

First addendum to the Leafhoppers and Planthoppers of Germany (Hemiptera: Auchenorrhyncha)

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Abstract: Recent additions to the fauna of leafhoppers and planthoppers of Germany are communicated. *Cixidia lapponica* (Zett.), *Empoasca decedens* Paoli, *Kyboasca maligna* (Walsh), *Ribautiana cruciata* (Rib.), *Synophropsis lauri* (Horv.) and *Paralimnus lugens* (Horv.) are new for the country. New distribution data which indicate a recent range expansion are given for *Chloriona sicula* Mats., *Zygina lunaris* (M. & R.), *Orientalis ishidae* (Mats.), as well as for the previously overlooked and little known *Paralimnus rotundiceps* (Leth.). *Paralimnus zachvatkini* Em. is proposed as a younger synonym of *P. lugens* (Horv.).

Zusammenfassung: Es werden neuere Ergänzungen zur Zikadenfauna Deutschlands mitgeteilt. *Cixidia lapponica* (Zett.), *Empoasca decedens* Paoli, *Kyboasca maligna* (Walsh), *Ribautiana cruciata* (Rib.), *Synophropsis lauri* (Horv.) und *Paralimnus lugens* (Horv.) sind neu für das Land. Neue Verbreitungsdaten, die für eine jüngere Arealausweitung sprechen, werden für *Chloriona sicula* Mats., *Zygina lunaris* (M. & R.), *Orientalis ishidae* (Mats.) sowie für den bisher übersehenen und wenig bekannten *Paralimnus rotundiceps* (Leth.) aufgeführt. *Paralimnus zachvatkini* Em. wird als jüngeres Synonym von *P. lugens* (Horv.) vorgeschlagen.

Key words: Fulgoromorpha, Cicadomorpha, checklist, Germany, invasive species, range expansion, *Paralimnus lugens*, *Paralimnus zachvatkini*

1. Introduction

Since the publication of the checklist to the German Auchenorrhyncha (Nickel & Remane 2002) and the following compilation of ecological and distributional data and their analysis (Nickel 2003) a number of new species has been recorded, and the information on some little known species has considerably increased. This paper presents some results of recent field work, notably new species records for the country, more distributional data of formerly little known or expanding species, new host plant records and a few nomenclatural changes. It also includes a number of photographic records published only on the web. All records leg. et det. H. Nickel, if not otherwise stated.

2. New species records for Germany

Cixidia lapponica (Zetterstedt, 1840) (Fig. 1a)

Bayern: Spiegelau, above Jägerfleck, 810 m, VII.2007, 1 ♂, in a window trap. St. Oswald-Riedlhütte, above Guglöd, VII. and VIII.2007, altogether 2 ♂♂, 3 ♀♀; in Malaise traps at two different sites, at 800 and 890 m. All three localities are situated within open spruce forest with a high proportion of standing and lying dead trees.

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A remarkable finding, since all over central Europe there is only a single record of this species published more than 30 years ago from northern Slovakia: “Nízke Tatry, Vajakovského dolina, c. 700 m, 16.VII.1974, 1 ♂, 1 ♀, on decaying logs of *Abies alba*“ (Dlabola 1976). From Finland nymphs are reported to have been found in pine trunks, along with *Cixidia confinis* (Zett.), feeding on fungi hyphae (Linnavuori 1951). Neither *Abies* nor *Pinus* was present at the German sites. Therefore, fungi living in *Picea abies* are the most likely hosts. The species' range extends from eastern Siberia to Norway, Sweden, Finland and Middle Russia (Anufriev & Emelyanov 1988, Anufriev & Kirillova 1998, Nast 1972, Söderman 2007), apparently with isolated mountain populations in central Europe. Due to the large quantities of dead trees in higher situations of the Bavarian Forest and in other mountain regions in Germany, the species may be more widespread in central Europe.

Empoasca decedens Paoli, 1932 (Fig. 1a)

Baden-Württemberg: Eimeldingen near Weil am Rhein, 260 m, 14.VIII.2005, 1 ♂, on *Salix alba* in a sand pit.

According to Nast (1972, 1987) this species has been recorded in Iraq, Jordan, Israel, Egypt, Libya, Georgia, Cyprus, Slovakia, Italy and France. Furthermore it has been found in Anatolia (Lodos & Kalkandelen 1983), Greece (Drosopoulos *et al.* 1986), Slovenia (Holzinger & Seljak 2001), Montenegro (Velimirovic 1980), Spain (Alvarado *et al.* 1994) and Madeira (Freitas & Aguin Pombo 2004). It is known as a pest of a variety of woody plants, e.g. cotton in Anatolia (Atakan 2009), almond in Spain (Jacas *et al.* 1997) raspberry in north Italy (Grassi & Ri 2006), and peach in Slovenia (Seljak 1997). Since the turn of the century it has been found on the Swiss side of the river Rhein around Basel (Mühlethaler 2001). At least its occurrence in the northern parts of Switzerland (where H. Günthart has been collecting for decades) and in adjacent parts of Germany is probably the result of a recent range expansion. In fact it might be much more widespread, since this area is not well covered by Auchenorrhyncha collectors. In Italy it lives polyphagously on a variety of shrubs and trees, particularly favouring narrow-leaved *Salix*. Records in April and May indicate overwintering in the adult stage (Arzone *et al.* 2008).

Kyboasca maligna (Walsh, 1862) (Photo 1, Fig. 1a)

Nordrhein-Westfalen: Köln, Auweiler, Landwirtschaftskammer Nordrhein-Westfalen, Zentrum für ökologischen Land- und Gartenbau, 45 m, 6.VIII.2010, 16 ♀♀ in an apple orchard, both on standard and half-standard trees.

This is a recent invader, originally found in North America from British Columbia and Ontario southward to California and Georgia (Metcalf 1968). The first European record is from eastern France in 1997: La Wantzenau, near Strasbourg, only 3 km from the German border (della Giustina & Remane (2001). After that it was found in Belgium in 1998, 2 single ♂♂ (Baugnée 2003), then in Luxemburg in 2003 until 2006, 10 localities (Niedringhaus *et al.* 2010a, 2010b) and Czechia, central Moravia, in 2006, a single ♂ (Malenovský & Lauterer 2010). Despite the close proximity of almost all these records, it took a relatively long time until the species was found in Germany. According to Hamilton (1985) it primarily feeds on cultivated *Malus*, and occasionally on *Crataegus*. All French records were from apple (R. Remane, pers. comm.), in Belgium it was collected on *Rosa canina* and *Carpinus betulus*, the Luxemburg records were from apple orchards, urban parks and woodland margins, and apple was not present in each locality. The Czech record was a single ♂ in an apple orchard.

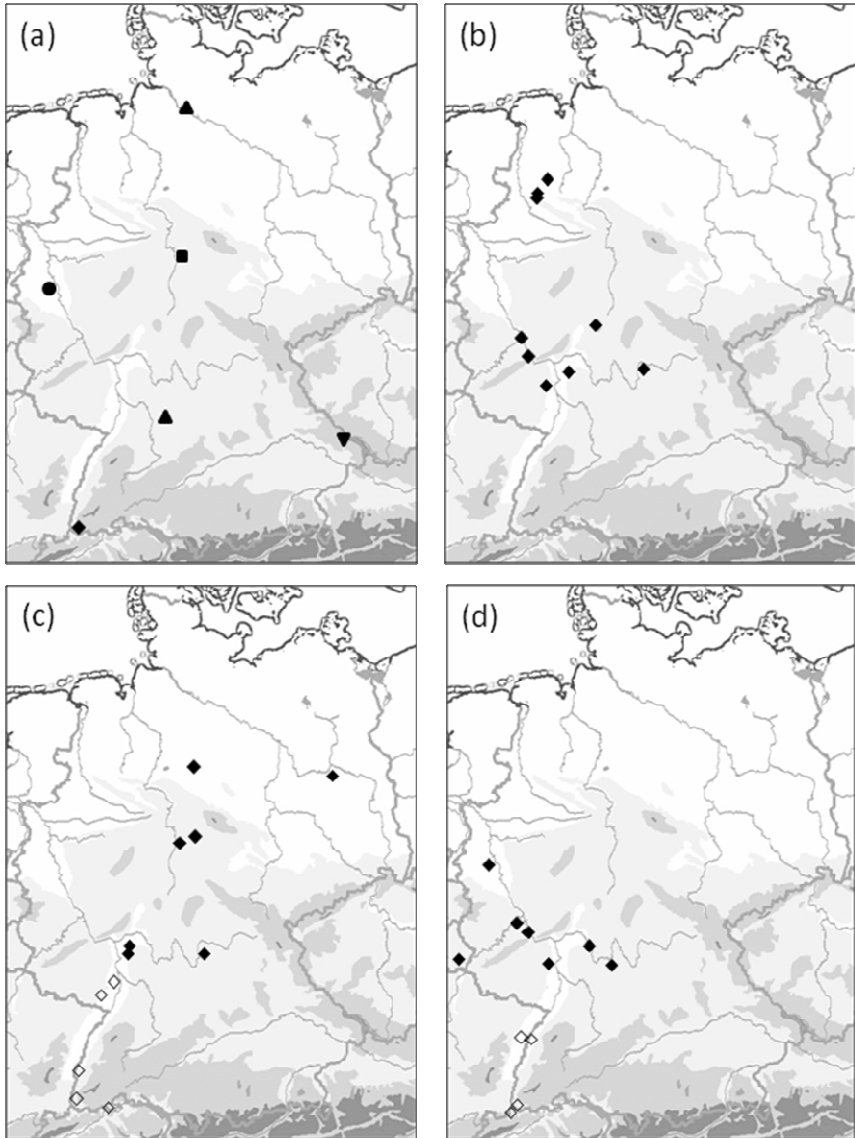


Fig 1: Localities: **a:** ▲ = *Synphropsis lauri* (Horv.), ■ = *Paralimnus lugens* (Horv.), ● = *Kyboasca maligna* (Walsh), ▼ = *Cixidia lapponica* (Zett.), ◆ = *Empoasca decedens* Paoli. **b:** *Ribautiana cruciata* (Rib.). **c:** *Chloriona sicula* Mats., ◇ = records until 2000, ◆ = after 2001. **d:** *Zygina lunaris* (M. & R.), ◇ = records until 2000, ◆ = after 2001.

No feeding damages were observed in any of these localities. The European records were all gathered between mid June and mid August, and ♂♂ were only taken until mid July, indicating a single generation and overwintering as egg. But this conclusion must be considered as preliminary due to the small amount of data. In Canada it is reported to occur from mid June until late October (Hamilton 1985), suggesting a possible second generation.

***Ribautiana cruciata* (Ribaut, 1931)** (Photo 2, Fig. 1b)

Rheinland-Pfalz: Koblenz, Deutsches Eck, 70 m, 21.VIII.2005, 5 ♂♂, 6 ♀♀, shores of the Rhein. Bacharach, 80 m, 10.VI.2006, 18 ♂♂, 7 ♀♀, shores of the Rhein. Offstein, 14.VIII.2008, 4 ♂♂, 4 ♀♀, in a hedge. **Nordrhein-Westfalen:** Hopsten, Heiliges Meer, 45 m, 19.VI.2007, 2 ♂♂, 1 ♀, and 31.VII.2008, 2 ♀♀, on roadside elms. Uffeln, 50 m, 20.VI.2007, 2 ♀♀, on roadside elms. **Hessen:** Darmstadt, garden of the Julius-Kühn-Institut, 170 m, 16.VII.2007, 4 ♂♂, 5 ♀♀. Vogelsberg region, 2008, no further details (R. Remane, pers. comm.). **Bayern:** Schwebheim, 210 m, VIII.2007, 2 ♂♂, 1 ♀, along a woodland margin. **Niedersachsen:** Gehrde, 30 m, 31.VII.2008, 6 ♀♀ in a hedge.

A mediterranean and western European elm-feeder, which was so far known to occur northward to England, Belgium, Switzerland and Slovenia (Nast 1987, Le Quesne & Payne 1981, Löcker 2003), and which has recently expanded its range eastward. It is unlikely that it was overlooked in Germany, since W. Wagner, R. Remane, R. Niedringhaus and the author frequently sampled elms all over the country. In Germany it was found on *Ulmus minor* and *U. × hollandica*. The new records indicate two generations per year and overwintering as egg.

***Synophropsis lauri* (Horváth, 1897)** (Photo 4, Fig. 1a)

Hamburg: Botanical Garden, 20 m, 13.IX.2008, 1 individual photographed on a beerglass and published on the web (Photo 4, downloaded from <http://insektenfotos.de>, Renate Ridley, Hamburg). In close vicinity there were two potted bay trees (*Laurus nobilis*).

Baden-Württemberg: Öhringen, 240 m, 8.IX.2009, 1 ♂, at light in a living room, a large stand of *Hedera helix* nearby, but no *Laurus nobilis* (P. Dynort, pers. comm.).

This species is widespread in most Mediterranean countries (e.g. Nast 1987), feeding on a variety of evergreen trees and shrubs. After being recorded from Basel, Switzerland, in 2000 (Mühlethaler 2001) and England since 2007 (Bantock & Botting 2010) it is now likely to be more widespread in the western half of Germany, although populations may be largely synanthropic in public gardens and parks. *Laurus nobilis* and *Hedera helix* appear to be the most important host plants in central parts of Europe, where broad-leaved evergreen plants are relatively uncommon.

***Paralimnus lugens* (Horváth, 1897)** (Photo 5, Fig. 1a)

Deltocephalus phragmitis var. *lugens* Horváth, 1897

Paralimnus zachvatkini Emelyanov, 1964 syn. nov.

Niedersachsen: Adelebsen, Schwülme basin, 185 m, 13.VII.1995, 1 ♂, and 9.VII.2009, 9 ♂♂, 2 ♀♀, 8 nymphs, plus numerous individuals seen, all in a rather dry and dense stand of reed (*Phragmites australis*). The closely related *P. phragmitis* (Boh.) (Photo 6) was not found in this locality. Immediately after collecting, the first-mentioned specimen was misidentified and mislabelled as *P. phragmitis* (Boh.) by the author. Under this name it was offered to Biedermann & Niedringhaus (2004, 2009), who published a drawing of the dorsal view.



Photo 1: *Kyboasca maligna* (Walsh), ♀, Gostingen (Luxemburg state), 4.VIII.2010 (G. Kunz)



Photo 2: *Ribantiana cruciata* (Rib.), ♂, Darmstadt, 31.VIII. 2008 (G. Kunz)



Photo 3: *Synophropsis lauri* (Horv.), ♂, on a beer glass, Hamburg, Botanical Garden, 13.IX.2008 (R. Ridley)



Photo 4: *Zygina lunaris* (M. & R.), ♀, Lorch am Rhein, 6.VIII.2010 (G. Kunz)



Photo 5: *Paralimnus lugens* (Horv.), ♂, Adelebsen, 10.VII.2009 (G. Kunz)



Photo 6: *Paralimnus phragmitis* (Boh.), ♂, Rabenhof, Styria (Austria), 19.VIII.2007 (G. Kunz)



Photo 7: *Paralimnus rotundiceps* (Leth.), ♂, Gimte, 10.VII.2009 (G. Kunz)



Photo 8: *Orientus ishidiae* (Mats.), ♂, Graz (Austria), 19.IX.2007 (G. Kunz)

Despite revisions of all available material by the author and colleagues (R. Remane, pers. comm.; R. Niedringhaus, pers. comm., S. Walter, pers. comm.) and targeted search in many similar habitats, this locality remained the first and only one confirmed from Germany so far. This is apparently a rare species in Europe. It has long been treated only as a variety of *P. phragmitis* (Boh.), until Koczor (2005), who found significant differences in coloration and genital morphology, raised it to species level. He listed all distributional records so far published, including Hungary, Transcaucasia (Horvath's type series, comprising only 2 single ♀♀), Yemen (Zachvatkin 1935) and Germany (Hueber 1904), the two latter clearly in need of revision. Blöte (1927) in his Dutch leafhopper fauna and Haupt (1935) in his Auchenorrhyncha fauna of central Europe only mentioned the existence of var. *lugens* Horv., but did not give specific records. Later, *Paralimnus zachvatkini* Em., described from the delta of the river Volga (southern Russia, Astrakhan Province), was published from Hungary (Orosz 1999), Bulgaria (Emelyanov *et al.* 2002) and Greece (Drosopoulos *et al.* 1986). More recently it was found in south Finland (Söderman 2004, 2007), Lithuania (Söderman & Dapkus 2009) and Tuscany, Italy (Mazzoni 2005). It is also known from the southwest Russian provinces of Voronezh and Belgorod (A.F. Emelyanov, pers. comm.) and from eastern Zaysan, Kazakhstan (Mityaev 2002). Its synonymy with *P. lugens* (Horv.) was kindly confirmed by A.F. Emelyanov (St. Petersburg).

In Hungary adults were found from mid June until mid October (Koczor 2005), which indicates overwintering as egg and one, perhaps two generations per year.

3. Records of rare and little known species

Chloriona sicula Matsumura, 1910 (Fig. 1c)

Bayern: Volkach, Halbmeilesee, 230 m, 14.VIII.2010, 10 ♂♂ (G. Kunz, pers. comm.). **Niedersachsen:** Negenborn, Helstorfer Moor, 24.V.2008, 1 ♂; Resse, Schwarzes Moor, 45 m, 20.V. 2009, 1 ♂ (the two latter already published by Nickel & Gärtner 2009). Hannoversch Münden, Kiesgrube Ballertasche near Gimte, 110 m, 10.VII. 2009, 2 ♂♂. Friedland, 180 m, 19.VI. 2008, 7 ♂♂, 12.VIII.2010, 8 ♂♂. **Hessen:** Langen-Mörfelden, Langener Waldsee, 100 m, 10.VII.2008, 2 ♂♂. Darmstadt, Ruthsenbach-Grund, 190 m, 14.V.2008, 2 ♂♂. **Brandenburg:** Ludwigsfelde, Gröbener See, 35 m, 8.VIII.2010, 6 ♂♂. Recorded on *Phragmites australis* in a variety of habitats including sand pits, pond shores, peat bogs and saltmarshes.

This species is widespread from the Mediterranean region eastward to Kazakhstan (Nast 1972, 1987; Holzinger *et al.* 2003). In Germany it was until recently known only from 5 records along the southern Rhine between Waldshut and Speyer, the earliest one dating from 1971 (Remane & Fröhlich 1994, Nickel 2003). Since then it has expanded its range quickly. W. Wagner, R. Remane, H. Strübing, W. Fröhlich, R. Niedringhaus and the author of this paper have been collecting extensively on reed in central and northern parts of Germany, and even in at least two of the above-mentioned localities. So it is unlikely that this species was overlooked. Just recently it was also published from southern Moravia, Czechia (Malenovský & Lauterer 2010). Like its congeners, it overwinters as nymph. The presence of ♂♂ in August clearly indicates two generations a year, at least in favorable years.

***Zygina lunaris* (Mulsant et Rey, 1855)** (Photo 4, Fig. 1d)

Rheinland-Pfalz: Kobern, Mosel, 70 m, 14.VIII.2004, 1 ♂, 4 ♀♀. Koblenz, Rhein, 70 m, 21.8.2005, 5 ♂♂, 9 ♀♀, on *Salix alba* and *S. babylonica*. Lorch, Rhein, 80 m, 01.IX.2008, 1 ♀, 1 nymph, on *S. fragilis*. Offstein (near Worms), 140 m, 01.IX.2008, 1 ♀, on *S. purpurea* in a garden. **Baden-Württemberg:** Höhefeld, Klosterhöhe, 340 m, 11.VI.2008, 1 ♂, on *S. purpurea* at a field margin. **Bayern:** Großwelzheim, Main, 105 m, 14.VIII.2009, 1 ♀, on *S. fragilis*. **Nordrhein-Westfalen:** Köln, Auweiler, 45 m, 5.VIII.2010, 2 ♂♂, 2 ♀♀ on ornamental *S. purpurea* in a garden.

This species is a recent invader from south-western Europe. Nast (1987) mentions it from Portugal, Spain and France. Mühlethaler (2001) recorded it in Basel, Switzerland, in 2000, and Niedringhaus *et al.* (2010a, 2010b) just published 5 localities in the south of Luxemburg dating from 2006. In Germany it was until recently only known from a few scattered localities along the southern upper Rhein near Kehl and Weil am Rhein (Lauterer & Malenovský 1995). The new records extend the known range into an area, where Kirschbaum (1868), Wagner (1939), Remane (1987) as well as students of the lower Rhein fauna (Möllerken & Topp 1997, Frommer 1996) would probably not have overlooked it.

***Orientalis ishidae* (Matsumura, 1902)** (Photo 8, Fig. 2a)

Baden-Württemberg: Wyhlen, Rheinufer, 260 m, 14.VIII.2005, 1 ♂, on *Salix babylonica*. Istein, Totengrien, 235 m, and villages of Mappach, 310 m, and Efringen-Kirchen, 250 m, 30.VII.2009, small numbers, respectively. Schwetzingen, 110 m, 24.VII.2009, 5 individuals, at a woodland margin. Öhringen, 240 m, first recorded 12.VII.2005, since then, until 2010, common in gardens, orchards and at light (P. Dynort, pers. comm.). Heilbronn, c. 160 m, 12.VII.2009, 1 nymph, on *Prunus laurocerasus*, reared until emergence; Jagsthausen, c. 200 m, 20.VII.2010. Horkheim, 165 m, 21.VII.2010; the two latter on apple in an orchard (the last 3 records K. Schrameyer, pers. comm.). Winnenden, 290 m, 21.VII.2009, 9 individuals, at light in a kitchen (H. Schlüter, pers. comm.). Rottenburg am Neckar, 350 m, 7.IX.2009, on *Hedera helix* in a garden, and 25.VII.2010, on *Urtica dioica* along a stream (the last two M. Albers, pers. comm.). **Rheinland-Pfalz:** Ludwigshafen, 95 m, 8.VIII. 2009, 1 ♀ (S. Schuch, pers. comm.). **Bayern:** Wechterswinkel, 265 m, 3.VIII.2008, 1 individual, on a house wall (E. Dietz, pers. comm.). **Hessen:** Darmstadt, garden of the Julius Kühn Institute, 170 m, 16.VII.2007, 1 nymph. Frankfurt, Langener Waldsee, 100 m, 10.VII.2008, 1 ♀, on *Salix alba*. Gelnhausen, 130 m, 30.VII.2010, 1 individual, on *Corylus avellana* (V. Wagner, pers. comm.). **Nordrhein-Westfalen:** Mülheim an der Ruhr, Heißen, 50 m, 17.IX.2006, 2 ♂♂, 1 ♀ (K. Winzer, pers. comm.), 22.X.2006, 1 individual (K. Winzer leg., R. Dietze det.). Dortmund, 95 m, 16.VII.2007, 1 nymph (S. Brüggenthies, pers. comm.). Neuss, Grefrath, 40 m, 27.VII.2008, 1 individual, in a garden; Köln, Stommeln, 55 m, 22.VIII. 2007, 1 individual; Köln, Feste Zons, 50 m, 28.VII.2008, 1 nymph (the last three M. Becker, pers. comm.). Köln, Wahner Heide, 6.VIII.2009, 1 individual, on a roadside embankment; Köln, Nippes, 10.VIII. 2009, 3 individuals, on stems of *Fagus sylvatica*; Köln, Rhiel, 23.VII.2010, 4 individuals, at light; Bergheim-Erft, 8.VIII.2009, 1 individual, on a house wall, and again 1 individual, 15.-29.VII. 2010, in a pitfall trap (the last 4 records: T. Hörren, pers. comm.). Köln, Auweiler, Landwirtschaftskammer Nordrhein-Westfalen, Zentrum für ökologischen Land- und Gartenbau, 45 m, 6.VIII.2010, at least 50 individuals, in apple orchards and hedges of *Carpinus betulus* and *Acer campestre*. Bochum, 22.VIII.2010, 4 individuals at light (A. Steiner, pers. comm.).

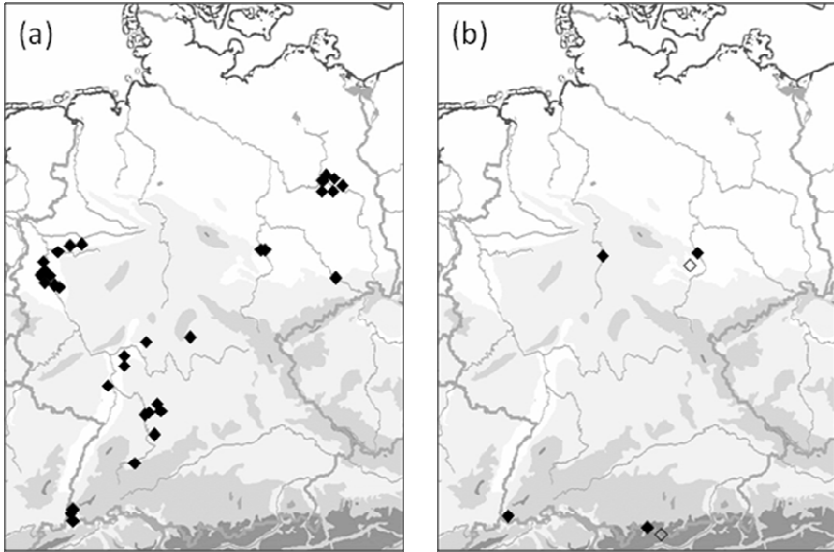


Fig 2: Localities: **a:** *Orientus isibidae* (Mats.), not all Berlin localities shown. **b:** *Paralimnus rotundiceps* (Leth.), ◇ = records until 2000, ◆ = after 2001.

Sachsen-Anhalt: Halle an der Saale, Heide-Süd, c. 100 m, since 27.VII. 2007, numerous nymphs and adults on hedges of *Carpinus betulus*; also recorded in other parts of the city and on other trees and shrubs (W. Witsack, in prep.). Halle an der Saale, inner city, 100 m, 9.VIII.2010, at least 6 individuals, found dead under a lamp inside a flat (J. Quitsch, pers. comm.). **Berlin:** first recorded in 2004 on 11 urban brownfield sites (Strauss 2007, N. Lange, pers. comm.). Johannisthal, 35 m, 17.IX.2009, at least 50 individuals, on *Acer campestre*, *Betula pendula*, *Salix* × *rubens*, *Populus nigra italica*, on an abandoned airstrip. Grunewald, Im Jagen, 16.IX.2009, 1 individual. Biesenhorster Sand, 18.IX.2009, 2 ♀♀. Baumschulenweg, 25.IX.2008 and 13.VII.2010 (C. Brückner, pers. comm.).

In 1998 this new species to the European fauna was found near Milano, north Italy. Guglielmino (2005) was the first to raise questions about its specific identity, eventually leading to the description of *Orientus amurensis*, occurring in the Far East of Russia and eastern China. Her conclusion was further, that *O. isibidae* was originally restricted to Japan (and perhaps the Philippines and Taiwan), but introduced to North America and Europe. After its discovery in Italy, R. Mühlethaler found it to be common in urban areas of Basel, Switzerland, since 2000 (Günthart & Mühlethaler 2002). In 2002 it was recorded for the first time in Slovenia (Seljak 2004), in 2004 in Brno, Moravia, in 2006 in Prague, Bohemia (Malenovský & Lauterer 2010), in 2007 in Graz, Austria (Holzinger 2009).

The earliest German records date from 2002: Weil am Rhein (R. Mühlethaler) and Dresden (R. Remane), see Nickel & Remane (2003). Within only 8 years this invader has become widespread and locally common in Germany, with considerable population numbers at least in the Upper Rhine plain, urban areas of Berlin and the Lower Rhine and Ruhr region. It lives polyphagously on shrubs and low trees, notably *Salix*, *Carpinus*, *Betula*, *Corylus*, *Acer*, *Malus* and others, and it is also attracted to light, frequently flying into

houses. The majority of records is from urban sites, but the species was also found along rivers and woodland margins as well as in sand pits. Most findings are from July until September, the earliest from July 10th, the latest from October 22nd. This indicates a single generation per year and overwintering as egg.

***Paralimnus rotundiceps* (Lethierry, 1885)** (Photo 7, Fig. 2b)

Niedersachsen: Hannoversch Münden, Ballertasche near Gimte, 110 m, 4.VII.2006, 24.VI.2007, and again 10.VII.2009, a large population in a sand pit with sparsely growing stands of *Phragmites australis*. **Sachsen-Anhalt:** Halle an der Saale, Heide-Süd, c. 100 m, small numbers recorded from 2007 until 2010 (W. Witsack, pers. comm.). **Baden-Württemberg:** Weil am Rhein, 250 m, 30.VII.2009, 6 ♂♂, 2 ♀♀, in a sand pit. **Bayern:** Füssen, Lech floodplains, 790 m, VII.2003, 1 ♂, in a Malaise trap.

Until recently this rare species was known to occur in Germany only in two isolated localities in coal mining areas of Sachsen-Anhalt (Mücheln near Merseburg, see Funke & Witsack 2002) and in a riverine gravel bed in the Alps (Friedergries near Garmisch-Partenkirchen, see Nickel 2003). However, it appears to be more widespread though rare. It is confined to very sparse pioneer stands of reed, usually on non-flooded sites such as sand and gravel pits and banks of unregulated rivers. It is further reported from Norway, Sweden, Finland, Belgium, France, Switzerland, Austria, Italy, Slovenia, Hungary and Romania (Nast 1972, 1987, Holzinger & Seljak 2001).

4. Nomenclatural changes

Two generic changes have been proposed during recent years. According to Holzinger & Kunz (2006) *Mocuellus* Ribaut, 1946 is a younger synonym of *Henschia* Lethierry, 1892; therefore the valid name of the former *Mocuellus collinus* (Boh.) must now be *Henschia collina* (Boh.). Second, most species formerly placed into the genus *Recilia* Edwards, 1922, including *R. schmidgeni* (W.Wg.) and *R. horvathi* (Then) have been moved to *Maiestas* Distant, 1916 (Webb & Viraktamath 2009).

5. Discussion

Until recently the number of Auchenorrhyncha known from Germany included 620 species (Nickel & Remane 2002, Nickel 2003). The following checklist for the German federal states published by Nickel & Remane (2003) adopted the new synonymy of *Kelisisa nervosa* Vilb. with *K. confusa* Lnv. proposed by Holzinger *et al.* (2003) and included the newly recorded *Orientus ishidae* (Mats.). Since then *Ribautiana cruciata* (Rib.) was the only addition (Nickel & Niedringhaus 2009). Together with the new species mentioned in the present paper, *Cixidia lapponica* (Zett.), *Empoasca decedens* Paoli, *Kyboasca maligna* (Walsh), *Synophropsis lauri* (Horv.) and *Paralimnus lugens* (Horv.), the German list now includes 626 species.

For three of the species mentioned here, notably *Cixidia lapponica* (Zett.), *Paralimnus lugens* (Horv.) and *P. rotundiceps* (Leth.), it is likely that they had been overlooked in Germany until now, due to their peculiar life habits and rather specific habitat requirements. But for the remaining species, *Chloriona sicula* Mats., *Ribautiana cruciata* (Rib.), *Synophropsis lauri* (Horv.), *Kyboasca maligna* (Walsh), *Empoasca decedens* Paoli, *Zygina lunaris* (M. & R.), and *Orientus ishidae* (Mats.), a more or less northeastward range expansion must be

assumed, which took place not before the last two or three decades, and which happened quite rapidly. In many cases, the earliest German records are from the southern upper Rhine plain, or less commonly, along the middle Rhine. A similar pattern of north-eastward expansion has also been observed in other species of Auchenorrhyncha such as *Muellerianella fairmairei* (Perr.), *Haematoloma dorsatum* (Ahr.), *Stictocephala bisonia* Kopp & Yonke, *Viridicercus ustulatus* (M. & R.), *Graphocephala fennabi* Young, *Liguropia juniperi* (Leth.), *Lindbergina aurovittata* (Dgl.), *Ribautiana debilis* (Dgl.), *Eupteryx decemnotata* (R.) and *Zyginidia scutellaris* (H.-S.) (Nickel 2003). Surprisingly this list includes invaders native to southern Europe but likewise species originating from other continents and first introduced to more southern parts of Europe. On the other hand, invaders originating from south-eastern and eastern Europe are rare. One example that is frequently grouped among these is the planthopper *Eurybregma nigrolineata* Scott (Remane & Fröhlich 1994), which has, however, been described from England in the 19th century.

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