

Short communication

ACROSTERNUM HEEGERI (HETEROPTERA: PENTATOMIDAE) IN SERBIA

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The species *Acrosternum heegeri* Fieber, 1861, is well-known member of the Mediterranean fauna in Europe, however, recently it was reported that the species has established populations outside of its original range in the Hungarian capital city, Budapest (Károlyi & Rédei, 2017). The first published single record of *A. heegeri* outside its native range in Europe is from southwestern Romania (Kis, 1984), about 3 km from the Danube and the Serbian-Romanian border, but the species presence has not been confirmed for the country since then.

Besides its Holomediterranean distribution, the range of *A. heegeri* extends east throughout the Black Sea region and the Middle East (Károlyi & Rédei, 2017), where the species is considered as a pest. In Iran, *A. heegeri* is one of the most unwelcome insects in pistachio orchards (*Pistacia vera* L.) (Mehrnejad, 2010; Kashkouli *et al.*, 2018). A few other native pentatomid species are also pests of pistachio in this country, and the whole group shares a common name – pistachio stink bugs (Kashkouli *et al.*, 2018). In Turkey, *A. heegeri* has the potential to become an economically important species in the commercial production of pistachio and olive (*Olea europaea* L.) (Özgen *et al.*, 2005). In Europe, *A. heegeri* is usually associated with habitats like the Mediterranean forests, woodlands and scrublands. Here, the species feeds on wild pistachios (e.g. *Pistacia terebinthus* L., *P. lentiscus* L.) (Derreumaux, 2012) and several other native trees and shrubs; this true bug is a polyphagous herbivore of host plants from more than 20 families of various habits (i.e. trees, shrubs, herbaceous plants) (Ghahari *et al.*, 2014).

In the Balkans, *A. heegeri* was recorded in the coastal zones of all countries, except landlocked Serbia (Misja, 1973; Kis, 1984; Furlan & Gogala, 1995; Protić, 2001, 2016; Fent & Aktaş, 2007; Gogala, 2008; Károlyi & Rédei, 2017; Ramsay, 2019). However, in the spring of 2013 a few adults were recorded in the city of Novi Sad in the northern Serbian province of Vojvodina (Fig. 1a). The first specimen of *A. heegeri* was found dead underneath the bark of a plane tree (*Platanus × acerifolia* (Aiton) Willd.). A few days later, the first live specimens were found underneath the bark of a catalpa tree (*Catalpa* Scopoli). All specimens were reported during an active search of Marko Šćiban for true bugs overwintering around trees in the urban area of the city. After these two occasions, *A. heegeri* was not reported again for the next few years. From 2017,

the species has spread further, and we started to observe new adults in the late summer and autumn of the following years (Fig. 1b). All records of *A. heegeri* from Serbia are given in Table I, presenting exported data from the AlciPhron database (Šeat & Nadaždin, 2014).



Figure 1. A- The first live specimens of *Acrosternum heegeri* recorded in Serbia (photo: Marko Šćiban); B- a new adult in late summer (photo: Ivan Pančić).

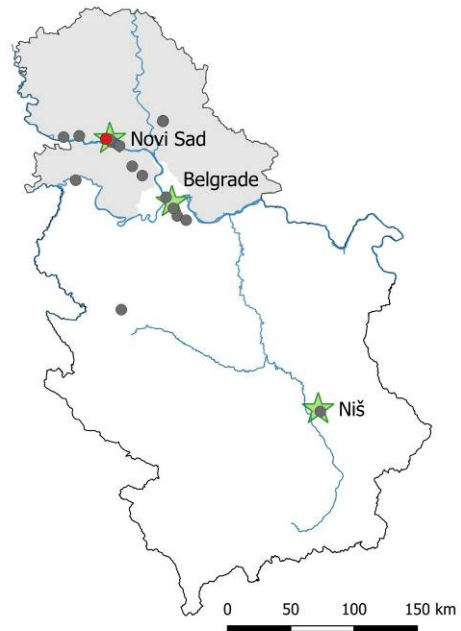


Figure 2. Distribution of *Acrosternum heegeri* in Serbia (red dot: the first record of the species, grey dots: later records of the species, green stars: the three biggest cities in Serbia, grey area: Province of Vojvodina).

A. heegeri is mostly distributed in the northern part of Serbia (Fig. 2), but it is expected that the species is present in other parts as well, considering its wide-spreading in the Mediterranean zone of the Balkan countries. In contrast to the Balkans, the northern province of Vojvodina biogeographically belongs to the Pannonian region and Central Europe. In the new environment of Central Europe, the species has shifted its habitat preferences from Mediterranean forests, woodlands and scrublands to urban greenery, parks and riparian vegetation along the Danube, as noticed by Károlyi & Rédei (2017) in Budapest. Most of the Serbian records are also concentrated in settlements near to big rivers (Fig. 2). Is it possible that *A. heegeri* uses riparian vegetation as spreading corridors?

Károlyi & Rédei (2017) assumed that *A. heegeri* reached Hungary by the transportation of goods and/or people, which is the most common way of introduction of true bugs to a new region (Rabitsch, 2008a). However, we should not disregard climate change and the consequent trend of 'Mediterranization' of Central European fauna (Rabitsch, 2008b). The spread of the species northwards and occurrences outside its indigenous range are most likely human-driven, but the establishment of populations in new areas is probably enabled by milder winters in Central Europe, where the species can overwinter easily in an urban

environment. As a predominantly thermophilous group, true bugs are good indicators of climate change and they deserve more attention in future studies (Rabitsch, 2008b).

Table I. Records of *Acrosternum heegeri* exported from Alciphron database. *Species identified by a photo.

ID of a record	Locality	Latitude	Longitude	Date	Collector/Author of a photo	Determiner
93579	Novi Sad	45.252135	19.796961	06.04.2013.	M. Šćiban	J. Šeat
221751	Novi Sad	45.250365	19.794743	17.04.2013.	M. Šćiban	M. Šćiban
172600*	Sremska Kamenica	45.229647	19.851844	02.04.2016.	M. Milković	J. Šeat
317623	Čelarevo	45.269188	19.526935	08.04.2016.	D. Vajgand	J. Šeat
317644	Čelarevo	45.269188	19.526935	25.05.2016.	D. Vajgand	J. Šeat
299715	Zrenjanin	45.384763	20.368750	26.04.2017.	J. Šeat	J. Šeat
247970*	Zrenjanin	45.381867	20.369140	05.08.2017.	I. Pančić	J. Šeat
249191*	Zrenjanin	45.381867	20.369140	11.08.2017.	I. Pančić	J. Šeat
250006*	Stara Pazova	44.991995	20.166546	18.08.2017.	B. Hric	J. Šeat
252441*	Zrenjanin	45.381843	20.369651	19.08.2017.	I. Pančić	J. Šeat
256292*	Beli Potok	44.706099	20.519195	16.09.2017.	D. Čoso	D. Čoso
271705*	Beograd (Banjica)	44.759903	20.479504	27.12.2017.	D. Čoso	J. Šeat
295307*	Zrenjanin	45.381862	20.368220	05.07.2018.	I. Pančić	J. Šeat
298532*	Zrenjanin	45.381854	20.368361	21.07.2018.	I. Pančić	J. Šeat
301279*	Zrenjanin	45.381862	20.368220	01.08.2018.	I. Pančić	J. Šeat
300546*	Zrenjanin	45.381862	20.368220	08.08.2018.	I. Pančić	J. Šeat
301317*	Zrenjanin	45.381862	20.368220	14.08.2018.	I. Pančić	J. Šeat
301413*	Zrenjanin	45.381862	20.368233	17.08.2018.	I. Pančić	J. Šeat
386369	Kosjerić (Skakavci)	44.033891	19.972763	24.09.2018.	M. Šćiban	M. Šćiban
327256*	Zrenjanin	45.381953	20.368436	15.04.2019.	I. Pančić	B. Nadaždin
343167	Bačka Palanka	45.258488	19.370125	15.06.2019.	I. Tot	B. Nadaždin
377582*	Zrenjanin	45.381859	20.367709	20.08.2019.	I. Pančić	B. Nadaždin
361897*	Zemun	44.839439	20.406023	05.09.2019.	M. Tomić	R. Lupoli
371576*	Niš	43.307970	21.924176	13.09.2019.	S. Stevčić	S. Stevčić
366355*	Zrenjanin	45.381859	20.367709	03.10.2019.	I. Pančić	B. Nadaždin
366563*	Zrenjanin	45.381859	20.367709	08.10.2019.	I. Pančić	B. Nadaždin
367431*	Vrčin	44.676891	20.607832	24.10.2019.	M. Vujić	M. Vujić
378594*	Indija	45.058139	20.064094	12.02.2020.	B. Hric	B. Nadaždin
384871	Novi Sad	45.247891	19.837433	04.04.2020.	B. Nadaždin	B. Nadaždin
388216	Sremski Karlovci	45.203772	19.935328	04.04.2020.	T. Kereši	T. Kereši
388215	Sremski Karlovci	45.203772	19.935328	04.04.2020.	T. Kereši	T. Kereši
386144*	Zasavica I	44.952547	19.500323	12.04.2020.	A. Mišćević	A. Mišćević
388217	Sremski Karlovci	45.203772	19.935328	17.04.2020.	T. Kereši	T. Kereši

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ACROSTERNUM HEEGERI (HETEROPTERA: PENTATOMIDAE) У СРБИЈИ

ЈЕЛЕНА ШЕАТ, БОЈАНА НАДАЖДИН И МАРКО ШЋИБАН

Извод

Врста *Acrosternum heegeri* Fieber, 1861 је добро познат припадник медитеранске фауне у Европи и до скоро није бележена ван свог природног ареала. Последњих година потврђено је присуство стабилних популација врсте у Будимпешти, а први налази на територији Србије су из 2013. године када је нађено неколико презимелих адулта испод коре листопадног дрвећа у Новом Саду. Од 2017. године бележе се и активне јединке током целе сезоне, за сада углавном са подручја Војводине. Ова стеница вероватно осваја нове територије транспортом људи и добара, али за успостављање стабилних популација у новим срединама су претпостављамо заслужне и климатске промене. У раду су представљени налази врсте *A. heegeri* у Србији који су преузети из AlciPhron базе о инсектима Србије. Врста *A. heegeri* је полифагни биљојед и има статус економски значајне врсте на Блиском Истоку јер наноси штете у засадима пистаћа.

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