubre*—Kratochvíl 1958: 529.
Lugubrostoma lugubre—Šilhavý 1966a: 68.

schuelleri Gruber & Martens, 1968: 160; loc. typ.: Austria, Muhr, Lungau.

transsylvanicum Gruber & Martens, 1968: 165; loc. typ.: Romania, Valea Galbenii.

triste (C.L. Koch, 1835); loc. typ.: Germany, Bavaria, Regensburg.
Phalangium triste C.L. Koch, 1835: 20.
Nemastoma triste—C.L. Koch 1847: 63; Gruber & Martens 1968: 167 (redescr.).
Nemastoma lugubre unicolor Roewer, 1914: 134;—syn. Gruber 1966: 45.
Nemastoma (Lugubrostoma) triste—Gruber 1966: 45; Gruber & Martens 1968: 167.
Lugubrostoma triste—Šilhavý 1966a: 68; Gruber & Martens 1968: 167.

Genus *Nemastomella* Mello-Leitão, 1936 (14 species, 2 subspecies)

Nemastomella Mello-Leitão, 1936: 10; type species *Nemastomella integripes* Mello-Leitão, 1936 by monotypy and original designation;—Staręga 1986: 303; Prieto 2004; 2008.

Remarks. Staręga (1986: 303) used *Nemastomella integripes* as type species to make the genus name available, while he synonymised *integripes* with *dubia* in the same paper.

Prieto (2004, 2008) used a narrow and careful concept for *Nemastomella*, which is acknowledged but extended here, assuming the secondary loss of male cheliceral apophyses (as in *cristinae*, close to *bacilliferum* and *dubium* regarding genital morphology; in *sexmucronata* probably secondary loss because of cave adaptation) and allowing more variation in dorsal armament, to remove species from their definitely erroneous placement in *Nemastoma*. The species *cristinae*, *maarebensis*, *monchiquensis* and *sexmucronata* are hereby tentatively included in *Nemastomella* (see respective Remarks).

Etymology. Gender feminine; diminutive form of *Nemastoma*, using the suffix "-ella".

armatissima (Roewer, 1962); loc. typ.: Portugal, Coimbra.
Mitostoma armatissimum Roewer, 1962: 15;—Prieto 2008: 62.
Nemastomella armatissima **comb. n.:** The type (SMF RII/11156) seems to be a female of *Nemastomella* close to *spinosissima*, but differs in being uniformly dark in colour, the first two areae having a row of anvil-shaped tubercles and the cones terminating in two large, fork-like spines. A full redescription has to await the collection of males, and placement and locality data require confirmation.

bacillifera bacillifera (Simon, 1879a); loc. typ.: France, Gers, Condom, La Plaigne du Mage.
Nemastoma bacilliferum Simon, 1879a: 287.
Nemastomella bacillifera simoni Roewer, 1914: 155;—syn. Dresco 1967b: 368.
Nemastomella bacillifera simplex Simon, 1913: 385;—syn. Dresco 1967b: 368.
Nemastoma formosum Roewer, 1951: 134; **syn. n.:** After investigating the type (SMF RII/9525, France, Biarritz), this is certainly *bacillifera*.
Histricostoma (*Mediostoma*) *bacilliferum*—Kratochvíl 1958: 569.
Histricostoma bacillifera—Šilhavý 1966a: 69.
Nemastomella bacillifera—Staręga 1986: 304; Prieto 2004: 110.

bacillifera carbonaria (Simon, 1907); loc. typ.: Spain, Huesca, Vio, Llobrica Cave.
Nemastoma carbonarium Simon, 1907: 553.

Histricostoma (*Mediostoma*) *carbonarium*—Kratochvíl 1958: 569.
Nemastomella carbonaria—Staręga 1986: 304.
Nemastomella bacillifera carbonaria—Prieto 2004: 111.

cristinae (Rambla, 1969); loc. typ.: Spain, Léon, Puerto de Piedrafita.
Nemastoma cristinae Rambla, 1969: 91;—Prieto 2004: 119.
Nemastomella cristinae—Staręga 1986: 304.

Remarks. Oddly, Rambla (1969) did not mention the name of her new species throughout the written text but only in the legends of the figures. Staręga (1986) transferred the species to *Nemastomella* but Prieto (2004) placed it back in *Nemastoma* as it did not fit a number of external characters, e.g. having no cheliceral apophysis in males, and differences in granulation. External characters, as cheliceral apophyses, can get lost within a genus, as known from *Giljarovia* and *Nemaspela* (Martens 2006). The genital morphology of *cristinae* conforms with that of *baciliferum* and *dubium*, and *cristinae* is best placed in *Nemastomella* and Staręga's combination is hereby revived.

dentipatellae (Dresco, 1967b); loc. typ.: Spain, Santander, Arredondo, Cueva La Cañuela.
Nemastoma dentipatellae Dresco, 1967b: 382.
Nemastomella dentipatellae—Staręga 1986: 304; Prieto 2004: 112.

dipentata (Rambla, 1959); loc. typ.: Spain, Sierra Guadarrama, Lozoya Springs.
Nemastoma bacilliferum dipentatum Rambla, 1959: 79.
Nemastoma hermanni Kraus, 1959: 297;—syn. Kraus 1961: 345.
Nemastomella dipentata—Staręga 1986: 304; Prieto 2004: 113.

dubia (Mello-Leitao, 1936); loc. typ.: Catalogne (not further specified).
Nemastoma dubium Mello-Leitao, 1936: 8.
Nemastomella integripes Mello-Leitao, 1936: 11;—syn. Staręga 1986: 304.
Nemastoma franzi Kraus, 1959: 299;—syn. Kraus 1961: 346.
Nemastomella dubia—Staręga 1986: 304.

gevia Prieto, 2004: 114; loc. typ.: Spain, Jaén, Peal de Becerro: Complejo del Arroyo de la Rambla.

hankiewiczii (Kulczyński, 1909); loc. typ.: Portugal, Torres Vedras, Barro.
Nemastoma hankiewiczii Kulczyński, 1909: 465.
Nemastoma roeweri Kraus, 1961: 341;—syn. Rambla 1980: 199.

Nemastomella hankiewiczii **comb. n.:** Rambla (1980: 199) regarded the differences between *N. roeweri* and *N. hankiewiczii* as intraspecific variation, while Kraus (1961: 343) depicted differences in the structure of the male cheliceral apophyses that, based on current systematics, would warrant placement in different genera. The issue cannot be resolved without checking more material and meanwhile Rambla's synonymy is retained. It is not clear what Kraus (1961) or Rambla (1980) perceived when discussing these species, but both forms show characters present in the Iberian radiation of Nemastomatidae, and a tentative placement in *Nemastomella* seems reasonable.

iberica (Rambla in Dresco, 1967b); loc. typ.: Spain, Sierra de Guadarrama (see Remarks).
Nemastoma ibericus Rambla in Dresco, 1967b: 382.

Nemastomella iberica—Staręga 1986: 304; Prieto 2004: 117. **Remarks.** The species was established based on material used for a re-description of *N. bacilliferum bacilliferum* based on non-type material (Rambla 1959: 73). Dresco (1967b) recognised differences to the original *bacilliferum*, suggested the name *ibericus* and assigned Rambla as official author. Dresco specified the year of description as 1965, recited by Rambla (1967: 7), but it was not published in that year. Prieto (2004: 117) interprets the authorship of the species as "Rambla in Dresco, 1967" which is followed here. Dresco (1967) did not specify types or a type locality, but pointed solely to Rambla's description, of which the illustrated male of the two series used for the description is to be preferred as lectotype (Collection Rambla, Barcelona: specimens n°335, 336). Depending on the formal lectotype selection, a more specific type locality is either Regajo del puerto de Navacerrada or Sanatorio Forest. Prieto (2004: 117) mentioned the species to be poorly characterised and advised revision.

maarebensis (Simon, 1913); loc. typ.: Algier, Ifri Maareb, near Djebel Azerou Tidjer.
Nemastoma maarebense Simon, 1913: 385.
Nemastomella maarebensis **comb. n.:** Known from one female only, any generic association remains preliminary, while placement within *Nemastoma* can be rejected. The type shows superficial similarity with *Nemastomella sexmucronatum* and is therefore tentatively placed in *Nemastomella*. Delfosse (2004: 48) erroneously reported the species for France.

manicata (Simon, 1913); loc. typ.: Spain, Lérida, Llastarri, Minas dei Canal-B.
Nemastoma manicata Simon, 1913: 386.
Nemastomella manicata—Prieto 2004: 112.

monchiquensis (Kraus, 1961); loc. typ. Portugal: N slope Sierra de Monchique.
Nemastoma monchiquense Kraus, 1961: 342;—Rambla 1967: 6.
Nemastomella monchiquensis **comb. n.:** According to the form of the cheliceral apophysis and the penial stylus (Rambla 1967) *monchiquense* is clearly a member of the Iberian radiation including *Acromitostoma*, *Centetostoma* and *Nemastomella*. However, it differs from the first two genera by the lack of characteristic penial wings, further from *Acromitostoma* in lacking anvil-shaped tubercles, and from *Centetostoma* in lacking large, knob-like tubercles on the dorsum and on the supracheliceral sclerites. *N. monchiquense* is transferred to *Nemastomella* for lacking these characters, but also for the penial glans armed with long, slender spines, for posessing rows of elongated papillae on the dorsal opisthosoma and for having a similar body size (Kraus 1961, Rambla 1967).

sexmucronata (Simon, 1911); loc. typ.: Spain, Santander, Santillana del Mar, Cueva de Altamira.
Nemastoma sexmucronatum Simon, 1911: 205;—Prieto 2004: 119
Nemastomella sexmucronata—Staręga 1986: 304. **Remarks.** Placing *sexmucronatum* in *Nemastoma* has to be rejected and it is tentatively reinstated in *Nemastomella* following Staręga 1986. Still, several features of *sexmucronatum* deviate from this genus. The penial truncus is narrowed below the glans, with deep lateral furrows, a stylus is almost absent, and large spines are missing from the glans (Prieto 2004). Dorsal spines and male cheliceral apophyses may be reduced in this cave-dwelling species, but its position in *Nemastomella* is isolated, requiring investigation, as acknowledged by Prieto (2004).

spinosissima (Kraus, 1961); typ. loc.: Spain, Navarra, Picos de Europa, foot of Peña Vieja Mt.
Nemastoma spinosissima Kraus, 1961: 345.
Nemastomella spinosissima—Staręga 1986: 304; Prieto 2004: 117.

Genus *Paranemastoma* Redikorzev, 1936 (21 species, 5 subspecies)

Paranemastoma Redikorzev, 1936: 40; type species *Paranemastoma superbum* Redikorzev, 1936 by monotypy and original designation;—Mcheidze 1959: 111; Staręga 1966a: 392; Gruber & Martens 1968: 139; Martens 1978: 116.
Nemastoma (*Dromedostoma*) Kratochvíl, 1958: 529, 538; type species *Nemastoma radewi* Roewer, 1926 by monotypy;—syn. Staręga 1966a: 392.
Buresiolla Kratochvíl, 1958: 529; type species *Nemastoma bureschi* Roewer, 1926 by original designation.
Paranemastoma (*Buresiolla*)—Staręga 1976: 332. **Remarks.** Staręga (1976: 332) transferred the type of *Buresiolla*, *bureschi*, to *Paranemastoma*, thus effecting synonymy with *Paranemastoma* (ICZN 61.3.1). Preserving the subgenus was not subsequently approved (Mitov 2011).

Remarks. While the genus *Paranemastoma* is nowadays accepted and well-defined upon genital morphology, its revalidation and redefinition are difficult to pinpoint. Roewer (1951: 95) and Kratochvíl (1958: 526) rejected *Paranemastoma* as defined by Redikorzew (1936), who delineated his monotypic genus upon the presence or absence of pseudosegmentation of the legs. Based on genital morphology, and also on large body size, Šilhavý (1966a: 70) assumed close relationship between seven *Nemastoma* species, including *quadripunctatum*, all later accepted as *Paranemastoma*. He further delineated this assembly from species which are today in the sister genera *Carinostoma* (*elegans*) and *Histricostoma* (*dentipalpe*). Mcheidze (1959: 111) re-established *Paranemastoma* as a subgenus for *superbum*, and Staręga (1966a: 392) placed *Dromedostoma* in its synonymy. Staręga did so for *superbum* only, while *quadripunctatum* and others remained in the subgenus *Nemastoma*. In 1968, Gruber and Martens redefined *Nemastoma* for a narrow ensemble of species. To reinforce this, they associated the earlier concepts of *Nemastoma* by Kratochvíl (1958: 529; excluding *Lugubrostoma*), Roewer and Šilhavý (for the latter two no explicit references were given) to conform better to *Paranemastoma* and its type *superbum*. While this could be regarded as redefining *Paranemastoma*, the concepts of Kratochvíl, Roewer and Šilhavý can hardly be seen in agreement, and Gruber and Martens (1968) gave no further definition or listed associated species. Yet, later authors have followed their proposal (see statement in Avram 1973a: 31), using mainly the conclusive concept of Šilhavý (1966a), and accepted species close to *quadripunctatum* as *Paranemastoma* (Helversen & Martens 1971, Dumitrescu 1972, Avram 1973a). Martens (1978: 116) redefined the genus, stating the species-count to be twenty, but did not present a list, and his bibliography for *Paranemastoma* and the four discussed species is unusually incomplete (e.g. not listing his own contributions: Gruber & Martens 1968, Helversen & Martens 1971). In summary, assignment of species to *Paranemastoma* has always been a stepwise process, adding single species or small groups of species, and a complete list of species was never published. Taxonomy represents a nightmare, having to deal with about 100 names, often based on variable external characters as spination and colouration. Informative characters for species delineation, as male genital morphology and cheliceral apophysis structures, are complex and need careful re-evaluation.

Etymology. Gender neuter; Greek; combination of “para” (“close to”) and “*Nemastoma*” indicating the close relationship perceived at the time of separation.

ancae Avram, 1973b; loc. typ.: Romania, Apuseni Mountains, Răcaş region (from different mines; no explicit type or type locality was specified).
Paranemastoma ancae Avram, 1973b: 135;—Babalean & Ilie 2003: 64; Weiss 1996: 265. **Remarks.** Weiss (1996: 265) treated *P. ancae* as valid and related to *P. quadripunctatum* but suggested reinvestigation.

armatum (Kulczyński, 1909); loc. typ.: Hercegovina, Domanović.
Nemastoma armatum Kulczyński, 1909: 468.
Nemastoma quadripunctatum armatum—Roewer 1923: 661.
Paranemastoma armatum—Novak 2005: 316 (stated revision needed).

aurigerum aurigerum (Roewer, 1951); loc. typ.: Bulgaria, Burgas.
Nemastoma aurigerum Roewer, 1951: 119.
Paranemastoma aurigerum aurigerum—Staręga 1976: 322.

aurigerum ryla (Roewer, 1951); loc. typ.: Bulgaria, Tscham Kuria, Borovec (restricted by Staręga 1976: 324).
Nemastoma ryla Roewer, 1951: 120.
Nemastoma (*Dromedostom*) *ryla*—Kratochvíl 1958: 562.
Paranemastoma aurigerum ryla—Staręga 1976: 323.

aurigerum joannae Staręga, 1976: 324; loc. typ.: Bulgaria, Belasica Mt., 30 km WSW Petrič, Ključ.

aurosum (L. Koch, 1869); loc. typ.: Greece.
Nemastoma aurosum L. Koch, 1869: 165.
Nemastoma quadripunctatum aurosum—Roewer 1951: 661.
Paranemastoma aurosum—Novak 2005: 318 (stated revision needed).

beroni Mitov, 2011: 304; loc. typ.: Bulgaria, Sandanski Distr., Slavyanka Mountains, cave Stoykova Dupka 1.

bicuspidatum (C.L. Koch, 1835); loc. typ.: Austria, Salzburg, Gastein.
Phalangium bicuspidatum C.L. Koch, 1835: 16.
Nemastoma bicuspidatum—C.L. Koch 1836b: 70; Šilhavý 1956a: 124, 141 (erroneously listed as type species of *Nemastoma*).
Nemastoma quadripunctatum bicuspidatum—Roewer 1923: 663.
Nemastoma reimoseri Roewer, 1951: 108; **syn. n.:** According to size, colouration and distribution stated for *reimoseri*, species other than *biscupidatum* can be excluded.
Paranemastoma bicuspidatum—Avram 1973a: 31; Martens 1978: 121 (redescr.).

bureschi (Roewer, 1926); loc. typ.: Bulgaria, Isker Defilé, cave above Tzerowo.
Nemastoma bureschi Roewer, 1926: 300.
Nemastoma tunetanum Roewer, 1951: 130; **syn. n.:** Investigation of the syntypes of *N. tunetanum* (SMF RII/241) show that these are without doubt *Paranemastoma* that perfectly fit the redescription of *P. bureschi* by Mitov (2011). *N. tunetanum* from "Tunisia" is another misplaced Roewer species.
Crosbycus bureschi—Roewer 1951: 152.
Buresiolla bureschi—Kratochvíl 1958: 529.
Buresiolla tunetorum—Kratochvíl 1958: 527 (misspelling).
Buresiolla tunetanum—Kratochvíl 1958: 532.
Paranemastoma (*Buresiolla*) *bureschi*—Staręga 1976: 332.
Paranemastoma bureschi—Karaman 1995b: 334; Mitov 2011: 303 (redescr.).

corcyraeum (Roewer, 1917); loc. typ.: Greece, Corfu.
Nemastoma quadripunctatum corcyraeum Roewer, 1917: 143.
Paranemastoma corcyraeum—Novak 2004: 248.

filipes (Roewer, 1917); loc. typ.: Azerbaijan, Lenkoran.
Nemastoma quadripunctatum var. *filipes* Roewer, 1917: 144.
Nemastoma filipes—Roewer 1923: 665.
Nemastoma (*Dromedostoma*) *filipes*—Kratochvíl 1958: 538.
Paranemastoma filipes—Martens 2006: 203 (redescr.)

iranicum Martens, 2006: 204; loc. typ.: Iran, Mazandaran, 11 km E Alasht.

kalischevskyi (Roewer, 1951); loc. typ.: Georgia, Suchumi Distr., Azhazy.
Nemastoma kalischevskyi Roewer, 1951: 122.
Nemastoma suchumium Roewer, 1951: 122;—syn. Martens 2006: 196.
Nemastoma charitonovi Mcheidze, 1952: 545;—syn. Martens 2006: 196.
Paranemastoma kalischevskyi—Staręga 1966a: 390.
Paranemastoma charitonovi—Staręga 1978: 204.
Paranemastoma suchumium—Staręga 1978: 205.

kochii (Nowicki, 1870); loc. typ.: High Tatras Mountains (mostly in Slovakia).
Nemastoma kochii Nowicki, 1870: 57.
Nemastoma quadripunctatum kochii—Roewer 1923: 662.
Nemastoma nicaeum Roewer, 1951: 110;—syn. Martens 1978: 124.
Nemastoma hungaricum Roewer, 1951: 114;—syn. Martens 1978: 124.
Paranemastoma kochii—Avram 1973a: 31; Martens 1978: 124 (redescr.).

longipes (Schenkel, 1947); loc. typ.: Albania, Tirana.
Nemastoma gigas longipes Schenkel, 1947: 10.
Nemastoma longipes—Roewer 1951: 116.
Nemastoma tenue Hadži, 1973a: 31;—syn. Novak 2004: 248.

Paranemastoma longipes—Novak 2004: 248; Mitov, 2000: 160. **Remarks.** Novak (2004) considers *longipes* as valid and related it to *corcyraeum*.

quadripunctatum (Perty, 1833); loc. typ.: Germany, vicinity of Munich.
Phalangium quadripunctatum Perty, 1833: 204.
Phalangium flavimanum C.L. Koch, 1835: 22; **syn. n.:** Judging from the description (C.L. Koch 1835) and the area it was collected from (between Bad Gastein and Triest), a *Paranemastoma*, already associated with *quadripunctatum* by Roewer (1914: 144).
Nemastoma flavimanum—C.L. Koch 1847: 64; Roewer 1914: 144.
Nemastoma quadripunctatum—Simon 1879a: 279.
Nemastoma quadripunctatum var. *moesiacum* Roewer, 1917: 143; syn. Novak & Gruber 2000: 286.
Nemastoma quadripunctatum quadripunctatum—Roewer 1923: 660.
Nemastoma nervosum Roewer, 1923: 668;—syn. Martens 1978: 117.
Nemastoma quadripunctatum var. *lessinensis* Caporiacco, 1940: 34;—syn. Martens 1978: 117.
Nemastoma chaucicum Roewer, 1951: 105;—syn. Martens 1978: 117.
Nemastoma alfkeni Roewer, 1951: 106;—syn. Martens 1978: 117.
Nemastoma gertschi Roewer, 1951: 107;—syn. Martens 1978: 117.
Nemastoma austriacum Roewer, 1951: 108;—syn. Martens 1978: 117.
Nemastoma lessinensis—Roewer 1951: 110.
Nemastoma strasseri Roewer, 1951: 110;—syn. Novak 2005: 318.
Nemastoma armeniacum Roewer, 1951: 122;—syn. Martens 2006: 206. **Remarks.** Martens (2006) did not propose the synonymy but pointed to the similarity with *quadripunctatum* and the high possibility of the type locality of *armeniacum* being wrong. Martens is followed here, and the synonymy attributed to him.
Crosbycus lengersdorfi Roewer, 1951: 152;—syn. Martens 1978: 117.
Paranemastoma quadripunctatum—Helversen & Martens 1971: 380; redescr. Martens 1978: 117.
Nemastoma mediosignatum Hadži, 1973a: 24;—syn. Martens 1978: 117.
Nemastoma slovenicum Hadži, 1973a: 26;—syn. Martens 1978: 117.
Nemastoma triglavense Hadži, 1973a: 27;—syn. Martens 1978: 117.
Nemastoma quadripunctatum carniolicum Hadži, 1973a: 28;—syn. Martens 1978: 117.
Nemastoma emonense Hadži, 1973a: 29;—syn. Martens 1978: 117.

radewi (Roewer, 1926); loc. typ.: Bulgaria, Trnowo Distr., near Monastir Dranowski, Wodnata Pestera Cave.
Nemastoma radewi Roewer, 1926: 299.
Nemastoma radevi—Wolf 1938: 630 (misspelling); Šilhavý 1966a: 68.
Nemastoma riparium Roewer, 1951: 108;—syn. Komposch & Gruber 2004: 525.
Nemastoma schenkeli Roewer, 1951: 108;—syn. Komposch & Gruber 2004: 525.
Nemastoma polonicum Roewer, 1951: 112;—syn. Novak & Gruber 2000: 287.
Nemastoma insulare Roewer, 1951: 116;—syn. Novak 2004: 247. **Remarks.** Roewer used specimens of *radewi* for several false or questionable descriptions of new species. Gruber (in Novak 2004: 247) mentioned the type locality Hvar (Lesina) as “dubious”.
Nemastoma (*Dromedostoma*) *radewi*—Kratochvíl, 1958: 555.
Nemastoma (*Dromedostoma*) *atanasovi* Kratochvíl, 1958: 562;—syn. Staręga 1976: 326.
Nemastoma (*Dromedostoma*) *markovi* Kratochvíl, 1958: 548;—syn. Staręga 1976: 326.
Nemastoma markovi—Šilhavý 1966a: 68.
Nemastoma (*Dromedostoma*) *paspalevi* Kratochvíl, 1958: 558;—syn. Staręga 1976: 326.
Nemastoma (*Dromedostoma*) *paspalevi* var. *nigrum* Kratochvíl, 1958: 560;—syn. Staręga 1976: 326.
Nemastoma (*Dromedostoma*) *atanasovi balcanica* Kratochvíl, 1958: 562;—syn. Staręga 1976: 326.
Paranemastoma radevi—Avram 1973a: 34.
Paranemastoma atanasovi—Avram 1973a: 35.
Paranemastoma paspalevi—Avram 1973a: 35.
Nemastoma (*Dromedostoma*) *megarae* Hadži, 1973a: 42;—syn. Novak 2005: 317.

sillii sillii (Herman, 1871); loc. typ.: Romania, Sibiu.

Nemastoma sillii Herman, 1871: 28.

Nemastoma lineatum Sørensen in Lendl 1894: 20—syn. Martens 1978: 126.

Nemastoma gigas Sørensen in Lendl 1894: 28—syn. Staręga 1978: 205.

Nemastoma quadripunctatum sillii—Roewer 1923: 662.

Nemastoma bishopi Roewer, 1951: 106;—syn. Martens 1978: 126. **Remarks.** The type locality (Germany, Black Forest, Titi Lake) is situated within the geographical range of *P. quadripunctatum*, not of *sillii*. The issue is only of academic interest as it would place *bishopi* in the synonymy of another *Paranemastoma* species.

Nemastoma carpathicum Roewer, 1951: 112;—syn. Avram 1973a: 60.

Nemastoma politum Roewer, 1951: 112;—syn. Staręga 1978: 205.

Nemastoma wiehlei Roewer, 1951: 114;—syn. Martens 1978: 126.

Nemastoma zilchi Roewer, 1951: 120;—syn. Martens 1978: 126.

Nemastoma bulgaricum Roewer, 1951: 120;—syn. Staręga 1976: 331.

Nemastoma rumelium Roewer, 1951: 120;—syn. Staręga 1976: 331.

Nemastoma mohilevum Roewer, 1951: 125;—syn. Staręga 1978: 205.

Nemastoma romanium Roewer, 1951: 125;—syn. Martens 1978: 126.

Nemastoma rumanicum—Martens 1978: 126 (misspelling).

Crosbycus cavernae Roewer, 1951: 152;—syn. Staręga 1978: 205.

Paranemastoma sillii—Avram 1973a: 31; Martens 1978: 126; (both: redescr.).

Paranemastoma gigas—Avram 1973a: 30.

Paranemastoma silli silli Babalean, 2011: 42.

silli monticola Babalean, 2011: 42; loc. typ.: Romania, Parâng Mts., Mount Vârful Mohorul, at lake Câlcescu.

simplex (Giltay, 1932); loc. typ.: Greece, Taygetos Mts., Ladas (orig. Lada).

Nemastoma simplex Giltay, 1932: 1; **comb. n.:** Roewer (1951) related *simplex* to *Nemastoma filipes*, which is unlikely for geographical reasons. He seems the only one to have discussed this species, which, according to the original description, is a *Paranemastoma* and distinct from others from the Greece mainland. *Paranemastoma* is confirmed for the Peloponnese (Martens pers. comm.).

Crosbycus graecus Giltay, 1932: 2; **syn. n.:** Judging from Giltay's (1932) drawings (single opisthosomal sclerite) and from the body size (3 mm), the type of *Crosbycus graecus* is a juvenile *Paranemastoma*. Rambla (1968: 69) and Gruber and Martens (1968: 138) came to the same conclusion, but did not assign *C. graecus* to a valid species, although it is likely conspecific with *P. simplex* specimens collected from the very same spot.

superbum Redikorzev, 1936; loc. typ.: Georgia, Batumi (Batum).

Paranemastoma superbum Redikorzev, 1936: 40;—Gruber & Martens 1968: 139 (see remarks on *Paranemastoma*); Martens 2006: 200 (redescr.).

Nemastoma supersum Roewer, 1951: 126 (invalid nomen novum for *superbum*);—Staręga 1978: 206.

Nemastoma superbum bacuriana Mcheidze, 1959: 111;—syn. Staręga 1978: 206.

Nemastoma superbum bacurianum—Mcheidze 1964: 117 (misspelling).

Nemastoma (*Paranemastoma*) *superbum*—Staręga 1966a: 392.

thessalum (Simon, 1885a); loc. typ.: Greece, Ossa Mountains, summit.

Nemastoma thessalum Simon, 1885a: 216.

Nemastoma quadripunctatum thessalum—Roewer 1923: 662.

Paranemastoma teshalum—Avram 1973a: 31 (misspelling).

Paranemastoma thessalum—Novak 2005: 318.

titaniacum (Roewer, 1914); loc. typ.: Bosnia (not further specified).

Nemastoma titaniacum Roewer, 1914: 162.

Nemastoma bimaculosum Roewer, 1951: 118; **syn. n.:** Novak 2005: 316 related *bimaculosum* to *P. titaniacum*, which is followed here.

Nemastoma acrospinosum Roewer, 1951: 125. **Remarks.** Novak (2004: 248) referred to the thesis of Karaman (1995a: 33) who cited Gruber (in litt.) to be responsible for this synonymy, though he never officially published it.
Nemastoma (*Dromedostoma*) *titaniacum*—Kratochvíl 1958: 538.
Nemastoma acrospinosum pretneri Hadži, 1973a: 34;—syn. Karaman 1995a: 35.
Nemastoma grabovicae Hadži, 1973a: 37;—syn. Karaman 1995a: 35.
Nemastoma bipunctatum Hadži, 1973a: 36;—syn. Karaman 1995a: 35.
Paranemastoma titaniacum—Karaman 1995b: 334; Mitov 2000: 161.

werneri (Kulczyński, 1903); loc. typ.: Turkey, Uludağ Mt. (orig. Olympus Bithynicus).
Nemastoma werneri Kulczyński, 1903: 673;—Cîrdei 1960: 80.
Nemastoma quadripunctatum werneri—Roewer 1923: 663.
Paranemastoma quadripunctatum werneri—Cîrdei 1960: 80.
Paranemastoma werneri; **new rank:** Cîrdei (1960: 80) recorded *werneri* from former Yugoslavia and Šilhavý (1956a: 142) cited the name for Poland. Staręga (1978: 205) interpreted these specimens as *silli*, and regarded *werneri*, described from the Anatolian Peninsula, as separate. Unlikely to be a subspecies of *quadripunctatum* for geographical reasons, *werneri* is treated here as species untill it is revised. The presence of *Paranemastoma* at the type locality has been confirmed (NHMW).

***Paranemastoma* considered as nomina dubia:** Most of the following names have never been mentioned following the original publication and are not identifiable as distinct species. On the basis of their descriptions, e.g. body size and spination, they can be transferred to *Paranemastoma*. Many have been described by Roewer (1951), in detail difficult to recognise for likely using false localities and already described species. Others were described by Hadži (1973a) upon variants and many of his types are lost and, thus recognition of his species is also difficult. If these names cannot be assigned to distinct species, they should be treated as invalid.

aeginum (Roewer, 1951).
Nemastoma aeginum Roewer, 1951: 121.
Paranemastoma aeginum **comb. n.**

amseli (Roewer, 1951).
Nemastoma amseli Roewer, 1951: 123.
Paranemastoma amseli—Marcellino 1980: 333. **Remarks.** Never collected again, *Paranemastoma* probably does not occur in Sardinia and *amseli* is likely to be another “misplaced” Roewer species.

amuelleri (Roewer, 1951).
Nemastoma amülleri Roewer, 1951: 118.
Paranemastoma amuelleri **comb. n.**

bolei (Hadži, 1973a).
Nemastoma (*Dromedostoma*) *bolei* Hadži, 1973a: 38.
Paranemastoma bolei **comb. n.**

brevipalpatum (Roewer, 1951).
Nemastoma brevipalpatum Roewer, 1951: 122.
Paranemastoma brevipalpatum—Prieto 2008: 56 (assumed false loc. typ.; not Spain).

caporiaccoi (Roewer, 1951).
Nemastoma caporiaccoi Roewer, 1951: 123.
Paranemastoma caporiaccoi **comb. n.:** According to the original illustrations and size, it is definitely a *Paranemastoma*, a genus not present in Sicily.

carneluttii (Hadži, 1973a).

Nemastoma carneluttii Hadži, 1973a: 39.

Paranemastoma carneluttii **comb. n.**

emigratum (Roewer, 1959).

Nemastoma emigratum Roewer, 1959: 37.

Paranemastoma emigratum **comb. n.:** According to Roewer's drawings (1959: 38) this is most likely a *Paranemastoma*. While the collector K. Lindberg insisted that his specimen is from India, this is unlikely given the known distribution of the genus and family. Confusion with Lindberg's rich collections from Greece and Turkey, where *Paranemastoma* is present, seems likely.

ferkeri (Roewer, 1951).

Nemastoma ferkeri Roewer, 1951: 121.

Paranemastoma ferkeri **comb. n.**

gigas montenegrinum (Nosek, 1904)

Nemastoma gigas montenegrinum Nosek, 1904: 4.

Paranemastoma gigas montenegrinum **comb. n.:** The name seemingly was not used after the original description and the type locality, Montenegro, is not in the distribution area of *silli*, with which *gigas* was synonymised. Avram (1973a), discussing the synonymy of *gigas*, did not mention subspecies of *gigas*, some of which were later accepted as species (e.g. *longipes*). According to the description, *montenegrinum* could conform to *titaniacum*, rendering the latter synonymous. For the lack of an explicit type locality and the likely loss of the *montenegrinum* type, *titaniacum* is preserved for now.

gostivarense (Hadži, 1973a).

Nemastoma gostivarense Hadži, 1973a: 32.

Paranemastoma gostivarense **comb. n.**

ikarium (Roewer, 1951).

Nemastoma ikarium Roewer, 1951: 125.

Paranemastoma ikarium **comb. n.**

ios (Roewer, 1917).

Nemastoma quadripunctatum ios Roewer, 1917: 143.

Nemastoma ios—Roewer 1951: 121.

Paranemastoma ios **comb. n.**

kaestneri (Roewer, 1951).

Nemastoma kästneri Roewer, 1951: 121.

Paranemastoma kaestneri **comb. n.**

longipalpatum (Roewer, 1951).

Nemastoma longipalpatum Roewer, 1951: 116;

Paranemastoma longipalpatum **comb. n.**

macedonicum (Hadži, 1973a).

Nemastoma macedonicum Hadži, 1973a: 25.

Paranemastoma macedonicum **comb. n.**

machadoi (Roewer, 1951).

Nemastoma machadoi Roewer, 1951: 123.

Paranemastoma machadoi—Prieto 2008: 55 (excluded from Spain).

mackenseni (Roewer, 1923).

Nemastoma mackenseni Roewer, 1923: 668.

Paranemastoma mackenseni **comb. n.**

multisignatum (Hadži, 1973a).

Nemastoma (*Dromedostoma*) *multisignatum* Hadži, 1973a: 35

Paranemastoma multisignatum **comb. n.**

nigrum (Hadži, 1973a).

Nemastoma (*Dromedostoma*) *nigrum* Hadži, 1973a: 32.

Paranemastoma nigrum **comb. n.**

perfugium (Roewer, 1951).

Nemastoma perfugium Roewer, 1951: 110.

Paranemastoma perfugium **comb. n.:** Roewer (1951) placed *perfugium* in the group of *Paranemastoma*-like Nemastomatidae. The type locality (Elba, Italy) is otherwise not known to be inhabited by *Paranemastoma* and hence doubtful.

redikorzevi (Roewer, 1951).

Nemastoma redikorzevi Roewer, 1951: 125.

Paranemastoma redikorzevi—Staręga 1978: 205.

Paranemastoma roeweri Staręga, 1978: 205;—Chevrizov 1979: 14; **syn. n.:** Staręga (1978: 205) found *Nemastoma redikorzevi* Roewer (loc. typ. Ukraine “Krim”) to be preoccupied by *Nemastoma redikorzevi* Charitonov, renamed it *roeweri* and transferred it to *Paranemastoma*. In this case of primary homonymy, the younger name is not to be automatically replaced, as Staręga transferred the species to different genera in the same paper, not notifying the commission (ICZN 23.9.5).

santorinum (Roewer, 1951).

Nemastoma santorinum Roewer, 1951: 124.

Paranemastoma santorinum **comb. n.**

senussium (Roewer, 1951).

Nemastoma senussium Roewer, 1951: 123.

Paranemastoma senussium **comb. n.:** According to drawing and size, it is definitely a *Paranemastoma* unlikely to occur in the North African Kufra Oasis.

sketi (Hadži, 1973a).

Nemastoma (*Dromedostoma*) *sketi* Hadži, 1973a: 41.

Paranemastoma sketi **comb. n.**

spinosulum (L. Koch, 1869).

Nemastoma spinosulum L. Koch, 1869: 165.

Nemastoma spinulosum—Roewer 1951: 140 (misspelling).

Paranemastoma spinosulum **comb. n. Remarks.** L. Koch (1869) provided descriptions as a determination key, allowing association with *Paranemastoma* from the mentioned pair of prominent spines only. Roewer (1951: 140) mentioned it as *N. spinulosum*, while the species seems not recognisable any more.

umbo (Roewer, 1951).

Nemastoma umbo Roewer, 1951: 122.

Paranemastoma umbo—Staręga 1978: 206; Martens 2006: 206. **Remarks.** Described from the Caucasus, Martens (2006: 207) questioned that *umbo* originates from this geographic area, but was unable to assign it to another species.

Genus *Pyza* Staręga, 1976 (4 species)

Pyza Staręga, 1976: 315; type species *Nemastoma bosnicum* Roewer, 1917 by monotypy and original designation;—Gruber 1979: 559.

Remarks. Gruber (1979) revised the genus and mentioned that the type species, *P. bosnica,* is distantly related to the remaining species and only tentatively placed them in *Pyza*. A phylogenetic comparison with *Mediostoma* and *Vestiferum* is advised.

Etymology. Gender feminine; although sounding similar to modern Neapolitan fast food, the true titular saints are globular Polish potato dumplings, in resemblance to the body form of these opilionids.

anatolica (Roewer, 1959); loc. typ.: Turkey, Cheykhan, caves 30 km N Mardine.
Crosbycus anatolicus Roewer, 1959: 38.
Pyza anatolica—Gruber 1979: 572.

bosnica (Roewer, 1917); loc. typ.: Bosnia, Miljačka River Valley near Sarajevo.
Nemastoma bosnicum Roewer, 1917: 150.
Nemastoma gallwitzi Roewer, 1923: 667;—syn. Staręga 1976: 315.
Nemastoma (*Lugubrostoma*) *bosnicum orientale* Kratochvíl, 1958: 565;—syn. Staręga 1976: 316.
Nemastoma (*Lugubrostoma*) *goliae* Hadži, 1973a: 45;—syn. Gruber 1979: 560.
Nemastoma (*Lugubrostoma*) *sarae* Hadži, 1973a: 46;—syn. Gruber 1979: 560.
Pyza bosnica—Staręga 1976: 315.

navarrense (Roewer, 1951); loc. typ.: Spain, Navarra. **Remarks.** According to Gruber (1979: 561) the type locality is incorrect. He showed that the species is widely distributed in Greece and subsequent records from the Pyrenees are absent.
Nemastoma navarrense Roewer, 1951: 130.
Nemastoma lindbergi Roewer, 1959: 36;—syn. Gruber 1979: 561.
Pyza navarrense—Gruber 1979: 561.

taurica Gruber, 1979: 566; Turkey; loc. typ.: Turkey, Vilayet Antalya, 18 km W Topraktepe, E Manavgat.

Genus *Saccarella* Schönhofer & Martens, 2012 (1 species)

Saccarella Schönhofer & Martens, 2012: 412; type species *Saccarella schilleri* Schönhofer & Martens, 2012 by monotypy and original designation.

Etymology. Gender feminine; derived from the name of the type locality Monte Saccarello.

schilleri Schönhofer & Martens, 2012: 412; typ. loc.: Italy, Liguria, Imperia Prov., Monte Saccarello, Monesi di Triora.

Genus *Starengovia* Snegovaya, 2010 (1 species)

Starengovia Snegovaya, 2010: 351; type species *Starengovia kirgizica* Snegovaya, 2010 by monotypy and original designation.

Etymology. Gender feminine; in honor of the Polish arachnologist Wojciech Staręga.

kirgizica Snegovaya, 2010; typ. loc.: Kyrgyzstan, Alash Mountain Ridge and River valley, near Alash.
Starengovia kirgizica Snegovaya, 2010: 352.
Starengovia kirgisica—Snegovaya, 2010: 353. **Remarks.** The spelling is hereby fixed to *kirgizica* (ICZN 24.2.3).

Genus *Vestiferum* Martens, 2006 (2 species)

Vestiferum Martens, 2006: 175; type species *Nemastoma funebre* Redikorzev, 1936 by original designation.

Remarks. Martens (2006) united two species in *Vestiferum*, which he considered as not very closely related. He mentioned affinities of *alatum* to the Turkish species of the heterogenous *Pyza*.

Etymology. Gender neuter; Latin “vestis” (dress, blanket) and the ending „ferum“ (bearing) referring to the soil incrusted body, which is unusual within Nemastomatidae.

alatum Martens, 2006: 176; loc. typ.: Georgia, Ajaria, Kintrish State Reserve, Zeraboseli.

funebre (Redikorzev, 1936); loc. typ.: Abchasia, Gagra, Kvemo-Ažara near Tkvarčeli.
Nemastoma funebre Redikorzev, 1936: 36;—Šilhavý 1966a: 69; Staręga 1966a: 391; 1978: 203.
Nemastoma brunneum Redikorzev, 1936: 35;—syn. Staręga 1978: 203.
Vestiferum funebre—Martens 2006: 175.
Remarks. As both names were published in the same paper, Staręga (1978; as first revising author) gave *funebre* precedence over *brunneum* (ICZN 24.2.2).

Nemastomatinae incertae sedis (3 species)

Species listed here are not assignable to any genus and do not belong in *Nemastoma* sensu Gruber and Martens (1968). Formally excluded from *Nemastoma*, they require re-definition.

daciscum L. Koch, 1869: 164; loc. typ.: not given. **Remarks.** L. Koch (1869) described this *Nemastoma* in a short key. Roewer (1914: 144) listed it with *Nemastoma quadripunctatum* but found it not recognisable. It is recommended to not use *daciscum* any further.

lilliputanum Lucas, 1849; loc. typ.: Algeria, Oran, Djebel Santon Mountain.
Goniosoma lilliputanum Lucas, 1849: 302.
Nemastoma lilliputanum—Simon 1879a: 289; Roewer 1914: 138.
Nemastoma (*Lugubrostoma*) *lilliputanum*—Kratochvíl 1958: 539.
Remarks. The cheliceral apophysis of the type (depicted by Roewer 1914: 138) is very unique and may point to separate generic status.

rude Simon, 1881b: 90; loc. typ.: France, Dép. Alpes-Maritimes, St. Martin Lantosque. **Remarks.** The body length of 9 mm stated for this *Nemastoma* (Simon 1881b) exceeds that of any other species in the family and is therefore most likely an error. The description faintly suggests *Nemastoma dentigerum*, the type needs reinvestigation.

Family Nipponopsalididae Martens, 1976

Nipponopsalididae Martens, 1976: 66; type genus *Nipponopsalis* Martens & Suzuki, 1966, by monotypy and original designation.

Genus *Nipponopsalis* Martens & Suzuki, 1966 (3 species, 2 subspecies)

Nipponopsalis Martens & Suzuki, 1966: 215; type species *Ischyropsalis abei* Sato & Suzuki, 1939 by original designation.

Etymology. Gender feminine; from Kanji “Nippon” (Japan) and Greek “psalis” (scissors), referring to the enlarged chelicerae and the partly Japanese distribution.

abei abei (Sato & Suzuki, 1939); loc. typ.: Japan, Iwakuni, Yamaguti-Ken.
Ischyropsalis abei Sato & Suzuki, 1939: 29.
Nipponopsalis abei—Martens & Suzuki 1966: 218.
Nipponopsalis abei abei—Suzuki 1973: 264.

abei longipes Suzuki, 1973: 264; loc. typ.: Japan, Amami-ôshima Island, Mt. Yuwan-dake.

coreana (Suzki, 1966); loc. typ.: South Korea, Chungbug, Chungju, Betal Cave.
Ischyropsalis coreana Suzuki, 1966: 95.
Nipponopsalis coreana—Martens & Suzuki 1966: 220. **Remarks.** The redescription by Chemeris (2000: 47) actually deals with *Taracus birsteini*.

yezoensis (Suzuki, 1958); loc. typ.: Japan, Hokkaido, Orofure-tôge.
Ischyropsalis yezoensis Suzuki, 1958: 167.
Nipponopsalis yezoensis—Martens & Suzuki 1966: 220.

Family Trogulidae Sundevall, 1833

Trogulides Sundevall, 1833: 35 (proposed as family; compr. *Trogulus*, *Caeculus*); type genus *Trogulus* Latreille, 1802, inferable from the stem of the family name (ICZN 11.7.1.1);—C.L. Koch 1839b: 7 (compr. *Trogulus*).
Trogulidae—Simon 1872a: 239 (compr. *Trogulus*, *Cyphophthalmus*); Roewer 1940: 26 (compr. *Anelasmocephalus*, *Calathocratus*, *Kofiniotis*, *Platybessobius*, *Trogulocratus*, *Trogulus*); Šilhavý 1967: 176 (compr. *Anarthrotarsus*, *Anelasmocephalus*, *Calathocratus*, *Kofiniotis*, *Platybessobius*, *Trogulocratus*, *Trogulus*); Schönhofer & Martens 2010a: 71 (compr. *Anarthrotarsus*, *Anelasmocephalus*, *Calathocratus*, *Kofiniotis*, *Trogulus*).
Trogulini—Sørensen 1873: 515; Thorell 1876: 468 (as subfamily; compr. *Anelasma*, *Trogulus*).
Troguliinae—Simon 1879a: 289 (compr. *Trogulus*, *Anelasmocephalus*, *Calathocratus*, *Metopoctea*); Šilhavý, 1967: 175.

Remarks. *Trogulus* is understood as the type genus since Sundevall (1833: 35). Albeit C.L. Koch (1850: 98) indirectly designated *Trogulus* when assuming the group monotypic, Shear (1974: 67) seems the first to explicitly state *Trogulus* as the type genus. Some of the suggested changes in this family originate from a PhD thesis (Schönhofer 2009), which may not qualify as a valid taxonomic publication, hence they are given as new.

Genus *Anarthrotarsus* Šilhavý, 1967 (1 species)

Anarthrotarsus Šilhavý, 1967: 176; type species *Anarthrotarsus martensi* Šilhavý, 1967 by monotypy and original designation.

Etymology. Gender masculine; Greek, from „an" (no), "arthron" (joint) and "tarsus" referring to the one-segmented tarsi of all legs.

martensi Šilhavý, 1967: 176; loc. typ.: The original type locality Greece, Corfu, provided by Roewer, is doubtful for his known meddling with localities (Helversen & Martens 1972) and because the species was never collected there again. If it can't be confirmed, the affirmed paratype locality (Greece, Crete, Bay of Sithia) should be preferred (ICZN 76A.2).

Genus *Anelasmocephalus* Simon, 1879a (13 species)

Anelasma Sørensen, 1873: 519; type species *Anelasma lycosinum* Sørensen, 1873 by subsequent designation (Thorell 1876: 468).
Anelasmocephalus Simon, 1879a: 297; replacement name for *Anelasma* Sørensen, 1873, preoccupied by *Anelasma* Darwin, 1854.
Rhexana Sørensen, 1879: 124; the other suggested replacement name, *Anelasmocephalus* Simon, 1879a, has priority.

Etymology. Gender masculine; Greek, from „an“ (no) and “elasma” (plate) “kephalé” (head) referring to the small head cap in comparison to *Dicranolasma* (Sørensen 1873).

balearicus Martens & Chemini, 1988: 35; loc. typ.: Spain, Mallorca, settlement near Palma.

brignolii Martens & Chemini, 1988: 29; loc. typ.: Italy, Sardinia, Nuoro, Macomer, Borore.

calcaneatus Martens & Chemini, 1988: 31; loc. typ.: Italy, Sicily, Palermo, Corleone, Bosco della Ficuzza.

cambridgei (Westwood, 1874); **nomen protectum**; loc. typ.: Great Britain, Dorset, Bloxworth near Blandford.

Trogulus violaceus Gervais, 1844: 130; **nomen oblitum:** Assigned to *Anelasmocephalus* by Schönhofer (2009: 187). Pabst (1953: 22) mentioned the striking colouration as characteristic for all juveniles of this species. Being the older name it is here suggested to treat *violaceus* as nomen oblitum in favour of the established name *cambridgei* (nomen protectum; ICZN 23.9.1). *Trogulus violaceus* has not been used as valid name after its year of description (ICZN 23.9.1.1) and at least 150 works list the name *Anelasmocephalus cambridgei* (ICZN 23.9.1.2).

Trogulus cambridgei Westwood, 1874: 202; citation misspelled as *cambridgii* in Martens & Chemini 1988: 36.

Anelasma sörenseni L. Koch, 1877: 195;—syn. Simon 1879a: 299.

Anelasma sorenseni—Simon 1879a: 299.

Anelasmocephalus cambridgei—Simon 1879a: 299; Martens 1978: 176; Martens & Chemini 1988: 36 (redescr.).

crassipes (Lucas, 1849); loc. typ.: Algeria, Eastern part. **Remarks.** The syntype series most likely comprises material pooled from four localities mentioned in the original description (according to the number of individuals and the label stating “Algérie”; for other examples of mixed Simon series see Schönhofer & Martens 2008, e.g. p. 548). According to ICZN 73.2.3, the type locality comprises all these localities until a lectotype is designated.

Trogulus crassipes Lucas, 1849: 305.

Trogulus annulipes Lucas, 1849: 306;—syn. Martens & Chemini 1988: 26.

Anelasma oblongum Sørensen, 1873: 519;—syn. Martens & Chemini 1988: 26.

Anelasmocephalus bicarinatus Simon, 1879a: 298;—syn. Martens & Chemini 1988: 26.

Anelasmocephalus oblongus—Simon 1879a: 301.

Metopoctea annulipes—Simon 1879a: 311.

Anelasmocephalus crassipes—Roewer 1923: 646; Martens & Chemini 1988: 26 (redescr.).

hadzii Martens, 1978; loc. typ.: Austria, Karawanken, Eisenkappel.

Anelasmocephalus hadzii Martens, 1978: 181;—Martens & Chemini 1988: 18.

lycosinus (Sørensen, 1873); loc. typ.: Italy, Prov. Rome, Gennazzano.

Anelasma lycosinum Sørensen, 1873: 521.

Anelasmocephalus lycosinus—Simon, 1879a: 297; Martens & Chemini 1988: 12 (redescr.).

osellai Martens & Chemini, 1988: 33; loc. typ.: Italy, L'Aquila, Parco Nazionale d'Abruzzo, Marsicano Mountain.

pusillus Simon, 1879a; loc. typ.: France, Corsica (not further specified).

Anelasmocephalus pusillus Simon, 1879a: 300;—Martens & Chemini 1988: 11 (redescr.).

pyrenaicus Martens, 1978; loc. typ.: Spain, Central Pyrenees, Ordesa Valley.

Anelasmocephalus pyrenaicus Martens, 1978: 184;—Martens & Chemini 1988: 39.

rufitarsis Simon, 1879a; loc. typ.: France, Basses-Alpes, Digne.
Anelasmocephalus rufitarsis Simon, 1879a: 298;—Martens 1978: 180; Martens & Chemini 1988: 41 (redescr.).

tenuiglandis Martens & Chemini, 1988: 16; loc. typ.: France, Dép. Alpes-Maritimes, W St. Martin.

tuscus Martens & Chemini, 1988: 22; loc. typ.: Italy, Abetone, Cimone Mountain.

Genus *Calathocratus* Simon, 1879a (9 species)

Calathocratus Simon, 1879a: 301; type species *Trogulus africanus* Lucas, 1849 by monotypy.

Platybessobius Roewer, 1940: 27; type species *Platybessobius singularis* Roewer, 1940 by monotypy;—syn. Schönhofer & Martens 2010a: 71.

Trogulocratus Roewer, 1940: 27; type species *Trogulocratus intermedius* Roewer, 1940 by monotypy;—syn. Schönhofer & Martens 2010a: 71.

Remarks. When describing *Calathocratus*, Simon (1879a) defined *Trogulus africanus* as the type species, but based the description of the genus on a different species, rendering the description invalid. The genus name remained available by specification of the type species and a redescription of the genus should consider the original type series of *africanus* (MHNP 2201; Schönhofer 2009: 172).

Schönhofer and Martens (2010a) united three poly- and paraphyletic genera within *Calathocratus*. A list of taxonomic changes deemed unnecessary. The same authors also showed cryptic diversity to be extraordinarily high, while clear species delineation on the basis of molecular genetics or morphology could not be realised.

Etymology. Gender masculine; maybe from Greek „kalathos“ (flared fruit basket borne on the head as a symbol of fruitfulness in Greek and Egyptian mythology; compare Gruber 2003 for Simon’s preference to integrate Egyptian mythology in taxonomy) and “kratos” (authority, maybe in terms of “head of”), likely circumscribing the conspicuous head cap of these opilionids.

africanus (Lucas, 1849); loc. typ.: Algeria, surroundings of Algiers (as specified on the label of the type series MHNP 2201; Schönhofer 2009: 173).
Trogulus africanus Lucas, 1849: 304.
Calathocratus africanus—Simon 1879a: 301.
Trogulocratus tunetanus Roewer, 1950; **syn. n.:** Schönhofer (2009: 173) found the types of *tunetanus* to be conspecific with the types of *africanus* .

beieri Gruber, 1968: 435; loc. typ.: Turkey, Anatolia, Vilayet Içel, Namrun (?amlĭyayla).

caucasicus (Šilhavý, 1966b); loc. typ.: Russia, Kuban, Michajlov.
Platybessobius caucasicus Šilhavý, 1966b: 151.
Calathocratus caucasicus—Schönhofer & Martens 2010a: 71.

hirsutus Snegovaya, 2011 (in Snegovaya & Chumachenko 2011: 117); loc. typ.: Russia, Sochi, N Khosta, Caucasian State Natural Biospheric Reserve, yew and box-tree grove.

intermedius (Roewer, 1940); loc. typ.: Greece, Crete, Meskla. **Remarks.** The locality is doubtful for reasons explained under *Anarthrotarsus* and *Kofiniotis*, and because the species has never been recollected on Crete.
Trogulocratus intermedius Roewer, 1940: 28.
Calathocratus intermedius—Schönhofer & Martens 2010a: 71; Schönhofer 2009: 173.

minutus Snegovaya, 2011 (in Snegovaya & Chumachenko 2011: 117); loc. typ.: Russia, Sochi, N Khosta, Caucasian State Natural Biospheric Reserve, yew and box-tree grove.

rhodiensis (Gruber, 1963); loc. typ.: Greece, Rhodos, Apollo Temple on Smith Mountain.
Trogulocratus rhodiensis Gruber, 1963: 308.
Calathocratus rhodiensis—Schönhofer & Martens 2010a: 71.

singularis (Roewer, 1940); loc. typ.: Greece, Crete, Topolia Gorge.
Platybessobius singularis Roewer, 1940: 27.
Calathocratus singularis—Schönhofer & Martens 2010a: 71.

sinuosus (Sørensen, 1873); loc. typ.: Italy, Prov. Rome, Gennazzano.
Trogulus sinuosus Sørensen, 1873: 522.
Trogulus albicerus Sørensen, 1873: 523; **syn. n.:** Described from the same locality, *albicerus* is based on juveniles of *sinuosus* (Schönhofer 2009: 173).
Trogulocratus apenninicus Marcellino, 1965: 327;—syn. Chemini & Gruber 1976: 132.
Trogulocratus sinuosus—Chemini & Gruber 1976: 132.
Calathocratus sinuosus—Schönhofer & Martens 2010a: 71.
Remarks. Brignoli and Raffaelli (1978: 94) synonymised the Italian *apenninicus* with the supposedly Greek *intermedius*, but given the geographic distance, it is unlikely that both are conspecific. Chemini and Gruber (1976: 132) redirected the synonymy of *apenninicus* to the Italian *sinuosus*.

Genus *Kofiniotis* Roewer, 1940 (1 species)

Kofiniotis Roewer, 1940: 29; type species *Kofiniotis creticus* Roewer, 1940 by monotypy and original designation;—Roewer 1950: 56; Šilhavý 1967: 176.
Konfiniotis—Roewer, 1940: 29.

Etymology. Gender masculine; Roewer (1940) spelled "*Konfiniotis*" in the header of the genus description and "*Kofiniotis*" elsewhere. No meaning for *Kofiniotis* was given, but *Konfiniotis*, derived from the Latin "confinium", the "bordered" or "limited", is reasonable in view of the species exhibiting rows of long papillae along the legs to "confine" several of the distal segments. However, Roewer did not explain the etymology to infer a spelling error. According to ICZN 24.2.4, Roewer (1950: 56) as first revising author fixed *Kofiniotis* by listing only this name. The gender of the species-name *creticus* specifies the gender of the genus as masculine (ICZN 30.2.3).

creticus Roewer, 1940: 29; loc. typ.: Greece, Crete, Meskla. **Remarks.** The type locality is likely erroneous as the species was never collected again on Crete and as the type label states "Topolia Cave", a locality which Roewer used for several problematic species (Helversen & Martens 1972). It is advised to use "Greece, Levkas Island", the second reported (Roewer 1950) and reconfirmed locality (Schönhofer & Martens 2010a) as type locality.

Genus *Trogulus* Latreille, 1802 (32 species)

Trogulus Latreille, 1802: 61; type species *Acarus nepaeformis* Scopoli, 1763 by subsequent designation (Thorell 1876: 468).
Metopoctea Simon, 1879a: 309; type species *Phalangium melanotarsum* Hermann, 1804, here designated type species as none was designated before;—syn. Dahl, 1903: 283.
Trogolus—C.L. Koch 1839a: 7 (misspelling).

Remarks. Schönhofer and Martens (2010a) showed that cryptic diversity was largely underestimated. The revision of the genus is a tedious process due to its homogeneous morphology.

Etymology. Gender masculine; Latreille (1802: 61) stated the chelicerae and palps to be hidden under a small hood (coqueluchon = petite capuchon) and applied the name "Trogule". The exact meaning remains unclear, while in view of Latreille's explanation the interpretation of Perrier *et al.* (1929; de "trogein", rongé = gnawed) has to be rejected.

aquaticus Simon, 1879a; loc. typ.: France, Corsica, Haute Corse, Corte.

Trogulus aquaticus Simon, 1879a: 306;—Schönhofer & Martens 2008: 533 (redescr.).

Metopoctea exarata Simon, 1879a: 310; **syn. n.**

Trogulus exaratus—Schönhofer & Martens 2008: 553 (considered invalid).

Remarks. Simon's original description of *exarata* (1879a: 306) matches only the largest specimen of the syntype series, thereby identifiable as its lectotype (ICZN 74.4). The lectotype represents a juvenile of *aquaticus* (7.5 mm body length, length of the tarsal segments II almost equal), fixing the type locality to Corsica (ICZN 76.2). The other juvenile paralectotypes cannot be assigned and may originate from other localities mentioned in the description, e.g. the Pyrenees. *Metopoctea exarata* is hereby placed in the synonymy of *Trogulus aquaticus*, against Schönhofer and Martens' (2008: 553) recommendation to neglect *exarata* without affiliating it to a species. Schönhofer and Martens (2008: 553) specified a neotype for *aquaticus*, which, in fact, is a lectotype, because it originates from the syntype series.

balearicus Schönhofer & Martens, 2008: 537; loc. typ.: Spain, Balearic Islands, Ibiza, Sierra Grosa, valley facing to San José.

banaticus Avram, 1971; loc. typ.: Romania, Banat Mountains, Scorilla Valley, Poiana Mărului.

Trogulus banaticus Avram, 1971: 261;—Schönhofer & Novak 2011: 8; Schönhofer *et al.* 2013a: 371 (both redescr.).

cisalpinus Chemini & Martens, 1988: 71; loc. typ.: Italy, Como, Brunate.

closanicus Avram, 1971; loc. typ.: Romania, Carpathian, Plateau de Mehedintzi, Cloşani.

Trogulus closanicus Avram, 1971: 256;—Weiss 1978: 226; Chemini 1984: 57 (redescr.).

Trogulus asperatus C.L. Koch, 1839a: 146; **nomen oblitum:** The holotype of *asperatus* represents a not assignable juvenile of the *nepaeformis*-*squamatus*-complex, of which at the type locality of *asperatus* (Zweibrücken, Germany) only *closanicus* was found abundant. As the name never played a role in the taxonomic literature, it is proposed as a nomen oblitum and *closanicus* as a **nomen protectum** (see Remarks on *niger* under *nepaeformis*).

coriziformis C.L. Koch, 1839a; loc. typ.: Italy, Lazio, Roma Prov., Monti della Tolfa, between Tolfa and Rota (restricted by neotype locality; Schönhofer & Martens 2008: 538).

Trogulus coriziformis C.L. Koch, 1839a: 128;—Schönhofer & Martens 2008: 538 (redescr.).

Trogulus salfii De Lerma, 1948: 160;—syn. Schönhofer & Martens 2008: 538.

cristatus Simon, 1879a; loc. typ.: France, Provence, Dép. Alpes-Maritimes.

Trogulus cristatus Simon, 1879a: 308;—Schönhofer & Martens 2008: 543 (redescr.).

falcipenis Komposch, 2000; loc. typ.: Austria, Carinthia, Karawanken, Koschuta, S Zell-Pfarre.

Trogulus falcipenis Komposch, 2000: 2;—Schönhofer & Martens 2009: 1239 (redef.).

***graecus**,* Dahl, 1903, loc. typ.: Greece (not further specified).

Trogulus graecus Dahl, 1903: 285.

Trogulus corcyraeus Dahl, 1903: 285;—syn. Staręga 1976: 301. **Remarks.** Schönhofer and Martens (2010a) assumed that many cryptic species were summarised under the name *graecus*. *Trogulus corcyraeus* (loc. typ.: Greece, Corfu) likely belongs to one of these cryptic species and should be considered for a revision (Schönhofer 2009: 176).

gypseus Simon, 1879b: 75; loc. typ.: Jerusalem. **Remarks.** Schönhofer and Martens (2010) assumed several cryptic species summarised under this name.

hirtus Dahl, 1903; loc. typ.: Bosnia-Herzegovina, Konjsko.
Trogulus tricarinatus subspecies *hirta* Dahl, 1903: 289.
Trogulus tricarinatus hirtus—Roewer 1923: 641.
Trogulus hirtus—Schönhofer & Martens 2009: 1226 (redescr.).

huberi Schönhofer & Martens, 2008: 548; loc. typ.: Portugal, Algarve, 50 km N Faro, Alte.

karamanorum Schönhofer & Martens, 2009: 1244; loc. typ.: Republic of Macedonia, Gostivar, near Gjonovica Cave.

lusitanicus Giltay, 1931; loc. typ.: Portugal, Lisboa, Sintra (Cintra).
Trogulus lusitanicus Giltay, 1931: 1;—Schönhofer & Martens 2008: 549 (redescr.).
Remarks. *T. lusitanicus* includes cryptic species (Schönhofer & Martens 2008).

martensi Chemini, 1983; **nomen protectum**; loc. typ.: Italy, Trento, Pergine Valsugana.
Trogulus martensi Chemini, 1983: 125.
Trogulus tuberculatus Canestrini, 1874: 221; **nomen oblitum**: Chemini (1986) did not mention *T. tuberculatus* from the Canestrini Collection, and the type can be presumed lost. *Trogulus martensi* is widespread and abundant in the Po-Valley and is the only species likely to occur at the type locality of *tuberculatus* (Italy, Padova, Cervarese). However, *tuberculatus* is not recognisable from the description, featuring a juvenile (e.g. body ash-grey, only tarsi dark) and compared with other *Trogulus* of questionable definition (*nepaeformis* sensu Koch 1839a; *squalidus*, *asperatus*). Furthermore, the name *Trogulus tuberculatus* has not played a role in taxonomic literature after 1899 (only once mentioned as a synonym; Roewer 1923: 639; ICZN 23.9.1.1) and a minimum of 25 works mention *T. martensi* (ICZN 23.9.1.2). *Trogulus tuberculatus* is suggested as nomen oblitum (ICZN 23.9) to favour the established name *Trogulus martensi* (nomen protectum).

megaligrava Schönhofer *et al*., 2013a: 373; loc. typ.: Greece, Corfu, S Loutses, Megali Grava Cave.

melitensis Schönhofer & Martens, 2009: 1236; loc. typ.: Croatia, Mljet Island, Soline, Bjejajka, in pit Jama u uvali šume Bjejajka.

nepaeformis (Scopoli, 1763); loc. typ.: Scopoli (1763) stated only "Discovered once in moss near beech roots". T. Novak (pers. comm.) assumed that the type was collected at Scopolis workplace, Slovenia, Idrija, where the species is present and which should be fixed as type locality.
Acarus nepæformis Scopoli, 1763 (in index without page numbers).
Acarus nepeformis—Scopoli, 1763: 390.
Phalangium rostratum Latreille, 1798: 114;—syn. Dahl 1903: 288.
Trogulus nepaeformis—Latreille 1802: 61.
Trogulus rostratum—Latreille 1802: 61.
Phalangium melanotarsum Hermann, 1804: 103;—syn. Dahl (1903: 288). **Remarks.** Hermann's (1804) drawings of *melanotarsum* show an early instar not assignable to any species. At the locus typicus (Strasbourg, France) presence of four species is possible, but no later reference to *melanotarsum* can be clearly associated with any of these (e.g. Koch 1839a, Simon 1879a, Ausserer 1867, Kraepelin 1896) or other species. The type is lost and the name never played a role in systematic literature (Schönhofer 2009: 181). Here, Dahl (1903: 288) is followed, suggesting *T. melanotarsus* as a synonym of *T. nepaeformis*.
Trogulus niger C.L. Koch, 1836a: 136;—C.L. Koch 1839a: 138; syn. Dahl 1903: 287. **Remarks.** A *Trogulus* from BMNH is labelled *niger* and the museum data (not the label) states "Triest" as locality and "Graf Jeniston" as the collector, conforming to C.L. Koch's data of the type. It is not labelled as type and should not be considered one to keep the name in synonymy, as it never played a role in taxonomic literature. *Trogulus niger* was already considered as a synonym of *nepaeformis* by Dahl (1903: 287) and Roewer (1923: 639), only discussed by Hadži (1928: 9), who confused *tingiformis* for *nepaeformis* and *nepaeformis* for *niger.* The BMNH specimen conforms to *Trogulus closanicus* Avram, 1971, a name in prevailing use since the species

was accepted by Weiss (1978) and redescribed by Chemini (1984). References for Germany alone (Staudt 2013) provide the required minimum of 25 works (ICZN 23.9.1.2). In case of doubt, protecting *closanicus* and considering *niger* as nomen oblitum is advised.

Trogulus melanotarsus—C.L. Koch 1839a: 148.

Trogulus perforaticeps Ausserer, 1867: 169;—syn. Dahl 1903: 288.

Trogulus nepiformis—Thorell 1876: 468; Latreille 1804: 328 (misspelling).

Anelasmocephalus niger—Simon 1879a: 301.

Metopoctea melanotarsus—Simon 1879a: 309.

Siro inaequipes Karsch, 1884: 146;—syn. Dahl 1903: 288.

Trogulus galasensis Avram, 1971: 255; **syn. n.:** Weiss doubted the species status of *galasensis* and pointed to the similarity with *T. nepaeformis* and *T. martensi* (Weiss 1978: 226; 1998: 26). Although the penis depicted by Avram (1971) is damaged, it is similar to that of *T. nepaeformis*. Until the species is collected again at the type locality (Romania, Apuseni Mountains, Vallée du Criş Repede) the name should be treated as a synonym of *T. nepaeformis* (contradictory to Schönhofer 2009: 177; proposed as a nomen oblitum).

Trogulus roeweri Avram, 1971: 257; **syn. n.:** The type locality of *roeweri* is vague (Bosnia), the type series is questionable (should contain a male and a female, but contains 3 females; the label states 8 specimens), and the description is based on a damaged male (Schönhofer 2009: 177). Weiss (1978: 226) questioned species status of *roeweri* and compared it with *nepaeformis*, which is here followed.

oltenicus Avram, 1971: 242; loc. typ.: Romania, Carpathian, Plateau de Mehedintzi, Massif de Vîrotape, N Obîrşia Cloşani. **Remarks.** Recollected from Romania, *oltenicus* can be considered as valid. A redescription is necessary to explain what Avram (1971) meant and to delineate it from similar species summarised in *T. tricarinatus* (Schönhofer 2009: 182). As only one male was available for description, holotype and type locality are unambiguous, although they were not specified.

ozimeci Schönhofer *et al.*, 2013a: 374; loc. typ.: Kroatia, Dubrovnik, Osojnik, Močiljska špilja.

pharensis Schönhofer & Martens, 2009: 1234; loc. typ.: Croatia, Hvar Island, entrance of road tunnel from Pitve to Zavala.

prietoi Schönhofer & Martens, 2008: 551; loc. typ.: Spain, Andalucía, Málaga Prov., ruins 6 km S of Villanueva de la Concepcion.

pyrenaicus Schönhofer & Martens, 2008: 552; loc. typ.: Spain, Aragón, Huesca Prov., Pyrenees, Parque Nacional de Ordesa-Monte Perdido, Monte Perdido, Torla.

rossicus Šilhavý, 1968: 25; loc. typ.: Russia, Kuban, Gorjačij ključ.

setosissimus Roewer, 1940; loc. typ.: Croatia, Hvar Island (Lesina).

Trogulus setosissimus Roewer, 1940: 28;—Schönhofer *et al.*, 2013a: 379 (redescr.).

squamatus C.L. Koch, 1839a; loc. typ.: Dalmatia. **Remarks.** According to the historic definition of Dalmatia and known distribution of *T. squamatus*, the type locality narrows down to the coastal area between the Gulf of Kotor and the mouth of the Neretva River. The species is otherwise abundant in large parts of Montenegro.

Trogulus squamatus C.L. Koch, 1839a: 140;—Westwood (1874: 202).

Trogulus squammatus—C.L. Koch 1850: 98 (misspelling).

tenuitarsus Schönhofer *et al.*, 2013a: 376; loc. typ.: Macedonia: Bistra Mountain, Monastir Sveti Jovan Bigorski near Rostuše.

thaleri Schönhofer & Martens, 2009: 1230; loc. typ.: Croatia: Drvenik.

tingiformis C.L. Koch, 1847; loc. typ.: Germany, Upper Bavaria (not further specified).
Trogulus tingiformis C.L. Koch, 1847: 70 (not 1848; see Brignoli 1985);—Martens 1978: 172 (redescr.).
Trogulus gruberi Avram, 1971: 259;—syn. Martens 1978: 172.

tricarinatus (Linnaeus, 1767); loc. typ.: Germany, Saxony, Dresden.
Phalangium tricarinatum Linnaeus, 1767: 1029.
Phalangium carinatum—Olivier 1792: 460 (misspelling).
Trogulus squalidus C.L. Koch, 1839a: 143;—syn. Dahl 1903: 289.
Trogulus tricarinatus—C.L. Koch 1839a: 145 (redefinition).
Remarks. Schönhofer and Martens (2010a) assumed several cryptic species summarised under this name.

torosus Simon, 1885b; loc. typ.: Montenegro, Spica, Sutomore.
Trogulus torosus Simon, 1885b: 218;—Schönhofer *et al.* 2013a: 381 (redescr.).

uncinatus Gruber, 1969: 83; loc. typ.: Turkey, Yalova.

Trogulus considered as nomina dubia

coreiformis C.L. Koch, 1839a: 133; loc. typ.: not specified. **Remarks.** Koch's (1839a) drawings do not allow identification of the species, and the type seems lost. Ausserer (1867: 160) mentioned *coreiformis* from Tyrol, Austria (Paschberg, Mühlau), but his data provide no evidence for a distinct species (see also Schönhofer 2009: 176).

lygaeiformis C.L. Koch, 1839a; loc. typ.: not specified.
Trogulus lygaeiformis C.L. Koch, 1839a: 130.
Trogulus ligaeiformis—C.L. Koch 1850: 98 (misspelling). **Remarks.** Koch's (1839a: 130) insufficient description compared *lygaeiformis* with *nepaeformis* which he understood to be much larger than *nepaeformis* as presently accepted. Dahl's (1903: 287) synonymisation of *lygaeiformis* with *nepaeformis* is therefore inappropriate. The type seems to be lost and it is advisable not to use this name any longer (Schönhofer 2009: 180) as no species is recognisable.

templetonii Westwood, 1833: 453; loc. typ.: Valparaiso. **Remarks.** Further listing restricted to Westwood (1874: 202) and Sherborn (1933: 1058). The species is not recognisable, and the type locality refers to either a city in Chile (unlikely) or Valparaíso de Abajo in Central Spain. The type is stated to be in the Belfast Natural History and Philosophical Society Museum and should be investigated.

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