

New ant taxa (Hymenoptera: Formicidae) in the Romanian fauna

Bálint MARKÓ

Abstract

Three new ant taxa are presented for the Romanian fauna: *Leptothorax slavonicus*, *Stenamma debile* and *Myrmica vandeli*. The first two species are described as new based on some revisions in ant taxonomy made lately, while *Myrmica vandeli* has never been reported from Romania up to now. This species is considered to be rare and to have a patchy distribution all over Europe. Morphological and distributional characteristics of the species are presented.

Rezumat

Noi taxoni de furnici (Hymenoptera: Formicidae) în fauna României

Trei noi taxoni de furnici sunt prezentate în această lucrare referitor la mirmecofauna României: *Leptothorax slavonicus*, *Stenamma debile* și *Myrmica vandeli*. Primele două specii au apărut în urma unor revizuiți în taxonomia furnicilor, iar *Myrmica vandeli*, o specie montană și rară, este o nouă prezență în fauna României. Sunt prezentate caracterele morfologice și distribuția acestor specii în Europa.

Keywords: Formicidae, Romania, *Leptothorax slavonicus*, *Stenamma debile*, *Myrmica vandeli*

Introduction

New methods applied in ant taxonomy, like biometrical analysis and genetic technics, gave rise to a considerable number of species, or at least taxonomical uncertainties in the latest decades, alike in all other insect groups. However there are some species, which are not new as scientific discoveries, but their status, is new, since their description was forgotten or mistreated. In some cases new species can be found by comparing materials from different parts of Europe like in the case of *Leptothorax slavonicus/nylanderi* (SEIFERT 1995), or *Formica balcanina/cinerea* (PETROV & COLLINGWOOD 1993), or by questioning the integrity of one species, and the supposed intraspecificity of the variation of one character (e.g. the case of *Myrmica sabuleti* being finally split into *M. sabuleti* and *M. lonae* – SEIFERT 1993, RADCHENKO ET AL. 1997). In the case of the Romanian fauna these clarifying tendencies are more than welcome, since Romania is a meeting point of many zoogeographical regions, and various taxonomical problems can arise in ant faunistics. Still less than 100 species are known from Romania – 76 in the latest checklist of the

mirmecofauna (PARASCHIVESCU 1978), which was amounted by MARKÓ (1998) to 82. However this checklist is far from being complete, as the diversity of biotopes in Romania (from mountain moorlands to the Danube Delta) is very high. In this study we make a small contribution to the knowledge of the Romanian mirmecofauna based on some new findings, and taxonomical revisions.

Materials and methods

The ant species presented here were all collected and identified by the author. Collections were made by the means of pitfall traps and by free hand. The specimens presented below are part of the author's collection. The identification of the species was made based on the keys of SEIFERT (1988, 1993, 1995, 1996).

Presentation of the species

1.) *Leptothorax slavonicus* SEIFERT, 1995

This species is a parapatric sibling species of *Leptothorax nylanderi* (FÖRSTER, 1850)

originally described by SEIFERT (1995) as the subspecies of the *Leptothorax nylanderi*, which replaces the type-subspecies *nylanderi* in Eastern part of Central Europe, and in Eastern Europe. SEIFERT (1995) in his paper showed that there was, however, a possibility to handle them as separate species, especially having the information that on the basis of allozym studies the two subspecies could be distinguished safely (SEIFERT 1995). Later he handles them as separate species, and not subspecies (SEIFERT 1996). He presents the hypothesis that the *nylanderi* could have spread from a South-Western European or South Italian refuge at the end of the Younger Dryas period, whereas the *slavonicus* from a South Balkan refuge (SEIFERT 1995).

Morphological characters

This species belongs to the *nylanderi*-group and as such it has a distinct mesopropodeal furrow, yellow scape, yellow head, alitrunk and it has the same dark bands on the gaster as the *nylanderi*. However, some of its morphological and metrical characters separate it well from its closest relative. The propodeal spine index (PSI) (fig. 1.) is greater than 2,04, in *nylanderi* this value is below 2,04 (SEIFERT 1995, 1996). In addition, the shape of the propodeal spine is characteristic, too: it is a little bit angled in *slavonicus*, and it is straight in *nylanderi*. This seems to be a more or less constant character in *slavonicus*.



Fig. 1. The thorax of the *Leptothorax slavonicus*.
PSI (Propodeal Spine Index) = y/x

Habitat characteristics and distribution

There is no remarkable difference between these two sibling species in habitat selection (SEIFERT 1995, 1996). It inhabits mostly shady forests, but it can be found in grasslands (in mountains for example), too. We found it in shady bushes and forests. Its nest is constructed

in rotten wood, branches, or galls.

Up to now, very little faunistical information is available on the state of *slavonicus* in Europe except the publications of SEIFERT (1995, 1996) and GALLÉ ET AL. (1998). However, it seems that it is widely distributed and the former *Leptothorax nylanderi* from the Eastern part of Central Europe and from Eastern Europe can be renamed as *L. slavonicus* (of course after revising the materials available).

In Europe, it was found in Germany, Czechia, Austria, Italy, Slovenia, Bosnia, Bulgaria (SEIFERT 1995). It was found in Hungary, too (GALLÉ ET AL. 1998). The known contact lines between the two sibling species are in East Germany and North Italy (SEIFERT 1995).

In Romania on the basis of the revision of our material we can confirm its presence at Târgu Mureş (Mureş county, in 1997, 350 m), and at Fânațele Clujului (near the city of Cluj-Napoca, Cluj county, in 1996, cca. 370 m).

2.) *Stenamma debile* (FÖRSTER, 1850)

This species has long been "mistreated", and misidentified as *Stenamma westwoodi* WESTWOOD 1840. In 1993, however DUBOIS revived this species (in SEIFERT 1993), and drew the attention of the specialists on the fact that this species had been forgotten. Thus, further faunistical investigations revealed that the Central European *westwoodi* is likely to be *debile* in fact (SEIFERT 1993), thus the European *westwoodi*-material needs to be revised. Our revision of some specimens (workers and male) from Romania supports the above findings.



Fig. 2. The head of the *Stenamma debile*, its frontal carina, triangle and clypeus in frontal view. 1 – the max. distance between frontal carina at the level of antennal insertions; 2 – the width of the frontal triangle below the the antennal insertions.

Morphological characters

It is closely related in every character to the *westwoodi*. However, the workers can be safely separated from its sibling species based on the ratio of the width of the frontal triangle below the insertion of the antenna, and the maximum distance between the frontal carinas at the level of the antennal insertion (fig. 2.). This ratio is 1:6 in *westwoodi* and 1:3-4 in *debile* (SEIFERT 1996). Other biometrical characters also separate it well from the *westwoodi*. In the case of males it is easier to distinguish *debile* from *westwoodi*, since the *debile* male has a weak mandible with 3 denticles, and the *westwoodi* male has 5-denticled broad mandibles (SEIFERT 1993).

Habitat characteristics and distribution

It is common in shady areas with trees, but it can occur in grasslands, too, with high vegetation (SEIFERT 1993, 1996). The identified specimens were caught in forests and bushes.

The distribution of *westwoodi* seems to be restricted to the southern part of England, the Netherlands and Belgium, while the *debile* is likely to be distributed all over Europe (SEIFERT 1993, 1996). It was reported from Germany (SEIFERT 1993, 1996), and it was found in Hungary, too (CSÖSZ pers. comm.), after the revision of some *westwoodi* specimens. We revised the *westwoodi* material from Fânațele Clujului (near the city of Cluj Napoca, Cluj county, in 1996, cca. 370 m), and from Someș Odorhei (Sălaj county, in 1997, cca. 200 m), which proved to be *debile* on the basis of the characteristics.

3.) *Myrmica vandeli* BONDROIT, 1920

Morphological characters

This is one of the closest morphological relatives of *Myrmica scabrinodis* NYLANDER 1946. It has an angled scape, with a weak carina, which is weaker than in the *scabrinodis*, and a petiolus, which is clearly flattened, and in typical cases its dome meets its posterior basis vertically. It can be safely distinguished from its relative based on a set of well-recognizable characters:

(1) its pronotum is covered with fine parallel rugae, whereas the *scabrinodis* presents a net like, coarse rugulosity on its pronotum;

(2) the petiolus has circular rugulosity on the top, whereas in *scabrinodis* these rugae are not ordered in circles, they are mostly irregular.

However it is interesting that relatively many specimens show malformations. Most of these are reflected in the shape of the petiolus: in some cases the dome runs down to the posterior

part of the petiolus in a slope, instead of a sharp, vertical angle. It can also be observed, that the rugae of the pronotum sometimes presents curls, but the rugulosity always keeps its strange parallelity, never becomes net-like, coarse, scabrinodis-like.

Habitat characteristics and distribution

This species has a relatively narrow niche width. It is not present on lowlands, but it can be found in sunny, meadows, which are rich in moss, and have low vegetation cover (SEIFERT 1988, 1993, 1996). It is considered by Seifert (1996) to be rare, and endangered, too, due to its specific habitat properties.

In the late sixties it was known only from Switzerland (BERNARD 1968). Up to now it has been found in the eastern parts of France, in Switzerland, Germany and Czechia (SEIFERT 1988), in the territory of former Yugoslavia, and in the European part of Turkey (AGOSTI & COLLINGWOOD 1987). This species is considered to be rare, and to have a patchy, sporadic distribution. It is interesting that RADCHENKO et al. (1997) have not found it Poland, which emphasizes the above statements. GALLÉ (1997) did not report it from Slovenia. In Romania, it was found in Senetea (near Voșlobeni village, in 1999, 780 m, 25°35' E, 46°35' N) in a moorland-hayfield habitat-complex.

It is considered syntopic with its close morphological relative the *Myrmica scabrinodis* (SEIFERT 1988, 1993, 1996), but it is present in low abundance generally. SEIFERT (1988) describes that in a fen near Bad Brambach (Germany) it was found with 2.7 nests/100 m², whereas at the same place *scabrinodis* had 25,5 nests/100 m². This low relative abundance is supported by our observations, too: the *scabrinodis* was much more abundant than the *vandeli* in Senetea.

Discussions

Based on some late revisions it should be verified the presence of *Leptothorax slavonicus*, and *Stenammina debile* in other materials concerning Romania. Probably – but it has to be seen – every data concerning the *Leptothorax nylandereri* and *Stenammina westwoodi* species can be converted into data of the above species in our region. In the case of *Myrmica vandeli* we agree with SEIFERT that it is rare, and is likely to be an endangered species due to its habitat specificity. The total number of known ant species from Romania still doesn't exceed the magic 100, it amounts now 85 (however the state of *L. nylandereri*, and of *St. westwoodi* in Romania

should be reconsidered).

Acknowledgements: I am thankful to Dr. prof. GALLÉ László, CSÓSZ Sándor, and UJVÁROSI Tamás. I am also indebted to Dr. Bernhard SEIFERT for his considerable help. I must thank to Mrs. Eva DABOC for her help in making the figures.

REFERENCES

- AGOSTI D., COLLINGWOOD C. A. 1987. A provisional list of the Balkan ants (Hym. Formicidae) and a key to the worker caste. I. Synonymic list. – *Mitteilungen der Schweizerischen Entomologischen Gesellschaft / Bulletin de la Société Entomologique Suisse* 60: 51-62.
- BERNARD F. 1968. Les fourmis (Hymenoptera Formicidae) D'Europe Occidentale et septentrionale. – *Faune de l'Europe et du Bassin méditerranéen*. Paris.
- GALLÉ, L. 1997. Contribution to the ant fauna of Slovenia with special reference to the Submediterranean and Eudinaric regions. – *Annales. Annals for Istrian and Mediterranean Studies* 11: 209-214.
- GALLÉ L., CSÓSZ S., TARTALLY A., KOVÁCS É. 1998. A Check-list of Hungarian ants (Hymenoptera: Formicidae) – *Folia Entomol. Hung.* 59: 213-220.
- MARKÓ B. 1998. Six new ant species (Hymenoptera: Formicidae) for the Romanian myrmecofauna. – *Entomol. rom.* 3: 119-123.
- PARASCHIVESCU D. 1978. Elemente balcanice în mirmecofauna R.S.România – *Nymphaea* 6: 463-474.
- PETROV I., COLLINGWOOD C. A. 1993. *Formica balcanina* sp. n., a new species related to the *Formica cinerea*-group (Hymenoptera: Formicidae). – *Eur. J. Entomol.* 90: 349-354.
- RADCHENKO A., CZECHOWSKI W., CZECHOWSKA W. 1997. The genus *Myrmica* Latr. (Hymenoptera, Formicidae) in Poland. – A survey of species and a key for their identification. – *Annales Zoologici (Warszawa)* 47(3/4): 481-500.
- SEIFERT B. 1988. A Taxonomic Revision of the *Myrmica* Species of Europe, Asia Minor, and Caucasia (Hymenoptera, Formicidae). – *Abh. Ber. Naturkundemus. Görlitz* 62(3): 1-75.
- SEIFERT B. 1993. Die freilebenden Ameisenarten Deutschlands (Hymenoptera: Formicidae) und Angaben zu deren Taxonomie und Verbreitung. – *Abh. Ber. Naturkundemus. Görlitz* 67(3): 1-44.
- SEIFERT B. 1995. Two new Central European subspecies of *Leptothorax nylanderi* (Förster, 1850) and *Leptothorax sodidulus* Müller, 1923 (Hymenoptera: Formicidae). – *Abh. Ber. Naturkundemus Görlitz* 68(7): 1-18.
- SEIFERT B. 1996. Ameisen: beobachten, bestimmen. – *Naturbuch Verl., Augsburg*.

Bálint MARKÓ

Univ. Babeş-Bolyai, Dept. of Zoology
str. Clinicilor 5-7,
RO-3400 Cluj-Napoca
mbalint@biolog.ubbcluj.ro

present address:

Dept. of Ecology
University of Szeged
HU-6701 Szeged, P.O.Box 51
mbalint@bio.u-szeged.hu

Received: 7.04.2000
Accepted: 11.04.2000
Printed: 28.04.2000