



USDA Forest Service

# URBANFOREST CONNECTIONS

*webinar series*

## Restoring Urban Ecosystems with Trees: Cleaning and greening

*Wednesday, February 11, 2015 | 1:00 – 2:00pm ET*

### PRESENTER ABSTRACT

#### **Ronald S. Zalesny Jr.**

*Research Plant Geneticist  
Institute for Applied Ecosystem Studies  
Northern Research Station, USDA Forest Service  
Rhinelander, Wisconsin*

#### **Richard A. Hallett**

*Research Ecologist  
Center for Research on Ecosystem Change  
Northern Research Station, USDA Forest Service  
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Trees can be used to clean contaminated soil and water and create forests in our urban areas. This helps meet the global need for technologies that simultaneously enhance ecological restoration and increase green space in our communities. In this webinar, we present examples of phytoremediation (using plants to clean soil and water) and afforestation (creating forests) projects designed to provide ecosystem services across a variety of urban sites, from brownfields to parks. In addition, we highlight experiences with initiating partnerships with a diversity of stakeholders. Ron Zalesny will describe phytoremediation, a class of phytotechnologies that uses the natural filtering ability of trees to remove pollutants from liability lands while moving from ecosystem degradation to restoration. He will illustrate the importance of plant selection for maximizing restoration efforts through matching specific species and varieties with contaminants and the tree tissues (i.e., root, wood, leaf) where pollutants will be sequestered and/or broken down.

Rich Hallett will introduce the concept of anthropogenic succession to support the creation of forests in cities. The environment that we work with as foresters in cities is anything but natural. The fact that it is urban means there has been huge change. This novel environment has no analog in the “natural” world and there hasn’t been time for trees to adapt to urban environments in the evolutionary sense. In addition, we need our urban forests to outperform traditional forests in many important ways. We need them to outcompete exotic invasive plant species, which are capable of consuming mature, established forests and trees. We need them to absorb storm water runoff from hectares of surrounding sidewalks, streets, and buildings. We need them to create soil and sustain themselves in an environment that they never evolved with. We need, therefore, to create something new.

We will highlight the potential for using phytoremediation plant selection techniques to select species and varieties that are uniquely adapted to specific urban afforestation sites. Combining these concepts could lead to hyper-performing urban afforestation projects that will have reduced recurring maintenance costs coupled with the ability to take up harmful compounds in tree tissues.

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