

Phantom spiders 2: More notes on dubious spider species from Europe

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doi: 10.5431/aramit5209

Abstract. A surprisingly large number of European spider species have never been reliably rediscovered since their first description many decades ago. Most of these are probably synonymous with other species or unidentifiable, due to insufficient descriptions or missing type material. In this second part of a series on this topic, we discuss about 100 of these cases, focusing mainly on species described in the early 20th century by Pelegrín Franganillo Balboa and Gabor von Kolosváry, as well as a number of jumping spiders and various miscellaneous species. In most cases, the species turned out to be unidentifiable **nomina dubia**, but for some of them new synonymies could be established as follows: *Alopecosa accentuata* auct., nec (Latreille, 1817) = *Alopecosa farinosa* (Herman, 1879) **syn. nov., comb. nov.**; *Alopecosa barbipes oreophila* Simon, 1937 = *Alopecosa farinosa* (Herman, 1879) **syn. nov., comb. nov.**; *Alopecosa mariae orientalis* (Kolosváry, 1934) = *Alopecosa mariae* (Dahl, 1908) **syn. nov.**; *Araneus angulatus afolius* (Franganillo, 1909) and *Araneus angulatus atricolor* Simon, 1929 = *Araneus angulatus* Clerck, 1757 **syn. nov.**; *Araneus angulatus castaneus* (Franganillo, 1909) = *Araneus pallidus* (Olivier, 1789) **syn. nov.**; *Araneus angulatus levifolius* (Franganillo, 1909), *Araneus angulatus niger* (Franganillo, 1918) and *Araneus angulatus nitidifolius* (Franganillo, 1909) = *Araneus angulatus* Clerck, 1757 **syn. nov.**; *Araneus angulatus pallidus* (Franganillo, 1909), *Araneus angulatus crucinceptus* (Franganillo, 1909), *Araneus angulatus fuscus* (Franganillo, 1909) and *Araneus angulatus iberi* (Franganillo, 1909) = *Araneus pallidus* (Olivier, 1789) **syn. nov.**; *Araneus circe strandi* (Kolosváry, 1935) = *Araneus circe* (Audouin, 1826) **syn. nov.**; *Araneus diadematus nemorosus* Simon, 1929 and *Araneus diadematus soror* (Simon, 1874) = *Araneus diadematus* Clerck, 1757 **syn. nov.**; *Araneus pyrenaicus* (Simon, 1874) = *Araneus pallidus* (Olivier, 1789) **syn. nov.**; *Araneus sericinus* (Roewer, 1942) = *Aculepeira armida* (Audouin, 1826) **syn. nov.**; *Arctosa brevalva* (Franganillo, 1913) = *Arctosa villica* (Lucas, 1846) **syn. nov.**; *Arctosa cinerea* (Franganillo, 1913) [nec *Arctosa cinerea* (Fabricius, 1777)] = *Arctosa perita* (Latreille, 1799) **syn. nov.**; *Cresmatoneta eleonora* (Costa, 1883) and *Cresmatoneta mutinensis orientalis* (Strand, 1914) = *Cresmatoneta mutinensis* (Canestrini, 1868) **syn. nov.**; *Cyclosa conica albifoliata* Strand, 1907, *Cyclosa conica defoliata* Strand, 1907, *Cyclosa conica leucomelas* Strand, 1907, *Cyclosa conica pyrenaica* Strand, 1907, *Cyclosa conica dimidiata* Simon, 1929, *Cyclosa conica rubricauda* Simon, 1929 and *Cyclosa conica triangulifera* Simon, 1929 = *Cyclosa conica* (Pallas, 1772) **syn. nov.**; *Dendryphantes lanipes* C.L. Koch, 1846 = *Philaeus chrysops* (Poda, 1761) **syn. nov.**; *Diplocephalus alpinus strandi* Kolosváry, 1937 = *Diplocephalus alpinus* (O. Pickard-Cambridge, 1872) **syn. nov.**; *Entelecara strandi* Kolosváry, 1934 = *Nusoncus nasutus* (Schenkel, 1925) **syn. nov.**; *Euophrys rosenhaueri* L. Koch, 1856 = *Menemerus semilimbatus* (Hahn, 1829) **syn. nov.**; *Evarcha falcata nigrofusca* (Strand, 1900) = *Evarcha falcata* (Clerck, 1757) **syn. nov.**; *Gibbaranea bituberculata strandiana* (Kolosváry, 1936) = *Gibbaranea bituberculata* (Walckenaer, 1802) **syn. nov.**; *Heliophanus auratus mediocinctus* Kulczyński, 1898 = *H. mediocinctus* Kulczyński, 1898 **stat. nov.**; *Larinioides sclopetarius jacobea* (Franganillo, 1910) = *Larinioides sclopetarius* (Clerck, 1757) **syn. conf.**; *Linyphia triangularis juniperina* Kolosváry, 1933 = *Linyphia triangularis* (Clerck, 1757) **syn. nov.**; *Myrmarachne formicaria tyrolensis* (C. L. Koch, 1846) = *Myrmarachne formicaria* (De Geer, 1778) **syn. conf.**; *Nuctenea umbratica obscura* (Franganillo, 1909) = *Nuctenea umbratica* (Clerck, 1757) **syn. nov.**; *Ozyptila strandi* Kolosváry, 1939 = *Ozyptila confluens* (C. L. Koch, 1845) **syn. nov.**; *Panamomops strandi* Kolosváry, 1934 = *Saloca dicerus* (O. Pickard-Cambridge, 1871) **syn. nov.**; *Pardosa luctinosa marina* (Kolosváry, 1940) and *Pardosa luctinosa etsinensis* Schenkel, 1963 = *Pardosa luctinosa* Simon, 1876 **syn. nov.**; *Pardosa wagleri atra* (Giebel, 1869) **nomen oblitum** = *Pardosa saturator* Simon, 1937 **syn. nov.**; *Poecilochroa hungarica* Kolosváry, 1934 = *Aphantaulax trifasciata* (O. Pickard-Cambridge, 1872) **syn. nov.**; *Philaeus albovariegatus* (Simon, 1868) = *Philaeus chrysops* (Poda, 1761) **syn. nov.**; *Philaeus superciliosus* Bertkau, 1883 = *Sandalodes superbus* (Karsch, 1878) **syn. nov.**; *Philaeus varicus* (Simon, 1868) = *Carrhotus xanthogramma* (Latreille, 1819) **syn. conf.**; *Salticus unispinus* (Franganillo, 1910) = *Pellenes nigrociliatus* (Simon, 1875) **syn. nov.**; *Sitticus manni* (Doleschall, 1852) **nomen oblitum** = *Heliophanus melinus* L. Koch, 1867 **syn. nov.**; *Sitticus sexsignatus* (Franganillo, 1910) = *Sitticus floricola* (C. L. Koch, 1837) **syn. nov.**; *Steatoda latrodectoides* (Franganillo, 1913) = *Steatoda paykulliana* (Walckenaer, 1805) **syn. nov.**; *Synema globosum clarum* Franganillo, 1913, *Synema globosum flavum* Franganillo, 1913 and *Synema globosum pulchellum* Franganillo, 1926 = *Synema globosum* (Fabricius, 1775) **syn. nov.**; *Uloborus pseudacanthus* Franganillo, 1910 = *Uloborus walckenaerius* Latreille, 1806 **syn. nov.**; *Zelotes similis hungaricus* Kolosváry, 1944 = *Zelotes similis* (Kulczyński, 1887) **syn. nov.**; *Zilla diodia embrikstrandii* Kolosváry, 1938 = *Zilla diodia* (Walckenaer, 1802) **syn. nov.**; *Zygiella x-notata chelata* (Franganillo, 1909) and *Zygiella x-notata parcechelata* (Franganillo, 1909) = *Zygiella x-notata* (Clerck, 1757) **syn. nov.**; *Teutana grossa obliterated* Franganillo, 1913 = *Steatoda grossa* (C. L. Koch, 1838) **syn. nov.**

Keywords: Araneae, doubtful species, new synonym, nomen dubium, species inquirenda

Zusammenfassung. Phantomspinnen 2: Weitere Bemerkungen zu zweifelhaften Spinnenarten aus Europa. Eine überraschende Anzahl von europäischen Spinnenarten wurde seit ihrer Erstbeschreibung nie wieder zuverlässig wiedergefunden. In den meisten Fällen handelt es sich vermutlich um Synonyme anderer Arten oder die Arten bleiben aufgrund von unzulänglichen Beschreibungen und verlorenem Typusmaterial unidentifizierbar. In diesem zweiten Teil einer Serie zu diesem Thema besprechen wir etwa 100 dieser Fälle, mit einem besonderen Augenmerk auf Arten, die zu Beginn des 20. Jahrhunderts von Pelegrín Franganillo Balboa und Gabor von Kolosváry beschrieben wurden. Ebenso werden einige Springspinnenarten und diverse andere Einzelfälle behandelt. In den meisten Fällen erwiesen sich die untersuchten Arten als unidentifizierbare **nomina dubia**, aber auch einige neue Synonymien konnten festgestellt werden.

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submitted 16.5.2016, accepted 7.8.2016, online 31.8.2016

This is the second contribution in a series of publications trying to establish the identity of spider species and subspecies that have been described from Europe, but have never been reliably rediscovered after their initial description. These species are still included in checklists and databases, but many of them are either unidentifiable, due to insufficient descriptions and lost type material, or turn out to be synonymous with common species. Here, as in the case of the first paper (Breitling et al. 2015), we focus mainly on species for which the type material is in all probability lost. In particular, we analyse the work of two arachnologists active in the early 20th century,

who seem to have made a particularly noticeable contribution to the creation of European “phantom spiders”, Pelegrín Franganillo Balboa and Gabor von Kolosváry. We also include a discussion of a number of dubious species of jumping spiders, as in this family habitus characters are often diagnostic and it seemed possible that a confident identification could sometimes be achieved even in the absence of genitalic illustrations or type material. In addition, we discuss a number of species from various other families that were encountered during our analysis of the Franganillo and Kolosváry phantoms. For many of the species discussed, we provide a concise summary of the original description, emphasizing potentially diagnostic characters. Literal translations are indicated by quotation marks, and in cases where the original text seemed to be potentially ambiguous or obscure a direct quote is also provided for reference. The nomenclature follows the World Spider Catalog (2016), unless indicated otherwise.

Dubious species described by Franganillo

The Spanish Jesuit padre Pelegrín Franganillo Balboa (1873–1955) published extensively on the arachnid fauna of the Iberian Peninsula from 1909 to 1926, describing numerous new species and forms. After relocating to Cuba in 1918, he also contributed a considerable number of descriptions of new species from this island. Many of the taxa established by Franganillo have long been considered dubious, given that the descriptions are either extremely brief or focus on non-informative or highly variable characters and are rarely illustrated. According to Brignoli (1983), Franganillo’s “papers are amongst the worst published since 1870”, and to make matters worse, a large part of his collections has been lost or has been inaccessible for many years. Some of Franganillo’s Cuban material is presently kept (without identification or collection data labels) in the Instituto de Ecología y Sistemática, La Habana, Cuba (Huber & Pérez González 1998), and part of the collection of Iberian arachnids, including potential type material of several species, was re-discovered in Spain in a considerably damaged state in the early 1970s and is currently housed in the University of Oviedo. A reconstructed catalogue of the latter collection and a revision of the araneid material have been prepared by Lastra (1974, 1975). In this work, Lastra (1974) tried to reconstruct the lost original catalogue of the collection, making an attempt to match the remaining specimens to the species described by Franganillo. It is not clear if this attempt was successful in each case, as Franganillo usually only used numbered labels (Franganillo 1917), adding some uncertainty to any identification even where supposed type material could be examined. In the cases discussed here, unless stated otherwise, the type material is not listed in the catalogue and is considered lost. Even some of the specimens still present when Lastra’s catalogue was prepared have not been found again more recently when the material was examined by EM and JAB, and the collection is in need of re-curation. Details on Franganillo’s biography are provided by Bonnet (1945) and Perez-Lerena (2001).

Aculepeira carbonaria fulva (Franganillo, 1913) =
nomen dubium (Araneidae)

Franganillo is the only author ever to have reported *Aculepeira carbonaria* from Spain, usually from coastal localities quite

atypical for the species, which is usually found in alpine block-fields (“Blockhalden”) (Thaler 1991). It seems likely that his specimens belonged to an *Aculepeira* species, especially as the description of *Epeira triangulata* (= *Neoscona adianta*) compares the pattern of the latter to that of “*A. carbonaria*” sensu Franganillo. However, the short description does not allow an unequivocal identification (“Beige-brown integument; six yellow half-moon-shaped spots (or spots arranged in a half-moon shape?) below the spinnerets [seis manchas amarillas en forma de media luna debajo de las hileras]; found in the mountains together with its blackish egg sacs, around the 20th June”). Both *A. ceropegia* and *A. armida* are missing among Franganillo’s records and could be the intended species.

Alopecosa albofasciata rufa (Franganillo, 1918) =
nomen dubium (Lycosidae)

The description of this variant (as *Lycosa albofasciata* var. *rufa*) is extremely short and does not clearly state the diagnostic character(s) that would distinguish it from the nominate form. The animal had red coxae (hence probably the name), and dark, almost bald chelicerae, with a few whitish hairs, but this seems quite normal for typical *L. albofasciata*. With an opisthosoma length of 9 mm (width 5 mm) the described specimen would seem to have been a rather large female of this common species from the Iberian Peninsula. However, as the females of *A. albofasciata* are not as easy to distinguish from other members of *Alopecosa* as the males, it is not sufficiently certain that the specimen indeed belonged to this species.

Alopecosa trabalis albica (Franganillo, 1913) =
nomen dubium (Lycosidae)

The prosoma of this form, from the foothills of the mountains around Gijón, is described as being similar to that of *Lycosa alba* (a nomen dubium, described in the same publication), i.e. it probably had three longitudinal bands of white hairs. The prosoma length of the female specimen described was 5 mm, the fourth pair of legs 19 mm. According to the description, the chelicerae were reddish-brown, with white hairs in particular at the base, the sternum was light beige-brown with white hairs, the epigyne was like that of Simon’s *Lycosa pastoralis* (= *Alopecosa alpicola*). As the epigyne of *Alopecosa trabalis* is quite different from that of *A. alpicola*, and as there are multiple species in this genus that could possibly match the vague description, it seems impossible to decide on an unambiguous identification in the absence of type material. The amount of detail is so insufficient that even the generic placement remains uncertain, and new material from the type locality would not help resolving the identity of this taxon.

Araneus angulatus afolius (Franganillo, 1909) =
Araneus angulatus Clerck, 1757 **syn. nov. (Araneidae)**

This variety was characterized only by the lack of a folium and an entirely brown opisthosoma. This would seem to be covered by the wide diversity of colouration in this species. Given that Franganillo tended to over-split his taxa and the absence of any white markings on the opisthosoma, it seems far more likely that this was indeed a variant of *A. angulatus* rather than belonging to another species, even though the large orb-weavers can sometimes be rather difficult to distinguish.

Araneus angulatus castaneus (Franganillo, 1909) =
Araneus pallidus (Olivier, 1789) **syn. nov. (Araneidae)**

This variety was characterized by Franganillo as having brown legs, with dark rings at the end of the femora and an abdomen that is almost as wide as long (“Todo el octópodo es castaño; en las estremidades de los fémures anillos oscuros. Abdomen casi tan ancho como largo.”). The supposed type series (3 females and 1 male) is still extant in Franganillo’s collection, and the examination of this material by EM surprisingly showed that they are actually *Araneus pallidus*, a species that is not easily confused with *A. angulatus*. However, there is evidence that this is indeed what had happened, when Franganillo described this form in his very first publication on spider taxonomy: when he revisited the case in 1913, he corrected the specific assignment and listed *castanea* as a variety of *Epeira cruciata* (Walckenaer, 1802), rather than of *Epeira angulata*, emphasizing that it lacked any trace of a cross (“sin rastro alguno de cruz”). As Franganillo consistently used *E. cruciata* as the name for specimens belonging to *Araneus pallidus* (Olivier, 1789), as shown by the examples of the varieties *pallida* and *fusca* discussed below, the synonymy seems justified.

Araneus angulatus levifolius (Franganillo, 1909) =
Araneus angulatus Clerck, 1757 **syn. nov. (Araneidae)**

This variety was described as having a folium of the same shape as *nitidifolius*, but indicated only by a brown line, the interior being of the same colour as the rest of the opisthosoma. This falls well within the range of variation seen in this species.

Araneus angulatus niger (Franganillo, 1918) =
Araneus angulatus Clerck, 1757, **syn. nov. (Araneidae)**

This specimen from the Selva de Oza, near Huesca in northern Spain was characterized by its entirely black body, the folium only indicated by a line of white hairs, the legs with brownish-white annuli. *Araneus angulatus* seems sufficiently distinct from any other species to assume that this was indeed a very dark individual of the nominate form, which is common around Huesca (Morano et al. 2014).

Araneus angulatus nitidifolius (Franganillo, 1909) =
Araneus angulatus Clerck, 1757 **syn. nov. (Araneidae)**

Franganillo described this as the typical form of the species in Spain (“el tipo de la *E. angulata* de este país”). There is no indication that he intended to distinguish it from the nominate form. The rather detailed description matches this species very well.

Araneus angulatus pallidus (Franganillo, 1909), *Araneus angulatus crucinceptus* (Franganillo, 1909), *Araneus angulatus fuscus* (Franganillo, 1909), *Araneus angulatus iberoi* (Franganillo, 1909) = *Araneus pallidus* (Olivier, 1789) **syn. nov. (Araneidae)**

The forms *pallida*, *fusca*, *iberoi* and *crucincepta* were described by Franganillo as varieties of *Epeira cruciata* Walckenaer, 1802, which was synonymized with *Araneus angulatus* by Simon (1929). They differ only in details of their colour and pattern, but the descriptions of the latter three varieties all state that the majority of the characters correspond to those described in detail for *E. c. pallida*. The type material of *pallida* (3 females and 2 males) and of *fusca* (6 females) is still available in Franganillo’s collection, and was examined by EM. To-

gether with the description it allows a confident identification as *Araneus pallidus*, a species well-known for its diversity of colour and pattern (Grasshoff 1968). The description clearly states that the pattern of *E. c. pallidus* forms a cross exactly as in *Araneus diadematus* (“Folium crucem formans, omnino ut apud *E. diadema*”), and that the “clavus” (i.e. scapus) of the epigyne is much shorter than in *Araneus angulatus*. Most importantly, as the illustrations of the type material in Lastra (1974) show, there is an extreme sexual size dimorphism (female total length 13 mm; male 5 mm); a specific feature of *Araneus pallidus* (Grasshoff 1964, 1968), which allows an unambiguous discrimination from *A. diadematus* and related species. The different varieties correspond well to typically observed forms of the species (*fusca* being a dark variety that is otherwise patterned as in *pallidus*; *crucincepta* a variety where only the upper part of the cross-like pattern is present and consists of [about] three white spots arranged in a trefoil pattern; and *iberoi* a light variety in which all trace of the pattern is absent). In light of this evidence, we consider all four varieties as synonyms of *A. pallidus*, despite the fact that some of the types have been lost, and in the remaining cases the supposed type series contain a mix of species (in the case of *fuscus*, there is not only a vial with six females of *A. pallidus*, but also a vial with a male *Argiope bruennichi* and a female *Aculepeira ceropegia*, and another one with a female *A. ceropegia* only; in the case of *pallidus*, the three females seem to belong to *A. diadematus*).

Araneus angulatus serifolius (Franganillo, 1909) =
nomen dubium (Araneidae)

This form was described together with numerous other varieties of *A. angulatus*, and its legs were described as being patterned as in *levifolius*, the folium like in *nitidifolius*. However, its most striking features according to Franganillo are two yellow lines, a broad transverse one below the shoulder humps, and a second narrow longitudinal one that cuts the first one in half, forming a Greek cross (i.e., a cross with arms of equal length). This does not clearly match any of the forms in the known range of variation of *A. angulatus*, and as there are other similar *Araneus* species in the area, this name is considered a nomen dubium.

Araneus marmoreus trapezius (Franganillo, 1913) =
nomen dubium (Araneidae)

This form supposedly differs from typical *A. marmoreus* by males and females having a trapezoid pattern of four white or whitish-yellow dots in the anterior part of the folium. While this could be within the range of interindividual variation of this polymorphic species, these details do not exclude the possibility that this description refers to one of the colour varieties of *Araneus quadratus* Clerck, 1757.

Araneus sericinus (Roewer, 1942) =
Aculepeira armida (Audouin, 1826) **syn. nov. (Araneidae)**

This species was first described as *Epeira sericea* by Franganillo (1918) (preoccupied by *Epeira sericea* Latreille, 1806 = *Argiope lobata* (Pallas, 1772)), from the dry grasslands around Huesco, and was considered by Franganillo as being very close to *Aculepeira armida*. It had the same pattern as the latter, but was described as differing in its colour, the central band being white, with another, dark band around its margin and con-

taining a yellow-brown oval in the centre. The tibiae of the first three legs carried a dark ring in the middle. The epigyne was shaped quite similar to the upper lip of the spider orchid *Ophrys arachnites* (*O. fuciflora*/*O. holoserica*), as would be expected in an *A. armida* in which the scapus is raised and probably torn off (see Levi 1977: fig. 209). As the description of this form, especially in the supposedly diagnostic colour characters, perfectly matches typical *A. armida*, but none of the other species of the genus, the synonymy seems justified.

Arctosa breviaeva (Franganillo, 1913) =

Arctosa villica (Lucas, 1846) **syn. nov. (Lycosidae)**

This species, living in meadows, was described as medium-sized (female prosoma 5.5 mm, opisthosoma 5.6 mm, leg IV 18 mm). The opisthosoma was dark brown above, with a light line in the middle of the first half. The venter was brown with a dark isosceles triangle in the middle. The epigyne formed two depressions separated by a cutaneous septum. The description states that this species is not Simon's *Lycosa subfasciata* (= *Arctosa fulvolineata*). A damaged specimen putatively assigned to this species is still extant in Franganillo's collection (Lastra 1974) and upon examination was found to be *Arctosa villica* (Lucas, 1846). As this is in good agreement with the original description, the synonymy seems justified.

Arctosa cinerea (Franganillo, 1913)

[nec *Arctosa cinerea* (Fabricius, 1777)] =

Arctosa perita (Latreille, 1799) **syn. nov. (Lycosidae)**

This new species was established as *Lycosa cinerea*, using a pre-occupied name and a very limited description. It is clearly a different species than the *Arctosa cinerea* of Fabricius. It was described as a tiny and colourful form similar to *Arctosa perita* ("Se parece á la *Lycosa perita* Latr.; pero no es como élla. [...] Es pequeña y pintorroteada"). The only other descriptive details are the statement of the relative length of the legs ("Patás 4, 1, 2, 3.") and the comment that the species occurs on the sands of the Piles river estuary close to Gijón. Material of *Lycosa cinerea* is apparently still extant in Franganillo's collection. Three specimens are illustrated in Lastra's (1974) catalogue, ranging in size from 7 to 9 mm. The material currently labeled as *A. cinerea* in the collection belongs to *Arctosa perita* (Latreille, 1799) – given that this agrees well with the habitat and the original description, we consider the synonymy to be justified.

Arctosa cinerea obscura (Franganillo, 1913) =

nomen dubium (Lycosidae)

This taxon from the banks of the river Piles was described in rather more detail than the previous one, and while Franganillo considered it a mere variety of *Lycosa cinerea* sensu Franganillo, he also stated that the differences between the two could appear quite large ("La diferencia entre esta especie [*Lycosa cinerea*] y la variedad que á continuación voy á describir [*L. c. obscura*], aunque parece muy grande, no por eso constituye dos distintas naturalezas."). He did not explain, however, which of the specific characters would be diagnostic, and one can only assume that the species was darker and possibly larger (the male prosoma being 5.5 mm long, the opisthosoma 6 mm, the first leg 20 mm; which would not seem to be "pequeñita"). In all probability, this is indeed a second species of *Arctosa*, not a variety or subspecies. The description refers to a dark brown

prosoma, with black spots and white hairs, the femora and patellae were whitish below, and whitish with small black stripes ("comillas negras") above. The pedipalps were also whitish, except the tarsi, which were dark brown at the base and bulb, dark at the tip. The opisthosoma of the male was dark, that of the female light below, dark above, with dark brown regions ("regiones leonado oscuras") and black and white spots. While this description and the river bank habitat conform to the general features of various *Arctosa* species, including the common *Arctosa variana* (C. L. Koch, 1847), it does not allow a confident identification.

Cyclosa conica zamezai Franganillo, 1909 =

nomen dubium (Araneidae)

The description of this variety does not specify the diagnostic characters which supposedly distinguish it from the nominate form. However, considering the diversity of the genus *Cyclosa* in the Iberian Peninsula, it seems impossible to assign this form to *C. conica* with confidence. In particular, no aspect of the description seems to allow the exclusion of *C. algerica* Simon, 1885, which is similarly common and variable, with any confidence, and the description even includes an obscure reference to *Nemoscolus laurae* (Simon, 1868) for comparison. Without type material, the name remains a nomen dubium.

Eresus robustus Franganillo, 1918 =

species inquirenda (Eresidae)

This species was described based on female specimens found under stones and in crevices on Monte Leire, Navarra, Spain. According to the description, the specimens reached a length of 22 mm, the width of the opisthosoma was 10 mm. The thoracic area and the front of the chelicerae was pale red, the opisthosoma dark grey. The leg joints were marked with light rings. The upper part of the first two tibiae was marked by a yellowish longitudinal line, sometimes two. The cribellum was divided into two parts by a transverse gap. The description of the prosomal colouration is similar to that of, e.g., *Eresus ruficapillus* C. L. Koch, 1846 or *E. moravicus* Rezáč, 2008. This excludes *E. kollari*, the most common *Eresus* species from Spain according to Morano et al. (2014), but it is quite possible that Franganillo's name refers to the unknown female of either *Eresus solitarius* Simon, 1873 or *Eresus sedilloti* Simon, 1881. Given the importance of prosomal colouration for the identification of female *Eresus* specimens (at least within defined geographical ranges; Rezáč et al. 2008), it seems likely that this species can be confidently identified based on Franganillo's description, once the genus has been revised for the Iberian Peninsula and females of the other two species have been found and described. For the time being, we consider *Eresus robustus* not a nomen dubium, but a species inquirenda; a potentially valid species awaiting rediscovery, which should be identifiable once new comparative material becomes available.

Hogna radiata clara (Franganillo, 1913) =

nomen dubium (Lycosidae)

This form was described as being slightly lighter coloured in the female than the typical *Hogna radiata*, with a black colouration of the ventral side of the opisthosoma, forming an isosceles triangle the base of which touches the epigyne, while the rest of the venter, the sternum and legs are dark brown

(“Abdomen algo más claro que el de la *L. radiata* común. Vientre negro; pero formando este color un triángulo isósceles, cuya base toca con el epigino. Epigastro, plastra y ancas leonado-oscuras.”). The prosoma was 7 mm in length, the opisthosoma 10 mm. Two female specimens, possibly including the type material, are listed in the catalogue of the Franganillo's collection (Lastra 1974), but have not been found. A male labelled as belonging to this species (which cannot be part of the type series that only included females) was identified as belonging to *Hogna radiata* (Latreille, 1817). It is likely that *clara* is just an infrasubspecific form of *H. radiata*, but in the absence of confidently assigned type material, a reliable identification is not possible.

Larinioides sclopetarius jacobea (Franganillo, 1910) =
Larinioides sclopetarius (Clerck, 1757)

syn. conf. (Bonnet 1955: 596) (**Araneidae**)

Despite being one of the most extensively characterized of Franganillo's taxa, this name was not included in Roewer's catalogue (1942: p. 801-802), where *Aranea ovigera* Panzer, 1804 was regarded as the valid name for *L. sclopetarius*, and Franganillo's taxon is therefore also not listed in the World Spider Catalog (2016). But Bonnet (1955: p 596) already listed *jacobea* as a synonym of the nominate form (sub *Araneus sericatus* = *Larinioides sclopetarius*), as he routinely did for the majority of subspecies described at the time. This assessment is confirmed here. The original description only considers *jacobea* a variety of *L. sclopetarius* and does not specify any diagnostic characters. The description of the material also contains no indication that this might be a different species. The unusually lengthy description of the epigyne is unfortunately too obscure to provide much further information. The Franganillo collection contains material of *L. sclopetarius*, but it is not clear if this belongs to the new variety or the typical form.

Lycosa clarissa Roewer, 1951 = **nomen dubium (Lycosidae)**

This species was originally described by Franganillo (1918) as *Lycosa clara* (preoccupied by *Lycosa clara* L. Koch, 1877 = *Knoelle clara*), and the new name was introduced by Roewer during his preparations for the second volume of his catalogue. It was described as a light-coloured lycosid (“Tegumenta clara”), of medium size (total length 12 mm, fourth pair of legs 17 mm). The epigynal groove had chitinized lobed margins and a medium septum in an inverted T-shape (“El epigino es una fosa de bordes quitinosos y festoneados, con un saliente en el medio en forma de T invertida.”). The species was found in August in Navarra, Spain. While it is likely that *L. clarissa* is a synonym of *Hogna radiata*, possibly the same form as *Hogna radiata clara* described in 1913, the description seems vague enough to match many other Spanish lycosids as well, and a confident identification seems impossible in the absence of type material.

Nuctenea umbratica nigricans (Franganillo, 1909) =

nomen dubium (Araneidae)

Lastra (1974, 1975) tentatively assigned seven male specimens in Franganillo's collection to this species. The basis for this is unclear, especially as the original description refers to females only. One of the males is still available in the collection and turned out to be *Larinioides sclopetarius* (Clerck, 1757). As the

description explicitly mentions a long and narrow “clavus” (i.e. scapus) of the epigyne, in contrast to *N. umbratica obscura*, this name cannot be referring to *Nuctenea umbratica*. The type was originally described as entirely dark, with a black opisthosoma and almost invisible folium. This would indeed be compatible with being a very dark variant of one of the *Larinioides* species, such as *L. ixobolus*, in agreement with the male specimen in the collection, but as no true type material is available, a confident identification is not possible.

Nuctenea umbratica obscura (Franganillo, 1909) =

Nuctenea umbratica (Clerck, 1757) **syn. nov. (Araneidae)**

This is almost certainly a typical *Nuctenea umbratica*; the description of the dark flattened spider, with its broad folium, black underside with two light spots, and the short, broad scapus of the epigyne, is characteristic enough. The only reason for erecting a new variety seems to have been the presence of a second form (var. *nigricans*) in the sample, which certainly belongs to a different species (see above).

Philaeus stellatus Franganillo, 1910 =

nomen dubium (Salticidae)

The description of this species is very brief (“This species is close to *Philaeus chrysops* Poda. Male: prosoma 3.5 mm, opisthosoma 3 mm. Pedipalpal femur decorated with a white fluff of hairs. Prosoma black, with two white bands at the base. In the middle between the dorsal eyes a little white spot. Opisthosoma grey with brown spots; dorsal eyes further apart from each other than from the anterior lateral eyes.”) and does not allow an unambiguous identification of the species. The opisthosomal pattern does not seem to correspond to any of the known variants of male *P. chrysops*, and even the genus affiliation of the species remains unclear.

Pirata albicomaculatus Franganillo, 1913 =

nomen dubium (Lycosidae)

Supposed type material of this species (4 males, 4 females; all subadult) is present in Franganillo's collection, and two specimens are illustrated in Lastra's (1974) catalogue. However, upon examination, these specimens turned out to be *Pardosa hortensis*, which seems to contradict the original description. The original description indicated that *P. albicomaculatus* is indeed a *Pirata* species, in the broad sense (“close to *Piratula knorri*”), with 6 faintly visible transverse rows on the opisthosoma, formed by little tufts of whitish hairs. The specimens were found at the beginning of September in Laviana (close to Oviedo), on the banks of the Nalón river, among half-submerged rubble in quiet waters, where they “ran with lightning speed even on the surface of the water, carrying a little round white egg sac” (“Corrían, como una exalación, aun por la superficie del agua, llevando consigo una ooteca globulosa, blanquecina y pequeña”). In view of the uncertain status of the supposed type material, this species is here considered a *nomen dubium*.

Pirata subniger Franganillo, 1913 =

nomen dubium (Lycosidae)

As is the case for many of the species established by Franganillo, *Pirata subniger* was described in quite some detail, but none of the mentioned characters seems in any way diagnostic. The female had a prosoma length of 3.2 mm, an opistho-

soma of 5 mm, and the fourth pair of legs is 15 mm long. The tawny brown legs had many black rings on the femora, the sternum was dark but covered in light hairs. The opisthosoma was intensely dark, as was the prosoma, the ventral side lighter. The epigyne was a simple depression covered by the ventral hairs. These details are supplemented by generic descriptions of the eye arrangement, spinnerets and chelicerae, none of which seem to distinguish this species from *Pirata latitans*, to which it is supposedly close, nor from many other *Pirata* species. The habitat (“between the rocks of the sea, at Gíjon”) even raises some doubts about the assignment to the correct genus, and Roewer (1955) considered the species as *incertae sedis*.

Salticus unispinus (Franganillo, 1910) =

Pellenes nigrociliatus (Simon, 1875) **syn. nov. (Salticidae)**

This species was described with some hesitation as a new species and placed in the genus *Calliethera* (= *Salticus*). The prosoma was described as “dark with four white hairy spots in the middle, and a longitudinal one between the anterior median eyes. The margin marked with a white band of hairs”; the “sternum is black with white hairs”. The opisthosoma was described as having a characteristic pattern: “the upper anterior part with a white arch, from the middle of which and up to one millimeter from it emerges a white line [“e cujus centro et ad millimetrum distantiae hujus egreditur linea alba”], which extends to the spinnerets. On each side of this line there are two lines and two dots of equally white colour, which with the previously mentioned two lines form an arrow-like shape.” This opisthosomal pattern matches *Pellenes nigrociliatus* very well, and the description in places reads like a literal translation from Simon’s description of the latter. The unusual “four white spots” on the prosoma, in contrast to the two lines expected for *P. nigrociliatus*, can probably be explained by the wearing off of some of the white hairs.

Sitticus sexsignatus (Franganillo, 1910) =

Sitticus floricola (C. L. Koch, 1837) **syn. nov. (Salticidae)**

This species was originally described as a new species with some hesitation, placing it close to *Euophrys* and *Attus*, from which it was separated by the length of the legs (“Legs 4-1-3-2. Tibia and patella III considerably shorter than tibia and patella IV. Tibia III thicker than tibia IV at the base and in the middle; but of the same thickness towards the end.”). The prosoma was described as dark, the ventral side of the opisthosoma pale, its dorsal side yellow-brown with six white dots, the two “lower” [posterior?] ones more distant and more visible, the two anterior ones in fact forming transversal lines. The species “lives in sedges in marshes; in these plants they build their egg sacs from fine silk, where they remain hidden. The egg sacs contain 40 eggs that are non-glutinous, but wrapped in a very fine web. There are usually three or four egg sacs together, protected by dry leaves”. The habitus and habitat, together with the distinct egg-sac building behaviour (Bellmann 1997, 2010, Jones 1989, Prószyński 1980, Kúrka et al. 2015), allow the confident identification of this species as *Sitticus floricola*. The related *Sitticus inexpectus*, which also occurs in lowland localities, has not been reported from Spain yet, and can also be excluded because of its preference for stony or sandy habitats (Logunov & Kronstedt 1997). It is also not

known to build communal egg sac aggregations in flower heads. This latter character also excludes identification as the rare *Sitticus caricis*, first reported from wetlands in Spain (Galicia) in 2012 (Morano et al. 2012). The type material (7 females and 1 male) was still available in Franganillo’s collection when examined by Lastra, but could no longer be found more recently by EM.

Spiroctenus lusitanus Franganillo, 1920 =

nomen dubium (Mygalomorphae incertae sedis)

The genus *Spiroctenus* (Nemesiidae) is currently restricted to South Africa; an occurrence in Portugal would seem unlikely. According to the description, the female holotype was 15 mm in length, had a recurved fovea, tarsal claws with a single row of teeth, the lower claw well developed, save on leg IV (i.e., three claws were present). The maxillae at the base carried numerous cuspules. The spinnerets were similar to those of *Barychelus*, except that the final segment of the superior ones was missing (i.e., four spinnerets were present). Legs and prosoma were pale, the opisthosoma dark yellow-brown. As a very rare supplement to this description, Franganillo also added a sketch of the eye arrangement, which shows well separated lateral eyes, an almost straight anterior eye row, and anterior median eyes that are almost as large as the anterior lateral eyes. This combination of characters does not seem to match any of the mygalomorph species known from the region, and even a confident identification of the family to which this species belongs seems impossible at the moment.

Steatoda latrodectoides (Franganillo, 1913) = *Steatoda*

paykulliana (Walckenaer, 1805) **syn. nov. (Theridiidae)**

This species, collected in the Ferreros (close to Oviedo), was first described in the genus “*Lithyfantès*” (= *Steatoda*). It is a large theridiid spider “exactly like *Latrodectus* in size and colour and even the red circles on the opisthosoma.” Only the egg sacs, covered in woolly transparent silk revealing a mass of orange-pink eggs, showed that this was a different species. According to Franganillo, the species lives in holes in meadows, from which the webs reach up to two feet into the vegetation. Eggs are laid in early July, and each hole contains multiple egg sacs, in some cases up to five. It seems very likely that this is the common *Steatoda paykulliana*, the only one of the Spanish false widow spiders that regularly shows an orange-red pattern, and the species that most closely resembles the true *Latrodectus*. The habitat and description of the egg sacs also are in agreement with this species (Bellmann 1997, Hubert 1979, Levy & Amitai 1982). Franganillo (1913) does also mention “*Lithyfantès paykulianus*” (sic!) (and “*Lithyfantès collonatus*” [sic!]) in the same article, both probably referring to different colour morphs of the same rather variable species.

Synema globosum clarum Franganillo, 1913 =

Synema globosum (Fabricius, 1775) **syn. nov. (Thomisidae)**

This variant is not a subspecies, but just part of the broad colour spectrum observed in this species. Here, all the parts of the opisthosoma that are red in the typical form are bright (“Todas las partes rojas del abdomen en la especie común, son aquí de color claro.”). The type material (5 females) still exists in Franganillo’s collection, and the illustration of one of them in Lastra’s (1974) catalogue confirms the specific assignment.

Synema globosum flavum Franganillo, 1913 =
Synema globosum (Fabricius, 1775) **syn. nov. (Thomisidae)**
 Franganillo does not describe this form, but only gives a name to a variety mentioned by Simon (1875), who states that in this form all the red parts of the type are light yellow or whitish (“Toutes les parties rouges chez le type, d’un jaune clair ou d’un blanc mat.”). This is clearly a mere individual colour variant of the nominate species. Two females in Franganillo’s collection are considered by Lastra (1974) as potential types of this form, but as the name was established by bibliographic reference to Simon’s description, it is not clear that this is formally correct.

Synema globosum pulchellum Franganillo, 1926 =
Synema globosum (Fabricius, 1775) **syn. nov. (Thomisidae)**
 The description of this form from Málaga is slightly more extensive than that of the colour variants of *Synema globosum* established by Franganillo earlier. The prosoma is described as dark red, the opisthosoma of pale golden colour with black markings: two black spots in the anterior half, next to the midline, followed by a transverse line, then a single unpaired spot, which in some specimens is followed by another small transverse line. *S. globosum* specimens with reduced spot-like black markings do occur regularly, especially among juveniles, and could easily be taken for a different species at first glance. As the habitus of the *S. globosum* is quite unique among Spanish thomisids, despite its variability in colour, it seems justified to assume that Franganillo’s description refers to such pale specimens, rather than a different species.

Uloborus pseudacanthus Franganillo, 1910 =
Uloborus walckenaerius Latreille, 1806 **syn. nov. (Uloboridae)**
 Franganillo listed three characters in which his new species was supposed to differ from *U. walckenaerius*: a) the eyes, b) the length of the calamistrum, c) tibiae I and II. However, the description of the eyes (anterior eyes in an almost straight line, the lateral ones smaller; posterior eyes in a procurved line, the median ones more distant from each other than from the lateral ones; the median area narrower in the front than in the back) matches *U. walckenaerius* very well, and so does the description of the calamistrum (well developed on metatarsus IV, occupying only half of the length of the upper part, which incidentally excludes *Polenecia* as a possible candidate). Tibiae I and II are described as carrying a very prominent single spine in the middle of the upper part (“In superiori parte tibiae I et II ad dimidium unica spina valde visibilis”). It is not quite clear what this statement could refer to, but it seems hardly sufficient evidence to suggest that the species differs from the widespread and common *U. walckenaerius* (and it seems to exclude *U. plumipes*). The type material was still existing in Franganillo’s collection when it was rediscovered (one intact male, one specimen separated into prosoma and opisthosoma, and one body without legs, according to Lastra 1974), but could no longer be found by EM more recently.

Zygiella x-notata chelata (Franganillo, 1909) =
Zygiella x-notata (Clerck, 1757) **syn. nov. (Araneidae)**
 There is no doubt that this is just a typical *Zygiella x-notata*. This is not only by far the most common species of the genus in the Iberian peninsula, but also the only one that clearly

matches the description of the epigyne as being without a scapus, transverse, black and sufficiently visible (“Epigynum feminae sine clavo; scapus transversus, niger et sat visibilis.”). The description is preceded by a description of the habits of the species in the genus (including the typical empty sector of the web), so Franganillo’s identification can probably be relied on in this case. The description suggests that Franganillo did not intend to distinguish *chelata* from the typical form of the species, but merely from the following form, *parcechelata*, from which it was supposed to differ by having a black, complex male pedipalp and chelicerae that are amply longer than the maxillae, especially in the males.

Zygiella x-notata parcechelata (Franganillo, 1909) =
Zygiella x-notata (Clerck, 1757) **syn. nov. (Araneidae)**
 This form is merely the subadult male of the previous species, with the pedipalp whitish and simple, in contrast to *chelata*. The web of this specimen was entire, and a single thread led to the retreat of the spider; this is not uncommonly seen in *Zygiella x-notata*, especially in younger specimens (Witt et al. 1968).

Additional species for which type material is reported to exist in Franganillo’s collection

The reconstructed catalogue of Franganillo’s collection prepared by Lastra (1974) was never published in its entirety. As a result, while the survival of parts of the collection was widely known, there was considerable uncertainty about which species were potentially represented by type material. In the following section we briefly review the taxonomic status of other taxa described by Franganillo for which material seems to be present in his surviving collection in Oviedo.

Araneus triangulatus (Franganillo, 1913) = *Neoscona adianta* (Roewer 1955: 1490, Méndez 1998: 145) **(Araneidae)**
 The type material (4 females, 2 males, one of them subadult; Méndez 1998) is present in the collection and illustrated in the catalogue. The illustration leaves no doubt that the identification by Roewer and Méndez is correct (and Méndez had already examined the material).

Ballus sociabilis Franganillo, 1910 = nomen dubium (Alicata & Cantarella 1988: 54) **(Salticidae)**
 A single female of this species is illustrated in Lastra’s (1974) catalogue. From the figure, an identification is impossible, but this material should probably be reexamined before confirming its status.

Cyrtophora citricola var. *pallida* Franganillo, 1925 =
nomen nudum
Cyrtophora citricola var. *nigra* Franganillo, 1925 =
nomen nudum

Two females of the former and one supposedly of the latter are present in the collection. However, we have been unable to find a formal description of either of these forms, which are only listed with brief locality data in Franganillo (1925, 1926). While it is very likely that the names referred to different extremes of brightness of this very variable species, they are **nomina nuda**, not nomina dubia as suggested by Roewer (1955), independent of the availability of supposed type material.

Lycosa alba var. *fulva* Franganillo, 1913 =
nomen dubium (Roewer 1955: 267) (**Lycosidae**)

A well-preserved 10 mm-long female specimen supposedly belonging to this form is present in the collection and illustrated in the catalogue. Lastra (1974) expressed doubt about whether this is really the type, as the form was described by contrasting it to typical *L. alba*, which is described in the same article based on a male. However, it is not quite clear from Franganillo's text that he had only male material of *L. alba* before him, and it would be interesting to re-examine this case. The remaining specimen belongs to *Hogna radiata* (Latreille, 1817), but considering the uncertainty of the type status of this material, the consideration as a nomen dubium as suggested by Roewer (1955) seems justified. The collection also contains several unlabelled specimens that Lastra (1974) tentatively suggests as perhaps being the type material of the typical *L. alba* Franganillo, 1913, which also are *H. radiata*.

Micrommata virescens var. *valvulata* Franganillo, 1913 =
Micrommata virescens (Urones 2004: 48) (**Sparassidae**)

The female type (estimated total length about 7 mm) is present in the collection and illustrated in the catalogue. Urones did not examine the type, but only argued that this name was not intended as a subspecies, just a variety. It would be interesting to re-examine this material, given the diversity of this genus in the Iberian Peninsula and the surprisingly small size of the specimen (assuming that it is indeed an adult female). The original description compares the material to *Micrommata ornata* Th[orell], which might indicate that the specimen was less brightly green than *M. virescens* and could belong, e.g., to *Micrommata aragonensis* Urones, 2004.

Tetragnatha extensa var. *contigua* Franganillo, 1909 =
nomen dubium (Wunderlich 2011: 210) (**Tetragnathidae**)

Wunderlich stated that type material is probably lost, but males of this variety as well as several egg sacs seem to be present in the collection, according to Lastra's catalogue. It might be possible to identify this taxon, which may or may not be an individual variety of *T. extensa* (the description only states that the lateral eyes are contiguous, and the chelicerae a bit weaker and less spread apart; but "one should not consider this a member of *Cyrtognatha* [!]" ; Franganillo 1909: 185).

Teutana grossa var. *obliterata* Franganillo, 1913 =
Steatoda grossa (C. L. Koch, 1838) **syn. nov.** (**Theridiidae**)

Wunderlich (2012) considered this a nomen dubium and erroneously stated that type material does not exist. The variety is described as lacking the opisthosomal pattern and living under floorboards in houses. The presumed type material (two females of about 9 mm total length) is present in the collection and illustrated in the catalogue. Considering the photos and the habitat information, there is little doubt that this is indeed just a dark individual of *Steatoda grossa* (C. L. Koch, 1838) **syn. nov.**

Theridion cellariorum Franganillo, 1917 =
nomen nudum (**Theridiidae**)

Three females and one egg-sac labelled by Lastra (1975) as *T. cellariorum* are present in the collection. Their examination would only be of historical interest; the name appears to be a **nomen nudum** (or a lapsus), used only without description by Franganillo (1917, 1925).

Zygiella gigans (Franganillo, 1913) =
Zygiella x-notata (Méndez, 1998: 145) (**Araneidae**)

The type, a poorly preserved 8 mm-long female, is present in the collection and illustrated in the catalogue. The material was examined by Méndez and confirmed as belonging to *Zygiella x-notata*.

Dubious species described by Kolosváry

The Hungarian biologist Gábor Kolosváry (Gabriel von Kolosváry) (1901–1968) was one of the most productive European arachnologists of the 1930s and 1940s, publishing a wide range of papers on ecological, behavioural and zoogeographic aspects of arachnology based on material from the National Museum in Hungary, as well as his own collections mostly from Hungary and neighbouring countries, and from the Adriatic region. One special area of interest for Kolosváry was the phenotypic variation of species, an aspect that is central in his first contributions to arachnology (Kolosváry 1931, 1932) and reaches its extreme in the esoteric and obscure 'Generisches System der Lebenserscheinungen' (Generic system of biological phenomena), in the Festschrift for his long-time arachnological mentor, Embrik Strand (Kolosváry 1936). This interest in variations led Kolosváry to describe numerous new spider species, many of which have never been found again. Unfortunately, the majority of his type material is lost (or was never designated), and the descriptions are often exceedingly short and lack the specification of useful diagnostic characters. In contrast to Franganillo, Kolosváry usually provided figures together with the descriptions in the text, but these are of such a highly schematic and abstracted nature that they can only rarely be used for species identification. In the cases discussed here, unless stated otherwise, the type material could not be traced in the Hungarian Natural History Museum, the successor of the National Museum, and is considered lost. Details on Kolosváry's biography are available in Bonnet (1945) and Zullo et al. (1972).

Alopecosa mariae orientalis (Kolosváry, 1934) =
Alopecosa mariae (Dahl, 1908) **syn. nov.** (**Lycosidae**)

This form was described by Kolosváry (1934b) as being identical in colour and pattern to the typical *A. mariae*, but supposedly differing in the epigyne. The illustration of the latter, however, shows no obvious differences and is in fact very similar to the illustration of an *A. mariae* epigyne in Buchar & Thaler (2004: fig. 5). As the type locality (Nagyenyed = Aiud, Romania) lies 200 km northwest of the type locality of *A. mariae*, in the very centre of the known distribution of the latter (Buchar & Thaler 2004) and far away from the known range of the sister species *A. striatipes*, the new synonymy seems justified.

Alopecosa reimoseri (Kolosváry, 1934) =
nomen dubium (**Lycosidae**)

The very superficial description in Kolosváry (1934a) ("legs annulated, ocular region black, prosoma with a larger leaf-like patch in the centre, total length 12 mm") and the schematic illustration of the epigyne do not allow a confident identification of this species. Some similarities with *Geolycosa vultuosa* (C. L. Koch, 1838) could be construed, but this seems insufficiently specific to allow an unambiguous identification.

Araneus circe strandi (Kolosváry, 1935) =
Araneus circe (Audouin, 1826) **syn. nov. (Araneidae)**

This form was introduced by Kolosváry (1935a) as a new variety (not a subspecies) of *A. circe* found on juniper trees (*Juniperus communis*) in the Hungarian plains. The text does not specify any diagnostic characters, but the legend to the habitus illustration emphasises a 'thick' white cross on the front part of the light grey opisthosoma that does not continue into the pattern of the darker, brown posterior half of the opisthosoma. This pattern is not unlike that seen in some individuals of *A. circe*, but a similar pattern also occurs in some specimens of *A. angulatus*. However, as the two species are easily distinguished based on their genitalia, which were well illustrated by Chyzer & Kulczynski (1891), it seems reasonable to accept Kolosváry's specific assignment.

Ballus lendli Kolosváry, 1934 = **nomen dubium (Salticidae)**

This species is supposedly similar to *Ballus depressus* (= *B. chalybeius* (Walckenaer, 1802)), but has a different epigyne and characteristic (but not further specified) brown marks on a white background on the opisthosoma. The total length was given as 3.5 mm. The illustration of the epigyne in Kolosváry (1934a) indeed shows some similarity to that of various *Ballus* species, perhaps closest to that of *Ballus rufipes* (Simon, 1868), but the drawing is so schematic that a reliable identification seems impossible.

Cybaeus strandi Kolosváry, 1934 =
species inquirenda (Cybaeidae)

Kolosváry (1934b: 43, fig. 7; see Fig. 1) described this species from Tordaszentlászló (= Săvădisla, Romania) very briefly: prosoma and opisthosoma each 4 mm long; prosoma, legs and pedipalp yellowish; pedipalp long; opisthosoma light grey below, dark grey above. He illustrated the opisthosomal pattern and cleared epigyne, stating that the latter differs from the typical form seen in *Cybaeus*. We have not been able to match the rather distinct drawing of the epigyne to any known species, neither in the Cybaeidae, nor in any of the possibly related families, and it does not seem to be abnormally formed. The closest similarity seems to be seen in some *Amaurobius* species. Instead of declaring *C. strandi* a nomen dubium, we therefore consider this species as a species inquirenda, a po-

tentially valid species awaiting rediscovery, which should be easily identifiable based on the information provided by Kolosváry once new material is found.

Cyclosa baloghi Kolosváry, 1934 =
nomen dubium (Araneidae)

Cyclosa strandi Kolosváry, 1934 =
nomen dubium (Araneidae)

These two species were described very superficially in Kolosváry (1934a), based on material collected almost 50 years earlier. The schematic illustrations of the epigynes confirm the generic placement, but do not allow a confident identification of the species. The closest similarity in both cases seems to be to the epigyne of *C. conica*, seen from different angles, but it would seem too drastic to suggest that Kolosváry did not recognize this species correctly. A further record of *C. baloghi* is mentioned by Kolosváry (1938b) from Jasenak, Croatia.

Diplocephalus alpinus strandi Kolosváry, 1937 =
Diplocephalus alpinus (O. Pickard-Cambridge, 1872)
syn. nov. (Linyphiidae)

D. a. strandi was described as a new variety of *D. alpinus* (sub *D. annectens*, lapsus for *D. connectens*) from Hadad (= Hodod, Romania), based on a stronger tibial apophysis of the pedipalp, smaller posterior median eyes, and, in particular, a smaller cephalic pit than the nominate form. As there is no indication of a vicariant distribution, there is no reason to assume that these subtle differences represent more than individual intraspecific variation, or perhaps just an artefact due to slight differences in illumination or viewing angle. We therefore consider *D. a. strandi* as at most an individual infrasubspecific variant, rather than a subspecies in the modern sense.

Entelecara strandi Kolosváry, 1934 =
Nusoncus nasutus (Schenkel, 1925) **syn. nov. (Linyphiidae)**

The description of this species in Kolosváry (1934a) is concise to the extreme ("total length 1.5 mm; uniformly grey"), but the illustrations of the epigyne in lateral view and of the cleared epigyne in ventral view are sufficiently characteristic in this case to allow identification of the species. The type locality (Kőrmöcbánya = Kremnica, Slovakia) lies within the known distribution range of *Nusoncus nasutus*, and the forested mountains around the town offer plenty of suitable habitat. The collection date on 25 May 1933 also is in agreement with the known phenology of the species.

Erigone strandi Kolosváry, 1934 =
nomen dubium (Linyphiidae)

According to Kolosváry (1934a), this species is very similar in its epigyne to *Erigone longipalpis* (Sundevall, 1830), but the illustrations provided, showing both the dry and the wet (cleared) epigyne, have no similarity to the corresponding structures in *E. longipalpis*, nor to any other *Erigone* species. The identity of the species seems entirely uncertain.

Euophrys mottli Kolosváry, 1934 =
nomen dubium (Salticidae)

This species, described on the basis of a single immature individual collected almost 50 years earlier, was placed by Kolosváry (1934a) in the *Euophrys difficilis-frontalis* group, from

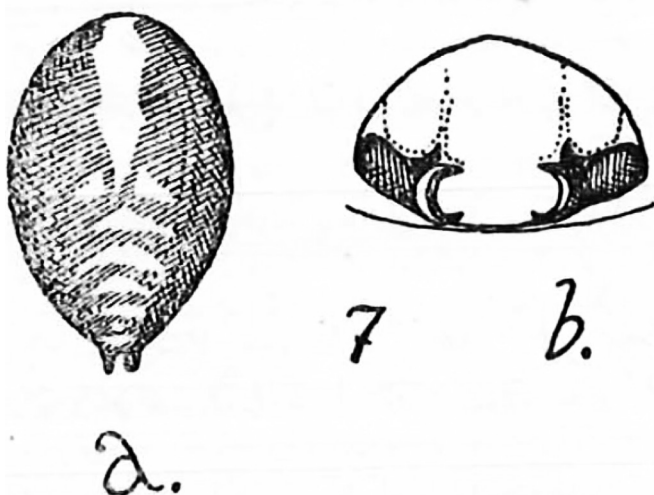


Fig. 1: Illustration of the opisthosomal pattern (a) and epigyne (b) of *Cybaeus strandi* from the first description of the species (Kolosváry 1934b: fig. 7)

which it was distinguished by having three distinct spines at the anterior margin of the opisthosoma, which were also illustrated. While the illustration by Kolosváry is certainly exaggerated, three prominent setae can sometimes be seen at the front of the opisthosoma in *Euophrys* (see, for example, fig. 463 of a male *E. frontalis* in Zhang & Maddison 2015). However, the complete lack of any further informative details in the description precludes a confident identification at the species level in this case.

Gibbaranea bituberculata strandiana (Kolosváry, 1936) =
Gibbaranea bituberculata (Walckenaer, 1802)

syn. nov. (Araneidae)

This form was described as a new variety of *G. bituberculata* (sub *G. dromaderia* [sic!]), based on its aberrant opisthosomal pattern, which “represents a manifestation of mutant character and also a new variety”. There is no further description of the species, except a brief statement that this form is “smaller”, and it is not clear which specific features Kolosváry considered to be aberrant, but the illustration of the habitus seems to fall well within the range of intraspecific variation of *G. bituberculata*.

Gongylidium gebhardti Kolosváry, 1934 =

nomen dubium (Linyphiidae)

The description provided for this species by Kolosváry (1934a) is extremely brief: “Male; total length 1 mm; uniformly grey”. The accompanying figure of the pedipalp in ventral view is very schematic and seems to show no distinctive characters. An identification, even at the genus level, seems impossible.

Lepthyphantes pannonicus Kolosváry, 1935 =

nomen dubium (Linyphiidae)

This species was described by Kolosváry (1935b) based on a single female specimen without collection data, but assumed to be certainly collected in the area of historical Hungary. The animal was 3 mm long, uniformly grey, with a lighter prosoma and yellowish-light grey legs, pedipalps and chelicera. The description states that the typical *Lepthyphantes* epigyne of the specimen determines its generic affinity without doubt. The illustrations of the epigyne in ventral and lateral view confirm that the species could indeed belong to *Lepthyphantes* s. lat., but is impossible to reconcile with the structure seen in any of the known species of this group and in any case seems too schematic for a confident identification.

Linyphia triangularis juniperina Kolosváry, 1933 =

Linyphia triangularis (Clerck, 1757) **syn. nov. (Linyphiidae)**

This subspecies was described as *Linyphia pinnata* var. *juniperina* in an article on the ecology of the sandy juniper heaths of Hungary, where it was found together with the dominant *Linyphia triangularis*. The “description” consists of a schematic drawing of the epigyne, comparing it to illustrations of the epigyne of *L. tenuipalpis* and *L. triangularis* by Bösenberg (who erroneously considered them genitally distinct variants of a single species; Kulczyński 1913a), together with a brief remark that “the central area [of the epigyne] is larger than in normal specimens. This variety has a broader red abdominal median stripe than normal animals”. Considering the habitat at the type locality, it seems not impossible that Kolosváry’s sample contained both *L. tenuipalpis* and *L. tri-*

angularis, but the “new variant” would in that case match the latter. It seems, therefore, justified to synonymize *Linyphia triangularis juniperina* with the nominate form.

Nemesia pannonica budensis Kolosváry, 1939 =

Nemesia budensis Kolosváry, 1939 **stat. nov. (Nemesiidae)**

Nemesia pannonica cobeni Fuhn & Polenec, 1967 =

Nemesia cobeni Fuhn & Polenec, 1967 **stat. nov. (Nemesiidae)**

Nemesia pannonica budensis was first described by Kolosváry (1939a) based on two males collected by Imre Loksa from the Ofner-Gebirge (= Buda Hills), specifically from the Testvérhegy, now covered by a suburb of Budapest. He considered it a northern subspecies of *Nemesia pannonica*, distinguishing it from the typical form and the subspecies *N. p. adriatica* by having “five thoracic spines in rows, radial wrinkling on the prosoma, five spines on the tibia of the pedipalp, and six spines on the tarsus of the pedipalp ... body generally lighter than in *N. pannonica* f. *adriatica*”. This form differs from the other species discussed here, in that it was found again later, also by other authors. The female was described from the same location (Kolosváry 1939b), again based on material collected by Loksa, then still a 16-year old student. Twenty-five years later, Loksa (1966) summarized his accumulated knowledge on *N. pannonica* in a detailed analysis of the intraspecific patterns of variation in numerous character systems, concluding that the species is monotypic and forms no subspecies, but at most local varieties that are difficult to characterize. A subsequent study by Fuhn & Polenec (1967) came to a different conclusion. While they agree that the characters used by Kolosváry do not allow a reliable separation of the different forms, Fuhn & Polenec did observe geographically consistent allopatric variation in other characters, which supposedly separates the Adriatic populations from those of central Hungary. Most important are differences in the shape of the embolus and the number of prolateral spines on various leg articles. Given the extent of these differences, the poor dispersal ability of *Nemesia* species, and the resulting pattern of small-scale speciation seen in other parts of the range of the genus (Decae 2012), the provisional (!) phylogenetic hypothesis of Fuhn & Polenec (1967) is probably best expressed by raising *N. p. budensis*, as well as the related eastern subspecies *N. p. cobeni*, to species rank, consistent with the approach applied in the rest of the genus. The confirmation that these are indeed genetically isolated and independently evolving populations will require a new analysis based on male and female material from the entire range of the species (Fuhn & Polenec only examined a single male of *N. budensis*), and such a study would preferably include morphological as well as molecular characterization.

Ozyptila strandi Kolosváry, 1939 =

Ozyptila confluens (C. L. Koch, 1845) **syn. nov. (Thomisidae)**

This species was first described by Kolosváry (1939b: 174, fig. 2) from Split, Croatia, apparently based on a single specimen, although another record from Dalmatia was mentioned in Kolosváry (1938b). Its thick and broad epigynal scapus was considered unique in the genus *Ozyptila*, while the presence of a small, short, thick spine on femur I was considered as an indication of some affinity with *Ozyptila atomaria* (Panzer, 1801) (sub *O. horticola*). The cephalothorax length is given as



Fig. 2: Illustration of the epigyne of *Ozyptila strandi* from the original description of the species (a; Kolosváry 1939b: fig. 2), and epigyne (b) and habitus (c) of a specimen of *Ozyptila confluens* in the collection of the Hungarian Natural History Museum identified as *O. strandi* by Kolosváry; scale bars: b = 0.2 mm, c = 2 mm

2.5 mm, the opisthosoma is very light, with fine brown dots. The entire body is covered in spatulate hairs, interspersed with small, fine normal hairs. The prosoma is somewhat darker, the legs robust and the femora with 1.1 spines. The type material of this species could no longer be found in the collection of the Hungarian Natural History Museum in Budapest, but a specimen collected by Kálmán Szombathy in Zelenika (Montenegro) and labelled as “*Oxyptila strandi* Kolosváry” is present there (HNMH Araneae-5899). The handwriting on the determination label, and especially several characteristic details of the author name compared to Kolosváry’s signature in Zullo et al. (1972), show that this specimen was identified by Kolosváry himself. Its examination showed that it clearly belongs to *Ozyptila confluens*, a widespread species of Southern Europe (Demircan & Topçu 2015, Komnenov 2014, Lecigne 2016) originally described from Greece. The unique broad and hairy scapus of the epigyne of this species is also quite notable in the illustration accompanying the original description, justifying the synonymy (Fig. 2).

Panamomops strandi Kolosváry, 1934 = *Saloca dicerus* (O. Pickard-Cambridge, 1871) **syn. nov. (Linyphiidae)**

This species, in contrast to most of the other species described in Kolosváry (1934a), can be identified with confidence. The

distinct prosomal modifications, as well as the colouration of the eye region, which Kolosváry considered diagnostic (Kolosváry 1934a: 15, fig. 11a–11d), are specific for *Saloca dicerus* (O. Pickard-Cambridge, 1871) (Fig. 3). The shape of the tibial apophysis confirms this identification. At the same time, this case highlights the extremely schematic nature of Kolosváry’s illustrations: even when the identity of the species is known, it is all but impossible to match the structures of the illustrated pedipalp to the structures known in *S. dicerus*. This also emphasizes the need for particular caution when trying to identify Kolosváry’s species based on details of the illustrations, which may in fact be mere artefacts of his artistic style.

Pardosa kratochvili (Kolosváry, 1934) = **nomen dubium (Lycosidae)**

Although the description of this species by Kolosváry (1934a) is very generic (“Legs annulated; prosoma with a broad longitudinal line; sternum black; coxae light; venter light yellow; total length 9 mm”), the illustrations of the wet and dry epigyne suggest that the description refers to a species close to *Pardosa proxima* (C. L. Koch, 1847). However, the schematic nature of the illustrations, as well as the existence of a morphologically indistinguishable sister species of unclear distribution (*Pardosa vlijmi* den Hollander & Dijkstra, 1974), preclude a confident identification at the species level.

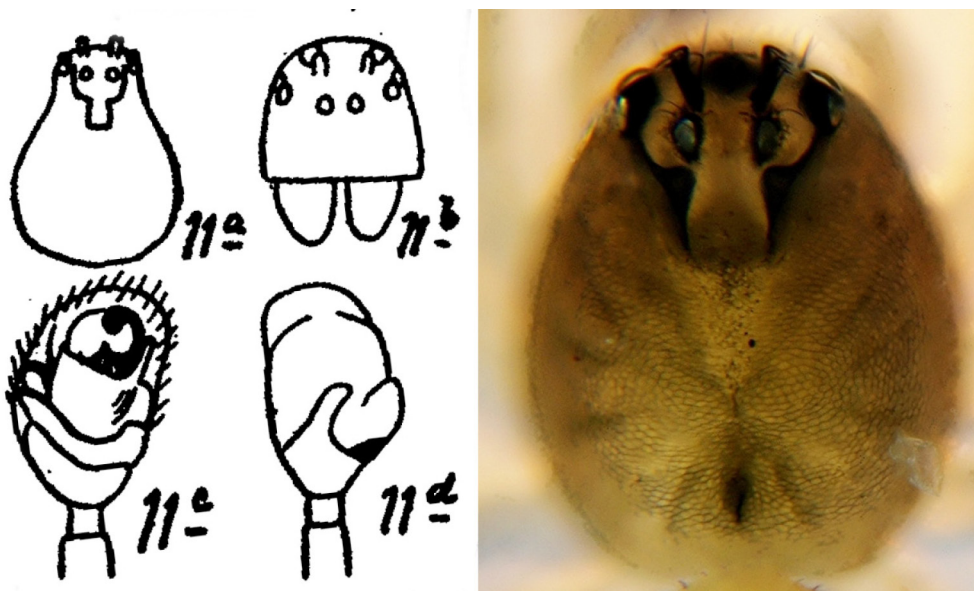


Fig. 3: Kolosváry’s (1934a: fig. 11a–11d; left) illustrations of *Panamomops strandi* from Kozárovce (Hungarian: Garamkovács) and the prosoma of a *Saloca dicerus* male from the Bükk mountains, Hungary (right) (photo Walter Pflieger).

Pardosa luctinosa marina (Kolosváry, 1940) =

Pardosa luctinosa Simon, 1876 **syn. nov. (Lycosidae)**

Pardosa luctinosa etsinensis Schenkel, 1963 =

Pardosa luctinosa Simon, 1876 **syn. nov. (Lycosidae)**

Kolosváry described *Pardosa luctinosa marina* as a new subspecies of the halophilous *Pardosa entzi* (Chyzer, 1891), a species known at that time from Transsylvania (Romania) and Triest (Italy). He argued that the occurrence of his specimens in salt marshes widely separated from the salt lakes of the type locality in Transsylvania supported the idea that they constituted a geographically and genetically isolated subspecies, characterized by subtle differences in the structure of the epigyne. The illustrations, however, both in the original description and in Kolosváry (1942), indicate that the supposed differences fall well within the intraspecific variability of the species, and since Tongiorgi (1964) synonymized *P. entzi* with *P. luctinosa*, a widespread species found in saline locations from Spain to western China, the zoogeographic argument for genetic isolation no longer holds. The easternmost populations of *P. luctinosa* were for some time considered a separate subspecies, *P. l. etsinensis* Schenkel, 1963, for example by Yin et al. (1997). However, this form, described on the basis of specimens from the Chinese province of Gansu (not Inner Mongolia, as stated in the original description), falls within the continuous spectrum of intraspecific variation of *P. luctinosa* just like *P. l. marina* and *P. taxkorgan* Song & Haupt, 1995. A female syntype of *P. l. etsinensis*, Naturhistorisches Museum Basel 20721a, "Grenze Chara-Sucha, l. Ufer d. Etsingol" = border of Khara-Sukhay (probably Khara-Sukhe well, in the northeast of Jinta County, Gansu Province), left bank of the river Etsin Gol = Ruo Shui, leg. Potanin, 23.-29.VII.1886, was examined by ThB. The *etsinensis* form was established by Schenkel based on comparison of his material to the original figures of *P. entzi* (Chyzer, 1891) (= *P. luctinosa*). As diagnostic characters he mentioned the larger and more robust ("größer und plumper") median apophysis of the male pedipalp, and a less regular triangular median septum of the female epigyne with slightly concave sides, a convex baseline, deeper, more rounded lateral pits and without a median groove. For each of these characters one can argue that Schenkel's illustrations more closely match typical *P. luctinosa* than do Chyzer's rather schematic figures. More recent Chinese works no longer list *etsinensis* as a distinct form (Song et al. 1999). Tongiorgi (1964) continued to treat the two subspecies as valid, arguing that perhaps these had evolved in ecologically isolated populations of a species formerly spread around the coasts of the Sarmatian Sea. For *P. l. marina*, this argument seems inconsistent for two reasons: firstly, it is difficult to see how one subspecies (*P. l. luctinosa*) could maintain genetic coherence on a transcontinental scale, while at the same time another subspecies would diverge on the most local scale. Secondly, and perhaps more importantly, there is no indication of an ecological differentiation between *P. l. marina* and the nominate form, both of which occur on Mediterranean salt marshes – if anything, *P. entzi*, from inland saline locations, could be considered ecologically distinct, but this taxon was explicitly synonymized with the nominate form by Tongiorgi (1964). For *P. l. etsinensis*, the case is less clear. The geographic distance and the apparently less halophilic habitat requirements (Hu & Wu 1989, Zhao 1993) could indicate a divergence at the species level. It is also noteworthy that Chinese

specimens reported as *P. luctinosa* have come from elevations ranging from 250 to 2400 m (Hu & Wu 1989), while the type locality of *P. taxkorgan* (= *P. luctinosa*, according to Song et al. 1999) is Mingteke, in the Karakorum Mountains, 4200 m above sea level (Song & Haupt 1996). Here, as in analogous cases elsewhere in this article, the suggested synonymy should not be considered the last word on these forms, but merely reflects the latest taxonomic treatment as presented by Song et al. (1999) and other Chinese authors. It is certainly possible that a future comprehensive revision of *P. luctinosa* will reveal that multiple species are involved, especially in the Far East.

Poecilochroa hungarica Kolosváry, 1934 = *Aphantaulax trifasciata* (O. Pickard-Cambridge, 1872) **syn. nov. (Gnaphosidae)**

This species was described in Kolosváry (1934a) as follows: "Female. Total length 7 mm; opisthosoma with four white spots; femora thick and dark; sternum black; coxa I black, coxa II brown, coxa III dark yellow, coxa IV light yellow; venter black." The single specimen was found in a robinia forest in Ágasegyháza (Hungary). Illustrations of the wet and dry epigyne were provided. They indicate that this species is not a *Poecilochroa* species, but *Aphantaulax trifasciata*, which has a similar striking pattern of white spots (in fact, the pattern in this species is more likely to be described as consisting of four spots, than that of *Poecilochroa*, where there are usually two white spots, and an additional white patch in the front and back of the opisthosoma). The black femora and progressively lighter coxae also match this species, but most importantly so does the epigyne, which was illustrated highly schematically, but clearly shows a round epigynal groove (oval in the closely related *A. cincta*) far anterior of the epigastric furrow (much closer to the epigastric furrow in *Poecilochroa* species). In the drawings, the receptacula are visible as two dark structures at the posterior margin of the epigynal groove and further support the identification, as does the characteristic pigmentation in the area anterior of the epigynal groove.

Sintula affinioides Kolosváry, 1934 =

nomen dubium (Linyphiidae)

Judging from the description in Kolosváry (1934b), which compares this species to *Sintula affinis* (= *Agyneta affinis*), and the illustration of the epigyne, there can be no doubt that this name refers to an *Agyneta* species. Given the large number of very similar species in this genus, no identification is possible at the species level.

Sitticus penicillatus adriaticus Kolosváry, 1938 =

nomen dubium (Salticidae)

This subspecies was described by Kolosváry (1938b) on the basis of a single female from Ragusa (= Dubrovnik), Croatia, without description, but with a comparative illustration of the epigyne (both wet and dry), contrasting the shape to that seen in the nominate form, as well as that of *Habrocestum bovaei* (Lucas, 1846) [N.B.: this, rather than *H. bovei*, is the correct spelling of this species, which is named after Nicolas Bové, latinized by Lucas as Bovaeus, possibly in analogy to Linné/Linnaeus. Curiously, the italics font used for the species names in the main text does not distinguish between 'oe' and 'ae' ligatures, but the index in each case clarifies the intended spelling unambiguously. Thus, for instance, *Salticus Ravoisiaei* (= *Neaetha r.*; named after Amable Bonaventure Ravoisié,

Ravoisiaeus), but *S. moestus* (= *Heliophanus m.*) and *S. durioei* (= *Pellenes d.*), the latter being named after Michel Charles Durieu de Maisonneuve, latinized consistently as Durioeus)]. Given the general difficulties of distinguishing the species in this group, even when material is available for microscopic examination (see, e.g., Braun 1963), it seems hopeless trying to identify this form based on the rough sketches of the epigyne provided. It seems clear that *adriaticus* is not conspecific with the species illustrated by Kolosváry as typical *S. penicillatus*, but even the identity of the latter is dubious.

Syedra caporiaccoi Kolosváry, 1938 =
nomen dubium (Linyphiidae)

This species was described by Kolosváry (1938b) based on a single female found in the Igman Mountains west of Sarajevo, Bosnia-Herzegovina. The description is unusually detailed: “Small, body entirely black; eye arrangement as in all species of the genus; the sternum shiny black; total length 1.5 mm; legs and pedipalps light yellow, with sparse hairs; epigyne dark.” The epigyne was compared to that of *Diplocephalus helleri* (L. Koch, 1869) (sub *Plaesiocracerus* [sic!] *eborodunensis*), but the illustration of the epigyne shows not the slightest similarity to the structures seen in that species. The species was also stated to be similar to *Syedra nigrotibialis* Simon, 1884, from which it differed by the shape of the scapus of the epigyne, as well as the uniformly coloured legs. Given the inconsistent description and what appears to be an extremely stylized illustration of the epigyne, it seems unlikely that this species will ever be identifiable with any confidence.

Tapinocyba barsica Kolosváry, 1934 =
nomen dubium (Linyphiidae)

The description in Kolosváry (1934a) is extremely concise (“Male. Total length 1 mm; uniformly grey”). The schematic illustration of the pedipalp confirms that this might indeed be a *Tapinocyba* species, but even this is not certain, and no further identification seems possible.

Tapinocyba transsylvanica Kolosváry, 1934 = **nomen dubium (Linyphiidae)**

The description by Kolosváry (1934b) is so superficial, and the illustration of the epigyne so schematic, that even the generic placement of this species is doubtful.

Tiso strandi Kolosváry, 1934 = **nomen dubium (Linyphiidae)**

This species was described by Kolosváry (1934a) as being closely related to *Tiso aestivus* (L. Koch, 1872), but the illustrated wet and dry epigyne does not show any similarity to that of the *Tiso* species. Some similarity seems to exist to the epigynes of *Araeoncus humilis* (Blackwall, 1841) and *Diplocephalus latifrons* (O. Pickard-Cambridge, 1863). The remaining brief description (“Female. Total length 1.5 mm; prosoma yellow; opisthosoma grey”), however, does not allow a confident identification with either of these species.

Xysticus strandi Kolosváry, 1934 =
nomen dubium (Thomisidae)

This species was described as being distinguished from all other *Xysticus* species known to Kolosváry (1934a) by its characteristic epigyne, which was said to be similar to, but certainly not identical to, that of *Xysticus kochi* Thorell, 1872.

The illustration shows some similarity to the epigyne of *X. kochi*, but even more so to that of *X. gallicus* Simon, 1875. Unfortunately, it is too schematic to allow a confident identification.

Zelotes similis hungaricus Kolosváry, 1944 =
Zelotes similis (Kulczyński, 1887) **syn. nov. (Gnaphosidae)**

Unusually for Kolosváry's new taxa, this subspecies was described by Kolosváry (in Kolosváry & Loksa 1944) on the basis of “three entirely identical specimens, thus it is impossible that this is just an aberration or individual variation”. Kolosváry instead suggested that the form might be a local modification (“Standortsmodifikation”), specific for the type locality (Kászonfördő = Iacobeni, Romania) as in other locations the typical form was found. The new form was characterized by an epigyne that has convex rather than concave margins and is “much broader, more robust and shorter” than in the typical form. The comparative figures supplied with the description show that the epigyne of the new form is perfectly within the range of variation seen in *Z. similis* (see, e.g., Grimm 1985); the illustration for the supposedly “typical” form is, however, much narrower than expected. This indicates the possibility that perhaps Kolosváry's *Z. similis* were misidentified and actually belonged to another species. Alternatively, it is possible that Kolosváry exaggerated the distinguishing characters for clarity. In any case, it seems justified to synonymize *Z. s. hungaricus* with the nominate form.

Zilla diodia embrikstrandii Kolosváry, 1938 =
Zilla diodia (Walckenaer, 1802) **syn. nov. (Araneidae)**

This name was introduced by Kolosváry (1938a) for a variety of *Z. diodia* in which the colouration of the prosoma showed an unusual inverted pattern, with a light cephalic area, and a dark thoracic part, rather than the typical dark head region on a lighter background. In addition, the form found in Santa-Eufemia, Calabria, Italy, had a shorter epigynal scapus and a more elongated opisthosoma. The description states that “intermediate forms do not occur”, which would imply that a larger number of specimens was examined. While this might indeed be a local variety, it seems very unlikely that a genetically isolated subspecies of such a widely distributed species (found throughout the entire Western Palaearctic, including North Africa) could have evolved in this zoogeographically indistinct area of southern Italy. We therefore consider *embrikstrandii* as an infrasubspecific variety.

Dubious species of jumping spiders (Salticidae)

Attus viridimanus (Doleschall, 1852) = **nomen dubium**

For this species, just as for *Sitticus manni* (see below), the type material (from walls and boarded fences around Vienna and in Upper Hungary) is lost, but a figure is included among a collection of drawings prepared by Doleschall and recently discovered by Thaler & Gruber (2003) in the archives of the Natural History Museum in Vienna. This illustration confirms the impression that the currently accepted synonymy with *Evarcha arcuata* (Clerck, 1757) is certainly wrong. Reimoser (1919), who seems to have first suggested this synonymy, did not provide any arguments in its favour. *A. viridimanus* is obviously a *Heliophanus* species, possibly *H. auratus* or *H. cupreus* (Fig. 4). The description confirms this assessment, as it refers to a deeply black species (“nigerrimus”), with shiny purple



Fig. 4: Illustration of *Attus viridimanus* by Doleschall (unpubl.) in the collection of the Natural History Museum Vienna (top) and a female of an unusual variant of *Heliophanus cupreus* showing the green metallic sheen on the surface of the pedipalps that probably gave *A. viridimanus* its name (bottom) (photo Michael Schäfer)

hairs on the opisthosoma and a green surface of the otherwise black palp. Only the patellae and tarsi of all legs, and the tibiae and metatarsi of leg I, are yellowish. A confident assignment to a specific species is, however, not possible.

Dendryphantès lanipes C.L. Koch, 1846 =
Philaeus chrysops (Poda, 1761) **syn. nov.**

The original description of this species (Koch 1846a: 90-91, Tab. CCCCXLVII, Fig. 1152), based on the female only, points out the similarity with *Dendryphantès dorsatus*, which is currently considered a synonym of *Philaeus chrysops*. The type locality is indicated as “Süddeutschland. — Tyrol.”, which most likely refers to Tyrol, which at the time was part of the Austrian Empire and is now divided between Austria and Italy. The species was described as a spider of 3.5” (7.9 mm) total length, with a brown-black prosoma, which shows a white pattern of hairs forming three subtriangular dots between the anterior eyes, and a longitudinal band along the sides, which turns towards the middle in front of the posterior lateral eyes, almost reaching the centre of the head area. The face was covered in white hairs and white bristles, mixed with rusty-red towards the eyes. The chelicerae were black, the sternum black with yellowish-grey hairs, the opisthosoma white, with a broad longitudinal black band, broadest in the middle and barbed towards the back, with two white oblique spots in the middle. The sides, around the white dorsum, were a mixture of white, black and rust-coloured, darker towards the top, while the venter was covered in whitish hairs. The reddish-white legs, with black annulation at the tip of the segments, as well as the pedipalps, were covered densely in white hairs, with some black spines. The accompanying figure differs from this description in that it shows a much more reddish-brown specimen, without the white pattern, but instead with a very noticeable white margin along the prosoma, which is not mentioned in the text.

Simon, in his youthful first edition of the ‘Histoire Naturelle des Araignées’ (Simon 1864, published at the tender age of 16), listed this species as a synonym of *Dendryphantès semilimbatus* (Hahn, 1829) (= *Menemerus s.*). This seems a reasonable choice, given the figure of the species in Koch’s work, but does not match the description in the text. Four years later, in his monographic treatment of the Salticidae, Simon considered *D. lanipes* as a valid species, describing female specimens from southern France and Italy (Simon 1868). However, only four years later he expressed doubt about his



Fig. 5: Illustration of *Dendryphantès lanipes* in the original description (left: Koch 1846a: Fig. 1152) and a juvenile specimen of *Philaeus chrysops* from Turkey, showing several of the important diagnostic characters mentioned in the description of *D. lanipes* (photos Rainer Breitling)

correct identification of these specimens (Simon 1868), noting a remarkable similarity to *Attus bicolor* (= *Carrhotus xanthogramma*), and in his final analysis in 'Les Arachnides de France', he explicitly placed his specimens in the synonymy of the latter species.

Nevertheless, despite the historical confusion, based on the description in the text, and taking into account possible deviations in colour scheme during the manual illumination of the plates in Koch's work, it seems clear that *D. lanipes* is in fact a subadult specimen of *Philaeus chrysope*. This species is highly variable, but all the major features of the pattern, including the very distinct set of bent white lines on the prosoma, which is the main concordant character in text and figure, can be found in *P. chrysope* specimens (Fig. 5). The colouration of the dorsum in this species is very variable, but predominantly light grey specimens are known for adult males and females, and the contrast compared to the dark midline might have led to a slight exaggeration of the brightness. The size, distribution and abundance of the species seem to support this identification. It seems therefore justified to consider *Dendryphantes lanipes* a junior synonym of *Philaeus chrysope*.

Euophrys rosenbaueri L. Koch, 1856 =
Menemerus semilimbatus (Hahn, 1829) **syn. nov.**

Immediately following the description of *Dendryphantes jugatus* (= *Philaeus jugatus*; see below), Koch described this slightly larger species based on two males collected from shrubs close to Cádiz, Spain. According to the description, the specimens, which were 3.5" (approx. 8 mm) in length, had a black prosoma with a white triangular spot pointing forward between the eyes and a broad bright white margin. The pedipalps were characterized by bright white scaly hairs on the patella and tibia, while the cymbium was black. The opisthosoma was rusty-brown, with a white dusting and a yellowish-white longitudinal spot in the middle and small white arcs towards the side, which was off-white in colour. The legs were covered in yellowish-white scaly hairs and long black bristle hairs. The femora of the first pair of legs were thicker than the others. There can be no doubt that this description refers to the highly distinct male of the common South-European jumping spider *Menemerus semilimbatus*, despite the fact that the specimens are reported as having been collected on shrubs („auf Gesträuch"), a rather unusual habitat for this species.



Fig. 6: A dark, almost melanistic, specimen of *Evarcha falcata* (photo Mario Freudenschuss)

It is curious that Koch himself did not notice this affinity, in particular as his father had described and illustrated the species (as *Euophrys vigorata*) ten years earlier (Koch 1846b), based on numerous male and female specimens from Greece, but one might want to take into account the fact that the report on Rosenhauer's collection was one of Koch junior's very first arachnological publications.

Evarcha falcata nigrofusca (Strand, 1900) =
Evarcha falcata (Clerck, 1757) **syn. nov.**

Strand introduced the name *nigro-fusca* for a dark variant of *Evarcha falcata* that was "almost uniformly black-brown, so that even the transverse band on the prosoma is indistinct". He explicitly stated that this form, which was first described by Menge (1877), is just an extreme expression of an otherwise continuous spectrum of variation, which links the darker specimens to the more typical lighter form of this highly variable species. It is thus clear that *nigrofusca* is not a subspecies in the modern sense, but a synonym of the nominate form. A specimen of the dark form is shown in Fig. 6.

Heliophanus auratus mediocinctus Kulczyński, 1898 =
H. mediocinctus Kulczyński, 1898 **stat. nov.**

This variant was first described on the basis of multiple male and female specimens from the Anninger and Gaisberg mountains north of Vienna, Austria (200–400 m a.s.l.). The type locality is probably contained today within the Naturpark Föhrenberge, which is characterized by limestone woodlands and xerothermic meadows. It was reported to be morphologically identical to the nominate form ("formâ non distinctus"), but differing in its opisthosomal pattern, which not only showed a posterior pair of more or less transverse white spots, but a second pair of spots slightly anterior of the middle, which were arranged as a narrow recurved transverse band across the opisthosoma, widely separated in the middle. This narrow band was almost always present, and only in older specimens was reported as becoming less distinct. Very rarely the narrow band was replaced by a pair of rather thick transverse spots with an elongated external angle.

As Kulczyński was experienced in the genital examination of *Heliophanus* species, as shown for example by his treatment of the group in the 'Araneae Hungariae' (Chyzer & Kulczyński 1891), it seems very unlikely that he misidentified the general affinity of these specimens. As specimens of the typical variety of *H. auratus* were found at one of the type localities of var. *mediocinctus* (Kulczyński 1898: 44), the variety cannot be considered a subspecies in the modern sense. The fact that Kulczyński at that time arranged specimens of *H. auratus* into four full species (*H. auratus*, *H. varians*, *H. exsultans* and *H. nigriceps*) indicates that he applied a rather too narrow species concept in this case, and it would seem possible that *mediocinctus* is just another infrasubspecific variant. However, the opisthosomal pattern does not match the typical expectation for *H. auratus*, nor does the xeric locality: in Central and Northwestern Europe, *H. auratus* is usually found close to bodies of water and in mesic to hydric habitats (Harm 1971, Roberts 1998, Almquist 2006). We have seen several specimens identified as *H. auratus* from xeric localities in Southeastern Europe matching Kulczyński's description of the opisthosomal pattern (Fig. 7). It seems, therefore, justified to provisionally raise the variety described by Kulczyński to full species status,

as *H. mediocinctus*, to draw attention to the possible existence of a genitally cryptic sister species of *H. auratus* in the Southeast of Europe. A definitive decision of the status of this form will rely on examination of a larger amount of material, preferably in conjunction with genetic analyses and breeding experiments.

Myrmarachne formicaria tyrolensis (C. L. Koch, 1846) =
Myrmarachne formicaria (De Geer, 1778)

syn. conf. (Simon 1937: 1150)

This form was initially considered a distinct alpine sister species of *M. formicaria*. Lessert (1910) relegated it to the rank of variety, stating that the genitalia (in males and females) are indistinguishable from those of *M. formicaria*, while the colouration (as seen in the original illustrations by Koch 1846a: Fig. 1097) is also very similar. Simon (1937) finally synonymized the two forms, realizing that none of the supposedly distinguishing characters is reliable. Incidentally, a single female specimen in Simon's collection labelled as being *Myrmarachne tyrolensis* (MNHN Boc. 2308 "Var: [Île de] Bagaud") is in fact *Leptorchestes peresi* (Simon, 1868), the female of which was not yet known to Simon and was only described in 2001 by Wesołowska & Szeremeta (2001).

Philaeus albovariegatus (Simon, 1868) =
Philaeus chrysops (Poda, 1761)

syn. nov. [♂ only; ♀ is *Evarcha falcata* (Clerck, 1757)]

Simon originally assumed this species to be *Dendryphantès fulviventris* (Lucas, 1846), but in an erratum added to his paper recognized his mistake and considered his specimens from Andalusia and Sicily as belonging to a new species. He compared the species to *Dendryphantès bilineatus* (Walckenaer, 1826), which is currently considered a synonym of *Philaeus chrysops*, and confirmed this affinity by the later generic placement of the species. The elevated prosoma was described as being black with light grey hairs on the front of the face and along the sides, as well as in a vague thin line along the middle. The opisthosoma was mottled with grey tufts of hair, and shows two elongated parallel black spots along the middle, which were each decorated with a series of little white spots. The underside was brownish, the pedipalps black, with a reddish cymbium. The front legs were rather thick, the others long (which, if taken literally, would argue against a close relationship to *Philaeus chrysops*); all of them were entirely black with grey rings. Females are only very briefly mentioned in the first description as being very similar, having light yellow pedipalps and all-white facial hair. As Thorell (1873) recognized, Simon had used the presence of an undifferentiated subadult male palp as one of the diagnostic characters of the genus *Dendryphantès*. In his later revision of the species, Simon stated that the female specimens were adult and mentioned that (adult) males have not been found yet. The brief description of the epigyne ("consisting of an arched inferior border and a second, more interior fold following the same curve"). The type material is still available in Simon's collection (MNHN Boc. 2400.753, "His[ania], Sicilia"), and shows that the male specimen is a subadult *Philaeus chrysops* (Poda, 1761), with an already characteristically developed pedipalp, while the female specimen is an adult *Evarcha falcata* (Clerck, 1757). As the original description is almost exclusively based on the male specimen, which also justified the



Fig. 7: A male *Heliophanus* from a wooden fence post in Croatia; the specimen was originally identified as *Heliophanus auratus* and is here provisionally assigned to *H. mediocinctus* on the basis of the locality, habitat and opisthosomal pattern (photo Michael Schäfer)

original and subsequent generic assignments by Simon (first to *Dendryphantès*, then to *Philaeus*), we designate the subadult male as the **lectotype** of the species, with the purpose of stabilizing the future interpretation of this name, in accordance with ICZN Article 74.1.

Philaeus jugatus (L. Koch, 1856) = **nomen dubium**

Like Simon's *P. albovariegatus*, *P. jugatus* was first described based on a specimen from Andalusia (Granada) and initially placed in the genus *Dendryphantès*. The *P. jugatus* female described by Koch has an elevated black prosoma with earth-coloured yellow lines along the sides and above the anterior median eyes. The anterior eyes are surrounded by reddish-brown rings. The pedipalpal femur is dark brown, the other segments yellowish brown. The sternum is black, with yellowish-white hairs. The earthen-yellow legs are annulated in black, the tarsi and metatarsi are reddish with black tips. The opisthosoma is earthen-brown, with black arcs along the sides ("mit schwarzen Bogenstrichchen in den Seiten"), and two black longitudinal lines along the back, which contain little yellow spots. This pattern could possibly match a subadult female *Philaeus chrysops* (compare **Fig. 5** above), especially as the specimen is only 3", i.e. about 6.8 mm in length. However, the description is quite vague, and the type material seems to have been lost (not in the Bavarian State Collection of Zoology, which bought Rosenhauer's collection, where the type was held, after his death). Simon (1876) did not provide a reason for his generic transfer of *D. jugatus* to *Philaeus*, and did not examine material of the species, which he listed as a species *invis*a in 1868, so even the correct genus of this dubious species remains uncertain in the absence of type material.

Philaeus varicus (Simon, 1868) = *Carrhotus xanthogramma* (Latreille, 1819) **syn. conf.** (Simon 1937: 1270)

In his first description of this species, based on a male specimen that he collected at El Escorial in central Spain, Simon compared this species to *Attus haemorrhoidicus*, which is now considered a synonym of *Philaeus chrysops* (Metzner 1999). However, he pointed out that there are some important differences, such as the longer and thinner legs. The opisthosoma was brownish red, with a white margin in front and becoming black towards the centre; the underside was grey. The prosoma was entirely shining black, with a small tuft of brown hairs under each of the posterior eyes. The black-brown legs carried



Fig. 8: Illustration of the pedipalp of *Philaeus varicus* in the original description (Simon 1868: pl. 5, f. 7; sub *Attus*), and a habitus photo of a *Carrhotus xanthogramma* male, showing the precise match to the description of *P. varicus*, including the tiny tufts of hairs under the posterior eyes (photo Michael Schäfer)

long, sparsely scattered white hairs. This description perfectly matches *Carrhotus xanthogramma* (Latreille, 1819), which was previously reported from El Escorial (Fernández Galiano 1910), and the illustration of the pedipalp confirms this identification, despite its rather schematic nature (**Fig. 8**). In fact, Simon himself later recognized this synonymy and listed *P. varicus* amongst the many synonyms of *Carrhotus bicolor* (= *C. xanthogramma*) in Simon (1937: 1270); this decision was not followed in the World Spider Catalog (2016) and is re-confirmed here.

Sitticus manni (Doleschall, 1852) **nomen oblitum** = *Heliophanus melinus* L. Koch, 1867 **syn. nov.**

This species was first described as *Attus Mannii*, based on a single male from Dalmatia (Croatia). While Doleschall's type material is lost, original illustrations of many of the species described by Doleschall were discovered by Thaler & Gruber (2003) in the archives of the Natural History Museum in Vienna. In the case of *S. manni*, the figure exactly matches the

textual description and allows a confident identification of the species: *S. manni* is not a *Sitticus* species as assumed by Reimoser (1919). Given the white patchy pattern of hairs on all legs, which is mentioned in the text and also prominent in the figure, it is also not a *Pellenes* species, as suggested by Thaler & Gruber (2003). There can be little doubt that *S. manni* is in fact a senior synonym of *Heliophanus melinus* (L. Koch, 1867) (**Fig. 9**). While Doleschall's name has been mentioned in various catalogues (see also Prószyński 1990, listing the species as a nomen dubium), to our knowledge it seems never to have been used as a valid name since 1899 in the sense of Article 23.9.1. of the International Code of Zoological Nomenclature (ICZN), while the younger synonym has been in widespread use "in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years" (for example, Bellmann 2010, Buchholz 2007a, 2007b, Cantarella 1974, Coşar et al. 2014, Deltshv et al. 2005, Dobroruka 2004, Fuhn & Gherasim 1995, Fuhn & Oltean 1969, Hansen 1985, 1986, Helsdingen 2013, IJland



Fig. 9: Unpublished illustration of *Attus Mannii* by Doleschall in the collection of the Natural History Museum Vienna (left) and a male of *Heliophanus melinus* from Croatia (right) (photo Michael Schäfer)

et al. 2012, Komnenov 2003, 2006, Kovoov & Muñoz-Cuevas 2000, Kranjčev 2012, Locket et al. 1974, Logunov & Chatzaki 2003, Mcheidze 1997, Metzner 1999, Prószyński 1976, 1991, Roberts 1985, 1995, 1998, Sauer & Wunderlich 1997, Tyshchenko 1971, Wesolowska 1986). We therefore suggest, in accordance with Article 23.9.2. ICZN, treating *Attus manni* Doleschall, 1852, as a **nomen oblitum** and to consider the younger synonym *Heliophanes melinus* L. Koch, 1867, as the valid and protected name of this species.

Philaeus superciliosus Bertkau, 1883 =
Sandalodes superbus (Karsch, 1878) **syn. nov.**

Of all the phantom species amongst the European representatives of *Philaeus*, this one was probably the most challenging to put to rest. *P. superciliosus* was described on the basis of a single male specimen which was dried up and heavily worn. The specimen was collected in the Aachen area (Germany), but detailed collection data were not available, and the original description already speculated that the species was probably introduced, most likely with dyewood for the textile factories of the region (the same volume of the journal in which the description appeared contains a detailed article on introduced species found on imported wood; Stollwerck 1883). Simon, who had seen the specimen, speculated that it might be a Brazilian species (cited in Bertkau & Förster 1883). The holotype could not be found in the Senckenberg Museum Frankfurt, nor in the Museum Koenig Bonn, and is probably lost.

In these circumstances, a confident identification might seem close to impossible. However, Bertkau (in Bertkau & Förster 1883) not only provided a detailed description, but also good illustrations of the habitus and pedipalp of his specimen. A number of features were noticeable: the large size, of 12 mm; a dense fringe of stout brown hairs across the entire width of the front of the prosoma; a pit covered by white hairs between the posterior lateral eyes; a strong hook-shaped retro-lateral tibial apophysis; a short, straight, distally located embolus, in a deep groove of the truncated cymbium; a prominent white square spot on the opisthosoma, which extends into white lines in the four corners; and thickened femora, patellae and tibiae of the first two pairs of legs. None of these features

is individually diagnostic, but in combination, it appears that they only match one species of jumping spider, the Indo-Australian *Sandalodes superbus* (Salticinae: Mopsini; Maddison 2015; **Fig. 10**). The illustration of the pedipalp seems to be an exact match to figures provided by Hickman (1967; sub *Bavia ludicra*) and Žabka (2000), and none of the characters mentioned in the description contradicts this identification. *S. superbus* shows not only the closest match regarding its genitalia, but is also the largest and most common representative of its genus. The distribution and life history of the species provide further support: the species is widespread from Tasmania to Papua New Guinea (Žabka 2000), where it is arboricole and often found on and under bark (Hickman 1967), making an accidental import with dyewood quite plausible.

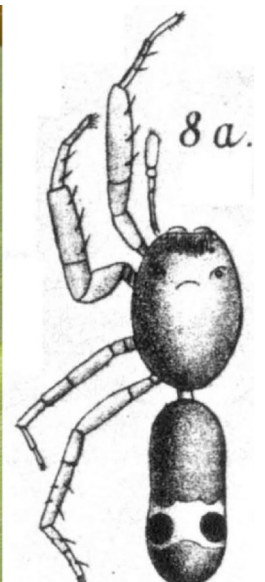
Sitticus walckenaeri Roewer, 1951 = **nomen dubium**

This species was originally described as *Aranea nigra* (preoccupied by *Aranea nigra* Petagna, 1787 = *Eresus* sp.) by Walckenaer, in 1802, from the Paris region. The original description was extremely brief: the species was a jumping spider (Walckenaer soon after, in 1805, placed it in the newly created genus *Attus*), and its “prosoma, opisthosoma and palps are black; the petiolus and tips of the legs grey” (“Corcelet, abdomen et palpes noirs; pédicule et extrémité des pattes gris.”). Thirty-five years later, Walckenaer (1837) slightly expanded on this description, adding that his female specimen, collected in June, was 2” (about 4.5mm) in length and “the fourth pair of legs is longer than the first, and the third a bit longer than the second. The femora are black below”.

Despite this very generic description, entirely black jumping spiders are sufficiently rare in Europe for several subsequent arachnologists to have felt confident enough to identify Walckenaer’s species. The first of these seems to have been Sundevall (1833), who claimed to have observed the same species in Sweden; he provided a slightly more detailed description, stating that his two male specimens, collected in June 1824 in Gotland, were rather close in size and habitus to *Salticus scenicus*, the prosoma being twice as long as broad, the robust legs being similar in length (order 4-1-2-3), with the fourth pair being a quarter longer than the others, twice as long as the prosoma. The total body, except the whitish book



Fig. 10: Habitus of a *Sandalodes superbus* male from North Queensland, Australia, compared to the habitus illustration of *Philaeus superciliosus* provided by Bertkau (photo Greg Anderson)



lung covers and the grey venter, is pitch-black, but the face is sparsely covered with yellowish-grey hairs. The joints and tips of the legs are a lighter black (“dilutius picei”).

The World Spider Catalog currently lists Sundevall’s *Attus niger* as a synonym of *Pblegra fasciata* (Hahn, 1826). However, later arachnologists did not consider this identification self-evident and, most importantly, doubted the identification with Walckenaer’s species. Westring (1851) originally considered *Attus niger* as a synonym of *Euophrys aprica* (= *Pblegra fasciata*), but in 1861 listed Sundevall’s *A. niger* among the dubious species and put a question mark behind the synonymy with *Aranea nigra* Walckenaer. In this, he was followed by Thorell (1873), who felt that Sundevall’s species was probably an *Epiblemum* (= *Salticus*) species, but “dare[d] not offer any further conjecture on this very doubtful species”.

In the meantime, Simon (1871), in a supplement to his monograph of the European jumping spiders, had described a single female specimen of what he considered to be *Attus niger* Walckenaer, a “very rare species” from the Paris region, which he places in the *pubescens* group (containing *Sitticus* and *Pseuduophrys* species, among others), close to *Sitticus pubescens*. He emphasised that the species had previously been confused with the male of *Attus fasciatus* (= *Pblegra fasciata*) by various authors, but is quite distinct. While the described specimen seems to be larger than Walckenaer’s material (5.5 mm), the fact that Simon did not have any location data beyond “environs de Paris” suggests that this was indeed part of the type series. Thorell (1873), who also examined Simon’s (and thus presumably Walckenaer’s) specimen, considered it an *Attus* species in the strict sense (which at the time still included diverse genera such as *Sitticus*, *Pellenes* and *Evarcha*), but did not note any further affinities to known species. In an expanded description Simon (1876) provided further detail, and the specimen became considerably more colourful than before: prosoma and opisthosoma are decorated by a reddish-brown pubescence (“garnis de pubescence fauve-rouge”), sparsely on the prosoma, more densely on the opisthosoma. The clypeus is covered, not very densely, by long, white hairs; the coxae, the base of femur III and IV, and the tarsi and metatarsi, especially of the anterior legs, are olive-brown; the pedipalps are dark brown at the base, reddish-brown towards the tip, with white hairs covering the distal segments. Even the epigyne is described: it is a smooth black plate, marked with a rather large and shallow heart-shaped depression containing two very small rounded projections. Nevertheless, Simon (1937) finally reassessed his views and stated that “it is impossible to know what Walckenaer’s *Attus niger* might be”. No new evidence seems to have come to light since then, and the name remains dubious, especially as a search for material of this species in Simon’s collection turned out unsuccessful.

Miscellaneous other phantom spiders

Alopecosa accentuata (Latreille, 1817) =

nomen dubium (Lycosidae)

Alopecosa accentuata auct., nec (Latreille, 1817) partim =

Alopecosa farinosa (Herman, 1879) **comb. nov. (Lycosidae)**

Alopecosa barbipes oreophila Simon, 1937 = *Alopecosa farinosa* (Herman, 1879) **syn. nov., comb. nov. (Lycosidae)**

The “phantom spider” *Alopecosa barbipes oreophila* was first described by Simon (1876) as an unnamed alpine variant of *A. accentuata*, distinguished from the Parisian variety of the

species by the lack of the characteristic brush of black hairs on the underside of tibia I. The description as a named “local race” in 1937 repeated this lack of a black brush of hairs as the main distinguishing feature, and mentioned that the species was common on high grasslands, in the Alps of the Dauphiné and Provence in southern France. It seems clear that Simon’s typical Parisian “*A. accentuata*” is in fact *A. barbipes*, while his *A. a. oreophila* is what is currently referred to as *A. accentuata* (see Cordes [1994] and Cordes & von Helversen [1990] for a discussion of the relationship of these two species). This immediately causes a nomenclatural problem: the type locality of Latreille’s *A. accentuata* was stated as “environs de Paris”, indicating that this name actually refers to *A. barbipes*. Latreille’s brief and vague description does not allow a distinction between the two species, but Simon’s collection data would seem sufficiently strong evidence against the occurrence of the species currently known as *A. accentuata* around Paris. To minimize the confusion arising from the resulting necessary name changes, we suggest considering *A. accentuata* as a nomen dubium, rather than a senior synonym of *A. barbipes*, in agreement with Roewer’s (1955) assessment of the species as “nicht zu deuten” and supported by Dahl’s opinion that it was in fact synonymous with *Alopecosa trabalis* (Clerck, 1757), rather than the *A. accentuata* or *A. barbipes* of later authors.

In this case, the species currently referred to as *Alopecosa barbipes* maintains its established name, but the current *A. accentuata* unfortunately still needs to be renamed. This is a rather radical step, probably the most undesirable of all the name changes suggested in this article, and one might be inclined to argue that a more lenient interpretation of the rules would allow maintaining the use of *A. accentuata* in its present sense, if not in the sense of the original author. We have carefully considered this option, but have concluded that the benefits of a strict application of the rules outweigh any potential disadvantages in the long run. First of all, as *A. accentuata* and *A. barbipes* were considered synonymous for almost a century, and the independent status of the two species was only fully recognized quite recently (Dahlem et al. 1987), the resulting instability should not be too disruptive. More importantly, it might in fact be beneficial if it can stimulate a reassessment of the identity of earlier records of the species. For example, numerous references listed under *A. accentuata* in the World Spider Catalog (Sundevall 1833, Simon 1864, 1937, Ohlert 1867, Menge 1879, Holm 1947, Wiebes 1959) almost certainly refer to *A. barbipes*. The situation had become somewhat more stabilized in recent years, but as important identification guides did not distinguish the two sister species (Bellmann 1997, Heimer & Nentwig 1991), a large number of quite recent records of *A. accentuata* actually refer to *A. barbipes*. As recently as 2013, some influential publications considered *A. accentuata* to be a senior synonym of *A. barbipes* (Mikhailov 2013a, 2013b). Thus, in contrast to *A. barbipes*, which seems to have been used unambiguously and consistently for at least the last 20 years, *A. accentuata* does not have a consistent tradition of prevailing use that needs to be preserved. As the species currently known as *A. accentuata* is not known to occur in the type locality of the species, the designation of a neotype (which is required to come “as nearly as practicable from the original type locality” ICZN Art. 75.3.6) is not an option. The oldest

available name unambiguously referring to the sister species of *A. barbipes* is *Lycosa farinosa* Herman, 1879, described from Hungary. This synonymy is supported by Chyzer & Kulczyński's (1891) examination of a male specimen identified by Herman and by biogeographical arguments: *A. accentuata* in the current sense is considered a Central European species, found in areas with a continental climate, in contrast to *A. barbipes*, which seems to be restricted to areas with an oceanic climate in western Europe (Cordes 1994, Cordes & von Helversen 1990).

Araneus angulatus atricolor Simon, 1929 =
Araneus angulatus Clerck, 1757 **syn. nov. (Araneidae)**
Araneus angulatus personatus Simon, 1929 =
subspecies inquirenda (Araneidae)

These two forms were described by Simon as individual varieties of the highly variable *Araneus angulatus*, the first one applying to melanistic specimens, the second one to specimens with a pattern of black marks on a white-greenish or bluish background. While material of the former variety could not be found in Simon's collection, a single female from the original type series of the latter was still present (MNHN Boc. 2498.2787, "Ht. pyr.[Hautes pyrenées]: Cauterets"). The genitalia of this strikingly coloured specimen show that it belongs to *Araneus angulatus*. The colouration shows a remarkable similarity to that of the black-and-white form of *Araneus nordmanni* (Thorell, 1870), as Simon already had noticed; however, the latter clearly differs in its genitalia and details of the pattern. The *personata* form has apparently also been found in Dorset, Great Britain, as O. Pickard-Cambridge (1896) illustrates a variant specimen (sub *Epeira angulata*) that is closely similar to the type of *personatus*. However, most recent records of *A. angulatus personatus* come from Spain (see documentation at <http://www.biodiversidadvirtual.org/insectarium/Araneus-angulatus-personatus-Simon-1929-cat40756.html>), suggesting a geographic restriction of this form. Hence, the possibility of *personatus* representing a genetically cryptic sister species in South-Western Europe cannot be excluded with certainty at the present, and further study is required to decide the status of this form. In addition to genetic analyses, it would be interesting to perform breeding experiments to characterize the inheritance of the different colour morphs.

Synonymy with the nominate form can, however, safely be assumed for the *atricolor* variant, the description of which matches the commonly observed dark form of *A. angulatus*.

Araneus diadematus nemorosus Simon, 1929 =
Araneus diadematus Clerck, 1757 **syn. nov. (Araneidae)**

This form, found in "toute la France", was described by Simon with the explicit comment that he did not consider it a subspecies, but rather as a local variety at the extreme of a continuous character gradient. According to the description, it replaced the typical form in forests and under trees, as well as sometimes in marshes. It was described as being characterized in the female by a more slender built and most often a cinnamon-red colouration. Numerous males and females assigned to this form are present in Simon's collection (MNHN Boc. 2483 "forme silvicole, Gallia"). Their genitalia and pattern clearly show that this taxon is synonymous with the nominate form.

Araneus diadematus soror (Simon, 1874) =
Araneus diadematus Clerck, 1757 **syn. nov. (Araneidae)**

This form was originally considered a distinct species, restricted to Corsica, which differs from *Araneus diadematus* only in the constant and remarkable arrangement of the spines on tibia II of the males (which are long and sparse). Later, Simon (1929) considered these specimens as probably just individual, perhaps even accidental variants of *A. diadematus*, as the females were indistinguishable from typical specimens of the latter (the original description being based on subadult female specimens). Material labelled as *Araneus soror* is still available in Simon's collection (MNHN Boc. 2517.158 "Corsica", 16♀♀, 2♂♂). It shows that the tibiae of the males indeed differ from typical specimens of *A. diadematus* in the absence of numerous short, stout spines on the prolateral surface of tibia II, which are replaced by fewer, longer setae. Nevertheless, according to Grasshoff's (1968) careful analysis of the morphological variation in this and related species, this spination pattern falls within the range of intraspecific variability of *A. diadematus*, and in fact Grasshoff already implicitly synonymized *soror* with the nominate form. The examination of the genitalia in Simon's material supports the synonymy.

Araneus pyrenaicus (Simon, 1874) =
Araneus pallidus (Olivier, 1789) **syn. nov. (♂ only; ♀ is**
Araneus diadematus Clerck, 1757) **(Araneidae)**

This species was described by Simon as being very similar to *Araneus diadematus*, but distinct, e.g., in the male genitalia. In 1929, Simon realized that the female had been misidentified and actually belonged to *Araneus diadematus* var. *nemorosa*. This led Roewer (1942) and subsequently the World Spider Catalog to list *A. pyrenaicus* as a synonym of *A. diadematus*. However, this is not correct, as Simon later explicitly stated that the male specimen should be considered as the type of the species ("seul type de l'espèce", Simon 1929: 757, footnote 3), equivalent to a designation of the male specimen as the **lectotype** of the original mixed type series according to ICZN article 74.5. The original types seem to be lost, but Simon's collection contains a number of later specimens, both male and females (MNHN Boc. 2498.670 "R. Castillon, 16.VIII.1915", 1♂; MNHN Boc. 2498.8570 "Portugal", 1♂; MNHN Boc. 2498.21773 "Vendôme, Oct. 1910", 1♀). All of these are *Araneus pallidus*, the male of which was unknown to Simon. This also agrees very well with the original description, which states that the prosoma of the male *A. pyrenaicus* is only 2 mm long (the typical length for *A. pallidus* males, but far too short for *A. diadematus* or other related species [Grasshoff 1968]), and that the tibiae II are not thickened and carry only spines that are longer than their diameter. The distribution of the species – the type was originally considered as coming from Vernet-les-Bains, France, but actually was collected in Spain (Simon 1929) – also agrees with the known Western Mediterranean distribution of *A. pallidus*. Thus, even in the absence of the type material, the synonymy seems strongly supported.

Cheiracanthium cuniculum Herman, 1879 =
nomen dubium according to Chyzer & Kulczyński (1918),
 cited in Samu & Szinetár (1999) **(Eutichuridae)**

The holotype of this species seems to have been lost and was

possibly destroyed in a fire in the collections of the Hungarian Natural History Museum during the 1956 revolution (Dányi pers. comm. June 2015). The drawing of the female genitalia in the original description shows a very generic *Cheiracanthium* epigyne, and the text is so brief and vague that no identification beyond the generic placement is possible. The epigyne is described as follows in the Hungarian description (but not in the German text): “The epigyne is a brown, slightly domed double plate [?], that has kidney-shaped halves that touch each other only on the upper side enclosing a narrow, light-coloured circle above the respiratory opening [A zár egy barna, kissé domború, kettős tércséből [sic] áll, melynek felei vesealakúak s csak felül érintkeznek, a légzőrés felett pedig keretét képezik egy szűk, világos körnek.]” This could match several species of *Cheiracanthium* known from the region, and Chyzer & Kulczyński (1918) had previously considered the species a nomen dubium.

Cresmatoneta eleonora (Costa, 1883) = *Cresmatoneta mutinensis* (Canestrini, 1868) **syn. nov. (Linyphiidae)**

Cresmatoneta mutinensis orientalis (Strand, 1914) = *Cresmatoneta mutinensis* (Canestrini, 1868) **syn. nov. (Linyphiidae)**
Costa described *C. eleonora* based on material from Sardinia. He was obviously aware of Canestrini's *C. mutinensis*, as he placed his specimens in the same genus, but in his four-line description of the new form, he only mentioned generic characters (in particular the strongly attenuated posterior end of the prosoma) and features of the colouration that apply equally well to *C. mutinensis* (three yellow spots on each side of the brown opisthosoma; yellow legs, the femora of the two posterior pairs blackened). Costa's type material is in all probability lost, but Kullmann (1964) who examined topotypical material (now in the collection of the Senckenberg Museum Frankfurt; SMF 59706–124) concluded that the Sardinian specimens undoubtedly belonged to *C. mutinensis* and that it was more than questionable that *C. eleonora* could be a separate species (“es [ist] inzwischen mehr als fraglich, ob *Cresmatoneta eleonora* eine echte Art ist”). In view of this, the synonymy of *C. eleonora* and *C. mutinensis* seems beyond doubt. The same is true for the (non-European) “subspecies” *C. mutinensis orientalis*, described by Strand (1914) based on a single male from Rehovot or Jaffa (Israel). The description leaves no doubt that this name was not suggested for a subspecies in the present sense, but for an individual colour variant. A typical *C. mutinensis* had been found at the same locality five days earlier. Strand compared the colouration of the *orientalis* form to that of *Pachygnatha degeeri*, which is a rather fanciful, but not entirely inappropriate description of the pattern seen in light specimens of *C. mutinensis* (when first describing the species, Canestrini had considered his genus *Formicina* [= *Cresmatoneta*] as closely related to *Pachygnatha*). Given the highly characteristic habitus of *Cresmatoneta*, confusion with another species seems impossible; examination of the type material by ThBl in the Senckenberg Museum Frankfurt (SMF 3092–124) confirmed that the specimen is indistinguishable from the typical form in the details of its pedipalp. Records of *C. mutinensis* from Korea and Japan by Namkung (1986), Yaginuma (1986) and Kim & Kim (2000) are based on misidentified specimens of *C. nipponensis* Saito 1988 (Saito 1988, Namkung 2002); thus, the species is restricted to the Western half of the Palearctic.

Cyclosa conica albifoliata Strand, 1907, *Cyclosa conica defoliata* Strand, 1907, *Cyclosa conica leucomelas* Strand, 1907, *Cyclosa conica pyrenaica* Strand, 1907, *Cyclosa conica dimidiata* Simon, 1929, *Cyclosa conica rubricauda* Simon, 1929, *Cyclosa conica triangulifera* Simon, 1929 = *Cyclosa conica* (Pallas, 1772) **syn. nov. (Araneidae)**

These seven varieties of *Cyclosa conica* were explicitly considered mere colour variants or local forms by their original authors, not subspecies in the modern sense. The proliferation of names in this case is not only the result of the particularly striking variability of this common species, but also due to a rather comical nomenclatural skirmish between Embrick Strand and Eugène Simon. Originally, Simon (1874) had refrained from formally naming what he obviously considered trivial variants. Instead, he referred to four principal deviations from the typical form as variants β , γ , ϵ , and ζ . Strand, in his well-known zeal for introducing new names, could not help himself but to name these variants formally. He based his names on literal translations of Simon's brief descriptions of each of the variants, and acknowledged that he was following Simon here, but still did not neglect to append to each name a proud “m.” (= “mihi”, mine). Simon obviously did not appreciate this lack of courtesy and took very subtle (posthumous) revenge, knowing that Strand was on record as being easily offended by any indication that his naming efforts were not properly appreciated. Thus, Simon in 1929 only used one of the four names introduced by Strand (*leucomelas*), and even then he attributed the authorship to Zimmermann, who apparently had first used this name in a letter to Strand. For the other three varieties, he introduced his own names, without acknowledgement of Strand's earlier names, and in the case of *dimidiata* went so far as to suggest that this “might be” *C. c. pyrenaica*, thus making it clear that he was aware of Strand's work, but at the same time intentionally ignoring the fact that this name explicitly referred to the same variety he had described in 1874. The following equivalences hold between the varieties described by Strand and Simon: var. β = *defoliata* Strand = *triangulifera* Simon; var. γ = *pyrenaica* Strand = *dimidiata* Simon; var. ϵ = *albifoliata* Strand = *rubricauda* Simon; var. ζ = *leucomelas* Strand. No type material for any of these varieties seems to be extant, but there is no doubt that all of them are synonymous with *Cyclosa conica*, especially as Simon was well aware of the diversity of *Cyclosa* in western Europe and is unlikely to have confused this species with its congeners.

Misumena bicolor Simon, 1875 = **species inquirenda**

(not *Misumena personata* Simon, 1916) (**Thomisidae**)

Misumena personata Simon, 1916 = *Misumena vatia* (Clerck, 1757) **syn. nov. contra** Lehtinen (2004) (**Thomisidae**)

This characteristically coloured close relative of *Misumena vatia* (Clerck, 1757) was originally described based on a single male from Corsica. It was described as differing from its sister species by having a deeply black prosoma with a beige-brown ocular region (black-brown with a broad light median band in *M. vatia*), a bright light-yellow opisthosoma covered by sparsely distributed short robust hairs (matte white with a darker pattern and without prominent hairs in *M. vatia*), and dark red-brown anterior pairs of legs, almost black on the femora, and white-beige posterior pairs (anterior pairs of legs broadly annulated in *M. vatia*). The pedipalp was beige-

brown, with the cymbium brownish and much narrower than in *M. vatia*. Lehtinen (2004) considered *M. bicolor* a senior synonym of *M. personata* Simon, 1916, but the original descriptions as well as an examination of material of the latter in Simon's collection show that this is unlikely to be correct: all male specimens of *M. personata* show the same colouration as typical *M. vatia*, i.e. a light median band on a brown prosoma, a darkly marked opisthosoma and broadly annulated anterior legs (MNHN Boc. 1488 "Les abeilles, Banyuls, VII-15", 8♀♀, 5♂♂; MNHN Boc. 1488 "Banyuls, VII-09", 1♂; MNHN Boc. 1488.21881 "Banyuls" 1♀, 1♂ [all syntypes?]), and the females are indistinguishable. The supposed subtle differences in the pedipalps, in particular a more strongly coiled embolus, are not clear, even in the electron micrographs provided by Lehtinen. We thus follow the earlier assessment by various authors who considered *M. personata* a synonym of *M. vatia*. Examination of the holotype of *M. bicolor*, in contrast, confirms that this is likely to be a different species. Its embolus is, if anything, *less* strongly coiled than in *M. vatia*, the cymbium is slightly narrower (although this may well be within the range of intraspecific variability), and even in its strongly bleached state the overall habitus of the specimen is distinct. Interestingly, two male thomisid specimens that very closely match the description of *Misumena bicolor* in all its details have recently been observed, but not collected, in Germany (Wiesbaden, 11 August 2012, and Gernsbach, 9 August 2015; both in the Rhine valley; Fig. 11). Simon initially suspected that *M. bicolor* might only be a colour morph of *M. vatia*, but the distinctive colouration, which cannot be explained by a general darkening of the pigmentation, makes this unlikely. Microscopic examination of newly collected material will be required to conclusively determine the status of this species, but for now we consider it a species inquirenda, a valid species waiting to be rediscovered.

Pardosa wagleri atra (Giebel, 1869) **nomen oblitum** = *Pardosa saturator* Simon, 1937 **syn. nov. (Lycosidae)**
Pardosa wagleri atra was described by Giebel as *Lycosa atra*, based on a single female specimen from Gersau, at the banks of the Vierwaldstätter See, Switzerland. He considered the species, which he characterized by its uniformly velvet-black body, with dense grey hair on the prosoma and the sides of the opisthosoma, as a possible close relative of his alpine *Pardosa obscura* Giebel, 1867, which is currently considered a nomen dubium (Roewer 1955). The World Spider Catalog lists three later references to *Pardosa atra*, none of which, however, actually used Giebel's name: *Lycosa wagleri nigra* as used by Dahl (1908) and *Pardosa wagleri nigra* as used by Lessert (1910) are both by definition *Pardosa saturator* Simon, 1937, as Simon specifically introduced this new name for Dahl's and Lessert's specimens, which are not *Pardosa nigra* (C. L. Koch, 1834). The specimens to which Schenkel (1925) referred as *Pardosa wagleri nigra* are still present in Schenkel's collection in Basel and are also *P. saturator* (A. Hänggi, pers. comm.). The localities and discussion by Giebel would suggest that his *P. atra* might be *P. wagleri*, and *P. obscura* its alpine sister species *P. saturator* (see Barthel & von Helversen 1990 for a discussion of the relationship and altitudinal distribution of the two species). However, examination of Giebel's type material of *Lycosa atra*, which is still extant in Halle, showed that this is not the case: the female holotype turns out to be *Pardosa*



Fig. 11. Habitus illustration of the holotype of *Misumena bicolor* from the original description (top left), pedipalp of the holotype in ventral view (top right), and habitus of two possible new specimens of *M. bicolor* from Wiesbaden (middle) and Gernsbach (bottom). (photos Rainer Breiting [top right], Marja Biecker [middle] and Manfred Zapf [bottom])

saturator as well. The material of *Pardosa obscura* is lost, but possibly belonged either to the same species or to one of the numerous other *Pardosa* species occurring at the type locality on the Furka Pass (A. Hänggi, pers. comm.). This creates the problem that *Pardosa atra* is the older name and has precedence over Simon's *P. saturator*. However, to our knowledge, *Pardosa atra* Giebel (or *Lycosa atra* Giebel) seems never to have been used as a valid name since 1899 in the sense of Article 23.9.1 of the ICZN. The brief mention of the name by Tongiorgi 1966, when trying to disentangle the confusing treatment in Roewer's catalogue, should not be taken into account in determining usage, according to ICZN art. 23.9.3, and the use of the younger homonym *Pardosa atra* Banks, 1894 (= *P. wyuta* Gertsch, 1934) also cannot be considered as usage of Giebel's name. In contrast, the younger synonym, *P. saturator*, has been in prevailing use in a broad range of publications, being used "in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years" (for example, Barthel & von Helversen 1990, Blick & Scheidler 2004, Buchar &

Thaler 2002, Cardoso & Morano 2010, Chiarle et al. 2010, 2013, Framenau et al. 2002, Freundenthaler 2004, Gobbi et al. 2006a, 2006b, 2011, Hågvar 2012, Heimer & Nentwig 1991, Jäger 2000, Komposch 2011, Komposch et al. 2015, König et al. 2011, Kostanjšek & Kuntner 2015, Kuntner & Šereg 2002, Le Peru 2007, Manderbach & Framenau 2001, Maurer & Hänggi 1990, Paulus & Paulus 1997, Platen et al. 1995, 1996, Puzin et al. 2014, Raso et al. 2014, Růžička & Thaler 2002, Sint et al. 2012, 2014, 2015, Stratton 2005, Steinberger 1991, 1996, 2008, Thaler & Knoflach 1997, Zulka 2013). We therefore suggest, in accordance with Article 23.9.2. ICZN, treating *Lycosa atra* Giebel, 1869, as a **nomen oblitum** and considering the younger synonym, *Pardosa saturator* Simon, 1937, as the valid and protected name of this species.

Singa hamata melanocephala C. L. Koch, 1836 = **nomen dubium (Araneidae)**

This taxon was first described as a distinct species by Koch, based on a single male from Trieste (Italy), in the same paper that established the genus *Singa*, with *S. hamata* as the type species. According to the figures provided with the original description, the main distinctive characters are a lack of annulation on the orange legs of *S. melanocephala* and the blackened cephalic region of its otherwise reddish-brown prosoma (Fig. 12). It is almost certain that later references to this species (e.g., Westring 1861) refer to what is currently known as *Singa nitidula* C. L. Koch, 1844. For example, two females of the *melanocephala* form collected by L. Krohn in Sakkola (= Gromovo), Karelia, Russia, on 17.IX.1857 were determined by Thorell as *S. hamata*, as reported by Nordmann (1863), but later considered to be *S. nitidula* by Palmgren (1974), who examined the material in the Zoological Museum of Helsinki. When Koch described *L. nitidula*, he based the description on specimens with an entirely black prosoma and a darker opisthosomal pattern. Nevertheless, individuals of *S. nitidula* matching the description of *S. melanocephala* are not uncommon, and the unmarked orange legs are characteristic for this species. Simon, however, considered *melanocephala* as a variety

of *S. hamata*, following Walckenaer (1841), but the genitalia of his specimens (MNHN Boc. 2509.25698 “[Étang de] La Bonde – Sal[ins] d’Hyères”, 11♀, 2♂) indicate that they belong in fact to *S. nitidula*. Simon’s use of the name in 1929 precludes easy suppression of *Singa melanocephala* as a nomen oblitum, without submitting a case to the International Commission on Zoological Nomenclature. Given the overwhelmingly prevailing usage of *S. nitidula*, one of the very few names of a widely distributed spider species that have been uniformly accepted and applied since their first introduction, it might become necessary in the interests of stability to refer this matter to the ICZN for a ruling under the plenary power to suppress *S. melanocephala* for the purposes of priority according to ICZN Articles 23.9.3 and 81.2.3. For the time being, however, we feel that there is sufficient remaining doubt about the actual identity of *S. melanocephala*, as illustrated for instance by the treatment of the taxon by Simon (1929), to consider the name a nomen dubium and thus maintain the prevailing usage, independent of any future referral to the Commission. Moreover, given that cryptic species diversity has recently been reported in the related orbweaver genus *Hypsosinga* (Blagoev et al. 2013), there also remains the possibility that the black-headed morph of *H. nitidula* actually represents a distinct species.

Conclusions

Together with its predecessor (Breitling et al. 2015) this article clarifies the status of about 150 “phantom spiders” from Europe. This confirms our initial estimate that well over 5% of the spider taxa listed for Europe will turn out to be nomina dubia or synonyms of common species. The scale of the problem becomes obvious when imagining a similar situation for more charismatic groups of animals: would 26 species of phantom birds, 24 phantom butterflies or 12 species of phantom mammals be considered acceptable on the European checklists of the 21st century? One would have to go back to medieval times, when unicorns and mermaids roamed the zoologists’ bestiaries, to find a comparable level of dubious information about any of these groups. Of course, just as in the case of the imaginary creatures of ancient lore, the experts will know which species are real and which taxa are highly dubious. But even for them, and even more so for beginning arachnologists, the continued presence of unidentifiable and misidentified taxa in standard databases causes an unnecessary burden when trying to identify difficult specimens. Our analysis has also demonstrated that the distinction between dubious and real species is not always trivial and that careful study is necessary to decide each individual case. We therefore renew our appeal to the broader community of arachnologists to join the phantom spider project and help clean up the taxonomic and faunistic records.

Acknowledgements

We thank László Dányi (Hungarian Natural History Museum, Budapest) and Aracéli Anadón (University of Oviedo) for information on the Kolosváry and Franganillo collections and the opportunity to study material determined by Gabor von Kolosváry, Stefan Friedrich (Bavarian State Collection of Zoology, Munich), who checked for possible type material by L. Koch in the Rosenhauer collection, Karla Schneider (Zoologische Sammlung der Martin-Luther-Universität, Halle) for access to types from Giebel’s collection, Ingo Wendt and Joachim Holstein (Staatliches Museum für Naturkunde Stuttgart)



Fig. 12: Illustration of *Singa melanocephala*, accompanying the first description.

for help with loaning material from the Hungarian Natural History Museum, Budapest and access to photographic equipment, Julia Altmann (Senckenberg Museum Frankfurt am Main) for access to material from Strand's and Kullmann's collections, Ambros Hänggi and Edi Stöckli (Naturhistorisches Museum Basel) for the loan of *Pardosa luctinosa etsinensis*, and Christoph Hörweg (Natural History Museum Vienna) for the figures of Doleschall's spider species. RB thanks Christine Rollard (Muséum National d'Histoire Naturelle, Paris) for generously providing access to the collections in her care. Hans-Bert Schikora and Anna Šestáková provided very helpful discussions of *Araneus nordmanni* and the status of the *personatus* form of *A. angulatus*. Ambros Hänggi provided valuable input on discussions of *Lycosa atra*, Arthur Decae helpfully commented on the Nemesiidae, Torbjörn Kronstedt on the difficult case of *Alopecosa farinosa* and Milan Rezáč on *Eresus robustus*. We also thank Walter Pfieger, Mario Freudenschuss, Marja Biecker, Manfred Zapf and Greg Anderson for photographs of living phantom spiders and the contributors of the discussion forum of the Arachnologische Gesellschaft (<http://spinnen-forum.de/>) for their support in analysing many of the cases presented here.

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