

# Preparation of an annotated list of the most important insect pest species

Short Term Scientific Mission (STSM), COST Action FP1401

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## Summary

Following the aims of the COST Action FP1401, the Annotated List (AL) of the most important insect pest species has to include linkages between tree species, insect pest species, and damaged tree parts. Fifteen major tree species/genera were selected. Eleven species/genera (*Abies*, *Larix*, *Pinus*, *Picea*, *Pseudotsuga menziesii*, *Fraxinus*, *Alnus*, *Betula*, *Fagus sylvatica*, *Populus*, and *Quercus*) have the largest forest areas in Europe. *Acer*, *Tilia*, *Salix* and *Ulmus* are also very important for urban greening. *Tilia* and *Salix* form forest ecosystems on large areas in regions neighbouring Western Europe, especially in Russia.

Three characteristics were used for inclusion of insects into the AL: (1) high population density in Europe that causes significant damages to the tree species; (2) species are already included in the EPPO A1 and A2 lists; (3) species have spread into regions neighbouring Europe and known to have population density increases to the level that can cause significant damage. All insect damage types have been structured by five groups of trees: insects damaging leaves, needles or buds; sap-sucking insects; insects damaging stems, branches, twigs and shoots; insects damaging roots; and insects damaging fruits, seeds and flowers.

Leaf-eating insects and bark beetles / wood borers in the AL are numerically dominant (254 and 211 species, respectively). The sap sucking (35 species) and foliar feeding (21 species) groups are the least known groups, and, thus, potentially mostly underestimated. The root feeding insects include 25 species. Tree genera with the highest number of associated insect pest species are *Quercus* (156 species) and *Pinus* (176 species). Both are evolutionary old species, very important for European landscapes and well-studied. The distribution reflects the distribution of tree species, completeness and correctness of the available data on tree species pests and co-evolution history of insect-tree pairs.

The compiled AL can be used as a basis for an analysis of potential dynamics of insect-tree interactions and estimation of possible invasions of forest insect pest into Europe.