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A new locality with recent occurrences of *Megachile parietina* in the Czech Republic (Hymenoptera: Apoidea: Megachilidae)

Nová lokalita v Česku s výskytem maltářky zední *Megachile parietina* (Hymenoptera: Apoidea: Megachilidae)

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Abstract. *Megachile* (*Chalicodoma*) *parietina* (Geoffroy, 1785) is a rare and very endangered dauber bee species in Central Europe. During the last 20 years, it has only been reported from two areas in the Czech Republic. During the summer of 2019 we found a large population in the Mokrá active limestone quarry. The abundance of this species, in the context of its bionomics, seems to be related to the mining activities in the large limestone quarry with many types of artificial biotopes, which serve as a suitable secondary habitat for its survival.

INTRODUCTION

Megachile (*Chalicodoma*) *parietina* (Geoffroy, 1785) is strongly thermophilic dauber bee species (Schwarz et al. 2005). The species is distributed throughout in the Mediterranean region (North Africa, South Europe and the Middle East), in warmer habitats of Central Europe, the Caucasus and the Central Asian part of the former USSR – Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan (Tkalců 1975, Banaszak & Romasenko 2001). Westrich (1990) noted that the species is declining throughout Central Europe and threatened with extinction in Baden-Württemberg. Changes in the density of the species' population were noted by Ebmer (2003) in Austria since World War II, and by Mader (2001) in Germany. The situation is similar in the Czech Republic; the species was widely distributed on steppe habitats in the last century (Kubes 1904, Baťa 1939, 1942, Šnoflák 1944) but now it is reported from only two regions (Macek et al. 2010): Lounské středohoří (Bohemia) and Pálava (Moravia). After the year 2000, the species has rarely been found, and only in Pálava (Straka & Bogusch 2017). Therefore, it is given the conservation status of critically endangered in the Czech Republic (Straka & Bogusch 2017).

MATERIAL AND METHODS

The locality survey was carried out on only one day, 28.vi.2019 (approx. from 10 a.m. to 3 p.m.). The air temperature was between 21–24 °C. An entomological net (frame diameter 40 cm, handle length 70 cm) was used. Bees were caught typical occurrence sites such as forage flowers, bare soil localities including roads and rock ledges, margins and areas of low and patchy grass growth, the vicinity of dead wood, and on stones exposed to the sun. Bees were immediately identified, sexed and released (for easily and reliably identifiable species) and/or placed in a killing tube with wood shavings and ethyl acetate, and subsequently identified after laboratory preparation using a binocular magnifier at x10–x100 magnification. The dry mounted voucher specimens are currently deposited in the collection of Antonín Přidal.



Fig. 1. Limestone quarry in Mokrá – overall view (photograph by L. Tichý).
Obr. 1. Vápencový lom v Mokré – celkový pohled (fotografie L. Tichý).

The Mokrá limestone quarry is a somewhat isolated locality at the southern edge of the Moravian karst ("Drahanská vrchovina" hill country). This quarry (Fig. 1) is one of the largest limestone quarries in the Czech Republic, more than 1.2 km^2 in area. Phytogeographically it is located at the border between thermophyticum and mesophyticum (Hejný & Slavík 1988). The quarry is divided into three mining areas, isolated by strips of relatively undisturbed vegetation. While the mosaic of thermophilous habitats such as broad-leaved dry grasslands and thermophilous oak forests (Chytrý et al. 2010) surround the eastern and southern part of the quarry, oak-hornbeam forests mostly surround the northern and western quarry edge. The high diversity of distinct habitats, frequent disturbance, low incidence of alien plants and unique microclimatic conditions are the main reasons for high species diversity in this area.

The generic status of the species follows Trunz et al. (2016). They maintained the monophyletic status of the genus *Megachile* Latreille, 1802 by including, besides others, the taxon *Chalicodoma* Lepeletier, 1841 as a subgenus of *Megachile* Latreille, 1802.

RESULTS

Megachile* (*Chalicodoma*) *parietina (Geoffroy, 1785)

Material examined. Moravia centr., Mokrá-Horákov (6766), 49°13′47″N 16°46′00″E, limestone quarry, 28.vi.2019, 3 ♀♀, A. Přidal & L. Tichý lgt., A. Přidal det. et coll.; same data, 6 ♀♀, A. Přidal observed.

Comments. The species was observed in the south-eastern part of the quarry, in an area of about 0.5 km^2 at altitudes 350–400 m. No males were recorded, and the wings of the females were in some cases not intact (somewhat frayed at the posterior margin). Foraging was recorded only on *Stachys recta* (49°13′48″N 16°45′58″E; Fig. 2) and collecting of nest material at the edge of a dirt road (49°13′46.3″N 16°46′8.2″E).



Fig. 2. *Megachile parietina* (Geoffroy, 1785) foraging on *Stachys recta* (photograph by L. Tichý).
Obr. 2. Maltářka *Megachile parietina* (Geoffroy, 1785) na čistci *Stachys recta* (fotografie L. Tichý).

DISCUSSION

The species was probably recorded at the end of its period of activity, due to absence of males and the condition of the posterior margin of the females′ wings. This corresponds with bionomic data by Westrich (1990).

Since this species needs bare, sunlit stone walls for its nests (Baťa 1942, Mader 2001) we presume that quarries and other mining areas may potentially provide suitable new artificial habitats its survival in the future. Historically the species occurred e.g. at Mohelno serpentine steppe in Moravia (Šnoflák 1944), where the locality was intensively grazed, and some parts were also mined for road pavements and building (Veselý 2002). The termination of these activities after World War II probably resulted in the complete extinction of local populations of *Megachile parietina* there (Přidal & Veselý 2011, Přidal 2015). We conclude that ongoing stone extraction in the limestone quarry in Mokrá seems to support the recent occurrence of this mason bee species at its third currently known locality in the Czech Republic.

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SOUHRN

Maltářka zední (*Megachile parietina* (Geoffroy, 1785)) je ve Střední Evropě vzácný a ohrožený druh. V České republice byl tento teplomilný druh v uplynulých dvou dekádách evidován pouze ve dvou oblastech, ačkoliv v minulém století šlo o druh podstatně více rozšířený na Moravě i v Čechách.

Během apidologického průzkum v létě 2019 byl potvrzen výskyt početné populace tohoto druhu ve vápencovém lomu Mokrá v Moravském krasu. S ohledem na bionomii druhu lze předpokládat, že jeho hojný výskyt v lomu je podporovaný nejen probíhající těžbou a obnažováním volných skalních stěn, ale také rozlehlostí vápencového lomu s mnoha typy umělých biotopů.