



## *Myrmica vandeli* Bondr. (Hymenoptera: Formicidae) in the Pieniny Mountains – the second record of this species for Poland

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**Abstract:** The second record of *Myrmica vandeli* Bondr. for Poland is reported, and the current knowledge of its distribution is summarised. This poorly recorded ant species may be less rare than hitherto supposed. Its six colonies were found in the Pieniny Mts (southern Poland) in a marsh-meadow. Originally (in Czechowska 1976), they were erroneously determined as *M. scabrinodis* Nyl.

**Key words:** ants, *Myrmica vandeli*, *scabrinodis*-group, fauna of Poland

### INTRODUCTION

*Myrmica vandeli* Bondr. is a little known and poorly recorded ant species of the *scabrinodis*-complex (sensu Radchenko 1994 and Radchenko & Elmes 2004). Described from France (Bondroit 1920), so far it was reported from a few wide-spread sites in Europe, from the British Isles to Romania and Yugoslavia (Kutter 1977, Elmes & Thomas 1985, Seifert 1988, 1996, Markó 1999, Markó et al. 2004, Schlick-Steiner & Steiner 2000, Elmes et al. 2003). The record from Turkish Thrace (Agosti & Collingwood 1987) is based on a misidentification (AR, material examined). Recently *M. vandeli* was reported from Poland (Mt Orosz, Krakowsko-Wieluńska Upland; Radchenko et al. 2003) (Fig. 1).

This species inhabits warm, humid places, being particularly abundant in marshes and bogs in the southern foothills of the Alps. As a rule, it co-occurs in the habitats with *M. scabrinodis* Nyl., that is, on the one hand, its ecological competitor, and on the other hand, the host of its temporary social parasitism. *M. vandeli* shows some “socially parasitic” features, such as reduced spurs and hairy body (see Elmes et al. 2003). Several times it was noticed living in mixed colonies with *M. scabrinodis* workers, which suggests *M. vandeli* to be (at least facultatively) a temporary social parasite of that species, particularly on marginal parts of the species range (Radchenko & Elmes 2003).

*M. vandeli* might be just a poorly recorded species and may be not so rare as hitherto supposed. Probably, it has usually been erroneously determined as one of the related species, especially *M. scabrinodis* (as shown below). For the characteristic morphological features of the species and a key for separating it from their closest relatives see Radchenko et al. (2003).

### MYRMICA VANDELI IN THE PIENINY MOUNTAINS

The Pieniny Mts (49°24'N, 20°24'E; see Fig. 1) have a unique position in Polish faunistics. Built mainly of limestone, they are warm and relatively dry. Due to the geological and climatic separateness from surroundings, and therefore also its floristic and faunistic separateness (see e.g. Pancer-Kotejowa & Zarzycki 1976, Kostrakiewicz 1982), this small mountain range (ca. 40 km<sup>2</sup>) is a peculiarity of nature on the European scale. In respect of the myrmecofauna, it is

the richest of all Polish geographic regions; to date, as many as 63 ant species have been recorded there (Czechowski et al. 2002).

Myrmecofauna of the Pieniny Mts as a composite unity (i.e. besides fragmentary reports) were studied twice: qualitatively in the late 1940s (Koehler 1951) and qualitative-quantitatively in the early 1970s (Czechowska 1976). One of taxonomic problems that arose during the latter studies concerned diagnosis of some *Myrmica* nest samples collected in a eutrophic marsh-meadow (*Valeriano-Caricetum flavae*). Finally the author defined them as *M. scabrinodis*, describing however their morphological deviation from more or less typical another local forms, and those occurring in dry biotopes, i.e. in the thermophilous meadow (*Anthylli-Trifolietum*), the herb meadow (association with *Veratrum lobelianum* Bernh. and *Laserpitium latifolium* L.) and the dry pasture (association with *Salvia verticillata* L.) (Czechowska 1976; for phytosociological characteristics of the biotope see Panzer-Kotejowa and Zarzycki 1976).

The recent findings of *M. vandeli* in Poland (Radchenko et al. 2003) and in Bulgaria (Stankiewicz & Antonova, in prep.) in wet meadows inspired us to inspect the voucher specimens of «*M. scabrinodis*» sampled during the study under discussion, kept in the Museum and Institute of Zoology, PAS in Warsaw. As was to be expected, the questionable samples that had been collected in the Pieniny Mts upwards of 30 years ago appeared to represent *M. vandeli* – the 64<sup>th</sup> ant species recorded from this region. (The total number of outdoor ant species found in Poland is now 96; see Radchenko et al. 2004).



Fig. 1. Known localities of *Myrmica vandeli* in Europe; sites in Poland are numbered: 1 – Mt. Otrosz (Krakowско-Wieluńska Upland (according to Radchenko et al. 2003), 2 – Pieniny Mts, a new site.

All these *M. vandeli* samples originated from the same biotope and locality: a eutrophic marsh-meadow on a gentle NE slope at the mouth of the Ociemny Stream to the river Dunajec near Krościenko [UTM DV67] at about 430 m a.s.l. Soil was peaty-gley, very wet, saturated with oozing water. Sedges, *Carex davalliana* Sm., *C. rostrata* Stokes, *C. panicea* L. and others, dominated the vegetation. Places between sedge tufts, permanently covered by water, overgrew, among others, *Valeriana simplicifolia* (Rehb.) Kab., *Eriophorum latifolium* Hoppe, *Pinguicula vulgaris* L., *Orchis latifolia* L., *Lysimachia vulgaris* L., and mosses (see Pancer-Kotejowa and Zarzycki 1976). *Myrmica* nests, with mounds of fine plant remnants, were situated in big tufts of sedges.

The local ant community consisted of three ant species: *M. rubra* (L.) (= *M. laevinodis* Nyl. in Czechowska 1976), *M. scabrinodis* and *M. vandeli*. Densities of their nests were very high: 0.27/m<sup>2</sup> (38%), 0.33/m<sup>2</sup> (48%) and 0.10/m<sup>2</sup> (14%) respectively (0.70/m<sup>2</sup> together). For comparison: *M. scabrinodis* nest densities were 0.04/m<sup>2</sup> in the thermophilous meadow, 0.04/m<sup>2</sup> in the herb meadow and 0.02/m<sup>2</sup> in the dry pasture, and the total nest density of all *Myrmica* species there were 0.044, 0.06 and 0.26 respectively (Czechowska 1976). Three colonies of *M. vandeli* were found during these quantitative investigations, which in the marsh-meadow studied were made on 11.08.1973. Three more *M. vandeli* colonies were sampled in the same meadow as the result of qualitative searches on 30.07.1974. Analyses of all of the nest samples of *M. scabrinodis* and *M. vandeli* collected in the Pieniny Mts did not show the existence of the mixed colonies of these species, found at some other sites (see Elmes et al. 2003, Radchenko & Elmes 2003).

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## STRESZCZENIE

[Tytuł: *Myrmica vandeli* Bondr. (Hymenoptera: Formicidae) w Pieninach – drugie doniesienie o występowaniu tego gatunku w Polsce]

Rewizja materiałów dowodowych, stanowiących podstawę dawnego opracowania myrmekofauny Pienin (Czechowska 1976), wykazała obecność nowego dla tego regionu gatunku mrówki, *Myrmica vandeli* Bondr., a zarazem jego drugie stanowisko w Polsce (zob. Radchenko et al. 2003). W Pieninach *M. vandeli* występowała na młacie (*Valeriano-Caricetum flavae*) w pobliżu Krościenka nad Dunajcem, gdzie w latach 1973 i 1974 znaleziono sześć jej gniazd. Pierwotnie gatunek ten został utożsamiony (choć nie bez wątpliwości) z licznie występującą w Pieninach (m.in. współwystępującą z *M. vandeli* na tej samej młacie) *M. scabrinodis* Nyl. (zob. Czechowska 1976). Informacja ta wydłuża listę myrmekofauny Pienin – najzasobniejszego w gatunki mrówek regionu Polski (zob. Czechowski et al. 2002) – do 64 gatunków.

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