An updated checklist of the ants (Hymenoptera, Formicidae) of the Czech Republic

Aktualizovaný seznam mravenců (Hymenoptera, Formicidae) České republiky

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Abstract: In this paper an updated critical checklist of the ants of the Czech Republic is provided. A total of 111 valid names of outdoor species are listed based on data from museum and private collections. Over the past decade several faunistic and taxonomic changes concerning the Czech ant fauna have occurred. The species *Formica clara* Forel, 1886, *Lasius carniolicus* Mayr, 1861, *Temnothorax jailensis* (Arnoľdi, 1977) and *Tetramorium hungaricum* Röszler, 1935 were recorded on the Czech territory for the first time. Further, the presence of *Camponotus atricolor* (Nylander, 1849) and *Lasius myops* Forel, 1894, formerly regarded as uncertain, was confirmed. Moreover, the status of *Tetramorium staerckei* Kratochvíl, 1944 was reviewed as a species. Besides outdoor species, a list of five indoor (introduced) species is given.

Abstrakt: Práce obsahuje aktualizovaný seznam mravenců České republiky. Na základě údajů získaných z muzejních a soukromých sbírek je uvedeno celkem 111 volně žijících druhů. Během posledních deseti let se české myrmekofauny dotkla řada faunistických a taxonomických změn. Pro území České republiky byl nově zjištěn výskyt druhů *Formica clara* Forel, 1886, *Lasius carniolicus* Mayr, 1861, *Temnothorax jailensis* (Arnoľdi, 1977) a *Tetramorium hungaricum* Röszler, 1935. Dále byla potvrzena přítomnost druhů *Camponotus atricolor* (Nylander, 1849) a *Lasius myops* Forel, 1894 v minulosti pokládaná za nejistou. Navíc byl změněn status taxonu *Tetramorium staerckei* Kratochvíl, 1944 na úroveň druhu. Vedle seznamu nativních druhů zahrnuje článek i soupis pěti zavlečených druhů.

Key words: Hymenoptera, Formicidae, ants, list, Czech Republic, Central Europe, faunistics

INTRODUCTION

The ant fauna of the Czech Republic is a well-documented local fauna within Europe. The last comprehensive checklist of the Czech Republic was published ten years ago (Werner et Wiezik 2007). An updated list of ants of the Czech Republic came out five years ago (Bezděčka et Bezděčková 2012), but it was only in Czech and published in a source little known outside the Czech Republic. A bilingual list of Czech ants was given in a book concerning ants in Czech museum collections (Bezděčka et Bezděčková 2011), but this book was published in a limited print run, being primarily intended for a specific group of users, employees of museums. A historical overview of research into the Czech ant fauna is available from the list by Werner et Wiezik (2007).

In the past decade, ant taxonomy has undergone a number of changes and also our knowledge of European ants in some previously poorly studied genera or groups of species has considerably deepened. In 2009, a revision of the *Formica rufibarbis* species group (Seifert et Schultz 2009) was published. In 2010, a comprehensive revision of the genus *Myrmica* for all species of the so-called Old World came out (Radchenko et Elmes 2010). In 2012, an overview of the West Palaearctic species of the genus *Bothriomyrmex* and also a study of European (except for Mediterranean) species of the genus *Tapinoma* was published (Seifert 2012a,b). Further, Seifert (2013) published a paper on the Central European species of the genus *Hypoponera*. In 2015, a review of the Ponto-Mediterranean species of the *Temnothorax nylanderi* species group (Csősz et al. 2015) was published. Recently, Wagner et al. (2017) published a study of the taxonomy of cryptic species of *Tetramorium caespitum* complex.

Moreover, phylogenetic studies of the subfamilies Myrmicinae and Formicinae (Ward et al. 2015, 2016a) have been published, which have led to some fundamental changes on the genus level based on strict application of the criterion of monophyly. However, some of these changes in subfamily Myrmicinae have not met with a positive response from a number of myrmecologists (see, for example, Seifert et al. 2016).

In the past ten years, our knowledge of the Czech ant fauna has increased: the list of Czech ants has been expanded by several new items and also by the confirmation of some controversial reports.

All above mentioned facts lead us to believe that an updated, critical list of Czech ants, based on confirmed and reliable data, will be a useful tool for further study of the ant fauna, not only in the Czech Republic, but also in Central Europe and elsewhere. Besides native species, we also provide a list of introduced species.

MATERIAL AND METHODS

The list presented here is largely based on the previous list by Werner et Wiezik (2007). It is supplemented by findings

published in the last decade (Bezděčka et Bezděčková 2009, Klimeš et Okrouhlík 2015, Pech 2010a,b, 2014, Pech et Werner 2008, Vodka et al. 2010) and by some data unpublished to date [e.g. *Camponotus atricolor* (Nylander, 1849)]. All provided data are supported by voucher material stored in Czech museums or in the private collections of the authors, except data for *Tetramorium immigrans* Santschi, 1927 and *Tetramorium staerckei* Kratochvíl, 1944, which are based on the paper by Wagner et al. (2017). A basic review of ants in the Czech museum collections can be found in the bilingual (Czech and English) book by Bezděčka et Bezděčková (2011). Besides a total of about 130,000 specimens from museums, more than 50,000 and about 60,000 specimens deposited in the private collections of authors P. Werner and P. Pech, respectively, have been taken into account.

The classification and nomenclature used here generally follows Bolton (2018), with some exceptions mentioned in commentaries to individual species and in the Discussion. Subspecies have been omitted because of their frequently uncertain taxonomical status. The taxa are arranged alphabetically. Mainly for practical reasons (clarity of nomenclature) and maintaining a certain degree of precaution, we have decided not to accept some changes in the Myrmicinae family proposed by Ward et al. (2015).

Some synonyms, the inclusion of which we consider relevant for easier understanding, are cited indented and in square brackets. A complete list of synonyms can be found, for example, in Bolton (2018) or in the relevant taxonomic literature. Since some species were stated under another name in the list by Werner et Wiezik (2007), their names are here, similarly to synonyms, given in square brackets in indentations. To distinguish them from synonyms they are supplied by the note: "In Werner et Wiezik 2007". Any additional information, problems or inconsistencies are mentioned under Comments following the list (commented species are marked with an asterisk in parentheses in the list). The list of non-indigenous species contains only species occurring for a longer time or at multiple sites in the Czech Republic. Random finds and one-off imports are not included.

THE LIST OF OUTDOOR ANT SPECIES IN THE CZECH REPUBLIC

In total, the presence of 111 outdoor species has been confirmed in the Czech Republic until now.

Formicidae
Dolichoderinae
Bothriomyrmex communista Santschi, 1919 *)
[*Bothriomyrmex corsicus mohelensis* Novák, 1941]
Bothriomyrmex corsicus Santschi, 1923 *)
[*Bothriomyrmex meridionalis* ssp. *gibbus* Soudek, 1925]
Dolichoderus quadripunctatus (Linnaeus, 1771)
Liometopum microcephalum (Panzer, 1798)
Tapinoma erraticum (Latreille, 1798)
Tapinoma subboreale Seifert, 2012
[*Tapinoma ambiguum:* In Werner et Wiezik 2007]
Formicinae
Camponotus aethiops (Latreille, 1798)
Camponotus atricolor (Nylander, 1849) *)
Camponotus fallax (Nylander, 1856)
Camponotus herculeanus (Linnaeus, 1758)
Camponotus ligniperda (Latreille, 1802)
Camponotus piceus (Leach, 1825)
Camponotus vagus (Scopoli, 1763)
Colobopsis truncata (Spinola, 1808) *)
[*Camponotus truncatus* (Spinola, 1808)]
Formica aquilonia Yarrow, 1955
Formica cinerea Mayr, 1853
Formica clara Forel, 1886 *)
[*Formica lusatica* Seifert, 1997]
Formica cunicularia Latreille, 1798
Formica exsecta Nylander, 1846
Formica foreli Bondroit, 1918
Formica fusca Linnaeus, 1758
Formica gagates Latreille, 1798
Formica lemani Bondroit, 1917
Formica lugubris Zetterstedt, 1838
Formica picea Nylander, 1846
Formica polyctena Foerster, 1850
Formica pratensis Retzius, 1783
Formica pressilabris Nylander, 1846
Formica rufa Linnaeus, 1761
Formica rufibarbis Fabricius, 1793
Formica sanguinea Latreille, 1798
Formica truncorum Fabricius, 1804
Lasius alienus (Foerster, 1850)
Lasius austriacus Schlick-Steiner, Steiner, Schödl et Seifert, 2003
Lasius bicornis (Foerster, 1850)
Lasius brunneus (Latreille, 1798)
Lasius carniolicus Mayr, 1861 *)
Lasius citrinus Emery, 1922
Lasius distinguendus (Emery, 1916)
Lasius emarginatus (Olivier, 1792)
Lasius flavus (Fabricius, 1782)
Lasius fuliginosus (Latreille, 1798)
Lasius jensi Seifert, 1982
Lasius meridionalis (Bondroit, 1920)
Lasius mixtus (Nylander, 1846)
Lasius myops Forel, 1894 *)
Lasius niger (Linnaeus, 1758)
Lasius nitidigaster Seifert, 1996
Lasius paralienus Seifert, 1992 *)
Lasius platythorax Seifert, 1991
Lasius psammophilus Seifert, 1992
Lasius reginae Faber, 1967
Lasius sabularum (Bondroit, 1918)
Lasius umbratus (Nylander, 1846)
Plagiolepis pygmaea (Latreille, 1798)
Plagiolepis vindobonensis Lomnicki, 1925
Plagiolepis xene Stärcke, 1936
Polyergus rufescens (Latreille, 1798)

Myrmicinae
Anergates atratulus (Schenck, 1852) *)
Aphaenogaster subterranea (Latreille, 1798)
Formicoxenus nitidulus (Nylander, 1846)
Harpagoxenus sublaevis (Nylander, 1849)
Leptothorax acervorum (Fabricius, 1793)
Leptothorax gredleri Mayr, 1855
Leptothorax muscorum (Nylander, 1846)
Manica rubida (Latreille, 1802)
Messor structor (Latreille, 1798)
Myrmecina graminicola (Latreille, 1802)
Myrmoxenus ravouxi (André, 1896) *)
Myrmica curvithorax Bondroit, 1920 *)
[*Myrmica salina:* In Werner et Wiezik 2007]
[*Myrmica slovaca* Sadil, 1952]
Myrmica deplanata Emery, 1921
[*Myrmica lacustris:* In Werner et Wiezik 2007]
Myrmica gallienii Bondroit, 1920
Myrmica hirsuta Elmes, 1978
Myrmica karavajevi (Arnoľdi, 1930)
Myrmica lobicornis Nylander, 1846
Myrmica lonae Finzi, 1926 *)
Myrmica rubra (Linnaeus, 1758)
Myrmica ruginodis Nylander, 1846
Myrmica rugulosa Nylander, 1849
Myrmica sabuleti Meinert, 1861
Myrmica scabrinodis Nylander, 1846
Myrmica schencki Viereck, 1903
Myrmica specioides Bondroit, 1918
Myrmica sulcinodis Nylander, 1846
Myrmica vandeli Bondroit, 1920
Solenopsis fugax (Latreille, 1798)
Stenamma debile (Foerster, 1850)
Strongylognathus kratochvili Šilhavý, 1937
Strongylognathus testaceus (Schenck, 1852)
Temnothorax affinis (Mayr, 1855)
Temnothorax clypeatus (Mayr, 1853)
Temnothorax corticalis (Schenck, 1852)
Temnothorax crassispinus (Karavaiev, 1926)
Temnothorax interruptus (Schenck, 1852)
Temnothorax jailensis (Arnoľdi, 1977) *)
Temnothorax nigriceps (Mayr, 1855)
Temnothorax parvulus (Schenck, 185
Temnothorax saxonicus (Seifert, 1995) *)
Temnothorax tuberum (Fabricius, 1775)
Temnothorax unifasciatus (Latreille, 1798)
Tetramorium caespitum (Linnaeus, 1758)
Tetramorium ferox Ruzsky, 1903
Tetramorium hungaricum Röszler, 1935 *)
Tetramorium immigrans Santschi, 1927 *)
[*Tetramorium* sp. E
(sensu Schlick-Steiner et al. 2006)]
Tetramorium impurum (Foerster, 1850)
Tetramorium moravicum Kratochvíl, 1941 *)
Tetramorium staerckei Kratochvíl, 1944 *)

Ponerinae
Hypoponera punctatissima (Roger, 1859)
Ponera coarctata (Latreille, 1802)
Ponera testacea Emery, 1895

Proceratiinae
Proceratium melinum (Roger, 1860)

THE LIST OF INDOOR (INTRODUCED) ANT SPECIES IN THE CZECH REPUBLIC

Tapinoma melanocephalum (Fabricius, 1793) (see Klimeš et Okrouhlík 2015)
Technomyrmex vitiensis Mann, 1921 (see Pech et Bezděk 2016)
Monomorium pharaonis (Linnaeus, 1758) (see Soudek 1922)
Tetramorium insolens (F. Smith, 1861) New record: Praha, Botanical garden of Charles University, 8.10.2014, 26 workers, P. Pech lgt., det. et coll.
Hypoponera ergatandria (Forel, 1893) (see Pech 2014)

COMMENTS

***Bothriomyrmex* Emery, 1869**

The systematics of the European species of the genus *Bothriomyrmex* had not been satisfactorily resolved until the last revision by Seifert (2012a). We follow this study which listed two species for the Czech Republic. *B. corsicus* has been found at several localities in southern Moravia, *B. communista* has been recorded, as we know, only in the serpentine steppe near Mohelno.

***Camponotus atricolor* (Nylander, 1849)**

Material examined: Czech Republic, Moravia, Kurdějov, Kamenný vrch Nature Monument, 48.9658°N,16.7514°E, xerothermic mosaic of grasslands and shrubs, 10. V. 2008, one worker, P. Pech lgt., det. et coll., B. Seifert revid.; 25. V. 2015, one worker, P. Pech lgt., det. et coll.

Bolton (2018) regards *C. atricolor* to be a junior synonym of *C. piceus*, but some myrmecologists (e.g. Seifert 2007) consider it a valid name of a good species and we also tend to this view. The species was reported from the Czech Republic in the past, but revision of part of the voucher material has revealed misidentification of *C. piceus*. Currently, revised *C. atricolor* material is known from only one site in the Czech Republic. The distribution area of the species covers Turkey and the Balkans, reaching up to Central Europe. The Moravian site given above is the northernmost known locality of this species.

***Colobopsis truncata* (Spinola, 1808)**

Ward et al. (2016a) raised *Colobopsis* Mayr, 1861, a former subgenus of *Camponotus* Mayr, 1861, to genus level, so we follow this new status. *C. truncata* is quite common in southern Moravia, but it is much rarer in Bohemia, where it had been known from only a few sites until recently. A relatively abundant occurrence was recently observed in north-western Bohemia (Poohří region, Vohralík et Werner 2016).

***Formica clara* Forel, 1886**

In the previous checklist (Werner et Wiezik 2007) this species was placed under the name *Formica lusatica* Seifert, 1997 and confirmed for Slovakia. We follow here the synonymization of *F. lusatica* with *F. clara* (see Seifert et Schultz 2009). *Formica clara* has in the meantime also been found in the Czech Republic (Pech et Werner 2008) – on bare, micro-climatically extreme soils of dumps in north-western Bohemia (Horní Jiřetín). Its occurrence in this habitat has already been known for about ten years (last finding in material from pitfall traps of O. Čížek 2017, det. P. Pech). However, the species is probably present also at other sites of the Czech Republic, being neglected due to difficult identification (confusion with the more common species *Formica cunicularia* and *F. rufibarbis*).

***Lasius carniolicus* Mayr, 1861**

So far, a single record from the Czech Republic (central Bohemia, Pech 2010b) is known, comprising several workers captured in pitfall traps. A colony of this species has not yet been found.

***Lasius myops* Forel, 1894**

Occurrence of this species on Czech territory is mentioned in literature, but a revision of voucher material had not been carried out for long time. Owing to the easy confusion with the much more abundant *L. flavus*, it was stated as uncertain in the previous list (Werner et Wiezik 2007). Since that time, voucher specimens have been examined by B. Seifert and data have been published by Pech (2010a). Currently, we also know a number of unpublished records.

***Lasius paralienus* Seifert, 1992**

Recently, Seifert et Galkowski (2016) revealed the existence of three cryptic species within the West Palaearctic *Lasius paralienus* species complex: *Lasius paralienus* Seifert, 1992, *L. casevitzi* Seifert et Galkowski, 2016 and *Lasius bombycina* Seifert et Galkowski, 2016. Revision of voucher material has not yet been completed, and so we can confirm only the presence of *L. paralienus* on the Czech territory. Nevertheless, owing to finds in adjacent areas of eastern Austria, the occurrence of *L. bombycina* is very probable also in southern Moravia.

***Anergates atratulus* (Schenck, 1852)**

Ward et al. (2015) proposed synonymization of the name *Anergates* with *Tetramorium*. However, this topic is still discussed within the myrmecological community (Seifert et al. 2016, Ward et al. 2016b, Kiran et al. 2017). Opponents (Seifert et al. 2016) say that even if being a monotypic clade, it appears reasonable for us to maintain a separate generic name for this species because it shows a morphology and behaviour dramatically deviating from *Tetramorium*. Additionally, they point at possible confusion caused by such a change. Thus we do not follow this change proposed by Ward et al. (2015) in our checklist.

***Myrmica curvithorax* Bondroit, 1920**

The naming of this species has been complicated and summarization of its history would exceed the objectives of this work (for details see e.g. Radchenko et Elmes 2010). Because of the widespread use of *M. slovaca* and doubts about the origin of the holotype specimen of *M. curvithorax*, Radchenko et Elmes (2010) stated that they would address the International Commission on Zoological Nomenclature with the proposal to suppress the name *M. curvithorax* and consider *M. slovaca* the valid name (based on Articles 23.9.1.1, 23.9.1.2 and 23.9.2 of ICZN 1999). However, this proposal has not been discussed yet. The biology and occurrence of *M. curvithorax* in the Czech Republic were reported by Pech (2013) and Bezděčková et Bezděčka (2016).

***Myrmica lonae* Finzi, 1926**

Werner et Wiezik (2007) reported two sites of this species in the Czech Republic. Now, it is known from several additional localities in Bohemia and Moravia. Its occurrence is probably more abundant, but it can easily be confused with the closely related and very similar species *M. sabuleti.*

***Myrmoxenus ravouxi* (André, 1896)**

Ward et al. (2015) proposed to synonymize *Myrmoxenus* with *Temnothorax.* For the same reasons as in *Anergates*, we do not follow this view at the present time. A number of taxonomists are of the opinion that when synonymizing *Myrmoxenus* with *Temnothorax*, it will no longer be possible to communicate multiple biological differences between the groups without complicated linguistic constructions (Seifert et al. 2016).

***Temnothorax jailensis* (Arnoľdi, 1977)**

So far, only a few finds from the Czech Republic (from flight intercept traps in the valley of the Dyje River in southern Moravia, see Vodka et al. 2010; additional unpublished finds in coll. of P. Werner) are known. This strictly arboricolous, considerably thermophilic species may be overlooked due to its hidden life.

***Temnothorax saxonicus* (Seifert, 1995)**

We use the name *T. saxonicus* here in contrast to the paper of Csősz et al. (2015), who supposed synonymy with *Temnothorax tergestinus* (Finzi, 1928). However, at present, this taxonomic change is being discussed (B. Seifert, pers. comm.) and so we maintain the name *saxonicus* until the problem is resolved.

***Tetramorium caespitum* complex**

Werner et Wiezik (2007) commented the problematic taxonomic situation of these taxa. Currently, a study by Wagner et al. (2017) has solved many problems within the Central European cryptic species of this complex. Following this work, we newly report *Tetramorium staerckei* – formerly considered a synonym of *T. impurum* but released from

synonymy and redescribed by Wagner et al. (2017) for the Czech Republic. For the same reason, we use the name *Tetramorium immigrans* instead of *Tetramorium* sp. E (sensu Schlick-Steiner et al. 2006).

***Tetramorium hungaricum* Röszler, 1935**

So far, this species is only known from a single find on Czech territory (southern Moravia, Bezděčka et Bezděčková 2009).

***Tetramorium immigrans* Santschi, 1927**

See the note on the *Tetramorium caespitum* complex.

***Tetramorium moravicum* Kratochvíl, 1941**

The description of this species had been originally prepared by Josef Kratochvíl for publishing in the proceedings on the fauna of the Mohelno serpentine steppe. However, this was released later (Kratochvíl 1944) than the identification key by Novák et Sadil (1941), which included a short description of this taxon based on Kratochvíl's manuscript and citing Kratochvíl as the author of the new name. Therefore, the description by Novák et Sadil (1941) has priority over the description by Kratochvíl, but must include the author's name of Kratochvíl, and not Novák et Sadil as given in Bolton (2018).

***Tetramorium staerckei* Kratochvíl, 1944**

See the note on the *Tetramorium caespitum* complex.

DISCUSSION

Werner et Wiezik (2007) mentioned 104 outdoor ant species for the Czech Republic. The list presented here includes 111 species, which means an increase by seven species. The occurrence of *Lasius myops* and *Camponotus atricolor*, regarded as uncertain in the previous list, has been confirmed. The species *Formica clara*, *Lasius carniolicus*, *Temnothorax jailensis* and *Tetramorium hungaricum* have been newly reported as well as *Tetramorium staerckei*, formerly considered to be a synonym of *T. impurum*.

We would like to point out that unconfirmed information on the occurrence of additional species in the Czech territory repeatedly appears in some printed publications and internet sources (e.g. Borowiec 2014, Antmaps.org, Antweb.org). We cannot deal with all discrepancies in detail, therefore we mention only some of them. Borowiec (2014) mentioned the occurrence of *Formica uralensis* Ruzsky, 1895 in the Czech Republic, but we consider it to be very unlikely. We know neither voucher material nor a field record, despite the fact that Bezděčková et Bezděčka surveyed a large number of habitats (especially peat bogs, see e.g. Bezděčková et Bezděčka 2011) suitable for this species.

Further, occurrence of *Myrmica constricta* Karavaiev, 1929 in the Czech Republic has been repeatedly published (e.g. Radchenko et Elmes 2010), but it has not been supported by confirmed data. Although the presence of this species is very probable here, we cannot list it until voucher material is available.

In older Czech myrmecological literature, we can find certain data on the occurrence of taxa not mentioned here, mainly various subspecific forms. Some of them have already been commented on and corrected in previous works (e.g. Werner et Wiezik 2007). Unless relevant voucher material is available, it is usually very difficult to interpret older faunistic data. The case of *Temnothorax albipennis* (Curtis 1854) represents a typical example: its occurrence was published in Kratochvíl's study of ants of the Mohelno serpentine steppe (Kratochvíl 1944) under the name *Leptothorax interruptus* var. *tubero-interruptus*. We have attempted to find voucher material, but our effort has not been successful. Therefore, we have not included this species into our list, although its presence on the Czech territory has some degree of probability. Unfortunately, it is not possible to comment all such disputable cases in this work. As we have already mentioned, we have listed here only species, the occurrence of which is supported by voucher material.

The Czech Republic belongs to the smaller European countries by its area (*ca*. 78,000 km^2). It comprises four zoogeographical sub-provinces: Hercynian, West Carpathian, North-Pannonian and Polonian (see, for example, Culek et al. 1996). Its altitude ranges from 115 to 1603 m. There are planar to alpine floral and faunal zones in the area, the only one missing is the nival zone. All of this, together with the complicated development of the quaternary climate, contributes to a relatively large diversity, but there are strong regional differences in the country. The richest area is southern Moravia, a small part of which falls into the North-Pannonian subprovince. The poorest are, as expected, higher altitudes in the mountain ranges on the country's borderline.

The Czech territory shares borders with four countries (Germany, Poland, Slovakia and Austria). Comparing the Czech myrmecofauna with the ant faunas of the neighbouring countries, for example by using the Jaccard's index, we find the highest similarity for the pair Czech Republic – Slovakia (*ca.* 85 %), followed by Austria (77 %), Poland (75 %) and Germany (72 %). The stated numbers are only indicative, based on the last published checklists (Austria: Steiner et al. 2002, Germany: Seifert 2007, Slovakia: Werner et Wiezik 2007, Poland: Czechowski et al. 2012), partially updated with available data.

The list proposed here is certainly not definitive. It can be assumed that some of the following species will be found in the Czech Republic: *Lasius balcanicus* Seifert, 1988, *Lasius bombycina* Seifert et Galkowski, 2016, *Lasius neglectus* Van Loom, Boomsma et Andrasfalvy, 1990, *Leptothorax kutteri* Buschinger, 1966, *Myrmica constricta* Karavaiev, 1929, *Strumigenys argiola* (Emery, 1869), *Temnothorax albipennis* (Curtis, 1854), *Temnothorax turcicus* (Santschi, 1934), *Tetramorium indocile* Santschi, 1927 and others that occur in the neighbouring countries or their close vicinity.

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Ants (Hymenoptera: Forimicidae) are exceedingly common in nature. They constitute a conspicuous part of the terrestrial animal biomass and are also considered common ecosystem engineers. Due to their key role in natural habitats, they are at the basis of any nature conservation policy. Thus, the first step in developing adequate conservation and management policies is to build a precise faunistic inventory. More than 16,000 valid ant species are registered worldwide, of which 126 are known to occur in Hungary.Â The Myrmecofauna (Hymenoptera: Formicidae) of Hungary: Survey of Ant Species with an Annotated Synonymic Inventory. by. SÃ¡ndor CsÅ‘sz. . 1951. Family Formicidae. pp. in: Hymenoptera of AMmueersiceabeNcko,rth of. Mexico-Synoptic Catalog (C. F. W. K. V. Krombeirt and H. K. Townes, MS. onograph.Â __ ant Acanthomyops (Hymenoptera:FoaLrnmadkipceiosdpaEuenl)atoatimtonosl.o6f:19-22. 975a. the Edwin S. George Reserve in southern Michigan. Ioan TÄ‚UÈ˜AN - A preliminary list of the ant fauna (Hymenoptera: Formicidae). from ParÃ¢ng Mountains (Romania) . 128.Â Institute of Vertebrate Biology, Academy of Sciences of the Czech Republic, Research facility Studenec, 675 02 Studenec, Czech Republic, e-mail: bryja@brno.cas.cz Key words: Eastern Africa, rodents, biodiversity, phylogeography, host-parasite co-evolution, speciation.Â Within a 5-yr project supported by the Czech Science Foundation, we genetically studied rodents in the large area of Eastern Africa. Generic revision of the ant subfamily Dorylinae (Hymenoptera, Formicidae). ZooKeys 608: 1â€“280. Brown, W. L. Jr. 1953. Revisionary notes on the ant genus Myrmecia of Australia. Bulletin of the Museum of Comparative Zoology Harvard University 111: 1â€“35. Clark, J. 1951. The Formicidae of Australia. Vol. I. Subfamily Myrmeciinae. CSIRO, Melbourne. Crosland, M. W. J. 1988.Â Ants with Attitude: Australian Jack-jumpers of the Myrmecia pilosula species complex, with descriptions of four new species (Hymenoptera: Formicidae: Myrmeciinae). Zootaxa 3911 (4): 493-520. Wikipedia 2012, 'Carpenter ant', wiki article, 12 May, accessed 25 May 2012, .