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## NON-EUROPEAN AUCHENORRHYNCHA (HEMIPTERA) AND THEIR GEOGRAPHICAL DISTRIBUTION IN SLOVENIA

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**Abstract** Four non-European species of Auchenorrhyncha have spread into Slovenia in the last 40 years: *Metcalfa pruinosa*, *Stictocephala bisonia*, *Scaphoideus titanus* and *Japananus hyalinus*. Their current distribution in Slovenia and the consequences of their appearance are discussed in brief.

**KEY WORDS:** *Metcalfa pruinosa*, *Stictocephala bisonia*, *Scaphoideus titanus*, *Japananus hyalinus*, Slovenia, distribution

### **Izvleček** - NEEVROPSKE VRSTE ŠKRŽATKOV (AUCHENORRHYNCHA) IN NJIHOVA RAZŠIRJENOST V SLOVENIJI

Štiri neevropske vrste škržatkov (Auchenorrhyncha) so se v zadnjih 40 letih razširile v Slovenijo; *Metcalfa pruinosa*, *Stictocephala bisonia*, *Scaphoideus titanus* in *Japananus hyalinus*. Na kratko je obravnavana njihova trenutna razširjenost v Sloveniji in posledice njihove naselitve.

**KLJUČNE BESEDE:** *Metcalfa pruinosa*, *Stictocephala bisonia*, *Scaphoideus titanus*, *Japananus hyalinus*, Slovenija, razširjenost

### **Introduction**

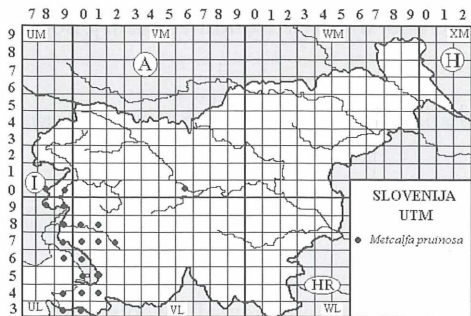
In the last 40 years, more than 40 new phytophagous species of insects that can be treated mainly as pests of agricultural and forest plants, have spread in Slovenia. In this period the following non-European species of Auchenorrhyncha also diffused



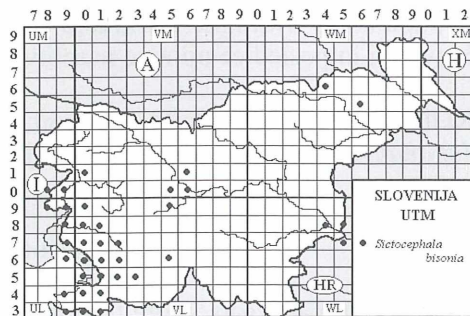
**Fig. 1:** *Metcalfa pruinosa*, adult



**Fig. 3:** *Stictocephala bisonia*, male



**Fig. 2:** *Metcalfa pruinosa*, current distribution in Slovenia



**Fig. 4:** *Stictocephala bisonia*, known distribution



Fig. 5: *Scaphoideus titanus*, female



Fig. 7: *Japananus hyalinus*, female

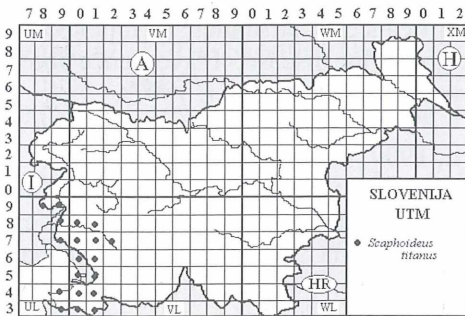


Fig. 6: *Scaphoideus titanus*, current distribution

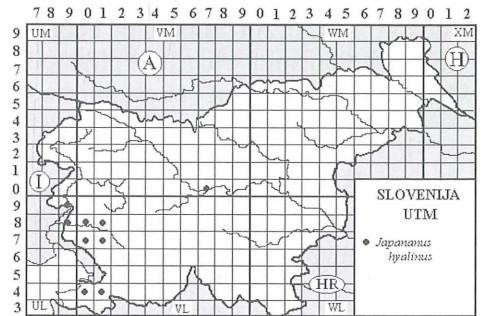


Fig. 8: *Japananus hyalinus*, known distribution

from the neighbouring states: *Stictocephala bisonia* (Kopp & Yonke), *Scaphoideus titanus* Ball, *Japananus hyalinus* (Osborn) and *Metcalfa pruinosa* (Say). Not even one of the mentioned species entered Slovenia directly from its original region. All

these species, except *Japananus hyalinus*, gain in importance, causing damages on cultivated plants or they are known as vectors of harmful phytoplasmatic plant diseases.

### ***Metcalfa pruinosa* (Say, 1830) (Flatidae)**

*Metcalfa pruinosa* (Say) has been present in the west of Slovenia since 1990 (Šivic, 1991; Seljak, 1993). At the moment it is widely diffused along the Slovene-Italian border, where it appears in numerous populations. It is a most inconvenient pest in agriculture as well as the urban environment. In 2000 an isolated population was also discovered in the surroundings of Ljubljana. Recently, in order to limit their population, the predator and parasitoid *Neodryinus typhlocybae* (Ashmed) has been successfully introduced (Žežlina, 2000).

### ***Stictocephala bisonia* Kopp & Yonke, 1977 (Membracidae)**

Originating from North America; it was probably introduced in Slovenia from the neighbouring states in the 50s and is now commonly diffused. Detailed data of its distribution are known for the western part of Slovenia, elsewhere the data are only general and incomplete (Seljak, 1993; Holzinger & Seljak, 2001). Very probably it is widely diffused in the lowlands throughout the country. Periodically, this species provokes serious injuries on young fruit trees and also rarely on grapevines causing economic damage.

### ***Scaphoideus titanus* Ball, 1932 (Cicadellidae)**

Originates from North America. It has been established in western Slovenia since 1983 (Seljak, 1985, 1987, 1993). The species is now commonly diffused in vineyards in the southwestern and western parts of Slovenia - the Primorska wine-growing region (fig. 4). In other wine-growing regions it is not present (Berčon, Seljak & Milevoj, 1997). An important economic significance is attributed to this species because it transmits a harmful phytoplasmatic grapevine disease - Flavescence dorée, which at present is not yet established in Slovenia (Seljak & Osler, 1997).

### ***Japananus hyalinus* (Osborn, 1900) (Cicadellidae)**

For Slovenia this is a new, probably non-European species originating from East Asia. In 1997 it was discovered in some places in western Slovenia. There are very few data regarding its distribution in continental Slovenia. Most frequently it appears on *Acer campestre*, *A. monspessulanum*, and *A. pseudoplatanus*. Further faunistic research of this species is needed.

## **Conclusions**

Monitoring the distribution and spread of the introduced species, particularly the non-European ones, has a huge zoogeographical as well as ecological and economi-



cal significance. Also, the four non-European species of the Auchenorrhyncha point out the known negative effects of the globalisation processes on the autochthonous biocenosis, the environment, and agriculture. Species entirely imperceptible in their sites of origin (e. g. *Metcalfa pruinosa*) can become extremely invasive and competitive in a new environment. Besides, among the *Auchenorrhyncha* many species are known which can be effective vectors of harmful, endemic as well as introduced plant diseases frequently more harmful than the vectors themselves (e. g. *Scaphoideus titanus*).

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