

The rockhopper *Machilis germanica* Janetschek, 1953 (Microcoryphia: Machilidae) confirmed for Belgium

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Abstract

Machilis germanica Janetschek, 1953 could finally be confirmed for the Belgian fauna. Its presence was expected due to its occurrence just across the border in the Dutch part of the Montagne Saint-Pierre. On previous targeted searches, however, this species was not found in Belgium. That's why the record on 14.vi.2019 still came as a surprise. The only location where it is found at the moment is the steep marl slopes of the Wallonian part of the Montagne Saint-Pierre. Here, around twenty individuals were found along the Rue Collinet in Petit-Lanaye on a fallow terrain between the houses. Animals were found under bricks and stones on the ground, which were laying around as debris as a result of human cave digging activities. Specimens were photographed and one individual was kept in ethanol.

Keywords: Apterygota, Belgian fauna, bristle-tails

Samenvatting

Machilis germanica Janetschek, 1953 kon eindelijk worden bevestigd voor de Belgische fauna. De aanwezigheid van de soort in België werd verwacht vanwege de populatie net over de grens in Nederland aan de Sint-Pietersberg. Bij eerdere gerichte zoekacties naar deze soort werden echter geen exemplaren aangetroffen in het Belgische deel, waardoor de vondst op 14.vi.2019 toch als een verrassing kwam. De enige vindplaats momenteel is onderaan de mergelhellingen van het Waalse deel van de Sint-Pietersberg. Tussen de huizen aan de Rue Collinet in Klein-Ternaaien werden op een braakliggend stuk een twintigtal exemplaren aangetroffen onder stenen en puin afkomstig van keldergroeven in de wand. De soort werd gefotografeerd en één exemplaar werd bewaard in ethanol.

Résumé

Machilis germanica Janetschek, 1953 peut enfin être confirmé pour la faune belge. La présence de l'espèce en Belgique était attendue en raison de la population existant sur le flanc néerlandais de la Montagne Saint-Pierre. Cependant, lors de précédentes recherches concentrées sur cette espèce, aucun spécimen n'a été trouvé dans la partie belge et, la découverte du 14.vi.2019 a donc été encore une surprise. Le seul endroit où l'espèce a été trouvée se localise au pied des pentes marneuses de la partie wallonne de la Montagne Saint-Pierre, entre les maisons de la rue Collinet à Petit-Lanaye. Une vingtaine de spécimens y ont été trouvés sur un terrain en friche sous des pierres et des débris de carrières dans la pente. L'espèce a été photographiée et un spécimen est conservé en éthanol.

Introduction

The first author wanted to see and photograph Machilidae species because of a recent project that involved making an easy accessible online key for this family (DRUKKER, 2018). Due to sheer coincidence, he started his search in the Belgian part of the Montagne Saint-Pierre (Sint Pietersberg), where suitable habitat was found under the marl slopes. Upon turning the first stone, a specimen of *Machilis germanica* Janetschek, 1953 was directly found, which prompted him to check if this was the first record for Belgium. In fact, a specimen of *M. germanica* was found in the Belgian collection of the Royal Belgian Institute for Natural Sciences (RBINS), but since there was no label on this specimen, it was not known whether it was collected in Belgium. Therefore, it was not included in the checklist of LOCK (2006), who, despite of intensive searching, could not find the species in Belgium. Because it was seemingly the first for Belgium, one specimen was collected, while others, of the at least 20 individuals observed, managed to escape, some of them being photographed beforehand.

Material and methods

The only collected individual was caught by hand and with an empty pot in order to manoeuvre it into a small container with 70% ethanol. This specimen was deposited to the collection of the Royal Belgian Institute of Natural Sciences (IG 34.108). Other individuals were photographed with a 100 mm macro lens on a DSLR camera. Identification was straightforward using LOCK (2006).

Results

OBSERVATION

On 14.vi.2019, a population of *Machilis germanica* was found on the steep slopes of marlstone on the Montagne-Saint-Pierre at Petit-Lanaye (Visé) at 50.8090°N, 5.6905°E. Around 20 individuals were observed, mainly under stones. Around 5 individuals were photographed alive (Fig. 1), one of which was caught and conserved in 70% ethanol (Fig. 2).



Fig. 1. Habitus of *Machilis germanica*, 14.vi.2019, Petit-Lanaye. © Daan Drukker.



Fig. 2. Habitus of collected *Machilis germanica* in ethanol, 14.vi.2019, Petit-Lanaye. © Daan Drukker, in collection RBINS: IG 34.108.

DISTRIBUTION AND ECOLOGY

The location where the population on the Belgian part of the Montagne Saint-Pierre was found, can be seen on the map (Fig. 3). The distribution of the species on the Dutch part of the mountain is given as well. In the Netherlands, the species additionally occurs on stony substrates along floodplains of the large rivers Rhine, Waal, IJssel and Meuse (Matty BERG in litt.). In the Great Duchy of Luxembourg, the species was found on vineyards, on piles of stone on uncultivated land and in abandoned quarries in the hills bordering the river Moselle (MEISH, 1977).

DESCRIPTION AND IDENTIFICATION

Machilis germanica is the fifth species of Machilidae in Belgium. The dichotomous key of LOCK (2006) can be used to identify all five species. The same species are treated in the online photo-identification key of DRUKKER (2018). The most important characteristics of *M. germanica* are the transverse, sole-shaped ocelli under the eyes, which are coloured red with a white border (colours best visible on living specimens). The eyes do not have a Y-shaped drawing as in *Lepismachilis y-signata* Kratochvil, 1945 and the antennae are scaled with remarkable black-yellow annulation in contrast with *Petrobius brevistylis* Carpenter, 1913. All these characters can be seen in frontal view (Fig. 5). The antennae are longer than the body (Figs 2, 4), but they can easily break off (Fig. 1). The colouration of the Belgian individuals was silvery gray with brown and black patches (Figs 2, 4). The black spots on the dorsal side were paired and separated by a broad, light gray midline. This midline was in some individuals more pronounced, just as well as there was variation in the size and amount of black and brown patches on the abdomen. This species is around 10–13 mm in length (MEISH, 1977).



Fig. 3. Map of the Montagne-St-Pierre with localities of *Machilis germanica* in Belgium (in red) and recent sightings of the species in the Netherlands (in orange). Source: Waarnemingen.be, Waarneming.nl and Maps.me.



Fig. 4. Dorsal view of *Machilis germanica*, 14.vi.2019, Petit-Lanaye. © Daan Drukker.

Discussion

The newly found Belgian population most probably forms a continuous population with the long known population on the Dutch part of the Montagne Saint-Pierre/Sint Pietersberg. It is found very close to the border on both sides and the slope, on and under which they live, continues undisturbed on both sides. There are no other populations of *M. germanica* known in Belgium, but it might be present elsewhere in Belgium, although it was not found during an elaborate sampling campaign in 2005–2006 (LOCK, 2006). In the Netherlands, the Sint-Pietersberg population is extensive and reaches the northwestern part of the hill. Additionally, the species occurs on several locations along the large rivers in stony parts of the flood plains of the river Rhine, IJssel and Meuse. Especially the Belgian part of the river Meuse should be considered as potential habitat. Even though the floodplains that are used by the Dutch populations are rare along the Belgian Meuse, it should still be prime habitat, as there are many sun-exposed rocky slopes along the Meuse, similar to the Montagne Saint-Pierre.



Fig. 5. Frontal view of *Machilis germanica*, showing characteristic ringed antennae, elongate white ocelli and compound eyes without “Y”-shape, 14.vi.2019, Petit-Lanaye. © Daan Drukker.

In the past, there has been some discussion about the taxonomy of *Machilis*, with several colour variants described as full species, also in The Netherlands. In the work on Dutch Machilidae by WYGODZINSKY (1954), both *Machilis meijeri* Wygodzinski, 1954 and *Machilis oudemansi* Wygodzinski, 1954 are described, the latter even from the Sint-Pietersberg. *M. meijeri* was described without knowledge of JANETSCHEK's (1953) description of *M. germanica* and should be a synonym of *M. germanica* according to STURM (1980). *M. oudemansi* has, however, never been formally synonymised with *M. germanica*, although *M. oudemansi* is omitted from the Fauna Europaea and STURM (1980) thinks that the differences between *M. oudemansi* and *M. germanica* are so minimal that he suspects they might be synonymous as well. That is why we treat the newly found population, as well as the rest of the population that is known from the Dutch side of the Sint-Pietersberg, as *M. germanica*. This is in consistency with how the species is treated in The Netherlands (Matty BERG in litt.).

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