

Introduction and possible spread of *Metcalfa pruinosa* (Cicadina; Flatidae) in Austria

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ORIGIN AND INTRODUCTION IN EUROPE

The planthopper *M. pruinosa* has its origin in North America where it lives in the eastern part of the continent. Its distribution ranges from Quebec to Mexico. In Europe it was first found in Italy (Veneto 1979), later in other Mediterranean countries (France 1986, Spain, Slovenia 1991, Croatia 1992) and also in central Europe (Switzerland 1995, Czech Republic 2002, Austria 1996 and 2003, Hungary 2004). This planthopper is not listed in any of the annexes of the EU Council Directive 2000/29 concerning Quarantine Pests.

BIOLOGY

During June the young larvae of *M. pruinosa* hatch from overwintering eggs, which are hidden in corky parts of the bark (e.g. lenticels). The larvae suck phloem saps and thereby produce large amounts of honeydew. After passing through 5 larval stages adult planthoppers hatch at the beginning of August and start with oviposition soon afterwards. Each female is able to lay up to 90 eggs. Only one generation of planthoppers can develop each year. More than 200 host plants from different families are known. Good host plants are especially *Acer campestre*, *Acer platanoides*, *Clematis vitalba*, *Cornus sanguineus*, *Crataegus monogyna*, *Hibiscus syriacus*, *Ligustrum vulgare*, *Malus domesticus*, *Parthenocissus quinquefolia*, *Prunus domestica*, *Rhamnus catharticus*, *Robinia pseudacacia*, *Rubus fruticosus*, *Salix* sp., *Sambucus nigra*, *Ulmus* sp., *Urtica dioica*, *Viburnum lantana* and *V. opulus* (for a comprehensive review of literature concerning *M. pruinosa* see Lucchi et al., 2000).

SIGNIFICANCE FOR PLANTS

All larval stages excrete masses of white wax leading to an easy detection of the organismens. The wax is responsible for the damage of ornamentals and fruits. Adults and larvae also produce honeydew, which is collected by bees. This fact became an important source of their alimentation during summer months particular in areas with very high population densities of *M. pruinosa* for example in Italy. Larval sucking does not lead to crippling of leafs or shoots. Nevertheless, it is possible that sooty mould covers parts of the plant and leads to its unmarketability. Another matter of concern is the ability of many plant hoppers as vectors of viruses and/or phytoplasmas. Though *M. pruinosa* does not transfer important diseases, the large list of host plants might bear a risk that pathogens come into contact with host plants they are not adapted to nor resistant. It has to be assumed that *M. pruinosa* gains of importance in cultures treated only rarely with soft insecticides (e.g. in organic farming) or remain untreated (e.g. public green).

CONTROL MEASURES

As a non-chemical control measure twigs of infested trees bearing eggs of *M. pruinosa* can be cut in winter in order to reduce the infestation in the following season. According to experiments conducted in 2004 the larvae of *M. pruinosa* are susceptible to some insecticides (e.g. chlorpyriphos and imidacloprid). In southern European countries *M. pruinosa* is controlled successfully by mass-releases of the dryinid wasp *Neodryinus typhlocybe*. As this insect originates from North America, it has to be made sure that it does not attack any indigenous plant hoppers from Austria before it can be released for biocontrol. This question is studied by Gudrun Strauss in a project concerning *M. pruinosa* in Austria.

PRESENT DISTRIBUTION IN AUSTRIA

In Austria a single specimen was found in Graz (Styria) in 1996 (Holzinger 2003). This individual had been transferred to an insect collection and did not give rise to a population. In 2003 a mass outbreak was recorded in a small park in Leopoldau (Vienna). In 2004 infested trees of horse chestnuts were detected in the court of a house in the third district in Vienna, and again a small infested area of 1000 m² was discovered in Graz (Styria).

TRENDS IN THE SPREADING IN AUSTRIA

The infested area of the first mass outbreak in Leopoldau covered approximately 3000 m². It had not been conspicuous for neighboring gardeners in the years before. At the time of its detection in July 2003, the population of *M. pruinosa* contained approximately several thousand individuals. Therefore we assume that the introduction has taken place 3 or 4 years earlier. In July 2004 the infested area had increased by a maximum of 50 meters in each direction. It has to be stressed, that this is the result of “natural” dispersion by the flight of adult plant hoppers. The dispersal caused by transport of infested plants cannot be estimated. It may take a time period of 2 or 3 years until single transferred specimen of *M. pruinosa* can develop into a conspicuous population. The already known populations from the Tessin in Switzerland do not grow rapidly but remain more or less stable. It seems very probable, that this fact is correlated with the high precipitation of 1700 mm per year observed in the Tessin. Generally it is believed that warm and dry weather favors plant hoppers. Therefore we assume that *Metcalfa pruinosa* will reach high population densities only in eastern Austria where warm weather is combined with low precipitation (“vine growing climate”).

LITERATURE

- Holzinger W. (2003): Die Zikaden Mitteleuropas; Volume 1. Brill, Leiden-Boston.
Lucchi A. et al. (2000): La Metcalfa negli ecosistemi italiani. ARSIA, Argenzia Regionale per lo Sviluppo e l'Innovazione nel settore Agricolo-forestale. Firenze, Italy.