

A contribution to the knowledge of robber flies of the genus *Machimus* (Diptera: Asilidae) in the Czech Republic

Príspevek k poznání rouspů rodu *Machimus* (Diptera: Asilidae) v České republice

Pavel MARHOUL¹⁾, Jaroslav BOSÁK²⁾ & Tomáš KADLEC³⁾

¹⁾ Beleco, Na Zátorce 10, CZ-160 00 Prague 6; e-mail: pavel.marhoul@beleco.cz

²⁾ SAGASTA s.r.o., Kollárovo náměstí 698/7, CZ-779 00 Olomouc, Czech Republic; e-mail: jaroslav.bosak@email.cz

³⁾ Department of Ecology, Faculty of Environmental Sciences, Czech University of Life Sciences Prague, Kamýcká 129, CZ-165 00 Prague – Suchbátka, Czech Republic; email: lepidopter@seznam.cz

Abstract. This paper provides an overview of the distribution of seven species of the genus *Machimus* Loew, 1849 found in the territory of the Czech Republic. Based on new field collections and the revision of material stored in selected entomological collections, the following species have been confirmed as part of the Czech fauna: *Machimus annulipes* (Brullé, 1832), *Machimus arthriticus* (Zeller, 1840), *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), *Machimus cyanopus* (Loew, 1849), *Machimus gonatistes* (Zeller, 1840), and *Machimus rusticus* (Meigen, 1820). Additionally, *Machimus intermedius* (Holmgren in Zetterstedt, 1852) is here reported from the Czech Republic for the first time. In contrast, *Machimus setibarbus* (Loew, 1849), previously cited in local literature, is excluded from the Czech fauna, along with the historically mentioned *Machimus lacinulatus* Loew, 1854. For each of the accepted species, we provide a concise morphological description, a summary of recorded localities, notes on ecology and biology, and taxonomic remarks reflecting current interpretations of species status.

Keywords: Diptera, Asilidae, faunistics, Czech Republic

INTRODUCTION

The genus *Machimus* Loew, 1849, belonging to the subfamily Asilinae Leach, 1819, comprises medium to large-sized robber flies, typically uniformly yellowish-brown to grey in coloration. More than 190 species of *Machimus* are distributed across all zoogeographical regions except Australia and Oceania. The genus is most diverse in the Palearctic region (78 species), followed by the Oriental (48), Nearctic (40), Neotropical (14), and Afrotropical (13) regions (Cohen 2025). Forty species are recorded from Europe (Lehr 1988). According to the latest checklist of Czech robber flies, seven species are reported for the Czech Republic, all for Moravia and five for Bohemia (Bosák 2009). *Machimus* is one of the most taxonomically challenging asilid genera in Europe due to inadequate descriptions of certain species – some based solely on females – as well as multiple species described under different names. A modern revision of the genus is therefore critically needed. In Central Europe, the taxonomic status of black-legged species remains particularly unclear.

This contribution presents data on the distribution of *Machimus* species in the Czech Republic, including a summary of published records and new findings. Taxonomic notes for individual species are also provided, based on the current interpretation of their taxonomic status.

MATERIALS AND METHODS

This study is based on data obtained from field surveys conducted by the authors and their colleagues (see Acknowledgements), supplemented by a revision of robber fly collections housed in the National Museum in Prague, the collection of M. Hradský also stored therein, the *Machimus* specimens deposited in the Museum of South-East Moravia in Zlín, and previously published specimens held at the Moravian Museum in Brno. Additionally, published records for all species were compiled.

Material was collected using standard entomological techniques, primarily by individual hand netting and sweeping of vegetation. Specimens were killed with ethyl acetate and, in most cases, dry-mounted on the same day. For males—especially those of difficult-to-identify species—terminalia were dissected.

The nomenclature follows Bosák (2009), except for the species name *Machimus intermedius* (Holmgren in Zetterstedt, 1852), adopted from Wolff et al. (2018) and further modified in terms of the authorship of the description, and the modification of the authorship of the description of *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820). Species are listed alphabetically. The occurrence data are categorised into published and unpublished records and, within these categories, subdivided into Bohemian and Moravian regions in the following order: Bohemia – northern, central, southern, western, eastern; Moravia – northern, central, southern, eastern. Records within each region are sorted by ascending faunistic square numbers; if multiple localities fall within the same square, they are listed alphabetically (Pruner & Mika 1996).

Morphological terminology follows Theodor (1976) and Wolff et al. (2018).

Collecting data for individuals from which hypopygium and internal genitalia were photographed in Figs 16–19 are as follows: *Machimus annulipes* (Brullé, 1832), Mutěnice, Bílý kopec u Čejče NMo, 12.vi.2021, D. Musiolek leg.; *Machimus arthriticus* (Zeller, 1840), Milovice (Nymburk District), Pozorovatelná, 2.vi.2013, PM leg.; *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), Prague, Radotínské skály NMo, 19.v.2007, PM leg.; *Machimus cyanopus* (Loew, 1849), Pálava PLA, Děvín–Kotel–Soutěska NNM, 10.vi.2011, PM leg.; *Machimus gonatistes* (Zeller, 1840), Bzenec, sand pit, 23.vi.2020, J. Matouš leg.; *Machimus intermedius* (Holmgren in Zetterstedt, 1852), Lysá nad Labem, 21.vi.2017, PM leg.; *Machimus rusticus* (Meigen, 1820), Žihobce (Klatovy District), Hochův mlýn, 20.vii.2016, PM leg.; *Machimus setibarbus* (Loew, 1849), Turkey, Antalya Province, Çamyuva, 21.vi.2022, J. Růžicka leg. All photographs by P. Marhoul.

Abbreviations. bor. – northern, centr. – central, coll. – collection, det. – identified by, et – and, genit. – genitalia prepared, leg. – collected by, mer. – southern, MJM – Museum of South-East Moravia in Zlín, MVČ – Museum of Eastern Bohemia in Hradec Králové, MZM – Moravian Museum in Brno, NM – National Museum in Prague, NM-H – National Museum in Prague – M. Hradský's collection, NMo – Nature Monument, NNM – National Natural Monument, NNR – National Nature Reserve, NR – Nature Reserve, observ. – observed, occ. – western, orient. – eastern, revid. – revised by, UP – Palacký University in Olomouc (Faculty of Science, Department of Zoology and Anthropology), VMO – Regional Museum in Olomouc, ? – unknown data.

Authors' initials: JB – Jaroslav Bosák, PM – Pavel Marhoul, TK – Tomáš Kadlec.

For each species, we provide a concise morphological description including identification notes within the genus, a summary of both published and unpublished records, biological and ecological observations, a characterisation of the species' range, and its distribution within the Czech Republic.

RESULTS

A total of 338 records of the occurrence of seven *Machimus* species in the Czech Republic were obtained during this study. Of these, 159 records date from after the year 2000. In Bohemia, the presence of five species was confirmed, while in Moravia, six species were documented.

Genus *Machimus* Loew, 1849

Machimus Loew, 1849: 1 (designation)

Type species: *Asilus chrysitis* Hoffmannsegg in Meigen, 1820: 310 (subsequent designation by Coquillett, 1910: 564).

Medium-sized to large robber flies, usually yellowish-brown or greyish in coloration. Body length ranges from 9–30 mm, with species occurring in the Czech Republic measuring between 15–28 mm. The head bears a prominent facial tubercle densely covered with long

bristles (“mystax”). Dorsocentral bristles on the mesonotum are well-developed posterior to the transverse suture; if they extend slightly anterior to it, they are weaker and smaller. Marginal bristles are present at the posterior edge of tergites. In most species a posteriorly directed, rounded projection is present on the 8th sternite in males. Legs are robust. The aedeagus is medium to long, strongly curved at the broad, funnel-shaped base. The three terminal processes (prongs) vary in length and orientation; in some species they are exposed, in others they are enclosed in a common sheath except for their tips. The length and configuration of the prongs, shortening of the median prong, and orientation of the lateral prongs are species-specific, as is the shape of the sheath. In some species, the caudal margin of the sheath forms projections that mimic aedeagal prongs, giving the appearance of five or more apical processes. Gonopods are short, broad, and rounded-triangular in shape. Gonostyli are basally curved, short, broad, and morphologically variable (Theodor 1976). The ovipositor of females is triangular, markedly laterally compressed, and bears free cerci (Hull 1962).

Seven species are currently recorded from the Czech Republic: *Machimus annulipes* (Brullé, 1832), *Machimus arthriticus* (Zeller, 1840), *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), *Machimus cyanopus* (Loew, 1849), *Machimus gonatistes* (Zeller, 1840), *Machimus intermedius* (Holmgren in Zetterstedt, 1852), and *Machimus rusticus* (Meigen, 1820). The long-standing record of *Machimus setibarbus* (Loew, 1849) (referred to as *M. setibarbis* in Bosák 2009) has been excluded from the Czech fauna. Similarly, *Machimus lacinulatus* Loew, 1854 (cited once in the literature by Vimmer (1912)) is not accepted as part of the Czech fauna.

Taxonomic issues of Central European black-legged *Machimus* species (*M. caliginosus/cyanopus/intermedius/setibarbus*) and the generic placement of *M. arthriticus*

Two black-legged *Machimus* species have long been reported from the Czech Republic: *M. cyanopus* (originally described from Austria) and *M. setibarbus* (described from material collected on the island of Rhodes, Greece, and from “Asia Minor” – present-day Turkey) (Bosák 2009). Their distinction was traditionally based on Engel’s (1925–1930) monograph, which served as the principal reference for identifying Western Palearctic robber flies for decades. Engel differentiated the two species based on the presence/absence of strong bristles on the facial tubercle. However, he overlooked *M. intermedius*, described by Holmgren in Zetterstedt (1852) from Sweden. The likely reason for this omission was that Bezzi (1903) had treated *M. intermedius* as a species dubium.

The name *M. intermedius* reappeared in the literature in Lyneborg (1968), who synonymized it with *M. setibarbus* based on external morphology of male genitalia, thereby expanding the known range of *M. setibarbus* northward to Scandinavia. In the “Catalogue of Palearctic Asilidae” (Lehr 1988), the range of *M. setibarbus* is listed from Sweden and Finland (recently also mentioned from Finland by Pohjoismäki et al. (2023)) through Central Europe and the Mediterranean region to North Africa, Turkey, and Israel.

The taxonomy of *M. setibarbus* was extensively studied by Theodor (1976, 1980), who emphasized that the external morphological features traditionally used to identify black-legged *Machimus* species are unreliable. He demonstrated that several morphologically similar species differ significantly in internal genital structures—particularly in the shape of the gonostyli and aedeagus. Theodor concluded that Lyneborg’s synonymization of *M. intermedius* with

M. setibarbus was incorrect, as the gonostyli of Swedish specimens (provided to Theodor by Lyneborg himself) clearly differed from those of *M. setibarbus* specimens originating from the type locality.

Gonostyli of *M. cyanopus*, previously undocumented in the literature, were examined by D. Wolff for the German asilid monograph (in litt.) using a male specimen from H. Loew's collection housed at the Museum für Naturkunde in Berlin. Based on gonostyli morphology, *M. setibarbus* and *M. cyanopus* were excluded from the German fauna, and all records of black-legged species were reassigned to *M. intermedius* (Wolff et al. 2018). The use of the name *M. intermedius* is provisional, pending a comprehensive revision of European black-legged *Machimus* species.

The situation is further complicated by the existence of a fourth black-legged species, *M. caliginosus*, described by Meigen in 1820 without a designated type locality. The holotype is a female, and males have never been described. The taxonomic status of this species remains unclear, although it has been included in older, now outdated identification keys (Engel 1925–1930, Séguéy 1927, Weinberg & Bächli 1995, Geller-Grimm 2003).

In our revision of Czech *Machimus* species, we compared the gonostyli morphology of Czech and Moravian black-legged specimens and identified two distinct types corresponding to *M. intermedius* (as illustrated in Theodor 1976) and *M. cyanopus* (illustrations provided by D. Wolff). Based on these findings, we follow the conclusions of Wolff et al. (2018) and, pending a full genus revision, consider *M. intermedius* a newly recorded species for the Czech fauna and exclude *M. setibarbus* from it.

Machimus arthriticus has undergone multiple generic reassignments within the taxonomically unstable *Machimus*-group complex, which currently includes the genera *Machimus*, *Neoepitriptus* and *Tolmerus*. The genus *Epitriptus*, formerly included in this group, is now treated as a synonym of *Tolmerus* (Geller-Grimm 2004). Originally described as *Asilus arthriticus* Zeller, 1840, the species was transferred to *Epitriptus* by Loew (1849), under which it was treated in most 20th and early 21st century asilid literature (Engel 1925–1930, Hull 1962, Lehr 1988, Pohjoismäki et al. 2023).

In a taxonomic treatment of several Asilinae genera, Lehr (1992) transferred *E. arthriticus* to *Machimus*, though without stating his rationale. This treatment was adopted in the most recent Czech checklist (Bosák 2009). However, *M. arthriticus* differs from typical *Machimus* species (e.g. males do not have a rounded projection at the posterior margin of the 8th sternite) and is morphologically more similar to *Neoepitriptus*—especially *N. setosulus*. These similarities include short bristles on the humeral callus instead of the long hairs typical of *Machimus*, a smaller and less pilose facial tubercle, and strong ventral femoral bristles on the forelegs (a feature of *N. setosulus*), among others.

In the German asilid monograph (Wolff et al. 2018), *M. arthriticus* is therefore placed in the genus *Neoepitriptus*. The taxonomic placement of these genera and species requires comprehensive morpho-genetic analysis. Until such a revision is undertaken, we follow Lehr's (1992) formal treatment and retain the species in the genus *Machimus*.

A strong supporting argument is provided by Theodor's (1976) detailed analysis of male genital structures in 21 species of the *Machimus*-group, including representatives of *Machimus*, *Tolmerus*, and the then-recognised genus *Epitriptus* found in the Czech Republic (*M. annulipes*, *M. chrysitis*, *M. gonatistes*, *M. rusticus*, *M. arthriticus*; *T. atricapillus*, *T. atripes*, *T. pyragra*; *N. setosulus*). Theodor concluded that while traditional morphological characters

are insufficient to clearly delineate species groups, internal genital morphology yields more coherent taxonomic groupings. Based on these findings, he defined three types of aedeagus and related structures, with *Machimus* sensu stricto comprising a distinct group that includes *M. arthriticus* (Theodor 1976).

Overview of species occurring in the Czech Republic

Machimus annulipes (Brullé, 1832) (Figs 1–2, 16–19, 21–22)

Asilus annulipes Brullé, 1832: 295 (type locality: Kalamata, Greece).

Synonyms:

Asilus basalis Loew, 1849: 16 (type locality: Hungary (“Ungarn”).

Asilus cerdo Gerstaecker, 1861: 1012 (type locality: Greece).

Description. Body length 18–25 mm; body brown. Facial tubercle robust, densely bearded with long, mainly pale bristles; only a few black bristles are present along the upper margin and sides. Third antennal segment is as long as or slightly longer than the combined length of the first two segments. The arista reaches two-thirds the length of the third segment. Scutellum bears 4–8 strong marginal pale bristles. Legs black, with reddish tibial bases. Strong leg spines are dark, occasionally pale. Hypopygium black; epandria long, of even width throughout, rounded at the apex and slightly curved downward (Fig. 16a). Gonostylus short and broad, with a rounded apical ventral end (Fig. 17a). Aedeagus long and curved (Fig. 18a), with three terminal prongs approximately as long as the basal section and largely free; the median prong is shorter, reaching about $\frac{3}{4}$ the length of the lateral prongs (Fig. 19a). Female ovipositor shorter than the last two abdominal segments combined.

Identification. A large species. Like *M. arthriticus*, *M. rusticus*, and *M. gonatistes*, it has reddish tibial bases. It differs from *M. arthriticus* by the absence of strong bristles on the ventral side of the fore femora. From *M. rusticus*, it differs mainly in having dark leg spines on the hind legs (Fig. 21a); from *M. gonatistes*, it is distinguishable by male genital and female ovipositor morphology (Fig. 22a).

Unpublished records. Moravia mer.: Čejč (7067), 26.v.1947, 1 ♂, 27.v.1947, 3 ♂♂, all M. Hradský leg. et det., PM revid., coll. NM, 27.v.1947, 1 ♂, M. Hradský leg. et det. (as *M. rusticus*), PM revid., coll. NM-H, 29.v.1947, 1 ♀, M. Hradský leg. (in box with *M. rusticus*), PM revid., coll. NM-H, 29.v.1947, 2 ♀♀, 30.v.1947, 1 ♂, 27.vi.1954, 1 ♀, all M. Hradský leg. et det., PM revid., coll. NM, 27.vi.1954, 1 ♂, M. Hradský leg. et det., PM revid., coll. NM-H, 4.vii.2005, 1 ♂, J. Víša leg., M. Hradský det., PM revid., coll. NM-H; Kobylí (7067), vi.1963, 1 ♂, 1 ♀, M. Kocourek leg., M. Hradský det., PM revid., coll. NM-H; Mutěnice, Bílý kopec u Čejče NMo (7067), 48.9252°N, 16.9798°E, 12.vi.2021, 2 ♂♂, D. Musiolek leg., PM det. et coll.; Hodonín, Pánov NMo (7168), 48.8841°N, 17.1375°E, 1.vi.2023, 1 ♂, PM leg., det. et coll.; Valtice (7266), 8.vi.1948, 1 ♀, M. Hradský det., PM revid., coll. NM.

Distribution. The species is known from Slovakia (Straka 1984), Hungary (Majer 2001), Poland (Trojan 2007), Switzerland (Weinberg & Bächli 1995; Monnerat 2024), the Balkan Peninsula, the Black Sea region, the Caucasus, Turkey, and Israel (Lehr 1988). The Moravian localities represent the northwestern edge of its range. Its occurrence in Moravia was listed in the earliest checklists of robber flies from former Czechoslovakia (Straka & Hradský 1987) and in subsequent lists (Bosák 1997, 2006, 2009). However, specific localities had not previously been published, and the species was not mentioned in studies focused on southern

Moravia (Bosák 1995, 1996). These data confirm the recent presence of the species in the Czech Republic.

Biology and habitat. Adults have been recorded in the Czech Republic from late May to early July. Two recent records come from steppe grasslands on loess (Bílý kopec u Čejče NMo) and Pannonian sandy steppe habitats (Pánov NMo). In both cases, individuals were observed in taller vegetation, where they perched on upper grass stems and were collected by sweeping. The Moravian sites are situated at approximately 200 m a.s.l.

Machimus arthriticus (Zeller, 1840) (Figs 3–4, 16–20)

Asilus arthriticus Zeller, 1840: 64 (type locality: Silesia (Poland)) *Epitriptus arthriticus* Loew, 1849: 118.

Description. Body length 16–18 mm. A grey-coloured species. The facial tubercle is less prominent than in other Czech species and is covered with pale bristles, with only a few black ones along the upper margin and sides. The third antennal segment is equal in length to the combined first and second segments. The arista reaches three-quarters of the length of the third segment. The scutellum bears 2–4 marginal bristles. Femora are black, and the base of the tibiae is reddish. A row of strong bristles is present on the ventral surface of the fore femora. Strong leg spines are both pale and dark. The eighth abdominal sternite in the male lacks a posterior rounded projection. The hypopygium is black; epandria are relatively thick, tapering posteriorly to a tip bent slightly downward (Fig. 16b). The aedeagus is long and strongly curved at the base (Fig. 18b), ending in three apical prongs (Fig. 19b). Gonostyli are basally curved, very short and broad, with an angular apex (Fig. 17b). The female ovipositor is only slightly longer than the last abdominal segment.

Identification. A medium-sized species. The presence of strong bristles on the ventral side of the fore femora (Fig. 20a) clearly distinguishes this species from other *Machimus* species found in Central Europe. In the Czech Republic such bristles are also found in *Neoepitriptus setosulus* (Zeller, 1840). These two species can be differentiated by the colour of the femora: in *M. arthriticus*, all femora are black, whereas in *N. setosulus*, the posterior surface is reddish. At least three strong bristles on the front femora can also be found on female *Machimus chrysitis*, which can be distinguished from *M. arthriticus* by their strikingly red tibiae and partially red thighs on all legs.

Published records. **Bohemia centr.:** Kolín (5957), P. Kubes leg. (Vimmer 1912, listed as *Epitriptus arthriticus*); **Bohemia mer.:** Tábor (6554), Vimmer leg. (Vimmer 1912, as *Epitriptus arthriticus*); **Bohemia occ.:** Cheb (5940), June, Gradl leg. (Vimmer 1912, as *Epitriptus arthriticus*). **Moravia:** 1 ♀ (Weinberg & Rozkošný 1970); **Moravia mer.:** Vyškov (6768), 1.vii.1965, 1 ♀ (Weinberg 1974, Bosák 1995, as *Epitriptus arthriticus*); Moravský Písek (7069), vi.1965, 1 ♂, L. Krejčíček leg. (Weinberg & Rozkošný 1970, Bosák 1995, as *Epitriptus arthriticus*).

Unpublished records. **Bohemia bor.:** Stvolínky, Malý Bor (5352), 50.6289°N, 14.4494°E, 275 a.s.l., 13.vii.2016, 1 ♂, 1 ♀; Hradčany (5354), 50.6191°N, 14.6994°E, 270 a.s.l., 9.vii.2013, 1 ♀, all PM leg., det. et coll. **Bohemia cent.:** Benátky nad Jizerou (5755), Travní, 50.2811°N, 14.8637°E, 260 a.s.l., 10.vi.2009, 1 ♂, 15.vi.2009, 1 ♂; Lysá nad Labem, Hrabanovská černava NNM (5755), 50.2186°N, 14.8327°E, 185 a.s.l., 11.vi.2017, 1 ♂, 1 ♀; Milovice, Pod Benáteckým vrchem (5755), 50.2375°N, 14.8785°E, 240 a.s.l., 27.vii.2009, 1 ♀, 29.vi.2016, 1 ♀; Milovice, Pozorovatelna (5755), 50.2546°N, 14.8839°E, 240 a.s.l.,



Fig. 1. *Machimus annulipes* (Brullé, 1832), male in lateral view. Hodonín, Pánov NMo, 1.vi.2023, PM leg. Photography by P. Marhoul.

Obr. 1. *Machimus annulipes* (Brullé, 1832), samec v laterálním pohledu. Fotografie P. Marhoul.

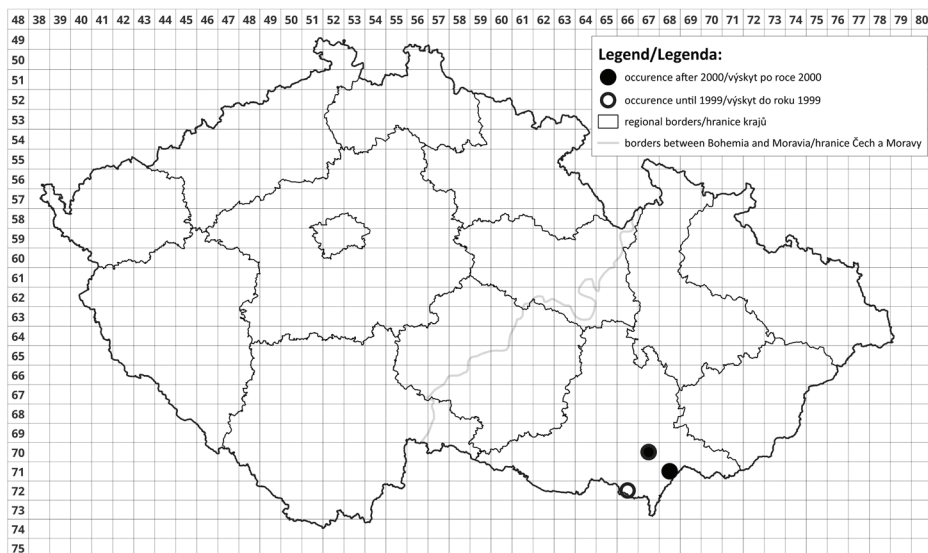


Fig. 2. Distribution map of *Machimus annulipes* (Brullé, 1832) in the Czech Republic.

Obr. 2. Mapa rozšíření *Machimus annulipes* (Brullé, 1832) v České republice.

19.vii.2009, 1 ♀, 1.vi.2016, 1 ♂, 2♀♀, 2.vi.2016, 2 ♂♂, 1 ♀; Hradištko (5855), 50.1497°N, 14.9408°E, 185 a.s.l., 30.vi.2016, 1 ♂, all PM leg., det. et coll. **Bohemia mer.:** Frymburk, Šlechtov pond (6748), 49.2508°N, 13.6994°E, 495 a.s.l., 20.vii.2016, 1 ♀, PM leg., det. et coll.; Šumavské Hoštice (6949), 49.0329°N, 13.8646°E, 770 a.s.l., 25.vii.2018, 1 ♂, R. Vlk leg., PM det. et coll.; Cep, Cep II sandpit (7055), 11.vi.2018, 1 ♀, J. Řehounek leg., PM det. et coll. **Bohemia occ.:** Knížecí huť (Lesná) (6240), 49.7251°N, 12.4672°E, 670 a.s.l., 19.vii.2016, 1 ♀, R. Vlk leg., PM det. et coll.; Babylon (6543), 23.vii.2020, 1 ♀, L. Dvořák leg., PM det. et coll. **Moravia mer.:** Valtice (7266), 8.vi.1948, 1 ♀, ? leg., PM det., coll. NM.

Distribution. A Western Palearctic species known from the Netherlands (van Veen 2002, as *Epitriptus*), Spain (Álvarez Fidalgo & van den Broek 2019), Great Britain (Stubbs & Drake 2014), France, Germany, Switzerland, Italy, Belgium, Denmark, Norway, Sweden, Finland, Slovakia, Bulgaria, Romania, and the southern part of European Russia (Wolff et al. 2018). In other countries, the species is likely overlooked. The first records for Bohemia were published by Vimmer (1912), and for Moravia by Weinberg & Rozkošný (1970). In the Czech Republic, the species was historically known from Bohemia (Cheb region, Tábor region, Polabí) and Moravia (Vyškov region, Bzenec region). Since 2000, occurrences have been documented at multiple localities in the Česká Lípa region, Nymburk region, Klatovy region, Prachatice region, and Tachov region. The species was not listed for Bohemia in the most recent Czech robber fly checklist (Bosák 2009). These findings confirm its current presence in Bohemia.

Biology and habitat. This species inhabits various types of herbaceous grassland habitats, ranging from dry sandy grasslands to moist vegetation on the bottoms of drained fishponds. Collection records span an altitudinal range of 185 to 770 metres above sea level. According to dated records, the flight period of adults extends from early June to the end of July.

Machimus chrysitis (Hoffmannsegg in Meigen, 1820) (Figs 5–6, 16–19)

Asilus chrysitis Hoffmannsegg in Meigen, 1820: 310 (type locality: southern France, Portugal).

Synonym:

Asilus femoralis Zeller, 1840: 49 (type locality: Glogów, Poland (“Glogau”)).

Description. Body length 19–24 mm. The body exhibits a golden dusting. The facial tubercle is prominent and covered with pale bristles; a smaller number of black bristles is found only along the upper margin. The third antennal segment is slightly shorter than the combined length of the first two segments. The arista is long, exceeding the length of the third segment. The scutellum bears 6–8 marginal bristles, which may be pale or dark. Femora are black with red apices; tibiae entirely red. The fore femora of females bear at least 3 strong bristles. Tarsal segments are red, with the last segment having a dark tip. Strong leg bristles are dark. The epandria are black, apically broad and extended ventrally to a pointed tip (Fig. 16c). The gonostylus is slightly curved and club-shaped, with a narrow basal section and an expanded distal part (Fig. 17c). The aedeagus is relatively broad and short, only slightly curved (Fig. 18c); the apical prongs are equal in length to the basal part. The sheath bears projections near its apex, creating the impression of a multi-pointed aedeagus (Fig. 19c). The female ovipositor is narrow and equal in length to the last two abdominal segments combined.



Fig. 3. *Machimus arthriticus* (Zeller, 1840), male in lateral view. Stvolínky, Malý Bor, 13.vii.2016, PM leg. Photography by P. Marhoul.

Obr. 3. *Machimus arthriticus* (Zeller, 1840), samec v laterálním pohledu. Fotografie P. Marhoul.

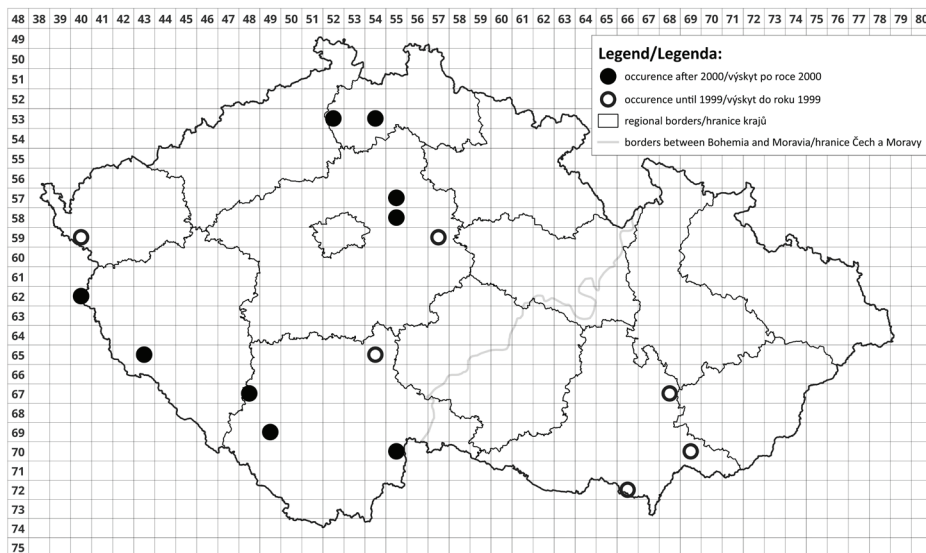


Fig. 4. Distribution map of *Machimus arthriticus* (Zeller, 1840) in the Czech Republic.

Obr. 4. Mapa rozšíření *Machimus arthriticus* (Zeller, 1840) v České republice.

Identification. A large species distinguished from all other *Machimus* species occurring in the Czech Republic by its entirely red tibiae and partially red femora.

Published records. Bohemia cent.: Krušovice (5848); Jirny (5854); Křivoklát (5949); Prague–Krč (originally Krč) (5952); Dobřichovice (6051); Karlštejn (originally Karl. Týn) (6051); Řevnice (6051); Závist (6052) (all Vimmer 1912). **Bohemia orient.:** Vápenný Podol (originally Váp. Podol) (6159) (Vimmer 1912). **Moravia bor.:** Jakartovice (originally Gersdorf im Gesenke) (6072), on spruce trunks, August, very abundant (Landrock 1907a). **Moravia mer.:** Vicinity of Brno (6765), August 1905, on tree trunks, leg. Landrock (Landrock 1907b as *Asilus chrysitis*, Bosák 1905).

Unpublished records. Bohemia centr.: Krušovice (5848), 1 ♂, Wimmer leg., PM det., coll. NM; Praha, Baba NMo (5852), 230 m a.s.l., 6.vi.2019, 1 ♀, JB leg., det. et coll., 50.1192°N, 14.3916°E, 21.vi.2024, 1 ♂, PM observ.; Praha, Havranka NMo (5852), 50.1197°N, 14.4218°E, 18.vii.2021, 2 ♂♂, PM observ. et leg. (1 ♂), TK coll. (1 ♂); Praha, Hrachovka (5852), 50.1220°N, 14.4083°E, 1.vii.2020, 3 ♂♂, PM observ.; Praha, Bohnické údolí NMo (5852), 50.1371°N, 14.4024°E, a.s.l., 5.vi.2014, 1 ♂, 1 ♀; PM leg., det. et coll.; Praha, Sedlecké skály NMo (5852), 50.1397°N, 14.3933°E, 1 ♀, PM leg., det. et coll.; Sedlčanky (5854), 4.vii.1989, J. Macek leg., PM det., coll. NM; Jirny (5854), 1 ♂, Wimmer leg., M. Hradský det., coll. NM; Praha, Cikánka II NMo (5951), 50.0018°N, 14.3267°E, 25.viii.2023, TK leg., det. et coll.; Praha (5951), Radotínské údolí NR, 49.9986°N, 14.3211°E, 26.vi.2021, 1 ♂, PM observ., 50.0472°N, 14.4031°E, 13.vii.2021, 1 ♀, PM observ.; Praha (5952), Kunratice, 3.vi.1992, 1 ♀, 15.vi.1992, 1 ♀, all I. Kovář leg., PM det., coll. NM; Praha, Kunratický les (5952), 9.vii.1991, 2 ♂♂, 22.vii.1991, 1 ♂, 13.viii.1991, 1 ♀, all I. Kovář leg., PM det., coll. NM, 29.vii.1991, 2 ♂♂, Kovář et Studničková leg., PM det., coll. NM; Praha, Prokopské údolí NR (5952), 50.0471°N, 14.4005°E, 16.vii.2021, 1 ♂, TK leg., det. et coll., Praha, Radlice (5952), 50.0480°N, 14.3937°E, 9.viii.2021, 1 ♂, TK leg. et coll., PM det.; Beroun, Třešňovka, (6050) 49.9740°N, 14.0804°E, 23.vii.2023, 1 ♂, 1 ♀, A. Hlaváček leg., PM det. et coll.; Nová Huť (orig. Neuhütten) (6050), 1 ♂, Rodt leg., coll. NM-H; Tmaň, Kotýz NNM (6050), 49.9158°N, 14.0492°E, 385 m a.s.l., 2.viii.2019, 1 ♂, PM leg., det. et coll., 7.vi.1964, 1 ♀, 21.vi.1964, 1 ♀, M. Hradský det., coll. NM; Karlštejn (orig. Kar. Týn) (6051), 1 ♂, Wimmer leg., PM det., coll. NM, 18.vii.1953, 1 ♂, J. Moucha leg., PM det., coll. NM; Mořina (6051), 1 ♀, Wimmer leg., PM det., coll. NM; Sulava, env. Praha (6051), 27.vi.1965, 1 ♂; J. Macek leg., PM det., coll. NM-H; Praha, Radotínské skály NMo (6052), 49.9941°N, 14.3447°E, 300 a.s.l., 19.v.2007, 1 ♂, 6.vi.2014, 1 ♂; PM leg., det. et coll.; Štěchovice (6152), 6.vii.?, 1 ♀, Zeman leg., PM det., coll. NM; Kamýk, dam (6351), 360 a.s.l., vii.2011, 1 ♀, Snížek leg., JB det. et coll. **Bohemia occ.:** Kamenec (6147), 49.8773°N, 13.5965°E, 390 m a.s.l., 18.vii.2016, 1 ♂, PM leg., det. et coll.; Strašice (6248), 1 ♂, Vimmer leg., PM det., coll. NM. **Bohemia:** Zahorany (?), 1 ♂, Kheil leg., PM det., coll. NM; Brdy, vi.1955, 1 ♂ (genit.), M. Hradský leg. et det., JB revid. et coll., vi.1956, 2 ♂♂, 1 ♀; M. Hradský leg., coll. NM-H; Kletečná (?), vii.1912, 1 ♂, ? leg., PM det., coll. NM; sex ? abdomen missing, 2 ♂♂, 2 ♀♀, Kheil leg., 2 ♂♂, 1 ♀, Nickerl leg., all PM det., coll. NM.

Distribution. A European species reported from Portugal, Spain (Álvarez Fidalgo & van den Broek 2019), France, Austria (Weinberg & Bächli 1995), Italy (Contini et al. 1995, Weinberg & Bächli 1995), Switzerland (Weinberg & Bächli 1995, Monnerat 2024), Germany (Weinberg & Bächli 1995, Wolff 2023), Poland (Trojan 2007), the Czech Republic, Slovakia, Romania, Albania, and Greece (Geller-Grimm 2020). In the Czech Republic, the species was reported in the early 20th century, with records mainly from Prague and its surroundings, and isolated findings from the Vysočina region, northern Moravia, and the



Fig. 5. *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), male in lateral view. Praha, Bohnické údolí NMo, 5.vi.2014, PM leg. Photography by P. Marhoul.

Obr. 5. *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), samec v laterálním pohledu. Fotografie P. Marhoul.

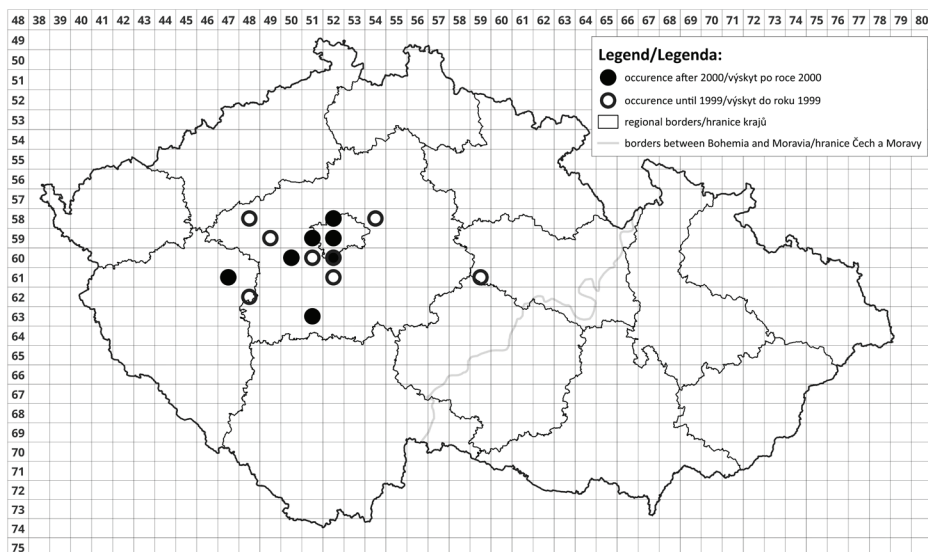


Fig. 6. Distribution map of *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820) in the Czech Republic.

Obr. 6. Mapa rozšíření *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820) v České republice.

Brno area (Landrock 1907a,b, Vimmer 1912). No additional occurrences were reported in the following decades, even though voucher specimens from the 1950s, 1960s, 1980s, and 1990s are stored in the National Museum in Prague. The lack of recent records led to the species being listed as “regionally extinct in the Czech Republic” in the Red List of Threatened Invertebrates (Bosák 2005).

In recent years, the species has been rediscovered at several localities in Prague, the Bohemian Karst, and the Plzeň region. A specimen from K. Landrock’s material housed in the Moravian Museum in Brno, labelled as *M. chrysitis* from Jakartovice (Gersdorf), was found to be an incomplete and poorly identifiable individual, likely *Tolmerus atricapillus* Fallén, 1814, based on leg colour and other characters, but definitively is not *M. chrysitis*. No confirmed specimens from the Brno area mentioned by this author were found. Due to this misidentification, the absence of correctly determined specimens from other parts of Moravia, and the species’ overall European distribution, we consider the occurrence of *M. chrysitis* in Moravia to be unsubstantiated. The result above confirm the recent presence of the species in the Czech Republic and support its exclusion from the Moravian fauna.

Biology and habitat. Post-2000 records with precise localisation and habitat data originate primarily from rocky steppe habitats on canyon edges of watercourses. A larger number of individuals was observed in clearings and glades within xerothermic forest-steppe oak woods (e.g., Hrachovka locality in Prague), and one record comes from a heathland (Havranka Natural Monument). Adults perch on bare ground or on grasses and herbs; they have also been observed on wooden fences. The flight period extends from the second half of May to mid-August, with the highest number of records occurring from mid-June to mid-July.

***Machimus cyanopus* (Loew, 1849) (Figs 7–8, 16–19, 23–24)**

Asilus cyanopus Loew, 1849: 53 (type locality: Austria).

Description. Body length 17–20 mm. A medium-sized, dark grey species. The facial tubercle is robust and bears predominantly dark bristles, with pale bristles only at the lower edge. The third antennal segment is as long as or slightly longer than the first two segments combined. The arista reaches two-thirds of the length of the third segment. The scutellum has 2–6 dark marginal bristles. Legs are entirely black, with dark spines. The hypopygium is black; epandria are narrow, long, and curved downward in the final third (Fig. 16d). Gonostyli are broad and arcuate, with two rounded projections (Fig. 17d). The aedeagus is slender, arched, and relatively long (Fig. 18d); the apical prongs are largely free, with the median one reaching approximately halfway along the length of the lateral ones (Fig. 19d). The female ovipositor is relatively short and broad, slightly shorter than the last two abdominal segments combined.

Identification. One of two Czech species with entirely black legs. Males can be readily distinguished from *M. intermedius* by the shape of the epandria and gonostyli. No sufficiently reliable morphological characters for distinguishing females have been identified. A potentially useful character may be the number of strong marginal bristles on the scutellum (Fig. 23a); in Czech specimens of *M. cyanopus*, this ranges from 2–4 (occasionally up to 5–6). A second potentially useful distinguishing feature may be the length of the ovipositor, which is noticeably shorter and wider in this species (Fig. 24a) than in *M. intermedius*. The terminal cercus is also relatively shorter. The validity of these characters requires confirmation using a larger sample size.



Fig. 7. *Machimus cyanopus* (Loew, 1849), male in lateral view. Milovice (district Břeclav), Milovická stráž NR, 4.vii.2022, PM leg. Photography by P. Marhoul.

Obr. 7. *Machimus cyanopus* (Loew, 1849), samec v laterálním pohledu. Fotografie P. Marhoul.

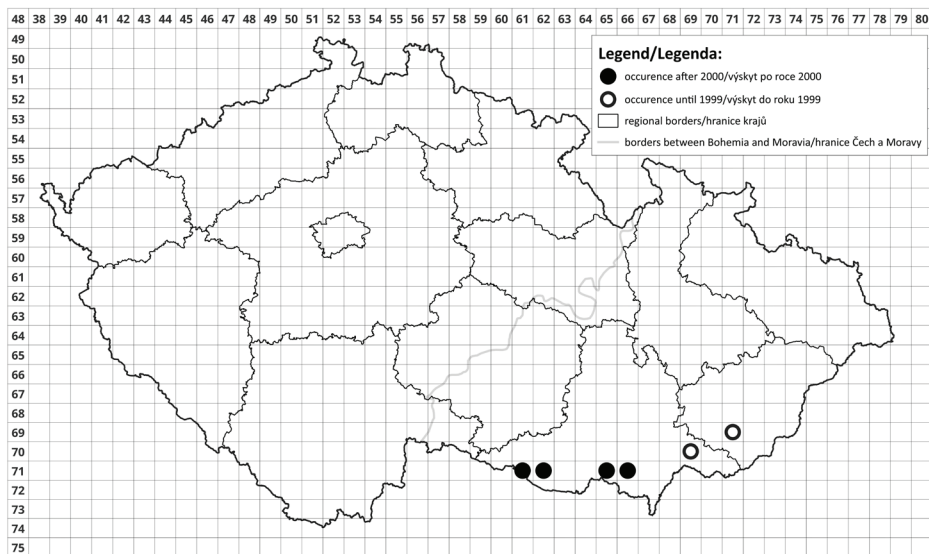


Fig. 8. Distribution map of *Machimus cyanopus* (Loew, 1849) in the Czech Republic.

Obr. 8. Mapa rozšíření *Machimus cyanopus* (Loew, 1849) v České republice.

Published records. Moravia mer.: Prakšice (6971), vii.1973, 1 ♂ (genit.), Krejčárek leg., coll. MJM (Bosák 1995 as *M. setibarbus*, rev. JB 2025); Moravský Písek (7069), vii.1972, 2 ♂♂ (genit.), Krejčárek leg., coll. MJM (Bosák 1995 as *M. setibarbus*, rev. JB 2025); (7161): Čížov–Hardecké stráně, Liščí skála, Hardegg viewpoint (Bosák et al. 2005 – JB revid.); (7162): Pavlovské vrchy, Děvín, Kotel (7165) (Bosák 1998).

Unpublished records. Moravia mer.: Havraníky, Havranické vřesoviště (7162), 12.viii.2020, 1 ♂ (genit.), A. Čelechovský leg., JB det. et coll., 20.vi.2024; Znojmo (7162), 29.viii.1974, 1 ♂ (genit.), T. Gregor leg., JB det. et coll.; Popice, Sealsfieldův kámen (7162), 27.vi.2021, 1 ♂ (genit.), A. Čelechovský leg., JB det. et coll.; Znojmo, Načeratický kopec (7162), 10.viii.2010, 1 ♂ (genit.), R. Stejskal leg. et det. as *M. cyanopus*, JB revid. et coll.; 48.8300°N, 16.0971°E, 290 m a.s.l., 2.vii.2019, 1 ♂ (genit.), PM leg., det. et coll.; Pálava PLA: Klentnice – Kotel (7165), 25.viii.2010, 1 ♂ (genit.), 17.vii.2013, 1 ♂ (genit.), all A. Čelechovský leg., JB det. et coll.; Pavlov Děvín–Kotel–Soutěska NNR (7165), 48.8746°N, 16.6607°E, 415 m a.s.l., 10.vi.2011, 1 ♂ (genit.), PM leg., det. et coll.; Pavlovské vrchy – Kotel (7165), 13.vi.1995, 1 ♂ (immature, not genit.), J. Vaňhara leg., JB det. et coll.; Pavlovské vrchy, Děvín hill (7165), eastern slope, 27.vi.1994, 1 ♂, Malaise trap, J. Vaňhara leg., M. Hradský det. (as *M. caliginosus*), PM revid., coll. NM-H; Milovice, Milovická stráž NR (7166), 48.8482°N, 16.6932°E, 4.vii.2022, 1 ♂, PM leg., det. et coll.; Mikulov.

Only records for males with confirmed identification based on genital morphology are included in this summary.

Distribution. The species has been reported from Italy (Contini et al. 1995, Weinberg & Bächli 1995), Switzerland (Weinberg & Bächli 1995, Monnerat 2024), Austria (Weinberg & Bächli 1995), Hungary (Majer 2001), Germany, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, the former Yugoslavia, Albania, Greece, and the Near East (Geller-Grimm 2020). This list is likely inaccurate. The delineation of the species' actual range will only be possible after a comprehensive revision of the genus *Machimus*. Based on genitalia examination of museum material, *M. cyanopus* has recently been excluded from the fauna of Germany (Wolff et al. 2018). In the Czech Republic, it has so far been confirmed only from southern Moravia.

Biology and habitat. A poorly known species. Records with precise locality and habitat data from the Czech Republic indicate that it inhabits xerothermic forest-steppe environments. Observations span from the first third of June to mid-September, though the overall number of records is low.

Machimus gonatistes (Zeller, 1840) (Figs 9–10, 16–19, 21–22)

Asilus gonatistes Zeller, 1840: 62 (type locality: Silesia (Poland)).

Description. Body length 18–28 mm. A grey-coloured species. The facial tubercle is robust, bearing a dense and long mystax composed of pale bristles, with only a few black bristles along the upper margin and sides. The third antennal segment is as long as the first two segments combined. The arista reaches four-fifths of the length of the third segment. The scutellum bears 6–8 strong pale marginal bristles. Legs are black, with the base of the tibiae reddish. Strong leg spines are dark, occasionally with one or two pale. The hypopygium is black; the epandria are broad apically and extend ventrally into a pointed tip (Fig. 16e). The gonostylus is slightly curved and clavate, with a narrow basal and an expanded distal portion (Fig. 17e). The aedeagus is short and broad (Fig. 18e); all three apical prongs are equal in length, with



Fig. 9. *Machimus gonatistes* (Zeller, 1840), male in lateral view. Bzenec, sandpit, 23.vi.2020, J. Matouš leg. Photography by P. Marhoul.

Obr. 9. *Machimus gonatistes* (Zeller, 1840), samec v laterálním pohledu. Fotografie P. Marhoul.

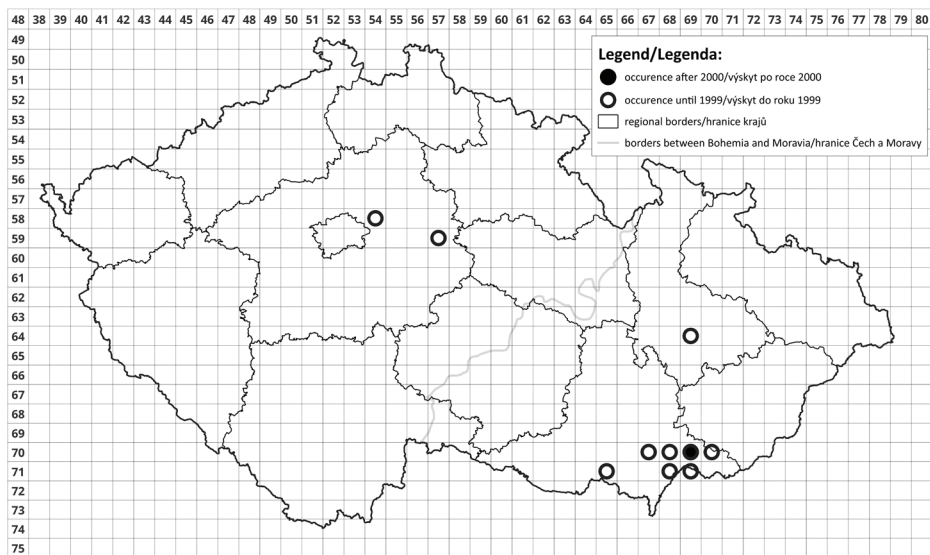


Fig. 10. Distribution map of *Machimus gonatistes* (Zeller, 1840) in the Czech Republic.

Obr. 10. Mapa rozšíření *Machimus gonatistes* (Zeller, 1840) v České republice.

the two lateral ones bent at a right angle (Fig. 19e). The female ovipositor is narrow, and as long as the last two abdominal segments combined.

Identification. A large species with reddish tibiae at the base. It differs from *M. arthriticus* by the absence of strong bristles on the ventral side of the fore femora. It can be distinguished from *M. rusticus* mainly by the predominantly dark spines on the hind legs (Fig. 21b), and from *M. annulipes* by the shape of the male genitalia and the female ovipositor (Fig. 22b).

Published records. Moravia cent.: Grygov (6469), 19.viii.1973, 1 ♂, J. Palásek leg., JB det., coll. UP (Bosák & Hrochová 2001). **Moravia mer.:** Dubňany (7068), 6.ix.1966, 1 ♂, Starý leg. (Bosák 1995); Bzenec (7069), date ?, 1 ♀, ? leg. (Bosák 1995); Bzenec–Přívoz (7069), 4.viii.1993, Martinovský leg., JB det. et coll. (Bosák 1996); Moravský Písek (7069), vii.1965, 1 ♂, vii.1970, 1 ♂, Krejčíšek leg. (Bosák 1995); Strážnice přív. (7069), 29.vii.1957, 1 ♀, J. Palásek leg., JB det., (Bosák 1996); Lidéřovice (7070), 19.vi.1940, 1 ♂, Hoffer leg. (Bosák 1995); Hodonín (7168), 26.vi.1948, 1 ♂, Zouhar (Bosák 1995, specimen deposited in NM-H); Rohatec (7169), 3.vii.1973, 31.vii.1973, 3 ♂♂, Krejčíšek leg., JB det. (Bosák 1996).

Unpublished records. Bohemia centr.: Lysá nad Labem (orig. Lysá) (5854), 1 ♂ (damaged), ? leg., PM det., coll. NM; Kolín (5957), 1 ♀, Vimmer leg., PM det., coll. NM. **Moravia mer.:** Čejč (7067), viii.1940, 1 ♂, Hoffer leg., PM det., NM-H coll., vi. 1943, 2 ♂♂, 1 ♀, M. Hradský leg. et det. (as *M. annulipes*), PM revid., coll. NM; Bzenec, Vojenské cvičiště Bzenec NMo (7069), 48.9571°N, 17.2909°E, 20.vii.2021, TK leg., det. et coll.; Bzenec – Přívoz (7069), 1.vii.1998, 1 ♂, 1 ♀, A. Čelechovský et I. Horčíčko leg., JB det. et coll., 30.v.2003, 1 ♀, JB leg., det. et coll., 23.vi.2020, 2 ♂♂, J. Matouš leg., PM det. et coll., 48.9449°N, 17.2967°E, 190 m a.s.l., 21.vi.2018, 2 ♂♂, PM leg., det. et coll., Bzenec, Váté Pisky NNM (7069), 48.9251°N, 17.2669°E, 3.vii.2022, 1 ♂, PM leg., det. et coll., Lidéřovice (7070), 18.vii.1940, 1 ♂, 19.vii.1940, 1 ♂, 1 ♀, Hoffer leg., M. Hradský det., PM revid., coll. NM; Brod nad Dyjí (7165), 9.vii.1977, 1 ♂, Kocourek leg., M. Hradský det., PM revid., coll. NM-H; Hodonín (7168), 20.vii.1954, 1 ♂, 1 ♀, v.1957, 1 ♂, v.1961, 1 ♀, all M. Hradský det., PM revid., coll. NM-H.

Distribution. The species is reported from Germany (Weinberg & Bächli 1995, Wolff 2023), Italy (Contini et al. 1995, Weinberg & Bächli 1995), Poland (Trojan 2007), Austria (Weinberg & Bächli 1995), Hungary (Majer 2001), Spain (Álvarez Fidalgo & van den Broek 2019), Denmark, Finland, Slovakia, the Czech Republic, Switzerland, the former Yugoslavia, Romania, Bulgaria, Greece, and the southern part of European Russia (Geller-Grimm 2020). Not listed in the new checklist for Finland (Pohjoismäki et al. 2023). In the Czech Republic, recent records are known only from Moravia. Most findings come from the Hodonín region, with one record from central Moravia. Two specimens housed in the National Museum in Prague are labelled with localities Kolín and Lysá (presumably Lysá nad Labem). The Kolín specimen was collected by A. Vimmer and is estimated to be approximately one hundred years old. The species was not mentioned in Vimmer's checklist of Czech Diptera (Vimmer 1912) or in its supplement (Vimmer 1915). The specimen from Lysá is heavily damaged by dermestid beetles, and the label provides no additional data. Given the condition of the specimen, it is clearly an old record. These two findings indicate a historical occurrence of the species in the central Elbe region, which, in terms of habitat (sandy biotopes associated with a major river), is similar to the Hodonín area. It is possible that the species still survives in this region. New species for Bohemia.

Biology and habitat. In the Czech Republic, this species inhabits open sandy areas within pine forests. Adults perch on the ground in places with exposed sandy substrate. All known records originate from lowland areas below 200 m a.s.l. The first adults appear at the end of May, with the latest record dating to mid-September. The highest number of records falls within the period from late June to mid-July.

Machimus intermedius (Holmgren in Zetterstedt, 1852) (Figs 11–12, 16–19, 23–24)

Asilus intermedius Holmgren in Zetterstedt, 1852: 4262 (type locality: Stocklycke on the southern slope of Mount Omberg, Östergötland, Sweden).

Synonym:

Machimus setibarbus (Loew, 1849): Lyneborg (1968): 131–135.

Description. Body length 17–20 mm. A medium-sized, dark grey species. The facial tubercle is prominent and bears a mystax composed predominantly of dark bristles, with pale bristles only along the lower margin. The third antennal segment is equal to or slightly longer than the combined length of the first two segments. The arista reaches two-thirds of the length of the third segment. The scutellum bears 8–12 dark marginal bristles. Legs are entirely black, with dark spines. The hypopygium is black; the epandria are broad, broadly rounded apically, and only slightly curved downward (Fig. 16f). The gonostyli consist of an oval basal part with an apically inserted, pointed, triangular terminal section (Fig. 17f). The aedeagus is long, slender, and strongly curved (Fig. 18f). All three apical prongs are enclosed within a sheath that extends into a point over the lateral ones, giving the aedeagus the appearance of ending in five points (Fig. 19f). The female ovipositor is relatively slender and long, approximately equal in length to the last two abdominal segments combined.

Identification. Like *M. cyanopus*, this species has entirely black legs. Males can be distinguished based on the shape of the hypopygium and aedeagus. No sufficiently reliable morphological character has yet been identified for distinguishing females. A potentially useful trait may be the number of strong marginal bristles on the scutellum (Fig. 23b); in Czech specimens of *M. intermedius*, this number ranges from 8 to 12 (occasionally more). The ovipositor of this species is narrower and longer (Fig. 24b) than that of *M. cyanopus*. The terminal cercus is also relatively longer. However, the validity of these characters requires confirmation based on a larger sample size.

Published records. Moravia mer: Čejč (7067), 29.vi.1954, 2 ♂♂, 1 ♀ (Bosák 1995 as *M. cyanopus*) JB revid.; Podyjí NP, Konice, Kraví hora (7162), forest path margin near Konice (by the chapel near black pines), on a woodpile, 13.ix.2009, 1 specimen., hand-collected; forest edge near Vrbkův kámen – thinned woodland, 20.vii.2010, 1 specimen., hand-collected, both R. Stejskal leg., det. et coll. (Stejskal 2011 as *M. cyanopus*), JB revid.; Mikulov (7165), vii.1971, 1 ♂ (genit.), Krejčířek leg., coll. MJM (Bosák 1995 as *M. setibarbus* 1 ♀ (Sic!), rev. JB 2025).

Unpublished records. Bohemia centr.: Káraný (5854), 50.1826°N, 14.7676°E, 180 m a.s.l., 21.vi.2017, 1 ♂ (genit.), 10.vii.2025, 2 ♂♂, 1 ♀, all PM leg., det. et coll.; Lysá nad Labem (5854), 50.1928°N, 14.7848°E, 180 m a.s.l., 12.vii.2017, 1 ♂ (genit.), 1 ♀, in copula, PM leg., det. et coll. **Moravia mer.:** Brno (labelled as Bohemia) (6765), dam, 2.ix.1956, 1 ♂, M. Hradský det. (as *M. cyanopus*, 2011), coll. NM-H; Bratčice (6965), 49.0500°N, 16.5166°E, 220 m a.s.l., 7.vi.2001, 1 ♂ (genit.), M. et Z. Halada leg., JB det. et coll.; Čejč (7067) 27.vi.1964, 1 ♂ (genit.), M. Hradský leg. et det. (as *M. cyanopus*), JB revid. et coll.; Hodonín, Pánov NMO (7168), 205 m a.s.l., 19.v.2018, 1 ♂ (genit.), PM leg., det. et coll.

Only records for males with confirmed identification based on genital morphology are listed. Where females are included, they were captured in copula with males or in close proximity to identified males at the same locality.

Distribution. *Machimus intermedius* appears to be the only black-legged *Machimus* species occurring in northwestern and western Europe (van den Broek et al. 2022). Until a comprehensive revision of the genus is completed, this name is provisionally applied to individuals with the same gonostylus morphology as those from Sweden (Theodor 1976). The occurrence of such individuals has been confirmed not only in Sweden but also in Germany (Wolff et al. 2018) and the Netherlands (van den Broek et al. 2022). Reports from the St. Petersburg region in Russia (Stackelberg 1954) and Finland (Lyneborg 1968) mention the species without analysis of internal genitalia. Van den Broek et al. (2022) assume that all black-legged *Machimus* individuals from Belgium and northern France reported on the portal waarnemingen.be also belong to *M. intermedius*. In the Czech Republic, the species has so far been documented in the central Elbe region and southern Moravia. New species for the Czech Republic.

Biology and habitat. The habitat preferences of this species are not yet well understood. Most specimens with precisely localised records have been collected in lowlands in areas with extensive pine forests on sandy soils. Records from Bohemia (Káraný, Lysá nad Labem) originate from forest clearings in pine stands. Moravian localities (Pánov NMo, Vojenské cvičiště Bzenec NMo) represent large open sandy areas within forest complexes of aeolian sands of the former Moravian Sahara. Adults fly from the second half of May until early September.

Machimus rusticus (Meigen, 1820) (Figs 13–14, 16–21)

Asilus rusticus Meigen, 1820: 311 (type locality: not specified (Europe)).

Synonyms:

Asilus obscurus Meigen, 1820: 315 (type locality: Stolberg near Aachen, Germany)

Asilus genualis Zeller, 1840: 49 (type locality: Glogów, Poland (“Glogau”)).

Description. Body length 15–25 mm. A predominantly large species with golden-grey coloration. The facial tubercle is robust and bears a dense, long mystax composed mostly of pale bristles, with only a few black bristles along the upper margin and sides. The third antennal segment is as long as, or slightly longer than, the combined length of the first two segments. The arista reaches two-thirds of the length of the third segment. The scutellum bears 4–6 strong pale marginal bristles. Legs are black, with the base of the tibiae reddish. Strong leg spines are pale, with an occasional dark one. The hypopygium is black; the epandria are long, evenly broad throughout their length, rounded apically and slightly curved downward (Fig. 16g). The gonostylus is short and broad, with a pointed apical dorsal end (Fig. 17g). The aedeagus is long and curved (Fig. 18g); the apical prongs are as long as the basal portion and approximately three-quarters enclosed within a common sheath. All three prongs are of equal length (Fig. 19g). The ovipositor is shorter than the combined length of the last two abdominal segments.

Identification. The bases of the tibiae are reddish, as in *M. annulipes*, *M. arthriticus*, and *M. gonatistes*, exceptionally, the red or brown colour is only hinted at and difficult to see. It differs from *M. arthriticus* by the absence of strong bristles on the ventral side of the fore femora (Fig. 20b). It can be distinguished from the other two species by the colour of the strong bristles on the hind legs, which are all or nearly all pale (Fig. 21c). Taxonomically significant differences also exist in the structure of the aedeagus and gonostyli among these species.



Fig. 11. *Machimus intermedius* (Holmgren in Zetterstedt, 1852), male in lateral view. Káraný, 10.vii.2025, PM leg. Photography by P. Marhoul.

Obr. 11. *Machimus intermedius* (Holmgren in Zetterstedt, 1852), samec v laterálním pohledu. Fotografie P. Marhoul.

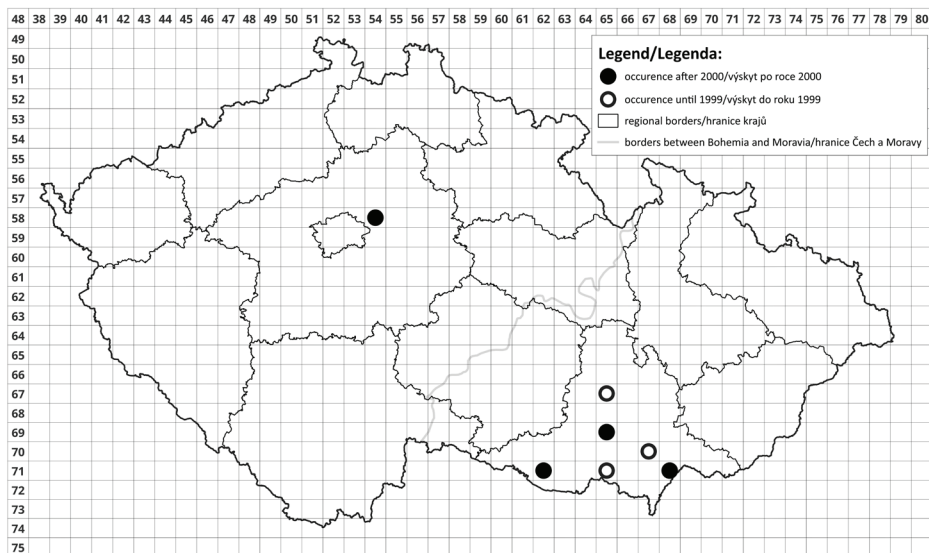


Fig. 12. Distribution map of *Machimus intermedius* (Holmgren in Zetterstedt, 1852) in the Czech Republic.

Obr. 12. Mapa rozšíření *Machimus intermedius* (Holmgren in Zetterstedt, 1852) v České republice.

Published records. Bohemia bor: Doksy (5453) (Vimmer 1912). **Bohemia cent.:** Bělá pod Bezdězem (5454); Lysá nad Labem (orig. “Lysá”) (5755); Krušovice (5848); Křivoklát (5949); Prague (5952), Krč (all Vimmer 1912). **Bohemia mer.:** Jindřichův Hradec (6856) (Vimmer 1912); Stráž nad Nežárkou (6955) (Niedl 1979); Český Krumlov (orig. “Krumlov”) (7151), Velešín (7152) (both Vimmer 1912); Klikov (7155), Tušř steppe, Suchdol nad Lužnicí (7155) (all Niedl 1979). **Bohemia occ.:** Plzeň (6246), 1899, 1 ♂, 1 ♀ (Weinberg & Rozkošný 1970). **Bohemia orient.:** Hradec Králové (orig. “Kr. Hradec”) (5761) (Vimmer 1912); **Moravia centr.:** Olomouc (6369), Chomoutov, 2.vii.1967, 5 ♂♂, 1 ♀, VMO coll. (Bosák & Hrochová 2001). **Moravia mer.:** Brno (6765), Židenice, July (orig. “Schimitz”) (Czižek 1906, Bosák 1995); Čejč (7067), vi.1963, Kocourek leg.; Kobylí (7067), 3.vi.1971, Krejčárek leg. (both Bosák 1995); 8.vii.1965, 2 ♂♂, 2♀♀, Kocourek leg. (Weinberg 1974, Bosák 1995); Mutěnice (7068), vii.1971, 2 ♂♂, Krejčárek leg. (Bosák 1995), 1 ♂, Krejčárek leg. (Weinberg & Rozkošný 1970, Bosák 1995); Bzenec (7069), viii.1963, 1 ♀, Kocourek leg.; Bzenec–Přívoz (7069), 3.viii.1974, J. Palásek leg.; 2.vii.1992, 1 ♂, 3♀♀, JB leg.; Rohatec (7169), 3.vii.1973, 1 ♀, Krejčárek leg. (all Bosák 1995); Sedlec near Mikulov (7266), Skalky u Sedlece Nature Monument (Bosák 1998). **Moravia orient.:** Valašské Meziříčí – Štěpánov (6573), 22.viii.1975, 1 ♀, L. Brabec leg. (Brabec 1983); Vizovicko (6773), 15.vii.1955, 1 ♂; Vizovice (6773), 3–4.viii.1955, 1 ♂, 1 ♀ (all Bosák 1995).
Moravia (general): 3♀♀ (Weinberg & Rozkošný 1970). **Unknown locality:** Houška (?) (Vimmer 1912).

Unpublished records. Bohemia bor.: Liberec, Vesec, Na Kopci (5256), 50.7249°N, 15.0629°E, 27.vi.2023, 1 ♂; Liberec, Vesec, vrch Špičák (5256), 50.7282°N, 15.0673°E, 27.vi.2023, 1 ♀, all TK leg., det. et coll.; Ústí nad Labem (5350), 28.viii.1954, 1 ♀, Novák leg., PM det., coll. NM; Vrskaň, Vršany coal mine (5447), 50.4938°N, 13.5174°E, 20.vii.2023, 1 ♂, PM observ.; Snědovice (5452), 50.5129°N, 14.3884°E, 2.vi.2017, 1 ♀, PM leg., det. et coll.; Bezděz, Slatinné vrchy (5454), 50.5535°N, 14.7086°E, 15.vii.2023, 1 ♀, TK leg., det. et coll.; Ralsko, Kuřivody (5454), 50.5788°N, 14.7981°E, 24.vii.2021, 1 ♂, 1 ♀, 50.5809°N, 14.7946°E, 1 ♂, all TK leg. et coll., PM det.; Bečov, Písečný vrch (5548), 22.vii.1978, 1 ♀, Z. Pádr leg., M. Hradský det., coll. NM-H; Raná, Oblík NNR (5548), 50.4105°N, 13.8070°E, 500 a.s.l., 25.vii.2012, 1 ♀, 50.4105°N, 13.8070°E, 28.vii.2015, 1 ♂, all PM leg., det. et coll.; Raná, Raná NNR (5548), 50.4034°N, 13.7662°E, 11.viii.2022, 1 ♀, TK leg. et coll., PM det.; Chožov, Třtění, Malý vrch (5549), 50.4245°N, 13.8670°E, 10.vi.2022, 1 ♀, TK leg. et coll., PM det.; Libčeves, Řisuty (5549), 50.4802°N, 13.8424°E, 18.vii.2023, 1 ♀, TK leg. et coll.; Oleško, Písciňy u Oleška NMo (5551), 50.4865°N, 14.2033°E, 175 a.s.l., 26.vii.2013, 1 ♂, PM leg., det. et coll.; Louny (5648), vii.1955, 1 ♀, Hrdý leg., PM det., coll. NM; Peruc (5649), 50.3359°N, 13.9206°E, 310 a.s.l., 24.vi.2019, PM leg., det. et coll.; Mšené-lázně (5650), 9.vii.1944, 1 ♀, Doskočil leg., PM det., coll. NM. **Bohemia centr.:** Bělá pod Bezdězem, Vrchbělá (5454), 50.5274°N, 14.7671°E, 22.vii.2021, 2 ♂♂, 50.5459°N, 14.7630°E, 1 ♀, 50.5298°N, 14.7690°E, 14.vi.2023, 1 ♀, 50.5273°N, 14.7661°E, 6.vii.2024, 2 ♂♂, 1 ♀, all TK leg. et coll., PM det.; Vysoká, Na oboře NMo (5553), 50.4269°N, 14.5186°E, 260 m a.s.l., 28.vi.2017, 2 ♂♂, 1 ♀, PM leg., det. et coll.; Mladá Boleslav, Debř, former military training ground Radouč (5555), 50.4333°N, 14.9000°E, 13.vii.2021, 3 ♂♂, 2♀♀, 50.4329°N, 14.9005°E, 16.vi.2023, 1 ♂; Mladá Boleslav, Krásná Louka (5555), 50.4213°N, 14.8963°E, 3.vii.2024, 2♀♀; Smilovice, Újezdec, former military training ground (5655), 50.3051°N, 14.9169°E,



Fig. 13. *Machimus rusticus* (Meigen, 1820), male in lateral view. Milovice (district Nymburk), Pod Benáteckým vrchem, 9.vi.2017, PM leg. Photography by P. Marhoul.

Obr. 13. *Machimus rusticus* (Meigen, 1820), samec v laterálním pohledu. Fotografie P. Marhoul.

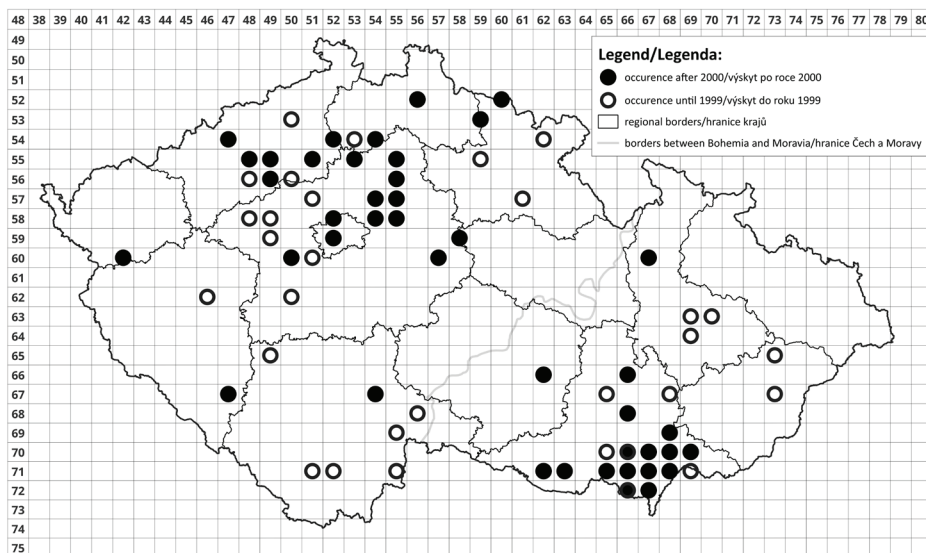


Fig. 14. Distribution map of *Machimus rusticus* (Meigen, 1820) in the Czech Republic.

Obr. 14. Mapa rozšíření *Machimus rusticus* (Meigen, 1820) v České republice.

23.vi.2023, 1 ♂, all TK leg., det. et coll.; Kralupy nad Vltavou (5751), 27.vi.1930, 1 ♂, 1 ♀, PM det., coll. NM; Brandýs nad Labem, former military training ground (5754), sand, 50.2077°N, 14.6809°E, 175 m a.s.l., 17.vii.2013, 1 ♀, PM leg., det. et coll.; Lysá na Labem, Na Červeném hrádku (5754), 50.2101°N, 14.8064°E, 205 m a.s.l., 17.vi.2012, 1 ♀, PM leg., det. et coll.; Lysá nad Labem (5755), 2.viii.?, 2 ♂♂, Čepelák leg., PM det., coll. NM; Milovice, Boží Dar (5755), 50.2550°N, 14.8879°E, 15.vii.2021, 2 ♂♂, TK leg., det. et coll.; Milovice (5755), 50.2472°N, 14.8968°E, 210 m a.s.l., 4.ix.2011, 1 ♂, 50.2458°N, 14.8994°E, 21.vii.2015, 1 ♂, Milovice, Pod Benátským vrchem (5755), 50.2375°N, 14.8785°E, 205 m a.s.l., 29.vi.2016, 1 ♀, 50.2375°N, 14.8785°E, 9.vi.2017, 1 ♀, Milovice, Pozorovatelná (5755), 50.2549°N, 14.8824°E, 245 a.s.l., 27.vi.2016, 1 ♂, 50.2530°N, 14.8817°E, 240 m a.s.l., 23.v.2018, 1 ♂, all PM leg., det. et coll.; Lužná, Lišany (5848), 1955, 4 ♂♂, 4♀♀, Obenberger leg., PM det., coll. NM; Nové Strašecí (5849), 20.vi.1955, 1 ♂, Hrdý leg., PM det., coll. NM; Praha, Podbabské skály NMo (5852), 50.1231°N, 14.3935°E, 220 a.s.l., 7.vii.2008, 1 ♀, PM leg., det. et coll.; Káraný (5854), 50.1829°N, 14.7660°E, 2.viii.2020, 1 ♂, PM observ.; Lysá nad Labem (5854), 50.1928°N, 14.7848°E, 180 m a.s.l., 12.vii.2017, 1 ♀, PM leg., det. et coll.; Přerov nad Labem (5855), chalk marl slope overgrown with shrubs, 50.1928°N, 14.7848°E, 5.viii.2020, 1 ♂, PM observ.; Praha, Prokopské údolí NR (5952), dry grassland in an orchard, 50.0466°N, 14.4018°E, 12.vii.2021, 1 ♀, PM observ.; Praha, Hlubočepy (5952), 50.0471°N, 14.4028°E, 16.vii.2021, 1 ♂, 1 ♀, 50.0465°N, 14.4025°E, 5.ix.2021, 1 ♂, 50.0471°N, 14.4014°E, 22.vi.2023, 1 ♀; Praha, Jinonice (5952), 50.0463°N, 14.3640°E, 10.vii.2021, 1 ♂, all TK leg., det. et coll.; Horušice (5958), 50.0022°N, 15.4260°E, 18.vii.2022, abundantly, PM observ.; Uhlířská Lhota (5958), 50.0693°N, 15.3996°E, 1 ♂, PM observ.; Beroun, Třešňovka (6050), 49.9740°N, 14.0804°E, 19.vii.2023, 1 ♂, PM observ.; Karlštejn (6051), 7.vi.1959, 1 ♂, M. Hradský leg. et det., coll. NM-H; Vidice, Nová Lhota (6057), 49.9230°N, 15.2069°E, 1.vii.2028, 1 ♂, B. Mocek leg., PM det., coll. MVČ; Bratkovice (6250), viii.1909, 1 ♀, PM det., coll. NM. **Bohemia mer.:** Blatná (6549), 1 ♂, Vimmer leg., PM det., coll. NM; Žihobce, Hrochův mlýn (6747), mesophilous meadow, 49.2011°N, 13.6008°E, 545 a.s.l., 20.vii.2016, 4 ♂♂, 3♀♀, PM leg., det. et coll.; Dírná, Lžín sand pit (6754), 49.2296°N, 14.7751°E, 445 m a.s.l., 2.vii.2019, 1 ♀, J. Řehounek leg., PM det., not coll.; Český Krumlov (7151), 20.viii.1954, 1 ♀, Hrdý leg., PM det., coll. NM. **Bohemia occ.:** Pístov, pastviny S od obce (6042), 5.vii.2018, 1 ♂, L. Dvořák leg. et coll., PM det.; Plzeň (6246), vii.1953, 1 ♀, viii.1953, 1 ♂, all O. Slabý leg., PM det., coll. NM. **Bohemia orient.:** Špindlerův Mlýn, Luční hora Mt. (5260), 50.7207°N, 15.6838°E, 1440 m a.s.l., 28.viii.2019, 1 ♂, TK leg., PM det. et coll.; Horní Branná (5359), mesophilous meadow, 50.6235°N, 15.5805°E, 28.vii.2020, 1 ♀, PM observ.; Vrchlabí (5359), drier species-rich meadow, 50.6530°N, 15.5858°E, 1 ♂, PM observ.; Vrchlabí, Podžalí (5359), 50.6532°N, 15.5857°E, 20.viii.2020, 1 ♂, 1 ♀, PM leg. et det. coll. TK; Úpice (5462), 1.vii.1935, 1 ♂, Špaček leg., PM det., coll. NM; Nová Paka (5559), 26.vii.1953, 1 ♂, 27.vi.1954, 1 ♂, 2♀♀, J. Moucha leg., PM det., coll. NM; **Bohemia:** Brdy (?), vi.1955, 2 ♂♂, 2♀♀, Hradský leg., PM det., coll. NM. **Moravia bor.:** Chromeč (6067), 49.9440°N, 16.8976°E, 300 m a.s.l., 18.vii.2017, R. Vlk leg., PM det. et coll. **Moravia cent.:** Hlubočky (6370), 12.vii.1953, 1 ♀, PM det., coll. NM, 1 ♂, M. Hradský det., coll. NM-H, all M. Palásek leg.; Grygov (6469), 19.viii.1973, 1 ♂, J. Palásek leg., JB det., coll. UP. **Moravia mer.:** Moravský kras, Macošská stráň (6666), 23.vii.2013, 1 ♂ (genit.), A. Čelechovský leg., JB det., coll. UP; Vyškov (6768), v.1964, 1 ♂,

vi.1964, 1 ♀, 30.vii.1965, 1 ♀, all M. Kocourek leg., M. Hradský det., coll. NM-H; Brno, Stránská skála (6866), 21.vi.2002, 1 ♀, V. Kubáň leg., JB det. et coll.; Želečice, Na Adamcích NNM (6968), 49.0067°N, 16.9994°E, 11.vi.2020, abundantly, PM observ.; Pouzdřany (7065), 6.vii.1977, 1 ♂, Kocourek leg., M. Hradský det., coll. NM-H; Kurdějov, Kamenný vrch u Kurdějova NMo (7066), 48.9650°N, 16.7543°E, 300 m a.s.l., 2.vi.2018, 1 ♀, R. Vlk leg., PM det. et coll.; Popice (7066), 26.vi.1977, 1 ♀, Kocourek leg., M. Hradský det., coll. NM-H; Čejč (7067), vii.1939, 4 ♂♂, 2 ♀♀, A. Hoffer leg., PM det., coll. NM; 26.vii.1963, 2 ♂♂, Z. Pádr leg., PM det., coll. NM, 25.vii.1965, 1 ♂, Kocourek leg., M. Hradský det., coll. NM-H, vi.1962, 1 ♀, vi.1963, 1 ♂, 3 ♀♀, vii.1963, 2 ♂♂, viii.1963, 3 ♂♂, 2 ♀♀, v.1964, 1 ♀, all M. Kocourek leg., M. Hradský det., coll. NM-H; Čejč, Špidlák NMo (7067), 48.9225°N, 16.9563°E, 215 m a.s.l., 21.vi.2018, 1 ♂, 2 ♀♀, PM leg., det. et coll.; Čejč, Kobylská skála NMo (7067), 48.9437°N, 16.9241°E, 31.vii.2020, 1 ♂, PM observ.; Kobylí (7067), vi.1963, 2 ♂♂, 8.vii.1965, 2 ♀♀, all M. Kocourek leg., M. Hradský det., coll. NM-H, Kobylí, Lacary (7067), 48.9415°N, 16.8744°E, 19.vii.2024, abundantly, PM observ.; Mutěnice, Bílý kopec u Čejče NMo (7067), 48.9251°N, 16.9796°E, 20.vii.2021, 1 ♂, 2 ♀♀, TK leg., det. et coll., 48.9252°N, 16.9798°E, 3.vii.2022, abundantly, 27.vi.2024, abundantly, all PM observ.; Milotice, Horky NR (7068), 48.9427°N, 17.1338°E, 11.vi.2020, abundantly, PM observ.; Svatobořice-Mistřín, airport (7068), 48.9834°N, 17.1207°E, 205 m a.s.l., 28.vi.2010, J. Růžička leg. et coll., PM det.; Bzenec (7069), viii.1963, 1 ♀, M. Kocourek leg., M. Hradský det., coll. NM-H; Bzenec, Vojenské cvičiště Bzenec NMo (7069), 48.9574°N, 17.2933°E, 195 m a.s.l., 28.-29.vi.2010, J. Růžička leg. et coll. PM det., 48.9583°N, 17.2928°E, 21.vi.2018, 1 ♀, PM leg., det. et coll.; Bzenec-Prívóz (7069), 19.vi.1997, 1 ♂, 1 ♀, J. Starý leg., JB det., coll. UP; Bzenec-Prívóz, Váté Pisky NNM (7069), 20.vi.2013, 1 ♂, A. Čelechovský leg., JB det. et coll.; Strážnice-Prívóz (7069), 21.vi.1964, 1 ♂ (genit.), J. Palásek leg., JB det., coll. UP; Znojmo, Načeratický kopec NMo (7162), 48.8328°N, 16.0964°E, 260 a.s.l., 23.vi.2017, 1 ♂, 2 ♀♀, 11.vi.2019, 1 ♀, all PM leg., det. et coll., 18.vii.2024, abundantly, PM observ.; Znojmo, Střebovský kopec NMo (7162), 48.8192°N, 16.1371°E, 225 m a.s.l., 29.vi.2019, 1 ♂, R. Stejskal leg. et coll., PM det.; Oleksovice, Oleksovické vřesoviště NMo (7163), 48.8966°N, 16.2477°E, 245 m a.s.l., 18.vi.2017, 1 ♂, 2 ♀♀, R. Stejskal leg. et coll., PM det.; Klentnice, Kotel (7165), 17.vii.2013, 1 ♂, A. Čelechovský leg., JB det., coll. UP; Mikulov, Kienberg NMo (7166), 48.8026°N, 16.6873°E, 235 m a.s.l., 2.vii.2018, 1 ♀, R. Vlk leg., PM det. et coll.; Čejkovice, Špidlák NMo (7167), 48.9217°N, 16.9570°E, 19.vi.2024, 1 ♀, A. Čelechovský leg., JB det. et coll.; Rakvice, Trkmanec-Rybníčky NMo (7167), 48.8684°N, 16.8365°E, 27.vi.2024, abundantly, PM observ.; Hodonín, Pánov NMo (7168), 48.8875°N, 17.1390°E, 205 m a.s.l., 17.vi.2018, 1 ♂, PM leg., det. et coll., 48.8889°N, 17.1382°E, 19.vii.2021, 1 ♀, TK leg., det. et coll., 48.8850°N, 17.1359°E, 19.vi.2024, 2 ♂♂, 2 ♀♀, A. Čelechovský leg., JB det. et coll.; Sedlec, Skalky u Sedlece NMo (7266), 48.7713°N, 16.6765°E, 255 m a.s.l., 19.vi.2016, 1 ♂, 1 ♀, 29.vi.2019, 2 ♂♂, 2 ♀♀, all R. Vlk leg., PM det. et coll.; Valtice, Sv. Hubert (7266), 48.7610°N, 16.8059°E, 200 m a.s.l., 4.vii.2013, 1 ♂, J. Kovář leg., PM det., R. Stejskal coll.; Břeclav, Františkův rybník NR (7267), 48.7176°N, 16.8672°E, 2.vii.2022, 2 ♂♂, 1 ♀, PM observ., Břeclav, Obora Soutok, Malé Lány (7267), 48.7177°N, 16.9077°E, 19.vii.2022, 1 ♂, 2 ♀♀, TK leg. et coll. PM det. **Moravia occ.:** Ořechov (6662), 19.vii.2019, 1 ♀, R. Vlk leg., PM det. et coll. **Moravia:** Javorník (?), 6.vii.1955, 1 ♂, M. Chvála leg., PM det., coll. NM. **Unknown locality:** Martinice (?), 8.viii.?, Čepelák leg., PM det., coll. NM.

Distribution. A West Palaearctic species distributed throughout most of Europe, extending into the Near East (Turkey, Iran), Central Asia (Kazakhstan, Kyrgyzstan), and with an as yet unresolved occurrence in North Africa (Wolff et al. 2018). In Europe, it has been reported from most countries except Ireland and Scandinavia. It is listed in the checklists of France (Weinberg & Bächli 1995), Italy (Contini et al. 1995, Weinberg & Bächli 1995), Hungary (Majer 2001), Germany (Weinberg & Bächli 1995, Wolff 2023), Netherlands (van Veen 2002), Austria (Weinberg & Bächli 1995), Spain (Álvarez Fidalgo & van den Broek 2019), Switzerland (Weinberg & Bächli 1995, Monnerat 2024) and Great Britain (Stubbs & Drake 2014).

In the Czech Republic, this is the most widespread representative of the genus. Both historical and recent records confirm its occurrence across the entire territory of the country.

Biology and habitat. Records of *M. rusticus* originate from a variety of grassland habitats, ranging along a gradient from xerothermic steppes and dry grasslands to mesophilous meadows. The species shows a preference for taller, denser vegetation. Adults most frequently perch on grass blades and herb stems, similar to *M. annulipes* and *M. arthriticus*, but, unlike *M. gonatistes*, they rarely rest on bare ground. At certain sites, the species can reach high local abundances (tens to hundreds of individuals per hectare). Most records are from lowlands and upland areas; however, a record from Luční hora in the Krkonoše Mountains at an elevation of 1,440m demonstrates the broad ecological tolerance of the species. Adults first appear in the last third of May and fly until the first third of September, with the highest number of observations recorded from late June to late July.

Records of *Machimus* species with black legs that cannot be reliably identified to species level

Females of black-legged *Machimus* species collected without associated males cannot be reliably assigned to species. Below is a list of both published and unpublished records. In parentheses after each record is the presumed species affiliation based on the number of strong setae on the margin of the scutellum. The list is provided for completeness; no distribution map has been prepared for these records.

Published records. Moravia mer.: Brno (6765) (Czižek 1906); Fryšták – přehrada (6772), 1.viii.1967, 1 ♀ Krejčíček leg., coll. MJM (Bosák 1995 as *M. setibarbus*, rev. JB 2025); Mutěnice (7068), ix.1970, 1 ♀, Krejčíček leg., coll. MJM (Bosák 1995 as *M. setibarbus*, rev. JB 2025), (all presumed *M. cyanopus*). Kobyli (7067), 20.viii.1970, 1 ♀, 29.viii.1970, 3♀♀, all Krejčíček leg., coll. MJM (Bosák 1995 as *M. setibarbus*, rev. JB 2025) (presumed *M. intermedius*).

Unpublished records. Bohemia cent.: Milovice, Boží dar airfield (5755), 50.2314°N, 14.9144°E, 2.ix.2016, 1 ♀; 24.vi.2017, 1 ♀, both J. Matouš leg., PM det. et coll.; Milovice, Pod Kateřinou (5755), 50.2461°N, 14.8991°E, 1 ♀, 25.viii.2023, TK leg. et coll., PM det.; Mlékovice (6056), 49.9936°N, 15.0358°E, 480m a.s.l., 2.viii.2005, 1 ♀, M. Hradský leg. et det. (as *M. cyanopus*), coll. NM-H; Zásmyky (6056), 12.vii.1953, 1 ♀; 26.vii.1953, 1 ♀, both M. Hradský leg. et det. (as *M. cyanopus*), coll. NM-H. **Moravia cent.:** Čelechovice na Hané, Kosíř quarries (6468), 49.5258°N, 17.0877°E, 265m a.s.l., 22.vi.2019, 1 ♀ (immature), JB leg., det. et coll.; Březina military training area, near paintball field (6667), 25.viii.2009, 1 ♀; 11.viii.2013, 1 ♀; 17.viii.2013, 1 ♀, all A. Čelechovský leg., JB det. et coll. **Moravia mer.:** Čejč (7067), 27.vi.1954, 2♀♀, M. Hradský leg. et det. (as *M. caliginosus*) (all presumed *M. intermedius*), PM rev., coll. NM-H;

Mutěnice (7068), vii.1971, 1 ♀, Krejčárek leg., JB det., coll. MJM; 1 ♀, R. Vlk leg., PM det. et coll.; Pálava PLA; Klentnice – Kotel (7165), 11.vii.1995, 1 ♀, J. Vaňhara leg., M. Hradský det. (as *M. caliginosus*), PM rev., coll. NM-H; Mikulov, Šibeničník NR (7265), 48.789411N, 16.630244E, 230m a.s.l., 6.vii.2016, 1 ♀, R. Vlk leg., PM det. et coll. (all presumed *M. cyanopus*). Kobyli (7067), 14.viii.1970, 1 ♀, Krejčárek leg., JB det., coll. MJM; Popice (7065), 9.vii.1977, 1 ♀, Kocourek leg., M. Hradský det. (as *M. caliginosus*), PM rev., coll. NM-H; Bzenec, Vojenské cvičiště Bzenec NMo (7069), 48.9574°N, 17.2933°E, 195m a.s.l., 2.vii.2010, 1 ♀, PM leg., det. et coll.; Bzenec – Přívoz (7069), 1.viii.2013, 1 ♀; 3.vii.2014, 1 ♀ (immature), both JB leg., det. et coll.; Podyjí NP, Lipinská footbridge (7161), deciduous forest, 48.8188°N, 15.9690°E, 7.vii.2020, 1 ♀, JB leg., det. et coll.; Hodonín (7168), 20.vii.1954, 1 ♀, Kocourek leg., M. Hradský det. (as *M. cyanopus*), coll. NM-H (presumed *M. intermedius*).

The record by K. Czižek from Brno, published as all *M. cyanopus* (Czižek 1906), also cannot be assigned to species with certainty.

Unaccepted species

Machimus lacinulatus Loew, 1854

Machimus lacinulatus Loew, 1854: 13 (type locality: Austria).

Synonyms:

Machimus gracilis Becker, 1923: 57 (type locality: France, Provence, Cavalière).

This species was reported under the name *Machimus latinulatus* Lw. by Vimmer (1912) from Protivín, Navarov, Tanvald, and Jilemnice; the species name is assumed to be a typographical error. Its current distribution is still poorly known. In the Palaearctic catalogue of robber flies (Lehr 1988), the species is listed from the Czech Republic, France, Italy, Austria, and Tunisia. In the GBIF database (GBIF.org 2025), it is reported from Germany, France, Spain, Portugal, and Tunisia, with post-2000 records only from France and the Iberian Peninsula (Álvarez Fidalgo & van den Broek 2019). It is likely a southern European species that does not occur in Central Europe, and all historical records are probably based on misidentifications. *Machimus lacinulatus* was removed from the list of German robber flies (Wolff 2023) because specimens published under this name, for which a revision of identification was possible, were found to have been misidentified as *Tolmerus atricapillus* (Fallén, 1814). The material of A. Vimmer is deposited in the collection of the National Museum in Prague; however, no specimen labelled as *M. lacinulatus* could be located there.

This species is not accepted as part of the fauna of the Czech Republic.

Machimus setibarbus (Loew, 1849) (Figs. 15–19)

Asilus setibarbus Loew, 1849: 45 (type locality: Rhodes (Greece)).

Description. Body length 18–27 mm. A large grey-black species. Facial tubercle prominent, with a mystax composed mainly of dark bristles, with only a few pale bristles along the lower margin. Some of the dark bristles are very robust. The third antennal segment is as long as the first two segments combined. The arista is as long as the third segment. The scutellum bears 4–10 (usually 8) strong marginal bristles. Legs entirely black. Strong spines on the legs are dark. Hypopygium black; epandrium with parallel margins, rounded apically and slightly curved downwards (Fig. 16h). Gonostylus with a broad basal portion; ventral margin convex at the base, concave in the middle, narrowing to a pointed tip (Fig. 17h). Aedeagus long and



Fig. 15. *Machimus setibarbus* (Loew, 1849), male in lateral view. Turkey, Antalya province, Çamyuva, 21.vi.2022, J. Růžička leg. Photography by P. Marhoul.

Obr. 15. *Machimus setibarbus* (Loew, 1849), samec v laterálním pohledu. Fotografie P. Marhoul.

curved (Fig. 18h); all three prongs pigmented, distinctly longer than the narrow basal section, with claw-like curves at the ends, and equal in length (Fig. 19h). Ovipositor triangular, as long as the last two abdominal segments combined.

The species has been reported from most European countries, including Scandinavia, as well as North Africa and the Middle East (Geller-Grimm 2020). This distribution is likely inaccurate and will be re-evaluated following a revision of the genus. The species has been excluded from the fauna of Germany (Wolff et al. 2018), the Netherlands, and Belgium (van den Broek et al. 2022). In the Czech Republic, it has historically been reported from southern and eastern Moravia (Czižek 1906, Weinberg & Rozkošný 1970, Bosák 1995). However, these records were not supported at the time of publication by an analysis of male genitalia. Based on a revision of material deposited in the collections of the Museum of Southeastern Moravia in Zlín and the Moravian Museum in Brno, previously published records can be assigned to *M. cyanopus* and *M. intermedius*. Complete locality data published in Bosák (1995) are therefore listed under the respective species. Material published by Weinberg & Rozkošný (1970) was not revised; however, we consider it most probable that the Brno record belongs to *M. intermedius*, based on the currently known distribution of the species in Moravia. The record from Fryšták most likely refers to *M. cyanopus*, as supported by the revision of a female from the Fryšták–reservoir locality in the Museum of Southeastern Moravia in Zlín, which probably belongs to *M. cyanopus*. These records are not included in the species accounts and are not shown in the distribution maps. The record by Czižek (1906) from Vranov nad Dyjí was not revised and cannot be reliably assigned to species.

Given that the species was described from the island of Rhodes and that none of the specimens examined from the Czech Republic correspond to the description of the type material, the occurrence of this species in the country is considered doubtful. Excluded from the fauna of the Czech Republic.

ACKNOWLEDGEMENTS. We would like to thank Alois Čelechovský (Tovačov, Czech Republic), Josef Matouš (Milovice, Czech Republic), David Musiolek (Karviná, Czech Republic), Dušan Trávníček (Zlín, Czech Republic), Jan Růžicka (Prague, Czech Republic), Jiří Řehouněk (České Budějovice, Czech Republic), Robert Stejskal (Znojmo, Czech Republic), and Robert Vlk (Drnholec, Czech Republic) for providing material. We are grateful to Michal Tkoč (Prague, Czech Republic) for assistance with photography. We are indebted to Danny Wolff (Ebsterf, Germany) for valuable information on the identification of black-legged species. We also thank Reinoud van den Broek (Tilburg, Netherlands) and D. Wolff for their constructive comments on the manuscript. We thank J. Růžicka and M. Tkoč for help with editing the text. Part of the material was obtained within the framework of a project supported by the grant of the Prague City Hall No. DOT/54/12/011989/2017 and during the implementation of the project *Military LIFE for Nature* (LIFE15 NAT/CZ/001028).

REFERENCES

- ÁLVAREZ FIDALGO P. & VAN DEN BROEK R. 2019: Checklist de fauna Ibérica. Familia Asilidae (Arthropoda: Insecta: Diptera) en la península ibérica e islas Baleares (edición 2019). In: RAMOS M. A. & SÁNCHEZ RUIZ M. (eds): *Documentos Fauna Ibérica*, 9. Madrid, Museo Nacional de Ciencias Naturales, CSIC, [2] + 16 pp. (in Spanish).
- BECKER T. 1923: *Revision der Loew'schen diptera Asilica in Linnaea Entomologica 1848–49*. Fritz Wagner, Wien, 91 pp.
- BEZZI M. 1903: *Katalog der Palaäarktischen Dipteren, Band II. Orthorrhapha Brachycera*. G. Wesselényi, Budapest, 396 pp.
- BOSÁK J. 1995: Roupci (Asilidae, Diptera) jižní Moravy. [Robber flies (Asilidae, Diptera) of southern Moravia]. *Acta Musealia Zlín (B)* 6: 1–25 (in Czech, English abstract).
- BOSÁK J. 1996: Zajímavé nálezy rouspů (Asilidae, Diptera) na jižní Moravě. [Interesting findings of robber flies (Asilidae, Diptera) in southern Moravia]. *Sborník Přírodovědného klubu v Uherském Hradišti* 1: 78–79 (in Czech, English abstract).
- BOSÁK J. 1997: Asilidae. Pp. 46–48. In: CHVÁLA M. (ed.): *Check List of Diptera (Insecta) of the Czech and Slovak Republics*. Karolinum, Charles University Press, 130 pp.
- BOSÁK J. 1998: Asilidae. Pp. 155–159. In: ROZKOŠNÝ R. & VAŇHARA J. (eds): Diptera of the Pálava Biosphere Reserve of UNESCO, 1. *Folia Facultatis Scientiarum Naturalium Universitatis Masarykianae Brunensis* 99: 1–219.
- BOSÁK J. 2005: Asilidae. Pp. 286–287. In: FARKAČ J., KRÁL D. & ŠKORPÍK M. (eds): *Červený seznam ohrožených druhů České republiky. Bezobratlí. (Red List of Threatened Species in the Czech Republic. Invertebrates)*. Praha, Agentura ochrany přírody a krajiny ČR, 760 pp. (in Czech and English).
- BOSÁK J. 2006: Asilidae. In: JEDLIČKA L., STLOUKALOVÁ V. & KÚDELA M. (eds): *Checklist of Diptera of the Czech Republic and Slovakia. Electronic version 1*. Online <http://zoology.fns.uniba.sk/diptera> and CD-ROM (ISBN 80-969629-0-6).
- BOSÁK J. 2009: Asilidae Leach in Samouelle, 1819. In: JEDLIČKA L., KÚDELA M. & STLOUKALOVÁ V. (eds): *Checklist of Diptera of the Czech Republic and Slovakia, electronic version 2*. Online <http://www.edvis.sk/diptera2009/families/asilidae.htm> (accessed 20 April 2025).
- BOSÁK J., GREGOR T., BARTÁK M. & KUBÍK Š. 2005: Asilidae. Pp. 144–150. In: BARTÁK M. & KUBÍK Š. (eds): *Diptera of Podyjí National Park and its environs*. Česká zemědělská univerzita v Praze, Praha, 432 pp.
- BOSÁK J. & HROCHOVÁ M. 2001: Roupci (Asilidae, Diptera) severní Moravy a Slezska. (Robber-flies (Asilidae, Diptera) of Northern Moravia and Silesia). *Časopis Slezského Zemského Muzea, Série A, Vědy Přírodní* 50: 253–263 (in Czech, English abstract).
- BRABEC L. 1983: Rouspovití (Diptera, Asilidae) okolí Valašského Meziříčí (Morava, ČSSR). [Asilidae from the vicinity of Valašské Meziříčí (Moravia, ČSSR)]. *Časopis Slezského Zemského Muzea, Série A, Vědy Přírodní* 32: 49–55 (in Czech).

- BRULLÉ A. 1932: *Expédition scientifique de Morée. Section des Sciences Physiques. Tome III, 1.re partie. Zoologie. Deuxième section - Des animaux articulés*. F. G. Levrault, Paris, 400 pp.
- COHEN C. 2025: *Robber flies of the world*. 2023. Databases. Online: www.robberfliesoftheworld.com/Databases/DatabaseTaxa.php (accessed 20 April 2025).
- CONTINI C., LYNEBORG L., MAJER J. M., RIVOCSECCI L. & ZAITZEV V. F. 1995: Fascicolo 68, Diptera Nemestrinoidea, Asiloidea, Bombyloidea. Pp. 1–18. In: MINELLI A., RUFFO S. & LA POSTA S.: *Checklist delle specie della fauna Italiana*. Edizioni Calderini, Bologna (in Italian).
- COQUILLET D. W. 1910: The type-species of the North American genera of Diptera. *Proceedings of the United States National Museum* **37**: 499–647.
- CZIŽEK K. 1906: Beiträge zu einer Dipteren fauna Mahrens. *Zeitschrift des Mährischen Landesmuseums* **6**: 182–234.
- ENGEL E. O. 1925–1930: 24. Asilidae. In: LINDNER E. (ed.): *Die Fliegen der Paläarktischen Region. Band IV(2)*. Schweizerbart, Stuttgart, 491 pp.
- GBIF.org 2025: GBIF Occurrence Download. Online https://www.gbif.org/occurrence/search?taxon_key=1655964 (accessed 10 May 2025).
- GELLER-GRIMM F. 2003: *Fotoatlas und Bestimmungsschlüssel der Raubfliegen Deutschland*. CD-ROM, Ampyx Verlag, Halle (Salle).
- GELLER-GRIMM F. 2004: World catalogue of the genera of the family Asilidae (Diptera). *Studia Dipterologica* **10**: 473–526.
- GELLER-GRIMM F. 2020: Fauna Europaea: Asilidae. In: BEUK P. & PAPE T. (eds): *Fauna Europaea: Diptera, Brachycera. – Fauna Europaea version 2017.06*. Online <http://www.faunaeur.org> (accessed 20 April 2025).
- GERSTAECKER A. 1861: Untitled. Introduced by: Hr. W. Peters legte eine Mittheilung des Hrn. Dr. Gerstäcker über eine Sammlung von Raubfliegen (Diptera, Asilina) aus Griechenland vor, welche das zoologische Museum neuerdings von Hrn. Dr. Krüper erworben hat. *Monatsberichte der Königlich Preussische Akademie des Wissenschaften zu Berlin*. Zweite Hälfte, pp. 1010–1013.
- HULL F. M. 1962: Robber Flies of the World. The genera of the family Asilidae. Part 2. *Bulletin of the United States National Museum* **224 (Part 2)**: 433–907.
- LANDROCK K. 1907a: Mährische Zweiflügler. *Bericht des Lehrerkulbs für Naturkunde Brünn* **8**: 50–71.
- LANDROCK K. 1907b: Verzeichniss der im Jahre 1905 in der Umgebung von Brünn erbeuteten Dipteren (Brachycera). *Entomologisches Jahrbuch* **1907**: 1–10.
- LEHR P. A. 1988: Family Asilidae. Pp. 197–326. In: SOÓS Á. & PAPP L. (eds): *Catalogue of Palaearctic Diptera. Vol. 5*. Akademiai Kiado, Budapest, 446 pp.
- LEHR P. A. 1992: “Malye” rody ktyrey podsemeystva Asilinae (Diptera, Asilidae). 1. Taksonomiya, ekologiya. (“Small” genera of robber flies of the subfamily Asilinae (Diptera, Asilidae). 1. Taxonomy and ecology). *Zoologicheskii Zhurnal* **71**: 91–105 (in Russian, English summary).
- LOEW H. 1849: Ueber die europäischen Raubfliegen (Diptera asilica). *Linnaea Entomologica* **4**: 1–155.
- LOEW H. 1854: Neue Beiträge zur Kenntniss der Dipteren. Zweiter Beitrag. *Programm K. Realschule Meseritz* **1854**: 1–24.
- LYNEBORG L. 1968: Notes on Two Species of Machimus Loew in Northern Europe. *Notulae Entomologicae* **48**: 131–135.
- MAJER J. 2001: Asilidae. Pp. 156–163. In: PAPP L. (ed.): *Checklist of the Diptera of Hungary*. Hungarian Natural History Museum, Budapest, 550 pp.
- MEIGEN J. W. 1820: *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Zweiter Theil*. Forstmann, Aachen, 363 pp.
- MONNERAT C. 2024: Asilidae. Pp. 234–241. In: HAENNI J.-P., BÄCHLI G., BERNASCONI M., DUFOUR C., FISLER L., GONSETH Y., LODS-CROZET B., MONNERAT C. & POLLINI PALTRINIERI L. (eds): *Diptera – Checklist. Fauna Helvetica 35*. info fauna & SEG, Neuchâtel, 590 pp.
- NIEDL J. 1979: Příspěvek k poznání roupců (Diptera: Asilidae) jižních Čech. (Beitrag zur Kenntnis der Asilidae (Diptera) Südböhmens). *Sborník Jihočeského muzea v Českých Budějovicích, Přírodní Vědy* **19**: 101–105 (in Czech, German title).
- POHJOISMÄKI J., HAARTO A. & KAKKO I. 2023: *Suomen petokärpäset sukulaisineen. Opaskirja lajien määrittämiseen, biologiaan ja uhanalaisuuteen. [Finnish robber flies and their relatives. A guide to species identification, biology, and endangerment]*. Hyönteistavike TIBIALE Oy, Helsinki, 296 pp. (in Finnish).
- PRUNER L. & MÍKA P. 1996: Seznam obcí a jejich částí v České republice s čísly mapových polí pro síťové mapování fauny. [List of settlements in the Czech Republic with associated map field codes for faunistic grid mapping system]. *Klapalekiana* **32 (Supplementum)**: 1–115 (in Czech).

- SÉGUY E. 1927: *Faune de France. 17. Diptères Asilidae (Brachycères)*. Federation Societé Sciences Naturelles, Paris, 190 pp.
- STACKELBERG A. A. 1954: Materialy po faune dvukrylykh Leningradskoy oblasti II. Diptera Brachycera. [Materials on the fauna of Diptera of the Leningrad province II, Diptera Brachycera]. *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR* **15**: 199–228 (in Russian).
- STEJSKAL R. 2011: Příspěvek k poznání roupců (Diptera: Asilidae) národních parků Podyjí a Thayatal a několika lokalit Znojemska. (Contribution to the knowledge of robber flies (Diptera: Asilidae) of the Podyji/Thayatal National parks and some other localities of Znojmo region). *Thayensia* **8**: 101–108 (in Czech, English abstract).
- STRAKA V. 1984: Asilidae. Pp. 166–175. In: ČEPELÁK J. (ed.): *Diptera Slovenska I*. [The Diptera of Slovakia, Vol. I]. Veda, Bratislava, 288 pp. (in Slovak).
- STRAKA V. & HRADSKÝ M. 1987: Asilidae. Pp. 113–115. In: JEŽEK J. (ed.): Check List of Czechoslovak Insects II. (Diptera). *Acta Faunistica Entomologica Musei Nationalis Pragae* **18**: 1–340.
- STUBBS A. & DRAKE M. 2014: *British Soldierflies and their Allies. Second edition*. British Entomological and Natural History Society, Berkshire, 527 pp.
- THEODOR O. 1976: *On the structure of the spermathecae and aedeagus in the Asilidae and their importance in the systematics of the family*. The Israel Academy of Sciences and Humanities, Jerusalem, 175 pp.
- THEODOR O. 1980: *Fauna Palaestina – Insecta II – Diptera: Asilidae*. The Israel Academy of Science and Humanities, Jerusalem, 446 pp.
- TROJAN P. 2007: Łowiki (Asilidae). Pp. 87–89, 178–179. In: BOGDANOWICZ W., CHUDZICKA E., PILIPUK I. & SKIBIŃSKA E. (eds): *Fauna Polski: Charakterystyka i Wykaz Gatunków*. Muzeum i Instytut Zoologii PAN, Warszawa, 505 pp. (in Polish).
- VAN DEN BROEK R., DE BREE E. & MORTELMANS J. 2022: De asgrauwe roofvlieg *Machimus intermedius* nieuw voor de nederlandse en belgische fauna (Diptera: Asilidae). (The robber fly *Machimus intermedius* new for the fauna of the Netherlands and Belgium (Diptera: Asilidae)). *Nederlandse Faunistische Mededelingen* **59**: 27–35 (in Dutch, English summary).
- VAN VEEN M. P. 2002: Family Asilidae. Pp. 146–148. In: BEUK P. L. Th. (ed.): *Checklist of the Diptera of the Netherlands*. KNNV Uitgeverij, Utrecht, 448 pp.
- WEINBERG M. 1974: Diptera – Asilidae from the Slovenské národné muzeum Bratislava. *Travaux du Muséum d'Histoire Naturelle a Grigore Antipa* **15**: 191–196.
- WEINBERG M. & BÄCHLI G. 1995: *Insecta Helvetica, Fauna, Diptera, Asilidae*. Schweizerische Entomologische Gesellschaft, Genf, 124 pp.
- WEINBERG M. & ROZKOŠNÝ R. 1970: Über die Asiliden und Leptogastriden (Diptera) – Sammlung aus der J. E. Purkyně – Universität in Brno (Brünn). *Extrait de Travaux du Muséum d'Histoire Naturelle a Grigore Antipa* **10**: 195–206.
- VIMMER A. 1912: Seznam českých dipter. [A check-list of Czech Diptera]. *Časopis České Společnosti Entomologické* **9**: 49–80 (in Czech).
- VIMMER A. 1915: Doplnky k seznamu českého hmyzu dvojkrídleho. [Supplements to the list of Bohemian Diptera]. *Časopis Československé Společnosti Entomologické* **12**: 60–61 (in Czech).
- WOLFF D. 2023: Checkliste der Raubfliegen Deutschlands (Diptera: Asilidae). *Catalogus dipterorum Germaniae* **4**: 1–45.
- WOLFF D., GEBEL M. & GELLER-GRIMM F. 2018: *Die Raubfliegen Deutschlands. Entdecken – Beobachten – Bestimmen*. Quelle & Meyer Verlag, Wiebelsheim, 339 pp.
- ZELLER P. C. 1840: Beytrag zur Kenntnis der Dipteren aus den Familien der Bombylier, Anthracier und Asiliden. *Isis von Oken* (Liepzig) **1840** (1): 10–78.
- ZETTERSTEDT J. W. 1852: *Diptera Scandinaviae disposita et descripta, Tomus undecimus*. Ex Officina Lundbergiana, sumtibus auctoris, Lundæ, i–xii, 4091–4545 (in Latin).

SOUHRN

Práce podává přehled o rozšíření sedmi druhů rodu *Machimus* Loew, 1849 (Diptera: Asilidae) nalézajících se na území České republiky. Na základě nových sběrů a revize materiálu ve vybraných kolekcích byly pro naši faunu akceptovány druhy *Machimus annulipes* (Brullé, 1832), *Machimus arthriticus* (Zeller, 1840), *Machimus chrysitis* (Hoffmannsegg in Meigen,

1820), *Machimus cyanopus* (Loew, 1849), *Machimus gonatistes* (Zeller, 1840) a *Machimus rusticus* (Meigen, 1820). Nově je pro území republiky uveden druh *Machimus intermedius* (Holmgren in Zetterstedt, 1852). Dlouhodobě udávaný výskyt *Machimus setibarbus* (Loew, 1849) je z fauny České republiky vyloučen stejně tak jako v literatuře jednou zmíněný *Machimus lacinulatus* Loew, 1854. U každého druhu je uveden stručný popis, přehled lokalit výskytu na našem území, poznámky k jeho biologii a ekologickým nárokům a taxonomické poznámky reflektující aktuální pohled na taxonomické postavení některých druhů.

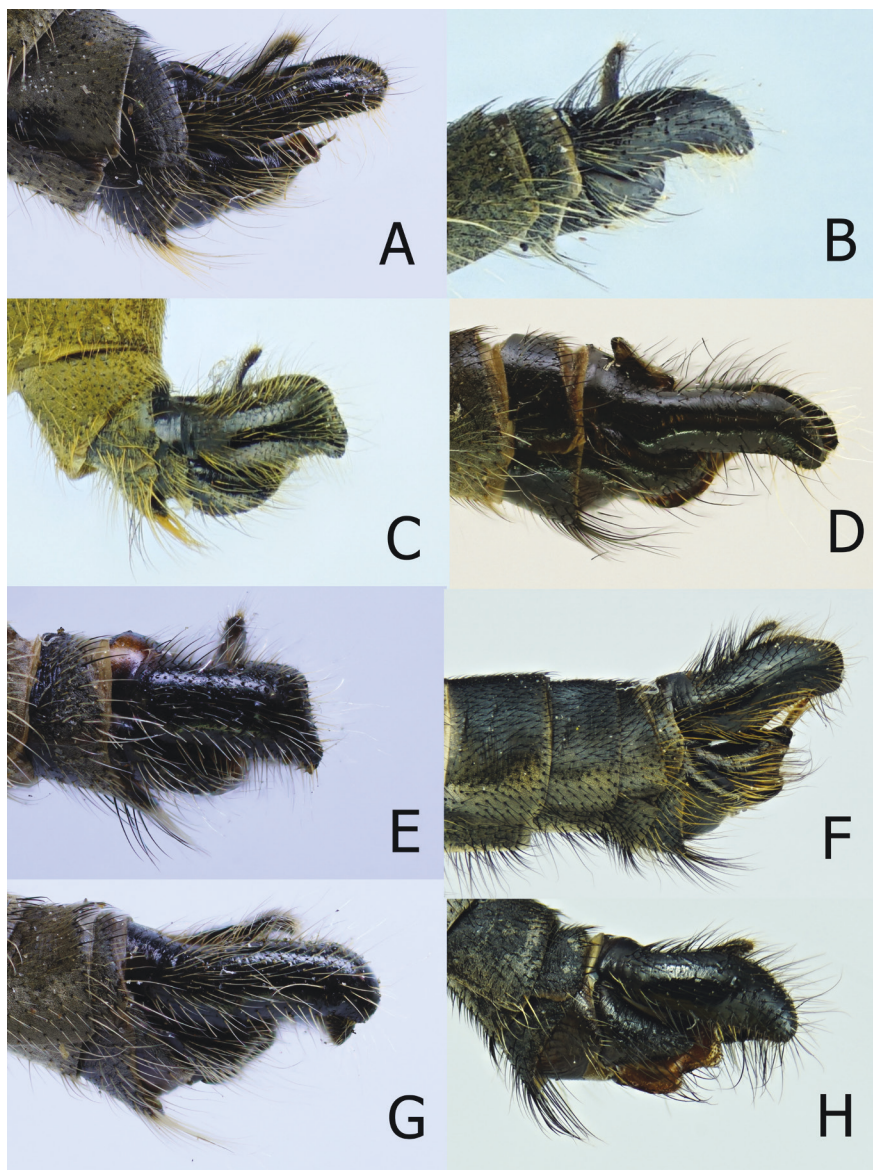


Fig. 16. Hypopygium: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Photography by P. Marhoul.

Obr. 16. Hypopygium: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Fotografie P. Marhoul.

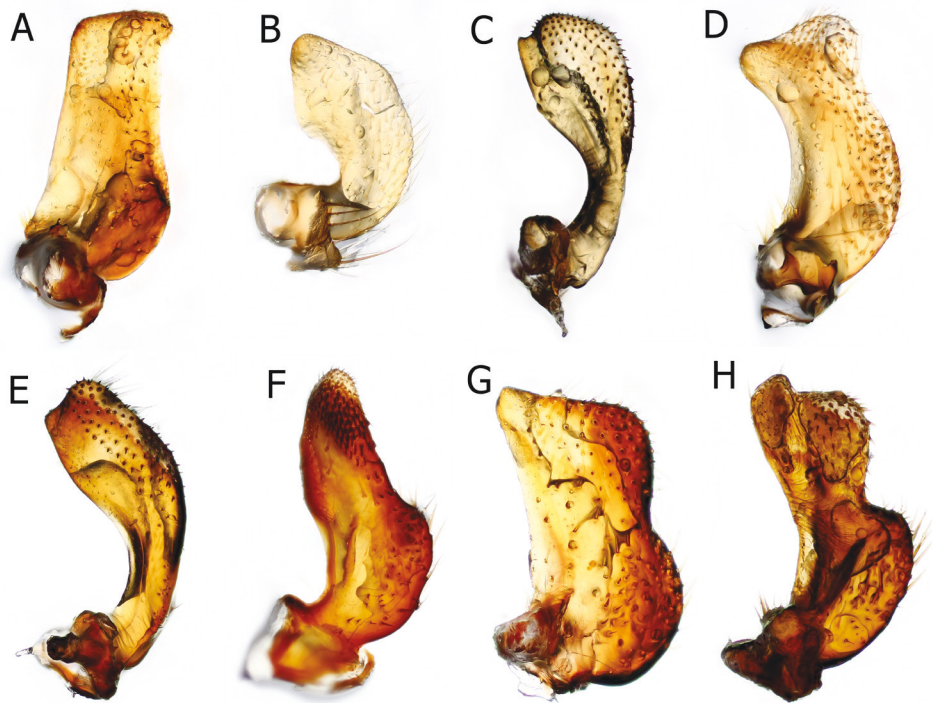


Fig. 17. Gonostylus: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Photography by P. Marhoul.

Obr. 17. Gonostylus: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Fotografie P. Marhoul.

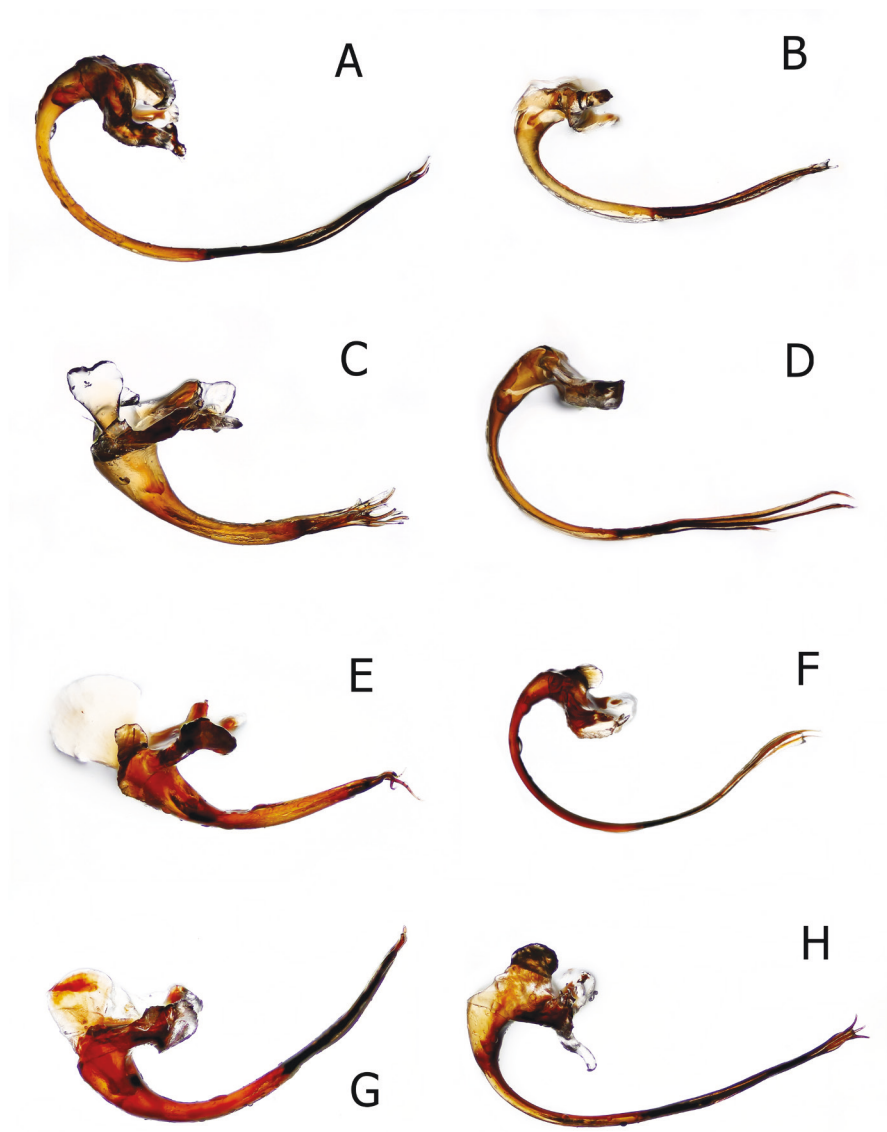


Fig. 18. Aedeagus: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Photography by P. Marhoul.

Obr. 18. Aedeagus: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Fotografie P. Marhoul.

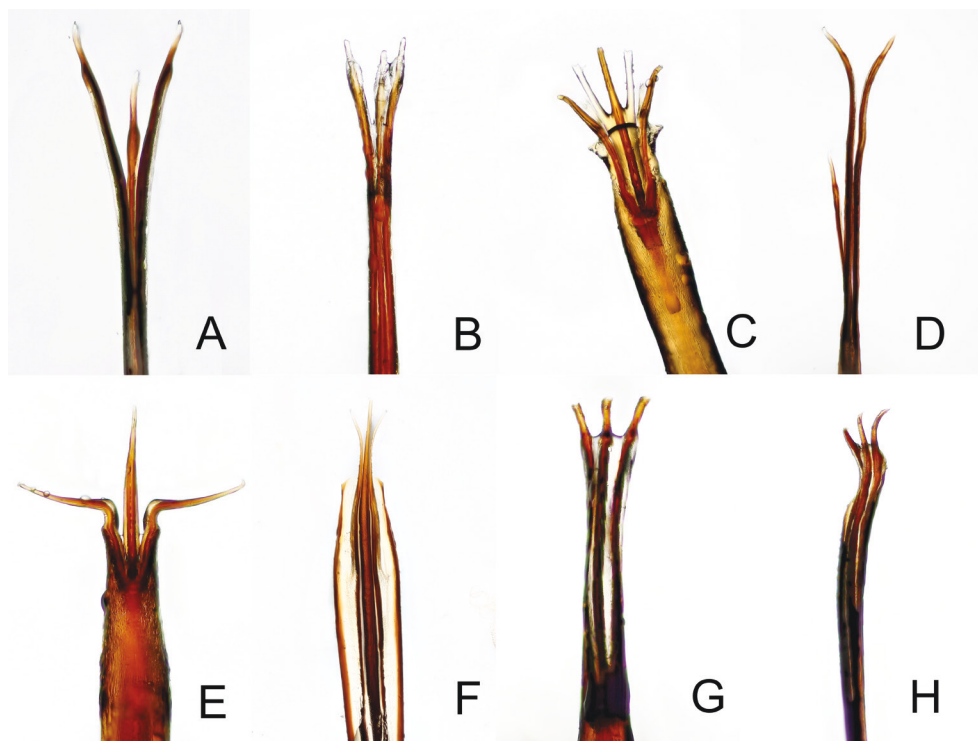


Fig. 19. Prongs of aedeagus: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Photography by P. Marhoul.

Obr. 19. Hroty aedeagu: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus arthriticus* (Zeller, 1840), c) *Machimus chrysitis* (Hoffmannsegg in Meigen, 1820), d) *Machimus cyanopus* (Loew, 1849), e) *Machimus gonatistes* (Zeller, 1840), f) *Machimus intermedius* (Holmgren in Zetterstedt, 1852), g) *Machimus rusticus* (Meigen, 1820), h) *Machimus setibarbus* (Loew, 1849). Fotografie P. Marhoul.

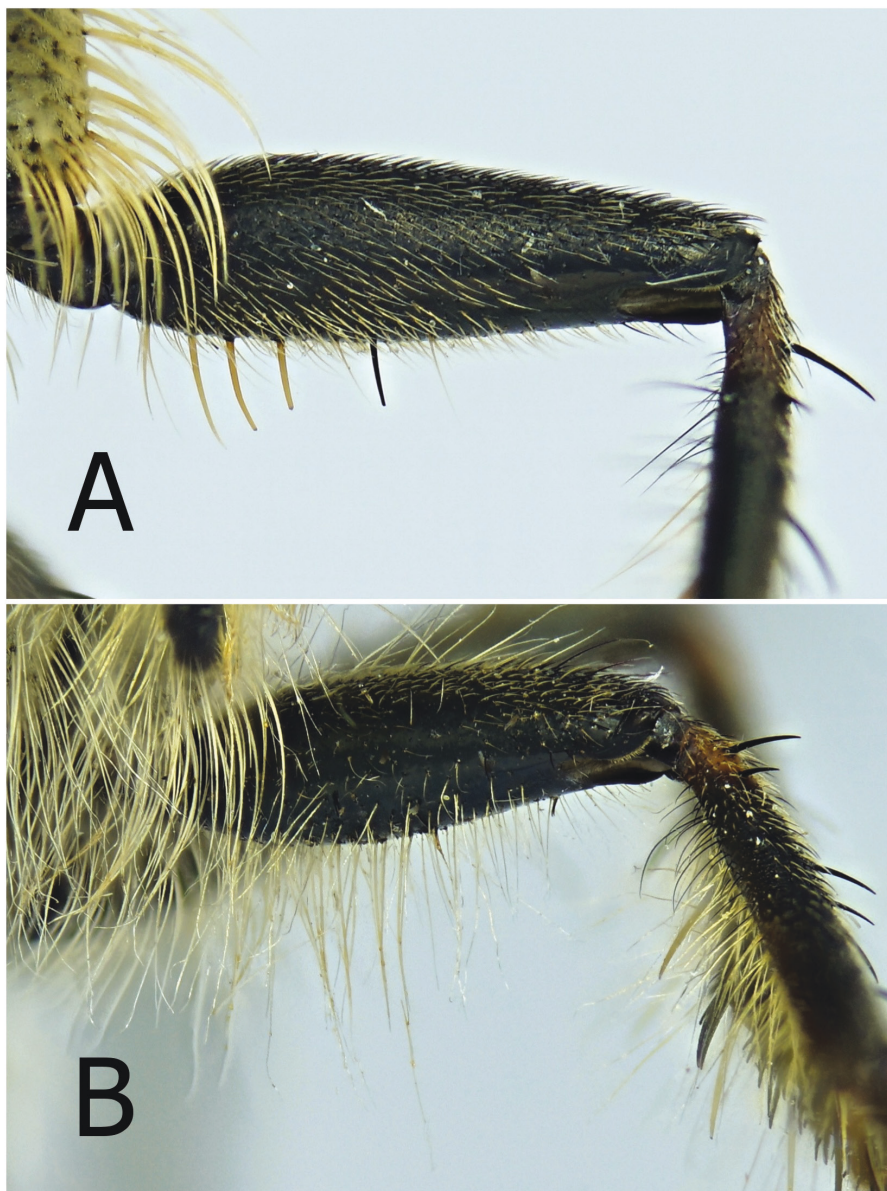


Fig. 20. Front femur: a) *Machimus arthriticus* (Zeller, 1840), b) *Machimus rusticus* (Meigen, 1820). Photography by P. Marhoul.

Obr. 20. Přední stehno: a) *Machimus arthriticus* (Zeller, 1840), b) *Machimus rusticus* (Meigen, 1820). Fotografie P. Marhoul.

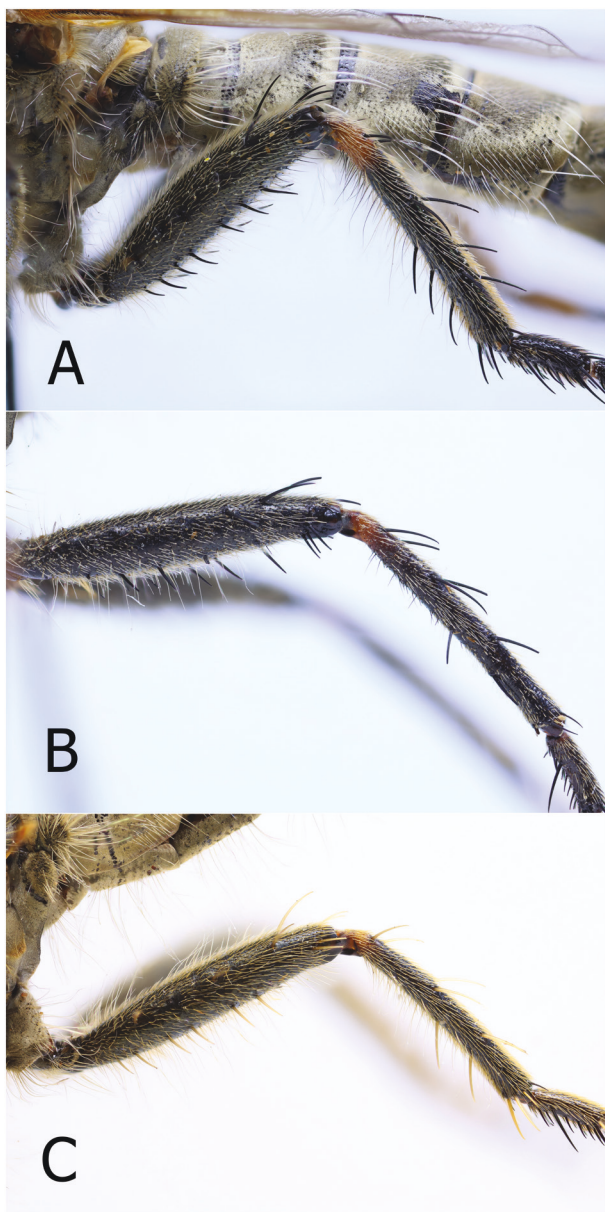


Fig. 21. Hind leg: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus gonatistes* (Zeller, 1840), c) *Machimus rusticus* (Meigen, 1820). Photography by P. Marhoul.

Obr. 21. Zadní noha: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus gonatistes* (Zeller, 1840), c) *Machimus rusticus* (Meigen, 1820). Fotografie P. Marhoul.



Fig. 22. Ovipositor: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus gonatistes* (Zeller, 1840). Photography by P. Marhoul.

Obr. 22. Kladélko: a) *Machimus annulipes* (Brullé, 1832), b) *Machimus gonatistes* (Zeller, 1840). Fotografie P. Marhoul.

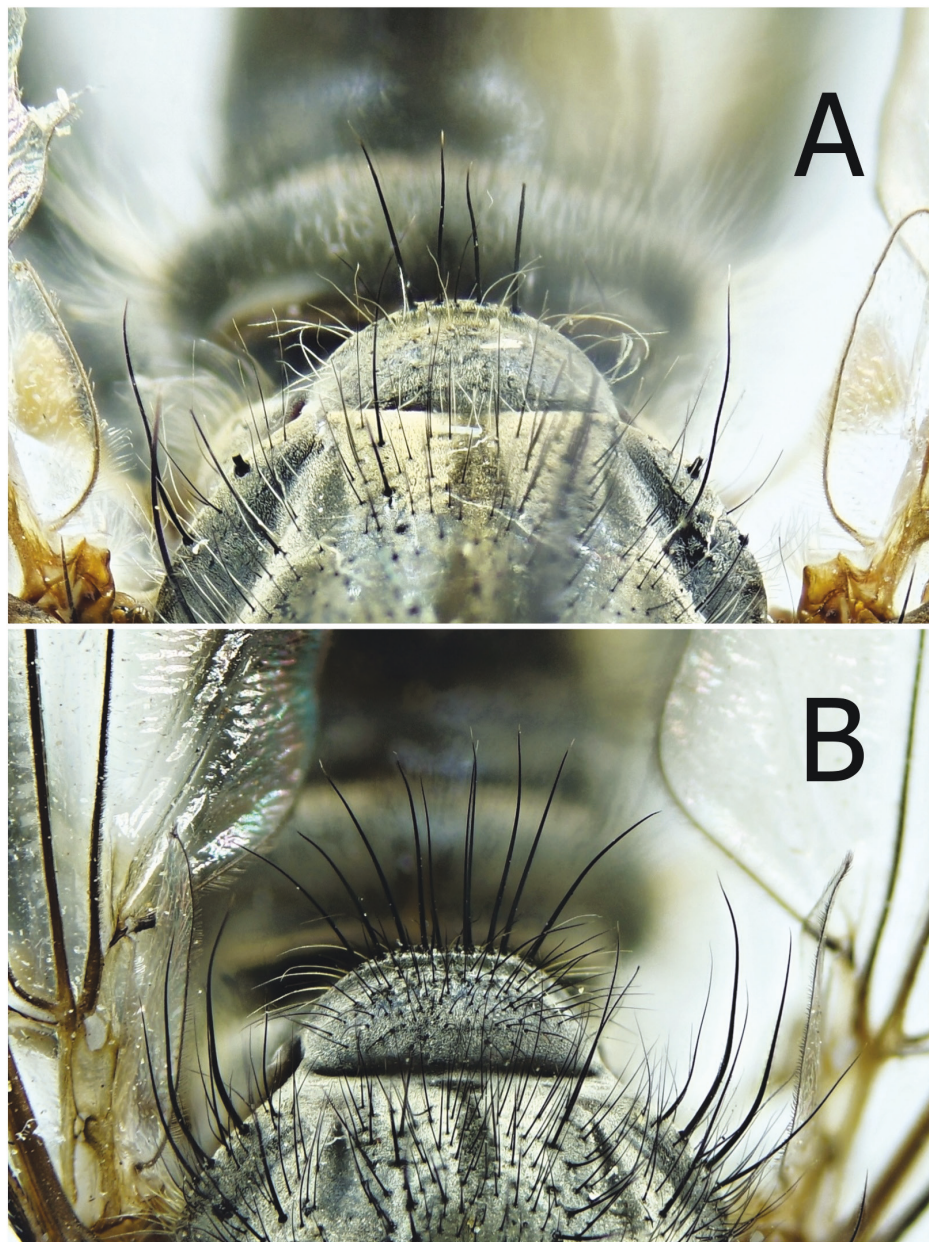


Fig. 23. Scutellum: a) *Machimus cyanopus* (Loew, 1849), b) *Machimus intermedius* (Holmgren in Zetterstedt, 1852).
Photography by P. Marhoul.

Obr. 23. Štítek: a) *Machimus cyanopus* (Loew, 1849), b) *Machimus intermedius* (Holmgren in Zetterstedt, 1852).
Fotografie P. Marhoul.

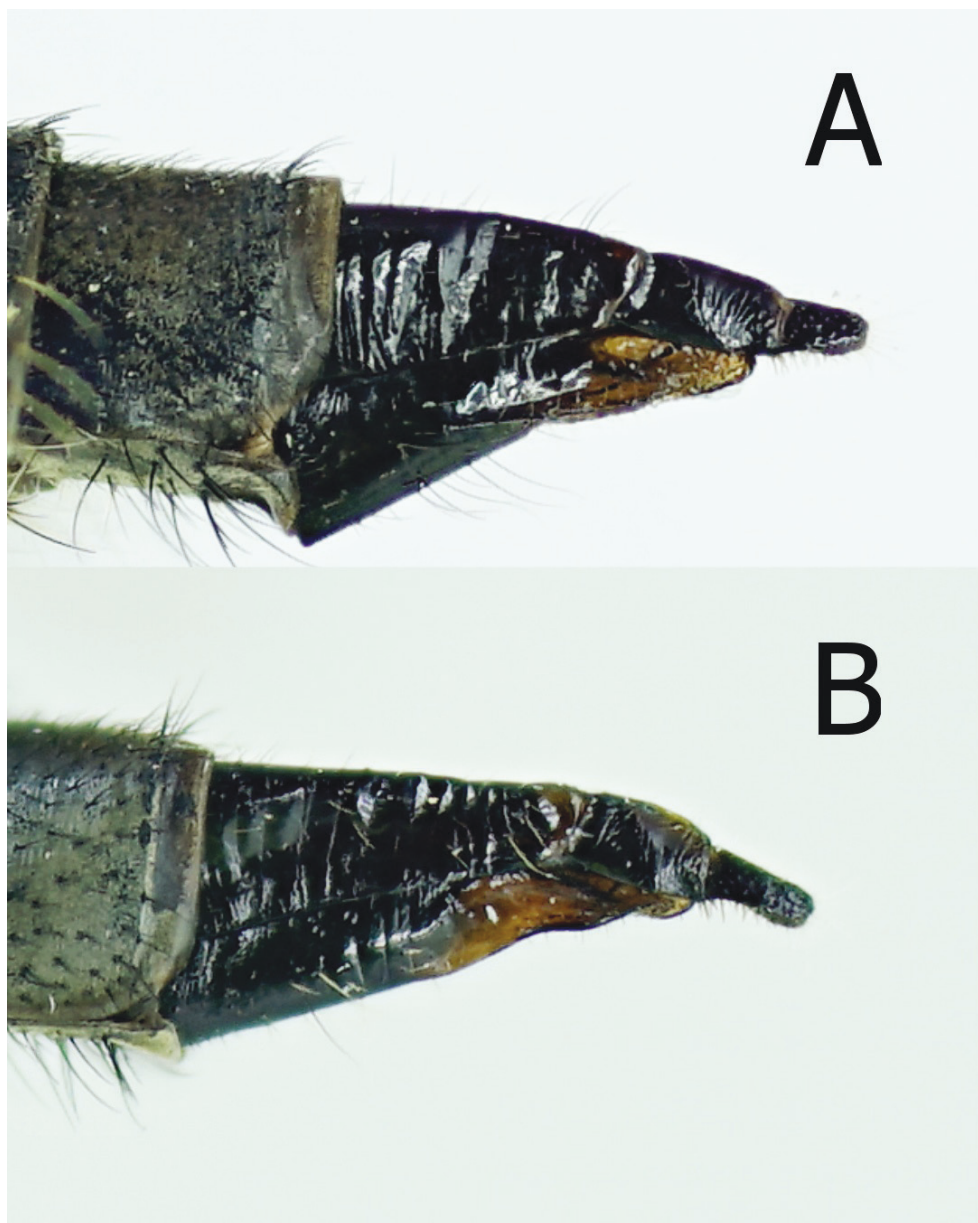


Fig. 24. Ovipositor: a) *Machimus cyanopus* (Loew, 1849), b) *Machimus intermedius* (Holmgren in Zetterstedt, 1852). Photography by P. Marhoul.

Obr. 24. Kladélko: a) *Machimus cyanopus* (Loew, 1849), b) *Machimus intermedius* (Holmgren in Zetterstedt, 1852). Fotografie P. Marhoul.

