



The Temperate Times

Newsletter of the Northeast Temperate Network

Volume 5, Issue 1 - Spring, 2010

Bird is the Word

No less than three reports and protocols were finalized this winter that involved our feathered friends of the avian community.

A report was released on a survey of bird use of selected wetlands in Acadia National Park in December. The surveys found a total of 152 bird species of which 123 were located in Bass Harbor Marsh and 135 at Northeast Creek. Sixty-two species of the total were possible breeding birds. Among the birds found nesting in the



Northern Harrier. Raymond Parsons photo.

wetlands were regionally uncommon species such as Least Bittern, Nelson's Sharp-tailed Sparrow, and Northern Harrier.

The report includes several recommendations for park resource managers including maintaining existing wetland boundaries with extensive forested buffers, monitoring human uses

of these wetlands to examine their effects on avian populations, and long-term monitoring (i.e., periodic surveys) of birds to track population changes. To see the report in full or to read the Resource Brief about it, surf on over to NETN's website and navigate to either the Inventory Reports page or the Education & Outreach page.

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Climate Related Monitoring Heating Up

In the coming years and decades, global climate change will become an increasing threat to the composition and functionality of natural communities in National Parks. The Northeast Temperate Network already has many ongoing monitoring, data management, and other projects with well established metrics that will aid scientists in tracking the effects of climate change, as well as several expanding climate related monitoring projects. NETN is working with other I&M networks (the Northeast Coastal and Barrier Network and the National Capital Region Network) to develop a work plan for enhanced coastal monitoring in NETN park units that are also part of the North Atlantic Landscape Conservation Cooperative (Acadia NP, Boston Harbor Islands NRA, and Saugus Ironworks NHS). The plan is on track to be finished by the end of this year.

Vital Signs as Indicators of Climate Change

Over the coming years and decades, NETN's long-term vital signs monitoring program will provide data that will aid scientists and policy-makers in tracking the effects of climate change. These monitoring programs include:

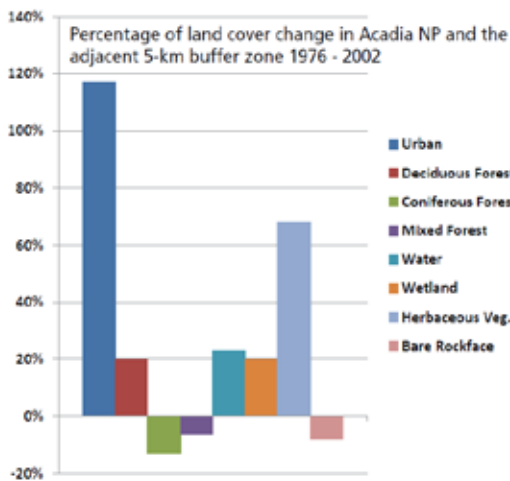
- Tracking presence and relative abundance of forest (most parks), grassland (Saratoga NHP), mountain (Appalachian)
- (continued on back page)*

In this Issue:

- Mammal and bird reports and protocols completed.
- Northeast Park Science Virtual Learning Center and NETN website updates.
- NETN staff update
- Climate and Phenology monitoring projects.

Urban Land Increasing Around Most Network Parks

Knowledge of historical trends of land cover change can help resource managers establish a landscape context for parks, identify key resources and ecosystem stressors, and prioritize resource management efforts. The goal of this study was to provide approximately 30 years of background information and baseline data on land cover change in and near selected NETN park units. Three time periods were studied using Landsat (satellite) remote sensing data to document general land cover types within and surrounding the selected NETN parks of Acadia



Acadia, like many parks in the northeast, saw an expansion of urban cover in land that surrounds the park.

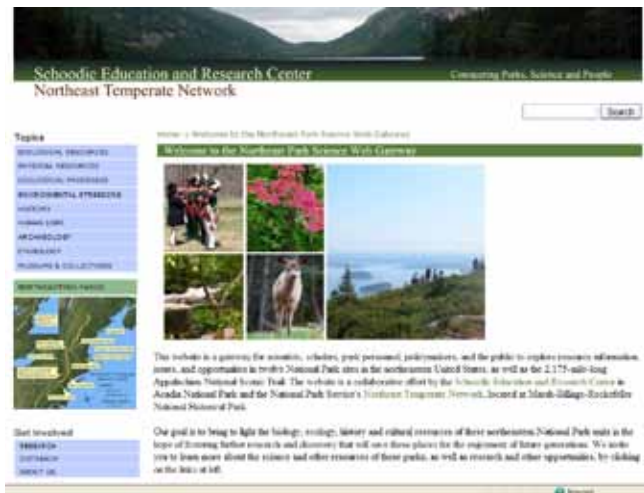
NP, Marsh-Billings-Rockefeller NHP, Saint-Gaudens NHS, Minute Man NHP, Morristown NHP, Saratoga NHP, Roosevelt-Vanderbilt NHS, and Weir Farm NHS. There were also sites selected along segments of the A.T. from Maine to Pennsylvania totalling about 225 miles. Although images differed in resolution and specifics of satellite sensors used, researchers believe that the results provide a good estimate of changes on the ground. Perhaps not surprisingly, urban land expansion and forest dynamics represented the main land cover changes in the studied sites. As usual, for more details and for Resource Briefs on land cover change for all parks involved in the study, visit NETN's website.

Web Resources Continue to Grow

The Northeast Temperate Network is excited to announce the launching of a great new online resource for people interested in learning about all aspects of the northeast's National Parks. Still under development is the Northeast Park Science Virtual Learning Center website (<http://northeastparkscience.org>), which is being designed to be a gateway for scientists, scholars, park personnel, policy makers, and the public to explore resource information, issues, and opportunities in the twelve NETN National Park sites as well as the 2,175-mile-long Appalachian National Scenic Trail. The goal is to bring together information that is currently spread across numerous sites, and enhance that information with summaries and other informative content. The website is a collaborative effort by the Schoodic Education and Research Center in Acadia National Park and NETN.

The website will shine a light on the biology, ecology, history and cultural resources of these special National Park units in the hope of fostering further research and discovery that will help the NPS to fulfill its mission of preserving the parks for the enjoyment of future generations. Visit the website often to view its progress and to learn more about the resources of NETN parks, as well as to find out about 'citizen science' research opportunities.

NETN's main website (<http://science.nature.nps.gov/im/units/netn/>) has also received a face lift. Surf on over to the site to find easy access to all network reports, newsletters, resource briefs, and program briefs. Web pages for network vital signs have been updated with a new look and are packed chock full of useful and interesting information about park natural resources and issues.



A look at the homepage of the Northeast Park Science Virtual Learning Center website.



The phenology vital signs page of NETN's redesigned website.



Network Staff Update

In November 2009, NETN brought on board a new Science Communication Specialist, Ed Sharron. Ed has a B.S. in Environmental Science from the University of New Hampshire and more than 10 years of combined experience with the National Park

Service (interpretive park ranger) and performing education and outreach responsibilities for several New England environmental nonprofit groups. He is looking forward to taking to the road this spring and summer to deliver network news to parks and participating in some monitoring activities.

Rare Mammal Research on Maine's Appalachian Trail

A primary objective of the Inventory & Monitoring program is to document 90% of the vertebrates and vascular plants within a park's boundaries using existing verifiable data and field investigations. While detailed biological inventories have been carried out in several National Parks and National Forests associated with the Appalachian National Scenic Trail (A.T.) corridor, relatively few inventories have been conducted on A.T. lands outside these areas. With approximately half of the A.T.'s 2,100 miles lying outside National Parks or National Forests, inventories such as the one recently conducted in Maine that targeted lands administered directly by the Appalachian Trail Park Office are especially valuable.

From 2006 to 2008, an inventory was conducted that focused on expanding knowledge of at-risk mammal species identified during prior natural heritage inventory work. The areas of concern were those parts of the A.T. corridor in Maine that include the western mountains and central highland regions. As many species as possible were sampled and identified with the primary goal of sampling mammal species considered rare and high priority by state and federal entities to determine if they were present along that particular stretch of the A.T.

In 2006, 10 sites were surveyed for approximately 3,000 trapping nights along the A.T. for the



presence of small mammal species. Two yellow-nosed voles each were captured at the Crocker and Bigelow Mountain study sites, for a total of four yellow-nosed vole specimens. The most common small mammal caught was the red-backed vole, followed by the masked shrew. One southern bog lemming and one meadow vole were captured during the inventory. Other species found were the woodland jumping mouse and deer mouse.

In the summer of 2006, seven sites were surveyed along the A.T. for the presence of the eastern small-footed bat. While this particular bat species was not detected, six others were found along the corridor. The most common was the little brown bat followed by the northern long-eared bat. Other species found were the big brown bat, hoary bat, red bat, and silver-haired bat.

During the winters of 2007 and 2008 Canada lynx, a state and federally threatened species, were snow-tracked in remote parts of northern Maine, the only state in the eastern U.S. with a stable population. Threats to the lynx population in Maine include habitat loss and fragmentation from anthropogenic causes. Increasingly, lynx will be required to adapt to greater competition from species that thrive in response to human alteration of habitats, as well as the resultant shifts in forest communities due to climate change. A total of eight sets of lynx tracks were observed in three townships during the study. Several other mammal species and sign were observed during tracking, including pine marten, fisher, bobcat, and river otter. To download the complete report or its associated resource brief, visit NETN's website.



Great Black-backed gulls are a priority species at Boston Harbor Islands.

Robert Stymeist photo.

Bird is the Word (continued from front page)

Monitoring Protocols Completed

After several field seasons of testing and tweaking, monitoring protocols for both coastal and land birds were finalized and approved in January.

Both protocols rely heavily on volunteers who act as 'citizen scientists', collecting and reporting data to each project's program manager.

The coastal bird protocol is concerned with the breeding shorebird population of the Boston Harbor Islands National Park Area. Breeding birds (both coastal and land) were identified as a high-priority vital sign for NETN parks during the vital signs selection process and are one component of an integrated monitoring program being developed for Boston Harbor Islands. The Islands provide habitat for a significant number of colonial-nesting waterbirds, including Least and Common Terns, which are both listed as species of special concern in the state of Massachusetts.

The program's goal is to track changes in distribution and abundance of coastal breeding birds. Park scientists also hope it will improve understanding of breeding waterbird and habitat relationships in the park and the effects of habitat changes and management actions on waterbird species.

Breeding landbirds (relatively small, terrestrial birds, excluding raptors and upland game birds) are an important ecosystem component of many NETN parks. During the breeding season and within the dominant forest habitat of selected parks, the landbird monitoring program tracks the status and trends of the 10 most commonly detected species, ecologically similar groups of species, and overall community composition. The monitoring program is managed through a partnership with the Vermont Forest Bird Monitoring Program (a regional landbird monitoring project of the Vermont Center for Ecostudies). To learn more about these protocols, you can download them or their associated Program Briefs from NETN's website.

Climate, cont. from page 1

NST), and coastal (Boston Harbor Islands NRA) breeding bird species.

- Protocols in development to monitor freshwater wetland vegetation (Acadia NP) and vernal pools (multiple network parks).
- Monitoring of forest health metrics including tree growth, mortality, regeneration, and understory species presence/abundance (most network parks). Rare plant species and community monitoring along the Appalachian Trail will detect changes in known occurrences.

Phenology Monitoring

Not to be confused with phrenology (the study of the structure of the skull to determine a person's character and mental capacity), phenology is the study of periodic plant and animal life-cycle events and how they are influenced by seasonal and inter-annual variations in climate, which also makes it a key indicator of the pace of climate change. NETN has partnered with the USA National Phenology Network, Appalachian Mountain Club, University of Vermont (UVM), Harvard University, and others to develop methods for monitoring phenology that could be used in areas beyond NETN parks.

One such endeavor, the *Acoustical Wildlife Monitoring* project, is exploring the use of acoustical monitoring methods to produce high quality, continuous observations from a variety of locations in order to monitor temporal and spatial patterns in species occurrence. Using several



VT Cooperative Fish and Wildlife Research Unit Students John Katz and Cori Brauer install acoustic recording devices at a pilot location in Marsh-Billings-Rockefeller NHP.

sites within Acadia National Park, the Appalachian National Scenic Trail, Marsh-Billings-Rockefeller NHP, and Saratoga NHP as pilot locations, this exploratory research project is testing multiple acoustical monitoring methods to detect sounds emitted from a

variety of species, including migratory birds, bats, calling frog species, and insects. In addition to testing field methods, the project will produce a database of recordings and a library of known animal vocalizations, and test and develop

procedures for computer-automated animal identification. Although still in the pilot testing phase, this project holds a strong potential for involving grade-school students and other citizen scientists in the data collection and reporting process. Terri Donovan, Assistant Unit Leader for the Vermont Cooperative Fish and Wildlife Research Unit and Associate Research Professor in the Rubenstein School of Environment and Natural Resources at UVM, envisions a curriculum-based phenology project for schools that will have interdisciplinary value for students.

“With these [acoustical monitoring] devices there is so much potential for curricular activities around math, physics, databases, biology, and phenology. The schools could create curricula that would use the information so that kids could get directly involved.”

- Terri Donovan, UVM Associate Research Professor

Other phenology related projects and events in the network include:

- Volunteers observed phenophases of target species of plants and animals during pilot phenology monitoring projects in 2009 at Acadia NP, Appalachian NST, and Boston Harbor Islands NRA. Projects will be expanded to other parks this year.
- NETN and partners are developing a multi-method phenology monitoring protocol. The protocol will feature data collected by citizen scientists with appropriate levels of quality control. The protocol should be suitable for implementation nation-wide.
- NETN and Marsh-Billings-Rockefeller NHP are collaborating with local teachers to produce a middle school and high school curriculum about phenology.
- The NASA-funded Appalachian Trail Decision Support System will integrate remote sensing of phenology with on-the-ground forest monitoring plots along the A.T. The ground-based plots, in up to 10 mid-to-high elevation watersheds, will be established in 2010 and 2011. The plot system will function in concert with the remotely sensed data to document shifts in species phenology and elevational distributions along the entire east coast of the United States.

To keep up to date about these projects and other NETN climate initiatives, visit the Phenology and Climate Vital Signs pages on NETN's website.



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