



Seeing the Forest for the Trees (and Snags)

Results of Annual Forest Health Survey for the Roosevelt-Vanderbilt sites

Background

Forests of the northeast have a long history of resiliency and recovery. Ice ages, weather events, large scale clearing, and introduction of pests and invasive species have all played significant roles in shaping the forest communities we have around us today.

Long-term health of the forests of Northeast Temperate Network (NETN) parks is a high-priority for the network. The goals of the forest monitoring program are to assess status and trends in the composition, structure, and function of forested ecosystems, and to interpret and report the condition of forest systems in a way that effectively informs park managers and other stakeholders.

Purpose and Scope

To aid in reporting data in a clear and useful way, NETN developed the Ecological Integrity Scorecard, which interprets the condition of forested ecosystems by assessing a range of ecological components in relation to their natural or historical conditions.

Integrity is ranked in one of three categories: Good, Caution and Significant Concern. “Good” represents acceptable or expected conditions; “Caution” indicates a problem may exist; and “Significant Concern” indicates undesired conditions that may need management action. It is important to note that “ecological integrity” may not be



Early spring in one of the park site's forests. NPS photo.

the primary goal of natural resource management at all network parks, particularly at historical parks and sites where cultural resource management may take precedence. However, being able to compare the condition of park resources to ecological integrity benchmarks is valuable because it provides a deeper understanding of park condition, as well as a consistent baseline for assessment of management goals.

Results and Findings

In all the park sites, many of the dominant canopy species are also present in the regeneration (seedling and sapling) layer, with the exception of eastern hemlock. Even though eastern hemlock is the second most common tree species (based on stem density) in the Eleanor and Franklin Roosevelt sites and third most common at Vanderbilt, no eastern hemlock seedlings and only a few saplings were observed in the 40 plots located throughout the parks.

Notably, Vanderbilt had the highest density of small seedlings (15-30 and 30-100 cm height classes) of any park unit in NETN. The vast majority of the seedlings were sugar maple and black maple. The dense seedling layer at Vanderbilt is consistent with the dense seedling banks common in mesic (type of habitat with a moderate or well-balanced supply of moisture) northern hardwood forests. However, the presence of the invasive Norway maple in the understory is an important concern. While Norway maple is currently uncommon in the canopy, it has the potential to replace native maple species in the understory and ultimately the canopy. Two additional invasive trees species, tree-of-heaven and black locust, were also present in the understory and canopy, but were not nearly as prevalent as Norway maple. While the density of maple seedlings in the Eleanor and Franklin Roosevelt sites is considerably less than Vanderbilt, composition and density patterns are similar for non-maple seedlings, and Norway maple and tree-of-heaven are also an important concern.

Dead wood, in the form of standing dead trees (snags) and fallen coarse woody debris (CWD), is an important structural feature of forests that provides habitat for a wide variety of species. Logging and hazard tree removal can reduce the quantity or quality of these features, but strategic land management can maintain or enhance snags and CWD. The Eleanor and Franklin Roosevelt sites rated as Caution for snag abundance and Good for CWD. Vanderbilt ranked Good for both categories.

Conclusions

Forest condition, composition and structure vary considerably between the parks. Vanderbilt has the highest average density of seedlings in NETN, whereas the Roosevelt sites were rated as Significant Concern for regeneration. Invasive species and forest pests are an issue in all the park sites. Control and early detection of invasive species and forest pests should be a high priority for all three parks. Eradicating invasive tree species such as Norway maple and tree-of-heaven is particularly important for ensuring long-term forest health.

More Information

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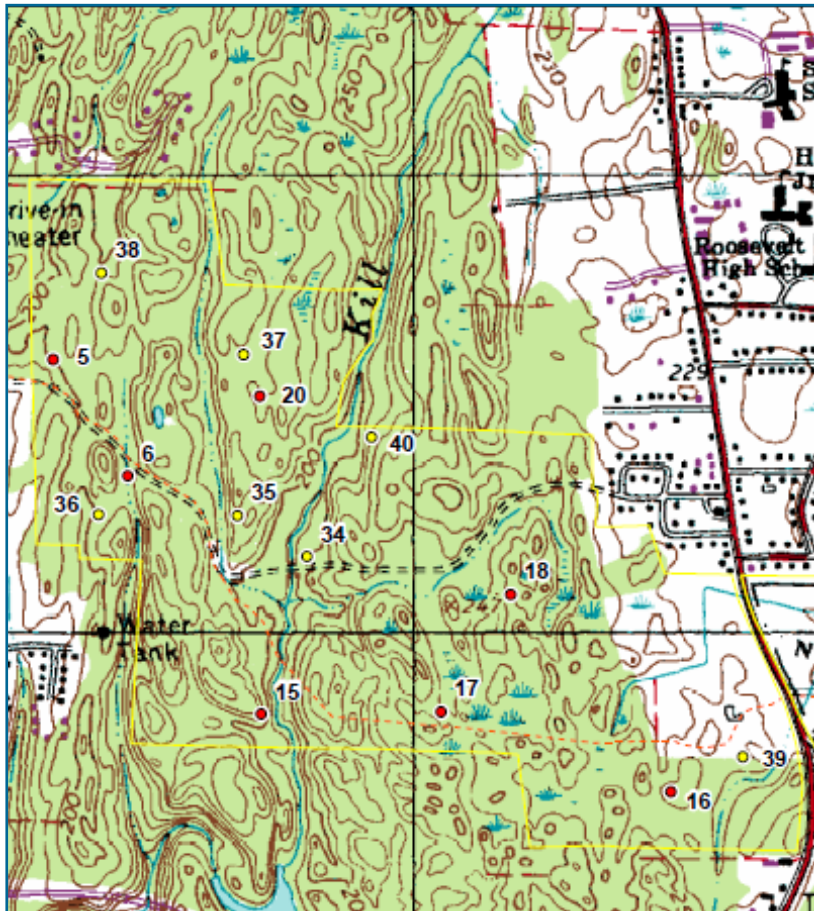
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Full Report online at:

<http://science.nature.nps.gov/im/units/NETN/monitor/monitor.cfm>



The numbered yellow and red dots represent forest monitoring plots in the Home of Franklin Roosevelt NHP.



Species Spotlight: Tree-of-Heaven

Native to central China, the Tree-of-heaven (*Ailanthus altissima*) is a deciduous tree in the mostly tropical *quassia* family. It is also known as 'stinking shumac' because broken stems smell of rancid peanut butter, with male trees reportedly smelling worse than females. Mature trees can reach 100 feet in height.

The Tree-of-Heaven was introduced into the United States by a gardener in Philadelphia, PA, in 1784. It now has a wide distribution and occurs in forty-two states, from Maine to Florida and west to California. The Asian tree was initially promoted as a host tree for moth silk production. It rapidly spread because of its ability to grow quickly under adverse conditions and survive where no other trees will grow. It has been known to appear in cracks of pavement or even trash piles. If well cared for, this tree can persist for a long time. Large specimens are known to grow trunks up to five feet in diameter. It also produces poisonous "ailanthene" in its bark and leaves that helps limit competition.

Tree-of-Heaven can't handle deep shade and is most

commonly found along fence rows, roadsides, and waste areas. It can grow in nearly any environment that is relatively sunny and can pose a serious threat to natural areas recently opened to sunlight. It has been found growing up to two air miles from the nearest seed source.

The Tree-of-Heaven was used as the major inspirational theme in Betty Smith's novel "A Tree Grows in Brooklyn". The metaphor used in the book was that the tree's impressive persistence was like the characters' aspirations to a better life. Ironically, the Tree-of-Heaven is quite capable of widespread destruction of urban property in the form of damaged building foundations and sidewalks, the opposite of the metaphor expressed in the book.

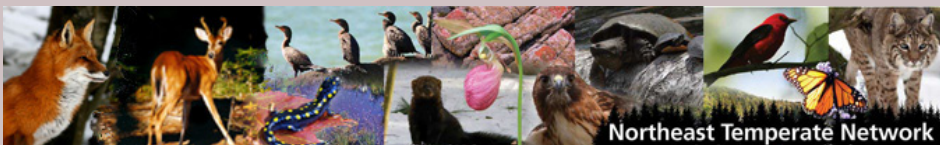


Maggie Neely photo.



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