




Sentinel plantings for detecting alien, potentially damaging tree pests

State of the art 2018

COST Conference

9-12 October 2018

Campus Sursee, Switzerland

Program and Abstracts

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WSL

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Towards an Annotated List of the Most Important Insect Pest Species Associated with Woody Plants in Europe

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Species compositions of insects associated with woody plants differ considerably in different parts of Europe. New species often arrive to Europe and become invasive. For instance, the lime leaf miner *Phyllonorycter issikii* (Lepidoptera: Gracillariidae) recently arrived and became a noticeable pest of horse chestnut. The four eyed fir bark beetle *Polygraphus proximus* (Coleoptera: Curculionidae), an important pest of fir in Siberia, recently arrived to European Russia and host-shifted to spruce. The Emerald ash borer *Agrilus planipennis* (Coleoptera: Buprestidae), accidentally introduced from Asia to the central Russia, is quickly expanding its invasive range. All these examples suggest that a critical analysis of the insect fauna associated with woody plants in Eastern Europe is needed to reveal potential risks for forest and urban woody plants. Compiling an annotated list of such insects was a goal of an STSM project in the frame of the COST Action FP1401.

For this, 15 tree taxa were chosen. Eleven taxa have the largest forest ranges in Europe (*Abies* spp., *Larix* spp., *Pinus* spp., *Picea* spp., *Pseudotsuga menziesii*, *Fraxinus* spp., *Alnus* spp., *Betula* spp., *Fagus sylvatica*, *Populus* spp., *Quercus* spp.), whereas four others (*Acer* spp., *Tilia* spp., *Salix* spp. and *Ulmus* spp.) are very important for urban greening. Besides, *Tilia* spp. and *Salix* spp. are important in forests on large ranges in the regions neighboring Europe (e.g. Russia). Insect species were included if they (1) have high population density in Europe causing noticeable economical, ecological or aesthetic damage to the 15 woody plant taxa listed above; (2) are included in EPPO A1 and A2 lists; or (3) spread in the regions neighboring Europe (i.e. North Africa, Asian Russia, Middle Asia, Near East) and give outbreaks or their population density regularly increases up to the level of economically important damage to the 15 woody plant taxa listed above. Five damage type groups were recognized, mostly regarding the woody plant organs: LE (leaves, needles, buds), SC (damage cause by sucking insects), WB & BB (stems, branches, twigs, shoots), R (roots), and FF (fruits, seeds, flowers).

In total, 546 insect species were included into the list. The most numerous damage type groups were: LE (254 spp.) and WB & BB (251 spp.); in all other groups were less than 40 species in each. Among coniferous taxa, most of insects were associated with *Pinus* spp. (176 spp.), *Picea* spp. (146 spp.), and *Larix* spp. (120 spp.); among broadleaves – with *Quercus* spp. (156 spp.), *Populus* spp. (141 spp.), and *Betula* spp. (136 spp.). In conclusion, the compiled draft of the list of the most important insect pest species associated with woody plants in Europe can be used as a starting point for the next steps of research including analysis of potential dynamics of insect-tree interactions and predictions of possible invasions of forest insect pest into Europe.

Keywords: Insects, Pests, Invasions, Europe