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Contribution to the knowledge of planthoppers and leafhoppers fauna (Hemiptera: Fulgoromorpha et Cicadomorpha) of the Bieszczady Mountains (south-eastern Poland)

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Abstract: The paper provides new distributional data for 5 planthopper and 61 leafhopper species, recorded from the Bieszczady Mountains (south-eastern Poland), including 35 taxa listed as new for the region.

Key words: zoogeography, faunistics, new records, Bieszczady Mountains, Poland

INTRODUCTION

Planthoppers (Fulgoromorpha) and leafhoppers (Cicadomorpha) are regarded as monophyletic groups and treated as suborders of Hemiptera. Trophically, they represent insect herbivores which feed on vascular plants, mainly on their stems, leaves and underground parts sucking out plant sap and the contents of mesophyll cells. The majority of planthopper and leafhopper fauna form mono- and oligophagous species.

The planthopper and leafhopper fauna of Poland comprises 552 species. The number constitutes 542 species included in the recent check-list (Gębicki et al. 2013) as well as 10 species recorder afterwards: *Calamotettix taeniatus* (Horváth, 1911) (Walczak & Jeziorowska 2015); *Reptalus quinqecostatus* (Dufour, 1833) (Taszakowski et al. 2015); *Eupteryx decemnotata* Rey, 1891 (Lubiarz & Musik 2015); *Chloriona unicolor* Herrich-Schäffer, 1835 (Walczak et al. 2016a); *Zygina griseombra* Remane, 1994 (Walczak et al. 2016a); *Criomorphus williamsi* China, 1939 (Walczak et al. 2016b); *Orientus ishidae* (Matsumura, 1902) (Klejdysz et al. 2017); *Idiocerus vicinus* Melichar, 1898, *Paralimnus rotundiceps* (Lethierry, 1885) (Musik et al. 2018); *Recilia horvathi* (Then, 1896) (Junkiert & Gorczyca 2020).

Unfortunately, the knowledge of these insects in particular zoogeographical regions of Poland is very uneven. The regions quite well researched, with the number of species exceeding 300, are Mazovian Lowland (316), Upper Silesia (391), Krakowsko-Wieluńska Upland (374) and Western Beskidy Mountains (301). Other regions need further investigations, especially those with the number of species below 50 % in respect to the total number.

The planthopper and leafhopper fauna of the Bieszczady Mountains is poorly researched. The data included in Katalog Fauny Polski (Nast 1976a) covers 57 species and refers mainly to the region level, including mainly unpublished records as well as data from the previous works by such authors as Gajewski (1961), Nast (1955, 1973) and Dworakowska (1972, 1973b). Furthermore, Gębicki & Szwedo (1991) described a new species *Speudotettix montanus* Gębicki & Szwedo, 1991 from high-mountain pastures and Szwedo et al. (1998) provided data from 2 high peat-bogs located in the region. Finally, Szwedo (2000) in his review work lists 101 species for the Bieszczady Mountains supplemented with chorological and ecological data and Pilarczyk

& Szwedo (2005) raised the number of species to 115, associating them with four habitats: foothills and valleys, forests of lower subalpine belt, mountains meadows and peatbogs. The most recent check-list by Gębicki et al. (2013) gives 116 species recorded for the mentioned area.

In this paper we provide new distributional data for 5 planthopper and 61 leafhopper species, recorded from different habitats located in the surroundings of Wetlina and Cisna villages (western part of Bieszczady Mountains) in the years 2015, 2016 and 2020.

Material and Methods

The research were carried out at 2 localities within Bieszczady Mountains zoogeographical region of Poland, in the years 2015, 2016 and 2020:

[1] – Wetlina; leg. A. Stroiński; 49.15 N, 22.46 E; 635–639 m a.s.l.; UTM FV04 RFG macroregion – Beskidy Lesiste, RFG mesoregion – Bieszczady Zachodnie

[2] – Cisna; leg. A. Stroiński; 49.21 N, 22.31 E; 604–628 m a.s.l.; UTM EV95 RFG macroregion – Beskidy Lesiste, RFG mesoregion – Bieszczady Zachodnie

The planthoppers and leafhoppers were collected using a sweep-net and aspirator and preserved in 96% EtOH. Examined specimens are housed in the plastic vials with labels in the collection of Museum and Institute of Zoology PAS (Warsaw).

Zoogeographic division of Poland (KFP) is presented according to Katalog Fauny Polski (Burakowski et al. 1973), physico-geographical division of Poland (RFG) follows Kondracki (2013).

Below the list of 66 species is presented. Arrangement of the taxa, chorological and bionomical data adopted after the check-list of planthoppers and leafhoppers of Poland (Gębicki et al. 2013) and Germany (Nickel & Remane 2002). For each species the following characteristics are provided: chorological element/general distribution in Poland/bionomy: ecology; trophism and food plants; overwintering stage; number of generations/additional information concerning economic importance.

Referring to trophism, the used abbreviations are as follow:

m1 – 1st degree monophagous; species utilizing one plant species

m2 – 2nd degree monophagous; species utilizing at least two plant species belonging to the same genus

olig. – oligophagous; species utilizing plant species belonging to no more than two families

pol. – polyphagous; species utilizing a wide range of plant species belonging to different families

Species new for the zoogeographical region – Bieszczady Mountains are marked with asterisk (*).

List of Species

Fulgoromorpha Evans, 1946

Family Delphacidae Leach, 1815

Subfamily Kelisiinae Wagner, 1963

Kelisia praecox Haupt, 1935*

(Figs 1–2)

Material examined: [1] – 16♂♂ 11♀♀, 14–15 Sep 2016.

Characteristics. Euro-Siberian/rare/higrophilous; m2 – *Carex*; adult; 1 gen.

Remarks. The species is rarely collected in Poland, so far known from: Upper Silesia – surroundings of 'Katowice' ironworks (Gębicki 1979), Kalety (Świerczewski & Błaszczyk 2011), Katowice (Musik & Taszakowski 2013); Krakowsko-Wieluńska Upland – Kraków (Smreczyński 1954), Mstów (Świerczewski & Gębicki 2004, Świerczewski & Wojciechowski 2009); Lubelska Upland (Nast 1979); Sandomierska Lowland – Janów Lubelski (Bednarczyk & Gębicki 1998); Western Beskidy Mts – Myślenice (Smreczyński 1954, Pilarczyk & Szwedo 2005).

In Germany the species is found in temporarily wet sites, usually in open forests, clearings and forest meadows (Nickel 2003).

Subfamily Stenocraninae Wagner, 1963

Stenocranus major* (Kirschbaum, 1868)

Material examined: [1] – 1♂ 1♀, 14–15 Sep 2016 [2] – 27♀♀, 3–4 Jun 2016.
Characteristics. Western Palaearctic/widespred/higrophilous; m1 – *Phalaris arundinacea*; adult; 1 gen.

Subfamily Delphacinae Leach, 1815

***Conomelus anceps* (Germar, 1821)**

Material examined: [1] – 4♀♀, 16–17 Sep 2015; 2♂♂ 3♀♀, 4–15 Sep 2016.
Characteristics. European/widespread and common/higrophilous; m2 – *Juncus*; egg; 1 gen.

***Laodelphax striatella* (Fallén, 1826)**

Material examined: [1] – 19♂♂ 14♀♀, 16–17 Sep 2015.
Characteristics. Palaearctic/widespread and common/mesophilous; pol.; nymph; 2 gen./cereal pest.

***Dicranotropis hamata* (Boheman, 1847)**

Material examined: [1] – 1♂ 2♀♀, 16–17 Sep 2015; 5♂♂ 10♀♀, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread and common/mesophilous; olig. – Poaceae; nymph; 2 gen./cereal pest.

Cicadomorpha Evans, 1946

Family Cercopidae Leach, 1815

***Cercopis sanguinolenta* (Scopoli, 1763)**

Material examined: [1] – 1♀, 3 Jun 2016; [2] – 1♂ 2♀♀, 3–4 Jun 2016.
Characteristics. Southern European/widespread, in Poland northern edge of the range/xerothermophilous; pol.; nymph; 1 gen.

***Cercopis vulnerata* Rossi, 1807**

Material examined: [1] – 6♂♂ 4♀♀, 3 Jun 2016; [2] – 45♂♂ 31♀♀, 3–4 Jun 2016.
Characteristics. European/widespread/mesophilous; pol.; nymph; 1 gen.

Family Aphrophoridae Amyot et Audinet-Serville, 1843

Subfamily Aphorophorinae Amyot et Audinet-Serville, 1843

***Aphrophora alni* (Fallén, 1805)**

Material examined: [1] – 1♂, 16–17 Sep 2015; 1♂ 9♀♀, 14–15 Sep 2016; 6♂♂ 6♀♀, 7–12 Aug 2020.
Characteristics. Palaearctic/widespread and common/mesophilous; pol.; egg; 1 gen.

Aphrophora pectoralis* Matsumura, 1903

Material examined: [1] 3♂♂ 3♀♀ 7–12 Aug 2020.
Characteristics. Euro-Siberian/widespread and common/higrophilous; m2 – *Salix*, mainly *S. cinerea*, *S. pentandra*, *S. purpurea*/egg; 1 gen.

***Philaenus spumarius* (Linnaeus, 1758)**

Material examined: [1] – 6♀♀, 16–17 Sep 2015; 1♂ 2♀♀, 14–15 Sep 2016 [2] – 1♂ 2♀♀, 3–4 Jun 2016.
Characteristics. Holarctic/widespread and common/ubiquistic; pol.; egg; 1 gen.

Neophilaenus campestris* (Fallén, 1805)

Material examined: [1] – 1♀, 16−17 Sep 2015.
Characteristics. European/widespread and common/xerophilous; olig. – Poaceae; egg; 1 gen.

***Lepyronia coleoptrata* (Linnaeus, 1758)**

Material examined: [1] – 1♂ 17♀♀, 16−17 Sep 2015; 1♂ 11♀♀, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread and common/mesophilous; pol.; egg; 1 gen.

Family Membracidae Rafinesque, 1815

Subfamily Smiliinae Stål, 1869

Stictocephala bisonia* Kopp et Yonke, 1977

Material examined: [1] – 1♂ 14–15 Sep 2016.
Characteristics. Nearctic (introduced into Europe)/local, until now mainly southern part of the country /mesophilous?; pol. – mainly Fabaceae and Rosaceae; egg; 1 gen./invasive species
Remarks. Introduced into Europe at the beginning of 20th century; first record in Poland in 2006 (Świerczewski & Stroiński 2011); since that time most localities in Poland in the southern part of the country with single records in the north and in the west (Walczak et al. 2018).

Family Cicadellidae Latreille, 1825

Subfamily Megophthalminae Kirkaldy, 1906

Tribe Megophthalmini Kirkaldy, 1906

Megophthalmus scanicus (Fallén, 1806)

Material examined: [1] – 1♀, 16–17 Sep 2015.
Characteristics. European/widespread and common/mesophilous; olig. – Fabaceae; egg; 1 gen.

Tribe Agallini Kirkaldy, 1901

***Agallia brachyptera* (Boheman, 1847)**

Material examined: [1] – 9♀♀, 16−17 Sep 2015; 1♀, 14–15 Sep 2016.
Characteristics. Western Palaearctic/widespread and common/olig. – mainly Asteraceae and Fabaceae; eggs overwinter in secondary parapause terminated by cold; 1 gen.

Subfamily Eurymelinae Amyot et Audinet-Serville, 1843

Tribe Idiocerini Baker, 1915

Idiocerus herrichii* Kirschbaum, 1868

Material examined: [1] – 2♀♀, 16–17 Sep 2015.
Characteristics. Western Palaearctic/widespread/higrophilous; m2 – *Salix alba*, *S. fragilis*; adult; 1 gen.

***Idiocerus lituratus* (Fallén, 1806)**

Material examined: [1] – 1♀, 16–17 Sep 2015.
Characteristics. Euro-Siberian/widespread/higrophilous; m2 – *Salix cinerea*, *S. aurita*, *S. caprea*, *S. repens*; egg; 1 gen.

Tremulicerus vitreus* (Fabricius, 1803)

Material examined: [1] – 2♂♂ 12♀♀, 16–17 Sep 2015.
Characteristics. European/widespread/mesophilous; m1 – Populus nigra; egg; 1 gen.

Subfamily Cicadellinae Latreille, 1825

Tribe Cicadellini Latreille, 1825

***Cicadella viridis* (Linnaeus, 1758)**

Material examined: [1] – 1♂ 17♀♀, 16–17 Sep 2015; 7♂♂10♀♀, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread and common/higrophilous; pol. – mainly *Juncus*, *Carex*; hibernation takes place in the embryonic stage; 1 gen./pest on fruit trees and berry bushes.

Subfamily Evacanthinae Crumb, 1911

Tribe Evacanthini Crumb, 1911

***Evacanthus interruptus* (Linnaeus, 1758)**

Material examined: [1] – 1♀, 16–17 Sep 2015; 1♂ 2♀♀, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread/mesophilous, pol. – mainly on Asteraceae; egg; 1 gen.

Subfamily Typhlocybinae Kirschbaum, 1868

Tribe Dikraneurini Mc Atee, 1926

Emelyanoviana mollicula* (Boheman, 1845)

Material examined: [1] – 8♂♂ 4♀♀, 16–17 Sep 2015; 1♂1♀, 14–15 Sep 2016.
Characteristics. Western Palaearctic/widespread/xerophilous, pol. – mainly on Lamiaceae and *Verbascum*; egg (occasionally adult); 2 gen.

Tribe Forcipatini Hamilton, 1998

***Forcipata citrinella* (Zetterstedt, 1828)**

Material examined: [1] – 2♂♂ 1♀, 16–17 Sep 2015; 7♂♂ 7♀♀, 14–15 Sep 2016.
Characteristics. Holarctic/widespread/higrophilous; m2 – *Carex*; egg; 2 gen.

Tribe Erythroneurini Young, 1952

***Zygina* sp.**

Material examined: [1] – 1♀, 16–17 Sep 2015.

Tribe Empoascini Distant, 1908

Kybos rufescens* Melichar, 1896

Material examined: [1] – 4♂♂ 3♀♀, 16–17 Sep 2015.
Characteristics. Euro-Siberian/widespread/higrophilous; m1 – *Salix purpurea*; egg; 2 gen.

Empoasca pteridis* (Dahlbom, 1850)

Material examined: [1] – 6♂♂ 14♀♀, 16–17 Sep 2015; 1♂ 6♀♀, 14–15 Sep 2016.
Characteristics. Western Palaearctic/widespread and common/mesophilous; pol.; egg (also adults?); 2(?) gen./crop pest, mainly on potatoes and legumes.

***Empoasca vitis* (Göthe, 1875)**

Material examined: [1] – 3♂♂ 7♀♀, 16–17 Sep 2015.
Characteristics. Palaearctic/widespread and common/mesophilous; pol.; adult (also ♂♂); 1 gen.

Tribe Zyginellini Dworakowska, 1977

Zyginella pulchra* Löw, 1885

Material examined: [1] – 1♂, 16–17 Sep 2015.
Characteristics. Southern European/rare/mesophilous; m2 – *Acer*, mainly *A. pseudoplatanus*; adult, overwintering on *Picea abies*; 1 gen.

Tribe Typhlocybini Kirschbaum, 1868

Edwardsiana avellanae* (Edwards, 1888)

Material examined: [1] – 2♂♂ 4♀♀, 16–17 Sep 2015.
Characteristics. European/rare/mesophilous; m1 – *Corylus avellana*; egg; 2 gen.

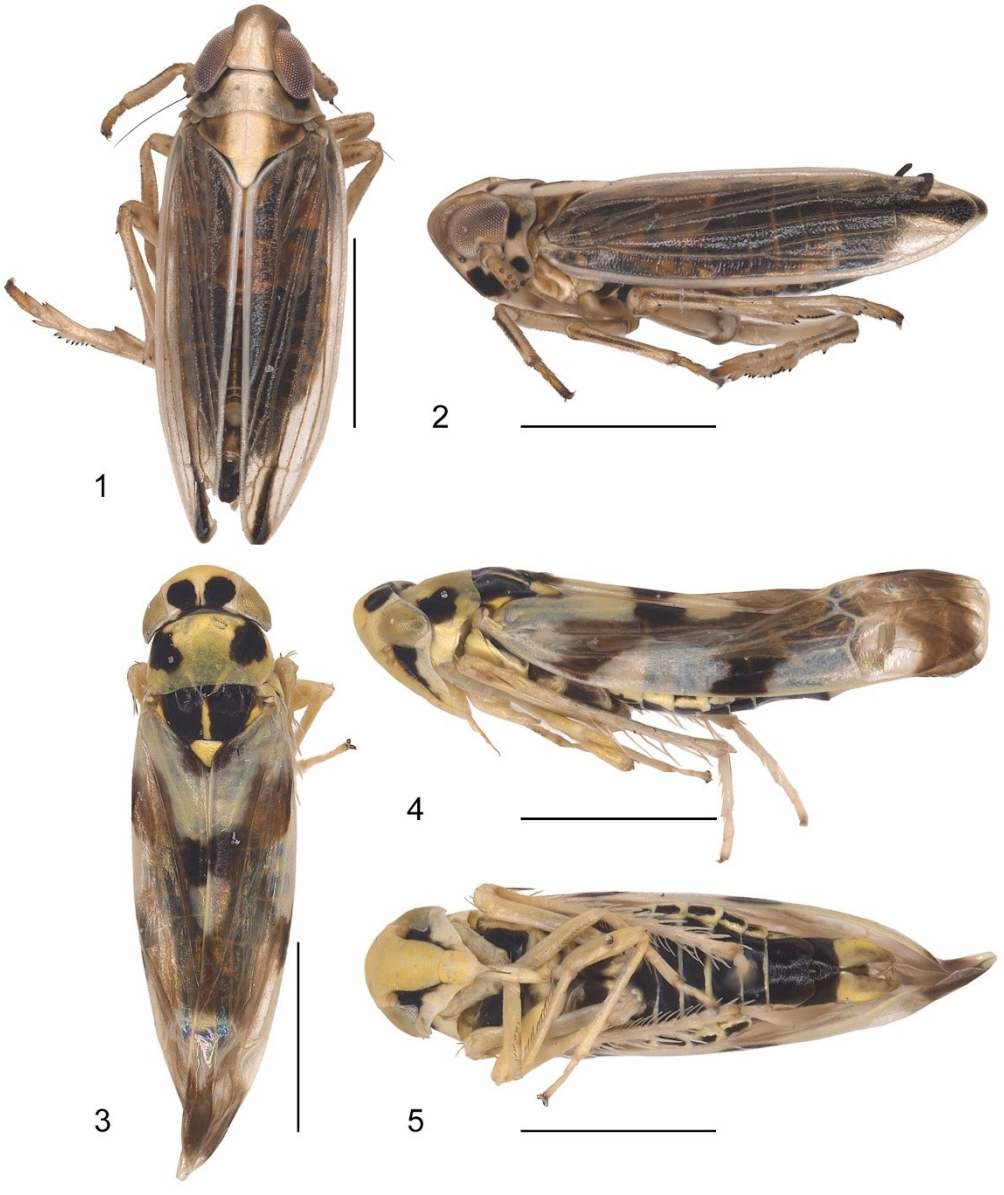


Fig. 1–5. *Kelisia praecox* Hpt. (1–2) and *Eupteryx origani* Zachv. (3–5); 1, 3 – dorsal view; 2, 4 – lateral view, 5 – ventral view. Scale bar = 1 mm.

Ribautiana tenerrima* (Herrich-Schäffer, 1834)

Material examined: [1] – 1♂ 1♀, 16–17 Sep 2015.

Characteristics. European/widespread/mesophilous; olig.? – mainly on *Rubus*, also on other woody plants; egg; 2 gen.

Eupteryx atropunctata (Goeze, 1778)*

Material examined: [1] – 1♀, 14–15 Sep 2016.

Characteristics. European/widespread and common/mesophilous; pol.; egg; at least 2 gen./crop pest.

Eupteryx aurata (Linnaeus, 1758)*

Material examined: [1] – 4♂♂ 3♀♀, 16–17 Sep 2015; 1♀ – 14–15 Sep 2016; [2] – 1♀, 03–04 Jun 2016.

Characteristics. European/widespread/higrophilous?; pol. – mainly Lamiaceae and *Urtica*; egg; 2 gen.

Eupteryx cyclops Matsumura, 1906*

Material examined: [1] – 1♀, 16–17 Sep 2015; 1♀ – 14–15 Sep 2016.

Characteristics. Euro-Siberian/widespread and common/higrophilous?; m1 – *Urtica dioica* (in Poland also collected from *Mentha*); egg; 2 gen.

Eupteryx origani Zakhvatkin, 1948*

(Fig. 3–5)

Material examined: [1] – 45♂♂ 67♀♀, 16–17 Sep 2015; 30♂♂ 54♀♀, 14–15 Sep 2016.

Characteristics. European/rare/mesophilous; m1 – *Origanum vulgare*; egg; 2 gen.

Remarks. Rather sporadic species, so far known in Poland from scattered localities in four zoogeographical regions: Mazurskie Lake District – Nidzica (Remane 1961); Wielkopolska Lowland – Plewiska near Poznań (Nowacka 1988); Krakowsko-Wieluńska Upland – Ojców, Pieskowa Skała (Szwedo 1992); Pieniny Mountains (Dworakowska 1973a, Nast 1976b).

In Germany the species prefers oligotrophic, moderately dry to damp, partly shady sites; found along herbaceous margins in dry grasslands, montane meadows and pastures, preferably near trees and shrubs (Nickel 2003).

Eupteryx vittata (Linnaeus, 1758)*

Material examined: [1] – 6♀♀, 14–15 Sep 2016.

Characteristics. European/widespread and common/higrophilous; olig. – *Ranunculus repens*, *Glechoma hederacea*, Asteraceae?; egg; 2 gen./pest on Lamiaceae herbs.

Subfamily Aphrodinae Haupt, 1927

Tribe Aphrodini Haupt, 1927

Aphrodes bicincta (Schrank, 1776)

Material examined: [1] – 3♀♀, 16–17 Sep 2015; 1♀, 14–15 Sep 2016.

Characteristics. Euro-Siberian/widespread and common/xerophilous?; olig.? – Fabaceae; egg; 1(?) gen./crop pest, plant virus vector.

Aphrodes diminuta Ribaut, 1952*

Material examined: [1] – 1♀, 16–17 Sep 2015.

Characteristics. European/rare/mesophilous; olig. – Fabaceae; egg; 1 gen.

Aphrodes makarovi Zachvatkin, 1948

Material examined: [1] – 29 ♀♀, 16–17 Sep 2015; 1♀, 14–15 Sep 2016.
Characteristics. European/widespread/higrophilous; pol.; egg; 1 gen.

Subfamily Deltocephalinae Fieber,1869

Tribe: Fieberiellini Wagner, 1951

Fieberiella sp.

Material examined: [1] – 1♀, 16–17 Sep 2015.

Tribe Macrostelini Kirkaldy, 1906

Balclutha punctata (Fabricius, 1775) sensu Wagner (1939)

Material examined: [1] – 9♂♂ 12♀♀, 16−17 Sep 2015; 6♂♂ 11♀♀, 14–15 Sep 2016.
Characteristics. Holarctic/widespread and common/mesophilous; olig. – Poaceae; adult; 1 gen.

Balclutha rhenana Wagner, 1939*

Material examined: [1] – 4♂♂ 1♀, 16−17 Sep 2015; 6♂♂ 1♀, 14–15 Sep 2016; [2] – 6♂♂ 6♀♀, 3–4 Jun 2016.
Characteristics. Euro-Siberian/widespread/higrophilous; m1 – *Phalaris arundinacea*; adult; 1 gen.

Macrosteles cristatus (Ribaut, 1927)*

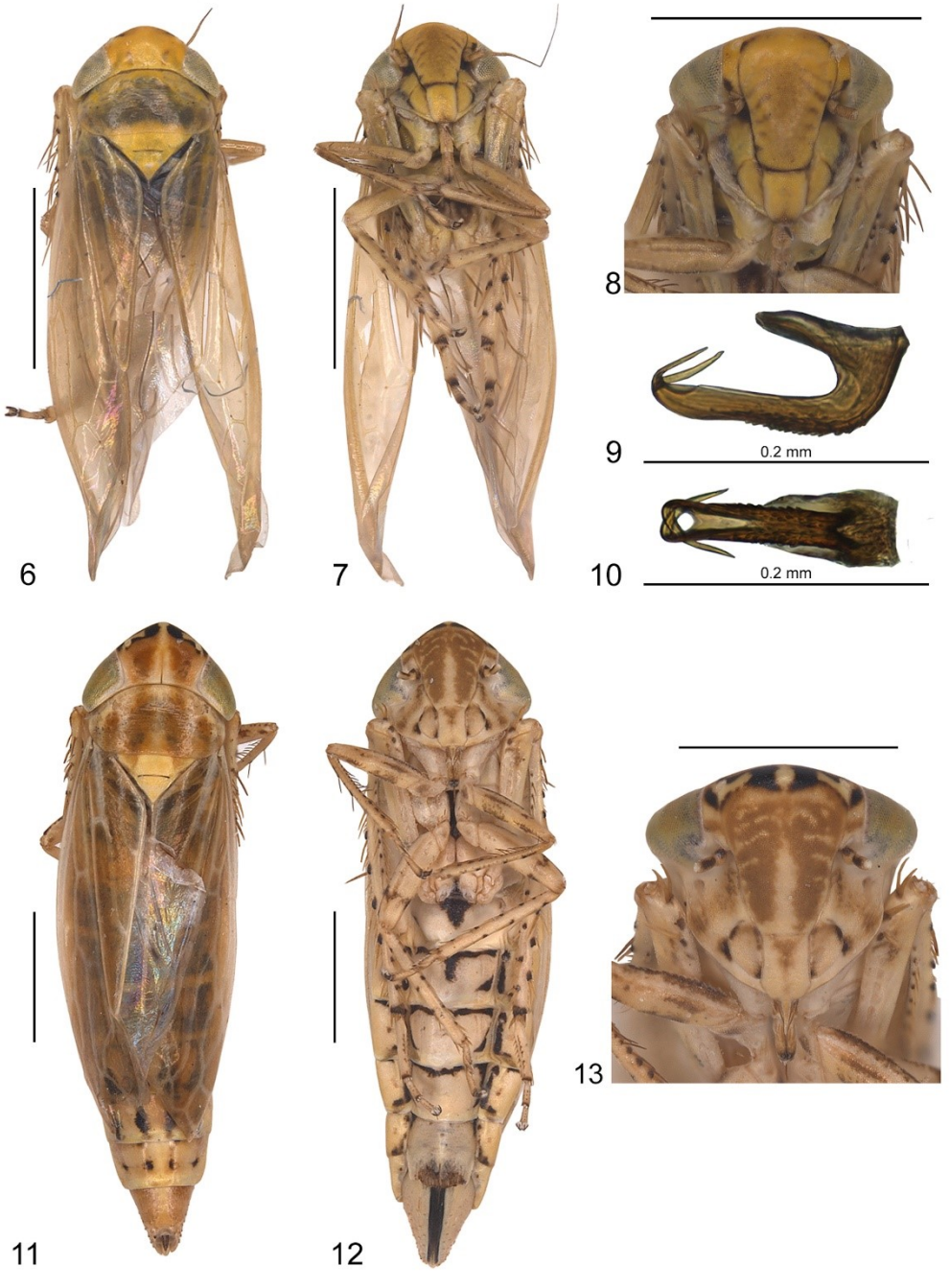
Material examined: [1] – 17♂♂ 24♀♀, 16–17 Sep 2015; 1♂ 5♀♀, 14–15 Sep 2016.
Characteristics. Euro-Siberian/widespread/xerophilous; pol. – mainly Poaceae; egg; 2 gen./cereal pest, mainly on oats.

Macrosteles laevis (Ribaut, 1927)

Material examined: [1] – 17♂♂ 6♀♀, 16–17 Sep 2015.
Characteristics. Holarctic/widespread and common/mesophilous; pol.; egg; 2 gen./cereal pest migrating to other crops; virus vector.

Macrosteles oshanini Razviazkina, 1957*
(Fig. 6–10)

Material examined: [1] – 1♂, 16–17 Sep 2015.
Characteristics. European/rare/higrophilous; pol. – Poaceae, Cyperaceae; egg; 2(?) gen.
Remarks. So far known known in Poland from two localities in Małopolska Upland – Pińczów and Krzyżanowice (Gajewski 1961).
Most records of this species come from the eastern part of Europe. The species is associated with wet sites, mainly fens with strongly fluctuating water or moderate salinity, also near shady forest margins (Nickel 2003).



Figs 6–13. *Macrosteles oshanini* Razv. (6–10) and *Cosmotettix caudatus* (Fl.) (11–13). 6, 11 – dorsal view, 7, 12 – ventral view, 8, 13 – frontal view, 9 – aedeagus, lateral view, 10 – same, ventral view. Scale bar = 1 mm.

Macrosteles septemnotatus (Fallén, 1806)

Material examined: [1] – 2♀♀, 16–17 Sep 2015.
Characteristics. Palaearctic?/widespread/higrophilous; m1 – *Filipendula ulmaria*; egg; 2 gen.

Macrosteles viridigriseus (Edwards, 1924)*

Material examined: [1] – 1♂ 2♀♀, 14–15 Sep 2016.
Characteristics. European/widespread/mesophilous; olig. – Poaceae, Cyperaceae?; egg; 2 gen./cereal pest.

Tribe Athysanini Van Duzee, 1892

Lamprotettix nitidulus (Fabricius, 1787)*

Material examined: [1] – 1♀, 16–17 Sep 2015.
Characteristics. European/widespread/mesophilous; pol. – mainly on *Ulmus* and *Quercus*; egg; 1 gen.

Allygus mixtus (Fabricius, 1794)*

Material examined: [1] – 2♂♂ 24♀♀, 16–17 Sep 2015.
Characteristics. European/widespread and common/mesophilous; pol. – Poaceae, *Quercus*, *Alnus glutinosa*; egg; 1 gen.

Orientus ishidae (Matsumura, 1902)*

Material examined: [1] – 1♂, 16–17 Sep 2015.
Characteristics. Eastern Siberian/widespread?/mesophilous; pol.; egg; 1 gen./introduced into Europe.

Hesium domino (Reuter, 1880)

Material examined: [1] – 1♀, 16–17 Sep 2015.
Characteristics. European/widespread/mesophilous; pol. – Poaceae, also on *Betula*; egg; 1 gen.

Thamnotettix confinis Zetterstedt, 1828*

Material examined: [1] – 2♀, 16–17 Sep 2015; [2] – 1♂, 3–4 Jun 2016.
Characteristics. Holarctic/widespread/mesophilous; pol.; nymph; 1 gen.

Athysanus argentarius Metcalf, 1955

Material examined: [1] – 1♀, 16–17 Sep 2015; 2♀♀, 14–15 Sep 2016.
Characteristics. Western Palaearctic/widespread and common/mesophilous; olig. – Poaceae; egg; 1 gen.

Athysanus quadrum Boheman, 1845*

Material examined: [1] – 2♀♀, 16–17 Sep 2015; 1♀, 14–15 Sep 2016.
Characteristics. Northern Euro-Siberian?/widespread/higrophilous; olig.?; egg; 1 gen.

Euscelis incisus* (Kirschbaum, 1858)

Material examined: [1] – 1♂, 16–17 Sep 2015.
Characteristics. Palaearctic/widespread/mesophilous; olig. – Fabaceae, Poaceae; nymph; 2 gen./pest on legumines and cereals; virus and mycoplasma vector.

Streptanus sordidus* (Zetterstedt, 1828)

Material examined: [1] – 1♂ 3♀♀, 16–17 Sep 2015.
Characteristics. European/widespread and common/mesophilous; olig. – Poaceae, mainly *Agrostis*; egg; 2(?) gen.

Tribe Cicadulini Van Duzee, 1892

***Cicadula persimilis* (Edwards, 1920)**

Material examined: [1] – 9♂♂ 17♀♀, 16–17 Sep 2015; 1♂, 14–15 Sep 2016.
Characteristics. Western Palaearctic/widespread and common/mesophilous; m1 – *Dactylis glomerata*; egg; 2 gen.

***Cicadula quadrinotata* (Fabricius, 1794)**

Material examined: [1] – 1♂1♀, 16–17 Sep 2015; 19♂♂ 28♀♀, 14–15 Sep .2016 [2] – 1♂, 3–4 Jun 2016.
Characteristics. Palaearctic/widespread and common/higrophilous; m2 – *Carex*; egg; 2 gen.

***Rhopalopyx* sp.**

Material examined: [1] – 1♀, 14–15 Sep 2016.

***Mocydiopsis parvicauda* Ribaut, 1939**

Material examined: [1] – 1♂, 14–15 Sep 2016.
Characteristics. European/widespread/mesophilous; m1 – *Agrostis capillaris*; adult; 1 gen.

Tribe Chiasmini Distant, 1908

***Doratura stylata* (Boheman, 1847)**

Material examined: [1] – 1♂1♀, 16–17 Sep 2015; 1♀, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread and common/xerophilous; olig. – Poaceae, mainly *Festuca rubra*, *Nardus stricta* and *Agrostis*; egg; 1 gen.

Tribe Deltocephalini Fieber, 1869

***Deltocephalus pulicaris* (Fallén, 1806)**

Material examined: [1] – 1♂1♀, 14–15 Sep 2016.
Characteristics. Holarctic/widespread and common/mesophilous; olig. – Poaceae; egg; 2 gen.

Tribe Paralimnini Distant, 1908

Arocephalus longiceps (Kirschbaum, 1868)*

Material examined: [1] – 1♂1♀, 16–17 Sep 2015.
Characteristics. Euro-Siberian?/rare/mesophilous; olig. – Poaceae, mainly *Holcus* and *Bromus*; egg; 2 gen.

Psammotettix alienus (Dahlbom, 1850)*

Material examined: [1] – 2♂♂ 7♀♀, 16–17 Sep 2015; 1♂, 14–15 Sep 2016.
Characteristics. Palaearctic/widespread and common/eurytopic; olig. – Poaceae; egg; 2 gen./pest on cereals and other crops; virus vector.

Psammotettix cephalotes (Herrich-Schäffer, 1834)*

Material examined: [1] – 2♂♂, 16–17 Sep 2015.
Characteristics. European/widespread/mesophilous; m1 – *Briza media*; egg; 2 gen.

Psammotettix confinis (Dahlbom, 1850)

Material examined: [1] – 3♂♂ 1♀, 16–17 Sep 2015; 1♂, 14–15 Sep 2016.
Holarctic/widespread and common/mesophilous; olig. – Poaceae; egg; 2 gen./cereal pest

Errastunus ocellaris (Fallén, 1806)

Material examined: [1] – 7♂♂ 24♀♀, 16–17 Sep 2015; 12♂♂ 16♀♀, 14–15 Sep 2016; [2] – 2♂♂, 3–4 Jun 2016.
Characteristics. Palaearctic/widespread and common/mesophilous; olig. – Poaceae, preferably on *Holcus*, *Calamagrostis*, *Elymus* and *Dactylis*; egg; 2 gen.

Jassargus flori (Fieber, 1869)

Material examined: [1] – 1♂, 14–15 Sep 2016.
Characteristics. European/widespread and common/mesophilous; olig. – Poaceae, probably *Poa pratensis*, *Festuca* and *Deschampsia flexuosa*; egg; 2 gen.

Arthaldeus pascuellus (Fallén, 1826)

Material examined: [1] – 12♂♂ 8♀♀, 16–17 Sep 2015; 37♂♂ 12♀♀, 14–15 Sep 2016.
Characteristics. Euro-Siberian/widespread and common/mesophilous; olig. – Poaceae; egg; 2 gen.

Arthaldeus striifrons (Kirschbaum, 1868)*

Material examined: [1] – 1♂ 2♀♀, 16–17 Sep 2015; 6♂♂ 1♀, 14–15 Sep 2016.
Characteristics. European/local?/mesophilous; m2 – *Festuca*; egg; 2 gen.

Cosmotettix caudatus (Flor, 1861)*

(Fig. 11–13)

Material examined: [1] – 1♀, 14–15 Sep 2016.
Characteristics. Northern Euro-Siberian/local/higrophilous; m2 – *Carex hirta*, *C. vesicaria*; egg; 1 gen.

Remarks. The first record of this species for Poland was given by Gębicki et al. (2013) from Pomeranian Lake District – Kalisz Pomorski. The species was also recorded from Krakowsko-Wieluńska Upland – Częstochowa (Walczak et al. 2016a) and from Upper Silesia – Piekary Śląskie (Musik et al. 2018).

The species is mainly reported from central and north-eastern Europe (Nast 1987, Söderman et al. 2009), in Asia distributed from northern Russia to Kazakhstan (Nast 1972). It is rarely recorded within its range, also usually collected as single individuals. According to Nickel (2003), this is due to its secretive and specific life habits. In Germany, this leafhopper is associated with temporarily moist to wet, usually moderately eutrophic sites on various substrates, such as low-input pastures and meadows, ruderal habitats, also along ditches and waysides.

DISCUSSION

Our research revealed 35 planthopper and leafhopper species new to the region Bieszczady Mountains raising the number of species reported for the region to 151, what constitutes 27% of the overall number of 552 species known from Poland. Taking into account the number of recorded species, our knowledge on the fauna of the Bieszczady is still low, comparing it to such well researched mountain ranges as Western Beskidy Mountains (301) and Pieniny Mountains (212).

Only within Bieszczady National Park more than 60 diversified non-forest plant communities have been listed thus undoubtedly multi-season studies in these habitats would reveal additional planthopper and leafhopper species. Moreover, additional methods of collecting such as pitfall traps and light traps should be also employed to research the fauna of this interesting area.

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STRESZCZENIE

[**Materiały do znajomości fauny piewików (Hemiptera: Fulgoromorpha et Cicadomorpha) Bieszczadów (południowo-wschodnia Polska)**]

Fauna piewików Bieszczad należy do słabo poznanych, biorąc pod uwagę inne regiony zoogeograficzne Polski. Ostatni wykaz obejmuje 116 gatunków co stanowiło 21% fauny Polski. W prezentowanej pracy przedstawiono listę 66 gatunków piewików (5 z podrzędu Fulgoromorpha i 61 z podrzędu Cicadomorpha) stwierdzonych w okolicy miejscowości Wetlina i Cisna (Bieszczady Zachodnie) w latach 2015, 2016 i 2020. Dla każdego gatunku podano dane chorologiczne i bionomiczne. Ponadto wykazano 35 gatunków nowych dla regionu zoogeograficznego – Bieszczady, w tym takie rzadkie jak: *Kelisia praecox* Hpt., *Eupteryx origani* Zachv., *Macrosteles oshanini* Razv. i *Cosmotettix caudatus* (Fl.). Konieczne są dalsze badania fauny piewików tego obszaru, ze szczególnym uwzględnieniem szerokiego spektrum zbiorowisk roślinnych.

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