Evaluation of far-eastern pests and pathogens threat for European fir and ash species

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Abstract
A “sentinel trees” concept proposed to detect potential pests and diseases of woody plants in their region of origin before they are introduced to a new continent. Botanical gardens and arboreta can be a promising tool in this approach. The Moscow Main Botanical Garden appears to be in the secondary ranges of two tandems of invasive Far Eastern pests and pathogens of ash (emerald ash borer Agrilus planipennis Fairmaire and fungus Hymenoscyphus fraxineus (T. Kowalski) Baral, Queloz et Hosoya) and firs (four-eyed fir bark beetle Polygraphus proximus Blandford and ophiostomal fungus Grosmannia aoshimae (Othaka et Masuya) Masuya et Yamaoka).

The collection of ash and fir species if the Garden consists of 12 Fraxinus species and 18 Abies species from Eurasian and N. American continents. It was shown that all European species of ash (Fraxinus excelsior L., F. angustifolia Vahl. and F. ornus L.) were extremely susceptible to A. planipennis and H. fraxineus attack while European firs Abies alba Mill. and A. nordmaniana (Stev.) Spach. appeared to be resistant to P. proximus and G. aoshimae. Possible mechanisms of resistance were explored.

The current situation with distribution of invasive tandems on ash and firs in Western Russia will be discussed.

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