# *Ctenoscia minima* (Dollfus, 1892): a woodlouse new for the British Isles from a Garden Centre in Essex (Isopoda: Oniscidea: Philosciidae)

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## Abstract

The dwarf running woodlouse *Ctenoscia minima* (Dollfus, 1892) is reported new to Britain from a Garden Centre in Essex. A large population was found in the pot of a European Fan Palm (*Chamaerops humilis* Linnaeus, 1753) likely imported from a Mediterranean grower. A description with illustrations is provided to enable identification, in addition to a discussion on anthropochory via the horticultural trade.

**Key words:** Oniscidea, *Ctenoscia minima*, Garden Centre, Essex, Mediterranean Plants, Importation.

## Introduction

The secretive and edaphic nature of many terrestrial Isopods (Isopoda: Oniscidea), make them particularly prone to dispersal by the horticulture industry. In the British Isles there are approximately 25 non-native woodlouse species that have arrived in this way. 18 of these species are recorded solely from "indoor" settings, particularly within heated glasshouses and are not known to survive "outdoors" due to our changeable climate. Of these non-natives, the "Philosciidae" represents the most speciose group.

The "Philosciidae" is a large family of predominately epigean taxa, where they are found living in leaf litter and are often encountered moving quickly and erratically on elongated legs, hence their common name as "running woodlice". Although the status of the family has had a convoluted history and is very likely paraphyletic (Schmidt, 2003), it is still possible to identify it with relative ease (with the exception of the Halophilosciidae, see Schmidt, 2003), due to the presence of two major plesiomorphic characteristics. These are the combination of the 'runner-type' eco-morphological strategy (Schmalfuss, 1984), with a slender profile, smooth, shiny tegument, in addition to the antennal flagellum comprising three segments.

In Britain the "Philosciidae" are represented by eight species. Five of which (*Anchiphiloscia pilosa* (Budde-lund), *Burmoniscus meeusei* (Holthuis), *Chaetophiloscia sicula* Verhoeff, *Pseudotyphloscia alba* (Dollfus) and *Setaphora patiencei* (Bagnall)) are "indoor" species restricted to heated glasshouses (Bagnall, 1908; Gregory, 2014; Holthuis, 1946; Telfer & Gregory, 2018), two (*Philoscia affinis* Verhoeff and *P. muscorum* (Scopoli)) are native (Segers *et al*., 2018), and one (*C. cellaria* (Dollfus)) is a recent colonist of the Channel islands (Gregory & Marquis, 2019). There is also an unverified record of a *Chaetophiloscia* species from Tresco, Isles of Scilly between 1985-86 (Jones & Pratley, 1987).

## Discovery

During a passive survey of non-native invertebrates at a garden centre in Essex, several small, slender "Philosciid"-like woodlice were spotted in soil that had spilled out the bottom of a pot containing a large European Fan Palm (*Chamaerops humilis* Linnaeus) (Fig. 1A, B). The first examined specimens clearly showed the diagnostic three segmented flagella and 'runner-type' body form of the "Philosciidae", but its smaller size, presence of short erect setae on the tegument (akin to *Chaetophiloscia*) and the eyes being comprised of a single ommatidium, clearly indicated that it was a new species and genera for the British Isles. The specimens were readily identified as *Ctenoscia minima* (Dollfus), through comparison

to the updated species figures in Taiti and Rossano (2015). The initial collection was undertaken on 15.vii.2023, and during a return visit on 19.vii.2023 the plant was purchased so a thorough study of its soil content could be undertaken. In total 27 individuals of *C. minima* were collected from the pot, including 6 ovigerous females.


**Figure 1:** A) The author examining the *Chamaerops humilis* plant at the garden centre; B) *Ctenoscia minima*, live female.

*Ctenoscia* Verhoeff, 1928 is a monotypic genus, containing only the species *C. minima*. It previously contained a second species *C. dorsalis* (Verhoeff), but this was identified as a junior synonym (Taiti & Rossano, 2015). This is because *C. dorsalis* was distinguished only by a singular characteristic: the distal part of the male pleopod one endopod being straight rather than bent outwards, which was proven to be a product of ontogeny. Both forms of the male pleopod one exopod were present within the same population and were dependent on the size and age of the individuals (ibid). Therefore, with the assimilation of *C. dorsalis* under *C. minima* the singular species can be regarded as having a broad western Mediterranean distribution from Italy to Spain (encompassing the Balearic Islands, Canary Islands, Corsica, Malta, Sardinia and Sicily) in addition to Morocco in North Africa (ibid). Despite its wide distribution, the species has only recently been recorded outside of the western Mediterranean region and a species capable of human-mediated dispersal via the horticultural trade. As such, the discovery presented here is the first confirmed observation of *C. minima* for the British Isles and the most northerly record globally for the species.

## Identification

**Material examined:** 11 ♂ (1 microprep), 11♀ (6 ovig.) — England (United Kingdom), Garden Centre, Essex (co-ordinates withheld), 15-19.vii.2023 leg. T. Hughes & A. Northfield (Authors personal collection). 3 ♂, 2 ♀, same data (Natural History Museum, London: NHML no. NHM UK 2024.6).

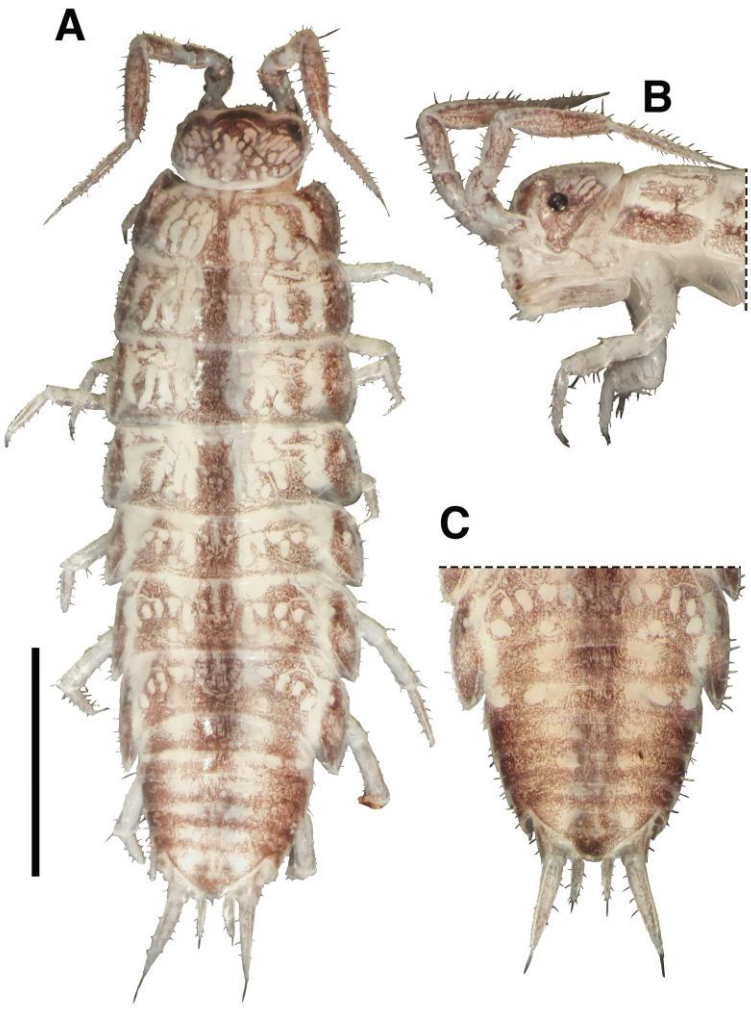


**Figure 2:** *Ctenoscia minima*, female: A) Habitus, dorsal view; B) Cephalon, lateral view; C) Pleotelson, dorsal view.

## Description

Maximum size examined: ♂ 3.5mm, ♀ 5mm. Body (Fig. 1B & 2A) smooth with numerous, prominent setae. Colour light to dark brown with conspicuous muscle scars, a central dark stripe, a narrow dark stripe delineating the boundary of the epimeron and a dark patch bordering the muscle scars. The cephalon is slightly darker than the first body segment and the pleon has a darkened edge. Antenna, pereopods and uropods well pigmented. The cephalon (2A & 2B) lacks median and lateral lobes, the eyes are comprises of a single large pigmented ommatidium and the antenna are of three flagella segments. The posterior-lateral corner of pereonites 1-4 are obtusely rounded, 5 is right angled and 6-7 are acutely angled and projecting posteriorly. Pleonite 1-5 without projections; the telson is broader than long and with a rounded tip (Fig. 2C).

**Male:** Pereopod 7 (Fig. 3A) without distinct sexual modification, sternal margin of the ischium convex and with abundant setae on the sternal margin of the merus and carpus. Pleopod 1 (Fig. 3B) exopodite sub-rounded; endopodite tapering, approximately 4 times as long as wide and with a brush of setae at its apex. Pleopod 2 (Fig. 3C) exopodite triangular with a rounded apex; endopodite flagelliform.

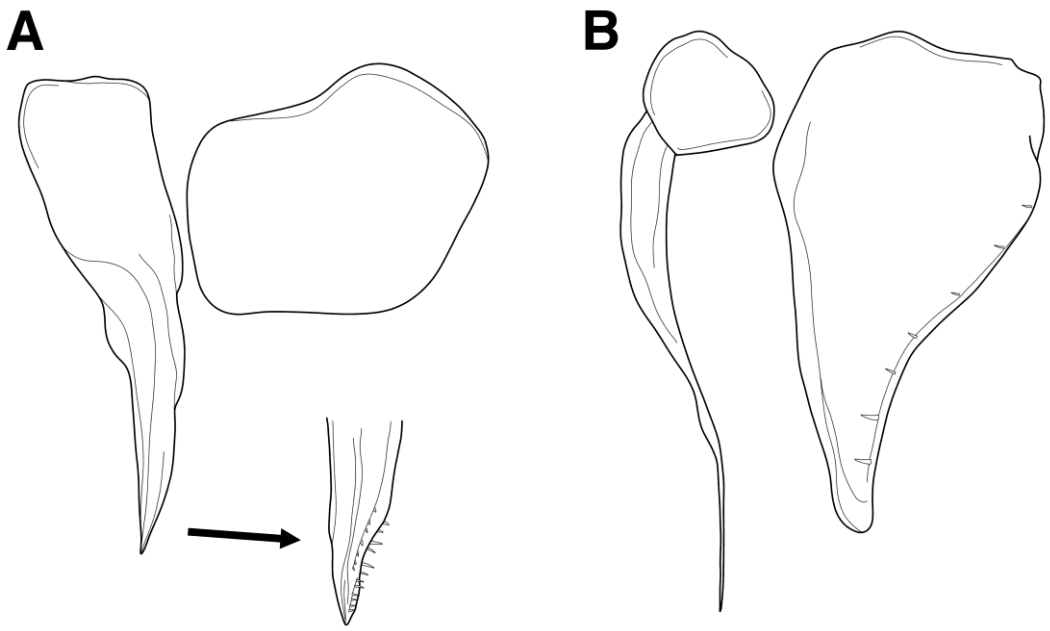


**Figure 3:** *Ctenoscia minima*, male: A) Pleopod 1; B) Pleopod 2.

## Remarks

*Ctenoscia minima* is a well pigmented, relatively fast moving "Philosciid" with a discontinuous (stepped) body outline and an antenna comprised of three flagella segments. It is the only "outdoor" species of the "Philosciidae" to have the eye comprised of a single ommatidium. In the standard British identification resources (i.e. Hopkin (1991) and Oliver & Meechan (1993)), it will key readily to Philosciidae and Halophilosciidae, but will not progress comfortably onto the following couplets, although the rounded telson and setose tegument may lead you into the Halophilosciidae.

Confusion is most likely to occur with the recently discovered species *Chaetophiloscia cellaria* which is also absent from the aforementioned identification resources. The two species look superficially similar due to their small size and setose tegument, but *C. minima* can be readily differentiated from it by the lack of orange patches on the posterior-lateral corner of the last pereonite, shape of the male 1st

pleopods and number of ommatidia; for a more detailed description of this species see Gregory & Marquis (2019).

## Discussion

In addition to *Ctenoscia minima* several other non-native species were found within the plant pot, including the millipede *Oxidus gracilis* (C.L. Koch), the woodlouse *Armadillidium* cf. *arcangelii* Strouhal, the earwig *Euborellia annulipes* (H. Lucas) and the ant *Hypoponera eduardi* (Forel). These soil invertebrates are cosmopolitan throughout the Mediterranean region and have all previously been identified as anthropochoric species associated with the horticultural industry (Lee, 2006; Noël *et al*., 2022; Kocarek *et al*., 2015; BWARS, 2024). The large number of *C. minima* individuals found, and representing the most abundant soil macroinvertebrate within the pot, indicates that this species also has the propensity to be distributed outside of its natural range through plant material in large quantities. Additionally, the presence of 6 ovigerous females suggests that this was a viable and reproducing population.

No supplier details or country of origin data could be found on the attached plant labels, but as *Chamaerops humilis* is an endemic palm of the Mediterranean region, with the addition of the pot containing other Mediterranean species (with the exception of *O. gracilis*), it is strongly assumed the plant originated from a supplier within this region. This is also supported by the fact that the adjacent Mediterranean plants at the garden centre, which likely arrived through the same plant shipment, were labelled as originating from nurseries in Italy or Spain.

There are only three brief mentions on the species being recorded outside of its native range. Vandel (1954) suggests that *C. minima* could have been introduced to the Canary Islands, as it was found in non-native eucalyptus forests on the island of Tenerife. However in a subsequent publication, the species was discovered living within the native laurisilva on the island of La Gomera, which led these authors to consider it a native to the archipelago (Rodríguez & Barrientos, 1993). More recently from France, Cuypers (2024) recorded it from Periac-de-Mer, Aude, whilst Noël (2024), notes its occurrence at a garden centre near Dijon, Burgundy-Franche-Comté alongside other Mediterranean taxa. These later two observations where the first continental observations for France, and it is interesting to note its occurrence at an addition garden centres too.

In the context of the British Isles, There have been 7 previously recorded Mediterranean woodlouse species, including; *Agabiformis lentus* (Budde-Lund), *Armadillidium arcangelii* Strouhal, *Chaetophiloscia sicula*, *C. cellaria*, *Cordioniscus stebbingi* (Patience), *Lucasius pallidus* (Budde-Lund) and *Porcellionides sexfasciatus* (Budde-Lund) (Gregory, 2014; Gregory *et al*., 2021). However, these records are almost entirely from the Mediterranean Biome at the Eden Project, with the exception of *C. stebbingi* which has been found at several other tropical houses in the British Isles (Edney, 1953; Patience, 1907), *A. arcangelii* which was recorded from the Eden Project and "outdoors" at garden centres (Gregory, 2014; Hughes, Northfield & Maguire, 2024) and *C. cellaria* as a recent colonist of the Channel Islands (Gregory & Marquis, 2019).

Furthermore, and quite unexpectedly, during the final stages of this publication, the author was made aware of some small Philoscids that had been collected by Mark Telfer at Ventnor Botanic Garden, Isle of Wight as far back as September 2016, which corresponded with *C. minima*. Therefore, *C. minima* is currently known from two disjunct sites in Britain. The discovery and recent confirmation of this population is discussed in a complementary note published alongside this one (Telfer, 2024).

Despite the high diversity of Mediterranean species recorded in the British Isles, only *A. arcangelii* and *C. cellaria* have been recorded from "outdoor" situations, the former only being found to do so in the British Isles as a result of the same sampling campaign that resulted in the discovery of *C. minima*

(Hughes, Northfield & Maguire, 2024 in press). Although we have much more widespread records of *A. arcangelii* from northern latitudes (Noël *et al*., 2022), we still lack evidence that this species is capable of persisting "outdoors" year round and be able to develop viable populations under current climate conditions. In contrast, *C. cellaria* is a recently spreading species that has been expanding its range northwardly over the past few decades and has become well established in northern France, so its discovery in the Channel Islands was not unexpected (Gregory & Marquis, 2019; Noël *et al*., 2014: Séchet & Noël, 2007; 2015). However, the mode of expansion and naturalisation of *C. cellaria* on the Channel Islands differs quite markedly from the sporadic origins of *A. arcangelii* and *C. minima*, suggesting the latter species may be less likely to survive and establish long term, having not experienced a gradual acclimatisation to northern latitudes. This assumption is based solely on the deficit of year round observations, so it still remains unclear whether *A. arcangelii*, *C. minima* or any of the other Mediterranean woodlouse species has the capacity to naturalise "outdoors" within the British Isles.

## Conclusion

Through the combination of its small size and ability to develop large colonies within pots, *C. minima* could potentially be a common but under-recorded anthropochoric species in Northern Europe. Therefore, it is strongly encouraged that recorders from across the country document the introduction of non-native species via the horticultural industry.

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