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Additions to the fauna of planthoppers and leafhoppers (Hemiptera: Auchenorrhyncha) of the Czech Republic

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Malenovský I. & Lauterer P. 2010: Additions to the fauna of planthoppers and leafhoppers (Hemiptera: Auchenorrhyncha) of the Czech Republic. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **95(1):** 49–122. – Faunistic data on 56 species of planthoppers and leafhoppers (Hemiptera: Auchenorrhyncha) from the Czech Republic are provided and discussed. Twenty-two species are recorded from the Czech Republic for the first time: *Cixius* (*Acanthocixius*) *sticticus* Rey, 1891, *Trigonocranus emmeae* Fieber, 1876, *Chloriona clavata* Dlabola, 1960, *Chloriona dorsata* Edwards, 1898, *Chloriona sicula* Matsumura, 1910, *Gravesteiniella boldi* (Scott, 1870), *Kelisia confusa* Linnavuori, 1957, *Kelisia sima* Ribaut, 1934, *Ribautodelphax imitans* (Ribaut, 1953), *Ribautodelphax pallens* (Stål, 1854), *Empoasca ossiannilssoni* Nuorteva, 1948, *Eupteryx decemnotata* Rey, 1891, *Kyboasca maligna* (Walsh, 1862), *Allygidius mayri* (Kirschbaum, 1868), *Allygus maculatus* Ribaut, 1952, *Eohardya fraudulenta* (Horváth, 1903), *Metalimnus steini* (Fieber, 1869), *Orientus ishidae* (Matsumura, 1902), *Phlepsius intricatus* (Herrich-Schäffer, 1866), *Psammotettix nardeti* Remane, 1965, *Psammotettix poecilus* (Flor, 1861), and *Psammotettix slovacus* Dlabola, 1948. Nineteen species (previously known in the Czech Republic only from Moravia) are newly recorded from Bohemia: *Cixius* (*Paracixius*) *distinguendus* Kirschbaum, 1868, *Chloriona unicolor* (Herrich-Schäffer, 1835), *Ditropsis flavipes* (Signoret, 1865), *Kelisia monoceros* Ribaut, 1934, *Kelisia praecox* Haupt, 1935, *Ribautodelphax angulosa* (Ribaut, 1953), *Tettigometra* (*Tettigometra*) *fusca* Fieber, 1865, *Tettigometra* (*Mitricephalus*) *macrocephala* Fieber, 1865, *Edwardsiana alnicola* (Edwards, 1924), *Edwardsiana rosaesugans* (Cerutti, 1939), *Edwardsiana soror* (Linnavuori, 1950), *Edwardsiana stehliki* Lauterer, 1958, *Empoasca apicalis* (Flor, 1861), *Eurhadina kirschbaumi* Wagner, 1937, *Kybos abstrusus* (Linnavuori, 1949), *Kybos calyculus* (Cerutti, 1939), *Zyginidia mocsaryi* (Horváth, 1910), *Calamotettix taeniatus* (Horváth, 1911), and *Colladonus torneellus* (Zetterstedt, 1828). Eight species (previously known in the Czech Republic only from Bohemia) are newly ascertained for Moravia: *Chloriona vasconica* Ribaut, 1934, *Florodelphax paryphasma* (Flor, 1861), *Nothodelphax albocarinata* (Stål, 1858), *Nothodelphax distincta* (Flor, 1861), *Stenocranus fuscovittatus* (Stål, 1858), *Zyginella pulchra* Löw, 1885, *Anoplotettix horvathi* Metcalf, 1955, and *Pleargus pygmaeus* (Horváth, 1897). Additional records of seven species previously considered very rare, regionally extinct or doubtful in the Czech Republic are also provided: *Cixius* (*Acanthocixius*) *heydenii* Kirschbaum, 1868, *Chloriona glaucescens* Fieber, 1866, *Delphax pulchellus* (Curtis, 1833), *Javesella salina* (Haupt, 1924), *Kelisia punctulum* (Kirschbaum, 1868), *Megadelphax haglundi* (J. Sahlberg, 1871), and *Criomorphus williamsi* China, 1939. Previously published records of *Psammotettix angulatus* (Then, 1898) and *Psammotettix notatus* (Melichar, 1896) from the Czech Republic are based on misidentifications and correspond to *Psammotettix nardeti* and *P. poecilus,* respectively.

Keywords. Hemiptera, Fulgoromorpha, Cicadomorpha, Central Europe, Czech Republic, Bohemia, Moravia, faunistics, new records

Introduction

The planthoppers (Fulgoromorpha) and leafhoppers (Cicadomorpha), collectively known as Auchenorrhyncha, form relatively species-rich groups of hemipteran insects totalling some 2080 species in Europe (Hoch 2010), of which more than 900 species

occur in Central Europe (Holzinger *et al.* 1997). Auchenorrhyncha may be found in nearly every type of semi-aquatic and terrestrial habitat in Central Europe, often in large numbers both in terms of specimens and of species (Nickel *et al.* 2002). They are strictly phytophagous, feeding largely by sucking plant-sap from phloem or xylem vessels or the contents of mesophyll cells. However, they exhibit a range of species-specific strategies in host plant specialisation, life history and dispersal (Nickel 2003). In recent years, the Auchenorrhyncha have attracted increasing attention, on the one hand as vectors of plant diseases (e.g. Manurung *et al.* 2004, Weintraub & Beanland 2006, Wilson & Weintraub 2007) and on the other as a suitable indicator group for monitoring environmental and habitat changes and evaluating the conservation status of natural sites (e.g. Biedermann *et al.* 2005).

The fauna of the Auchenorrhyncha of the Czech Republic is fairly well known thanks to collecting activities and numerous papers on the part of several authors, especially Jiří Dlabola, Pavel Lauterer, and Veleslav Lang (see also Dlabola 1984). The most important relevant publications include a monographic treatment of the Czechoslovak fauna (Dlabola 1954a) and a checklist of the Auchenorrhyncha in former Czechoslovakia (Dlabola 1977). The latter is, at the same time, the last available species list for the group in the current Czech Republic. In the last thirty years, many additional species have been recorded for the country (e.g. Lauterer 1980, 1983, 1984, 1986, 1996, Preisler & Lauterer 2003, Malenovský 2001, 2006, Malenovský & Lauterer 2005b, Malenovský & Tropek 2009). In the course of the preparation of an updated checklist of Czech fauna, we recently revised and determined extensive material deposited in museums and also made new collections in the field. As a result, we have documented another twenty-two species previously unrecorded from the Czech Republic and also acquired new data on certain others previously considered doubtful, regionally extinct, rare, or restricted to only some parts of the Czech territory. We report on those findings in this paper.

Material and methods

The bulk of the material examined comes from previously undetermined parts of the collections of the Moravian Museum, Brno. We also revised smaller portions of material from the collections of Jiří Dlabola deposited in the Muséum national d'Histoire naturelle, Paris and the National Museum, Prague. A few specimens were determined from other personal or institutional collections.

The following abbreviations are employed for the depositories for the material in this paper:

JPLC . . . . . Jiří Preisler, personal collection, Liberec, Czech Republic
JRPC . . . . . Jan Růžička personal collection, Prague, Czech Republic
MMBC . . . . . Moravian Museum, Brno, Czech Republic
MNHN . . . . . Muséum national d'Histoire naturelle, Paris, France
NMPC . . . . . National Museum, Prague, Czech Republic
NPZC . . . . . Administration of the Podyjí National Park, Znojmo, Czech Republic

For the purposes of faunistic research, the territory of the Czech Republic is traditionally divided into two parts: Bohemia in the west and Moravia (including former Austrian, later Czech, Silesia) in the east (e.g. DLABOLA 1977, JELÍNEK 1993, JUŘIČKOVÁ *et al.* 2001, BOGUSCH *et al.* 2007). These parts largely correspond to the politico-historical arrangement of the Czech Lands in the Middle Ages through to the times of the Habsburg monarchy, as well as Czechoslovakia before 1949. They are not, however, reflected in the current administrative division of the Czech Republic. The boundary between Bohemia and Moravia is thus interpreted here in the historical sense, precisely in the form established in 1924 (see KMENT 2009 for details).

The localities cited in the "Material examined" sections are ordered according to the field code numbers (given in parantheses after the names of conurbations) in the faunistic and floristic grid mapping system of Central Europe (EHRENDORFER & HAMANN 1965, PRUNER & MÍKA 1996). The same mapping system is also used in Figs 1–50.

The following abbreviations are also used to refer to localities and material examined:

brach. – brachypterous, macr. – macropterous
NM – nature monument, NNM – national nature monument, NNR – national nature reserve, NR – nature reserve (all of these the various categories contained within the Czech system of legislatively protected small-scale natural areas)
det. – determined by, leg. – collected by

The nomenclature and classification follows HOLZINGER *et al.* (2003) for Fulgoromorpha and HOCH (2010) for Cicadomorpha: Cicadellidae.

RESULTS

FULGOROMORPHA

Cixiidae

Cixius (*Acanthocixius*) *sticticus* Rey, 1891

Material examined. Moravia: Lažánky (distr. Brno-venkov, 6764), 1.3 km N, valley of the Maršovský potok Brook, 360–390 m, 27.vi.1983, 1 ♂ (morphotype *vindobonensis*), P. Lauterer leg., I. Malenovský det. Valašské Klobouky (6874), 3 km SE, NR Bílé potoky, 380–500 m, 30.vi.1999, 1 ♂ (morphotype *alpestris*), P. Kment leg., I. Malenovský det. Lopeník (7072), 2 km E, Mikulčin vrch Hill, 780 m, 24.vii.2005, 1 ♂ (morphotype *alpestris*), I. Malenovský leg. et det. Mikulov (distr. Břeclav, 7165), NR Svatý kopeček Hill, S and W slopes, 250–360 m, 23.vii.2001, 2 ♂♂ (morphotype *vindobonensis*), P. Lauterer leg. et det. (all MMBC).

Remarks. HOLZINGER *et al.* (2003) treat *C. sticticus* as a species group including four distinct morphotypes that possibly differ in details of the aedeagus (relative length of the ventral spine of the phallotheca) and the male anal tube, i.e. *C. sticticus* Rey, 1891 s.str., *C. carniolicus* Wagner, 1939, *C. alpestris* Wagner, 1939, and *C. vindobonensis* Wagner, 1939, the specific status of which has yet to be clarified by biosystematic studies (for their morphological diagnosis, see also WAGNER 1939). Different views have been expressed among Auchenorrhyncha systematists on the validity of these names, e.g.

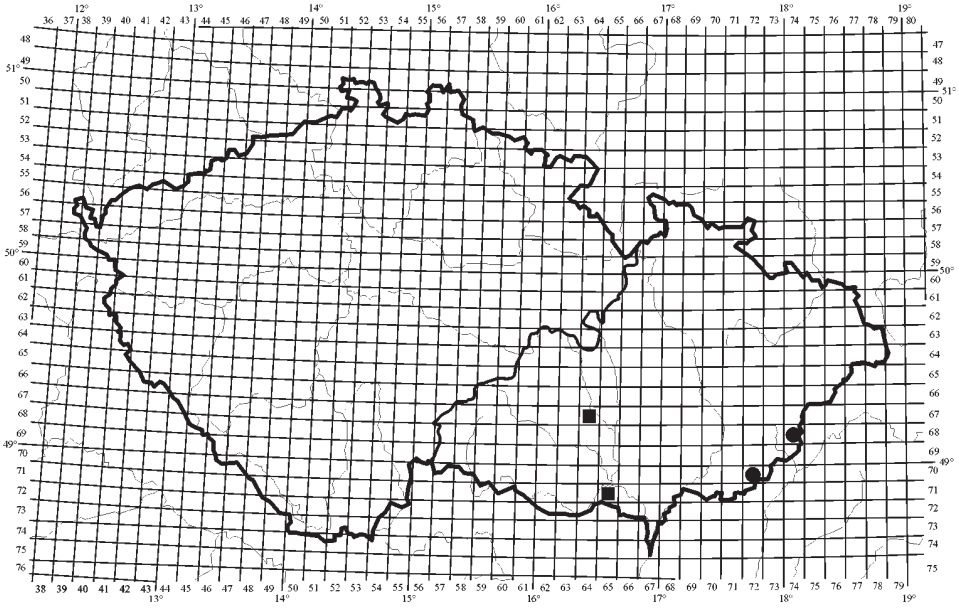

Fig. 1. Distribution of *Cixius* (*Acanthocixius*) *sticticus* Rey, 1891 in the Czech Republic: morphotype *C. alpestris* Wagner, 1939 (circles) and morphotype *C. vindobonensis* Wagner, 1939 (squares).

Wagner (1955) placed *C. vindobonensis* in synonymy with *C. alpestris* as only a variety of the latter (an opinion followed e.g. by Hoch 2010 who lists *C. sticticus* and *C. carniolicus* as distinct species from *C. alpestris*), Dlabola (1994) proposed maintaining the validity of all four names while Holzinger (2009a, b) used *C. sticticus* as the single valid species name for the whole group. Local populations usually appear to be uniform in morphology and no transitional specimens have been reported, at least by certain authors (Dlabola 1994, Seljak 2004). In the Czech Republic, only the morphotypes *alpestris* and *vindobonensis* have been recorded to date, both from Moravia (Fig. 1). The Czech specimens concord with the original descriptions by Wagner (1939); however, the small number of them does not allow assessment of the variability in diagnostic characters. The morphotype *alpestris* was found at two rather cool sites in the White Carpathian Mts., where a single male was swept on each occasion from a sunny forest edge (with dominant *Picea abies*, *Rubus fruticosus* agg., *R. idaeus, Fagus sylvatica, Acer pseudoplatanus* and *Salix caprea* in Lopeník-Mikulčin vrch). The morphotype *vindobonensis* was recorded twice from lower elevations, in a forest clearing (Lažánky) and in dry grassland with scattered shrubs on a limestone slope (Mikulov). In Austria and Germany, the *C. sticticus* group favours similar habitats and occurs from hillocked

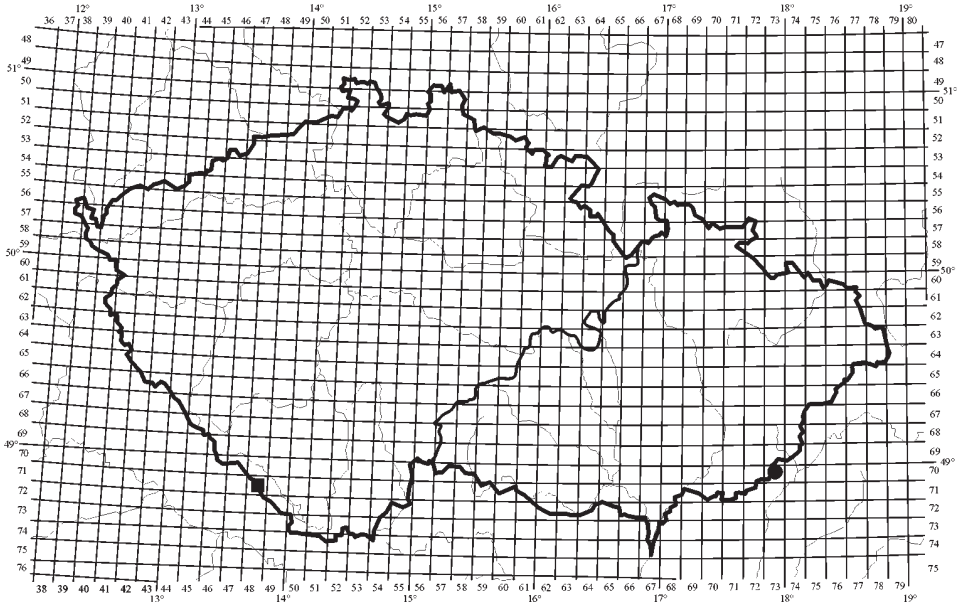

Fig. 2. Distribution of *Cixius* (*Acanthocixius*) *heydenii* Kirschbaum, 1868 (square) and *Trigonocranus emmeae* Fieber, 1876 (circle) in the Czech Republic.

(colline) to subalpine situations (NICKEL 2003, HOLZINGER 2009b). Distributed in central and eastern Europe (Austria, Germany, Poland, southern Russia, Slovakia, Slovenia, Switzerland) and the Mediterranean region (Corsica, Crete, France, Italy, Greece, Spain) (HOCH 2010). New species for the Czech Republic.

Cixius (*Acanthocixius*) *heydenii* Kirschbaum, 1868

Published data. DLABOLA (1977): Bohemia.

Material examined. Bohemia: Stožec (7148), 10.vii.1969, 1 ♂, 2 ♀♀, J. Strejček leg., J. Dlabola det., I. Malenovský rev. (MNHN).

Remarks. Distributed in the mountains of central Europe and the Balkans, especially in the Alps and the Carpathians (known from Austria, Bulgaria, Czech Republic, Germany, Hungary, Italy, Poland, Romania, Slovakia, Switzerland, and former Yugoslavia; DLABOLA 1977, HOCH 2010). DLABOLA (1977) lists *C. heydenii* as new to Bohemia without giving more precise locality data. No further records have been published from the Czech Republic. Dlabola's collection in MNHN includes a small series from Stožec in the Šumava Mts. (Fig. 2). *C. heydenii* is also known from the neighbouring

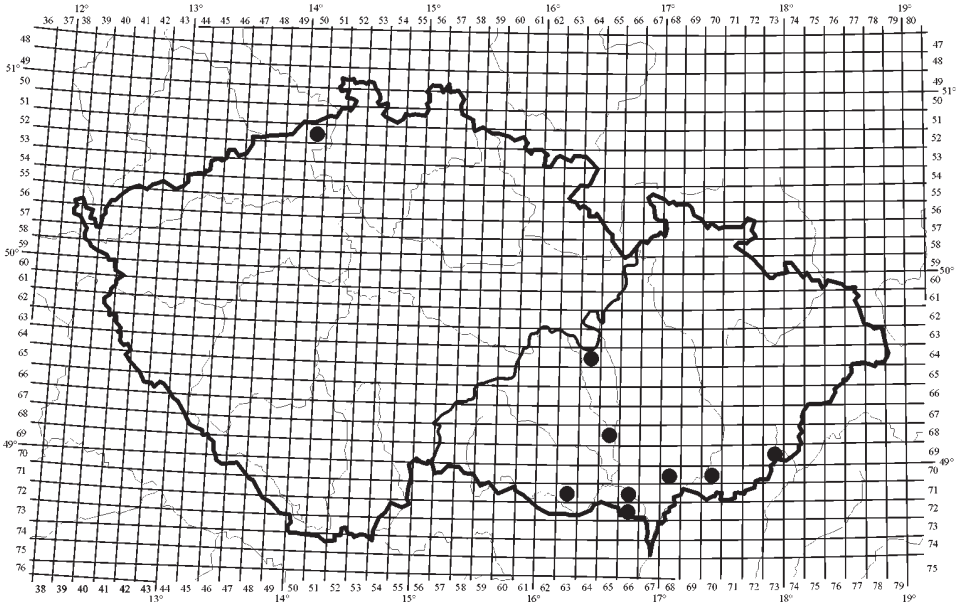

Fig. 3. Distribution of *Cixius* (*Paracixius*) *distinguendus* Kirschbaum, 1868 in the Czech Republic.

Bayerischer Wald [Bavarian Forest] in Germany (Nickel 2003). Adults are usually swept from shrubs and trees in damp to moist habitats, mainly in open stands of trees and shrubs, or dwarf shrub heaths in the montane to subalpine belt (600–2200 m; Nickel 2003).

Cixius (*Paracixius*) *distinguendus* Kirschbaum, 1868

Published data. Dlabola (1945a, 1954a): Veselí nad Moravou (7070). Lauterer (1995a): Lednice-Horní les (7166).

Material examined. Bohemia: Jílové-Sněžník (5250), 600 m, 29.vii.2007, on *Alnus glutinosa*, 1 ♂, V. Šimon leg. **Moravia:** Prosetín-Čtyři Dvory (distr. Žďár nad Sázavou, 6464), "Hrachovce-Rychlíky", 610–630 m, 9.viii.1971, 2 ♂♂, 1 ♀, P. Lauterer leg. Brno-Chrlice (6865), 1 km W, "Prameniště Dvorského potoka", 205 m, 20.viii.2008, 1 ♀, P. Baňař leg. Brno-Chrlice (6865), 2 km SW, "Mokřina u dálnice", 190 m, 9.ix.2008, 3 ♂♂, 2 ♀♀, P. Baňař & I. Malenovský leg. Brno-Přízřenice (6865), 1 km S, banks of the River Svratka, "Stará řeka", 190 m, 12.ix.2008, 1 ♀, I. Malenovský leg. Slavičín-Hrádek na Vlárské dráze (6973), 2 km S towards Hostětín, S slopes of Bukovina Hill, beech forest undergrowth and clearings, 440–450 m, 21.viii.1984, 1 ♂, P. Lauterer leg. Milotice (distr. Hodonín, 7068), castle park, 185 m, 20.viii.1968, 2 ♀♀, and 20.viii.1979, 1 ♂, 2 ♀♀, P. Lauterer leg. Veselí nad Moravou towards Uherský Ostroh (7070), 190 m, viii.1940, 1 ♂, M. Kocourek leg., J. Dlabola det. (MNHN). Borotice-České Křídlovice (7163), environs of the Samota gamekeeper's lodge, 195 m,

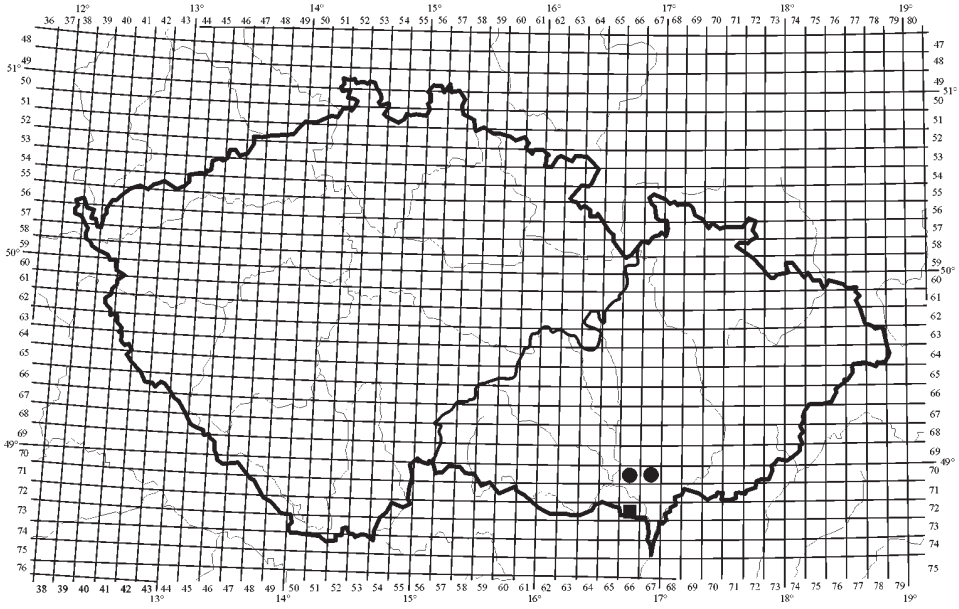

Fig. 4. Distribution of *Chloriona clavata* Dlabola, 1960 (square) and *Javesella salina* (Haupt, 1924) (circle) in the Czech Republic.

12.ix.1979, 1 ♂, P. Lauterer leg. Sedlec (distr. Břeclav, 7266), shore of Nesyt Pond, 180 m, 6.x.1983, 1 ♂, P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Perhaps widely distributed in the Czech Republic but only rarely collected (Fig. 3). Several Czech records are from lowlands, where *C. distinguendus* was usually swept from undergrowth, the shrub or tree layer of humid alluvial forests in the vicinity of brooks, rivers, and ponds (in a floodplain forest in Lednice-Horní les, it was one of the most numerous Auchenorrhyncha species, LAUTERER personal observation). However, it also occurs in the highlands, e.g. in beech forests (Slavičín). Widespread in the Palaearctic region (HOCH 2010). New species for Bohemia.

Trigonocranus emmeae Fieber, 1876 (Fig. 51)

Material examined. Moravia: Starý Hrozenkov (7073), 0.5 km N, intensive cattle pasture at margin of apple orchard, 450 m, 2.vii.2007, 1 ♀ macr., and 1 km N, Hrozenkovský lom (Skalka), abandoned basalt quarry, 520 m, 2.vii.2007, 3 ♀♀ macr., I. Malenovský leg. et det. (MMBC).

Remarks. Generally a very rarely collected species anywhere in Europe (restricted to the southern half of continental Europe and Great Britain; for more detailed distribution see

Holzinger *et al.* 2003, Nickel 2003, and Seljak 2004), apparently due to its cryptic way of life. Nymphs and brachypterous adults are reported as living in topsoil and leaf-litter in warm sites with incomplete vegetation cover and as feeding on the roots of shrubs. Most previous records, however, refer to macropterous specimens caught by sweeping, pitfall or Malaise traps (Nickel 2003). The Czech specimens were caught by sweeping in two sunny microhabitats with sparse, low, herbaceous vegetation and bare ground in the White Carpathians on the border with Slovakia (Fig. 2). New species for the Czech Republic.

Delphacidae

Chloriona clavata Dlabola, 1960

Material examined. Moravia: Sedlec (7266), S shore of Nesyt Pond halfway between Sedlec railway station and Valtice, 179 m, 4.viii.1961, 3 ♂♂, P. Lauterer leg., I. Malenovský det. (MMBC).

Remarks. Distributed in eastern and south-eastern Europe, Asia Minor, Iran, Kazakhstan, and central Asia with a single previously-published record from central Europe, from Hungary (environs of Balaton Lake; Asche 1982, Holzinger *et al.* 2003, Györffy *et al.* 2009). In the Czech Republic, *C. clavata* has been found only once, in south-eastern Moravia (Fig. 4), apparently at the edge of its range. In MMBC, there are another 2 ♂♂ from southern Slovakia (Gbelce (8176), 5.vi.1960, P. Lauterer leg., I. Malenovský det.). Monophagous on *Phragmites australis*. New species for the Czech Republic.

Chloriona dorsata Edwards, 1898

Material examined. Bohemia: Tišice (5753), 0.5 km SW, 165 m, 31.v.1999, 1 ♂, I. Malenovský leg. Třeboň (6954-7054), 15.vi.1964, 1 ♂, J. Dlabola leg. et det., I. Malenovský rev. (MNHN). **Moravia:** Stařeč (6864), 14.vi.1961, 450 m, 1 ♂, J. L. Stehlík leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 25.v.2009, 1 ♂, P. Baňař & I. Malenovský leg. Pohořelice-Nová Ves (7065), S shore of the Novoveský rybník Pond, 180 m, 4.vi.1964, 1 ♂, P. Lauterer leg. Strachotín (7066), 1 km E, Pansee (now flooded by the Novomlýnská nádrž Reservoir), 167 m, 24.vi.1976, 1 ♂, P. Lauterer leg. Pasohlávky (7165), SE towards Mušov, 170 m, 6.vi.1973, 1 ♂, P. Lauterer leg. Břeclav-Charvátská Nová Ves (7266), Mlýnský rybník Pond, 165 m, 3.vi.1981, 12 ♂♂ (6 brach.), P. Lauterer leg. Hlohovec (7266), 2 km E, Allahovy rybníky Ponds, 170–180 m, 3.vi.1981, 3 ♂♂, P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Monophagous on *Phragmites australis* in various habitats (beside rivers, oxbow lakes, ponds, fens, ditches, inland salt marshes, etc.; Nickel 2003). Widely distributed in Europe and Kazakhstan but perhaps generally rare, with no data for many countries (Hoch 2010). In the Czech Republic, recorded to date from central and southern Bohemia and southern Moravia (Fig. 5), mostly from lowland or basin areas rich in ponds. New species for the Czech Republic.

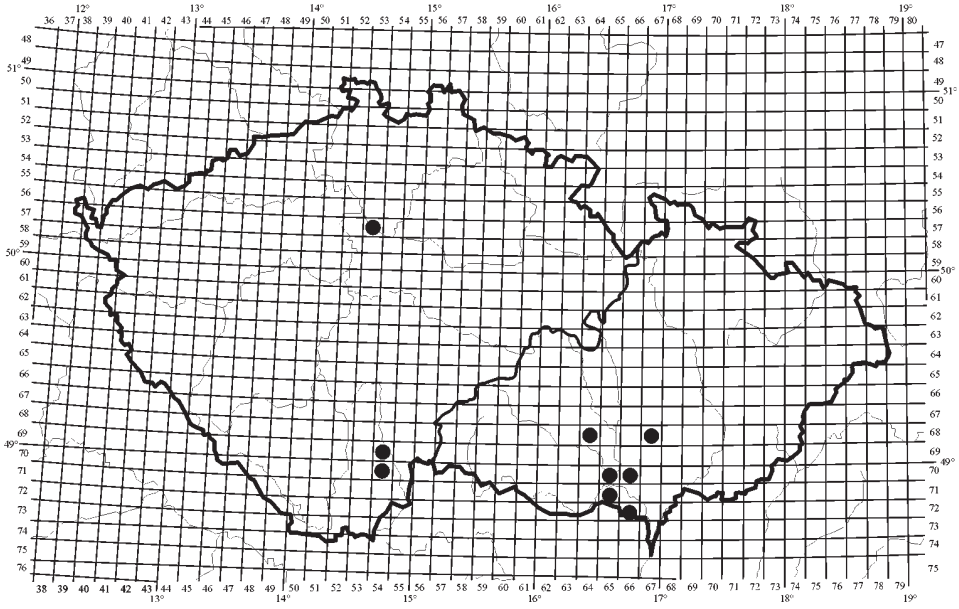

Fig. 5. Distribution of *Chloriona dorsata* Edwards, 1898 in the Czech Republic.

Chloriona glaucescens Fieber, 1866

Published data. Duda (1892): Bohemia. Lang (1945a): Terezín (7067), Čejč (7067). Dlabola (1954a): Terezín (7067).

Material examined. Bohemia: Lomnice nad Lužnicí (6954), Velký Tisý rybník Pond, 1955, 420 m, 3 ♂♂, J. Dlabola leg., I. Malenovský det. (MNHN). **Moravia:** Popice (distr. Břeclav, 7066), 1.7 km SE, on the Hustopeče-Strachotín road, 170 m, 20.viii.1960, 2 ♂♂, P. Lauterer leg., I. Malenovský det. (MMBC). Terezín (7067), 14.viii.1944, 7 ♂♂, V. Lang leg., J. Dlabola det., I. Malenovský rev. (MNHN). Sedlec (7266), NNR Slanisko u Nesytu, 175 m, 21.viii.1986, 1 ♂, 1 ♀, P. Lauterer leg., I. Malenovský det. (MMBC). Sedlec (7266), S shore of Nesyt Pond halfway between the railway station in Sedlec and Valtice, 179 m, 4.viii.1961, 5 ♂♂, 1 ♀, P. Lauterer leg., I. Malenovský det. (MMBC).

Remarks. Monophagous on *Phragmites australis*, largely confined to saline sites (sea coast, inland salt marshes), rarely in freshwater sites with strongly fluctuating water tables and temporary salt accumulation in the upper soil layer, e.g. sand pits and coal mines (Nickel 2003). Halobiont species according to Fröhlich (1997). Widespread in coastal and lowland Europe and central Asia (Holzinger *et al.* 2003, Hoch 2010). Rarely found in the Czech Republic, occurs in the Pannonian part of southern Moravia, mostly in remnants of salt marshes. We also examined a small series from the Třeboňská pánev

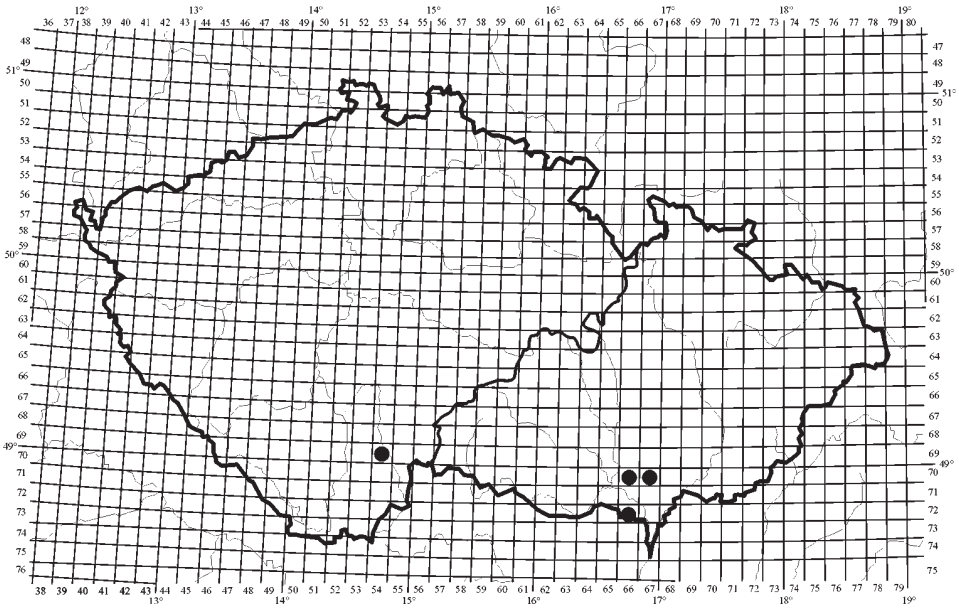

Fig. 6. Distribution of *Chloriona glaucescens* Fieber, 1866 in the Czech Republic.

Basin in southern Bohemia (Fig. 6), which is probably not a saline site. Dlabola (1977) listed *C. glaucescens* as doubtful for Bohemia, apparently based on data from Duda (1897) who did not give a more exact locality himself and left no material available for revision.

Chloriona sicula Matsumura, 1910 (Fig. 52)

Material examined. Moravia: Brno-Řečkovice (6765), banks of a brook, 240 m, 7.ix.1957, 1 ♂, P. Lauterer leg. Popice (7066), 1.7 km SE, on the Hustopeče-Strachotín road, 170 m, 20.viii.1960, 9 ♂♂, ?7 ♀♀, P. Lauterer leg. Starovice (7066), salt marsh E of village, 183 m, 12.vi.1962, 20 ♂♂, ?12♀♀, P. Lauterer leg. Kobylí (7067), "Lekany", 17.vii.1968, 4 ♂♂, P. Lauterer leg. Terezín (7067), 14.viii.1944, 1 ♂, V. Lang leg. (MNHN), and Terezín, 2 km W, 170 m, 11.vi.1962, 6 ♂♂, ?14 ♀♀, P. Lauterer leg. (MMBC). Rakvice (7166), 1 km E, derelict rice fields on saline soil, 162 m, 2.vii.1962, 1 ♂, 2 ♀♀, P. Lauterer leg. Sedlec (7266), S shore of Nesyt Pond halfway between the railway station in Sedlec and Valtice, 179 m, 4.viii.1961, 1 ♂, P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Monophagous on *Phragmites australis*, according to Nickel (2003) occurring at various freshwater sites, e.g. along streams, in sand pits, quarries and garden ponds. Distributed in the Mediterranean region, southern parts of central Europe (Austria,

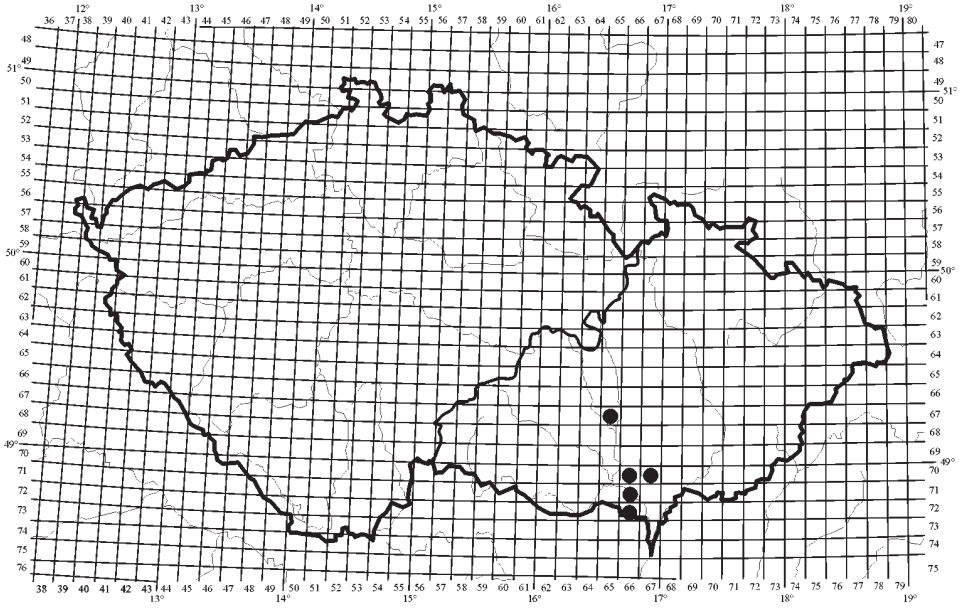

Fig. 7. Distribution of *Chloriona sicula* Matsumura, 1910 in the Czech Republic.

Germany, and Switzerland), and Kazakhstan (HOLZINGER *et al.* 2003, HOCH 2010). In the Czech Republic at the northern edge of its range, known only from southern Moravia (Fig. 7) and mostly recorded from salt marshes, often syntopically with *C. glaucescens*. All records are, however, over forty years old. New species for the Czech Republic.

Chloriona unicolor (Herrich-Schäffer, 1835)

Published data. LANG (1945a): Terezín (7067). MALENOVSKÝ (2001): Kněždub-NNR Čertoryje (7170).

Material examined. Bohemia: Lysá nad Labem (5754), NNR Hrabanovská černava, 180 m, 29.v.1999, 3 ♂♂, I. Malenovský leg. **Moravia:** Brněnec (6365), towards Březová nad Svitavou, 390 m, 25.vi.1999, several ♂♂ and ♀♀, P. Lauterer leg. et det. Brno-Maloměřice (6766), Hády Hill: Růženin lom, derelict limestone quarry, 320 m, 8.vi.2007, 10 ♂♂, 7 ♀♀, I. Malenovský leg. Brno-Líšeň (6866), 1.6 km S, Pod Oříšky, 280 m, 12.viii.2008, 1 ♂, P. Baňař leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 17.viii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Blučina (6965), 1 km SW, NW slopes of Výhon Hill, NM Nové hory, 250–320 m, 19.viii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Kobeřice u Brna (6967), 2.6 km SE, valley E of the Horáček lodge, 240–270 m, 25.viii.1980, 2 ♂♂, P. Lauterer leg. Lovčičky (6967), Na Skalách Hill, 250–320 m, 25.viii.1980, 4 ♂♂, 4 ♀♀, P. Lauterer leg. Buchlovice (6970), Příčka Hill, SW slope, 220–250 m, 11.viii.1980, 9 ♂♂, 3 ♀♀, 2 larvae, P. Lauterer leg. (MMBC). Pouzdřany (7065), 1 km N, Pouzdřanský mlýn Mill, floodplain forest margin, 175 m, 14.viii.1974, 1 ♂, P. Lauterer leg. Pouzdřany (7065), 1 km S, Dolní nivy,

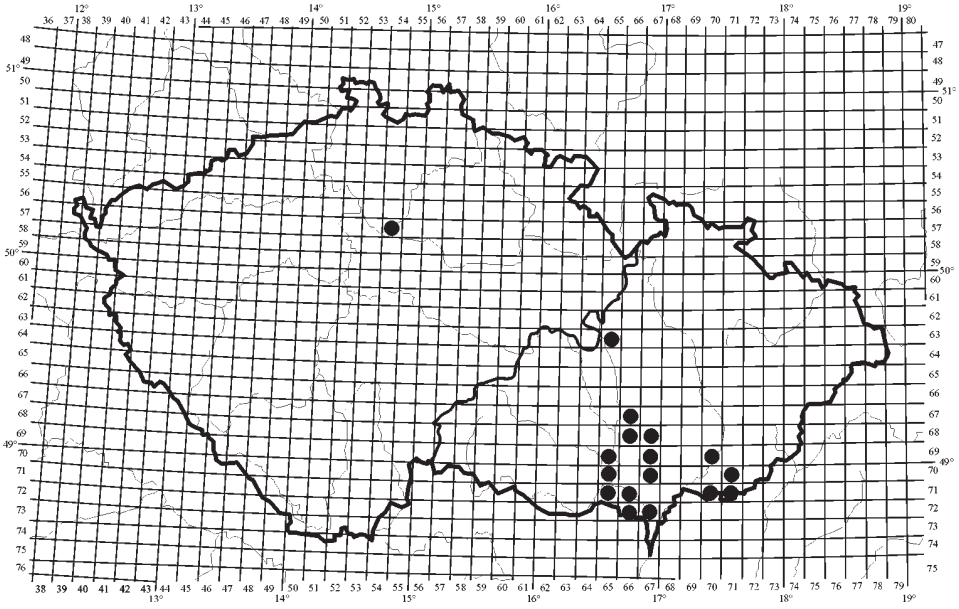

Fig. 8. Distribution of *Chloriona unicolor* (Herrich-Schäffer, 1835) in the Czech Republic.

floodplain forest margin at the Pouzdřanský rybník Pond, 172 m, 14.viii.1974, 1 ♂, P. Lauterer leg. Blatnička (7071), 2 km NW, proposed NM Milejovské louky, 270 m, 24.v.2009, 4 ♂♂, P. Baňař leg. Novosedly (7165), NR Slanisko Novosedly, 174 m, 21.viii.1986, 3 ♂♂, P. Lauterer leg. Mikulov (7166), 3.5 km E, reed adjacent to NM Kienberg, 210 m, 19.vi.2010, 1 ♂, I. Malenovský leg. (MMBC). Kněždub (7170), NNR Čertoryje, 310–440 m, 19.vi.1980, 1 ♂, P. Lauterer leg., 7.v.2000, 19 ♂♂, 14 ♀♀, and 18.vi.2000, 1 ♂, I. Malenovský leg. Javorník (7171), NR Machová, 400–500 m, 14.v.1998, 1 ♂, 2 ♀♀, I. Malenovský leg. Suchov-Suchovské Mlýny (7171), U Baladů, 370 m, 6.v.2000, 1 ♂, I. Malenovský leg. Sedlec (7266), NNR Slanisko u Nesytu, 175 m, 20.viii.1985, 2 ♂♂, 3 ♀♀; 21.viii.1986, 14 ♂♂; and 27.vii.1994, 1 ♂, 2 ♀♀; all P. Lauterer leg. Břeclav-Charvátská Nová Ves (7267), Boří les Wood, 175–180 m, 1.vi.1980, 1 ♂, P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Monophagous on *Phragmites australis*, mostly recorded from inland salt marshes and calcareous spring fens (Nickel 2003, Holzinger 2009b). These are also usual habitats for *C. unicolor* in the Czech Republic, where it appears to be fairly frequent in lowlands and hills (White Carpathians, Žďánický les, and Chřiby Mts.) in south-eastern Moravia, with a single record in westernmost central Moravia in the Svitava River valley and a single record in central Bohemia, where it was found in a large calcareous fen (Fig. 8). Distributed in the Mediterranean region, southern half of central Europe and perhaps also reaching Kazakhstan and Uzbekistan (Holzinger *et al.* 2003, Hoch 2010). New species for Bohemia.

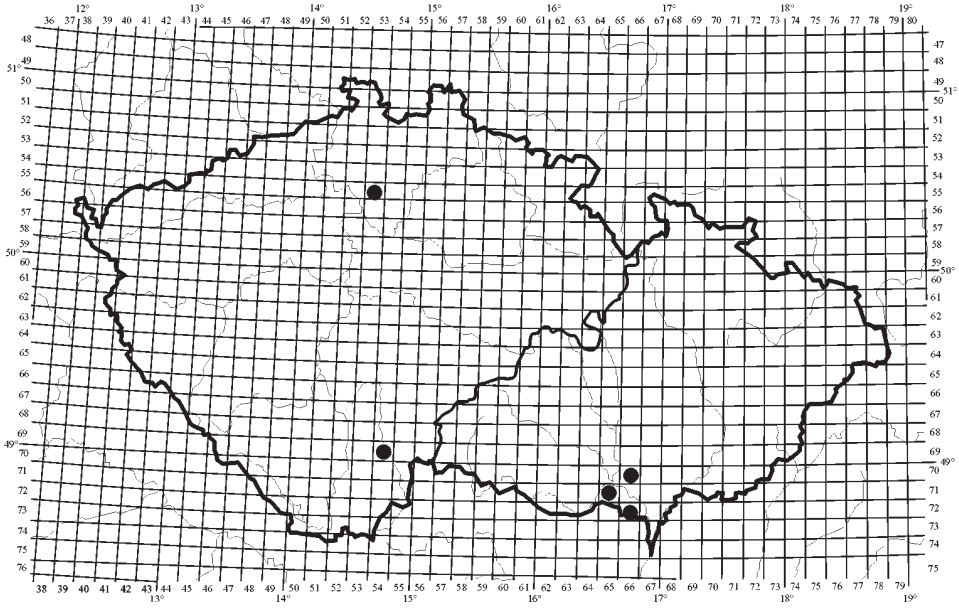

Fig. 9. Distribution of *Chloriona vasconica* Ribaut, 1934 in the Czech Republic.

Chloriona vasconica Ribaut, 1934

Published data. Dlabola (1956b): Velký Tisý rybník Pond (6954). Novotný (1994): south Bohemia. Malenovský (2006): Janova Ves-NR Kokořínský důl (5553).

Material examined. Bohemia: Lomnice nad Lužnicí (6954), Velký Tisý rybník Pond, 1955, 420 m, 1 ♂, J. Dlabola leg. et det., I. Malenovský rev. (MNHN). **Moravia:** Strachotín (7066), 1 km E, Pansee (group of pools, now flooded by the Novomlýnská nádrž Reservoir), 167 m, 24.vi.1976, 1 ♂. P. Lauterer leg., I. Malenovský det. Pasohlávky (7165), SE towards Mušov, 170 m, 6.vi.1973, 2 ♂♂, P. Lauterer leg., I. Malenovský det. Hlohovec (7266), 2 km E, surroundings of the Allahovy rybníky Ponds, 170–180 m, 9.vi.1980, 2 ♂♂, and 3.vi.1981, 1 ♂, P. Lauterer leg., I. Malenovský det. Lednice (7266), Mlýnský rybník Pond, 160 m, no date, 1 ♂, T. Grim leg., P. Lauterer det. Sedlec (7266), NNR Slanisko u Nesytu, 175 m, 21.viii.1986, 1 ♂, P. Lauterer leg., I. Malenovský det. Sedlec (7266), Nesyt Pond, "u lávek", 175 m, 26.vii.1988, 4 ♂♂, 1 ♀, 6 larvae, R. Vlk leg., P. Lauterer det. All material from Moravia in MMBC.

Remarks. Monophagous on *Phragmites australis*, occurring beside rivers and streams, lakes, ponds, oxbow lakes, in wet ruderal sites and inland salt marshes (Nickel 2003). Rare in the Czech Republic, with a few records from reeds around ponds and inland salt marshes in central and southern Bohemia and the Pannonian part of southern Moravia (Fig. 9). Widespread in Europe (Hoch 2010). New species for Moravia.

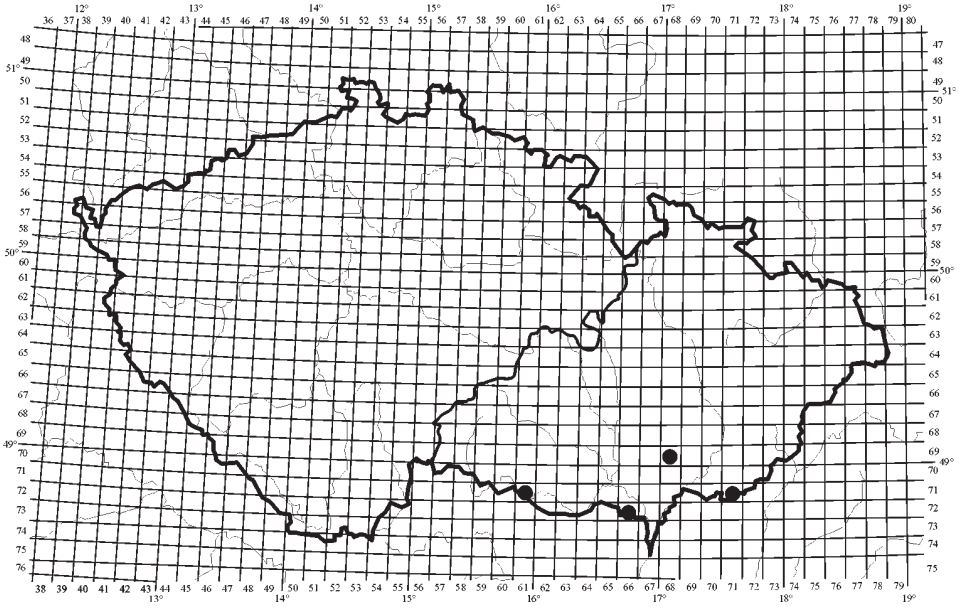

Fig. 10. Distribution of *Criomorphus williamsi* China, 1939 in the Czech Republic.

Criomorphus williamsi China, 1939

Published data. Lauterer (1983, 1992): Hlohovec-Allahovy rybníky Ponds (7266).

Material examined. Moravia: Sobůlky (6968), Veselá hora Hill, 300–320 m, 10.vi.1987, 1 ♂ brach., P. Lauterer leg., I. Malenovský det. (MMBC). Vranov nad Dyjí (7161), 2.4 km SE, Pod Slujemi, 330 m, 5.vi.2006, 1 ♂, W. Kubis leg. et det., P. Lauterer rev. (NPZC). Javorník (7171), NR Machová, 400–500 m a.s.l., 14.v.1998, 2 ♂♂ (1 brach.), 2 ♀♀ (1 brach.), I. Malenovský leg. et det. (MMBC).

Remarks. Among tall grasses in wet, somewhat eutrophic sites, e.g. in open forests, floodplain meadows, along ditches, and in abandoned fields, perhaps feeding on *Poa palustris* or *P. trivialis* (Nickel 2003). In Europe, quite rare and scattered, in isolated populations in England, northern Germany, Slovakia, Hungary, and central Russia, also known from Kazakhstan (Lauterer 1983, 1992, Holzinger *et al.* 2003). In the Czech Republic, currently known from only four isolated localities in southern Moravia (Pannonian Plain, the River Dyje valley, environs of Kyjov, and the south-western part of the White Carpathians; Fig. 10).

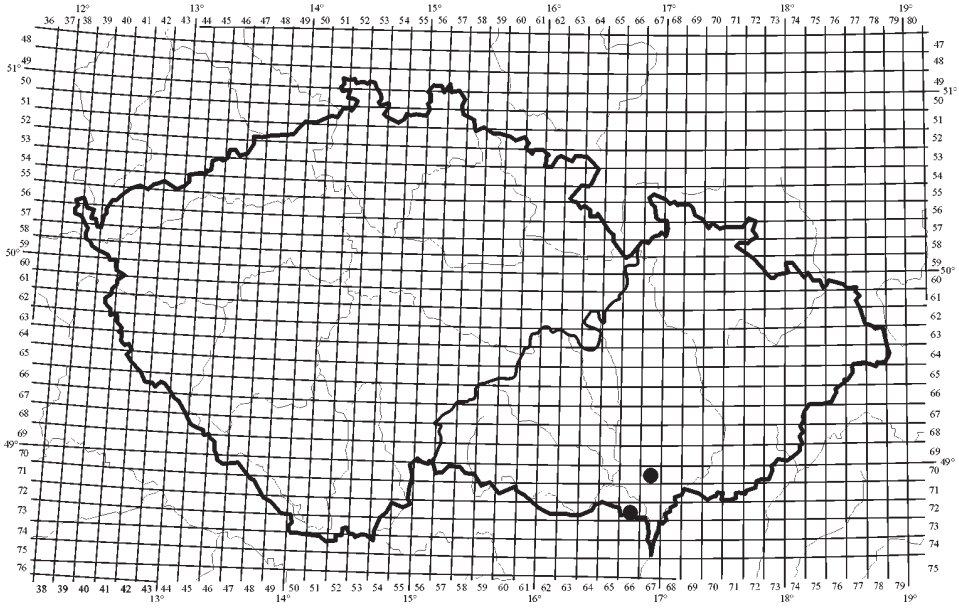

Fig. 11. Distribution of *Delphax pulchellus* (Curtis, 1833) in the Czech Republic.

Delphax pulchellus (Curtis, 1833) (Fig. 56)

Published data. LANG (1945a): Terezín (7067).

Material examined. Moravia: Hlohovec (7266), 2 km E, Allahovy rybníky Ponds, 170–180 m, 16.vii.1980, 1 ♀ (macr.), P. Lauterer leg. et det. (MMBC).

Remarks. Monophagous on *Phragmites australis*, inhabiting salt marshes and low-input meadows and pastures with scattered reeds and avoiding flooded sites (NICKEL 2003). Apparently very sporadic in the Czech Republic (Fig. 11) with just a single published record from southern Moravia by LANG (1945a; the corresponding material has not been revised). DLABOLA (1977) lists the species from Moravia with a question mark. Widely distributed in Europe except the Iberian peninsula (HOCH 2010). Confirmed occurrence in the Czech Republic.

Ditropsis flavipes (Signoret, 1865)

Published data. Dlabola (1956a): Pouzdřany (7065). Malenovský (2001): Kněždub-NNR Čertoryje (7170).

Material examined. Bohemia: Blšany u Loun (5649), 0.8 km W, Blšanský chlum Hill, 250–270 m, 1.viii.2009, 2 ♀♀, I. Malenovský leg. Český Krumlov-Vyšný/Nové Dobrkovice (7151), NNR Vyšenské kopce, 530 m, 2.viii.1998, 2 ♀♀, I. Malenovský leg., and 17.vii.1999, 1 ♂, P. Kment leg. **Moravia:** Čelechovice na Hané (6468), 290–318 m, 23.viii.1982, 3 ♂♂, 2 ♀♀, P. Lauterer leg. Čebín (6664), "V Dálce", 340–360 m, 4.ix.1985, 5 ♂♂, 3 ♀, 1 larva; 20.v.1999, 1 ♂; 10.vi.1999, 6 ♂♂, 3 ♀♀; 3.viii.1999, 3 ♂♂, 3 ♀♀, 3 larvae; 25.viii.1999, 13 ♂♂, 15 ♀♀; 13.x.1999, 1 larva, all P. Lauterer leg. Blansko-Lažánky (6666), 350–500 m, 22.vi.1978, 5 ♂♂, 2 ♀♀, P. Lauterer leg. Blansko-Lažánky (6666), Lažánecký žleb, 450–500 m, 22.vi.1982, 1 ♀, J. L. Stehlík leg. Jedovnice (6666), "Na Harbechách", 480–500 m, 1 ♂, 1 ♀, P. Lauterer leg. Brno-Komín (6765), Komínský vršek Hill, 270–280 m, 8.viii.2009, 1 ♂, I. Malenovský leg. Brno-Slatina (6866), NMM Stránská skála, 250–307 m, 6.viii.1975, 1 ♂, and 28.viii.1992, 1 ♂, P. Lauterer leg. Újezd u Brna/Hostěrádky-Rešov (6866), NR Špice, 240–306 m, 7.vii.2009, 1 ♂, and 18.viii.2009, 2 ♂♂, P. Baňař & I. Malenovský leg. Bučovice-Marefy (6867), 1 km NW, NR Člupy, 260–310 m, 17.viii.2009, 1 ♂, 2 ♀♀, P. Baňař & I. Malenovský leg. Bučovice-Marefy (6867), 1 km S, NR Ševy, 250 m, 18.viii.1964, 2 ♀♀, P. Lauterer leg. Rašovice (6867), NR Rašovický zlom-Chobot, 225–295 m, 25.v.2009, 1 ♂, 4 ♀♀, P. Baňař & I. Malenovský leg.. Bratčice (distr. Brno-venkov, 6965), 230 m, 7.vi.1966, 1 ♂, L. Pospíšilová leg. Syrovice (6965), 1 km N, proposed NM Bezourek, 240–258 m, 19.viii.2009, 1 ♀, P. Baňař & I. Malenovský leg. Borkovany (6966), Randler Hill to Časkovec, 230–300 m, 9.vi.1981, 1 ♂, P. Lauterer leg. Lovčičky (6967), Na Skalách Hill, 250–320 m, 25.viii.1980, 1 ♀, P. Lauterer leg. Kyjov-Bohuslavice (6968), SW of village, Stará hora Hill, 240–270 m, 10.vi.1987, 4 larvae, P. Lauterer leg. Želetice (distr. Hodonín, 6968), NMM Na Adamcích, 210–260 m, 27.v.1982, 1 larva, J. L. Stehlík leg. Žďánice (distr. Hodonín, 6968), between pheasantry and "U Červeného kříže" Crossroads, 290–320 m, 27.v.1982, 2 ♀♀, P. Lauterer leg. Buchlovice (6970), SW slope of Příčka Hill, 220–250 m, 11.viii.1980, 1 ♀, 2 larvae, P. Lauterer leg. Brumov-Bylnice (6974), „Na Stráži" (= lower part of Březová Hill facing Bylnice), 350–380 m, 16.vi.2006, 2 ♀♀, 1 larva, I. Malenovský leg. Únanov (7062), 1.5 km NE, proposed NM Kopečky u Únanova, 315–330 m, 14.viii.2009, 3 ♂♂, 2 ♀♀, P. Baňař & I. Malenovský leg. Pouzdřany (7065), NNR Pouzdřanská step, 250–290 m, 30.vi. 1957, 1 ♀; 20.viii.1960, 1 ♂, 2 ♀♀; and 1.ix.1978, 2 ♂♂, 2 ♀♀, all P. Lauterer leg. Uherčice (distr. Břeclav, 7065), Stará hora Hill, 240–270 m, 15.viii.1983, 1 ♂, P. Lauterer leg. Kurdějov (7066), NR Kamenný vrch u Kurdějova, 250–340 m, 21.viii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Čejč (7067), 1.8 km SE, proposed NM Bílý kopec u Čejče, 190–200 m, 24.viii.2009, 2 ♂♂, P. Baňař & I. Malenovský leg. Hovorany (7067), Hájek, 210–250 m, 3.vi.1982, 1 ♀, P. Lauterer leg. Kobylí (7067), 8.vi.1966, 1 ♀, J. L. Stehlík leg. Milotice (distr. Hodonín, 7068), Náklo Hill, 200–260 m, 24.vi.1974, 1 ♂, 2 ♀♀, P. Lauterer leg. Blatnička (7071), 1.7 km SW, proposed NM Milejovské louky, 270–290 m, 24.v.2009, 8 ♂♂, 7 ♀♀, and 11.vii.2009, 1 ♂, P. Baňař leg. Hluk (7071), 4 km NE, NM Babí hora, 330 m, 24.viii.2002, 1 ♂, I. Malenovský leg. Horní Němčí (7071), NR Drahy, 380–500 m, 15.v.1998, 2 ♂♂; 10.ix.1998, 1 ♂, 1 ♀; 21.ix.2001, 1 ♂, P. Kment leg.; 21.vii.2002, 18 ex.; and 10.ix.2002, 2 ex., all I. Malenovský leg. unless otherwise indicated. Lopeník (7072), Mikulčin vrch Hill, 700–800 m, 24.vii.2005, 2 ♀♀ macr., I. Malenovský leg. Strání (7072), 2 km NW, slopes of Obecnice Hill towards Klanečnice Brook, 500–550 m, 10.ix.1998, 1 ♀; 23.v.2002, 1 ex.; and 20.vii.2002, 1 ex., all I. Malenovský leg. Vyškovec (7073), NR Ve Vlčí, 630 m, 22.v.2005, 1 ♂ macr., I. Malenovský leg. Březí (distr. Břeclav, 7165), Dunajovické kopce, S slopes of Liščí kopec Hill, 270 m, 7.viii.1963, 2 ♀♀, P. Lauterer leg. Dolní Dunajovice (7165), Dunajovické kopce, E slopes of Velká Slunečná Hill, 250–270 m, 4.ix.1963, 1 ♂, 1 ♀, P. Lauterer leg. Lednice (7166), castle park, 165 m, 3.vi.1981, 1 ♀, P. Lauterer leg. Zaječí (7166), Přítlucká stráň Hillside, 20.viii.1963, 3 ♀♀, P. Lauterer leg. Přítluky (7166), 20.viii.1963, 1 ♀, L. Pospíšilová leg. Kněždub (7170), NNR Čertoryje, 310–370 m, 19.vi.1980, 3 ♂♂, 8 ♀♀, P. Lauterer leg.; 13.v.1998, 3 ♂♂; 7.v.2000, 3 ♂♂, 4 ♀♀; 18.vi.2000, 1 ♂, 2 ♀♀; "U Pomníčku, 20.ix.2001, 1 ♂; all I. Malenovský leg. Malá Vrbka (7170), Výzkum Hill, 370–420 m, 25.v.2000, 1 ♀ macr., and 20.ix.2001, 1 ♂, I. Malenovský leg. Tvarožná Lhota (7170), 2.5 km NE, environs of Lučina Reservoir, 300 m, 13.v.1998, 1 ♂ macr., I. Malenovský leg. Javorník (distr. Hodonín, 7171), Výzkum Hill, 460–500 m, 10.vi.1982, 6 ♀♀, J. L. Stehlík leg., and 27.v.1982, 1 larva, P. Lauterer leg. Javorník (distr. Hodonín, 7171), slopes of hill 398 m, 260–300 m, 19.vi.1980, 4 ♂♂, 12 ♀♀, P. Lauterer & J. L. Stehlík leg. Javorník (distr. Hodonín, 7171), railway embankment near the station, 6.v.2000, 1 ♂, I. Malenovský leg.

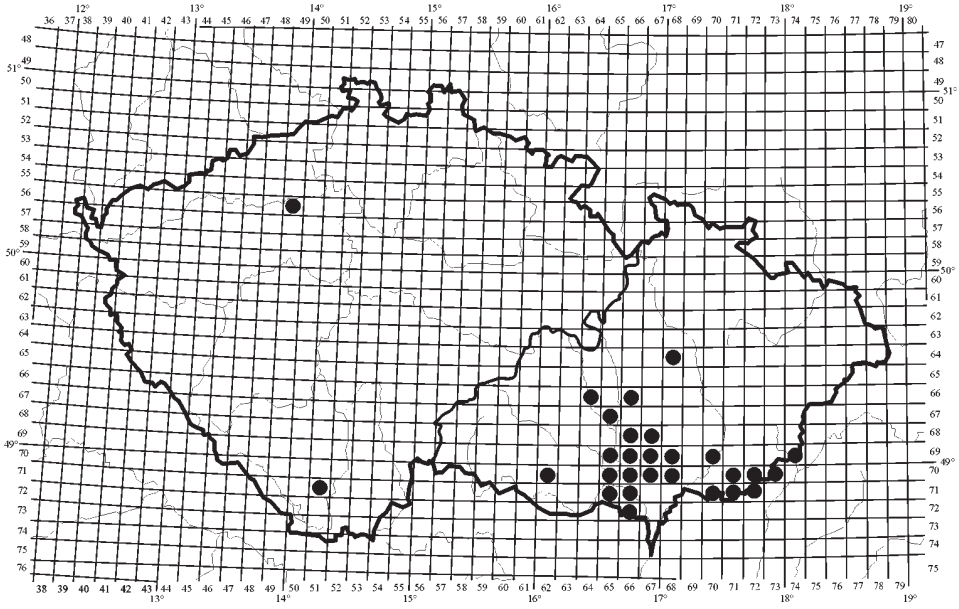

Fig. 12. Distribution of *Ditropsis flavipes* (Signoret, 1865) in the Czech Republic.

Javorník/Nová Lhota (distr. Hodonín, 7171), NNR Jazevčí, 340–450 m, 6.v.2000, 2 ♀♀, I. Malenovský leg. Velká nad Veličkou (7171), towards Javorník, 10.vi.1982, 2 ♂♂, 3 ♀♀, 1 larva, P. Lauterer leg. Velká nad Veličkou (7171), NNR Zahrady pod Hájem, 330–470 m, 14.v.1998, 3 ♀♀, I. Malenovský leg. Suchov (7171), Trnovský Mlýn, 450 m, pastures and meadows, 23.vi.2004, 1 ♂; 26.v.2005, 10 ♂♂, 2 ♀♀; 27.vii.2005, 6 ♂♂, 1 ♀; and 1.ix.2005, 20 ♂♂, 11 ♀♀, all I. Malenovský leg. Strání (7172), 1.5 km SW, NM Záhumenice, 510 m, 23.v.2002, 8 ex.; 20.vii.2002, 8 ex.; and 12.ix.2002, 3 ex., all I. Malenovský leg. Valtice (7266), 2.5 km E, NMM Rendezvous, 180–190 m, 15.viii.1983, 1 ♀, P. Lauterer leg. Valtice (7266), NW of town towards Boří les Wood, Bezručova alej Lane, 185 m, 16.vii.1980, 1 ♂. P. Lauterer leg. Sedlec (distr. Břeclav, 7266), 1.5 km SW, proposed NM Skalky u Sedlece, 180–276 m, 14.viii.2009, 2 ♀♀, P. Baňař & I. Malenovský leg. Sedlec (7266), Kamenný vrch Hill, 25.vii.1968, 1 ♀, P. Lauterer leg. Valtice-Úvaly (7266), 1.5 km SW, proposed NM Kameníky, 264–288 m, 21.v.2009, 1 ♀, P. Baňař & I. Malenovský leg. All material P. Lauterer or I. Malenovský det., MMBC.

Remarks. A stenotopic species of broad-leaved dry grassland, monophagous on *Bromus erectus*. In the Czech Republic, fairly common in south and south-eastern Moravia (Fig. 12) but previously unknown from Bohemia where it may be more local, although perhaps widely distributed. Widespread in Europe (except the north), Asia Minor, southern Siberia, Kazakhstan and Mongolia (HOLZINGER *et al.* 2003, HOCH 2010). New species for Bohemia.

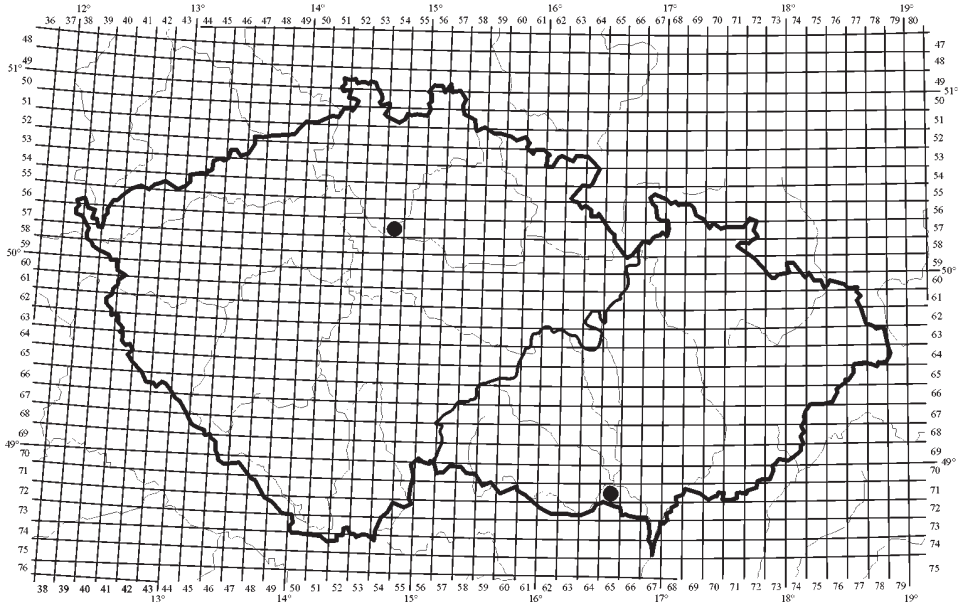

Fig. 13. Distribution of *Florodelphax paryphasma* (Flor, 1861) in the Czech Republic.

Florodelphax paryphasma (Flor, 1861)

Published data. Preisler & Lauterer (2003): Lysá nad Labem-NNR Hrabanovská černava (5754).

Material examined. Moravia: Brod nad Dyjí (7165), Charvátská louka (near Drnholec), 170 m, 30.v.1973, 5 ♂♂ (2 brach.), 4 ♀♀ (3 brach.), P. Lauterer leg., I. Malenovský det. (MMBC).

Remarks. Associated with *Carex disticha* in various open, moderately eutrophic and periodically waterlogged or flooded sites (Nickel 2003). In the Czech Republic, very rare or overlooked, so far known from only one locality in central Bohemia (a large lowland fen) and one locality in southern Moravia (wet meadows with drying oxbow lakes, later destroyed by the construction of the Nové Mlýny Reservoir) (Fig. 13). Perhaps widely distributed in Europe and Kazakhstan, but only rarely recorded; data absent for many countries (Holzinger *et al.* 2003, Hoch 2010). New species for Moravia.

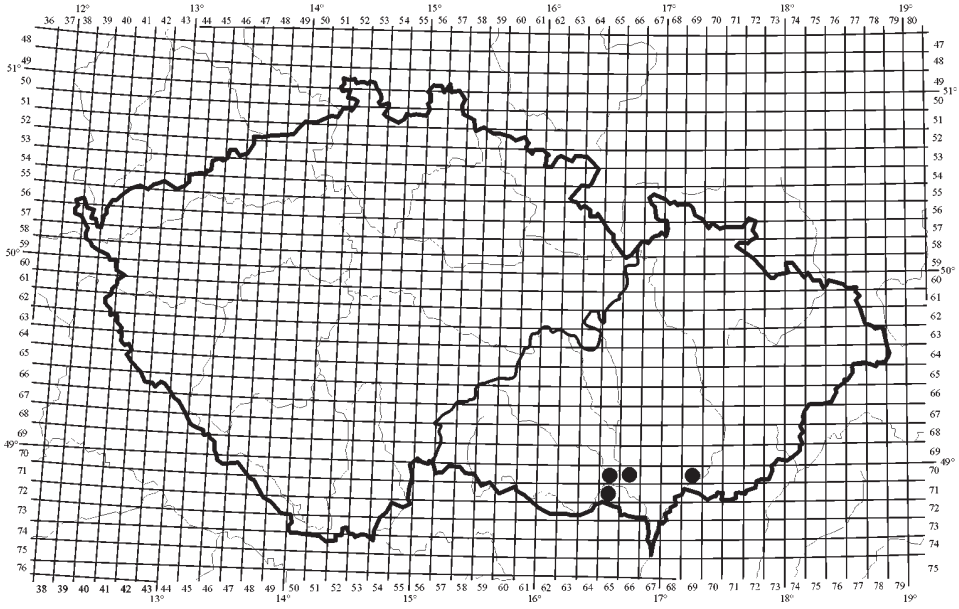

Fig. 14. Distribution of *Gravesteiniella boldi* (Scott, 1870) in the Czech Republic.

Gravesteiniella boldi (Scott, 1870)

Material examined. Moravia: Pouzdřany (7065), 8.vi.1966, 1 ♂ brach., L. Pospíšilová leg. Velké Němčice (7066), 1 km E, apricot orchard, yellow sticky trap, 200 m, 17.–24.v.2007, 1 ♂ macr., P. Lauterer leg. et det. Březí (distr. Břeclav, 7165), Dunajovické kopce, S slopes of Liščí kopec Hill, 270 m, 27.v.1963, 1 ♂ brach., P. Lauterer leg. Dolní Dunajovice (7165), Dunajovické kopce, E slopes of Velká Slunečná Hill, 250–270 m, 4.ix.1963, 1 ♀ brach., P. Lauterer leg. Bzenec (7069), 2 km S, NM Vojenské cvičiště Bzenec, abandoned military training area on sands, 190 m, 16.vi.2009, yellow pan traps, 1 ♂ brach., P. Chlapek & O. Čížek leg., and 15.v.2010, 11 ♂♂, 7 ♀♀ brach., I. Malenovský leg. Bzenec (7069), 4 km SE, sandpit 0.7 km N of Bzenec-přívoz, 180 m, 15.v.2010, 2 ♂♂. 3 ♀♀ brach., I. Malenovský leg. Ratíškovice (distr. Hodonín, 7069), 2 km SE, sands by the road to Rohatec, 4.vii.1962, 2 ♂♂ brach., P. Lauterer leg. All material I. Malenovský det.; MMBC, unless otherwise indicated.

Remarks. Reported from coastal and inland sand dunes, associated with *Ammophila arenaria* in Germany (NICKEL 2003). This plant does not occur in the localities where *G. boldi* occurs in eastern Austria (HOLZINGER *et al.* 2003), nor in the Czech Republic. We found *G. boldi* in scattered stands of *Calamagrostis epigejos*, which is probably the local host plant, in very dry places with only sparse vegetation cover on sandy and loess soils (e.g. a sand pit, a military training area with sand dunes, and steep loess slopes; in the

environs of Bzenec, *G. boldi* shared the same microhabitat with *Psammotettix poecilus* and *P. slovacus*). Widely distributed in the Palaearctic region (Holzinger *et al.* 2003, Hoch 2010). New species for the Czech Republic, where it appears to be restricted to south-eastern Moravia (Fig. 14).

Javesella salina (Haupt, 1924)

Published data. Lauterer (1980): Starovice (7066).

Material examined. Moravia: Terezín (distr. Hodonín, 7067), 2 km W, salt marsh (former NR Zápověď), 170 m, 11.vi.1962, 1 ♂ brach., I. Tešová leg., I. Malenovský det. (MMBC).

Remarks. A halophilous (halobiont after Fröhlich 1997) species inhabiting saline sites along the coast and inland, rarely also fens and peaty meadows; it has been reported as feeding on *Juncus gerardii, Puccinelia distans*, and *Briza media* (Nickel 2003). The only previously known Czech site, in Starovice (where it was collected on *Puccinelia distans*), has been destroyed (Lauterer 1980, 1992). The salt marsh in Terezín (also situated in the Pannonian part of southern Moravia, Fig. 4) has since dried out and there is no recent data on Auchenorrhyncha fauna from it. Malenovský & Lauterer (2005a) listed *J. salina* as regionally extinct in the Czech Republic; however, more field work on the remnants of Czech salt marshes is required to confirm this status. Otherwise locally scattered in northern, central, eastern and south-eastern Europe, the Near East and eastern Palaearctic (Holzinger *et al.* 2003, Hoch 2010).

Kelisia confusa Linnavuori, 1957

Material examined. Moravia: Bedřichov (distr. Blansko, 6564), peat bog in woods towards Černovice, 630–640 m, 25.viii.1969, 1 ♂, 1 ♀, P. Lauterer leg. Brno-Jehnice (6765), 1 km W, valley of the Ponávka Brook between Prostřední rybník Pond and U nádraží Pond, 274 m, 28.iii.2009, on *Carex acutiformis*, 1 ♂, 5 ♀♀, I. Malenovský leg. Brno-Chrlice (6865), 1 km W, shores of the Splavisko Ponds, 190 m, 9.ix.2008, 1 ♂, P. Baňař & I. Malenovský leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 2.vii.2009, 5 ♂♂, P. Baňař & I. Malenovský leg. Dolní Dunajovice (7165), marshes to the left of the River Dyje, 170 m, 8.x.1973, 11 ♂♂, 25 ♀♀, P. Lauterer leg. Kněždub (7170), 3.5 km SE, NNR Čertoryje, floodplain of Radějovka Brook, 350–360 m, 18.vi.2000, 2 ♂♂, 2 ♀♀, I. Malenovský & P. Kment leg.; same data but 3.5 km S, NNR Čertoryje, "U pomníčku" and valley of Járkovec Brook, 320–380 m, 8.ix.2000, 6 ♂♂, 2 ♀♀, I. Malenovský leg.; NNR Čertoryje, 20.vi.2002, 4 ♂♂, J. Preisler leg. (JPLC, MMBC). Radějov (7170), 4.5 km SE, NR Kútky, spring fens, 400 m, 8.ix.1998, 4 ♂♂, 3 ♀♀, I. Malenovský leg. Hlohovec (7266), 2 km E, surroundings of the Allahovy rybníky Ponds, 175–180 m, 16.vii.1980, 1 ♂, P. Lauterer leg. Sedlec (distr. Břeclav, 7266), salt marshes at Nesyt Pond [= NNR Slanisko u Nesytu], 175 m, 15.viii.1962, 1 ♂, P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. In swampy and moderately eutrophic sites, e.g. along bog margins and in tall sedge fens; *Carex acutiformis* and *C. elata* have been mentioned as probable host plants (Holzinger *et al.* 2003, Nickel 2003). In the Czech Republic, found to date only in southern Moravia, usually in floodplains of streams and near shores of ponds, more rarely in bogs and spring fens as well; most records are from lowlands but it has also occurred in the Hornosvratecká vrchovina Highlands and the southern part of the White

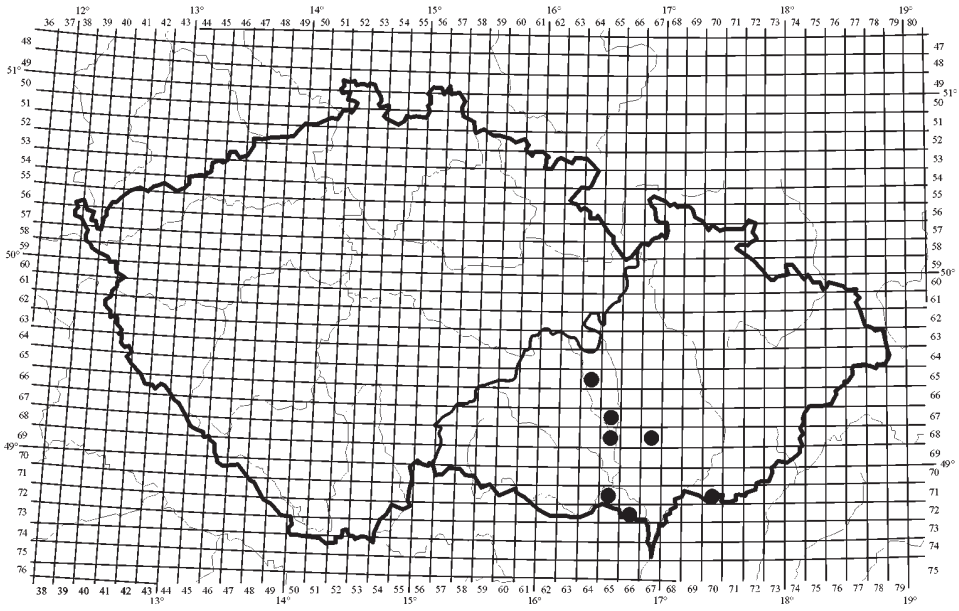

Fig. 15. Distribution of *Kelisia confusa* Linnavuori, 1957 in the Czech Republic.

Carpathians (Fig. 15), up to 640 m. Adults were mostly collected from mid June to the beginning of October, but there is also one record from March, suggesting that at least some adults (males and females) can overwinter (perhaps a similar life cycle to that of *Anakelisia fasciata*, see LAUTERER 1984 and WITSACK 1985). Generally distributed in the southern parts of central Europe, the Balkan peninsula, eastern Germany, Poland and Lithuania (HOLZINGER *et al.* 2003, HOCH 2010). New species for the Czech Republic.

Kelisia monoceros Ribaut, 1934

Published data. LAUTERER (1958): Brno-Holásky (6865), wet meadows between Podivín and Lednice (7166). MALENOVSKÝ (2001): Kněždub-NNR Čertoryje (7170).

Material examined. Bohemia: Černousy (5056), 1.5 km SW, NR Meandry Smědé, floodplain meadows in environs of Dubák Pond, 220 m, 17.vi.2007, 1 ♂, 1 ♀, I. Malenovský leg. Benátky nad Jizerou (5755), 4 km W, former military training area Milovice-Traviny, 220 m, 20.ix.2009, 1 ♂, I. Malenovský leg. Praha-Lipence (6052), Lipany recreational residence colony, 230–280 m, 10.–11.ix.2005, 1 ♀, J. Růžička leg. **Moravia:** Olomouc, between Lazce and Letná (6369), near the River Morava, 210 m, 23.vi.1961, 1 ♂, P. Lauterer leg. Brno-Medlánky (6765), Medlánecký park Park, 260–270 m, 13.ix.2009, 1 ♂, I. Malenovský leg. Brno-Slatina (6866), NMM Stránská skála, dry grassland on limestone, 250–310 m, 18.ix.1953, 2 ♂♂, P. Lauterer leg. Újezd

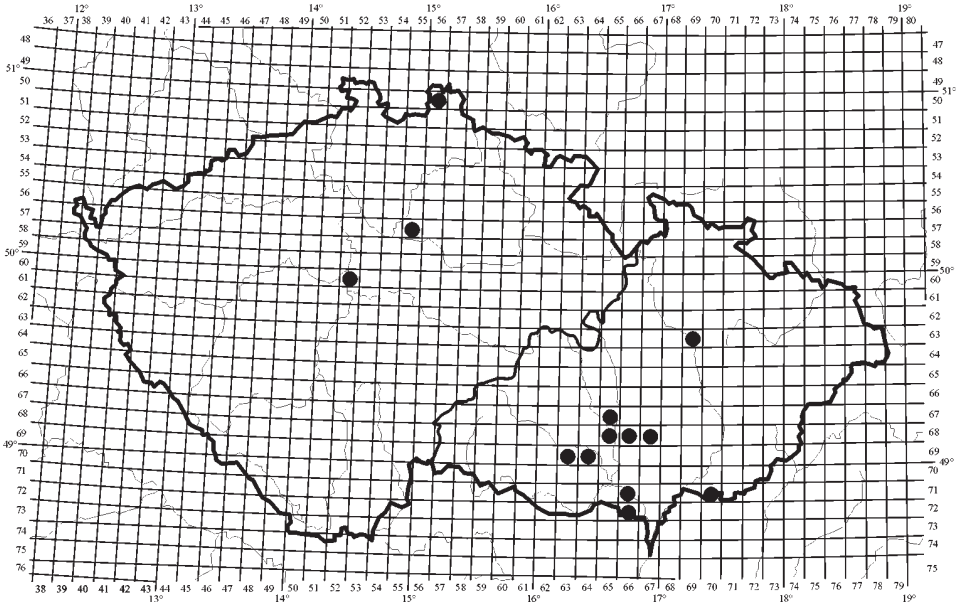

Fig. 16. Distribution of *Kelisia monoceros* Ribaut, 1934 in the Czech Republic.

u Brna/Hostěrádky-Rešov (6866), NR Špice, 250–300 m, 22.ix.1997, 2 ♂♂, I. Malenovský leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 2.vii.2009, 1 ♂, 2 ♀♀, P. Baňař & I. Malenovský leg. Dolní Dubňany (6963), 1.2 km NE, proposed NM Široký, 330 m, 9.ix.2009: 3 ♂♂. P. Baňař & I. Malenovský leg. Ivančice-Budkovice (6964), 0.6 km SW, Budkovické skály (conglomerate rocks in the valley of the River Rokytná), 230–300 m, 9.ix.2009, 1 ♀, P. Baňař & I. Malenovský leg. Velké Pavlovice (7166), 0.5 km E, "Čtvrtky" (meadow by the road to Bořetice), 170 m, 2.vii.1962, 1 ♀, P. Lauterer leg. Kněždub (7170), 3.5 km SE, NNR Čertoryje, disturbed wet meadows by Radějovka Brook, 350 m, 9.ix.2000, 1 ♂, 2 ♀♀, I. Malenovský leg. Sedlec (distr. Břeclav, 7266), salt marshes by Nesyt Pond [= NNR Slanisko u Nesytu], 180 m, 6.x.1983, 1 ♂, 1 ♀, P. Lauterer leg. et det., and 27.vii.1994, 1 ♂, I. Malenovský leg., P. Lauterer det. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. In the Czech Republic, collected in several kinds of habitats: disturbed wet meadows, dry grassland, salt marshes, a military training area, and a half-derelict city park, to date always at relatively low elevations, up to 350 m. *K. monoceros* appears to be relatively widely distributed in the country (recorded from central and northern Bohemia, southern and central Moravia, Fig. 16) but occurs only locally and in relatively low numbers. The range of *K. monoceros* includes nearly the whole of Europe (Hoch 2010). It is common especially in the Alps and their foothills (up to more than 2000 m), where it usually feeds on *Carex sempervirens* while host records north of the Alps include *Carex otrubae* and *C. muricata* (Nickel 2003). New species for Bohemia.

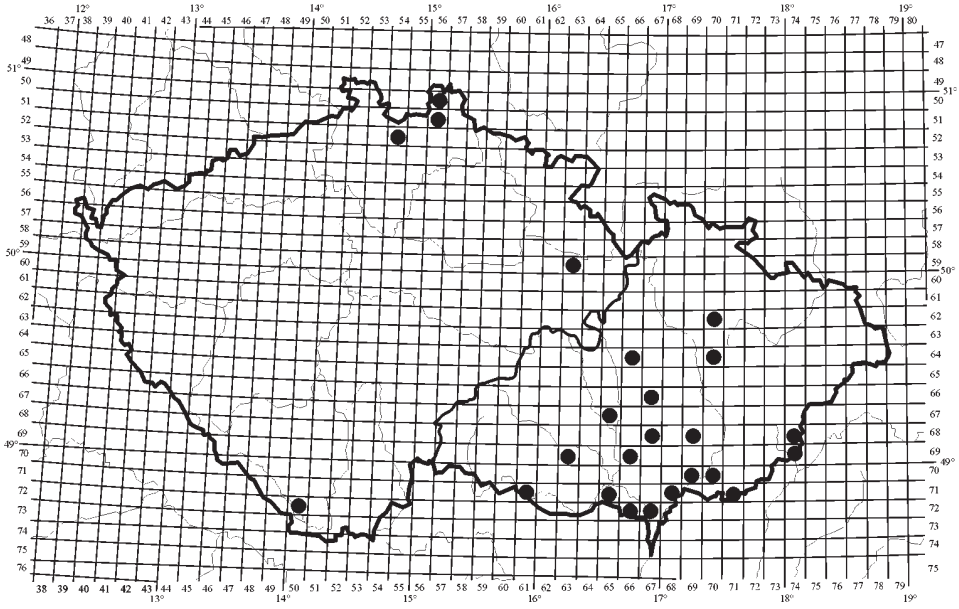

Fig. 17. Distribution of *Kelisia praecox* Haupt, 1935 in the Czech Republic.

Kelisia praecox Haupt, 1935

Published data. Dlabola (1945a, 1954a): Bzenec (7069), Moravský Písek (7069-7070).

Material examined. Bohemia: Černousy (5056), Dubák Pond, 220 m, 14.viii.2001, 2 ♂♂, J. Preisler leg. (JPLC). Raspenava (5156), Šolcův rybník Pond, 370–380 m, 12.x.2001, 10 ♂♂, J. Preisler leg. (JPLC). Jablonné v Podještědí-Lvová (5254), 23.ix.2001, 1 ♂, J. Preisler leg. (JPLC). Darebnice (probably Choceň-Darebnice, 5963), 4.ix.1961, 1 ♂, J. Dlabola det., I. Malenovský rev. (MNHN). Horní Planá-Přední Zvonková (7250), NR Račínské prameniště, 750–770 m, 27.viii.2001, 1 ♂, I. Malenovský leg. **Moravia:** Jívová (distr. Olomouc, 6270), E of gamekeeper's lodge, 540–550 m, 27.v.1962, 1 ♂, P. Lauterer leg. Benešov-Pavlov (distr. Blansko, 6466), environs of pond, 640–660 m, 6.vi.1979, 5 ♀♀, and 12.x.1978, many ♂♂ and ♀♀, P. Lauterer leg. Daskabát (6470), 1 km S, 310–330 m, 9.v.1963, 1 ♀, P. Lauterer leg. Vyškov-Rychtářov (6667), valley of the Malá Haná Brook, 350–380 m, 24.v.1979, 1 ♀, P. Lauterer leg. Brno-Ořešín (6765), 1.8 km NW, valley of Babídolský potok Brook, 340 m, 25.iii.1999, 7 ♂♂, 6 ♀♀, I. Malenovský leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 2.vii.2009, 2 ♂♂, P. Baňař & I. Malenovský leg. Buchlovice (6869), 4 km NW, 380–400 m, 23.ix.1974, 1 ♀, P. Lauterer leg. Valašské Klobouky (6874), 1.8 km E, NR Javorůvky, 550–580 m, 22.v.1999, 2 ♀♀, and 11.ix.1999, 2 ♂♂, 2 ♀♀, I. Malenovský leg. Valašské Klobouky (6874), 1.5 km SE, SW slope of Královec Hill, 500 m, 9.ix.1999, 1 ♂, 1 ♀, I. Malenovský leg. Valašské Klobouky (6874), 3 km SE, NR Bílé potoky, 380–500 m, 9.ix.1999, 10 ♂♂, 6 ♀♀, and 14.viii.2006, 1 ♂, I. Malenovský leg. Dolní Dubňany (6963), 1.7 km N, proposed NM Ve Žlebě, 340–360 m, 29.vi.2009, 1 ♂, P. Baňař & I. Malenovský leg. Telnice (distr. Brno-venkov, 6966), 0.7 km SE, NM Písky, 190 m, 2.v.2005, 2 ♀♀, I. Malenovský leg. Brumov-Bylnice (6974), 2 km S, N slopes of Pláňava Hill, 300–500 m, 12.ix.1999, 2 ♂♂, 1 ♀, I. Malenovský leg. Brumov-

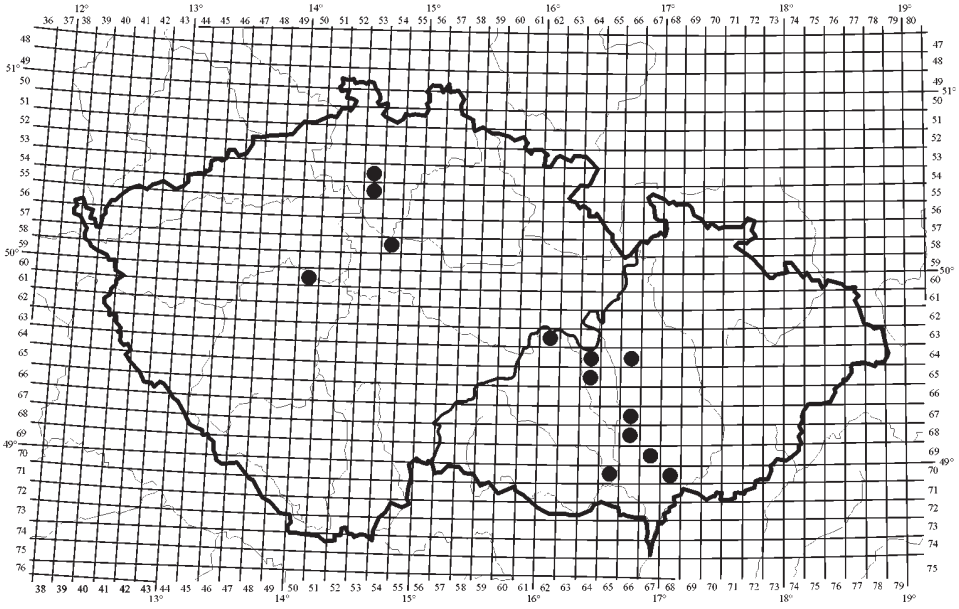

Fig. 18. Distribution of *Kelisia punctulum* (Kirschbaum, 1868) in the Czech Republic.

Bylnice, Sidonie (6974), 460–480 m, 8.ix.1981, 1 ♂, L. Pospíšilová leg. Bzenec (7069), "písky" (= sands), vii.1940, 1 ♀, A. Hoffer leg., J. Dlabola det., I. Malenovský rev. (MNHN). Vacenovice (distr. Hodonín, 7069), sands, 200 m, 16.x.1963, 1 ♂, P. Lauterer leg. Moravský Písek (7069-7070), vii.1940, 1 ♂, A. Hoffer leg., J. Dlabola det., I. Malenovský rev. (MNHN). Vranov nad Dyjí (7161), 2.4 km SE, Pod Slujemi, 330 m, 5.vi.2006, 6 ♀♀, W. Kubis leg. et det., I. Malenovský rev. (NPZC). Dolní Věstonice (7165), Sand Hill, 168–177 m, 11.x.1962, 1 ♀, and 24.iii.1973, 1 ♀, P. Lauterer leg. Klentnice (7165), Kotelná Hill [= NNR Děvín], 11.x.1962, 1 ♀, P. Lauterer leg. Hodonín (7168), Očov Wood, 170 m, 15.iv.1958, 1 ♀, P. Lauterer leg. Javorník (distr. Hodonín, 7171), 2.5 km NE, NNR Jazevčí, 360 m, 6.v.2000, 1 ♀, I. Malenovský leg. Javorník (7171), 3.8 km S, NR Machová, 400–500 m, 14.v.1998, 1 ♀, I. Malenovský leg. Suchov (7171), Trnovský Mlýn, 450 m, 1.x.2004, 2 ♂♂, 1 ♀, I. Malenovský leg. Valtice (7266), towards Sedlec, shore of Nesyt Pond, 179 m, 4.viii.1961, 1 ♂, P. Lauterer leg. Břeclav-Pohansko (7267), 29.ix.2001, 1 ♂, J. Preisler leg. (JPLC). All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. A Euro-Siberian species inhabiting various temporarily wet sites: open forests, clearings and meadows, where it feeds on *Carex brizoides* and some other *Carex* spp. (Holzinger *et al.* 2003, Nickel 2003). In the Czech Republic widely distributed from lowlands to highlands (Fig. 17, probably under-recorded in some regions), fairly common e.g. on sandy places in south-eastern Moravia, but known also e.g. from spring fens in the White Carpathians and wetlands in the Jizerské hory Mts., Šumava Mts. and the Drahanská vrchovina Highlands. New species for Bohemia.

Kelisia punctulum (Kirschbaum, 1868)

Published data. Lang (1947): Jeseníky Mts. Dlabola (1977): Bohemia. Malenovský (2006): Dubá/Nedamov-NR Mokřady horní Liběchovky (5453), Janova Ves/Jestřebice/Kokořín/Vojtěchov-NR Kokořínský důl (5553).

Material examined. Bohemia: Přerov nad Labem (5854), 27.x.1969, 7 ♀♀, J. Dlabola leg. et det. (MNHN). Koněprusy-Bítov (6050), ix.1972, 2 ♂♂, 15 ♀♀, J. Dlabola leg. et det., I. Malenovský rev. (NMPC). **Moravia:** Křižánky (distr. Žďár nad Sázavou, 6362), wet meadow towards Svratka, 620 m, 18.viii.1975, 1 ♂, P. Lauterer leg. Prosetín-Čtyři Dvory (6464), around bridge and lower pond, 510 m, 9.ix.1978, many ♂♂ and ♀♀, P. Lauterer leg. Benešov-Pavlov (distr. Blansko, 6466), environs of pond, 643–660 m, 12.x.1978, 1 ♂, 3 ♀♀, P. Lauterer leg. Černovice (distr. Blansko, 6564), 1.5 km NE, peat bog at the source of Chlébský potok Brook (= NR Ploník), 640–650 m, 20.viii.1983, 2 ♀♀, P. Lauterer leg. Brno-Líšeň (6766), 2.5 km NE, the valley of Říčka Brook, environs of the Muchova bouda Hut, 265 m, 27.vii.1958, 3 ♀♀, and 21.viii.1960, 6 ♂♂, 2 ♀♀, P. Lauterer leg. Tvarožná (6866), reed on the bottom of a dried-out pond, 237 m, 27.viii.1963, 6 ♀♀, P. Lauterer leg. Kobeřice u Brna (distr. Vyškov, 6967), valley 0.8–1 km E of Horáček gamekeeper's lodge, 240–270 m, 6 ♂♂, 5 larvae, P. Lauterer leg. Mušov (7065), forest N of hill 222 m, 170 m, 27.viii.1973, 2 ♂♂, 3 ♀♀, P. Lauterer leg. Pouzdřany (7065), forest at "Dolní niva", 172 m, 14.viii.1974, 1 ♂, P. Lauterer leg. Milotice (distr. Hodonín, 7068), castle park, 180 m, 20.viii.1968 and 20.viii.1979, many ♂♂ and ♀♀, P. Lauterer leg. All material from Moravia I. Malenovský det., MMBC.

Remarks. In tall sedge swamps in moderately wet to periodically flooded, moderately eutrophic, sunny to shady sites (fens, fen woods, wet meadows and along ditches), mainly on *Carex acutiformis* (Holzinger *et al.* 2003, Nickel 2003). Distributed in western and central Europe (Hoch 2010). In the Czech Republic, so far ascertained in central and northern Bohemia, highlands in western Moravia (up to 650 m) and lowlands in south-eastern Moravia (Fig. 18). The only previously published record of *K. punctulum* from Moravia was by Lang (1947) from the Jeseníky Mts. (according to an unpublished Lang manuscript deposited in MMBC; this record corresponds to "Frývaldov, 26.vi.1938" [= now the town of Jeseník (5769)]. Not shown in Fig. 18; this material has not been revised). Dlabola (1977) considered this record doubtful. Confirmed occurrence in Moravia.

Kelisia sima Ribaut, 1934 (Fig. 53)

Material examined. Bohemia: Jestřebí (distr. Česká Lípa, 5353), 250 m, 8.ix.1999, 1 ♂, J. Preisler leg. (JPLC). Lenora-Zátoň (7048), SE slopes of Boubín Mt., 800–1100 m, 11.viii.1973, 1 ♀, P. Lauterer leg. **Moravia:** Fryšava pod Žákovou horou (6362), Nový rybník Pond, 730 m, 20.ix.1966, 1♂, 1 ♀, P. Lauterer leg. Sněžné-Blatiny (6362), pond near Milovy, 600 m, 20.ix.1966, 2 ♀♀, P. Lauterer leg. Sklené (distr. Žďár nad Sázavou, 6362), dry meadow E of road to Tři Studně, 750 m, 30.vii.1961, 1 ♂, P. Lauterer leg. Javorek (distr. Žďár nad Sázavou, 6363), 1 km E, 550–560 m, 28.viii.1964, 1 ♀, P. Lauterer leg. Radenice (6562), peat bog by road on S edge of village, 600 m, 10.viii.1966, 1 ♀ and 19.ix.1966, 1 ♀, P. Lauterer leg. Ořechov (distr. Žďár nad Sázavou, 6662), 550 m, 19.ix.1966, 1 ♀, P. Lauterer leg. Kaliště (distr. Jihlava, 6757), peat bog at SW edge of pond, 645 m, 13.viii.1966, 1 ♂, P. Lauterer leg. et det., I. Malenovský rev. Studená-Horní Bolíkov (6857), 0.3 km SW, "Kobrnátky" peat bog, 650 m, 14.viii.1978, 1 ♀, P. Lauterer leg. Valašské Klobouky (6874), NR Javorůvky, 550 m, 10.ix.1999, 1 ♂, I. Malenovský leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. In wet to periodically wet, sunny to moderately shady sites on basic to acidic substrates, mainly in spring mires and fens, in the Alps also on overgrown gravel banks of rivers, trophically confined to sedges of the *Carex flava* group (Holzinger *et al.* 2003,

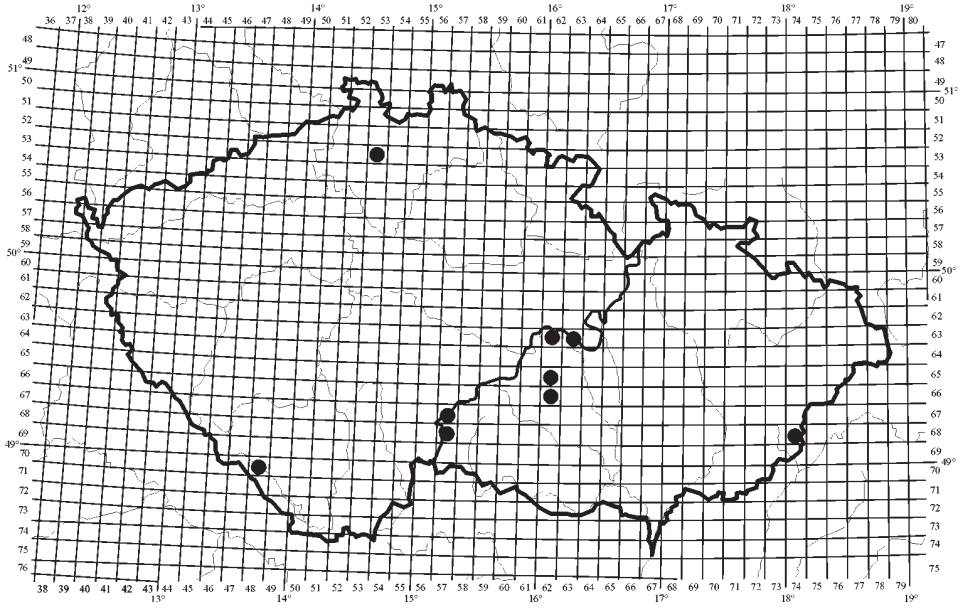

Fig. 19. Distribution of *Kelisia sima* Ribaut, 1934 in the Czech Republic.

Nickel 2003). In the Czech Republic ascertained locally in wet meadows and around ponds on peaty soils in the Šumava Mts., Jihlavské vrchy and Žďárské vrchy Highlands, two single records also from a lowland fen site in northern Bohemia and a calcareous spring fen in the White Carpathians (Fig. 19). To date known only from France, northern Italy, Germany, Austria, and Sweden (Holzinger *et al.* 2003, Hoch 2010), but may have been partly confused with the morphologically close *K. guttula* (Germar, 1818) in other countries (see also Remane & Jung 1995 and Remane & Guglielmino 2002 for detailed diagnoses of males and females). New species for the Czech Republic.

Megadelphax haglundi (J. Sahlberg, 1871) (Fig. 55)

Published data. Dlabola (1956a): "Podhoř", Mohelno (6863).

Material examined. Bohemia: "Podhoř" [= Praha-Troja, Podhoří (5852), 250–300 m], 16.vii.1946, 1 ♂ brach., J. Dlabola leg. et det., I. Malenovský rev. (MNHN). **Moravia:** Mohelno (6863), NNR Mohelnská hadcová step, 260–380 m, viii.1941, 3 ♂♂ brach., V. Lang leg., J. Dlabola det., I. Malenovský rev. (MNHN); 18.viii.1960, 11 ♂♂, 5 ♀♀ (brach, 2 ♂♂ macr.), 22.viii.1963, 4 ♂♂, 1 ♀, all brach., and 1.vi.1964, 1 ♂ brach.; all P. Lauterer leg. (MMBC). Ostopovice, near Brno (6865), 13.v.1969, 1 ♂ brach., L. Pospíšilová leg. Biskoupky (6963), slopes of the Jihlava valley below the village, dry grassland on serpentinite [= NM Biskoupská hadcová step],

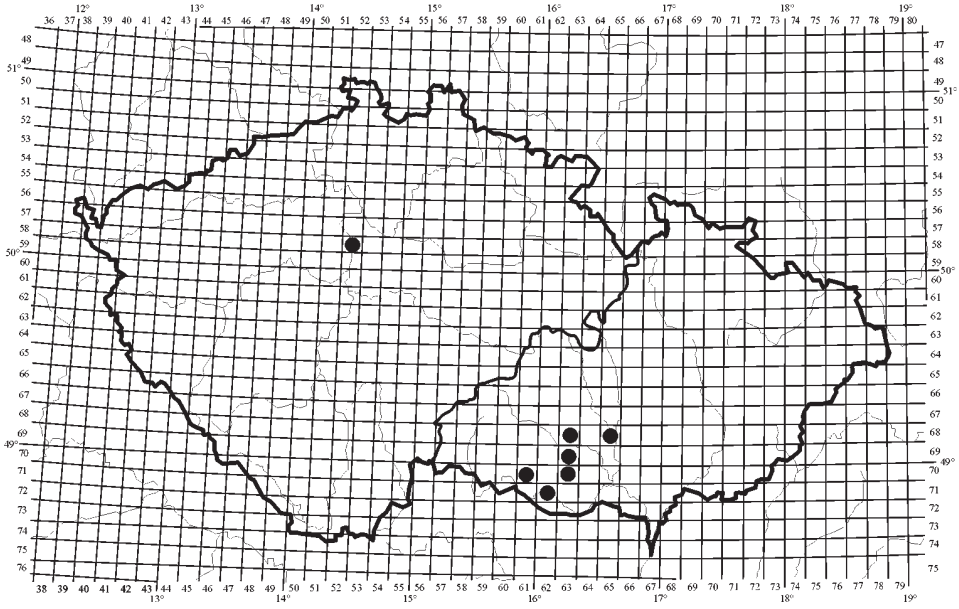

Fig. 20. Distribution of *Megadelphax haglundi* (J. Sahlberg, 1871) in the Czech Republic.

230–270 m, 8.vii.1965, 1 ♂ brach., P. Lauterer leg. Střelice u Jevišovic (7061), hill 0.2 km NE, dry grassland on granite, 330–350 m, 28.v.1985, 2 ♂♂, 2 ♀♀ brach., P. Lauterer leg. Miroslav (7063), 1 km W, top of Vyhlídka Hill, dry grassland on granite, 300–324 m, 6.vi.1963, 1 ♀ brach. and 12.viii.1963, 10 ♂♂, 4 ♀♀ brach., P. Lauterer leg. Havraníky (7162), 1 km S, Skalky Hill [= NM Skalky], 308 m, 23.vii.1969, 4 ♂♂ brach., P. Lauterer leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Throughout Europe, a sporadically collected species known to date from only a few records in southern Sweden, south-western Germany, Czech Republic, eastern Austria, central France, and Mongolia (HOLZINGER *et al.* 2003). Little is known of its biology and habitat requirements; it is reported to have been collected in xerothermic habitats with sparse vegetation and scattered shrubs and trees (HOLZINGER *et al.* 2003, NICKEL 2003, HOLZINGER 2009b). MALENOVSKÝ & LAUTERER (2005a) considered it regionally extinct in the Czech Republic without being aware at the time, however, of the then-undetermined material in MMBC cited above from several sites in south-western Moravia. Further to these Moravian specimens, only a single male collected by Dlabola in Prague was examined (Fig. 20). *M. haglundi* appears to be restricted in the Czech Republic to extremely dry grassland on steep, rocky slopes on acidic (granites, granodiorites, gneiss, wackes) and serpentinite substrates (although the only German record comes from calcareous limestone upland and the only Austrian locality is an area

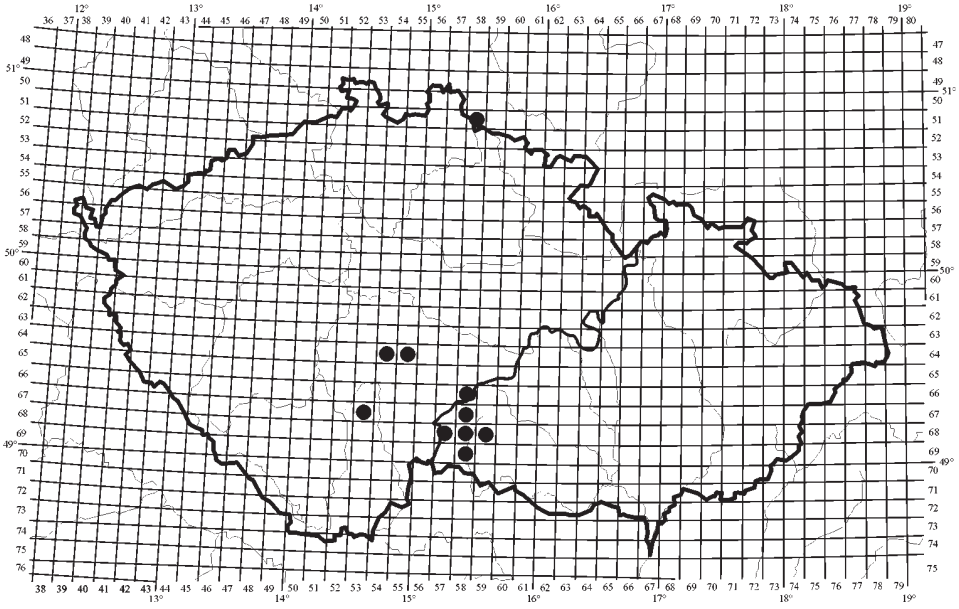

Fig. 21. Distribution of *Nothodelphax albocarinata* (Stål, 1858) in the Czech Republic.

of sand dunes: Nickel 2003, Holzinger 2009b). The Czech specimens were collected from mid-May to the final third of August; there are, very probably, two generations per year. The host plant remains unknown.

Nothodelphax albocarinata (Stål, 1858)

Published data. Dlabola (1954a): Mažice (6753). Dlabola (1956a): Mažice, Blatnice (6465), Mladá Vožice (6454).

Material examined. Bohemia: Kořenov-Jizerka (5158), meadows along the road between Lasičí cesta Road and Panský dům House, 860–880 m, 14.vii.2001, 1 ♀, P. Lauterer leg. et det. (MMBC). Kořenov-Jizerka (5158), NR Bukovec, 900–910 m, 13.vii.2001, 1 ♀, P. Lauterer leg. et det. (MMBC). Mladá Vožice (6454), *c*. 450 m, 25.vii.1954, 1 ♂ brach., J. Dlabola leg. et det., I. Malenovský rev. (MNHN). Blatnice (probably Pojbuky-Blatnice, distr. Tábor, 6455, *c*. 580 m), 12.viii.1954, 6 ♂♂, 6 ♀♀ brach., and 12.ix.1954, 6 ♀♀, J. Dlabola leg. et det., I. Malenovský rev. (MNHN). Mažice (6753), 410 m, 5.viii.1944, 1 ♂ brach., A. Hoffer leg., J. Dlabola det., I. Malenovský rev. (MNHN). Kunžak-Suchdol (6857), peat bog 0.5 km E towards Olšany, 640 m, 13.viii.1966, 1 ♀ brach., P. Lauterer leg., I. Malenovský det. (MMBC). **Moravia:** Jezdovice (6658), towards Spělov (= NM Jezdovické rašeliniště), 590 m, 16.vi.1966, 6 ♀♀ brach., P. Lauterer leg. Doupě (6758), 0.5 km

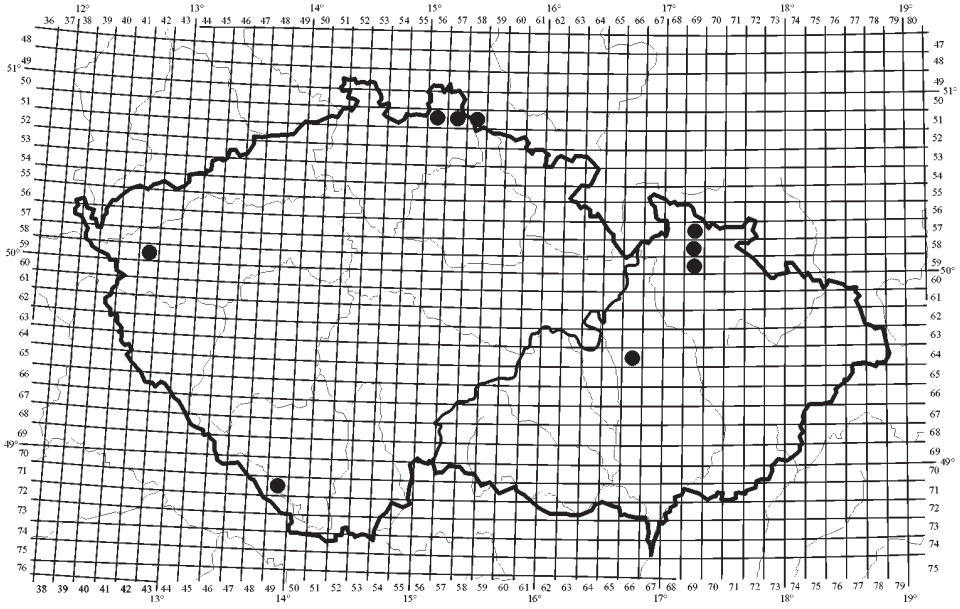

Fig. 22. Distribution of *Nothodelphax distincta* (Flor, 1861) in the Czech Republic.

E, W shore of the Třeštický rybník Pond, 590 m, 7.vi.1966, 2 ♀♀ brach., P. Lauterer leg. Telč-Studnice (6758), 1 km N Studnická Ostražka Hill, 605 m, 12.viii.1966, 1 ♂ brach., P. Lauterer leg. Mysletice (6858), 1 km E, 530 m, 3.v.1966, 4 ♂♂, 5 ♀♀ brach., P. Lauterer leg. Olší (distr. Jihlava, 6858), "Zdénkova louka" Meadow, above the pond, 590 m, 3.v.1966, 1 ♂, 1 ♀ brach., P. Lauterer leg. Ořechov (distr. Jihlava, 6859), towards Olšany, brook flowing to Pilka Pond, 610 m, 12.viii.1966, 1 ♂, 1 ♀ brach., P. Lauterer leg. Lipolec (6958), Pařezné louky Meadows above the Pařezný rybník Pond, 535 m, 4.v.1966, 1 ♂, 3 ♀♀ brach., P. Lauterer leg. All material from Moravia I. Malenovský det., MMBC.

Remarks. A tyrphobiont species found among the hollows of raised and intermediate bogs where it possibly lives on *Carex limosa*; it is distributed in the boreal parts of Europe, Asia and North America, while in central Europe there are only isolated populations in bogs (Holzinger *et al.* 2003, Nickel 2003). We once considered it regionally extinct in the Czech Republic (Malenovský & Lauterer 2005a) but have recently determined specimens from several localities in Bohemia, as well as first samples from Moravia (highlands in south-western Moravia; Fig. 21). Most samples are from the 1950–60's, although there are also recent records from the Jizerské hory Mts as well.

Nothodelphax distincta (Flor, 1861)

Published data. Fieber (1879): Bohemia. Novotný (1994): south Bohemia.

Material examined. Bohemia: Bedřichov (5156), 2.8 km NE, NR Nová louka, 760 m, 11.vii.2001, 2 ♂♂, 9 ♀♀, P. Lauterer & J. Preisler leg. et det. (JLPC, MMBC). Bílý Potok (5157), 4.5 km S, NR Na Čihadle, 970 m, 11.VII.2001, 1 ♀, P. Lauterer leg. et det. Kořenov-Jizerka (5158), NNR Rašeliniště Jizerky, SE part (0.5 km N of Pešákovna), 870–875 m, 10.vii.2001, 1 ♂, 11 ♀♀, and 14.vii.2001, 1 ♂, 1 ♀, P. Lauterer leg. et det. Kořenov-Jizerka (5158), along Jizerská silnice road NW of Pešákovna towards Rašeliniště Jizerky, 860–870 m, 14.vii.2001, 1 ♀, P. Lauterer leg. et det. Mariánské Lázně-Kladská (5942), 1.5 km NE, NNR Kladské rašeliny, Husí les Wood, 800 m, 31.vii.2007, 1 ♂ brach., I. Malenovský leg. et det. Stožec-Dobrá na Šumavě (7149), NNR Mrtvý luh, 740 m, 3.viii.1998, 3 ♀♀ brach., I. Malenovský leg. et det. **Moravia:** Zlaté Hory-Rejvíz (5769), NNR Rejvíz, "Malý Rejvíz", 770 m, 7.vii.1966, 3 ♀♀ brach., L. Pospíšilová leg., I. Malenovský det. Bělá pod Pradědem/Loučná nad Desnou (5869-5969), Mt. Praděd to Červenohorské sedlo Saddle, 1013–1491 m, 5.vii.1966, 4 ♂♂ brach., L. Pospíšilová leg., I. Malenovský det. Benešov-Pavlov (distr. Blansko, 6466), NR Pavlovské mokřady, 650 m, 6.vi.1979, 8 ♀♀ brach., P. Lauterer leg. and 24.vi.2006, 4 ♀♀ brach., I. Malenovský leg., both I. Malenovský det. All material deposited in MMBC unless otherwise indicated.

Remarks. A stenotopic species of open, raised bogs, monophagous on *Eriophorum vaginatum*; distributed in northern and central Europe (Holzinger *et al.* 2003, Nickel 2003). From the Czech Republic, there has been only an "old-country-level" mention by Fieber (1879), considered by Dlabola (1977) as doubtful, and material from south Bohemia collected as part of an ecological study by Novotný (1994) who, however, did not specify very exact localities. We found *N. distincta* scattered in several well-preserved raised bogs in northern, western, and southern Bohemia (Jizerské hory, Slavkovský les, and Šumava Mts.), as well as in Moravia (Jeseníky Mts. and the Drahanská vrchovina Highlands; Fig. 22). Almost all specimens from the Czech Republic are brachypterous (see also Novotný 1994). New species for Moravia.

Ribautodelphax angulosa (Ribaut, 1953)

Published data. Malenovský (2001): Kněždub-NNR Čertoryje (7170).

Material examined. Bohemia: Strážné (5359), Hříběcí bouda Hut, part of the diet of a house martin *Delichon urbica*, 800 m, 9.viii.1972, 1 ♂J. Kožená leg. Jičín (5558), Zebín Hill, dry grassland, rocks, 400 m, 2.viii.1942, 2 ♂♂, J. Dlabola leg. and det., I. Malenovský rev. (MNHN). **Moravia:** Luká-Střemeníčko (6367), Holý kopec Hill, heathland and dry grassland, 470–510 m, 26.v.1963, 3 ♂♂, 1 ♀ brach., P. Lauterer leg. Budeč (distr. Žďár nad Sázavou, 6461), meadows around Babín Pond, 570 m, 18.viii.1975, 1 ♂ brach., P. Lauterer leg. Nové Město na Moravě (6462), 3 km NW, below the Ochoza Wood, 625–670 m, 16.v.1966, 1 ♂ brach., P. Lauterer leg. Zubří (distr. Žďár nad Sázavou, 6462), 630 m, 10.viii.1966, 1 ♂ brach., P. Lauterer leg. Hodonín (distr. Blansko, 6464), meadows by the Olešnička River, 490 m, 9.v.1977, 2 ♂♂, 1 ♀ brach., P. Lauterer leg. Prosetín (near Bystřice nad Pernštejnem, distr. Žďár nad Sázavou, 6464), Prvníky, 6.viii.1977, 2 ♂♂ brach., P. Lauterer leg. Prosetín-Brťoví (6464), towards Čtyři Dvory, 550 m, 9.viii.1975, 2 ♂♂, 2 ♀♀ brach., P. Lauterer leg. Prosetín-Čtyři Dvory (6464), towards Brťoví, 550–620 m, 3.viii.1975, 1 ♂ brach., P. Lauterer leg. Drahonín (6563), valley of Hadůvka Brook, 400–500 m, 26.vii.1978, 3 ♂♂ (2 brach.), P. Lauterer leg. Lomnice-Brusná and Veselí (6564-6664), 560–570 m, 14.vii.1982, 1 ♂ macr., J. L. Stehlík leg. Vysočany-Molenburk (distr. Blansko, 6566), 1 km E, 550–570 m, 22.v.1960, 6 ♂♂, 3 ♀♀ brach., P. Lauterer leg. Vyškov-Rychtářov (6667), valley of the Malá Haná Brook, 350–380 m, 24.v.1979, 2 ♂♂ brach., P. Lauterer leg. Viničné Šumice (6766), N of village, 370–400 m, 20.v.1979, 5 ♂♂, 2 ♀♀, P. Lauterer leg. Horní Němčice (distr. Jihlava, 6857), towards Jilem, peat bog by the Velký rybník Pond, 620 m, 4.v.1966, 1 ♂ brach., P. Lauterer leg. Stupava (6869), towards Staré Hutě, 370–410 m, 16.viii.1984, 1 ♂ brach., P. Lauterer leg. Nedašov (6874), NR Jalovcová stráň, 28.vii.2005, 600 m, 1 ♂, Malenovský leg. Valašské Klobouky (6874), NR Bílé potoky, 450 m, 11.vii.2006, 6

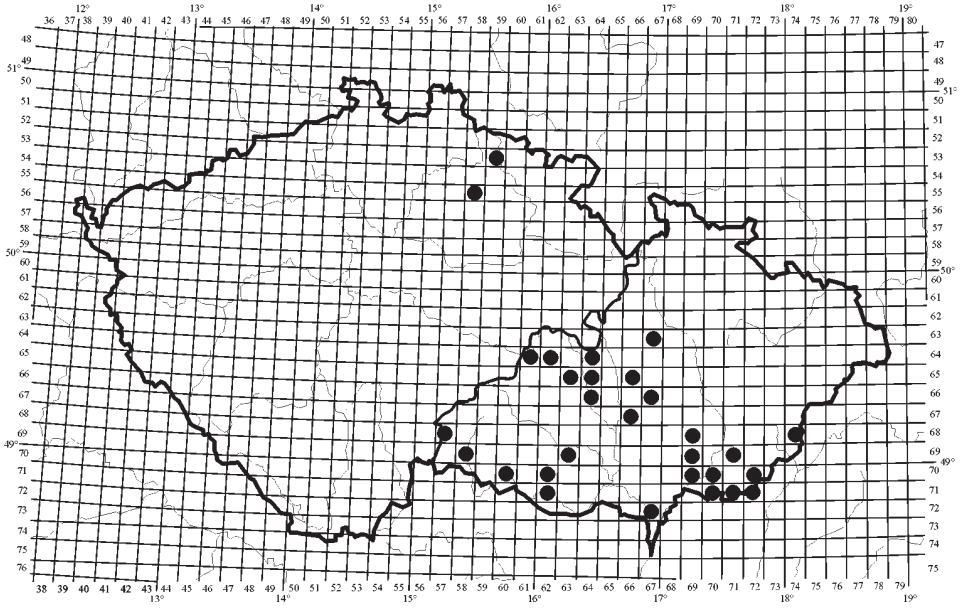

Fig. 23. Distribution of *Ribautodelphax angulosa* (Ribaut, 1953) in the Czech Republic.

♂♂, I. Malenovský leg. Staré Hobzí (6958), Větrná hora Hill, 530–550 m, 22.viii.1963, 1 ♂ brach., P. Lauterer leg. Moravský Krumlov (6963), rocky slopes down to the River Rokytná [= NNR Krumlovsko-Rokytenské slepence], 9.viii.1962, 1 ♂ brach., J. Stehlík leg. Skalka (distr. Hodonín, 6969), NM Hošťálka, dry grassland, 15.v.1963, 1 ♂ brach., P. Lauterer leg. Popovice (distr. Uherské Hradiště, 6971), 1940, A. Hoffer leg. (NMPC). Bítov (near Vranov nad Dyjí, distr. Znojmo, 7060), surroundings of the castle, 360–450 m, 10.vii.1954, 1 ♂ brach., P. Lauterer leg. Výrovice (7062), 300 m S, 260–340 m, 1 ♂, P. Lauterer leg. Bzenec (7069), "písky" (=sands), vii.1940, A. Hoffer leg. (NMPC). Moravský Písek (7069-7070), vii.1940, A. Hoffer leg. (NMPC). Rohatec (7069), forest towards Ratíškovice, 206 m, 10.v.1962, 1 ♂ brach., P. Lauterer leg. Lopeník (7072), Lopenické sedlo Saddle, 700 m, 27.vi.2004, 1 ♂, and 21.v.2005, 1 ♂, I. Malenovský leg., and 18.viii.2004, 2 ♂♂, P. Kment leg. Lopeník (7072), NM U Zvonice, 660 m, 21.v.2005, 1 ♂, 2 ♀♀, I. Malenovský leg. Havraníky (7162), 1 km S, Skalky Hill [= NM Skalky], 308 m, 23.vii.1969, 1 ♂ brach., P. Lauterer leg. Znojmo-Hradiště (7162), xerothermic slopes S of Hradiště Sv. Hypolita, 250–300 m, 6.viii.1981, 1 ♂ brach., P. Lauterer leg. Kněždub (7170), NNR Čertoryje, "U pomníčku", 370 m, 27.vi.2002, 6 ♂♂, I. Malenovský leg. Malá Vrbka (7170), Výzkum Hill, 420 m, 2.v.2001, 3 ♂♂; 28.vii.2001, 1 ♂; 18.v.2002, 1 ♂; and 27.vi.2002, 5 ♂♂, I. Malenovský leg. Javorník-Petruchovy Mlýny (7171), "Molvy" (protection zone of NNR Jazevčí), 380 m, 27.vii.2005, 4 ♂♂, I. Malenovský leg. Strání (7172), NM Záhumenice, 470–550 m, 20.vii.2002, 5 ♂♂, I. Malenovský leg. Břeclav (7267), Pohansko, Paradewiese (= Přední Pohansko), 156 m, 1.v.2006, 14 ♂♂ brach., I. Malenovský leg. (MMBC). Lanžhot (7267), Lánské louky, 0.5 km S from the Lány mansion, 150 m, 1.v.2007, 1 ♂ brach., I. Malenovský leg. All material I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. Monophagous on *Anthoxanthum odoratum*, with verified records from sunny grassland sites in some countries in western Europe (France, the Netherlands), central

Europe (Austria, Germany, Switzerland, Slovakia), southern Scandinavia, and Greece (Dlabola 1977, Bieman 1987a, b, Holzinger *et al.* 2003, Nickel 2003, Hoch 2010). In the Czech Republic, published to date from only a single locality in the White Carpathians (Malenovský 2001) but apparently quite widespread at least in southern Moravia and north-eastern Bohemia in somewhat dry to mesophilous low-productivity grassland from alluvial meadows and sandy grassland in the lowlands of the Břeclav and Hodonín districts to species-rich meadows and pastures in the White Carpathians, Drahanská vrchovina and Českomoravská vrchovina Highlands, Podyjí, and the Krkonoše Mts., up to at least 800 m (Fig. 23). However, it avoids intensively managed sites. New species for Bohemia.

Ribautodelphax imitans (Ribaut, 1953)

Material examined. Bohemia: Libušín (5850), 1 km S, Max coal dump, 395 m, 2.–27.vii.2008, pitfall trap, 7 ♂♂, 3 ♀ brach.; 28.vii.2008, sweeping, 1 ♂, 2 ♀; and 28.vii. –19.viii.2008, pitfall trap, 2 ♂♂ brach., R. Tropek leg. **Moravia:** Blansko-Klepačov (6665), field of *Trifolium pratense* and *Lolium multiflorum*, 320–360 m, 25.vii.1999, 6 ♂♂, 1 ♀, and 7.ix.1999, 1 ♂, I. Malenovský leg. Ráječko (6665), field of *Trifolium pratense* and *Lolium multiflorum*, 360–450 m, 29.vii.1998, 1 ♂, I. Malenovský leg. Brno-Komárov (6865), dry grassland on shores of the River Svitava, 197 m, 30.iv.1955, 2 ♂♂ brach., P. Lauterer leg. Ostopovice (6865), motorway embankment, 230 m, 7.ix.2004, 1 ♂ brach., I. Malenovský leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225–240 m, 25.v.2009, 1 ♂, 1 ♀ macr., and 2.vii.2009, 2 ♂♂, 9 ♀♀ macr., P. Baňař & I. Malenovský leg. Lesonice (distr. Znojmo, 6963), 1.5 km N, junction of roads from Lesonice to Moravský Krumlov and from Bohutice to Dobelice, dry grassland and fallow on limestone, 250–270 m, 26.viii.1963, 1 ♂ brach., P. Lauterer leg. Blučina (6965), 1 km SW, NW slopes of Výhon Hill, NM Nové hory, 250–320 m, 9.vii.2009, 1 ♂ macr., 1 ♀ brach., P. Baňař & I. Malenovský leg. Čejč (7067), 22.vii.1956, 1 ♂; 22.viii.1957, 1 ♂; and 19.viii.1958, 3 ♂♂; all brach., M. Kocourek leg. Čejč (7067), 1.8 km SE, proposed NM Bílý kopec u Čejče, 190–200 m, 13.vii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Horní Němčí (7071), intensive pasture adjacent to NR Drahy, 430 m, 20.vii.2002, 1 ♂, I. Malenovský leg. Lopeník (7072), Lopenické sedlo Saddle, 700 m, 3.ix.2005, 1 ♂, P. Kment leg. Kněždub (7170), NNR Čertoryje, "U pomníčku", 370 m, 27.vi.2002, 1 ♂, I. Malenovský leg. Malá Vrbka (7170), Výzkum Hill, 420 m, on *Festuca pratensis*, 2.v.2001, 1♂; 28.vii.2001, 3 ♂♂; and 27.vi.2002, 20 ♂♂, I. Malenovský leg. Javorník-Petruchovy Mlýny (7171), "Molvy" (protection zone of NNR Jazevčí), 380 m, 8.viii.2001, 1 ♂, P. Kment leg.; 17.vii.2002, 1 ♂; 7.ix.2002, 4 ♂♂; and 27.vii.2005, 3 ♂♂, I. Malenovský leg. Suchov (7171), Trnovský Mlýn, 440 m, 27.vii.2005, 1 ♂, I. Malenovský leg. Velká nad Veličkou (7171), NNR Zahrady pod Hájem, 310–450 m, 13.vii.1998, 6 ♂♂, I. Malenovský leg. Strání (7172), NM Záhumenice, 470–550 m, 20.vii.2002, 2 ♂♂, I. Malenovský leg. Sedlec (distr. Břeclav, 7266), salt marshes at Nesyt Pond [= NNR Slanisko u Nesytu], 25.iv.1962, 1 ♂ brach.; 21.viii.1986, 3 ♂♂ brach.; and 27.vii.1994, 1 ♂ brach., 1 ♀ macr., P. Lauterer leg. Břeclav (7267), Pohansko, Paradewiese (= Přední Pohansko), 156 m, 1.v.2006, 1 ♂ brach., . Malenovský leg. All material I. Malenovský det., MMBC.

Remarks. According to Bieman (1987a,b), Holzinger *et al.* (2003) and Nickel (2003), monophagous on *Festuca arundinacea* and occurring in sunny, periodically moist to wet eutrophic grassland sites. Some Czech specimens were collected on *Festuca pratensis* but a true host-plant association with this grass species has yet to be ascertained. In the Czech Republic, usually occurring in somewhat dry to mesophilous sunny sites, especially disturbed dry grassland, pastures, saline sites, and drier places in alluvial meadows. However, it also colonizes anthropogenically influenced habitats in which grass has been sown, e.g. coal dumps, motorway embankments and agricultural fields. To date, it has been recorded in south-eastern Moravia, the environs of Brno and the mining

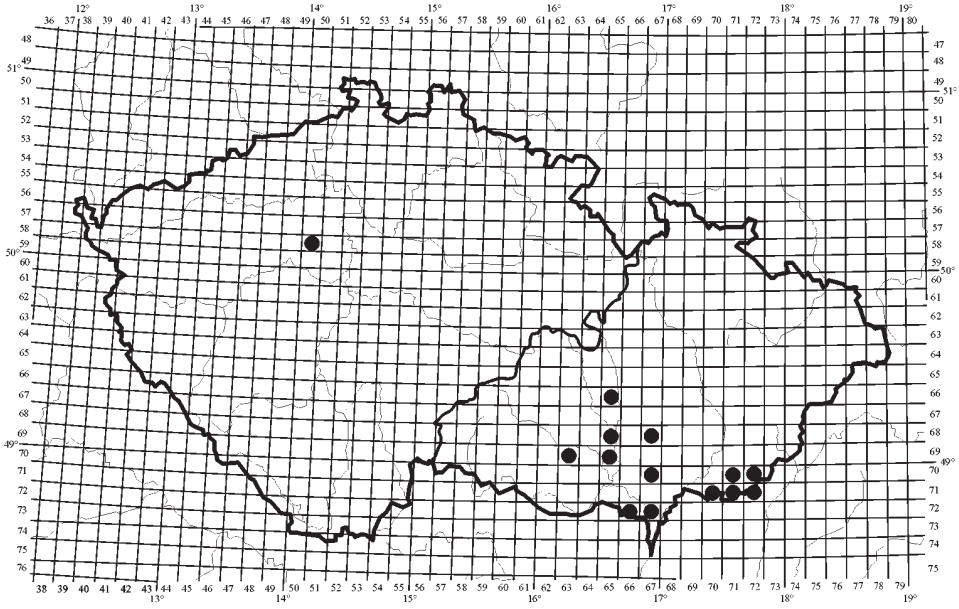

Fig. 24. Distribution of *Ribautodelphax imitans* (Ribaut, 1953) in the Czech Republic.

region near Kladno in central Bohemia (Fig. 24), mostly in lowlands and hillocked (colline) areas but reaching up to 700 m in the White Carpathians. Elsewhere known only from England, France, Italy, Austria, Germany, Slovakia, Croatia, and Greece (DLABOLA 1977, BIEMAN 1987b, HOCH 2010). New species for the Czech Republic.

***Ribautodelphax pallens* (Stål, 1854)** (Fig. 54)

Material examined. Bohemia: Čelákovice (5854), *c* 180 m, 5.v.1925, 1 ♂ brach., without collector, J. Dlabola det., C.F.M. den Bieman rev. (NMPC). **Moravia:** Moravský Krumlov (6963), Sv. Florián [= NNR Krumlovsko-Rokytenské slepence], dry grassland on conglomerate rocks, 280–311 m, 3.vi.1965, 1 ♂ brach., P. Lauterer leg., I. Malenovský det. (MMBC). Vémyslice (6963), 3.5 km W, Tanárka Hill and valley of the River Rokytná , 260–320 m, 27.v.1981, 2 ♂♂ brach., P. Lauterer leg., I. Malenovský det. (MMBC).

Remarks. Monophagous on *Festuca ovina*, to date confirmed only from northern Europe (Estonia, Latvia, Norway, Sweden, and northern Russia), the Alps and the Pyrenees (Austria, Italy, Switzerland, and France) where it has been collected in the subalpine zone between 1450 and 2250 m (BIEMAN 1987a, HOLZINGER *et al.* 2003). There is also a single record from Germany (Thuringia) from a lowland site, considered dubious by NICKEL

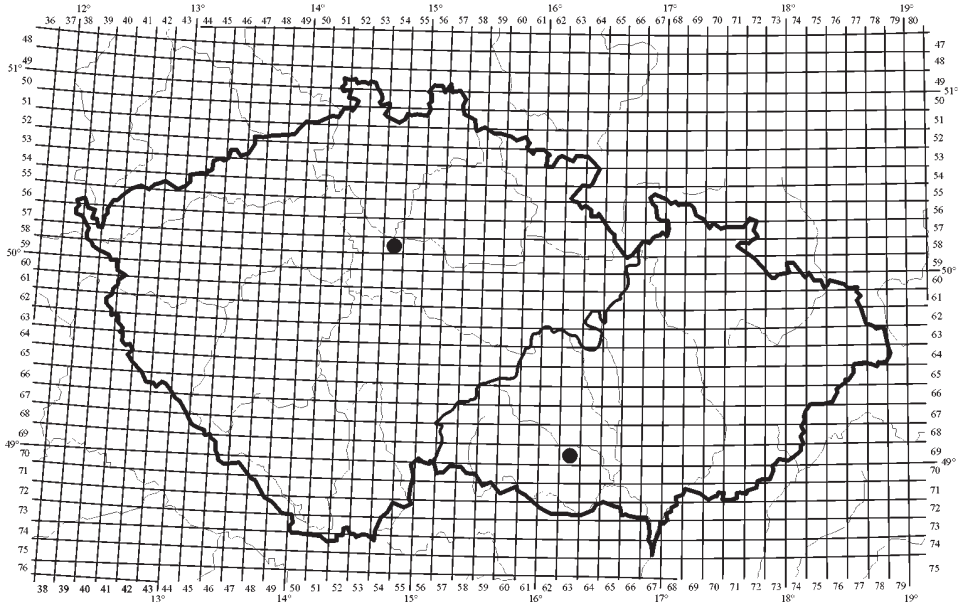

Fig. 25. Distribution of *Ribautodelphax pallens* (Stål, 1854) in the Czech Republic.

(2003). We examined a total of four male specimens collected at low elevations at three Czech sites in central Bohemia and south-western Moravia (Fig. 25). There are no explicit data on the habitat of the specimen from Čelákovice (which is situated in the alluvium of the River Labe [Elbe] on fluvial and aeolian sediments – sands and loess) while both Moravian records come from dry grasslands on steep conglomerate rocks in a river valley, rich in relict species of xerothermophilous plants and insects (Bryja & Pařil 2002). This material suggests that *R. pallens* is in fact present in central European lowlands as well, although it is apparently extremely rare in them. *R. pallens* was cited a few times on the territory of what is now the Czech Republic in earlier literature (e.g. Lang 1945b, 1947, Dlabola 1954a); however, these data correspond to other *Ribautodelphax* spp., mostly *R. pungens* (Ribaut, 1953) (see Dlabola 1956a). Dlabola (1977) therefore did not include *R. pallens* in the checklist of the Czechoslovak Auchenorrhyncha. Our records are the first reliable information on its occurrence in the Czech Republic.

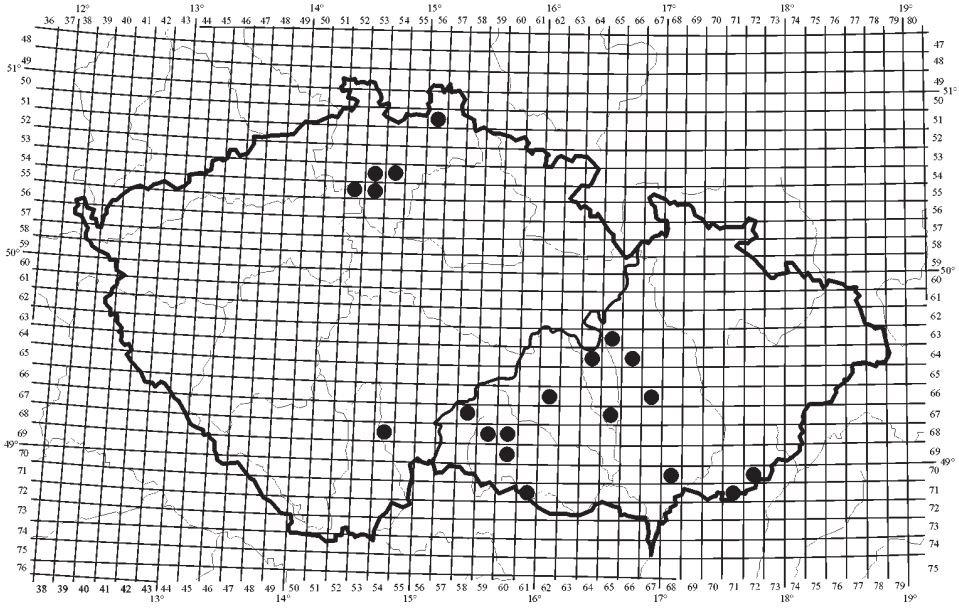

Fig. 26. Distribution of *Stenocranus fuscovittatus* (Stål, 1858) in the Czech Republic.

Stenocranus fuscovittatus (Stål, 1858) (Fig. 57)

Published data. Malenovský (2006): Dubá/Nedamov-NR Mokřady horní Liběchovky (5453), Tupadly-NR Mokřady dolní Liběchovky (5552), Janova Ves/Kokořín-NR Kokořínský důl (5553), Tubož-NM Prameny Pšovky (5553).

Material examined. Bohemia: Bedřichov (5156), 2.8 km NE, NR Nová louka, 765 m, 4.vi.2004, 1 ♂, P. Lauterer leg. et det. Raspenava (5156), 2.7 km SW, Šolcův rybník Pond, 370–380 m, 12.x.2001, 9 ♂♂, J. Preisler leg et det. (JPLC). Doksy-Břehyně (5454), 9.vi.1964, J. Dlabola leg. et det., I. Malenovský rev. (NMPC). Veselí nad Lužnicí (6854), 10.ix.1972, 7 ♂♂, 8 ♀♀, J. Dlabola leg., I. Malenovský det. (NMPC). **Moravia:** Dlouhá Loučka (6365), 1.3 km SW, reed in fields, 17.v.2009, on *Carex paniculata*, 2 ♂♂, 8 ♀♀, I. Malenovský leg. Prosetín-Čtyři Dvory (6464), around bridge and lower pond, 510 m, 9.ix.1978, 1 ♂, P. Lauterer leg. Benešov-Pavlov (distr. Blansko, 6466), NR Pavlovské mokřady, environs of pond, 643–660 m, 12.x.1978, 5 ♂♂, 2 ♀♀, P. Lauterer leg. et det. Ořechov-Ronov (distr. Žďár nad Sázavou, 6662), meadow by Tvrzský rybník Pond, 4.iv.1999, 1 ♂, 1 ♀, P. Kment leg. Vyškov-Rychtářov (6667), valley of Malá Haná Brook, 350–380 m, 24.v.1979, 9 ♀♀, P. Lauterer leg. Doupě (6758), NR Bažantka, 595 m, 19.vi.1978, 1 ♀, P. Lauterer leg. Doupě (6758), peat bog by the road to Třeštice and W edge of Třeštický rybník Pond, 585 m, 19.vi.1978, 1 ♀, P. Lauterer leg. Horní Dubénky (6758), 1 km NE, along brook near gamekeeper's lodge, 680–690 m, 13.ix.1978, 1 ♂, 1 ♀, P. Lauterer leg. Řídelov (6758), NW edge of Pilný rybník pond, 635 m, 19.vi.1978, 1 ♀, P. Lauterer leg. Brno-Útěchov to Brno-Soběšice (6765), 320 m, 19.v.1974, 3 ♂♂, 5 ♀♀, P. Lauterer leg. Brno-

Ořešín (6765), 1.5 km N, valley of Babídolský potok Brook, 350 m, 25.iii.1999, 2 ♀♀, I. Malenovský leg. Brno-Jehnice (6765), 1 km W, valley of Ponávka Brook, 274 m, 20.iii.1999, 1 ♂, 1 ♀, I. Malenovský leg. Brno-Jehnice (6765), 1 km W, valley of Ponávka Brook between Prostřední rybník Pond and the U nádraží Pond, 274 m and Lelekovice (6765), 1 km S, valley of Ponávka Brook, 289 m, both 28.iii.2009, on *Carex acutiformis*, 18 ♂♂, 12 ♀♀, I. Malenovský leg. Stará Říše (6859), pond 2 km N, 615–620 m, 11.ix.1985, 1 ♂, P. Lauterer leg. et det. Lesonice (6860), 1 km SW, Štěpánský rybník Pond, 500–510 m, 29.vi.1981, P. Lauterer leg. Domamil (6960), ponds NW of village, 500–510 m, 29.vi.1981, 2 ♀♀, P. Lauterer leg. Hodonín (7068), Dúbrava forest, 200–215 m, 20.iv.1960, 4 ♀♀, J. L. Stehlík leg. Lopeník (7072), Lopenické sedlo Saddle, 700 m, 8.v.2004, on *Carex paniculata*, 1 ♂, 1 ♀, I. Malenovský leg. Vranov nad Dyjí (7161), 2.4 km SE, Pod Slujemi, 330 m, 5.vi.2006, 1 ♂, 5 ♀♀, W. Kubis leg. et det., I. Malenovský rev. (NPZC). Javorník (7171), NR Machová, 400–500 m, 14.v.1998, 1 ♀, and 8.v.2000, 1 ♂, 3 ♀♀, I. Malenovský leg. All material from Moravia I. Malenovský det., MMBC, unless otherwise indicated.

Remarks. In moderately wet to temporarily flooded oligotrophic to moderately eutrophic sites, mainly fens, spring mires, peaty meadows, on various species of tall sedges (*Carex elata, C. paniculata, C. panicea, C. acutiformis, C. acuta* and others) (Nickel 2003). Old records from the Czech Republic (e.g. Dlabola 1954a) probably referred to the related *S. major* (Kirschbaum, 1868) (see Lauterer 1957). For this reason, Dlabola (1977) cited *S. fuscovittatus* from Bohemia and Moravia with a question mark. Based on revised material from museum collections, *S. fuscovittatus* may be described as fairly widespread in the Czech Republic and locally common, at least in northern and southern Bohemia (Kokořínsko, Dokesko, Jizerské hory Mts., Třeboňsko) and south-western, central and south-eastern Moravia (Českomoravská vrchovina, Podyjí, Drahanská vrchovina, Hodonín environs, and the White Carpathians), and occurs from stream valleys in lowlands up to 800 m in submontane areas (Fig. 26).

Tettigometridae

Tettigometra (*Tettigometra*) *fusca* Fieber, 1865

Published data. Lauterer (1957): Brno-Kníničky (6765). Lauterer (1958): Rájec-Jestřebí (6565). Lauterer (1996, as *T. atrata* Fieber, 1872): Čebín, Heroltice, Železné (all 6664), Dolní Kounice (6964), Kurdějov-Kamenný vrch (7066).

Material examined. Bohemia: Český Krumlov-Vyšný/Nové Dobrkovice (7151), NNR Vyšenské kopce, 530 m, viii.1999, 1 ♀, I. Malenovský leg. **Moravia:** Dlouhá Loučka (6265), NR Dlouholoučské stráně, 450 m, 17.v.2009, 2 ♀♀, I. Malenovský leg. Javorník (distr. Hodonín, 7171), near railway station, NM Nad Vápenkou, 350 m, 7.ix.2002,, 3 ♂♂, 8 ♀♀, I. Malenovský leg. Suchov (7171), Trnovský Mlýn, sheep pasture, 450 m, 8.v.2004, 1 ♀, and 1.ix.2005, 1 ♂, I. Malenovský leg. All material I. Malenovský det., MMBC.

Remarks. A myrmecophilous species (found several times in the nests of *Formica pratensis*) occurring in spatially diverse dry grassland with open stands of trees and shrubs, usually on basic substrates on xerothermic plateaus or upper slopes in central and south-eastern Europe; in central Europe very local and declining (Nickel 2003, Holzinger *et al.* 2003). In the Czech Republic, scattered in south and western central Moravia, often on former pastures, and also reported here for the first time from a limestone xerothermic complex, the Vyšenské kopce near Český Krumov in south Bohemia (Fig. 27).

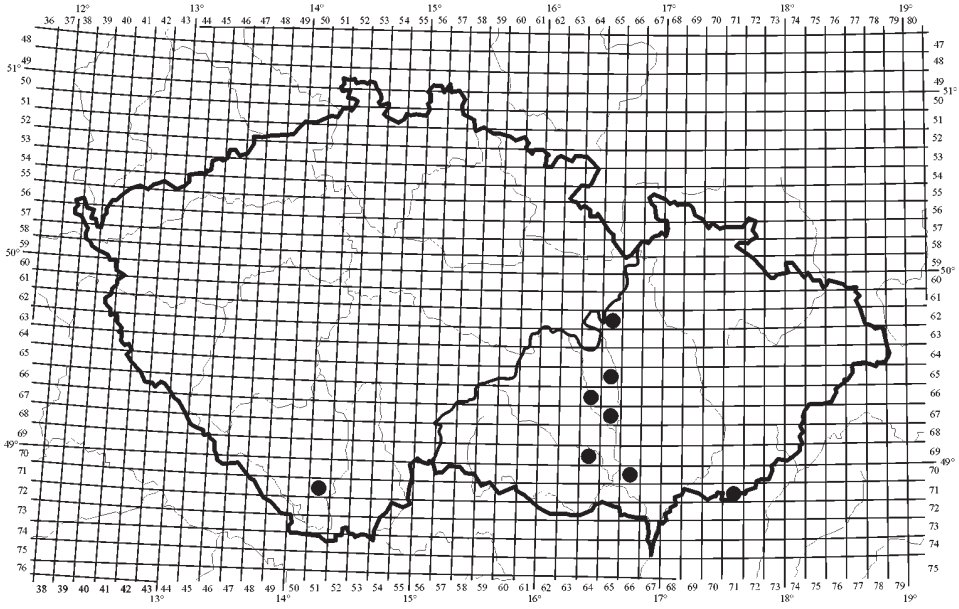

Fig. 27. Distribution of *Tettigometra* (*Tettigometra*) *fusca* Fieber, 1865 in the Czech Republic.

Tettigometra (*Mitricephalus*) *macrocephala* Fieber, 1865 (Figs 58, 59)

Published data. LANG (1944): Brno-Hády (6766).

Material examined. Bohemia: Český Krumlov-Vyšný/Nové Dobrkovice (7151), NNR Vyšenské kopce, 530 m, 2.viii.1998, 1 ♀, I. Malenovský leg. et det. **Moravia:** Malhostovice (6664), Drásovské kopečky Hills, 330 m, 12.v.1964, 1 ♀, and 7.viii.1964, 1 ♂, P. Lauterer leg. Lelekovice (6765), 330–380 m, 28.vi.1984, 1 ♂, 4 ♀♀, and 3.ix.1984, 1 ♂, 1 ♀, 4 larvae, J.L. Stehlík leg. Brno-Maloměřice (6766), Hády Hill, 14.iv.1943, 2 ex., J. Šnoflák leg., J. Dlabola det. (MMBC, MNHN). Havraníky (7161), 1 km SW, Staré vinice Hill and on the way to the River Dyje, 250–330 m, 12.ix.1979, 2 ♂♂, 2 ♀♀, P. Lauterer leg. Havraníky (7162), 1 km S, Skalky Hill (=NM Skalky), 280–308 m, 1 ♀, P. Lauterer leg. Havraníky (7162), 2.3 km E, Pustý vrch Hill (= NM Pustý kopec u Konic), 21.viii.1963, 1 ♂, 3 ♀♀, L. Pospíšilová leg., and 3 ♀♀, P. Lauterer leg. Horní Věstonice (7165), Kotelná Hill (= NNR Děvín), 320–380 m, 19.v.1983, 1 ♀, P. Lauterer leg. Perná (7165), towards Horní Věstonice, 330–400 m, 1 ♂, 1 ♀, P. Lauterer leg. Klentnice (7165), Růžový hrádek, 27.v.1963, 1 ♂, L. Pospíšilová leg. Přítluky (7166), Přítlucká hora Hill, 180–220 m, 22.vi.1988, 1 ♀, B. Matýšková leg. All material P. Lauterer det., MMBC, unless otherwise indicated.

Remarks. Along xerothermic and spatially diverse woodland margins on basic as well as acidic sites, mostly in vine-growing regions; distributed in southern parts of central and eastern Europe, Mediterranean region, eastward to Kazakhstan and Afghanistan (HOLZINGER *et al.* 2003, NICKEL 2003). In the Czech Republic rare, recorded to date from a few xerothermic sites with dry grassland in southern Moravia (Brno environs, Podyjí

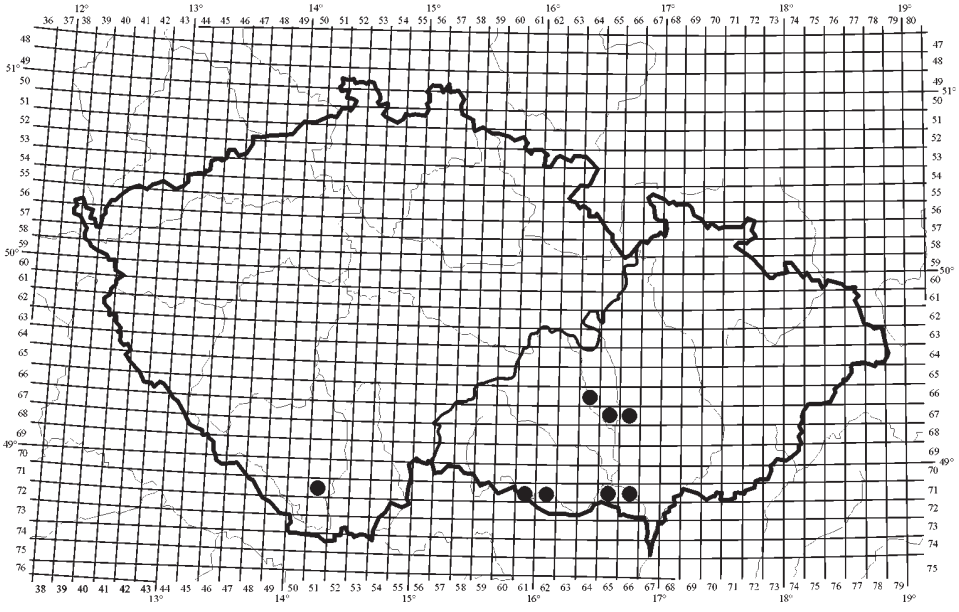

Fig. 28. Distribution of *Tettigometra* (*Mitricephalus*) *macrocephala* Fieber, 1865 in the Czech Republic.

National Park and Pavlovské kopce Hills) and a single limestone locality in southern Bohemia (Fig. 28). New species for Bohemia.

CICADOMORPHA

Cicadellidae: Typhlocybinae

Edwardsiana alnicola (Edwards, 1924)

Published data. Lauterer (1984, 1995b): Slavětín-Savín (6367), Rozseč nad Kunštátem (6464), Brno-Říčka valley (6766), Zlín-Kostelec (6772), Brno-city (6865).

Material examined. Bohemia: Raspenava (5156), 2.7 km SW, Šolcův rybník Pond, 370–380 m, 12.vii.2001, 2 ♂♂, P. Lauterer & J. Preisler leg., P. Lauterer det. (MMBC).

Remarks. On *Alnus incana* and *A. glutinosa* by streams and ponds, generally uncommon and local in central Europe (Lauterer 1984, Nickel 2003). Distributed in Great Britain, central and northern Europe, and Romania (Hoch 2010). In the Czech Republic, known to date from several localities in central and western Moravia, also recorded for the first time from Bohemia (Jizerské hory Mts., Fig. 29).

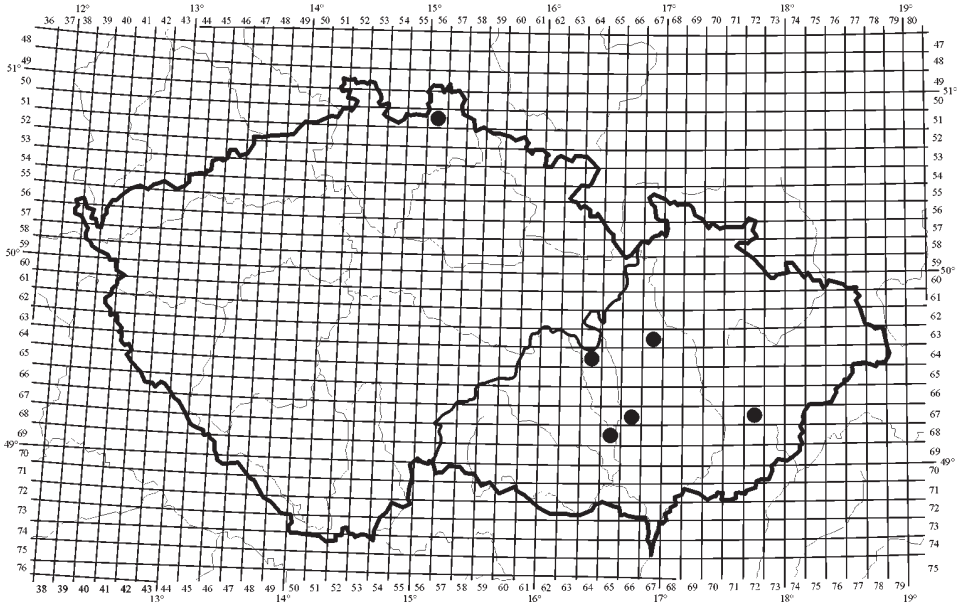

Fig. 29. Distribution of *Edwardsiana alnicola* (Edwards, 1924) in the Czech Republic.

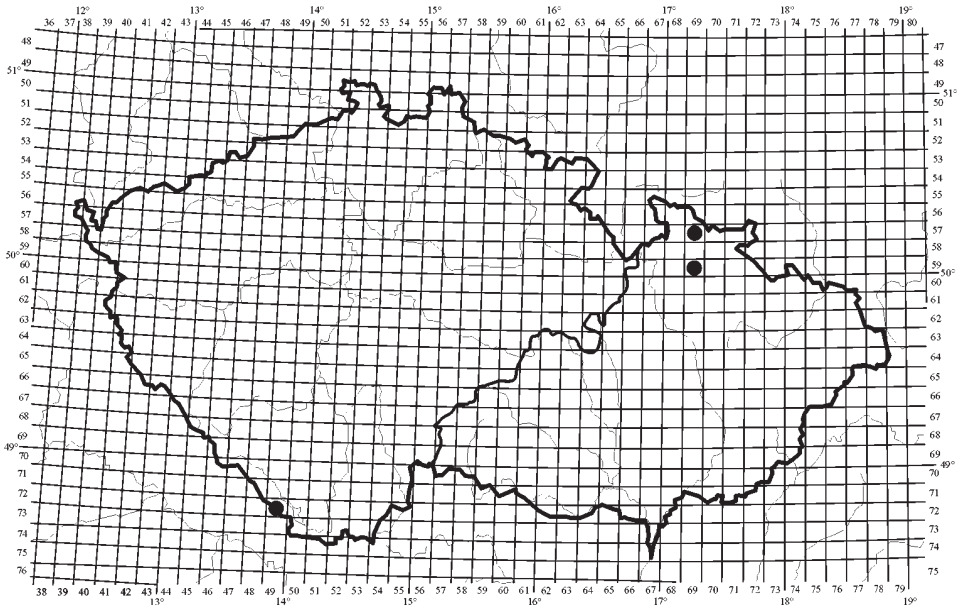

Fig. 30. Distribution of *Edwardsiana rosaesugans* (Cerutti, 1939) in the Czech Republic.

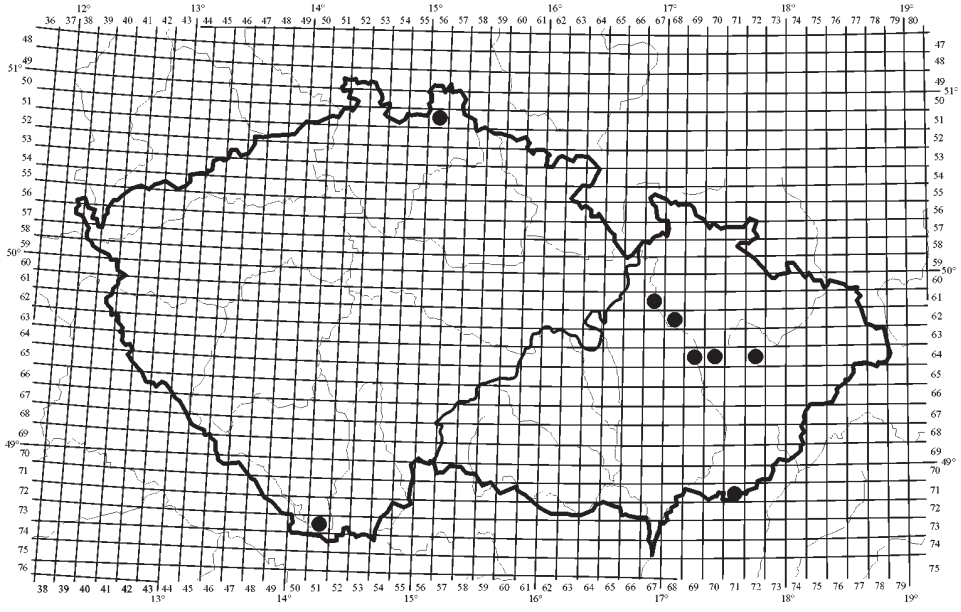

Fig. 31. Distribution of *Edwardsiana soror* (Linnavuori, 1950) in the Czech Republic.

Edwardsiana rosaesugans (Cerutti, 1939)

Published data. Lauterer (1983): Jeseníky-Velký Kotel (5969). Lauterer (1986): Zlaté Hory-Rejvíz (5769).

Material examined. Bohemia: Nová Pec (7249), 2 km W, valley of Jezerní potok Brook, 750 m, on *Rosa pendulina*, 28.viii.2000, 3 ♂♂, 3 ♀♀, I. Malenovský leg. et det. (MMBC).

Remarks. Perhaps monophagous on *Rosa pendulina* (Nickel 2003 also reports a few specimens collected on *R. canina* group) and confined to open forests, shrubs and pastures from the montane to subalpine belt (Lauterer 1983, Nickel 2003). Largely restricted to the Alps and some other central European mountains, known to date only from Great Britain (Wales), France, Germany, Italy, Switzerland, Czech Republic, and Greece (Claridge & Wilson 1978, Hoch 2010). In the Czech Republic, previously known only from the Jeseníky Mts.; we have recently collected it in the Šumava Mts. (Fig. 30). New record for Bohemia.

Edwardsiana soror (Linnavuori, 1950)

Published data. Lauterer (1980): Zábřeh (6167), Přovice (6268), Olomouc-Holice (6469), Charváty-Čertoryje (6469), Velká Bystřice (6470), Teplice nad Bečvou (6472).

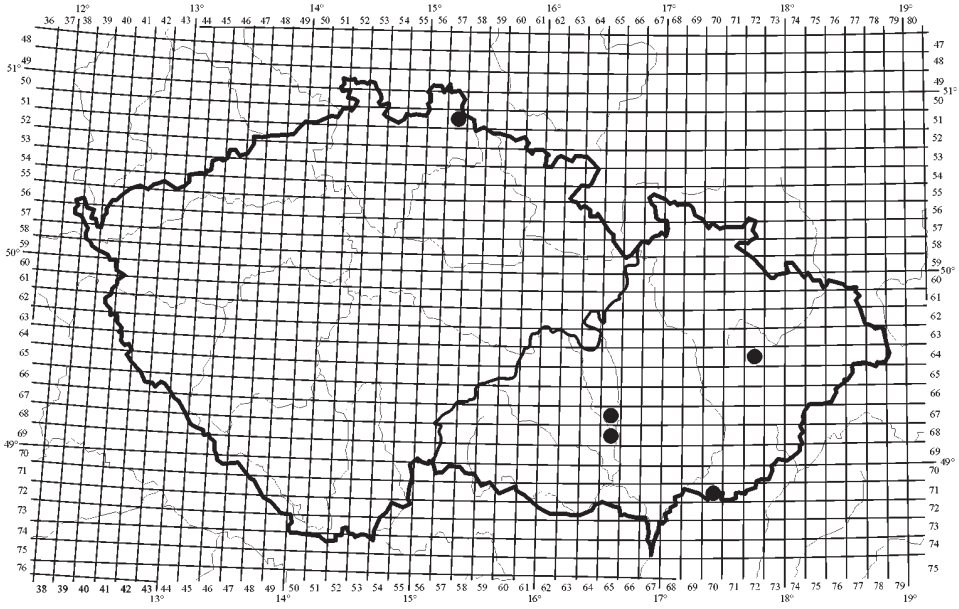

Fig. 32. Distribution of *Edwardsiana stehliki* Lauterer, 1958 in the Czech Republic.

Material examined. Bohemia: Raspenava (5156), 2.7 km SW, Šolcův rybník Pond, 370–380 m, 1.–14.viii.2002, Malaise trap, 1 ♂, Syroha leg., P. Lauterer det. Vyšší Brod (7351), 2 km NW, valley of the River Vltava, Lipno II reservoir shore, 590 m, 24.viii.2000, 1 ♂, I. Malenovský leg. et det. **Moravia:** Nová Lhota-Vápenky (7171), valley of the Velička River towards Hubertova bouda Hut, 420–550 m, 12.vii.1998, 1 ♂, I. Malenovský leg. et det. All material in MMBC.

Remarks. Probably monophagous on *Alnus incana*, usually occurring beside streams in valleys and in alluvial forests. In the Czech Republic, fairly rare and known to date only from a few sites in central and eastern Moravia, and northern and southern Bohemia (the Hornomoravský úval Basin, the White Carpathians, the Jizerské hory Mts., and the Šumava Mts.; Fig. 31). First records for Bohemia.

Edwardsiana stehliki Lauterer, 1958

Published data. Lauterer (1958, 1995): Hranice (distr. Přerov, 6472), Teplice nad Bečvou-Zbrašov (6472), Brno (6765, 6865). Malenovský (2001): Kněždub-NNR Čertoryje (7170). Malenovský & Lauterer (2005b): Brno-Slatina (6865).

Material examined. Bohemia: Bílý Potok (5157), "Nad koupalištěm", 420 m, 12.vii.2001, 1 ♂, P. Lauterer leg. et det. (MMBC).

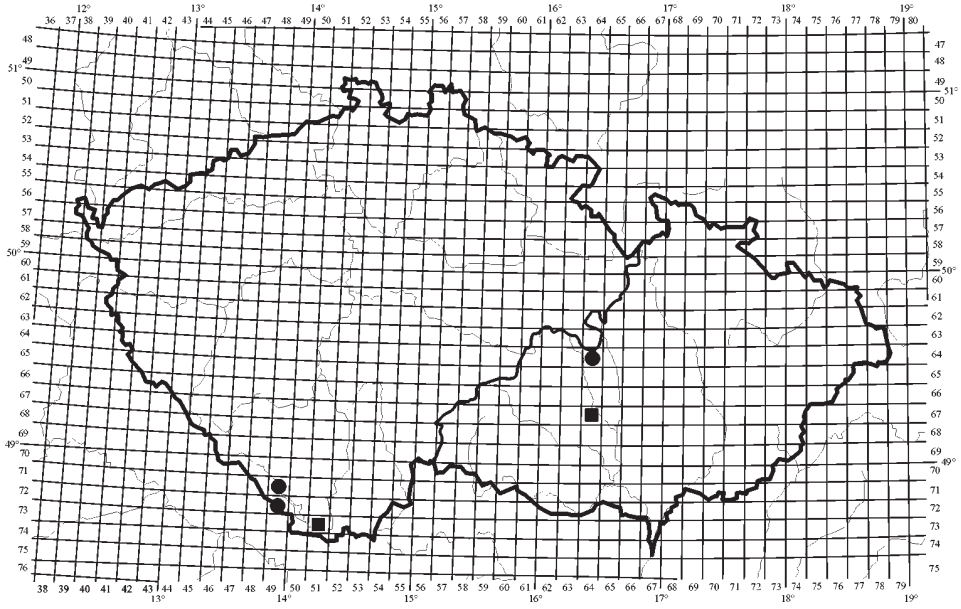

Fig. 33. Distribution of *Empoasca apicalis* (Flor, 1861) (circles) and *E. ossiannilssoni* Nuorteva, 1948 (squares) in the Czech Republic.

Remarks. Narrowly oligophagous on *Corylus* spp. (*C. avellana* and *C. maxima*), locally occurring on its host plants in xerothermic to mesophilous habitats in the Czech Republic, Slovakia, Austria, Germany, Switzerland, Poland, and Sweden (Lauterer 1984, Hoch 2010). In the Czech Republic, e.g. at forest margins, in pastures and meadows with scattered shrubs, and in city parks and gardens, to date collected in southern and central Moravia and northern Bohemia (Fig. 32). First record for Bohemia.

Empoasca apicalis (Flor, 1861)

Published data. Lauterer (1980): Prosetín-Čtyři Dvory (6464), Hodonín-Hodonínka River valley (distr. Blansko, 6464).

Material examined. Bohemia: Želnava-Záhvozdí (7149), 1.7 km NW, W and S slopes of Černý les Mt., 800–1000 m, on *Lonicera nigra*, 6.viii.2001, 55 ♂♂, 49 ♀♀, I. Malenovský leg. Nová Pec (7249), 5 km SW, "Rossbach", 850 m, on *Lonicera nigra*, 28.viii.2000, 3 ♂♂, 5 ♀♀, I. Malenovský leg. **Moravia:** Prosetín-Čtyři Dvory (6464), Sklapsko Hill, 550–620 m, 3.viii.1975, 1 ♂, P. Lauterer leg. All material P. Lauterer & I. Malenovský det., MMBC.

Remarks. According to ANUFRIEV & EMELJANOV (1988), widely distributed in western Europe, Ukraine, northern and central European parts of Russia, Siberia, Russian Far East and Korea. In Europe, mainly known from Scandinavia, the Baltic countries and isolated populations in continental Europe (Belgium, Austria, Czech Republic, Germany, and Switzerland; OSSIANNILSSON 1981, NICKEL 2003, HOCH 2010). It has been collected under forest canopy on various *Lonicera* spp. and *Sambucus ebulus*, in Kazakhstan on other shrubs and herbs as well (*Padus, Humulus, Filipendula, Rubus*; ANUFRIEV & EMELJANOV 1988). We have recently recorded a large number of specimens on *Lonicera nigra* in shaded undergrowth of mountain spruce and beech forests at two sites in the Šumava Mts. These are the first records from Bohemia. Upon re-examination of material published by LAUTERER (1980), *E. apicalis* in the Czech Republic is otherwise confirmed only from a small area in the Hornosvratecká vrchovina Highlands in western central Moravia (Fig. 33, see also *E. ossiannilssoni*).

Empoasca ossiannilssoni Nuorteva, 1948 (Fig. 60)

Published data. LAUTERER (1980, as *Empoasca apicalis* (Flor, 1861)): Lažánky (6764).

Material examined. Bohemia: Vyšší Brod (7351), 3 km NW, valley of the River Vltava near the Čertova stěna scree, 600 m, on *Prunus padus*, 24.viii.2000, 1 ♂, 2 ♀♀, I. Malenovský leg. **Moravia:** Lažánky (distr. Brno-venkov, 6764), 1–2 km N, valley of a brooklet towards Heroltice, 280 m, 26.viii.1964, 1 ♂, P. Lauterer leg. All material P. Lauterer & I. Malenovský det., MMBC.

Remarks. A boreomontane species distributed in Finland, Sweden, Latvia, Germany (a single record in the Bavarian foothills of the Alps), Ukraine, and Siberia (ANUFRIEV & EMELJANOV 1988, NICKEL 2003, HOCH 2010). NICKEL (2003) suggests that *E. ossiannilssoni* may be conspecific with *Empoasca dealbata* Cerutti, 1939, known from Switzerland and Austria (CERUTTI 1939). A revision of the type material is, however, necessary, as the Cerutti's description is also strongly reminiscent of *E. apicalis*. Here, *E. ossiannilssoni* is interpreted after OSSIANNILSSON (1981), ANUFRIEV & EMELJANOV (1988), and BIEDERMANN & NIEDRINGHAUS (2005). In Sweden, it was collected on *Prunus padus* and *Picea abies* (OSSIANNILSSON 1981). Our specimens from the Šumava Mts in south Bohemia were also probably swept from *Prunus padus* in the shady undergrowth of a cool spruce forest. Apart from this small series, a single male collected by a forest road in a deep valley near Brno in Moravia, originally determined as *E. apicalis* (see LAUTERER 1980) proved to belong, in fact, to *E. ossiannilssoni* as well (Fig. 33).

Eupteryx decemnotata Rey, 1891 (Fig. 61)

Material examined. Bohemia: Praha-Břevnov (5952), Závěrka Street, garden, 330 m, on *Salvia officinalis*, 7.ix.2008, 1 ♂, 1 ♀, I. Malenovský leg. et det. (MMBC). **Moravia:** Brno-Stránice (6765), Kraví hora Hill, Údolní Street, medical garden of the Masaryk University, 280 m, swept from *Salvia officinalis* or *Nepeta grandiflora*, 22.vi.2010, 1 ♂, I. Malenovský leg. et det. (MMBC).

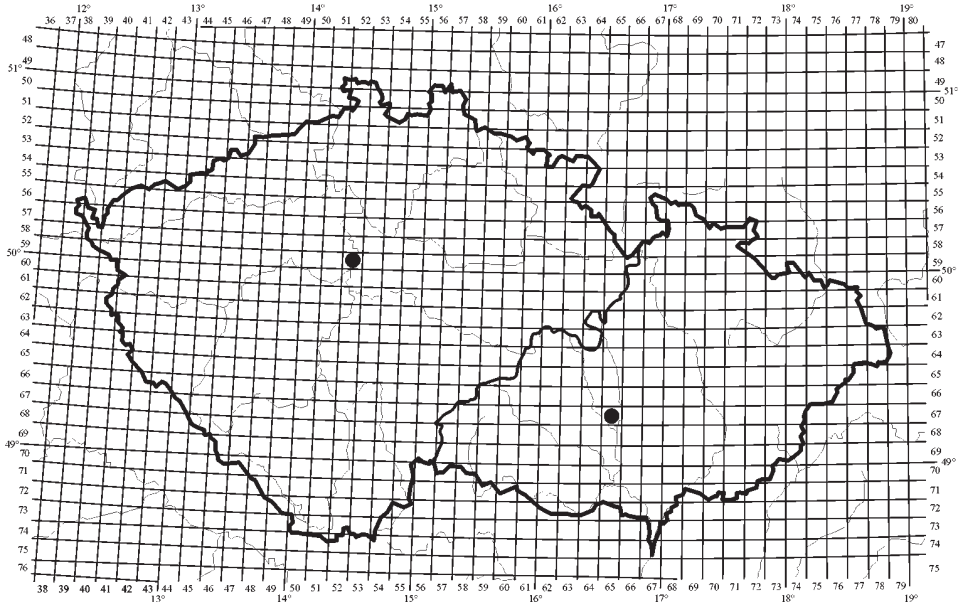

Fig. 34. Distribution of *Eupteryx decemnotata* Rey, 1891 in the Czech Republic.

Remarks. Native to the Mediterranean region (France, Italy, and perhaps also Portugal and Greece) invasive to western and central Europe since mid 1980's (perhaps largely dispersed through infestation of commercially-traded plants), where it is currently known from Switzerland, Austria, Slovenia, and Germany; oligophagous on aromatic Lamiaceae, especially *Salvia officinalis, Nepeta* x *faasenii* and *Rosmarinus officinalis*, sometimes causing damage to cultures of these plants in botanical and medical gardens and ornamental flowerbeds (Nickel & Holzinger 2006). The first records from the Czech Republic come from a small private garden in a courtyard in the centre of Prague and a larger medical garden in the centre of Brno (Fig. 34). The species might already be widespread in the Czech Republic but has remained overlooked to date.

Eurhadina kirschbaumi Wagner, 1937

Published data. Lauterer (1958): Brno-Řečkovice (6765). Lauterer (1995b): Brno-Pisárky (6865).

Material examined. Bohemia: Žatec (5647), Plant Protection Service aerial suction trap, 6.viii.2005, 1 ♂, P. Lauterer leg. et det. (MMBC). **Moravia:** Olomouc-Lazce (6369), banks of the River Morava, *Quercus petraea*, 23.vi.1961, many ♂♂ and ♀♀, P. Lauterer leg. et det. (MMBC).

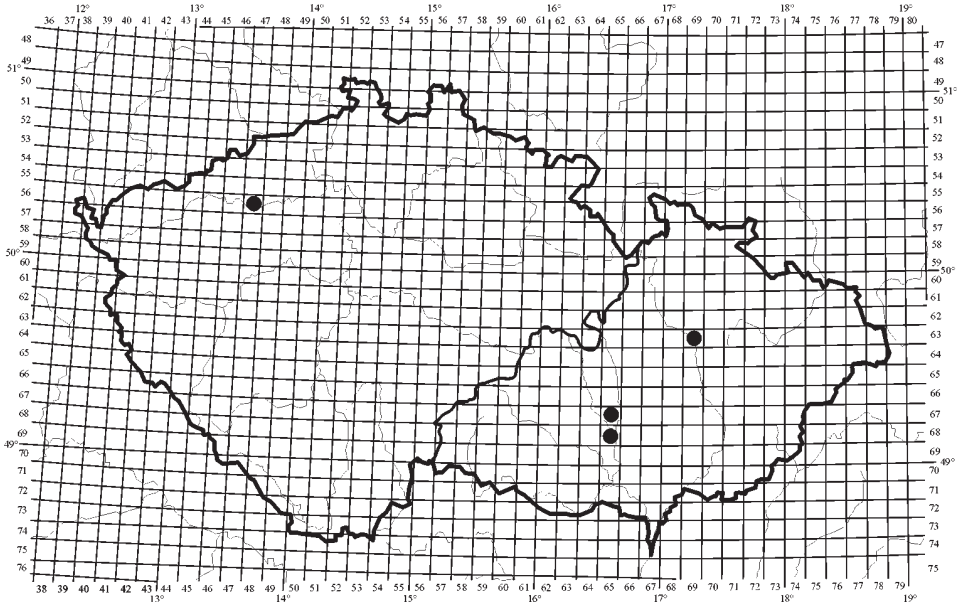

Fig. 35. Distribution of *Eurhadina kirschbaumi* Wagner, 1937 in the Czech Republic.

Remarks. In central Europe, monophagous on *Quercus petraea* (LAUTERER 1958 reports, however, two males collected on *Qu. robur*) and generally only sporadically collected (NICKEL 2003, HOLZINGER 2009b). It may be partly overlooked or difficult to sample by sweep-netting; males can be, however, strongly attracted by light (LAUTERER 1995b). First record from Bohemia (Fig. 35).

Kyboasca maligna (Walsh, 1862)

Material examined. Moravia: Bouzov-Kozov (6267), 28.vi.–13.vii.2006, 310 m, yellow sticky trap in apple orchard, 1 ♂, P. Lauterer leg. et det. (MMBC).

Remarks. Originally a Nearctic species widely distributed in the USA and Canada. Unintentionally introduced to Europe, where it was found for the first time in 1997 in Alsace and in 2000 in the Ardennes, both in north-eastern France (DELLA GIUSTINA & REMANE 2001). Later it was recorded from Belgium and Luxembourg (BAUGNÉE 2003, NICKEL pers. comm.). The Czech record (situated in central Moravia, Fig. 36) is thus quite isolated and appears to be the first from central Europe. To date we have obtained no further data that might disclose the provenance of the specimen or demonstrate the

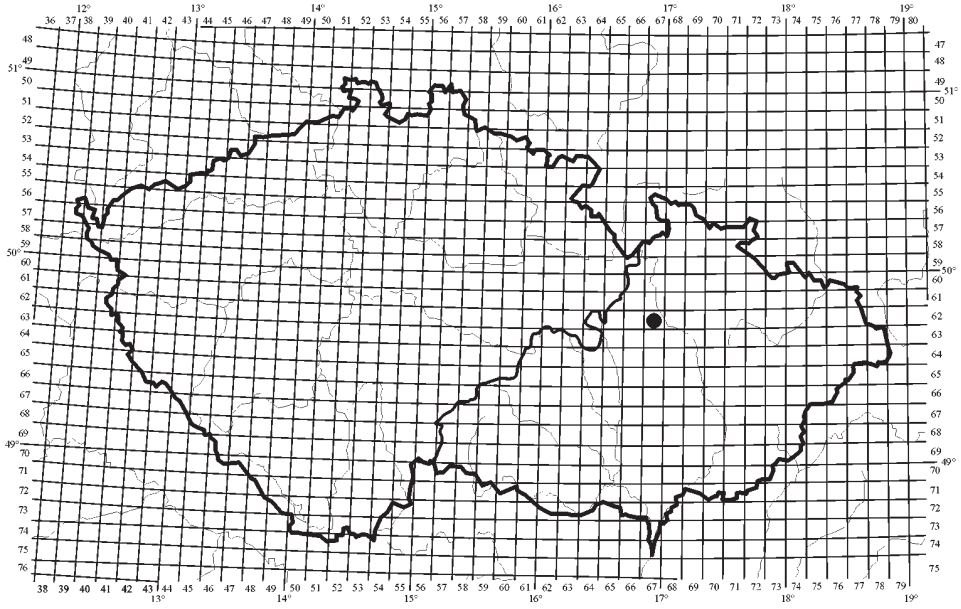

Fig. 36. Distribution of *Kyboasca maligna* (Walsh, 1862) in the Czech Republic.

presence of a reproducing population in the Czech Republic. In North America, adults of *K. maligna* occur from mid-June to late October (a single generation per year) especially on apple (*Malus* spp.), hawthorn (*Crataegus* spp.), and *Prunus/Cerasus* spp. (Hamilton 1985, Nielson pers. comm.). Baugnée (2003) swept the two Belgian specimens from *Rosa canina* and *Carpinus betulus*. In North America, *K. maligna* is sometimes reported as a pest on fruit trees, especially apples. The damage usually appears relatively unimportant, since *K. maligna* tends to occur in relatively low numbers on young trees (Ackerman 1931). However, e.g. Coviello & Freeman (1993) mention serious damage caused by feeding on almond foliage (*Prunus amygdalus*) in California, with results ranging from slight leaf necrosis to near defoliation of the trees. A detailed assessment of economic importance of *K. maligna* for European horticulture is overdue, but no damage has been reported in Europe to date (della Giustina & Remane 2001, Baugnée 2003). For diagnosis, see Beirne (1956).

Kybos abstrusus (Linnavuori, 1949)

Published data. Lauterer (1996): Brno-centre (6865). Malenovský & Lauterer (2005b): Brno-Slatina (6865). Mühlethaler *et al.* (2009): Moravské Budějovice (6960).

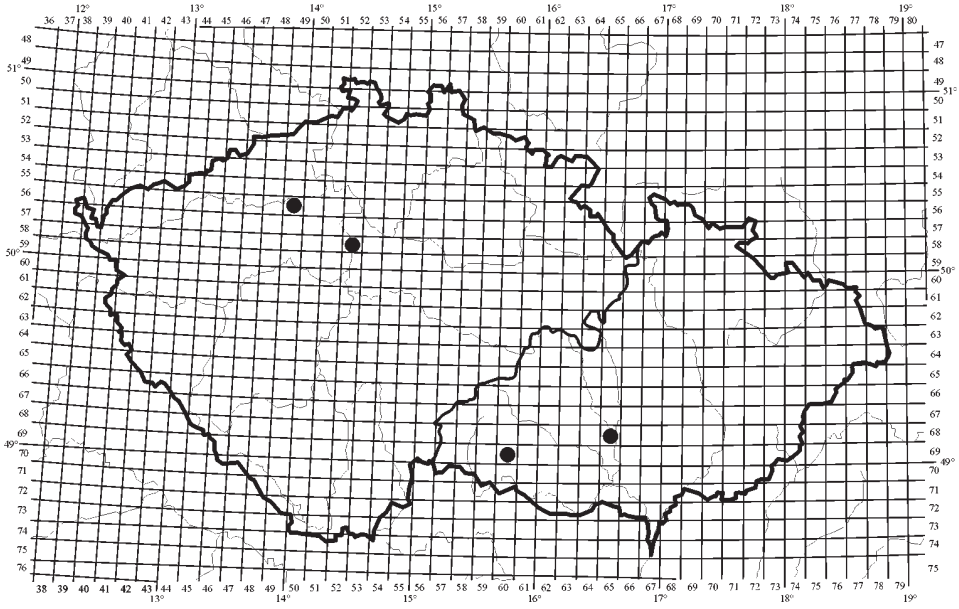

Fig. 37. Distribution of *Kybos abstrusus* (Linnavuori, 1949) in the Czech Republic.

Material examined. Bohemia: Blšany u Loun (5649), 1.5 km W, Blšanský chlum Hill, former military training area, 240 m, on *Populus* x *canadensis*, 1.viii.2009, 2 ♀♀, I. Malenovský leg. et det. (MMBC). Praha-Suchdol (5852), university campus, 280 m, vi.2006, 1 ♂, J. Růžička leg., I. Malenovský det. (JRPC).

Remarks. Monophagous on *Populus nigra* and its hybrids, occurring mostly in river floodplains and urban settlements (LAUTERER 1996, NICKEL 2003). Distributed in central and northern Europe, Bulgaria, former Yugoslavia, Ukraine and the European part of Russia (MÜHLETHALER *et al.* 2009). In the Czech Republic, may be widespread but currently overlooked. First records from Bohemia (Fig. 37).

Kybos calyculus (Cerutti, 1939)

Published data. MALENOVSKÝ & LAUTERER (2005b): Brno-Slatina (6865). MÜHLETHALER *et al.* (2009): Brno-Slatina (6865), Břeclav-Charvátská Nová Ves (7267).

Material examined. Bohemia: Raspenava (5156), 2 km SE, NM Vápenný vrch Hill, 500–800 m, 15.vii.2001, 1 ♂, P. Lauterer & J. Preisler leg., P. Lauterer det. (MMBC). Prameny (5942), 2 km NE, NNM Křížky, 800–815 m, on *Betula pendula*, 31.vii.2007, 1 ♂, I. Malenovský leg. et det. (MMBC). **Moravia:** Telnice (distr. Brno-venkov, 6966), 0.7 km SE, NM Písky, 190 m, on *Betula pendula*, 14.vii.2005, 2 ♂♂, I. Malenovský leg., R. Mühlethaler (Berlin) det. et coll.

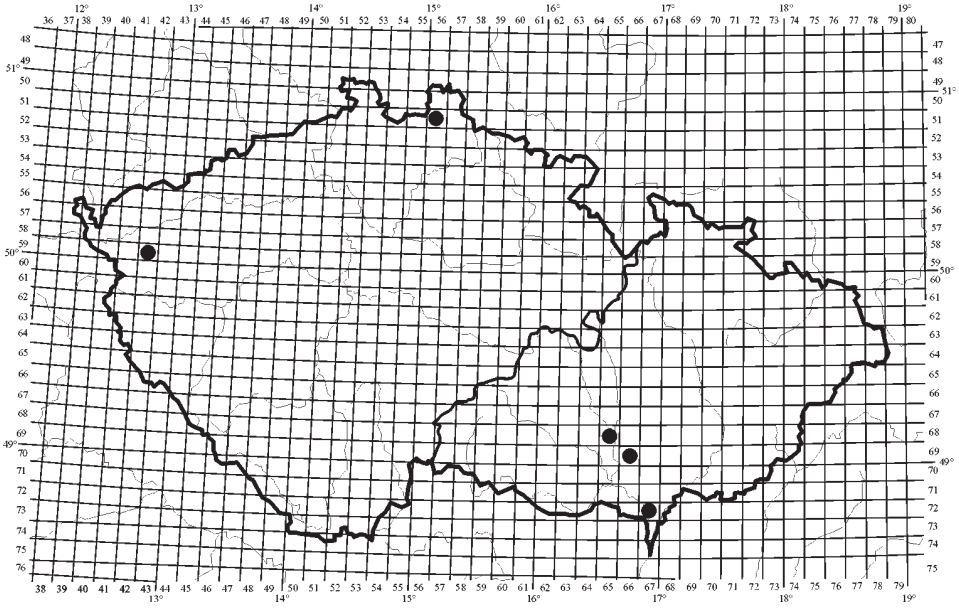

Fig. 38. Distribution of *Kybos calyculus* (Cerutti, 1939) in the Czech Republic.

Remarks. To date, collected but rare in Great Britain, Switzerland, Germany, Poland, and the Czech Republic, mostly on *Betula pubescens* at lower altitudes (Nickel 2003, Mühlethaler *et al.* 2009). In the Czech Republic, however, mostly found on solitary *Betula pendula* trees in lowlands, as well as highlands, up to at least 800 m. Perhaps a widespread but previously overlooked species (Fig. 38).

Zyginella pulchra Löw, 1885 (Fig. 62)

Published data. Malenovský (2006): Litice-NR Vlhošť (5452).

Material examined. Bohemia: Oldřichov v Hájích (5156), slopes of Špičák Mt., 450 m, yellow pan trap, 16. –21.iv.2008, 1 ♂, J. Preisler leg., P. Lauterer det. Bílý Potok (5157), "Nad koupalištěm", 440 m, *Quercus robur*, 5.ix.2002, 1 ♀, P. Lauterer leg. et det. Kořenov-Jizerka (5157), 4 km N, NNR Rašeliniště Jizery, 840 m, Malaise trap, 10. –26.ix.2002, 1 ♂, Syroka & J. Preisler leg., and 3.ix.2002, 1 ♂, 1 ♀, P. Lauterer leg.; all P. Lauterer det. Kořenov-Jizerka (5158), wet meadows in village environs, 850 m, 1 ♀, P. Lauterer leg. et det. Kořenov-Jizerka (5158), NR Bukovec, 900 m, 4.ix.2002, 1 ♂, P. Lauterer leg., and 26.vi. –9.vii.2003, 1 ♂, yellow pan trap, J. Preisler & P. Vonička leg.; all P. Lauterer det. Horní Maxov (5257), NR Malá Strana, 730 m, Malaise trap, 6.–16.v.2003, 1 ♂, and 2. –27.ix.2003, 1 ♂, P. Vonička & J. Preisler leg., P. Lauterer det. Holovousy (5659), castle courtyard, 320 m, 8.x.2009, *Picea* sp., 1 ♀, H. Ludvíková leg., P. Lauterer det. Holovousy (5659), apple orchards, 21. –24.iv.2006, 2 ♂♂, and 2. –16.iv.2007, 3 ♂♂, 2 ♀♀, P. Lauterer leg. et det. Šárovcova

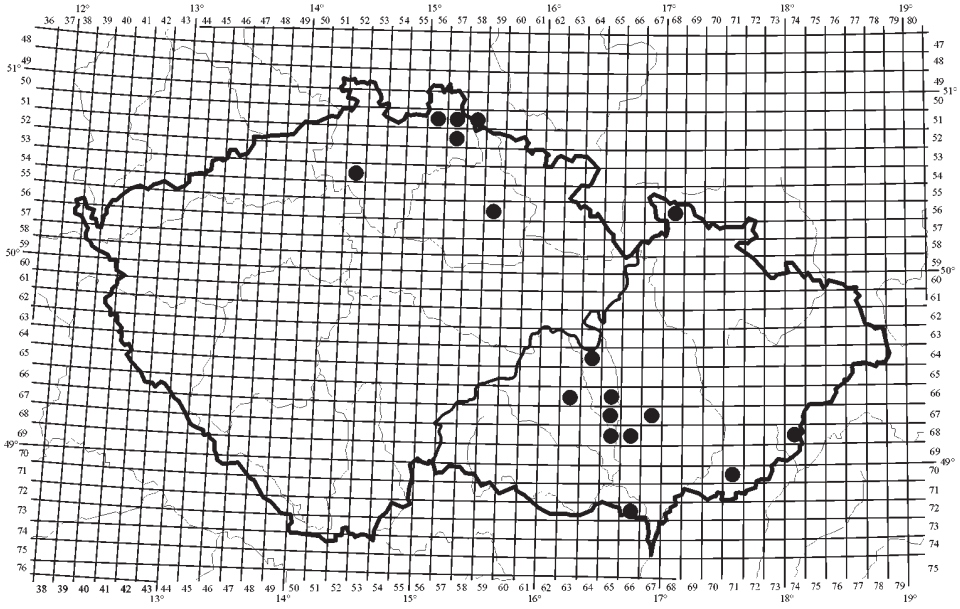

Fig. 39. Distribution of *Zyginella pulchra* Löw, 1885 in the Czech Republic.

Lhota-Libín (5659), spruce forest edge, 350 m, 2.x.2009, 3 ♂♂, 2 ♀, H. Ludvíková leg., P. Lauterer det. Kněževes-Jobova Lhota (6464), NM V Jezdinách, 570 m, on *Acer pseudoplatanus*, 17.v.2007, 3 ♀♀, I. Malenovský leg. et det. **Moravia:** Černá Voda (5668), 0.5–2 km N, "U Dubu", 330 m, *Quercus petraea* and *Qu. robur*, forest margin, 18.ix.2002, 28 ♂♂, 40 ♀♀, P. Lauterer leg. et det. Černá Voda (5668), 1.5 km S, towards Kaltenstein castle, 350 m, *Quercus robur*, 19.ix.2002, 23 ♂♂, 43 ♀♀, P. Lauterer leg. et det. Prosetín-Čtyři Dvory (distr. Žďár nad Sázavou, 6464), S edge of village, "Vosičí", 525–550 m, *Carpinus betulus, Acer platanoides* and *A. pseudoplatanus*, 7.ix.2003, 2 ♂♂, 3 ♀♀, P. Lauterer leg. et det. Prosetín-Brťoví (6464), "Brťovsko", 520 m, *Carpinus betulus* and *Acer platanoides*, 7.ix.2002, 4 ♂♂, 4 ♀♀, P. Lauterer leg. et det. Rozseč nad Kunštátem (6464), 1 km W, field of *Trifolium pratense*, 590–620 m, 26.ix.2000, 2 ♂♂, I. Malenovský leg. et det. Kořenec (6466), 1 km N, "Švancarka", 600 m, *Acer pseudoplatanus* and *A. platanoides*, 28.ix.2002, 6 ♂♂, 8 ♀♀, P. Lauterer leg. et det. Rojetín (6663), 0.7 km E, proposed NM Rojetínský hadec, 440–460 m, 23.viii.2009, forest glade, *Acer pseudoplatanus*, 2 ♀♀, I. Malenovský leg. et det. Adamov (distr, Blansko, 6665), environs of railway station, 260 m, 20.ix.2003, 1 ♀, P. Lauterer leg. et det. Vranov u Brna (distr. Blansko, 6665), towards Útěchov, 480 m, 20.ix.2003, 1 ♀, P. Lauterer leg. et det. Brno-centre (6765), Lužánky Park, 240 m, *Acer platanoides*, 24.vi.2001, 1 ♀, P. Lauterer leg. et det. Brno-Medlánky (6765), Palackého vrch Hill, 315 m, *Acer* spp., 21.ix.2003, 5 ♀♀, P. Lauterer leg. et det. Brno-Medlánky (6765), Medlánecký park Park, 260–270 m, 28.vi.2009, 1 ♀, and 13.ix.2009, 7 ♂♂, 9 ♀♀, I. Malenovský leg. et det. Brno-Mokrá Hora/Řečkovice (6765), trees in the street and valley of Ponávka Brook, 260 m, 21.ix.2003, *Acer pseudoplatanus* and *A. platanoides*, 6 ♂♂, 12 ♀♀, P. Lauterer leg. et det. Brno-Pisárky/Stránice (6765), Wilsonův les Wood, W slope above Žabovřeská Street, 210–300 m, 3.ix.2008, 2 ♂♂, I. Malenovský leg. et det. Olšany (distr. Vyškov, 6767), 2.5 km NW, between "U Tří javorů" crossroads and Kalečník Hill, 520 m, *Picea abies*, 27.i.2008, 1 ♀, V. Čermák leg., P. Lauterer det. Brno-Starý Lískovec (6865), apple orchard, 230 m,

yellow sticky traps, 13.v. –8.vi.2005, 4 ♂♂, 11 ♀♀, V. Čermák leg., P. Lauterer det. Brno-Štýřice (6865), 220 m, *Acer platanoides* and *A. pseudoplatanus*, 19.ix.2003, P. Lauterer leg. et det. Brno-Slatina (6866), park, 260 m, *Acer platanoides* and *A. pseudoplatanus*, 22.ix.2003, 3 ♂♂, 3 ♀♀, P. Lauterer leg. et det. Poteč (6874), NR Ploščiny, 670–739 m, 1.vi.2002, 1 ♂, I. Malenovský leg. et det. Hluk (7071), 3.5 km S, NM Kobylí hlava, 340 m, 24.viii.2002, 1 ♀, I. Malenovský leg. et det. Lednice (7266), "Genetika" apricot orchard, 18.iv.2006, beating, 1 ♀; 20.iii.–3.iv.2006, 1 ♂; 30.iii. –23.iv.2007, 4 ♂♂, 3 ♀♀; 17–28.v.2007, 1 ♀; 11.–25.vi.2007, 1 ♀; all yellow sticky traps, P. Lauterer leg. et det. Lednice (7266), "Mendeleum" apricot orchard, 6.–16.iv.2007, 1 ♂; 16.–23.iv.2007, 1 ♀; all yellow sticky traps, P. Lauterer leg. et det. Voucher specimens deposited in MMBC.

Remarks. An arboricolous species, mostly associated with *Acer pseudoplatanus*, less frequently collected on *A. campestre, A. platanoides, A. monspessulanum*, and sometimes on *Quercus, Alnus,* and *Crataegus*; it overwinters in the adult stage on conifers (*Picea abies*) (Nickel 2003). Originally distributed mainly in the Mediterranean region, south-eastern Europe, and the Near East; although isolated records have also been made from southern parts of central Europe, i.e. Austria, Hungary, and Slovakia; (Dlabola 1954b, Hoch 2010). In central Europe, *Z. pulchra* has been spreading north-east since about 1985 (della Giustina 1989, Remane & Fröhlich 1994, Emmrich in litt., but see also Nickel 2003 for discussion). In 2001, it was also found for the first time in southern England (Bleicher *et al.* 2007). Despite fairly intensive collecting on *Acer* spp. in the Czech Republic in the past (it is improbable that such a conspicuous species would have been overlooked), the first Czech specimens were found only in the year 2000 in western Moravia. Currently it is widespread and common at least throughout Moravia and northern Bohemia (Fig. 39), which suggests rapid range expansion. *Z. pulchra* has usually been collected at forest margins and in forest clearings from lowlands to mountains (up to at least 850 m); it also frequently occurs in fruit orchards and city parks.

Zyginidia mocsaryi (Horváth, 1910) (Fig. 63)

Published data. Lauterer (1984): Pavlovské vrchy-Kotel Hill, Tabulová Hill, Svatý kopeček Hill (all 7165). Lauterer (1986): Kouty nad Desnou (5868).

Material examined. Bohemia: Želnava-Záhvozdí (7149), 1.7 km NW, W and S slopes of Černý les Mt., 800–1000 m, 6.viii.2001, on *Festuca altissima*, 56 ♂♂, 37 ♀♀, I. Malenovský leg. et det. (MMBC).

Remarks. Trophically confined to two unrelated species of grass, *Sesleria albicans* and *Festuca altissima*; on *S. albicans* present in open forests and dry grassland on steep, sun-exposed limestone or gypsum slopes, on *F. altissima* in acidic and cool habitats, usually montane forests (Lauterer 1984, 1986, Nickel 2003). In the Czech Republic, *Z. mocsaryi* was previously found in only two isolated regions in Moravia (Pavlovské vrchy Hills and Jeseníky Mts.). We report it here for the first time from Bohemia (Šumava Mts.), where it was collected in large numbers in the shaded undergrowth of an old montane spruce and beech forest (Fig. 40). In Europe, it is distributed mainly in the Alps and the Carpathians, and has also been found in Estonia, Latvia, Sweden, southern Russia, and Greece (Hoch 2010). Its occurrences in the Czech Republic may be relict from glacial times or postglacial warmer periods.

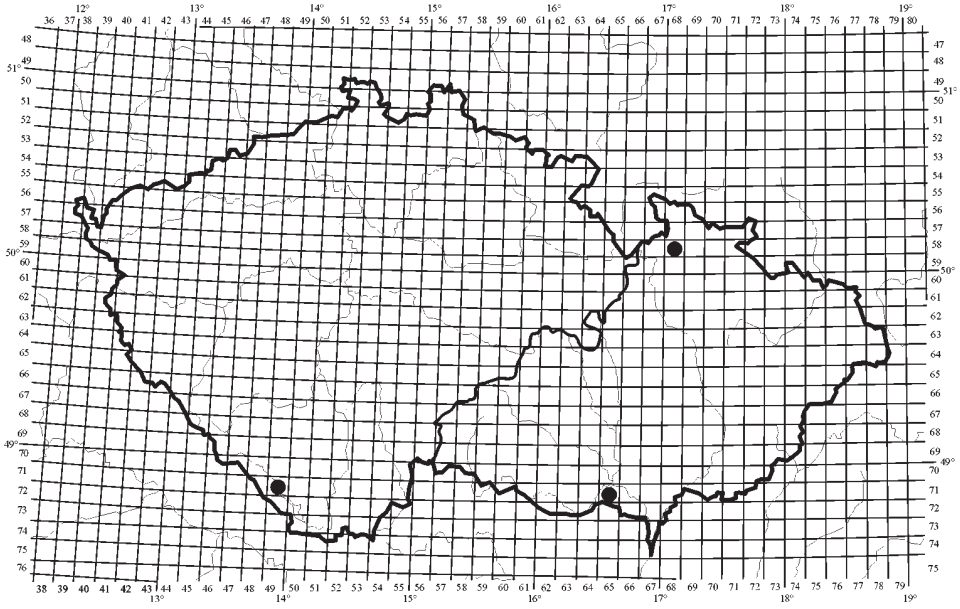

Fig. 40. Distribution of *Zyginidia mocsaryi* (Horváth, 1910) in the Czech Republic.

Cicadellidae: Deltocephalinae

Allygidius (*Dicrallygus*) *mayri* (Kirschbaum, 1868) (Fig. 69)

Material examined. Moravia: Ivančice-Budkovice (6964), 0.6 km SW, Budkovické skály and Na Babách (conglomerate rocks in the valley of the River Rokytná), 275 m, 2.vii.2009, 1 ♂; 29.vii.2009, 1 ♂, 4 ♀♀; and 9.ix.2009, 1 ♀; all P. Baňař & I. Malenovský leg., I. Malenovský det. (MMBC).

Remarks. A xerothermophilous species inhabiting dry grassland with scattered trees and shrubs on rocky slopes (Dlabola 1954a). Widely distributed in southern and Mediterranean Europe from France in the west to Russia in the east, in central Europe known to date only from Austria and Slovakia (Dlabola 1954a, Holzinger 2009b, Hoch 2010). The Czech locality (first for the country) lies at the northernmost limit of its range (Fig. 41). The specimens were swept mostly from *Quercus* spp. and *Ulmus minor* in a mosaic of rocks, dry grassland and open thermophilous forests on steep conglomerate slopes in the upper part of a river valley. Larvae assumed to live on grasses, adults may be polyphagous on broad-leaved trees and shrubs (Holzinger 2009b).

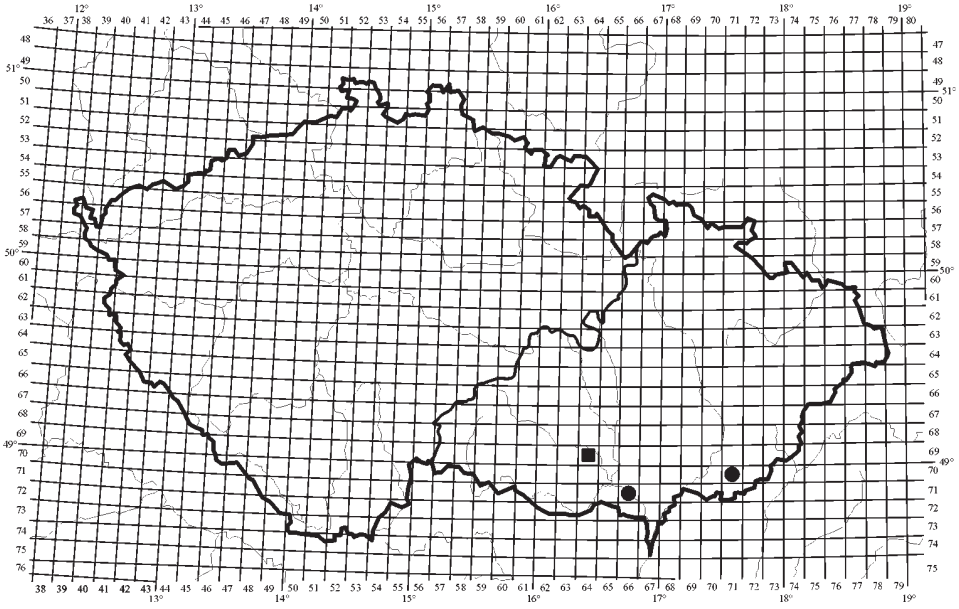

Fig. 41. Distribution of *Allygidius* (*Dicrallygus*) *mayri* (Kirschbaum, 1868) (square) and *Allygus maculatus* Ribaut, 1952 (circles) in the Czech Republic.

Allygus maculatus Ribaut, 1952 (Fig. 68)

Material examined. Moravia: Korytná (7071), 1.5 km S, "Březí", 420 m, 5.vii.2001, 1 ♂, I. Malenovský leg. et det. (MMBC). Sedlec (distr. Břeclav, 7166), 3 km N, Vlčí lesík Wood, 230–300 m, 14.vii.1976, 1 ♂, 3 ♀♀, P. Lauterer leg., I. Malenovský det. (MMBC).

Remarks. In oak forests in basic to acidic, temporarily moist to dry sites at lower altitudes (up to 450 m); larvae develop mainly on grasses while most adults are swept from *Quercus robur* and *Qu. petraea* (Nickel 2003). Widely distributed throughout Europe from the Mediterranean regions to Denmark and southern Sweden in the north but generally fairly rare (Remane & Fröhlich 1994, Nickel 2003, Hoch 2010). First records in the Czech Republic, both in south-eastern Moravia (Fig. 41).

Anoplotettix horvathi Metcalf, 1955

Published data. Dlabola (1963): Praha, Praha-Točná (6052), Koda, near Beroun (6050), Karlštejn (6051). Malenovský (2006): Vysoká u Mělníka-NM Mrzínov (5653).

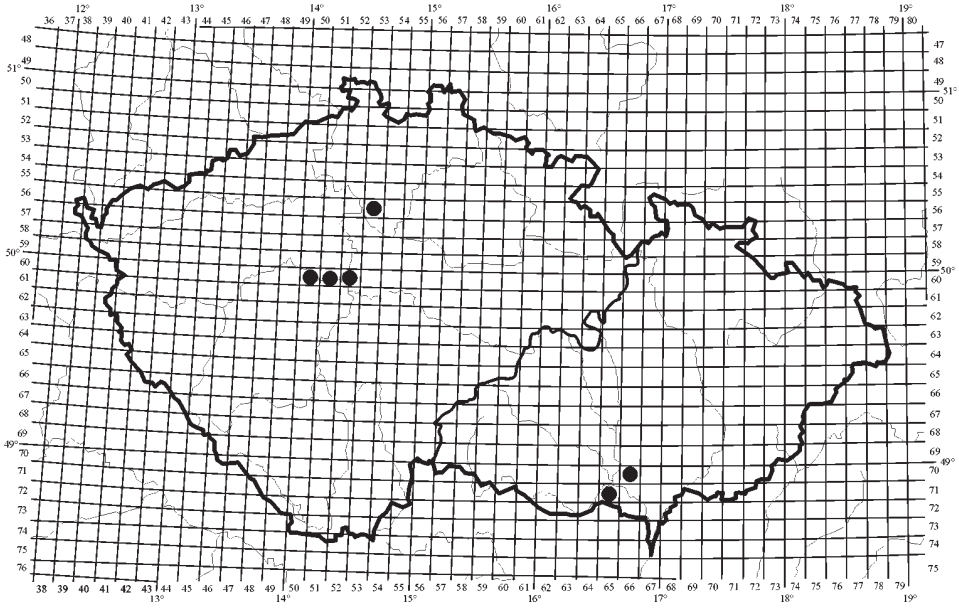

Fig. 42. Distribution of *Anoplotettix horvathi* Metcalf, 1955 in the Czech Republic.

Material examined. Moravia: Popice (distr. Břeclav, 7066), 1.5 km N, proposed NM Hochberk, 220–290 m, 12.vii.2009, 1 ♂, 1 ♀, P. Baňař & I. Malenovský leg., I. Malenovský det. (MMBC). Mikulov (distr. Břeclav, 7165), Svatý kopeček Hill, S slope, upper part of vineyard, 250–360 m, 2.vi.2000, 1 ♂, P. Lauterer leg. et det. (MMBC).

Remarks. Confined to xerothermophilous forest margins and open oak forests; adults usually occur from June to July on *Quercus* spp. (Holzinger 2009b). Distributed in central and south-eastern Europe with north-western edge of range in the Czech Republic (elsewhere known from Austria, Italy, Slovakia, Hungary, Slovenia, former Yugoslavia, Poland, Romania, Republic of Moldova, Ukraine), also reported from Turkestan and North Africa (Dlabola 1974, Hoch 2010) but further detailed attention to the taxonomy of the group is vital to accurate distribution data (Dlabola 1974, Holzinger 2009b). In the Czech Republic, known to date from central Bohemia (Bohemian Karst and Kokořínsko region) and reported here for the first time from southern Moravia as well (Fig. 42).

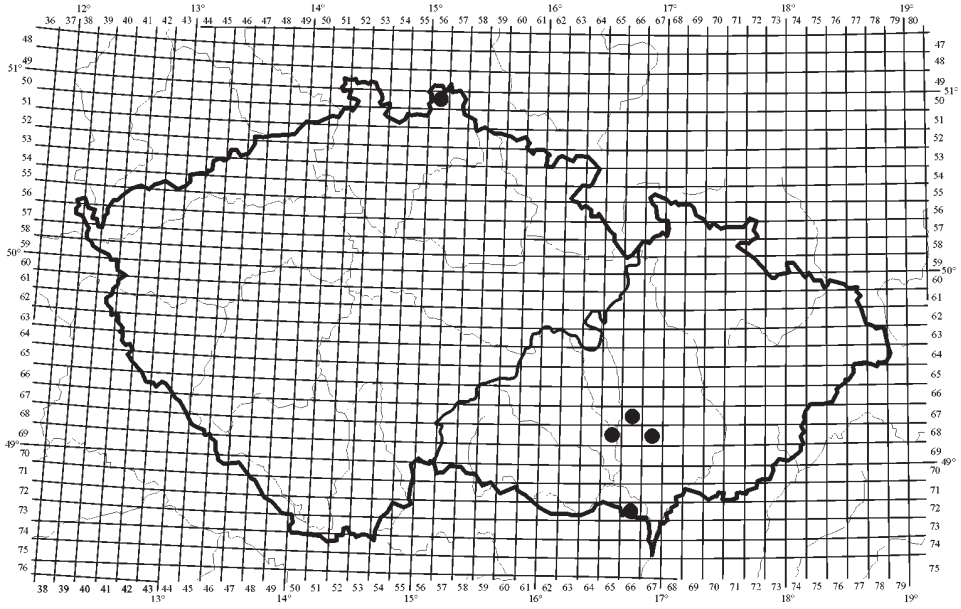

Fig. 43. Distribution of *Calamotettix taeniatus* (Horváth, 1911) in the Czech Republic.

Calamotettix taeniatus (Horváth, 1911)

Published data. Lauterer (1986): Sedlec-Nesyt Pond (7266). Malenovský & Lauterer (2005b): Brno-Slatina (6865).

Material examined. Bohemia: Černousy (5056), 0.5 km SW, floodplain of the River Smědá, 220 m, 17.vi.2007, reed, 1 ♂, several larvae, I. Malenovský leg. et det. **Moravia:** Brno-Maloměřice (6766), Hády Hill, Růženin lom, derelict limestone quarry, 320 m, 17.vii.2009, 2 ♂♂, I. Malenovský leg. et det. Brno-Štýřice (6865), lamp domes near central cemetery, 220 m, 2004, 2 ♂♂, P. Lauterer leg. et det. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225–240 m, 2.vii.2009, 1 ♂, P. Baňař & I. Malenovský leg., I. Malenovský det. All material MMBC.

Remarks. Monophagous on *Phragmites australis*, preferentially occurring in periodically flooded freshwater sites and inland salt marhes (Nickel 2003). Distributed in southern half of Europe (France, Germany, Czech Republic, Slovenia, Slovakia, Hungary, Ukraine, Romania, Republic of Moldova, southern European Russia). It may have been spreading through central Europe for around the past thirty years (Remane & Frölich 1994). In the Czech Republic previously known only from southernmost Moravia and Brno environs, recently recorded for the first time in northernmost Bohemia, very close to the Polish border (Fig. 43).

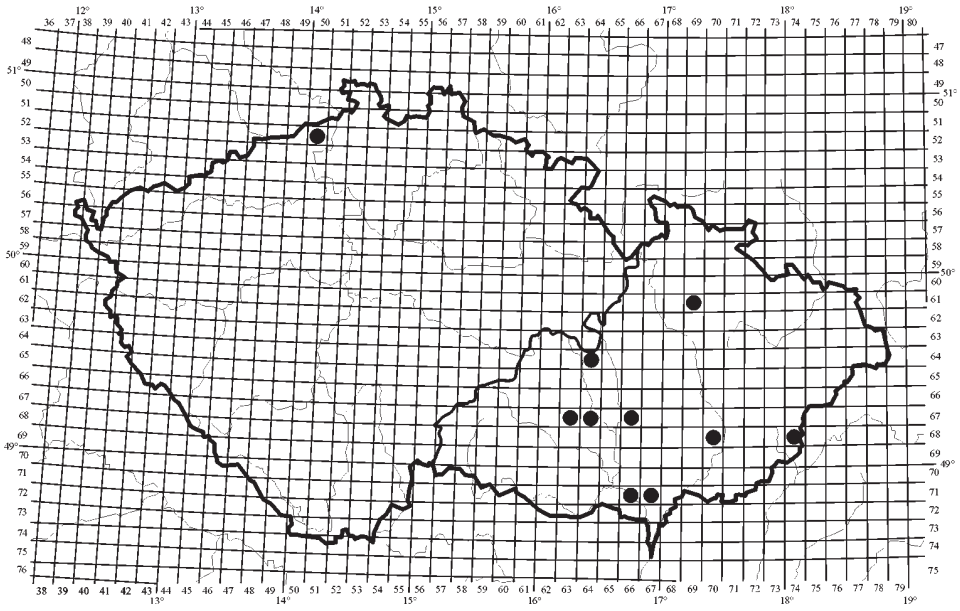

Fig. 44. Distribution of *Colladonus torneellus* (Zetterstedt, 1828) in the Czech Republic.

Colladonus torneellus (Zetterstedt, 1828)

Published data. Lauterer (1980): Dlouhá Loučka-Valšovský Žleb (6169), Prosetín-Čtyři Dvory (6464), Veverská Bítýška (6764), Adamov (6766), Mokrá-Horákov (6766), Kostelany (distr. Kroměříž, 6870), Sedlec-Milovický les (distr. Břeclav, 7166), Starý Poddvorov (7167).

Material examined. Bohemia: Jílové-Sněžník (5250), Malý Dub, 400–450 m, undergrowth of dense spruce monoculture with dominant *Deschampsia flexuosa* and *Pteridium aquilinum*, 16.v.2008, 1 ♂, and 6.vi.2008, 1 ♀, both yellow pan trap, E. Kula leg. **Moravia:** Lesní Hluboké (6763), towards Bílý potok Brook, 550 m, 28.vi.1997, 1 ♀, I. Malenovský leg. Valašské Klobouky (6874), NR Bílé potoky, 450 m, 19.v.1999, 1 ♀, I. Malenovský leg. All material I. Malenovský det., MMBC.

Remarks. Usually collected from grasses and shrubs in undergrowth of various kinds of forests, largely mixed and coniferous in relatively cool sites (Nickel 2003), but also present in thermophilous oak forests in southern Moravia (Lauterer 1980). Widely distributed in Europe except the Mediterranean region (Hoch 2010). In the Czech Republic known to date from only a few scattered finds in Moravia, but probably more widespread; also recorded here for the first time from north-western Bohemia (Fig. 44).

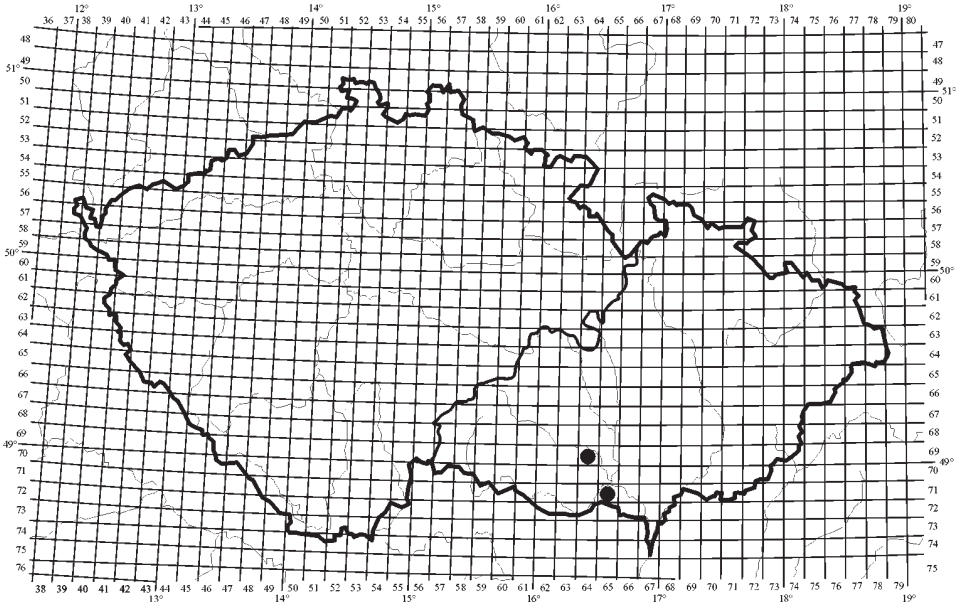

Fig. 45. Distribution of *Eohardya fraudulenta* (Horváth, 1903) in the Czech Republic.

Eohardya fraudulenta (Horváth, 1903) (Fig. 64)

Material examined. Moravia: Ivančice-Budkovice (6964), 0.6 km SW, Budkovické skály (conglomerate rocks in the valley of the River Rokytná), 275 m, 29.vi.–2.vii.2009, 16 ♂♂, 14 ♀♀ and 29.vii.2009, 1 ♀, P. Bařnař & I. Malenovský leg., I. Malenovský det. (MMBC). Mikulov (distr. Břeclav, 7165), Svatý kopeček Hill, S slope, upper part of vineyard, 250–360 m, 27.ix.2001, 1 ♂, P. Lauterer leg. et det. (MMBC).

Remarks. A xerothermophilous species distributed in the Mediterranean and south-eastern Europe and also reaching southern parts of central Europe (Austria, Slovakia, and Hungary; Holzinger 2009a, Hoch 2010). Recorded here for the first time for the Czech Republic, at the northernmost limit of the range. Its biology remains largely unknown. The Czech specimens were found in open dry grassland on steep, sun-exposed slopes on basic rocks (limestone, conglomerate) with dominant *Festuca valesiaca* in southern Moravia (Fig. 45). Most adults were collected towards the end of June and beginning of July, with a single adult in late September.

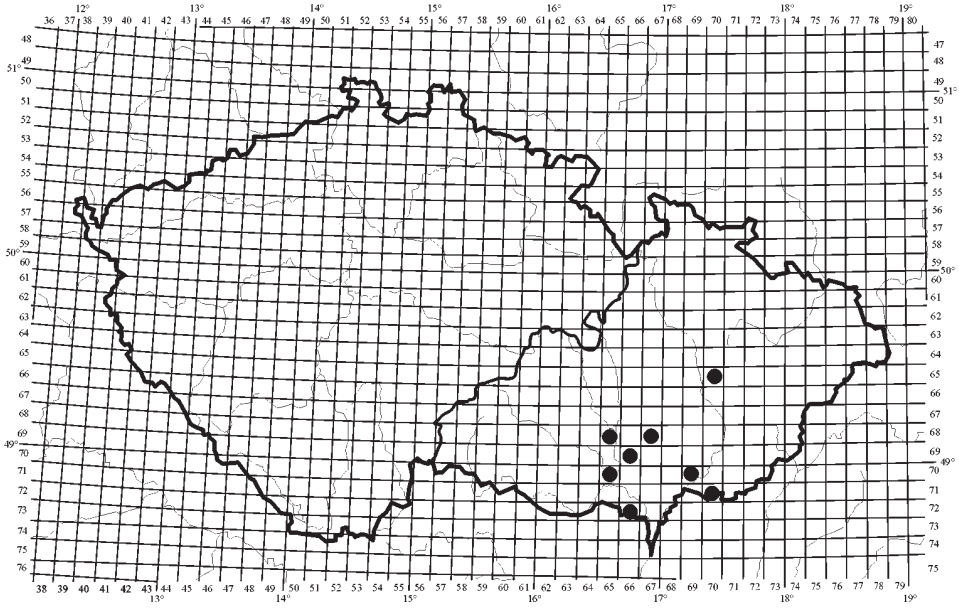

Fig. 46. Distribution of *Metalimnus steini* (Fieber, 1869) in the Czech Republic.

Metalimnus steini (Fieber, 1869) (Fig. 65)

Material examined. Moravia: Prosenice (distr. Přerov, 6570), bank of the River Bečva near the Žebračka forest, 210 m, 25.vi.1961, 1 ♂, P. Lauterer leg. Brno-Starý Lískovec and Bohunice (6865), banks of Leskava Brook, 210–220 m, 10.ix.2004, 3 ♀♀, I. Malenovský leg. Ostopovice (6865), banks of Leskava Brook, 230 m, 7.ix.2004, 1 ♂, 1 ♀, I. Malenovský leg. Rašovice (6867), 1 km NW, NR Rašovický zlom-Chobot, 225 m, 2.vii.2009, 2 ♂♂ and 17.viii.2009, 2 ♂♂, P. Baňař & I. Malenovský leg. Telnice (distr. Brno-venkov, 6966), 0.7 km SE, NM Písky, 190 m, 22.ix.1997, 1 ♂, I. Malenovský leg. Mušov (7065), N of the village (area now flooded by the Nové Mlýny reservoir), 170 m, 3.ix.1973, 1 ♂, L. Pospíšilová leg. Bzenec (7069), 2 km S, NM Vojenské cvičiště Bzenec, military training area on sands, 190–195 m, 2.vi.1979, 2 ♂♂, P. Lauterer leg. Bzenec (7069), 4.6 km S, NMM Váté písky, 190–200 m, 16.vii.1998, 2 ♂♂, I. Malenovský leg. Vacenovice (distr. Hodonín, 7069), sands, 200 m, 16.ix.1963, 1 ♂, P. Lauterer leg. Kněždub (7170), NNR Čertoryje, the valleys of the Radějovka and Járkovec streams, 320–440 m, 8.–9.ix.2000, 16 ♂♂, 4 ♀♀, I. Malenovský leg. Radějov (distr. Hodonín, 7170), 4 km SE, Měsíční údolí Valley and NR Kútky, 320–350 m, 8.ix.1998, 4 ♂♂, 1♀, I. Malenovský leg. Hlohovec (7266), 2 km E, environs of the Allahovy rybníky Ponds, 170–180 m, 3.vi.1981, 1 ♂, 1 ♀, P. Lauterer leg. All material I. Malenovský det., MMBC.

Remarks. Taxonomic identity remains uncertain as the type material has not been re-examined and compared with other related taxa (Nickel 2003); the species is currently interpreted in the European literature after Anufriev & Emeljanov (1988). In this

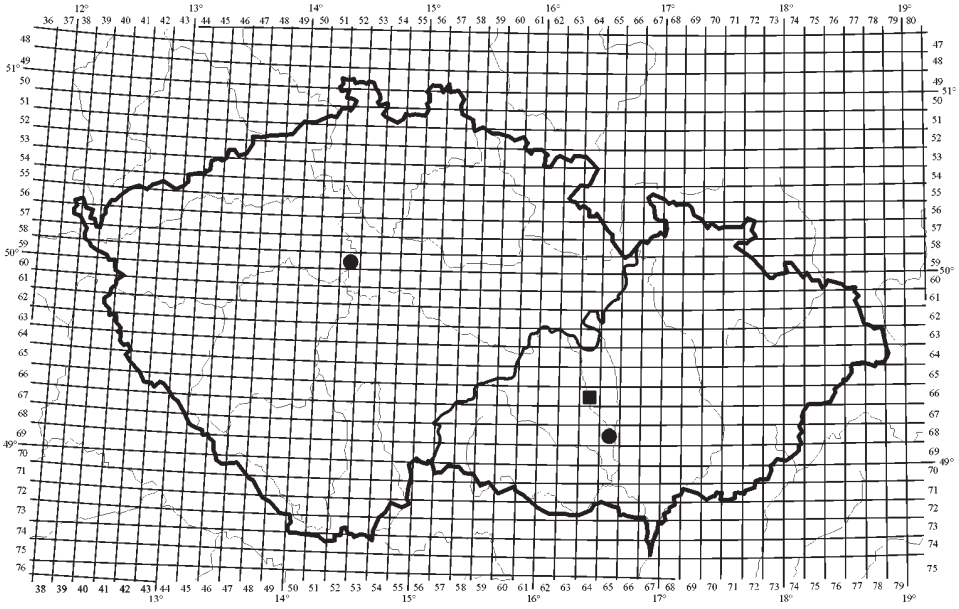

Fig. 47. Distribution of *Orientus ishidae* (Matsumura, 1902) (circles) and *Phlepsius intricatus* (Herrich-Schäffer, 1866) (square) in the Czech Republic.

interpretation, *M. steini* is probably monophagous on *Carex hirta* and occurs in stands of the host plant in sunny to moderately shady, moderately wet to moderately dry ruderal habitats, beside tracks and in meadows from lowlands to submontane zone (Nickel 2003, Holzinger 2009b). In the Czech Republic, recorded to date only from south-eastern and central Moravia (Fig. 46), mostly in disturbed wet patches by streams and in pastures, as well as in wet ruderal places on sands, up to only 450 m. Elsewhere recorded from Germany, Austria, Hungary, Ukraine, Kazakhstan and far-eastern Russia (Anufriev & Emeljanov 1988, Nickel 2003, Holzinger 2009b). New species for the Czech Republic.

Orientus ishidae (Matsumura, 1902) (Fig. 70)

Published data. Günthart *et al.* (2004): Brno. Malenovský & Lauterer (2006): Brno-Štýřice (6865).

Material examined. Bohemia: Praha-Břevnov (5952), 26.vii.2006, before midnight at light in living-room, 1 ♀, J. Růžička leg., I. Malenovský det. (MMBC). **Moravia:** Brno-Štýřice (6865), banks of Leskava Brook, 210–220 m, 10.ix.2004, 1 ♀, I. Malenovský leg. et det. (MMBC).

Remarks. Originally probably an eastern Asiatic species, described from Japan and introduced to North America (USA and Canada) and central Europe with garden plants.

In Europe, usually collected on *Salix* spp. (*S. purpurea, S. alba,* and *S. caprea*), *Betula pendula* and apple trees, or at light. In North America it has been reported as polyphagous on a variety of broad-leaved trees and shrubs (GUGLIELMINO 2005). In Europe, first recorded in 2000 in Switzerland (Basel) and soon afterwards in Germany, northern Italy, Slovenia, and Austria, mainly in gardens in urban settlements (GÜNTHART *et al.* 2004, HOLZINGER 2009a). In the Czech Republic, only two specimens collected to date, within the two largest Czech cities, i.e. Prague and Brno (Fig. 47). The first Czech record (also cited by GÜNTHART *et al.* 2004 and MALENOVSKÝ & LAUTERER 2006) dates back to 2004.

Phlepsius intricatus (Herrich-Schäffer, 1866)

Material examined. Moravia: Tišnov (6664), NM Květnice, SE slopes on limestone, 350–390 m, 18.ix.1962, 1 ♂, and 25.viii.1969, 1 ♂, 1 ♀, both P. Lauterer leg. et det., and 8.v.2010, 1 ♀, 1 larva, I. Malenovský leg. et det. Tišnov (6664), 2 km NW, Dřínová Hill, dry grassland on limestone, 270–350 m, 26.viii.1964, 8 ♂♂, 4 ♀♀, P. Lauterer leg. et det. All material in MMBC.

Remarks. Confined to xerothermic grassland sites with scattered shrubs; adults are at least occasionally swept from shrubs but the host plants remain unknown (NICKEL 2003). Distributed in the Mediterranean region, the Balkans, Near East, southern Russia and central Asia, reaching isolated sites in southern parts of central Europe (Austria, Germany, Slovakia, and Slovenia) (NICKEL 2003, HOLZINGER 2009b, HOCH 2010). In the Czech Republic at the northernmost edge of range and known only from xerothermic limestone slopes in Tišnov environs in Moravia (Fig. 47), some of which have been destroyed by limestone mining since records were made. Adults have been collected from August to May and are thus assumed to be the overwintering stage (NICKEL 2003, HOLZINGER 2009b); we have, however, found one fifth-instar larva in early May. New species for the Czech Republic.

Pleargus pygmaeus (Horváth, 1897)

Published data. DLABOLA (1946, 1954a, as *Deltocephalus/Adarrus tenuiculus* Dlabola, 1946): Praha-Radotín (5951), Praha-Hlubočepy-Děvín (5952), Tetín-Koda (6050), Černošice-Dolní Mokropsy (6051).

Material examined. Bohemia: Koněprusy (6050), NNR Zlatý kůň, Houbův lom, derelict limestone quarry, 415 m, 19.v.–4.vi.2007, pitfall trap, 1 ♂, R. Tropek leg., I. Malenovský det. Svatý Jan pod Skalou (6050), NNR Karlštejn, Paraple (Solvayovy lomy), derelict limestone quarry, 380 m, 19.v.–4.vi.2007, pitfall traps, 15 ♂♂, 9 ♀♀; 21.v.2007, 2 ♂♂; 4.vi.2007, 1 ♂, 3 ♀♀; and 20.viii.2007, 3 ♂♂; all sweeping, R. Tropek leg., I. Malenovský det. **Moravia:** Mikulov (distr. Břeclav, 7165), NR Svatý kopeček, S and W slopes, 250–360 m, 11.v.2000, 1 ♂; 2.vi.2000, 2 ♂♂; 22.vi.2000, 1 ♂; 13.x.2000, 2 ♂♂; 2 ♀♀; 30.v.2001, 3 ♂♂; 2 ♀♀; 20.vi.2001, 1 ♀; and 27.vii.2001, 1 ♂; P. Lauterer leg. et det. Voucher material in MMBC.

Remarks. In the Czech Republic, restricted to dry grassland on limestone rocky slopes and to date found only in the Bohemian Karst in central Bohemia and the Pavlovské vrchy Hills in southern Moravia (Fig. 48). It also colonizes derelict limestone quarries that have been left to spontaneous succession (TROPEK *et al.* 2010). The host plant remains unknown. Adults have been found from May to mid-October, so the species may have two generations per year with overwintering at the egg stage, but the life cycle has

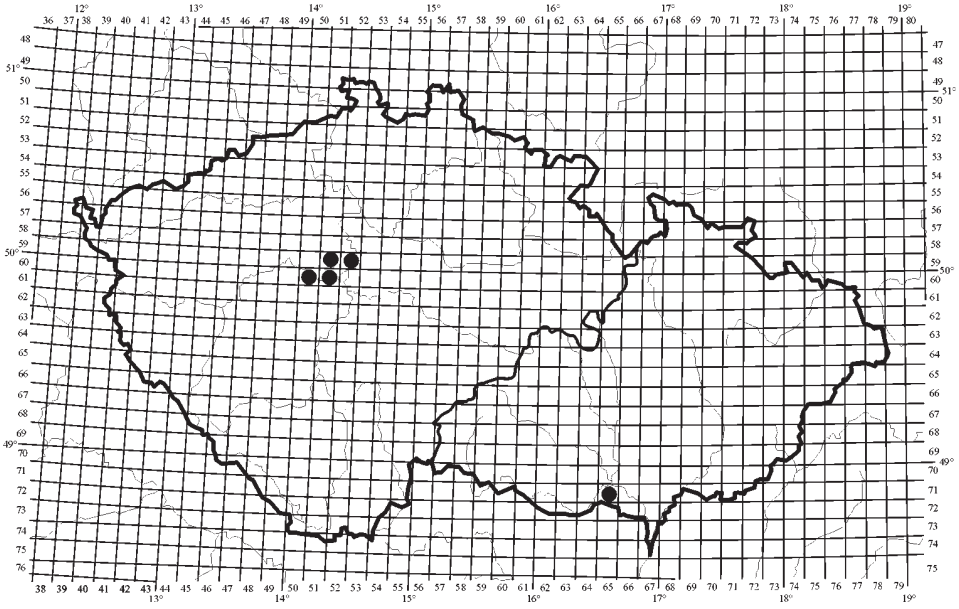

Fig. 48. Distribution of *Pleargus pygmaeus* (Horváth, 1897) in the Czech Republic.

not yet been studied in detail. Distributed in Austria (single site, Braunsberg near Hainburg, Holzinger 2009a,b), Czech Republic, Slovakia, Hungary, Italy, Romania, southern Russia, Kazakhstan, Altai Mts., and Mongolia (Nast 1972, Hoch 2010). New species for Moravia.

Psammotettix nardeti Remane, 1965

Published data. Dlabola (1957, as *P. angulatus* (Then, 1898)): Krkonoše-Labská louka (5259).

Material examined. Bohemia: Krkonoše Mts. [= Labská louka Meadow (Špindlerův Mlýn, 6.5 km NW, 5259), 1330 m, see Dlabola (1957)], 7.ix.1954, 13 ♂♂, 22 ♀♀, J. Dlabola leg., I. Malenovský det. (MNHN).

Remarks. In meadows and pastures of the subalpine to upper alpine belt, perhaps monophagous on *Nardus stricta*. Known to date only from western parts of the Alps (France, Germany, Austria, Switzerland, and Italy), from 1550 to 2600 m (Remane 1965, Nickel 2003, Günthart & Mühlethaler 2002). Examination of a series of specimens collected by Dlabola in the subalpine zone of the Krkonoše Mts., originally determined and published (Dlabola 1957) under *P. angulatus* (Then), revealed that it actually belongs to the morphologically similar and only later described *P. nardeti*. This is the first

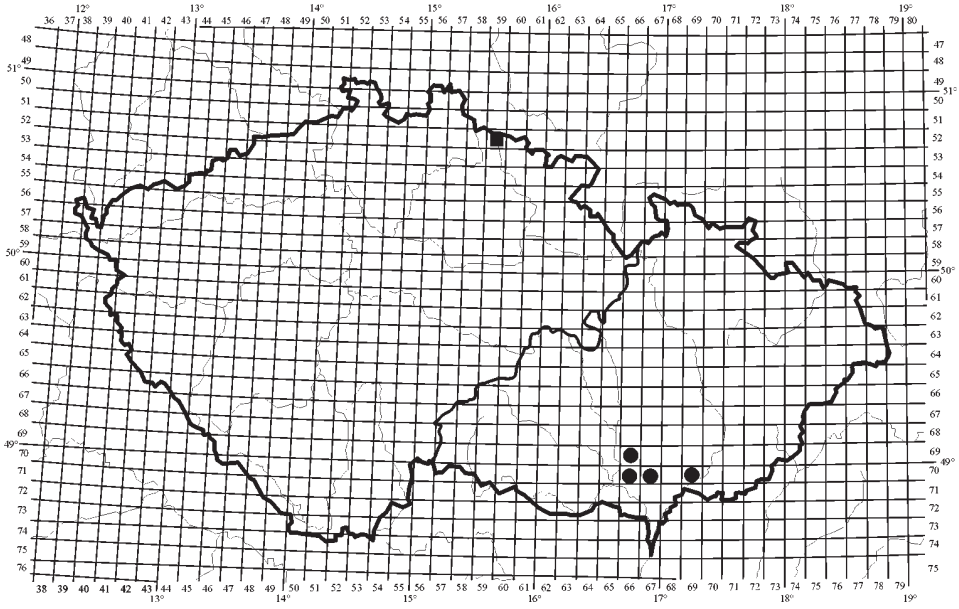

Fig. 49. Distribution of *Psammotettix nardeti* Remane, 1965 (square) and *Psammotettix slovacus* Dlabola, 1948 (circles) in the Czech Republic.

record of *P. nardeti* from the Czech Republic as well as from the Sudetes mountain range (Fig. 49; the species has not been recorded from the Polish side of the Sudetes yet, see Pilarczyk & Szwedo 2005). On the other hand, no confirmed records of *Psammotettix angulatus* are currently known from the Czech Republic.

Psammotettix poecilus (Flor, 1861) (Fig. 67)

Published data. Dlabola (1945b, 1954a, as *P. notatus* (Melichar, 1896)): Čelákovice (5854), Peřimov (5358), Bzenec (7069), Rohatec (7169), Mutěnice (7068-7168).

Material examined. Bohemia: Peřimov (5358), Strážník Hill, meadow, 6.vii.1942, 1 ♀, J. Dlabola leg. (MNHN). Štětí (5552), railway track near the station, 190 m, 1.vi.1999, 1 ♀, I. Malenovský leg. Lysá nad Labem-Dvorce (5754), pine forest on sands, 185 m, 29.v.1999, 1 ♂, I. Malenovský leg. Kladno-Švermov (5850), 1.5 km NE, Ronna coal dump, 350 m, 6.vi.2008, 1 ♂; 2.vii.2008, 1 ♀; 28.vii.2008, 1 ♀; and 19.viii.2008, 1 ♂, 1 ♀; all R. Tropek leg. Kladno-Švermov (5850), 1.5 km W, Mayrau coal dump, 350 m, 6.vi.2008, 1 ♀; 2.vii.2008, 1 ♂, 1 ♀; 2.–28.vii.2008, 1 ♀; and 28.vii.2008, 1 larva; all R. Tropek leg. Čelákovice (5854), no date, 1 ♂, K. Pfleger leg. (MNHN). Měňany (6050), Homolák quarry, 21.v.2007, 2 ♂♂, and 20.viii.2007, 1 ♀, R. Tropek leg. **Moravia:** Brno-Maloměřice (6766), Hády Hill, Městský lom Quarry, recently abandoned limestone quarry, 370–400 m, 8.ix.2008, 1 ♀, I. Malenovský leg. Rouchovany-Šemíkovice (6962), Výrova skála Rocks, 340–370 m, 37.v.1981, 1 ♀, L. Pospíšilová leg. Telnice (distr. Brno-venkov, 6966), 0.7 km

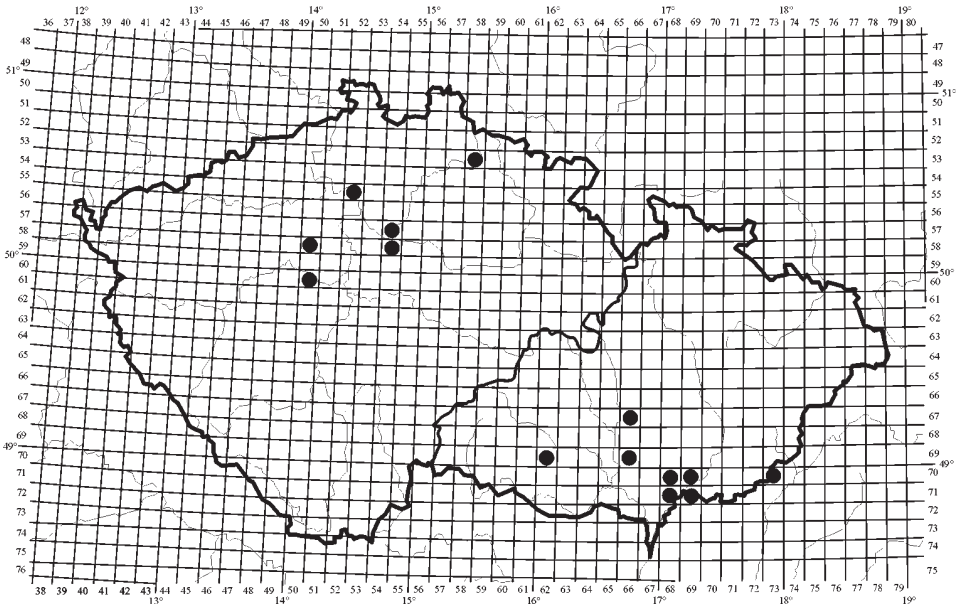

Fig. 50. Distribution of *Psammotettix poecilus* (Flor, 1861) in the Czech Republic.

SE, NM Písky, 190 m, 22.ix.1997, 2 ♂♂, 6 ♀♀, I. Malenovský leg. Mutěnice (7068-7168), viii.1942, 1 ♂, M. Kocourek leg. (MNHN). Bzenec (7069), "písky" (=sands), on grassy understorey in pine monoculture, 21.vi.1942, 2 ♂♂, 1 ♀; 23.vi.1942, 1 ♀; 25.vi.1942, humid understorey, 1 ♀; all A. Hoffer leg. (MNHN). Bzenec (7069), 9.vii.1944, 1 ♂, no collector. Bzenec (7069), 2 km S, NM Vojenské cvičiště Bzenec, military training area, 190–195 m, 2.vi.1979, 10 ♂♂, 4 ♀♀, P. Lauterer leg.; 16.vi.2009, yellow pan traps, 3 ♂♂, 5 ♀♀, P. Chlapek & O. Čížek leg.; 15.v.2010, 3 ♂♂, 2 ♀♀, I. Malenovský leg. Bzenec (7069), 3 km SE, clearing in pine forest near Stolařka Pond, 180 m, 16.vii.1998, 2 ♂♂, 3 ♀♀, I. Malenovský leg. Bzenec (7069), 4 km SE, sandpit 0.7 km N of Bzenec-přívoz, 180 m, 15.v.2010, 2 ♂♂, I. Malenovský leg; 5.5 km S, ruderal vegetation in sandpit 1.5 km SW Bzenec-přívoz, 172 m, 17.viii.1995, several ♂♂ and ♀♀, P. Lauterer leg. and det. Starý Hrozenkov (7073), 1 km N, Hrozenkovský lom (Skalka), abandoned basalt quarry, 520 m, 8.viii.2007, 1 ♀, I. Malenovský leg. Hodonín-Pánov (7169), brickfield, 200–208 m, 16.ix.1963, 9 ♂♂, 10 ♀♀, P. Lauterer leg. All material I. Malenovský det., MMBC unless otherwise indicated.

Remarks. On *Calamagrostis epigejos* and *C. pseudophragmites* in places with only very scattered stands of grass, mainly inland dunes, mining areas, forest clearings and gravel banks of alpine rivers (Nickel 2003). In the Czech Republic, apparently widely distributed but fairly local (Fig. 50); abundant in the sandy area in south-eastern Moravia, elsewhere collected in small numbers mostly at anthropogenically-influenced sites (abandoned quarries, dumps, and along railway tracks). The species was once (Dlabola 1945b, 1954a, 1977) mistaken in today's Czech Republic for *P. notatus* (Melichar), for

which, in turn, revised evidence of occurrence in this country is now lacking. Both species may be determined using the key by BIEDERMANN & NIEDRINGHAUS (2004). Widely distributed in mainland Europe from France in the west to European parts of Russia in the east and Greece in the south to southern Scandinavia in the north (HOCH 2010). First reliable data from the Czech Republic.

***Psammotettix slovacus* Dlabola, 1948** (Fig. 66)

Material examined. Moravia: Telnice (distr. Brno-venkov, 6966), 0.7 km SE, NM Písky, 190 m, 22.ix.1997, 4 ♂♂, 4 ♀♀, I. Malenovský leg. Kurdějov (7066), 1.5 km SW, near NR Kamenný vrch u Kurdějova, 300 m, 21.viii.2009, 9 ♂♂, 9 ♀♀, P. Baňař & I. Malenovský leg. Hustopeče (distr. Břeclav, 7066), 1–2 km N, W and N slopes of Hustopečský starý vrch Hill, proposed NM Přední kopaniny, 250 m, 14.vii.2009, 2 ♀♀, and 18.viii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Bořetice (7067), 2.5 km N, NR Zázmoníky, 200–270 m, 22.vi.1988, 2 ♂♂, 4 ♀♀, P. Lauterer leg. et det. Čejč (7067), 3 km SE, proposed NM Bílý kopec u Čejče, 200 m, 24.viii.2009, 1 ♂, P. Baňař & I. Malenovský leg. Bzenec (7069), 2 km SW, military firing range, 190 m, 12.vi.2009, pitfall trap, 1 ♀, P. Chlapek & O. Čížek leg. Bzenec (7069), 2 km S, NM Vojenské cvičiště Bzenec, abandoned military training area, 190 m, 16.vii.1998, 5 ♂♂, 10 ♀♀, I. Malenovský leg., and 16.vi.2009, yellow pan traps, 1 ♂, P. Chlapek & O. Čížek leg. Bzenec (7069), 4.6 km S, NMM Váté písky, 190–200 m, 16.vii.1998, 1 ♂, 1 ♀, I. Malenovský leg. Bzenec (7069), 5.5 km S, ruderal vegetation in sandpit 1.5 km SW Bzenec-přívoz, 172 m, 17.viii.1995, several ♂♂ and ♀♀, P. Lauterer leg. and det. All material I. Malenovský det., unless otherwise indicated, MMBC.

Remarks. At least in the Czech Republic monophagous on *Calamagrostis epigejos* but occurring only in sparsely vegetated places with very scattered stands of this grass (sometimes together with *Psammotettix poecilus* and *Gravesteiniella boldi*), mostly on sand dunes and landslides on loess. Restricted here to the Pannonian part of south-eastern Moravia (Fig. 49), occurring in lowlands and lower hills up to only 300 m. Elsewhere known from Austria, Hungary, Slovakia, former Yugoslavia, and southern Russia (Dagestan) (REMANE & FRÖHLICH 1994, NAST 1972, HOCH 2010). Probably two generations per year with adults collected from mid-June to late September. First records for the Czech Republic.

Discussion and Conclusions

Including the species discussed in this paper, the Auchenorrhyncha fauna of the Czech Republic is currently known to comprise 572 species (135 Fulgoromorpha, 437 Cicadomorpha). Some groups and species are still in need of revision of the material in collections, e.g. some taxa of Cicadellidae: Typhlocybinae, Idiocerinae, and Macropsinae, which will be addressed in a further paper. In comparison with other central European countries, this number of species in the Czech Republic falls between Austria (626 spp. of Auchenorrhyncha, HOLZINGER 2009a) and Germany (620 spp., NICKEL & REMANE 2002) on one side and Slovakia (544 spp., JANSKÝ & OKÁLI 1993), Hungary (540 spp., GYÖRFFY *et al.* 2009), and Poland (520 spp., CHUDZICKA 2004) on the other. Records of some additional species, especially those known currently from neighbouring countries but not from the Czech Republic, may still be anticipated.

There are several reasons for the relatively high number of species recently disclosed for the first time in the Czech Republic (or one of its constituent parts, Bohemia or Moravia). Firstly, many species discussed in the paper are members of groups comprising several morphologically similar species that have hitherto been difficult to identify or have been confused until recent taxonomic revisions (e.g. Bieman 1987b, Remane & Jung 1995) and well-illustrated redescriptions and determination keys (e.g. Ossiannilsson 1981, Holzinger *et al.* 2003, Biedermann & Niedringhaus 2004) facilitated their determination. This is the case for e.g. *Kelisia, Chloriona*, *Ribautodelphax*, and *Psammotettix* spp. but also of some other taxa. Secondly, some species have specialized life habits, e.g. they are restricted to only certain habitats and a single host plant (or just very few), and without knowledge of their biology, records of them have previously been only accidental. Other species are generally only rarely collected by usual methods for sampling Auchenorrhyncha, as they live in tree canopies, or close to the ground, even below it. As a result, e.g. *Trigonocranus emmeae, Florodelphax paryphasma, Stenocranus fuscovittatus*, and *Eurhadina kirschbaumi* may have previously been under-recorded (see also Nickel 2003). Thirdly, a few species have apparently spread into the Czech Republic in definite fashion only in recent years. These are exotic species unintentionally introduced to Europe by anthropogenic activity, usually the trade in garden or fruit plants, mostly from North America or eastern Asia (e.g. *Kyboasca maligna* and *Orientus ishidae*), or introduced in a similar way from the Mediterranean region to central Europe as in *Eupteryx decemnotata* (see Malenovský & Lauterer 2006 for a survey of alien Auchenorrhyncha species in the Czech Republic, and Nickel & Holzinger 2006 for details on the expansion of *E. decemnotata*). There are, however, some other species that were autochthonous to some parts of Europe and which have been spontaneously expanding their range for some decades, apparently only recently reaching the Czech Republic: e. g. *Zyginella pulchra* and *Zyginidia scutellaris* (the latter is discussed in Malenovský & Tropek 2009). Exact reasons for these expansions are largely unclear, although they might be associated with climate change or some other factor.

On the other hand, many species of Auchenorrhyncha confined e.g. to extensively managed dry grassland, salt marshes, fens, peat bogs, or sand dunes have declined in the Czech Republic and have not been recorded in the country for several decades. Malenovský & Lauterer (2005a) report 14 species as regionally extinct. Additional (more or less early or recent) material has, however, been found for some of them in the course of the current work (*Javesella salina, Megadelphax haglundi,* and *Nothodelphax albocarinata*) and other recent field surveys (*Platymetopius guttatus* in Malenovský & Tropek 2009 and Tropek *et al.* 2010). More field work is needed to confirm the current status of these, as well as other declining Auchenorrhyncha species.

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We would like to thank Václav Čermák (State Phytosanitary Service, Olomouc), Petr Kment (National Museum, Prague), William Kubis (formerly Podyjí National Park administration, Znojmo), Emanuel Kula (Mendel University, Brno), Hana Ludvíková (Research and Breeding Institute of Pomology, Holovousy), Pavel Marhoul (Daphne-Institute of Applied Ecology, Prague), Jiří Preisler (Liberec), Jan Růžička (Czech University of Life Sciences, Praha), Pavel Vonička (Severočeské muzeum v Liberci, Liberec), and Robert Tropek (University of South Bohemia, České Budějovice) for gifts or loans of material. The help and companionship of Petr Baňař (Moravian Museum, Brno), Petr Kment, Hana Malenovská (Brno), Jiří Preisler, and Pavel Vonička during various field excursions is highly appreciated. Igor Malenovský is especially obliged to Thierry Bourgoin, David Ouvrard and Adéline Soulier-Perkins (all Muséum national d'Histoire naturelle, Paris) for their hospitality and access to the Dlabola collection in MNHN; his stay in Paris was supported by Synthesys project FR-TAF-4060. We also thank Roland Mühlethaler (Museum für Naturkunde, Berlin) and Herbert Nickel (Universität Göttingen) for critical reading of the manuscript and Luboš Dembický (Moravian Museum, Brno) for photographs of Auchenorrhyncha. Kees den Bieman (Ulvenhout) kindly determined the first Czech specimen of *Ribautodelphax pallens*. Petr Kment generously shared with us the electronic file with the blank map of the Czech Republic with Central European grid system for mapping fauna and flora which formed basis for Figs 1–50. The paper was created within research project MK00009486201 of the Moravian Museum, Brno which received institutional financial support from the Ministry of Culture of the Czech Republic.

Souhrn

Doplňky k fauně křísů (Hemiptera: Auchenorrhyncha) České republiky

Fauna křísů (Hemiptera: Auchenorrhyncha: Fulgoromorpha et Cicadomorpha) České republiky je ve srovnání s jinými evropskými státy poměrně dobře známá, a to zejména díky sběratelským aktivitám a četným publikacím Jiřího Dlaboly, Pavla Lauterera a Veleslava Langa od 40. let 20. století. Mezi nejdůležitější publikovaná díla patří monografie v řadě Fauna ČSR (Dlabola 1954a) a seznam druhů (check-list) vyskytujících se na území bývalého Československa (Dlabola 1977). Ten je zároveň posledním takovým uceleným přehledem druhového složení české fauny. V minulých třiceti letech bylo z ČR potvrzeno mnoho dalších druhů (viz např. Lauterer 1980, 1983, 1984, 1986, 1996, Preisler & Lauterer 2003, Malenovský 2001, 2006, Malenovský & Lauterer 2005b, Malenovský & Tropek 2009). V rámci příprav nového check-listu křísů ČR, aktualizovaného o nové nálezy a nomenklatorické a systematické změny, jsme zpracovali část dosud neurčeného nebo nepublikovaného materiálu uloženého v muzejních sbírkách (zejména v Moravském zemském muzeu v Brně, méně též v Národním muzeu v Praze a v Muséum national d'Histoire naturelle v Paříži). Na základě sbírkového materiálu jsme revidovali některé dříve publikované údaje a v neposlední

řadě jsme též v posledních letech získali nový materiál sběry v terénu, ať již vlastními nebo kolegů. Ve výsledku zde přinášíme a komentujeme faunistické údaje, týkající se výskytu celkem 56 druhů křísů v České republice. Většinou se jedná o druhy dosud v literatuře z ČR neuváděné, případně uváděné s pochybami, z dřívější doby známé jen z části území (Čechy, Morava) nebo pokládané za vyhynulé či velmi vzácné.

V přehledu studovaného materiálu jsme lokality pod každým druhem seřadili podle čísel čtverců středoevropské sítě pro mapování flóry a fauny (Ehrendorfer & Hamann 1965, Pruner & Míka 1996; čísla čtverců jsou uvedena v závorkách za názvy obcí), která je použita též v obr. 1–50. Hranici mezi Čechami a Moravou (včetně Slezska) odvozujeme ze zemského uspořádání v letech 1924–1949 (viz Kment 2009). Nomenklaturu křísů jsme sjednotili podle Holzinger *et al.* (2003) (Fulgoromorpha) a Hoch (2010) (Cicadomorpha: Cicadellidae). V textu používáme následující zkratky: JPLC – sbírka Jiřího Preislera, Liberec; JRPC – sbírka Jana Růžičky, Praha; MMBC – sbírka Moravského zemského muzea, Brno; MNHN– sbírka Muséum national d'Histoire naturelle, Paříž, Francie; NMPC – sbírka Národního muzea, Praha; NPZC – údaje Správy Národního parku Podyjí, Znojmo; brach. – brachypterní jedinec; macr. – makropterní jedinec; NM – přírodní památka; NNM – národní přírodní památka; NNR – národní přírodní rezervace; NR – přírodní rezervace; det. – určil; leg. – sbíral.

Následujících 22 druhů křísů je zde z České republiky publikováno poprvé: *Cixius* (*Acanthocixius*) *sticticus* Rey, 1891, *Trigonocranus emmeae* Fieber, 1876, *Chloriona clavata* Dlabola, 1960, *Chloriona dorsata* Edwards, 1898, *Chloriona sicula* Matsumura, 1910, *Gravesteiniella boldi* (Scott, 1870), *Kelisia confusa* Linnavuori, 1957, *Kelisia sima* Ribaut, 1934, *Ribautodelphax imitans* (Ribaut, 1953), *Ribautodelphax pallens* (Stål, 1854), *Empoasca ossiannilssoni* Nuorteva, 1948, *Eupteryx decemnotata* Rey, 1891, *Kyboasca maligna* (Walsh, 1862), *Allygidius mayri* (Kirschbaum, 1868), *Allygus maculatus* Ribaut, 1952, *Eohardya fraudulenta* (Horváth, 1903), *Metalimnus steini* (Fieber, 1869), *Orientus ishidae* (Matsumura, 1902), *Phlepsius intricatus* (Herrich-Schäffer, 1866), *Psammotettix nardeti* Remane, 1965, *Psammotettix poecilus* (Flor, 1861) a *Psammotettix slovacus* Dlabola, 1948. Dříve publikované údaje o výskytu druhů *Psammotettix angulatus* (Then, 1898) a *Psammotettix notatus* (Melichar, 1896) v ČR se zakládají na nesprávném určení a týkají se ve skutečnosti druhů *Psammotettix nardeti*, resp. *P. poecilus*.

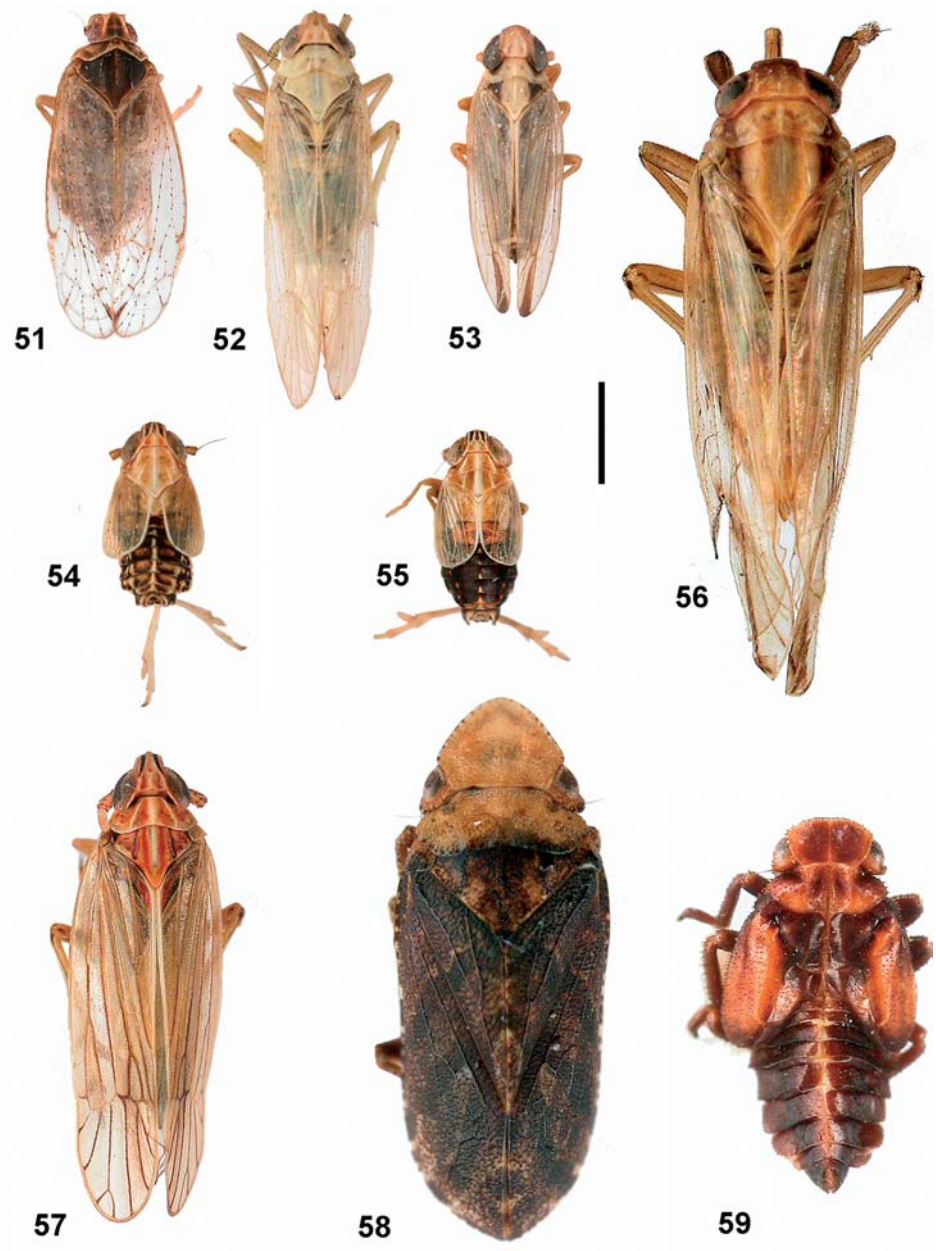
Celkem 19 druhů, dříve z ČR známých jen z Moravy, je nově potvrzeno též z Čech: *Cixius* (*Paracixius*) *distinguendus* Kirschbaum, 1868, *Chloriona unicolor* (Herrich-Schäffer, 1835), *Ditropsis flavipes* (Signoret, 1865), *Kelisia monoceros* Ribaut, 1934, *Kelisia praecox* Haupt, 1935, *Ribautodelphax angulosa* (Ribaut, 1953), *Tettigometra* (*Tettigometra*) *fusca* Fieber, 1865, *Tettigometra* (*Mitricephalus*) *macrocephala* Fieber, 1865, *Edwardsiana alnicola* (Edwards, 1924), *Edwardsiana rosaesugans* (Cerutti, 1939), *Edwardsiana soror* (Linnavuori, 1950), *Edwardsiana stehliki* Lauterer, 1958, *Empoasca apicalis* (Flor, 1861), *Eurhadina kirschbaumi* Wagner, 1937, *Kybos abstrusus* (Linnavuori, 1949), *Kybos calyculus* (Cerutti, 1939), *Zyginidia mocsaryi* (Horváth, 1910), *Calamotettix taeniatus* (Horváth, 1911) a *Colladonus torneellus* (Zetterstedt, 1828).

Celkem osm druhů, které byly v minulosti nalezeny výhradně v Čechách, zde poprvé uvádíme i z Moravy: *Chloriona vasconica* Ribaut, 1934, *Florodelphax paryphasma* (Flor, 1861), *Nothodelphax albocarinata* (Stål, 1858), *Nothodelphax distincta* (Flor, 1861), *Stenocranus fuscovittatus* (Stål, 1858), *Zyginella pulchra* Löw, 1885, *Anoplotettix horvathi* Metcalf, 1955 a *Pleargus pygmaeus* (Horváth, 1897).

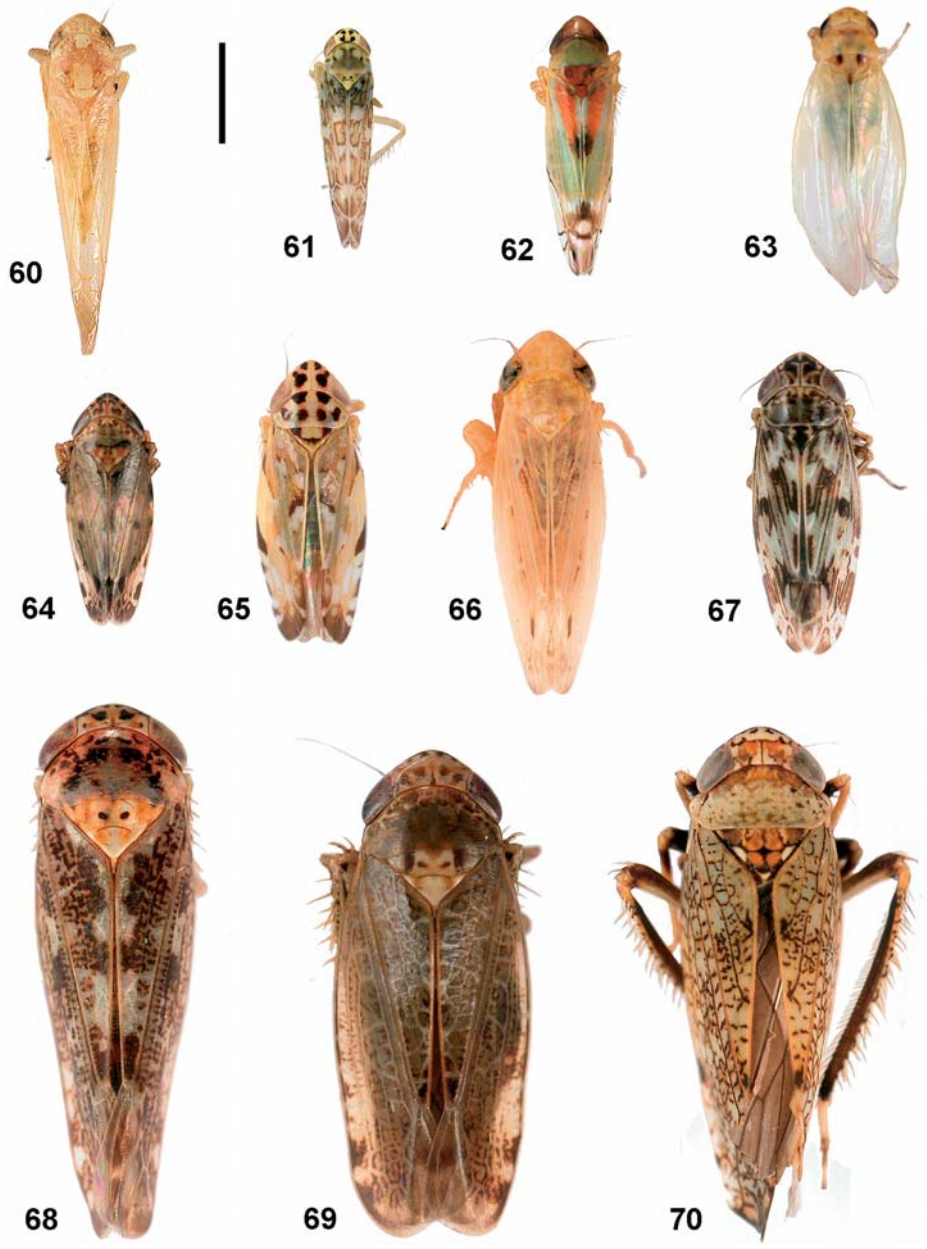
Z dalších zajímavých nálezů zmiňujeme dosud nepublikované údaje o druzích *Cixius* (*Acanthocixius*) *heydenii* Kirschbaum, 1868, *Chloriona glaucescens* Fieber, 1866, *Criomorphus williamsi* China, 1939, *Delphax pulchellus* (Curtis, 1833), *Javesella salina* (Haupt, 1924), *Kelisia punctulum* (Kirschbaum, 1868) a *Megadelphax haglundi* (J. Sahlberg, 1871).

Za poměrně velkým množstvím nálezů nových druhů pro území ČR (či jeho jednotlivé části, Čechy a Moravu) v poslední době mohou stát různé důvody. Mnoho druhů, obsažených v našem článku, dříve nebylo dostatečně pečlivě rozlišováno od jiných, často morfologicky velmi podobných a příbuzných druhů. Jejich determinaci usnadnily teprve moderní taxonomické revize (např. Bieman 1987b, Remane & Jung 1995) a kvalitně ilustrované determinační klíče (např. Ossiannilsson 1981, Holzinger *et al.* 2003, Biedermann & Niedringhaus 2004). To se týká např. druhů z rodů *Kelisia, Chloriona*, *Ribautodelphax* a *Psammotettix* a některých dalších taxonů. Některé jiné druhy jsou úzce specializovány jen na určité biotopy a živné rostliny a bez znalosti jejich biologie byly dříve jejich nálezy spíše jen dílem náhody. Část druhů také žije např. v korunách stromů, hluboko v trsech živných rostlin nebo při povrchu země (či dokonce pod ním) a jen zřídka bývá zachycena obvyklými metodami sběru. Proto např. *Trigonocranus emmeae, Florodelphax paryphasma, Stenocranus fuscovittatus* nebo *Eurhadina kirschbaumi* a další byly či stále mohou být v ČR více méně přehlížené v důsledku jejich specializovaného nebo skrytého způsobu života (viz též Nickel 2003). Konečně se několik druhů křísů na území České republiky pravděpodobně rozšířilo z jiných zemí teprve v posledních letech. Jedná se o druhy člověkem neúmyslně zavlečené z jiných kontinentů, nejčastěji Severní Ameriky a východní Asie (např. *Kyboasca maligna* a *Orientus ishidae*) nebo z oblasti Středozemí (*Eupteryx decemnotata*; přehled ostatních v ČR nepůvodních druhů křísů podávají Malenovský & Lauterer 2006). Některé další druhy byly zřejmě původní alespoň v některých částech střední Evropy, v posledních desetiletích zde však poměrně rychle zvětšují svůj areál. Příkladem takových expanzí, které nedávno dosáhly i na území ČR, mohou být pidikřískové *Zyginella pulchra* a *Zyginidia scutellaris* (co se druhého druhu týče, viz Malenovský & Tropek 2009). Příčiny těchto změn rozšíření jsou nejasné, mohou snad být důsledkem změn klimatu či jiných komplexních faktorů.

Na druhé straně je mnoho druhů křísů v ČR na ústupu v důsledku úbytku vhodných biotopů (např. extenzivně obhospodařovaných suchých trávníků, slanisek, slatinišť, rašelinišť a vátých písků). Některé z nich zde nebyly potvrzeny již několik desítek let. Malenovský & Lauterer (2005a) uvádí celkem 14 druhů jako v ČR vyhynulé, resp. nezvěstné. Při přípravě tohoto článku jsme měli možnost prostudovat nám dosud neznámý materiál některých z nich (*Javesella salina, Megadelphax haglundi* a *Nothodelphax albocarinata*; viz též *Platymetopius guttatus* v práci Malenovský &



Figs 51–59. Habitus of some Fulgoromorpha recorded from the Czech Republic. 51 – *Trigonocranus emmeae* Fieber; 52 – *Chloriona sicula* Matsumura; 53 – *Kelisia sima* Ribaut; 54 – *Ribautodelphax pallens* (Stål); 55 – *Megadelphax haglundi* (J. Sahlberg); 56 – *Delphax pulchellus* (Curtis); 57 – *Stenocranus fuscovittatus* (Stål); 58 – *Tettigometra* (*Mitricephalus*) *macrocephala* Fieber, adult; 59 – *T.* (*M.*) *macrocephala*, fifth instar larva. Scale bar: 1 mm.



Figs 60–70. Habitus of some Cicadomorpha recorded from the Czech Republic. 60 – *Empoasca ossiannilssoni* Nuorteva; 61 – *Eupteryx decemnotata* Rey; 62 – *Zyginella pulchra* Löw; 63 – *Zyginidia mocsaryi* (Horváth); 64 – *Eohardya fraudulenta* (Horváth); 65 – *Metalimnus steini* (Fieber); 66 – *Psammotettix slovacus* Dlabola; 67 – *Psammotettix poecilus* (Flor); 68 – *Allygus maculatus* Ribaut; 69 – *Allygidius* (*Dicrallygus*) *mayri* (Kirschbaum); 70 – *Orientus ishidae* (Matsumura). Scale bar: 1 mm.

Tropek 2009). V některých případech se jednalo již o sběry staršího data, ale z většího počtu lokalit. Pro potvrzení současného stavu populací těchto i jiných ohrožených druhů křísů je zapotřebí další terénní výzkum.

Fauna křísů ČR po započtení všech výše jmenovaných nových nálezů současně čítá celkem 572 druhů (135 druhů Fulgoromorpha, 437 druhů Cicadomorpha). Toto číslo pravděpodobně není konečné. Materiál některých dalších taxonů, které nebyly předmětem této práce, je třeba v budoucnu ještě revidovat. Rovněž je možné předpokládat nálezy některých druhů, které se vyskytují v okolních státech, ale zatím nebyly potvrzeny v ČR.

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