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Social wasps (Hymenoptera: Vespidae: Vespinae) from the Czech Republic and Slovakia in the collections of the Moravian Museum, Brno

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DVOŘÁK L. 2006: Social wasps (Hymenoptera: Vespidae: Vespinae) from the Czech Republic and Slovakia in the collections of the Moravian Museum, Brno. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **91:** 149–157. – More than 730 specimens of social wasps deposited in the collections of the Moravian Museum Brno have been identified. They belong to eleven species [*Vespa crabro* Linnaeus, 1758, *Vespula germanica* (Fabricius, 1793), *V. vulgaris* (Linnaeus, 1758), *V. rufa* (Linnaeus, 1758), *V. austriaca* (Panzer, 1799), *Dolichovespula media* (Retzius, 1783), *D. norwegica* (Fabricius, 1781), *D. saxonica* (Fabricius, 1793), *D. sylvestris* (Scopoli, 1763), *D. adulterina* (du Buysson, 1904), and *D. omissa* (Bischoff, 1931)]. Except for a single specimen from Turkey, all the material comes exclusively from the Czech Republic and Slovakia. The distribution patterns of individual wasp species in both main countries are briefly discussed.

Key words. social wasps, *Vespa*, *Vespula*, *Dolichovespula*, central Europe, Czech Republic, Moravia, Slovakia, faunistics

Introduction

Although several papers, e.g. ZAVADIL (1948), ŠNOFLÁK (1952), LANG (1958), and especially the compilation work of BOUČEK & ŠUSTERA (1956), have expanded faunistic data on social wasps in the Czech Republic to a certain degree, knowledge of this Aculeate group in the country remains inadequate. Although many species are highly apparent, the Vespinae have attracted only little attention on the part of Czech hymenopterologists in the past fifty years. Recent data are scarce and many regions have not been surveyed at all. Moreover, published sources are burdened with frequent identification errors, which render some records uncertain. Misidentifications pertain particularly to the genus *Dolichovespula* Rohwer, 1916. Revisions and evaluations of museum collections are undoubtedly essential to a better understanding of the Czech wasp fauna. Field studies are, however, still needed.

A few published records, mostly by ŠNOFLÁK (1952), are based on specimens from the collections housed today in the Moravian Museum (MMBC). However, the great majority of the material deposited in this institution has not yet been evaluated. This paper is a continuation of DVOŘÁK (2005), which dealt with the European paper wasps (Vespidae: Polistinae) in MMBC. In addition to the European collection, the Moravian Museum holds an extensive collection of Vespidae from Afghanistan, addressed in detail by GUSENLEITNER (1973).

Material and methods

The collection of European social wasps (Vespidae: Vespinae) in the MMBC includes nearly 730 specimens. Except for a single specimen from Turkey, all these wasps come from the territory of the former Czechoslovakia, especially Moravia (Czech Republic), fewer from Bohemia (Czech Republic) and Slovakia. More than twenty collectors gathered the material. The collections of J. Šnoflák and M. Kocourek are the most extensive. Most of the specimens were sampled between 1934 and 1980, although several more recent specimens are deposited in MMBC as well, and the oldest specimen dates back to 1925.

Papers by Mauss & Treiber (1994), Eck (1984), and Bouček & Šustera (1956) have been used for identification. The nomenclature follows Carpenter & Kojima (1997).

Faunal data are ordered in the form country (bold), locality, code number in parantheses referring to the Central European grid for mapping flora and fauna (Ehrendorfer & Hamann 1965, Novák 1989, Pruner & Míka 1996), date of collection, number and caste of specimens [1)], and collector abbreviation. A semicolon divides material cited from the same locality but of different date or collector, a dash divides different localities.

Abbreviations for collectors

Ci	Josef Cikl
Če	Juraj Čepelák
Db	Luboš Dembický
De	Jan Dezort
Fi	Josef Fiala
Gr	František Gregor sen.
Ho	Augustin Hoffer
Hr	Sergej Hrabě
Je	Josef Jelínek
Km	Petr Kment
Ko	Miroslav Kocourek
Kr	Ladislav Krejcárek
Ks	Jindřich Kostelník
La	Pavel Lauterer
Ma	Igor Malenovský
Mc	Jan Macek
Mt	Jaroslav Matoušek
Ne	František Netopil
Ob	Radoslav Obrtel
Ol	Jiří Olejníček
Pd	Zdeněk Pádr
Pe	Jaroslav Pelikán
Pl	K. Poláček
Pk	Drahoš Pokora
Po	Ludmila Pospíšilová
Ra	Petr Raus
Sr	Jaromír Strejček
Sh	Jaroslav L. Stehlík
St	Eduard Staněk
Šn	Jan Šnoflák
To	Boleslav Tomšík

[1)] Abbreviations used: ♂ = male, ♀Q = queen, ♀W worker.

Results

List of species

Dolichovespula adulterina (du Buysson, 1904)

Czech Republic: Brno-Bystrc (6765), 8.vi.1949, 1 ♀Q, Šn. – Karlova Studánka (5969), 25.vii.1950, 2 ♂, Šn. – Senorady (6863), 12.viii.1939, 1 ♂, Mt. – Šance (6476), 10.viii.1940, 1 ♀Q, Ks. – Znojmo (7162), 14.viii.1937, 1 ♀Q, Šn.
Slovakia: Trenčín (7174), 1935, 1 ♀Q, Če.

Dolichovespula media (Retzius, 1783)

Czech Republic: Brno-Bobrava (6865), 12.viii.1946, 1 ♂, 1 ♀Q, Šn; 10.viii.1949, 1 ♂, Šn. – Brno-Bystrc (6765), 14.viii.1945, 1 ♂, Šn. – Brno-Hády (6766), 8.viii.1949, 1 ♀W, Šn. – Brno-Kamenný vrch (6865), 23.viii.1941, 1 ♂, Šn. – Brno-Moravany (6865), 22.v.1943, 1 ♀Q, Šn; 18.viii.1942, 1 ♂, Šn. – Brno-Řečkovice (6765), 24.viii.1941, 1 ♀W, Šn; 31.viii.1942, 1 ♀W, Šn. Brno-Útěchov (6765), in humification stump, 17.ix.1994, 1 ♀Q, La. – Fryšták (6772), reservoir, 22.vi.1966, 1 ♂, Kr. – Karlova Studánka (5969), 25.vii.1950, 1 ♀W, Šn. – Kralice nad Oslavou (67–6863), 8.vii.1940, 1 ♀W, Mt. – Kytín (6151), viii.1957, 1 ♀W, Mc. – Macocha (6666), 22.vi.1943, 1 ♀Q, Šn. – Modřice (6865), 18.viii.1947, 1 ♂, Šn. – Mohelno (6863), 1.vi.1943, 1 ♀Q, Šn. – Nebovidy (6865), 25.viii.1944, 1 ♂, Šn. – Nové Město nad Metují (5662), vii.1956, 1 ♀W, Mc. – Ostrý kamen (6264), 27.vii.1956, 1 ♀Q, St. – Polička (6263), 8.viii.1939, 1 ♀W, Šn. – Rokytnice nad Jizerou (5258), vii.1954, 1 ♀W, Mc. – Zastávka (6864), 18.viii.1948, 1 ♂, Šn.
Slovakia: Štúrovo=Parkan (81–8278), 20.vii.1946, 1 ♀W, Šn.

Dolichovespula norwegica (Fabricius, 1781)

Czech Republic: Brno-Hády (6766), iv.1941, 1 ♀Q, Pe. – Brno-Moravany (6865), 18.viii.1942, 1 ♂, Šn. – Brno-Řečkovice (6765), 3.vii.1940, 1 ♀W, Šn; 28.viii.1939, 1 ♂, Šn. – Černá Opava River valley (5770), 15.vi.1949, 3 ♀W, Šn. – Divoká Desná (58–5968), 26.vii.1950, 4 ♂, 4 ♀W, Šn. – Gruň (6476), 29.vi.1950, 4 ♀W, Ob; 29.vi.1950, 3 ♀W, Šn; 28.vi.1950, 2 ♀W, Šn. – Heřmanovice (57–5870), 12.vii.1946, 1 ♀W, Ob. – Horní Desná (5868), 27.vii.1949, 1 ♀W, Šn. – Horní Lipová (5768), vii.1946, 1 ♂, Mt. – Jelení hřbet (5969), 26.vii.1949, 1 ♀W, To. – Jeseníky, 1.vii.1962, 2 ♀Q, Ko. – Jevíčko (6366), Smolenská přehrada reservoir, 30.vii.1964, 2 ♀W, Ol. – Karlova Studánka (5969), 25.vii.1950, 1 ♂, Šn; 28.vii.1950, 1 ♂, Šn; Barborka cottage, 30.vii.1949, 1 ♀W, Šn. – Kle□ (7151), 1 ♂, Ho. – Kouty (5868), 26.vii.1950, 2 ♂, 1 ♀W, Šn. – Krumsín (6567–8), vii.1963, 3 ♂, Ko. – Kytín (6151), viii.1957, 1 ♂, 1 ♀W, Mc. – Lysá hora (6476), 30.vi.1950, 1 ♀W, Ob. – Macocha (6666), 20.vi.1943, 1 ♀Q, Šn; 22.vi.1943, 1 ♀W, Šn. – Malý Děd (5968), 19.vii.1946, 3 ♂, Ob. – Rejvíz (5769), 11.vii.1947, 1 ♂, Ob. – Rokytnice nad Jizerou (5258), vii.1954, 8 ♀W, Mc. – Řídelov (6758), bog near pond "Pilný", 5.ix.1978, 1 ♂, Po. – Senorady (6863), 1938, 1 ♂, Mt. – Staré Hamry (64–6576), 27.vi.1950, 1 ♀Q, 2 ♀W, Ob & Šn; 28.vi.1950, 1 ♀W, Ob. – Visaláje (6477), 1.vii.1950, 4 ♀W, Šn; 2.vii.1950, 2 ♀W, Ob & Šn; 3.vii.1950, 4 ♂, 3 ♀Q, 9 ♀W, Šn; 4.vii.1950, 3 ♀W, Šn; Vyškov (6767–8), vii.1964, 1 ♂, Ko; viii.1964, 1 ♂, Ko.
Slovakia: Belanská kopa (6787), 12.ix.1967, 1 ♂, La. – Kozol near Žilina (6878), 17.vii.1950, 1 ♂, 1 ♀W, Pe. – Liptovské hole, Juráňova Dolina valley (6784), 20.viii.1953, 1 ♂, Je. – Trojhranné pleso (6787), 12.ix.1967, 1 ♂, La. – Turo (6878), 19.vii.1950, 1 ♀W, Pe. – Vysoké Tatry (High Tatras), 2.vii.1950, 1 ♂, Ob; 11.vii.1950, 1 ♀W, Ob; 12.vii.1950, 12 ♂, 1 ♀Q, Ob.

Dolichovespula omissa (Bischoff, 1931)

Czech Republic: Brno-Bobrava (6865), 30.vi.1946, 1 ♂, Šn; 13.vii.1950, 1 ♂, Šn. – Děčín (5250–1), 5.viii.1950, 1 ♂, Pe. – Divoká Desná (58–5968), 26.vii.1950, 1 ♂, Šn. – Horní Lipová (5768), vii.1946, 1 ♂, Mt. – Karlova Studánka (5969), 24.vii.1950, 4 ♂, Šn; 25.vii.1950, 13 ♂, Šn; 26.vii.1950, 1 ♂, Šn. – Pouzdřany (7065), 9.vi.1942, 1 ♀Q, Šn. – Rejvíz (5769), 11.vii.1947, 1 ♂, Ob. – Ubušín (6363), 23.vii.1925, 1 ♂, Gr.
Slovakia: Muráň, 1.viii.1956, 1 ♂, Sr.

Dolichovespula saxonica (Fabricius, 1793)

Czech Republic: Adamov (66–6765–66), 30.vii.1939, 1 ♂, Šn. – Brno (67–6865), 30.vi.1951, 1 ♀Q, Ne; vi.1963, 2 ♀W, Pk. – Brno-Bobrava (6865), 5.viii.1949, 1 ♂, Šn; 4.ix.1949, 1 ♀W, Šn; 13.vii.1950, 1 ♂, Šn. – Brno-Bystrc (6765), 10.viii.1944, 1 ♂, Šn; 14.viii.1945, 5 ♂, 6 ♀W, Šn; 25.viii.1945, 1 ♂, 1 ♀Q, 1 ♀W, Šn; 26.viii.1948, 2 ♀Q, Šn. – Brno-Hády (6766), 2.v.1950, 1 ♀Q, Ob. – Brno-Kraví hora (6865), 18.vii.1947, 1 ♀W, Šn. – Brno-Moravany (6865), 18.viii.1942, 1 ♂, 2 ♀W, Šn; 12.ix.1942, 1 ♂, Šn. – Brno-Řečkovice (6765), 29.vii.1939, 1 ♀W, Šn; 23.vi.1940, 1 ♀Q, Šn; 5.ix.1941, 2 ♂, Šn; 15.viii.1942, 2 ♀W, Šn; 31.viii.1942, 1 ♂, Šn; 8.viii.1946, 2 ♂, Šn; 2.vii.1948, 1 ♀Q, Šn. – Brno-Říčky (6766), 17.viii.1945, 1 ♂, Šn. – Brno-Sirotčí Street 34 (6765), 27.vii.1945, 1 ♀W, Šn; 29.vii.1945, 1 ♀W, Šn. – Brno-Žabovřesky (6765), 12.viii.1945, 2 ♂, Šn. – Brno-Žlutý kopec (6865), 3.vii.1939, 1 ♀W, Šn. – Čejč (7067), 14.viii.1940, 1 ♂, Šn; viii.1958, 1 ♂, Ko. – Čelákovice (5854), viii.1947, 2 ♂, Ko. – Čermná (6272), 24.vi.1947, 1 ♀Q, Ko. – Hlohovec (7266), 8.vii.1952, 1 ♀W, St. – Hrušovany (7164), brickworks, 11.viii.1950, 1 ♀W, St. – Chvojnice (6863), 12.vii.1944, 1 ♀W, Šn. – Jesenický kotel (5969), 28.vii.1946, 1 ♂, Sh. – Karlova Studánka (5969), 25.vii.1950, 1 ♀W, Šn. – Krumsín (6567–8), vii.1963, 1 ♂, Ko. – Kukle (6264), 16.vii.1956, 3 ♀W, St. – Kytín (6151), viii.1957, 2 ♀Q, 4 ♀W, Mc; vii.1959, 1 ♀Q, Mc. – Libavá (6271), vii.1958, 1 ♀Q, Ko. – Macocha (6666), 22.vi.1943, 2 ♀Q, Šn; 5.vii.1946, 1 ♀W, Šn. – Modřice (6865), 20.vii.1947, 1 ♂, Šn. – Mohelno (6863), 1.vi.1943, 1 ♀Q, Šn. – Náměšť nad Oslavou (67–6862–3), 16.vii.1943, 1 ♀W, Ob; viii.1943, 1 ♂, Šn; 21.v.1950, 1 ♂, Ob. – Nové Město nad Metují (5662), vii.1957, 1 ♂, Mc; vii.1958, 1 ♀W, Mc; viii.1958, 12 ♂, 1 ♀Q, 7 ♀W, Mc. – Oslava River valley (6863), 22.viii.1943, 1 ♂, Šn; 1.viii.1943, 2 ♀W, Šn. – Praděd (5969), 20.vii.1946, 1 ♂, Ob. – Rokytnice nad Jizerou (5258), vii.1954, 1 ♀Q, 5 ♀W, Mc. – Sobotín (5968), 26.vii.1949, 2 ♀Q, Šn. – Sulava (5952), 9.viii.1953, 1 ♀W, Mc. – Svitavy (6264), 11.ix.1956, 1 ♀Q, St. – Štípa (6772), 21.viii.1973, 1 ♂, Kr. – Uherský Brod (6971), Havřice, haylofts, 18.vi.1959, 1 ♀W, St. – Věcný potok, vii.1947, 1 ♂, Ko. – Vyškov (6767–8), v.1964, 1 ♀Q, Ko; viii.1964, 1 ♂, Ko.
Slovakia: Remetské Hamre (7199), 16.vii.1959, 2 ♂, Ko. – Štúrovo (81–8278), v.1962, 1 ♀Q, Ko. – Vysoké Tatry (High Tatras), vii.1948, 1 ♀W, Šn.

Dolichovespula sylvestris (Scopoli, 1763)

Czech Republic: Adamov (66–6765–66), 30.vii.1939, 1 ♂, Šn. – Arnolec (6560), valley of the stream, 22.viii.1978, 1 ♂, Po. – Brno-Bobrava (6865), 8.vii.1942, 1 ♀W, Šn; 30.vi.1946, 1 ♀W, Šn; 28.vi.1947, 1 ♀W, Šn; 5.viii.1949, 1 ♀Q, Šn; 2.vi.1950, 1 ♀Q, Šn. – Brno-Bystrc (6765), 18.v.1943, 1 ♀Q, Šn; 14.viii.1945, 1 ♂, 1 ♀Q, Šn. – Brno-Hády (6766), 24.iv.1943, 1 ♀Q, Šn. – Brno-Kamenný vrch (6865), 23.viii.1941, 4 ♂, Šn. Brno-Moravany (6865), 5.vi.1942, 1 ♂, Šn; 18.viii.1942, 9 ♂, 4 ♀W, Šn; 2.ix.1942, 2 ♂, 1 ♀W, Šn; 12.ix.1942, 1 ♂, Šn; 22.v.1943, 1 ♀Q, Šn. – Brno-Řečkovice (6765), 5.ix.1941, 1 ♂, Šn; 31.viii.1942, 4 ♂, Šn. – Brno-Žlutý kopec (6865), 14.viii.1941, 2 ♂, Šn. – Bzenec (7069), vii.1963, 1 ♀Q, Ko. – Čejč (7067), vi.1958, 1 ♀Q, Ko; viii.1958, 1 ♂, Ko. – Děčín (5250–1), 5.viii.1950, 1 ♂, Pe. – Dobříš (6250–1), 15.viii.1954, 1 ♂, Pd. – Hodonín (7168), viii.1958, 1 ♂, Ko. – Kleť (7151), 1 ♂, Ho. – Kobylí (7067), 7.ix.1970, 1 ♂, Ko; 15.vii.1979, 1 ♂, Ko. – Macocha (6666), 22.vi.1943, 2 ♀Q, Šn. – Mikulov (7165), Svatý Kopeček, S slope, 13.vii.1950, 1 ♀W, St; by road to the forest „Háta", 16.iv.1951, 1 ♀Q, St; Janičův vrch hill, 17.v.1951, 1 ♀Q, St. – Mohelno (6863), vii.1944, 1 ♀W, Mt. – Mutěnice (70–7168), viii.1946, 1 ♀W, Ko. – Náměšť nad Oslavou (67–6862–3), 21.v.1950, 1 ♂, Ob. – Nebovidy (6865), 25.viii.1944, 1 ♂, Šn. – Němčičky (7066), 30.viii.1944, 1 ♂, Ho. – Nové Město nad Metují (5662), vii.1957, 1 ♀Q, Mc; viii.1958, 1 ♂, Mc. – Perná (7165), Kotelná, 17.vii.1950,

1 ♂, 1 ♀W, St. – Pouzdřany (7065), 21.v.1942, 1 ♀Q, Šn; 29.viii.1945, 1 ♂, Šn; 15.vii.1976, 1 ♂, Ko. – Radotín (6052), 9.iv.1943, 1 ♀Q, Ho. – Sedlec (7266), to the N to road, 4.ix.1950, 2 ♂, St. – Sobotín (5968), 26.vii.1949, 1 ♀W, To; 2.viii.1949, 1 ♀W, Šn. – Střílky (6869), 13.viii.1970, 1 ♂, Po. – Visaláje (6477), 3.vii.1950, 1 ♀W, Šn. – Vyškov (6767–8), v.1963, 1 ♀Q, Ko; v.1964, 1 ♀Q, Ko. – Zakřany (6863), 30.vii.1944, 1 ♂, Pe.
Slovakia: Čajkov (7677), viii.1960, 1 ♂, Ko. – Filakovo (7784), Hajnačka, 22.vii.1959, 1 ♂, 1 ♀W, St. – Lešť (7681), v.1955, 1 ♀Q, Ko; viii.1943, 1 ♂, Ko. – Levice (7777), viii.1961, 1 ♀W, Ko. – Lučenec (7684), Bolkovce, S slopes, 17.vii.1959, 1 ♀W, St. – Modrý Kameň (7782), Bušince-Lecsenyoszta, 19.vii.1959, 1 ♀W, St. – Remetské Hamre (7199), 17.vii.1959, 2 ♂, Ko; 18.vii.1959, 2 ♂, Ko; 20.vii.1959, 1 ♂, Ko. – Silická planina (7488), 13.vii.1955, 1 ♀W, St.

Vespa crabro Linnaeus, 1758

Czech Republic: Brno (67–6865), 15.x.1949, 1 ♀Q. – Brno-Bosonohy (6868), Leskava stream, pitfall trap, 3–7.ix.2004, 1 ♀W, Ma & Db. – Brno-Bystrc (6765), 12.v.1990, 1 ♀Q, La. – Brno-Řečkovice (6765), 22.viii.1945, 1 ♀W, Šn. – Brno-Útěchov (6765), forest road, 18.ix.1994, 1 ♀W, La. – Brno-Žlutý kopec (6865), 22.viii.1964, 1 ♂, La. – Čtyři Dvory (6464), 21.viii.2000, 1 ♀W, La. – Hodonín (7168), iv.1954, 1 ♀Q, Ko. – Hovorany (7067–8), "Hájek", 3.vi.1982, 1 ♀Q, La. – Jevíčko (6366), 30.vii.1964, 2 ♀W, Ol. – Kutná Hora-Sukov (6057), 5.viii.1964, 5 ♀W, Po. – Lanžhot (7267), 18.vi.1969, 1 ♀W, Sh. – Náměšť nad Oslavou (67–6862–3), viii.1943, 2 ♀W, Ob; viii.1943, 3 ♀W, Šn. – Olomučany (6666), 6.x.2001, 4 ♂, La. – Pavlovské Kopce, (7165–6), Klausen pass, iv.1969, 1 ♀Q, De. – Pohansko (7267), xi.1960, 1 ♂, 5 ♀Q, Sh. – Pouzdřany (7065), 21.v.1942, 1 ♀Q, Šn; 21.v.1944, 1 ♀Q, Ob. – Senorady (6863), 1936, 1 ♀Q, Mt; viii.1943, 1 ♀W, Mt. – Zakřany (6863), vii.1945, 1 ♀W, Pe.
Slovakia: Bojnice (7277), 5 ♀W, Ci. – Moravský Svätý Ján (7468), 14.v.1969, 1 ♀Q, Čt. – Prešov (69–7093), 1 ♀Q, Mt. – Silická planina (7488), 13.vii.1955, 1 ♀Q, St. – Štúrovo (81–8278), vii.1953, 7 ♀W, Ko; viii.1953, 1 ♀W, Ko; vii.1961, 1 ♀W, Ko.

Vespula rufa (Linnaeus, 1758)

Czech Republic: Brno (67–6865), 6.vi.1944, 1 ♀Q, Fi; 3.v.1952, 1 ♀Q, Ne. – Brno-Bobrava (6865), 4.vi.1948, 1 ♀Q, Šn. – Brno-Bystrc (6765), 23.iv.1943, 1 ♀Q, Šn; 14.v.1943, 1 ♀Q, Šn. – Brno-Hády (6766), 23.iv.1949, 1 ♀Q, Šn. – Brno-Kamenný vrch (6865), 28.viii.1941, 1 ♂, Šn. – Brno-Moravany (6865), 18.viii.1942, 1 ♂, Šn; ix.1943, 1 ♀Q, Ob. – Brno-Řečkovice (6765), 19.vii.1939, 1 ♀W, Šn; 5.ix.1941, 1 ♂, Šn. – Brno-Říčky (6766), 11.viii.1948, 1 ♀Q, Šn. – Brno-Žlutý kopec (6865), 3.ix.1941, 1 ♂, Šn. – Čejč (7067), viii.1968, 1 ♀W, Ko. – Čelákovice (5854), vii.1942, 1 ♀Q, Ko; v.1948, 1 ♀Q. – Doupě (6758), Bažantka peat bog, 5.ix.1978, 1 ♂, La. – Fryšták-reservoir (6772), 26.iv.1967, 1 ♀Q, Kr; 19.viii.1968, 1 ♀W, Kr. – Hamiltony u Vyškova (6667), in body of cock-chafer in moss, 18.i.1951, 1 ♀Q, Ne. – Hodonín-Pánov (7168), 8.ix.1971, 1 ♂, Po. – Hostákov (6761), 24.viii.1942, 2 ♂, Šn. – Choceň (59–6063), 1.ix.1958, 1 ♀W, Pl. – Jeseníky, 1 ♀W, Hr. – Jevíčko (6366), vii.1964, 1 ♀W, Ol. – Kobylí (7067), 15.vii.1979, 1 ♀W, Ko; 7.ix.1980, 1 ♂, Ko. – Kytín (6151), viii.1957, 3 ♂, 1 ♀Q, 7 ♀W, Mc. – Libějovické Hory (6850), 1.viii.1934, 2 ♂. – Mohelno (6863), 1.vi.1943, 1 ♀Q, Šn; viii.1943, 1 ♀W, Mt. – Moravský Písek (7069–70), vii.1965, 1 ♀W, Kr; viii.1968, 1 ♀W, Kr; vii.1970, 2 ♀W, Kr. – Náměšť nad Oslavou (67–6862–3), viii.1942, 1 ♀W, Ob. – Nesovice (6868), "Nebštych" forest district, 31.vii.1955, 1 ♀W, Ne. – Nové Město nad Metují (5662), vii.1956, 1 ♀Q, 1 ♀W, Mc; viii.1958, 5 ♀W, Mc. – Oslava River valley (6863), 1.viii.1943, 2 ♂, Šn. – Pouzdřany (7065), 1.viii.1948, 1 ♀Q, Ne. – Rejvíz (5769), 11.vii.1947, 1 ♀W, Ob. – Rokytnice nad Jizerou (5258), vii.1954, 3 ♀W, Mc. – Senorady (6863), 1.v.1939, 1 ♀Q, Mt; 22.vii.1939, 1 ♀W, Mt. – Sobotín (5968), 26.vii.1949, 1 ♀W, Šn. – Staré Hamry (64–6576), 28.vi.1950, 1 ♀Q, 1 ♀W, Šn. – Svitavy (6264), meadows, 2.ix.1955, 1 ♀W, St; W town quarry, 3.ix.1955, 1 ♀W, St. – Štípa (6772), 2.iv.1967, 1 ♀W, Kr; 28.iv.1967, 1 ♀W, Kr; 2.viii.1971, 1 ♀W, Kr. – Študlov (6364–5), 6.viii.1956, 2 ♀W, St. – Tábor (6553–4), v.1941, 2 ♀Q, Ho. –Visaláje (6477), 1.vii.1956, 1 ♀Q, Šn. – Vyškov (6767–8), v.1964, 2 ♀Q, Ko. – Zavadilka (6467), hollow quarry, 9.vii.1956, 2 ♀W, St.
Slovakia: Kúty (7368), 17.vii.1969, 1 ♀W, Po. – Lešť (7681), v.1955, 1 ♀Q, Ko. – Osobitá (6784), 1 ♀W, Pd. – Plešivec (7488), vii.1973, 1 ♀Q, Kr. – Valaská Dubová (6881), 14.vii.1979, 1 ♀W, La.

Vespula austriaca (Panzer, 1799)

Czech Republic: Brno-Bystrc (6765), 14.viii.1945, 1 ♂, Šn. – Kouty (5868), 26.vii.1950, 1 ♂, 1 ♀Q, Šn. – Libějovické Hory (6850), 1.viii.1934, 1 ♂. – Rokytnice nad Jizerou (5258), vii.1954, 1 ♀Q, Mc. – Staré Hamry (64–6576), 28.vi.1950, 2 ♀Q, Šn. – Štípa (6772), viii.1964, 1 ♀Q, Kr; 8.viii.1968, 1 ♂, Kr. – Ubušín (6363), 12.viii.1939, 1 ♀Q, Šn. – Vyškov (6767–8), vii.1964, 2 ♂, Ko; viii.1964, 1 ♂, Ko.
Slovakia: Vysoké Tatry (High Tatras), 28.vii.1948, 1 ♀Q, Šn.

Vespula germanica (Fabricius, 1793)

Czech Republic: Brno (67–6865), 10.v.1940, 1 ♀Q, Šn; 1.ix.1941, 1 ♂, Če; 8.ix.1942, 1 ♀W, Šn; ix.1943, 1 ♀Q, 1 ♀W, Ob; 11.x.1942, 5 ♂, 2 ♀W, Šn; 24.v.1977, 1 ♀Q, Ra; v domě, 27.v.1936, 1 ♀Q. – Brno-Bobrava (6865), 4.iv.1948, 2 ♀Q, Šn. – Brno-Bystrc (6765), 5.v.1943, 1 ♀Q, Šn; 14.v.1943, 1 ♀Q, Šn; 18.v.1943, 1 ♀Q, Šn. – Brno-Hády (6766), 2.v.1950, 1 ♀Q, Ob. – Brno-Královo Pole (6765), ix.1944, 1 ♀W, Ob. – Brno-Kraví hora (6865), 8.x.1942, 1 ♀W, Šn; 12.vii.1947, 1 ♀W, Šn. – Brno-Moravany (6865), 20.vi.1942, 2 ♀Q, Šn; 21.iv.1943, 1 ♀Q, Šn; 22.v.1943, 3 Q ,Šn. – Brno-Řečkovice (6765), 7.v.1942, 1 ♀Q, Šn. – Brno-Žabovřesky (6765), 12.viii.1945, 1 ♀W, Šn. – Brno-Žlutý kopec (6865), 27.viii.1940, 1 ♀W, Šn; 3.ix.1941, 2 ♀W, Šn; 25.iv.1951, 1 ♀Q, La; 9.iv.1962, 3 ♀Q, La. – Bruntál (6070), 28.vii.1950, 2 ♀W, Šn. – Čejč (7067), 26.iv.1953, 2 ♀Q, Ko; viii.1954, 1 ♀W, Ko; ix.1956, 1 ♀W, Ko; 20.v.1957, 1 ♀Q, Ko. – Dolní Dunajovice (7165), Kraví hora hill, rubble, 27.vii.1952, 2 ♀W, St. – Dolní Věstonice (7165), 16.viii.1976, 1 ♀W, Ko. – Hodonín (7168), iv.1953, 3 ♀Q, Ko. – Horní Věstonice (7165), 25.vii.1950, 2 ♀W, St. – Jevíčko (6366), 30.vii.1962, 1 ♀Q, Ol. – Kienberk (7165), 22.vi.1950, 1 ♀W, St; 29.viii.1950, 2 ♀W, St. – Kytín (6151), viii.1957, 1 ♀W, Mc. – Libějovické Hory (6850), 1.viii.1934, 1 ♀W. – Lukov (6772), 21.v.1973, 1 ♀Q, Kr. – Mikulov (7165), cemetery, 8.viii.1950, 1 ♀W, St; Janičův vrch hill, 11.viii.1950, 1 ♀W, St; 16.viii.1950, 2 ♀W, St; military exercising ground, 8.viii.1950, 1 ♀W, St; sand pit under brickworks, 1.viii.1950, 2 ♀W, St; S under Turold, 19.iv.1952, 1 ♀Q, St; Svatý Kopeček, 26.vii.1950, 2 ♀W, St; Svatý Kopeček, S slope, 19.vii.1950, 1 ♀W, St; Svatý Kopeček II, 31.vii.1950, 2 ♀W, St; 4.viii.1950, 2 ♀W, St; 14.viii.1950, 1 ♀W, St. – Nesovice (6868), 3.viii.1950, 1 ♀Q, Ne; 7.v.1951, 1 ♀Q, Ne; 6.vii.1951, 1 ♀Q, Ne. – Olomouc-Lazce (Letná) (6369), at home, 20.x.1961, 1 ♂, La. – Pasohlávky (7065), 18.iv.1977, 2 ♀Q, Ko. – Pavlovské vrchy (7165–6), 12.iv.1946, 1 ♀Q, Ob. – Perná (7165), Kotelná, 17.vii.1950, 1 ♀W, St; under Kotelná, 30.viii.1950, 1 ♀W, St. – Popice (7065–6), 16.vii.1978, 1 ♀W, Ko. – Pouzdřany (7065), 31.viii.1937, 1 ♀W, Gr; 9.vi.1942, 1 ♀Q, Šn; 30.vi.1942, 1 ♀Q, Šn; 12.v.1943, 1 ♀Q, Šn; 8.ix.1943, 1 ♀W, Šn; 21.v.1944, 1 ♀Q, Pe; 5.ix.1945, 1 ♂, Šn; 18.v.1946, 1 ♀Q, Ob; 30.v.1946, 1 ♀Q, Šn. – Ratíškovice (7068–9), 28.v.1974, 1 ♀Q, La. – Rokytnice nad Jizerou (5258), vii.1954, 1 ♀W, Mc. – Senorady (6863), 16.v.1939, 1 ♀Q, Mt; 7.viii.1939, 1 ♀W, Mt; 10.viii.1939, 1 ♀W, Mt. – Silůvky (6864), 26.iv.1997, 1 ♀Q, Km. – Sulava (5952), 9.viii.1953, 2 ♀W, Mc. – Šlapanice (6866), 3.v.1948, 2 ♀Q, To. – Troubsko (6865), 7.x.1983, 1 ♀W, Ra. – Trstěnice (7063), 26.viii.1963, 1 ♀W, La. – Uherský Brod (6971), Vinohrady, Búda Polanské, 20.v.1967, 1 ♀Q, St. – Valtice (7266), moors in windbreak, 11.v.1971, 1 ♀Q, Ol. – Vlčnov (6971), Myšince, 18.v.1958, 1 ♀Q, St; 25.v.1958, 1 ♀Q, St. – Vráž (6050), viii.1956, 1 ♀W, Mc. – Vyškov (6767–8), viii.1980, 1 ♀W, Ko. – Zakřany (6863), 29.v.1944, 1 ♀Q, Pe.
Slovakia: Gbelce (8177), vi.1955, 1 ♀Q, Ko. – Hronsek (7380), iv.1955, 2 ♀Q, Ko. – Chotín (8175), 29.iv.1951, 1 ♀Q, St. – Komárno (8174), Balvany, 30.iv.1957, 1 ♀Q, St. – Lešť (7681), vi.1953, 1 ♀Q, Ko; v.1955, 2 ♀Q, Ko. – Lučenec (7684), Rárospuszta, 23.vii.1959, 1 ♀W, St. – Modrý Kameň (7782), Hor. Strehová, Vanov – S slope, 14.viii.1959, 1 ♀W, St. – Štúrovo (81–8278), vi.1956, 1 ♀Q, Ko. – Tornalja (7587), Barca, valley S, 2.ix.1960, 1 ♀W, St. – Turňa nad Bodvou (7391), Jablonov, 17.vii.1961, 1 ♀W, St. –Zadiel, Krkavčí skály (7390), 8.vii.1976, 1 ♀W, La. – Želiezovce (7977), Nýrovce – Agov Kövecs Bánya I, 10.vii.1965, 1 ♀Q, St.
Turkey: 25 km SO Kytahia, 31.viii.1955, 1 ♀W, St.

Vespula vulgaris (Linnaeus, 1758)

Czech Republic: Brno (67–6865), x.1939, 1 ♀Q, Gr; 21.x.1940, 2 ♀W, Fi; 11.x.1942, 6 ♀W, Šn; 31.xi.1942, 1 ♀W, Šn. – Brno (6765), botanical garden, 18.viii.1951, 1 ♂, Ne. – Brno-Bosonohy (6868), Leskava stream,

pitfall trap, 3–7.ix.2004, 1 ♀W, Ma & Db. – Brno-Bystrc (6765), 23.iv.1943, 1 ♀Q, Šn. – Brno-Hády (6766), 19.ix.1941, 1 ♀W, Šn; 24.iv.1943, 1 ♀Q, Šn; 19.v.1943, 1 ♀Q, Šn; 14.vi.1943, 2 ♀Q, Šn. – Brno-Kraví hora (6865), 8.ix.1942, 1 ♀W, Šn; 15.viii.1945, 2 ♀W, Šn. – Brno-Pisárky (67–6865), 5.ix.1943, 2 ♀W, Šn. – Brno-Řečkovice (6765), 26.viii.1941, 1 ♀W, Šn; 8.viii.1946, 1 ♀W, Šn; 2.vii.1948, 1 ♀Q, Šn; 27.v.1950, 1 ♀Q, Šn. – Brno-Sirotčí Street 34 (6765), 25.vii.1945, 1 ♀W, Šn. – Brno-Žabovřesky (6765), 12.viii.1945, 1 ♀W, Šn. – Brno-Žlutý kopec (6865), 5.vi.1952, 1 ♀Q, Sh; 9.iv.1962, 1 ♀Q, La. – Čejč (7067), vii.1956, 1 ♀W, Ko; viii.1957, 1 ♀W, Ko; viii.1958, 1 ♀W, Ko; viii.1967, 1 ♀W, Ko. – Čtyři Dvory (6464), 22.ix.1999, 1 ♀Q, La. – Gruň (6476), 28.vi.1950, 1 ♀Q, Šn. – Horní Lipová (5768), vii.1946, 1 ♀W, Mt. – Hrušovany (7164), brickworks, 27.vii.1950, 1 ♀W, St. – Chuděrov (5350), 23.ix.1954, 1 ♀W, Sr. – Kienberk (7165), 29.viii.1950, 1 ♀W, St. – Kytín (6151), viii.1957, 1 ♀Q, 7 ♀W, Mc. – Libavá (6271), vi.1958, 1 ♀Q, Ko. – Libějovické Hory (6850), 1.viii.1934, 1 ♀W. – Macocha (6666), ix.1943, 1 ♀Q, Ob. – Malý Děd (5968), 17.vi.1949, 1 ♀Q, Ob. – Mikulov (7165), 31.vii.1950, 1 ♀W, Šn; Svatý Kopeček, 26.vii.19501 ♀W, St. – Mohelno (6863), 26.ix.1941, 1 ♀W, Šn; viii.1943, 1 ♀W, Mt. – N. Kulničky, 15.v.1944, 1 ♀Q, Pe. – Náměšť nad Oslavou (67–6862–3), 10.vi.1946, 1 ♀W, Ob. – Nebovidy (6865), 25.viii.1944, 1 ♀W, Šn. – Nesovice (6868), 1 ♀Q, Ne. – Nové Město nad Metují (5662), vii.1956, 3 ♀W, Mc; viii.1958, 1 ♀Q, 2 ♀W, Mc. – Oslava River valley (6863), 1.viii.1943, 2 ♀W, Šn. – Ostopovice (6865), Leskava stream, pitfall trap, 7–14.ix.2004, 1 ♀W, Ma & Db. – Pasohlávky (7065), 10.iv.1977, 1 ♀Q, Ko. – Pouzdřany (7065), 9.vi.1943, 2 ♀Q, Šn; 8.ix.1943, 1 ♀W, Šn. – Prosetín (6464), juniper forest, 21.ix.1999, 1 ♀Q, La. – Radiměř (62–6364), S, fore and hind glenn, 1.x.1956, 2 ♀W, St. – Radotín (6052), 1.viii.1954, 2 ♀W, Pd. – Rokytnice nad Jizerou (5258), vii.1954, 3 ♀W, Mc. – Řásná (6758), bog near pond "Velký Pařezitý", 13.ix.1978, 2 ♀W, La. – Senorady (6863), 1938, 2 ♀W, Mt; 20.vii.1939, 2 ♀W, Mt. – Sobotín (5968), 2.viii.1949, 2 ♀W, Šn. – Staré Hamry (64–6576), 27.vi.1950, 1 ♀Q, Šn; 28.vi.1950, 2 ♀Q, Šn. – Visaláje (6477), 1.vii.1950, 1 ♀W, Šn; 2.vii.1950, 1 ♀Q, Ob. – Vyškov (6767–8), 4.v.1948, 1 ♀Q, Ne. – Zakřany (6863), 29.v.1944, 1 ♀Q, Pe. – Závist (6561), Netínský pond environ, 22.viii.1978, 1 ♀W.

Slovakia: Hronsek (7380), iv.1955, 3 ♀Q, Ko. – Kozol u Žiliny (6878), 17.vii.1950, 1 ♀W, Pe. – Lešť (7681), v.1955, 1 ♀Q, Ko. – Štúrovo (81–8278), viii.1962, 2 ♀W, Ko.

Discussion and Conclusions

In total, eleven species of social wasps are known from the Czech Republic and Slovakia (PÁDR 1989). All of them are represented in the collections of MMBC.

The material representing the social parasites *Dolichovespula adulterina* and *D. omissa* is especially noteworthy. *D. adulterina* is documented by specimens from five sites in Moravia and one in Slovakia, *D. omissa* from one site in Bohemia, seven sites in Moravia, and one site in Slovakia. Both species are very rarely found, but occur scattered throughout the whole territory of the Czech Republic and Slovakia. PÁDR (1989) reports the both species from Bohemia, *D. adulterina* from Moravia, and none from Slovakia. He probably omitted the records of *D. omissa* published from northern Moravia by ZAVADIL (1948) and ŠNOFLÁK (1952). Judging from the material in MMBC, *D. omissa* could be relatively more common in mountainous parts of Moravia (the Jeseníky Mts.). As shown by SMETANA (2000). *D. adulterina* and *D. omissa* are regular members of the Slovak fauna. The finds deposited in MMBC are the oldest known from Slovakia. Both species can occasionally occur in higher numbers (KUHLMANN 2002, for *D. adulterina* in eastern Germany).

Dolichovespula media is recorded from lowlands as well as from mountains. It prefers forest areas of different kind (coniferous, mixed, broadleaf, or floodplain forests, orchards etc.). Apart from the social parasites, it is probably the rarest wasp species in the Czech Republic, distributed in the whole country, but only sporadically found. A similar distribution pattern is known from Slovakia (SMETANA 1998).

Dolichovespula saxonica and *D. sylvestris* are very common species in the Czech Republic and Slovakia. Both prefer forest areas. *D. saxonica* prevails slightly, especially at higher elevations.

Dolichovespula norwegica is a boreo-alpine species distributed throughout the Czech Republic. In lowlands, however, it occurs only very rarely. Preferred habitats are situated in the highest forests and bogs of mountain parts. In Slovakia, *D. norwegica* also occurs only sporadically at lower altitudes (predominantly in valleys with climatic inversion) while in the subalpine zone it is the most common wasp species (Smetana 1998). In four peat bogs in south-eastern Germany, *D. norwegica* accounted for more than 50% of specimens of social wasps (Kuhlmann & Quest 2003).

Vespula rufa is a common wasp in the Czech Republic and Slovakia. It significantly prefers forest stands. It is followed by its social parasite, *V. austriaca*, the most common parasitic wasp species in the Czech Republic.

Vespula vulgaris and *V. germanica* are the ubiquitous social wasps in the both countries. *V. germanica* is anthropophilous and more common in open areas up to an altitude of ca. 800 m. *V. vulgaris* is eurytopic, common in urban areas as well as montane forests, where it may occur together with *V. rufa*, the dominant wasp species (Kuhlmann 2002), but it is less frequent in open habitats.

Vespa crabro is a slightly thermophilous wasp, common at lower elevations, mostly in floodplain and xerophilous forests, and orchards.

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