

First record of the harvestman *Astrobus laevipes* (Canestrini, 1872) in Belgium (Opiliones: Phalangidae)

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Abstract

The harvestman *Astrobus laevipes* (Canestrini, 1872) is reported for the first time in Belgium. The species was found under a wood log on an abandoned and relatively dry site north of the city of Bruges. The species has an East-Alpine distribution but is fast spreading towards the northwest during the last decades following large rivers such as the Rhine. Its presence in Belgium could be expected but the locality of this first record could suggest that the species was unintentionally introduced. However, it is expected that the species could establish across the country in the next decades.

Samenvatting

De hooiwagen *Astrobus laevipes* (Canestrini, 1872) wordt hier voor het eerst in België gemeld. De soort werd gevonden onder een stuk boomstam op een braakliggend en relatief droog terrein ten noorden van Brugge. De soort heeft van oorsprong een oost-Alpiene verspreiding maar breidt zich snel naar het noordwesten uit via grote rivieren zoals de Rijn gedurende de afgelopen decennia. De aanwezigheid van de soort was verwacht, maar de locatie van deze eerste waarneming zou er op kunnen wijzen dat de soort via menselijk transport België bereikte. We verwachten dat de soort zich doorheen België kan vestigen de komende decennia.

Résumé

L'opilion *Astrobus laevipes* (Canestrini, 1872) est signalé pour la première fois en Belgique. L'espèce a été trouvée sous une bûche de bois sur un site abandonné et relativement sec au nord de la ville de Bruges. L'espèce a une répartition est-alpine mais s'est rapidement propagée vers le nord-ouest au cours des dernières décennies en suivant de grands fleuves comme le Rhin. On pouvait s'attendre à sa présence en Belgique mais la localité de ce premier signalement pourrait laisser penser que l'espèce a été introduite involontairement. Cependant, on s'attend à ce que l'espèce puisse s'établir dans tout le pays au cours des prochaines décennies.

Introduction

The harvestman (Opiliones) community composition is rapidly changing in Western-Europe. Species from the south have been reported to quickly spreading north such as *Opilio canestrinii* (Thorell, 1876) and *Dicranopalpus ramosus* (Simon, 1909). The number of species added to the Belgian fauna in the last two to three decennia is significant (VANHERCKE 2010; VANHERCKE & SLOSSE 2011; VANHERCKE & BAERT 2015), as also seen in the Netherlands (WIJNHOFEN 2009). Different species seem to colonize more northerly areas along rivers and streams probably aided by human unintentional transportation. The harvestman *Astrobus laevipes* (Canestrini, 1872) is another species strongly expanding its distribution area in Europe. The species is already recorded north of Belgium, namely in the Netherlands in 2003 (WIJNHOFEN 2003). Subsequent field research showed an expansion along the river Rhine in the Netherlands (NOORDIJK et al. 2014), therefore the species could also be expected to occur in Belgium. We report the first sighting in Belgium, reflect on the species' habitat use and discuss its potential future distribution in the country.



Figure 1: Habitus of first Belgian record of *Astrobus laevipes*. © Sebastiaan Stevens

Identification

Astrobus laevipes is a relatively small harvestman (body size of 2.5 – 4 mm) with a dark appearance and short legs (Fig. 1). Despite its small size, the species has a rather spectacular appearance. The abdomen has rows with triangular shaped thorns (Fig. 2A-B) and the ocularium has a crest with lighter coloured thorns which are located above and behind the eye (Fig. 2C). The frontal part of the cephalothorax has two forward pointed “teeth” (WIJNHOFEN 2009). The species is easily distinguished from other opilions based on the above-mentioned characteristics although for inexperienced recorders it superficially resembles the more common *Homalenotus quadridentatus* (Cuvier, 1795). The species remains inactive when disturbed. It relies on its camouflage colours and in addition the species has often small soil particles attached to its body making it hard to spot.

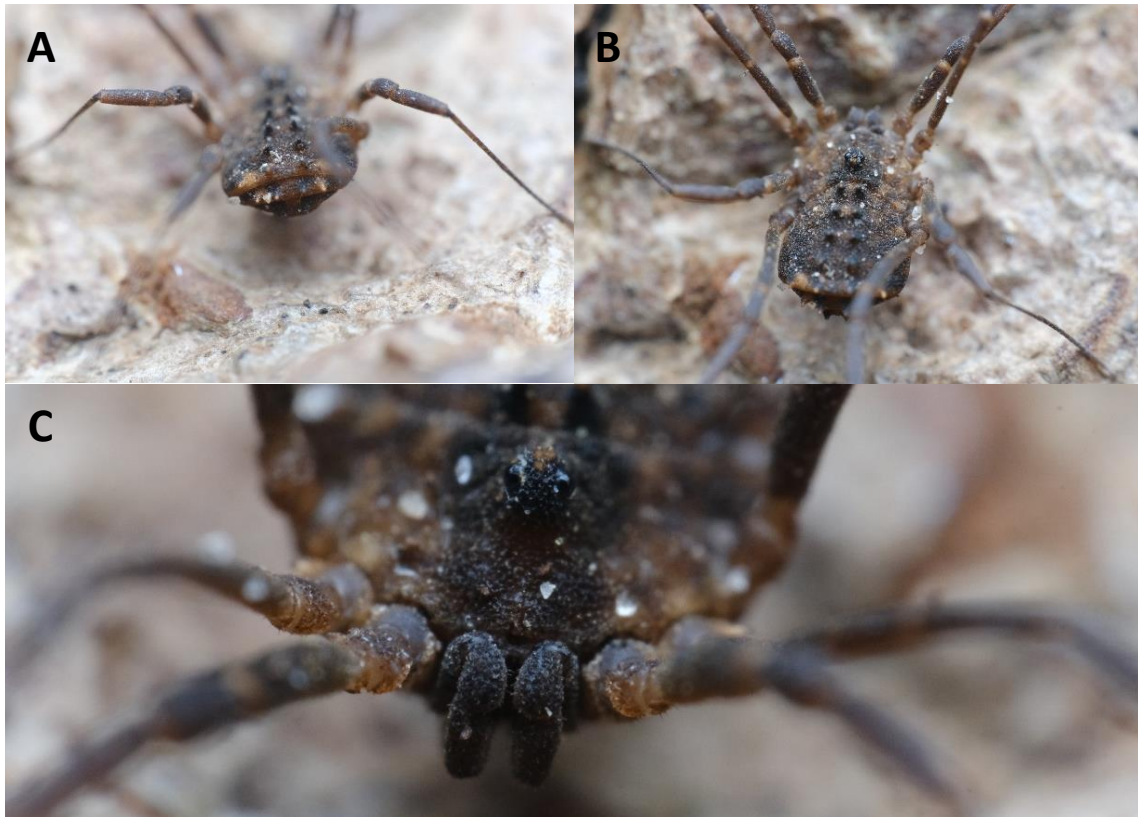


Figure 2: The first Belgian record of *Astrobunus laevipes* with details on the posterior part of the abdomen (A), dorsal view (B) and anterior part of the cephalothorax (C).

Distribution and habitat

Astrobunus laevipes is a species with an originally East-Alpine distribution in Central Europe (MARTENS 1978) but seems to extend its range in a north-western direction during the last decades (MARTENS 2021). The expansion of the species' distribution is probably aided by large rivers such as the Rhine and Elbe (NOORDIJK et al. 2014). The first individual of *A. laevipes* in Belgium was recorded and photographed north of the city of Bruges on the site Blauwe Toren, Bruges on March 16, 2022 (see <https://waarneming.be/observation/235495074/>). Pictures of this first record were uploaded to the citizen science platform Waarneming.be by the last author. Blauwe Toren consists of a complex of very different habitat types such as an almost barren and abandoned site, a cemetery, a recycle site, some unmanaged young woodland and a large pond with marshy edges. *Astrobunus laevipes* was recorded on the edge of the abandoned site under a log of a willow tree (Fig. 3). One kilometre to the east lies the large Boudewijnkanaal, a canal which connects Bruges with the port Zeebrugge at the North Sea. In between there is an industrial zone and a railway. The abandoned site, where the first record was made, consists mainly of dry sandy deposits from industrial activities with the succulent *Sedum acre*, brambles and young willow and birch trees (Fig. 4). The edges of the site, where *A. laevipes* was found, consist of very young forests and are therefore a bit moister compared to the core. An additional excursion by the authors was organised on the 4th of May, 2022 to the same site and surrounding habitat patches. Unfortunately, the species could not be found. Other species recorded at the same site were *Nelima doriae* (Canestrini, 1871) (adults and juveniles) and *Opilio canestrinii* (Thorell, 1876) (only juveniles), both relatively new additions to the Belgian list in respectively 2011 (VANHERCKE AND SLOSSE 2011) and 1992 (VANHERCKE 2010). Spring is, however, not the best season for harvestman records since most species are immature during this time of the year making it hard to identify small juveniles of additional species. Therefore, it can be assumed that more species are to be found in the area. After verification of records on the citizen science platform Waarneming.be also

Dicranopalpus ramosus (Simon, 1909), *Paroligolophus agrestis* (Meade, 1855), *Rilaena triangularis* (Herbst, 1799) and *Leiobunum rotundum* (Latreille, 1798) could be added to this list.



Figure 3: The willow tree log under which *A. laevipes* was first found. © Sam Van de Poel

The microhabitat of the Belgian record is in line with observations in the Netherlands. This short-legged harvestman can be found on the border between soil and litter, hiding under logs where the moisture is higher (NOORDIJK et al. 2014). However, the macrohabitat is somewhat unexpected. In the Netherlands, the species is extending its range fast along the river Rhine. Only a very small part of Belgium is part of the catchment area of the Rhine, but we could expect that the species would reach Belgium via another larger stream (see e.g. the large numbers of the relatively recently discovered *Nemastoma dentigerum* along the river Scheldt, DE SMEDT et al. 2022). In Bruges however, *A. laevipes* was found on an abandoned site and it is therefore conceivable that the species reached the area via human transportation via e.g. railroad or the Boudewijnkanaal. The species may therefore be expected on similar sites in northern Belgium.

Conclusion

Astrobus laevipes is the 32nd species of Harvestman that is recorded in Belgium. This species is part of a remarkable list of strongly expanding harvestman species into Northern and Western Europe and more species are to be expected in the near future in Belgium. The reason for this successful spread is not always clear, probably climate change but also human transportation are the main drivers. In order to further investigate this, we strongly suggest to look out for the species in the area and along larger rivers to document its potential further spread across the country.



Figure 4: Overview of the abandoned site where *A. laevipes* was found. © Sam Van de Poel

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