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Distribution of *Gerris asper* and *G. lateralis* (Hemiptera: Heteroptera: Gerridae) in the Czech Republic

Rozšíření *Gerris asper* a *G. lateralis* (Hemiptera: Heteroptera: Gerridae) v České republice

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Heteroptera, Gerridae, *Gerris asper*, *Gerris lateralis*, distribution, new records, Czech Republic

Abstract. All the available published and unpublished distributional records of two endangered pond skaters, *Gerris asper* (Fieber, 1860) and *Gerris lateralis* Schummel, 1832 (Hemiptera: Heteroptera: Gerridae) in the Czech Republic are summarized and mapped. *Gerris asper* was originally described from Bohemia by Fieber (1860) without any exact locality and we have been unable to confirm its occurrence with any subsequently collected specimen. The distribution of *G. asper* in the Czech Republic thus seems to be limited to southern and central Moravia, with a single new record from northern Moravia, where it was found syntopically with *G. lateralis*. *Gerris lateralis* is widespread in Bohemia and a new species for Moravia, where it was collected on two sites in the north of the territory (the Czech Silesia). General distribution, biology and ecology of both species are reviewed and summarized.

INTRODUCTION

Water striders or pond skaters (Gerridae) are a remarkable family of semi-aquatic true bugs (Hemiptera: Heteroptera: Gerromorpha) including 8 subfamilies, 67 genera and 751 species world-wide (Andersen 1995, Henry 2009). However, as the biodiversity of the family is mostly confined to the tropics, only a single subfamily, Gerrinae, 3 genera and 17 species occur in Europe (Andersen 1995, Aukema 2011, Aukema et al. 2012). In the Czech Republic we may encounter 10 species belonging to three genera: *Limnoporus* Stål, 1868 (1 species), *Aquarius* Schellenberg, 1800 (2 species) and *Gerris* Fabricius, 1794 with two subgenera (*Gerris* s. str. – 5 species, *Gerriselloides* Hungerford et Matsuda, 1958 – 2 species) (Andersen 1995, Kment & Smékal 2002). Among the ten Czech species, seven are more or less common throughout the territory, while three species are considered rare and were included in the Red List of the threatened invertebrate species of the Czech Republic (Kment & Vilímová 2006). *Aquarius najas* (De Geer, 1773), classified as vulnerable (Kment & Vilímová 2006), is a characteristic

inhabitant of natural, unregulated rivers and semi-natural channels in floodplain forests (e.g., Wróblewski 1980, Bryja & Kment 2001). The remaining two species, *Gerris* (*Gerriselloides*) *asper* (Fieber, 1860) and *Gerris* (*Gerriselloides*) *lateralis* Schummel, 1832, were classified as endangered (Kment & Vilímová 2006). The distribution and ecology of these species in the Czech Republic were first reviewed by Kment & Smékal (2002). Here we present additional distributional records obtained during the last decade, including the first record of *G. lateralis* from Moravia and the first record of *G. asper* from the Odra river basin within the Czech Republic.

MATERIAL AND METHODS

Both *Gerris* (*Gerriselloides*) *asper* and *G.* (*Gerriselloides*) *lateralis* were identified using the keys by Jazcewski & Wróblewski (1976), Wróblewski (1980), Schuster (1983) and Andersen (1994).

The territory of the Czech Republic is further divided into two historical lands: Bohemia in the west and Moravia (including the Czech part of Silesia) in the east (for details see Kment (2009)). The published records are given chronologically, the unpublished records are ordered according to increasing code numbers of the fields in the faunistic and floristic grid mapping system of central Europe (Ehrendorfer & Hamann 1965, Pruner & Míka 1996).

The material examined is deposited in the following collections:

MMLC Municipal Museum Mariánské Lázně, Czech Republic;
NMPC National Museum, Praha, Czech Republic;
JSBC Jan Sychra, Brno, Czech Republic;
JVPC Jitka Vilímová, Department of Zoology, Charles University, Praha, Czech Republic;
MSHC Michal Straka, Hustopeče, Czech Republic;
PJHC Petr Jeziorski, Havířov, Czech Republic;
PKBC Petr Komzák, Brno, Czech Republic;
TDCC Tomáš Ditrich, České Budějovice, Czech Republic.

Published records for which identification is doubtful are marked by [?]. The following abbreviations are used throughout the text: NM – Nature Monument, NNM – National Nature Monument, NR – Nature Reserve, NNR – National Nature Reserve (all of these are the various categories and terms specified by the Czech system of legally protected natural areas, Act No. 114/1992 coll.); SCI – Site of Community Importance (area protected by the European Union Directive 92/43/EEC); ap – apterous morph, ma – macropterous morph; det. – identified by, lgt. – collected by, spec. – sex of specimen not identified, revid. – identification revised by.

RESULTS AND DISCUSSION

Gerris (*Gerriselloides*) *asper* (Fieber, 1860)

(Fig. 1)

Published records. Bohemia: Fieber (1860, syntypes): 'Bohemia' [?]. Hrbáček (1943): Borkovice, pools after digging of peat and on Blatská strouha drain (6753) [?]. Petr (2000): [Modrava], Rokytská and Přední Mlynářská slať peatbogs (6946) [?]; [Modrava], Hraniční slať peatbog (7046) [?]. Papáček et al. (2002): Novohradské hory Mts. [?].
Moravia: Stehlík (1962): Střeň, oxbow lake in floodplain forest (6368); Třebíč, at Terůvky grove (6761); Brno-Líšeň, Říčka rivulet (6766); Sokolnice, on brook flowing through saltmarsh at Telnický rybníček pond (6866); Velké Němčice, Brodač saltmarsh (7066); Nové Mlýny, oxbow lake in floodplain forest (7166); Hodonín, on a puddle in Důbrava forest (7168). Kment (1999) [details supplemented by Kment & Smékal (2002)]: Mikulov, Nový rybník pond (7266); Valtice, Randezvous NNM (7266); Lanžhot, Ranšpurk NNR, Ranšpurk channel (7367). Kment (2001): Kněždub, Čertoryje NNR, Radějovka brook (7170). Kment

& Smékal (2002): Přovice, V Boukalovém NM, pool merging into forest and wet meadow (6368); Jedovnice, Dymák pond (6666); Brno-Žebětín, Žebětínský rybník NM, pond (6764); Moravský Krumlov-Rokytná, Rokytná river at road bridge (6963); Velká nad Veličkou, Velička river above a weir in the village (7171).

New records. Moravia: Rychvald, Skučák NR, Rychvaldská Lutyňka brook (49°51′58″N 18°23′32″E, 6176), 210 m a.s.l., collected together with *G. lateralis*, *G. lacustris* and *Velia caprai*, 11.iv.2002, 1 ♀ (ma), 17.iv.2002, 1 ♀ (ma), P. Jeziorski lgt. et det., P. Kment revid. (PJHC). Ptáčov, Starý Ptáčovský rybník pond (49°13′39″N 15°55′19″E, 6761), 30.vi.2011, 1 ♂ (ap), J. Sychra lgt. et det. (JSBC). Grešlové Mýto, Doubravka brook (48°58′47″N 15°52′32″E, 7061), 30.ix.2009, 1 ♂ (ma), P. Komzák lgt. et det., P. Kment revid. (PKBC). Ivaň, Střední nádrž reservoir of Nové Mlýny dam (48°54′34″N 16°36′12″E, 7065), 27.iv.2010, 1 ♂ (ma), M. Straka lgt. et det. (MSHC). Milotice, Písečný rybník NR, pond (48°57′46″N 17°09′22″E, 7068), 16.iv.2009, 1 ♂ (ap), M. Straka lgt., P. Kment det. (MSHC). Moravský Písek, Vypálenky SCI, pools with reeds (48°58′21″N 17°19′39″E, 7069), 4.vi.2008, 1 ♀ (ma), M. Straka lgt., P. Kment det.; pools (48°58′44″N 17°19′15″E, 7069), 16.iv.2009, 1 ♀ (ma), M. Straka lgt. et det. (MSHC). Přímětice, Kaolinka Únanov SCI, china clay quarry, small pool (48°53′19″N 16°03′06″E, 7162), 22.iv.2009, 1 ♀ (ap), M. Straka lgt. et det. (MSHC). Božice, Božické rybníky SCI, Protržený rybník pond (48°49′38″N, 16°16′34″E, 7163), 29.vii.2008, 1 ♂ 1 ♀ (ap). Božice, Božické rybníky SCI, Horní Karlov pond (48°49′32″N 16°18′14″E, 7163), 9.vi.2009, 1 ♂ (ma), M. Straka lgt., P. Kment det. (MSHC). Hodonice, swamp S of the village (48°49′56″N 16°10′18″E, 7163), 9.iv.2010, 1 ♂ 2 ♀♀ (ma), J. Sychra lgt. et det. (JBSC).

General distribution. *Gerris asper* is a south-eastern vicariant of the boreo-montane sister species *G. lateralis*. It is mostly distributed in southern and central Europe (Austria, Bulgaria, ?Croatia, Czech Republic, France, Germany, Hungary, Italy, Macedonia, Poland, Romania, Russia (South European Territory), Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine), North Africa (?Algeria, Morocco), and Near East (Asian Turkey, Israel, Syria), extending eastwards to Afghanistan (Andersen 1995, García-Avilés 1995, Strpić 1997, Protić 1998, Hufnagel 2000, Salur & Mesci 2009, Fent et al. 2011, Aukema 2011, Dursun 2012). The records from Iran require confirmation (Ghahari et al. 2010, Samin et al. 2011). The northern limit of its distribution in central Europe passes through Germany (Baden-Württemberg, Bavaria) (Hoffmann & Melber 2003), Austria (Rabitsch & Zettel 2000), northern Moravia (this paper), southernmost Poland (Mielewczyk 1985), and northern Slovakia (Bryja & Kment 2007).

Distribution in the Czech Republic. *Gerris asper* was described by Fieber (1860) under the name *Hydrometra aspera* from Bohemia and Galizia (today in south-eastern Poland and western Ukraine) without exact localities. Unfortunately, the type series of *G. asper* seems to be lost (cf. Andersen 1995). Subsequently it was only reported four times from Bohemia. The record of *G. asper* from Praha-Cibulka (Teyrovský 1920) refers to a misidentification of *G. lateralis* (see Kment & Smékal 2002). The records by Hrbáček (1943) and Petr (2000) cannot be confirmed, as the voucher material is not preserved, but as the records come from peat-bogs, a rather characteristic habitat for *G. lateralis*, it is probable that they are misidentifications of that species. The same seems to be true for the unlocalised record from the Novohradské hory Mts. by Papáček et al. (2002). Considering these facts, there is currently not a single confirmed record of *G. asper* from Bohemia.

In Moravia, the species was first recorded by Stehlík (1962), followed by additional records by Kment (1999, 2001) and Kment & Smékal (2002), all the records coming from warm

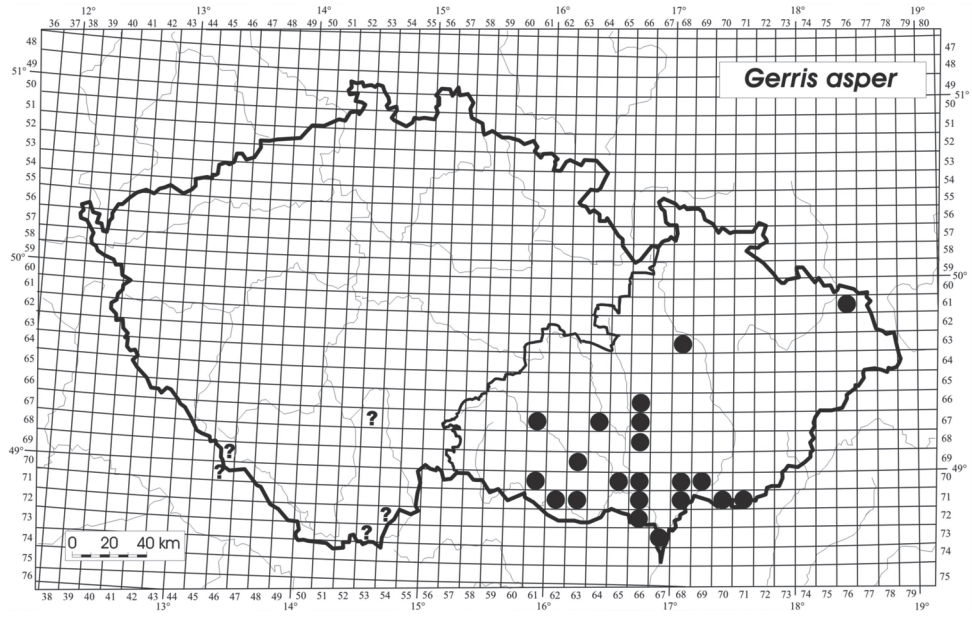

Fig. 1. Distribution of *Gerris* (*Gerriselloides*) *asper* (Fieber, 1860) in the Czech Republic. Grid squares with unverified records are marked with a question mark.
Obr. 1. Rozšíření druhu *Gerris* (*Gerriselloides*) *asper* (Fieber, 1860) v České republice. Čtverce s neověřeným výskytem jsou označeny otazníkem.

lowlands, mostly in the south of the territory, with the northernmost record coming from the Litovelské Pomoraví PLA in central Moravia. The recent record from Skučák NR is the first one from the Odra river basin and the northernmost one for the Czech Republic.

Bionomics and ecology. Compared to *G. lateralis*, the ecology and bionomics of *G. asper* is insufficiently known. It occurs in both macropterous and apterous forms (e.g., Wróblewski 1980). The larva of *G. asper* was described independently by Luginbühl & Zimmermann (1996) and Hufnagel & Vásárhelyi (1999). In the Alps (Austria, Switzerland) this species is univoltine (Nieser 1981, Zimmermann et al. 1996), but Vepsäläinen (1974) recorded two generations per year in Hungary. Nieser (1981) collected *G. asper* in a partly-shaded dike along railway (pH 7–7.6, conductivity 330–520 S/cm) at altitude 500 m a.s.l. in the Tyrol. Zimmermann et al. (1996) characterised its habitat in Switzerland as cool and shaded ponds. Vepsäläinen (1973, 1974) mentioned that localities of *G. asper* in Hungary resemble those of *G. lateralis* in Finland in their shaded conditions and dense littoral vegetation. Rabitsch & Zettel (2000) considered its distribution in Austria as scattered, without clear affinity to any particular habitat type; they mostly collected overwintered specimens early in the spring. Overwintered and usually migrating macropterous specimens have also been recorded in April and May by Kment & Smékal (2002) and in this paper in a variety of habitats. Apterous specimens, confirming breeding of the species at a particular locality, were collected in Moravia in an oxbow lake in floodplain forest (Stehlík 1962) and shaded parts of richly vegetated ponds and pools (Kment & Smékal 2002, this paper).

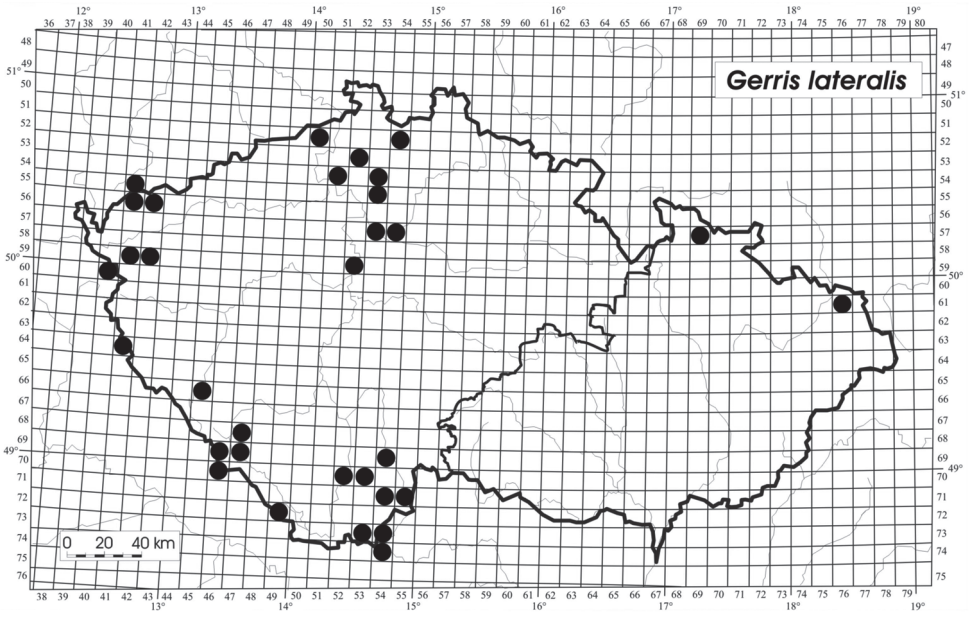

Fig. 2. Distribution of *Gerris* (*Gerriselloides*) *lateralis* Schummel, 1832 in the Czech Republic.
Obr. 2. Rozšíření druhu *Gerris* (*Gerriselloides*) *lateralis* Schummel, 1832 v České republice.

Gerris (*Gerriselloides*) *lateralis* Schummel, 1832
(Fig. 2)

Published records. Bohemia: Teyrovský (1920, as *G. asper* [misidentification, see Kment & Smékal 2002]): Praha-Cibulka (5952). Roubal (1957): Pozorka u Nejdku, dike in a swampy meadow (5642). Bryja & Kula (2000) [details provided by Kment & Smékal (2002)]: Jílové – Sněžník, Letadlo, pitfall trap (5250); Jílové-Sněžník, Vlčák, pitfall trap (5250). Petr (2000): Modrava, Rokytská and Přední Mlynářská slať, peatbogs (6946); Modrava, Hraniční slať, peatbog (7046). Papáček et al. (2002): Novohradské hory Mts. [no more details]. Kment & Smékal (2002): Blíževedly-Hvězda, Pod Hvězdou NM, artificial pool in a wetland (5352); Dubá – Vrabcov, Mokřady Horní Liběchovky, sedge meadow, pitfall trap (5453); Mšeno-Vojtěchov, Kokořínský důl NR, swampy alder carr, pitfall trap (5553); Lysá nad Labem, Hrabanovská Černava NNR, brook (5754); Kašperské Hory-Kavrlík, small disturbed pond in cow pasture (6847); Modrava, Rokytská slať, pools in a peat-bog (6946); České Budějovice, at crossroad of Branišovská and U hada streets, peaty pool in a forest (7052). Ditrich et al. (2008): Pohoří na Šumavě, spring area of the Pohořský potok stream 1 km S of the village, permanent and temporary pools and ditches in peatbogs and spruce forests (73–7454). Sychra & Kment (2009): [Přebuz], Velké Jeřábí jezero NNR, pool on raised peat-bog (5541); [Přebuz], pools in alluvium of the Slatiný potok brook (5541); [Přebuz], Velký cínový důl mine, ditches (5641); [Přebuz], ditches along road at former settlement Sauersack (5641). Kment & Kejval (2011): Bělá nad Radbuzou, former village Pleš, shaded pool (6441 [here corrected]); Pleš NR (6441 [here corrected]), shaded brooklet in beech forest. Soldán et al. (2012): Nová Pec, tributary of the Plešné jezero lake (7249), stream.

New records. Bohemia: Mařeničky, Rašeliniště Mařeničky NM (50°47′41″N 14°40′28″E, 5254), peat-bog , 29.vi.2004, 1 ♂ 1 ♀ (ap), P. Kment lgt. et det. (NMPC), 10.vi.2005, 2 ♀♀ (ap), P. Kment & I. Malenovský lgt., both P. Kment det. (NMPC). Loučky, Bobří soutěska valley (50°39′31″N 14°21′02″E, 5352), pool above Bobří potok brook under a scree slope 1.5 km E of the village, 480 m a.s.l., 23.iv.2011, numerous apterous specimens, P. Kment lgt. et det. (2 ♂♂ 1 ♀ (ap) in NMPC). Vinné, pool in alluvium of Trojhorský potok brook 400 m N of village (50°35′19″N 14°12′23″E, 5451), 24.iv.2011, 1 ♀ (ma), P. Kment lgt. et det. (NMPC). Přebuz, former village Neuhaus (Chaloupky) (50°22′22″N 12°39′25″E, 5641), peat bog, 20.ix.2010, 1 ♂ 1 ♀ (ap); same locality, 12.viii.2011, 1 ♀ (ma) 1 ♀ (ap), all J. Sychra lgt. et det. (JSBC). Tuhaň (5753), 15.viii.1992, 1 ♂ (ap), J. Vilímová lgt., P. Kment det. (JVPC). Dolní Žandov, former military training area (50°0′59″N 12°34′10″E, 5941), dike in a meadow, 25.iii.2011, 2 ♀♀ (ma), L. Dvořák lgt., P. Kment det. (MMLC). Mariánské Lázně, Kladské rašeliny NNR, part Lysina (50°01′37″N 12°38′52″E, 5941), peat-bog, pitfall trap, 16.vii.2004, 1 ♂ 1 ♀ (ap), I. Fenclová lgt., P. Kment det. (MMLC, NMPC). Mariánské Lázně, Kladská (50°01′30″N 12°40′08″E, 5942), dike in a meadow, 28.v.2012, 1 ♂ (ma), L. Dvořák lgt. et det. (MMLC). Nové Mohelno, Stará Mohelenská NM, peat-bog (6040), dike at road at the lower margin of a peat-bog, together with *G. lacustris*, *G. gibbifer* and *Sigara nigrolineata*, 3.iv.2011, 1 ♂ (ma), L. Dvořák lgt. et det. (MMLC). Klenová, former military training area (6645), 16.iii.2012, 1 ♀ (ma), P. Kresl lgt., L. Dvořák det. (MMLC). Srní, Mosau (49°04′47″N 13°27′28″E , 6946), swamp, 23.viii.2009, 2 ♀♀ (ap), J. Sychra lgt. et det. (JBSC). Nové Hutě, Borkoviště peat-bog ca. 1.6 km SW of Nové Hutě (6947), together with *G. gibbifer* and *V. caprai*, ca. 1120 m a.s.l., vii.2011, dozens of specimens (predominantly apterous), T. Ditrich lgt. et det. (TDCC). Lužnice, Velký a Malý Tisý NNR, shaded pool in alder carr between Velký Dubovec and Malý Dubovec ponds (49°03′58″N 14°43′22″E, 6954), 425 m a.s.l., 14.ix.2010, 1 ♀ (ap), P. Kment lgt. et det. (NMPC). Rudolfov, pools in alluvium of the Rudolfovský potok stream ca. 5 km NE of České Budějovice (7053), together with *G. lacustris* and *V. caprai*, ca. 470 m a.s.l., 2008–2011, dozens of specimens (predominantly apterous), T. Ditrich lgt. et det. (TDCC). Šalmanovice, Červené blato NNR (48°51′31″N 14°48′13″E, 7154), peat-bog, small shaded pools and dikes in pine forest, 474 m a.s.l., 15.ix.2010, 2 ♂♂ 3 ♀♀ (ap), P. Kment & J. Sychra lgt. et det. (NMPC, JSBC). Dvory nad Lužnicí (7155), Žofinka NNR, 16.iv.1992, 1 ♂ (ap), K. Hůrka lgt., P. Kment det. (JVPC). Uhliště, forest pools and streams at the catchment area of the Uhlišťský rybník pond (7353), together with *G. gibbifer* and *V. caprai*, ca. 800 m a.s.l., 2004–2010, dozens of specimens (equally apterous and macropterous), T. Ditrich lgt. et det. (TDCC). Leopoldov, tributaries and adjacent pools of the Pohořský potok brook (7353), together with *G. gibbifer* and *V. caprai*, ca. 860 m a.s.l., 2006–2010, dozens of specimens (predominantly macropterous), T. Ditrich lgt. et det. (TDCC).

Moravia: Rejvíz, Rejvíz NNR (NW part), spruce forest in the environs of the Velké mechové jezírko lake (50°13′12″N 17°17′13″, 5769), on small shaded pools in holes left by windthrown trees, 768 m a.s.l., 15.viii.2011, 2 ♀♀ (ma) 2 ♀♀ (ap) (+ several larvae observed), P. Kment lgt. et det. (NMPC). Rychvald, Skučák NR, Rychvaldská Lutyňka brook (49°51′58″N 18°23′32″E, 6176), 210 m a.s.l., together with *G. asper*, *G. lacustris* and *V. caprai*, 7.iv.2002, 1 ♀ (ma), P. Jeziorski lgt. et det., P. Kment revid. (PJHC).

General distribution. Eurosiberian, boreo-montane species distributed in most of the Europe (Austria, Belgium, Byelorussia, Czech Republic, Denmark, Estonia, Finland, ?France, Germany, Great Britain, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Macedonia, the

Netherlands, Norway, Poland, Portugal, Romania, Russia (Northern, Central and Southern European Territories), Serbia, Slovakia, Spain, Sweden, Switzerland, Ukraine), West and East Siberia and Far East of Russia, extending to Iran, Afghanistan, Asian part of Kazakhstan, and Mongolia (Andersen 1995, Protić 1998, Rabitsch & Zettel 2000, Aukema 2011). A record from Albania (Misja 1973) needs verification. In southern parts of its distributional region *G. lateralis* is confined to mountains.

Distribution in the Czech Republic. In Bohemia, *G. lateralis* was first recorded by Teyrovský (1920) from Praha-Cibulka, but misidentified as *G. asper* (see Kment & Smékal 2002). It was further recorded from several different regions of Bohemia: Krušné hory Mts. (Roubal 1957, Sychra & Kment 2009), Labské Pískovce PLA (Bryja & Kula 2000), Kokořínsko PLA (Kment & Smékal 2002, Bryja & Kment 2006), Labe lowland in central Bohemia (Kment & Smékal 2002), Český les Mts. (Kment & Kejval 2011), Šumava Mts. (Petr 2000, Kment & Smékal 2002, Soldán et al. 2012), České Budějovice basin (Kment & Smékal 2002), and Novohradské hory Mts. (Papáček et al. 2002, Ditrich et al. 2008). In a current paper we provide first records from the Lužické Hory Mts., České středohoří PLA, Slavkovský les PLA, and Třeboňsko PLA. It is possible that the records of *G. asper* by Hrbáček (1943) and Petr (2000) also represent *G. lateralis*.

In Moravia, the only published record of *G. lateralis* was by Roháčová (1996) from Dobrá (6376) near Frýdek-Místek; however, examination of the specimen showed it was a misidentified *G. lacustris* (Linnaeus, 1758) (Kment & Smékal 2002). **New species for Moravia.**

Bionomics and ecology. *Gerris lateralis* has macropterous and apterous forms; the dimorphism is determined genetically (but see Ditrich et al. 2008). In Finland, *G. lateralis* has one generation per year and its development is faster than that of *G. odontogaster* (Zetterstedt, 1828) or *G. lacustris* (Vepsäläinen 1973). Wróblewski (1980) states the existence of two generations per year in Poland. It overwinters in the adult stage and leaves for overwintering prior to the often sympatric *V. caprai*, females prior to males (Ditrich et al. 2011).

The biology of *G. lateralis* is relatively well known. According to Vepsäläinen (1973), the centre of its distribution in Finland is in its northern part (it even reaches north of the polar circle), where it is a dominant species of Gerridae. During the period of migration after overwintering it is found in wide range of habitats, however, larvae usually develop in very shaded sites, often with dense littoral vegetation. Although the localities are often small, they usually have low evaporation and could be permanent; however, the species has also been found in temporary habitats. In northern Finland it also inhabits larger ponds, pools in peat-bogs, and slowly running waters. In southern Finland its habitat spectrum is much narrower, including especially spring fens, roadside ditches, pools and gravel-pits (Vepsäläinen 1973); it was found in similar habitats in Norway (Ditrich et al. 2011). Andersen (1982) considered it to be the pond-skater with the strongest preference for dense vegetation, which he attributed to avoidance of competition. The avoidance of sites with a stony shoreline was confirmed by Coulianos et al. (2008).

In Poland, *G. lateralis* is a characteristic species of shaded forest water bodies, especially small ones, but is also known from ponds, pools after peat extraction, puddles amongst *Sphagnum*, puddles in wetlands, amelioration drains, small pools in spring fens, and small, slowly running streams (especially on water-logged substrate among trees), sometimes even from shaded bays of small lakes (Wróblewski 1980). Kurzątkowska (1999) considered *G. lateralis* as a grade II tyrphophilous species. In Austria it prefers peaty pools, but also occurs in floodplain forests (Rabitsch & Zettel 2000). In the Vysoké Tatry Mts. in Slovakia it occurs as high as 1300 m a.s.l., especially in mossy pools (Teyrovský 1968).

Kment & Smékal (2002) recorded the species from various habitats in Bohemia: raised peat-bogs, peaty pools, small disturbed pond in a pasture, alder carr, as well as a small brook issuing from a wetland in warm lowland; however, these were all 'marginal' habitats, in which it escapes competition from other pond skater species. Apterous specimens of the species were collected several times in pitfall traps installed near suitable habitats, confirming the ability of this species to survive in semi-terrestrial conditions, which also helps to avoid the interspecific competition (Bryja & Kula 2000, Kment & Smékal 2002, this paper).

DISCUSSION

In this paper we summarize the known distribution of *Gerris asper* and *G. lateralis* in the Czech Republic based on published and unpublished records. We found *G. asper* to occurr in 21 mapping squares in Moravia, mostly in its southern Pannonian part, while there is no confirmed record of the species in Bohemia. *Gerris lateralis* was found in 30 mapping squares in Bohemia and recorded for the first time from Moravia (2 squares). Both species seems to occupy similar 'marginal' habitats such as shaded pools and wetlands, but they seem to be rather allopatric in terms of climatic conditions, *G. asper* being clearly thermophilous, while *G. lateralis* occurs mostly in colder regions. Only the records of *G. lateralis* from the thermophyticum of central Bohemia (Labe river lowland and Prague) represent an exception, but they may be a result of the near-absence of the potentially competing *G. asper* in that region.

We document only a single case of sympatric occurrence of both species in the Odra river lowland in northern Moravia, however, as the co-occurring specimens were macropterous their development at that site cannot be proved. The co-occurrence of *G. asper* and *G. lateralis* has previously only been encountered at one locality in Bavaria (Schuster 1981) and one locality in southern Poland (Mielewczyk 1985). Schuster (1981) documented a strong population of *G. lateralis* with both macropterous and apterous specimens in a water dike at Benediktbeuern-Moos in Bavaria, with two intermingled macropterous females of *G. asper*. Mielewczyk (1985) collected one macropterous female of *G. asper* and two males and one female (all apterous) of *G. lateralis* on puddles at Staw Smreczyńskego pond in the Tatra Mts., southern Poland.

The rarity, leading to the conservation status of the two species in the Czech Republic is a result of their specific habitat demands, requiring small shaded and vegetated pools, which occur usually in marginal parts of well preserved wetlands with well developed littorals. Such habitats are only scarce in the country because of natural wetland degradation by drainage, pollution and last but not least by the use of water bodies for intensive aquaculture. The latter in particular causes destruction of littorals along gently sloping banks of water bodies (Hroudová & Zákravský 1999) with small pools among macrophyte beds, a very important habitat for many threatened aquatic invertebrates (e.g., waterbugs, beetles, dragonflies). Since oligotrophic wetlands at higher altitudes are better preserved and often also protected in the Czech Republic, *G. lateralis* which prefers these habitats is more widely distributed and can be locally common in suitable conditions. On the other hand, the lowland wetlands preferred by *G. asper* are among the most threatened habitats in the country. Moreover, this species has its northern distributional limit in our region, another reason for its limited occurrence. The conservation of both species can only be achieved by protection of known localities; in lower altitudes management targeted at supporting extensive shallow littoral beds could also be beneficial.

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SOUHRN

V tomto článku jsou shrnuty a vymapovány veškeré publikované a nepublikované údaje o výskytu dvou ohrožených druhů bruslařek, *Gerris asper* (Fieber, 1860) (b. jižní) a *Gerris lateralis* Schummel, 1832 (b. severská) (Hemiptera: Heteroptera: Gerridae), v České republice.

Druh *Gerris asper* byl původně popsán Fieberem (1860) z Čech a Haliče, avšak bez přesných lokalit a bez dochovaného typového materiálu (Andersen 1995). Vzhledem k absenci pozdějších nálezů nemůžeme výskyt tohoto druhu v Čechách potvrdit. Rozšíření *G. asper* v České republice je tak omezeno na jižní a střední Moravu (21 mapovacích čtverců), s jediným novým nálezem ze severní Moravy. *Gerris lateralis* je druh široce rozšířený v Čechách (30 čtverců) a v této práci je poprvé hlášen i ze severní Moravy (respektive Českého Slezska, 2 čtverce). Oba druhy se vyskytují v podobných „okrajových" habitatech jako jsou zastíněné tůně a mokřady, avšak zdají se být výrazně alopatrickými vzhledem ke klimatickým podmínkám – *G. asper* je druhem výrazně teplomilným, zatímco *G. lateralis* se vyskytuje většinou v chladnějších oblastech. Výjimkou jsou v tomto ohledu nálezy *G. lateralis* v termofytiku středních Čech (Polabí, Praha) a mohou být výsledkem absence potenciálně konkurenčního druhu *G. asper* v těchto oblastech. V rámci České republiky je znám pouze jediný případ sympatrického výskytu obou druhů, a to v nížině řeky Odry na severní Moravě (lokalita PR Skučák), avšak všechny spolu nalezené kusy obou druhů byly makropterní a jejich společný vývoj tak není doložen. Podle literárních údajů byl společný výskyt obou druhů zatím doložen pouze na jedné lokalitě v Bavorsku (Schuster 1981) a na jedné lokalitě v jižním Polsku (Mielewczyk 1985), avšak ani v jednom z těchto případů nebyl dokázán společný vývoj.

Oba druhy, b. severská i b. jižní, jsou zahrnuty v Červeném seznamu bezobratlých České republiky jako druhy ohrožené (Kment & Vilímová 2006). Tento status vychází ze specifických ekologických nároků obou druhů, které potřebují ke svému vývoji drobné zastíněné a zarostlé tůně, vyskytující se většinou v okrajových částech dobře zachovalých mokřadů s vyvinutými litorály. Takovéto biotopy jsou u nás vzácné díky ničení přirozených mokřadů melioracemi, znečišťováním a intenzivními akvakulturami. Zejména využívání vodních nádrží k intenzivnímu chovu ryb a/nebo kachen ničí litorální porosty na jejich mělkých březích s drobnými tůňkami mezi porosty vodních makrofyt (Hroudová & Zákravský 1999), které jsou vhodnými mikrobiotopy pro mnoho ohrožených vodních bezobratlých (např. vodní ploštice, brouci, vážky). Vzhledem k tomu, že oligotrofní mokřady ve vyšších polohách jsou obecně lépe zachovalé a často podléhají zakonné ochraně, je *G. lateralis*, která preferuje právě takovéto biotopy, v Českých zemích rozšířenějším druhem a za příhodných podmínek bývá místy hojná. Naopak nížinné mokřady, často obývané *G. asper*, patří k nejohroženějším biotopům v ČR, což spolu s okrajovým výskytem tohoto druhu při severní hranici svého areálu, způsobuje vzácnost tohoto druhu. Ochrana obou vzácných bruslařek může být docílena jen ochranou známých lokalit těchto druhů, a v případě nížinných lokalit může být podpořena vhodným managementem, cíleným na podporu rozsáhlých mělkých a zarostlých litorálů.