ON SOME SPIDERS (ARACHNIDA, ARANEAE) OF BASILICATA AND CALABRIA, ITALY

Steven IJland
Gabriel Metzustraat 1, 2316 AJ Leiden (sijland@gmail.com)

&

Peter J. van Helsdingen
European Invertebrate Survey – Nederland, P.O. Box 9517, 2300 RA Leiden, Netherlands (helsdingen@naturalis.nl)

ABSTRACT
During the spring of 2015, spiders of 175 species were collected in the south of Italy, in the border area of Basilicata and Calabria. A list of collected species is given. *Cheiracanthium occidentale* L. Koch, 1882, *Nomisia excerpta* (O.P.-Cambridge, 1872), *Palliduphates byzantinus* (Fage, 1931), *Euryopis dentigera* Simon, 1880 and *Paidiscura dromedaria* (Simon, 1880) are reported for the first time for Italy. Two species are new records for mainland Italy: *Poecilochroa furcata* Simon, 1914 and *Xysticus siciliensis* Wunderlich, 1995. The females of *Xysticus siciliensis* Wunderlich, 1995 and *Pseudeuophrys perdifumo* van Helsdingen, 2015 are described for the first time. Some species could not be identified as yet: *Theridion* spec., *Spermophorides* spec., *Dysdera* spec., *Zelotes* spec., *Dipoena* spec., *Xysticus* spec. and *Pardosa* spec. The first six might represent new species, and still have to be described.

Key words: Araneae, faunistics, Calabria, Basilicata, Italy, southern Italy

INTRODUCTION
In the springtime of 2011, the two authors made a trip to Gargano in Italy in order to study the spider fauna of southern Italy. The study was continued in 2013 with a field trip to the surroundings of Castellabate, province Salerno in the region Campania. This paper reports on the results of a third trip to southern Italy, this time to the borderland of the regions Basilicata and Calabria. Fieldwork was carried out during the period 17-29 May 2015 (PvH) and 24-29 May 2015 (SIJ).

The region is best characterized as agricultural landscape (olive orchards, pastures) with forested areas. The localities where we collected are listed below and shown on a map (fig. 1). Some of the collection areas are located in the national park "Parco Nazionale del Pollino" (localities 10, 11, 12, 13a and 13b).

Coordinates are given as WGS84. The Fauna Europaea database (Van Helsdingen, 2016) is used as source of information on species distributions in Europe. The online checklist of Pantini and Isaia is used for species distribution information within Italy (Pantini & Isaia, 2016).

THE SPIDER FAUNA OF ITALY
In previous publications on the spider fauna of southern Italy we summarized the status of arachnological research in Italy. Nothing much changed since then. The northern part and the islands Sicily and Sardinia received a lot more attention compared to the southern part of Italy. As our previous studies and this publication indicate, this is quite a pity. The spider fauna of southern Italy appears to be very rich, and new species for the country and even for science have been found during our short excursions.

As many areas in the species-rich Mediterranean are relatively poorly studied, it is not surprising there are quite some difficult genera or species-groups with problematic species recognition and chaotic nomenclature as a consequence. As in our previous studies, we again were confronted with several of such enigmatic species. We have treated them accordingly and in many cases could only allot them to a genus or a species-group and refrained from giving them a species name so as not to burden the literature with doubtful or wrong data. We decided to publish the results we now have and subsequently – in a next publication - supply descriptions of new species. We also hope to collect more material on future trips to southern Italy.

COLLECTING LOCALITIES
1 Basilicata, Matera, Montalbano Jonico; along road SP154 Tinchi-Montalbano, near bridge over small river; 17.v.2015 (N 40°19.550' E 16°38.966'). Hand-collecting, sweeping, beating.

Figure 1. Map of Southern Italy (inset) and the visited localities in Basilicata and Calabria.

2 Basilicata, Matera, Montalbano Jonico; slope along road SP154 Tinchi-Montalbano, among and on shrubs and lower vegetation (with *Gladiolus italicus*); 17.v.2015 (N 40°19.800' E 16°38.666'). Hand-collecting, sweeping, beating.

3 Basilicata, Matera, Montalbano Jonico; wet roadside with ditch off road SP154 Tinchi-Montalbano; 17.v.2015; (N 40°19.183' E 16°37.833'). Hand-collecting, sweeping, beating.

4 Basilicata, Matera, Marina di Pisticci; *Pinus* forest near coast; 18.v.2015 (N 40°17.066' E 16°46.000'). Hand-collecting, sweeping, beating.

5 Basilicata, Matera, Marina di Pisticci; floodplain along small river; salt-tolerant vegetation with *Salicornia*-like shrubs, *Limonium* spec., *Tamarix* spec., *Phragmitis*; 19.v.2015 (N 40°17.250' E 16°46.300'). Hand-collecting, sweeping.



Figures 2-4. Locality 5. 2, landscape; 3, *Tamarix* spec.; 4, *Salicornia*-like shrub.

6 Basilicata, Matera, Marina di Pisticci; *Pinus* forest near coast with undergrowth of *Juniperus*, *Pistacia* and plots with *Acacia*; 19.v.2015 (N 40°16.866' E 16°45.866'). Hand-collecting, sweeping, beating.

7 Basilicata, Matera, Lido; mixed forest near Lido de Policorio with *Eucalyptus*, *Pistacia*, rushes; 20.v.2015 (N 40°11.000' E 16°42.650'). Hand-collecting, sweeping, beating.
8 Basilicata, Matera, Marina di Pisticci; *Pinus* forest near coast with *Juniperus*, *Pistacia*, *Acacia*; 21.v.2015 (N 40°16.650' E 16°45.666'). Hand-collecting, sweeping, beating.
9 Basilicata, Matera, Montalbano Jonico; slope along hairpin road west of Montalbano; shrubs and lower vegetation; 22.v.2015 (N 40°16.866' E 16°34.000'). Hand-collecting, sweeping, beating.

Figure 5. Locality 9.

10 Basilicata, Matera, Chiaromonte; 24.v.2015 (N 40°06.232' E 16°15.300'). Shrubs, small trees and herbal vegetation on bank of river Fiume Sinni. Hand-collecting, sweeping, beating.

Figure 6. Locality 10.

11 Basilicata, Potenza, Iannazzo; 24.v.2015 (N 40°05.504' E 15°58.083'). Slope with mixed forest and shrubs along path. Hand-collecting, sweeping, beating.

Figure 7. Locality 11.

12 Basilicata, Potenza, Francavilla in Sinni; Monte Caramola; grassland surrounded by *Castanea sativa* and some Q*uercus* spec. 25.v.2015 (N 40°02.829' E 16°13.553'). Hand-collecting, sweeping, beating.
13a Basilicata, Potenza, Francavilla in Sinni; oak forest; 25.v.2015 (N 40°02.419' E 16°13.159'). Hand-collecting, sweeping, beating.
13b Basilicata, Potenza, Francavilla in Sinni; beech forest; 25.v.2015 (N 40°00.714' E 16°13.020'). Hand-collecting.
14 Calabria, Cosenza, south of Montegiordano Marina, small wasteland area with *Tamarix* and *Pistacia* near Villaggio Baia Bella; 26.v.2015 (N 40°01.601' E 16°36.285'). Hand-collecting, sweeping, beating.
15 Calabria, Cosenza, Gabriele; plain with olive plantation, patches with *Pinus* spec. and *Pistacia*;26.v.2015 (N 39°55.136' E 16°35.365'). Hand-collecting, sweeping, beating.

Figure 8. Locality 15.

16 Calabria, Cosenza, Cerchiara di Calabria; treeless slope with orchids; 26.v.2015 (N 39°51.886' E 16°21.474'). Hand-collecting, sweeping, beating.
17 Calabria, Cosenza, Cerchiara di Calabria; Santuario di Santa Maria delle Armi; slope with shrubs and trees (among others *Quercus ilex* and *Q. cerris*) and open vegetation; 27.v.2015 (N 39°50.866' E 16°21.566'). Hand-collecting, sweeping, beating.
18 Calabria, Cosenza, Trebisacce; wet area with *Nerium oleander* near mouth of Fiumara Saraceno south of Trebisacce;27.v.2015 (N 39°51.516' E 16°30.350'). Hand-collecting, sweeping, beating.
19 Calabria, Cosenza, Nocara; open area between Canna and Nocara with *Cistus salvifolia* and *Juniper*;28.v.2015 (N 40°05.682' E 16°29.386'). Hand-collecting, sweeping, beating.
20 Calabria, Cosenza, Nocara; grassland slope with some trees and shrubs of a variety of species;28.v.2015 (N 40°05.508' E 16°28.134'). Hand-collecting, sweeping, beating.

Figure 9. Locality 20.

21 Calabria, Cosenza, Oriolo; road verges; 28.v.2015 (N 40°03.820' E 16°26.423'). Hand-collecting, sweeping, beating.
22 Calabria, Cosenza, Rocca Imperiale; along and near dirt road to Archaeological Centre; shrubs and open patches; 29.v.2015 (N 40°06.911' E 16°33.319'). Hand-collecting, sweeping, beating.
23 Basilicata, Matera, Montalbano Jonico; in and near cottage at Masseria Vigna Sui Laghi east of Montalbano; 17.v.2015 (N 40°17.916' E 16°35.633'). Hand-collecting.

REMARKS ON SOME SPECIES

In the next section all collected species are listed, including the localities (numbered as given above), sex, and geographic information.

We were not able to identify all specimens to species level. Many genera have their problematic species-groups revisions with good overviews and illustrations of the species are not yet published. Examples of such difficult taxa are the *melanurum*-group of *Theridion* and *Dipoena/Lasaeola*. We hope to collect more material in the future. Some – probably new - species will be described in the near future in a separate paper.

LIST OF COLLECTED SPECIES

AGELENIDAE
Agelena labyrinthica (Clerck, 1757): Locality 17, juv.
Textrix caudata Koch, 1872: Mediterranean species, introduced in NW Europe. Localities 12, 19; ♂♀.

AMAUROBIIDAE
Amaurobius fenestralis (Ström, 1768): distribution covering most of Europe, eastwards to Central Asia. Less common in the south. Locality 13b; ♀.

ANYPHAENIDAE
Anyphaena accentuata (Walckenaer, 1802): common species, reported from all European countries except Iceland and Albania. Not known from Sicily. Eastward to Central Asia, Iran. Locality 11; ♀.

ARANEIDAE
Aculepeira ceropegia (Walckenaer, 1802): Palearctic, known from all European countries except British isles and Iceland. Localities 18, 22; ♂♀.
Agalenatea redii (Scopoli, 1763): a common, thermophilous Palaearctic species. Localities 4, 9, 16, 17, 20, 22; ♂♀.
Araniella cucurbitina (Clerck, 1757): frequent Palearctic species. Localities 6, 12, 13a, 14, 15, 17, 19, 22; ♂♀.
Araniella opisthographa (Kulczyński, 1905): distributed from Europe into Asia. Localities 10, 12; ♂♀.
Argiope lobata (Pallas, 1772): a common Mediterranean species, reaching into Russia. Locality 9; juv.
Cyclosa conica (Pallas, 1772): in Europe the most common and widely spread representative of the genus. Holarctic. Localities 3, 6, 7, 8, 9, 10, 11, 13a, 15, 17; 19, 20, 22; ♂♀.
Cyclosa insulana (Costa, 1834): Patchy occurrence in the Mediterranean, S.E. Asia up to Philippines and Australia. Localities 3, 15; ♀.
Cyclosa sierrae Simon, 1870: Mediterranean and eastward through Ukraine and southern Russia into Asia. Not known from Sicily and Turkey. Localities 17, 19, 22; ♂♀.
Cyrtarachne ixoides (Simon, 1870): a not very common Mediterranean species. Locality 7; juv.
Cyrtophora citricola (Forsskål, 1775): as usual found in subsocial aggregations in shrubs and on *Opuntia ficus-indica*, but apparently only on the spineless form. Localities 1, 7, 9, 15, 22; juv.
Gibbaranea bituberculata (Walckenaer, 1802): Palaearctic distribution, more common in warmer regions than in the North. Localities 4, 6, 8, 19; ♂♀.
Gibbaranea gibbosa (Walckenaer, 1802): distributed over most of Europe, eastward into Asia. Locality 17; ♀.
Hypsosinga sanguinea (C. L. Koch, 1844): Palaearctic distribution, occurring in most countries of Europe. Locality 11; ♀.
Larinioides patagiatus (Clerck, 1757): Europe to Central Asia, in dry localities. Localities 3, 5, 7; ♂♀.
Leviellus thorelli (Ausserer, 1871): European species, rarely found. Collected from a retreat, web low on a trunk of a sun exposed big oak (see figure 9). Locality 20; ♀.
Mangora acalypha (Walckenaer, 1802): Palaearctic distribution, more common in the South. Found on most localities. Localities 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 19; ♂♀.
Neoscona adianta (Walckenaer, 1802): Palearctic, present in most European countries. Mostly on herbs and low bushes. Localities 1, 2, 3, 5, 6, 9, 11, 12, 15, 18, 19, 21, 22; ♂♀.

Zilla diodia (Walckenaer, 1802): distribution covering most countries of Europe and extending as far as Azerbaijan. Localities 3, 4, 6, 12, 13a, 16, 19, 21, 22; ♂♀.

CLUBIONIDAE

Clubiona comta C. L. Koch, 1839: known from nearly all countries in Europe. Localities 7; ♀.

Clubiona corticalis (Walckenaer, 1802): known from most European countries. Localities 12; ♀.

Clubiona leucaspis Simon, 1932: a western European and Mediterranean species, Hungary, Bulgaria and Greece forming the eastern boundary, more common in the South; introduced in the UK. Localities 8, 17; ♀.

DICTYNIDAE

Archaeodictyna consecuta (O.P.-Cambridge, 1872): Palearctic. Not know from Sicily, Sardinia and most of the Balkan. Locality 16; ♀.

Brigittea latens (Fabricius, 1775): a relatively rare species in moste European countries. Localities 11, 12, 16; ♂♀.

Dictyna arundinacea (Linnaeus, 1758): common species with Holarctic distribution. Localities 11, 16; ♂♀.

Dictyna uncinata Thorell, 1856: common Palearctic species. Not known from Corsica, Sicily, Sardinia and Albania. Locality 16; ♀.

Nigma flavescens (Walcknaer, 1830): western, Central and Mediterranean Europe species of infrequent occurrence. Localities 11, 12; ♂.

Nigma puella (Simon, 1870): European species, more common in the South, absent in Scandinavia, British isles, Baltic states and northern Russia. Localities 3, 4, 6, 7, 8, 22; ♂♀.

DYSDERIDAE

Dysdera spec.: A male and a female were collected in different localities. Both could not be determined. The male most probably represents a new species, and will be described in a different paper. Locality 11 ♀, 15; ♂.

EUTICHURIDAE

Cheiracanthium elegans Thorell, 1875: Europe to Central Asia. Localities 11, 19; ♂♀.

Cheiracanthium mildei L. Koch, 1864: Holarctic, in Europe not known from northern countries. Localities 20, 22; ♂♀.

Cheiracanthium occidentale L. Koch, 1882: **New for Italy**; So far only known from Minorca. Locality 9; ♀. See remarks on genera and species.

GNAPHOSIDAE

Drassodes lapidosus (Walckenaer, 1802): Palearctic species, reported from most European countries. Localities 10, 13a, 15, 16, 17, 20; ♂♀.

Heser nilicola (O.P.-Cambridge, 1872): in Europe known from Spain, France, Italy, Greece and Cyprus. Also reported from the Canary Islands, Burkina Faso, USA and Mexico. Locality 14; ♀

Nomisia excerpta (O.P.-Cambridge, 1872): **New for Italy.** Known from Canary Islands, Portugal, Spain, Corsica, Albania, Greece, Turkey, Syria, Israel and Lebanon, so the south of Italy fits well within this distrubion pattern. Similar to *N. exornata*, with which it might have been confused. Localities 18, 22; ♀.

Nomisia exornata (C. L. Koch, 1839): Europe to Central Asia, more common than *N. excerpta*. Localities 10, 16, 17, 21; ♂♀.

Phaeocedus braccatus (Koch, 1866): Palearctic species, known form most European countries. Rarely found. Locality 20; ♂

Poecilochroa albomaculata (Lucas, 1846): western Mediterranean species. Locality 22; ♀.

Poecilochroa furcata Simon, 1914: **New for mainland Italy**. So far known from Spain, France (Provence), Sicily, Greece. Locality 6; ♂

Trachyzelotes adriaticus (Caporiacco, 1951): Italy to China, in Europe only known from Italy, Croatia, Greece and Cyprus. Not reported from Sicily and Sardinia. Locality 10; ♂.

Trachyzelotes barbatus (L. Koch, 1866): Mediterranean to Central Asia, USA. Locality 16; ♂

Zelotes spec.: Two females of the same species were collected in different localities. These could not be determined, and more research is required. They might represent a new species. Localities 16, 21; ♀.

Zelotes atrocaeruleus (Simon, 1878): Palearctic. Locality 16; ♂.

Zelotes denapes Platnick, 1993: Only known from southern Italy, where it seems to be quite common (also collected by the authors in Campania and Apulia). Not reported from Sardinia and Sicily. Localities 16, 17, 19, 20, 22; ♂♀.

Zelotes oblongus (C.L. Koch, 1832): Europe, not reported from Sicily and Sardinia. Absent in northern countries. Locality 12; ♀.
Zelotes paroculus Simon, 1914; France, Italy. Not reported from Sicily and Sardinina. Locality 19; ♀.

LINYPHIIDAE
Agyneta fuscipalpa (C.L. Koch, 1836): Palearctic species, rarely found. Locality 10; ♂.
*Agyneta rurestri*s (C. L. Koch, 1836): very common Palaearctic species. Locality 15; ♀.
Frontinellina frutetorum (C.L. Koch, 1834): Palaearctic species, extremely common in the Mediterranean region, more rare on higher latitudes and lacking in northern countries (Scandinavia, northern Russia). Localities 1, 3, 5, 6, 7, 10, 12, 13a, 15, 16, 17, 19, 20; ♂♀.
Gnathonarium dentatum (Wider, 1834): Palearctic species, reported from almost all European countries. Locality 6; ♀.
Linyphia hortensis Sundevall, 1830: Palaearctic distribution. Locality 12; ♂♀.
Linyphia mimonti Simon, 1884: recorded from Italy, Albania and Greece (including archipelagos and Crete), and Asia Minor. Not recorded from Sardinia and Sicily. Localities 11, 17, 22; ♀.
Maso gallicus Simon, 1894: Europe, Algeria to Azerbaijan. Locality 11; ♀.
Neriene furtiva (O.P.-Cambridge, 1871): Europe, North Africa. Locality 11; ♂♀.
Neriene peltata (Wider, 1834): Palaearctic, Greenland. Locality 13b; ♀.
Neriene radiata (Walckenaer, 1841): Holarctic. Locality 7; ♂♀.
Palliduphates byzantinus (Fage, 1931): **New for Italy.** Reported from Romania, Bulgaria, Macedonia, Greece, Turkey. See remarks on genera and species. Locality 6; ♂.
Pocadicnemis juncea Locket & Millidge, 1953: European species, not rare. Not known from Sicily. Locality 11; ♀.
Styloctetor romanus (O. Pickard-Cambridge, 1872): Paleaerctic species. Locality 19; ♀ and juv.
Tenuiphantes herbicola (Simon, 1884): Mediterranean species. Locality 9; ♀.
Tenuiphantes tenuis (Blackwall, 1852): common Palearctic species, introduced in many places over the world, such as North America and New Zealand. Localities 1, 12, 13b, 16, 19; ♂♀.
Tenuiphantes zimmermanni (Bertkau, 1890): European species. Locality 12; ♀.
Trichoncus ambrosii Wunderlich, 2011: Switzerland and mainland Italy. Localities 11, 12; ♂♀.
Trichoncus sordidus Simon, 1884: recorded from the Baleares, France, Germany, Italy, Croatia, Slovakia, Albania and Greece. Not recorded from Sardinia and Sicily. Localities 10, 17; ♀.

LYCOSIDAE
Alopecosa albofasciata (Brullé, 1832): common species with Mediterranean distribution, range extending into Asia. Localities 17, 20; ♂♀.
Alopecosa pulverulenta (Clerck, 1757): very frequent species, known from almost all European countries. Locality 12; ♀.
Arctosa leopardus (Sundevall, 1833): Palearctic species known from nearly all European countries. Locality 3; ♀.
Aulonia albimana (Walckenaer, 1805): Palaearctic species known from nearly all European countries. Locality 11; ♂.
Pardosa hortensis (Thorell, 1872): Palaearctic species, recorded from most European countries but absent in the North. Localities 1, 16, 20; ♀.
Pardosa lugubris group: the *Pardosa lugubris*-group consists of the six species, of which *P.alacris* (C. L. Koch, 1833), *P. saltans* Töpfer-Hofmann, 2000 and *P. lugubris* (Walckenaer, 1802) are recorded from Italy. Since females are not clearly identifiable by morphological characters, and no males were collected in the same localities, we did not identify further than species group level. Localities 12, 13b; ♀.
Pardosa proxima (C. L. Koch, 1847): Palaearctic species, wide-spread in Europe but lacking from most countries around the Baltic Sea (Denmark, Poland, Lithuania, Estonia, Scandinavia). Locality 16; ♀.
Pardosa saltans Töpfer-Hofmann, 2000: species from the *P. lugubris*-group. European species, not recorded from Sicily and Sardinia. Locality 11; ♂♀.
Trochosa hispanica Simon, 1870: Mediterranean to Central Asia and Iran. Not recorded from Sicily. Locality 7; ♀.
Trochosa ruricola (De Geer, 1778): Holarctic species, known from nearly all European countries. Locality 11; ♂.

MIMETIDAE
Ero aphana (Walckenaer, 1802): Palearctic species, absent from northern Europe. Introduced in Australia. Localities 4, 6, 7, 8, 20; ♀.
Ero furcata (Villers, 1789): Palearctic, known from nearly all European countries. Locality 4; ♀.

Mimetus laevigatus (Keyserling, 1863): Mediterranean to Central Asia. Localities 15, 22; ♂♀.

MITURGIDAE
Zora pardalis Simon, 1878: Europe to Kazakhstan, rarely found. Not recorded from Sardinia and Sicily. Locality 11; ♂.

OECOBIIDAE
Oecobius maculatus Simon, 1870: found in Mediterranean Region and also in Hungary, Romania and Azerbaijan. Localities 10, 14; ♂♀.

OXYOPIDAE
Oxyopes heterophthalmus (Latreille, 1804): Western Europe and Mediterranean Region, absent from northern countries. Localities 9, 10, 14, 15, 17, 18, 19, 22; ♂♀.
Oxyopes lineatus Latreille, 1806: Palearctic species, not in northern Europe. Locality 20; ♂.
Oxyopes nigripalpis Kulczyński, 1891: Mediterranean species. Localities 9, 10, 14, 17, 18, 19, 22; ♂♀.

PHILODROMIDAE
Philodromus aureolus (Clerck, 1757): very frequent European species, known from nearly all European countries. Localities 3, 7, 12, 19; ♂♀.
Philodromus dispar Walckenaer, 1826: Europe to Central Asia, introduced in USA and Canada. Locality 17; ♀.
Philodromus longipalpus Simon, 1870: Mediterranean to Azerbaijan and Iran, France, Belgium, the Netherlands and UK. Locality 22; ♂♀.
Philodromus lividus Simon, 1875: Mediterranean, not recorded from Sicily. Localities 9, 10, 14, 19, 22; ♂♀.
Philodromus rufus Walckenaer, 1826: common species with Holarctic distribution, lacking in the Baltic states, Finland and northern European Russia. Localities 12, 17, 20, 22; ♀.
Pulchellodromus bistigma (Simon, 1870): Mediterranean. Localities 10, 15, 17, 19, 20, 23; ♂♀.
Pulchellodromus glaucinus (Simon, 1870): Mediterranean, Ukraine, South Russia. Localities 6, 7; ♂.
Pulchellodromus pulchellus (Lucas, 1846): Mediterranean distribution (but also in Austria). Locality 10; ♀.
Thanatus vulgaris Simon, 1870: Holarctic, not in northern Europe. Locality 10; ♂.
Tibellus macellus Simon, 1875: Europe to Central Asia, not in northern Europe. Localities 6, 9, 16, 21; ♂♀.
Tibellus oblongus (Walckenaer, 1802): Holarctic, known from nearly all European countries. Locality 22; ♂.

PHOLCIDAE
*Holocnemus pluche*i (Scopoli, 1763): Mediterranean species, occurring from the Iberian Peninsula to Turkey, presently spreading northward. Locality 22; ♀.
Pholcus opilionoides (Schrank, 1781): Europe to Azerbaijan, showing some spreading tendencies within Europe. Locality 17; ♂.
Spermophorides sp: One male was collected, which could not be determined but is close to *Spermophorides mediterranea* (Senglet, 1973). It is likely a new species, and will be described in another paper, together with another undescribed species close to *S. huberti* (Senglet, 1973) which was collected in Salerno, Campania, Italy by the authors (IJland & van Helsdingen, 2014). Locality 22; ♂.

PHRUROLITHIDAE
Phrurolithus nigrinus (Simon, 1878): Recorded from Portugal, Spain, France Switzerland, Germany and Macedonia. Locality 11; ♀.

PISAURIDAE
Pisaura mirabilis (Clerck, 1757): Palearctic, known from all European countries except Iceland. Localities 4, 6, 12, 17, 19, 20, 22; ♂♀.
Pisaura novicia (Koch, 1878): Mediterranean to Central Asia. Locality 16; ♀.

SALTICIDAE
Ballus chalybeius (Walckenaer, 1802): Common species in most of Europe except in the northern parts; range extending into Asia. Localities 12, 20; ♂♀.
Chalcoscirtus infimus (Simon, 1868): Recorded from western Europe and the Mediterranean Region, apparently not found in Central-Europe; reported from Romania and Bulgaria and Balkan countries, southern and eastern European Russia; range extending into Asia. Localities 14, 15; ♂♀.
Cyrba algerina (Lucas, 1846): Thermophilous species with Mediterranean distribution, Romania through Ukraine to southern and eastern European Russia, range extending into Asia. Localities 10, 20, 22; ♂♀.

Euophrys frontalis (Walckenaer, 1802): Palearctic, recorded from nearly all European countries, not from Sicily. Locality 13a; ♂♀.
Euophrys herbigrada (Simon, 1871): western Europe, British isles, Southern Balkan and Lithuania. Localities 1, 2; ♂.
Euophrys rufibarbis (Simon, 1868): Palearctic, in Europe with Mediterranean distribution. Localities 10, 15, 16, 17, 19; ♂♀.
Evarcha jucunda (Lucas, 1846): Mediterranean species with disjunct distribution more to the North (Germany, Slovakia, Romania). Localities 4, 6, 7, 8, 9, 15, 22, 23; ♂♀.
Heliophanus apiatus Simon, 1868: recorded from Portugal, Spain, France and Italy, including Sardinia and Sicily. Localities 10, 14, 19; ♂♀.
Heliophanus cupreus (Walckenaer, 1802): Paleaerctic, common species known from almost all European countries. Localities 11, 12, 13a, 13b, 19, 20; ♀.
Heliophanus flavipes (Hahn, 1832): Palearctic, known from all European countries except Iceland. Localities 12, 16; ♀.
Heliophanus kochii Simon, 1868: Common species, restricted, as far as Europe is concerned, to West- and Central-Europe and the whole Mediterranean Region. Locality 14; ♂.
Heliophanus tribulosus Simon, 1868: Palaearctic species, not in northern countries, more common in the South, range extending into Asia. Localities 3, 4, 6, 8, 10, 14, 15, 19, 22; ♂♀.
Icius hamatus (C. L. Koch, 1846): Palearctic species with patchy distribution, more common in the south. Localities 10, 22, 23; ♂♀.
Macaroeris nidicolens (Walckenaer, 1802): Distribution restricted to West- and Central-Europe and the Mediterranean Region, but lacking in Asian Turkey. Localities 3, 4, 6, 8, 10, 14, 15, 17, 19, 22; ♂♀.
Menemerus semilimbatus (Hahn, 1829): Mediterranean, Ukraine, Belorussia, Russia, Azerbaijan, Iran. Introduced in Chile, Argentina, USA. Locality 18; ♂.
Pellenes geniculatus (Simon, 1868): Southern Palearctic, Africa, spreading northwards in Europe. Locality 10; ♀.
Pellenes seriatus (Thorell, 1875): Italy, Slovenia, Greece, Bulgaria, Romania, Macedonia, Russia, Central Asia. Locality 22; ♀.
Philaeus chrysops (Poda, 1761): Palaearctic species, not in northern countries, more common in the South. Localities 10, 19, 20, 22; ♂♀.
Phlegra fasciata (Hahn, 1826): A Palaearctic species widely distributed over Europe, but lacking in northern part of Russia. Locality 13a; ♂.
Pseudeuophrys erratica (Walckenaer, 1826): Palearctic, known from nearly all European countries, introduced in USA. Locality 12; ♂.
Pseudeuophrys perdifumo van Helsdingen, 2015: Known only from southern Italy. Locality 15; ♀. See remarks on genera and species for a first formal description of the female.
Pseudicius picaceus (Simon, 1868): Recorded from Italy, Croatia, Greece, Macedonia, Bulgaria, Romania and Azerbaijan. Locality 22; ♀.
Salticus unciger (Simon, 1868): Recorded from Switzerland, Italy (mainland and Sicily), Malta, Slovenia and Albania. Localities 4, 7, 8, 14, 15, 22; ♂♀.
Salticus zebraneus (C.L. Koch, 1837): Palearctic, widespread in Europe. Localities 12, 13a; ♀.
Synageles albotrimaculatus (Lucas, 1846): Spain, France, Italy, Algeria, Tunisia, Turkey. Localities 14, 16; ♂♀.
Synageles dalmaticus (Keyserling, 1863): Mediterranean, Ukraine, South Russsia. Localities 14, 15, 22; ♂♀.
Thyene imperialis (Rossi, 1846): Europe to Asia, Africa. Localities 5, 6, 7, 9, 22; ♂♀.

SPARASSIDAE
Olios argelasius (Walckenaer, 1805): Mediterranean. Locality 22; ♀.

TETRAGNATHIDAE
Metellina mengei (Blackwall, 1869): Recorded from nearly all European countries, range extending into Asia but not (yet) found in Asian part of Turkey. Localities 12, 17; ♀.
Tetragnatha intermedia Kulczyński, 1891: Scattered distribution in central (Hungary) and southern Europe (Portugal, Balearic islands, Italy (mainland and Sardinia), Croatia, Bosnia-Herzegovina, Serbia, Montenegro and European Turkey). Locality 14; ♂.
Tetragnatha montana Simon, 1874: Palearctic, known form nearly all European species. Locality 8; ♂.

THERIDIIDAE
Anelosimus pulchellus (Walckenaer, 1802): Europe to Russia, Iran, North Africa, rarely found. Localities 7, 10; ♀.

Anelosimus vittatus (C. L. Koch, 1836): Palearctic, frequent and widely spread. Localities 11, 12, 13a, 15, 17, 22; ♂♀.
Argyrodes argyrodes (Walckenaer, 1841): Mediterranean to West Africa. Localities 6, 7, 22; ♂♀juv.
Asagena phalerata (Panzer, 1801): Palaearctic species, wide-spread over Europe. Locality 17; ♀.
Crustulina scabripes Simon, 1881: Mediterranean species including Turkey, Azerbaijan, and Israel. Localities 15, 17; ♂♀.
Dipoena spec.: Locality 10; ♀. See remarks on genera and species below.
Dipoena melanogaster (C.L. Koch, 1837): Recorded from most West- and Central-European countries, range extending into western Asia (Azerbaijan). Localitiy 13a; ♂.
Enoplognatha afrodite Hippa & Oksala, 1983: Records from the eastern Mediterranean region and north of the Balkan form Romania; not known from the Iberian peninsula. Localities 17, 20; ♀.
Enoplognatha latimana Hippa & Oksala, 1982: Holarctic, widespread in Europe. Locality 22; ♂.
Enoplognatha mandibularis (Lucas, 1846): Palearctic, scattered distribution in Europe. Locality 19; ♀.
Enoplognatha ovata (Clerck, 1757): Holarctic, recorded from nearly all European countries. Locality 20; ♂.
Enoplognatha testacea Simon, 1884: Southern, Central Europe to Central Asia. Locality 19; ♀.
Episinus maculipes Cavanna, 1876: England to Algeria, Ukraine, Russia. Localities 4, 8, 17; ♂♀.
Euryopis dentigera Simon, 1880: **New for Italy.** See remarks on genera and species. Locality 16; ♀.
Heterotheridion nigrovariegatum (Simon, 1873): Palearctic, in Europe not in northern countries. Locality 17; ♀.
Kochiura aulica (C. L. Koch, 1838): Widespread in Europe, more in the south. Localities 1, 3, 4, 5, 6, 7, 9, 10, 15, 16, 19; ♂♀.
Lasaeola tristis (Hahn, 1833): Europe to Central Asia, recorded from most European countries. Not recorded from Sardinia and Sicily. Locality 11; ♂.
Neottiura bimaculata (Linnaeus, 1767): Holarctic, known from nearly all European countries. Locality 12; ♀.
Neottiura uncinata (Lucas, 1846): Mediterranean species, not recorded from Sicily. Locality 22; ♂.
Paidiscura dromedaria (Simon, 1880): **New for Italy. N**orth Africa to Middle East, in Europe recorded from Spain, France and Greece. The south of Italy fits well in the distribution pattern. Locality 14; ♀.
Parasteatoda lunata (Clerck, 1757): Palearctic, recorded from nearly all European countries. Localities 4, 6, 7; ♂♀.
Phoroncidia paradoxa (Lucas, 1846): Mediterranean. Not recorded yet from the Balkan, but known from Asian Turkey and North Africa. Not recorded from Sardinia and Sicily. Localities 4, 6, 8; ♀.
Phylloneta impressa (L. Koch, 1881): Holarctic, known from nearly all European countries. Localities 1, 14, 21, 22; ♂♀.
Platnickina tincta (Walckenaer, 1802): Holarctic, known from nearly all European countries. Localities 4, 6, 8, 10, 12; ♀.
Rhomphaea nasica (Simon, 1873): Mediterranean, Africa. Localities 4, 6, 7, 8, 9, 14, 22; ♂♀.
Sardinidion blackwalli (O. P.-Cambridge, 1871): Europe, North Africa. Not in the north. Localities 1, 17; ♀.
Simitidion simile (C.L. Koch, 1836): Common species, distributed over most of Europe. Localities 3, 4, 6, 7, 8, 9, 10, 12, 15, 16, 19, 20, 21, 22; ♂♀.
Steatoda triangulosa (Walckenaer, 1802): A cosmopolitan species recorded from many European countries, probably originating from the Mediterranean region. Locality 23; ♀.
Theridion familiare O.P.-Cambridge, 1871: Palearctic, in Central Europe only in houses. Localities 4, 20; ♂.
Theridion melanurum-group: Several females were collected from this difficult group. The status of the species is not yet clear, and determination without males very difficult. *Theridion mystaceum* L. Koch, 1870 and *Theridion semitinctum* Simon 1914 might be among the collected species, but here we choose to leave them undetermined. Localities 8, 11, 12, 14, 17, 18, 19, 20; ♀.
Theridion varians Hahn, 1833: Holarctic, known from nearly all European countries. Localities 3, 6, 7, 8, 12, 17; ♂♀.

THOMISIDAE
Heriaeus hirtus (Latreille, 1819): Mediterranean to Georgia, Hungary, Slovakia, Romania. Localities 12, 19; ♂♀.
Misumena vatia (Clerck, 1757): Holarctic, known from nearly all European countries. Locality 11; ♂.
Pistius truncatus (Pallas, 1772): not frequently found species with Palaearctic distribution. Locality 19; ♂♀.
Runcinia grammica (C. L. Koch, 1837): Localities 9, 14; ♂♀.
Synema globosum (Fabricius, 1775): West-, Central- and Mediterranean-Europe where it is extremely common. Localities 1, 2, 4, 5, 6, 9, 10, 11, 12, 15, 19, 22; ♂♀.
Thomisus onustus Walckenaer, 1805: Palaearctic distribution, but absent from most northern countries. Localities 1, 2, 9, 10, 14, 20, 22; ♂♀.
Tmarus piger (Walckenaer, 1802): central and southern Palaearctic distribution. Localities 8, 11; ♂♀.

Xysticus spec.: See remarks on genera and species. Locality 22; ♀.
Xysticus cristatus (Clerck, 1757): Palearctic species, very frequently recorded from nearly all European countries. Not recorded from Sicily. Locality 3; ♂.
Xysticus kochi Thorell, 1872: Europe, Mediterranean to Central Asia. Localities 1, 2; ♂.
Xysticus lanio C.L. Koch, 1835: recorded from most European countries. Localities 11, 12, 13; ♂♀.
Xysticus robustus (Hahn, 1832): a rare species, recorded from West-, Central- and Mediterranean Europe, range extending into Asia. Localities 11, 12; ♀.
Xysticus siciliensis Wunderlich, 1995: **New for mainland Italy, female described for first time.** Described from Sicily, not recorded from other places so far. Locality 19; ♂♀. See remarks on genera and species.

TITANOECIDAE
Nurscia albomaculata (Lucas, 1846): Europe, Egypt to Central Asia. Locality 15; ♂.
Titanoeca flavicoma L. Koch, 1872: Palaearctic species. Localities 10, 16; ♂♀. See remarks on genera and species.

ULOBORIDAE
Uloborus plumipes Lucas, 1846: Old world species, range extending to the Punjab region; in Europe spreading northwards. In northern countries in greenhouses. Introduced in Argentina. Localities 1, 4, 15, 22; ♀.
Uloborus walckenaerius Latreille, 1806: western and Central Europe, more common in the Mediterranean region, lacking in some northern countries and Scandinavia. Localities 2, 10, 11, 15, 19, 21, 22; ♂♀.

ZODARIIDAE
Zodarion pusio Simon, 1914: France, Italy, Tunisia, Croatia, Bosnia-Hercegovina, Slovenia. Not recorded from Sardinia and Sicily. Locality 10; ♂.

REMARKS ON GENERA AND SPECIES

***Cheiracanthium occidentale* (L. Koch, 1882) - New for Italy**
A single female was collected near Montalbano Jonico, collected by hand in low vegetation. The epigyne and vulva are rather typical with the nearly circular epigynal pit, the laterally bulging receptacula and the short duct towards the apical turning point. In *Cheiracanthium* identification is often the result of negative selection, by checking off the species which do not agree with the specimen at hand, in the case of females the species which have differently shaped epigynal pit, differently shaped receptacula, or a different number of coils in the duct from the entrance in the pit towards the turning point. For technical reasons we could not make an illustration of the genital organ at this moment but hope to do so in the near future. And we keep looking for more material!

C. occidentale was described from Minorca (Balearic Islands) after a single female, which up to now remained the unique specimen of this species. Bosmans (Bosmans et al. 2012) examined and re-described this specimen and depicted the genital organ. Our specimen agrees with Bosman's illustrations and would be the second specimen of this species, female again, the male still remaining to be discovered.

***Palliduphantes byzantinus* (Fage, 1931) - New for Italy**
Palliduphantes byzantinus was described after two males and one female from a cave (Yarem-Bourgas) near Istanbul, Turkey. Successive records came from Bulgaria, FYR Macedonia, Greece (mainland, archipelagoes and Crete). Our record is the first one from Italy.

Many records came from caves, such as Fage (1931), Hadjissarantos (1940, sub *Lepthyphantes papalis*), Brignoli (1972), Deltshev (1972, sub *Lepthyphantes insignis*), Brignoli (1979, sub *Lepthyphantes thucicidis*), Deltshev (1980), Dumitrescu & Georgescu (1981), and Deeleman-Reinhold (1985). Or from under stones (lapidicolous), such as Dumitrescu & Georgescu (1981) and Bosmans et al. (2013). Or in leaf litter or debris on the soil, such as Deeleman-Reinhold (1985) and Bosmans et al. (2013). Our record falls in the last category as it was collected in a pine forest with undergrowth of *Pistacea*, an area without stones, where it was collected by sweeping and beating or hand-collecting in the soil litter.

The identification of our specimen is primarily based on the shape of the lamella and the general shape of the palpal organ. The shape of the lamella is characteristic in that the apical branch of this very slender element is relatively short and stout while the ventral branch is much longer, slender, attenuate, and sharply tipped. This agrees with the illustration in Deltshev (1980, figs. 1, 3). Even though there seems to exist a considerable amount of variation in the outline of the lamella (see Deeleman-Reinhold 1985, figs. 27a-e), our specimen fits into the range of shapes shown by her. However, the illustrations of the male palp by Bosmans (2013, figs. 30-31) clearly differ from our specimen in the shape of the lamella as well as the paracymbium; the lamella in

figure 30 does not show the deviating branches as present in our specimen (but this may be due to a different angle of vision); the distal branch of the paracymbium is curiously short in Bosman's fig. 30, while in our specimen this element is longer and shows a gutter-like shape as illustrated by Deltshev (1980, pl. 1 fig. 3).

The conclusion thus is that either there is even much more variation in the shape of this element than shown by Deeleman-Reinhold or our specimen represents a new species.

Description of male specimen.
All measurements in mm.
Total length 1.67; prosoma, length 0.75, width 0.60; opisthosoma, length 1.05, width 0.55, height 0.55.

Leg measurements:

	I	II	III	IV	palp
Fe	0.95	0.87	0.72	0.90	0.27
Pa	0.27	0.22	0.22	0.22	0.112
Ti	1.02	0.87	0.65	1.00	0.112
Mt	0.97	0.85	0.67	0.90	-
Ta	0.67	0.60	0.45	0.67	0.212

Despite serious efforts we have not been able to locate a trichobothrium on Mt I and thus we cannot establish its position.

Our specimen is very pale with only light grey suffusion on the sternum and on the opisthosoma around the spinnerets and distinct dark rings around the eyes. Possibly we collected a freshly moulted specimen. The palpal organ, however is well developed.

Male palp: the shape of the lamella is the most characteristic element, see figure 10.

Figure 10. Lamella of the male palp of *Palliduphantes byzantinus*.

***Pseudeuophrys perdifumo* Van Helsdingen, 2015**

In 2015, *Pseudeuophrys perdifumo* Van Helsdingen has been described (Van Helsdingen 2015) after three males and one female which we had collected in southern Italy (Selva, Monte di Perdifumo W of Perdifumo, Province Salerno) in 2013 (IJland & Van Helsdingen 2014). The name of the locality is not shown on all maps but was copied from a touristic map of the Parco Nazionale Cilento e Vallo di Diano. The coordinates provided in 2014 are 40°15'41.57"N 15°03'01.04"E. One of the males was selected as holotype, the other specimens were indicated as paratypes. Because of the pale appearance of the single female specimen we assumed it to be a subadult specimen prior to the last moult with the vulval structure already discernible through the integument and despite the penultimate state of the specien presented the main measurements and a photograph of the genital region, showing the receptacula.

In 2015 we visited Calabria (this paper) and collected a single female specimen with, again, the vulval structures visible through the integument. We consider this specimen to be adult, and in fact conclude that we

were misled by the pale complexion of the 2013 specimen, which was an adult specimen after all. The new female specimen is described here so as to complete the information on this species.

Material: 1♀ from ITALY: Calabria, Cosenza, Gabriele; 26.v.2015 (N 39°55.136' E 16°35.365'), collected by hand.

Measurments (in mm).
Total length 3.5; prosoma length 1.70 width 1.25; opisthosoma length 1.90 width 1.45. Leg measurements:

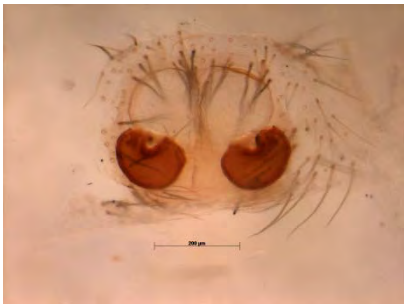
	I	II	III	IV
Fe	0.92	0.90	1.00	0.75
Pa	0.60	0.47	0.50	0.32
Ti	0.70	0.60	0.67	0.50
Mt	0.42	0.50	0.55	0.55
Ta	0.37	0.30	0.35	0.25

11

12

13

14



15

Figures 11-15. *Pseudeuophrys perdifumo*. 11, habitus; 12, prosoma, frontal view; 13, eipgyne; 14, vulva, ventral view; 15, vulva, dorsal view. Scale bars: 2 mm (11), 1 mm (12), 0.2 mm (13-15).

Habitus (fig. 11). Prosoma: blackish with long black and white setae on cephalic part, thoracic part with long white hairs; central white longitudinal mark around fovea (fig. 11). All frontal eyes contiguous and surrounded by a very narrow fringe of short white setae (fig. 12); some long black setae dispersed around eyes. Chelicerae yellow, lightly suffused with grey. Sternum: dark grey. Legs: all coxae yellow; legs distinctly annulated, dark rings on basal half of segments except metatarsi and tarsi. Abdomen: dorsally blackish with prominent light central area ending in a reversed V-shaped area in which two small, grey chevrons and one larger, narrow chevron are visible (fig. 11); ventral surface light, spinnerets yellow.

Epigyne and vulva (figs. 13-15). External structures not easily discernible. As in the female specimen collected in 2013 (Van Helsdingen, 2014) an external structure of the epigyne is hardly discernible and the internal vulval organ shows through the transparent integument. Two oval depression with the long axis parallel to the body axis are faintly outlinedby a lightly sclerotized brim. The only vulva structures visible are the kidney-shaped receptacula, their hollow sides anteriorly, convex surfaces posteriorly, long axes oriented transverse to slightly oblique, the two organs separated by about half their length (figs. 14-15).

***Dipoena* spec.**
A female *Dipoena* was collected which could not be reliably determined. The genera *Dipoena* and *Lasaeola* are taxonomically not well defined and many species have been transferred back and forth between these two. It is not possible to assign a species name based on older literature. For example, *Dipoena croatica* was described by Chyzer as *Lasaeola croatica* from Croatia (Chyzer & Kulczyński 1894). It has never been described ever since. The picture of the epigyne by Chyzer (fig. 16 left) does match with the epigyne of our specimen (fig. 16 right). Chyzer mentions the epigyne contained a plug which could easily be removed, our specimen also contained a plug, but it was quite difficult to remove. The legs in Chyzer are described as orange, tibia apically black, tibia IV basally annulated, which also does match our specimen, although the annulation is rather vague (fig. 17). Our specimen however has some very robust and conspicuous spines on the prosoma, which are not mentioned in the quite extensive description by Chyzer. It is hard to imagine he would have missed these spines. Komnenov collected two *Dipoena* species in Macedonia (Komnenov 2013) which he could not identity and shows some characters which are also close to *D. croatica* (Komnenov, personal communication). We, too, prefer not to assign a tentative species name to our specimen but to wait until a revision has taken place and some order is created in this complex and chaotic genus.

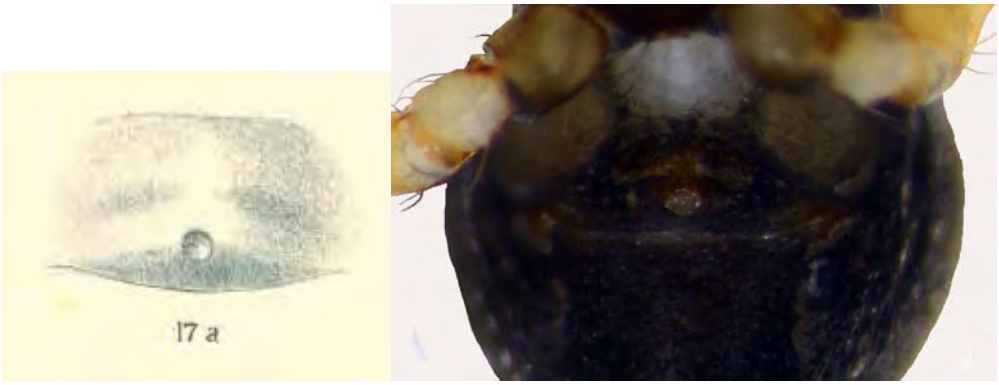


Figure 16. Epigyne of *Dipoena croatica* (Chyzer, 1894) by Chyzer (left) and epigyne of *Dipoena* spec from southern Italy (right).

Figure 17. Habitus of *Dipoena* spec. with annulation of legs matching description of *D. croatica* by Chyzer.

***Euryopis dentigera* Simon, 1880 - New for Italy**

A single female was collected. The male of *Euryopis dentigera* was described from France by Simon (Simon 1880). No figures were given, but the description is detailed. The female was described from Austria by Kulczyński (Kulczyński 1898), with a figure of the epigyne which is not very detailed. Both authors refer to the red sigilla in a square on the abdomen. Our specimen does match the description, and the epigyne also did match the one on the excellent website of Pierre Oger (https://arachno.piwigo.com/). Pierre Oger confirmed that the females as could be determined by Kulczyński were collected together with males as described by Simon. More research, including checking of type material, is under way, and hopefully better figures of both male and female will be published in the near future (Pierre Oger, personal communication).

We report *Euryopis dentigera* here as new for Italy. The species is rare, and has been reported from France, Romania, and Macedonia. Even though the female was described from Austria, it has been removed from the checklist of Austrian theridiids because it has not been reported again since Kulczyński's description in 1898 (Knoflach & Thaler 1998).

***Xysticus* spec.**

We collected a female *Xysticus* which could not be determined. The epigyne of our specimen matches the epigyne of *Xysticus tortuosus* Simon, 1932 as depicted by Pesarini (Pesarini 2000). In his article, Pesarini depicts male and female of *X. tortuosus*, both from specimens collected in Sicily. *X. tortuosus* has been described by Simon (Simon 1932), who depicted palp and epigyne. After Simon, palp and epigyne of *X. tortuosus* have also been depicted by Wunderlich (Wunderlich 1995). In 2001, Jantscher in her dissertation provides pictures of epigyne, vulva and palps, based on type material from the Muséum national d'Histoire naturelle in Paris (Jantcher 2001, unpublished, figures also available in Nentwig et al. 2016).

Figure 18 shows the epigynes as depicted in the works of Simon 1932, Wunderlich 1995, Pesarini 2000 and Jantscher 2001. The figure of the epigyne by Simon is not very detailed. It does resemble the epigyne as depicted by Pesarini quite well, perhaps even better than Wunderlich's, the only other figure available at the

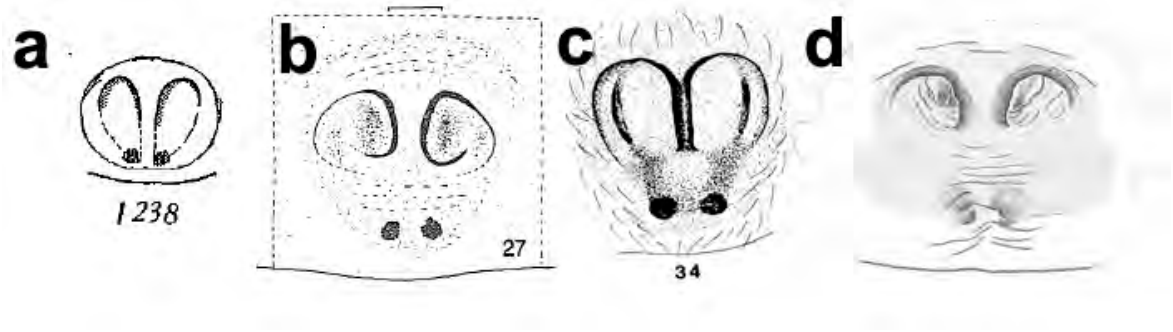


Figure 18. Epigyne of *Xysticus tortuosus* as depicted by a. Simon, 1932; b. Wunderlich, 1995; c. Pesarini, 2000; d. Jantscher, 2001.

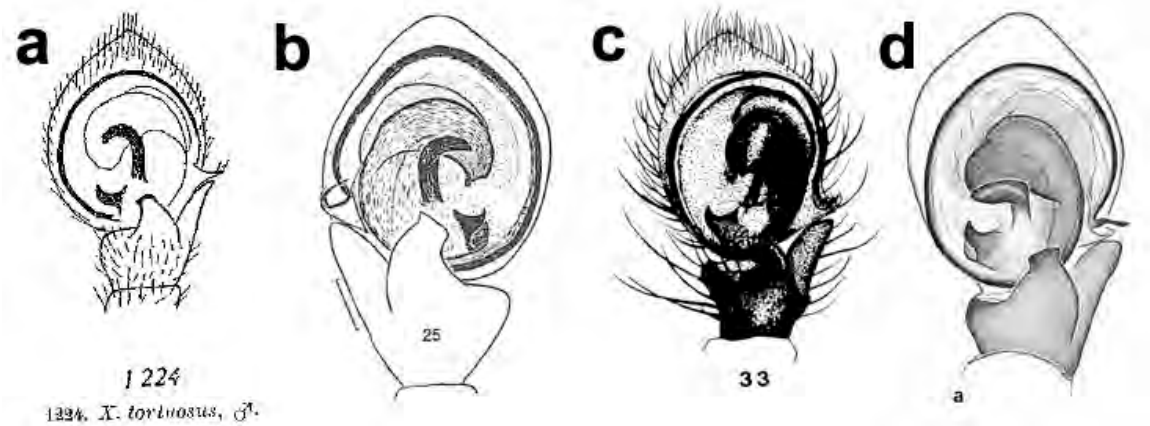


Figure 19. Palp of *Xysticus tortuosus* as depicted by a. Simon, 1932; b. Wunderlich, 1995; c. Pesarini, 2000; d. Jantscher, 2001.

time. Wunderlich's figure, however, does resemble Jantscher's picture which is based on type material. The median septum in the figures of Wunderlich and Jantscher is much broader and also shorter than in the figure of Pesarini. We collected a female *Xysticus* with an epigyne that perfectly matches the figure of Pesarini. The vulva of our specimen however does not match at all with figures of the vulva by Jantscher. It looks as if Pesarini's specimen is not *X. tortuosus*, but a misidentification of a yet undescribed species, present in Sicily and the south of Italy. The picture of the palp by Pesarini corroborates this hypothesis. Figure 19 shows the palps as depicted in the works of Simon 1932, Wunderlich 1995, Pesarini 2000 and Jantscher 2001. Jantscher gives as diagnostic character a massive tegular apophysis with the horizontal axis long and broad and in a right angle to the shaft. This is depicted in Jantscher's figure, based on the type material, and in Wunderlich's figure. It is less prominent in Simon's figure, and even less so in Pesarini's.

More research is needed, but we suggest that the figures supplied by Pesarini (Pesarini 2000), do not depict *X. tortuosus*, but a not yet described *Xysticus* species from Sicily and the south of Italy.

***Xysticus siciliensis* Wunderlich, 1995 - New for mainland Italy**

Wunderlich described *Xysticus siciliensis* from a single male collected in Sicily (Wunderlich 1995). We collected two males and one female at locality 19, which are the first findings from mainland Italy. The female is described here for the first time.

In his description, Wunderlich wonders if two mentioned characters are specific for the species, or just for his specimen. The first one is a conspicous white bifurcated mark on the prosoma. Our two collected specimens both do have such a mark. The second character concerns tibia I lacking prolateral spines. One of the males we collected did indeed lack these spines, the other one, however, does have prolateral spines on tibia I. The one on the right leg of this male is more basal and smaller compared to the spine on tibia I of the left leg. Figure 20a gives the habitus of a male, figure 21 shows the pedipalp ventral and lateral.

Short description of the female.
Prosoma length 2.13 mm, prosoma width 2.00 mm. Total length 5.13 mm.
Prosoma dark brown with a light median band. In the median band an almost white, V-shaped marking and two dark brown spots connected to the lateral darker parts. Eye region suffused with darker lines, an almost white eye band present. Clypeus almost white, suffused with small grey spots. Chelicerae basally greyish brown,

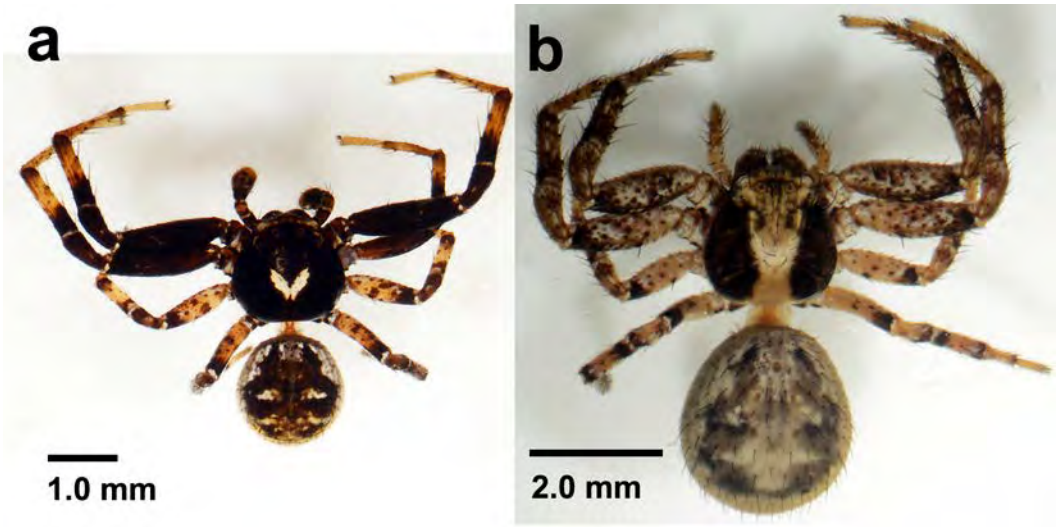


Figure 20. *Xysticus siciliensis* a. Habitus male; b. Habitus female.

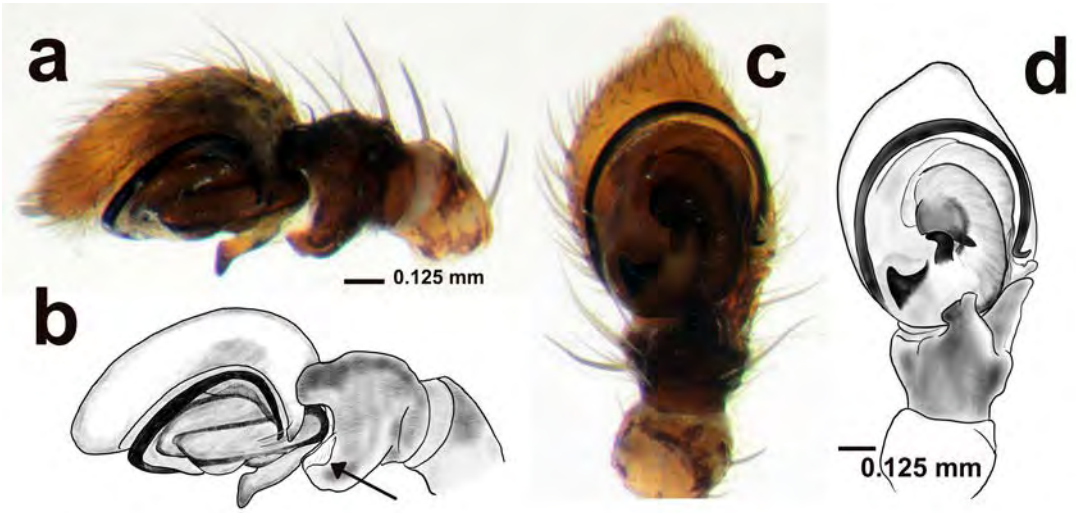


Figure 21. Male palp of *Xysticus siciliensis*. a. Male palp retrolateral, photograph; b. Male palp, retrolateral, hairs and spines not depicted. Arrow points at membraneous area of retrolateral tibial apophysis; c. Male palp ventral, photograph; d. Male palp ventral, drawing, spines and hairs not depicted.

apically light brown with reddish brown spots, in between almost white. Sternum dark brown with irregulare white and brown spots. Legs light brown with numerous white patches and dark brown spots. Opisthosoma cream coloured with a darker grey folium with lighter grey triangular markings. Darker spots present in the darker grey part of the folium.

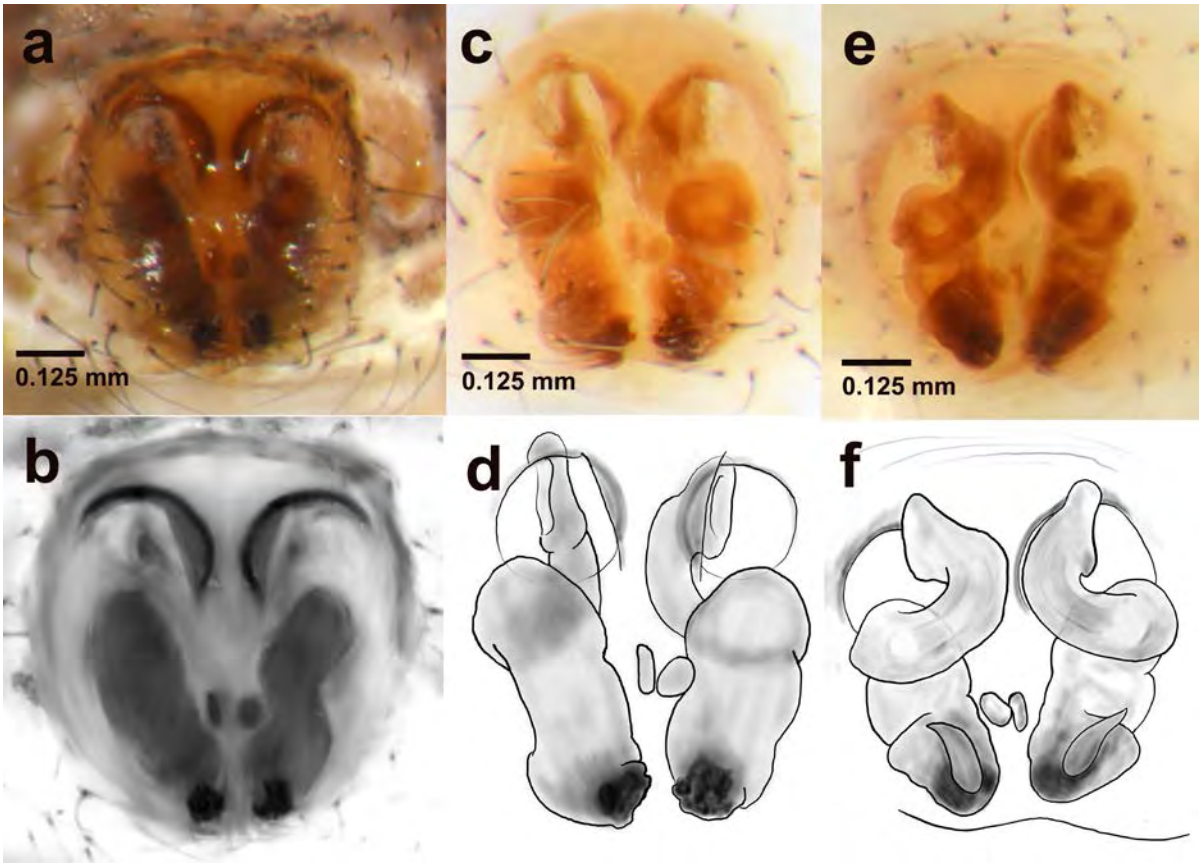


Figure 22. Epigyne of *Xysticus siciliensis* a, b. Epigyne; c, d. Epigyne in lactic acid, ventral; e, f. Epigyne in lactic acid, dorsal (vulva).

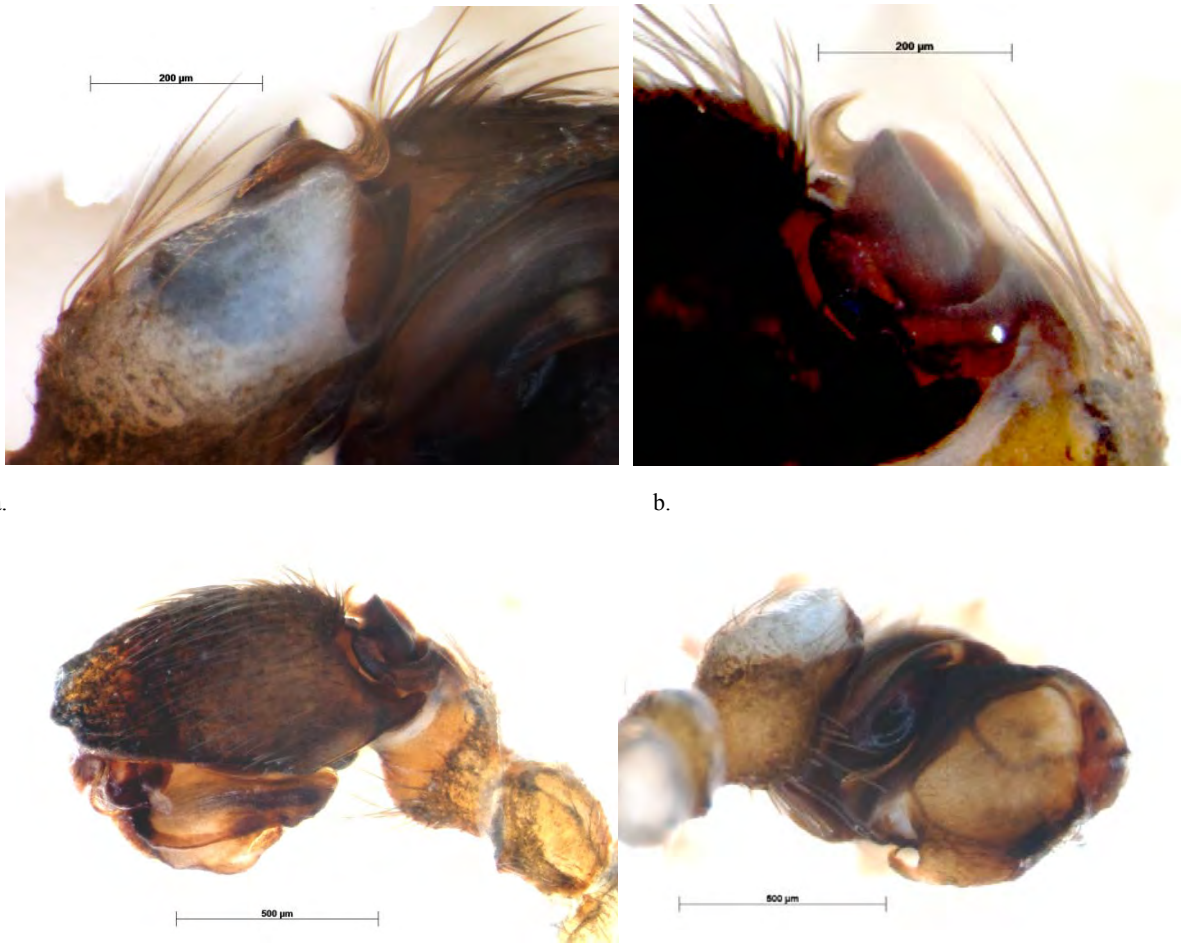
In her dissertation on *Xysticus* of Central Europe, Jantscher states that numbers of spines on the legs of *Xysticus* is not a good diagnostic character (Jantscher 2001). Number and orientation of spines are not provided here.

The epigyne is similar to *X. tortuosus*. The epigyne has two distinctly separated grooves with a short median septum. Between the receptacula two seemingly sclerotized structures are present. Posterior parts of the grooves not sclerotized (unlike the grooves *X. tortuosus*, which are partly sclerotized posteriorly). The copulatory ducts turn dorsally and then bend in a loop to the receptacula (fig. 22). Compared to *X. tortuosus*, the copulatory ducts of *X. siciliensis* are not as narrow and less angular and the receptacula are closer together.

***Titanoeca flavicoma* L. Koch, 1872**

A single male was collected at Cerchiana di Calabria on a grassland slope with herbs and orchids (locality 16, 25.v.2015). The specimen is small and without any markings on the opisthosoma. A single female specimen from Chiaromonte, under a stone in the wide river bed of Fiume Sinni (locality 10, 24.v.2015) could also be identified as *T. flavicoma*.

The males of the genus *Titanoeca* are distinguished by a relatively small set of characters, such as size, the presence or absence of opisthosomal markings, and construction and shape of the palpal tibia and its appendages. In this genus the palpal tibia is of surprisingly complex shape with several structures on the dorsal and prolateral side of which one cannot easily understand the functions in relation to the generally simple epigynes of the females in this genus. The most striking character in our male specimen - apart for the absence of markings on the opisthosoma – is a small hook-shaped apophysis with the tip curving dorsad and backwards on the dorsal side of the palpal tibia (visible in figs. 23a and b). Many species have a slender appendage on the



a. b.

c. d.

Figure 23. *Titanoeca flavicoma*, male palp. a, b, small hook-shaped apophysis on the dorsal side of the palpal tibia; c, d, male palp retrolateral (c) and prolateral (d) aspects. Scale bar: 0.2 mm (a, b) and 0.5 mm (c, d).

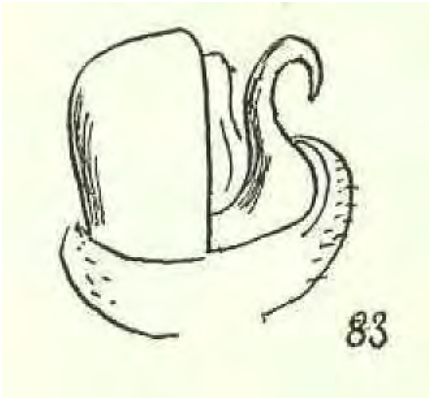


Figure 24. *Titanoeca flavicoma*, hook-shaped dorsal appendage as shown by Simon (1914, fig. 83).

tibia, sometimes very long (among others in *T. tristis*, *T. veteranica*, and *T. hispanica*). The hook-shaped dorsal appendage is most distinctly shown by Simon (1914, fig. 83) for *Titanoeca flavicoma* (here reproduced in fig. 24). We have not found any other illustration or mention of such striking character – the hook-shaped apophysis – among the 14 European species of *Titanoeca*.

It is slightly disturbing that in all other descriptions and illustrations of *T. flavicoma* and its synonyms, among which *T. sibirica* L. Koch, this striking curled appendage is not mentioned or shown. Our general observation, however, is that the male palpal tibia is of such complicated spatial structure that a slight shift in the angle of vision results in different images of the apophyses and appendages and clefts between them.

Short description of specimens.
Male. Measurements (in mm). Total length 5.8; prosoma length 2.45, width 1.75; opisthosoma length 2.80, width 1.60, height 1.50.
Prosoma without fovea.

Leg measurements:

	I	II	III	IV
Fe	2.02	1.65	1.47	1.75
Pt	0.85	0.75	0.65	0.75
Ti	1.87	1.32	1.12	1.60
Mt	1.62	1.30	1.05	1.42
Ta	0.75	0.70	0.57	0.65

Legs long and slender, Ø of Ti I 0,275. Tibia I and II, and Mt I with many short, robust spines, approximately 0.38 Ø of leg-segment long. Other legs with a few lateral and ventral spines on tibiae and metatarsi.
Prosoma dark brown to black. Chelicerae black as are all appendages. Leg segments from patella onwards with brownish skin, heavily suffused with grey, tarsi light brown.

Female. Total length 6.5; prosoma length 2.25, width 1.70; opisthosoma length 3.9, width 2.7, height 2.5. Fe I 1.70, Ti I 1.40; Ø Ti I 0.30. Legs without the typical short spines on front legs as described for the male. Coloration as in male.

DISCUSSION

During the inventory trip in Gargano we identified 132 species, the trip to Castellabate resulted in 157 species and during the latest trip to Basilicata and Calabria 175 species were collected. During all three trips, 297 species were recognized (more species were collected but these could not be determined or are yet to be described). Of these 297 species, we collected 42 species or 14% during all three trips. 83 species or 28% were collected during two out of three trips, which leaves 172 species or 58% that were collected just on one of the three trips. On all trips species new to the region, new to Italy or even new to science were collected.

The differences in the composition of the spider fauna of the three areas can only partly be atributed to the differences in habitat. It is rather an indication of the species richness of this region. The discovery of species

new to Italy or new to science on these short collection trips also indicates there is still a lot of work to do in this area. The south of Italy remains an interesting area for further research.

ACKNOWLEDGEMENTS
We want to thank Daniel Gloor (Switzerland), Marjan Komnenov (Macedonia), Pierre Oger (Belgium) for their support through advice and help on literature.

REFERENCES

Alicata, P. & T. Cantarella 2000. I salticidi di Sicilia: stato della conoscenza e descrizione di due nuove specie (Araneae Salticidae). – Mem Soc entomol ital 78: 485-498.
Bosmans, R., J. Van Keer, A. Russell-Smith, T. Kronestedt, M. Alderweireldt, J. Bosselaers & H. de Koninck 2013. Spiders of Crete (Araneae). A catalogue of all currently known species from the Greek island of Crete. – Nieuwsbrief van de Belgische Arachnologische Vereniging 28 (suppl. 1): 1-147.
Brignoli, P. M. 1972. Terzo contributo alla conoscenza dei ragni cavernicoli di Turchia (Araneae). – Fragmenta Entomologica 8: 161-190.
Brignoli, P. M. 1979. Ragni di Grecia XI. Specie nuove o interessanti, cavernicole ed epigee. – Revue Suisse de Zoologie 86: 181-202.
Chyzer, C. & W. Kulczyński 1894. Araneae Hungariae. – Budapest 2, 1-151.
Deeleman-Reinhold, C. L. 1985. Contribution à la connaissance des *Lepthyphantes* du groupe *pallidus* (Araneae, Linyphiidae) de Yougoslavie, Grece et Chypre. – Mémoires de Biospéologie 12: 37-50.
Deltshev, C. 1972. A contribution to the study of spiders (Araneae) from the caves in Bulgaria II. Genus *Lepthyphantes* in Bulgarian caves. – Izvestija na Zoologiceskija Institut Sofija 36: 137-147.
Deltshev, C. D. 1980. A contribution to the taxonomical study of *pallidus* group of genus *Lepthyphantes* Menge (Araneae, Linyphiidae) in Bulgaria. – Acta Zoologica Bulgarica 16: 44-56.
Deltshev, C. D. 1992. A critical review of family Theridiidae (Araneae) in Bulgaria. – Acta Zoologica Bulgarica 43: 13-21.
Dumitrescu, M. & M. Georgescu 1981. Contribution à la connaissance des espèces cavernicoles du genre *Lepthyphantes* des grottes de Roumania, 1re note. – Travaux de l'Institut de Spéologie "Émile Racovitza" 20: 9-28.
Fage, L. 1931. Araneae, 5e série, précédée d'un essai sur l'évolution souterraine et son déterminisme. – In: Biospeologica 55, Archives de Zoologie Expérimentale et Générale 71: 91-291.
Hadjissarantos, H. 1940. Les araignées de l'Attique. – Athens, 132 pp.
Helsdingen, P. J. van 2016. Araneae. In: Fauna Europaea Database (Version 2016.1). – (http://www.european-arachnology.org)
Helsdingen, P. J. van 2015. *Pseudeuophrys perdifumo*, a new salticid spider from Castellabate, Italy (Araneae, Salticidae). – Nieuwsbrief SPINED 35: 11-13.
IJland, S., P.J. van Helsdingen & J. Miller 2012. On some spiders from Gargano, Apulia, Italy. – Nieuwsbrief SPINED 32: 2-20.
IJland, S. & P.J. van Helsdingen 2014. On some spiders (Arachnida, Araneae) from the surroundings of Castellabate, Italy. – Nieuwsbrief SPINED 34: 16-33.
Jantscher, E. 2001. Revision der Krabbenspinnengattung *Xysticus* C.L. Koch, 1835 (Araneae, Thomisidae) in Zentraleuropa. Dissertation: 1-328 (Unpublished).
Knoflach, B. & K.Thaler 1998. Kugelspinnen und verwandte Familien von Österreich: Ökofaunistische Übersicht. (Araneae: Theridiidae, Anapidae, Mysmenidae, Nesticidae). – Stapfia 55: 667-712.
Komnenov, M. 2013. Spider fauna of the Osogovo Mt. Range, Northeastern Macedonia. – Fauna Balkana 2: 1-267.
Kulczyński, W. 1898. Symbola ad faunam aranearum Austriae inferioris cognoscendam. – Rozprawy i Sprawozdania z Posiedzen Wydzialu Matematyczno Przyrodniczego Akademji Umiejetnosci, Krakow 36: 1-114
Nentwig, W., T. Blick, D. Gloor, A. Hänggi A & C. Kropf 2016. Spiders of Europe. www.araneae.unibe.ch. Version 12.2016
Pantini, P. & M. Isaia 2016. Checklist of the Italian spiders. Version March 2016.
http://www.museoscienzebergamo.it/web/index.php?option=com_content&view=category&layout=blog&id=96&Itemid
Pesarini, C. 2000. Contributo alla conoscenza della fauna araneologica italiana (Araneae). – Memorie della Società Entomologica Italiana, Genova 78: 379-393
Simon, E. 1880. Arachnides nouveau de France, d'Espagne et d'Algérie. Premier mémoire. – Bulletin de la Société Zoologique de France 4: 251-263.
Simon, E. 1914. Les arachnides de France. Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae; 1re partie. – Paris 6, 1-308
Simon, E. 1932. Les arachnides de France. Tome VI. Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae; 4e partie. – Paris 6, 773-978.
Wunderlich, J. 1995. Zur Kenntnis west-paläarktischer Arten der Gattungen *Psammitis* Menge 1875, *Xysticus* C.L. Koch 1835. – Beiträge zur Araneologie 4: 749-774.