

FIRST RECORD OF *DIPLOCEPHALUS GRAECUS* (O. PICKARD-CAMBRIDGE, 1873) IN THE NETHERLANDS (ARANEAE, LINYPHIIDAE)

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ABSTRACT

The sheet weaver *Diplocephalus graecus* O. Pickard-Cambridge, 1873 is a common species in the holomediterranean region, but has been extending its northward distribution in the recent two decades. Our recording of the species marks the northernmost distribution of the species as of yet. With our recording, the number of species belonging to the *Linyphiidae* family in the Netherlands has been raised to 238.

Key-words; *Diplocephalus graecus*, first record

INTRODUCTION

In the summer of 2022 we carried out an extensive fieldwork on differently managed grasslands in the Netherlands, focusing on surveying the vegetation and sampling the arthropod fauna. This fieldwork contributed to the EcoCertified project, focusing on comparing biodiversity across various habitats, with a particular emphasis on solar parks. During this fieldwork we surveyed 18 solar parks and a total of 30 control sites (15 intensively managed agricultural grasslands and 15 grasslands under nature oriented management) over the Netherlands. Part of the survey consisted of capturing soil-emergent arthropods with emergent tents. These were large, pyramid-shaped traps covering 1 m² surface area. This sampling method is based on the photoreception of arthropods: the covering fabric of the tent is dark, and the only light source is at the top opening of the tent, where a plastic bottle is placed to collect specimens. The bottle was filled with a mixture of propylene-glycol and water to preserve specimens until removal. Later on the samples were transferred into 96% ethanol to preserve the specimen for later identification. In the autumn of 2022 we began sorting out the arthropod samples and separating spiders for further identification. The spiders were then taken to the Brandenburg University of Technology (BTU, Cottbus, Germany) in February 2023, to be identified by expert taxonomists in the Ecology Department. Our specimen is deposited in the collection of Naturalis Biodiversity Center, Leiden.

ABOUT THE SPECIMEN

A male specimen of *D. graecus* was collected in Heerle, in the Netherlands (N 51°53.691', E 4°37.862'), in a grassland under intensive agricultural management. The site, nestled within the typical Dutch agricultural landscape, was characterized as an agricultural grassland, cultivated for grass production as fodder for dairy cattle, bordered primarily by other grasslands and maize crops. Connected to the field was a small, unmanaged field, similar to a semi-natural habitat. The grassland field was surveyed for a total of 14 days in May and another 14 days in July (e.g. total sampling period consisted of 28 days), with two traps sampling at the same time, close to the field margin. Our traps captured only one individual during the sampling period between 6–13.v.2022.

MALE SPECIMEN DIAGNOSIS

The male of this species is characterized by the raised cephalic part of the prosoma at about the double height of the thoracic part with even posterior slope. Distinct sulcus behind the posterior lateral eye (see fig. 1). The characters of our specimen completely resemble the illustrations given by Rosmans (1996, figs 43-47).

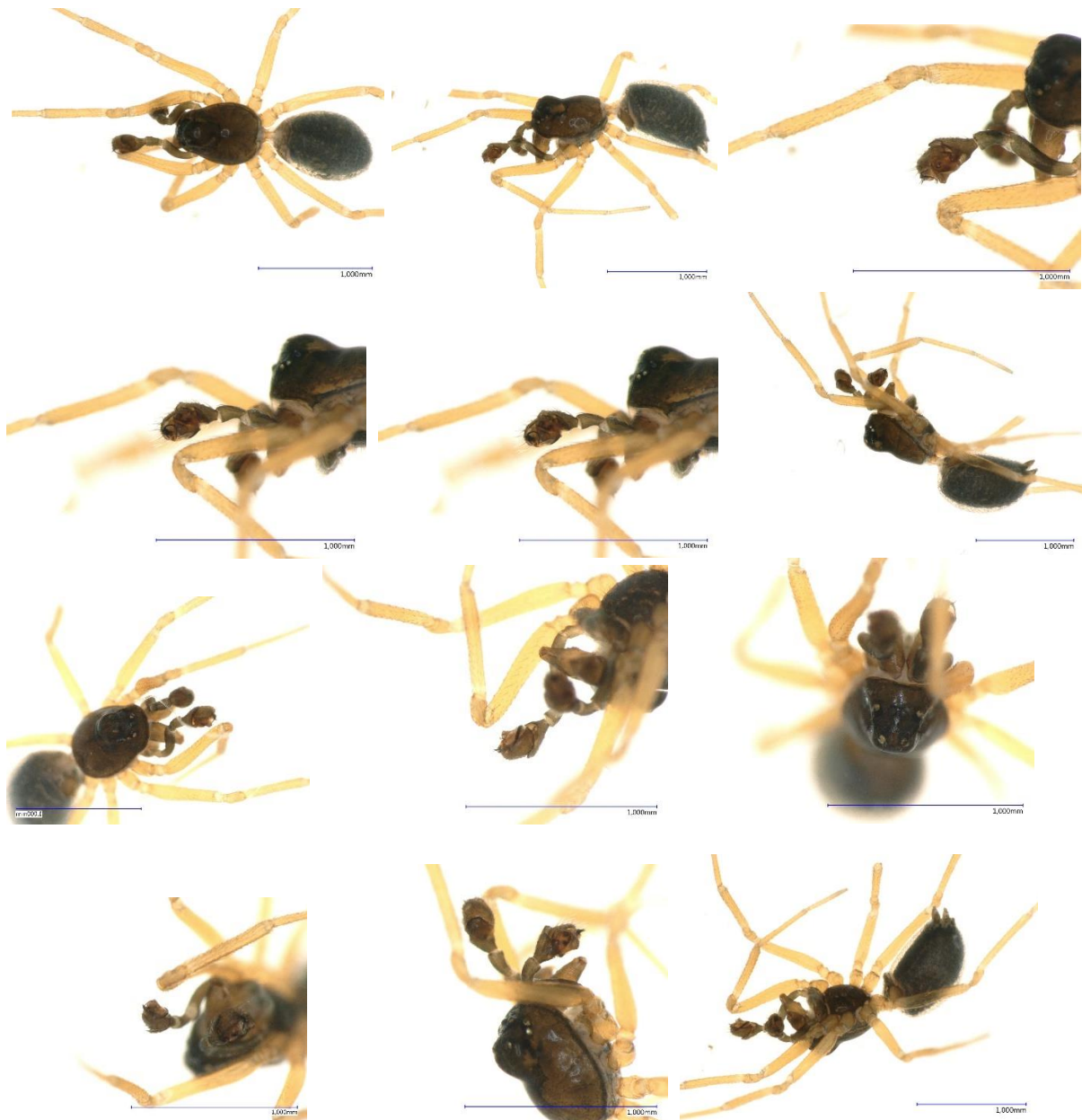


Fig. 1. *Diplocephalus graecus*. Male specimen shown from all sides.

DISTRIBUTION OVER EUROPE

The dwarf spider *D. graecus*, traditionally a common species throughout the Mediterranean, has been extending its range northward beyond its standard distribution in North-Africa and Southern-Europe. Over the past two decades, this species has been recorded in regions such as Belgium (Bonte et al., 2002), Britain (Dawson et al., 2011), Turkiye (Danışman & Coşar, 2022), and most recently in West-Germany (Bach et al., 2023). This pattern of northward movement is not isolated to *D. graecus*; it mirrors broader trends observed in other arthropods in the Northern Hemisphere, which are increasingly shifting their distributions in response to warming environmental conditions associated with climate change (Battisti et al., 2005; Hickling et al., 2006; Hill et al., 2002; Parmesan et al., 1999). The arrival of *D. graecus* in the Netherlands, proximate to earlier sightings outside its standard distribution area, underscores this trend. The species' ability to disperse via ballooning, coupled with the influence of Atlantic air masses and the flat terrain of Belgium and the Netherlands, likely facilitates this northward migration from coastal to more inland areas, as suggested by Bach et al. (2023).

As of date, our record in Heerle marks the Northernmost distribution limit of the species. However, given the successful strategy combined with environmental elements, it is likely to expand its distribution range further inland and northward. The species demonstrates high ability to colonize anthropogenically altered ecosystems, which might present an additional benefit when establishing new populations in the Netherlands, given that agricultural fields cover approximately 50% of the Netherlands (World Bank, 2024). However, its success in establishing viable populations in the Netherlands remains unclear, as only one specimen was caught in our survey. Further sampling of the field should be repeated, taking into consideration the phenological characteristics of the species in that it has its activity peak in winter months (Bonte et al., 2002). Contrastingly, our survey took place in summer, therefore, we are not able to conclude with certainty that the species has not only been blown into the area, but established a viable population as well.

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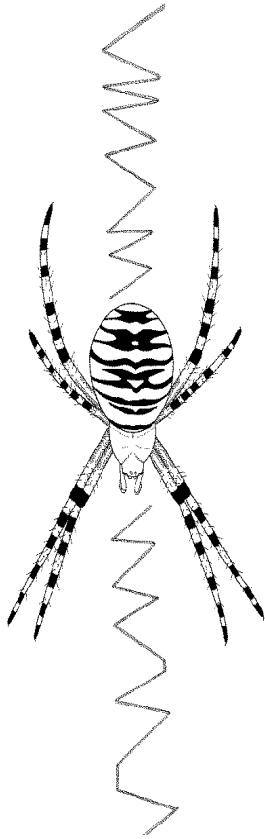


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REDACTIONEEL

Eigenlijk zou aflevering 41 een artikel bevatten over een korte inventarisatie van spinnen in oostelijk Griekenland, die in 2019 werden verzameld door Steven IJland en mijzelf. Helaas werd het opstellen van het artikel vertraagd door andere prioriteiten. Deze weinig omvangrijke aflevering vult het hiaat op dat anders dreigde te ontstaan. Hopelijk zal het artikel over Griekenland later dit jaar alsnog verschijnen.

Peter van Helsdingen

