



The Temperate Times

Newsletter of the Northeast Temperate Network

Volume 5, Issue 2 - Summer, 2010

Monitoring Season Under Way

The 2010 monitoring field season is running at full tilt and crews are busy gathering data at all the networks' parks. Volunteers, field crews, students, and park staff are involved with monitoring projects that include water quality, forest amphibians, phenology, forest health, salt marshes, coastal birds, forest birds, invasive species early detection, and more.

The network is still in the beginning stages of the data collection process for most parks, and as more monitoring seasons come and go, a critical mass of information about park natural resources will be built. More information makes it easier for decision makers to assess and react to changes taking place in their parks. Monitoring data is especially important when viewing the long-term health of our national parks in the context of climate change.



Volunteer Tim Factor counts coastal birds at Boston Harbor Islands. NPS photo.

As with every monitoring season for NETN, this year would not be possible without the incredible and dedicated group of volunteers that help to collect data at many of the networks' parks. Thanks again to all who care so much about the health of their national parks!

Annual Bird Reports Released

Reports for both coastal and forest breeding birds were released and posted on NETN's website this summer. Coastal birds have been monitored with the help of a dedicated group of volunteers since 2007, and the forest breeding bird program likewise is a citizen scientist program that has been gathering valuable data in most network parks since 2006. Both reports and their associated resource briefs for all involved parks are available in full on NETN's website.

The forest bird report summarizes data collected from 2006 through 2009. The Northeast Temperate Network and the Vermont Center for Ecostudies (VCE) began monitoring breeding land birds in most network parks in 2006 using volunteer birders to conduct point count surveys. NETN and VCE are currently working to improve quality control procedures for land bird monitoring which includes a thorough review of existing data. The report (as well as the resource briefs) contains data on the ten most common birds heard and/or seen at each park as well as a complete list of all birds recorded so far for each park.

Since 2007, waterbird surveys have been conducted at Boston Harbor Islands national park area. The Islands are a Massachusetts Important Bird Area because they provide habitat for a significant number of colonial-nesting waterbirds, including Least Terns and Common Terns, which are both listed as state species of special concern. The monitoring program looks for and keeps track of these birds as well as Snowy Egrets, Black-crowned Night-Herons, American Oystercatchers, Common Eiders, Gulls, Cormorants and any other coastal birds peered through a volunteer's set of binoculars or camera lens.

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Saint Gaudens NHS Has its Creepy Crawly Critters Counted

Northern New England is not exactly known as a haven for reptiles and amphibians, and many species that occur in the region are at the very limits of their northerly range. Even so, biologists have identified more than 30 species of these animals that are known or likely to occur in the NH county where Saint-Gaudens lies, with 19 of those known or likely to occur inside park boundaries. To try to get a more comprehensive idea of just exactly what was slithering, crawling and hopping around in the park, this survey project was conducted in 2001.

"Salamander" means "Fire lover" and numerous legends about these creatures have developed over the centuries, many related to fire. The connection likely originates from the tendency of salamanders to reside in rotting logs. When exposed to fire, the salamanders attempt to escape from the log, leading to the belief that salamanders were created from flames and giving the creatures their name.

By the end of the study no major surprises were revealed. Seventeen species were recorded by researchers, consisting of seven frog, five salamander, two turtle, and three snake species. The only one not previously recorded in the park was a northern ringneck snake seen by park staff.

Saint-Gauden's northern location helps explain why the herpetofauna (the technical term for amphibians and reptiles) found there were mostly amphibians both in terms of species richness (71% of all species) and abundance (99% of all individuals recorded). For more details on what was found in the park, take a look at NETN's website where both the report and its resource brief are available for downloading.

Photo: Eastern red-backed salamanders are common, albeit seldom seen residents of northeastern forests. Brian Gratwicke



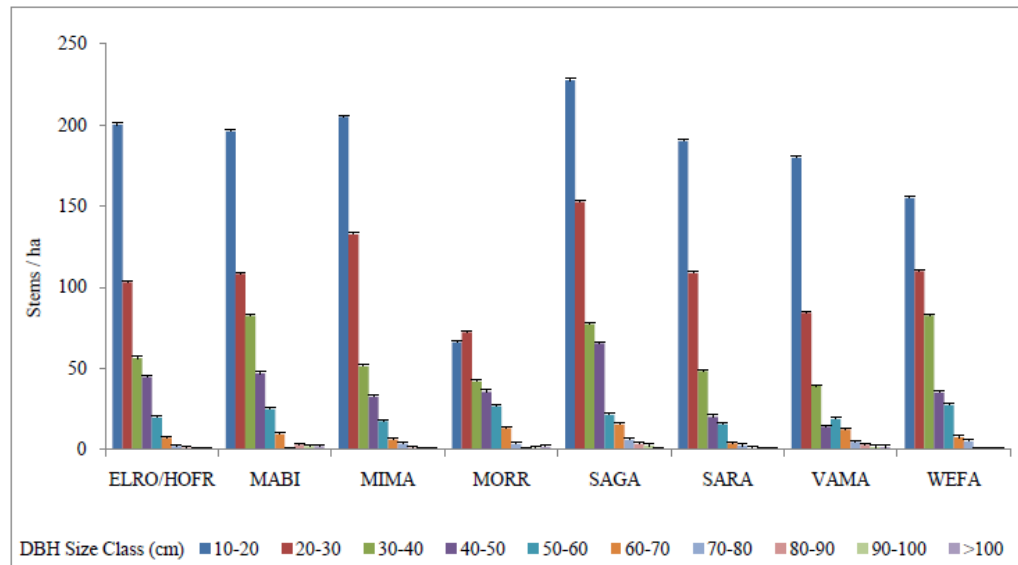
Fourth Year of Data on Forest Health for Most NETN Park Sites

Starting in 2006, NETN began implementing a long-term forest monitoring program to assess status and trends in forest composition, structure and function within ten national park sites. As of this summer, the network has established and sampled 344 permanent forest plots. In June the annual forest health report was published which summarized ecological integrity data for several network parks and examined forest composition and structure for all NETN parks sampled from 2006-2009.

Ecological integrity scorecards were derived from data collected in 2007 and 2009 for the parks of Roosevelt-Vanderbilt NHS, Morristown NHP, and Weir Farm NHS and data collected from 2006-2009 for Acadia National Park. Ecological integrity data include structural stage distribution (tree size and canopy position), coarse woody debris (CWD) ratio, snag abundance, tree regeneration, tree condition and forest pests, invasive

exotic plants and soil chemistry. Forest composition and structure summaries are based on density (stems of trees per hectare), and compare the composition of the forest canopy to the seedling and sapling layer.

Of the five parks included in the study, all except Acadia rated "Good" for forest structural stage distribution. A "Good" rating indicates that the distribution of forest successional stages is currently within the range of natural variation as it is currently understood. This range varies considerably across the network with much lower percentages of mature and late-successional forest expected in the oak-dominated forests of the more southern parks than in the northern hardwood and mixed forests of Acadia (ME), Marsh-Billings-Rockefeller (VT), and Saint-Gaudens (NH). Acadia rated "Caution" overall for forest structural stage distribution and given that the majority of Acadia's forests are second-growth and just *(continued on back page)*



Tree diameter distribution shows a similar pattern across all the relatively young forests of NETN national historical parks and sites.



The group tries their hand at phenology monitoring on a sumac shrub. NPS photo.

I&M Regional Managers Tour Boston Harbor Islands Projects

In July, Boston Harbor Islands national park area played host to all seven regional program managers of the I&M program. Marc Albert, Stewardship Program Manager for Boston Harbor Islands and Saugus Iron Works NHS, gave the group a tour of Thompson Island to show off some of the new and

ongoing monitoring projects NETN has there. On that hot July day during the heat wave, the group was treated to a visit to the salt marsh monitoring site, tried their hand at phenology monitoring, learned about coastal bird monitoring, got a glimpse of the soon to be completed rocky intertidal monitoring protocol, and more.

SERC Interns Having a Busy Summer

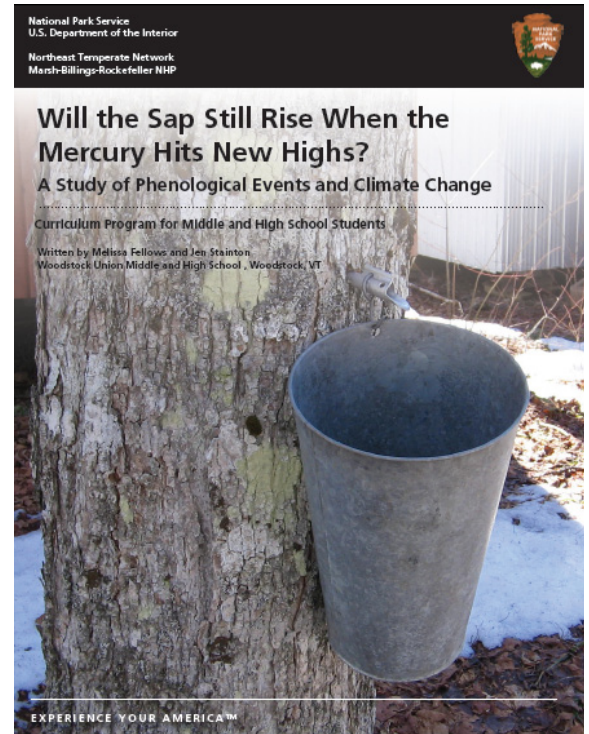
This summer the Schoodic Education and Research Center (SERC) Institute is enjoying the services of four interns who are helping to improve science communication in the northeast's national parks. The interns are spending 10 weeks making Acadia's natural, cultural, and social science programs and research projects more visible and accessible for park staff and visitors. The interns are working closely with NETN and network park resource management teams to develop and coordinate specific goals and projects.

They have been primarily focused on creating resource briefs: two page summaries highlighting park resources, as well as the programs and people involved with the study, monitoring, and management of the resources. The interns are also compiling "research project summaries," which overview the purpose, methods, and results of past and ongoing projects in the parks. Both efforts involve reading and summarizing scientific reports,

working with researchers and park staff, and designing layouts for publication. Much of this summer's work has focused on invasive species, including destructive insects like the emerald ash borer, hemlock woolly adelgid, virburnum leaf beetle, and Asian longhorned beetle. They are developing a series of posters and flyers about these nonnative, invasive species to be displayed or distributed at park offices and visitor centers. The products are intended to alert staff and visitors about the threat of invasive species and teach them how to prevent, recognize, and report any sightings. These communication efforts are an essential complement to NETN's invasive species early detection protocol.

This summer, the interns have also begun to explore podcasts and short videos as communication media. They have storyboarded, filmed, and edited three-minute movies about the 2010 Hymenoptera BioBlitz at Acadia, and about mercury deposition in the park.

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Vermont School Teachers Create Phenology Based Classroom Unit

In collaboration with Marsh-Billings-Rockefeller National Historical Park, Woodstock Union Middle and High School teachers Melissa Fellows and Jen Stainton have designed a unit that will help students research and understand the potential effects of climate change on local ecosystems. Studying phenological events, essentially the seasonal biorhythms of nature, is a great way for young people to be exposed to environmental science. Time and again, research has shown that in order for adolescents to care about the natural world and be prepared and willing to solve the complex environmental problems that they will inherit, they must be connected to nature through a variety of experiences *in* nature. Furthermore, phenological events can be observed in rural or urban environments, from classroom windows or the middle of wetlands, and at any latitude. This particular unit focuses on species and relationships common in New England, but it has been designed in such a way that the activities can be adapted to suit most other locations and conditions. Through this unit, students will understand the implications of climate change on ecological as well as economic systems. They will graph, interpret, and analyze data on temperature, snow depth, and season length to determine if maple trees and/or Vermont's sugaring industry are being affected by climate change, and they will conduct year-round phenological examinations of maple trees and report their findings. Extensions are provided to assist teachers in other regions of the US with incorporating phenological topics into their classes. The unit and its associated materials are available for download on NETN's Education web page.

SERC Interns from P.3

As part of this summer's effort to reach a large, diverse audience, these videos will soon be available for viewing on the Acadia's website, iTunes, and YouTube.

As they explore and create, the interns maintain a regular blog of their experiences and observations called *Field Notes* (<http://northeastparkscience.wordpress.com/>). They are joined by other park interns, staff, and scientists who share anecdotes, photos, and results from the field, providing a unique insider's look at NETN parks' natural and cultural splendor and the ways these resources are monitored, researched, and managed.

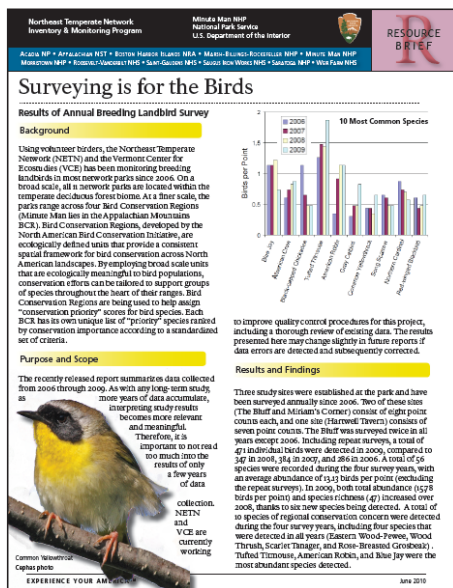
The 2010 intern crew at SERC is (see photo on page 3, left to right):

Sara Delheimer is an Environmental Sociology senior at the University of Tennessee and a returning intern from the summer 2009. This year she is the team leader of the summer interns.

Patrick Morgan is a recent graduate of the State University of New York at Geneseo, where he majored in both English literature and geological sciences.

Missy La Vone is a junior in the Science Communication program—a track within the Journalism Department—at the University of Tennessee.

Lauren Weisenfluh is a University of California, Davis, senior studying Evolution, Ecology, and Biodiversity.



Landbird resource brief for Minute Man National Historical Park

community involvement with park islands and to provide a cost-effective implementation method for long-term monitoring.

Forest Health from P.2

beginning to reach maturity, it will be some time before it can be rated "Good".

The condition of canopy trees rated "Good" or "Caution" for all network parks. In most cases, "Caution" ratings were the result of higher than expected browse by deer and/or chlorosis (a condition in which leaves produce insufficient chlorophyll) of the foliage. Invasive species of concern were present in all the parks, though few were present overall in Acadia (indicator invasive species were detected in only one of 169 plots) where all park subunits were rated as "Good". Invasive species are most frequent in Morristown NHP and Vanderbilt Mansion NHS. Both parks rated as "Significant Concern," averaging over four indicator invasive species per plot. The two other Roosevelt-Vanderbilt parks and Weir Farm NHS were not far behind, averaging roughly three indicator invasives per plot. Hemlock woolly adelgid and elongate hemlock scale were detected on plots in the parks of Roosevelt-Vanderbilt NHS and Weir Farm NHS, and while in route to a plot in Morristown NHP. Balsam woolly adelgid was detected in several plots in Acadia, where beech bark disease was also most severe. The presence of Norway maple seedlings, saplings and trees in Roosevelt-Vanderbilt NHS, and Minute Man NHS is an important management concern. Norway maple can outcompete native maple species, and has the potential to replace native maples in both the understory and canopy.

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. Roosevelt-Vanderbilt NHS parks rated fairly well for CWD and snag abundance. Vanderbilt Mansion snag abundance and CWD ratio received "Good" ratings. The Roosevelt sites rated "Good" for CWD ratio and "Caution" for snag abundance. At the park level, Acadia rated "Caution" for CWD ratio and "Good" for snag abundance. Morristown, Weir Farm and Marsh-Billings-Rockefeller were all rated "Caution" for CWD ratio, and "Significant Concern" for snag abundance.

The results of ongoing forest monitoring suggest that forest conditions in most NETN parks could benefit from management actions such as reduction of white-tailed deer populations, eradication and/or control of invasive species, and early detection of forest pests and exotic plants combined with rapid response control measures. The complete report is available online for download and each park also has its own resource brief detailing monitoring results.

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