



The Temperate Times

Newsletter of the Northeast Temperate Network

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Regional Phenology Network Fostering a Focused Climate Change Monitoring Effort

The Northeast Regional Phenology Network (NE-RPN), an affiliate of the USA National Phenology Network (USA-NPN), is a group of organizations and individuals working together to coordinate phenological monitoring, facilitate data sharing and synthesize phenology data from the northeastern US and eastern Canada. In November of last year NETN was part of a diverse group of NGO's and government agencies that met in Durham, NH for a two-day meeting to discuss a cohesive and regionally based approach to monitoring phenology using citizen scientists and trained staff on publicly-accessible lands. Twelve organizations and thirty participants from around the Northeast ironed out long term goals. All participating groups gave updates about their monitoring efforts, and collectively drafted a working goal statement for the NE-RPN, to "collaborate on long-term phenology monitoring and education in the Northeast in order to understand the local and

regional effects of climate change, motivate citizens to make a positive impact, and protect natural resources."

The USA-NPN was founded in 2004 with a mission to promote an understanding of phenology and its relationship to environmental change. The network is currently developing Standard Operating Procedures for phenology monitoring and plans to publish a full protocol in 2012. Their web site (www.usanpn.org) has a variety of pages supporting phenology monitoring and education, including Nature's Notebook (an online monitoring program and data entry system), current publications, and an educator's clearinghouse.

The National Park Service has phenology monitoring efforts proceeding across many fronts within the group of parks that work with NETN. Pilot monitoring began at Acadia National Park, Appalachian National Scenic Trail, and Boston Harbor

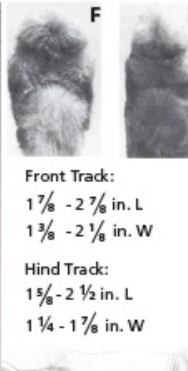
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Collaborate on long-term phenology monitoring and education in the Northeast in order to understand the local and regional effects of climate change, motivate citizens to make a positive impact, and protect natural resources.

NE-RPN goal statement

Suspect: Red Fox
Vulpes vulpes



Front Track:
 1 7/8 - 2 7/8 in. L
 1 3/8 - 2 1/8 in. W

Hind Track:
 1 5/8 - 2 1/2 in. L
 1 1/4 - 1 7/8 in. W

Canine Family:
 4 toes show on front & hind feet. Claws often show in tracks.

Gait / Stride Measurements:

Walk	Stride: 8-12 in
Trot	Stride: 13-20 in
Side Trot	Stride: 14-22 1/4 in
Db. Diag. Gal.	Group Length: 4 1/2 - 8 in
	Stride: 8-55 in
	Group Length: 25-60 in

Known Hangouts:
 Very adaptable animal, though prefers woodland edges along open fields, meadows, and lawns.

PERFECT TRACK SAMPLE



note boomerang shaped heel pad

A sample of a Usual Suspects rap sheet that will be used to help identify tracks and trails in NETN's TSI program.

New Program Helps Students and Visitors 'Keep Track' of Their Park's Mammals



A new citizen science program that will help schools and visitors learn about the I&M program as well as have some fun outdoors is being piloted for the first time this winter at Marsh-Billings-Rockefeller NHP in Vermont. TSI - Track & Sign Investigation is designed to introduce I&M, NETN, vital signs monitoring, and citizen science data collection to school groups aged 6th grade and up as well as to park visitors - all housed in the form of learning about the natural history of area mammals and how to identify their tracks and sign. More than an ID-based program, TSI has students and other citizen scientists collecting data about mammal signs that will be uploaded to the NPSpecies database and displayed on NETN's Google Earth data set for that park.

Excepting Acadia, most NETN parks are recognized for their cultural and artistic achievements and stories, but all NETN's parks are home to many fascinating animals as well. Though tracking can be done in any season, there is no better time of year for following their movements than winter. There's nothing quite like strapping on a pair of skis or snowshoes, heading out into the forest, and coming across fresh tracks left behind by a pack of coyotes only a few hours prior. Tracking offers us a rare glimpse into the life a wild animal. Much more than just

looking at and indentifying footprints, tracking can often tell you how fast an animal was moving, what its mood was when it made the tracks, what it recently had for a meal (if you find scat or feeding signs), and more. Tracking is recognized as a basis for scientific data collection. It is possible to conduct DNA tests from scat without drugging and capturing animals, pellet counts can accurately estimate deer population, and snow tracking of lynx (which was done for the NETN Rare Mammal Survey on segments of Maine's Appalachian Trail) is a viable option for estimating population densities of this elusive and shy animal.

Like police investing a crime scene, we can deduce what species of animal passed and what it was doing by examining the clues it has left behind. But unlike the folks on the popular CSI television series, no fancy equipment is needed to read these clues. All that is needed is our senses - our eyes, fingers, and noses are more than enough for the job. TSI expands upon students knowledge of the natural world, introduces them to the ways in which

TSI, cont. page 3

NETN Welcomes a New Assistant Data Manager

NETN is happy to announce that Kevin Morris has been brought aboard to fill the assistant data manager and climate change monitoring position with the network. Kevin and his family will be moving to Vermont from Craig, Colorado this winter where he was involved in supporting the Bureau of Land Management's Little Snake field office as a GIS database specialist. Kevin has a wide variety of experiences and interests. He not only holds a PhD in Chemistry but prior to working on GIS he was a rock climbing and mountaineering guide

on Mexican volcanoes.

NETN will not have Kevin all to itself as his is a cooperative position that will be shared with the Northeast Coastal and Barrier Network and National Capital Region Network. For 6 months of the year Kevin will be working directly with NETN to improve our network's response time on data management tasks. The other 6 months of the year will be spent developing the data framework for the climate change monitoring initiative. TT



2x2 lope of a male fisher in Marsh-Billings-Rockefeller NHP. Ed Sharron photo.

I&M monitors the health of their National Parks, and gets them out in the environment for some hands on experiences tracking the animals that live in our parks. They will also be recording tracking data - including measuring tracks and trails, taking GPS readings, measuring snow depth for phenology studies, and taking photographs.

TSI explores monitoring and tracking in two different ways. The first is an indoor multimedia Powerpoint presentation that introduce students to I&M, NETN and the NPS, and then through video clips, sounds, and high quality photographs, a handful of Usual Suspects mammals are examined to help student learn how they move and how to recognize their tracks and sign. After that it is time to head into the park for some real citizen science data collection that will later be vetted by NETN staff and uploaded to the NPSpecies database. Those interested in learning more about this program can e-mail NETN Science Communication Specialist Ed Sharron at ed_sharron@nps.gov. TT

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Islands National Park Area in 2009. These efforts focused on testing methods, and were expanded to additional parks in 2010. On a regional scale, all NETN parks are working towards a multi-pronged monitoring approach using casual observers, dedicated volunteers, and technological monitoring with cameras and audio recorders. Volunteers and park staff are participating in monitoring at seven parks, and audio recorders began operating in four parks last year.

Some goals that were discussed at the meeting included:

- **Promote Collaborative Science:** Bring together phenology monitoring programs in the Northeast, encourage sound science, standardize data collection, share data and results, improve our understanding of climate change and other processes impacting phenology, and facilitate resource management.
- **Encourage Citizen Science:** Motivate people to act on climate change and other anthropogenic stresses by encouraging citizen involvement in phenology monitoring.
- **Cooperate to Train Volunteers:** Create a network of trainers and training sessions throughout the region that recognizes diverse audiences and volunteer capabilities.
- **Collaborate Nationally:** Use resources provided by the USA-NPN to share experiences with other phenology networks in the nation.

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Rocky Intertidal Protocol Published

The Northeast Temperate Network Rocky Intertidal Protocol was published in December 2010. The rocky intertidal zone is included as one of the network's "Vital Signs", or key indicators for long-term natural resource monitoring. Intertidal habitats in Acadia National Park, Boston Harbor Islands National Park Area, and the USFWS Maine Coastal Islands National Wildlife Refuges are being monitored for several reasons. The rocky intertidal zone is a unique habitat that is used by a variety of species, many of them at the edge of their physical and ecological tolerances. Humans have the potential to disturb rocky intertidal habitats by trampling, collecting, oil spills, coastal development, and contributing to climate change.

Rocky intertidal habitat lies between the high and low tide marks, and it is regularly covered and uncovered by the advance and retreat of the tides. Because they are repeatedly exposed to air and tossed to-and-fro by the incessant action of waves when they are underwater, the plants and animals that call this zone home must be hardy and adaptable. Even with the challenges rocky intertidal habitats pose for life there, they are still teeming with a high biodiversity of organisms that have adapted to unique niche zones. The rocks create a fairly stable foundation for the seaweeds and animals that have evolved to depend on this seemingly harsh environment. During low tide, small pools form between the rocks. This is where organisms like crabs, snails, mussels and barnacles, and a variety of seaweeds are able to thrive, and many species of seabirds visit these ever replenishing pools-of-plenty for a meal. When the tide comes in, larger animals like fish

Intertidal, cont. page 4



Sea stars find shelter and sustenance in Acadia's intertidal habitats. Shannon Okey photo



Red maples (*Acer rubrum*) are one of the core species the Network hopes to monitor across the northeast.

short lists of focal species and key phenophases that the NE-RPN will monitor if feasible. NE-RPN members agreed to try to keep to the USA-NPN procedures as much as possible. The group plans to keep in touch regularly to review progress towards its goals through webinars and occasional meetings. *TT*

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- **Evaluate Efficacy:** Identify measures of success relative to the preceding objectives, and track progress towards each objective. Participants divided into habitat-specific working groups to create monitoring objectives, particularly

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and lobsters are able to take advantage of the shelter and food these rocky settings provide. Other common species found in this habitat include chitons, sea urchins, grazing snails, sea stars, hermit crabs, and sea anemones. Species tend to be arranged spatially in the distinct and dynamic zones created by tidal height, wave exposure, temperature, light, nutrients, salinity, predation, and a whole host of other factors. Differentiated zones in a rocky intertidal environment include the splash zone, which is almost always exposed to air and thus is colonized by only a few species; the higher intertidal zone, exposed to air for long periods of time; the mid-intertidal zone, exposed to air for only short periods of time; and the lower intertidal zone, which is exposed only during the lowest tides.

Long-term monitoring programs represent an important step towards managing resources. The recently published protocol will ensure that changes detected by monitoring are occurring in nature and not simply a result of measurements taken by different people or in slightly different ways. The complete protocol can be downloaded on the Monitoring page of NETN's website. Monitoring is scheduled to begin in 2011.

To learn more about rocky intertidal monitoring in NETN parks, visit the Intertidal Community Vital Signs page on NETN's website where you can also download the full protocol report. *TT*

North Atlantic Coastal Climate Change Work Plan Released

In response to the growing knowledge and awareness of the effects of climate change on federal lands, the National Park Service developed a national Climate Change Response Strategy in 2009. The science goals described in the national strategy include developing and applying climate science, collaborating with scientific agencies and institutions, and identifying and conducting scientific studies and resource monitoring activities. The I&M Program will play a major role in meeting these goals by providing sound scientific information and data to parks on the effects of climate change on park natural resources.

In 2010 several groups of I&M Networks were provided funding to review their existing monitoring programs in light of climate change and propose appropriate enhancements. One of these groups was the North Atlantic Coast, which includes NETN, the Northeast Coastal and Barrier Network (NCBN), and the National Capital Region Network (NCRN). These networks were directed to extend existing partnerships and expand collaboration with other federal agencies collecting similar monitoring data and information on natural resources. NETN, NCBN and NCRN, with the input of federal partners and scientists from academic institutions, have developed the North Atlantic Coastal Climate Change Work Plan to describe their process for identifying critical monitoring needs to meet these objectives while also enhancing each park's understanding of the effects of climate change on specific coastal ecosystems. This includes existing monitoring needing enhancement, as well as new monitoring to better understand the effects that rapid climate change has on parks.

The highest priorities were determined to be:

- Expand existing interagency collaborative effort to monitor salt marsh capital along the Atlantic coast in 10 national parks in conjunction with 12 coastal US Fish and Wildlife Service sites, as well as National Estuarine Research Reserve sites along the North Atlantic.
- Expand analysis, synthesis and reporting of datasets produced by other agencies and organizations such as climate, tide, sea level, and remotely-sensed data to park managers and others to enhance understanding of the effects of climate change.
- Expand the existing interagency effort to monitor breeding marsh birds in North Atlantic parks within Bird Conservation Area 30 through the Northeast Coordinated Bird Monitoring Partnership. These projects will continue collaborative efforts among the I&M Networks, USFWS, National Oceanic and Atmospheric Administration, the US Geological Survey, state wildlife agencies, universities, and other NGOs. *TT*



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