The Dysderidae of the Maltese Islands (Arachnida: Araneae)

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Abstract. The Dysderidae fauna of the Maltese Islands is reviewed. *Dysdera kollari* Doblika, 1853, *D. lagrecai* Alicata, 1964 and *Harpactea sicula* Alicata, 1966 are recorded for the first time from the Maltese archipelago, and the latter two species are recorded for the first time outside Italian territories. *Harpactea corticalis* (Simon, 1882) is removed from the Maltese dysderid fauna list. Distributional notes for all four species present in the Maltese Islands are provided, with the first records of Dysderidae from Comino.

Key words: Comino, *Dysdera*, Gozo, *Harpactea*, Malta, Mediterranean, new records, spiders

Zusammenfassung. Die Dysderidae der Maltesischen Inseln (Arachnida: Araneae). Die Dysderiden-Fauna der maltesischen Inseln wird besprochen. *Dysdera kollari* Doblika, 1853, *D. lagrecai* Alicata, 1964 und *Harpactea sicula* Alicata, 1966 werden zum ersten Mal für den maltesischen Archipel nachgewiesen – die beiden letztgenannten Arten zum ersten Mal außerhalb Italiens. *Harpactea corticalis* (Simon, 1882) wird von der Liste der maltesischen Dysderidae gestrichen. Die Verbreitung der vier Dysderiden-Arten der maltesischen Inseln wird erläutert und die ersten Nachweise von Dysderidae von der Insel Comino erbracht.

The Maltese archipelago consists of a number of small, low islands and islets located in the centre of the Mediterranean Sea, aligned in a North-West to South-East direction. The total area of the archipelago amounts to 314 km^2, and it lies approximately 96 km to the south of the Italian island of Sicily, and some 350 km directly north of the Libyan coast of North Africa. The climate is typically Mediterranean, with hot, dry summers and mild, wet winters. Notwithstanding their small size, an estimated 4500 species of terrestrial and freshwater arthropods inhabit the Maltese Islands (Dandria & Mifsud 2017). Currently, the known spider fauna of the Maltese Islands consists of 145 species from 31 families (Dandria et al. 2005, 2012, Dentici 2018).

The location of the Mediterranean as a meeting point of Europe, the Levant and Africa, together with its varied climatic regimes and complex physical geography, have endowed it with high levels of species diversity and endemism. This diversity is also exhibited by the family Dysderidae, which is represented by just over 400 species in the Mediterranean region, distributed in twenty-two genera (World Spider Catalog 2021). Dysderids are six-eyed haplogyne spiders with stout, relatively hairless legs and large chelicerae. Their tendency to inhabit damp areas, and the common belief that their large chelicerae are adapted for hunting terrestrial isopods, have led to the vernacular name "woodlouse spiders", despite the fact that dysderids will prey on a wide variety of invertebrates (Pollard et al. 1995).

Despite the diversity of species of Dysderidae in the Mediterranean region, the dysderid species inhabiting the Maltese Islands never attracted much attention, and so far only two species have been recorded as part of broader works related to the Maltese aranaeofauna: *Dysdera crocata* C. L. Koch, 1838 and *Harpactea corticalis* (Simon, 1882). The present work records an additional three species, and notes on all four species are provided (Fig. 1).

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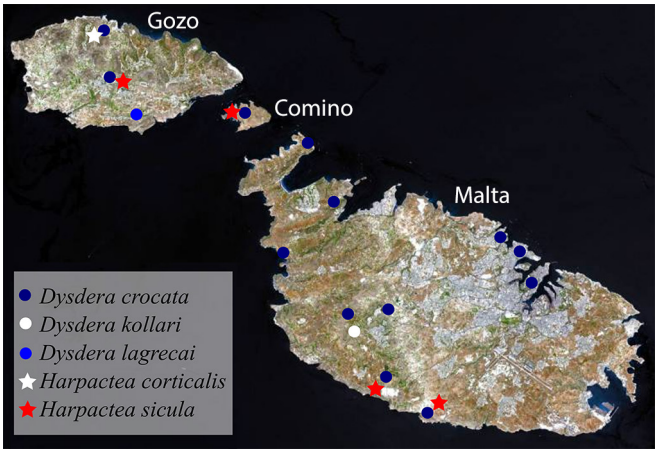

Fig. 1: Map showing the locations from which different species of Dysderidae have been recorded earlier or collected in the present study from the Maltese Islands

Material and methods

Dysderid spiders were collected from Malta, Comino and Gozo throughout the years 2019 to 2021 by searching under stones during the wet season. Some material was obtained from a mesovoid shallow substratum (MSS) trap (López & Oromi 2010) aimed at collecting endogean coleopterans (only the date of emptying the traps is known). All material was stored in 75% ethanol for identification and deposited at the Crop Research Institute in Prague, Czech Republic. A distributional map was constructed on the basis of the collected material, as well as records in the literature. Nomenclature follows the World Spider Catalog (2021).

Results

Dysdera Latreille, 1804

Dysdera crocata C. L. Koch, 1838 (Figs 2a, 3a, 4a)

Material examined. MALTA. **Malta:** Lapsi, Siġġiewi, 35.82969°N, 14.42050°E, 30 m a.s.l, MSS trap, 3. Jun. 2019, leg. J. Borg, 1 ♂; Rdum tal-Madonna, Mellieħa, 35.98936°N, 14.37455°E, 29 m a.s.l., 27. Oct. 2019, leg. T. Cassar, 1 juvenile; Misraħ Għar il-Kbir, Siġġiewi, 35.85241°N, 14.39691°E, 223 m.a.s.l., 12. Jan. 2020, leg. T. Cassar, 3 ♂♂; same location as previous, 2. Feb. 2020, leg. T. Cassar, 2♂♂; Buskett, limits of Siġġiewi, 27. Feb. 2021, leg. T. Cassar, 1♀. **Comino**:

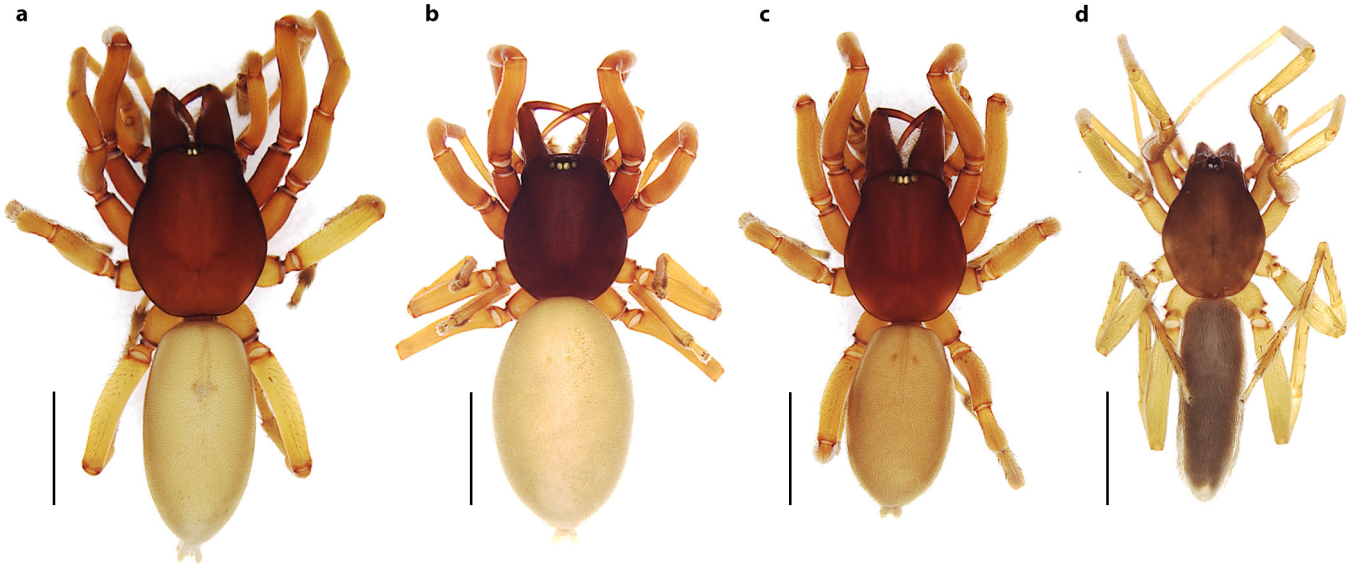

Fig. 2: Dysderidae collected from the Maltese Islands, habitus, dorsal view. **a.** *Dysdera crocata*, male; **b.** *D. kollari*, female; **c.** *D. lagrecai*, male; **d.** *Harpactea sicula*, male; scale bars 2.5 mm (a-c), 1.5 mm (d)

36.01161°N, 14.33663°E, 25 m a.s.l., 6. Feb. 2021, leg. T. Cassar, 1 ♀. **Gozo**: Rabat, 36.04037°N, 14.24430°E, 6. Feb. 2020, leg. B. Grech, 1 juvenile.
Distribution. Europe, Turkey, Caucasus, Iraq and Central Asia (native); North America, Chile, Brazil, South Africa, Australia, New Zealand and Hawaii (introduced) (World Spider Catalog 2021).
Remarks. Baldacchino et al. (1993) recorded this species from Sliema and the Tas-Salib area of Rabat (Malta). Kritscher (1996: sub *D. crocota*) recorded it from Mdina, Floriana, Golden Bay, St. Julian's and the Kalkara Ravine-Mistra Bay area in Malta; as well as from Marsalforn and Wied tal-Qliegħa (Żebbuġ) in Gozo. *Dysdera crocata* certainly appears to be the most common and widespread dysderid species in the Maltese Islands, and has been collected among others from garrigue, disturbed land, building ruins, agricultural land and valleys among others.

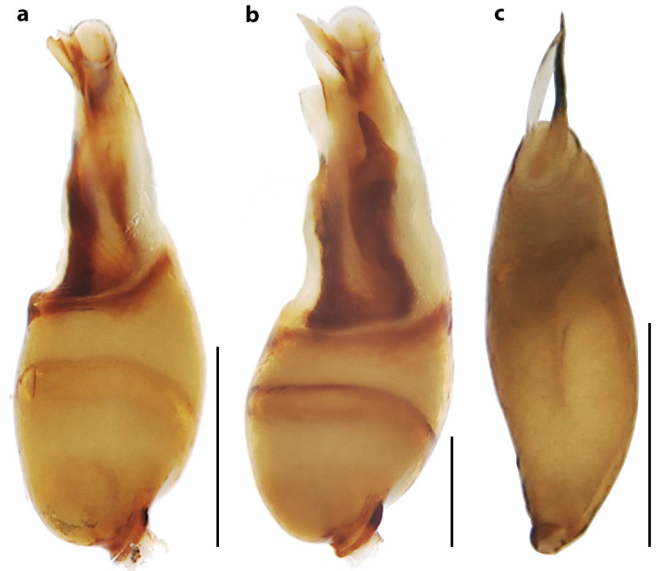

Fig. 3: Palpal bulbs from three sampled dysderid species in the Maltese Islands, ventral view. **a.** *Dysdera crocata*; **b.** *D. lagrecai*; **c.** *Harpactea sicula*; scale bars 0.50 mm (a), 0.25 mm (b-c)

***Dysdera kollari* Doblika, 1853** (Figs 2b, 4b)
Material examined. MALTA. **Malta**: Fiddien Valley, Rabat, 35.88852°N, 14.38066°E, 130 m a.s.l., 22. Dec. 2019, leg. T. Cassar, 1 ♀.
Distribution. Italy, the Balkans, Greece and Turkey (World Spider Catalog 2021).
Remarks. New record for the Maltese Islands (also recorded at one site on Malta by Rehfeldt, in litt.). The single specimen collected may indicate that this is a rare species in the Maltese archipelago. The specimen was collected from under a large rock in mud in very close proximity to a natural freshwater stream which forms during the wet season.

***Dysdera lagrecai* Alicata, 1964** (Figs 2c, 3b, 4c)
Material examined. MALTA. **Gozo**: Ta' Ċenċ, Sannat, 36.02125°N, 14.25813°E, 127 m a.s.l., 29. Dec. 2019, leg. T. Cassar, 1 ♂, 1 ♀.
Distribution. Sicily & Aegadian Islands (Italy) (Alicata 1973).
Remarks. New record for the Maltese Islands. Alicata (1964) described this species on the basis of specimens collected from various locations in Sicily; namely the Madonie, the Nebrodi, Mount Etna, the Hyblaean Mountains and the Provinces of Catania, Syracuse, Agrigento, Caltanissetta and Enna. Thus, the male and female specimens collected in Gozo become the first records of *D. lagrecai* outside of the island of Sicily and the nearby Aegadian Islands. Alicata (1964) also stated that the species is euryoecious, found both in lowlands and at high altitudes. The Gozitan specimens were collected under a stone in garrigue on a cliff plateau.

***Harpactea* Bristowe, 1939**
***Harpactea corticalis* (Simon, 1882)**
Material examined. None.
Distribution. France, Italy (World Spider Catalog 2021).

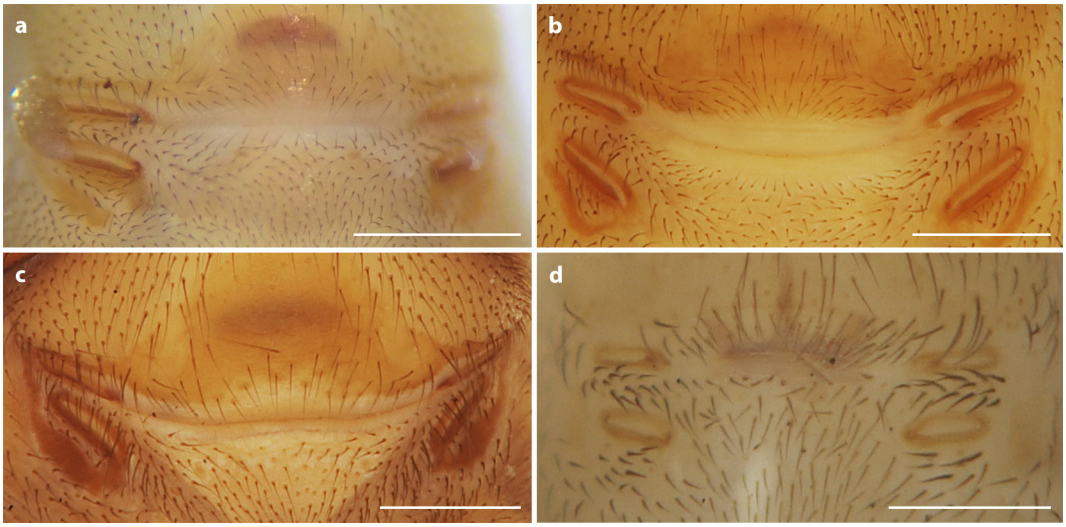

Fig. 4: Epigynal regions of four sampled dysderid species from the Maltese Islands. **a.** *Dysdera crocata*; **b.** *D. kollari*; **c.** *D. lagrecai*; **d.** *Harpactea sicula*; scale bars 0.74 mm (a), 0.50 mm (b-c), 0.25 mm (d)

Remarks. Kritscher (1996) recorded *H. corticalis* from the Maltese Islands on the basis of a single male specimen collected from Wied tal-Qliegħa (Żebbuġ) in Gozo. Despite similarities to other species in the *corticalis* group, namely *H. major* and *H. sicula*, it is possible to distinguish *H. corticalis* from other related species if a male specimen is available due to the strong curvature of the palpal bulb's apical processes (Alicata 1966). The identification of Kritscher's Gozitan specimen was justified by the fact that (i) the specimen was a male, and therefore the important distinguishing characters of the palpal bulb could be examined, and (ii) Kritscher (1996) states that he directly compared his Gozitan specimen with the original type material of *H. corticalis* deposited in the French National Museum of Natural History.

However, the possibility that Kritscher's record is a misidentification of *H. sicula* cannot be excluded. In fact, Bosmans et al. (2017) argued that many records of *H. corticalis* in the Mediterranean are misidentifications, attributed to the relative simplicity and similarity of palpal bulbs across the *corticalis* group (Bosselaers & Van Keer 2016). Moreover, *H. corticalis* has not been collected in the Maltese Islands since Kritscher (1996) recorded it from Gozo for the first time. The present study also revealed that *H. sicula* is widespread in the Maltese archipelago, a species which may be easily misidentified as *H. corticalis*. We therefore propose that *H. corticalis* should be removed from the Maltese dysderid fauna until further investigation can confirm its presence beyond doubt.

***Harpactea sicula* Alicata, 1966** (Figs 2d, 3c, 4d)

Material examined. MALTA. **Malta**: Lapsi, Siġġiewi, 35.82969°N, 14.42050°E, 30 m a.s.l., MSS trap, 3. Jun. 2019, leg. J. Borg, 2 ♀♀; Dingli Cliffs, 35.84919°N, 14.39033°E, 239 m a.s.l., 8. Feb. 2020, leg. T. Cassar, 1 ♂. **Comino**: Blue Lagoon, 36.01363°N, 14.32458°E, 15 m a.s.l., 23. Feb. 2020, leg. T. Cassar, 1 ♀. **Gozo**: Rabat, 36.04037°N, 14.24430°E, 6. Feb. 2020, leg. B. Grech, 1 ♀; same location and collector, 14. Feb. 2020, 1 ♂.

Distribution. Sicily, Aegadian Islands & Ustica (Italy) (Alicata 1973).

Remarks. This species was described by Alicata (1966) on the basis of material collected across various locations on the island of Sicily. The above material thus become the first records of *H. sicula* outside of Sicily and its affiliated islands (also recorded on Malta at three sites by Rehfeldt, in litt.). When considering the *corticalis* group, Alicata (1966: p. 205) wrote the following [in Italian]: "I have considered these three species as distinct from each other but, being allopatric, they could also be subspecies of a single species; however, the reproductive isolation of the populations in question can only be proven through breeding; I prefer to indicate them as species for the clear differences between them." If the identification of *H. corticalis* from Gozo by Kritscher (1996) were to be proved correct, *H. sicula* and *H. corticalis* would no longer be considered allopatric, as both species would have been recorded from the relatively small island of Gozo, although not from precisely the same location. However, as mentioned above, the record of *H. corticalis* from Gozo was most likely a misidentification of *H. sicula*, so for now it seems that *H. corticalis* and *H. sicula* remain allopatric.

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