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PHILOSCIA AFFINIS VERHOEFF, 1908 NEW TO THE UK (ISOPODA: PHILOSCIIDAE)

Stijn Segers[1,2], Pepijn Boeraeve[2] & Pallieter De Smedt[2,3]

[1] E-mail: segers.stijn@gmail.com

[2] SPINICORNIS, Mispeldonk 2, 2820 Bonheiden, Belgium.
E-mail: info@spinicornis.be

[3] Forest & Nature Lab, Ghent University, Geraardsbergsesteenweg 267, 9090 Melle (Gontrode), Belgium.
E-mail: pallieter.desmedt@ugent.be

ABSTRACT

While revising specimens of *Philoscia muscorum* in the collection of the Royal Belgian Institute of Natural Sciences (RBINS), one male *Philoscia affinis* was found which apparently was collected in the UK in 1985. Since *Philoscia affinis* was not known as a native species for the UK it was uncertain if the specimen was indeed caught in the UK or if the sample was just mislabelled. During a field trip in July 2017 several locations were visited in search of the species. Eventually, *Philoscia affinis* was found in South East England, which confirms its presence in the UK. Further, the identification, habitat preferences and distribution of *Philoscia affinis* in the UK and Europe are discussed in this article.

INTRODUCTION

In September 2014 the Belgian terrestrial isopod group 'Spinicornis' was founded. Shortly afterwards, in December 2014, a new species *Philoscia affinis* Verhoeff, 1908 was recorded for the first time in Belgium (Boeraeve *et al*., in press). The following years it became clear that the species is present across the whole of the country, with the exception of two northern provinces (*ibid*). *Philoscia affinis* closely resembles the omnipresent *Philoscia muscorum* (Scopoli, 1763) and therefore it was concluded that the species must have been overlooked in the previous decades. A revision was carried out for all specimens of *Philoscia muscorum* in the collection of the Royal Belgian Institute of Natural Sciences (RBINS), which included one specimen apparently collected in the UK in 1985. This specimen appeared to be a male *Philoscia affinis*. At first, it was expected to be a mislabelled specimen as it was the only one in an otherwise Belgian collection.

In July 2017 two members of Spinicornis went on a four day field trip to south-east England to verify whether or not *Philoscia affinis* was present. Different parks and ancient forests were visited in Cambridgeshire, Essex, Greater London, Hampshire, West Sussex and Wiltshire (Fig. 1). Review of collected specimens under the microscope revealed one male and several females of *Philoscia affinis*, which confirms the presence of the species in the UK.

IDENTIFICATION

Philoscia affinis belongs to the family Philosciidae, with *Philoscia muscorum* the only other native species in the UK belonging to that family (Gregory, 2009). Both species are medium-sized (up to 11 mm), have a stepped body outline, lack pleopodal lungs and have antennal flagella composed of three segments. Whereas *Philoscia muscorum* (Fig. 2A) has a distinctive black head with a small yellow spot on the rear of the head, the head of *Philoscia affinis* (Fig. 2B) is mottled brown, similar to the rest of the body. *Philoscia affinis* also lacks the white and orange brown stripe on the epimeron, typical for

Philoscia muscorum. It has a clear white dot on every front corner of the segments of the epimeron, which is normally not present in *Philoscia muscorum*. Even though the coloration of the head and body gives a good indication, for sure identification the 7th pereiopod of the male needs to be examined. The species can be conclusively discerned by the small hook at the base of the merus. For *Philoscia affinis* this hook stands up (Fig. 3A) whereas for *Philoscia muscorum* the hook on the merus is bowed down back to the leg (Fig. 3B). One has to be careful though whilst observing this feature since depending on the angle of view it can be deceitful. It is important to look straight at the side of the leg, only then can be distinguished between the hook roughly lying down or standing up.

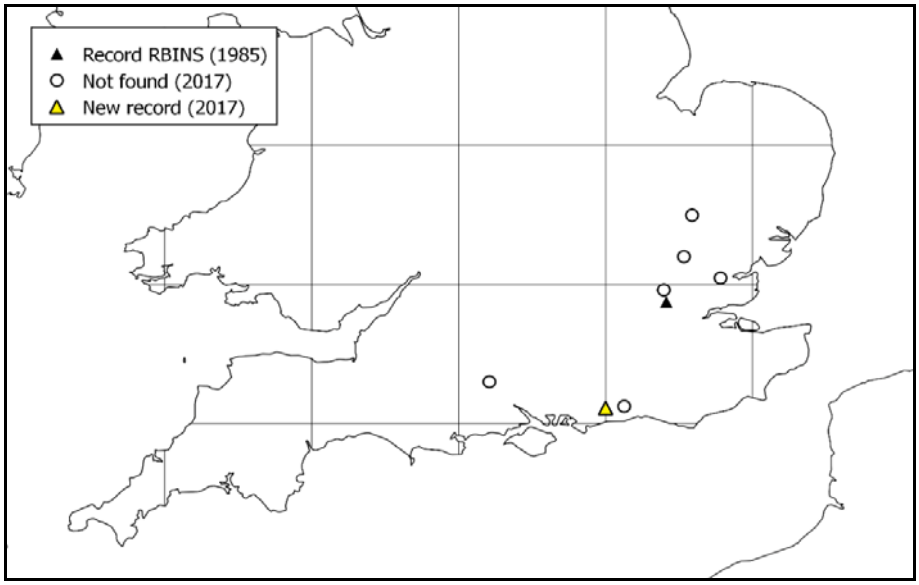

FIGURE 1: Map indicating the locations investigated in search for *Philoscia affinis* in July 2017
Source: Stijn Segers & Pepijn Boeraeve

FIGURE 2: A) *Philoscia muscorum*; B) *Philoscia affinis*. Photographs by Gert Arijs

DISTRIBUTION

Philoscia affinis has a widespread distribution in Europe and Northern Africa, being reported in north-eastern Spain, France, Italy, Germany, Croatia, northern Algeria (Schmalfuss, 2003), Slovenia (Vilisics & Lapanje, 2005), Hungary (Farkas & Vilisics, 2013), Austria (Lefebvre, 2012) and Tunisia (pers. comm. Sonia Hammaied). The species is common to very common in south-western Europe but is only scarcely and locally found in Germany and northern France (Gruner, 1966; Séchet & Noël, 2015). More recently, it has been found on numerous locations in Belgium (Boeraeve *et al*., in press). The species had not been recorded from the UK, despite some occasional searches (pers. comm. Steve J. Gregory). The specimens present in the collection of RBINS from Wanstead, Greater London could therefore be the first record of the species for the UK. In July 2017, the presence of *Philoscia affinis* in the UK could be confirmed by collecting one male specimen in Arundel, West Sussex.

Overview of the records

Greater London: Wanstead, "Bridle Path Allotments", area under horticultural cultivation, TQ423869, 01.x.1985, 1 ♂, 2 ♀, leg. J.M. Tarvernier, det. Pepijn Boeraeve.

West Sussex: Houghton (Arundel), 200m north-west from the Whiteways Lodge Roundabout, TQ001110, 15.vii.2017, 1 ♂, 8 ♀, leg. & det. Pepijn Boeraeve & Stijn Segers. (Fig. 4)

HABITAT

According to Vandel (1962) *Philoscia affinis* can be found in forests, forested river banks and waterlogged wooded terrains. Gruner (1966) mentions that the species can be found in wet, more or less shady, forests.

The currently known locations in Belgium for *Philoscia affinis* show that the species is mainly found in oak forests and in oak-hornbeam/oak-beech forests with average soil humidity (Boeraeve *et al*., in press). For the UK more sightings are necessary to make conclusions about its habitat, since multiple locations that correspond to the foregoing description were visited without success (Gregory 2009).

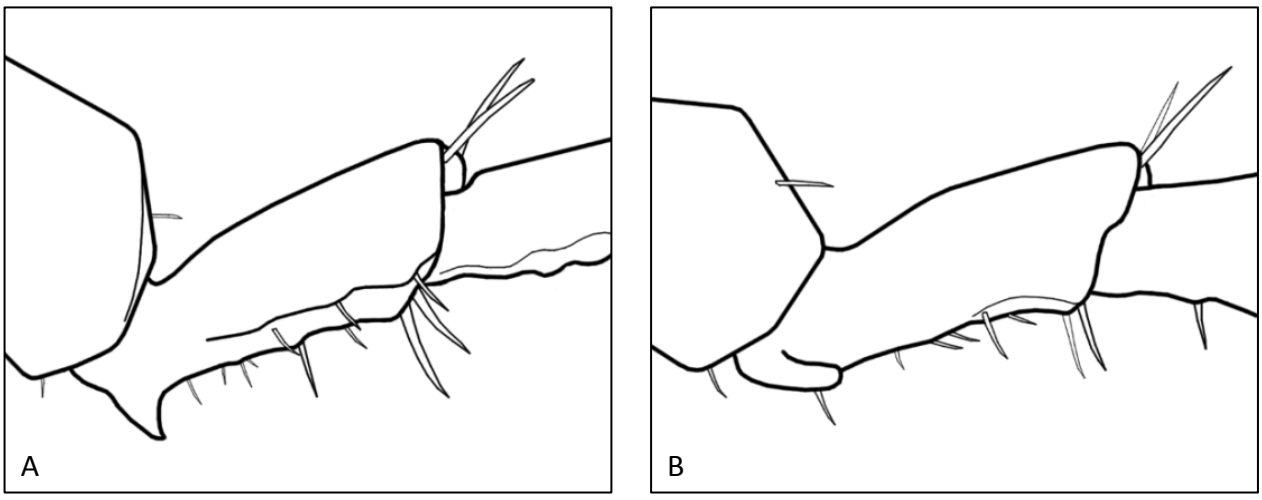

FIGURE 3: A) Upstanding hook on the merus of the 7th leg of a male *Philoscia affinis*; B) Bowed down hook on the merus of the 7th pereiopod of a male *Philoscia muscorum*.
Drawings by Stijn Segers

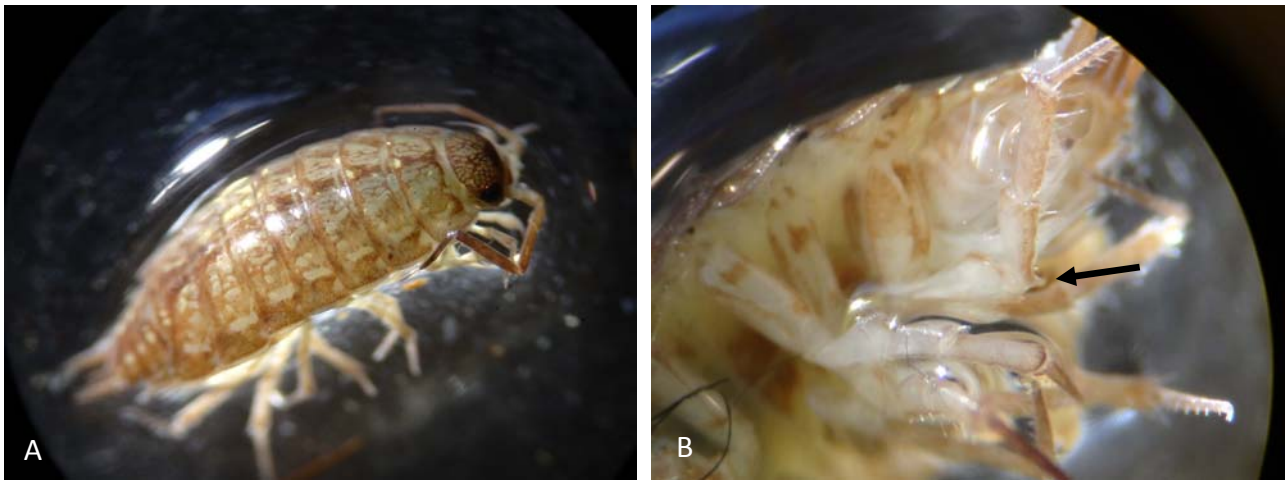

FIGURE 4: *Philoscia affinis*. Specimen found in the UK
A) Body; B) Detail of the 7th leg (hook at base of merus arrowed). Photographs by Pepijn Boeraeve

The specimen present in the collection of RBINS was collected in Wanstead Park (129 ha). The park is located to the east of Leytonstone, south of Epping Forest and northwest of Ilford, in the London borough of Redbridge. It consists of remains of formal gardens, a landscape park and lakes, the form of which dates mainly from the late 17th century to early 19th century, on the site of a 16th century deer park. Developed late 19th century as a public park and early 20th century as a private golf course, with associated sports facilities. The park consists of areas of mature woodland (predominantly oak and sycamore - some of the oaks dating from the 17th century and 18th century - and elm scrub), with large open areas of grassland with scattered trees (Historic England, 2017). The park underwent some changes during the late eighties and early nineties of the 20th century, which means the habitat has been changed and *Philoscia affinis* could not be found after an extensive search.

The specimens collected in Houghton (Arundel) were found in leaf litter in a forest consisting of shallow lime-rich soil over chalk or limestone (Cranfield University, 2017), mainly populated by beech trees (*Fagus sylvatica* L.) with absence of a true shrub and herb layer. The accompanying species were the omnipresent species *Philoscia muscorum* Scopoli, 1763; *Oniscus asellus* Linnaeus, 1758; *Porcellio scaber* Latreille, 1804; *Trichoniscus* sp. Brandt, 1833 and *Armadillidium vulgare* Latreille, 1804.

DISCUSSION

While revising specimens of *Philoscia muscorum* from the collection of the Royal Belgian Institute of Natural Sciences, one male specimen was found which seemed to be a mislabelled *Philoscia affinis*, collected in the UK in 1985. If the specimen was indeed collected in the UK this would be the first record of *Philoscia affinis* in the UK. Numerous forests in the south-east of the UK close to the location of the historic record were visited and eventually *Philoscia affinis* was found in one location in Houghton (Arundel), around 90 km (56 miles) from the location of the specimen in the RBINS collection. With this discovery we can assume *Philoscia affinis* is a native species in the UK and we can validate the specimen from the RBINS collection.

Further research is necessary to fully understand the habitat preferences and distribution of *Philoscia affinis* in the UK. All visited forests were expected to be the right habitat for *Philoscia affinis*, but except for Houghton (Arundel) none could be found. Because of its close resemblance to the very common *Philoscia muscorum* it is possible that the species has been overlooked in the UK, as was the

case in Belgium (Boeraeve *et al*. in press). We therefore recommend re-examining historic collections of *Philoscia muscorum* in the UK.

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