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New faunistic records of Aculeata (Hymenoptera) from the Czech Republic

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Abstract: Here, a total of 48 species of Aculeata (Hymenoptera) are reported, of which 14 are new for the Czech Republic: *Chrysis interjecta* Buysson, 1895, *Holopyga minuma* Linsenmaier, 1959, *Stenodynerus clypeopictus* (Kostylev, 1940), *Liris niger* (Fabricius, 1775), *Andrena dorsalis* Brullé, 1832, *Nomada connectens* Pérez, 1884, *Nomada posthuma* Blüthgen, 1949, *Lasioglossum angusticeps* (Perkins, 1895), *Lasioglossum bavaricum* (Blüthgen, 1930), *Sphecodes alternatus* Smith, 1853, *Coelioxys ruficauda* Lepeletier, 1841, *Osmia* (*Hoplosmia*) *ligurica* Morawitz, 1868, *Epeolus julliani* Pérez, 1884, *Parammobatodes minutus* (Mocsáry, 1878). For Moravia, 13 species are newly recorded and for 10 species the occurrence in Moravia was confirmed, as they were considered regionally extinct. For Bohemia, 13 species are newly recorded and the occurrence of 7 species that were considered regionally extinct were confirmed. Two species are newly recorded for Moravia, having previously only been known from Bohemia. One species is newly recorded for both Moravia and Bohemia, and three species are confirmed in both faunistic regions.

Keywords: wasps, bees, diversity, Central Europe, faunistic records

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Introduction

The order Hymenoptera is among the most speciose groups of insects worldwide with about 115,000 known species, which contains ca. 13 % of all described insect diversity. However, this number probably reflects only a small part of the actual species richness, a large part of which is still undiscovered (and may remain so) (Macek et al. 2010). Despite the fact that this group of insects is of great importance both biologically and economically – and in many ways a source of inspiration – it still receives comparatively less attention than some other insect orders with high species richness (Bogusch et al. 2007, Macek et al. 2010). In the Czech Republic and Slovakia, approximately 7,500 species of Hymenoptera have been recorded so far. A similar number of species is there known from only for the orders Coleoptera and Diptera. Although Hymenoptera are highly diversified, they cannot be interpreted as a popular and well-studied group by researchers, especially in our country (Bogusch et al. 2007). In the Czech Republic, a total of 1304 species of aculeate Hymenoptera (excluding ants) have been recorded (Bogusch et al. 2007, Bogusch et Straka 2017a, b, Straka et Bogusch 2017a, b).

Aculeata is an inner group of Hymenoptera, easily defined by their characteristic modification of the ovipositor. It serves as a stinging apparatus connected to a venom gland, rather than an apparatus for egg deposition. Eggs are deposited through the opening at the base of the sting (Bogusch et al. 2007). Traditionally, three superfamilies – Chrysidoidea, Vespoidea and Apoidea – were recognised in the Aculeata (Brothers 1999). According to current phylogenomic studies, Chrysidoidea still represents the first monophyletic group of Aculeata, and Apoidea, which includes sphecid and crabronid wasps and bees, remain the most derived group (Peters et al. 2017). The situation is more complicated with the superfamily Vespoidea, which traditionally included most of the remaining vespoid lineages as well as ants but has been revealed as polyphyletic. It is currently divided into the superfamilies Vespoidea, Tiphioidea, Thynnoidea, Pompiloidea, Scolioidea, and Formicoidea (ants) (Peters et al. 2017). Moreover, there were also some taxonomic changes in Apoidea, especially concerning the phylogenetic position of bees within the group of digger wasps. Although digger wasps were traditionally divided into three families – Ampulicidae, Crabronidae, and Sphecidae, due to the polyphyly of Crabronidae sensu lato, they have been split into several families: Ampulicidae, Astatidae, Sphecidae, Mellinidae, Crabronidae, Bembicidae, Philantidae, Pemphredonidae, Psenidae and Ammoplanidae. The latter being the sister group to bees (Sann et al. 2017).

Compared to the interest in parasitoid lineages of Hymenoptera, where research has been rather sporadic, the study of Aculeata in the Czech lands has had a rich and long-standing tradition. A historical overview of Aculeata research in our country was thoroughly summarized by Bogusch et al. (2007). Since the beginning of the millennium, the number of Czech and also Slovak professional and amateur specialists in aculaeate Hymenoptera has been increasing. The most significant milestone works include the first complete checklist of all Aculeata species of the Czech and Slovak Republics (Bogusch et al. 2007), followed by the publication of the Atlas of aculeate Hymenoptera of the Czech Republic with extensive photographic documentation and detailed information on individual species (Macek et al. 2010).

In recent years, intensive faunistic surveys have been carried out in both Bohemia and Moravia. New species are still being discovered – either those that have expanded their range to our area due to climate change, rare relict species that survive in poorly researched border regions, or species that have simply escaped attention (Straka et al. 2015, Šlachta et al. 2020, 2021, 2022). The main aim of this article is to extend the knowledge about the fauna of selected superfamilies of aculeate Hymenoptera in the Czech Republic, with subsequent comments on their distribution and their biology.

Material and Methods

The Czech Republic, or Czechia, is currently divided into two "historical" regions for the purposes of floristic and faunistic research: western–Bohemia (B) and eastern–Moravia, including the Moravian part of Silesia (M) (Fig. 1). The Bohemian-Moravian border (420 km) runs from Králický Sněžník in the north-east to the Bohemian-Moravian-Lower Austrian border west of Slavonice in the south-west. Its course roughly follows the main European watershed between the North Sea basin (Elbe basin) and the Black Sea basin (Morava and Danube basins) (Bogusch et al. 2007, Hovorka et al. 2024).

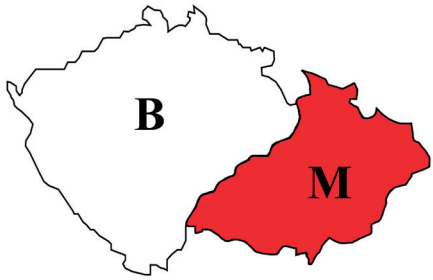

Fig. 1. Faunistic division of the Czech Republic (B – Bohemia, M – Moravia). Adopted from Hovorka et al. (2024).

The study focused on selected groups of Hymenoptera, in particular all lineages within the stinging Hymenoptera (Hymenoptera: Aculeata), with the exception of ants. Due to their predominantly subterranean lifestyle, ants require different sampling methods than other aculeates and are therefore usually analysed separately. Data on new species for the Bohemian and Moravian fauna were obtained partly from collecting activities of the authors, and partly by a revision of museum collections. The general habitus was documented with multifocus images (Fig. 2), taken with Canon EOS 550D or 70D cameras equipped with EF 50 mm and MP-E 65 mm macro lenses. Lateral lights and a diffuser were used. The photographs were stacked from multiple layers using the Helicon Focus 8.2.0 Pro software. Final images were processed and arranged into plates with Adobe Photoshop® CS5 (Adobe System Incorporated, San Jose, USA) software. CorelDraw® X8 (CorelDraw Corporation, Ottawa, ON, Canada) was used for the lettering of the plates.

Results

CHRYSIDOIDEA: CHRYSIDIDAE

***Chrysis interjecta* (Buysson, 1895)**

Moravia mer., Šardice env., 48°58'36.426"N 17°0'25.945"E, 3.-13.vii.2024, 1 m*, M. Šlachta lgt. et coll., M. Halada det.

A known nesting parasitoid of megachilid bees *Pseudoanthidium nanum* (Mocsáry, 1880) and *Anthidium manicatum* (Linnaeus, 1758) (Wiesbauer et al. 2000). The species is distributed in Europe from Spain to Lithuania (Agnoli et Rosa 2025). From neighboring countries, it is recorded from Slovakia and Austria. The species is also reported from the Czech Republic, but without exact data (Agnoli et Rosa 2025, Wiesbauer et al. 2000). Confirmation of occurrence in the Czech Republic (Moravia).

***Chrysis ragusae* (De Stefani, 1888) (Fig. 2A)**

Bohemia centr., Praha env., PP Trojská, 50°07'16.2"N 14°26'20.2"E, 1.-12.vii.2023, 1 f*, D. Benda lgt., J. Straka det., coll. National Museum of the Czech Republic Prague (NMPC).

Host unknown (Wiesbauer et al. 2000), although *Leptochilus regulus* (Saussure, 1856) is highly likely based on co-occurrence and simultaneous expansion of both species (J. Straka, personal data). The species is distributed in Europe from France to Greece (Agnoli et Rosa 2025). In Central Europe, it is known from the Czech Republic, Germany, Austria, and Slovakia (Wiesbauer et al. 2000). Known from Moravia, new species for Bohemia.

***Holopyga minuma* (Linsenmaier, 1959)**

Moravia mer., Boří les env., 48°44’10.846”N 16°52’8.789”E, 19.vi.2017, 1 m*, swept, J. Straka lgt., det. & coll.

Host unknown (Wiesbauer et al. 2000). The species occurs in the Balkans and extends northward into Central Europe (Agnoli et Rosa 2025, Wiesbauer et al. 2000). It is also reported from the Czech Republic, but without exact data (Agnoli et Rosa 2025). Confirmation of occurrence in the Czech Republic (Moravia).

POMPILOIDEA: MUTILLIDAE

***Ronisia brutia* (Fabricius, 1797)**

Bohemia centr., Praha-Radotín env., Radotínské údolí Natural Reserve, 50°0’4.042”N 14°19’10.675”E, 28.vi.2023, 1 m*, P. Bogusch lgt., det. & coll.

Reported as a parasitoid of paper wasps (*Polistes* sp.) and megachilid bees – *Megachile sericans* (Fonscolombe, 1832) and *M. parietina* (Geoffroy, 1785). Distributed in Southeastern Europe and the Middle East, extending into Central Europe (Macek et al. 2010). This species is historically known from the Moravian region of the Czech Republic, with the most recent occurrence dating back to 1946 (Bogusch 2006). It was supposed to be regionally extinct in our country according to the current red list (Bogusch et Straka 2017b). Confirmed occurrence in the Czech Republic and first record for Bohemia.

POMPILOIDEA: POMPILIDAE

***Ceropales variegata* (Fabricius, 1798)**

Moravia mer., Sedlec u Mikulova env., at the railway station near Slanisko u Nesytu National Nature Reserve, 48°46’25.742”N 16°42’14.674”E, 26.vi.2019, 1 f*, 7.viii.2019, 1 m*, Pálava Protected Landscape Area, Klentnice env., Sirotčí hrádek, 48°50’42.481”N 16°38’26.700”E, 26.vi.2019, 2 mm*, Dolní Dunajovice env., Dunajovické kopce National Nature Monument, 48°50’39.710”N 16°34’4.445”E, 25.vi.2019, 1 m*, Dyjákovičky env., Ječmeniště Nature Reserve, 48°44’43.751”N 16°8’56.408”E, 25.vi.2019, 1 m*, all P. Bogusch lgt., det. & coll.

Nesting parasite of *Pompilus cinereus* (Fabricius, 1775). It is found in Southern and Central Europe, extending into Scandinavia and to the east into Central Asia. A very rare species, threatened by the overgrowing of steppe habitats and the associated decline of host populations (Macek et al. 2010). Species historically known from warmer regions of the Czech Republic, with last records dating back to the 1940s (Wolf 1971; Bogusch et Straka 2017b). Confirmed occurrence of the species in the Czech Republic (Moravia).

***Ceropales pygmaea* (Kohl, 1879)**

Moravia mer., Nemojany env., reed bed at Chobot pond, 49°15’11.454”N 16°54’3.914”E, 11.vii.2018, 2 mm*, P. Heneberg lgt., P. Bogusch det. & coll.

Palearctic species, widely distributed from Spain to eastern Russia and Japan. It probably inhabits only reed beds growing in dry conditions and in areas with very hot summers. Very rare species with only one record from Dolní Věstonice (Moravia) from 1935, supposed to be regionally extinct (Wolf 1971, Bogusch et Straka 2017b). Host of this species is very likely *Anoplius caviventris* (Aurivillius, 1907) (Wolf 1971). Confirmed occurrence of the species for the Czech Republic (Moravia).

VESPOIDEA: VESPIDAE

***Stenodynerus clypeopictus* (Kostylev, 1940)**

Bohemia centr., Dlouhopolsko env., Dlouhopolsko National Nature Monument, 50°10’2.746”N 15°18’52.197”E, April 2016, 1 m*, 1 f*, reared from gall of *Lipara lucens* Meigen, 1830, P. Bogusch ex larvae, det. & coll.; Bohemia or., Hrobice env., Baroch Natural Reserve,

50°5’43.679”N 15°46’55.478”E, 9.viii.2019, 1 m*, P. Bogusch lgt., det. & coll.; Moravia mer., Břeclav env., Caravan camp Apollo, 48°47’14.739”N 16°49’27.626”E, 24.v.2012, 1 m*, from pan traps, D. Benda lgt. & det., NMPC coll.; Pavlov env., reed bed at Nové Mlýny water reservoir, 48°52’9.641”N 16°41’12.903”E, March 2017, 1 m*, 1 f*; Trkmanice env., Trkmanec-Rybníčky Nature Reserve, 48°52’1.500”N 16°50’23.365”E, March 2017, 2 mm*; Moravia bor., Ostrava env., Rezavka Nature Reserve, 49°47’53.979”N 18°12’9.203”E, March 2016, 1 m*, all reared from gall of *Lipara lucens*, P. Bogusch ex larvae, det. & coll.

Palearctic species, widely distributed from Spain to eastern Russia and Japan. Occurrence is known from Slovakia, Germany, and it was recently recorded in Poland (Żyła et Posłowska 2018). This species occurs in reed beds and creates its nests in galls caused by *Lipara* fruit flies (Diptera: Chloropidae) on *Phragmites australis*. Bogusch et al. (2020a) reported the species from Slovakia and Hungary, while these are the first records of this species from the Czech Republic (Bohemia and Moravia).

SCOLIOIDEA: SCOLIIDAE

***Megascolia maculata* (Drury, 1773)**

Bohemia or., Sobětuchy env., 1 f*, 1.vii.2024, V. Wimmerová observ., D. Benda & P. Bogusch det.

A parasitoid of scarab beetles, primarily the European rhinoceros beetle *Oryctes nasicornis* (Linnaeus, 1758). Mediterranean species, distributed throughout the southern half of the Palearctic region; in Europe, it is represented by three subspecies. It extends into Central Europe in the nominotypical subspecies, characterized by reddish pubescence on the thorax and the terminal abdominal segments (Macek et al. 2010). The first record of its occurrence in the Czech Republic dates back to 2009 in South Moravia (Macek et al. 2010), where it is currently locally common. New species for Bohemia.

APOIDEA: BEMBICIDAE

***Alysson ratzeburgi* (Dahlbom, 1843) (Fig. 2B)**

Moravia or., Bohuslavice u Hlučína env., 49°56’27.957”N, 18°9’54.910”E, 8.-13.v.2021, 2 mm*, 1 f*, 13.-18.v.2021, 1 m*, 2 ff*, D. Benda lgt. & det., NMPC coll.

Distributed in Europe, North Africa, Eastern Asia, extending eastward as far as Japan (Nemkov 2014). A very rare species in Central Europe, but more common in Northern Europe. Recently confirmed from northern Bohemia after decades (Straka et Bogusch 2017a). Last findings from Moravia date back to the 1940s (Straka et Bogusch 2017a). Confirmed occurrence in Moravia.

***Gorytes quadrifasciatus* (Fabricius, 1804)**

Bohemia occ., Rájov env., 50°0’2.432”N 12°45’29.054”E, on flowers of *Heracleum mantegazzianum*, 11.vii.2020, 1 f*, P. Bogusch lgt., det. & coll.; Bohemia centr., Praha env., Nákladové nádraží Žižkov, 50°5’5.857”N 14°28’35.870”E, 15.vii.2020, 1 f*, J. Černý lgt., P. Bogusch det. & coll.

Distributed in Europe to East Asia, southward to northwest Africa (Schmid-Egger 2002). Rare species in its whole distribution area. In the Czech Republic known from several, mostly old records. In Moravia recorded in 2005, last record from Bohemia dates back to 1951 (Straka et Bogusch 2017a). Confirmed occurrence in the Czech Republic (Bohemia).

***Harpactus formosus* (Jurine, 1807)**

Bohemia centr., Praha env., Zlíchov, 1 m*, 10.viii.1908, O. Šustera lgt., Praha env., Radotín, 21.vi.1942, 1 m*, M. Kocourek lgt., Praha env., Velká Chuchle, 11.vii.1910, 1 f*, Noutonice – Kováry env., 6.vi.1953, 1 m*, Z. Bouček lgt.; Moravia mer., Brno env., Hády, 10.viii.1936, 1 f*, 1 m*, F. Gregor lgt., Pouzdřany env., 29.viii.1937, 1 m*, F. Gregor lgt., all specimens D. Benda det., NMPC coll.

Widely distributed species from Portugal to Uzbekistan, and from Morocco to Saudi Arabia (Gadallah et al. 2013). Very rare in Central Europe. The most recent published record from the Czech Republic came from Bohemia in 1999 (Bogusch et al. 2007). The occurrence in Moravia was published later, and only occasional records from the first half of the 20th century are known (Straka et Bogusch 2017a). We provide additional data due to frequent misidentification with *Harpactus laevis* (Latreille, 1792). Confirmed historical occurrence in the Czech Republic (Moravia and Bohemia).

***Nysson interruptus* (Fabricius, 1798)**

Moravia mer., Podyjí National Park, Hnanice env., Horecký kopec Nature Monument, 48°47'39.563"N 15°58'27.426"E, 29.v.2017, 1 m*, P. Bogusch lgt., det. & coll.

Distributed throughout Europe and into the Near East, a very rare species in many European countries (Pulawski 2025). Regionally extinct species in the Czech Republic, last finds from Bohemia and Moravia date back to the 1940s (Straka et Bogusch 2017a). Confirmed occurrence in the Czech Republic (Moravia).

APOIDEA: CRABRONIDAE

***Liris niger* (Fabricius, 1775)**

Moravia mer., Slup env., PP Ječmeniště, 48°44'46.094"N 16°8'48.776"E, 8.viii.2019, 1 f*, Z. Karas lgt., det. et coll.; Pouzdřany env., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 28.vii.2023, 7ff*, 5mm*, M. Halada lgt. et coll., Z. Karas det.; 8.v.2024, 1 f*, V. Němec lgt. et coll, Z. Karas det.

A Mediterranean species, occurring in Southern Europe and North Africa, extending into Central Europe and reaching eastward as far as Central Asia (Macek et al. 2010). A thermophilous expansive species that is extending its range. New species for the Czech Republic (Moravia).

***Nitela truncata* (Gayubo & Felton, 2000)**

Bohemia bor., Kalek env., Načetín u Kalku, Novodomské rašeliniště National Nature Reserve, 50°32'56.262"N 13°16'11.119"E, 8.viii.2017, 3 ff*, K. Holý lgt., P. Bogusch det. & coll.

Newly described species, widely distributed in western and southern Europe (Gayubo et Felton 2000). It extends eastward as far as Turkey (Kaplan et Yildirim 2023). New species for the Czech Republic (Bohemia).

APOIDEA: PHILANTHIDAE

***Cerceris quadricincta* (Panzer, 1799)**

Bohemia or., Lázně Bohdaneč, Bohdanečský rybník National Nature Reserve, 50°5'23.509"N 15°39'51.628"E, 9.viii.2019, 1 m*, 1 f*, P. Bogusch lgt., det. & coll.; Bohemia centr., Praha env., Malá Strana, PP Petřín, Seminářská Garden, 50°5'6.000"N 14°23'59.280"E, 21.-30.vi.2020, 1 f*, 20.-29.viii.2020, 1 f*, from yellow pan traps, J.Straková & J. Straka lgt., J. Straka det. & coll., Praha env., Malá Strana, PP Petřín, 50°5'7.718"N 14°24'3.221"E, 22.vii.2020, 1 f*, swept, P. Marhoul lgt., J. Straka det. & coll.

Distributed in Southern and Central Europe, north to Great Britain, North Africa, and eastward as far as Central Asia (Schmidt 2000). Formerly rare species, in Czech Republic previously known only from Moravia (Straka et Bogusch 2017a). First records for Bohemia.

APOIDEA: PEMPHREDONIDAE

***Passaloecus vandeli* (Ribaut, 1952)**

Bohemia centr., Praha-Smíchov env., PP Petřín, Kinských Garden, 50°4'45.120"N, 14°23'51.000"E, 10.viii.2020, 1 f*, Praha-Malá Strana env., PP Petřín, Lobkovická Garden, 50°5'5.280"N, 14°23'39.120"E, 18.vii.-1.viii.2020, 4 mm*, 1.-10.viii.2020, 2 mm*, all

specimens from yellow pan traps, J. Straková & J. Straka lgt., det. & coll.

A thermophilous species of southern regions, distributed from Portugal to Turkey, absent in Northern Europe (Pulawski 2025). Recently published as a new species for the Czech Republic from southern Moravia (Straka et al. 2015). New species for Bohemia.

APOIDEA: PSENIDAE

***Psenulus chevrieri* (Tournier, 1889)**

Moravia mer., Bzenec env., wetland, 48.9689119N, 17.2902781E, 2018, 1 f*, Hodonín env., wetland, 48°53'17.946"N, 17°3'23.836"E, 2018, 3 mm*, 1 f*, Hustopeče env., field wetland, 48°55'11.694"N, 16°45'56.344"E, 2018, 2 mm*, reared from trap nests, P. Heneberg lgt., P. Bogusch ex larvae, det. & coll.

Mainly distributed in Central and Northern Europe, as well as the Balkan Peninsula (Pulawski 2025). The name *Psenulus brevitarsis* (Merisuo, 1937) was recently synonymized with this species which has altered the understanding of its distribution (Schmid-Egger 2016). Rare species recorded in Bohemia in 2009 with only one record from Moravia from 1990 (Straka et Bogusch 2017a). Confirmed occurrence in Moravia.

APOIDEA: ANDRENIDAE

***Andrena curtula* (Pérez, 1903)**

Moravia mer., Javorník env., Velický hliník National Monument, 48°51'42.881"N 17°31'6.743"E, 2.vii.2018, 1 f*, Těšany env., field wetland, 49°2'22.182"N 16°47'14.040"E, 2.vii.2018, 1 f*, both P. Heneberg lgt., P. Bogusch det. & coll.

Species primarily distributed in Western Europe (Rasmont et al. 2013). Species known from the Czech Republic from several old finds (Kocourek 1966), with the newest from Bohemia dating back to 1952 and from Moravia to 1946. Thus, it was supposed to be regionally extinct in the country (Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic (Moravia).

***Andrena danuvia* (Stoeckhert, 1950)**

Bohemia bor., Obrnice env., Zlatník National Nature Reserve, 50°30'58.145"N 13°42'53.555"E, 24.vi.2009, 1 f*, P. Marhoul lgt., P. Bogusch det. & coll.

Polylectic species. The exact distribution limits are unclear, as it is often confused with the closely related species *Andrena cineraria* (Linnaeus, 1758). The species is primarily distributed in the Balkan Peninsula and Turkey, extending to Central Europe (Scheuchl et Willner 2016). Species currently known from southern parts of Moravia, while records from Bohemia are old, with the newest record dating back to 1938 (Kocourek 1966, Straka et Bogusch 2017b). Confirmed occurrence in Bohemia.

***Andrena dorsalis* (Brullé, 1832)**

Moravia mer., Popovice env., Bažantnice Rajhrad, 49°06'03.1"N 16°37'13.2"E, 26.-30.iv.2024, 1 m*, yellow pan trap, J. Visser lgt., det. & coll.

Polylectic species. An East Mediterranean distribution, primarily found in Italy, the Balkan Peninsula, and Turkey, extending into Central Europe, with the nearest known occurrences in Slovakia and Hungary (Scheuchl et Willner 2016). This is the first record from the Czech Republic (Moravia).

***Andrena lagopus* (Latreille, 1809)**

Bohemia occ., Cheb env., Hůrka, meadow, 50°6'39.240"N 12°14'51.756"E, 15.v.2020, 1 m*, from yellow pan traps, J. Straka lgt., det. & coll.

Oligolectic on Brassicaceae. In Europe, distributed from Portugal to Hungary; in North Africa, from Morocco to Tunisia (Scheuchl et Willner 2016). Known from Moravia, where it may be locally abundant. New species for Bohemia.

***Andrena nuptialis* (Pérez, 1902) (Fig. 2C)**

Moravia mer., Podyjí National Park, Havraníky env., Havraníky Heath, 48°48'49.797"N 16°0'8.721"E, 30.vii.2015, 1 m*, 24.viii.2017, 1 f*; Podmolí env., Šobes vineyard, 48°49'2.547"N 15°58'32.033"E, 30.vii.2015, 3 mm*, 2 ff*, D. Benda lgt. & det., NMPC coll., all specimens on *Eryngium campestre*.

The first generation is likely polylectic, while the second generation shows a stronger association with Apiaceae. European species, distributed from southern Spain to western Ukraine; apart from records in Croatia, it is absent from the Balkan Peninsula (Scheuchl et Willner 2016). Species known from Bohemia, where it is probably extinct. The most recent occurrence record dates back to 1998. Records from southern Moravia are old, with the most recent dating back to 1940 (Kocourek 1966, Straka et Bogusch 2017b). Confirmed occurrence in Moravia.

***Andrena pallitarsis* (Pérez, 1903)**

Bohemia bor., Chlumčany, road embankment, 50°20'10.188"N 13°50'10.704"E, 16.vii.2016, 1 f*, O. Čížek lgt., P. Bogusch det. & coll.

Oligolectic on Apiaceae. In Europe, it is distributed from eastern Spain to central Romania, and further east to Siberia (Scheuchl et Willner 2016). Rare species, regionally extinct in the Czech Republic, with last record from Bohemia dating back to 1948 and from Moravia to 1940 (Kocourek 1966; Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic (Bohemia).

***Andrena paucisquama* (Noskiewicz, 1924)**

Bohemia mer., Český Krumlov env., NPR Vyšenské kopce, 48°49'12.518"N 14°17'24.585"E, 9.v.2023, 1 m*; 21.v.2023, 4 mm*; 29.v.2023, 1 f*; 1.vi.2023, 1 f*, M. Šlachta et J. Miesbauer lgt., M. Šlachta det. et coll.

Strictly oligolectic on bellflowers (*Campanula* spp., Fam. Campanulaceae). Widely distributed from Portugal to the Caucasus (Scheuchl et Willner 2016). Known from Moravia, new species for Bohemia.

***Andrena rufizona* (Imhoff, 1834)**

Bohemia mer., Český Krumlov env., NPR Vyšenské kopce, 48°49'24.703"N 14°17'39.663"E, 20.vii.2023, 1 m*, M. Šlachta et J. Miesbauer lgt., M. Šlachta det. et coll., J. Straka revid.

Strictly oligolectic on bellflowers (*Campanula* spp., Fam. Campanulaceae). A species of higher elevations. It occurs in the Pyrenees, the Alps and their foothills, the Carpathians, the Caucasus, and further east in the Urals and the Altai Mountains (Scheuchl et Willner 2016). In the Czech Republic, it is a very rare species, occurring only around Český Krumlov. Confirmed occurrence in the Czech Republic (Bohemia).

***Andrena transitoria* (Morawitz, 1871)**

Bohemia mer., Český Krumlov env., NPR Vyšenské kopce, 48°49'12.518"N 14°17'24.585"E, 6.vi.1998, 1 m*, Z. Karas lgt. et coll., J. Straka det.

Polylectic species. Distributed from eastern Austria through Turkey to the Lesser Caucasus, extending as far as Turkmenistan and Afghanistan (Scheuchl et Willner 2016). Within the Czech Republic, records are only known from the first half of the 20th century, specifically from southern Moravia (Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic and new species for Bohemia.

***Andrena trimmerana* (Kirby, 1802)**

Bohemia centr., Praha env., Přední Kopanina, 50°7'21.466"N 14°18'32.832"E, 20.vii.2020, 1 f*, M. Andreas lgt., Praha-Motol env., steppe, orchard, 50°4'1.639"N 14°19'39.043"E, 8.-14.iv.2018, 1 m*, J. Straka lgt., det. & coll., Praha-Lysolaje env., PP Housle, 50°7'32.599"N, 14°21'47.718"E, 30.iii.-9.iv.2019, 1 f*, 1 m*, J. Straka lgt., det. & coll., Praha-Dejvice env., Na Salátce, 50°6'16.834"N, 14°21'19.706"E, 30.iii.-9.iv.2019, 1 m*, J. Straka lgt., det. & coll.,

Sedlec forest, 50°11’34.8”N 14°27’10.1”E, 17-21.iv.2022, 1 m*, J. Visser lgt., det. & coll., Průhonice env., Michovky, 49°59’30.480”N, 14°34’43.680”E, 1.v.2020, 1 m*, D. Preininger lgt., J. Straka det. & coll., Kleneč env., Kleneč National Nature Monument, 50°23’22.966”N 14°15’25.118”E, 9.v.2022, 1 m*, P. Bogusch lgt.; Bohemia or., Sruby-Hluboká env., 50°0’14.815”N 16°9’7.456”E, on flowers of *Salix*, 5.iv.2020, 2 mm*, Hradec Králové-Malšova Lhota env., Orlice Natural Monument, 50°12’27.980”N 15°52’2.814”E, on flowers of *Salix*, 10.iv.2020, 1 m*, Dobříkov env., 49°59’52.253”N 16°9’3.254”E, on flowers of *Salix*, 1.iv.2021, 1 m*, Vysoké Mýto env., 49°56’57.276”N 16°8’30.934”E, on flowers of *Salix*, 1.iv.2021, 1 f*, all P. Bogusch lgt., det. & coll.; Moravia mer., Bulhary env., Křivé jezero National Nature Reserve, 48°50’42.674”N 16°43’34.324”E, on flowers of *Salix*, 12.iii.2020, 1 m*, Lednice, Mlýnský rybník, 48°47’15.878”N 16°48’31.312”E, on flowers of *Salix*, 28.iii.2020, 1 f*, both P. Bogusch lgt., det. & coll.

Polylectic species, it prefers trees and shrubs. A taxonomically complicated species with two generations, the first of which was long considered a separate species, *Andrena spinigera* (Kirby, 1802). Western Palaearctic species, occurring in North Africa and in Europe from Portugal to the Caucasus. The exact distribution limits are also unclear due to early misidentifications with the species *Andrena scotica* (Perkins, 1916) (Scheuchl et Willner 2016). In the Czech Republic, species recorded both in Bohemia and Moravia, but the number of findings is very small and the last record from Bohemia dates back to 1966 (Kocourek 1966, Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic (Bohemia) and additional records for Moravia.

APOIDEA: APIDAE

***Anthophora crinipes* (Smith, 1854)**

Moravia mer., Znojmo env., Načeratice Hill, 48°49’59.006”N 16°5’54.793”E, 16.v.2017, 1 m*, swept, P. Marhoul lgt. & coll., J Straka det.

Poly- to mesolectic species; pollen collection has been confirmed from plants of the families Boraginaceae and Apiaceae. Palearctic species, in North Africa from Algeria to Egypt, in Eurasia from Portugal to Kyrgyzstan and Iran (Scheuchl et Willner 2016). The species is listed as extinct in the Czech Republic, both in Bohemia and Moravia (Přidal 2004, Straka et Bogusch 2017b). Confirmed occurrence in Moravia.

***Bombus veteranus* (Fabricius, 1793)**

Moravia mer., Sokolnice env., Sokolnice Castle Park, 49°07’15.6”N 16°43’42.0”E, 21.-25. vii.2024, 1 f*, blue pan trap., J. Visser lgt., det. & coll.

Polylectic. Palearctic species, distributed from France to Mongolia; it occurs both in Northern Europe and the Balkans (Scheuchl et Willner 2016). In the first half of the 20th century, it was one of the most common bumblebee species in Central Europe; today it has almost disappeared and occurs only very locally. Recently confirmed from western and southern Bohemia (Straka et Bogusch 2017b, Šlachta et al. 2021). Last findings from Moravia date back to the 1940s (Straka et Bogusch 2017b). Confirmed occurrence in Moravia.

***Epeolus julliani* (Pérez, 1884)**

Moravia mer., Čejč env., July 1937, 1 m*, 1 f*, J. Šnoflák lgt., P. Bogusch det., coll. Biologiezentrum, Linz, Austria.

Kleptoparasitic species, host is unknown. Belongs to a taxonomically complicated species group, limiting knowledge on the exact distribution. Bogusch et Hadrava (2018) synonymised this species with *Epeolus transitorius* (Eversmann, 1852), but its species status was later restored (Le Divelec 2021). According to the latest taxonomic study, *E. julliani* occurs in North Africa and across Eurasia from southern Europe through the Middle East, the Caucasus, and Iran, extending eastward to the Ural (Russia) (Astafurova et Proshchalykin 2022). Very common species in southern Europe, with a distribution extending to central

Europe (Slovakia, Austria, Hungary). However, the species has probably disappeared from Central Europe and all records from this region are old. First historical record for the Czech Republic (Moravia).

***Tetralonia fuvescens* Giraud, 1863**

Bohemia or., Orlické hory Protected Landscape Area, Zdobnice env., 50°13'1.161"N, 16°24'0.784"E, on flower of *Telekia speciosa*, 18.vii.2020, 1 f*, P. Bogusch lgt., det. & coll.

Oligolectic on Asteraceae, observed almost exclusively on *Inula*. Western Palaearctic species, occurring in North Africa from Morocco to Tunisia, and in Eurasia from Portugal through southern and central Europe, Asia Minor, and the Caucasus to Central Asia (Scheuchl et Willner 2016). Rare thermophilic species, in the Czech Republic known only from the warmest steppic habitats of South Moravia, where it still occurs (Bogusch et al. 2020b). Very surprising first record for Bohemia.

***Nomada connectens* (Pérez, 1884)**

Moravia mer., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 7.viii.2021, 1 f*, M. Halada lgt., J. Straka det. & coll.

Kleptoparasitic species with uncertain host. Palearctic species distributed from Spain to Kazakhstan (Scheuchl et Willner 2016). New species for the Czech Republic (Moravia).

***Nomada posthuma* (Blüthgen, 1949)**

Moravia mer., Pálava Protected Landscape Area, Dolní Věstonice env., 24.iv.-7.v.2014, 1 m*, from pan traps, J. Straka lgt., det. & coll., Brno env., south, railway wasteland, 49°10'38.9"N, 16°36'35.1"E, 12.-16.v.2022, 1 f*, 26.-30.iv.2024, 7 mm*, yellow pan traps, J. Visser lgt., det. & coll., Brno env., north, Podkomorské lesy Nature Reserve, 49°15'25.9"N 16°28'14.5"E, 16.-20.vi.2022, 1 m*, yellow pan trap, J. Visser lgt., det. & coll.

The presumed host is *Lasioglossum glabriusculum* (Morawitz, 1872), with other small *Lasioglossum* species also considered potential hosts. Palearctic species, distributed from Germany to the Far East (Scheuchl et Willner 2016). New species for the Czech Republic (Moravia).

***Parammobatodes minutus* (Mocsáry, 1878)**

Moravia mer., Pouzdřany env., near Pouzdřanská step-Kolby National Nature Reserve, 48°56'49.125"N, 16°38'17.910"E, 17.vii.2014, 1 m*, J. Gahai lgt., P. Bogusch det. & coll.; 1.viii.2021, 1 f*, M. Halada lgt., M. Šlachta det. et coll.; 28.vii.2023, 1 f*, M. Halada lgt., M. Šlachta det. et coll.

Kleptoparasitic species, hosts are bees of the genus *Camptopoeum* (Andrenidae). A species of European inland steppes and salt marshes, distributed from Austria through the Pannonian Basin, Ukraine, and the Balkan Peninsula to Turkey; also recorded from Cyprus (Scheuchl et Willner 2016, Warncke 1983). Rare and local throughout most of its range. Known from Slovakia and Hungary, this is the first record from the Czech Republic (Moravia).

APOIDEA: HALICTIDAE

***Lasioglossum angusticeps* (Perkins, 1895)**

Moravia mer., Popovice env., Bažantnice Rajhrad, 49°06'03.1"N 16°37'13.2"E, 26.-30.iv.2024, 1 f*, blue pan trap., J. Visser lgt., det. & coll., J. Straka revid.

Polylectic species, visits on *Stachys* flowers have been recorded. Western Palaearctic species, in North Africa it ranges from Morocco to Tunisia, and in Eurasia from Portugal to Iran. A very rare and local species (Scheuchl et Willner 2016). New species for the Czech Republic (Moravia).

***Lasioglossum bavaricum* (Blüthgen, 1930)**

Bohemia bor., Lánov env., Bílé skály old limestone quarry, 50°37'53.353"N 15°40'59.927"E, 27.viii.2016, 4 mm*, 30.vi.2018, 1 m*, all specimens swept, J. Straka & J. Perry lgt., J. Straka det. & coll.

Polylectic. An Alpine-Dinaric species, distributed from southern France across the entire Alpine arc and the Tatras, extending into the Balkans as far as Greece, and eastward to Crimea (Scheuchl et Willner 2016). New species for the Czech Republic (Bohemia).

***Lasioglossum corvinum* (Morawitz, 1878)**

Moravia mer., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 4.ix.2024, 1 f*, M. Šlachta lgt., det. & coll., J. Straka revid.

Probably polylectic. Distributed in the southern regions of the Western Palearctic; in North Africa known from Morocco, and in Eurasia from Spain across the Caucasus and Asia Minor to Iran (Scheuchl et Willner 2016). Known from Bohemia, new species for Moravia.

***Lasioglossum pallens* (Brullé, 1832)**

Bohemia centr., Praha-Motol env., Motocross Motol, 50°4'9.080"N 14°19'28.063"E, 8.-14.iv.2018, 1 m*, 25.iv.-6.v.2018, 1 m*, 6.-16.v.2018, 1 m*, Praha-Motol env., orchards, 50°4'4.282"N 14°19'37.232"E, 25.iv.-6.v.2018, 1 f*, 6.-16.v.2018, 1 f* Praha-Motol env., steppe, orchard, 50°4'1.639"N, 14°19'39.043"E, 8.-14.iv.2018, 1 m*, 6.-16.v.2018, 1 f*, from yellow pan traps, J. Straka lgt., det. & coll., Praha-Dejvice env., Na Salátce brickyard, 50°6'16.834"N 14°21'19.706"E, 9.-19.iv.2019, 1 m*, 19.iv.-8.v.2019, 1 m*, 8.-21.v.2019, 2 m*, 1 f*, Praha-Dejvice env., PP Jenerálka, 50°6'15.631"N 14°21'4.885"E, 30.iii.-9.iv.2019, 1 m*, 1 f*, 9.-19.iv.2019, 7 mm*, 1 f*, Praha-Dejvice env., PP Dolní Šárka, Žežulka, 50°7'13.015"N, 14°22'48.608"E, 30.iii.-9.iv.2019, 1 f*, 9.-19.iv.2019, 1 m*, 19.iv.-8.v.2019, 3 ff*, 21.v.-4.vi.2019, 2 ff*, from pan traps, J.Straka & J.Straková lgt., J. Straka det. & coll., Praha-Dejvice env., PP Nad mlýnem, 50°6'41.612"N, 14°22'12.691"E, 10.-26.iv.2019, 19 mm*, 8 ff*, 26.iv.-12.v.2019, 2 ff*, from pan traps, D. Benda lgt. & det., NMPC coll., Praha-Řepy env., Řepské vřesoviště, 50°4'17.285"N, 14°19'19.236"E, 8.-14.iv.2018, 5 mm*, 14.-25.iv.2018, 10 mm*, Praha-Břevnov env., Šafránka meadow, 50°4'36.048"N, 14°20'44.250"E, 14.-25.iv.2018, 1 m*, 1 f*, 25.iv.-6.v.2018, 1 f*, from yellow pan traps, J. Straka lgt., det. & coll., Praha-Lysolaje env., PP Housle, 50°7'30.662"N, 14°21'48.161"E, 9.-19.iv.2019, 2 mm*, Praha-Lysolaje env., PP Housle, úvoz, 50°7'32.599"N, 14°21'47.718"E, 30.iii.-9.iv.2019, 1 m*, 1 f*, 19.iv.-8.v.2019, 2 ff*, 9.-19.iv.2019, 1 m*, Praha-Malá Strana env., PP Petřín, Seminářská zahrada Garden, 50°5'6.000"N, 14°23'59.280"E, 1.-12.v.2021, 1 m*, from pan traps, J.Straka & J.Straková lgt., J. Straka det. & coll., Praha-Troja env., PP Trojská, west part, 50°7'15.258"N, 14°26'12.390"E, 5.-19.iv.2023, 1 f*, 6.-17.v.2023, 1 f*, from pan traps, D. Benda lgt. & det., NMPC coll., Knovíz env., orchard, 50°13'16.810"N, 14°8'22.088"E, 30.iv.2019, 2 ff*, 2.v.2019, 1 f*, swept, D. Benda lgt. & det., NMPC coll., Vonoklasy env., Vonoklasy orchards, 49°57'10.0"N, 14°15'58.8"E, 17.-21.iv.2023, 1 m*, yellow pan trap, J. Visser lgt., det. & coll., Klecany env., Sedlec forest, 50°11'34.8"N, 14°27'10.1"E, 29.iv.-3.v.2024, 1 m*, blue pan trap, J. Visser lgt., det. & coll.

Polylectic. Palaearctic species, in Africa from Morocco to Tunisia, in southern parts of Europe, the Middle East, Iran, and extending eastward to Mongolia (Macek et al. 2010, Scheuchl et Willner 2016). Known from Moravia, new species for Bohemia.

***Lasioglossum quadrisignatum* (Schenck, 1853)**

Bohemia bor., Komořany env., former ČSA mine, 50°32'38.041"N 13°31'6.995"E, June-August 2022, 4 ff*, M. Hendrychová lgt., P. Bogusch det. & coll.

Polylectic, pollen collection has been confirmed from the families Boraginaceae, Crassulaceae, and Fabaceae. Western Palaearctic species, in Eurasia, it ranges from Spain through the Balkans, Asia Minor, and northern Iran, and is likely also present in North Africa. At present, the species is very rare in Europe (Scheuchl et Willner 2016). Historically known from a quite high number of records from Museum collections (last find in Bohemia in 1963, in Moravia in 1948) but reported as regionally extinct (Straka et Bogusch 2017b). Confirmed occurrence for the Czech Republic (Bohemia).

***Lasioglossum setulosum* (Strand, 1909)**

Moravia mer., Pouzdřany env., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 28.vii.2023, 1 f*, M. Halada lgt., M. Šlachta det. & coll., J. Straka revid.

Polylectic. Eurasian species, ranging from Germany eastward to China. A characteristic species of continental steppes, which is linked to its near disappearance, especially in Central Europe (Scheuchl et Willner 2016). Species suggested as regionally extinct. Confirmed occurrence in the Czech Republic (Moravia).

***Sphecodes alternatus* Smith, 1853**

Moravia mer., Hnanice env., Šobes vineyard, 48°48'56.415"N, 15°58'34.328"E, 11.vi.2025, 1 f*, Pouzdřany env., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 25.vii.2025, 1 f*, both P. Bogusch lgt., det. & coll.

Species widely distributed in southern parts of Europe, the Middle East and North Africa, its northern border of distribution goes through Slovakia and Austria (Bogusch & Straka 2012). Kleptoparasitic species, hosts unknown. New species for the Czech Republic (Moravia).

***Sphecodes majalis* (Pérez, 1903)**

Bohemia centr., Praha-Motol env., steppe, orchard, 50°4'1.639"N 14°19'39.043"E, 14.-25.iv.2018, 1 m*, Praha-Motol env., orchards in Motol, 50°4'4.282"N, 14°19'37.232"E, 25.iv.-6.v.2018, 4 mm*, 6.-16.v.2018, 1 m*, from yellow pan traps, J. Straka lgt., det. & coll., Praha-Dejvice env., PP Jenerálka, 50°6'15.631"N 14°21'4.885"E, 9.-19.iv.2019, 1 m*, Praha-Dejvice env., Žežulka, PP Dolní Šárka, 50°7'13.015"N, 14°22'48.608"E, 19.iv.-8.v.2019, 1 f*, Praha-Lysolaje env., PP Housle, 50°7'32.599"N, 14°21'47.718"E, 19.iv.-8.v.2019, 1 m*, 21.v.-4.vi.2019, 1 f*, J. Straka et J. Straková lgt., J. Straka det. & coll., Praha-Dejvice env., PP Nad mlýnem, 50°6'41.612"N, 14°22'12.691"E, 26.iv.-12.v.2019, 1 f*, 10.-26.iv.2019, 1 m*, Praha-Troja env., PP Trojská - east part, 50°7'16.241"N 14°26'20.227"E, 26.iv.-6.v.2023, 1 f*, D. Benda lgt. & det., NMPC coll.

Kleptoparasitic species, its host is *Lasioglossum pallens* (Brullé, 1832). Palaearctic species, in Africa known from Algeria, in southern parts of Europe, the Middle East, Iran and Turkmenistan (Macek et al. 2010, Scheuchl et Willner 2016). Known from Moravia, new species for Bohemia.

APOIDEA: MEGACHILIDAE

***Anthidium septemspinosum* Lepeletier, 1841**

Moravia mer., Mikulov env., PP Na cvičišti, 48°49'11.327"N, 16°40'52.435"E, 10.vii.2025, 1 m*, swept, D. Benda lgt. & det., NMPC coll.

Probably polylectic, females collecting pollen have been observed on *Centaurea* spp. (Asteraceae) and various Lamiaceae. Trans-Palaearctic. In Africa, known only from a single record in Algeria. In Eurasia, distributed from northeastern Spain through southern and eastern Europe, eastward to Japan and the Far East (Scheuchl & Willner 2016). Occurs in mesophilous and wet meadows, often in depressions on loess sites with stands of host plants. In the Czech Republic, known only from a single record from the White Carpathians in 2000 (Macek et al. 2010). Confirmed occurrence in the Czech Republic (Moravia).

***Coelioxys emarginatus* (Foerster, 1853)**

Bohemia bor., Komořany, former ČSA mine, 50°32'38.041"N, 13°31'6.995"E, June-August 2022, 1 f*, M. Hendrychová lgt., P. Bogusch det. & coll.

Kleptoparasitic species, with *Megachile leucomalla* (Gerstäcker, 1869) listed as the host, although this species does not occur in Central Europe. Trans-palaearctic, known from northern Africa only in Morocco; in Eurasia, it occurs from Spain through southern and central Europe, is absent from the Balkans, and extends eastward to Iran and China (Scheuchl et Willner 2016). Very rare species throughout Europe (Warncke 1990), in the Czech Republic known from several finds from Písečný vrch Natural Reserve near Louny (Bohemia) (Pádr et Tyrner 1990), last record dates back to 1982 (Straka et Bogusch 2017b). Currently, one female was trapped not far from the former locality. Confirmed occurrence in the Czech Republic (Bohemia).

***Coelioxys ruficauda* (Lepeletier, 1841)**

Moravia mer., Sedlec env., Slanisko u Nesytu National Nature Reserve, 48°46'33.796"N, 16°42'5.883"E, 14.viii.2017, 1 f*, 7.viii.2019, 1 f*, 20.viii.2025, 1 f*, both P. Bogusch lgt., det. & coll.

Kleptoparasitic species, host is unknown. Western Palaearctic species, known from Morocco in North Africa, and in Eurasia from Portugal through the southern parts of Europe and the Balkans, extending eastward to Central Asia. Recently, in Europe rare species (Warncke 1992). New species for the Czech Republic (Moravia).

***Megachile pyrenaea* (Pérez, 1890)**

Bohemia centr., Praha-Radotín env., Radotínské údolí, 26.ix.1998, 2 ff*, from yellow pan traps, J. Straka lgt., det. & coll.; Bohemia mer., Český Krumlov env., NPR Vyšenské kopce, 48°49'24.703"N 14°17'39.663"E, 19.vi. – 14.vii.2023, 1 f*, 4 mm*, M. Šlachta et J. Miesbauer lgt., M. Šlachta det. et coll., J. Straka revid., Vyšný env., PP Cvičák, 48°49'29.5"N 14°18'59.5"E, 10.vii.2015, 1 m*, from *Centaurea scabiosa*, J. Klečka lgt., D. Benda det., NMPC coll., Vyšný env., near PP Výří vrch, 48°49'51.63"N 14°17'34.17"E, 3.vii.2015, 1 f*, from *Centaurea scabiosa*, D. Hucková lgt., D. Benda det., NMPC coll., Třísov env., near PR Dívčí Kámen, 48°53'25.486"N 14°21'32.481"E, 18.vi.2022, 1 m*, M. Šlachta lgt., det. et coll., J. Straka revid.; Moravia occ., Kamenná env., granite quarry, 49°16'39.774"N 16°4'12.587"E, 28.-31.vii.2015, 1 m*, 2 ff*, all specimens from yellow pan traps, J. Straka lgt., det. & coll.

Probably meso- to polylectic. Pollen collection has been recorded from the families Asteraceae and Dispacaceae. Distributed from Spain across Europe to Asia Minor and the Caucasus, also occurring in Northern Europe (Scheuchl et Willner 2016). In the Czech Republic, a very local species of middle altitudes with only very few records (Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic (Bohemia and Moravia).

***Osmia* (*Hoplosmia*) *ligurica* (Morawitz, 1868) (Fig. 2D)**

Moravia mer., Podyjí National Park, Havraníky env., Havraníky Heath, 48°48'27.686"N 15°59'33.936"E, 11.vii.2019, D. Benda lgt., J. Straka det., NMPC coll., Hnanice env., Šobes vineyard, 48°48'56.415"N, 15°58'34.328"E, 15.vi.2022, 1 m*, P. Bogusch lgt., det. & coll.

Oligolectic on Asteraceae. Mediterranean species, in North Africa known only from Morocco; in Eurasia ranging from Portugal through southern Europe, Asia Minor, the Caucasus, and as far as Iran (Scheuchl et Willner 2016). In central Europe, distributed to Austria and Slovakia and seems to spread in southern parts of Slovakia (Reverté et al. 2023). New species for the Czech Republic (Moravia).

***Osmia pilicornis* (Smith 1846)**

Moravia mer., NPP Pouzdřanská step – Kolby, 48°56'20.140"N 16°38'39.220"E, 8.v.2024, 1 f*, V. Němec lgt., M. Šlachta det. et coll., J. Straka revid., Brno env., south, railway wasteland, 49°10'38.9"N 16°36'35.1"E, 28.v.-1.vi.2024, 1 f*, yellow pan trap, J. Visser lgt., det. & coll.

Polylectic species with a preference for the genus *Pulmonaria*. Otherwise, pollen collection has been recorded from the families Boraginaceae, Fabaceae, Lamiaceae, and Rosaceae. Palearctic species, distributed from France to Siberia; it occurs both in Northern Europe and the Balkans (Scheuchl et Willner 2016). It is rare in all countries and its populations have declined in many European regions in recent decades, probably due to changes in woodland management.

In the Czech Republic, the last records are from 1989 in Bohemia (from Karlštejn) and from 1972 in Moravia (from Pohansko) (Prosi et al. 2016, Straka et Bogusch 2017b). Confirmed occurrence in the Czech Republic (Moravia).

Conclusion

In the present paper, thanks to the study of museum material and our own collections, we present a total of 48 species of Aculeata (Hymenoptera). Among newly recorded faunistic

records, the largest proportion consists of thermophilous species expanding their range. These include species that have recently appeared in South Moravia and for which no exact data previously existed within the Czech Republic, such as *Chrysis interjecta* (Buysson, 1895), *Holopyga minuma* (Linsenmaier, 1959), *Liris niger* (Fabricius, 1775), *Andrena dorsalis* (Brullé, 1832), *Nomada connectens* (Pérez, 1884), *Nomada posthuma* (Blüthgen, 1949), *Sphecodes alternatus* Smith, 1853, *Osmia* (*Hoplosmia*) *ligurica* (Morawitz, 1868) and *Parammobatodes minutus* (Mocsáry, 1878), or species that had long been unrecorded but were recently rediscovered in South Moravia such as *Ceropales variegata* (Fabricius, 1798), *Nysson interruptus* (Fabricius, 1798), *Lasioglossum setulosum* (Strand, 1909), and *Anthidium septemspinosum* Lepeletier, 1841. Several thermophilous species, previously known only from the warm regions of South Moravia, have now also been recorded in Bohemia, such as *Chrysis ragusae* (De Stefani, 1888), *Megascolia maculata* (Drury, 1773), *Cerceris quadricincta* (Panzer, 1799), *Passaloecus vandeli* (Ribaut, 1952), *Andrena lagopus* (Latreille, 1809), *Lasioglossum pallens* (Brullé, 1832), and *Tetralonia fuvescens* Giraud, 1863. Together with *L. pallens*, its nest parasite *Sphecodes majalis* (Pérez, 1903) has also spread into Bohemia. The discovery of the parasitic cuckoo wasp *Ronisia brutia* (Fabricius, 1797) is also significant, as it has likely survived in Central Bohemia due to the presence of strong populations of its potential host, *Chalicodoma parietina* (Geoffroy, 1785) (Macek at al. 2010). Two species, *Alysson ratzeburgi* (Dahlbom, 1843) and *Lasioglossum corvinum* (Morawitz, 1878) were recently known from Bohemia and are now also recorded for Moravia.

Based on the study of museum collections, we report species that historically occurred in the Czech Republic but have likely gone extinct, as no recent records are known. These include *Harpactus formosus* (Jurine, 1807) and *Epeolus julliani* (Pérez, 1884). We also report species that were previously (first half of the 20th century) very common but have recently been considered extinct, such as *Lasioglossum quadrisignatum* (Schenck, 1853), or extremely rare species as *Bombus veteranus* (Fabricius, 1793). A number of relict species, which are extremely rare or were previously considered extinct, have also been discovered. These include *Gorytes quadrifasciatus* (Fabricius, 1804), *Andrena curtula* (Pérez, 1903), *Andrena nuptialis* (Pérez, 1902), *Andrena pallitarsis* (Pérez, 1903), *Lasioglossum angusticeps* (Perkins, 1895), *Osmia pilicornis* (Smith 1846), *Anthophora crinipes* (Smith, 1854), *Coelioxys emarginatus* (Foerster, 1853), and *Coelioxys ruficauda* (Lepeletier, 1841). In the context of relict species, surveys carried out in southern Bohemia proved to be particularly important. Although this region had long been neglected from a faunistic point of view, there are still a number of important findings of relict or submontane species such as *Andrena transitoria* (Morawitz, 1871), *Megachile pyrenaea* (Pérez, 1890), and *Campanula* specialists *Andrena paucisquama* (Noskiewicz, 1924) and *Andrena rufizona* (Imhoff, 1834). Also very important are the findings from northern Bohemia, such as the record of the rare montane species *Lasioglossum bavaricum* (Blüthgen, 1930) and a probable relict population of *Andrena danuvia* (Stoeckhert, 1950), which is quite common in southern Moravia but had been considered extinct in Bohemia.

The findings of some species are associated with surveys in traditionally less studied habitats, such as reed beds and field wetlands, as well as with unconventional collection methods such as the dissection of reed galls caused by *Lipara* frit flies (Bogusch at al. 2020a). This led to the confirmed occurrence of the reed-associated spider wasp *Ceropales pygmaea* (Kohl, 1879) in Moravia, *Stenodynerus clypeopictus* (Kostylev, 1940) at many sites in both Bohemia and Moravia, and the confirmed occurrence of *Psenulus chevrieri* (Tournier, 1889) in Moravia.

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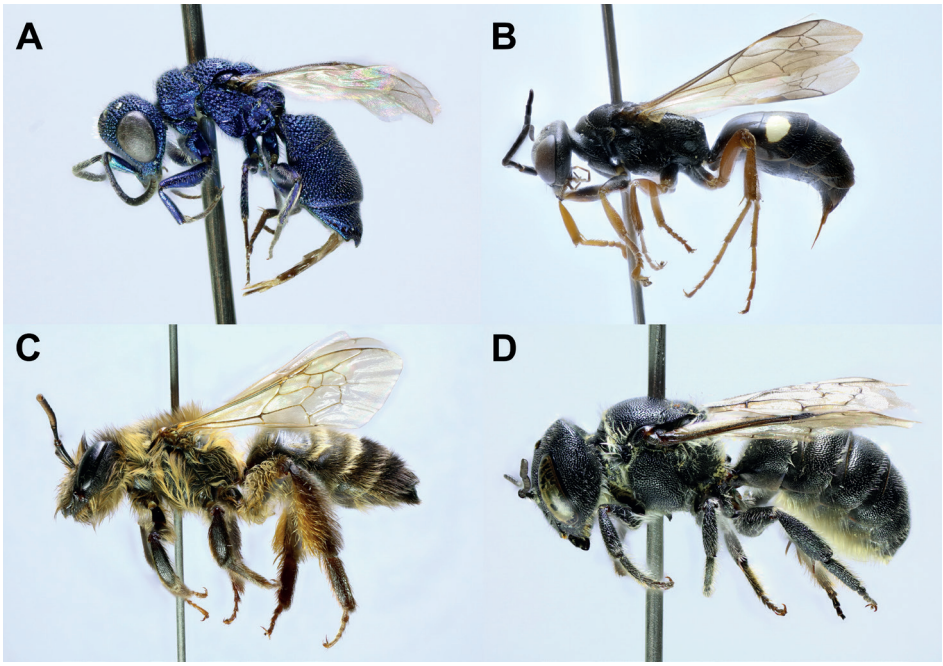

Fig. 2. A – *Chrysis ragusae* **De Stefani, 1888, female from PP Trojská, Prague (Bohemia centr.), B** – *Alysson ratzeburgi* **Dahlbom, 1843, female from Bohuslavice u Hlučína (Moravia or.), C** – *Andrena nuptialis* **Pérez, 1902, female from Havraníky, Havraníky Heath (Moravia mer.), D** – *Osmia* (*Hoplosmia*) *ligurica* **Morawitz, 1868, female from Havraníky, Havraníky Heath (Moravia mer.). All specimens in lateral view.**

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