

Survey on the taxonomy and bioacoustics of the Bulgarian spittlebugs (Hemiptera: Cercopoidea)

Radost Angelova¹, Ilia Gjonov²

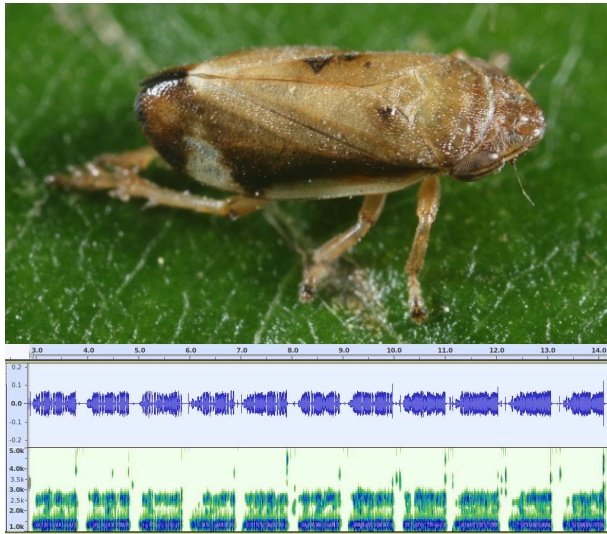
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The superfamily Cercopoidea (spittlebugs) contains two families in Europe – Cercopidae and Aphrophoridae. Currently there are 18 species – 4 cercopids and 12 aphrophorids known from Bulgaria. Four of them have been recorded without any specific data about localities in Bulgaria and their presence needs confirmation. The present study provides an annotated species list of Cercopoidea based on the literature and new distribution records.

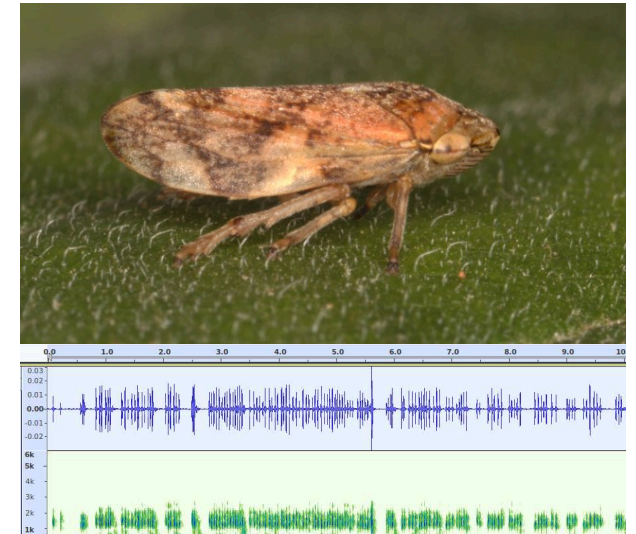


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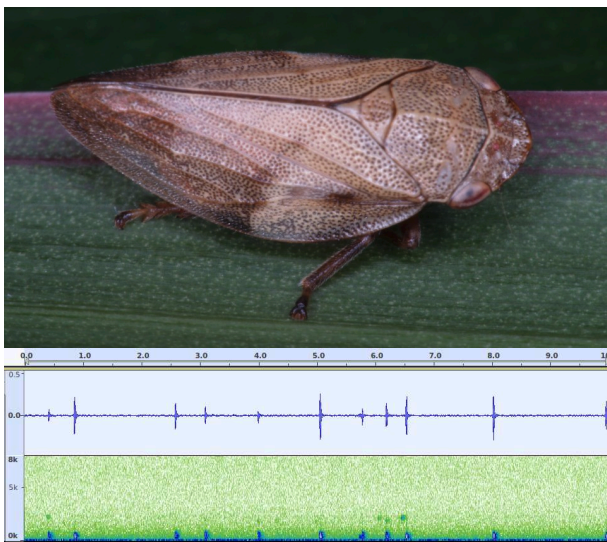


Photo, Oscillogram and sonogram of *Neophilaenus infumatus* (Haupt, 1917) (Aphrophoridae), Stara planina, Baba peak, 17.08.2020

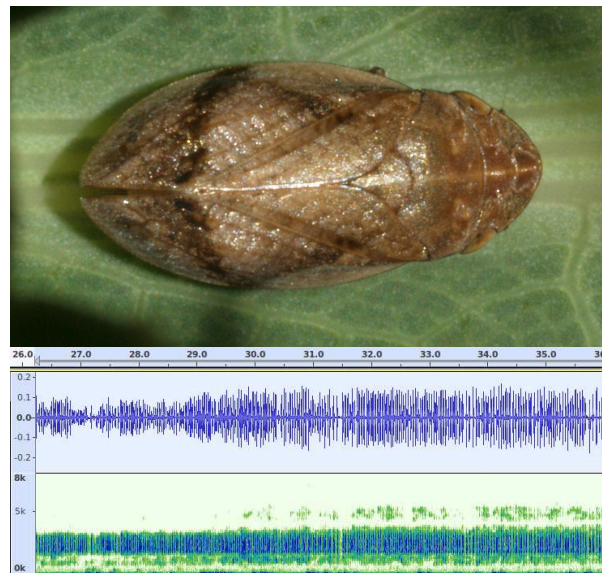
Vibration sound production transmitted mainly by the substrate is known for many spittlebugs. One of the main biological function of these signals in males is the attracting of the females (calling signals). Our study on the acoustical signals of Cercopoidea is the first for Bulgaria. The calling sounds of 5 species are recorded as oscillograms and sonograms are analyzed.



Photo, Oscillogram and sonogram of *Philaenus spumarius* (Linnaeus, 1758) (Aphrophoridae), Stara planina, Tabite hut, 20.08.2020



Photo, Oscillogram and sonogram of *Aphrophora alni* (Fallén, 1805) (Aphrophoridae), Rila mt., Kartala loc, 02.08.2020



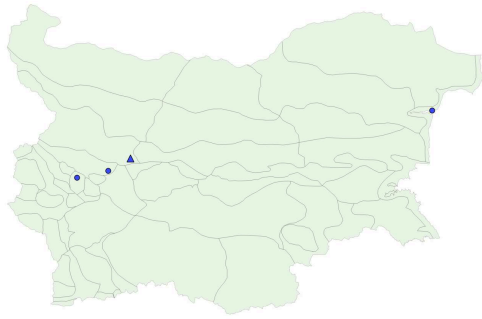
Photo, Oscillogram and sonogram of *Lepyrionia coleoptrata* (Linnaeus, 1758) (Aphrophoridae), Provadiya dist., near Dobrina vill., 10.06.2020



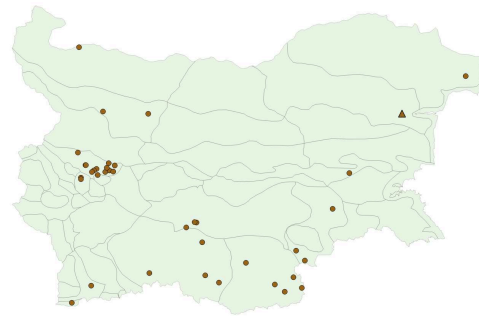
Photo, Oscillogram and sonogram of *Cercopis intermedia* (Kirschbaum, 1868) (Cercopidae), Provadiya dist., near Dobrina vill., 10.06.2020

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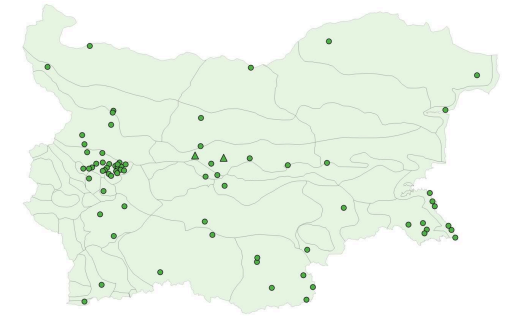
New data contribute to the initial modern revision of the Bulgarian Cercopoidea fauna including detailed distribution maps and bioacoustical records.



Literature data (circle) and new data (triangle) of distribution in Bulgaria of *Neophilaenus infumatus* (Haupt, 1917) (Aphrophoridae)



Literature data (circle) and new data (triangle) of distribution in Bulgaria of *Lepyrionia coleoprata* (Linnaeus, 1758) (Aphrophoridae)



Literature data (circle) and new data (triangle) of distribution in Bulgaria of *Philaenus spumarius* (Linnaeus, 1758) (Aphrophoridae)

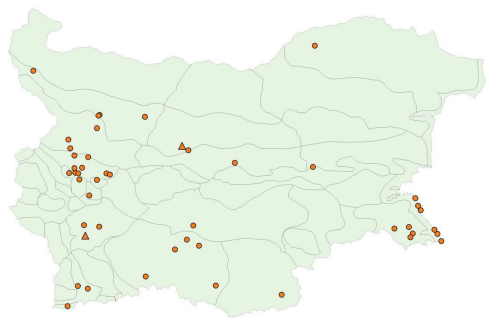
List of Cercopoidea species in Bulgaria:

Family Aphrophoridae

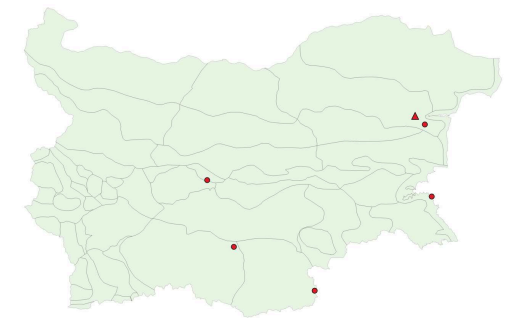
Aphrophora alni (Fallén, 1805); *A. corticea* Germar, 1821; *A. costalis* Matsumura, 1903 (doubtful); *A. salicina* (Goeze, 1778)
Haematoloma dorsata (Ahrens, 1812)
Lepyrionia coleoprata (Linnaeus, 1758)
Neophilaenus albipennis (Fabricius, 1798); *N. campestris* (Fallén, 1805); *N. exclamationis* (Thunberg, 1874); *N. infumatus* (Haupt, 1917); *N. lineatus* (Linnaeus, 1758); *N. minor* (Kirschbaum, 1868)
Philaenus signatus Melichar, 1896; *P. spumarius* (Linnaeus, 1758)

Family Cercopidae

Cercopis arcuata Fieber, 1844; *C. intermedia* Kirschbaum, 1868;
C. sanguinolenta (Scopoli, 1763); *C. vulnerata* (Rossi, 1807)



Literature data (circle) and new data (triangle) of distribution in Bulgaria of *Aphrophora alni* (Fallén, 1805) (Aphrophoridae)



Literature data (circle) and new data (triangle) of distribution in Bulgaria of *Cercopis intermedia* (Kirschbaum, 1868) (Cercopidae)