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New records and interesting data for the Sardinian spider fauna (Arachnida: Araneae)Michele CARIA¹, Paolo PANTINI², Federico ALAMANNI¹, Cesare ANCONA³, Davide CILLO⁴, Erika BAZZATO^{1,*}¹ Department of Life and Environmental Sciences, University of Cagliari, Viale Sant'Ignazio da Laconi 13, I-09123, Cagliari, Italy – otzcaria@gmail.com; federico.alamanni@gmail.com; erika.bazzato@hotmail.it² Museo Civico di Scienze Naturali “E. Caffi”, Piazza Cittadella 10, I-24129, Bergamo, Italy – paolo.pantini@comune.bergamo.it³ Via Mascagni 3, I-09020, Ussana (SU), Italy – c.ancona@yahoo.it⁴ Via Zeffiro 8, I-09130, Cagliari, Italy – davide.cillo@hotmail.it

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Abstract

We present new distributional data of 24 spider species in Sardinia, including 7 endemic and 1 poorly recorded species. Sixteen species from 7 families and six species from 2 families are recorded for the first time in Sardinia and Italy, respectively. Among these, the reported presence of *Cepheia longiseta* and five other species allows us to include the Synsphyridae family and five genera (*Anagraphis*, *Hahnia*, *Minyriolus*, *Thaumatoncus*, *Trabea*) in the Sardinian spider checklist, and two genera (*Anagraphis* and *Thaumatoncus*) in the Italian spider checklist. Relevant faunistic and distribution notes of poorly collected species are also provided.

Keywords: biogeography, endemic species, Synsphyridae, Sardinia, Italy.**Introduction**

Spiders are very abundant and highly diversified generalist predators found in almost every terrestrial environment throughout the world (Foelix 2011; Turnbull 1973; Wise 1993). For these reasons, they are important elements in natural or even artificial systems due, for example, to their significant role in biological pest control (Sunderland 1999). Consequently, a knowledge of their regional diversity is very important to better understand ecological processes and implement effective conservation actions.

Even though the spider fauna of Italy is relatively well catalogued, certain regions in the South remain poorly studied and other studies are required in the Mediterranean areas (Pantini & Isaia 2019).

For Sardinia, the second-largest island of the Mediterranean basin, a comprehensive checklist of spider fauna was published by Pantini et al. (2013) and included 495 taxa. Subsequently, 21 papers concerning Sardinian spider fauna, or including Sardinian material, have been published. In 2013, after the publication of the catalogue, Bolzern et al. (2013) and Planas et al. (2013) published phylogenetic and molecular data with taxonomical implications respectively for the *Tegenaria-Malthonica* complex and the genus *Lycosa*, whereas Colombo & Manunza (2013) reported the first case of malacophagy in *Cteniza sauvagesi* (Rossi, 1788). The

following year, the Sardinian endemic mygalomorph *Amblyocarenum nuragicum* Decae, Colombo & Manunza, 2014 was described. Later on, Logunov (2015) reported the first records of the salticids *Macaroeis flavicomis* (Simon, 1884) and *Pseudomogrus gavdos* (Logunov & Marusik, 2003), and Bosmans & Colombo (2015) contributed by recording 14 new species and describing the linyphiid *Centromerus isaii* Bosmans, 2015. In the same year, the Sardinian endemic linyphiid *Centromerus marciai* Bosmans & Gasparo (2015), and the Sardinian endemic mygalomorph *Nemesia asterix* Decae & Huber (2017) were described. Thereafter, Bosmans et al. (2018) recorded *Haplodrassus rhodanicus* (Simon, 1914) and *H. typhon* (Simon, 1878), and described *H. securifer* Bosmans & Abrous, 2018 based on Apulian, Sardinian and Sicilian specimens. In the same year, the gnaphosid spider *Marinarozelotes huberti* (Platnick & Murphy, 1984) was recorded by Mulas & Ruiu (2018). Furthermore, Lunghi (2018) published a paper concerning the ecology of *Meta bourneti* Simon, 1922 from Monte Albo. Lastly, a revision of the genus *Zodarion* allowed Bosmans et al. (2019) to describe two new endemic species, *Zodarion pantaleonii* Bosmans & Pantini, 2019 and *Z. pseduonigriceps* Bosmans & Pantini, 2019.

In the light of these numerous studies, a synthesis of all the published scientific information available brought the total number of Sardinian spiders up to 522 species (Pantini & Isaia 2019).

With this paper, new distributional data are provided of 24 taxa from 12 families for the Sardinian spider fauna. Sixteen species from 7 families and six species from 2 families are recorded for the first time in Sardinia and Italy, respectively. Among these, the first record of *Cepheia longiseta* and five other species allows us to include the Synsphyridae family and five genera (*Anagraphis*, *Hahnia*, *Minyriolus*, *Thaumatoncus*, *Trabea*) in the Sardinian spider checklist, and two genera (*Anagraphis* and *Thaumatoncus*) in the Italian spider checklist. Relevant faunistic and distribution notes of poorly collected species are also provided.

Thanks to some intensive samplings conducted in Sardinia from April 2018 to May 2019, our paper provides new contributions to the knowledge of spider species distribution on the island of Sardinia, but also in the Italian territory.

Materials and Methods

Most of the records in the present paper originate from sampling efforts in southern Sardinia (Fig. 1) aimed at investigating the impact of land-use types on plants (Bazzato et al. 2021a, 2021c) and arthropods (Bazzato et al. in preparation) in 30 small woodlots outside forests. The 30 different localities fall within four municipalities of the Metropolitan City of Cagliari (Table 1; Fig. 1), a medium-sized functional urban area characterized by three degrees of fragmentation (Palumbo et al. 2020).

Specimens were collected by means of pitfall traps. Five pitfall traps were located in each small woodlot, for a total of 150. The traps were active from April 2018 to May 2019 and were replaced every 30-40 days. A few additional records, collected by hand, came from the private collection of the first author. The material was identified using an Optika SZM-T stereomicroscope 45 \times .

For each specimen the following data are reported: scientific name and distributional data according to the World Spider Catalogue (2021); material examined, including site abbreviations (Table 1), date, number of specimens and collection abbreviations (reported below) where specimens are preserved; some faunistic notes. Unless otherwise indicated, specimens were collected by Bazzato E., Caria M., Ancona C. and Alamanni F.

Collection abbreviations

MSNB: Museo Civico di Scienze Naturali "E. Caffi", Bergamo (Italy).

ZFMK: Zoological research Museum Alexander Koenig (ZFMK), Bonn (Germany).

MCC: Michele Caria, Guasila (Italy).

Results

The list of new recorded species is summarized in Table 2.

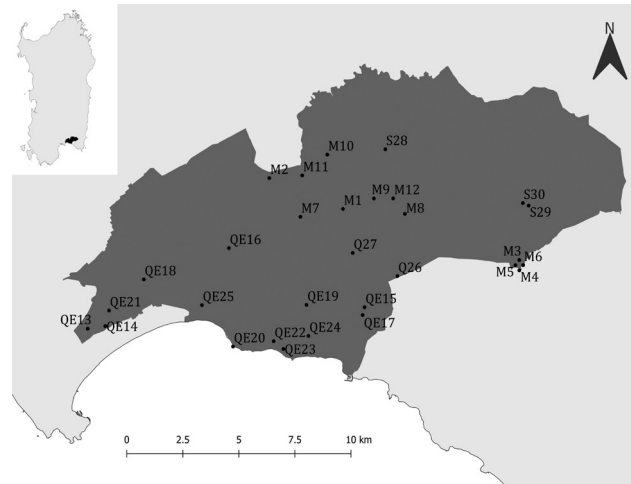


Fig. 1 – Map of the localities where the specimens were collected; the area marked in grey corresponds to the study area where the pitfall traps were placed.

Dysderidae C. L. Koch, 1837

Harpactea sardoa Alicata, 1966

Material examined. Q26, 13.VI-18.VII.2018, 4♂♂ (MSNB); S28, 12.VI-19.VII.2018, 1♂ (MSNB).

Distribution. Italy (Lazio and Sardinia).

Comments. Species described based on Sardinian specimens from Monte Funnau (Dorgali, Nuoro). After its description, Brignoli (1979b) recorded it in a woodland in Monte Circeo (Latina, Lazio) and on the island of Ventotene (Lazio). Subsequently, it was recorded by Pantini et al. (2013) in some localities of the province of Nuoro.

Gnaphosidae Pocock, 1898

Anagraphis ochracea (L. Koch, 1876)

Material examined. QE14, 06.VI-18.VII.2018, 2♂♂ (MSNB); QE18, 18.VII-22.VIII.2018, 1♂ (MSNB); QE21, 18.VII-22.VIII.2018, 1♀ (ZFMK).

Distribution. Albania, North Macedonia, Greece, Turkey.

Comments. The genus is here recorded for the first time in Italy. With these records, we relocate the limit of the western distribution of this genus and this species from the Balkans to Sardinia. The left palp of the male of *A. ochracea* is illustrated in Fig. 2.

Civizelotes solstitialis (Levy, 1998)

Material examined. QE14, 18.VII-22.VIII.2018, 1♀ (MSNB).

Distribution. Bulgaria, Greece, Crete, Turkey, Israel, Iran.

Table 1 – List of the localities where the specimens have been collected; coordinates are expressed following the WGS84 system, and altitude is expressed in m a.s.l.

ID	Municipality	Locality	Coordinates	Altitude	Environment
M1	Maracalagonis	Bacca Aruis, Gruxi Lillius	39.271N, 9.300E	100	eucalyptus grove
M2	Maracalagonis	Carroghedda, Corongiu	39.283N, 9.262E	85	eucalyptus grove
M3	Maracalagonis	Codoleddu, Burranca	39.251N, 9.391E	715	willow grove
M4	Maracalagonis	Codoleddu, Sette Fratelli	39.247N, 9.391E	700	strawberry tree grove
M5	Maracalagonis	Codoleddu, Sette Fratelli	39.249N, 9.389E	700	willow grove
M6	Maracalagonis	Codoleddu, Sette Fratelli	39.249N, 9.393E	705	willow grove
M7	Maracalagonis	Coronigu	39.268N, 9.278E	60	eucalyptus grove
M8	Maracalagonis	Riu Monte Nieddu	39.269N, 9.332E	140	eucalyptus grove
M9	Maracalagonis	Riu Piscina Nuxedda	39.275N, 9.316E	80	rushes-eucalyptus grove
M10	Maracalagonis	Sedda Brandanu, Corongiu	39.292N, 9.292E	140	poplar grove
M11	Maracalagonis	Sirigragiu, Corongiu	39.284N, 9.279E	80	eucalyptus grove
M12	Maracalagonis	Villaggio dei Gigli	39.275N, 9.326E	120	eucalyptus grove
QE13	Quartu Sant'Elena	Bingia Spada, Stagno di Quartu	39.225N, 9.168E	5	eucalyptus grove
QE14	Quartu Sant'Elena	C. D'Aquila, Stagno di Quartu	39.226N, 9.177E	5	olive grove
QE15	Quartu Sant'Elena	Frapponti, Cani Nieddu	39.233N, 9.311E	85	pine and olive grove
QE16	Quartu Sant'Elena	Sa Guardia Lada, Simbirizzi	39.256N, 9.241E	35	eucalyptus grove
QE17	Quartu Sant'Elena	St. comunale Cani Nieddu	39.230N, 9.310E	70	olive grove
QE18	Quartu Sant'Elena	Via Beglio, Sant'Antonio	39.244N, 9.197E	10	urban garden (eucalyptus grove)
QE19	Quartu Sant'Elena	Via delle Bouganvillee	39.234N, 9.281E	20	tamarisk grove
QE20	Quartu Sant'Elena	Via Ischia, Foxi	39.218N, 9.243E	0	mixed crop (pine, olive and eucalyptus grove)
QE21	Quartu Sant'Elena	Via Pezzetti, Is Arenas	39.232N, 9.179E	5	urban garden (pine grove)
QE22	Quartu Sant'Elena	Via Riccione, Porticciolo	39.220N, 9.264E	10	urban garden (pine and eucalyptus grove)
QE23	Quartu Sant'Elena	Via Rimini, Sant'Andrea	39.217N, 9.269E	5	domestic garden (pine grove)
QE24	Quartu Sant'Elena	Via Rio Piscinas, Scoa Moentis	39.222N, 9.282E	10	urban garden (pine and eucalyptus grove)
QE25	Quartu Sant'Elena	Via Valenzia, Margine Rosso	39.234N, 9.227E	35	cultivated pine grove
Q26	Quartucciu	Corti de Perda	39.245N, 9.328E	120	eucalyptus grove
Q27	Quartucciu	Piscina Nuxedda	39.254N, 9.305E	50	olive grove
S28	Sinnai	Burranca	39.294N, 9.322E	150	eucalyptus grove
S29	Sinnai	Monte Cresia, Sette Fratelli	39.272N, 9.396E	665	strawberry tree-heather grove
S30	Sinnai	Monte Cresia, Sette Fratelli	39.273N, 9.393E	675	strawberry tree grove

Comments. The species is here recorded for the first time in Italy. Our record is the westernmost of this species. The epigyne is illustrated in Fig. 3.

Drassodes serratichelis (Roewer, 1928)

Material examined. QE16, 14.V-18.VII.2018, 1♂ (MSNB); municipality of Guasila (Province of South Sardinia), hand collecting, 13.VI.2019 and 15.VI.2019, 2♂ M. Caria leg. (MCC).

Distribution. Spain (Majorca), Greece, Turkey, Ukraine, Israel? Introduced to the USA.

Comments. The species is here recorded for the first time in Italy.

Leptodrassus albidus Simon, 1914

Material examined. QE14, 18.VII-22.VIII.2018, 1♂ (MSNB).

Distribution. Azores, Canary Islands, Spain to Greece, Turkey, Israel.

Comments. The species is here recorded for the first time in Sardinia. In Italy, it is known only on Capraia Island (Tuscany) (Di Franco & Pantini 2000) and in two Sicilian localities (Di Franco 2021; Pantini & Isaia 2008).

Nomisia excerpta (O. Pickard-Cambridge, 1872)

Material examined. M12, 24.V-18.VII.2018, 1♀ (MSNB), 18.VII-22.VIII.2018 1♀ (ZFMK); QE15, 10.V-18.VII.2018, 1♂ (ZFMK), 22.VIII-24.IX.2018, 1♀ (ZFMK); QE17, hand

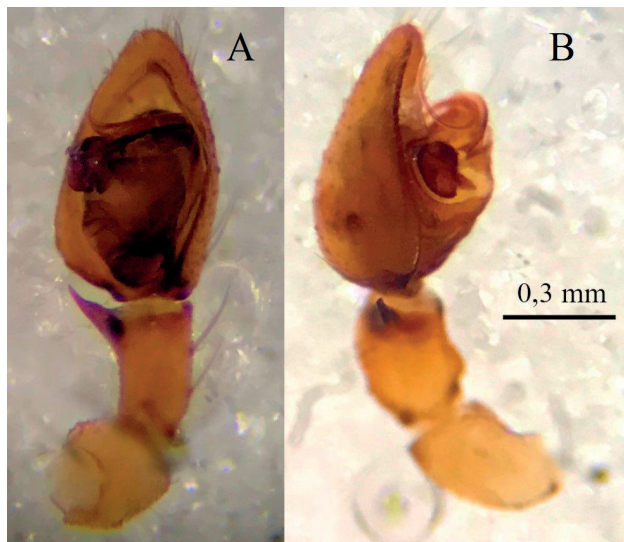


Fig. 2 – *Anagraphis ochracea* (L. Koch, 1876): A, ♂ palp ventral view and B, retrolateral view. Scale bar: 0.3 mm.

Table 2 – List of the new records (species marked with an asterisk are new to Italy).

Gnaphosidae
* <i>Anagraphis ochracea</i> (L. Koch, 1876)
* <i>Civizelotes solstitialis</i> (Levy, 1998)
* <i>Drassodes serratichelis</i> (Roewer, 1928)
<i>Leptodrassus albidus</i> Simon, 1914
<i>Nomisia excerpta</i> (O. Pickard-Cambridge, 1872)
<i>Marinarozelotes lyonneti</i> (Audouin, 1826)
Hahniidae
<i>Hahnia pusilla</i> C. L. Koch, 1841
Linyphiidae
<i>Gongylidiellum murcidum</i> Simon, 1884
* <i>Linyphia maura</i> Thorell, 1875
<i>Minyriolus medusa</i> (Simon, 1881)
* <i>Thaumatoncus indicator</i> Simon, 1884
* <i>Trichoncus aurantiipes</i> Simon, 1884
Liocranidae
<i>Cybaeodes marinae</i> Di Franco, 1989
Lycosidae
<i>Trabea paradoxa</i> Simon, 1876
Salticidae
<i>Salticus cingulatus</i> (Panzer, 1797)
Synsphyridae
<i>Cepheia longiseta</i> (Simon, 1881)

collecting, 5.VI.2018, 1♂ M. Caria leg. (MCC); Q26, hand collecting, 13.VI.2018, 1♂ M. Caria leg. (MCC).

Distribution. Canary Islands to the Middle East.

Comments. The species is here recorded for the first time in Sardinia. In Italy, it was recorded only twice in Calabria (Ijland & van Helsdingen 2016, 2019).

Marinarozelotes lyonneti (Audouin, 1826)

Material examined. M2, 11.V-18.VII.2018, 9♂♂5♀♀ (MSNB), 18.VII-22.VIII.2018, 1♀ (ZFMK); M7, 11.V-18.VII.2018, 1♂ (MSNB), 18.VII-22.VIII.2018, 2♀♀ (ZFMK); M9, 25.V-18.VII.2018, 1♂ (MSNB), 18.VII-22.VIII.2018, 2♀♀ (ZFMK), 22.VIII-24.IX.2018, 1♀ (ZFMK); M11, 14.V-16.VII.2018, 1♂ (MSNB); QE13, 18.VII-22.VIII.2018, 1♂ (ZFMK); QE16, 14.V-16.VII.2018, 4♂♂5♀♀ (MSNB), 3♀♀ (MCC); QE18, 9.V-18.VII.2018, 1♀ (MSNB); QE19, 10.V-18.VII.2018, 2♀♀ (MSNB), 18.VII-22.VIII.2018, 1♀ (ZFMK); QE24, VI-18.VII.2018, 1♂ (MSNB); QE25, 30.V-18.VII.2018, 1♀ (MSNB).

Distribution. Macaronesia, Mediterranean areas to Central Asia. Introduced to the USA, Mexico, Peru, Brazil.

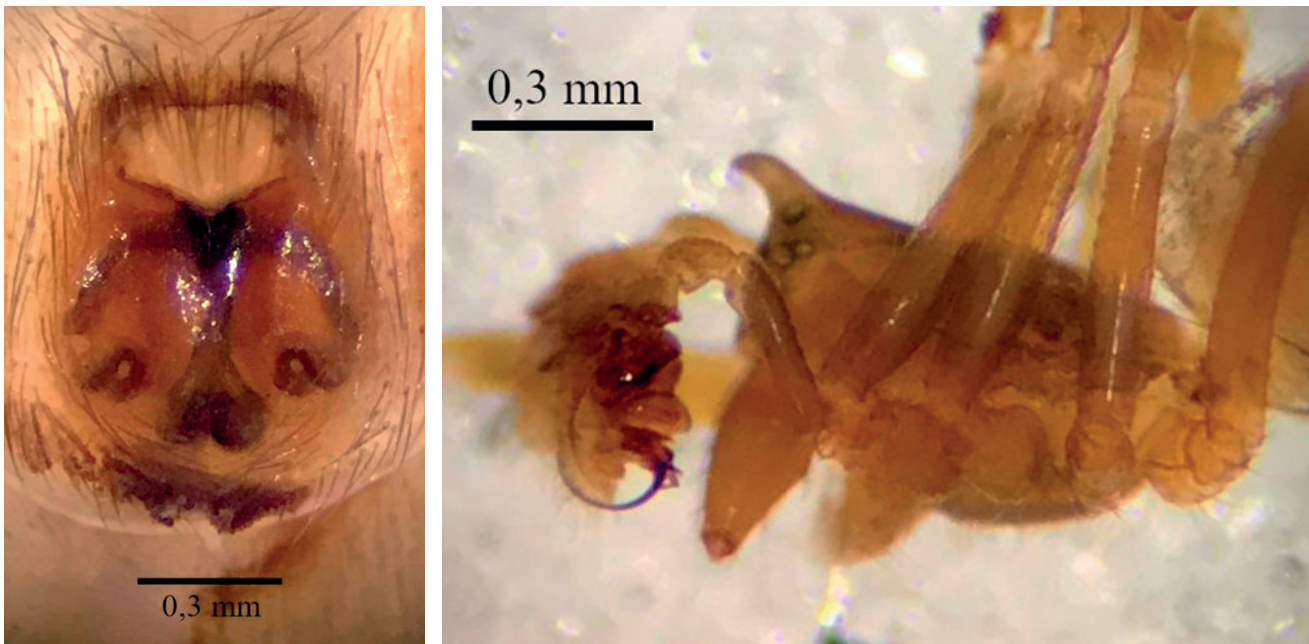


Fig. 3 – *Civizelotes solstitialis* (Levy, 1998): ♀ epigyne ventral view. Scale bar: 0.3 mm. **Fig. 4** – *Thaumatoncus indicator* Simon, 1884: ♂ prosoma lateral view. Scale bar: 0.3 mm.

Comments. The species is here recorded for the first time in Sardinia. In Italy, it is currently recorded only in the Delta of the Po (Veneto) (Platnick & Murphy 1984) and in the Sicilian locality of Oasi del Simeto (Di Franco 2001). This Mediterranean species shows a widespread distributional range which is possibly related to human activity and to its wide ecological tolerance.

Zelotes sardus (Canestrini, 1873)

Material examined. M1, 22.VIII-24.IX.2018, 4♂♂ (ZFMK); M2, 11.V-18.VII.2018, 4♀♀ (MSNB), 18.VII-22.VIII.2018, 1♀ (ZFMK), 22.VIII-24.IX.2018, 2♂♂ (ZFMK); M3, 22.VIII-24.IX.2018, 1♂ (ZFMK); M4, 26.VI-18.VII.2018, 1♀ (MSNB), 22.VIII-24.IX.2018, 2♂♂ (ZFMK); M6, 24.IX-29.X.2018, 1♂ (ZFMK); M7, 11.V-18.VII.2018, 2♀♀ (MSNB); M8, 22.VIII-24.IX.2018, 1♂ (ZFMK), 24.IX-29.X.2018, 1♂ (ZFMK); M9, 22.VIII-24.IX.2018, 5♂♂1♀ (ZFMK); M11, 18.VII-22.VIII.2018, 1♀ (ZFMK), 22.VIII-24.IX.2018, 2♂♂ (ZFMK), 03.XII-8.I.2019, 1♀ (ZFMK); QE15, 10.V-18.VII.2018, 1♀ (MSNB), 18.VII-22.VIII.2018, 2♀♀ (ZFMK); QE16, 14.V-16.VII.2018, 2♀♀ (MSNB), 18.VII-22.VIII.2018, 2♀♀ (ZFMK); QE19, 10.V-18.VII.2018, 2♀♀ (MSNB); QE23, 29.X-03.XII.2018, 1♂ (ZFMK); QE24, 2.VI-18.VII.2018, 1♀ (MSNB), 24.IX-29.X.2018, 1♂ (ZFMK); QE25, 30.V-18.VII.2018, 4♀♀ (MSNB), 24.IX-29.X.2018, 1♂ (ZFMK); Q26, 18.VII-22.VIII.2018, 1♀ (ZFMK); S29, 20.VI-19.VII.2018, 1♀ (MSNB), 18.VII-22.VIII.2018, 1♂ (ZFMK); S30, 15.VI-19.VII.2018, 1♀ (MSNB).

Distribution. France, Italy.

Comments. *Zelotes sardus* is known from Sardinia, Capraia Island (Tuscany) (Di Franco & Pantini 2000), and Corsica (Simon 1914). In our opinion, the records of mainland France (Simon 1878; Lucante 1880) require confirmation.

Hahniidae Bertkau, 1878

Hahnia pusilla C. L. Koch, 1841

Material examined. M5, 26.VI-18.VII.2018, 1♂ (MSNB), 22.VIII-24.IX.2018, 1♂ (ZFMK); M6, 24.IX-29.X.2018, 1♀ (ZFMK).

Distribution. Europe, Russia (Europe to South Siberia).

Comments. The genus is here recorded for the first time in Sardinia. This species is distributed in West and Central Palearctic (Kovblyuk et al. 2017). It is well-known in northern Italy, and only one record of it exists in Apulia (Brignoli 1973; Pantini & Isaia 2019).

Linyphiidae Blackwall, 1859

Gongyliidium murcidum Simon, 1884

Material examined. M5, 03.XII-8.I.2019, 1♂ (MSNB).

Distribution. Europe, Turkey, Russia (Europe to West Siberia), Iran, Turkmenistan, Japan.

Comments. The genus is here recorded for the first time in Sardinia. *G. murcidum* is linked to places with high levels of humidity (Nentwig et al. 2021). Indeed, the environment where we collected the specimen is characterized by a superficial aquifer allowing the formation of temporary ponds in rainy months.

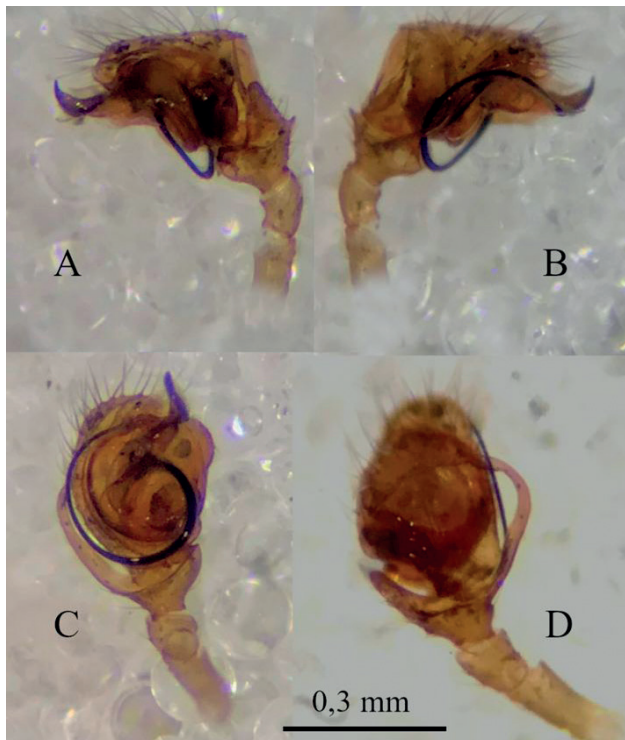


Fig. 5 – *Trichoncus aurantiipes* Simon, 1884: A, ♂ palp retrolateral view, B, prolateral view, C, ventral view, and D, dorsal view. Scale bar: 0.3 mm.

Linyphia maura Thorell, 1875

Material examined. M3, 03.XII-8.I.2019, 1♀ (MSNB); QE14, 03.XII-8.I.2019, 1♀ (MSNB); QE16, 03.XII-8.I.2019, 1♀ (MSNB); QE19, 10.V-18.VII.2018, 3♀♀ (MSNB).

Distribution. Western Mediterranean.

Comments. The species was omitted from Italian araneofauna (Pantini & Isaia 2019). Following a re-examination of the records collected by Caporiacco (1950), Van Hedsingen (1969) referred them to *Linyphia triangularis* (Clerk, 1757). With these records we re-include the species in the Italian fauna.

Minyriolus medusa (Simon, 1881)

Material examined. QE21, 29.X-03.XII.2018, 1♀; QE23, 29.X-03.XII.2018, 1♂ (MSNB); Q27, 24.IX-29.X.2018, 2♂♂ (MSNB), 29.X-03.XII.2018, 1♂ (MSNB).

Distribution. France, Italy, Austria, Croatia.

Comments. The genus is here recorded for the first time in Sardinia. In Italy, it is known on Giglio Island (Tuscany) (De Dalmas 1922) and in a few other localities in Veneto and in Trentino-Alto Adige (Pantini & Isaia 2019).

Thaumatoncus indicator Simon, 1884

Material examined. QE21, 18.VII-22.VIII.2018, 1♂ (MSNB).

Distribution. Spain, France, Algeria, Tunisia.

Comments. The genus is here recorded for the first time in Italy. The prosoma of the male is illustrated in Fig. 4.

Trichoncus aurantiipes Simon, 1884

Material examined. M2, 18.VII-22.VIII.2018, 2♂♂ (MSNB).

Distribution. Portugal, Morocco, Algeria, Tunisia.

Comments. The species is here recorded for the first time in Italy. It is a western Mediterranean species and is also recorded in the Balearic Islands (GBIF 2021b). The left palp of the male is illustrated in Fig. 5.

Palliduphantes angustiformis (Simon, 1884)

Material examined. M1, 29.X-03.XII.2018, 1♂1♀ (ZFMK); M2, 24.IX-29.X.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 2♂♂3♀♀ (ZFMK); M3, 22.VIII-24.IX.2018, 1♂2♀♀ (ZFMK), 03.XII-8.I.2019, 1♀ (ZFMK); M4, 26.VI-18.VII.2018, 1♂ (MSNB), 24.IX-29.X.2018, 1♀ (ZFMK), 29.X-03.XII.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 1♀ (ZFMK); M5, 26.VI-18.VII.2018, 1♂ (MSNB); M7, 11.V-18.VII.2018, 1♀ (MSNB), 24.IX-29.X.2018, 4♀♀ (ZFMK), 29.X-03.XII.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 1♂3♀♀ (ZFMK); M8, 18.VII-22.VIII.2018, 1♀ (MSNB), 22.VIII-24.IX.2018, 1♀ (ZFMK), 24.IX-29.X.2018, 1♀ (ZFMK), 29.X-03.XII.2018, 1♂ (ZFMK); M9, 22.VIII-24.IX.2018, 1♀ (ZFMK); M10, 01.VI-18.VII.2018, 1♀ (MSNB), 22.VIII-24.IX.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 1♀ (ZFMK); M11, 18.VII-22.VIII.2018, 2♀♀ (ZFMK), 22.VIII-24.IX.2018, 1♀ (ZFMK), 24.IX-29.X.2018, 1♂ (ZFMK); M12, 22.VIII-24.IX.2018, 1♀ (ZFMK), 24.IX-29.X.2018, 1♀ (ZFMK); QE13, 24.IX-29.X.2018, 1♀ (ZFMK); QE14, 22.VIII-24.IX.2018, 1♂1♀ (ZFMK); QE15, 24.IX-29.X.2018, 2♀♀ (ZFMK), 03.XII-8.I.2019, 2♂♂1♀ (ZFMK); QE16, 29.X-03.XII.2018, 1♀ (ZFMK); QE17, 29.X-03.XII.2018, 1♀ (ZFMK); QE18, 29.X-03.XII.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 1♂ (ZFMK); QE19, 03.XII-8.I.2019, 1♂ (ZFMK); QE20, 24.IX-29.X.2018, 1♀ (ZFMK); QE21, 24.IX-29.X.2018, 1♀ (ZFMK), 03.XII-8.I.2019, 2♂♂ (ZFMK); QE22, 5.VI-18.VII.2018, 1♀ (MSNB), 24.IX-29.X.2018, 1♂ (ZFMK), 03.XII-8.I.2019, 1♂1♀ (ZFMK); QE23, 24.IX-29.X.2018, 1♀ (ZFMK), 29.X-03.XII.2018, 2♀♀ (ZFMK), 03.XII-8.I.2019, 4♂♂2♀♀ (ZFMK); QE24, 24.IX-29.X.2018 (ZFMK), 1♂, 03.XII-8.I.2019, 1♂2♀♀ (ZFMK); QE25, 18.VII-22.VIII.2018, 1♂ (ZFMK), 22.VIII-24.IX.2018, 1♀ (ZFMK), 24.IX-29.X.2018, 1♂ (ZFMK), 03.XII-8.I.2019, 2♂♂5♀♀ (ZFMK); Q26, 29.X-03.XII.2018, 1♀ (ZFMK); Q27, 22.VIII-24.IX.2018, 1♀ (ZFMK), 24.IX-29.X.2018, 1♀ (ZFMK), 29.X-03.XII.2018, 1♂2♀♀ (ZFMK); S28, 24.IX-29.X.2018, 1♀ (ZFMK); S29, 22.VIII-24.IX.2018, 1♂♀1 (ZFMK), 24.IX-29.X.2018, 3♀♀ (ZFMK).



Fig. 6 – *Bassaniodes sardiniensis* (Wunderlich, 1995): A, ♂ palp ventral view, B, retrolateral view and C, dorsal view. Scale bar: 0.5 mm.

Distribution. France (incl. Corsica), Italy (Sardinia).

Comments. Species endemic to the Tyrrhenian area, where it is well recorded in Sardinia and Corsica.

Liocranidae Simon, 1897

Liocranum giersbergi Kraus, 1955

Material examined. M4, 24.IX-29.X.2018, 2♀♀ (ZFMK); S28, 18.VII-22.VIII.2018, 1♀ (ZFMK); S30, 15.VI-19.VII.2018, 1♀ (MSNB), 24.IX-29.X.2018, 1♀ (ZFMK), 29.X-03.XII.2018, 1♂1♀ (ZFMK), 03.XII-8.I.2019, 1♂ (MSNB).

Distribution. Italy (Sardinia).

Comments. Species endemic to Sardinia, where it is currently well recorded. It has been described based on a female specimen from Bonorva, while the male has been described by Wunderlich (1995a) based on a specimen from Baunei.

Cybaeodes marinae Di Franco, 1989

Material examined. M8, 24.IX-29.X.2018, 1♂ (MSNB); M12, 24.IX-29.X.2018, 1♂ (MSNB); QE15, 22.VIII-24.IX.2018, 1♂ (MSNB); QE17, 22.VIII-24.IX.2018, 1♂♀ (MSNB); QE19, 29.X-03.XII.2018, 2♂♂ (MSNB); Q27, 22.VIII-24.IX.2018, 1♂ (MSNB); S29, 24.IX-29.X.2018, 2♂♂ (MSNB); S30, 29.X-03.XII.2018, 1♀ (MSNB).

Distribution. Italy.

Comments. Species endemic to the Tyrrhenian area. It was described based on specimens from Lazio and Sicily. Subsequently, it was recorded in Calabria (Di Franco & Benfatto 2002). The species is here recorded for the first time in Sardinia.

Lycosidae Sundevall, 1833

Trabea paradoxa Simon, 1876

Material examined. M7, 11.V-18.VII.2018, 2♂♂1♀ (MSNB).

Distribution. Southern Europe, Turkey.

Comments. The genus is here recorded for the first time in Sardinia. *T. paradoxa* seems to be a rare strictly Mediterranean species associated with the coastal environments (Tongiorgi 1968; Russell-Smith 1982; Lecigne 2017). In Italy, it has been recorded in coastal localities of Friuli-Venezia Giulia, Veneto, Campania, Calabria, Sicily and in the Tuscan Archipelago (Pantini & Isaisa 2019).

Nemesiidae Simon, 1889

Amblyocarenum nuragicum Decae, Colombo & Manunza, 2014

Material examined. QE23, 29.X-03.XII.2018, 1♀ (MSNB); S30, 22.VIII-24.IX.2018, 2♂♂ (ZFMK).

Distribution. Italy (Sardinia).

Comments. The species is endemic to Sardinia. Until now, it has been recorded in Maristella (Province of Sassari), Nuoro and Guspini (Decae et al. 2014).

Salticidae Blackwall, 1841

Salticus cingulatus (Panzer, 1797)

Material examined. M5, 26.VI-18.VII.2018, 1♀ (MSNB).

Distribution. Europe, Turkey, Iran, Russia (Europe to Far East), Kazakhstan, Mongolia.

Comments. The species is here recorded for the first time in Sardinia.

Synsphyridae Wunderlich, 1986

Cepheia longiseta (Simon, 1881)

Material examined. M2, 18.VII-22.VIII.2018, 1♂ (MSNB).

Distribution. Southern Europe.

Comments. The family is here recorded for the first time in Sardinia. *Cepheia* is a monotypic genus that includes only *C. longiseta*, a poorly recorded species distributed in southern Portugal, southern Spain, the Balearic Islands, southern France, southern Austria and in northern Italy (Lopardo & Hormiga 2007). In Italy, it has been recorded only once in Liguria (Bertkau 1890) and twice in Trentino-Alto Adige (Thaler & Noflatscher 1990; Lopardo & Hormiga 2007).

Thomisidae Sundevall, 1833

Bassaniodes sardiniensis (Wunderlich, 1995)

Material examined. M4, 26.VI-18.VII.2018, 2♂♂ (MSNB).

Distribution. Sardinia.

Comments. The species was described based on a male specimen collected in Sorgono (Nuoro). The holotype and a second male specimen from Baunei (Nuoro) not reported in Wunderlich (1995b) are currently preserved in Senckenberg Naturmuseum Frankfurt (WSC 2021). These are the second records of this species after its original description. The left palp of the male is illustrated in Fig. 6. The female is currently unknown.

Uloboridae Thorell, 1869

Polenecia producta (Simon, 1873)

Material examined. QE15, 10.V-18.VII.2018, 1♀ (ZFMK); QE17, hand collecting, 5.VI.2018, 1♂ M. Caria leg. (MCC).

Distribution. Mediterranean to Azerbaijan.

Comments. Simon (1873) described this species and reported it in Corsica and Syria, but did not report the exact locations. Moreover, he did not directly collect the Syrian specimens, but they were sent to him by an acquaintance. In the Iberian Peninsula *P. producta* has been recorded a few times in both Spain (Fernández Galiano 1910; Franganillo 1925; Barrientos et al. 1985; Crespo et al. 2018; Muñoz-Maciá 2019) and Portugal (Cardoso 2004; Cardoso et al. 2008; Crespo et al. 2010) but the records are scarce. These records are mapped by de Biurrun et al. (2019), and other Iberian records are reported in GBIF (2021a). In Italy, it was recorded only once by Brignoli (1979a), who collected a male specimen from Bortigiadas (Sassari) in 1966. Therefore, this is the second record of this species in Italy. However, records in mainland Italy and Sicily are still lacking. In the same paper, the author reported it in Lebanon too. Finally, it was recorded in Azerbaijan, where there are only three records (Dunin 1988; Guseinov 1999). Other records of this species are also reported by GBIF (2021a) for Agadir (Morocco).

Zodariidae Thorell, 1881

Zodarion pseudonigriceps Bosmans & Pantini, 2019

Material examined. M9, 25.V-18.VII.2018, 1♂2♀♀; M10, 01.VI-18.VII.2018, 4♀♀; Q26, 13.VI-18.VII.2018, 4♀♀, 22.VIII-24.IX.2018, 1♂, 24.IX-29.X.2018, 1♂1♀; S28, 12.VI-19.VII.2018, 10♀♀.

Distribution. Italy (Sardinia).

Comments. Species recently described on specimens from Montevecchio (Guspini) and Incurtosu (Arbus). These are the first records of this species following its description.

Conclusions

We have reported new distributional data of 24 taxa from 12 families for the Sardinian spider fauna, including several Sardinian endemic species.

The discovery in Sardinia of *Cepheia longiseta* and five other species that had now not been recorded until now for Sardinia and Italy respectively, allows us to include the Synsphyridae family and five genera (*Anagraphis*, *Hahnia*, *Minyriolus*, *Thaumatocnus*, *Trabea*) in the Sardinian spider checklist, and two genera (*Anagraphis* and *Thaumatocnus*) in the Italian spider checklist.

In the same way, the numerous species reported for the first time in the regional and national araneofauna once again confirm that less attention has been paid to the faunistic knowledge of the spider fauna of southern Italy. Two espe-

cially noteworthy findings are *Bassaniodes sardiniensis* and *Polonecia producta*, considering that the last records of the former dates back to 23 years ago, whereas the last records of the latter in its whole known range of distribution date back to the end of the last century. Records of *Zodariion pseudonigriceps* are also noteworthy, since this species was described just two years before these findings (Bosmans et al. 2019).

The high number of species records of regional and national relevance reported herein so shortly after the publication of the latest Italian spider checklist (Pantini & Isaia 2019), suggest that our knowledge about Sardinian spider fauna is far from being complete and can easily be increased by performing targeted faunistic or ecological field studies. Local field surveys can help address the gaps in our understanding of the distribution of poorly collected species, and increase our knowledge of diversity at regional and national levels (Schifani et al. 2021), especially in Mediterranean areas where the high heterogeneity of climate and topographic complexity (Bazzato et al. 2021b) have determined high levels of biodiversity as well as a wide variety of Potential Natural Vegetation (Farris et al. 2010; Bacchetta et al. 2009) and environments.

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