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Studies on spider nomenclature – I: miscellaneous notes on unrecognisable species, new synonyms, and untenable subspecies (Araneae: Araneomorphae)

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Abstract: Miscellaneous notes on the nomenclature of spiders are presented, resultant are: 6 new synonymies; 7 subspecies raised to, and 2 restored to, species level; 40 taxa are proposed as ***nomina dubia***; 1 subspecies is declared a ***subspecies inquirenda***, and 112 species described based on juvenile type material are proposed as ***species inquirendae***.

Keywords: *nomen dubium*, restored, revised status, *species inquirenda*, synonymy

蜘蛛命名研究 I：关于无法识别的种类、新异名以及难以维持亚种的多项注解（蛛形目：新蛛亚目）

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摘要：本文对多种蜘蛛的命名问题进行了注解，结果如下：提出 6 个新异名；7 个亚种提升至种级水平，2 个亚种恢复到种级水平；40 个种级分类单位被建议作为疑名对待；1 个亚种被视为待考亚种，另外 112 个以幼体作为模式标本进行描述的物种被提议为待考种。

关键词：疑名，恢复，修订地位，待考种，异名

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Introduction

As the number of spider species described continues to rise each year (World Spider Catalog 2024), little attention is being placed on many old, forgotten names described in the previous two centuries. Equally, some more recent taxa have also been ignored due to their 'problematic' nature. Species described from juveniles, for instance, lack the most critical morphological characters for species differentiation in spiders – fully-developed genitalia. Despite this, hundreds of names remain valid described based on such specimens. Worse are descriptions from the nineteenth and twentieth centuries where the sex of the specimen and sometimes even the country of origin is not even known, and the provided description could apply to several, or many, taxa.

In this work, I deal with 168 names that I have come across in the last decade during the course of my arachnological research which can be dealt with efficiently, nomenclaturally. This represents just the first step in tackling the burden of enigmatic historical taxa, with many thousands described with good type localities and from adult specimens, which remain near equally poorly-known and still waiting to be redescribed. Spider taxonomists should be careful not to consider the establishment of new names (and description of new species), as more important than addressing congeneric historical taxa beforehand. Generic placement of taxa in this work is based on their status in the World Spider Catalog (2024) at the time of writing. Abbreviations: **IBSP** = Instituto Butantan, São Paulo, Brazil; **MCZ** = Museum of Comparative Zoology, Harvard University, Cambridge, United States; **MNHN** = Muséum national d'Histoire naturelle, Paris, France; **MZUF** = Museo Zoologico La Specola, Università di Firenze, Florence, Italy; **NHMUK** = Natural History Museum, London, United Kingdom; **NHMW** = Naturhistorisches Museum Wien, Vienna, Austria; **OUMNH** = Oxford University Museum of Natural History, Oxford, United Kingdom; **USNMENT** = United States National Museum, Washington D.C., United States; **ZMB** = Museum für Naturkunde, Berlin.

Nomina dubia

Family Actinopodidae Simon, 1892

Actinopus pertyi Lucas, 1843 *nomen dubium*

Fig. 1

Actinopus pertyi Lucas, 1843: 318 (♀).

Actinopus pertyi: Lucas 1845: 57, pl. 1, fig. 1 (♀).

Sphodros pertyi: Walckenaer 1847: 372.

Actinopus pertyi: Miglio, Pérez-Miles & Bonaldo 2020: 13 (*species inquirenda*).

Remarks. Lucas (1843: 318) described this species from "Nova-Hollandae" [= Australia] but later corrected the distribution to be "l'Amérique du nord" [= North America] in 1845 (Lucas 1845: 60). Walckenaer (1847: 372) simply gives the distribution as "D'Amérique" [= the Americas]. The plate provided by Lucas (1845) [no illustrations were given in Lucas (1843)] undoubtedly shows this specimen is correctly placed in the genus *Actinopus* Perty, 1833 (Fig. 1). Nonetheless, none of the aforementioned three works provide enough information to be able to differentiate this species from the more than one-hundred congeners known today (World Spider Catalog 2024). Miglio *et al*. (2020: 12–13) treated *A. pertyi* as a *species inquirenda* and stated: "The type of *A. pertyi* Lucas, 1843, originally deposited at Muséum National d'Histoire Naturelle (MNHN), Paris is lost". I concur with their statement, having made an unsuccessful search for this type material at the museum. The totally unknown type locality and absence of type material for examination renders this species unrecognisable. The general description, which does not distinguish it from any other *Actinopus*, also precludes a reasonable neotype designation in my opinion, as any choice of a true South American morphospecies would be arbitrary. Therefore, I propose *Actinopus pertyi* as a ***nomen dubium***.

FIGURE 1. *Actinopus pertyi* Lucas, 1843 ***nomen dubium***, original illustrations (and lettering thereof) from description by Lucas (1843).

Family Anyphaenidae Bertkau, 1878

Gayenna sigillum Mello-Leitão, 1941 *nomen dubium*

Gayenna sigillum Mello-Leitão, 1941: 194 (imm.).

Gayenna sigillum: Ramírez 2003: 225.

Remarks. As stated by Ramírez (2003), this Argentinian species has characteristics, and a distribution, congruent with that of *Oxysoma saccatum* (Tullgren 1902). However, the type material is immature (M. Ramírez pers. comm.) and it is not possible to distinguish juveniles at the species level within this genus. Therefore, due to the immaturity of the holotype, I propose *Gayenna sigillum* as a ***nomen dubium***.

Family Araneidae Clerck, 1757

Araneus isabella (Vinson, 1863) *nomen dubium*

Epeira isabella Vinson, 1863: 157, 308, pl. 4, fig. 2 (imm.).

Remarks. The whereabouts of the type material is unknown and it is presumed lost, this, combined with the fact immature araneids are typically not taxonomically informative, and the absence of a precise type locality within Madagascar itself (Vinson 1863), renders this species unrecognisable. Therefore, I propose *Araneus isabella* as a ***nomen dubium***.

Araneus metellus (Strand, 1907) *nomen dubium*

Aranea metella Strand, 1907b: 193 (imm.).

Remarks. This species was described based on immature material from China and the description does not give characters useful for differentiating this species from (adult) specimens of other known congeners (Strand 1907b). Furthermore, the type material was destroyed during Second World War bombing raids (Renner 1988). Thus, for these reasons, I propose *Araneus metellus* as a ***nomen dubium***.

Araneus ocellatulus (Roewer, 1942) *nomen dubium*

Epeira ocellata O. Pickard-Cambridge, 1889: 29, pl. 6, fig. 17 (imm., preoccupied name).

Aranea ocellata: F. O. Pickard-Cambridge 1904: 518.

Araneus ocellatus: Petrunkevitch 1911: 307.

Aranea ocellatula: Roewer 1942: 849 (replacement name).

Remarks. After searching the collections, it is apparent to me that the type material of this Guatemalan species is not in the Oxford University Museum of Natural History and is thus lost. The original description gives no characters which differentiate this species from congeners or are known to be stable in respect to ontogeny (O. Pickard-Cambridge 1889). Therefore, I propose *Araneus ocellatulus* as a ***nomen dubium***.

Araneus transversivittiger (Strand, 1907) *nomen dubium*

Aranea transversivittigera Strand, 1907b: 180 (imm.).

Remarks. As for *Araneus metellus*, this species was described based on immature type material from China, now lost (Renner 1988), and the original description gives no characters of use (Strand 1907b). Therefore, I propose *Araneus transversivittiger* as a ***nomen dubium***.

Cyrtarachne sinicola Strand, 1942 *nomen dubium*

Cyrtarachne sp.: Schenkel 1936: 127, fig. 46 (imm.).

Cyrtarachne sinicola Strand, 1942: 396 (imm.).

Remarks. Strand (1942) ascribed an available name to this species which was, correctly, named cautiously as "*Cyrtarachne* sp." by Schenkel (1936) on the basis it was immature. Furthermore, the type locality Szechuan [= Sichuan] comprises a large area of China, a country known for significant short-range endemism in large amounts of its spider fauna. The species is not recognisable from the original description as most characters given (Schenkel, 1936) could be subject to ontogeny. Therefore, based on the above reasons, I propose *Cyrtarachne sinicola* as a ***nomen dubium***.

Family Corinnidae Karsch, 1880

Corinna haemorrhoa (Bertkau, 1880) *nomen dubium*

Liocranum haemorrhoum Bertkau, 1880: 47 (imm.).

Corinna haemorrhoa: Mello-Leitão 1922: 54.

Remarks. The type material for this species from Brazil is lost (Jason Dunlop, Bernhard Huber, and Peter Jäger pers. comm.) and the description alone (Bertkau 1880) is not sufficient to distinguish it from other corinnids known from the general area. Therefore, I propose *Corinna haemorrhoa* as a ***nomen dubium***.

Corinna selysi (Bertkau, 1880) *nomen dubium*

Hypsinotus selysii Bertkau, 1880: 111 (imm.).

Corinna selysi: Petrunkevitch 1911: 469.

Remarks. Similarly to *C. haemorrhoa*, the type material of this Brazilian species is lost and the description (Bertkau 1880) renders it unrecognisable. Therefore, I propose *Corinna selysi* as a ***nomen dubium***.

Family Ctenidae Keyserling, 1877

Ctenus bicolor (Bertkau *in* Van Beneden, 1880) *nomen dubium*

Isoctenus bicolor Bertkau *in* Van Beneden, 1880: 637.

Ctenus bicolor: F. O. Pickard-Cambridge 1902: 412.

Remarks. The description of this spider gives no clue as to which sex it belongs and if indeed it was adult. There are no figures, and the type material is lost (Jason Dunlop, Bernhard Huber, and Peter Jäger pers. comm.).

The holotype was a stowaway, imported into Belgium with bromeliads from Brazil, although it is not known precisely from what part of Brazil the plants were from (see Van Beneden 1880). Therefore, since this species has an inadequate original description and the type material is lost, I thus propose *Ctenus bicolor* as a ***nomen dubium***.

Ctenus walckenaerii Griffith, 1833 *nomen dubium*

Fig. 2

Ctenus walckenaerii Griffith, 1833: 538, pl. 3, fig. 2.

Remarks. This species has no stated type locality in the original description. Indeed, the description is less than 10 words long. The index to the plates (Griffith 1833: 538) includes the statement "3. 2. Ctenus Walkenaerii, 426 Yellowish, marked with reddish and black lines." which indicates: the identity of the spider in figure 2 of plate 3, followed by the name of the spider, the page number on which it is mentioned [really only the genus *Ctenus* Walckenaer, 1805 itself is mentioned in broad terms in the main text] and a one-sentence description which ultimately makes this name available from Griffith's work. The illustration in Griffith (1833) appears to indeed show a ctenid, but its generic affinity is not possibly to decipher from the information available alone. Furthermore, whilst the World Spider Catalog (2024) lists the holotype as being male, the illustration suggests it was instead not an adult male, rather either a female or immature specimen of either sex (Fig. 2). The sex is never indicated in the description by Griffith (1833). Given the absence of a type locality, minimalist original description, and the fact that no type material is known to exist, I propose *Ctenus walckenaerii* as a ***nomen dubium***.

FIGURE 2. *Ctenus walckenaerii* Griffith, 1833 ***nomen dubium***, original illustration (including original numbering) from description by Griffith (1833).

Family Gnaphosidae Banks, 1892

Pterotricha linnaei (Audouin, 1826) *nomen dubium*

Fig. 3A

Drassus linnaei Audouin, 1826: 384, pl. 5, fig. 7 (♀).

Pythonissa linnaei: Simon 1878: 205.

Pterotricha linnaei: Reimoser 1919: 173.

Remarks. The types of all species described by Audouin (1826) are presumed lost (see Sherwood 2022). Only the habitus of this Egyptian gnaphosid is figured (see Fig. 3A), and the description (Audouin 1826) is insufficient to recognise the species. Therefore, I propose *Pterotricha linnaei* as a ***nomen dubium***.

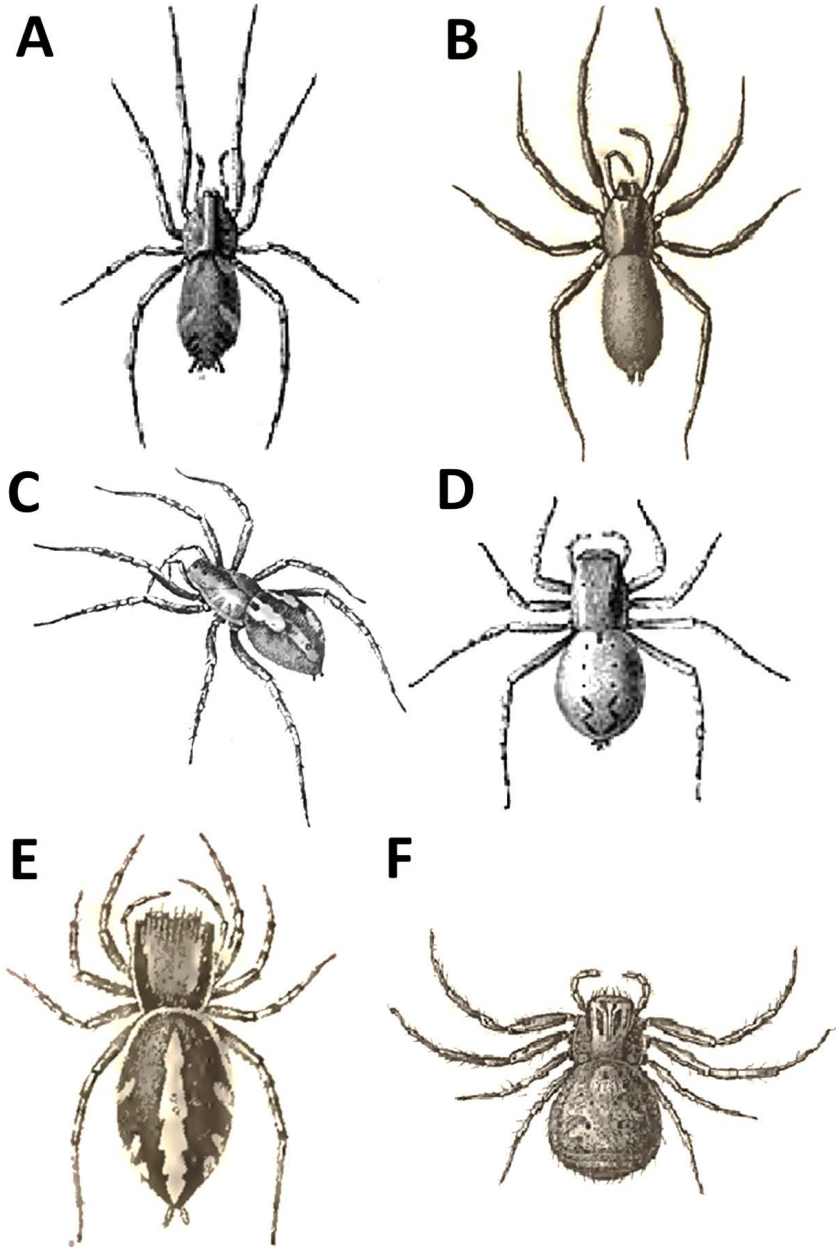

FIGURE 3. Original drawings (A–F) accompanying descriptions of six species by Audouin (1826) treated herein: **A** *Pterotricha linnaei* (Audouin, 1826) ***nomen dubium*** **B** *Zelotes listeri* (Audouin, 1826) ***nomen dubium*** **C** *Arctosa nilotica* (Audouin, 1826) ***nomen dubium*** **D** *Aelurillus dorthesi* (Audouin, 1826) ***nomen dubium*** **E** *Pellenes frischi* (Audouin, 1826) ***nomen dubium*** **F** *Xysticus clercki* (Audouin, 1826) ***nomen dubium***.

Zelotes listeri (Audouin, 1826) *nomen dubium*

Fig. 3B

Drassus listeri Audouin, 1826: 155, pl. 5, fig. 4 (♀).

Macaria listeri: Simon 1864: 113.

Prosthesima listeri: Simon 1878: 98.

Remarks. As for *Pterotricha linnaei*, the type is lost and only the habitus drawing (see Fig. 3B) and a general written description is available (Audouin 1826), this Egyptian species is not able to be distinguished from known congeners. Therefore, I propose *Zelotes listeri* as a ***nomen dubium***.

Family Halonoproctidae Pocock, 1901

Ummidia armata (Ausserer, 1875) *nomen dubium*

Pachylomerus armatus Ausserer, 1875: 143 (♀).

Remarks. The description of this species by Ausserer (1875) is not sufficient to differentiate it from congeners and the type locality is unknown. I have been unable to locate holotype in the Natural History Museum, London (NHMUK) or the Naturhistorisches Museum Wien (NHMW), the two museums which house what survives of the Ausserer collection, despite making dedicated searches for this specimen whilst at both museums. Therefore, I consider this species unrecognisable and propose *U. armata* as a ***nomen dubium***.

Family Idiopidae Simon, 1889

Idiops neglectus L. Koch *in* Ausserer, 1875 *nomen dubium*

Idiops neglectus L. Koch *in* Ausserer, 1875: 146 (♀).

Remarks. Much like the preceding species, the description of this unlocalised species (see Ausserer 1875) does not differentiate this species from congeners, indeed it leaves doubt even at the family-level identification. I have been unable to locate the type material in NHMUK or NHMW, nor is it listed in the collections of any of the primary zoological museums in Germany (where Koch was resident), and therefore consider this species with no known country of origin to be unrecognisable. Thus, I propose *Idiops neglectus* as a ***nomen dubium***.

Family Linyphiidae Blackwall, 1859

Ceratinopsis bicolor Banks, 1896 *nomen dubium*

Fig. 4A, B

Ceratinopsis bicolor Banks, 1896: 67 (imm. ♀).

Ceratinopsis bicolor: Bishop & Crosby 1930: 19.

Remarks. Banks (1896) described this species based on immature female syntypes from Ithaca, New York, United States. One of the syntypes in the Museum of Comparative Zoology, Harvard (MCZ) has been digitised (Fig. 4A, B). The pathway of epigynal development in *Ceratinopsis* Emerton, 1882 shows large interspecific variation as is common in linyphiids (Fig. 4C–J) and thus the pre-epigyne is not informative. However, it cannot even be certain that this species is conspecific with *Ceratinopsis*. Indeed, nine decades ago the dubious status of this species was already remarked upon by Bishop & Crosby (1930: 19) who went much further: "The types of this species in the Museum of Comparative Zoology are two recently hatched specimens that probably do not even belong to the family. The species cannot be recognized from the description. Banks states his specimens were immature". I concur with Bishop & Crosby (1930) that the species is unrecognisable, even from reference to the types, although tentatively maintain it as a linyphiid. Nonetheless, for the reasons proposed above, *Ceratinopsis bicolor* is proposed as a ***nomen dubium***.

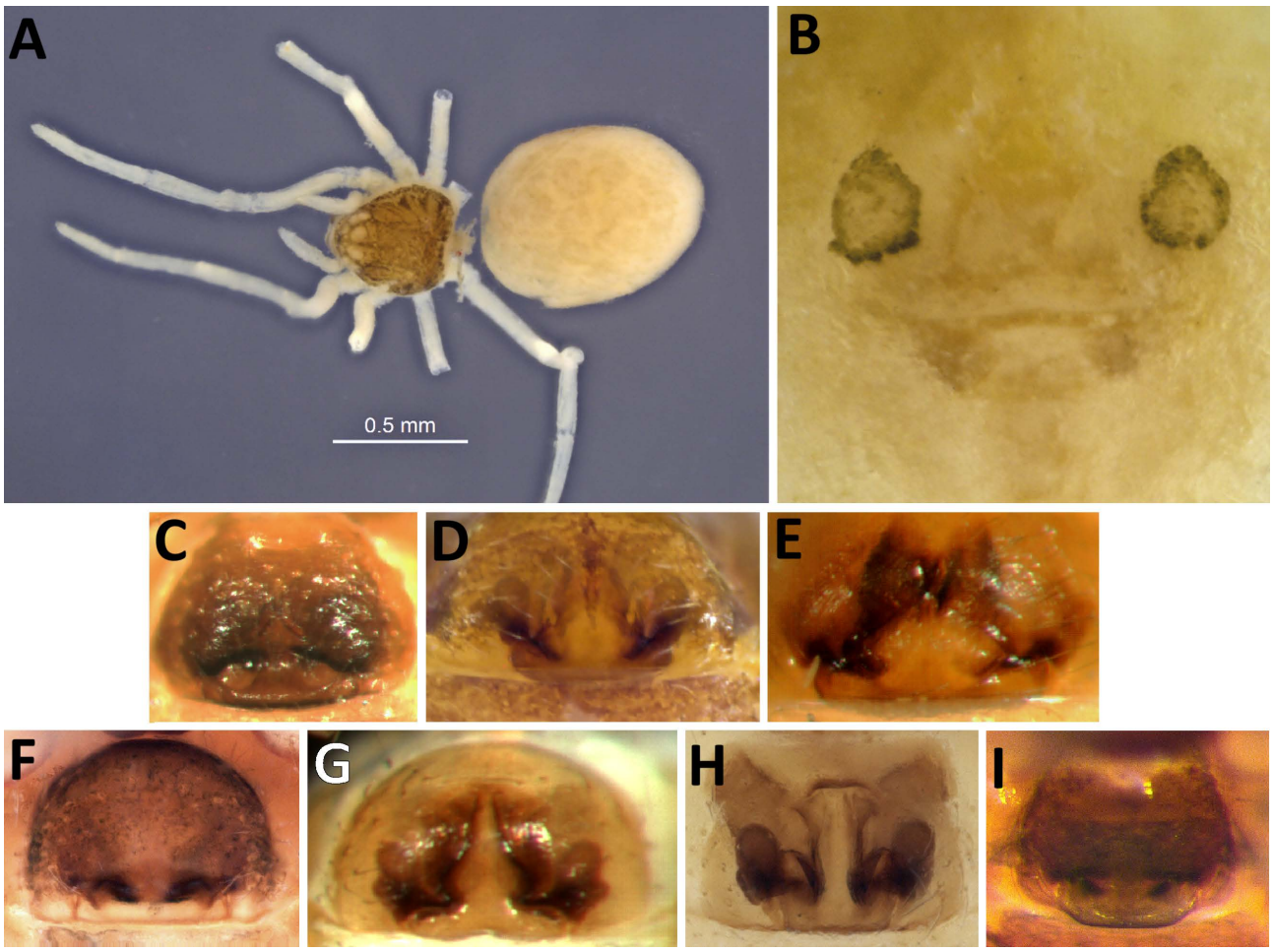

FIGURE 4. *Ceratinopsis bicolor* Banks, 1896 ***nomen dubium*** (A–B) and the epigynes of some other known species of *Ceratinopsis* Emerton, 1882 in ventral view (C–I): **A** habitus, dorsal view **B** undeveloped genital area, ventral view **C** *Ceratinopsis auriculata* Emerton, 1909 **D** *Ceratinopsis bona* Chamberlin & Ivie, 1944 **E** *Ceratinopsis interpres* (O. Pickard-Cambridge, 1874) (type species) **F** *Ceratinopsis laticeps* Emerton, 1882 **G** *Ceratinopsis nigriceps* Emerton, 1882 **H** *Ceratinopsis nigripalpis* Emerton, 1882 **I** *Ceratinopsis sylvania* Chamberlin & Ivie, 1944. Figs A–H by the Field Museum of Natural History, Creative Commons, CC BY-NC (Attribution-NonCommercial) 4.0. Fig. I by Marc Milne, Creative Commons, CC BY-NC (Attribution-NonCommercial) 4.0. See: https://creativecommons.org/licenses/by-nc/4.0/deed.en.

Erigonella groenlandica Strand, 1905 *nomen dubium*

Erigonella groenlandica Strand, 1905: 26 (imm.).

Remarks. This species was described based on an immature specimen from Greenland. Brændegaard (1936) later noted the holotype was deposited in what is now the Naturhistorisk Museum, Oslo, Norway and considered it as a distinct species but, equally, noted its establishment based on a juvenile was not good practice. Thaler (1971: 312) considered this species as a "nicht zu deuten" (today interpreted as *nomen dubium*) and notes that specimens other than the type were not found by future workers. Indeed, this remains true as of today. Vanden Borre *et al*. (2003) cite Thaler (1971) also considering the species dubious. The designation of Thaler (1971) has been overlooked by the World Spider Catalog (2024) and thus *E. groenlandica* remains a valid species until the present contribution. It is clear that for over 120 years the identity of this species has been doubtful, and the name is unrecognisable. Thus, based on the immaturity of the holotype and uninformative characters given in its original description, *Erigonella groenlandica* is proposed as a ***nomen dubium***.

Family Lycosidae Sundevall, 1833

Arctosa nilotica (Audouin, 1826) *nomen dubium*

Fig. 3C

Lycosa nilotica Audouin, 1826: 369, pl. 4, fig. 7 (♀).

Lycosa perita: Simon 1876: 276 (syn.).

Lycosa nilotica: Simon 1907a: 8 (*contra* Simon 1876).

Lycosa nilotica: Simon, 1937: 1139 (suspected syn. of *Arctosa variana* C. L. Koch, 1847 [as *Lycosa variana*]).

Arctosa nilotica: Bonnet 1955: 655.

Remarks. The type material of taxa described by Audouin are all presumed lost (see Sherwood 2022). This species was described without illustrations of the genitalia, with only the habitus presented (see Fig. 3C). The description and aforementioned illustration do not adequately distinguish this species from congeners, of which several occur in Egypt (Marusik & Nadolny 2020). Therefore, for these reasons, I propose *Arctosa nilotica* as a ***nomen dubium***.

Family Oxyopidae Thorell, 1869

Peucetia elegans (Blackwall, 1864) *nomen dubium*

Pasithea elegans Blackwall, 1864: 39 (♀).

Remarks. The description of this Indian species is of a juvenile and provides no useful characters to differentiate it at the species level (Blackwall 1864). Furthermore, the type locality is simply 'India' without a precise location within the country specified and the type material is lost, since it is not present in at the Oxford University Museum of Natural History (OUMNH), where the entirety of the surviving collection of Blackwall is housed (rescued by O. Pickard-Cambridge who noted its incompleteness and later deposited it in Oxford). Therefore, I propose *Peucetia elegans* as a ***nomen dubium***.

Family Philodromidae Thorell, 1869

Thanatus flavescens O. Pickard-Cambridge, 1876 *nomen dubium*

Thanatus flavescens O. Pickard-Cambridge, 1876: 592 (imm.).

Tibellus flavescens: Reimoser 1919: 125.

Remarks. As for *A. ocellatulus*, the type material of this Egyptian species described by O. Pickard-Cambridge, 1876) is not in OUMNH (where his collection and that of John Blackwall now reside) and is consequently to be regarded as lost. Therefore, I propose *Thanatus flavescens* as a ***nomen dubium***.

Family Salticidae Blackwall, 1841

Aelurillus dorthesi (Audouin, 1826) *nomen dubium*

Fig. 3D

Attus dorthesii Audouin, 1826: 405, pl. 7, fig. 9 (♀).

Aelurops dorthesi: Simon 1876: 139.

Aelurillus dorthesi: Reimoser 1919: 111.

Remarks. The type material is lost (see Sherwood 2022). This Egyptian species was described without illustrations of the genitalia, with only the habitus presented (see Fig 3D). The description (Audouin 1826) is not sufficient to identify this species both at the species nor genus-level. Therefore, I propose *Aelurillus dorthesi* as a ***nomen dubium***.

Pellenes frischi (Audouin, 1826) *nomen dubium*

Fig. 3E

Attus frischii Audouin, 1826: 406, pl. 7, fig. 11 (♀).

Pellenes fischeri: Simon 1876: 101 (*lapsus calami*, *nomen nudum*).

Remarks. As for *Aelurillus dorthesi*, the description and sole (habitus, see Fig. 4E) illustration of this Egyptian species (Audouin 1826) do not permit its recognition, and the type is lost (see Sherwood 2022). Therefore, I propose *Pellenes frischi* as a ***nomen dubium***.

Saitis signatus (Keyserling, 1883) *nomen dubium*

Fig. 5

Prostheclina signata Keyserling, 1883: 1464, pl. 123, fig. 6 (♀).

Saitis signatus: Roewer 1955b: 1097.

Remarks. Keyserling (1883) does not mention a precise locality for this species (Fig. 5), although it is presumably from Oceania or Southeast Asia. The illustrations of the epigyne are not sufficient for splitting this species from congeners and the whereabouts of the type material is unknown. I searched the NHMUK where the vast majority of Keyserling's personal collection was donated and could not find this specimen. For these reasons, I propose *Saitis signatus* as a ***nomen dubium***.

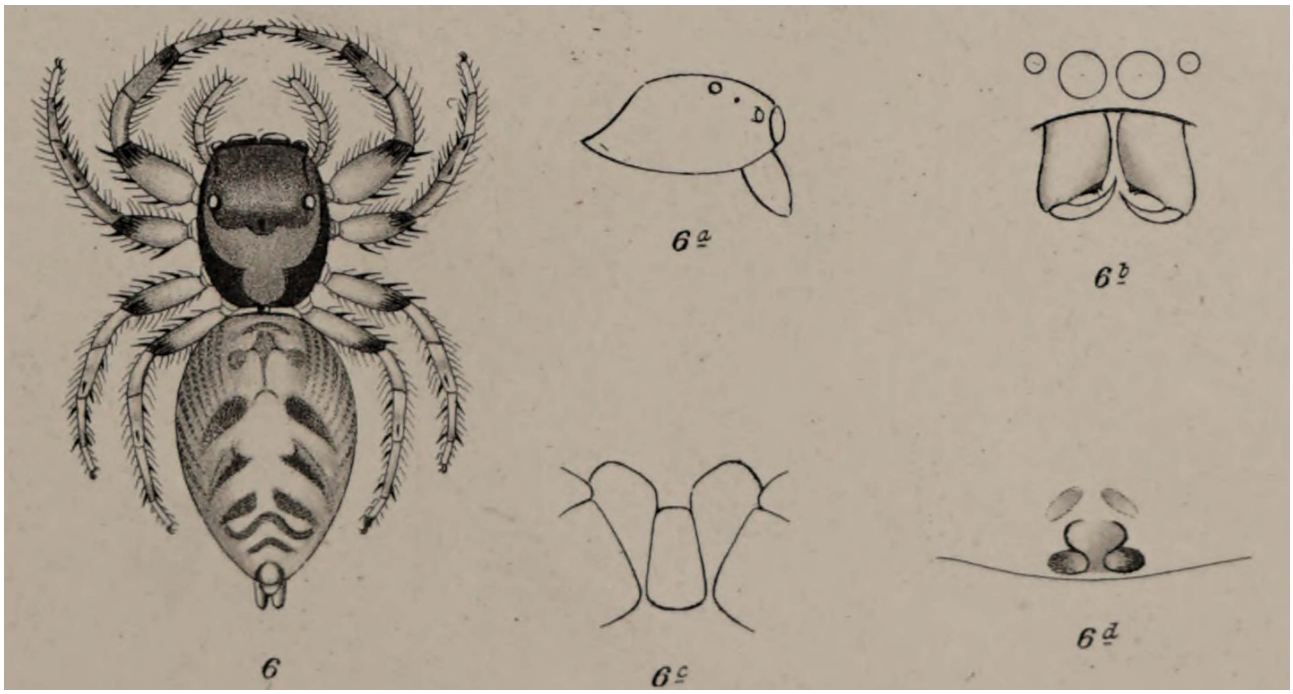

FIGURE 5. *Saitis signatus* (Keyserling, 1883) ***nomen dubium***, original illustrations (and lettering thereof) from description by Keyserling (1883).

Family Tetragnathidae Menge, 1866

Tetragnatha chrysochlora (Audouin, 1826) *nomen dubium*

Eugnatha chrysochlora Audouin, 1826: 324 (♀).

Tetragnatha chrysochlora: Simon 1929: 750.

Remarks. No illustrations are provided for this Egyptian species, the type material is lost (see Sherwood 2022), and the original description (Auduoun 1826) does not allow for the differentiation of this taxon from known congeners. Therefore, I propose *Tetragnatha chrysochlora* as a ***nomen dubium***.

Tetragnatha shanghaiensis Strand, 1907 *nomen dubium*

Tetragnatha shanghaiensis Strand, 1907b: 150 (imm.).

Remarks. As given for several other species detailed above, Strand used immature type material for the description of this Chinese species, and it is not distinguishable from [adult] congeners. Strand's material was deposited in the Lübeck Museum and lost during bombing of that institute in the Second World War (Renner 1988; World Spider Catalog 2024). Therefore, this, in combination with the other reasons discussed above, I propose *Tetragnatha shanghaiensis* as a ***nomen dubium***. It is of note that Strand (1907b: 149) first notes this species as "*Tetragnatha* sp." but gives the manuscript name *Tetragnatha shanghaiensis* on the following page (Strand 1907b: 150). Most likely, he intended not to describe it as a new species, but I agree with the World Spider Catalog (2024) who listed it as a formal species description, since the paragraph before is explicitly giving a morphological description and the name was not proposed in any prior work. In 1907, descriptions were not subject to the requirement for explicitly giving nomina as new, as is found in zoological nomenclature today (ICZN 1999).

Family Theraphosidae Thorell, 1869

Aphonopelma hesperum (Chamberlin, 1917) *nomen dubium*

Eurypelma hespera Chamberlin, 1917: 54 (imm.).

Aphonopelma hesperum: Smith 1995: 112, figs. 412–415 (imm.).

Remarks. The immature male holotype of *A. hesperum*, deposited in the Museum of Comparative Zoology, Harvard University, is a typical specimen of *Aphonoepelma sensu lato* with no characters for which it can be differentiated from congeners. Chamberlin (1917: 54) described this species from "Mexico: West Coast" which covers a huge region of a country known for short-range endemism in its theraphosids (Hamilton *et al*. in prep.). Smith (1995: 112) conjectured that it was "probably collected from the lower California Baja peninsula" but gave no evidence for this statement which appears to be pure conjecture. The unknown type locality coupled with the immaturity of the specimen make it unidentifiable from morphology or biogeography, two crucial lines of evidence for identifying [adult] species of this genus. Therefore, I propose *Aphonopelma hesperum* as a ***nomen dubium***.

Plesiopelma imperatrix Piza, 1976 *nomen dubium*

Plesiopelma imperatrix Piza, 1976: 3, fig. 1 (♀).

Eurypelma imperatrix: Brignoli 1983: 137.

Citharacanthus imperatrix: Platnick 1993: 103.

Remarks. This species has one of the shortest and least informative descriptions of any theraphosid described in the Twentieth Century. No potential distinguishing characters such as the spermathecae, leg scopulae, or any details of the presence/absence of stridulatory setae on any appendage are given. The type locality is simply 'Brazil', and the description of Piza (1976) could refer to very many theraphosids in Brazil. A single black-and-white photograph of the specimen aids little in identifying it below the subfamily level. Unfortunately, the holotype was lost during the fire at the Instituto Butantan, São Paulo (IBSP; Antonio Brescovit and Sylvia Lucas pers. comm.) and this, alongside the absence of a precise type locality, render it unable to be recognised. Therefore, I propose *Plesiopelma imperatrix* as a ***nomen dubium***.

Of note, as shown in the synonymy list, two incongruent generic placements were given for this species in the large spider catalogues of Brignoli (1983) and Platnick (1993). The convoluted taxonomy of *Eurypelma* C. L. Koch, 1850 is outside the scope of this work. However, it is worth noting Platnick (1993) listed this species in *Citharacanthus* Pocock, 1901 because Raven (1985) proposed a synonymy of *Plesiopelma* Pocock, 1901 with *Citharacanthus* with no supporting evidence. Thankfully, this erroneous synonymy was rejected by Pérez-Miles *et al*. (1996).

Family Theridiidae Sundevall, 1833

Steatoda sagax (Blackwall, 1865) *nomen dubium*

Theridion sagax Blackwall, 1865: 93 (imm.).

Teutana sagax Simon 1883: 302.

Remarks. The type material of this species is lost (not present in OUMNH, see above), and the description gives no characters which can readily differentiate it from other theridiids (Blackwall 1865) within the general vicinity of the type locality (Cape Verde Islands). Therefore, I propose *Steatoda sagax* as a ***nomen dubium***.

Theridion zonatum Eydoux & Souleyet, 1842 *nomen dubium*

Fig. 6

Theridion zonatum Eydoux & Souleyet, 1842: 290, pl. 1, figs 36–39.

Remarks. This species has no known type locality and may have been collected in any number of places during the circumnavigation of the globe by the corvette *La Bonite*. The description, including (Fig. 6, pink outlines) illustrations, do not allow for its recognition (Eydoux & Souleyet 1842). Thus, I propose *Theridion zonatum* as a ***nomen dubium***.

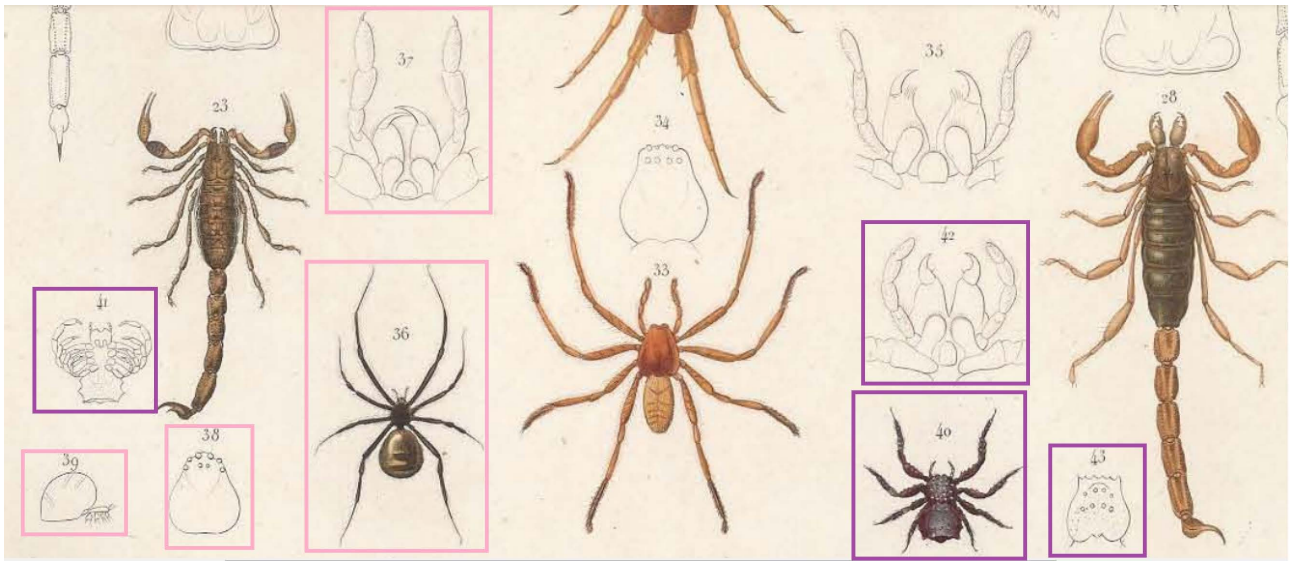

FIGURE 6. Part of plate, showing illustrations of invertebrates, in Eydoux & Souleyet (1842), pink outlines = *Theridion zonatum* Eydoux & Souleyet, 1842 ***nomen dubium***, purple outlines = *Thomisus cancroides* Eydoux & Souleyet, 1842 ***nomen dubium***.

Family Thomisidae Sundevall, 1833

Camaricus hastifer (Percheron, 1833) *nomen dubium*

Fig. 7

Epeira hastifera Percheron, 1833: 1, pl. 4, figs a–c (♂).

Delena hastifera: Walckenaer 1837: 494.

Camaricus hastifer: Simon 1895: 1011.

Remarks. I concur with Simon (1895) that this species is well placed in *Camaricus* Thorell, 1887 as the description of Walckenaer (1837) – who redescribed the holotype – is sufficient to conclude this alongside examination of the plate in Percheron (1833). The colouration of *C. hastifer* is resemblant of [but not identical to] *C. formosus* Thorell, 1887, the type species, but this alone is not sufficient evidence for a synonymy because colouration is intraspecifically variable in several species of this genus (pers. obs.). There is no known type locality

and no known type repository. I made a preliminary search at MNHN in case this specimen was deposited there after the work of Walckenaer but did not locate this specimen. It indeed may never have been deposited in that collection or may be without labels and have been overlooked. Thus, we remain reliant only on the prior literature, which mostly show habitus and does not depict the male palp in conventional views (Fig. 7) and which lacks a type locality. Therefore, given these reasons above, I propose *Camaricus hastifer* as a ***nomen dubium***.

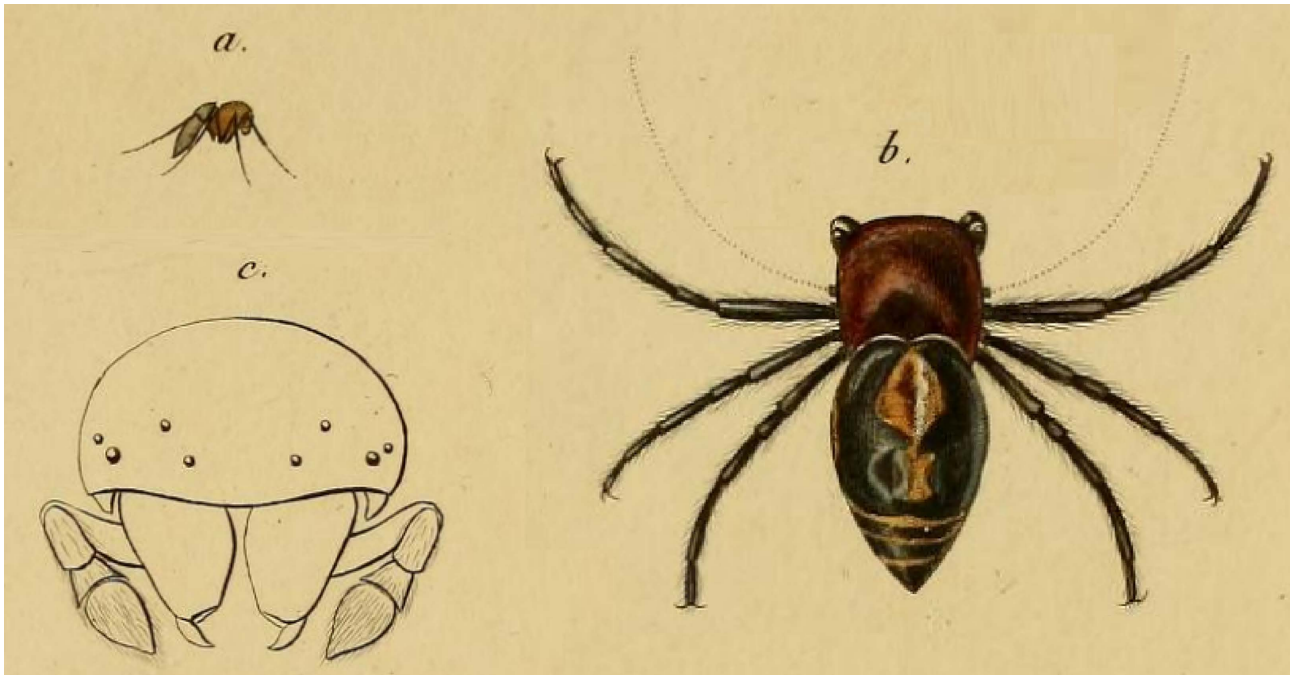

FIGURE 7. *Camaricus hastifer* (Percheron, 1833) ***nomen dubium***, original illustrations (and lettering thereof) from description by Percheron (1833).

Thomisus cancroides Eydoux & Souleyet, 1842 *nomen dubium*

Fig. 6

Thomisus cancroides Eydoux & Souleyet, 1842: 288, pl. 1, figs 40–43.

Remarks. The illustrations (Fig. 6, purple outlines) are sufficient to show it is a thomisid but not to differentiate it at the genus or species level. Given this, in conjunction with a totally unknown distribution (see above comments for *T. zonatum*), I propose *Thomisus cancroides* as a ***nomen dubium***.

Xysticus clercki (Audouin, 1826) *nomen dubium*

Fig. 3F

Thomisus clerckii Audouin, 1826: 398, pl. 6, fig. 13 (♀).

Xysticus clercki: Pavesi 1883: 63.

Remarks. The type is lost (see Sherwood 2022), only an illustration of the habitus (see Fig. 3F) and a vague general description (Audouin 1826) which could apply to a number of known congeners is available, therefore this Egyptian species is not recognisable. Thus, I propose *Xysticus clercki* as a ***nomen dubium***. The material assigned by Pavesi (1883) was done so provisionally, as he even commented (in Italian) that the figure from Audouin (1826) left 'much to be desired'. This material, ironically, was not figured and I have as yet been able to trace its whereabouts. This alone, however, is not sufficient justification to keep the species valid, especially as there is nothing yet that guarantees this material is indeed conspecific with the name-bearing type seen by Audouin (1826).

Family Uloboridae Thorell, 1869

Uloborus canus MacLeay, 1827 *nomen dubium*

Uloborus canus MacLeay, 1827: 468.

Remarks. The holotype is lost (Helen Smith *in* World Spider Catalog 2024) and the description does not give sufficient characters to differentiate it from all other known congeners. No illustrations are provided in the original description nor a precise type locality within Australia at which it was taken (MacLeay 1827). It has remained undiscovered for nearly 100 years since its original description thus it seems unlikely it will be recognisable in the near future. Thus, I propose *Uloborus canus* as a ***nomen dubium***.

Family Zodariidae Thorell, 1881

Cryptothele cristata Simon, 1884 *nomen dubium*

Cryptothele cristata Simon, 1884: 302 (imm. ♂).

Remarks. Simon (1884) described this species based on an immature male, supposedly from Mexico which is deposited in MNHN. As noted by the World Spider Catalog (2024), the *locus typicus* is likely to be erroneous and the description is not helpful in differentiating this species from other [adult] congeners as its characteristics may be a result of ontogeny. Therefore, I propose *Cryptothele cristata* as a ***nomen dubium***.

Storena ornata (Bradley, 1877) *nomen dubium*

Habronestes ornatus Bradley, 1877: 119 (imm.).

Remarks. The whereabouts of the type material of this Australian species is unknown and presumed lost, not existing in any modern Australian collection to my knowledge, and certainly not in any of the museum collections consulted during this work, and the description of this specimen from non-adult material (Bradley 1877) means it is unrecognisable. Therefore, I propose *Storena ornata* as a ***nomen dubium***.

Synonymous species

Family Araneidae Clerck, 1757

Eriophora edax (Blackwall, 1863) = *Araneus unistriatus* (McCook, 1894) syn. nov.

Fig. 8

Epeira edax Blackwall, 1863: 30 (♂♀).

Verrucosa unistriata McCook, 1894: 201, pl. 5, fig. 3 (♀). **syn. nov.**

Eriophora edax: Banks 1909: 210.

Araneus edax: Petrunkevitch 1911: 290.

Araneus unistriatus: Petrunkevitch 1911: 322.

Aranea edax cauca Strand, 1916: 111 (♀).

Eriophora edax: Petrunkevitch 1930: 325, figs. 205–207 (♂♀).

Araneus argyronotus Mello-Leitão, 1939: 111, fig. 14 (♀).

Eriophora edax: Bryant 1948: 62, fig. 7 (♀).

Araniella geayi Caporiacco, 1954: 104, fig. 24 (♀).

Eriophora edax: Levi 1971: 296, figs. 35–48 (♂♀).

Araneus geayi: Levi 1974: 293.

Eriophora edax: Levi 1991: 177-178.

Eriophora edax: Levi 2002: 541, figs. 112–113 (♀).

Type material. Holotype ♀ (USNMENT 01968865), Fort Yuma, Arizona, United States, coll. George Marx, no. 268, type 1687.

FIGURE 8. *Eriphora edax* (Blackwall, 1863) – holotype female of *Araneus unistriatus* (McCook, 1894) **syn. nov.**: **A** habitus, dorsal view **B** same, ventral view **C** epigyne, ventral view (undissected) **D** associated labels. Photos by, and courtesy of, Tom Nguyen (USNMENT).

Remarks. McCook (1894) described this species from Fort Yuma, Arizona based on a specimen in the George Marx collection. The holotype (Fig. 8) is deposited in the National Museum of Natural History, Washington D.C. (USNMENT). Unfortunately, Marx is well known for ascribing erroneous localities to specimens he collected (e.g. Smith 1995). This seemed likely for this species because the World Spider Catalog (2024) notes the late Herb Levi (*in litt.*) as stating this species probably belongs to *Parawixia* F. O. Pickard-Cambridge, 1904 and that its true locality is probably in Brazil. Nonetheless, whilst the epigyne of this species has similarities to *Parawixia audax* (Blackwall, 1863), *Parawixia bistriata* (Rengger, 1836) and *Parawixia undulata* (Keyserling, 1892), the colouration is not congruent. The true identity of this species is already transcribed on a label written by Levi in 1988 (Fig. 8D), the

colour pattern and epigyne are clearly that of *Eriophora edax* (Blackwall, 1863). However, this result was never published by Levi before his death. Therefore, I hereby propose *A. unistriatus* **syn. nov.** as a junior synonym of *E. edax*. Thus, it is also likely that this is a spider whose type locality was also, unusually for Marx, correct since *E. edax* occurs in both Arizona and neighbouring California.

Species inquirendae

The species below are all described from juveniles and have almost all taxa not been found again since their original descriptions. However, their original descriptions along with their comparatively precise type localities give some chance for the collection of adult topotypes, and in most – but not all – cases I have been able to confirm their respective type material is extant (either by direct examination, or through consultation of catalogues, databases, and correspondence with various collection managers). Therefore, I prefer to be conservative with the below taxa and not risk being overzealous by designating them all *nomina dubia*, although colleagues are of course welcome to designate any of them as so if they find that the species is unrecognisable based on more thorough investigations.

Most of Simon's type material of species listed below should be deposited in MNHN; most of Strand's below species are in the Museum für Naturkunde, Berlin (ZMB) (World Spider Catalog 2024), except *Scotophaeus lamperti* Strand, 1906 and *Arctosa nyembeensis* (Strand, 1916) which are in the Museum Wiesbaden, Germany (Jäger 1998); the type material listed below of Dahl and Karsch are deposited in ZMB; that of Keyserling and Pocock in NHMUK; most of Caporiacco's types (but see paragraph below) are in the Museo Zoologico La Specola, Università di Firenze, Florence, Italy (MZUF) (Berdondini & Whitman 2003) – except those described in Caporiacco (1949) which are deposited in the Museo Civico di Storia Naturale, Verona, Italy (Ballarin *et al*. 2020), *Mallinella subinermis* Caporiacco, 1947 and *Hoplolathys aethiopica* Caporiacco, 1947 which are deposited in the Hungarian Natural History Museum, Budapest (Caporiacco 1947b), and that of *Hexommulocymus kolosvaryi* Caporiacco, 1955, *Odo drescoi* Caporiacco, 1955, and *Odo incertus* Caporiacco, 1955 in the Museo de Biología, Universidad Central de Venezuela, Caracas; that of Roewer, with one exception above (*Araneus ocellatulus* (Roewer, 1942)) and one below (see below paragraph), is in MZUF; that of Banks is in MCZ; that of Lawrence is in the Iziko South African Museum, Cape Town, South Africa; that of Schenkel (other than species addressed earlier in the manuscript) are in the Naturhistorisches Museum, Basel, Switzerland (World Spider Catalog 2024) except *Lycosa pavlovi* Schenkel, 1953 and *Lycosa russea* Schenkel, 1953 which should be in the Tianjin Natural History Museum, Tianjin, China; that of O. Pickard-Cambridge is in OUMNH; that of Montgomery is in the American Museum of Natural History, New York, United States (see Gertsch 1934); that of Becker is in the Royal Belgian institute of Natural Sciences, Brussels, Belgium, and all below species of L. Koch, except two, are in the Zoologisches Museum Hamburg (World Spider Catalog 2024), the exceptions being *Pardosa serena* (L. Koch, 1875) and *Trochosa praetecta* L. Koch, 1875 which are in ZMB (World Spider Catalog 2024).

The below type material described by Mello-Leitão should be deposited in the Museo de La Plata, Argentina, but this needs to be confirmed as some other [adult] type material supposed to be deposited in this institution is not present there (D. Ríos-Tamayo pers. comm.). Except for the two species described in Thorell (1895), which are in NHMUK, the rest of the below taxa described by Thorell appear to be in the Museo di Storia Naturale Giacomo Doria, Genoa, Italy, but I do not have a full list of material deposited in that institution, so cannot state this with certainty for every species. The type of *Urocteana poecilis* Roewer, 1961 should be deposited in the Section Entomologie des Institut Français d'Afrique Noire, Dakar, Senegal but I have been unable to confirm this. The type material of *Scorteccia termitarum* Caporiacco, 1936 is probably in the Museo Civico di Storia Naturale di Milano, Milan, Italy but, similarly, I have been unable to confirm this. The following other species are known not to be in the museums of Florence or Verona, but other museums have not responded to enquiries as to whether they are extant. Many smaller museums in Italy which have varying amounts of Caporiacco type material (F. Ballarin pers. comm.) so I prefer not to make any assumptions about the whereabouts of the types of the following species: *Castianeira brunellii* Caporiacco, 1940 (Corinnidae), *Poecilochroa pauciaculeis* Caporiacco, 1947 (Gnaphosidae),

Pterotrichina nova Caporiacco, 1934 (Gnaphosidae), *Stoliczka affinis* Caporiacco, 1935 (Pisauridae), *Senoculus guianensis* Caporiacco, 1947 (Senoculidae), *Argyrodes vatovae* (Caporiacco, 1940) (Theridiidae), *Euryopis venutissima* (Caporiacco, 1934) (Theridiidae), *Firmicus strandi* Caporiacco, 1947 (Thomisidae), *Synema pauciaculeis* Caporiacco, 1947 (Thomisidae), *Xysticus multiaculeatus* Caporiacco, 1940 (Thomisidae), *Odo drescoi* (Caporiacco, 1955) (Xenoctenidae), and *Odo incertus* Caporiacco, 1955 (Xenoctenidae).

All cases of immature species (and genera) established in the Sparassidae are explicitly excluded here as all will be dealt with elsewhere by my colleagues Peter Jäger and Cristina Rheims. The family Salticidae has many species which are described from juveniles and some will be *nomina dubia*, however I will deal with the relevant species with collaborators separately from the present contribution. I have also excluded spiders I know to be dubious, but which belong to groups that I am aware currently under revision by colleagues and thus will be resolved by them (e.g. numerous spiders of the Yarkand Expedition currently being revised by Yuri Marusik and Zoë Simmons and *Copa lineata* Simon, 1903 (Corinnidae) which will be treated by Charles Haddad). Problematic species in the family Zodariidae, and all spiders from Australia, described from immatures are excluded for the same reason. Thus, this is not an exhaustive list of all spiders described from juveniles, just those where I am satisfied that rendering them *species inquirenda* and thereby bringing them to the attention of colleagues would be beneficial, as many names might be stabilised with dedicated work. Similarly, it is quite easy for any colleagues who wish to designate any of the names below as *nomina dubia* if they deem necessary during the course of genus or family-dedicated revisions.

Family Agelenidae C. L. Koch, 1837

Agelena incertissima Caporiacco, 1939 *species inquirenda*

Agelena incertissima Caporiacco, 1939: 315 (imm.).

Distribution. Ethiopia.

Family Araneidae Clerck, 1757

Araneus basalteus Schenkel, 1936 *species inquirenda*

Araneus basalteus Schenkel, 1936: 99, fig. 35 (imm.).

Distribution. China.

Araneus carabellus (Strand, 1913) *species inquirenda*

Aranea carabella Strand, 1913: 377 (imm.).

Distribution. Democratic Republic of the Congo.

Araneus pudicus (Thorell, 1898) *species inquirenda*

Epeira pudica Thorell, 1898: 358 (imm.).

Distribution. Myanmar.

Cyclosa pseudoculata Schenkel, 1936 *species inquirenda*

Cyclosa pseudoculata Schenkel, 1936: 124, fig. 44 (imm.).

Distribution. China.

Larinia strandi Caporiacco, 1941 *species inquirenda*

Larinia strandi Caporiacco, 1941: 103 (imm.).

Distribution. Ethiopia.

Poltys apiculatus Thorell, 1893 *species inquirenda*

Poltys apiculatus Thorell, 1893: 228 (imm.).

Distribution. Singapore.

Poltys vesicularis Simon, 1889 *species inquirenda*

Poltys vesicularis Simon, 1889: 225 (imm.).

Distribution. Madagascar.

Family Clubionidae Simon, 1878

Clubiona guianensis Caporiacco, 1947 *species inquirenda*

Clubiona guianensis Caporiacco, 1947a: 27 (imm. ♂).

Distribution. Guyana.

Clubiona sparassella Strand, 1909 *species inquirenda*

Clubiona sparassella Strand, 1909: 582 (imm.).

Distribution. South Africa.

Family Corinnidae Karsch, 1880

Castianeira brunellii Caporiacco, 1940 *species inquirenda*

Castianeira brunellii Caporiacco, 1940: 842 (imm.).

Distribution. Ethiopia.

Castianeira drassodidoides Strand, 1915 *species inquirenda*

Castianeira drassodidoides Strand, 1915: 162 (imm.).

Distribution. Israel.

Castianeira inquinata (Thorell, 1890) *species inquirenda*

Agroeca inquinata Thorell, 1890: 352 (imm.).

Castaneira inquinata: Simon 1897: 167.

Agroeca inquinarum: Deeleman-Reinhold 2001: 346.

Distribution. Sumatra.

Cycais gracilis Karsch, 1879 *species inquirenda*

Cycais gracilis Karsch, 1879: 95, pl. 1, figs. 15 (imm.).

Distribution. Japan.

Scorteccia termitarum Caporiacco, 1936 *species inquirenda*

Scorteccia termitarum Caporiacco, 1936: 84 (imm.).

Distribution. Libya.

Remarks. Type species of *Scorteccia* Caporiacco, 1936.

Family Ctenidae Keyserling, 1877

Wiedenmeyeria falconensis Schenkel, 1953 *species inquirenda*

Wiedenmeyeria falconensis Schenkel, 1953a: 39 (imm. ♂).

Distribution. Venezuela.

Remarks. Type species of *Wiedenmeyeria* Schenkel, 1953.

Family Cybaeidae Banks, 1892

Cybaeus broni Caporiacco, 1934 *species inquirenda*

Cybaeus broni Caporiacco, 1934: 224 (imm.).

Distribution. Mongolia.

Family Dictynidae O. Pickard-Cambridge, 1871

Hoplolathys aethiopica Caporiacco, 1947 *species inquirenda*

Hoplolathys aethiopica Caporiacco, 1947b: 102 (imm.).

Distribution. Ethiopia.

Remarks. Type species of *Hoplolathys* Caporiacco, 1947.

Family Gnaphosidae Banks, 1892

Berlandina kolosvaryi Caporiacco, 1947 *species inquirenda*

Berlandina kolosvaryi Caporiacco, 1947b: 190 (imm.).

Distribution. Ethiopia.

Echemus scutatus (Simon, 1880) *species inquirenda*

Leptodrassus scutatus Simon, 1880: 262 (imm.).

Echemus scutatus: Dalmas 1919: 249.

Distribution. Algeria.

Ladissa semirufa Simon, 1907 *species inquirenda*

Ladissa semirufa Simon, 1907b: 238 (imm.).

Distribution. Benin.

Leptodrassus tropicus Dalmas, 1919 *species inquirenda*

Leptodrassus tropicus Dalmas, 1919: 247 (imm.).

Distribution. Sierra Leone.

Poecilochroa pauciaculeis Caporiacco, 1947 *species inquirenda*

Poecilochroa pauciaculeis Caporiacco, 1947b: 187 (imm.).

Distribution. Eritrea.

Pterotrichina nova Caporiacco, 1934 *species inquirenda*

Pterotrichina nova Caporiacco, 1934: 141 (imm.).

Distribution. Mongolia.

Scotophaeus lamperti Strand, 1906 *species inquirenda*

Scotophaeus lamperti Strand, 1906: 28 (imm.).

Distribution. Namibia.

Talanites ornatus (O. Pickard-Cambridge, 1874) *species inquirenda*

Drassus ornatus O. Pickard-Cambridge, 1874: 388 (imm.).

Talanites ornatus: Reimoser 1919: 164.

Distribution. Egypt.

Family Liocranidae Simon, 1897

Oedignatha ferox (Thorell, 1897) *species inquirenda*

Aepygnatha ferox Thorell, 1897: 201 (imm.).

Oedignatha ferox: Simon 1897: 190.

Aepignatha ferox: Bonnet 1955: 176.

Distribution. Myanmar.

Family Lycosidae Sundevall, 1833

Allocosa tenebrosa (Thorell, 1897) *species inquirenda*

Tarentula tenebrosa Thorell, 1897: 24 (imm.).

Allocosa tenebrosa: Roewer 1955b: 205.

Distribution. Myanmar.

Arctosa nyembeensis (Strand, 1916) *species inquirenda*

Tarentula nyembeensis Strand, 1916: 113 (imm.).

Trochosa njembeensis: Caporiacco 1949: 337.

Arctosa nyembeensis: Roewer 1955b: 229.

Distribution. Kenya and Tanzania.

Artoria lycosimorpha Strand, 1909 *species inquirenda*

Artoria lycosimorpha Strand, 1909: 589 (imm.).

Artoriella lycosimorpha: Roewer 1955b: 233.

Artoriella lycosimorpha: Roewer 1960: 564, fig. 327 (imm.).

Distribution. South Africa.

Geolycosa suahela (Strand, 1913) *species inquirenda*

Tarentula suahela Strand, 1913: 429 (imm.).

Lycorma suahela: Roewer 1955b: 266.

Geolycosa suahela: Roewer 1960: 712.

Distribution. Democratic Republic of the Congo.

Hippasa flavicoma Caporiacco, 1935 *species inquirenda*

Hippasa flavicoma Caporiacco, 1935a: 230 (imm.).

Distribution. Mongolia.

Hogna juanensis (Strand, 1907) *species inquirenda*

Tarentula juanensis Strand, 1907a: 744 (imm.).

Hogna juanensis: Caporiacco 1949: 337.

Distribution. Mozambique.

Hogna truculenta (O. Pickard-Cambridge, 1876) *species inquirenda*

Tarentula truculenta O. Pickard-Cambridge, 1876: 601 (imm.).

Hogna truculenta: Roewer 1955b: 250.

Distribution. Egypt.

Lycosa accurata (Becker, 1886) *species inquirenda*

Pardosa accurata Becker, 1886: 24 (imm.).

Lycosa accurata: Dondale & Redner 1984: 70.

Distribution. Mexico.

Lycosa contestata Montgomery, 1903 *species inquirenda*

Lycosa contestata Montgomery, 1903: 649, pl. 29, fig. 4 (imm.).

Trochosa contestata: Montgomery 1904: 303.

Trochosa pratensis: Chamberlin 1909: 376 (misidentification).

Lycosa contestata: Brady 1980: 171.

Distribution. United States.

Lycosa pavlovi Schenkel, 1953 *species inquirenda*

Lycosa pavlovi Schenkel, 1953a: 70 (imm.).

Distribution. China.

Lycosa russea Schenkel, 1953 *species inquirenda*

Lycosa russea Schenkel, 1953a: 68 (imm.).

Distribution. China.

Lycosa similis Banks, 1892 *species inquirenda*

Lycosa similis Banks, 1892: 64, pl. 2, fig. 30 (imm.).

Hogna helluo: Chamberlin 1908: 226 (misidentification).

Trochosa pratensis: Banks 1916: 80 (misidentification).

Lycosa similis: Brady 1980: 171.

Distribution. United States.

Pardosa glabra Mello-Leitão, 1938 *species inquirenda*

Pardosa glabra Mello-Leitão, 1938: 95 (imm.).

Distribution. Argentina.

Pardosa serena (L. Koch, 1875) *species inquirenda*

Lycosa serena L. Koch, 1875: 71 (imm.).

Pardosa serena: Roewer 1955b: 173.

Distribution. Egypt.

Trochosa praetecta L. Koch, 1875 *species inquirenda*

Trochosa praetecta L. Koch, 1875: 75, pl. 7, fig. 3 (imm.).

Crocodilosa praetecta: Roewer 1955b: 238.

Trochosomma praetecta Roewer 1960: 855, fig. 475 (imm.).

Distribution. Ethiopia.

Family Miturgidae Simon, 1886

Syspira pallida Banks, 1904 *species inquirenda*

Syspira pallida Banks, 1904: 111 (imm.).

Distribution. United States.

Family Oecobiidae Blackwall, 1862

Urocteana poecilis Roewer, 1961 *species inquirenda*

Urocteana poecilis Roewer, 1961: 39, figs. 4a-c (imm.).

Distribution. Senegal.

Remarks. Type species of *Urocteana* Roewer, 1961.

Family Oxyopidae Thorell, 1869

Oxyopes annulipes Thorell, 1890 *species inquirenda*

Oxyopes annulipes Thorell, 1890: 141 (imm.).

Distribution. Sumatra.

Oxyopes caporiaccoi Roewer, 1951 *species inquirenda*

Oxyopes incertus Caporiacco, 1939: 334 (imm., preoccupied name).

Oxyopes caporiaccoi Roewer, 1951: 442.

Distribution. Ethiopia.

Oxyopes concoloratus Roewer, 1951 *species inquirenda*

Oxyopes concolor Caporiacco, 1939: 339 (imm., preoccupied name).

Oxyopes concoloratus Roewer 1951: 442 (replacement name).

Distribution. Ethiopia.

Family Philodromidae Thorell, 1869

Philodromus bigibba (O. Pickard-Cambridge, 1876) *species inquirenda*

Artanes bigibba O. Pickard-Cambridge, 1876: 590 (imm. ♀).

Philodromus bigibba: Simon 1907a: 7.

Distribution. Algeria, Egypt, India, Sudan, and Yemen.

Philodromus borana Caporiacco, 1939 *species inquirenda*

Philodromus borana Caporiacco, 1939: 358 (imm.).

Distribution. Ethiopia.

Philodromus lugens (O. Pickard-Cambridge, 1876) *species inquirenda*

Artanes lugens O. Pickard-Cambridge, 1876: 591 (imm.).

Philodromus lugens: Lessert 1919: 185.

Distribution. Egypt.

Philodromus maculatovittatus Strand, 1906 *species inquirenda*

Philodromus maculato-vittatus Strand, 1906: 684 (imm.).

Philodromus maculatovittatus: Strand 1908l: 39, pl. 2, fig. 6 (imm.).

Distribution. Ethiopia.

Philodromus thanatellus Strand, 1909 *species inquirenda*

Philodromus thanatellus Strand, 1909: 580 (imm.).

Distribution. South Africa.

Thanatus zavattarii Caporiacco, 1939 *species inquirenda*

Thanatus zavattarii Caporiacco, 1939: 359 (imm.).

Distribution. Ethiopia.

Family Pisauridae Simon, 1890

Architis amazonica (Simon, 1898) *species inquirenda*

Nilus amazonicus Simon, 1898f: 17 (imm.).

Architis amazonica: Jäger 2011: 7, figs. 16–17 (imm.).

Distribution. Brazil.

Hygropoda longitarsis (Thorell, 1877) *species inquirenda*

Dendrolycosa longitarsis Thorell, 1877: 525 (imm.).

Distribution. Sulawesi and Vietnam.

Remarks. The disjunct type localities suggest that the material from each respective site is unlikely to be conspecific.

Hygropoda longitarsis fasciata (Thorell, 1877) *species inquirenda*

Dendrolycosa longitarsis fasciatum Thorell, 1877: 528 (imm.).

Distribution. Sulawesi.

Remarks. It is most strange that Thorell felt the need to describe and distinguish a subspecies based on a juvenile from another species based on a juvenile.

Stoliczka affinis Caporiacco, 1935 *species inquirenda*

Stoliczka affinis Caporiacco, 1935a: 229 (imm.).

Distribution. Pakistan.

Tapinothelella laboriosa Strand, 1909 *species inquirenda*

Tapinothelella laboriosa Strand, 1909: 586 (imm.).

Distribution. South Africa.

Remarks. Type species of *Tapinothelella* Strand, 1909.

Tapinothelops vittipes (Caporiacco, 1941) *species inquirenda*

Tapinothele vittipes Caporiacco, 1941: 54 (imm.).

Tapinothelops vittipes: Roewer 1955a: 395.

Distribution. Ethiopia.

Family Prodidomidae Simon, 1884

Prodidomus tigrinus Dalmas, 1919 *species inquirenda*

Prodidomus tigrinus Dalmas, 1919: 306 (imm.).

Distribution. Sierra Leone.

Family Scytodidae Blackwall, 1864

Scytodes constellata Lawrence, 1938 *species inquirenda*

Scytodes constellata Lawrence, 1938a: 472, fig. 9 (imm.).

Scytodes constellata: Dippenaar-Schoeman *et al*. 2021: 12, 4 unnumbered figs. (imm.).

Distribution. South Africa.

Scytodes quinqua Lawrence, 1927 *species inquirenda*

Scytodes quinqua Lawrence, 1927: 8, pl. 3, fig. 73 (imm.).

Scytodes quinqua: Dippenaar-Schoeman *et al*. 2021: 28, 2 unnumbered figs. (imm.).

Distribution. South Africa.

Family Senoculidae Simon, 1890

Senoculus guianensis Caporiacco, 1947 *species inquirenda*

Senoculus guianensis Caporiacco, 1947a: 23 (imm.).

Distribution. Guyana.

Family Tetragnathidae Menge, 1866

Leucauge fishoekensis Strand, 1909 *species inquirenda*

Leucauge fishoekensis Strand, 1909: 571 (imm.).

Distribution. South Africa.

Tetragnatha aetherea (Simon, 1895) *species inquirenda*

Prionolaema aetherea Simon, 1894: 725 (unavailable name).

Prionolaema aetherea Simon 1895: 150 (imm.).

Tetragnatha aetherea: Dimitrov, Álvarez-Padilla & Hormiga 2008: 53, figs. 2A-B (imm.).

Tetragnatha aetherea: Castanheira & Baptista 2021: 654 (species inquirenda).

Distribution. Venezuela.

Remarks. This species was already proposed as a *species inquirenda* by Castanheira & Baptista (2021), I agree with them and that it is better not considered a *nomen dubium* as topotypic material could be collected.

Tetragnatha caffra (Strand, 1909) *species inquirenda*

Eucta caffra Strand, 1909: 569 (imm.).

Distribution. South Africa.

Family Theridiidae Sundevall, 1833

Argyrodes vatovae (Caporiacco, 1940) *species inquirenda*

Argyrodina vatovae Caporiacco, 1940: 817, figs. 27 (imm.).

Distribution. Ethiopia.

Dipoena bristowei Caporiacco, 1949 *species inquirenda*

Dipoena bristowei Caporiacco, 1949: 377 (imm.).

Distribution. Kenya.

Dipoena seminigra Simon, 1909 *species inquirenda*

Dipoena seminigra Simon, 1909: 94.

Distribution. Vietnam.

Episinus mucronatus (Simon, 1894) *species inquirenda*

Penictis mucronata Simon, 1894: 520 (imm.).

Distribution. Singapore.

Euryopis campestrata Simon, 1907 *species inquirenda*

Euryopis campestrata Simon, 1907a: 5 (imm.).

Distribution. Egypt.

Euryopis venutissima (Caporiacco, 1934) *species inquirenda*

Philarcus venutissimus Caporiacco, 1934: 143, pl. 4, fig. 3 (imm.).

Distribution. Mongolia.

Janula modesta (Thorell, 1898) *species inquirenda*

Janulus modestus Thorell, 1898: 292 (imm.).

Distribution. Myanmar.

Theridion albidorsum Strand, 1909 *species inquirenda*

Theridion albidorsum Strand, 1909: 561 (imm.).

Distribution. South Africa.

Theridion albomaculosum O. Pickard-Cambridge, 1869 *species inquirenda*

Theridion albomaculosum O. Pickard-Cambridge, 1869: 386, pl. 12, figs. 57–60 (imm.).

Distribution. Sri Lanka.

Theridion angustifrons Caporiacco, 1934 *species inquirenda*

Theridion angustifrons Caporiacco, 1934: 148 (imm.).

Distribution. Mongolia.

Theridion astrigerum Thorell, 1895 *species inquirenda*

Theridion astrigerum Thorell, 1895: 99 (imm.).

Distribution. Myanmar.

Theridion fornicatum Simon, 1884 *species inquirenda*

Theridion fornicatum Simon, 1884: 22 (imm.).

Distribution. Sudan.

Theridion latisternum Caporiacco, 1934 *species inquirenda*

Theridion latisternum Caporiacco, 1934: 148, pl. 1, fig. 16 (imm.).

Distribution. Mongolia.

Theridion meneghettii Caporiacco, 1949 *species inquirenda*

Theridion meneghettii Caporiacco, 1949: 390 (imm.).

Distribution. Kenya.

Theridion octoferum Strand, 1909 *species inquirenda*

Theridion octoferum Strand, 1909: 560 (imm.).

Distribution. South Africa.

Theridion quadripapulatum Thorell, 1895 *species inquirenda*

Theridion quadripapulatum Thorell, 1895: 91 (imm.).

Distribution. Myanmar.

Theridion teutanoides Caporiacco, 1949 *species inquirenda*

Theridion teutanoides Caporiacco, 1949: 385 (imm.).

Distribution. Kenya.

Family Thomisidae Sundevall, 1833

Borboropactus noditarsis (Simon, 1903) *species inquirenda*

Regillus noditarsis Simon, 1903: 101 (imm.).

Borboropactus noditarsis: Roewer 1955a: 752.

Distribution. Presumably West Africa, no country of origin stated.

Cyriogonus triquetrus Simon, 1886 *species inquirenda*

Cyriogonus triquetrus Simon, 1886: 177 (imm.).

Distribution. Madagascar.

Cyriogonus vinsonii (Thorell, 1875) *species inquirenda*

Misumena vinsonii Thorell, 1875: 146 (imm.).

Cyriogonus vinsoni: Lessert 1919: 171.

Cynathea vinsoni: Roewer 1955c: 831.

Cyriogonus vinsoni: Lehtinen 2004: 159.

Distribution. Madagascar.

Diaea pougneti Simon, 1886 *species inquirenda*

Diaea pougneti Simon, 1886: 460 (imm.).

Distribution. India.

Remarks. The paper of Simon (1886) was for over a century frequently cited by workers as having been published in 1885. For the date of publication, refer to the excellent publication by Frétey (2023).

Erissus sanctaeleopoldinae (B. A. M. Soares & H. E. M. Soares, 1946) *species inquirenda*

Stephanopoides sanctaeleopoldinae Soares & Soares, 1946: 55, figs. 3–4 (imm.).

Erissus sanctaeleopoldinae: Bonaldo & Lise 2001: 67.

Distribution. Brazil.

Firmicus lentiginosus (Simon, 1886) *species inquirenda*

Synaema lentiginosum Simon, 1886: 180 (imm.).

Firmicus lentiginosus: Simon 1932: 786.

Firmicus lentiginosus: Lessert 1943: 321.

Distribution. Africa, type locality "Zambeze" (Simon, 1886: 180) likely refers to the river which runs through a number of modern countries.

Firmicus strandi Caporiacco, 1947 *species inquirenda*

Firmicus strandi Caporiacco, 1947a: 220 (imm.).

Distribution. Tanzania.

Heriaesynaema flavipes Caporiacco, 1939 *species inquirenda*

Heriaesynaema flavipes Caporiacco, 1939: 368, fig. 20 (imm.).

Distribution. Ethiopia.

Remarks. Type species of *Heriaesynaema* Caporiacco, 1939.

Hexommulocymus kolosvaryi Caporiacco, 1955 *species inquirenda*

Hexommulocymus kolosvaryi Caporiacco, 1955: 410, fig. 61 (imm.).

Distribution. Venezuela.

Remarks. Type species of *Hexommulocymus* Caporiacco, 1955.

Holopelus irroratus (Thorell, 1899) *species inquirenda*

Bomis irrorata Thorell, 1899: 73 (imm.).

Holopelus irroratus: Simon 1907b: 314.

Distribution. Cameroon.

Monaeses cinerascens (Thorell, 1887) *species inquirenda*

Rhynchognatha cinerascens Thorell, 1887: 285 (imm.).

Monaeses cinerascens: Simon 1895: 993.

Rhynchognatha cinerascens: Crome 1962: 168.

Distribution. Myanmar and Sri Lanka.

Remarks. I am rather doubtful that the material from these respective disjunct countries can be conspecific.

Phrynarachne fatalis O. Pickard-Cambridge, 1899 *species inquirenda*

Phrynarachne fatalis O. Pickard-Cambridge, 1899: 525, pl. 30, fig. 70 (imm.).

Distribution. Sri Lanka.

Synema cervinum Schenkel, 1936 *species inquirenda*

Synema cervina Schenkel, 1936: 137 (imm.).

Synema cervinum Roewer 1955b: 885.

Distribution. China.

Synema pauciaculeis Caporiacco, 1947 *species inquirenda*

Synema pauciaculeis Caporiacco, 1947a: 224 (imm.).

Distribution. Tanzania.

Synema quadrifasciatum Dahl, 1907 *species inquirenda*

Synaema (Rimania) quadrifasciata Dahl, 1907: 381, 392 (imm.).

Distribution. Tanzania.

Remarks. Subgenera (e.g. *Rimania* Dahl, 1907) are essentially rejected by most in modern arachnology, therefore comments on subgenera are not presented in this work.

Synema scalare Strand, 1913 *species inquirenda*

Synema scalare Strand, 1913: 396 (imm.).

Distribution. Uganda.

Tharrhalea cerussata Simon, 1886 *species inquirenda*

Tharrhalea cerussata Simon, 1886: 183 (imm.).

Distribution. Madagascar.

Thomisus litoris Strand, 1913 *species inquirenda*

Thomisus litoris Strand, 1913: 394 (imm.).

Distribution. Democratic Republic of the Congo and/or Uganda.

Remarks. The type locality is a lake that expands either side of the border of the above two countries.

Thomisus melanostethus Simon, 1909 *species inquirenda*

Thomisus melanostethus Simon, 1909: 140 (imm.).

Distribution. Vietnam.

Tmarus bisectus Piza, 1944 *species inquirenda*

Tmarus bisectus Piza, 1944: 270, fig. 5 (imm.).

Distribution. Brazil.

Remarks. Only one of the two immature female syntypes is present in IBSP where the Piza collection of types originally deposited in the Museu de Zoologia da "Luiz de Queiroz" Piracicaba, Brazil now reside (Antonio Brescovit pers. comm.). Therefore, the other immature female syntype must be considered lost at the present time.

Xysticus barbatus Caporiacco, 1936 *species inquirenda*

Xysticus barbatus Caporiacco, 1936: 115 (imm.).

Distribution. Libya.

Xysticus beni Strand, 1913 *species inquirenda*

Xysticus beni Strand, 1913: 395 (imm.).

Distribution. Democratic Republic of the Congo.

Xysticus multiaculeatus Caporiacco, 1940 *species inquirenda*

Xysticus multiaculeatus Caporiacco, 1940: 849 (imm.).

Distribution. Ethiopia.

Xysticus simonstownensis Strand, 1909 *species inquirenda*

Xysticus simonstownensis Strand, 1909: 576 (imm.).

Distribution. South Africa.

Family Ududidae Griswold & Polotow, 2015

Raecius aculeatus Dahl, 1901 *species inquirenda*

Raecius aculeatus Dahl, 1901: 188 (imm.).

"*Racius*" *aculeatus*: Griswold 2002: 129.

Distribution. Democratic Republic of the Congo.

Family Uloboridae Thorell, 1869

Uloborus albolineatus Mello-Leitão, 1941 *species inquirenda*

Uloborus albolineatus Mello-Leitão, 1941: 111 (imm. ♂).

Distribution. Argentina.

Family Xenoctenidae Ramírez & Silva-Dávila, 2017

Odo drescoi (Caporiacco, 1955) *species inquirenda*

Horioctenus drescoi Caporiacco, 1955: 399 (imm.).

Odo drescoi: Brignoli 1983: 590.

Distribution. Venezuela.

Odo incertus Caporiacco, 1955 *species inquirenda*

Odo incertus Caporiacco, 1955: 400 (imm.).

Distribution. Venezuela.

Family Zoropsidae Bertkau, 1882

Zoropsis beccarii Caporiacco, 1935 *species inquirenda*

Zoropsis beccarii Caporiacco, 1935a: 285 (imm.).

Distribution. Turkey.

Species described from juvenile stowaway material

Schmidt (1956a, b) described a number of species from imported specimens found primarily in produce from Latin America and Africa. Most were described from adults and are not relevant here, but the following species below were described from juveniles. All are deposited in the Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt am Main, Germany.

Fruit importation from around the world often results in spiders being found as stowaways in the Northern Hemisphere, and in some cases the supposed origin of the fruit can either erroneous or may be imported from more than one country without ability to differentiate which export the specimen truly arrived on (Sherwood & Alayón Garcíá 2022, 2023; Sherwood in press). Thus, whilst in theory these specimens could be DNA sequenced to try and aid in their identification, given that their supposed countries of origin are not guaranteed to be correct, I prefer to render them as ***nomina dubia***.

Family Philodromidae Thorell, 1869

Gephyrota viridipallida Schmidt, 1956 *nomen dubium*

Cephyrota [lapsus for *Gephyrota*] *viridipallida* Schmidt, 1956a: 27 (imm.).

Supposed country of origin. Cameroon.

Family Pisauridae Simon, 1890

Conakrya wolffi Schmidt, 1956 *nomen dubium*

Conakrya wolffi Schmidt, 1956b: 240 (imm.).

Supposed country of origin. Guinea.

Family Thomisidae Sundevall, 1833

Carcinarachne Schmidt, 1956 *nomen dubium*

Carcinarachne Schmidt, 1956a: 26.

Remarks. Resultant from its type species being rendered a *nomen dubium* (see below).

Carcinarachne brocki Schmidt, 1956 *nomen dubium*

Carcinarachne brocki Schmidt, 1956a: 26, fig. 1 (imm.).

Supposed country of origin. Ecuador.

Familoy Uloboridae Thorell, 1869

Uloborus plumosus Schmidt, 1956 *nomen dubium*

Uloborus plumosus Schmidt, 1956a: 25 (imm.).

Supposed country of origin. Guinea.

Subspecies in spiders

Many subspecies below are raised to species rank, as their genitalia is sufficiently different from each other, and this morphological evidence coupled with biogeographical evidence supports the hypothesis they each are independently evolving lineages (de Quieroz 2007). All are supported by excellent illustrations in the respective publications, which allow for such a rapid judgement. This is not a comprehensive list of all spider subspecies which are likely good species, many others require revision of type material or collection of topotypes due to poor-quality, or even absence, of illustrations; they are not considered here. Also excluded are taxa which I know that colleagues or students intend to work on in the near future. It is particularly puzzling why the untenable concept of a subspecies (Burbrink *et al*. 2022; see also below) was applied heavily within one particular agelenid group, because despite close ranges of species, the genitalic characters to distinguish them are stable and in no other genus is such amounts of variation considered to be below the species level. Several synonymies with nominate species are given for other taxa, and one subspecies is, for now only, proposed as a *subspecies inquirenda*, as I respond directly to the arguments by two colleagues who recently argued that subspecies were tenable in spiders.

Taxa with new or restored species status

Family Araneidae Clerck, 1757

Alpaida audiberti Dierkens, 2014 stat. rev.

Alpaida monzon audiberti Dierkens, 2014: 17, figs. 11–12, 43 (♀).

Remarks. This taxon is extremely disjunct from the nominate species in Peru, being from French Guiana. There are also differences in the size of the copulatory openings and the shape on the lateral sides of the scape (see Dierkens 2014). Combined, these are sufficient evidence to consider it a separate species.

Family Agelenidae C. L. Koch, 1837

Coelotes alatauensis Ovtchinnikov, 2000 stat. rev.

Coelotes curvilamnis alatauensis Ovtchinnikov, 2000: 42, figs. 25–28 (♂♀).

Distribution. Kazakhstan and Kyrgyzstan.

Remarks. The differences in the shape of the male palp and female epigyne, as with all other congeners dealt with here, differentiate this species from other former subspecies with which it was related.

Coelotes boomensis Ovtchinnikov, 2000 stat. rev.

Coelotes curvilamnis boomensis Ovtchinnikov, 2000: 42, figs. 21–24 (♂♀).

Distribution. Kyrgyzstan.

Remarks. As for *C. alatauensis*, the genitalia of this taxon is distinct in comparison to congeners.

Coelotes carpathensis Ovtchinnikov, 1999 stat. rev.

Coelotes pastor carpathensis Ovtchinnikov, 1999: 72, figs. 28–31 (♂♀).

Coelotes pickardi carpathensis: Isaia & Pantini 2009: 24.

Distribution. Ukraine.

Remarks. As for *C. alatauensis*, the genitalia of this taxon is distinct in comparison to congeners.

Coelotes pastor Simon, 1875 stat. rest.

Coelotes pastor Simon, 1875: 38, pl. 5, fig. 12 (♂♀).

Coelotes pastor: Kulczyński 1887: 274, 342, pl. 8, fig. 60 (♂).

Amaurobius pastor: Kulczyński 1906: 454, pl. 14, figs. 6, 9–10, pl. 15, figs. 36, 52, 58 (♂♀).

Coelotes pastor: Simon 1937: 986, 989, 1035, figs. 1512, 1519 (♂♀).

Coelotes pastor: Drensky 1942: 43, fig. 9a (♀).

Coelotes pastor: de Blauwe 1973a: 81, figs. 71–74 (♂♀).

Coelotes pastor: de Blauwe 1973b: 267, figs. 1–11 (♀).

Coelotes pastor: de Blauwe 1975: 146, figs. 1–2 (♀).

Coelotes pastor: Maurer 1982: 166, figs. 2a, 3, 4a (♀).

Coelotes pastor: Trotta 2005: 161, fig. 201 (♀).

Coelotes pickardi pastor: Isaia & Pantini 2009: 25, fig. 2a (♂).

Distribution. France.

Remarks. As for *C. alatauensis*, the genitalia of this taxon is distinct in comparison to congeners.

Coelotes tirolensis (Kulczyński, 1906) stat. rev.

Amaurobius pickardi tirolensis Kulczyński, 1906b: 458, pl. 14, figs. 11, 13 (♀).

Coelotes pastor tirolensis: Drensky 1942: 43, fig. 9b (♀).

Coelotes pastor tirolensis: Tystshenko 1971: 160, fig. 451 (♀).

Coelotes pastor tirolensis: Maurer 1982a: 319, figs. 1a–c (♂♀).

Coelotes pastor tirolensis: Maurer 1982b: 172, figs. 1d, 2b (♀).

Coelotes pastor lessinensis: Maurer 1982b: 174, figs. 5a–b (♂♀).

Coelotes pastor tirolensis: Wang 2002: 42.

Coelotes pickardi tirolensis: Isaia & Pantini 2009: 26, fig. 2d (♂).

Coelotes pickardi tirolensis: Chen, Zhao & Li 2016b: 54, figs. 1A–C, 2A–E (♂♀).

Distribution. Italy, Switzerland, and possibly Ukraine.

Remarks. As for *C. alatauensis*, the genitalia of this taxon is distinct in comparison to congeners.

Coelotes ketmenensis Ovtchinnikov, 2000 stat. rev.

Coelotes striatilamnis ketmenensis Ovtchinnikov, 2000: 44, figs. 33–34 (♀).

Distribution. Kazakhstan.

Remarks. As for *C. alatauensis*, the genitalia of this taxon is distinct in comparison to congeners.

Family Thomisidae Sundevall, 1833

Ozyptila canadensis Dondale & Redner, 1975 stat. rev.

Ozyptila bryantae: Gertsch, 1939: 348 (♂, misidentification).

Ozyptila sincera canadensis Dondale & Redner 1975: 150, figs. 17, 20, 41, 64–66 (♂♀).

Ozyptila sincera canadensis: Dondale & Redner 1978: 163, figs. 418, 422, 503–507 (♂♀).

Ozyptila sincera canadensis: Paquin & Dupérré 2003: 230, figs. 2578–2581 (♂♀).

Distribution. Canada and United States.

Remarks. The genitalia of this spider are well-illustrated (see Dondale & Redner 1975, 1978) and there is nothing to suggest the differences are anything other than interspecific. Thus, this taxon is raised to species level.

Ozyptila oraria Dondale & Redner, 1975 stat. rest.

Ozyptila sincera oraria Dondale & Redner, 1975: 151, figs. 18, 21, 67–71 (♂♀).

Ozyptila oraria: Ono 1988: 127.

Distribution. United States.

Remarks. Ono (1988) already considered *O. oraria* to be a good species but this was seemingly overlooked by most later workers. I agree with him that this species is distinct based on genitalic morphology. Thus, this taxon is raised to species level.

New synonyms

Family Linyphiidae Blackwall, 1859

Diplocephalus connatus Bertkau, 1889 = *Diplocephalus connatus jacksonii* O. Pickard-Cambridge, 1904 syn. nov.

Diplocephalus jacksonii O. Pickard-Cambridge, 1904: 166, pl. A, figs. 9–9a (♂♀).

Diplocephalus jacksoni: Locket & Millidge 1953: 295, fig. 177F (♂).

Diplocephalus connatus jacksoni: Roberts 1987: 86, fig. 391 (♂, as "form" not subspecies).

Synonymy list given for junior synonym only, for senior name, see World Spider Catalog (2024).

Remarks. It has long been accepted in Britain that *Diplocephalus connatus jacksonii* O. Pickard-Cambridge, 1904 is synonymous with *D. connatus* Bertkau, 1889 but Roberts (1987) simply downgraded it to a "form", which had no real taxonomic meaning in the modern era. This means it has remained as a subspecies until now, as seen on the World Spider Catalog (2024). Therefore, I propose *Diplocephalus connatus jacksoni* **syn. nov.** as a junior synonym of *D. connatus*.

Gnathonarium dentatum (Wider, 1834) = *Gnathonarium dentata orientalis* (O. Pickard-Cambridge, 1872) syn. nov.

Erigone dentata orientalis O. Pickard-Cambridge, 1872: 290 (♂♀).

Synonymy list given for junior synonym only, for senior name, see World Spider Catalog (2024).

Remarks. I have been unable to locate the type material of the Israeli subspecies *Gnathonarium dentatum orientale* (O. Pickard-Cambridge 1872) in OUMNH and thus it is assumed lost. The description gives no characters which unambiguously differentiate it from its nominate species (World Spider Catalog 2024). Therefore, I propose *Gnathonarium dentatum orientale* **syn. nov.** as a junior synonym of *G. dentatum*, a species is widely distributed in Europe and the Middle East (World Spider Catalog 2024).

Pityohyphantes costatus Hentz, 1850 = *Pityohyphantes costatus annulipes* (Banks, 1892) syn. nov.

Linyphia costata Hentz, 1850: 31, pl. 4, fig. 11 (♀).

Linyphia phrygiana: Emerton 1882: 63, pl. 19, figs. 1a–h (♂♀, misidentification).

Linyphia phrygiana: Keyserling 1886: 60, pl. 12, fig. 164 (♂♀, misidentification).

Linyphia phrygianus annulipes Banks, 1892: 42. **syn. nov.**

Linyphia phrygiana: Emerton 1902: 141, figs. 332–334 (♂♀, misidentification).

Linyphia phrygiana: Comstock 1910: 171, figs. 10–11 (♂, misidentification).

Linyphia phrygiana: Comstock 1912: 394, figs. 407–409 (♂♀, misidentification).

Pityohyphantes phrygianus: Blauvelt 1936: 137, pl. 12, figs. 80–84, 86 (♂♀, misidentification).

Linyphia phrygiana: Comstock 1940: 112, 408, figs. 102–103, 379, 386 (♂, misidentification).

Pityohyphantes phrygianus: Muma 1943: 81, pl. XIII, figs. 13–14 (♂♀, misidentification).

Pityohyphantes costatus: Chamberlin & Ivie 1943: 28.

Pityohyphantes phrygianus: Kaston 1948: 119, figs. 240–248 (♂♀, misidentification).

Pityohyphantes costatus: Kaston 1972: 125, figs. 16, 282–283 (♂♀).

Pityohyphantes costatus: Paquin & Dupérré 2003: 146, figs. 1615–1617 (♂♀).

Remarks. Banks (1892: 42) states this subspecies is a "little smaller" than the nominate species *P. phrygianus* (C. L. Koch, 1836) and uses differences in colouration to differentiate it. The type locality of this United States spider is Fall Creek, New York State. The whereabouts of the type material is unknown, it is not registered as being present in MCZ, where the vast majority of Bank's type material is housed. Therefore, only the description is available to identify this taxon. *Pityohyphantes costatus* is known to occur in New York, including the general area of the type locality of *P. costatus annulipes*, and the colouration and slight difference in body size of the subspecies can be explained by intraspecific variation. Therefore, I propose *Pityohyphantes costatus annulipes* **syn. nov.** as a junior synonym of *P. costatus*.

Family Theridiidae Sundevall, 1833

Steatoda grossa (C. L. Koch, 1838) = *Steatoda grossa strandi* (Ermolajev, 1934) syn. nov.

Teutana grossa strandi Ermolajev, 1934: 145.

Synonymy list given for junior synonym only, for senior name, see World Spider Catalog (2024).

Remarks. The type material of this Russian species is lost (Kiril Mikhailov pers. comm.) but the description is sufficiently detailed to recognise it as belonging to the nominate species, which occurs widely in Siberia. The differences mentioned in the description are insufficient to justify its separation. Therefore, I propose *S. grossa strandi* **syn. nov.** as a synonym of *S. grossa*.

Family Thomisidae Sundevall, 1833

Synema globosum (Fabricius, 1775) = *Synema globosum nigriventre* Kulczyński, 1901 syn. nov.

Synema globosum nigriventris Kulczyński, 1901: 336, pl. 13, figs. 6–7 (♀).

Synema globosum nigriventre: Roewer 1955b: 886.

Synema japonicum nigriventris: Utochkin 1960: 1019, figs. 5.1–4 (♂♀).

Synonymy list given for junior synonym only, for senior name, see World Spider Catalog (2024).

Remarks. Utochkin (1960) illustrated this Russian (Siberian) subspecies and transferred it as a taxon nominal to *Synema japonicum* Karsch, 1879 (itself now a junior synonym of *S. globosum*). However, this was not followed by most future workers. This subspecies easily falls within the intraspecific variation of *S. globosum* and no evidence like that existing for populations on the Canary Islands (see below) exists to suggest any significant differences to question whether it may be divergent. Therefore, I synonymise *S. globosum nigriventre* **syn. nov.** with *S. globosum*.

Subspecies inquirenda

Synema globosum canariense Dahl, 1907 *subspecies inquirenda*

Synema globosum canariense Dahl, 1907: 378.

Synema globosum: Wunderlich 1986: 252.

Synema globosum canariense: Lissner & Suárez 2023: 23, figs. 2–3 (♂♀, habitus).

Distribution. Canary Islands.

Remarks. Lissner & Suarez (2023) rely on the definitions of subspecies by Mayr (1963) and Monroe (1982) but do not discuss this in more detail. In addition to Mayr (1963), Mayr (as sole or co-author) provided more recent and equally extensive definitions for subspecies (e.g. Mayr 1965, 1969, 1982; O'Brien & Mayr 1991). Mayr also discussed the matter much earlier (Mayr 1940, 1954), even citing Mayr (1954) as the primary reference for his definition of subspecies in O'Brien & Mayr (1991). Perhaps Lissner & Suarez (2023) were unaware, but Monroe (1982) was one of 10 articles [excluding the editorial by John A. Weins, introducing this collection of papers: Weins (1982)] published in volume 9, part 2 of *The Auk*, where many varied opinions on the validity (or non-validity) of subspecies was discussed (i.e. Parkes 1982; Gill 1982; Storer 1982; Barrowclough 1982; Lanyon 1982; Zusi 1982;

Monroe 1982; O'Neill 1982; Phillips 1982), including a contemporaneous article by Mayr himself (Mayr, 1982).

Mayr (1982: 594) acknowledges that following the "*elaborate methodology*" he outlines in Mayr (1969) [six years after publication of the article used by Lissner & Suarez (2023) to define a subspecies] for subspecies met continued criticism. Tellingly, he states "*Hence, it became clear that the subspecies was not a concept of evolutionary biology but simply a handle of convenience for the clerical work of the museum curator. The subspecies was likewise found deficient when studied as the adaptive response to local environmental conditions. During the study of clines, workers found the more-or-less arbitrarily determined subspecies borders to be often more of a hindrance than a help, and those who studied geographic variation with biometric and multifactorial methods usually paid no attention to subspecies designations in their analyses of populations*".

Whilst Mayr (1982) finished with justification for maintaining subspecies, the reasons he gives can be surmised as: (1) for curatorial convenience, and (2) for convenience of non-taxonomists studying populations. Neither of these are, in the present author's opinion, sufficient reasons for the use of subspecies. Evolutionary relationships are not a matter of convenience for humans, they are a true reflection of the evolutionary process of life through space and time. Mayr would much later define the concept of subspecies without using the above arguments to justify it (i.e. O'Brien & Mayr 1991) but they do give a glimpse to his earlier mindset and how he and most others who used the rank in the Twentieth Century may have thought about subspecies.

Monroe (1983: 609) concludes his arguments for subspecies as: "*Subspecies (a trinomial scientific name) should be used in two situations: (1) allopatric populations where definition of the populations is clear, distinct, and total (or very nearly so); and (2) situations where secondary contact between distinct populations has occurred and the zone of intergradation is relatively narrow*". The quote provided by Lissner & Suarez (2023) explicitly attributed to Monroe (1982) is misleading, as that wording appears nowhere in Monroe's article, although it is a good way to summarise his argument.

Lissner & Suarez (2023: 23) write: "*Perhaps a more modern way of subdividing polytypic spider species into subspecies is the concept of superspecies with allospecies as subunits (Kraus 2002)*". Whilst the topic of superspecies with allotypic units is one the present author thinks has merit, it is absolutely not a "… *way of subdividing polytypic spider species into subspecies* …" and thus must be discussed in more depth below.

As discussed by Kraus (2002), who derives his definition of a superspecies from the original proposal of Mayr (1931) and the much more recent refinement of Mayr & Ashlock (1991), superspecies are groups of species (*not* subspecies), so this concept has nothing to do with nor justifies the establishment of subspecies. Instead, the superspecies concept – of particular relevance to spiders (Kraus 2002) – provides a basis to justify that distinct populations, even if not differentiating consistently in the primary taxonomic character of the genitalia, can be regarded as full species (allospecies grouped with other monophyletic taxa as a superspecies) if they meet certain criteria.

The use of the ornithological article of Monroe (1982) in particular as a justification for subspecies in spiders by Lissner & Suarez (2023) also demonstrates that they did not pay close attention to the argumentation of Kraus (2002), especially in his arguments about allopatric speciation in spiders and the comparatively rapid diversification of allopatric species in this group. Again, the superspecies concept is much better applied here, because often minute differences between allopatric populations are quantifiable, no matter how 'insignificant' the individual taxonomist considers a particular character (or characters) for use differentiating at the species-level.

Wunderlich (2008) also discussed the topic of subspecies (and other taxonomic ranks such as subgenera) more broadly in spiders, citing cases where he thought subspecies of certain taxa were not justified, and some where he provisionally thought they were, pending breeding experiments. This latter argumentation suggests that Wunderlich in his 2008 work and earlier, was strongly applying the Biological Species Concept. Through their citation of other works by Mayr, it can be deduced that this concept is also the primary one used by Lissner & Suarez (2023). As demonstrated by Burbrink *et al*. (2023), application of the Biological Species Concept to recognise subspecies often results in the grouping of paraphyletic taxa.

In spiders, the Biological Species Concept is not always the best line of evidence, as clearly morphologically, biogeographically, and molecularly different species are not always guaranteed to be unable to exchange genes (Kraus, 2002). The application of the Biological Species Concept to theraphosids, for instance, would render many clearly different sister species, which have distinct and constant differences in the genitalia and other somatic characters that justify their maintenance as individual and distinct lineages (*sensu* De Queiroz 2007), as conspecific because they have been demonstrably hybridised in captivity by pet hobbyists (see Cléton, Sigwalt & Verdez 2015). This can also be seen in many araneomorph taxa such as agelenids and lycosids, where closely related species (but with distinct quantifiable differences in the genitalia) can hybridise (e.g. Oxford 2019; Simó, Seguí & Pérez-Miles 2002).

Lissner & Suarez (2023) state: "*Subspecies or local geographic races represent conservation units of special interest*, *and in our opinion*, *they should have the same focus in conservation efforts as species since they have the potential to evolve into new species*". This argumentation is not new. Given the arbitrary nature of subspecies, and the inconsistent criteria used to define them, emphasising their importance in conservation could have negative effects on the actual conservation of valid species (Burbrink *et al*. 2022). This argumentation by Lissner & Suarez (2023) can in part be related to arguments by Mayr (1982) discussed above, where the concept of a subspecies is justifiable as a tool of convenience and/or improving bureaucratic efficiency.

An extremely important point made by Lissner & Suarez (2023) is that a comprehensive prior investigation of molecular and morphological variability in *Synema globosum* (Fabricius, 1775) by Urfer *et al*. (2021) incorporated only *S. globosum s. s.* [as *S. globosum globosum* in Lissner & Suarez (2023)] and did not sample topotypic material of any of the prior-proposed subspecies of *S. globosum* (see World Spider Catalog 2023). Therefore, Urfer *et al*. (2021) provide very useful data on intraspecific variation within *S. globosum s. s.* but do not advance knowledge of the taxonomic position of any of the described subspecies.

Lissner & Suarez (2023) use this point to then justify as follows: "*Differences in both morphological features compared to mainland specimens as well as the monophyletic position of the Canarian specimens are sufficient arguments to resurrect the subspecies S. g. canariense*". It is pertinent to examine these characters, which do seem valid, but do not justify relegating this taxon to a subspecific rank. Their diagnosis of *S. g. canariense* gives characters for delimitation: 1) carapace colouration, 2) sternum colouration, 3) near absence of intraspecific colour polymorphy, 4) opisthosoma not bicoloured and 5) foliaceous mark of opisthosoma never jet black. Lissner & Suarez (2023) found these characters to be diagnostic and stable in *S. g. canariense* and this is certainly not doubted by the present author. However, the (assumed) absence of genitalic characters to differentiate this lineage, and the fact the COI barcode distance is <2% (J. Lissner pers. comm.) is a complicating factor, and the urge to just immediately assume that there is simply low interspecific barcode gaps within this genus must be resisted. Thorough molecular investigation of material from the type localities of all subspecies (presently valid or synonymised) must be undertaken before any broad assumptions about genetic species limits in *Synema* are made. It is possible *S. g. canariense* will need to be elevated to species level in future, as morphology and preliminary molecular data suggest it may be diverging, but it is simply 'not there yet'. The subspecies rank is generally unacceptable but will be maintained here as a temporary measure until it is clear whether it must be: (1) synonymised or (2) elevated, based on comprehensive molecular evidence. Therefore, I propose *Synema globosum canariense* as a ***subspecies inquirenda***.

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References

Almquist S 2006: Swedish Araneae, part 2 – families Dictynidae to Salticidae. *Insect Systematics & Evolution*, *Supplement*, 63: 285–601.

Audouin V 1826: Explication sommaire des planches d'arachnides de l'Égypte et de la Syrie. *In*: Savigny MJCL de: "Description de l'Égypte, ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française, publié par les ordres de sa Majesté l'Empereur Napoléon le Grand.". *Histoire Naturelle*, 1 (4): 1–339, [arachnids on pls. 1–7].

Ausserer A 1875: Zweiter Beitrag zur Kenntniss der Arachniden-Familie der Territelariae Thorell (Mygalidae Autor). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 25: 125–206, pls. 5–7.

Ballarin F, Salmaso R & Latella L 2020: The arachnological collections of the Museo Civico di Storia Naturale of Verona (Italy): an overview. *Arachnologische Mitteilungen*, 60: 23–26 & Supplement. http://dx.doi.org/10.30963/aramit6004

Banks N 1892: The spider fauna of the Upper Cayuga Lake Basin. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 44: 11–81, pls. 1–5.

Banks N 1896: New North American spiders and mites. *Transactions of the American Entomological Society*, 23: 57–77.

Banks N 1904: New genera and species of Nearctic spiders. *Journal of the New York Entomological Society*, 12: 109–119.

Banks N 1909: Arachnida from Costa Rica. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 61: 194–234.

Banks N 1916: Revision of Cayuga Lake spiders. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 68: 68–84.

Barrowclough GF 1982: Geographic variation, predictiveness, and subspecies. *The Auk*, 99 (3): 601–603. https://doi.org/10.1093/auk/99.3.601

Becker L 1886: Diagnoses de quelques arachnides nouvaux. *Annales de la Société Entomologique de Belgique*, 30 (C.R.): 23–27.

Berdondini I & Whitman S 2003: Catalogs of the Natural History Museum of Florence University, Zoology Section "La Specola". XVI. Arachnida Araneae: types. *Atti della Società Toscana di Scienze Naturali Memoranda*, B109 (2002): 119–156.

Bertkau P 1880: Verzeichniss der von Prof. Ed. van Beneden auf seiner im Auftrage der Belgischen Regierung unternommenen wissenschaftlichen Reise nach Brasilien und La Plata i. J. 1872-73 gesammelten Arachniden. *Mémoires Couronnés et Mémoires*

des Savants Étrangers de l'Académie Royale des Sciences, *des Lettres et des Beaux-Arts de Belgique*, 43: 1–120.

Bertkau P 1889: Interessante Tiere aus der Umgebung von Bonn. *Verhandlungen des Naturhistorischen Vereins der Preussischen Rheinlande und Westfalens*, 46: 69–82.

Bishop SC & Crosby CR 1930: Studies in American spiders: genera *Ceratinopsis*, *Ceratinopsidis* and *Tutaibo*. *Journal of the New York Entomological Society*, 38: 15–33.
http://dx.doi.org/10.4039/Ent61101-5

Blackwall J 1863: Description of newly discovered spiders captured in Rio de Janeiro, by John Gray and the Rev. Hamlet Clark (continued). *Annals and Magazine of Natural History*, series 3, 11 (61): 29–45.
http://dx.doi.org/10.1080/00222936308681375

Blackwall J 1864: Descriptions of seven new species of East Indian spiders received from the Rev. O. P. Cambridge. *Annals and Magazine of Natural History*, series 3, 14 (79): 36–45.
http://dx.doi.org/10.1080/00222936408681653

Blackwall J 1865: Descriptions of recently discovered spiders collected in the Cape de Verde Islands by John Gray, Esq. *Annals and Magazine of Natural History*, series 3, 16 (92): 80–101.
http://dx.doi.org/10.1080/00222936508679383

Blauvelt HH 1936: The comparative morphology of the secondary sexual organs of *Linyphia* and some related genera, including a revision of the group. *Festschrift Embrik Strand*, 2: 81–171.

Blauwe R de 1973a: Révision de la famille des Agelenidae (Araneae) de la région méditerranéenne. *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique*, 49 (2): 1–111.

Blauwe R de 1973b: Contribution à l'étude des *Agelenidae* et Drassidae des collections du Musée d'Histoire Naturelle de Vérone. *Memorie del Museo Civico di Storia Naturale di Verona*, 20: 263–273.

Blauwe R de 1975: Deuxième contribution à l'étude des *Agelenidae* des collections du Musée d'Histoire Naturelle de Vérone. *Bollettino del Museo Civico di Storia Naturale di Verona*, 2: 145–154.

Bonaldo AB & Lise AA 2001: A review of the Neotropical spider genus *Stephanopoides* (Araneae, Thomisidae, Stephanopinae). *Biociências*, 9: 63–80.

Bonnet P 1955: *Bibliographia araneorum. Analyse méthodique de toute la littérature aranéologique jusqu'en 1939. Tome II. Systématique des araignées (Étude par ordre alphabétique) [1re partie: A-B]*. Douladoure, Toulouse, 918 pp.

Bradley HB 1877: Araneides of the Chevert Expedition. Part II. *Proceedings of the Linnean Society of New South Wales*, 2: 115–120.

Brady AR 1980: Nearctic species of the wolf spider genus *Trochosa* (Araneae: Lycosidae). *Psyche*, *Cambridge*, 86 (2–3): 167–212.

Brændegaard J 1936: Revisal of spiders from Ellesmereland collected by the Second Arctic Expedition of the "Fram.". *Norsk Entomologisk Tidsskrift*, 4: 128–130.

Brignoli PM 1983: A catalogue of the Araneae described between 1940 and 1981. *Manchester University Press*, 755 pp.

Bryant EB 1948: Some spiders from Acapulco, Mexico. *Psyche*, 55 (2): 55–77.
http://dx.doi.org/10.1155/1948/45193

Burbrink FT, Crother BI, Murray CM, Smith BT, Ruane S, Myers EA & Pyron RA 2022: Empirical and philosophical problems with the subspecies rank. *Ecology and Evolution*, 12 (7): e9069.
https://doi.org/10.1002/ece3.9069

Caporiacco L di 1934: Aracnidi dell'Himalaia e del Karakoram raccolti dalla Missione Italiana al Karakoram (1929-VII). *Memorie della Società Entomologica Italiana*, 13: 113–160.

Caporiacco L di 1935a: Aracnidi dell'Himalaia e del Karakoram, raccolti dalla Missione italiana al Karakoram (1929-VII). *Memorie della Società Entomologica Italiana*, 13: 161–263, pls. 1–7.

Caporiacco L di 1935a: Escursione del Prof. Nello Beccari in Anatolia. Aracnidi. *Monitore Zoologico Italiano*, 46: 283–289.

Caporiacco L di 1936: Aracnidi fezzanesi raccolti dal Prof. G. Scortecci nel 1934 - XII (Missione della R. Società Geografica). *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano*, 75: 67–94.

Caporiacco L di 1936a: Aracnidi raccolti durante la primavera 1933 nelle oasi del deserto libico. *Memorie della Società Entomologica Italiana*, 15: 93–122.

Caporiacco L di 1939: Arachnida. *In*: *Missione biologica nel paese dei Borana. Raccolte zoologiche*. Reale Accademia d'Italia, Roma

3, pp. 303–385.

Caporiacco L di 1940: Aracnidi raccolte nella Reg. dei Laghi Etiopici della Fossa Galla. *Atti della Reale Accademia d'Italia*, 11: 767–873.

Caporiacco L di 1941: Arachnida (esc. Acarina). Araneae. *Missione Biologica Sagan-Omo, Reale Accademia d'Italia, Roma*, 12 (Zoologia 6): 46–175.

Caporiacco L di 1947a: Diagnosi preliminari de specie nuove di aracnidi della Guiana Brittanica raccolte dai professori Beccari e Romiti. *Monitore Zoologico Italiano*, 56: 20–34.

Caporiacco L di 1947b: Arachnida Africae Orientalis, a dominibus Kittenberger, Kovács et Bornemisza lecta, in Museo Nationali Hungarico servata. *Annales Historico-Naturales Musei Nationalis Hungarici*, 40: 97–257.

Caporiacco L di 1949: Aracnidi della colonia del Kenya raccolti da Toschi e Meneghetti negli anni 1944-1946. *Commentationes Pontificia Academia Scientiarum*, 13: 309–492.

Caporiacco L di 1954: Araignées de la Guyane Française du Muséum d'Histoire Naturelle de Paris. *Commentationes Pontificia Academia Scientiarum*, 16: 45–193.

Caporiacco L di 1955: Estudios sobre los aracnidos de Venezuela. 2a parte: Araneae. *Acta Biologica Venezuelica*, 1: 265–448.

Chamberlin RV 1908: Revision of North American spiders of the family Lycosidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 60: 158–318, pls. 8–23.

Chamberlin RV 1909: Some synonyms in North American Lycosidae. *The Canadian Entomologist*, 41(10): 376. http://dx.doi.org/10.4039/Ent41376-10

Chamberlin RV 1917: New spiders of the family Aviculariidae. *Bulletin of the Museum of Comparative Zoology*, 61: 25–75.

Chamberlin RV & Ivie W 1943: New genera and species of North American linyphiid spiders. *Bulletin of the University of Utah*, 33 (10): 1–39.

Chen L, Zhao Z & Li S-Q 2016: *Sinocoelotes* gen. n., a new genus of the subfamily Coelotinae (Araneae, Agelenidae) from Southeast Asia. *ZooKeys*, 614: 51–86. http://dx.doi.org/10.3897/zookeys.614.8663

Cléton F, Sigwalt Y & Verdez J-M 2015: *Tarantulas: Breeding experience & wildlife*. Edition Chimaira, Frankfurt am Main, 231 pp.

Comstock JH 1910: The palpi of male spiders. *Annals of the Entomological Society of America*, 3 (3): 161–185. http://dx.doi.org/10.1093/aesa/3.3.161

Comstock JH 1912: *The spider book. A manual for the study of the spiders and their near relatives, the scorpions, pseudoscorpions, whipscorpions, harvestmen and other members of the class Arachnida, found in America north of Mexico, with analytical keys for their classification and popular accounts of their habits*. Doubleday, Page & Company, Garden City/New York, 721 pp. http://dx.doi.org/10.5962/bhl.title.3163

Comstock JH 1940: *The spider book, revised and edited by W. J. Gertsch*. Cornell Univ. Press, Ithaca, 727 pp.

Crome W 1962: Studien an Krabbenspinnen (Araneae: Thomisidae) 3. Über Monaeses Thorell, 1869, und Rhynchognatha Thorell, 1887. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 38: 163–169.

Dahl F 1901: Über den Wert des Cribellums und Calamistrums für das System der Spinnen und eine Uebersicht der Zoropsiden. *Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin*, 1901: 177–199.

Dahl F 1907: *Synaema marlothi*, eine neue Laterigraden-Art und ihre Stellung in System. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 3: 369–395.

Dalmas R de 1919: Catalogue des araignées du genre *Leptodrassus* (Gnaphosidae) d'après les matériaux de la collection E. Simon au Museum d'Histoire naturelle. *Bulletin du Muséum National d'Histoire Naturelle de Paris*, 25: 243–250.

Dalmas R de 1921: Monographie des araignées de la section des *Pterotricha* (Aran. Gnaphosidae). *Annales de la Société Entomologique de France*, 89: 233–328.

De Geer C 1778: Des araignées. *In*: *Mémoires pour servir à l'histoire des insectes. Tome septième*. Pierre Hesselberg, Stockholm, pp. 176–324, pls. 11–19, 38–39.

De Quieroz K 2007: Species concepts and species delimitation. *Systematic Biology*, 56 (6): 879–886. https://doi.org/10.1080/10635150701701083

Deeleman-Reinhold CL 2001: *Forest spiders of South East Asia: with a revision of the sac and ground spiders (Araneae: Clubionidae*,

Corinnidae, *Liocranidae*, *Gnaphosidae*, *Prodidomidae and Trochanterriidae* [sic]*).* Brill, Leiden, 591 pp.

Dierkens M 2014: Contribution à l'étude des Araneidae de Guyane française. V - Les genres *Alpaida* et *Ocrepeira*. *Bulletin Mensuel de la Société Linnéenne de Lyon*, 83: 14–30.
http://dx.doi.org/10.3406/linly.2014.13898

Dimitrov D, Álvarez-Padilla F & Hormiga G 2008: Until dirt do us apart: on the unremarkable palp morphology of the spider *Sternospina concretipalpis* Schmidt & Krause, 1993, with comments on the genus *Prionolaema* Simon, 1894 (Araneae, Tetragnathidae). *Zootaxa*, 1698: 49–56.
http://dx.doi.org/10.11646/zootaxa.1698.1.3

Dippenaar-Schoeman AS, Haddad CR, Booysen R, Foord SH & Lotz LN 2021: The Scytodidae of South Africa. Version 1. *South African National Survey of Arachnida Photo Identification Guide*, Irene, 41 pp.

Dondale CD & Redner JH 1975: The genus *Ozyptila* in North America (Araneida, Thomisidae). *Journal of Arachnology*, 2: 129–181.

Dondale CD & Redner JH 1978: The insects and arachnids of Canada, Part 5. The crab spiders of Canada and Alaska, Araneae: Philodromidae and Thomisidae. *Research Branch Agriculture Canada Publication*, 1663: 1–255.

Dondale CD & Redner JH 1984: Revision of the *milvina* group of the wolf spider genus *Pardosa* (Araneae: Lycosidae). *Psyche*, 91 (1–2): 67–117.
http://dx.doi.org/10.1155/1984/49787

Drensky P 1942: Die Spinnenfauna Bulgariens V. *Mitteilungen aus den Königlichen Naturwissenschaftlichen Instituten in Sofia*, 15: 33–60.

Emerton JH 1882: New England spiders of the family Theridiidae. *Transactions of the Connecticut Academy of Arts and Sciences*, 6: 1–86.

Emerton JH 1902: *The common spiders of the United States*. Boston, 225 pp.
http://dx.doi.org/10.5962/bhl.title.5617

Ermolajev WN 1934: Materialen zur Spinnenfauna Westsibiriens. III. Die Spinnen der Stadt Tomsk. *Folia Zoologica et Hydrobiologica*, *Rigā*, 7: 130–148.

Eydoux JFT & Souleyet FA 1842: *Voyage autour du monde exécuté pendant les années 1836 et 1837 sur la Corvette La Bonite. Zoologie. Tome premier*, *seconde partie*. Bertrand, Paris, pp. 286–290, pl. 1.
http://dx.doi.org/10.5962/bhl.title.10814

Frétey T 2023: The publication dates of the printed issues of the Bulletin de la Société zoologique de France (1876–2015). *Bionomina*, 33 (1): 1–162.
https://doi.org/10.11646/bionomina.33.1.1

Gertsch WJ 1934: Further notes on American spiders. *American Museum Novitates*, 726: 1–26.

Gertsch WJ 1939: A revision of the typical crab spiders (Misumeninae) of America north of Mexico. *Bulletin of the American Museum of Natural History*, 76: 277–442.

Gill FB 1982: Might there be a resurrection of the subspecies? *The Auk*, 99 (3)*: 598*–599.
https://doi.org/10.1093/auk/99.3.598

Griffith E 1833: The Arachnides. *In*: Cuvier G (Ed) *The Animal Kingdom*. London 13, 387–432, 438–487.

Griswold CE 2002: A revision of the African spider genus *Raecius* Simon, 1892 (Araneae, Zorocratidae). *Proceedings of the California Academy of Sciences*, 53: 117–149.

Hentz NM 1850: Descriptions and figures of the araneides of the United States. *Boston Journal of Natural History*, 6: 18–35, 271–295.

Isaia M & Pantini P 2009: *Coelotes pickardi* O. Pickard-Cambridge, 1873: un intricato caso di sinonimia per un endemita alpino ritrovato in Valle Oropa e le sue sottospecie (Arachnida, Araneae, Amaurobiidae). *Memorie dell'Associazione Naturalistica Piemontese*, 11: 23–28.

Jäger P 1998: Das Typenmaterial der Spinnentiere (Arachnida: Acari, Amblypygi, Araneae, Opiliones, Pseudoscorpiones, Scorpiones, Uropygi) aus dem Museum Wiesbaden. *Jahrbücher des Nassauischen Vereins für Naturkunde*, 119: 81–91.

Jäger P 2011: Revision of the spider genera *Nilus* O. Pickard-Cambridge 1876, *Sphedanus* Thorell 1877 and *Dendrolycosa* Doleschall 1859 (Araneae: Pisauridae). *Zootaxa*, 3046 (1): 1–38.
http://dx.doi.org/10.11646/zootaxa.3046.1.1

Kaston BJ 1948: Spiders of Connecticut. *Bulletin of the Connecticut State Geological and Natural History Survey*, 70: 1–874.

Kaston BJ 1972: *How to know the spiders, second ed*. Dubuque, 289 pp.

Karsch F 1879: Baustoffe zu einer Spinnenfauna von Japan. *Verhandlungen des Naturhistorischen Vereins der Preussischen Rheinlande und Westfalens*, 36: 57–105.

Karsch F 1881: Verzeichniss der während der Rohlfs'schen africanischen Expedition erbeuteten Myriopoden und Arachniden. *Archiv für Naturgeschichte*, 47 (1): 1–14, pl. 1.

Keyserling E 1890: *Die Arachniden Australiens*, *nach der Natur beschrieben und abgebildet. Zweiter Theil [Lieferung 37]*. Bauer & Raspe, Nürnberg, 233–274, pls. 21–24.
http://dx.doi.org/10.5962/bhl.title.121660

Keyserling E 1883: *Die Arachniden Australiens*, *nach der Natur beschrieben und abgebildet* [Erster Theil, Lieferung 31]. Bauer & Raspe, Nürnberg, 1421–1489, pls. 120–123.
http://dx.doi.org/10.5962/bhl.title.121660

Keyserling E 1886: *Die Spinnen Amerikas. Theridiidae. II*. Hälfte. Bauer & Raspe, Nürnberg, 295 pp., pls. 11–21.
http://dx.doi.org/10.5962/bhl.title.64832

Koch CL 1836: *Die Arachniden. Dritter Band*. C. H. Zeh'sche Buchhandlung, Nürnberg, pp. 1–104, pls. 73–105 (figs. 164–245).
http://dx.doi.org/10.5962/bhl.title.43744

Koch CL 1847: *Die Arachniden*. J. L. Lotzbeck, Nürnberg, Vierzehnter Band, pp. 89–210, pls. 481–504 (figs 1343–1412); Fünfzehnter Band, pp. 1–136, pls. 505–540 (figs 1413–1504); Sechszehnter und letzter Band, pp. 1–80, pls. 541–563 (figs 1505–1550), Index 64 pp.
http://dx.doi.org/10.5962/bhl.title.43744

Koch CL 1850: *Übersicht des Arachnidensystems. Heft 5*. J. L. Lotzbeck, Nürnberg, 77 pp.
http://dx.doi.org/10.5962/bhl.title.39561

Koch L 1866: *Die Arachniden-Familie der Drassiden*. Nürnberg, Hefte 1–6, pp. 1–304.

Koch L 1872: *Die Arachniden Australiens*, *nach der Natur beschrieben und abgebildet [Erster Theil*, *Lieferung 3–7]*. Bauer & Raspe, Nürnberg, 105–368, pls. 8–28.
http://dx.doi.org/10.5962/bhl.title.121660

Koch L 1875: *Aegyptische und abyssinische Arachniden gesammelt von Herrn C. Jickeli*. Bauer & Raspe, Nürnberg, 96 pp., pls. 1–7.
http://dx.doi.org/10.5962/bhl.title.121660

Koch L 1876: *Die Arachniden Australiens*, *nach der Natur beschrieben und abgebildet [Erster Theil*, *Lieferung 17–19]*. *Bauer & Raspe*, Nürnberg, 741–888, pls. 65–76.
http://dx.doi.org/10.5962/bhl.title.121660

Kraus O 2000: Why no subspecies in spiders? *In*: Toft S & Scharff N (Eds) *Proceedings of the 19th European Colloquium of Arachnology*: Aarhus, Denmark: Aarhus University Press, pp. 303–314.

Kulczyński W 1887: Przyczynek do tyrolskiej fauny pajeczakow. *Rozprawy i Sprawozdania z Posiedzen Wydzialu Matematyczno Przyrodniczego Akademji Umiejetnosci*, *Krakow*, 16: 245–356 (including appendix pp. 1–12).

Kulczyński W 1901: Arachnoidea. *In*: Horvath G (Ed) *Zoologische Ergebnisse der dritten asiatischen Forschungsreise des Grafen Eugen Zichy*. Budapest 2, 311–369.

Kulczyński W 1906: Fragmenta arachnologica. VII. *Bulletin International de l'Academie des Sciences de Cracovie*, 1906: 417–476.

Lanyon WE 1982: The subspecies concept: then, now, and always. *The Auk*, 99 (3): 603–604.
https://doi.org/10.1093/auk/99.3.603

Lawrence, R. F. 1927: Contributions to a knowledge of the fauna of South-West Africa V. Arachnida. *Annals of the South African Museum*, 25(1): 1–75, pls. 1–4

Lawrence RF 1938: A collection of spiders from Natal and Zululand. *Annals of the Natal Museum*, 8: 455–524.

Lehtinen PT 2004: Taxonomic notes on the Misumenini (Araneae: Thomisidae: Thomisinae), primarily from the Palaearctic and Oriental regions. *In*: Logunov DV & Penney D (Eds) European Arachnology 2003 (Proceedings of the 21st European Colloquium of Arachnology, St.-Petersburg, 4-9 August 2003). *Arthropoda Selecta*, Special Issue, 1: 147–184.

Lessert R de 1919: Araignées du Kilimandjaro et du Mérou (suite). 3. Thomisidae. *Revue Suisse de Zoologie*, 27 (5): 99–234, pl. 2.

http://dx.doi.org/10.5962/bhl.part.36325

Lessert R de 1933: Araignées d'Angola. Résultats de la Mission scientifique suisse en Angola 1928-1929. *Revue Suisse de Zoologie*, 40 (1): 85–159.

Lessert R de 1943: Araignées du Congo belge (Troisième partie). *Revue Suisse de Zoologie*, 50 (3): 305–338. http://dx.doi.org/10.5962/bhl.part.117656

Levi HW 1971: The ravilla group of the orbweaver genus *Eriophora* in North America (Araneae: Araneidae). *Psyche*, 77 (3) [1970]: 280–302. http://dx.doi.org/10.1155/1970/69275

Levi HW 1974: The orb-weaver genera *Araniella* and *Nuctenea* (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology*, 146 (6): 291–316.

Levi HW 1991: The Neotropical and Mexican species of the orb-weaver genera *Araneus*, *Dubiepeira*, and *Aculepeira* (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology*, 152 (4): 167–315.

Levi HW 2002: Keys to the genera of araneid orbweavers (Araneae, Araneidae) of the Americas. *Journal of Arachnology*, 30 (3): 527–562. http://dx.doi.org/10.1636/0161-8202(2002)030[0527:KTTGOA]2.0.CO;2

Linnaeus C 1758: *Systema naturae per regna tria naturae*, *secundum classes*, *ordines*, *genera*, *species cum characteribus differentiis*, *synonymis*, *locis. Editio decima*, *reformata*. Laurentius Salvius, Holmiae, 821 pp. http://dx.doi.org/10.5962/bhl.title.542

Lissner J & Suárez D 2023: Resurrection of *Synema globosum canariense* Dahl, 1907 (Araneae: Thomisidae) with comments on other synonyms within this genus. *Arachnologische Mitteilungen*, 65: 18–26. http://dx.doi.org/10.30963/aramit6505

Locket GH & Millidge AF 1953: *British spiders. Vol. II*. Ray Society, London, 449 pp.

Lucas H 1843: Note sur une nouvelle espece d'araneide appartenant au genre *Actinopus* de M. Perty. *Revue Zoologique par la Société Cuviérienne*, 1843: 318.

Lucas H 1845: Sur une nouvelle espèce d'araneide appartenant au genre *Actinopus* de M. Perty. *Annales de la Société Entomologique de France*, (2) 3: 57–60.

Lucas H 1858: Aptères. *In*: Thomson J (Ed) *Voyage au Gabon*. Archives Entomologiques de M. J. Thomson 2, pp. 377–445, pls. 12–13.

MacLeay WS 1827: Annulosa. *In*: King PP (Ed) *Narrative of a survey of the intertropical and western coasts of Australia*. London 2, pp. 438–469.

Marusik YM & Nadolny AA 2020: On the identity of *Trochosa hispanica* (Araneae, Lycosidae), with notes on the synonymy of West Palaearctic "*Trochosa*" species. *Zootaxa*, 4859 (1): 56–80. http://dx.doi.org/10.11646/zootaxa.4859.1.2

Maurer R 1982a: Zur Kenntnis der Gattung *Coelotes* (Araneae, Agelenidae) in Alpenländern I. Die Arten aus dem Gebiet der Schweiz, Evolution der pastor-Gruppe. *Revue Suisse de Zoologie*, 89 (2): 313–336. http://dx.doi.org/10.5962/bhl.part.82446

Maurer R 1982b: Zur Kenntnis der Gattung *Coelotes* (Araneae, Agelenidae) in Alpenländern II. Die pastor-Gruppe der italienischen und französischen Alpen - Beschreibung von *C. pastor lessinensis* ssp. n. *Bollettino del Museo Civico di Storia Naturale di Verona*, 8: 165–183.

Mayr E 1931: Notes on *Halcyon chloris* and some of its subspecies. *American Museum Novitates*, 469: 1–10.

Mayr E 1940: Speciation phenomena in birds. *The American Naturalist*, 74: 249–278. https://doi.org/10.1086/280892

Mayr E 1954: Notes on nomenclature and classification. *Systematic Zoology*, 3: 86–89. https://doi.org/10.2307/2411842

Mayr E 1963: *Animal species and evolution*. Harvard University Press, Harvard, 757 pp.

Mayr E 1969: *Principles of systematic zoology*. New York, McGraw-Hill, 428 pp.

Mayr E 1982: Of what use are subspecies? *The Auk*, 99 (3): 593–595.

https://doi.org/10.1093/auk/99.3.593a

Mayr E & Ashlock PD 1991: *Principles of systematic zoology. 2nd Edition*. McGraw Hill, New York, 175 pp.

McCook HC 1894: *American spiders and their spinningwork* [sic]. *A natural history of the orbweaving [*sic] *spiders of the United States with special regard to their industry and habits. Vol. III*. Philadelphia, 285 pp., 30 pls. http://dx.doi.org/10.5962/bhl.title.2681

Mello-Leitão CF de 1922: Novas clubionidas do Brasil. *Archivos da Escola Superior de Agricultura e Medicina Veterinaria*, *Rio de Janeiro*, 6: 17–56.

Mello-Leitão CF de 1938: Algunas arañas nuevas de la Argentina. *Revista del Museo de La Plata (N.S)*, 1: 89–118.

Mello-Leitão CF de 1939: Some new argiopid spiders of British Guiana taken by Mr C. W. Richards from the nests of solitary wasps. *Anais da Academia Brasileira de Ciências*, 11: 105–112.

Mello-Leitão CF de 1941: Las arañas de Córdoba, La Rioja, Catamarca, Tucumán, Salta y Jujuy colectadas por los Profesores Birabén. *Revista del Museo de La Plata (N.S.*, *Zool.)*, 2: 99–198.

Miglio LT, Pérez-Miles F & Bonaldo AB 2020: Taxonomic revision of the spider genus *Actinopus* Perty, 1833 (Araneae, Mygalomorphae, Actinopodidae). *Megataxa*, 2 (1): 1–256. http://dx.doi.org/10.11646/megataxa.2.1.1

Monroe BL 1982: A modern concept of the subspecies. *The Auk*, 99 (3)*:* 608–609. https://doi.org/10.1093/auk/99.3.608

Montgomery TH 1903: Supplementary notes on spiders of the genera *Lycosa*, *Pardosa*, *Pirata*, and *Dolomedes* from the northeastern United States. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 55: 645–655.

Montgomery TH 1904: Descriptions of North American Araneae of the families Lycosidae and Pisauridae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 56: 261–323, pls. 18–20.

Muma MH 1943: *Common spiders of Maryland*. Natural History Society of Maryland, Baltimore, 179 pp.

O'Brien SJ & Mayr E 1991: Bureaucratic mischief: recognizing endangered species and subspecies. *Science*, 251: 1187–1188.

O'Neill JP 1982: The subspecies concept in the 1980's. *The Auk*, 99 (3): 609–612. https://doi.org/10.1093/auk/99.3.609

Ono H 1988: *A revisional study of the spider family Thomisidae (Arachnida, Araneae) of Japan*. National Science Museum, Tokyo, 252 pp.

Ovtchinnikov SV 1999: On the supraspecific systematics of the subfamily Coelotinae (Araneae, Amaurobiidae) in the former USSR fauna. *Tethys Entomological Research*, 1: 63–80.

Ovtchinnikov SV 2000: The nominotypical spider subgenus *Coelotes* Blackwall, 1841 (Araneae: Amaurobiidae, Coelotinae, *Coelotes*) in the fauna of Tien Shan Mts. *Tethys Entomological Research*, 2: 35–48.

Oxford GS 2019: Non-additive effects on the morphology of hybrids between two species of large house spiders, *Eratigena saeva* and *E. duellica* (Araneae: Agelenidae). *Arachnology*, 18: 223–236. https://doi.org/10.13156/arac.2019.18.3.223

Paquin P & Dupérré N 2003: Guide d'identification des araignées de Québec. *Fabreries*, Supplement 11: 1–251.

Parkes KC 1982: Subspecific taxonomy: unfashionable does not mean irrelevant. *The Auk*, 99 (3): 596–598. https://doi.org/10.1093/auk/99.3.596

Pavesi P 1883: Spedizione italiana nell'Africa equatoriale. Risultati zoologici. Aracnidi del regno di Scioa. *Annali del Museo Civico di Storia Naturale di Genova*, 20: 5–105.

Percheron A 1833: Description de l'*Epeira hastifera*. *Magasin de Zoologie*, 3 (8): 1–2, pl. 4.

Pérez-Miles F, Lucas SM, Silva Jr PI da & Bertani R 1996: Systematic revision and cladistic analysis of Theraphosinae (Araneae: Theraphosidae). *Mygalomorph*, 1: 33–68.

Perty M 1833: Arachnides Brasilienses. *In*: de Spix JB & Martius FP (Eds) *Delectus animalium articulatorum quae in itinere per Braziliam ann. 1817 et 1820 colligerunt*. Munich, pp. 191–209, pls. 38–39.

Petrunkevitch A 1911: A synonymic index-catalogue of spiders of North, Central and South America with all adjacent islands, Greenland, Bermuda, West Indies, Terra del Fuego, Galapagos, etc. *Bulletin of the American Museum of Natural History*, 29: 1–791.

Petrunkevitch A 1930: The spiders of Porto Rico. Part two. *Transactions of the Connecticut Academy of Arts and Sciences*, 30: 159–356.

Phillips AR 1982: Subspecies and species: fundamentals, needs, and obstacles. *The Auk*, 99 (3)*:* 612–615. https://doi.org/10.1093/auk/99.3.612

Pickard-Cambridge FO 1902: New species of spiders belonging to the genus *Ctenus*, with supplementary notes. *Annals and Magazine of Natural History*, series 7, 9 (54): 401–415, pl. 7. http://dx.doi.org/10.1080/00222930208678530

Pickard-Cambridge FO 1904: Arachnida - Araneida and Opiliones. *In*: *Biologia Centrali-Americana, Zoology*. London 2, 465–560, pls. 44–51.

Pickard-Cambridge O 1869: Catalogue of a collection of Ceylon Araneida lately received from Mr J. Nietner, with descriptions of new species and characters of a new genus. I. *Journal of the Linnean Society of London*, *Zoology*, 10 (46): 373–397, pls. 11–13. http://dx.doi.org/10.1111/j.1096-3642.1869.tb00667.x

Pickard-Cambridge O 1872: General list of the spiders of Palestine and Syria, with descriptions of numerous new species, and characters of two new genera. *Proceedings of the Zoological Society of London*, 40 (1): 212–354, pls. 13–16. http://dx.doi.org/10.1111/j.1469-7998.1872.tb00489.x

Pickard-Cambridge O 1874: On some new species of Drassides. *Proceedings of the Zoological Society of London*, 42 (3): 370–419, pls. 51–52. http://dx.doi.org/10.1111/j.1096-3642.1874.tb02495.x

Pickard-Cambridge O 1876: Catalogue of a collection of spiders made in Egypt, with descriptions of new species and characters of a new genus. *Proceedings of the Zoological Society of London*, 44 (3): 541–630, pls. 58–60. http://dx.doi.org/10.1111/j.1096-3642.1876.tb02595.x

Pickard-Cambridge O 1889: Arachnida. Araneida. *In*: *Biologia Centrali-Americana*, *Zoology*. London 1, 1–56, pls. 1–8.

Pickard-Cambridge O 1899: On some new species of exotic Araneidea. *Proceedings of the Zoological Society of London*, 67 (2): 518–532, pls. 29–30. http://dx.doi.org/10.1111/j.1469-7998.1899.tb06872.x

Pickard-Cambridge O 1904: On new and rare British spiders. *Proceedings of the Dorset Natural History and Antiquarian Field Club*, 24 [1903]: 149–171.

Piza Jr S de T 1976: Uma nova aranha migalomorfa do Brasil (Theraphosidae). *Revista de Agricultura*, *Piracicaba*, 51: 3–4.

Platnick NI 1993: *Advances in spider taxonomy 1988-1991*, *with synonymies and transfers 1940-1980*. New York Entomological Society, New York, 846 pp.

Pocock RI 1901: Some new and old genera of S.-American Avicularidae. *Annals and Magazine of Natural History*, (7) 8 (48): 540–555. http://dx.doi.org/10.1080/03745480109443359

Ramírez MJ 2003: The spider subfamily Amaurobioidinae (Araneae, Anyphaenidae): a phylogenetic revision at the generic level. *Bulletin of the American Museum of Natural History*, 277: 1–262.

Raven RJ 1985: The spider infraorder Mygalomorphae (Araneae): cladistics and systematics. *Bulletin of the American Museum of Natural History*, 182: 1–180.

Reimoser E 1919: Katalog der echten Spinnen (Araneae) des Paläarktischen Gebietes. *Abhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, 10 (2): 1–280.

Renner F 1988: Liste der im Krieg vernichteten Typen des königlichen Naturalienkabinetts in Stuttgart. *In*: Haupt J (Ed) *XI Europäisches Arachnologisches Colloquium*. Technische Universität Berlin Dokumentation Kongresse und Tagungen 38, pp. 319-329.

Roberts MJ 1987: *The spiders of Great Britain and Ireland*, *Volume 2: Linyphiidae and check list*. Harley Books, Colchester, England, 204 pp.

Roewer CF 1942: *Katalog der Araneae von 1758 bis 1940. 1. Band (Mesothelae*, *Orthognatha*, *Labidognatha: Dysderaeformia*, *Scytodiformia*, *Pholciformia*, *Zodariiformia*, *Hersiliaeformia*, *Argyopiformia)*. Natura, Buchhandlung für Naturkunde und exakte Wissenschaften Paul Budy Bremen, 1040 pp.

Roewer CF 1951: Neue Namen einiger Araneen-Arten. *Abhandlungen des Naturwissenschaftlichen Vereins zu Bremen*, 32: 437–456.

Roewer CF 1955a: Araneae Lycosaeformia I. (Agelenidae, Hahniidae, Pisauridae) mit Berücksichtigung aller Arten der äthiopischen Region. *Exploration du Parc National de l'Upemba*, *Mission G. F. de Witte*, 30: 1–420.

Roewer CF 1955b: *Katalog der Araneae von 1758 bis 1940*, *bzw. 1954. 2. Band*, *Abt. a (Lycosaeformia*, *Dionycha [excl. Salticiformia]). 2. Band*, *Abt. b (Salticiformia*, *Cribellata) (Synonyma-Verzeichnis*, *Gesamtindex)*. Institut royal des Sciences naturelles de Belgique, Bruxelles, 1751 pp.

Roewer CF 1960: Araneae Lycosaeformia II (Lycosidae) (Fortsetzung und Schluss). *Exploration du Parc National de l'Upemba*, *Mission G. F. de Witte*, 55: 519–1040.

Schenkel E 1936: Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas, unter Leitung von Dr. Sven Hedin und Prof. Sü Ping-chang. Araneae gesammelt vom schwedischen Arzt der Expedition Dr. David Hummel 1927–1930. *Arkiv för Zoologi*, 29 (A1): 1–314.

Schenkel E 1953a: Chinesische Arachnoidea aus dem Museum Hoangho-Peiho in Tientsin. *Boletim do Museu Nacional do Rio de Janeiro (N.S.*, *Zool.)*, 119: 1–108.

Schenkel E 1953b: Bericht über einige Spinnentiere aus Venezuela. *Verhandlungen der Naturforschenden Gesellschaft in Basel*, 64: 1–57.

Schmidt G 1956a: Genus- und Speziesdiagnosen neuer, mit Bananen eingeschleppter Spinnen nebst Mitteilung über das Auffinden der Männchen zweier Spinnenarten. *Zoologischer Anzeiger*, 157: 24–31.

Schmidt G 1956b: Liste der in den Jahren 1953 and 1954 mit Bananen nach Hamburg eingeschleppten Spinnen aus Franz.-Guinea. *Zoologischer Anzeiger*, 157: 239–241.

Sherwood D 2022: On the taxonomic and nomenclatural status of *Ocyale* Audouin, 1826 (Araneae: Pisauridae) and *Hippasosa* Roewer, 1960 (Araneae: Lycosidae), with notes on some other taxa. *Arachnology*, 19 (2): 582–584.

Sherwood D & Alayón García G 2022: On a previously unreported historical stowaway selenopid originally found on Guernsey, Channel Islands (Araneae: Selenopidae). *Revista Ibérica de Aracnología*, 41: 166–167.

Sherwood D & Alayón García G 2023: Additional records of *Selenops* Latreille, 1819 as stowaways in the United Kingdom and reconsideration of a prior identification (Araneae: Selenopidae). *Newsletter of the British Arachnological Society*, 157: 16–17.

Simó M, Seguí R & Pérez-Miles F 2002: The copulatory organs of the cryptic species *Lycosa thorelli* and *Lycosa carbonelli* and their hybrid progeny, with notes on their taxonomy (Araneae, Lycosidae). *Journal of Arachnology*, 30: 140–145.

Simon E 1864: *Histoire naturelle des araignées (aranéides)*. Paris, 540 pp. http://dx.doi.org/10.5962/bhl.title.47654

Simon E 1875: *Les Arachnides de France. Tome seconde. Contenant les familles d*es *Urocteidae*, *Agelenidae*, *Thomisidae et Sparassidae*. Roret, Paris, 360 pp., pls. 4–8.

Simon E 1876: *Les arachnides de France. Tome troisième*. Roret, Paris, 364 pp., pls. 9–13.

Simon E 1878: *Les arachnides de France. Tome quatrième*, *contenant la famille des Drassidae.* Roret, Paris, 334 pp., pls. 14–16.

Simon E 1880: Arachnides nouveau de France, d'Espagne et d'Algérie. Premier mémoire. *Bulletin de la Société Zoologique de France*, 4 (5–6): 251–263.

Simon E 1882: Étude sur les arachnides de l'Yemen méridional. *In*: *Viaggio ad Assab nel Mar Rosso, dei signori G. Doria ed O. Beccari con il R. Aviso "Esploratore" dal 16 Novembre 1879 al 26 Febbraio 1880*. *Annali del Museo Civico di Storia Naturale di Genova*, 18: 207–260, pl. 8.

Simon E 1883: Études arachnologiques. 14e Mémoire. XXI. Matériaux pour servir à la faune arachnologique des îles de l'Océan Atlantique (Açores, Madère, Salvages, Canaries, Cap Vert, Sainte-Hélène et Bermudes). *Annales de la Société Entomologique de France*, (6) 3: 259–314.

Simon E 1884: Arachnides recueillis à Khartoum (Soudan ègyptien) par M. Vossion, vice-consul de France et appartenant au Muséum de Paris. *Bulletin de la Société Zoologique de France*, 9 (1–2): 1–28.

Simon E 1884: Description d'une espèce nouvelle du genre *Cryptothele* L. Koch. *Annales de la Société Entomologique de Belgique*, 28 (C.R.): 301–302.

Simon E 1889: Etudes arachnologiques. 21e Mémoire. XXXI. Descriptions d'espèces et the genres nouveaux de Madagascar et de Mayotte. *Annales de la Société Entomologique de France*, (6) 8: 223–236.

Simon E 1893: Études arachnologiques. 25e Mémoire. XL. Descriptions d'espèces et de genres nouveaux de l'ordre des Araneae. *Annales de la Société Entomologique de France*, 62: 299–330.

Simon E 1893: *Histoire naturelle des araignées. Deuxième édition*, *tome premier*. Roret, Paris, pp. 257–488.

Simon E 1894: *Histoire naturelle des araignées. Deuxième édition*, *tome premier*. Roret, Paris, pp. 489–760.

Simon E 1895: Etudes arachnologiques. 26e. XLI. Descriptions d'espèces et de genres nouveaux de l'ordre des Araneae. *Annales de la Société Entomologique de France*, 64: 131–160.

Simon E 1895: *Histoire naturelle des araignées. Deuxième édition*, *tome premier*. Roret, Paris, pp. 761–1084.

Simon E 1897: *Histoire naturelle des araignées. Deuxième édition*, *tome second*. Roret, Paris, pp. 1–192.

Simon E 1903e: Arachnides de la Guinée espagnole. *Memorias de la Real Sociedad Española de Historia Natural*, 1 (3): 65–124.

Simon E 1906: Araneae. 1re partie. *In*: Michaelsen W & Hartmeyer R (Eds) *Die Fauna Südwest-Australiens. Ergebnisse der Hamburger südwest-australischen Forschungsreise 1905.* Band 1, Lieferung 12. Gustav Fischer, Jena, pp. 359–446.

Simon E 1907a: Arachnides recueillis en Egypte et le long du Nil Blanc par la Mission zoologique suedoise, 1901. *In*: *Results of the Swedish Zoological Expedition to Egypt and the White Nile 1901 under the Direction of L. A. Jägerskiöld. Part III.* 21(37). Uppsala, 10 pp.
http://dx.doi.org/10.5962/bhl.title.21727

Simon E 1907b: Arachnides recueillis par L. Fea sur la côte occidentale d'Afrique. 1re partie. *Annali del Museo Civico di Storia Naturale di Genova*, 43: 218–323.

Simon E 1908: Araneae. 1re partie. *In*: Michaelsen W & Hartmeyer R (Eds) *Die Fauna Südwest-Australiens. Ergebnisse der Hamburger südwest-australischen Forschungsreise 1905.* Band 1, Lieferung 12. Gustav Fischer, Jena, pp. 359–446.

Simon E 1909: Etude sur les arachnides du Tonkin (1re partie). *Bulletin Scientifique de la France et de la Belgique*, 42: 69–147.

Simon E 1910: Arachnoidea: Araneae (II.). *In*: Schultze L (Ed) Zoologische und anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Südafrika. Vierter Band. Systematik und Tiergeographie. *Denkschriften der Medizinisch-Naturwissenschaftlichen Gesellschaft zu Jena*, 16: 175–218.

Simon E 1929: *Les arachnides de France. Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae. Tome VI. 3e partie*. Roret, Paris, pp. 533–772.

Simon E 1937: *Les arachnides de France. Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae. Tome VI. 5e et derniére partie*. Roret, Paris, pp. 979–1298.

Smith AM 1995: *Tarantula Spiders: Tarantulas of the U.S.A. and Mexico*. Fitzgerald Publishing, London, 196 pp.

Soares BAM & Soares HEM 1946: Contribuição ao estudo das aranhas do estado do Espírito Santo. *Papéis Avulsos do Departamento de Zoologia*, *Secretaria de Agricultura*, *Sao Paolo*, 7: 51–72.

Storer RW 1982: Subspecies and the study of geographic variation. *The Auk*, 99 (3): 599–601.
https://doi.org/10.1093/auk/99.3.599

Strand E 1905: Araneae. *Report of the Second Norwegian Arctic Expedition in the 'Fram'. Kristiania*, 3: 22–30.

Strand E 1906: Diagnosen nordafrikanischer, hauptsächlich von Carlo Freiherr von Erlanger gesammelter Spinnen. *Zoologischer Anzeiger*, 30: 604–637, 655–690.

Strand E 1906: Über einige Vogelspinnen und afrikanische Spinnen des naturhistorischen Museums zu Wiesbaden. *Jahrbücher des Nassauischen Vereins für Naturkunde*, 59: 1–45.

Strand E 1907a: Diagnosen neuer Spinnen aus Madagaskar und Sansibar. *Zoologischer Anzeiger*, 31: 725–748.

Strand E 1907b: Süd- und ostasiatische Spinnen. *Abhandlungen der Naturforschenden Gesellschaft Görlitz*, 25: 107–215.

Strand E 1908: Verzeichnis der von Oscar Neumann in Süd-Aethiopien gesammelten Spinnen. *Archiv für Naturgeschichte*, 74 (1): 13–66.

Strand E 1909: Spinnentiere von Südafrika und einigen Inseln gesammelt bei der deutschen Südpolar-Expedition. *In*: *Deutsche Südpolar-Expedition 1901-1905*. Berlin 10 (5), pp. 541–596.

Strand E 1913: Arachnida. I. *In*: Schubotz H (Ed) *Wissenschaftliche Ergebnisse der Deutschen Zentral-Afrika-Expedition 1907-1908*, *unter Führung Adolf Friedrichs*, *Herzogs zu Mecklenburg*. Klinkhardt & Biermann, Leipzig, 4 (Zool. 2), pp. 325–474.
http://dx.doi.org/10.5962/bhl.title.7048

Strand E 1915: Dritte Mitteilung über Spinnen aus Palästina, gesammelt von Herrn Dr J. Aharoni. *Archiv für Naturgeschichte*, 81 (A2):

134–171.

Strand E 1916: Zehn neue äthiopische Lycosiden nebst Bemerkungen über einige weitere exotische Araneae. *Jahrbücher des Nassauischen Vereins für Naturkunde*, 69: 97–118.

Thaler K 1971: Über drei wenig bekannte hochalpine Zwergspinnen (Arach., Aranei, Erigonidae). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 44 (3–4): 309–322.
http://dx.doi.org/10.5169/seals-401662

Thorell T 1875: Descriptions of several European and North African spiders. *Kongliga Svenska Vetenskaps-Akademiens Handlingar*, 13 (5): 1–204.

Thorell T 1877: Studi sui Ragni Malesi e Papuani. I. Ragni di Selebes raccolti nel 1874 dal Dott. O. Beccari. *Annali del Museo Civico di Storia Naturale di Genova*, 10: 341–637.

Thorell T 1887: Viaggio di L. Fea in Birmania e regioni vicine. II. Primo saggio sui ragni birmani. *Annali del Museo Civico di Storia Naturale di Genova*, 25: 5–417.

Thorell T 1890: Diagnoses aranearum aliquot novarum in Indo-Malesia inventarum. *Annali del Museo Civico di Storia Naturale di Genova*, 30: 132–172.

Thorell T 1890: Studi sui ragni Malesi e Papuani. IV, 1. *Annali del Museo Civico di Storia Naturale di Genova*, 28: 5–421.

Thorell T 1893: Novae species aranearum a Cel. Th. Workman in ins. Singapore collectae. *Bullettino della Società Entomologica Italiana*, 24 (3) [1892]: 209–252.

Thorell T 1895: *Descriptive catalogue of the spiders of Burma*, *based upon the collection made by Eugene W. Oates and preserved in the British Museum*. London, 406 pp.
http://dx.doi.org/10.5962/bhl.title.17492

Thorell T 1897: Araneae paucae Asiae australis. *Bihang till Kongliga Svenska Vetenskaps-Akademiens Handlingar*, 22 (IV, 6): 1–36.

Thorell T 1897: Viaggio di Leonardo Fea in Birmania e regioni vicine. LXXIII. Secondo saggio sui Ragni birmani. I. Parallelodontes. Tubitelariae. *Annali del Museo Civico di Storia Naturale di Genova*, 37: 161–267.

Thorell T 1898: Viaggio di Leonardo Fea in Birmania e regioni vicine. LXXX. Secondo saggio sui Ragni birmani. II. Retitelariae et Orbitelariae. *Annali del Museo Civico di Storia Naturale di Genova*, 39: 271–378.

Thorell T 1898: Viaggio di Leonardo Fea in Birmania e regioni vicine. LXXX. Secondo saggio sui Ragni birmani. II. Retitelariae et Orbitelariae. *Annali del Museo Civico di Storia Naturale di Genova*, 39: 271–378.

Thorell T 1899: Araneae Camerunenses (Africae occidentalis) quas anno 1891 collegerunt Cel. Dr Y. Sjöstedt aliique. *Bihang till Kongliga Svenska Vetenskaps-Akademiens Handlingar*, 25 (IV, 1): 1–105.

Trotta A 2005: Introduzione al ragni italiani (Arachnida Araneae). *Memorie della Società Entomologica Italiana*, 83: 3–178.
http://dx.doi.org/10.4081/memorieSEI.2004.3

Tullgren A 1902: Spiders collected in the Aysen Valley by Mr P. Dusén. *Bihang till Kongliga Svenska Vetenskaps-Akademiens Handlingar*, 28 (IV, 1): 1–77, pls. 1–7.

Tystshenko VP 1971: *Opredelitel' paukov evropejskoj chasti SSSR*. Leningrad, 281 pp.

Urfer K, Spasojević T, Klopfstein S, Baur H, Lasut L & Kropf C 2021: Incongruent molecular and morphological variation in the crab spider *Synema globosum* (Araneae, Thomisidae) in Europe. *ZooKeys*, 1078: 107–134.
http://dx.doi.org/10.3897/zookeys.1078.64116

Utochkin AS 1960: Spiders of the genus *Synaema*, the group *globosum* (F.) in the USSR. *Zoologicheskiĭ Zhurnal*, 39: 1018–1024.

Van Beneden E 1880: Note sur un cténide originaire du Brésil, trouvé à Liège. *Bulletin de l'Académie Royale des Sciences*, *des Lettres et des Beaux-Arts de Belgique*, 49: 655–659.

Vanden Borre J, Maelfait J-P & Bosmans R 2003: De genera *Diplocephalus*, *Savignia* en *Erigonella* (Araneae, Linyphiidae, Erigoninae) in België: een beknopte literatuurstudie. *Nieuwsbrief van de Belgische Arachnologische Vereniging*, 18 (1): 1–19.

Vinson A 1863: *Aranéides des îles de La Réunion*, *Maurice et Madagascar*. Librairie Classique Eugène Belin, Paris, 337 pp., pls. 1–14.
http://dx.doi.org/10.5962/bhl.title.125517

Walckenaer CA 1805: *Tableau des aranéides ou caractères essentiels des tribus*, *genres*, *familles et races que renferme le genre Aranea de Linné*, *avec la désignation des espèces comprises dans chacune de ces divisions*. Dentu, Paris, 88 pp.

Walckenaer CA 1837: *Histoire naturelle des insectes. Aptères. Tome premier*. Roret, Paris, 682 pp., pls. 1–15. http://dx.doi.org/10.5962/bhl.title.61095

Walckenaer CA 1847: Dernier Supplément. *In*: Walckenaer CA & Gervais P (Eds) *Histoire naturelles des Insects. Aptères. Tome quatrième*. Roret, Paris, pp. 365–596. http://dx.doi.org/10.5962/bhl.title.61095

Wang X-P 2002: A generic-level revision of the spider subfamily Coelotinae (Araneae, Amaurobiidae). *Bulletin of the American Museum of Natural History*, 269: 1–150.

Wider F 1834: Arachniden. *In*: Reuss A (Ed) Zoologische Miscellen. *Museum Senckenbergianum*, *Abhandlungen aus dem Gebiete der beschreibenden Naturgeschichte*, 1: 195–276.

Wiens JA 1982: Forum: avian subspecies in the 1980's. *The Auk*, 99 (3): 593–593. https://doi.org/10.1093/auk/99.3.593

World Spider Catalog 2024: *World Spider Catalog,* version 25.0. Natural History Museum Bern, online at: http://wsc.nmbe.ch

Wunderlich J 2008: Differing views of the taxonomy of spiders (Araneae), and on spiders' intraspecific variability. *Beiträge zur Araneologie*, 5: 756–781.

Yu K-P & Kuntner M 2024: Discovering unknown Madagascar biodiversity: integrative taxonomy of raft spiders (Pisauridae: *Dolomedes*). *PeerJ*, 12 (e16781): 1–60. http://dx.doi.org/10.7717/peerj.16781

Zusi RL 1982: Infraspecific geographic variation and the subspecies concept. *The Auk*, 99 (3): 606–608. https://doi.org/10.1093/auk/99.3.606

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