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First records for Belgium of the ant species *Myrmica vandeli*

Bondroit, 1920 (Hymenoptera: Formicidae)

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Abstract

We report the first observations of *Myrmica vandeli* Bondroit, 1920 for Belgium. The species was found in an oligotrophic, undisturbed wet grassland in Richtenberg, Burg-Reuland in 2011 and 2021. This *Myrmica* species is rare in Europe and restricted to open wet meadows, swamps, fens and peatlands. *Myrmica vandeli* is added to the ant fauna of Belgium which now numbers 12 *Myrmica* species. It is possible that *M. vandeli* specimens were previously confused with specimens of its sister species *Myrmica scabrinodis* Nylander, 1846. Hence we suggest to revise all *M. scabrinodis* samples from the south-eastern part of Belgium (from Hautes Fagnes south to Luxembourg) as it is possible that *M. vandeli* was left unnoticed before and identified as *M. scabrinodis*.

Keywords: Formicidae, new Belgian species, Burg-Reuland, wet oligotrophic meadow

Résumé

Nous rapportons les premières observations de *Myrmica vandeli* Bondroit, 1920 pour la Belgique. L'espèce a été trouvée dans une prairie humide oligotrophe et non perturbée à Richtenberg, Burg-Reuland en 2011 et 2021. Cette espèce de *Myrmica* est considérée comme rare en Europe et limitée aux prairies humides ouvertes, aux marécages, aux marais et aux tourbières. *Myrmica vandeli* s'ajoute à la faune des fourmis de Belgique qui compte désormais 12 espèces de *Myrmica*. Il est possible que des spécimens de *M. vandeli* aient été précédemment confondus avec des *Myrmica scabrinodis* Nylander, 1846, son espèce sœur. Nous suggérons donc de réviser tous les échantillons de *M. scabrinodis* provenant de la partie sud-est de la Belgique (des Hautes Fagnes au sud du Luxembourg) car il est possible que *M. vandeli* soit passé inaperçu auparavant et ait été identifié comme *M. scabrinodis*.

Samenvatting

We melden de eerste waarnemingen van *Myrmica vandeli* Bondroit, 1920 voor België. De soort werd gevonden in een oligotroof, niet verstoord nat grasland in Richtenberg, Burg-Reuland. Deze in Europa zeldzame en weinig waargenomen *Myrmica* is in haar voorkomen beperkt tot open natte graslanden, moerassen en veengebieden. *Myrmica vandeli* wordt toegevoegd aan de Belgische fauna die nu 12 *Myrmica* soorten telt. Het is mogelijk dat *M. vandeli* specimens eerder werden verward met haar zustersoort *Myrmica scabrinodis* Nylander, 1846. Daarom suggereren we om alle *M. scabrinodis* stalen van het zuidoosten van België (van de Hoge Venen tot en met GH Luxemburg) te herzien, aangezien het mogelijk is dat *M. vandeli* voordien niet werd opgemerkt en werd geïdentificeerd als *M. scabrinodis*.

Introduction

In Europe *Myrmica vandeli* Bondroit, 1920 is found sporadically (RADCHENKO *et al.*, 2003; SEIFERT, 2018). However, this rare species has an extensive distribution range in Europe. There are documented records (including details on habitat and ecology) of this species from Austria, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Great Britain (England and Wales), the Netherlands, Norway, Poland, Romania, Slovakia, Spain, Sweden, Switzerland, western Ukraine, and the former Yugoslavia (BOER *et al.*, 2018; RADCHENKO *et al.*, 2003; RADCHENKO & ELMES, 2010; CZEKÉS *et al.*, 2012; SEIFERT, 2018; SIELEZNIEW & STANKIEWICZ, 2004; STANKIEWICZ & ANTONOVA, 2005; SZÁSZ-LEN *et al.*, 2011). The species is rare in lowlands and main populations can be found in and along the Alps and the Carpathians at elevations between 300 and 1100 m (SEIFERT, 2018).

Although *Myrmica vandeli* frequently coexists with *Myrmica scabrinodis* Nylander, 1846, there are relatively few data available on its biology, habitat preference and place in the ant community (SIELEZNIEW & STANKIEWICZ, 2004; STANKIEWICZ & ANTONOVA, 2005). It lives in open, wet meadows, swamps, fens and bogs (SEIFERT, 2018). Nests are usually constructed in moss pads, sometimes under stones. Polygynous colonies can contain up to 1500 workers, but this has been documented only in a few localities in Central Romania, mostly in mountain regions (CZEKÉS *et al.*, 2012).

Although described by the French-Belgian myrmecologist Jean Bondroit in 1920 from France, Les Granges in Jura, Bondroit did never collect this species in Belgium. At least we do not find any specimen in his large Belgian ant collection (stored in RBINS) that contains very rare Belgian ant species like *Polyergus rufescens* (Latreille, 1798) or even species that are now considered as extinct in Belgium like *Formica exsecta* Nylander, 1846 and *Dolichoderus quadripunctatus* (Linnaeus, 1771) (DEKONINCK *et al.*, 2012). Recently, other rare *Myrmica* species not previously reported by Bondroit - although he knew them well from France - such as *Myrmica karavajevi* (Arnoldi, 1930) were also rediscovered (VANKERKHOVEN *et al.*, 2011, STEVENS *et al.*, 2020) or added to the Belgian ant list like *Myrmica gallienii* Bondroit, 1920 (VANKERKHOVEN *et al.*, 2008).

In this paper we mention the discovery of *M. vandeli* in Belgium in 2011 and we confirm its presence 10 years after its first collection at the same site.

Material and methods

In the summer of 2011 arachnologist Herman De Koninck installed a series of pitfall traps in several sites in the southeast of Belgium to make an inventory on these localities for spiders, carabids and other soil dwelling arthropods. The pitfall traps contained a 3-4 % formaldehyde solution with a few droplets of soap. Herman De Koninck sorted out the ants of this sampling campaign and handed them over to the first author for identification. Unfortunately, the collector was unable to give more details on the exact localities where the traps were placed as he died shortly thereafter.

In the summer of 2021, the first author used detailed vegetation maps to relocate potential sites where the pitfall traps might have been installed and revisited these sites in order to collect the same ant fauna again, including *Myrmica vandeli* that turned out to be amongst the ant species collected by Herman De Koninck.

The site where *M. vandeli* was rediscovered in 2021 and which was very likely the place where it was collected with pitfall traps in 2011, is presented in Fig. 1. The environment can be described as a very humid oligo-mesotrophic meadow on a soft NW to SE slope (Fig. 2). A rivulet rises in the meadow and flows through it, merging with the Federbach a little further

southeast. At the moment of sampling the meadow was grazed by cattle. The dominant plant species in the meadow are *Cirsium palustre*, *Filipendula ulmaria*, *Centaurea thuillieri*, *Galium mollugo*...

On 08/VII/2021 ant nests were searched and sampled with an exhauster. At least 20 workers were collected from each ant nest discovered. All samples were identified using SEIFERT (2018) under a Leica 4EZ stereomicroscope and the specimens are stored in RBINS collection (2011 IG:32167 and 2021 IG:34427).



Fig. 1. Map with the locality (blue star) where *Myrmica vandeli* was collected in 2021.

Results

RESULTS OF THE PITFALL SAMPLING IN 2011

During the pitfall sampling 9 ant species were found: workers of *Formica cunicularia* Latreille, 1798; *Formica fusca* Linnaeus, 1758; *Lasius niger* (Linnaeus, 1758); *Lasius platythorax* Seifert, 1991; *Myrmica rubra* (Linnaeus, 1758); *Myrmica ruginodis* Nylander, 1846; *M. scabrinodis* and *M. vandeli*. Also, a dealate gyne of *Lasius fuliginosus* (Latreille, 1798) and a microgyne of *M. ruginodis* were found. *Myrmica vandeli* was found in 2 of the 6 pitfall traps.

RESULTS OF THE SAMPLING IN 2021

During a thirty-minute search at the wet meadow in Richtenberg on 08/VII/2021, 4 *Myrmica* nests were found and sampled: one nest of *M. ruginodis*, two nests of *M. scabrinodis*, one nest of *M. vandeli* (Fig. 3) and also, ants from a *Serviformica* nest that turned out to be *Formica cunicularia*.



Fig. 2. Overview of the meadow at Richtenberg where *Myrmica vandeli* was collected. © Wouter Dekoninck 08/VII/2021.

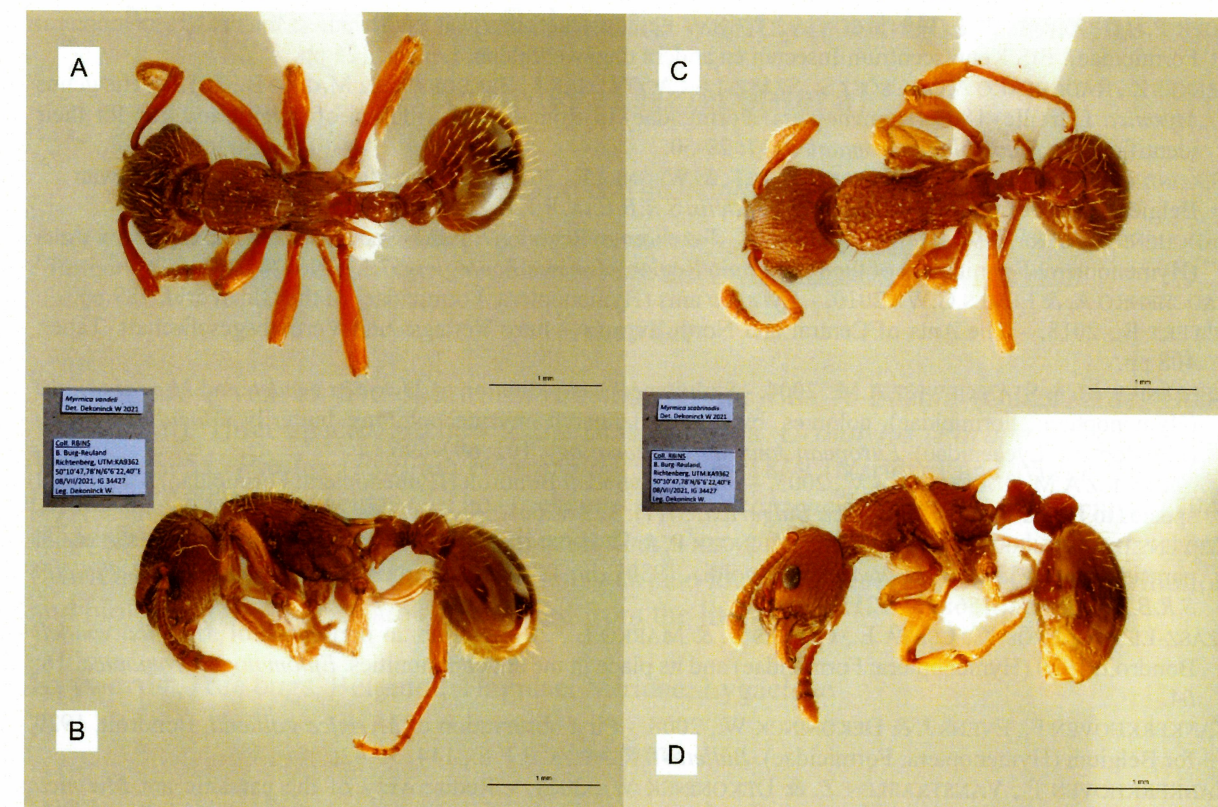


Fig. 3. Left worker of *Myrmica vandeli* collected on 08/VII/2021 at Richtenberg. A, dorsal view. B, lateral view. Right worker of *Myrmica scabrinodis* collected on 08/VII/2021 at Richtenberg. C, dorsal view. D, lateral view. © Julien Lalanne.

Discussion

In this paper we were able to confirm the presence of *M. vandeli* in Belgium 10 years after its first discovery in 2011. Moreover, we were able to give details on the exact locality and habitat of this species in Belgium. In the (south)east of Belgium there are certainly also other sites with the same biological and ecological characteristics to harbour other populations of *M. vandeli*. When searched for in the right habitat, i.e. humid oligo-mesotrophic meadows on slopes as the one in Richtenberg, the chance of finding *M. vandeli* is highly probable. Most likely it inhabits a variety of habitat types (also swamps and fens) mostly all characterized by moist conditions, from Hautes Fagnes south to Luxembourg. It might be possible that *M. vandeli* specimens were confused with specimens of its sister species *M. scabrinodis* before. We therefore suggest that all *M. scabrinodis* samples from the most southeastern part of Belgium (from Hautes Fagnes south to Luxembourg) should be revised, as it is possible that *M. vandeli* was left unnoticed before and identified as *M. scabrinodis*.

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Nieuwe en zeldzame Belgische wantsen uit Bos 't Ename (Hemiptera: Heteroptera)

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Abstract

Records are given of five species of true-bugs from Bos 't Ename (Oudenaarde, Oost-Vlaanderen). Three species are new to the Belgian fauna: *Orthotylus* (*Parapachylops*) *caprai* Wagner, 1955, *Psallus* (*Psallus*) *criocoroides* Reuter, 1879 (Miridae) and *Nysius cymoides* (Spinola, 1837) (Lygaeidae). The presence of *Physatocheila costata* (Fabricius, 1794) (Tingidae) in Belgium is confirmed and *Dicyphus* (*Dicyphus*) *bolivari* Lindberg, 1943 (Miridae), recently added to the Belgian list, was also found in the forest. Details on distribution and biology of the species are summarized from the literature.

Keywords: True bugs, Belgium, Tingidae, Miridae, Lygaeidae

Résumé

Différentes observations de punaises provenant du Bos 't Ename (Oudenaarde, Oost-Vlaanderen) sont fournies. Trois espèces sont nouvelles pour la faune belge: *Orthotylus* (*Parapachylops*) *caprai* Wagner, 1955, *Psallus* (*Psallus*) *criocoroides* Reuter, 1879 (Miridae) et *Nysius cymoides* (Spinola, 1837) (Lygaeidae). La présence de *Physatocheila costata* (Fabricius, 1794) (Tingidae) en Belgique est confirmée et *Dicyphus* (*Dicyphus*) *bolivari* Lindberg, 1943 (Miridae), récemment ajouté à la liste des punaises belges, fut aussi collectée dans la forêt. Les détails sur la distribution et la biologie des espèces sont synthétisés de la littérature.

Samenvatting

Waarnemingen van vijf soorten wantsen uit Bos 't Ename (Oudenaarde, Oost-Vlaanderen) worden gerapporteerd. Het betreft drie soorten nieuw voor de Belgische fauna: *Orthotylus* (*Parapachylops*) *caprai* Wagner, 1955, *Psallus* (*Psallus*) *criocoroides* Reuter, 1879 (Miridae) en *Nysius cymoides* (Spinola, 1837) (Lygaeidae). Het voorkomen van *Physatocheila costata* (Fabricius, 1794) (Tingidae) in België wordt bevestigd en ook de recent aan de Belgische lijst toegevoegde *Dicyphus* (*Dicyphus*) *bolivari* Lindberg, 1943 (Miridae) blijkt in het bos voor te komen. Bijzonderheden over de verspreiding en de biologie van de soorten worden samengevat uit de literatuur.

Inleiding

Tijdens de biodiversiteitsaudit in 2015 voor het natuurgebied Bos t'Ename bij Oudenaarde (TACK *et al.*, 2021) werd naast de gebruikelijke standaardbemonsteringen met bodemvallen, malaisevallen en gekleurde vangschalen ook intensief naar wantsen gezocht tijdens een viertal weekends. In totaal werden er in dat jaar 184 soorten wantsen waargenomen, waarvan er hier drie in detail behandeld worden: *Physatocheila costata* (Tingidae), *Orthotylus caprai* (Miridae) en *Nysius cymoides* (Lygaeidae). Tijdens aanvullende bezoeken werden bovendien nog twee