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REVIEW OF THE ANT FAUNA (HYMENOPTERA: FORMICIDAE) OF CROATIA

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Abstract - The ant fauna of Croatia is relatively poorly known. There are almost no recent literature data, while past investigations were mainly restricted to the coastal part of the country. This study represents general review of the ant fauna for the whole territory of Croatia. Published data and unpublished material from different collections were used and recent taxonomic revisions were considered. Ant list brings 140 species with their known localities. Twenty-three species are mentioned for the first time for Croatia. Most of the records come from the Mediterranean part of the country, where the diversity of species is greatest. Additional species are expected to be found in further investigations in that region as well as in other parts of the country.

KEY WORDS: ants, Formicidae, fauna, Croatia

Izveček - PREGLED FAVNE MRAVELJ (HYMENOPTERA: FORMICIDAE) HRVAŠKE

Favna mravelj Hrvaške je razmeroma slabo poznana. Novejših podatkov iz literature skorajda ni, medtem ko so bile pretekle raziskave večinoma omejene na obalni del države. Ta študija predstavlja splošen pregled favne mravelj celotnega ozemlja Hrvaške. Uporabljeni so bili že objavljeni podatki in neobjavljen material iz različnih zbirk, upoštevane so bile novejši taksonomske revizije. Seznam mravelj obsega 140 vrst z njihovimi znanimi najdišči. Triindvajset vrst je prvič omenjenih za Hrvaško. Večina podatkov izhaja iz mediteranskega dela države, kjer je raznovrstnost največja. Pri nadaljnjih raziskavah lahko pričakujemo še dodatne vrste s tega območja in tudi iz drugih delov države.

KLJUČNE BESEDE: mravlje, Formicidae, favna, Hrvaška

Introduction

Insects, the most diverse animal group, were an object of great interest in scientific research for ages. However, different insect groups have not been equally treated. Ants, for example, deserved much less attention than some other insects although they are very often encountered and found almost everywhere in the terrestrial habitats. Investigations dealing with ants increased considerably in recent years. Taxonomic studies were especially productive. In European ant fauna, revisions of some genera (e.g. *Myrmica*, *Leptothorax* (*Temnothorax*), *Lasius*, *Formica*) were done and many new species were described. Updated faunistic reviews of numerous European countries were also performed so that much better insight into European ant fauna is now possible.

Unfortunately, the investigations of ant fauna in Croatia in recent time were rather moderate. Majority of published data is older than 50 years and originates mainly from the coastal Croatia. Also the beginnings of myrmecological expeditions were limited to the coastal part of the country, especially Dalmatia. The history of investigations of ant fauna in Dalmatia was well documented by Nonveiller (1989). First published data for Croatia can be found in the famous *Formicina austriaca* (Mayr 1855). Among the collectors who contributed material for Mayr's work, Georg von Frauenfeld yielded most of the records for Dalmatia after his visit to the region a year earlier. At the end of the 19th and in the beginning of the 20th century, there were several authors who published their finds in Dalmatia (Gasperini 1887, 1889, Katuri c 1891, Galvagni 1902, Mayr & Kohl 1908, T lg & Fahringer 1911). Important contribution was made by Croatian author Korlevi c (1890) who listed ants from Rijeka region, Gorski Kotar and Pregrada in Hrvatsko Zagorje. Part of his material is kept in the Croatian Natural History Museum in Zagreb. The most comprehensive work in the earlier 20th century is a review of the ant fauna of Venezia Giulia and Dalmatia (M ller 1923). This also very important taxonomical work brings many data on ant species from Italian, Slovenian and Croatian part of former Venezia Giulia and Dalmatia. It includes material collected by different colleagues and several literature sources, some already mentioned above. Later contributions by Soudek (1925) and Zimmermann (1934) for Dalmatia, and Zimmermann (1930) for Quarner islands must be mentioned, too. Since the investigations of ant fauna were oriented to the Mediterranean Croatia, the work by Vogrin (1955) is very important, as he included a wider territory of Croatia (and other parts of former Yugoslavia) in it. M ller (1957) brought some information on ants from Dugi otok and nearby islands. In the catalogue of Formicidae of Italy, Baroni Urbani (1971) also included Istria and Rijeka in the area of his study. Agosti & Collingwood (1987a) and Petrov & Collingwood (1992) were collecting ants here as well, but they listed species only for the whole territory of former Yugoslavia.

The Croatian Natural History Museum keeps an ant collection with a great amount of the specimens dating from the end of the 19th century. Some of this material is published in Korlevi c (1890), Vogrin (1955) and M ller (1957). There are

some ant specimens from Rovinj, Pula and Krk island held in the Slovenian Museum of Natural History as part of the Hymenoptera collection of Evgen Jaeger (1880-1960).

The present review of the ant fauna of Croatia is based on the literature sources and up to now unpublished collected material. Many records come from older literature and most of this material was not available for identification. Considering recent taxonomic revisions, there can be some changes in taxonomic position and distribution pattern of certain species. This review should also be a stimulus for other myrmecologists to contribute their eventual data to supplement the list of Croatian ants.

Material and methods

The data from the literature and unpublished material from different collections were used for the present review. Cedric Collingwood (Skipton, UK) sent his list of ants sampled in the territory of Croatia during the expedition to the Balkans in middle eighties. Ants from the author's collection were gathered by the author and Al Vrezec (National Institute of Biology, Ljubljana) sporadically in the past 10 years, using direct sampling and pitfall traps. Ants collected by Tonći Rađa (Split) in Dalmatia in years 2005 and 2006 are kept in the National Museum of Zadar. Paula Durbešić and Lucija Šerić Jelaska (Department of Zoology, Faculty of Science in Zagreb) sampled ants in Gorski Kotar, Medvednica and Vis island, and they are deposited at the Department of Zoology. All mentioned material, except that of C. Collingwood, and ants from the Croatian Natural History Museum and Slovenian Museum of Natural History were checked by the author. Majority of specimens were identified using taxonomic keys in Kutter (1977), Agosti & Collingwood (1987b) and Seifert (1996). Ant classification and taxonomic nomenclature generally follow Bolton (1995, 2003).

Many older studied literature give Italian geographic names for the localities of recorded species. All the names used in the list of species here are Croatian and correspond to the *Veliki atlas Hrvatske* (2002). Abbreviation "i." stands for island. For the position of less known localities see the Appendix.

The references for locality data are indicated by a number in parenthesis in the list of ant species (with the exception of some individual references which are given with the name of the author and year): (1) – Mayr 1855, (2) – Gasperini 1887, (3) – Gasperini 1889, (4) – Korlević 1890, (5) – Galvagni 1902, (6) – Tölg & Fahringer 1911, (7) – Müller 1923, (8) – Soudek 1925, (9) – Zimmermann 1930, (10) – Zimmermann 1934, (11) – Vogrin 1955, (12) – Müller 1957, (13) – Baroni Urbani 1971, (14) – Buschinger et al. 1988, (15) – collection of the Croatian Natural History Museum, (16) – collection of the Slovenian Museum of Natural History, (17) – collection of the National Museum of Zadar (leg. T. Rađa), (18) – collection of P. Durbešić and L. Šerić Jelaska, (19) – Collingwood pers. comm., (20) – author's collection.

List of ant species

Subfamily AMBLYOPONINAE Forel, 1893

Amblyopone denticulata (Roger, 1859)

Localities in CRO: Limski kanal (13); Kaštela (7); Lapad (10)

Subfamily PONERINAE Lepeletier, 1835

Cryptopone ochracea (Mayr, 1855)

Localities in CRO: Zemunik (7); i. Hvar (3)

Hypoponera eduardi (Forel, 1894)

Localities in CRO: Učka (13); Solin, Dubrovnik (7)

Ponera coarctata (Latreille, 1802)

Localities in CRO: Savudrija, Rovinj, Veruda (7); Učka (13); near Poreč (20); Orehovica (4); Draga (15); Rijeka, Bakar (Csősz & Seifert 2003); Velika Kapela (19); Zemunik, Kistanje, Kaštela (7); Dubrovnik, Lapad, Rijeka Dubrovačka (10); Krapina (11); Narta, Hlebine, Milanovac, near Slavonski Brod (20)

Note: Csősz & Seifert (2003) gave *P. coarctata* var. *testacea* Emery, 1895 a status of a species. Some of the literature data can therefore refer to *P. testacea*.

Ponera testacea Emery, 1895

Localities in CRO: Bakar, Senj, Gospić, Kaštel Sućurac (Csősz & Seifert 2003); Bjelina (17)

Note: See comment under *P. coarctata*.

Subfamily PROCERATIINAE Emery, 1895

Proceratium algericum Forel, 1899

Localities in CRO: Kaštela, near Dubrovnik (7); Dubrovnik (10)

Proceratium melinum (Roger, 1860)

Localities in CRO: Konavle (10)

Subfamily MYRMICINAE Lepeletier, 1835

Aphaenogaster epirotes (Emery, 1895)

Localities in CRO: Rovinj, Vodnjan (7); Pula (13) (20); Vežica (4 - indicated as *A. subterranea*); i. Rab, i. Cres (9); Zadar, Bokanjac (7); Lišane Ostrovičke, Vinišće, i. Čiovo (Okrug Gornji), Čvrljevo (17); Marjan (10) (17); Kaštel Lukšić, Lećevica, i. Hvar (Jelsa), i. Vis (7); i. Hvar (Brusje) (2); Seoca, i. Brač (Milna) (17); Podgora, i. Korčula, i. Kopište (10); Donja Vručica (20); Tršteno (8); Dubrovnik (19); i. Šipan, i. Koločep, Srd, Gruž, Lapad, Rijeka Dubrovačka, near Čibača, i. Lokrum, Konavle (10)

Note: Some authors treat this species as a subspecies or variety of *A. obsidiana* (Mayr, 1861). *A. obsidiana* s. str. seems to be absent from major part of the Balkans (Atanassov & Dlussky 1992).

Aphaenogaster finzii Müller, 1921

Localities in CRO: Teradige (7); i. Krk (Krk) (9); Žegar, Zemunik (7); Vrpolje, Čvrljevo, Žrnovnica (17); Marjan, between Klis and Solin, Podgora (10); i. Brač (Milna) (17); Gornja Vručica (20); i. BISAČE, i. Sušac, i. Koločep, Dubrovnik, Rijeka Dubrovačka, Čibača (10)

Aphaenogaster ionia Santschi, 1933

Localities in CRO: i. Krk (16); i. Krk (near Krk, between Skrbčići and Malinska), i. Rab (Rab) (9); Senj (11) (15); near Zadar (1); Nin, Babinje, Babindub, i. Ugljan (7); i. Dugi otok (Zaglav) (20); near Sinj (1); Trogir (10); i. Čiovo (17); Split (2) (19); Solin, Kaštel Stari, i. Vis (7); i. Hvar (10) (20); i. Sv. Klement, i. Biševo, i. Svetac (10); i. Korčula (7) (8) (20); i. Otok, Orebić, i. Mljet, Dubrovnik, Gruž, Lapad, i. Lokrum (10)

Note: This quite common species along the Adriatic coast is stated as *A. testaceopilosa* var. *balcanica* Emery, 1898 in Müller (1923) and Zimmermann (1930). However, *A. balcanica* is restricted to eastern Balkans, Aegean Islands and Turkey (Zimmermann 1934). The data in Mayr (1855) and Gasperini (1887) for *A. senilis* Mayr, 1853 also refer to *A. ionia*.

Aphaenogaster muelleriana Wolf, 1915

Localities in CRO: i. Rab (Rab, Lopar) (9); Sukošan (17); Trsteno (8); Dubrovnik, Gruž, Lapad (10)

Aphaenogaster splendida (Roger, 1859)

Localities in CRO: Split (7); Bačvice (8); i. Vis (2)

Aphaenogaster subterranea (Latreille, 1798)

Localities in CRO: Savudrija, Rovinj, Vodnjan, Šijana (7); near Poreč, Limski kanal, Pula (20); Orehovica (4); Rijeka (13) (15); Bakar (9); Senj (11); Velika Kapela (19); i. Krk (16); i. Rab (Rab) (9); i. Cres (7) (9) (20); Kistanje (7); Oskorušno (20); Konavle (10); Sljeme (18); near Slavonski Brod (20)

Aphaenogaster subterraneoides Emery, 1881

Localities in CRO: i. Hvar (Vrbanj) (7)

Chalepoxenus muellerianus (Finzi, 1922)

Localities in CRO: i. Krk (near Baška), i. Pag (Kolan), Ljubač (14); i. Vir (Torovi) (20); near Dubrovnik (14)

Crematogaster ionia Forel, 1911

Localities in CRO: Osijek (19)

Crematogaster schmidti (Mayr, 1853)

Localities in CRO: Livade, Lovran, Smilčić (7); Dugi otok (12); Čvrljevo, Podašpilje (17); i. Korčula (Korčula) (10) (20); Kučište (7); Oskorušno, Kuna (20); Orebić, Slano, i. Koločep, near Gruž, near Čibača, i. Lokrum, i. Daksa (10); Dubrovnik, Lapad (7) (10); Konavoski Dvori (20); Prekrižje (15); Našice, near Slavonski Brod (20)

Crematogaster scutellaris (Olivier, 1792)

Localities in CRO: near Livade, Vrsar - Limski kanal, Šijana (7); near Poreč, Limski kanal, Pula (20); near Rijeka (1); Orehovica (4); Sušak (13); Rijeka, Cicilinovo, Crikvenica, Senj (11); i. Krk (9) (11) (16); i. Rab (11) (20); i. Rab (Rab, Sv. Ilija, Banjol, Dundo, Lopar, near Blasič, Rt Zidine), i. Goli, i. Cres (9); i. Cres (Vodice) (20); i. Unije, i. Susak, i. Kozjak, i. Greben (7); i. Pag (15) (20); near Zadar (1); Nin, Arbanasi (7); Sukošan (1); Piškera, i. Vir (Torovi), i. Dugi otok (Zaglav) (20); i. Dugi otok (12); Lišane Ostrovičke, Split (17); near Split, near Makarska (1); Solin, Kaštela, Trogir (7); Marjan (7) (10) (17); Solin, Dugopolje, Podgora (10); i. Brač (Kneza Ravan, Bol, Nerežišća) (7); i. Hvar (2) (7) (11) (20); i. Sv. Klement (10); i. Vis (2); i. Vis (Komiža) (5) (7); i. Vis (Brguljac) (18); i. Svetac (7); i. Mali & Veli Paržan, i. Biševo, i. Lastovo, i. Kopačevo, i. Veli Lastovljan, i. Mrčara (10); i. Sušac (7) (10); i. Korčula (Korčula) (11) (20); Rijeka Dubrovačka, Lapad (6)

Crematogaster sordidula (Nylander, 1849)

Localities in CRO: Pićan, Rovinj, Šijana, Veruda, Volosko, Lovran (7); Pula (16) (20); Limski kanal (20); Rijeka (11) (13); Cicilinovo, Orehovica, Vežica (4); Novi Vinodolski, Senj, i. Krk (Jurandvor) (11); i. Rab (Rab), i. Oruda, i. Lošinj (Osorščica), i. Zabodarski, i. Trasorka, i. Kozjak, i. Grujica, i. Orjule, i. Sv. Petar, i. Greben (7); i. Cres, i. Rab (9); Modrić (17); near Zadar (1); Krmčina (7); i. Vir (Vir) (20); i. Dugi otok (Sali), i. Tukošćak (12); Vinišće (17); Labin (2); Split (1) (2); Kaštela, between Klis and Solin (7); Marjan (10) (17); Podašpilje (17); Podgora, i. Brač (Bol) (10); i. Hvar (Brusje) (2); i. Vis (Komiža), i. Biševo (7); i. Vis (Podstražje) (18); Donja & Gornja Vručica, i. Korčula (near Vela Luka) (20); i. Korčula (Sv. Antun) (7); i. Korčula (Korčula), i. Sušac (10); i. Lastovo (1); i. Palagruža (5) (11); i. Mljet, Dubrovnik (7) (10); Rijeka Dubrovačka (6) (7) (10); Lapad (6) (10); Slano, near Gruž, i. Lokrum, i. Lopud (10)

Formicoxenus nitidulus (Nylander, 1846)

Localities in CRO: Mune, Lupoglav (7); Krapina (11)

Leptothorax acervorum (Fabricius, 1793)

Localities in CRO: Leska (18); near Čabar (20); Velika Kapela (19); Kalnik (11)

Leptothorax gredleri Mayr, 1855

Localities in CRO: Velika Kapela (19)

Leptothorax muscorum (Nylander, 1846)

Localities in CRO: near Čabar (20); Velika Kapela (19)

Manica rubida (Latreille, 1802)

Localities in CRO: Lokve, Zlobin (11); near Čabar (20); Kuželj, Jasenak (15); Zagreb (11) (15)

Messor capitatus (Latreille, 1798)

Localities in CRO: Momjan (7); Limski kanal, Pula (20); near Rijeka (1); Rijeka, Vežica (4); Novi Vinodolski (17); Bakar, Senj, Jablanac (11); i. Krk (between Krk and Baška, Treskavac), i. Plavnik, i. Mali Plavnik (9); i. Krk (Baška) (11); i. Krk (16); i. Rab (Sv. Matej, Kamenjak), i. Dolin, i. Cres (9); i. Lošinj (Sv. Ivan) (7); i. Pag (20); near Zadar (1); Zemunik, Smilčić, Žegar (7); Benkovac, Drniš (2); Knin (11); Šibenik (19); i. Dugi otok (Sali, Salsko polje, Dobro polje), i. Tukoščak (12); i. Kornat (20); near Split, near Makarska (1); Gornje Vinovo (17); Lećeveca, Gata, Kotlenice (7); Marjan (8) (10); Podgora, i. Hvar, i. Sv. Klement, i. Mali Paržan (10); i. Hvar (2); i. Vis (2) (11); i. Vis (Komiža), i. Lastovo (Polje) (5); i. Lastovo (2); i. Sušac (7) (10); i. Palagruža (5) (11); i. Korčula (Vela Luka) (10) (20); Kučište (7); Sv. Ilija, i. Mljet (10); near Dubrovnik (1); Gruž (6); Dubrovnik, Srd, Rijeka Dubrovačka (10); Dalj (11)

Note: This species is indicated as *Messor* (or *Aphaenogaster*) *barbarus* in older literature. True *M. barbarus* (Linnaeus, 1767) is probably absent from the studied territory.

Messor structor (Latreille, 1798)

Localities in CRO: Kanfanar, Vodnjan, Lovran (7); Rovinj (16); Rijeka, Orehovica (4); Grobničko polje, Bribir, Novi Vinodolski, Senj, i. Krk (Lakmartin) (11); i. Krk (16); i. Krk (between Skrbčići and Malinska, Jurandvor), i. Rab (Rab, Banjol, Sv. Matej, Sv. Ilija, Lopar) (9); i. Cres (near Martinšćica) (1); i. Unije (7); Zadar (1) (7) (11); Privlaka (20); Bokanjac, Diklo, Arbanasi, Bibinje, i. Ugljan, Siverić (7); i. Čiovo (Okrug Gornji) (17); near Split (1); Split (7) (17) (19); Kaštel Sućurac, Kaštel Stari, Solin, Gata (7); Marjan (10) (17); Klis, Podgora (10); Podašpilje, Trnbusi (17); i. Brač (2); i. Hvar, i. Vis (7); i. Biševo (7) (10); i. Svetac (10); near Dubrovnik (1); Dubrovnik, Lapad, Gruž, Čibača, i. Lokrum, i. Šipan (10); Dalj (11)

Messor wasmanni Krausse, 1910

Localities in CRO: Markovac, Vodnjan (7); Limski kanal (20); Pula (16) (20); i. Rab (7); i. Rab (Rab, Banjol, Lopar, Jamina), i. Goli, i. Cres (9); i. Cres (Vrana) (20); i. Unije, i. Grujica (7); i. Pag (Novalja, Lun) (15); Zadar, Babindub (7); Privlaka (20); i. Dugi otok (Sali, Salsko polje) (12); Veliki Drvenik (10); Kaštela, Solin (7); Marjan, Klis, between Klis and Solin, Dugopolje (10); i. Brač (Bol, Supetar, Milna) (7); i. Brač (Milna) (17); i. Hvar (Jelsa, Hvar), i. Sv. Klement (10); i. Vis (7) (15); i. Vis (Brguljac) (18); i. Vis (Vis, Komiža), i. Svetac, i. Sušac, i. Lastovo, i. Palagruža (10); i. Korčula, i. Mljet (7) (15); Kučište (7); Orebić, Trpanj, i. Olipa, i. Jakljan, i. Lopud, i. Koločep, Gruž, near Čibača, i. Lokrum (10); Lapad (7) (10)

Monomorium monomorium Bolton, 1987

Localities in CRO: i. Unije, Solin (7); Klis (8); Split (19); Gruž, Cavtat (8)

Monomorium pharaonis (Linnaeus, 1758)

Localities in CRO: Pula (7); Rijeka (4); Zagreb (11)

Myrmecina graminicola (Latreille, 1802)

Localities in CRO: Savudrija, Momjan, Tar, Pula, Šijana (7); near Poreč (20); Draga, Orehovica (4); Trsat (15); i. Krk (Ponikva, between Krk and Malinska), i. Cres (9); i. Lošinj (Veli Lošinj), Zadar, Zemunik, Kistanje, Kosore, Kaštela, i. Hvar (Vrbanj, Jelsa) (7); i. Hvar (Brusje) (2); Makarska (8); Dubrovnik (10); Sljeme (18); Krapina (11)

Myrmica gallienii Bondroit, 1920

Localities in CRO: Plitvice (15); Krbava (17); Narta (20); Osijek (19)

Myrmica hirsuta Elmes, 1978

Localities in CRO: Velika Kapela (19)

Myrmica lobicornis Nylander, 1846

Localities in CRO: Leska (18); Velika Kapela, Šibenik (19)

Myrmica lonae Finzi, 1926

Localities in CRO: Leska (18); Plitvice (15)

Note: this species had been treated as a subspecies or variety of *M. sabuleti* Meinert, 1861. Seifert (1993, 1996, 2000) raised it to species. On the basis of the checked material, *M. lonae* seems to be much rarer than *M. sabuleti* in Croatia.

Myrmica rubra (Linnaeus, 1758)

Localities in CRO: near Rijeka (4); near Čabar (20); Delnice, Fužine (11); Leska (18); Dretulja spring (15); Zagreb, Podsused, Kraljičin Zdenac, Pregrada, Krapina, Krapinske Toplice, Trnovec, Jagnjedovac (11); Hlebine, Narta, Milanovac (20)

Myrmica ruginodis Nylander, 1846

Localities in CRO: Mune (7); Rijeka (4); Senj (11); Leska (18); Plitvice (15); Velebit, Paklenica (7); Medvednica (18); Krapina (11); Javorovac, Milanovac (20)

Myrmica rugulosa Nylander, 1849

Localities in CRO: Krapina (11)

Myrmica sabuleti Meinert, 1861

Localities in CRO: Učka (7); Lopača (4 - indicated as *M. scabrinodis*); Bakar (9); near Čabar (20); Leska (18); Velika Kapela (19); i. Cres (9); i. Cres (Vodice) (20); Kosore, Poljica (7); Makarska (8); Gornja & Donja Vručica, Kuna (20); Dubrovnik, Gruž, Lapad (10); Sljeme (18); Javorovac, Hlebine, near Našice, near Donji Miholjac, near Slavonski Brod (20)

Note: See comment under *M. lonae*.

Myrmica salina Ruzsky, 1905

Localities in CRO: Stružec, near Našice (20)

Myrmica scabrinodis Nylander, 1846

Localities in CRO: Velika Kapela (19); i. Cres (Vodice) (20); Krapina (11); Stružec, Narta, Javorovac (20)

Myrmica schencki Viereck, 1903

Localities in CRO: Leska (18)

Myrmica specioides Bondroit, 1918

Localities in CRO: Momjan (13); Rijeka (15); Zemunik (7)

Myrmica sulcinodis Nylander, 1846

Localities in CRO: ? Senj (11); Velebit (7); ? i. Hvar, Sljeme, ? Štrigova (11)

Note: Localities Senj, i. Hvar and Štrigova (Vogrin 1955) are doubtful. *M. sulcinodis* can be found in subalpine zone in Southern Europe and above 800 m in Central Europe (Seifert 1988), what contradicts the records from mentioned localities.

Myrmoxenus corsicus (Emery, 1915)

Localities in CRO: i. Krk (near Baška), Ljubač, Jasenice, near Biograd (Buschinger & Winter 1985)

Myrmoxenus gordiagini Ruzsky, 1902

Localities in CRO: Momjan (13); near Rovinj, i. Krk (near Baška), i. Rab (Suha Punta) (Buschinger et al. 1983)

Myrmoxenus kraussei (Emery, 1915)

Localities in CRO: i. Krk, i. Pag, Paklenica (Buschinger et al. 1986)

Myrmoxenus ravouxi (André, 1896)

Localities in CRO: Dalmacija (Buschinger 1997)

Pheidole pallidula (Nylander, 1849)

Localities in CRO: Savudrija (20); Umag, Tar, Rovinj, Pićan (7); Rijeka (13); Orehovica (4); Prezid, Crikvenica, Novi Vinodolski, Senj (11); i. Krk (16); Bakar, i. Krk (Krk, Jurandvor, near Sv. Roko, Ponikva), i. Rab (Rab, Sv. Ilija, Kamenjak, near Lopar, Rt Zidine, Rt Stojan), i. Goli, i. Dolin, i. Cres (9); i. Cres (Vrana) (20); Velika Kapela (19); near Zadar (1); i. Dugi otok, i. Tukošćak (12); i. Dugi otok (Zaglav), i. Vir (Torovi) (20); Bjelina, Sušci (17); Skradin (7); Lišane Ostrovičke, Čvrljevo, Gornje Vinovo (17); Split (2) (19); near Split (8); Kaštela, Klis, Konjsko, Gata (7); Dugopolje, Marjan, between Klis and Solin, Podgora (10); i. Hvar (2) (7); i. Brač (Milna) (17) (Petrov & Collingwood 1992 - misidentified as *P. megacephala*); i. Brač (Zlatni rat), i. Vis, i. Jabuka (7); i. Vis (Brguljac) (18); i. Vis (Komiža), i. Kamenjak, i. Kamik, i. Biševo, i. Svetac (10); i. Korčula (near Račišće) (20); i. Korčula (Lumbarda, Kučište), i. Sušac, i. Kopište (7); i. Bijelac, i. Mrčara, i. Veli & Mali Lastovljan (10); i. Mljet (7) (10); Gornja & Donja Vručica (20); near Dubrovnik (1) (8); Gruž (6) (10); i. Olipa, Slano, Dubrovnik, Lapad, i. Lopud, Trsteno, Rijeka Dubrovačka, Srd, Čibača, i. Lokrum (10)

Pyramica argiola (Emery, 1869)
Localities in CRO: Zemunik (7)

Pyramica baudueri (Emery, 1875)
Localities in CRO: Zemunik, Kistanje, Kaštela (7); ? Krapina (11)
Note: since this is a typical Mediterranean species, the record from Krapina (Vogrin 1955) is very doubtful.

Solenopsis fugax (Latreille, 1798)
Localities in CRO: Savudrija, Mune - Žejane, Momjan, i. Tovarjež, Veruda (7); Pula (20); Draga, Orehovica (4); Trsat (15); Senj (11); Velika Kapela (19); i. Krk (Krk, near Sv. Roko), i. Plavnik, i. Rab (Rab, Banjol, Rt Zidine), i. Cres (9); Zemunik, Zadar, Nin, i. Rava (7); i. Vir (Vir) (20); Rogoznica (7); Lišane Ostrovičke, Split, Gornje Vinovo, Marjan (17); Kaštela, i. Hvar (Vrbanj, Jelsa), i. Jabuka (7); i. Vis (Vis), i. Mali Paržan, i. Bijelac, Rijeka Dubrovačka, Lapad (10); Pregrada (4); Krapina, Štrigova (11); Javorovac, Hlebine, near Donji Miholjac, near Našice, near Slavonski Brod (20)

Solenopsis wolffi Emery, 1915
Localities in CRO: near Đevrske, Kaštela, i. Hvar (Privorac cave) (7)

Stenamma debile (Förster, 1850)
Localities in CRO: Rakalj, Mune, Šijana, Učka, Velebit, Paklenica (7); Medvednica (18); Krapina (11)
Note: Until the revision by DuBois (1993), this species had been treated as *S. westwoodii* Westwood, 1839. The latter is restricted to Western Europe while *S. debile* has wider range.

Stenamma striatulum Emery, 1895
Localities in CRO: i. Tovarjež, Šijana (7); i. Krk (near Ponikva, between Krk and Malinska), i. Cres (9)

Strongylognathus testaceus (Schenck, 1852)
Localities in CRO: Krapina (11)

Temnothorax affinis (Mayr, 1855)
Localities in CRO: Lupoglav (7); Rijeka (13); i. Krk, near Dubrovnik (14); Zagreb (15); near Našice, near Slavonski Brod (20)

Temnothorax algericus (Forel, 1894)
Localities in CRO: i. Vir (Torovi) (20)

Temnothorax angustulus (Nylander, 1856)
Localities in CRO: Rijeka Dubrovačka, Dubrovnik (10); Rijeka (13)

Temnothorax clypeatus (Mayr, 1853)

Localities in CRO: Savudrija (13)

Temnothorax crassispinus (Karavaiev, 1926)

Localities in CRO: Mune (7); near Rijeka (4); Orehovica, Plitvice (15); i. Cres (9); i. Hvar (Brusje) (2); near Dubrovnik (1); Podsused (15); Sljeme (18); Krapina (11); Hlebine, Javorovac, Virovitica, Kolac (20)

Note: Seifert (1995, 1996) showed that *Leptothorax* (= *Temnothorax*) *nylanderi* (Foerster, 1850) consists of two different parapatric species: *L. nylanderi*, which is distributed in Western Europe, and *L. slavonicus*, later defined as junior synonym of *L. crassispinus* (Radchenko 2000), which is present in Eastern part of Europe. The general distribution pattern of the two sibling species, the data from neighbouring countries, and the fact that all examined material belongs to *Temnothorax crassispinus*, indicate that *T. nylanderi* is most probably absent from the territory of Croatia.

Temnothorax exilis (Emery, 1869)

Localities in CRO: Velika Kapela (19); i. Krk (14); i. Krk (near Baška) (Buschinger & Winter 1985); i. Palacol, i. Trasorka (7); i. Rab (between Rab and Sv. Ilija) (9); Ljubač (14) (Buschinger & Winter 1985); Jasenice, near Biograd (Buschinger & Winter 1985); Podgora, i. Vis, i. Veli Barjak, i. Greben, i. Mali Paržan, i. Kamik, i. Svetac, i. Biševo (10); i. Jabuka (7); i. Bisače, i. Kopište, Dubrovnik (10)

Temnothorax flavicornis (Emery, 1870)

Localities in CRO: i. Krk (14) (16); Ljubač (14); i. Hvar (Jelsa) (7); i. Vis (Brguljac) (18); i. Korčula (near Korčula) (20); near Dubrovnik (14)

Temnothorax graecus (Forel, 1911)

Localities in CRO: i. Jabuka (7)

Temnothorax interruptus (Schenck, 1852)

Localities in CRO: Limski kanal (20); i. Rab (Rab) (9); i. Vir (Vir) (20); Slano, Rijeka Dubrovačka (7); Lapad, near Gruž (10)

Temnothorax italicus (Consani, 1952)

Localities in CRO: near Poreč (20)

Temnothorax lichtensteini (Bondroit, 1918)

Localities in CRO: Savudrija, i. Tovarjež, Mošćenička Draga (7); Limski kanal (20); near Rovinj, i. Krk (near Baška) (Buschinger et al. 1983); i. Krk (14); i. Rab (Rab, Banjol) (9); Ljubač (14); Kistanje, Kaštela (7); Dubrovnik (10)

Temnothorax nigriceps (Mayr, 1855)

Localities in CRO: Velika Kapela (19); Biokovo (10)

Temnothorax parvulus (Schenck, 1852)

Localities in CRO: Cicilinovo, Vežica, Bakar (4 - indicated as *Leptothorax tuberum*); Sukošan, Čvrljevo (17); i. Korčula (near Korčula), Gornja Vručica (20); Lapad (10); Krapina (11); near Slavonski Brod (20)

Temnothorax pelagosanus (Müller, 1923)

Localities in CRO: i. Palagruža (7)

Temnothorax recedens (Nylander, 1856)

Localities in CRO: i. Rab (Kamenjak) (7); i. Rab (Rab) (9); i. Krk, i. Pag, Paklenica (Buschinger et al. 1986); i. Krk (near Baška), i. Pag (Kolan), Ljubač (14); i. Vir (Torovi), i. Hvar (near Hvar) (20); Split (2); i. Jabuka (7); Lapad (10)

Temnothorax rottenbergii (Emery, 1870)

Localities in CRO: Pula (13); i. Cres (Vrana) (20); i. Rab (Dundo) (9); Kozjak (7); Lapad (8)

Temnothorax sordidulus (Müller, 1923)

Localities in CRO: Gruž (8)

Temnothorax tuberum (Fabricius, 1775)

Localities in CRO: Učka (7); Trsat (11); Rijeka (13); Rijeka Dubrovačka (6); Podsused, Krapina (11)

Temnothorax unifasciatus (Latreille, 1798)

Localities in CRO: Tar, Rovinj (7); Momjan (13); Cicilinovo, Trsat (4); i. Krk (near Baška) (14); i. Lošinj, Vrana (7); i. Vir (Vir) (20); Marjan, Dubrovnik (10)

Tetramorium biskrense Forel, 1904

Localities in CRO: i. Bijelac, near Gruž, Lapad (10)

Tetramorium caespitum (Linnaeus, 1758)

Localities in CRO: Umag, Mune - Žejane (7); Pula (11) (16) (20); Orehovica, Vežica (4); Bakar, Fužine (11); Leska (18); near Čabar (20); Velika Kapela (19); Senj, Plitvice (15); i. Krk (16); i. Krk (Krk, between Malinska and Skrbčići, Jurandvor), i. Rab (Kamenjak, Lopar) (9); i. Rab, i. Cres, i. Unije, i. Susak, i. Lošinj, Velebit, Mali Halan, Zemunik (7); Zadar (2) (7); i. Ugljan, Benkovac (7); Tisno (17); Kaštel Sućurac, Solin, Mosor (7); Split (2); Trogir, Biokovo (10); Čvrljevo, Seoca (17); i. Hvar (Hvar) (20); i. Palagruža (5) (11); Orebić (10); Dubrovnik (2); Zagreb, Podsused, Krapina (11); Stružec, Narta, Hlebine, Javorovac, Virovitica, Kolac, near Donji Miholjac, near Našice, near Slavonski Brod (20)

Tetramorium diomedeam Emery, 1908

Localities in CRO: Marjan (17); i. Biševo, ? Lapad, ? Rijeka Dubrovačka (10)

Note: Zimmermann (1934) mentioned that the material from Lapad and Rijeka Dubrovačka showed some differences from typical *T. diomedeam*.

Tetramorium ferox Ruzsky, 1903

Localities in CRO: Lapad (8)

Tetramorium impurum (Förster, 1850)

Localities in CRO: Velika Kapela (19)

Tetramorium moravicum Kratochvil, 1941

Localities in CRO: Podašpilje (17)

Tetramorium semilaeve Andre, 1883

Localities in CRO: Pula (7) (20); Šijana (7); i. Krk (16); i. Kormati, i. Rab (Sv. Ilija, near Lopar), i. Dolin (9); i. Cres, i. Galijola, i. Školjić, i. Kozjak, i. Sv. Petar (7); Modrić (17); Bokanjac, Diklo, i. Svilan (7); i. Dugi otok (12); Kaštela (7); Marjan (10) (17); Trogir, Podgora, i. Brač (Pučišća), i. Hvar (10); i. Hvar (Brusje) (2); i. Vis (Komiža), i. Biševo, i. Brusnik (7); i. Vis (Brguljac, Milna) (18); i. Kamenjak, i. Greben, i. Mali Paržan, i. Kamik (10); i. Sušac (7); i. Korčula (near Korčula, near Vela Luka) (20); i. Korčula, i. Mljet (Sobra) (10); i. Mljet (7); Dubrovnik (7) (10); Gruž, Lapad, Rijeka Dubrovačka, near Trsteno, near Čibača, i. Lokrum (10)

Tetramorium cf. *splendens* Ruzsky, 1902

Localities in CRO: Marjan, between Klis and Solin, Podgora, i. Sv. Klement, i. Vis, i. Brusnik, i. Jabuka, i. Mrčara, Lapad (10)

Note: The status of *Tetramorium splendens* is quite problematic. It was described from Caucasus by Ruzsky, based on a single worker, but the holotype is lost. It is an enigmatic taxon and is better to consider it as incertae sedis (Radchenko pers. comm.). It could be any other *Tetramorium* species with dilute sculpture. Even Zimmermann (1934) mentioned that some samples were close to *T. semilaeve* and some to *T. diomedeam*. It is also possible that some of the records refer to *T. hungaricum* Rösler, 1935, a species more widely distributed as thought before (Csósz & Radchenko pers. comm.).

Subfamily DOLICHODERINAE Forel, 1878

Bothriomyrmex adriacus Santschi, 1922

Localities in CRO: Sv. Stjepan - Livade, Rovinj (7); Momjan, Rijeka (13); i. Rab (near Sv. Ilija, Kamenjak), i. Cres (9); Modrić (17); i. Pag, near Zadar, Bokanjac, Bibinje (7); i. Dugi otok (Sali) (12); Lišane Ostrovičke (17); i. Svilan, between Klis and Solin (7); Čvrljevo (17); Solin, Marjan, i. Sv. Klement (10); i. Hvar (10) (15); i. Vis, i. Mljet (7); i. Korčula, i. Otok, Sv. Ilija, i. Šipan, i. Olipa, Rijeka Dubrovačka, i. Daksa (10); Lapad, Srebreno, Cavtat (8)

Note: *B. adriacus* is a sibling species of *B. meridionalis* (Roger, 1836). Müller (1923) and Soudek (1925) regard all their material as *B. meridionalis*, while Zimmermann (1934) says that most of the material shows characteristics typical for *B. adriacus* and eventually lists all the records, including those of Müller and Soudek, under *B. adriacus*. I therefore regard all the records of those three authors as *B. adriacus*, being aware that some could actually be *B. meridionalis*.

Bothriomyrmex meridionalis (Roger, 1863)

Localities in CRO: Orehovica (4); i. Krk (16); i. Vir (Vir) (20); i. Brač (Milna) (Petrov 1993 - misidentified as *B. syrius*)

Note: See comment under *B. adriacus*.

Dolichoderus quadripunctatus (Linnaeus, 1771)

Localities in CRO: Orehovica (4); Rijeka (15); Zagreb, Krapina (11); Stružec, Slatina, near Donji Miholjac, near Slavonski Brod (20)

Liometopum microcephalum (Panzer, 1798)

Localities in CRO: Učka (7); Rijeka (4) (13); Gorski kotar (11); near Skradin, near Split (1); Kaštela, Solin, Stobreč, Gata (7); Dugopolje (10); Čibača (7) (10); Zagreb (11)

Tapinoma ambiguum Emery, 1925

Localities in CRO: Leska (18); Split (17); Javorovac (20)

Note: Of two closely related species, *T. ambiguum* and *T. erraticum* (Latreille, 1798), the first one was generally ignored by most authors. At first only males were known to show distinct differences between the two species, but Seifert (1984) demonstrated a reliable method to separate female castes as well. All the literature studied here mention only *T. erraticum*, so that *T. ambiguum* is certainly more common than shown by these results.

Tapinoma erraticum (Latreille, 1798)

Localities in CRO: Mune, Pićan (7); Pula (7) (11); near Poreč, near Čabar (20); Rijeka (1) (7); near Draga (1); Orehovica, Trsat, Vežica (4); Prezid, Bakar, Senj (11); Velika Kapela (19); i. Krk (16); i. Krk (Krk, near Sv. Roko), i. Rab (Rab, near Lopar, near Banjol), i. Cres (9); i. Galijola, i. Lošinj (Osorščica), i. Pag (7); i. Pag (Saline) (15); Pridraga, Kožino, Diklo (7); near Zadar (1); Privlaka, i. Vir (Torovi) (20); i. Dugi otok (Dugo polje) (12); Lišane Ostrovičke, Čvrležvo, Žrnovnica (17); Split (2) (17) (19); Kaštela, Kozjak (7); between Klis and Solin, Podgora (10); Podašpilje (17); i. Hvar (Brusje) (2); i. Hvar (Vrboska) (7); i. Hvar (Hvar), i. Sv. Klement (10); i. Biševo (7) (10); i. Korčula (7); i. Sušac, Orebić, i. Šipan, Rijeka Dubrovačka (10); Gruž (7); Konavle (10); Zagreb, Krapina (11); Slatina, near Našice, near Slavonski Brod (20); Pleternica, Valpovo - Jugovača (11)

Note: See comment under *T. ambiguum*.

Tapinoma nigerrimum (Nylander, 1856)

Localities in CRO: i. Rab (near Lopar) (9); Paklenica, Promina, Bokanjac (7); Marjan, between Klis and Solin, i. Šipan, i. Lopud, Dubrovnik (10); Lapad (7) (10); Čibača (7)

Subfamily FORMICINAE Latreille, 1809

Camponotus aethiops (Latreille, 1798)

Localities in CRO: Savudrija, Pula (20); Mune - Žejane, Rovinj, Moščenička Draga, Opatija (7); Rijeka (13); Orehovica (4); Draga, Bakar, Crikvenica, Senj (11); i. Krk (16); i. Krk (Jurandvor) (15); i. Krk (Krk, between Krk and Malinska), i. Rab (Rab, near Sv.

Ilija, Dundo, Lopar, Rt Stojan, Rt Zidine) (9); i. Rab, i. Cres (Vrana) (20); i. Cres (7) (9); i. Uniže, i. Susak, i. Male Srakane, Podprag (7); Zadar (7) (11); Sukošan (17); i. Piškera (20); i. Dugi otok (Sali) (7) (12); Promina (7); Šibenik (19); Tisno, Lišane Ostrovičke, Vinišće (17); Labin, Split (2); Kaštel Stari, Klis (7); near Klis, Marjan, near Solin, Podgora, Biokovo, i. Brač (Pučišće) (10); i. Brač (Milna) (17); i. Hvar (10) (15); i. Hvar (Sućuraj) (2); i. Hvar (Brusje) (2) (3); i. Hvar (Hvar) (20); i. Vis (7); i. Vis (Komiža, Hum) (5); i. Vis (Brguljac, Podstražje) (18); i. Kamenjak, i. Svetac (10); i. Biševo (7) (10); i. Bisace, i. Otok (10); i. Korčula (15); i. Korčula (near Korčula, near Vela Luka) (20); i. Korčula (Račišće), i. Kopište, i. Sušac (7); i. Lastovo (1); i. Palagruža (5) (11); Donja Vručica (20); i. Mljet (7); i. Mljet (Sobra), i. Šipan, Trsteno, Rijeka Dubrovačka, Čibača, i. Lokrum, i. Daksa (10); Dubrovnik (8) (10); Gruž (7) (10); Lapad (6) (10); Zagreb (15); Krapina (11); near Slavonski Brod (20); Osijek (19)

Note: Sometimes this species is defined as *C. sylvaticus* (Olivier, 1792) in older literature.

Camponotus dalmaticus (Nylander, 1849)

Localities in CRO: Rovinj, Krapan (7); near Flengi (20); Orehovica, Vežica, Cicilinovo (4); Rijeka, Sušak, Draga, Senj (11); i. Krk (7); i. Rab (9); i. Lošinj (Osorščica) (7); i. Dugi otok (12); Šibenik (19); Gornje Ogorje, Vinišće, Trnbusi (17); i. Brač (Pučišća) (10); i. Hvar (near Hvar) (20); i. Vis (Milna) (18); i. Biševo, i. Korčula (Pupnat, Žrnovo) (7); i. Korčula (near Vela Luka) (20); Gruž (7) (10); Dubrovnik, Rijeka Dubrovačka, Lapad (10)

Camponotus fallax (Nylander, 1856)

Localities in CRO: Poreč (20); Orehovica (15); Kuna (20); Srebreno (8); Krapina, Štrigova (11)

Camponotus herculeanus (Linnaeus, 1758)

Localities in CRO: Riječina, Skrad (11); Fužine, Mrzla vodica (4); Kuželj (15); near Čabar (20); ? Zagreb, Sljeme, ? Krapina, Ivanščica (11)

Note: This is a boreo-montane species which is very rarely found below 300 m altitude (Seifert 1989, 1996), so that the records from Zagreb and Krapina (Vogrin 1955) are questionable.

Camponotus lateralis (Olivier, 1792)

Localities in CRO: Umag, Pula, Šijana, Lovran (7); Rijeka (13); Orehovica (4); Sušak, Vežica, Senj (15); Bakar, Novi Vinodolski (11); Fužine (4); i. Krk (Jurandvor) (11); i. Rab (7); i. Rab (Rab, Lopar), i. Cres (9); i. Pag (Lun) (15); i. Lošinj, Bokanjac (7); Zadar (1) (11); i. Dugi otok (Sali) (12); i. Dugi otok (Zaglav) (20); Krka (11); Split (2) (7); Kaštel Sućurac (7); Dugopolje (10); Marjan (10) (17); Makarska (15); Podgora (10); i. Brač (Kneza Ravan, Nerežišća, Bol, Supetar) (7); i. Brač (Milna) (17); i. Hvar (near Hvar) (20); i. Hvar (Brusje, Sućuraj) (2); i. Vis (Komiža) (7); i. Vis (Milna) (18); i. Biševo (10); i. Svetac, i. Sušac, i. Korčula (Pupnat, Žrnovo) (7); i. Korčula (Korčula) (10) (20); i. Korčula (near Račišće, near Vela Luka) (20); i. Lastovo (1); i. Veli Lastovljan (7);

near Dubrovnik (1); i. Šipan, near Trsteno, Rijeka Dubrovačka, i. Lokrum, i. Daksa (10); Gruž (7) (10)

Camponotus ligniperda (Latreille, 1802)

Localities in CRO: Učka (7); Orehovica, Draga (4); Riječina (15); Senj (11); Fužine, Mrzla vodica (4); near Čabar (20); Ravna Gora, Lokve, Ličko polje (11); Plitvice, near Veliki Zavižan (15); Mali Halan, Paklenica (7); Dalmacija (6); Šibenik, Dubrovnik (19); Stojdraga, Samobor, Zagreb, Kraljičin Zdenac, Sljeme (11); Medvednica (18); Krapina, Štrigova (11)

Camponotus piceus (Leach, 1825)

Localities in CRO: Savudrija (20); Umag, Kršan, Pula, Šijana, Lovran (7); Draga, Orehovica, Vežica, Senj, i. Krk (Jurandvor) (15); i. Krk (16); i. Rab (Lopar) (9) (20); i. Rab (Rab, Dundo, near Sv. Ilija, Rt Zidine), i. Dolin, i. Cres (9); i. Cres (Vodice) (20); i. Oruda, i. Lošinj, i. Kozjak, i. Orjule, i. Trasorka, i. Unije (7); Paklenica (15); Zadar (7); i. Dugi otok (12); i. Dugi otok (Zaglav), i. Vir (Torovi) (20); between Klis and Solin (7); Klis, Kotlenice, Marjan (10); Seoca (17); Podgora, Biokovo, i. Mali Paržan, i. Biševo, i. Svetac (10); i. Korčula (near Korčula) (20); Slano (7); Lapad, Gruž (10); near Slavonski Brod (20)

Camponotus truncatus (Spinola, 1808)

Localities in CRO: Livade (7); near Poreč (20); Orehovica, Cicilinovo (4); Senj (11); i. Dugi otok (Zaglav) (20); Knin (3); Dubrovnik, Gruž (10); Zagreb (15); Krapina (11); near Slavonski Brod (20)

Camponotus vagus (Scopoli, 1763)

Localities in CRO: Umag, Lovran - Mošćenička Draga (7); Novigrad (11); Vozilići (15); near Poreč (20); Rijeka (13); Orehovica (4); Ponikve, Bakar, Novi Vinodolski, Lokve (11); Velika Kapela (19); i. Krk (16); i. Krk (Lakmartin, Njivice) (11); i. Cres (9); i. Rab, i. Cres (Martinščica) (11); Plitvice (15); Paklenica, Bibinje (7); Split (1); Ilica Planina (11); Dubrovnik (7); Karlovac, Zagreb, Gračani, Sljeme, Plješevica, Krapina, Štrigova, Našice, Krčenik (11); Slatina (20)

Cataglyphis aenescens (Nylander, 1849)

Localities in CRO: Diklo (7); Lišane Ostrovičke (17); Lečevica (7); between Klis and Solin (7) (10); i. Brač (Bol) (10)

Cataglyphis nodus (Brullé, 1832)

Localities in CRO: Dalmacija (1); i. Hvar (Brusje) (2); Metković (8)

Formica cinerea Mayr, 1853

Localities in CRO: Fužine (11); i. Krk (Krk, near Malinska) (9); Zagreb (11); Pregrada (4); Križovec (15)

Formica cunicularia Latreille, 1798

Localities in CRO: Savudrija (20); Umag, Mune, Lovran, Opatija (7); Rijeka (13); Velika Kapela (19); i. Krk (Krk), i. Rab (Rab, Sv. Ilija, Lopar, Rt Stojan) (9); i. Rab, i. Unije (7); i. Cres (Vodice), i. Dugi otok (Zaglav) (20); Buljma (15); Vrana (7); Šibenik (19); Gornje Ogorje (17); Mosor (7); i. Vis (Hum) (5 - indicated as *F. cinerea*); Trnovec (15); Kalnik (11); Hlebine, Javorovac, Kolac, near Donji Miholjac, near Našice (20); Požega (15)

Formica foreli Emery, 1909

Localities in CRO: Mune (7)

Formica fusca Linnaeus, 1758

Localities in CRO: Mune (7); Lokve, Fužine, Klek (11); near Čabar (20); Velika Kapela (19); i. Cres (9); Velebit (11); Plitvice (15); Sv. Ilija (10); Zagreb, Sljeme (11); Medvednica (18); Narta, Virovitica (20); Požega, Našice (11)

Formica gagates Latreille, 1798

Localities in CRO: Orehovica (4); Gračac (11); Šibenik (19); Čvrljevo (17); Labin (2); i. Hvar (10) (11); i. Korčula (11); i. Korčula (Korčula), Oskorušno, Kuna (20); Čibača, Konavle (10); Sljeme (18); Krapina (11); Virovitica (20)

Formica lemani Bondroit, 1917

Localities in CRO: Učka (15); Velika Kapela (19); Buljma (15); Dinara, Biokovo (7)

Formica lugubris Zetterstedt, 1838

Localities in CRO: Sedalce (15)

Formica lusatica Seifert, 1997

Localities in CRO: Močilo (15)

Formica polycтена Förster, 1850

Localities in CRO: Učka (7); Fužine, Mrzla vodica, Plitvice (15); Medvednica (18)

Formica pratensis Retzius, 1783

Localities in CRO: Mune, Učka (7); Kuželj, Lokve (15); Riječina spring (4); Senj (11); Velika Kapela (19); Plitvice (15); Strmica (7); Split (19); Gera, Sošice, Sljeme, Krapina (11); Javorovac, near Našice (20)

Formica rufa Linnaeus, 1761

Localities in CRO: Mune (7); Učka (15); Rijeka, Riječina (11); Fužine (4); Plitvice, Buljma (15); Paklenica (7); Šibenik (19); Dalmacija (6); Zagreb (15); Krapina, Štrigova, Kalnik (11)

Formica rufibarbis Fabricius, 1793

Localities in CRO: Umag (7); Pula (20); near Rijeka, Vežica, Fužine (4); Lokve, Novi Vinodolski (11); Velika Kapela (19); near Latin, Plitvice (15); i. Cres (9); Prekrižje (15); Pregrada (4); Krapina, Kalnik (11); Javorovac, Narta, Stružec (20); Špišić Bukovica (11)

Formica sanguinea Latreille, 1798

Localities in CRO: Mune, Učka (7); near Čabar (20); Gorski kotar, Fužine (4); Leska (18); Velika Kapela (19); Gračac (11); Dalmacija (6); Sljeme, Krapina (11); near Domašinec (15); Stružec, near Našice (20)

Formica truncorum Fabricius, 1804

Localities in CRO: near Rijeka, Gorski kotar (4); Sljeme (15); Krapina (11)

Lasius alienus (Förster, 1850)

Localities in CRO: Lupoglav, Pula, Učka, Lovran (7); Rijeka, Senj, Delnice (11); i. Krk (Krk, near Baška), i. Rab (Rab, Sv. Ilija, Banjol, Dundo, Lopar, Rt Zidine, Rt. Stojan) (9); i. Rab (Kamenjak), i. Unije (7); Gospić (11); Obrovac, Karin, Babindub, Zemunik (7); near Zadar (1); i. Dugi otok (12); Benkovac, Kistanje, Kaštela (7); Marjan, Kotlenice, Mosor, Podgora (10); i. Vis (7); Orebić, Slano, Gruž, Lapad (10); Dubrovnik, Trsteno, i. Lokrum, Kupari, Cavtat (8); Zagreb, Krapina, Đurđevac (11)

Note: In the revision of the subgenus *Lasius* s. str. of Palaearctic, Seifert (1992) described two new species which previously belonged to *L. alienus*, i.e. *L. paralienus* and *L. psammophilus*. All the specimens from the *L. alienus* complex that were checked here were either *L. paralienus* or *L. psammophilus*. It is very likely that many or even all of the literature data for *L. alienus* refer to one of those two species. Although it was not found among the checked material, the presence of *L. alienus* in Croatia is most probably not questionable, since it is distributed also in the neighbouring countries.

Lasius bicornis (Förster, 1850)

Localities in CRO: Lokve, Kraljičin Zdenac, Štrigova, Bregi (11)

Lasius brunneus (Latreille, 1798)

Localities in CRO: near Čabar (20); near Rijeka (1); Vežica (4); Plitvice (15); near Split (1); i. Hvar (Brusje) (2); Krapina, Kalnik (11); Hlebine, Javorovac, Kolac (20)

Lasius carniolicus Mayr, 1861

Localities in CRO: Mosor (7)

Lasius distinguendus (Emery, 1916)

Localities in CRO: Sv. Stjepan - Livade, Gradole, i. Brijuni (7); near Rijeka (1); Orehovica (4 - indicated as *L. bicornis* var. *affinis*); i. Krk (Krk), i. Rab (Rab, between Rab and Banjol, Lopar, Stanišće) (9); i. Cres (Martinščica) (1); i. Unije (7); Perušić (15); Zemunik, Kaštela, Solin, Lovreć (7); Podašpilje (17); Prekrižje, Pregrada, Konjščina (15); Javorovac, Narta (20)

Lasius emarginatus (Olivier, 1792)

Localities in CRO: Savudrija, Umag, Mune, i. Tovarjež, Učka, Opatija, Lovran (7); Rovinj (13); Linski kanal (20); Rijeka (7); Cicilinovo, Orehovica, Vežica, Fužine (4); Novi Vinodolski (11) (17); Alan (11); Senj (15); Velika Kapela (19); i. Rab (Rab), i. Cres (9); i. Susak, Zadar (7); Sukošan (17); Privlaka, i. Piškera (20); i. Dugi otok (12); Kaštela, Split (7); Marjan, Klis, Podgora, Biokovo, i. Brač (Milna), i. Hvar, i. Vis, i. Biševo, i. Svetac (10); i. Korčula (Samograd) (7); i. Sušac, i. Mrčara, Orebić, Sv. Ilija, Metković, Dubrovnik, Gruž, Lapad, Rijeka Dubrovačka, Srd, Čibača, i. Lokrum, Konavle (10); Medvednica (18); Zagreb, Krapina, Galdovo (11); Štrigova (15); Javorovac, near Slavonski Brod (20); Jasenovača (11)

Lasius flavus (Fabricius, 1781)

Localities in CRO: Učka (7); Rijeka (13); Draga, Orehovica (4); Zlobin, Delnice (11); Leska (18); Velika Kapela (19); i. Plavnik, i. Rab (Rab, near Sv. Ilija), i. Male Srakane (9); Plitvice (15); Mali Halan (7); Dalmacija (1) (6); near Zadar (2); Šibenik (19); between Klis and Solin (10); Zaprešić (15); Sljeme, Krapina, Kalnik (11); Hlebine, Javorovac (20)

Lasius fuliginosus (Latreille, 1798)

Localities in CRO: Pula, Šijana (7); Orehovica, Draga (4); Novi Vinodolski, Senj, Fužine, Bjelolasica (11); Leska (18); i. Krk (Ponikva, between Krk and Malinska), i. Rab (Rab, Lopar) (9); i. Rab (11); Paklenica (7) (11); Split (10); Gata (7); Ozalj (11); Prekrižje, Zaprešić (15); Zagreb, Krapina (11); Pregrada (4); Štrigova, Bregi (11); Hlebine (20); Novigrad Podravski (15); Kutjevo (11); near Našice, near Donji Miholjac, near Slavonski Brod (20)

Lasius lasioides (Emery, 1869)

Localities in CRO: Sukošan (17)

Lasius mixtus (Nylander, 1846)

Localities in CRO: Zlobin (11); Velika Kapela, Split (19); Krapina (11)

Lasius myops Forel, 1894

Localities in CRO: Orehovica (15); i. Rab (Banjol, near Lopar) (9); i. Unije, i. Male Srakane, i. Pag (7); i. Pag (Lun) (15); Dubrovnik (8); Lapad, Rijeka Dubrovačka (10); near Slavonski Brod (20)

Lasius niger (Linnaeus, 1758)

Localities in CRO: Mune (7); near Čabar (20); Leska (18); Velika Kapela (19); Crikvenica (11); i. Male Srakane (7); near Latin, Plitvice (15); Dalmacija (1) (6); Obrovac, Koljane, Solin, i. Brač (Milna) (7); i. Hvar (3); Stružec (20); Zagreb (15); Sljeme, Krapina (11); Pregrada (4); Štrigova (11); Javorovac, Hlebine, Kolac, Narta, near Donji Miholjac (20); Jasenovača (11); near Našice (20)

Note: Seifert (1991) separated a new species, *L. platythorax*, from closely related *L. niger*. Literature sources mention only *L. niger*, but *L. platythorax* was confirmed among the checked material.

Lasius nitidigaster Seifert, 1997

Localities in CRO: i. Krk (16); near Slavonski Brod (20)

Lasius paralienus Seifert, 1992

Localities in CRO: Savudrija, Pula (20); Orehovica, Bakar (4 - indicated as *L. alienus*); i. Cres (Vodice), i. Rab (Lopar), i. Pag, i. Dugi otok (Zaglav) (20); Čvrljevo, Seoca, Podašpilje (17); Donja Vručica, Hlebine, Javorovac, near Donji Miholjac, near Slavonski Brod (20)

Note: See comment under *L. alienus*.

Lasius platythorax Seifert, 1991

Localities in CRO: near Čabar (20); Leska (18); Plitvice, Podsused (15); Stružec, Narta, Milanovac (20)

Note: See comment under *L. niger*.

Lasius psammophilus Seifert, 1992

Localities in CRO: near Čabar (20); Leska (18); i. Krk (16); Gornje Ogorje (17); Korčula (near Račišće) (20)

Note: See comment under *L. alienus*.

Lasius umbratus (Nylander, 1846)

Localities in CRO: Momjan, Poreč (13); Leska (18); Krapina (11)

Lasius viehmeyeri Emery, 1922

Localities in CRO: Knin, Dalmacija (Boer 2003)

Lepisiota frauenfeldi (Mayr, 1855)

Localities in CRO: Dalmacija (11); Zadar (15); Privlaka, i. Piškera (20); near Sinj (1); Split (2); Kaštela, Kaštel Sućurac, Klis (7); Marjan (8) (10); between Klis and Solin (10); i. Hvar (Brusje) (2); i. Hvar (near Hvar), i. Ždrilca (20); i. Brač (Milna) (17) (Petrov & Collingwood 1992 - misidentified as *L. splendens*); i. Vis (Vis) (10); i. Brusnik, i. Palagruža (5); Mljet (10); Dubrovnik (10) (19); Srd, Lapad, i. Daksa (10); Cavtat (8)

Lepisiota nigra (Dalla Torre, 1893)

Localities in CRO: Pula (16); Duga uvala (7); i. Rab (Rab, Lopar, Rt Zidine) (9); i. Oruda, i. Unije, i. Sv. Petar, Smilčić, i. Molat (7); i. Dugi otok (12); Šibenik (7); Veliki Drvenik, Trogir (10); Kaštel Sućurac, Solin (7); Split (7) (8); Marjan, Podgora (10); i. Brač (Milna) (7); i. Hvar (8) (10); i. Vis (7); i. Vis (Komiža), i. Mali & Veli Barjak, i. Kamenjak, i. Kamik, i. Greben, i. Mali & Veli Paržan, i. Biševo, i. Svetac, i. Brusnik, i. Sušac, i. Bisače, i. Korčula (Korčula) (10); i. Korčula (Pupnat), i. Crnac (7); i. Lastovo (near Skrivena Luka), i. Kopište, i. Podkopište, i. Mrčara, i. Mali & Veli Lastovljan, i. Palagruža, i. Mljet (Sobra), Orebić (10); Ston (7); i. Olipa (10); Dubrovnik (7) (8) (10) (19); Trsteno (8); Gruž, Lapad, i. Lokrum, i. Lopud (10)

Paratrechina vividula (Nylander, 1846)

Localities in CRO: Zagreb (11)

Plagiolepis pygmaea (Latreille, 1798)

Localities in CRO: Savudrija (20); Pula (7) (20); Rovinj, Lovran (7); near Rijeka (1); Orehovica, Trsat, Bakar (4); Crikvenica (11); i. Krk (16); i. Krk (Krk, near Sv. Roko), i. Kormati, i. Rab (Rab, near Sv. Ilija, Banjol, Dundo, Lopar, near Stanišće, Visilica), i. Dolin, i. Cres (9); i. Cres (near Martinšćica) (1); i. Cres (Vodice) (20); i. Lošinj, i. Sv. Petar, i. Susak (7); Perušić (11); Modrić (17); near Zadar (1); Bibinje (7); Sukošan (17); i. Vir (Torovi) (20); i. Dugi otok (Dugo polje) (12); i. Dugi otok (Sali), Knin (7); Vrpolje, Lišane Ostrovičke, Čvrljevo, Žrnovnica (17); Kaštela, Klis, Split (7); Trogir, between Klis and Solin, Podgora (10); Marjan (10) (17); Podašpilje (17); i. Ždrilca (20); i. Hvar (3) (10); i. Hvar (Vrbanj, Jelsa, Vrboska) (7); i. Brač (Bol) (10); i. Brač (Milna) (17); i. Vis (7); i. Vis (Brguljac) (18); i. Vis (Komiža), i. Mali & Veli Barjak, i. Greben, i. Mali Paržan, i. Svetac, i. Jabuka, i. Biševo (10); i. Korčula (10) (11); i. Korčula (near Korčula) (20); i. Otok, i. Bisače, Orebić, i. Kopište, i. Bijelac, i. Mali Lastovljan, i. Mljet (Sobra) (10); near Dubrovnik (1); i. Šipan, Rijeka Dubrovačka, Dubrovnik, near Gruž, Lapad, i. Lokrum, Čibača (10); Krapina (11); near Slavonski Brod (20)

Plagiolepis vindobonensis Lomnicki, 1925

Localities in CRO: Velika Kapela (19); i. Vis (Milna, Podstražje) (18)

Plagiolepis xene Stärcke, 1936

Localities in CRO: Podašpilje (17)

Polyergus rufescens (Latreille, 1798)

Localities in CRO: Kortivi (7); Rijeka (13); Zagreb, Krapina (11); Pregrada (4)

Prenolepis nitens (Mayr, 1853)

Localities in CRO: Rovinj (7) (16); Momjan, Lupoglav, Raška, Opatija (7); Pula (16); i. Veliki Brijuni (20); Rijeka (13); Orehovica, Vežica, Bakar (4); Draga (15); i. Cres (9); i. Lošinj (Veli Lošinj), i. Sv. Petar, i. Ilovik (7); Dalmacija (2); i. Dugi otok (Sali) (12); Kaštel Lukšić, Kaštel Sućurac (7); Split, i. Hvar (3); Gornja Vručica, Oskorušno (20); Dubrovnik, Gruž, Lapad (10); Zagreb (11); Šestine (15); Sljeme (18); Krapina (11)

Results and discussion

For the territory of Croatia, 140 ant species are listed. The presence of *Lasius alienus* was not directly confirmed, but it most probably occurs here, while the situation with *Tetramorium splendens* is rather unclear (see comments for the two species in the list). Since a large part of Croatia lies in the Mediterranean region which has the richest ant fauna in Europe, the number of recorded ant species is expectedly higher than in neighbouring Central European countries. Thus, there are 118 species known for Slovenia (Bračko 2003) and 101 for Hungary (Gallé et al. 1998). If compared to nearby Mediterranean countries, for instance Italy with 226 species (Poldi et al. 1995), this number is much lower. In part this is certainly a consequence of lesser known ant fauna of Croatia, therefore many new species are expected with further investigations.

Most species were found in the Mediterranean part of the country. The ant fauna of this region of Croatia has approximately half of the species that are otherwise widely distributed in Europe. The other half are those with more or less Mediterranean distribution, namely the species generally found in the Mediterranean as well as on thermophilous sites of Central Europe and the species mainly limited to the Mediterranean region. Among the latter, the representative species recorded in Croatia are *Proceratium algiricum*, most *Aphaenogaster* species, *Messor wasmanni*, *Myrmoxenus corsicus*, *M. krausseii*, *Pyramica* spp., *Temnothorax algiricus*, *T. angustulus*, *T. exilis*, *T. graecus*, *T. italicus*, *T. rottenbergii*, *Tetramorium diomedaeum*, *Tapinoma nigerrimum*, *Lasius lasioides*, *Lepisiota* spp. The composition of the ant fauna of the Croatian interior resembles the fauna of Central European countries. *Crematogaster ionia*, *C. schmidtii*, *Messor capitatus*, *M. structor*, found in the eastern Pannonian Croatia, are somewhat more exceptional. The mountain area of Gorski Kotar, Velika Kapela and Velebit represents a refuge for species otherwise more common in Northern Europe and mostly higher altitudes of Central Europe (i.e. *Leptothorax acervorum*, *L. muscorum*, *Myrmica lobicornis*, *M. sulcinodis*, *Camponotus herculeanus*, *Formica lemani*, *F. lugubris*). Two of the listed species, *Monomorium pharaonis* and *Paratrechina vividula*, are introduced to the native European ant fauna and are normally established in heated premises. *M. pharaonis* is a very common pest species, while *P. vividula* is rarer. The latter was reported to be found in a glasshouse in Zagreb (Vogrin 1955).

Ant sampling has not been evenly performed over the territory of Croatia. Most of the literature data and unpublished collected material originate from the Mediterranean part of the country. Although the ant fauna of this region is best known, many new species are still expected from there, as the Mediterranean territory is very rich in ant species in general. Besides, some genera that are very frequently represented there, i.e. *Messor*, *Aphaenogaster*, *Temnothorax*, *Tetramorium*, need to be revised what could contribute to additional species. Other parts of Croatia are much less investigated, therefore the picture of ant fauna of these regions will also change with future sampling.

In this study, 117 ant species were obtained from published sources and 100 from unpublished material, where 23 species were previously unknown for Croatia. This suggests that further field work could be very productive. The present review can also be a stimulus for other myrmecologists to supplement the list, for it is supposed that there is still much ant material from Croatia dispersed in various institutional and personal collections.

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Appendix

Position of less known localities (abbreviations: i. - island, n. - near):

Alan - n. Senj, Arbanasi - n. Zadar, Babindub - n. Zadar, Bačvice - Split, Bjelina - n. Benkovac, Bokanjac - n. Zadar, Bregi - n. Koprivnica, Bribir - n. Crikvenica, Buljma - S Velebit, Cicilinovo - n. Rijeka, Čibača - n. Dubrovnik, Čvrljevo - n. Split, Diklo - n. Zadar, Donja Vručica - Pelješac, Draga - n. Rijeka, Dretulja spring - n. Plaški, Duga uvala - Istra, Dugopolje - n. Split, Đevrske - n. Benkovac, Flengi - n. Poreč, Fužine - n. Delnice, Galdovo - Sisak, Gata - n. Omiš, Gera - Žumberačka gora, Gornja Vručica - Pelješac, Gornje Ogorje - n. Sinj, Gornje Vinovo - n. Split, Gračani - Zagreb, Gradole - Istra, Gruž - Dubrovnik, Hlebine - n. Koprivnica, i. Bijelac - n. i. Lastovo, i. Bisače - n. i. Korčula, i. Brusnik - n. i. Vis, i. Crnac - n. i. Lastovo, i. Daksa - n. Dubrovnik, i. Dolin - n. i. Rab, i. Galijola - n. i. Cres, i. Goli - n. i. Rab, i. Greben - n. i. Premuda, i. Grujica - n. i. Lošinj, i. Ilovik - n. i. Lošinj, i. Jabuka - n. i. Vis, i. Jakljan - n. i. Šipan, i. Kamik - n. i. Vis, i. Koločep - n. Dubrovnik, i. Kopište - n. i. Lastovo, i. Kormati - n. i. Krk, i.

Kozjak - n. i. Lošinj, i. Lokrum - n. Dubrovnik, i. Lopud - n. Dubrovnik, i. Male Srakane - n. i. Lošinj, i. Mali Barjak - n. i. Vis, i. Mali Lastovljan - n. i. Lastovo, i. Mali Paržan - n. i. Vis, i. Mali Plavnik - n. i. Krk, i. Mrčara - n. i. Lastovo, i. Olipa - n. i. Šipan, i. Orjule - n. i. Lošinj, i. Oruda - n. i. Cres, i. Otok - n. i. Korčula, i. Palacol - n. i. Lošinj, i. Piškera - n. i. Kornat, i. Plavnik - n. i. Krk, i. Podkopište - n. i. Lastovo, i. Rava - n. i. Dugi otok, i. Sv. Klement - n. i. Hvar, i. Sv. Petar - n. i. Lošinj, i. Svetac - n. i. Vis, i. Svilan - n. Šibenik, i. Školjić - n. i. Unije, i. Tovarjež - n. Vrsar, i. Trasorka - n. i. Lošinj, i. Tukoščak - n. i. Dugi otok, i. Veli Barjak - n. i. Vis, i. Veli Lastovljan - n. i. Lastovo, i. Veli Paržan - n. i. Vis, i. Zabodarski - n. i. Lošinj, i. Ždrilca - n. i. Hvar, Ilica Planina - n. Ploče, Jagnjedovac - n. Koprivnica, Jasenak - Velika Kapela, Jasenice - n. Obrovac, Jasenovača - n. Donji Miholjac, Javorovac - n. Koprivnica, Kalnik - n. Koprivnica, Kanfanar - Istra, Karin - n. Obrovac, Kistanje - n. Knin, Klek - n. Ogulin, Klis - n. Split, Kolac - n. Virovitica, Koljane - n. Knin, Konavoski Dvori - n. Dubrovnik, Konjsko - n. Split, Kortivi - Istra, Kosore - n. Knin, Kotlenice - n. Split, Kozjak - n. Split, Kožino - n. Zadar, Kraljičin Zdenac - Medvednica, Krapan - Istra, Krčeničnik - n. Donji Miholjac, Križovec - Međimurje, Krka - n. Šibenik, Krmčina - n. Zadar, Kučište - Pelješac, Kuna - Pelješac, Kupari - n. Dubrovnik, Kutjevo - n. Slav. Požega, Kuželj - n. Brod na Kupi, Labin - n. Trogir, Lapad - Dubrovnik, Latin - n. Plaški, Lećevecica - n. Split, Leska - Gorski kotar, Lišane Ostrovičke - n. Šibenik, Livade - Istra, Ljubač - n. Zadar, Lopača - n. Rijeka, Lovran - n. Opatija, Lovreć - n. Makarska, Lupoglav - Istra, Mali Halan - Velebit, Marjan - n. Split, Markovac - Istra, Milanovac - n. Virovitica, Močilo - Kravsko polje, Modrić - n. Obrovac, Momjan - Istra, Mošćenička Draga - n. Opatija, Mrzla vodica - Gorski kotar, Mune - Istra, Narta - n. Bjelovar, Orehovica - n. Rijeka, Oskorušno - Pelješac, Perušić - n. Gospić, Pićan - n. Pazin, Plješevica - Medvednica, Podašpilje - n. Omiš, Podgora - n. Makarska, Podprag - Velebit, Podsused - n. Zagreb, Poljica - n. Trogir, Ponikve - n. Rijeka, Prekrižje - n. Zagreb, Pridruga - n. Benkovac, Privlaka - n. Zadar, Privorac cave - n. Brusje, Rakalj - Istra, Raška - Istra, Ravna Gora - Gorski kotar, Riječina - n. Rijeka, Rogoznica - n. Šibenik, Rt Stojan - n. Lopar, Rt Zidine - n. Lopar, Samograd - n. Račišće, Sedalce - n. Brod na Kupi, Seoca - n. Omiš, Siverić - n. Drniš, Skrad - Gorski kotar, Skradin - n. Šibenik, Sljeme - Medvednica, Smilčić - n. Benkovac, Sošice - Žumberačka gora, Srd - n. Dubrovnik, Srebreno - n. Dubrovnik, Stanišće - n. Lopar, Stobreč - n. Split, Stojdruga - Žumberačka gora, Ston - Pelješac, Strmica - n. Knin, Stružec - n. Sisak, Sušci - n. Sinj, Sv. Ilija - Pelješac, Sv. Stjepan - Istra, Šestine - n. Zagreb, Šijana - n. Pula, Špišić Bukovica - n. Virovitica, Štrigova - n. Čakovec, Tar - Istra, Teradige - n. Pula, Tisno - n. Vodice, Trnbusi - n. Omiš, Trnovec - n. Varaždin, Trpanj - Pelješac, Trsat - n. Rijeka, Trsteno - n. Dubrovnik, Veliki Drvenik - n. Šibenik, Veliki Zavižan - N Velebit, Veruda - n. Pula, Vežica - n. Rijeka, Vinišće - n. Trogir, Vodnjan - Istra, Volosko - n. Opatija, Vozilići - Istra, Vrana - n. Biograd, Vrpolje - n. Šibenik, Zemunik - n. Zadar, Zlobin - n. Kraljevica, Žegar - n. Obrovac, Žejane - Istra, Žrnovnica - n. Split