

***Formica pressilabris* (Hymenoptera: Formicidae) – confirmed occurrence in the Czech Republic**

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BEZDĚČKOVÁ K. & BEZDĚČKA P. 2010: *Formica pressilabris* (Hymenoptera: Formicidae) – confirmed occurrence in the Czech Republic. *Acta Musei Moraviae, Scientiae biologicae* (Brno) 95(2): 29–35. – *Formica pressilabris* Nylander, 1846 (Hymenoptera: Formicidae) has been found in only three localities in the Czech Republic. We report the list of Czech voucher specimens as well as a recent confirmation of an occurrence of this species in the Czech Republic. The discovery of one small, monocalic colony at a historical site is the only known find of *F. pressilabris* in the Czech Republic after 1987. In the light of our investigations, *F. pressilabris* appears to be the rarest and the most threatened *Formica* species in the Czech Republic.

Key words. Hymenoptera, Formicidae, *Coptoformica*, *Formica pressilabris*, Czech Republic

Introduction

The Palaearctic subgenus *Coptoformica* Müller, 1923 of the genus *Formica* Linnaeus, 1758 comprises ten described and two undescribed species of ants (SCHULTZ & SEIFERT 2007).

In total three species of this subgenus have been reported from the Czech Republic: *Formica exsecta* Nylander, 1846, *Formica foreli* Bondroit, 1918 and *Formica pressilabris* Nylander, 1846. However, current occurrence has been reported to date only for *F. exsecta* and *F. foreli* (BEZDĚČKA & BEZDĚČKOVÁ 2008, BEZDĚČKOVÁ & BEZDĚČKA 2009).

F. pressilabris is a Panpalaearctic, in Europe temperate to south boreal, planar to subalpine species (SCHULTZ & SEIFERT 2007). It tends to occupy dry, open habitats, mainly pastures, steppes, and mountain meadows or clearings within woodland (e.g. SEIFERT 2000, CZECHOWSKI *et al.* 2002, GLASER (MÜLLER 2003, BÖNSEL 2007). *F. pressilabris* is categorised as extinct in Germany, threatened in Switzerland (Seifert 2000) and has been found only once in Austria (GLASER & MÜLLER 2003). It is also endangered in other European countries, but exact data are not available (SEIFERT 2000).

In the past *F. pressilabris* was often confused with *F. foreli*, which was considered as a morph of it. Therefore, only data supported by voucher material examined after establishing heterospecificity and diagnostic characters for these species (SEIFERT 2000) are acceptable.

“*F. pressilabris*” has been reported from various localities in the Czech Republic (cf. ZÁLESKÝ 1938ab, 1939, LAUTERER 1968, WERNER & WIEZIK 2007), but only one find (1987) was sufficiently certified (WERNER & WIEZIK 2007). We report here a recent confirmation of an occurrence of *F. pressilabris* in the Czech Republic.

Material and methods

We are in the process of conducting a species-level redetermination of specimens deposited in the Czech myrmecological collections. In 2007–2010 we examined all the samples originally determined as *F. pressilabris*. This was performed with reference to the key in SEIFERT (2000), using a binocular Olympus SZX7 microscope.

At the same time, on the basis of orthophotomaps and historical sources, we selected 320 appropriate places (mainly historical pastures or fragments of them, steppes, light forest edges, submontane and montane meadows) in the Czech Republic which we then visited to investigate the possible occurrence of *Coptoformica* ants. Our method included both directly searching for nests and seeking individual ants.

Abbreviations

m – male
w – worker

f – female
redet. – redetermined

MJM Museum of South-east Moravia, Zlín
NM National Museum, Prague
MZM Moravian Museum, Brno

Results

We found samples originally determined as *F. pressilabris* from six Bohemian and Moravian localities in Czech myrmecological collections. *F. pressilabris* was confirmed in voucher material from three Moravian localities. Other samples were identified as *F. foreli*.

A list of specimens of *F. pressilabris* from the Czech Republic

Moravia, Hradčovice (6971), 20.viii.1983, 6 w, Bezděčka lgt. & orig. det. as *F. pressilabris*, Bezděčka & Bezděčková redet., coll. MJM; Moravia, Rohatec (7169), 11.vii.1987, 11 m, 7 w, Bezděčka lgt. & orig. det. as *F. pressilabris*, Bezděčka & Bezděčková redet., coll. MJM; Moravia, Sloup (6566), 26.vii.1987, 16 m, 7 w, Bezděčka lgt. & orig. det. as *F. pressilabris*, Bezděčka & Bezděčková redet., coll. MJM; Moravia, Sloup (6566), 26.vii.1987, 4 m, 1w, Bezděčka lgt., Werner det. & coll. (Werner, pers. com., see also WERNER & WIEZIK 2007).

A list of specimens originally determined as *F. pressilabris* redetermined as *F. foreli*

Bohemia, Kníže vrch u Kunžaku, 11.viii.1936, 14 f, 55 w, Záleský lgt. & orig. det. as *F. exsecta pressilabris*, Bezděčka & Bezděčková redet., coll. NM; Moravia, Nový Hrádek u Znojma, 11.viii.1937, 53 w, Staněk lgt., Záleský orig. det. as *F. exsecta pressilabris*, Bezděčka & Bezděčková redet., coll. NM; Moravia, Prosetín, 16.viii.1975, 11 m, 26 w, Lauterer lgt. & orig. det. as *F. pressilabris*, Bezděčka & Bezděčková redet., coll. MZM.

We confirmed the recent occurrence of *F. pressilabris* in the Czech Republic at one historical site: Moravia, Rohatec (7169), 22.vii.2006. We found one small monocalic colony of *Coptoformica* ants that we definitively identified as *F. pressilabris* in 2009

(P. Werner revid.). It was located in a narrow belt of dry, short grassland on sandy soil, artificially maintained below a pylon line situated between a pine monoculture and a system of three ponds (Fig. 1). The mound was built of finely-cut grass-blades, as is typical of *Coptoformica* ants (cf. SEIFERT 2000). It was c. 25 cm in diameter and c. 20 cm in height. We recorded 30 ant species in this locality all together (Tab. 1). The *F. pressilabris* nest was in the immediate vicinity of *F. exsecta* and *F. foreli* nests.

Camponotus ligniperdus (Latreille, 1802)
Camponotus vagus (Scopoli, 1763)
Formica cinerea Mayr, 1853
Formica cunicularia Latreille, 1798
Formica exsecta Nylander, 1846
Formica foreli Bondroit, 1918
Formica fusca Linnaeus, 1758
Formica polyctena Förster, 1850
Formica pratensis Retzius, 1783
Formica pressilabris Nylander, 1846
Formica rufa Linnaeus, 1758
Formica rufibarbis Fabricius, 1793
Formica sanguinea Latreille, 1798
Formica truncorum Fabricius, 1804
Formicoxenus nitidulus (Nylander, 1846)
Lasius alienus (Förster, 1850)
Lasius flavus (Fabricius, 1781)
Lasius niger (Linnaeus, 1758)
Lasius psammophilus Seifert, 1992
Lasius umbratus (Nylander, 1846)
Leptothorax acervorum (Fabricius, 1793)
Myrmica rubra (Linnaeus, 1758)
Myrmica sabuleti Meinert, 1860
Myrmica scabrinodis Nylander, 1846
Myrmica schencki Emery, 1894
Plagiolepis vindobonensis Lomnicki, 1925
Polyergus rufescens (Latreille, 1798)
Solenopsis fugax (Latreille, 1798)
Tapinoma erraticum (Latreille, 1798)
Tetramorium cf. *caespitum* (Linnaeus, 1758)

Tab. 1. Ants recorded in the locality of Rohatec.



Fig. 1. Locality of Rohatec. Photo: P. Bezděčka.

Discussion

Our investigation verified the historical occurrence of *F. pressilabris* in a total of three localities in the Czech Republic. Specimens originally determined as *F. pressilabris* from additional sites, including available voucher material published by ZÁLESKÝ (1938 a,b, 1939), belonged to *F. foreli*. Information citing the occurrence of “*F. pressilabris*” in Bohemia, Karlovy Vary (ZÁLESKÝ 1939) and Moravia, Prosetín (LAUTERER 1968) could not be checked because voucher material was lacking. However, the species originally recorded by LAUTERER (1968) as *F. pressilabris* was probably *F. foreli* (cf. LAUTERER 2003, WERNER & WIEZIK 2007). The sample from this colony was probably collected later (lgt. Lauterer 1975, see above) and deposited in MZM.

We have recently confirmed the occurrence of *F. pressilabris* in the Czech Republic in one of the above historical localities. This discovery represents the only find of *F. pressilabris* in the Czech Republic since 1987. All three secure findings of *F. pressilabris* originate from Moravia; the occurrence of this species in Bohemia remains unproven.

In the light of our investigations, *F. pressilabris* appears to be the rarest and the most threatened species of genus *Formica* in the Czech Republic. It is even more rare than *F. foreli*, generally reported as one of the most endangered *Coptoformica* species of all (cf. SEIFERT 2000), for which we know of six recent localities from the Czech Republic (BEZDĚČKOVÁ & BEZDĚČKA, unpubl. data). Moreover, colonies of *F. pressilabris* found to date have been limited, numbering only one or two small mounds (diameter to 30 cm, height up to 25 cm, BEZDĚČKA, unpubl. data) and are thus quite vulnerable.

F. pressilabris is listed in the *Red List of threatened species in the Czech Republic* as an endangered species (BEZDĚČKA 2005). Nevertheless, the research presented here indicates such scarce occurrence and such serious risk to the species that we consider it appropriate to add it to the category of critically endangered species.

Trends that threaten *F. pressilabris* will be similar to those for other *Coptoformica* ants. The most serious hazards are presented by habitat destruction arising out of succession to higher vegetation, and afforestation programs (cf. SEIFERT 2000, BEZDĚČKA & BEZDĚČKOVÁ 2008). BÖNSEL (2007) even suggests that changes of human management are the only existence-threatening trends to *F. pressilabris*. He also assumes (BÖNSEL 2007) that isolation probably does not pose any serious threat to this species, since its habitats have always been isolated (see also AGOSTI 1989).

We observed syntopic occurrence of *F. pressilabris*, *F. exsecta* and *F. foreli*. Co-existence of several *Coptoformica* species was also recorded by KUTTER (1957) and BÖNSEL (2007). This phenomenon used to be explained by possible behavioural differences that could reduce competition (cf. BÖNSEL 2007), but this has never been studied in any depth. Important targets for our current research are wider recognition for the reported locality and study of the ecological relations of the ant species inhabiting it.

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Souhrn

Palearktický podrod *Coptoformica* Müller, 1923 rodu *Formica* Linnaeus, 1758 zahrnuje deset popsaných a dva nepopsané druhy mravenců (SCHULTZ & SEIFERT 2007). V České republice byly zaznamenány tři druhy tohoto podrodu: *Formica exsecta* Nylander, 1846, *Formica foreli* Bondroit, 1918 a *Formica pressilabris* Nylander, 1846. Aktuální výskyt však byl uváděn pouze u *F. exsecta* a *F. foreli* (BEZDĚČKA & BEZDĚČKOVÁ

2008, BEZDĚČKOVÁ & BEZDĚČKA 2009). V minulosti docházelo k častým záměnám *F. pressilabris* s druhem *F. foreli*, považovaným za morfu *F. pressilabris*. Za spolehlivé lze proto pokládat jen údaje podložené dokladovým materiálem revidovaným po ustanovení heterospecifity a diagnostických znaků těchto druhů (SEIFERT 2000). Informace o výskytu „*F. pressilabris*” byly publikovány z různých lokalit České republiky (cf. ZÁLESKÝ 1938 a,b, 1939, LAUTERER 1968, WERNER & WIEZIK 2007), spolehlivě determinován však byl pouze jediný vzorek (WERNER & WIEZIK 2007).

Při redeterminaci exemplářů uložených v českých myrmekologických sbírkách jsme našli vzorky ze šesti lokalit, původně determinované jako *F. pressilabris*. U vzorků ze tří lokalit jsme ověřili příslušnost k druhu *F. pressilabris*, další tři vzorky patřily k druhu *F. foreli*. Na základě leteckých snímků a historických pramenů jsme vybrali a navštívili 320 lokalit vhodných pro výskyt mravenců podrodu *Coptoformica*. Druh *F. pressilabris* jsme našli pouze na jedné z historických lokalit. Jednalo se o jednu monokalickou kolonii *Coptoformica* sp., jejíž příslušnost k druhu *F. pressilabris* jsme definitivně určili v roce 2009. Tento objev představuje jediný nález druhu *F. pressilabris* v České republice po roce 1987. Všechny tři lokality s prokázaným výskytem *F. pressilabris* leží na Moravě, v Čechách zůstává výskyt tohoto druhu nedoložen.

Ve světle našich dosavadních výzkumů se *F. pressilabris* jeví jako nejvzácnější a nejohroženější druh rodu *Formica* v České republice. Je dokonce vzácnější než druh *F. foreli*, který bývá uváděn jako jeden z nejohroženějších druhů podrodu *Coptoformica* vůbec (cf. SEIFERT 2000) a u nějž známe z České republiky šest lokalit (BEZDĚČKOVÁ & BEZDĚČKA, nepubl. údaje). Dosud nalezené kolonie *F. pressilabris* byly navíc malé (jedno až dvě hnízda, BEZDĚČKA, nepubl. údaje) a tedy snadno zranitelné.

V Červeném seznamu ČR je druh *F. pressilabris* klasifikován jako druh ohrožený (BEZDĚČKA 2005). V průběhu výzkumu, jehož výsledky zde prezentujeme, jsme však zjistili tak vzácný výskyt a tak vážné ohrožení, že považujeme za vhodné, přesunout jej do kategorie kriticky ohrožený druh. Hlavním ohrožením je pro *F. pressilabris*, podobně jako pro jiné druhy podrodu *Coptoformica*, zánik stanovišť způsobený sukcesním zarůstáním vyšší vegetací a zalesňováním (viz SEIFERT 2000, BEZDĚČKA & BEZDĚČKOVÁ 2008).

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