



First record of *Myrmica salina* Ruzsky (Hymenoptera: Formicidae) for Poland

Alexander RADCHENKO*, Anna STANKIEWICZ* and Marcin SIELEZNIEW**

*Laboratory of Social and Myrmecophilous Insects, Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, PL-00-679 Warszawa, Poland; e-mail: agradchenko@hotmail.com

**Department of Applied Entomology, Warsaw, Agriculture University, Nowoursynowska 166, 02-787, Warszawa, Poland; e-mail: sielezniew@alpha.sggw.waw.pl;

Abstract: A rare and little known ant species, *Myrmica salina* Ruzsky is for the first time reported from Poland. General data on its distribution and ecology are given. Characteristic morphological features of the species are pointed out and compared with those of closely related species.

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

INTRODUCTION

The fresh monograph “The ants of Poland” published by Czechowski *et al.* (2002) includes 15 *Myrmica* species. Recently further two species of this genus were discovered in Poland (Radchenko *et al.* 2003). In 2003 two of the co-authors of this paper (A. Stankiewicz and M. Sielezniew) found during field studies one more species, new for the Polish fauna – *M. salina* Ruzsky. Therefore, if we take in account synonymization of the generic name *Symbiomyrma* Arnoldi with *Myrmica* Latreille (Radchenko & Elmes 2003), at the moment 18 *Myrmica* species are known from Poland.

METHODS

A wide range of morphometric indices are used for the identification of *Myrmica* species (for details see Radchenko and Elmes 1998, 1999). The following measurements were used for the discrimination:

HW – maximum width of head in dorsal view behind the eyes;

HL – length of head in dorsal view, measured in a straight line from the anterior point of median clypeal margin to mid-point of the occipital margin;

SL – maximum straight-line length of antennal scape seen in profile;

FW – minimum width of frons between frontal lobes;

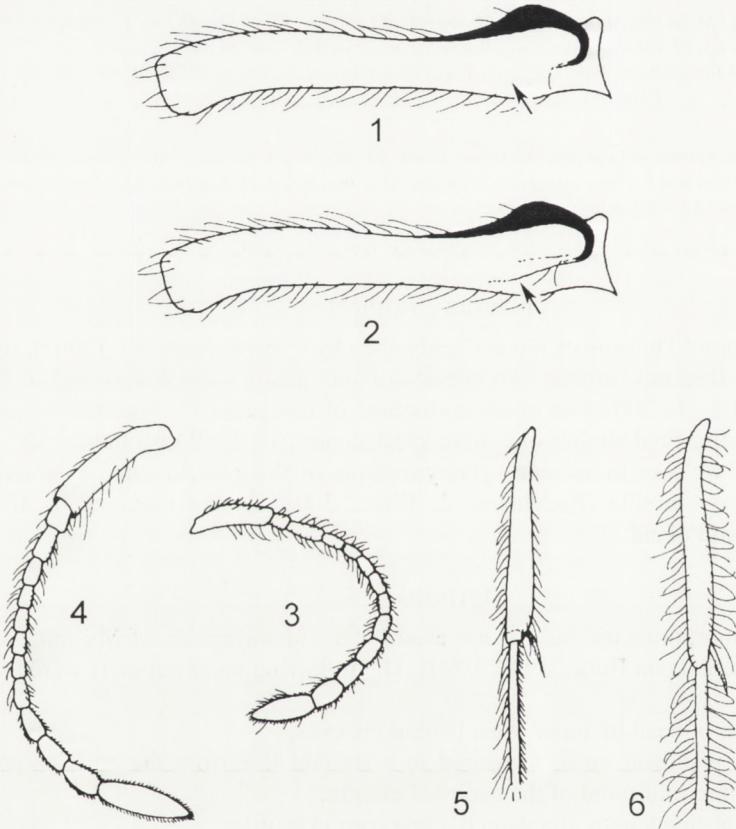
FI = FW/HW;

SI = SL/HL.

TAXONOMIC NOTES

Myrmica salina was described by Ruzsky (1905) from workers, queens and males from southern part of West Siberia and Northern Kazakhstan as a variety of *M. scabrinodis* Nylander. Arnoldi (1970) raised this form to the species rank and considered it as a species different from *M. slovacica* Sadil, Seifert (1988) however considered *M. slovacica* as a junior synonym of *M. salina*. Radchenko (1994a, b) proposed another treatment of *M. salina* (*sensu* Ruzsky, not *sensu* Arnoldi and Seifert) and considered it as a junior synonym of *M. lacustris*

Ruzsky (= *M. deplanata* Ruzsky); correspondingly *M. salina sensu* Arnoldi and Seifert was considered as synonym of *M. slovacica*. These strong disagreements of treating of *M. salina* were based first of all on the absence of the types of *M. salina* and on not completely clear original Ruzsky's description of this species. At last Seifert (2002) revived *M. salina* from synonymy, again considered it as senior synonym of *M. slovacica*, and proposed to fix the neotype of *M. salina* (the worker from Novosibirsk Region, erroneously designated by Arnoldi (1970) as the lectotype). We now accept the last Seifert's last treatment of this species.



Figs 1–6. Details of structure of *Myrmica* species; 1, 2 – antennal scapes (workers, dorsal view): 1 – *M. salina*; 2 – *M. sabuleti*, lectotype; 3, 4 – antennae (males): 3 – *M. salina*, 4 – *M. sabuleti*, paralectotype; 5, 6 – tibiae and first tarsal joint (males): 5 – *M. salina*, 6 – *M. tulinae*.

Among all Polish species of *Myrmica*, workers and queens of *M. salina* the most resemble *M. sabuleti* Meinert and *M. tulinae* Elmes *et al.* and they could be confused only with them. On the other hand, *M. salina* quite well differs from the latter species by several features, the most important among them are:

- frons distinctly narrower (FI < 0.30, mean 0.27 versus FI > 0.30, mean 0.33–0.34 respectively);
- lobe at the base of antennal scape does not continue to the longitudinal carina on the dorsal surface of scape (in *M. sabuleti* and *M. tulinae* this lobe continues to the longitudinal carina, compare Figs 1 & 2).

Males of all three considered species differ much better than their female castes. First of all, males of *M. salina* and *M. tulinae* have much shorter antennal scape than those of *M. sabuleti* ($CI < 0.45$ versus > 0.50 , compare Figs 3 & 4), and *M. salina* well differs from *M. tulinae* by much shorter standing hairs on the tibiae and tarsi (compare Figs 5 & 6). On the other hand, males of *M. salina* are practically indistinguishable from those of *M. specioides* Bondroit, *M. hellenica* Forel and *M. rugulosa* Nylander.

DISTRIBUTION AND ECOLOGY

M. salina is a widespread species and occurring over a large area: from Altai Mts to Switzerland and from Bulgaria, Serbia, Turkey and Georgia to southern Byelorussia and Riazan' Region of Russia. It prefers habitats with quite high salinity (especially in the eastern part of the range), however it also inhabits xerothermous grasslands.

In Poland *M. salina* was discovered at Krówniki (49°47'N/22°51'E, 200 m a.s.l.) near Przemyśl in SE part of the country, close to Ukrainian border. The site encompassed open grasslands with calcareous soil substrate. Diverse vegetation structure can be classified as transitional between *Molinietum medioeuropaeum* and *Arrhenatheretum medioeuropaeum* associations. Most of the meadow was covered by tall and dense grasses and herbs like *Sanguisorba officinalis*, *Gallium* sp., *Centaurea* sp. The site was apparently regularly mowed at least one time per year.

M. salina inhabited patches of ground with the lowest and thin vegetation. Nests were built in bare ground without mounds and included no more than a few hundreds of workers. First samples of the workers from two nests were collected in mid June 2003. Further specimens, including males and queens, were obtained from three colonies in the late July 2003. *M. salina* shared habitat with *M. scabrinodis*, *M. rubra* (Linnaeus), *Lasius niger* (Linnaeus) and *L. flavus* (Fabricius). In the patches of the meadow where *M. salina* was recorded, *M. scabrinodis* was the most common *Myrmica* species. *M. rubra* inhabited places with higher vegetation where *M. salina* was absent.

REFERENCES

- ARNOLDI K. V. 1970. A review of the genus *Myrmica* (Hymenoptera, Formicidae) of the European part of the U.S.S.R. Zool. Zh. 49 (12): 1829–1843 (in Russian).
- CZECHOWSKI W., RADCHENKO A. G. & CZECHOWSKA W. 2002. The ants (Hymenoptera, Formicidae) of Poland. Museum and Institute of Zoology PAS, Warszawa, 200 + 1 pp.
- RADCHENKO A. G. 1994a. A review of species the *scabrinodis*-group of the genus *Myrmica* LATREILLE (Hymenoptera, Formicidae) of the Central and Eastern Palaearctic. Zool. Zh. 73: 75–82 [in Russian; English translation: Entomol. Rev. 74 (1995): 116–124].
- RADCHENKO A. G. 1994b. A review of species the *rubra*, *rugosa*, *arnoldii*, *luteola* and *schlenki*-groups of the genus *Myrmica* LATREILLE (Hymenoptera, Formicidae) of the Central and Eastern Palaearctic. Zool. Zh. 73: 122–132 [in Russian, English translation: Entomol. Rev. (1995 b) 74: 122–132].
- RADCHENKO A. G. & ELMES G. W. 1998. Taxonomic revision of the *ritae* species-group of the genus *Myrmica* (Hymenoptera, Formicidae). Vest. Zool. 32: 3–27.
- RADCHENKO A. G. & ELMES G. W. 1999. Ten new species of *Myrmica* (Hymenoptera, Formicidae) from the Himalaya. Vest. Zool. 33: 27–46.
- RADCHENKO A. G. & ELMES G. W. 2003. A taxonomic revision of the socially parasitic *Myrmica* ants (Hymenoptera, Formicidae) of Palaearctic Region. Annales Zoologici 53: 217–243.
- RADCHENKO A. G. ELMES G. W., CZECHOWSKA W., STANKIEWICZ A., CZECHOWSKI W. & SIELEZNIEW M. 2003. First records of *Myrmica vandeli* BONDROIT and *M. tulinae* ELMES, RADCHENKO et AKTAÇ (Hymenoptera: Formicidae) for Poland, with a key for the *scabrinodis*- and *sabuleti*-complexes. Fragm. faun. 46: 47–57.
- RUZSKY M. D. 1905. The ants of Russia (Formicariae Imperii Rossici). Trudy obschtsch. est. Imp. Kazan Univ. 38: 1–799.
- SEIFERT B. 1988. A taxonomic revision of the *Myrmica* species of Europe, Asia Minor, and Caucasia (Hymenoptera, Formicidae). Abh. Ber. Naturkundemus. Görlitz. 62: 1–75.
- SEIFERT B. 2002. The "type" of *Myrmica bessarabica* NASONOV 1889 and the identity of *Myrmica salina* RUZSKY 1905 (Hymenoptera, Formicidae, Myrmicinae). Mitt. Münch. Ent. Ges. 92: 93–100.

STRESZCZENIE

[Pierwsze doniesienie o występowaniu *Myrmica salina* RUSKY (*Hymenoptera: Formicidae*) w Polsce]

W niniejszej pracy zawarte jest pierwsze doniesienie o występowaniu w Polsce nowego dla krajowej myrmekofauny gatunku mrówki, *Myrmica salina*, wraz z informacjami o jego rozmieszczeniu geograficznym, ekologii, cechach morfologicznych i statusie taksonomicznym tego gatunku. *M. salina* została znaleziona w 2003 r. w Krównikach k. Przemysła (leg. Stankiewicz and Sielezniew). Łącznie znaleziono 5 kolonii na nawapiennej łące kośnej noszącej cechy pośrednie zbiorowisk *Molinietum medioeuropaeum* i *Arrhenatheretum medioeuropaeum*. *M. salina* jest 101 gatunkiem mrówki w Polsce.

Accepted: 29 March 2004