

NEW DATA ABOUT THE EXPANSION OF *CICADETTA BREVIPENNIS* FIEBER 1876 (HEMIPTERA: CICADOMORPHA: CICADIDAE) IN ROMANIA

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Abstract

In Romania, 16 singing cicada species including *Cicadetta brevipennis* Fieber 1876 are mentioned until now in south-eastern and south-western regions of the country with Mediterranean influence. Observations carried out in June and July 2016 in several green areas of Pitești, Argeș County, reveal *C. brevipennis* in the central-southern region of Romania, in an area with temperate continental climate. It is for the first time in Romania when it is recorded the presence of a cicada species in another climatic area than the one with Mediterranean influence. At the moment, the species is expanding its distribution area in Romania.

Keywords: *Cicadetta brevipennis*, expansion, Romania

1. INTRODUCTION

Singing cicadas are thermophilous species and the climatic conditions of Romania limited in time the areas of these species to the south-eastern (Dobrogea) and south-western part of the country. Drugescu and Geacu (2004) consider the south-western part and Dobrogea as sub-Mediterranean region which make the transition between the Mediterranean and the continental climate, optimal for Mediterranean fauna species.

Trilar et al. (2006) adds three new singing cicada species to the nine mentioned in Dobrogea by literature of Romania, and further research in the south-western area reveals another four species as first records for Romania (Trilar & Gogala, 2008).

Cicadetta brevipennis Fieber 1876, considered as part of the mountain cicadas *Cicadetta montana* (sensu lato) complex, has recently received its place as a species s. str. because of the bioacoustics and morphological particularities (Gogala & Trilar, 2004). Like other species from *C. montana* (sensu lato) complex, *C. brevipennis* has a higher tolerance to climatic factors, so it is present in the areas with temperate continental climate from Western and Central Europe (Gogala & Trilar, 2004). After the taxonomic clarifications, it was reinvestigated its geographical distribution; therefore this European species is present in Slovenia (Gogala & Trilar, 2004), Austria (Trilar & Holzinger, 2004), Macedonia (Gogala et al. 2005), Switzerland (Hertach, 2007), France (Sueur & Puissant, 2007), northern Italy (Trilar & Hertach, 2008), Germany (Meineke, 2010), Bulgaria and Hungary (Trilar & Gogala, 2012), and other countries will be investigated.

In Romania, the species was mentioned until present only in Dobrogea, specifically Negru Vodă Forest and Hagieni Forest (Trilar et al., 2006).

2. MATERIALS AND METHODS

The observations were carried out in June and July 2016, in a private garden in the center of Pitesti, with an area of about 1000 sqm, located at an altitude of 302 m. In this garden there are grown ornamental plants and shrubs, fructiferous trees and shrubs. GPS coordinates: 44.85212 N/24.87466 E. Afterwards there were investigated parks located in different areas of the city. There were collected females which were prepared to facilitate the identification of the species. Records of the songs of the cicada males were made through classic methods.

Geographic coordinates were measured with a Garmin GPSmap 60 CSx.

It is important to mention that Pitești is located in Argeș County, in the central - southern region of the Wallachian hills, and characterized by a temperate continental climate (Fig. 1).

3. RESULTS AND DISCUSSIONS

In June 2016, in a private garden in the center of Pitesti, was noticed *Cicadetta brevipennis* species at different levels on branches of *Vitis vinifera*, *Malus domestica*, *Prunus cerasus*, *Prunus avium*, *Prunus domestica* (Fig. 2). Investigations in other green area of this town – Trivale Park, Lunca Argeșului Park, emphasized the song of the cicada males, which indicates the population of the species in Pitești. The species was not observed in northern part of the city. Also, there were not observed any exuvia of singing cicada in these areas which shows that the presence of this species in Pitesti is recent.

Regarding the presence of the singing cicada species in Argeș County, there is one paper in which are presented Auchenorrhyncha species collected from different places located along the basin of the Arges River, from upstream until flowing into the Danube (Cantoreanu, 1972). Two cicada species, *Tibicina haematodes* and *Cicadetta tibialis* are mentioned in the paper, both from the hilly region of the Arges River, specifically Pitești and Curtea de Argeș.

Thus, it is necessary to specify that in the entomological collections of Argeș County Museum and University of Pitesti, there are no specimens of those cicada species. Also, in personal trips or of other entomologists, made over time in various habitats of Argeș County, the species were not noticed. Besides, in literature (Cantoreanu, 1969; Drugescu & Geacu, 2004; Trilar & Gogala, 2008), those species are mentioned in Dobrogea and in south-western area.

The mention of these cicada species in Pitești and Curtea de Argeș is more likely mistaken; the author might have identified the species in the lower areas of the Argeș River, close to the Danube.

Thus, Drugescu & Geacu (2004) consider the eastern Burnaz Plain - a southern plain located on the lower side of Argeș River, close to the Danube, as sub-Mediterranean region in which are present Mediterranean faunistic elements, including singing cicada species (Fig. 1).

In conclusion, the *C. brevipennis* species is the first singing cicada species reported in Argeș County, specifically in Pitești.

The presence of the species in Pitești indicates that it is expanding its distribution area in Romania. It is most likely to be present other species of the mountain cicadas *Cicadetta montana* (sensu lato) complex, like in Austria (Trilar & Holzinger, 2004), Switzerland (Hertach, 2007), Germany (Meineke, 2010), Hungary (Trilar & Gogala, 2012). Also, in conditions of global warming, species that are present in sub-Mediterranean region can extend their areas. Thus, Sandu et al (2010) shows that the annual mean temperature increased by 0.5°C during 1988-2008 in many places of Romania, including Pitești.

Further studies will bring new data about the areal of singing cicadas in Romania.

C. brevipennis species might also be present in Southern Romania, including Bucharest. After 2011 there were observed singing cicadas in Bucharest, but until now there is no published data.



Figure 1. Distribution of sub-Mediterranean region in Romania and the localities with *Cicadetta brevipennis*:
A - south-eastern part; B – south-western part; C - Burnaz Plain



Figure 2. *Cicadetta brevipennis*, female (Photo Mihnea Deaconescu)

4. CONCLUSIONS

In June 2016, in Pitești was identified the *Cicadetta brevipennis*, considered until recently as part of the mountain cicadas *Cicadetta montana* (sensu lato) complex. The *C. brevipennis* species is the first singing cicada species reported in Pitești, specifically in the central-southern area of Romania, with temperate continental climate. The presence of the species in Pitești indicates that the species is in full expansion in Romania. The expansion is generated by the adaptability of this eurythermal species to the various climatic conditions that are also present in Argeș County.

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