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Confirmation of *Metatrichoniscoides leydigii* (Weber, 1880) in Belgium, 60 years after discovery (Isopoda: Trichoniscidae)

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Abstract

The woodlouse *Metatrichoniscoides leydigii* (Weber, 1880) was first recorded from Belgium in 1954. However, the collected individuals were all females incapacitating identification to species level. More intensive surveys in the autumn of 2015 revealed many new recordings with the discovery of the first male individuals. Finally, the species could be confirmed for Belgium after more than 60 years after its first discovery. The species seems to be quite common on clay soils in the north-western part of the country.

Keywords: *Metatrichoniscoides leydigii*; isopods; woodlice; distribution; Belgium.

Samenvatting

De pissebed *Metatrichoniscoides leydigii* (Weber, 1880) (Nederlandse naam: Blind pissebedje) werd in 1954 voor het eerst gemeld uit België. De verzamelde dieren waren allen vrouwelijk wat het niet mogelijk maakt om de individuen tot op soort te determineren. Meer intensieve inventarisaties in de herfst van 2015 zorgden voor verschillende nieuwe waarnemingen en de ontdekking van de eerste mannelijke exemplaren. Meer dan 60 jaar na de eerste ontdekking kan de soort dan eindelijk bevestigd worden voor de Belgische fauna. De soort lijkt vrij algemeen op de kleigronden in het noordwesten van het land.

Résumé

Le cloporte *Metatrichoniscoides leydigii* (Weber, 1880) fut mentionné pour la première fois de Belgique en 1954. Cependant, les spécimens récoltés à l'époque étaient tous des femelles et celles-ci ne permettent pas de confirmer l'espèce. Lors d'inventaires intensifs réalisés en automne 2015, des spécimens ont à nouveau été récoltés, et cette fois, la présence de mâles permet de confirmer la présence de l'espèce sur notre territoire. Cette espèce semble être commune sur sols argileux dans le nord-ouest du pays.

Introduction

Metatrichoniscoides leydigii (Weber, 1880) is a very elusive species of woodlouse. It is a small, white and blind species that lives deep into the soil and therefore difficult to observe. It was first described from the Netherlands, from where most observations still originate (BERG *et al.*, 2008). In Belgium only female specimens were recorded so far (POLK & VAN OYE, 1956), which cannot be identified up to species level with absolute certainty and therefore the species could not yet been confirmed as part of the Belgian isopod fauna. Therefore extensive inventories were done by Spinicornis, the Belgian Land Isopod Group in autumn 2015 in search for male individuals.

Belgian localities

Oost-Vlaanderen: Gent, Zuidpark, 11.III.1954, 3♀, from literature: POLK & VAN OYE (1956) – Stekene, 31UES7271, 28.IX.2015, 1♀, leg. & det. Pepijn Boeraeve - Gent, cemetery, 31UES5153, 18.XI.2015, 1♀, leg. & det. Gert Arijs – **West-Vlaanderen:** Oostende, cemetery, 31UDS9274, 10.IV.2009, 1 ex, det. Koen Lock – Kortemark, Handzame, 31UES0052, 17.X.2015, 1♂ ,1♀, leg. & det. Pepijn Boeraeve – Wielsbeke, Sint-Baafs-Vijve, 31UES2840, 29.X.2015, 1♀, leg. & det. Pepijn Boeraeve – Zedelgem, 31UES1164, 30.XII.2015, 1♂, 1♀, leg. & det. Pepijn Boeraeve – Diksmuide, Vladslo, 31UDS9453, 26.I.2016, 1♂, 1♀, leg. & det. Pepijn Boeraeve.

The species was first mentioned for Belgium by POLK & VAN OYE (1956). They collected three specimens under stones on March 11th 1954 at Zuidpark in Gent (Oost-Vlaanderen) and assumed that they belonged to this species, because of its occurrence in The Netherlands. However, only female specimens were found and therefore the species could not be identified with certainty as being *M. leydigii* (POLK & VAN OYE, 1956). Nevertheless, the species was reported in the checklist by TAVERNIER & WOUTERS (1989) and later in their distribution atlas (WOUTERS *et al.*, 2000). No other observations were made for 55 years until a specimen was found on a cemetery in Oostende (West-Vlaanderen) 2009 (pers.com. K. Lock). Unfortunately, the specimen got lost and the sex is unknown. During more intensive woodlouse inventories in 2015 it was observed in Stekene (Oost-Vlaanderen), Kortemark (West-Vlaanderen), Wielsbeke (West-Vlaanderen), Gent (Oost-Vlaanderen), Zedelgem (West-Vlaanderen) and Diksmuide (West-Vlaanderen). The observations made in Kortemark, Zedelgem and Diksmuide provided the first male individuals of the species in Belgium and the species can therefore, after microscopic research, be confirmed for the Belgian fauna after more than 60 years of its first sighting.

Identification

M. leydigii is the only species of the genus *Metatrichoniscoides* that occurs in Belgium, the Netherlands (BERG *et al.*, 2008) and Germany (ALLSPACH, 1989). In France, three species are occurring (SÉCHET & NOËL, 2015) and in Great Britain two species are present (GREGORY, 2012), including *M. leydigii* for both countries. *M. leydigii* is a small (2.5-4 mm), blind species of woodlouse of that lacks pigment (Figs 1-2). The head is broader than other small trichoniscid species and very rough with many tubercles, the uropods are broader. On the antennae, the species has conical spines (Fig. 3A). The epimers of the first three pleonites are somewhat upturned giving the species a more robust appearance in comparison to other trichoniscids. Only male specimens can be identified to species level based on their genitalia (Fig. 3B-E). Notable is the endopodite of the second pleopod which has a transparent and bulb shaped end (Fig. 3D). This characteristic is however difficult to observe in preserved male genitalia.

Distribution and habitat

M. leydigii is a western European species, occurring in Western France, Belgium, The Netherlands and Western Germany according to SCHMALFUSS (2003). It has been encountered in greenhouses in Czech Republic, Sweden, Finland (SCHMALFUSS, 2003) and Great Britain (GREGORY, 2009). Recently, the first British population in semi-natural habitat was discovered (GREGORY, 2012). This assumes that *M. leydigii* is a strict Atlantic species probably native to only five countries. However, the species is only recorded frequently from the Netherlands, from the other countries only incidental sightings are done (BERG *et al.*, 2008). *M. leydigii* is described based on type-material from the Netherlands and probably quite common in the sea- and river clay districts (BERG *et al.*, 2008). The species lives in the soil and can most easily be found under stones or between plant roots that have overgrown culverts in agricultural areas (BERG *et al.,* 2008). Also synantropic habitat is preferred like cemeteries, gardens and plant nurseries. They seem to prefer clay soils along rivers, small streams and ditches (BERG *et al.*, 2008). There are only three sightings from France of which two from caves (SÉCHET & NOËL, 2015) and a third from the south of France in a valley (VANDEL, 1960). The North of France is however relatively under sampled and probably with some efforts the species could be discovered in the departments Nord and Pas-de-Calais. In Germany there are sightings from both semi-natural habitat along the coast and synantropic habitat more inland (ALLSPACH, 1989). The sighting from Britain was done along a river under a piece of rubble (GREGORY, 2012).

Fig. 1. Dorsal view of *Metatrichoniscoides leydigii* from the Netherlands (photo: Theodoor Heijerman).

Fig. 2. Lateral view of *Metatrichoniscoides leydigii* from the Netherlands (photo: Theodoor Heijerman).

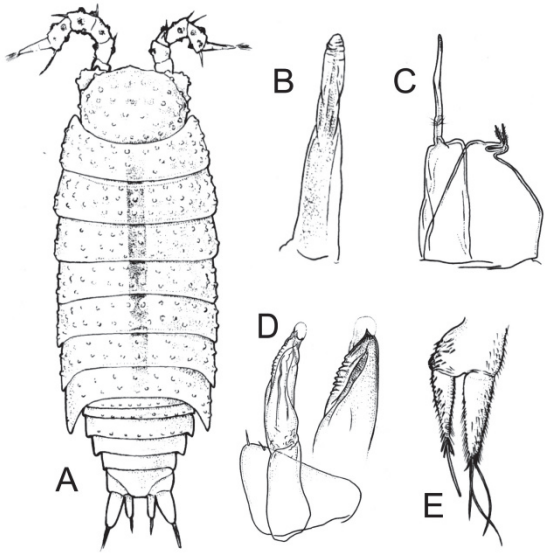

Fig. 3. *Metatrichoniscoides leydigii* after BERG & WIJNHOVEN (1997). A: habitus female, B: penis male, C: first pleopod male, D: second pleopod male with detail of the tip of the endopodit, E: right uropods.

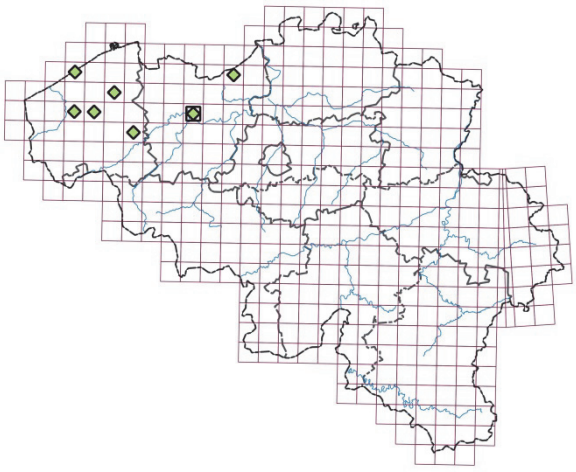

Fig. 4. Distribution of *Metatrichoniscoides leydigii* in Belgium. The square indicate the first sighting by POLK & VAN OYE (1956). Diamonds are sightings after 2009.

The Belgian sightings are concentrated in the western part of the country (Fig. 4). The habitat corresponds largely to the Dutch sightings. Five observations were done underneath stones in roadside verges bordering a ditch (3 obs.), channel (1 obs.) or railway (1 obs.) which corresponds largely with the semi-natural habitat in which it is found in the Netherlands. Two observations were done on a cemetery which corresponds to the synantropic habitat were it is also found in the Netherlands.

Discussion

M. leydigii is a very elusive species of woodlouse, hard to find and probably the reason why it has been recorded only two times before 2015. However, more intensive woodlouse inventories in autumn/winter 2015-2016 revealed six new localities, indicating that the species is more common than first expected. Also extensive surveys in the Netherlands have proven that the species is probably much more common than expected (BERG *et al.*, 2008). Nevertheless, the species seems to have the centre of its distribution in the Netherlands, but can now be extended towards the west of Belgium as well. The distribution in Belgium is almost restricted to the north-west part of the country in the provinces of West-Vlaanderen and Oost-Vlaanderen. The main habitat are lowland agricultural landscapes on clay-soils, where it can be found by turning stones that were dug a few centimetres into

the soil. Inventories in this kind of habitat could be successful especially in autumn and spring time, when the species (like other trichoniscid species) moves higher up in the soil layers when there is a lower risk of desiccation (own observations; GREGORY, 2009). However, attention should be paid not to confuse the species with individuals of the genus *Trichoniscoides* that can be found in similar habitat and when preserved in alcohol can lose body and eye pigments.

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