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THE FIRST RECORD OF THE ANT GENUS
STRONGYLOGNATHUS (INSECTA: HYMENOPTERA: FORMICIDAE)
IN BOSNIA AND HERZEGOVINA WITH NOTES
ON THE DISTRIBUTION OF THE GENUS
IN THE WESTERN PART OF THE BALKAN PENINSULA

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Abstract

Species of the ant genus *Strongylognathus* Mayr, 1853 are social parasites of *Tetramorium* species. *Strongylognathus* species reported from the western part of the Balkan Peninsula belong to the following groups: (1) *testaceus* group, represented by the species *S. testaceus* (Schenck, 1852), and (2) *huberi* group, represented by *S. alboini* Finzi, 1924 and *S. dalmaticus* Baroni Urbani, 1969. Analysis of distribution of the *Strongylognathus* species in the western Balkan Peninsula showed that *S. testaceus* (Schenck) can be found in the continental part and the Pannonian basin. Lack of data [one record of species *S. alboini* Finzi in Slovenia, two records of *S. dalmaticus* Baroni Urbani on the island of Biševo (Croatia) and a new finding on locality Popovo poljice (Bosnia and Herzegovina)] make an insufficient basis for analysis of their distribution.

KEY WORDS: Ants, *Strongylognathus*, *dalmaticus*, Bosnia and Herzegovina.

Introduction

The ant genus *Strongylognathus* Mayr is a group of permanent socially-parasitic ant species. This group is very interesting from the ethological perspective. It is characterised by slave-making life-style parasitizing host colonies of different species of genus *Tetramorium* Mayr, 1855. Dulosis or slave making is a rarely

witnessed ant life-style which involves slave-making raids aimed at staying permanently at the host nests, or gathering and taking larvae of the host ant species into the parasitic nest (GAULD & BOLTON, 1988).

About twenty-five valid species of this genus are known, distributed in the Palaearctic (BUSCHINGER, 2009). In the 'Fauna Europaea' web site, 20 ant species of genus *Strongylognathus* are listed out of which three species were recorded in the western part of the Balkan peninsula (BUSCHINGER, 2009; RADCHENKO, 2011). It is important to mention that many of the described *Strongylognathus* species are known only from few localities.

The fauna research of the myrmecofauna in the western part of the Balkan peninsula (territory of ex Yugoslavia) started in 18th century (SCOPOLI, 1763). A number of myrmecologists conducted research during 19th and 20th century (COBELLI, 1806; FRAUENFELD, 1854; MAYR, 1852, 1855; GASPERINI, 1887, 1889; KATURIC, 1891; WASMANN, 1898; GALVAGNI, 1902; KOHL, 1908; FAHRINGER, 1911, DOFLEIN, 1920; MAIDL, 1922; FINZI, 1923; MUELLER, 1923; SOUDEK, 1925; ZIMMERMANN, 1934; ŽIVOJINOVIC, 1950; VOGRIN, 1955; BARONI URBANI, 1969; PETROV, 1986; AGOSTI & COLLINGWOOD, 1987; PETROV & COLLINGWOOD, 1992, PETROV, 1993).

The myrmecofauna research in the western part of the Balkan Peninsula has been ongoing for three centuries. However, only five literature sources have quoted data on three species of the genus *Strongylognathus* Mayr, belonging to two groups (SANETRA & BUSCHINGER, 2000): the *S. testaceus* group, represented by species *S. testaceus* (Schenck, 1852), and the *S. huberi* group, represented by *S. alboini* Finzi, 1924 and *S. dalmaticus* Baroni Urbani, 1969 (VOGRIN, 1955; BARONI URBANI, 1969; PETROV & COLLINGWOOD, 1992; BRAČKO, 2000; BRAČKO, 2006). In this paper a new record of the species *Strongylognathus dalmaticus* from Bosnia and Herzegovina is presented.

Material and Methods

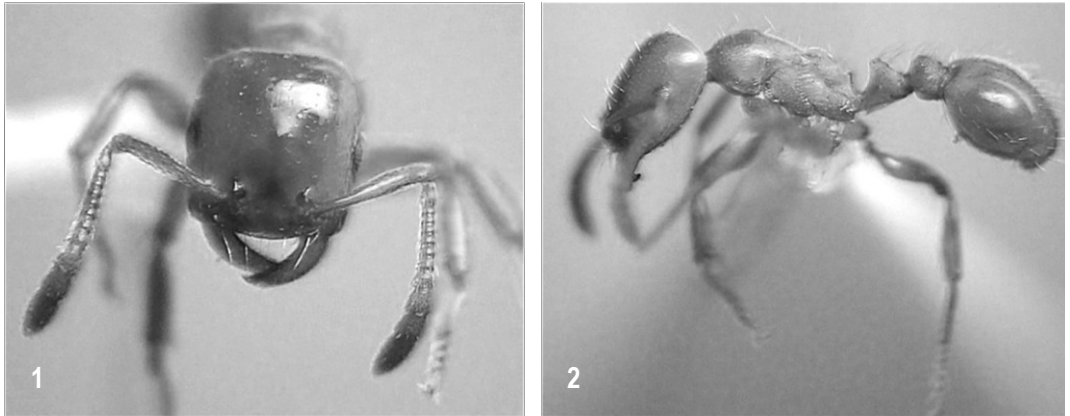
In addition to the above mentioned literature data, the author has also added his own finding of *Strongylognathus dalmaticus* Baroni Urbani, 1969 represented with an individual belonging to the worker caste, collected on 25 April 2009, at Popovo polje, the Popovo poljice site (42.813° N; 18.075° E) (Figs. 1 & 2). The specimen was mounted on a cardboard triangle and identified using key by BARONI URBANI (1969).

Photographs were taken using a binocular stereo microscope 'Zrak MST 130' and a digital camera 'Sony DSC-H2'.

Results and Discussion

The finding of *S. dalmaticus* in Bosnia and Herzegovina is the first record of the genus *Strongylognathus* for the country. In the studied territory of the former Yugoslavia, this species was previously reported from the Island of Biševo (Croatia) (BARONI URBANI, 1969). In terms of climate regions, location of the new record of *Strongylognathus dalmaticus* from Bosnia and Herzegovina also belongs to the region of Mediterranean climate. Available literature sources provide data on two other *Strongylognathus* species from the region of W Balkans. *S. testaceus* was recorded in Croatia (Krapina) (VOGRIN, 1955), Slovenia (BRAČKO, 2000) and

Serbia (Horgoš and Cernica) (PETROV & COLLINGWOOD, 1992), and *S. alboini* at the locality Nanosi (Slovenia) (BARONI URBANI, 1969) (Fig. 3).



Figures 1 & 2. *Strongylognathus dalmaticus* worker from Popovo poljice (Bosnia and Herzegovina): head, full face view (1) and body, lateral view (2).



Figure 3. Presentation of recorded species of the genus *Strongylognathus* Mayr in the western Balkan Peninsula: *S. alboini* (square); *S. dalmaticus* (Circles: 1 - Biševo island, 2 - Popovo poljice and *S. testaceus* (Triangles: 1 - Krapina, 2 - Horgoš, 3 - Cernica).

Based on the available data, it is clear that species of the genus *Strongylognathus* have not been recorded often. Six sites were identified so far: four for the species *S. testaceus* (Schenck) and two separate sites for *S. alboini* Finzi and *S. dalmaticus* Baroni Urbani. *Strongylognathus alboini* and *S. dalmaticus* are included on the IUCN red list as vulnerable species (IUCN, 2013).

Analysis of the distribution of the species of genus *Strongylognathus* Mayr in the western Balkan Peninsula has showed that species *S. testaceus* (Schenck) is distributed in the Pannonia, Sub-Pannonia and Continental area, while the species of *S. huberi* group are distributed in the Mediterranean and Dinaric area (Fig. 3). According to portal Fauna Europaea *S. alboini* is present in Switzerland, Slovenia and Italian mainland, while *S. dalmaticus* is known from Croatia. On the other side, *Strongylognathus testaceus* is more common species reported from more than 20 countries of Europe. It appears that *S. testaceus* is associated with mountainous habitats, but data from the western Balkans belong to Pannonian and Continental biogeographical regions.

Conclusions

Strongylognathus dalmaticus Baroni Urbani from locality Popovo polje represents the first record of the genus *Strongylognathus* Mayr in Bosnia and Herzegovina.

Review of data from relevant literature has indicated that genus *Strongylognathus* Mayr is represented by three species in the western Balkans: *S. testaceus* (Schenck), *S. alboini* Finzi, and *S. dalmaticus* Baroni Urbani.

In Europe, species *S. alboini* Finzi is present in Switzerland, Slovenia and Italian mainland, while *S. dalmaticus* Baroni Urbani is only known from one locality in Croatia.

The species *Strongylognathus testaceus* (Schenck) inhabits the Pannonian part of the region where distribution of the genus *Strongylognathus* Mayr was recorded while *S. alboini* Finzi and *S. dalmaticus* Baroni Urbani inhabit the Mediterranean and Dinaric areas of the western Balkan Peninsula.

One recording of the species *Strongylognathus alboini* Finzi, in Slovenia, and two of the species *S. dalmaticus* Baroni Urbani are not sufficient for further analysis of the distribution, although there is the tendency for the species *S. alboini* Finzi to take the north and the species *S. dalmaticus* Baroni Urbani the south part of the western Balkan Peninsula.

References

- AGOSTI, D. & COLLINGWOOD, C.A., 1987. A provisional list of Balkan ants (Hym. Formicidae) with a key to the worker caste. II. Key to the worker caste, including European species without the Iberian. Mitt. Schweiz. entomol. Ges., 60: 261-293.
- BARONI URBANI, C., 1969. Gli *Strongylognathus* del gruppo *huberi* nell'Europa occidentale: saggio di una revisione basata sulla casta operaia (Hymenoptera Formicidae). Boll. Soc. entomol. Ital., 99-101(7-8): 132-168.
- BOLTON, B., 2013. An online catalog of the ants of the world. Available from <http://antcat.org>. [Accessed September 27th, 2013].

- BRAČKO, G., 2000. Review of the Ant Fauna (Hymenoptera: Formicidae) of Slovenia. *Acta Biol. Slov.*, 43(4): 3-54.
- BRAČKO, G., 2006. Review of the Ant Fauna (Hymenoptera: Formicidae) of Croatia. *Acta Biol. Slov.*, 14(2): 131-156.
- BRAČKO, G., 2007. Checklist of the ants of Slovenia (Hymenoptera: Formicidae). *Nat. Slo.*, 9(1): 15-24.
- BUSCHINGER, A., 2009. Social parasitism among ants: a review (Hymenoptera: Formicidae). *Myrmecol. News*, 12: 219-235.
- COBELLI, R., 1906. Le formiche del Promontorio di Sezza (Istria). *Verh. Zool.-Bot. Ges., Wien*, 56: 477-480.
- DOFLEIN, F., 1920. Macedonian ants: Observations on their way of life. Jena: G. Fischer, 74 pp.
- FAHRINGER, J., 1911. II Hymenoptera. In: Tölg F. & Fahringer J. (eds.): Contribution to Diptera and Hymenopteranfauna of Bosnia and Herzegovina and Dalmatia. *Mitt. Naturw. Ver., Wien*, 9, 23-28.
- FINZI, B., 1923. Risultati scientifici della spedizione Rava sini-Iona in Albania. *Boll. Soc. ent. Ital.*, 55(1): 1-4.
- FRAUNFELD, G., 1854 (ed.). Ergebnisse einer mit Unterstützung des hohen k.k. Oberst-Kämmereramt und die Küsten Dalmatiens im Monat mai und Juni 1854 unternommenen Reise. Wien, Gedruckt bei Carl Ueberreuter.
- GALVAGNI, E., 1902. Contribution to the knowledge of the fauna of some Dalmatian islands. *Verh. Zool.-Bot. Ges., Wien*, 52: 362-380.
- GASPERINI, R., 1887. Notizie sulla fauna imenotterologa dalmata, II, Formicidae – Mutillidae – Scoliidae – Sapygidae – Pompilidae – Sphegidae – Chrysididae. *Annuario Dalmatico*, 4: 143-160.
- GASPERINI, R., 1889. Notizie sulla fauna imenotterologa dalmata, III, Supplemento agli Hymenoptera aculeata Gerst. *Annuario Dalmatico*, 5: 57-71.
- GAULD, I. & BOLTON, B., 1988. The Hymenoptera. A British Museum Publication. Oxford University press.
- IUCN 2013. IUCN Red List of the Threatened Species. Version 2013.1. Available through: www.iucnredlist.org (Accessed on 30 October 2013).
- KARAMAN, M., 2004. Checklist of known species of Ants (Hymenoptera, Formicidae) in the fauna of Montenegro. *Natura Montenegrina*, 3: 83-92.
- KATURIC, M., 1891. Ulteriori osservazioni biologiche sulle formiche. *Glasn. hrv. narav. dr.*, 6: 14-28.
- MAIDL, F. 1922. Beiträge zur Hymenopterenfauna Dalmatiens, Montenegros und Albanien. I. Teil: Aculeata und Chrysididae. *Ann. Naturhist. Mus., Wien*, 35: 36-106.
- MAYR, G. & KOHL, F., 1908. II. Hymenoptera, I. Formicidae (in: Die zoologische Reise des naturwissenschaftlichen Vereins nach Dalmatien im April 1906). *Mitt. Naturw. Ver. Univ. Wien*, 6: 123-126.
- MAYR, L.G., 1852. Einige neue Ameisen. *Verh. Zool.-Bot. Ver. Wien*, 2: 143-150.
- MAYR, G., 1855. Formicina austriaca. *Verh. Zool.-Bot. Ver. Wien*, 5: 273-478.
- MÜLLER, G., 1923. Le Formiche della Venezia Giulia e della Dalmazia. *Bili. della Soc. Adr. di Scienze Nat. in Trieste*, 28: 11-180.
- PETROV, Z.I., 1986. Contribution to Myrmecofauna in some oak-tree communities on the mountain Jastrebac. *Bull. Mus. Hist. Nat., Belgrade*, B(41): 109-114. [in Serbian, with English s.]
- PETROV, Z.I. & Collingwood, C.A., 1992. Survey of the Myrmecofauna (Formicidae, Hymenoptera) of Yugoslavia. *Arch. Biol. Sci., Belgrade*, 44(1-2): 79-91.
- PETROV, Z.I., 1993. Supplement to the Zimmermann's contribution to the knowledge of the myrmecofauna (Formicidae, Hymenoptera) of south Dalmatia (1934). *Arch. Biol. Sci., Belgrade*, 45 (1-2): 7.
- PETROV, Z.I., 2004. A list of currently known Ant species (Formicidae, Hymenoptera) of Serbia. *Arch. Biol. Sci., Belgrade*, 56(3-4): 121-125.

- RADCHENKO, G.A., 2011. Fauna Europaea: Hymenoptera, Formicidae. Fauna Europaea version 2.3, Available through: <http://www.faunaeur.org>. [Accessed December 9th, 2013].
- SANETRA, M. & BUSCHINGER, A., 2000. Phylogenetic relationships among social parasites and their hosts in the ant tribe Tetramoriini (Hymenoptera: Formicidae). *Eur. J. Entomol.*, 97: 95-117.
- SCOPOLI, J.A., 1763. *Entomologia carniolica exhibens insecta Carnioliae indigena et distributa in ordines, genera, species, varietates: Methodo Linnaeana*. Vindobonae [=Vienna]: J. Trattner, XXXVI, 420 pp.
- SOUDEK, R., 1925. Dalmatian ants. *Čas. Čskoslov. spol. entomol.*, 22: 12-17. [in Czech]
- VESNIĆ, A., 2011. Updated and corrected systematic checklist of ants of Bosnia and Herzegovina. *In: Lelo, S. (ed.): Fauna of Bosnia and Herzegovina – A biosystematic review*, 4-6, Amended and updated internal edition of Society for Inventarisation and protection of animals, Ilijaš, Canton Sarajevo, pp.: 205-207. [in Bosnian]
- VOGRIN, V., 1955. Contribution to knowledge of Hymenoptera-Aculeata of Yugoslavia. *Zašt. bilja*, 31: 1-74 [in Serbian].
- WASMANN, E., 1898. Bosnian ants and myrmecophyls. *Glasnik Zemaljskog muzeja Bosne i Hercegovine*, 2-3: 219-226 [in Bosnian].
- ZIMMERMANN, S., 1934. Contribution to the knowledge of ant fauna in south Dalmatia. *Erhandlungen der Zool.-Botan. Gesellschaft, Wien*, 84(1-4): 1-65.
- ŽIVOJINOVIĆ, S., 1950. Insect fauna of the Forest domain Majdanpek (The entomological monography). *Srpska akademija nauka i umetnosti, Posebna izdanja*, 160, Institut za ekologiju i biogeografiju, Knjiga 2, 262 pp. [in Serbian].

ПРВИ НАЛАЗ МРАВА ИЗ РОДА *STRONGYLOGNATHUS* MAYR, 1853
НА ТЕРИТОРИЈИ БОСНЕ И ХЕРЦЕГОВИНЕ И ПРЕГЛЕД
РАСПРОСТРАЊЕЊА ВРСТА ОВОГ РОДА НА ЗАПАДНОМ БАЛКАНУ
(INSECTA: HYMENOPTERA: FORMICIDAE)

Ади ВЕСНИЋ

Извод

Род *Strongylognathus* Mayr представља етолошки изузетно занимљиву скупину сталних социјалних робовласника на врстама из рода *Tetramorium* Mayr. Унутар рода су описне 24 врсте, а на сајту Fauna Europaea налази се попис од 20 врста мрава из рода *Strongylognathus* Mayr (RADCHENKO, 2011). Истраживања мирмекофауне западног дела Балканског полуострва трају већ три века, али свега пет литературних извора наводи податке за три врсте из рода *Strongylognathus* Mayr, које спадају у две групе. Група *testaceus* представљена је врстом *Strongylognathus testaceus* (Schenck, 1852) а група *huberi* је представљена врстама *Strongylognathus alboini* Finzi, 1924 и *Strongylognathus dalmaticus* Baroni Urbani, 1969. Нови налаз врсте *Strongylognathus dalmaticus* на Поповом пољу представља први налаз за Босну и Херцеговину и други налаз ван типског локалитета.

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