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Spermophora senoculata on Sicily/Italy (Araneae: Pholcidae)

Enrico Schifani, Antonino Dentici, Letizia Alleruzzo & Piergiorgio Di Pompeo

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Abstract. The pholcid spider *Spermophora senoculata* (Dugès, 1836) is recorded for the first time on the Mediterranean Island of Sicily (Italy) from indoor heated and non-heated habitats of two cities. This species is associated with mostly anthropogenic habitats around the globe. Uncertainty remains about where its native distribution range is located.

Keywords: exotic species, house spiders, synanthropic

Zusammenfassung. *Spermophora senoculata* auf Sizilien/Italien (Araneae: Pholcidae). Die Zitterspinne *Spermophora senoculata* (Dugès, 1836) wird erstmals für die Mittelmeerinsel Sizilien (Italien) gemeldet, aus geheizten und ungeheizten Räumen aus zwei Städten. Diese Art ist weltweit mit anthropogenen Habitaten assoziiert. Es ist weiterhin unklar wo ihr natürlicher Ursprung liegt.

The genus *Spermophora* Hentz, 1841 (Araneae: Pholcidae) currently includes forty-six species in total (World Spider Catalog 2019), mainly spread across Africa, Asia, Northern Australia and some Pacific Islands (Huber 2005). However, the systematic position of many of these species remains significantly problematic as the genus is highly polyphyletic (Huber et al. 2018).

Today, the existing literature records indicate *S. senoculata* to be widespread across the Mediterranean basin. It is currently considered to be present in the following countries around the Mediterranean Sea: Israel (Zonstein et al. 2015), Turkey (Demir & Seyyar 2017), Greece including Crete (Deltshev 2011, Bosmans et al. 2013), Croatia and Montenegro (Nentwig et al. 2019), Slovenia (Kostanjšek & Kuntner 2015), Italy (peninsular and Sardinia) (Pantini & Isaia 2018), Malta (Pfliegler et al. 2017), Tunisia (Dimassi et al. 2016), France including Corsica (Pétillon et al. 2007, Lissner 2016), and Spain including the Balearic Islands (Cardoso & Morano 2010). Interesting examples of populations found in natural areas in the Mediterranean were reported by Senglet (1971), who wrote about the presence of *S. senoculata* on Crete under stones around the ruins of Knossos and in a cave, and Brignoli (1979a), who recorded its presence inside a Sardinian cave. In April 2019, a juvenile *Spermophora* cf. *senoculata* was found in the Botanical Garden of Bologna (Italy) under a fallen log (P. Di Pompeo leg.).

However, only in the last 20 years an astonishing 38 new species, currently considered to belong to *Spermophora*, were described (Huber 2001, 2003a, 2003b, 2003c, 2005, 2009b, Senglet 2008, Huber & Warui 2012, Huber & Kwapong 2013, Yao & Li 2013, Huber et al. 2014). Many others were attributed to other genera, including new similar genera that have been described. Although none of these species is Mediterranean, and *S. senoculata* still presents some unmistakable characters, this level of change in the taxonomy of the genus suggests that it may be worth confirming previous records of *S. senoculata* by re-examination of voucher specimens.

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Material and methods

The specimens are stored in the personal collections Dentici and Di Pompeo. They were photographed using a Canon MP-E 65mm f/2.8 1–5× Macro Photo lens along with a Canon 1300D reflex camera. The program CombineZP was used to fuse images. Determination: Huber (2002), Nentwig et al. (2019). Other taxonomic studies dealing with *Spermophora* and related groups (see Introduction) were also consulted.

Results

Spiders were collected by direct sampling at three localities: (1) ITALY, Sicily, Palermo, Mondello, 38.1953°N, 13.3350°E, 5 m a.s.l., room of a house and a non-heated building, 2. Nov. 2018, 3 ♀♀, 16. Feb. 2019, 1 ♂, E. Schifani leg.; (2) ITALY, Sicily, Santa Lucia del Mela, 38.1412 °N, 15.2834°E, 250 m a.s.l., room of a house, 21. Nov. 2018, 1 ♂, 3 ♀♀ L. Alleruzzo leg.; (3) ITALY, Sicily, Palermo, 38.1480°N, 13.3150°E, 70 m a.s.l., non-heated building, 20. Mar. 2019, 4 ♀♀ A. Dentici leg.

Immature and adult females were collected at all three sites, and an adult male was collected in Mondello (Fig. 1). Reproduction was witnessed once, inside a heated room in Mondello, where an adult female was observed surrounded by twenty-one newly hatched spiderlings.

Discussion

The type species of the genus *Spermophora*, *S. senoculata* (Dugès, 1836), is the only one to have attained global distribution due to human-mediated dispersal (Huber 2005). Unfortunately, the identity of its native range is not yet understood. It may be a Mediterranean (Huber et al. 2017) or a Middle-Eastern species (Nentwig et al. 2019), while its closest relatives are probably native to Western Asia (Huber et al. 2018). Currently, *S. senoculata* is well-distributed across Europe (without the northern parts, the northernmost record is from Belgium) and North America and east to Japan (Huber 2000, Nentwig 2015, World Spider Catalog 2019), and was also observed in South America (Laborda & Simó 2008). Widely regarded as a synanthropic species, it is usually found inside buildings across most of its range (e.g. Huber 2000, 2005, Blick et al. 2004).

Many pholcid species have successfully spread across continents outside their native range as a result of human activities. The Asian *Pholcus phalangioides* (Fuesslin, 1775) and the Mediterranean *Holocnemus pluchei* (Scopoli, 1763) are among the most successful of relevance to temperate regions (Huber

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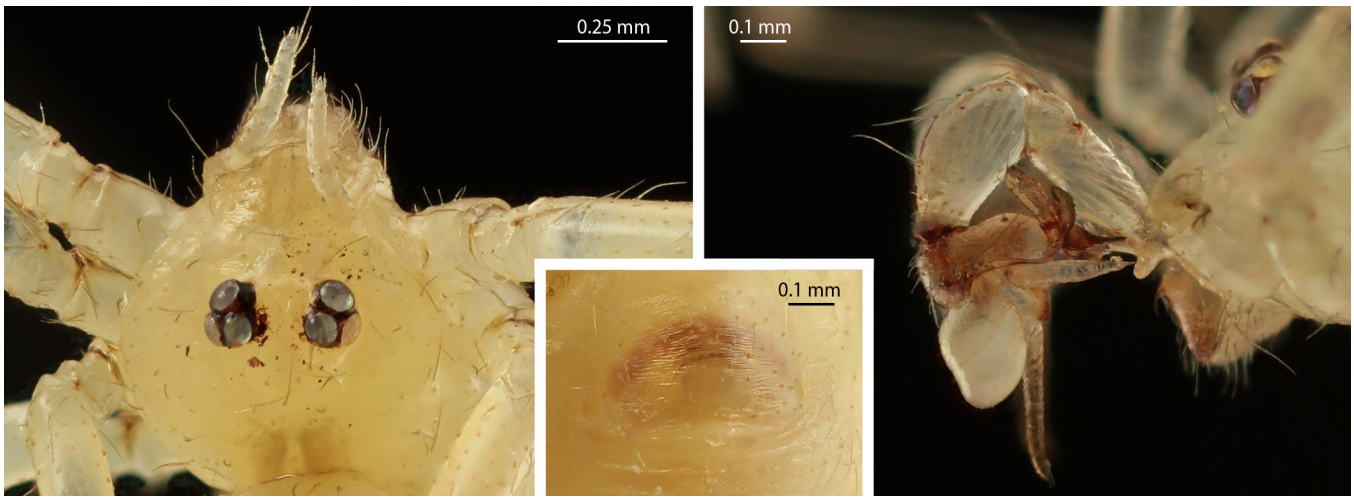


Fig. 1: Details of Sicilian specimens of *Spermophora senoculata* (Dugès, 1836) from Palermo, Mondello, (Italy). Left to right: adult female, dorsal view of the prosoma; adult female, epigyne; adult male, pedipalp in lateral view (photos by E. Schifani)

2009a). At least sixteen pholcid species have been introduced in Europe, making Pholcidae the second most species-rich introduced family in the continent, placed between the much larger families Salticidae Blackwall, 1841 and Theridiidae Sundevall, 1833 (Van Keer & Van Keer 2001, Kobelt & Nentwig 2008, Huber et al. 2015, Nentwig 2015, Huber et al. 2017). Among them, a second species of *Spermophora*, *S. kerinci* Huber, 2005, native to South-eastern Asia (Huber 2005), was recently discovered inside some heated buildings in England and Germany just few years after its description (Snazell & Smithers 2007, Kielhorn 2009). Of these sixteen pholcid species (Nentwig 2015, Huber et al. 2015), apart from *Spermophora* spp., the following six are currently considered established (Nentwig 2015): *Artema atlanta* Walckenaer, 1837, *Crossopriza lyoni* (Blackwall, 1867), *Micropholcus fauroti* (Simon 1887), *Modisimus culicinus* (Simon, 1893), *Pholcus phalangioides*, *Psilochorus simoni* (Berland, 1911) and *Smeringopus pallidus* (Blackwall, 1858). Most of the introduced pholcids appear to prefer anthropogenic habitats and none is recognized as harmful (Huber et al. 2017). In general, the current knowledge about the impacts of exotic spiders on native arthropod communities remains very low (Nentwig 2015).

The discovery of *Spermophora senoculata* on the island of Sicily is not surprising given its already widespread presence in neighbouring regions. Moreover, the Sicilian araneofauna has been neglected for many years, and numerous species were recorded only in recent times (Di Pompeo et al. 2011, Dentici 2017, Dentici & Amata 2018). Our findings occurred exclusively inside cities, and the knowledge of cave spiders in Sicily does not report any trace of its presence from these potentially suitable habitats (Brignoli 1979b). However, it appears premature to exclude the possibility that it represents a native species. The examples from other Mediterranean large islands, such as Crete and Sardinia (Senglet 1971, Brignoli 1979a), suggest that *S. senoculata* could be able to find suitable natural habitats for its establishment. Moreover, further supporting this possibility, a single juvenile *Spermophora* specimen (unfortunately not morphologically identifiable to species rank) was very recently found under a stone in a pine reforestation on the island of Marettimo (Egadi Islands), only few kilometres west of Sicily (37.9605°N, 12.0734°E, 28. Apr. 2019, A. Dentici leg.).

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