

CHECK LIST OF THE MYRMECOFAUNA (FORMICIDAE, HYMENOPTERA) OF YUGOSLAVIA

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Abstract - A list of 160 ant species known so far in the myrmecofauna of Yugoslavia is presented.

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INTRODUCTION

Ants appear as very important active inhabitants of all terrestrial ecosystems. They have a 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 (Boltong 1994).

By digging passages and chambers, they improve the mixing and ventilation of the soil. By taking animal proteins into the nest, as well as by excrements of workers, larvae and queen, they enrich the soil with carbon, nitrogen and phosphorus and accelerate pedo-genetic processes. By taking seeds and fruits of certain plants into the nest, they contribute to the dispersion of plants (myrmecochory), and in that way in semidesert and desert habitats, ants contribute to the binding of drifting sand.

As the most numerous members of societies, workers of ants act as very successful predators and good controllers of pest insects in their environment (Hölldobler and Wilson 1990). Ants are good competitors to mammals in gathering seeds in deserts of southwestern part of the USA (Davidson *et al.* 1980). They are resistant to hard radiation (Le

Masne and Bonavita Cougourdan 1972) and industrial pollution (Petral 1978, 1980).

Even so, the statement of Hölldobler and Wilson (1990) that "ants are everywhere, but only occasionally noticed" is very well confirmed in Yugoslavia. Namely, besides their presence everywhere nearby us and their importance, in the 20th century, very few entomologists mentioned some ant species among other insect species, and only three myrmecologists elaborated myrmecofauna of some regions of Yugoslavia.

Zimmermann (1934), mentioned 26 genera and 52 species collected in 16 localities at the seaside of Montenegro. Živojnović (1950) registered 18 species of ants, among other insect species, in the forest region of Majdanpek (Serbia). Vogrin (1955) showed a review of the Fauna Aculeata of former Yugoslavia with some localities in Serbia (Srem) and listed 16 species of ants for the localities in Serbia. Gradojević (1963) reported 11 species of ants for Deliblatska peščara (Deliblato Sands) (Serbia).

Nomenclature used by former authors, partially, is not valid any more. Some of subspecies and varieties identified by Zimmermann (1934) were raised to the species level by some myrmecologists: *Aphenogaster*

obsidiana epirotes=*A. epirotes*, (Agosti and Collingwood 1987a), *Aphenogaster ovaticeps muelleriana*=*A. muelleriana* (Agosti and Collingwood 1987a), *Crematogaster schmidtii ionia*=*C. ionia* (Agosti and Collingwood, 1987a), *Temnothorax* (= *Leptothorax*) *recedens rogeri*=*Leptothorax rogeri* (Dalla Torre 1893) (Bolton 1995), *Cardiocondyla elegans dalmatica*=*C. dalmatica* (Soudek 1925) (Bolton 1995), *Tetramorium semilaeve biskrense*=*T. bi-skrense* (Menozzi 1933) (Bolton 1995). Besides, some species were moved to other genera: *Ponera eduardi* (det. Zimmermann 1934)=*Hypoconerina eduardi* (Agosti and Collingwood 1987a), *Myrmetae-rus microcellatus* (det. Zimmermann 1934)=*Epi-myрма microcellatus* (Buschinger *et al.* 1984) (Bolton, 1995) (List of ant species).

Živojinović (1950) considered some of valid species as subspecies (*Lasius niger* ssp. *alienus*, *Lasius niger* ssp. *brunneus*, *Camponotus herculeanus* ssp. *vagus*, *Formica rufa* ssp. *pratensis*). In this paper, these subspecies are presented as species (List of ant species).

Many years later, Petrov (1986) registered 8 genera and 12 species in three oaktree communities on the Mt. Jastrebac (Serbia). Petrov and Mesaroš (1988) found 9 genera and 14 species in 6 open communities of meadows and pasturegrounds of the Mt. Stara Planina (Serbia). Petrov (1992) listed 55 ant species known for Serbia by that time. Petrov (1993) enriched the list of ants of the Montenegrin seaside given by Zimmermann (1934) by 7 more species. Petrov and Collingwood (1993) described a new species (*Formica balcanina*) from the *F. cinerea* group, which replaces *F. cinerea* at the Balkan Peninsula. Petrov (1994) registered 32 species for Deliblatska peščara (Serbia).

Karaman (1998) summarized all data known for the myrmecofauna of Montenegro by now and reported 94 species. Karaman *et al.* (1998 a) presented a list of 39 species for the Vrmac Peninsula (Boka Kotorska, Montenegro).

Petrov (1995) gave a preliminary list of ants of Yugoslavia and registered 136 species. This list is now enriched by 24 more species and the total number of known ant species for Yugoslavia so far is 160.

The number of 160 species is considerable and it is bigger than in most other countries in the region of the Balkans (Agosti and Collingwood 1987). Richer myrmecofauna is met only in Greece where Legakis (pers. comm.) registered 268 species.

Yugoslavia as a part of the Balkan Peninsula, one large refugium, surely has richer myrmecofauna than presented here. It confirms the results of Agosti and

Collingwood (1987) who registered 72 ant species in other Balkan countries, which are still unregistered in Yugoslavia. These authors, also, mentioned 42 species which can be expected in the myrmecofauna of the Balkans.

This paper should enlighten the current knowledge on the myrmecofauna of Yugoslavia, which is still insufficiently investigated.

LIST OF ANT SPECIES (FORMICIDAE) OF YUGOSLAVIA

Subfam. PONERINAE

<i>Hypoconerina</i> (Zimmermann, 1934)	det. as <i>Ponera eduardi</i> (Forel) 1894; MN
<i>Hypoconerina punctatissima</i> (Roger) 1859; S:	(det. Petrov, 1985, 1991, 1994)
<i>Ponera coarctata</i> (Latreille) 1802; S:	(det. Zimmermann, 1934; Živojinović, 1950; Petrov, 1980, 1881, 1985, 1988, 1989, 1993, 1994, 1995)
<i>P. coarctata testacea</i> Emery; MN	(det. Zimmermann, 1934. Name not valid. <i>testacea</i> =junior synonym of <i>coarctata</i> ; Taylor, 1967 (Bolton, 1995)
<i>P. ochracea</i> Mayr 1855; S	(det. Vogrin, 1955)
<i>Proceratium algericum</i> Forel 1899; S	(det. Petrov, 1985)

Subfam. MYRMICINAE

<i>Manica rubida</i> (Latreille) 1802; S	(det. Hamann, Petrov, 1996)
<i>Myrmica bessarabica</i> Nasonov 1889; S	(det. Collingwood, 1997)
<i>M. deplanata</i> Emery 1921; S	(det. Collingwood, 1997)
<i>M. gallieni</i> Bondroit, 1919; S	(det. Collingwood, 1991)
<i>M. hellenica</i> Forel 1846; S	(det. Collingwood, 1991)
<i>M. jobicornis</i> Nylander 1846; S	(det. Hamann; Petrov, 1991, 1996, 1997 Collingwood, 1991)
<i>M. lonae</i> Finzi 1926; S	(det. Collingwood, 1997)
<i>M. rubra</i> (L.) 1758; S, MN	(det. Živojinović, 1950; Petrov, 1988, 1989, 1990, 1992, 1993, 1994, 1997; Collingwood, 1991)
= <i>M. laevinodis</i>	(det. Gradojević, 1963, Petrov, 1980)
<i>M. ruginodis</i> Nylander 1846; S	(det. Hamann; Petrov, 1986, 1989, 1992, 1993, 1994, 1997, Collingwood, 1991)
<i>M. rugulosa</i> Nylander 1849; S	(det. Petrov, 1997)
<i>M. scabrinodis sabuleti</i> Meinert 1861; MN	(det. Zimmermann, 1934. Name not valid)
<i>M. sabuleti</i> S, MN (Raised to the species level by Bondroit, 1918 Bolton, 1995);	(det. Zimmermann, 1934, Petrov, 1988, 1989, 1990; Collingwood, 1991)
<i>M. sancta</i> Karawajev 1926; S	(det. Collingwood, 1991)
<i>M. scabrinodis</i> Nylander 1846; S, MN	(det. Živojinović, 1950; Vogrin, 1955; Petrov, 1990, 1991, 1994, 1997)

- M. schencki* Emery 1859; S (det. Petrov, 1996)
M. speciooides Bondroit 1918; S (det. Petrov, 1997)
M. sulcinodis Nylander 1846; S (det. Petrov, 1994, 1997)
Stenamma debile (Foerster) 1850; S (det. Collingwood, 1997)
St. petiolatum Emery 1897; S (det. Petrov, 1995)
St. sardoa Emery 1915; S (det. Collingwood, 1991)
St. westwoodi Westwood 1840; S (det. Collingwood, 1991)
St. sp.; S (det. Petrov)
Aphenogaster finzii Mueller 1913; S (det. Petrov, 1988, 1991)
A. gibbosa (Latreille) 1798; S (det. Petrov, 1988, 1989, 1994)
A. lesbica Forel 1913; S, MN (det. Petrov, 1988, 1989, 1991)
A. ovaticeps muelleriana Wolf 1915; MN (det. Zimmermann, 1934.
Name not valid;
(Raised to the species level by Agosti and Collingwood, 1987a)
(det. Petrov, 1988, 1991)
A. obsidiana epirotes Emery 1895; MN (det. Zimmermann, 1934.
Name not valid.
(Raised to the species level by Agosti and Collingwood, 1987a
(Bolton, 1995)
(det. Collingwood, 1991)
A. obsidiana (Mayr); 1861; MN (det. Collingwood, 1991).
A. sicula Emery 1908; MN (det. Petrov, 1996)
A. subterranea (Latreille) 1798; S, MN (det. Zimmermann, 1934;
Petrov, 1988, 1989, 1990, 1991)
(det. Petrov, 1996)
A. subterraneoides (Emery) 1881; S, MN (det. Petrov, 1991, 1992.)
Messor capitatus (Latreille) 1798; S (det. Petrov, 1989, 1991, 1994,
1997)
(det. Petrov, 1997)
M. ebeninus Santschi 1927; MN (det. ?)
M. meridionalis (Andr) 1882; MN (det. Petrov, 1996)
M. minor (Andr) 1883; MN (det. Petrov, 1997)
M. muticus Nylander 1849; MN (det. Collingwood, 1991)
M. oertzeni (Emery); 1910 S (det. Hamann; Zimmermann,
1934; Petrov, 1998)
M. sultanus Santschi; 1917 S (det. Collingwood, 1991)
M. wasmanni Krause 1909; MN (det. Collingwood, 1991;
Petrov, 1997)
(det. Petrov, 1991)
M. sp.; MN (det. Petrov, 1998)
Pheidole megacephala (F.) 1793; MN (det. Collingwood, 1997;
Petrov, 1998)
Ph. pallidula (Nylander) 1849; S, MN (det. Zimmermann, 1934.
Name not valid) *orientalis* =
junior synonym of *pallidula*;
(Baroni-Urbani, 1964;
Atanasov and Dlussky,
1992) (Bolton, 1995)
(det. Petrov, 1988)
(det. Zimmermann, 1934;
Petrov, 1980, 1990, 1991, 1992,
1994, 1996; Collingwood, 1991)
(det. Vogrin, 1955)
M. latreillei Curtis 1829; S (det. Petrov, 1996)
Crematogaster auberti savinae, MN (det. Zimmermann, 1934)
C. scutellaris schmidti var.
ionia Forel 1911: MN (det. Zimmermann, 1934.
Name not valid;
(Raised to the species level by Agosti and Collingwood
1987a) (Bolton, 1995)
(det. Petrov, 1997)
C. jehovae Forel 1907; MN (det. Petrov, 1996, 1997)
C. lorteti Forel 1910; MN (det. Petrov, 1996, 1997)
C. schmidti (Mayr) 1852; S, MN (det. Zimmermann, 1934;
Collingwood, 1991; Petrov, 1996)
C. sordidula mayri Mayr 1855; MN (det. Zimmermann, 1934.
Name not valid *mayri*=junior syno-
nym of *sordidula*, Agosti and
Collingwood, 1987a
(Bolton, 1995)
(det. Petrov, 1994)
C. sordidula (Nylander) 1849; MN (det. Petrov, 1992,
1996, 1997. Collingwood, 1997
(det. Zimmermann, 1934)
Monomorium monomorium
Bolton 1987; MN (det. Zimmermann, 1934;
Petrov, 1980, 1982, 1985, 1989
1991, 1996)
= *M. minutum* Mayr, MN (det. Collingwood, 1997)
M. pharaonis (L.) 1758; S, MN (det. Živojinović, 1950; Vogrin,
1955, Gradojević, 1963; Petrov,
1980, 1985, 1991, 1993, 1994, 1997)
(det. Collingwood, 1997)
M. phoenicum Santschi 1927; S (det. Collingwood, 1991; Petrov, 1998)
Solenopsis fugax (Latreille) 1798; S (det. Collingwood, 1991)
S. monticola Bernard 1952; S (det. Collingwood, 1991)
S. wolffi Emery 1915; S (det. Collingwood, 1991)
S. sp.; S (det. Collingwood, 1991)
Leptothorax acervorum
Fabricius 1793; S, MN (det. Petrov, 1997)
L. affinis Mayr 1855; S (det. Petrov, 1995)
L. chypeatus Mayr 1853; S (det. Vogrin, 1955)
L. corticalis (Schenck) 1852; S (det. Collingwood, 1991, 1997)
L. exilis Emery 1869; MN (det. Zimmermann, 1934)
L. flavicornis Emery 1870; S, MN (det. Petrov, 1997)
L. interruptus (Schenck) 1852; MN (det. Zimmermann, 1934.)
L. krausseii Bondroit 1918; S (det. Petrov, 1989)
L. muscorum (Nylander) 1846; MN (det. ?)
L. nylanderii (Foerster) 1850; S, MN (det. Zimmermann, 1934;
Petrov, 1979, 1981, 1988, 1990, 1991,
1991, 1997)
(det. Collingwood, 1991)
L. parvulus (Schenck) 1852; S (det. Collingwood, 1997)
L. rabaudi Bondroit 1918; S (det. Petrov, 1995, Collingwood,
1991, 1997)
L. racovitzae Bondroit 1918; S* (det. Petrov, 1998)
L. recedens (Nylander) 1856; MN (det. Petrov, 1998)
Temnothorax (=Leptothorax)
recedens rogeri Emery 1869; MN (det. Zimmerman, 1934.
Name not valid;
L. rogeri Raised to the species level by Dalla Torre 1893 (Bolton, 1995)
L. rougeti Bondroit 1918; S (det. Collingwood, 1997)
L. semiruber Andr 1881; S (det. Petrov, 1982)
L. sordidulus Mueller; MN (det. Zimmermann, 1934)
L. tuberum (F.) 1775; S (det. Živojinović, 1950; Petrov, 1982)
L. unifasciatus Latreille 1798; S, MN (det. Zimmermann, 1934;
Vogrin, 1955, Collingwood, 1991)
L. sp.; S (det. Collingwood, 1991)

- Epimyrma* (Zimmermann, 1934) det. as *Myrmetaerus microcellatus* Soudek 1925; MN
- Chalepoxenus muellerianus* Finzi 1922; S (det. Collingwood, 1997)
- Cardiocondyla elegans dalamatica* Soudek 1925; MN (det. Zimmermann, 1934. Name not valid; Raised to the species level by Soudek, 1925 (Bolton 1995) (det. Collingwood, 1991, Petrov 1987, 1997) (det. Collingwood, 1997) (det. Collingwood, 1997)
- C. dalmatica* Soudek 1925; MN
- C. elegans* Emery 1869; S, MN
- C. staumbouloffii* Forel 1892; S
C. sp.; S (det. Collingwood, 1997)
- Tetramorium caespitum* (L.) 1758; S, MN (det. Zimmermann, 1934; Živojinović, 1950; Hamann; Gradojević, 1963; Petrov, 1981, 1986, 1988, 1990, 1992, 1994, 1995, Collingwood, 1991)
- T. c. var. debile* Forel 1894; MN (det. Zimmermann, 1934. Name not valid; *debile* = junior synonym of *sericeiventris*, Bolton, 1980) (Bolton, 1995) (det. Petrov, 1992, 1995, 1997)
- T. cheftoki* Forel 1911; S, MN
- T. ferox diomedaeum* Emery 1908; MN (det. Zimmermann, 1934. Name not valid) (Bolton, 1995) (Raised to the species level by Agosti & Collingwood, 1987) (det. Hamann; Petrov, 1991, Collingwood, 1991) (det. Petrov, 1997)
- T. diomedaeum*, S (det. Petrov, 1996, 1997, 1998)
- T. ferox* Ruzsky 1903; S, MN
- T. forte* Forel 1904; S (det. Collingwood, 1991; Petrov, 1991) (det. Petrov, 1997)
- T. hippocratis* Agosti and Collingwood 1987; S (det. Petrov, 1990, 1991)
- T. impurum* Foerster 1850; S (det. Petrov, 1990, 1991)
- T. lucidulum* Emery 1909; S
- T. moravicum* Kratochvil 1944; S, MN (det. Petrov, 1990, 1991, 1996)
- T. semilaeve* Andr 1883; S, MN (det. Zimmermann, 1934; Petrov, 1993, 1994)
- T. semilaeve biskrense* Forel 1904; MN (det. Zimmermann, 1934. Name not valid)
- T. biskrense* Menozzi 1933; MN (Raised to the species level by Menozzi 1933) (Bolton, 1995) (det. Collingwood, 1997)
- Strumigenys baudueri* Emery; MN (det. Zimmermann, 1934)

Subfam. DOLICHODERINAE

- Dolichoderus quadripunctatus* (L.) 1771; S (det. Živojinović, 1950, Petrov, 1991, 1992, 1994, 1997, 1998)
- Liometopum microcephalum* (Panzer) 1798; S (det. Petrov, 1989, 1996, 1998)
- Linepithema humile* Mayr 1868; MN (det. Karaman, 1998)
- Bothriomyrmex adriacus* Santschi 1922; MN (det. Zimmermann, 1934)
- B. gibbus* Soudek 1924; S, MN (det. Petrov, 1996)
- B. menozii* Emery 1925; S* (det. Petrov 1988)
- B. meridionalis* (Roger) 1846; S, MN (det. Petrov, 1992, 1996, 1997, 1998)
- B. syrius* Forel 1910, MN (det. Petrov, 1997)
- B. sp.*; S (det. Collingwood, 1991)
- Tapinoma ambiguum* Emery 1925; MN (det. Collingwood, 1997)
- T. erraticum* (Latreille); S, MN (det. Zimmermann, 1934;
- T. nigerrimum* Nylander 1886, S, MN (det. Živojinović, 1950; Gradojević, 1963; Petrov, 1988, 1992, 1994, 1996) (det. Zimmermann, 1934; Hamann; Petrov, 1996, 1997,
- Subfam. FORMICINAE
- Plagiolepis pygmaea* (Latreille) 1798; S, MN (det. Zimmermann, 1934; Gradojević, 1963; Petrov, 1990; Collingwood, 1991)
- P. vindobonensis* Lomnicki 1925; S (det. Petrov, 1982; Collingwood, 1991)
- P. xene* Staercke 1936; MN (det. Collingwood, 1997)
- P. sp.*; S (det. Collingwood, 1997)
- Lepisiota caucasica* Emery 1917; MN (det. Collingwood, 1997)
- L. frauenfeldi* (Mayr) 1855; MN (det. Petrov, 1997)
- L. nigra* Emery; MN (det. Zimmermann, 1934)
- Prenolpis nitens* (Mayr) 1852; S, MN (det. Zimmermann, 1934; Hamann; Petrov, 1988; Collingwood, 1991, 1993, 1997)
- Lasius affinis* (Schenck) 1852; S. (det. Collingwood, 1991; Petrov, 1988, 1989, 1994) (det. Zimmermann, 1934; Živojinović, 1950; Hamann; Gradojević, 1963; Petrov, 1980, 1982, 1985, 1986, 1987, 1990, 1992, 1993, 1996, 1997)
- L. alienus* (Foerster) 1850; S, MN (det. Zimmermann, 1934; Živojinović, 1950; Hamann; Gradojević, 1963; Petrov, 1980, 1982, 1985, 1986, 1987, 1990, 1992, 1993, 1996, 1997)
- L. a. illyricus*; MN (det. Zimmermann 1934. Name not valid) *illyricus* = junior synonym of *alienus*, Wilson, 1955, of *emarginatus*; Seifert, 1992 (Bolton, 1995) (det. Zimmermann, 1934. Name not valid)
- L. a. lasioides* Emery 1869; MN (det. Zimmermann, 1934. Name not valid) Revived status as species by Staercke 1944; S (Bolton, 1995) (det. Collingwood, 1997)
- L. lasioides* (det. Collingwood, 1991)
- L. balcanicus* Seifert 1988; S (det. Collingwood, 1991)
- L. bicornis* Foerster 1850; S (det. Živojinović, 1950, Petrov, 1991, 1994, 1995, 1996, 1997)
- L. brunneus* (Latreille) 1798; S, MN (det. Collingwood, 1991)
- L. carnolicus* Mayr 1861; S (det. Zimmermann, 1934; Collingwood, 1997; Petrov, 1996, 1997,)
- L. distiguendus* (Latreille) 1798; S, MN (det. Zimmermann, 1934; Živojinović, 1950, Petrov, 1982, 1991, 1992, 1994, 1996, 1997)
- L. emarginatus* (Olivier) 1791; S, MN (det. Zimmermann, 1934; Živojinović, 1950, Petrov, 1982, 1991, 1992, 1994, 1996, 1997)
- L. flavus* (Fabricius) 1781; S (det. Živojinović, 1950; Collingwood, 1991; Petrov, 1995, 1996, 1997, 1998)
- L. fuliginosus* (Latreille) 1798 S, MN (det. Zimmermann, 1934; Hamann; Petrov, 1988, 1989,
- L. meridionalis* (Bondroit) 1918; S (det. Collingwood, 1991; Petrov, 1991)
- L. mixtus* (Nylander) 1846; S (det. Collingwood, 1997)
- L. myops* Forel 1894; MN (det. Petrov, 1997)
- L. niger* (L.); 1758; S, MN (det. Zimmermann, 1934; Živojinović, 1950, Collingwood, 1991; Petrov, 1981, 1982, 1990, 1991, 1993, 1996, 1997)
- L. umbratus* (Nylander) 1758; S, MN (det. Petrov, 1992)
- L. sp.*; S (det. Collingwood, 1991)

- Camponotus aethiops* (Latreille) 1798; S, MN (det. Zimmermann, 1934; Hamman; Collingwood, 1991; Petrov, 1982, 1986, 1992, 1997)
- C. ae. sylvaticoides* Forel 1829; MN (det. Zimmermann, 1934. Name not valid. *sylvaticoides*=junior synonym of *aethiops*; Agosti and Collingwood, 1987a) (det. Zimmermann, 1934. Name not valid; = *Formica marginata* Latreille 1798; *marginatus*=junior synonym of *fallax*; Bernard, 1967, of *aethiops*; Pisarski, 1975; Agosti and Collingwood, 1987a, (Bolton, 1995)
- C. ae. marginatus* Forel 1915; MN (det. Collingwood, 1997, Petrov, 1998)
- C. atricolor* (Nylander) 1849; S (det. Vogrin, 1955. Name not valid. = *Formica caryae* Fitch 1855; *caryae* = junior synonym of *pennsylvanicus*; Forel, 1879) (Bolton, 1995) (det. Živojinović, 1950; Zimmermann, 1934; Petrov, 1993, 1994, 1997) (det. Collingwood, 1991) (det. Zimmermann, 1934) (det. Petrov, 1994) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Petrov, 1983, 1992, 1998) (det. Zimmermann, 1934; Petrov, 1992, 1993, 1996, 1997, Collingwood, 1991) (det. Hamman; Petrov, 1988, 1992, 1993, 1996, 1997, 1998) (det. Collingwood, 1997) (det. Zimmermann, 1934; Petrov, 1990, 1992, 1993, 1996,
- C. lateralis* (L.) 1758; MN (det. Zimmermann, 1934; Petrov, 1991, 1997, (det. Zimmermann, 1934; Petrov, 1979, 1980, 1981, 1988, 1993, 1994, 1996, 1997) (det. Petrov, 1997) (det. Petrov, 1980, 1982, 1984, 1988; Collingwood, 1997) (det. Gradojević, 1963) (det. Collingwood, 1991) (det. Zimmermann, 1934; Petrov, 1993, 1996, (det. Vogrin, 1955, Petrov)
- C. ligniperdus* (Latreille) 1802; S (det. Collingwood, 1993; Petrov 1993, 1994, 1996, 1997, 1998) (det. Živojinović, 1950; Petrov, 1988, 1989, 1992) (det. Collingwood, 1991) (det. Zimmermann, 1934; Živojinović, 1950; Vogrin, 1955, Hamman; Petrov, 1989, 1990, 1993, 1997, 1987, 1988) (det. Zimmermann, 1934; Živojinović, 1950;
- C. oertzeni* Forel 1888; MN
- C. piccus* (Leach) 1825; S, MN (det. Zimmermann, 1934; Petrov, 1990, 1992, 1993, 1996,
- C. (=Colobopsis) truncatus* (Spinola) 1808; S, MN (det. Zimmermann, 1934; Petrov, 1991, 1997, (det. Zimmermann, 1934; Petrov, 1979, 1980, 1981, 1988, 1993, 1994, 1996, 1997) (det. Petrov, 1997) (det. Petrov, 1980, 1982, 1984, 1988; Collingwood, 1997) (det. Gradojević, 1963) (det. Collingwood, 1991) (det. Zimmermann, 1934; Petrov, 1993, 1996, (det. Vogrin, 1955, Petrov)
- C. vogti* Forel 1906; S
- Cataglyphis aenescens* (Nylander) 1849; S = *Myrmecocistus cursor*
- C. hellenicus* Forel 1886; S
- C. nodus* Brull 1802; S, MN (det. Collingwood, 1993; Petrov 1993, 1994, 1996, 1997, 1998) (det. Živojinović, 1950; Petrov, 1988, 1989, 1992) (det. Collingwood, 1991) (det. Zimmermann, 1934; Živojinović, 1950; Vogrin, 1955, Hamman; Petrov, 1989, 1990, 1993, 1997, 1987, 1988) (det. Zimmermann, 1934; Živojinović, 1950;
- C. viaticus* (Fabricius) 1787; S
- Formica balcanina* Petrov and Collingwood 1993; S, MN (det. Collingwood, 1993; Petrov 1993, 1994, 1996, 1997, 1998) (det. Živojinović, 1950; Petrov, 1988, 1989, 1992) (det. Collingwood, 1991) (det. Zimmermann, 1934; Živojinović, 1950; Vogrin, 1955, Hamman; Petrov, 1989, 1990, 1993, 1997, 1987, 1988) (det. Zimmermann, 1934; Živojinović, 1950;
- = *F. cinerea* Mayr 1853; S
- F. candida* Smith 1878; S
- F. fusca* L. 1758; S, MN (det. Zimmermann, 1934; Petrov, 1990, 1992, 1993, 1996, 1997, 1998) (det. Petrov, 1997) (det. Petrov, 1980, 1982, 1984, 1988; Collingwood, 1997) (det. Gradojević, 1963) (det. Collingwood, 1991) (det. Zimmermann, 1934; Petrov, 1993, 1996, (det. Vogrin, 1955, Petrov)
- F. gagates* Latreille 1798; S, MN (det. Zimmermann, 1934; Petrov, 1991, 1997, 1998) (det. Petrov, 1980, 1982, 1984, 1988, 1989, 1990, 1992, 1993, 1997) (det. Petrov, 1990) (det. Petrov, 1996) (det. Živojinović, 1950; Hamman) (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. gagatoides* Ruzsky 1904; MN
- F. glauca* Ruzsky 1895; S
- F. glebaria* Nylander 1846; S (det. Petrov, 1990) (det. Petrov, 1996) (det. Živojinović, 1950; Hamman) (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. lemni* Bondroit 1917; S, MN (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. lugubris* Zettterstedt 1840; S
- F. nigricans* Emery 1909; S
- F. polycтена* Foerster 1850; S (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. pratensis* Retzius 1783; S, MN (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. pressilabris* Nylander 1846; S
- F. rufa* L. 1758; S (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. rufibarbis* Fabricius 1793; S, MN (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. sanguinea* Latreille 1798; S (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. sclysi* Bondroit 1918; S
- F. succia* Adlerz 1902; S (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)
- F. transcaucasica* Nasonov 1889; S
- Polyergus rufescens* Latreille 1798; S (det. Petrov, 1988, 1992, 1995; Collingwood, 1991) (det. Petrov, 1996) (det. Živojinović, 1950) (det. Hamman; Petrov, 1989, 1996, 1997) (det. Živojinović, 1950; Hamman; Gradojević, 1963; Collingwood 1991; Petrov, 1988, 1988, 1991, 1992, 1994, 1995, 1996, 1997) (det. Hamman; Petrov, 1995) (det. Hamman; Živojinović, Petrov, 1988, 1990) 1950; (det. Vogrin 1955, Collingwood, 1991; Petrov, 1991, 1992, 1993, 1994, 1996, 1977, 1998) (det. Gradojević, 1963; Petrov, 1992, 1996, 1997, 1998) (det. Petrov, 1995) (det. Collingwood, 1991; Petrov, 1992, 1995) (det. Collingwood, 1991) (det. Hamman; Petrov, 1991, 1994, 1998; Collingwood, 1997)

S = Serbia; MN = Montenegro; * = new species in the myrmecofauna of Yugoslavia

Since myrmecofauna of Yugoslavia is still insufficiently investigated, and due to the mentioned importance of ants, further investigations are necessary, and presented list should be considered only as a preliminary one.

CONCLUSION

Considering the presented list it is obvious that myrmecofauna of Yugoslavia is rich. Since Yugoslavia is a part of the Balkan Peninsula its myrmecofauna is surely richer than presented. Species found in Yugoslavia are mostly Palearctic and European with some Holarctic, Southeastern, Mediterranean and Euro Asian species.

Species *Leptothorax racovitzai* Bondroit 1918 and *Bothriomyrmex menozzi* Emery 1925 are new species for the myrmecofauna of Yugoslavia, and also they are new for the fauna of all territories formerly incorporated in Yugoslavia.

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СПИСАК БРСТА МРАВА (*FORMICIDAE, HYMENOPTERA*) ЈУГОСЛАВИЈЕ

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Мрави су врло важни активни чланови свих терестричних екосистема. И поред њихове присутности свуда око нас и њиховог значаја (Hölldobler i Wilson 1990) они нису изазвали веће интересовање ентомолога у Југославији. Наиме, у XX веку само неколицина ентомолога (Животиновић 1950, Вогрић 1955, Градојевић 1963) наводи извештај број врста мрва међу осталим врстама инсеката, а прави мирмеколошки радови се могу наћи код Zimmermann (1934), Петров (1986, 1986a, 1992, 1993, 1994, 1995), Петров и Месарош (1988), Караман (1998), Караман *et al.* (1998a),.

Петров (1995) даје прелиминарну листу, до тада познатих врста мрва у Југославији и наводи 136 врста. На основу литературних података и личне колекције, у овом раду је приказано 160 врста мрва познатих до данас у Југославији.

Број од 160 регистрованих врста мрва је већи од броја врста констатованих у другим земљама у региону (Agosti and Collingwood 1987). Према подацима Legakis (лична ком.) у Грчкој је могуће разликовати 268 врста. Тако би, на Балканском полуострву, једино мирме кофауна

Грчке била богатија од мирмекофауне Југославије. Међутим, и мирмекофауна Југославије, као балканске земље, сигурно је знатно богатија. На такав закључак наводе резултати Agosti и Collingwood (1987) који наводе 72 врсте мрва констатованих у другим балканским земљама, али још не нађених у Југославији. Исто тако, ови аутори наводе и 42 врсте мрва које се могу очекивати у мирмекофауни Балкана.

Композиција мирмекофауне Југославије показује да су врсте нађене у Југославији углавном палеарктичке и европске мада су заступљене и холарктичке, јужноевропске, медитеранске и евроазијске врсте.

Врсте *Leptothorax racovitzai* Bondroit и *Bothriomyrmex menozzi* Emery су нове врсте за мирмекофауну Југославије, али су нове врсте и за све територије претходне Југославије.

С обзиром да је мирмекофауна Југославије још увек недовољно истражена, као и због значаја мрва, сигурно су потребна даља истраживања. Овај рад је требао да осветли тренутно знање о стању мирмекофауне Југославије, а приказана листа се мора посматрати само као привремена.