

**METCALFA PRUINOSA SAY (INSECTA: HOMOPTERA: FLATIDAE) –
FIRST OCCURRENCE IN WESTERN PART OF ROMANIA**

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Abstract: This summer (2010), rather in July, 9 a new invasive species (*Metcalfa pruinosa* Say) was detected in western part of country. The first point of appearance was Timisoara from Timis County. Known as citrus flatid plant hopper the species was found on many plants belonging to several botanical families. Until now, insect has been observed only in built-up areas, especially in sheltered green areas of buildings or in parks. Of our observations we found this new flatide in following plant species: *Acer platanoides* L., *Juglans regia* L., *Juniperus* sp., *Thuja occidentalis* L., *Buxus sempervirens* L., *Albizia julibrissin* Durazz, *Potentilla (Dasiphora) fruticosa* L., *Cycas revoluta* Thunb., *Vitis vinifera* L., *Atriplex hortensis* L., *Sambucus nigra* L., *Melissa officinalis* L., *Ligustrum vulgare* L., *Hibiscus rosa-sinensis* L., *Ligustrum vulgare* L., *Hibiscus rosa-sinensis* L., *Buxus sempervirens* L., *Rosa* sp. L., *Juniperus* sp. L., *Thuja occidentalis* L. and *Hybiscus rosa – sinensis*. Being native to North America, *Metcalfa pruinosa* Say can be said to have been accidentally introduced in Europe. Beginning to 1979, the species had a rapid evolution of propagation, so that today it is detected in 16 European Countries. After a short period of observation (from July until October) we considered that this first mass occurrence is due primarily to adults that spread through the flight from neighboring countries (Serbia and Hungary), Timis County is situated to border between Romania and those countries. The most of individuals observed were adults and larvae. Our studies reveals two types of damage, first is very important direct activity of larvae characterized by sting and sucking of plant and in the other hand the indirect way of damage through filamentous secretion of larvae that causes discomfort in plant development. The presence of these filamentous and of course of sweet secretions (honey dew) characteristic for insects from Homoptera causes negatively effects by unsightly aspects. Possible extension to other areas requires the studies of this species by the many aspects.

Key words: *Metcalfa pruinosa*, insect, invasive species, first occurrence, western part of country

INTRODUCTION

Metcalfa pruinosa Say (1830) knows as flatid plant hopper or North American plan thopper is a new invasive species detected for the first time in western part of Romania, in July 2010.

Studying literature currently available we can say that species are originated from North America (from eastern part) including areas from Ontario, Quebec, Florida, Texas, New Mexico, Arizona, California and Mexic. In 1948, METCALF AND BRUNER mentioned first appearance of *Metcalfa pruinosa* in Cuba, too. In 1961, DEAN AND BAILEY report occurrence of this plant hopper in Rio Grande.

In the late 1970s was reported in Europe (Italy) in areas of Veneto where it is considered that was accidentally introduced from North America (ZANGHERI AND DONADINI, 1980).

From this first point of detection species extended especially train the South Eastern Europe including many countries neighbors to Romania, like Serbia and Montenegro (HRNČIĆ, 2003), Hungary (OROSZ AND DER Z, 2004), Turkey (KARSAVURAN AND GÜÇLÜ, 2004), Bulgaria (TOMOV et al., 2006). It was detected in Spain, too (PONS et al, 2002). Last year, in

2009 the citrus flatid planthopper was detected in south eastern part of our country (PREDA AND SPOLKA).

Being an invasive species as invasive alien species *Diabrotica virgifera virgifera* Le Conte (GROZEA, 2003), *Metcalfa pruinosa* Say presents several hypothesis for this entering species into a new area. So, the main way could be importation of infested with eggs, active spread by flight of adults and by vehicle traffic (STRAUSS, 2010).

MATERIAL AND METHODS

In July, 2010 as a results of practical activities carried out together with students from our Department of Plant Protection at Park Young Naturalists from Timisoara we found this new insect species. Detailed studies on binocular magnifier and after compassion with literature we concluded that the species is *Metcalfa pruinosa* Say known as flatid plant hopper. In period July-October we continued researches on this on various places and plants species. For the first step we made pictures of different development stages of insect and various locations (parks, green areas between buildings). The insects were collected using insect vacuum. For movement we used the car of Entomology and Agricultural Zoology department and for determination location we used a GPS apparatus.

RESULTS AND DISCUSSIONS

First observation of species *Metcalfa pruinosa* Say on some plants in western part of Romania was realized in middle of July, 2010. The second period of studies was made in the end of July. For establishing of last individuals observed we made readings during October month. Those three periods included studies in 5 points of observations, in fact each point representing one place (2 parks- Park Young Naturalists, Park of BUASVM and 3 green areas from buildings- Calea Aradului, Calea Torontalului, Calea Lipovei) (see figure 1-map). The most of individuals observed were adults and larvae (see figure 2).

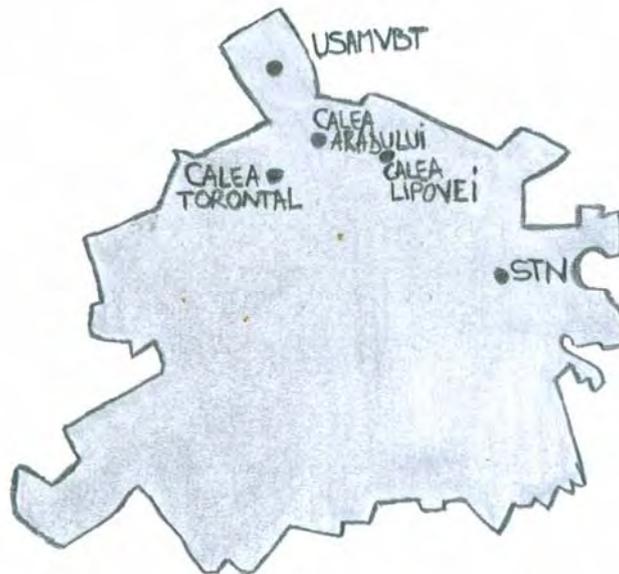


Figure 1: First points of occurrence marked on the Timisoara map, in 2010 (realized by authors)

Our studies reveal two types of damage, directly and indirectly ways. The larvae feed on plant sap, causing damage such of leaves deformation, decreasing the growth of organs attacked and depreciation of the fruit trade. The wine, insects colonize the lower leaves, buds, shoots, they over with waxy secretions. These attacks are more frequent where crops besides wines are other host plants (ornamentals plants and hedges. In the other hand the indirect way of damage through filamentous secretion of larvae that causes discomfort in plant development. The presence of these filamentous and of course of sweet secretions (honey dew) characteristic for insects from Homoptera causes negatively effects by unsightly aspects. If we consider that sweet secretions of insects may facilitates installation of fungus from Capnodium genus or other saprophyte fungus (WENE AND RIHERD, 1953) we can highlight many negative aspects of insects.

In this year we found the species *Metcalfa pruinosa* Say on large variety of plant species, from many botanical families: *Vitaceae*, *Buxaceae*, *Aceraceae*, *Cupressaceae*, *Fabaceae*, *Rosaceae*, *Cycadaceae*, *Amaranthaceae*, *Adoxaceae*, *Lamiaceae*, *Oleaceae*, *Malvaceae*, *Rosaceae* and *Juglandaceae* (tables 1, 2).

Table 1

Plants species affected by *Metcalfa pruinosa* Say in the park of STN Timisoara, July 2010

Order	Family	Scientific name	Common name
<i>Sapindales</i>	<i>Aceraceae</i>	<i>Acer platanoides</i> L.	norway maple
<i>Fagales</i>	<i>Juglandaceae</i>	<i>Juglans regia</i> L.	walnut
<i>Pinales</i>	<i>Cupressaceae</i>	<i>Juniperus</i> sp.	juniper
		<i>Thuja accidentalis</i> L.	withe cedar
<i>Buxales</i>	<i>Buxaceae</i>	<i>Buxus sempervirens</i> L.	box
<i>Fabales</i>	<i>Fabaceae</i>	<i>Albizia julibrissin</i> Durazz	silktree
<i>Rosales</i>	<i>Rosaceae</i>	<i>Potentilla (Dasiphora) fruticosa</i> L.	bush cinquefoil
<i>Cycadales</i>	<i>Cycadaceae</i>	<i>Cycas revoluta</i> Thunb.	palm sago
<i>Vitales</i>	<i>Vitaceae</i>	<i>Vitis vinifera</i> L.	vine
<i>Caryophyllales</i>	<i>Amaranthaceae</i>	<i>Atriplex hortensis</i>	mountain spinach
<i>Dipsacales</i>	<i>Adoxaceae</i>	<i>Sambucus nigra</i> L.	elderberry
<i>Lamiales</i>	<i>Lamiaceae</i>	<i>Melissa officinalis</i> L.	Lemon balm
	<i>Oleaceae</i>	<i>Ligustrum vulgare</i> L.	privetwood
<i>Malvales</i>	<i>Malvaceae</i>	<i>Hibiscus rosa-sinensis</i> L.	china rose
<i>Rosales</i>	<i>Rosaceae</i>	<i>Rosa</i> sp.	rose

Table 2

Plants species affected by *Metcalfa pruinosa* Say in the sheltered green areas of buildings Timisoara, July 2010

Order	Family	Scientific name	Common name
<i>Lamiales</i>	<i>Oleaceae</i>	<i>Ligustrum vulgare</i> L.	privetwood
<i>Malvales</i>	<i>Malvaceae</i>	<i>Hibiscus rosa-sinensis</i> L.	china rose
<i>Buxales</i>	<i>Buxaceae</i>	<i>Buxus sempervirens</i> L.	box
<i>Rosales</i>	<i>Rosaceae</i>	<i>Rosa</i> sp.	rose
<i>Pinales</i>	<i>Cupressaceae</i>	<i>Juniperus</i> sp.	juniper
		<i>Thuja accidentalis</i> L.	withe cedar



Picture 1- Adult (original)



Picture 2- Colonies of larvae on the branch (original)



Pictures 3-Nymph on the leaf (original)



Pictures 4- Larvae in detail at magnifier (original)



Pictures 5- Colonies of larvae located on the main rib of the leaf (original)



Pictures 6- Characteristic aspects of the attack on the white cedar branches (original)

Figure 2: Pictures representing some aspects of different development stages and damage aspects on various plants (made in Timisoara, July and August 2010)

CONCLUSIONS

This year, a new invasive species (*Metcalfa pruinosa* Say) was detected in western part of country.

The first point of appearance was Timisoara from Timis County.

The species was found on many plants belonging to several botanical families.

The insect has been observed only in built-up areas, especially in sheltered green areas of buildings or in parks.

Possible extension to other areas requires the studies of this species by the many aspects.

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Metcalfa pruinosa say (insecta: homoptera: flatidae) - first occurrence in western part of romania. A new invasive species (Metcalfa pruinosa Say) was signalled in the western part of Romania one year ago. Immediately, specialists in this part of the country began to focus their research on it; more Expand. 1. Homoptera: Flatidae) "first occurrence in western part of Romania. Res. J. Agric. Metcalfa pruinosa Say (1830) (Hemiptera: Flatidae) is considered a very important invasive species in Europe, due to its highly gregarious behavior, motility and multiplication rates, and to its wide range of host plants, including Actinidia spp. (Grozea et al., 2011). After its accidental introduction to Europe from North America (Wilson and McPherson, 1981), the insect has become widespread due to its polyphagia and the absence of natural enemies (Grozea et al., 2015). Metcalfa pruinosa is common in eastern North America, ranging from Ontario and Quebec to Florida, west to the Great Plains states, south to Texas, New Mexico, Arizona, California, and Mexico. In Florida, Metcalfa pruinosa has been collected in all regions. Metcalf and Bruner (1948) reported Metcalfa pruinosa widely distributed in Cuba. Identification (Back to Top). Usually, adults of Metcalfa pruinosa are 5.5 to 8 mm in length and 2 to 3 mm in width at the widest point. This species, along with certain other flatids, might be mistaken for a moth at first glance. Flatids have broadly triangular