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# First record of the terrestrial isopod *Porcellionides cingendus* (Kinahan, 1857) from Belgium (Isopoda: Porcellionidae)

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## Abstract

In March 2021, a terrestrial isopod unknown to Belgium was photographed in a city park in Ieper (West-Vlaanderen, Belgium). After close examination, it could be concluded that it was *Porcellionides cingendus* (Kinahan, 1857), an Atlantic species occurring from Ireland and the UK to Portugal. In autumn 2021, an extensive inventory was carried out to find more individuals, but without success. *P. cingendus* is mostly a coastal species, but has the ability to build up populations in more synanthropic habitats as well. However, the lack of evidence of a population in the park suggests that this is probably an accidental introduction, since established free-living populations are far away from this isolated record. Nevertheless, the species can be expected at the Belgian coast under future climate conditions.

**Keywords**: Distribution, Introduction, Inventory, Synanthropic habitat, Woodlice

## Samenvatting

In maart 2021 werd een voor België onbekende pissebed gefotografeerd in een stadspark in Ieper (West-Vlaanderen, België). Na determinatie werd geconcludeerd dat het om *Porcellionides cingendus* (Kinahan, 1857) gaat, een Atlantische soort die voorkomt van Ierland en het Verenigd Koninkrijk tot Portugal. In de herfst van 2021 werd een intensieve zoektocht georganiseerd om meer individuen te vinden, maar zonder succes. *P. cingendus* is hoofdzakelijk een kustsoort, maar kan ook populaties opbouwen in antropogene habitats. Het ontbreken van een populatie in het park suggereert dat de soort accidenteel werd geïntroduceerd, omdat vrijlevende populaties ver weg liggen van dit geïsoleerde geval. Desalniettemin kan de soort verwacht worden aan de Belgische kust onder toekomstige klimatologische condities.

## Résumé

En mars 2021, un isopode terrestre inconnu de Belgique a été photographié dans un parc de la ville d'Ypres (West-Vlaanderen, Belgique). Après un examen approfondi, on a pu conclure qu'il s'agissait de *Porcellionides cingendus* (Kinahan, 1857), une espèce atlantique présente de l'Irlande et du Royaume-Uni jusqu'au Portugal. En automne 2021, un inventaire étendu a été réalisé pour trouver d'autres spécimens, mais sans succès. Bien que *P. cingendus* soit principalement une espèce côtière, des populations peuvent s'établir dans des habitats plus anthropiques. L'absence de population dans le parc incite à penser qu'il s'agit probablement d'une introduction accidentelle, d'autant plus que les populations établies sont très éloignées de cet enregistrement isolé. Néanmoins, l'espèce pourrait être attendue à la côte belge dans les conditions futures du changement climatique.

## Introduction

During the summer of 2021, the first author was catching up with the validations of terrestrial isopod records based on pictures uploaded to the citizen science platform waarnemingen.be (https://www.waarnemingen.be). While validating pictures of *Porcellio spinicornis* Say, 1818, an intriguing picture made by Rudy Claeys was discovered. This picture was taken in March 2021 in a large city park on the former city walls of Ieper (West-Vlaanderen). The picture represented a species that was certainly new for Belgium (Fig. 1). After consultation with experts of neighbouring countries, it was concluded that the new species proved to be *Porcellionides cingendus* (Kinahan, 1857). This species has a rather small distributional range in the world, mostly recorded in coastal areas of southern Ireland, Wales, England, western France, Spain and Portugal (SCHMALFUSS, 2003; GREGORY, 2009; SÉCHET & NOËL, 2015). This is the 37th species of terrestrial isopod, and second of the genus *Porcellionides*, encountered in Belgium (DE SMEDT *et al.,* 2018, 2020). In order to investigate if the species has an established population in Belgium, members of the Belgian Terrestrial Isopod Group (Spinicornis) intensively searched the area at the end of September 2021, however without success.

Fig. 1. *Porcellionides cingendus* (Kinahan, 1857). Picture uploaded to waarnemingen.be. © Rudy Claeys.

## Belgian localities

WEST-VLAANDEREN: Ieper, Ketelkwaad, 31UDS93, 29.III.2021, 1 individual, © Rudy Claeys & det. by Pallieter De Smedt.

## Identification

*Porcellionides cingendus* is a medium-sized woodlouse reaching up to 9mm in length (Fig. 2). The species is mottled in shades of brown to yellow. It has no greyish "bloom" on its body surface like seen in *P. pruinosus* (Brandt, 1833). The seven pereonites have a characteristic horizontal line. This line is located to the anterior part of pereonite 1, but is progressively located more to the middle in the subsequent pereonites. The posterior angle of the epimera is rounded in pereonite 1 and this angle gets progressively more pointed towards pereonite 7. The species has a stepped body outline as in *P. pruinosus, Philoscia muscorum* (Scopoli, 1763) and *Ligidium hypnorum* (Cuvier, 1792), which allows rapid movement. The species also has relatively long legs for running. The anterior side of the pleon has a characteristic constriction hence "cingendus". At the underside of the pleon there are two pairs of "lungs". As in *P. pruinosus,* the head has no remarkable lobes. The antenna flagella are composed of two segments. We refer to OLIVER & MEECHAN (1993) for a representation of the male sexual organs.

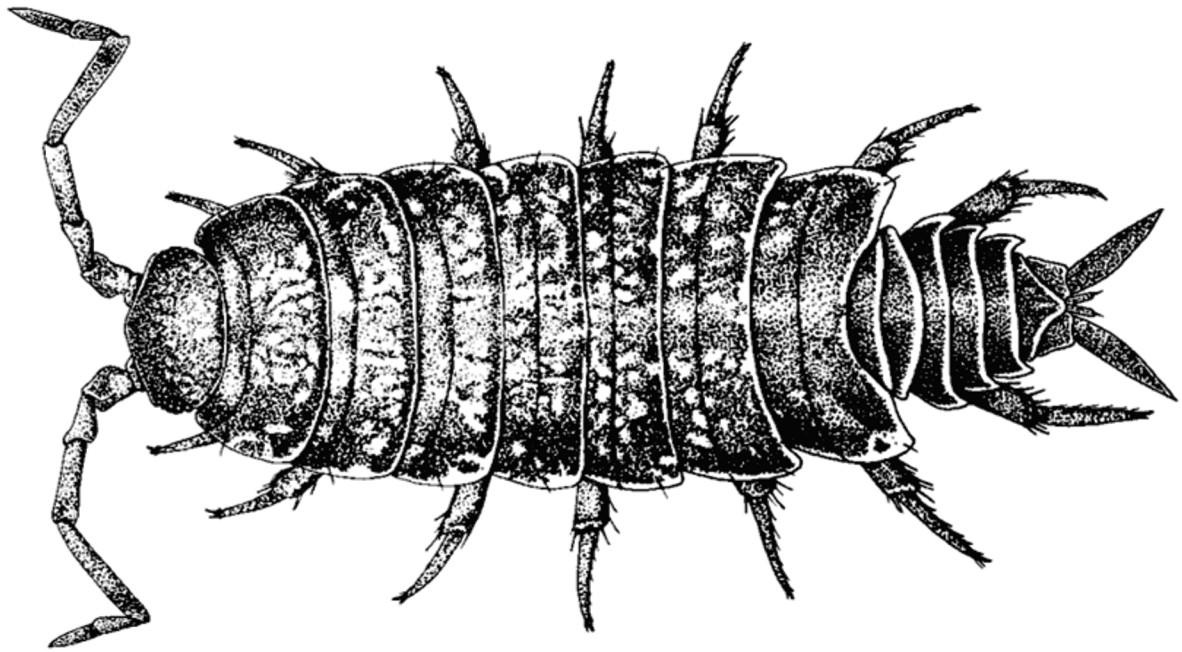

Fig. 2. *Porcellionides cingendus* (Kinahan, 1857), habitus. Drawing from OLIVER & MEECHAN (1993).

## Distribution and habitat

*Porcellionides cingendus* has an Atlantic distribution and is exclusively reported in the wild from Western Europe (Fig. 3). The species is recorded in Ireland, Britain, France, Spain and Portugal (SCHMALFUSS, 2003; GREGORY, 2009). In Ireland, Wales and England, the species has a south-western distribution (GREGORY, 2009). It reaches its northern boundary in these countries. In France, Spain and Portugal it has a western distribution. It is mostly bound to coastal conditions but can occur up to 150 km inland in continental Europe (SÉCHET & NOËL, 2015). The Belgian locality is situated about 35 km from the coastline (Fig. 3). This represents the most northern population in continental Europe. The closest observation in France is more than 110 km to the south-west from the Belgian record in Le Crotoy (département Somme) in 2015 (pers. comm. Andreas Allspach). This is also an isolated record and the closest record to this one is again more than 130 km further southwest, where it more or less connects to its main distribution range in France (GBIF, 2021).

The Belgian specimen was photographed in the north-oriented forest edge of a small forest patch in a public park called "Ketelkwaad". It was found in a pile of wooden branches, from the pruning of local trees, next to a walking trail (Fig. 4). The forest edge was dominated by native trees. The most abundant tree species were *Fraxinus excelsior* L., *Acer pseudoplatanus* L. and *Alnus glutinosa* (L.) Gaertn. The shrub layer was dominated by *Sambucus nigra* L. The herb layer consisted of nitrogen-loving and light demanding plants such as *Urtica dioica* L. and *Rubus* species, but also *Hedera helix* L. Close to this small forest patch, at the other side of the walking trail, is a natural play garden for children with large logs and a lot of dead wood. *Porcellionides cingendus* is a thermophilous species intolerant to extreme winter temperatures (Gregory, 2009). This might be the reason why it is almost exclusively bound to coastal regions towards the northern limits of its distribution range. Harding & Sutton (1985) reported 74% of the collection sites in Ireland and Britain as being coastal. Its distribution seems to be limited by climatic factors and corresponds with the 5°C January mean isotherm (Gregory, 2009).

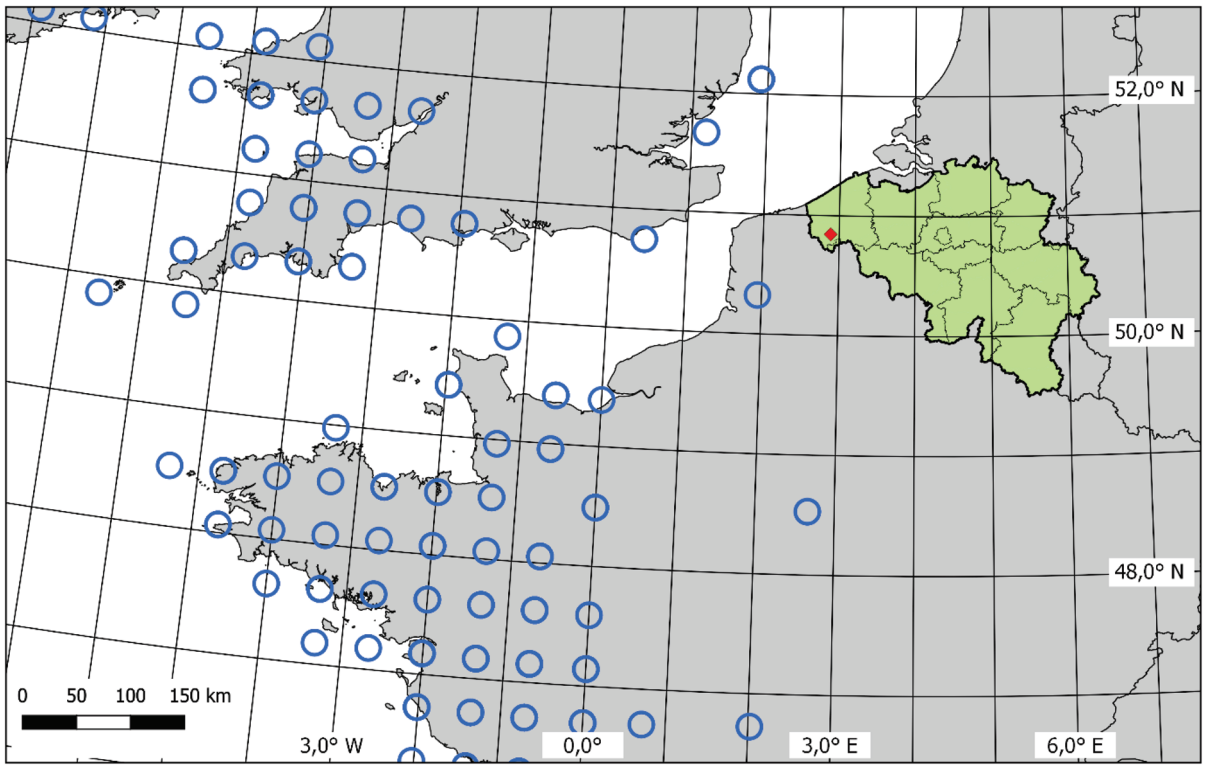


Fig. 3. *Porcellionides cingendus* (Kinahan, 1857). Distribution map in Western Europe after 1980. Red dot represents the Belgian record. Data from GBIF (2021).

Fig. 4. Habitat where *Porcellionides cingendus* (Kinahan, 1857) was found in Ieper, West-Vlaanderen, Belgium. © Pallieter De Smedt.

In Ieper, the January mean temperature is 4.3°C (climate-data.org), which is lower than the 5°C isotherm and we therefore would not expect the species to occur at higher latitudes. The coast of Belgium could thus be the northern limit for this species in continental Europe. However, the habitat does not correspond with its habitat in Ireland and Britain. HARDING & SUTTON (1985) only report 2% of the sites to be urban. In the UK and Ireland, the species is most often found in grasslands, scrub or open woodland. However, when the species penetrates deeper inland, its habitat somewhat changes towards more suburban ecosystems like forest edges, old quarries, parks and gardens (LIVORY, 2007; SÉCHET & NOËL, 2015). This more closely resembles the habitat in Belgium. The tendency of species to occur more often in synanthropic habitats at the northern limit of their distribution range is also observed in other species in Belgium such as *Haplophthalmus montivagus* Verhoeff, 1941 and *Androniscus dentiger* Verhoeff, 1908 (BOERAEVE *et al.*, 2021).

## Conclusion

This presence of *P. cingendus* in Belgium is not unexpected (DE SMEDT *et al.,* 2020). However, the lack of subsequent observations makes it doubtful that the species has an established population in Belgium. Although the habitat corresponds to its inland habitat in neighbouring countries, the climatic conditions are probably on the extreme limit of its range. It is therefore doubtful that the species will survive a cold winter. But, the climatic conditions might become more favourable for the species under current climate change (IPCC, 2021) or the species could establish more towards the coast, where the mean January temperature does not drop below 5°C. Therefore, we encourage to keep on searching for the species in Belgium.

### Acknowledgements

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