

SHORT COMMUNICATION

First record of *Theridula aelleni* (Araneae: Theridiidae) in Crete, Greece

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Summary *Theridula aelleni* (Hubert, 1970) (Araneae: Theridiidae) is a Mediterranean species with a limited known distribution, so far reported only in Tunisia, Madeira, and Spain. Here, we present the first record of *T. aelleni* in Greece. Two adult males were collected in an olive grove in the area of Asterousia in the Messara valley of Heraklion, Crete during pitfall trapping in 2022 and 2025. Identification was confirmed through comparison with diagnostic characters provided in the original description and subsequent taxonomic treatments. This finding significantly extends the known geographical range of the species eastwards within the Mediterranean basin and contributes to expanding our knowledge regarding the spider fauna of Greece.

Additional keywords: Mediterranean fauna, olive groves, species distribution, spider

Theridiidae Sundevall, 1833 is one of the most diverse spider families globally, comprising more than 2,500 described species in over 120 genera (World Spider Catalog 2025). Theridiids exhibit substantial morphological and ecological variation but are generally characterized by small to medium body size, three tarsal claws, the absence of paracymbium in males, and the presence of serrated bristles forming a comb on tarsus IV (Jocqué and Dippenaar-Schoeman, 2006). Members of the family typically construct irregular space webs with threads radiating in multiple directions, and prey is subdued using a characteristic wrap-bite attack in-

volving sticky silk (Jocqué and Dippenaar-Schoeman, 2006). In the Mediterranean region their diversity remains incompletely documented, partly due to their small size and inconspicuous morphology, which can reduce detection during general surveys. In Greece, the family is represented by approximately 100 species, with around 50 species recorded from Crete (World Spider Catalog 2025), reflecting a particularly rich theridiid fauna on the island.

Globally, the genus *Theridula* Emerton, 1882 comprises only 16 described species, reflecting a relatively small group within Theridiidae. Of these, three species occur in Europe — although some authors consider *Theridula opulenta* (Walckenaer, 1841) a synonym of *Theridula gonygaster* (Simon, 1873), which would reduce the number to two. Despite the presence of these species in neighboring Mediterranean countries, no member of the genus has previously been recorded from Greece (World Spider Catalog 2025). Species of the genus are small-bodied and characterized by a distinct set of morphological features: the colulus and its setae are absent, the cheliceral promargin bears one or two teeth, the male palp lacks

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conductor, median apophysis and theridiid tegular apophysis, and the cymbium has no distal process; additionally, leg chaetotaxy includes two dorsal bristles on tibiae I, II and IV, one dorsal bristle on tibia III, and a trichobothrium present on metatarsus III but absent on metatarsus IV (Le Peru, 2011).

In this paper, we report the first record of *T. aelleni* from Greece, based on two male specimens collected in olive groves in Crete, thereby extending the known range of the species and contributing to the documentation of Greek Theridiidae.

Sampling was conducted as a part of the regular (monthly) monitoring program for epigeal arthropods in olive groves under the LIFE project "Olivares Vivos +". Sampling was carried out using pitfall traps placed both in the olive fields and in adjacent seminatural habitats (12 and 8 pitfalls, per farm, respectively; see Rey *et al.*, 2019, for more details on sampling procedure). In particular, the collected specimens of *T. aelleni* come from an intensive olive-growing region of Messara in southern Crete, within the Heraklion regional unit, Greece, between the villages of Stavies and Stoloï. One adult male was collected on 19 May 2022 (35° 1'47.43" N, 25° 1'49.55" E) and a second adult male on 19 July 2025 (35° 1'50.47" N, 25° 1'26.12" E).

Identification was carried out through comparison with diagnostic characters and images available on the online database Araneae Spiders of Europe (Nentwig *et al.*, 2025). The specimen has been preserved in 70% ethanol and deposited in the Laboratory of Agricultural Zoology and Entomology of Agricultural University of Athens. Photographs were taken using a Leica S9i Digital Stereo Microscope imaging system (Benaki Phytopathological Institute).

Theridula aelleni was originally described by Hubert (1970) under the genus *Theridion*, and at that time it was considered closely related to, and potentially conspecific with *Theridion spinitarse* O. Pickard-Cambridge, 1876. Subsequent taxonomic revisions clarified the diagnostic differences between the two species and led to the transfer of *T. aelleni* to the genus *Theridula*, where it is cur-

rently placed (Knoflach *et al.*, 2009).

Material examined. 2♂, Greece, Crete, Heraklion, olive grove, pitfall trap, 1♂ 19.05.2022 (Coordinates: 35° 1'47.43" N, 25° 1'49.55" E); 1♂ 19.07.2025 (Coordinates: 35° 1'50.47" N, 25° 1'26.12" E).

Habitus. The male specimen possesses a uniform light brown prosoma, with eight eyes arranged in two rows. The chelicerae and pedipalps are similarly pale. The legs are slender and pale yellow. The abdomen is longer than wide, displaying a dorsal pattern of black markings that contrast with the brown background coloration (Fig. 1).

Male palp. The palp (Figs 2, 3) is characterized by a globular bulb and a narrow, elongated cymbium bearing long dorsal setae. The embolus is elongated and corkscrew shaped. This combination of morphological characteristics is consistent with published descriptions and illustrations of *T. aelleni* (Hubert, 1970; Knoflach *et al.*, 2009; Le Peru, 2011), supporting the identification of the specimen.

Habitat. Males of *T. aelleni* were trapped at the margins of an olive orchard adjacent to a river (first sampling site), where species such as *Arundo donax* L. (Poaceae), *Nerium oleander* L. (Apocynaceae), and *Rubus fruticosus* L. (Rosaceae) abound, and in an abandoned vineyard (second sampling site). The study



Figure 1. *Theridula aelleni* Hubert 1970, male, habitus dorsal view.



Figure 2. *Theridula aelleni* Hubert 1970, male, palp lateral view.

area of Messara (southern Crete) is characterized by semi-arid conditions, with high summer temperatures reaching up to 40°C and a mean annual rainfall of approximately 300–450 mm. The Messara plain extends south–southwest of the Heraklion Prefecture, south of Mount Psiloritis and north of the Asterousia Mountains, and is bordered by the Libyan Sea. The landscape is dominated by a continuous olive grove comprising of at least 150,000 trees.

The detection of the species on two separate sampling occasions (2022 and 2025) suggests that *T. aelleni* is established at the site rather than representing a sporadic dispersal or accidental introduction. The new locality fills part of the biogeographical gap between western Mediterranean, North Africa and the eastern Mediterranean, suggesting that the species may be more widespread than currently documented. Its detection in an olive grove also highlights the role of Mediterranean agroecosystems as reservoirs of understudied spider diversity.

Additional fieldwork will be essential to assess the true range of *T. aelleni* in Greece and the broader eastern Mediterranean. Such data will contribute to a more complete understanding of the diversity and distribution of Theridiidae in the region.



Figure 3. *Theridula aelleni* Hubert 1970, male, palp ventral view.

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Author contribution

P.J.R. and R.T. conceived the ideas and designed the methodology for the olive grove epigeal arthropod monitoring; T.A. analyzed the data and led the writing of the manuscript; K.V. and A.N. collected the spider samples and T.A. identified the samples. All authors, including G.K. contributed critically to the final version of the manuscript and gave final approval for its publication.

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ΣΥΝΤΟΜΗ ΑΝΑΚΟΙΝΩΣΗ

Πρώτη καταγραφή του είδους *Theridula aelleni* (Araneae: Theridiidae) στην Κρήτη

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Περίληψη Το είδος *Theridula aelleni* (Hubert, 1970) (Araneae: Theridiidae) είναι Μεσογειακό είδος με περιορισμένη εξάπλωση, καθώς μέχρι σήμερα έχει αναφερθεί μόνο στην Τυνησία, τη Μαδέρα και την Ισπανία. Στην παρούσα εργασία παρουσιάζεται η πρώτη καταγραφή του *T. aelleni* στην Ελλάδα. Δύο ενήλικα αρσενικά άτομα συλλέχθηκαν σε ελαιώνα στην περιοχή Αστερούσια Μεσσαράς του Νομού Ηρακλείου Κρήτης, μέσω παγίδων παρεμβολής (pitfall traps), κατά τα έτη 2022 και 2025. Η ταυτοποίηση επιβεβαιώθηκε με σύγκριση των διαγνωστικών μορφολογικών χαρακτήρων που περιγράφονται στην αρχική περιγραφή του είδους καθώς και σε μεταγενέστερες ταξινομικές μελέτες. Το εύρημα αυτό επεκτείνει σημαντικά την γνωστή γεωγραφική κατανομή του είδους προς την ανατολική Μεσόγειο και συμβάλλει στη διεύρυνση της γνώσης για την αραχνο-πανίδα της Ελλάδας.

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