



Seeing the Forest for the Trees (and Snags)

Results of Annual Forest Health Survey at Morristown NHP

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



Measuring CWD along a transect at Morristown NHP NPS photo.

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 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

The tree diameter distribution in Morristown reveals a diverse forest canopy composed of American beech, tulip poplar, and several species of maple, birch, hickory, oak, and ash trees. However, a comparison of tree density by size across all NETN parks shows Morristown to have the lowest density of trees in the 10-30 cm DBH (diameter at breast height) category. NETN researchers believe the likely reason for the low density of saplings and young trees in the park is the result of long-term deer browse pressure suppressing forest regeneration.

In addition, results from measurements taken within the forest plots shows that seedling and sapling densities are well below the levels required to adequately restock the forest canopy, and, with the exception beech, all other dominant canopy species are rare to absent in the regeneration layer. Continued deer browse pressure is likely to result in a compositional shift in the canopy towards beech, and possibly a sparser canopy if widespread failure of forest regeneration continues. Additionally, if beech bark disease becomes more severe in the park then even more dramatic changes may occur to the composition and structure of the forest canopy.

Conclusions

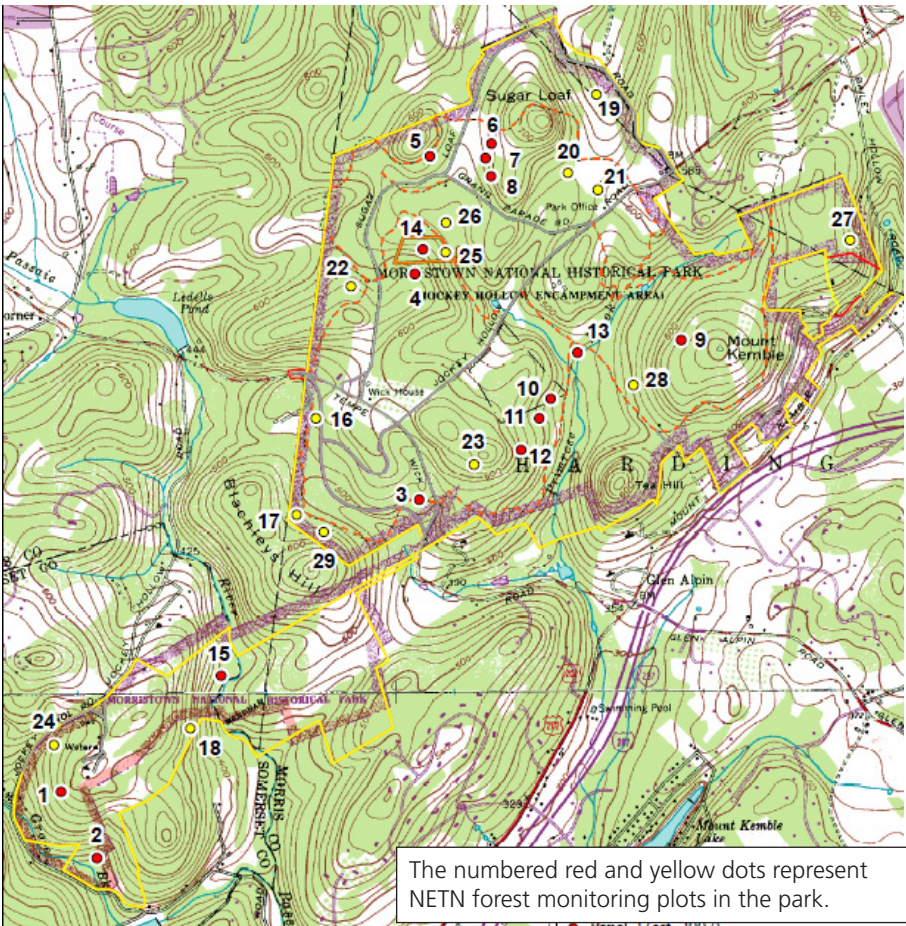
An overabundance of white-tailed deer and invasive species are significantly impacting forest health at Morristown and management action will be necessary to improve this situation.

Invasive species are pervasive throughout the park, averaging over five key invasive species per plot and comprising most of the plant cover in the understory. Regeneration densities are well below levels required to restock the future forest, and have been for some time as evidenced by the lower than expected density of trees in the 10-30 cm size classes. White-tailed deer management and control of invasive species will likely need to be performed in unison to improve regeneration densities and native understory diversity. In areas where seed sources are absent, planting of native tree seedlings may be necessary to improve forest regeneration.

More Information

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Full Report online at:
<http://science.nature.nps.gov/im/units/NETN/monitor/monitor.cfm>



Species Spotlight: American Beech

A large stand of American beech (*Fagus grandifolia*), with their sheer, smooth grey appearance can evoke an almost eerie feeling. The thin and seamless bark is more akin to living skin than the dead bark cells that build up, crack open, and form deep ridges in oaks, maples, and conifers.

The smooth bark also makes the tree popular amongst would-be wilderness graffiti artists, but like skin the trees are left permanently scarred and the open gash leaves them susceptible to infection and disease. Regardless, for centuries people have been leaving their mark on the trees temptingly smooth surface. One such traveller carved into a beech in Tennessee the words: "D. Boon cilled A BAR On Tree in the Year 1760" that lived until 1916. Even the word 'book' is thought to have derived from the old Germanic word for beech - *boko* - because ancient runic inscriptions were carved into beech wood tablets.

The trees thin skin does not allow it to survive areas with the most extreme winters or areas that are prone to fire. The tree has also been battling with beech bark disease in the northeast since it was accidentally introduced in Nova

Scotia in 1890. The disease is initiated by the European scale insect that taps into the trees to suck out sap. The insects sucking mouth parts inject a nectria into the tree, causing blistering, cracking, and often killing the tree.

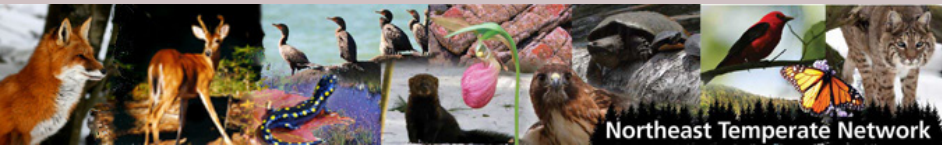
Unlike the vibrant reds and oranges of sugar maples, beech tree leaves turn a dull yellow or bonze color in fall. The leaves often stay on the tree until they are pushed off by new leaves in the spring. Early settlers would sometimes stuff pillows and mattresses with the dead leaves because they were springier than straw.



NPS photo.



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