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A LIST OF CURRENTLY KNOWN ANT SPECIES (FORMICIDAE, HYMENOPTERA) OF Mt. STARA PLANINA (SERBIA)

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ABSTRACT. 24 species of ants known for the myrmecofauna of Mt. Stara Planina so far are presented. Among them genus *Sifolinia* Emery 1907 and the species *Sifolinia laurae* Emery 1907 were new for the myrmecofauna of Yugoslavia and were registered only at Mt. Stara Planina in Serbia by now (Petrov and Mesaro•, 1988). The record of *Formica candida* Smith 1878 is also the only record of that species in Serbia by now.

KEY WORDS. fauna, ants, Formicidae, Mt. Stara Planina, Serbia

INTRODUCTION

Ants appear as very important active inhabitants of all terrestrial ecosystems. They have big influence on their environment which they actively change. „Together with *Homo sapiens*, the ants are one of the few animal groups that commonly manipulate and modify their immediate surroundings to suit their needs“ (Bolton, 1994).

In most terrestrial habitats ants are among the leading predators of other insects and small invertebrates (Wilson, 1971, Jeanne, 1979, Sörensen and Schmidt, 1987), and are good controllers of pest insects in their environment (Hölldobler and Wilson, 1990). Ants are good farmers (Hölldobler and Wilson, 1990), and good competitors to mammals in gathering seeds in deserts of southwestern part of the USA (Davidson *et al*., 1980). Ants are big altruists (Hölldobler and Wilson, 1990).

Although they are present everywhere and have a great importance, none myrmecologist appeared in Serbia before 20th century, and only a few entomologists in the first half of the 20th century paid attention to ants as insects and mentioned some species among other insect species.Therefore the statement of Hölldobler and Wilson (1990) that „ants are everywhere, but only occasionally noticed“, is confirmed in Serbia.

Živojinović (1950), registered 18 species, 7 subspecies and 3 varietas of ants in the forest region of Majdanpek (Serbia), But he considered some valid species (*Myrmica laevinodis*, (det. Živojinović)=*rubra*, *Lasius alienus*, *L. brunneus*, *Camponotus herculeanus*, *Formica glebaria, F. pratensis*) as subspecies, or varietas (*Lasius myops, Formica nigricans*).

Vogrin (1955) elaborated Hymenoptera Aculeata of Yugoslavia, mostly from Croatia and the Adriatic coast. He also mentioned some localities in Serbia (Belegiš, Fruška Gora–Venac, Ruma, Slankamen, Surduk) (Srem) where he registered 16 species of ants. Misidentifications also appeared in his identification. Namely, this author identified valid species *Leptothorax parvulus*, *L. unifasciatus*, *Tetramorium semilaeve*, *Formica glebaria* as varietas.

Janković (1962) mentioned 18 species of ants of grassland communities at Mt. Kopaonik (Serbia). Although his specimens were identified by Samšinak, the valid species *Formica lemani* was identified as subspecies.

Gradojević (1963) listed 11 species of ants of Deliblatska Pešćara (Deliblato Sands) (Vojvodina, Serbia). This author did not mention who identified his ants but in his list the species *Myrmica rubra* was identified as *Myrmica laevinodis* and *Cataglyphis aenescens* as *Myrmecocistus cursor*.

Many years later, first real myrmecological data could be found in Petrov (1986) who registered 8 genera and 12 species in some oak–tree communities on the Mt. Jastrebac (Serbia). Petrov (1992) listed 55 ant species known for Serbia by that time. Petrov and Collingwood (1993) described a new species (*Formica balcanina*) which belonged to the *Formica cinerea* group and which replaced *F. cinerea* on the Balkan Penninsula. The holotype was taken from Rošijana, (Deliblatska Pešćara, 15 July 1987), about 70 km northeast of Belgrade. Five paratypes, two from the type locality, (Rošijana, Deliblatska pešćara, Vojvodina, Serbia), and three more from other localities) are deposited now in the Nat. Hist. Museums of Vienna, Budapest and Los Angeles.

Petrov (1994) elaborated myrmecofauna of Deliblatska Pešćara and registered 32 species in the wide area of it. Petrov (2002), listed 14 more species in the myrmecofauna of Deliblatska pešćara. Petrov (1995) gave a preliminary list of ants of Yugoslavia recording 136 species of which 92 were registered in Serbia. Collingwood and Petrov (1999) registered 17 new species in the myrmecofauna of Yugoslavia, and in that way in Serbia too. Petrov (2000) listed 160 ant species in the myrmecofauna of Yugoslavia of which 140 were found in Serbia. Petrov (2001) listed 19 species of ants in the Botanical Garden „Jevremovac“ in Belgrade. Petrov (2002a) found 67 species in the myrmecofauna of Banat Province (Vojvodina, Serbia). The same author (2002b) registered 75 species of ants in Vojvodina (Serbia). Petrov (2004) gave a list of 141 species from Serbia.

MATERIAL AND METHODS

Myrmecological material was mostly collected in 1983 during the youth investigation of „Stara Planina '83“. Investigated gradient extended from 300 to 1600 m of altitude. Besides, ants were collected by sporadically visits to Mt. Stara

Planina. Then ants were collected by accidental findings and looking for potential nests by the authors and some colleagues.

Identification was done by using keys: Agosti and Collingwood (1987), before all, but also Stitz (1939), Bolton and Collingwood (1975), Sam•inak (1975), Kutter (1977), Arnoldi and Dlussky (1978),Coollingwood (1978, 1979) Seifret (1988, 1988a, 1996), Atanasof and Dlussky (1992). Data by Agosti and Collingwood (1987a), Baroni–Urbani (1971), Bolton (1994, 1995) were also used.

RESULTS AND DISCUSSION

Petrov and Mesaroš (1988) elaborated myrmecological, material obtained from faunistic material collected in July 1983 at Mt. Stara Planina. These authors found 9 genera and 14 species in 6 open communities of meadows and pasture'grounds of the Mt. Stara Planina (Serbia). That list is now enriched by 10 more species and the total number of the known species from Mt. Stara Planina is 24 (Tab.1).

Genus *Sifolinia* Emery 1907 and the species *Sifolinia laurae* Emery 1907 (det. Petrov 1988) were new for the myrmecofauna of Serbia and Yugoslavia. It is also the only record of that genus and species in Serbia by now (Petrov and Mesaro•, 1988). The record of *Formica candida* Smith 1878 (det. C. A. Collingwood) is also the only record of that species in Serbia by now (Petrov, 2000, 2004).

Tab. 1. Ant species (Formicidae) from Mt. Stara Planina

Subfam.: MYRMICINAE
Myrmica lobicornis Nylander 1846
M. rubra (L.) 1758
M. ruginodis Nylander 1846
M. sabuleti Meinert 1861
M. schencki Emery 1895
M. sulcinodis Nylander 1846
Sifolinia laurae Emery 1907
Tetramorium caespitum (L.) 1758

Subfam.: DOLICHODERINAE
Dolichoderus quadripunctatus (L.) 1771
Tapinoma nigerrimum Nylander 1886

Subfam.: FOMICINAE
Lasius alienus (Foerster) 1850
L. brunneus Latreille 1798
L. carniolicus Mayr 1862
L. emarginatus (Olivier) 1791
L. niger (L.) 1758
Camponotus fallax (Nylander) 1856

C. vagus (Scopoli) 1763
Formica candida Smith 1878
F. cunicularia Latreille 1798
F. fusca L. 1758
F. gagates Latreille 1798
F. pratensis Retzius 1783
F. rufibarbis Fabricius 1793
F. sp.

Comparing these results with some former ones, it is obvious that ten species found at Mt. Stara Planina (*Myrmica rubra*, *Tetramorium caespitum*, *Dolichoderus quadripunctatus*, *Lasius alienus*, *L.brunneus*, *L. emarginatus*, *L. niger*, *Camponotus fallax*, *Formica fusca*, *F. gagates*, *F. pratensis*) were also found in the forest region of Majdanpek (@ivojinovi} 1950). Jankovi} (1962) found at Mt. Kopaonik *Myrmica rubra*, *M. sabuleti*, *M. schencki*, *Tetramorium caespitum*, *Lasius alienus*, *L. brunneus*, *L. niger Formica fusca* and *F. pratensis* which were registered at Mt. Stara Planina too. Also comparing these results with results of Petrov (1986), commomn species for Mt. Stara Planina and Mt. Jastrebac are *Myrmica sabuleti*, *Lasius alienus*, *Formica cunicularia*.

Some species found at Mt. Stara Planina were also found in Vojvodina. Gradojevi} (1963) registered *Tetramorium caespitum*, *Lasius alienus*, *Formica pratensis* in the myrmecofauna of Deliblatska pe••ara. Petrov (1994), also in Deliblatska pe••ara, found some species common to species found at Mt. Stara Planina (*Myrmica rubra*, *M. sabuleti*, *Tetramorium caespitum*, *Lasius alienus*, *L. brunneus*, *L. niger*, *Formica cunicularia*, *F. pratensis*). The same author (2002) at the same locality also registered some more species which were found at Mt. Stara Planina (*Myrmica schencki*, *Camponotus fallax*, *Formica fusca*). Petrov (2002a) registered *Myrmica rubra*, *M. sabuleti*, *M. schencki*, *M. sulcinodis*, *Tetramorium caespitum*, *Dolichoderus quadripunctatus*, *Tapinoma nigerrimum*, *Lasius alienus*, *L. brunneus*, *L. emarginatus*, *Camponotus fallax*, *C. vagus*, *Formica cunicularia*, *F. fusca*, *F. pratensis*, *F. rufibarbis* in Banat Province. And generally, in Vojvodina, Petrov (2002b) registered *Myrmica lobicornis*, *M. rubra*, *M. ruginodis*, *M. sabuleti*, *M. schencki*, *M. sulcinodis*, *Tetramorium caespitum*, *Dolichoderus quadripunctatus*, *Tapinoma nigerrimum*, *Lasius alienus*, *L. emarginatus*, *L. niger*, *Camponotus fallax*, *C. vagus*, *Formica cunicularia*, *F. fusca*, *F. gagates*, *F. pratensis*, *F. rufibarbis*.

Much more common species in Vojvodina is due to the fact that Vojvodina is myrmecologically more investigated. But, there must exist much more common species in mentioned localities.

All species found at Mt. Stara Planina could have been expected and had already been known in the myrmecofauna of Serbia (former authors and Petrov, 1986, 1992, 1995, 2000, 2001, 2002, 2002a, 2002b, 2004, Petrov and Mesaro•, 1988).

*According to these investigations myrmecofauna of Mt. Stara Planina consists of Holarctic (*Lasius alienus*,* L. niger, Formica fusca), *Palearctic* (Myrmica rubra, Myrmica ruginodis*,* M. schencki, M. ruginodis, Tetramoruium caespitum*,* Lasius brunneus*,* Formica cunicularia,*),* European *(*F. rufibarbis*)*, *and Euroasian (*Camponotus vagus*,* Formica pratensis*) species. In addition, one Mediterranean species (*Formica gagates*) was registered as well (Tab. 1) (Stitz, 1939, Bernard, 1968, Collingwood, 1979, Seifert, 1988).*

Although Mt. Stara Planina is mostly forestry region its area shows complexity of abiotic and biotic factors resulting in forming numerous types of habitats for ants. Therefore species inhabiting open warm habitats can be found at Mt. Stara Planina (*Tetramorium caespitum*, *Formica cunicularia, F. rufibarbis*). There are also species which prefer covered habitats (*Myrmica rubra*, *F. pratensis*), and species inhabiting edges of woods or woods themselves (*Lasius brunneus*, *Formica fusca*, *F. polyctena*). (Stitz, 1939; Bernard, 1968; Collingwood, 1979) (Tab. 1).

Doing these investigations no species of the subfamily Ponerinae was found, although they must be present in the myrmecofauna of Mt. Stara Planina. More species from subfamilies Myrmicinae, Dolichoderinae and Formicinae must exist in the myrmecofauna of Mt. Stara Planina, but to get complete information about myrmecofauna of this mountain, more intensive investigations and collecting of ants are needed.

This short contribution should enlighten the current knowledge of myrmecofauna of one part of Serbia. Serbia is a Balkan country, and myrmecofauna of Balkan Peninsula, which actually is a big refugium, is surely very rich. The total of 141 species of ants were registered in Serbia by now (Petrov, 2004), but myrmecofauna of Serbia must be richer. Agosti and Collingwood (1987) registered 319 species in the Balkan myrmecofauna. But, they also mentioned 72 species in other Balkan countries, which are still unregistered in Serbia and 42 species which can be expected in the myrmecofauna of the Balkans.

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