



The Temperate Times

Newsletter of the Northeast Temperate Network

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Rocky Intertidal Protocol Begins First Full Year of Monitoring

The diverse and beautiful rocky intertidal zone, that area of coastline that is above water at low tide and under water at high tide, includes many different types of habitats, plant life, and animals. Under a recently published protocol, the intertidal habitats in Acadia National Park, Boston Harbor Islands National Recreation Area, and the Maine Coastal Islands National Wildlife Refuges are being monitored to keep track of changes that may take place in this unique and important habitat.

A typical rocky shoreline can be divided into a spray zone which is above the spring high-tide line and is covered by water only during storms, and an intertidal zone, which lies between the high and low tidal extremes. The intertidal zone can itself further be broken down into subzones including barnacle, brown algae, red algae, and subtidal zones.

The rocky intertidal zone is utilized by a variety of species, many of them at the edge of their physical and ecological tolerances. These species are often also important food for birds and mammals that forage along the shoreline, and several rocky intertidal species have commercial value. Climate change, energy development and oil spills are all real and potential threats to these resources. In addition, the NPS is concerned that the popularity of rocky shores with park visitors can lead to adverse impacts on intertidal species. People can alter or harm these environments by trampling, collecting, and coastal development. Long-term monitoring data will be crucial for documenting the status and importance of the rocky intertidal zone so that threats can be addressed in a timely manner.

Rocky intertidal communities are dominated by immobile invertebrates and seaweeds that, in turn, provide habitat and

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Staff from Boston Harbor Islands NRA and Saugus Iron Works NHS help to count snails in the red algae zone of Calf Island's rocky intertidal habitat in Boston Harbor Islands NRA. Ed Sharron photo.

The Road Show Hits the Trail

The annual NETN Road Show that has Science Communication Specialist Ed Sharron travel to network parks to share the latest monitoring results and program activities took to a new course in 2013. The usual suite of indoor presentations are still available and include programs on an overview of the I&M Program and monitoring results for each park, climate change, invasive species, and phenology monitoring. But now, park staff and volunteers can take to the trails and visit some of the monitoring sites in their parks and try their hand at some of the basics of bird, forest health, salamander and other monitoring projects that may be taking place in their park. *Warblers, Woods, and Watersheds* is a new program that takes people out into the resource to visit some of the sites where monitoring takes place. Participants are able to take a look under amphibian coverboards to look for salamanders (in parks that have installed coverboard arrays), look and listen for breeding landbirds the same way NETN volunteers do, see how the Forest Crew measures the overall health of forest plots, and get a first-hand look at some of the tools NETN uses in the water quality and phenology monitoring programs.

At Marsh-Billings-Rockefeller NHP in Woodstock, VT, a few public offerings of *Warbler, Woods, and Watersheds* will be made over the course of the summer and fall for people who want a first person perspective at how NETN monitors the ecological health of the park. The 3-mile moderate hike tours several monitoring sites in the park over the course of two hours. If you will be in the Woodstock area this summer or fall and are interested and joining one of these programs, call the park at 802-457-3368 ex 22 for details on dates and times, or contact Ed at ed_sharron@nps.gov.^{TT}

Intertidal, from page 1.

food for a diversity of motile invertebrates (such as snails and crabs) as well as epibiotic species (i.e., species that live attached to other species). Organisms in the intertidal zone have evolved in an environment of harsh extremes where water is regularly available but varies from fresh (rain water) to highly saline (ocean water). Pounding waves can also dislodge snails and seaweeds attached to rocks, while exposure to the hot sun and then inundation into often near-freezing water can be a daily occurrence. Living with these extremes is worth it for many organisms because nutrients are supplied in high volume at least twice a day by the ebbing and flowing tides.

Climate change is a threat to the stability and health of ecosystems the world over, and the rocky intertidal is no exception. Two factors that are predicted to change over the next few decades - sea level and temperature - are critical to determining the elevational range of intertidal species. These changes, combined with the short distances across which these changes occur and the growth and turnover rates of these species, make the intertidal a model community for examining consequences of climate change.

In June of 2013, on-the-ground data collection began taking place at several sites in both Acadia National Park and the Boston Harbor Islands NRA. Although limited data had been collected during the pilot phase of this protocol, this summer marks the first time data has been gathered as part of the official protocol.

The protocol has a variety of methods that are being used to keep track of changes that may take place in the intertidal zone over the course of the coming decades. Bolts driven into bedrock mark many permanent photo-plots scattered throughout the subzones including brown algae, barnacles, and red algae. These 50-75 cm plots will be photographed each year and the photos will be analyzed to identify cover species abundance. Snails and limpets are also counted and measured within these plots, and any crab sightings are noted.

Bolts that follow the contours of the rock from the upper to the lower intertidal mark long, vertical transects that pass through each of the subzones. What ever lies above a measuring tape placed along the transect at 30 cm intervals is recorded on

Intertidal, cont. page 6.



Asterias rubens (the common sea star) is often found in rocky crevasses during tide pool sampling. Ed Sharron photos.



NETN Science Communication Specialist Ed Sharron explains some of the tools behind the phenology monitoring program to Saratoga NHP staff and volunteers. Photo courtesy of Saratoga NHP.

Breeding Landbird Monitoring Reaches Lucky Number 7th Year for Many Network Parks

Breeding birds are one of the “vital signs” NETN monitors because they are a reliable indicator of ecological integrity and a high profile taxonomic group. NETN and the Vermont Center for Ecostudies have reached the 7th year of monitoring in many network parks with the invaluable help of volunteer birders who were out in the woods at the crack-of-dawn, endured hordes of biting mosquitoes and black flies, and contributed their time, efforts, and expert birding skills.

On a broad scale, all 13 NETN parks are located within the temperate deciduous forest biome. At a more refined level, the parks range across four Bird Conservation Regions (BCR), which were developed by the North American Bird Conservation Initiative as ecologically defined areas that provide a consistent framework for bird conservation across North America.

The 2012 Breeding Landbird report summarizes data collected from 2006 through 2012. Part of the results for each park is an avian ecological integrity assessment that is produced by combining data from all survey years at a given park (up to 7 years of data). In the future, project organizers plan to work with park managers to produce a parallel assessment based on park management goals.

To get a “bird’s eye” view of all park monitoring sites, visit the Google Earth Park Maps web page (accessible through the left-most suite of menu choices on NETN’s homepage), which also contains bird monitoring routes, Avian Ecological Integrity Assessments and species detection frequencies for all participating NETN park units.

Summary of Results per park

For each park involved in the study, there are lists of species, relative abundances, and park-wide forest avian ecological integrity assessments for all years combined that cover 13 categories in the full report available on NETN’s website. Below is a brief summary of individual park results.

Acadia NP: Volunteer birders performed 47 surveys, and detected 392 birds from 44 species, including four species detected for the first time (Broad-winged

Hawk, Scarlet Tanager, Song Sparrow, and Rose-breasted Grosbeak). A total of 69 species have been recorded over the 6 years of monitoring, including a Yellow-Bellied Sapsucker which was detected only on a repeat site visit to Seal Cove East in 2008.

Of the 10 most abundant species detected at all Acadia sites combined across all years, the relative abundances of four (Red-breasted Nuthatch, Hermit Thrush, Black-throated Green Warbler, and Dark-eyed Junco) increased from 2011, and the relative abundances of eight of the 10 species were below the 6-year average.

Eleanor Roosevelt NHS: During 2012, a total of 145 individual birds representing 35 species were detected, including four species detected for the first time (Eastern Phoebe, Common Yellowthroat, Chipping Sparrow, and Brown-headed Cowbird). In total, 52 species have been recorded during the 7 years, with an average abundance of 10.01 birds per point. In 2012, relative abundance (13.18 birds per point) was the highest in the survey’s 7-year history, while species richness declined from 2011. A total of three species of regional or USA/Canada conservation concern were detected the park: Eastern Wood-Pewee, Wood Thrush, and Prairie Warbler. Red-eyed Vireo, Wood Thrush, Tufted Titmouse, and Northern Cardinal continue to be the most commonly detected species across all years.

Home of Franklin D. Roosevelt NHS: A total of 62 individual birds representing 20 species were detected in 2012, including two species detected for the first time during monitoring at the park (Ruby-crowned Kinglet and Chipping Sparrow). In total, 46 species have been recorded, with an average abundance of 6.92 birds per point. Both relative abundance and species richness declined in 2012 to the lowest in the survey’s 6-year history. However, of the 10 most commonly detected species across all years, the relative abundances of only three (Blue Jay, Tufted Titmouse, and American Robin) declined from 2011 while the relative abundances for half were above the 6-year average. There was a big drop in Tufted Titmouse detections in 2012 (only one individual), along with an increase of White-breasted Nuthatches (seven). Only one species of regional or USA/Canada conservation concern (Wood Thrush) was detected in 2012.

Marsh-Billings-Rockefeller NHP: Observers detected a total of 368 birds representing 34 species, including three that were only detected on repeat surveys.

A total of 58 species have been recorded over the 7 years of monitoring. Average abundance across all 7 years was 13.67 birds per point. In 2012, relative abundance (12.12 birds per point) and species richness declined from 2011.

Of the ten most commonly detected species across all years, the relative abundances of Blue Jay, Hermit Thrush, and American Robin increased over 2011, and the relative abundance of Blue Jay, American Robin, and Scarlet Tanager were above the 7-year average.

Birds, cont. page 6

The male American Redstart has bright orange/red patches on it’s side and can often be heard singing it’s abruptly ending song in the spring. Dan Pancamo photo.



Detect Early and Often - Catching Invasives Before They Can Spread

“Invasive exotic species” are alien species that cause or are likely to cause harm to the economy, environment, and/or human health, and are considered to be one of the leading threats to the biodiversity and integrity of ecosystems worldwide. In broad terms, they are organisms that have been introduced deliberately or unintentionally into an environment where they did not evolve, are capable of establishing self-sustaining populations in “un-transformed ecosystems”, and have no natural enemies to limit their reproduction and spread. These are among the reasons NETN included early detection of invasive exotic species as a priority vital sign. A report published this spring explores early detections in NETN parks, and updates to park target species lists.

The main goal of the program is to detect invasive species while they are still in the early stages of establishment when the costs of eradicating them are low. This is accomplished by first developing a modest list of target insect pest and exotic plant species that must be recognizable to non-experts and are specific to each park. The target list includes species that are either present in the park at low levels and of concern if new populations are detected, or not present at all in the park, but that threaten ecosystem health and function in the region.

To aid with identification, NETN has created laminated field guides and provides annual trainings to field crews and network parks. As of the 2013 field season, field crews and even park visitors will be able to record sightings of invasive/exotic species into an off-the-shelf smartphone application (for Iphone and Android) called “What’s Invasive?”. The app includes updated target lists for each park, and automatically stores important data associated with the detection including GPS location, photographs, and extent of population. Prompt reporting is expected to increase with the use of this app in the field, which is capable of documenting invasive species directly to a web-based system immediately following a detection. This is considered to be the pilot year for using this app, and project organizers are eager for feedback as to how it works in the field and ways it may be improved.

What follows is a very brief review of early detections and treatments in network parks in 2012. An important note is that if a target invasive species is found on an NETN forest health monitoring plot, the plot must not be specifically targeted for invasive species removal. In order not to skew forest health data, forest monitoring plots need to be treated the same as the surrounding area and invasive species removal should only occur when it is conducted in a larger management area that happens to include one or more plots. For more details see park-specific resource briefs and the complete report available for download on NETN’s website.

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The “What’s Invasive!” app is available for both Android and Iphone smartphones, and will allow for virtually instantaneous reporting of invasives in network parks. *What’s Invasive!* photo.

Acadia’s Forest Monitoring Gets Spruced Up

NETN has been monitoring forest health using permanent plots in Acadia National Park, as well as most other network parks, since 2006. The overall goal of the long-term forest monitoring program is to monitor the status and trends of park forested ecosystems in order to better inform management decisions that may affect those systems. The Ecological Integrity Scorecard helps to do this by examining a suite of specific measurements that interpret integrity using three categories: Good, Caution, and Significant Concern. “Good” means acceptable or expected conditions, “Caution” hints that a problem may exist, and “Significant Concern” is an indicator of undesired conditions that may need management action.

However, unlike most other network parks, much of Acadia’s woods are dominated by spruce and fir trees, and at the time the scorecard was developed, baseline data were insufficient to define undisturbed or impacted condition for these forests. The currently used regeneration metric focuses on impacts of deer browse on hardwood forest regeneration, and it has proven to be inadequate for Acadia’s dominate softwoods. To bridge this information gap, NETN forest health project leaders collected regeneration data in minimally-disturbed, late-successional stands of spruce-fir forest in coastal Maine to define what is known as “reference”, or minimally disturbed, condition. Regeneration data collected by the Maine Natural Areas Program from late-successional (includes many mature and old-growth age classes of trees) stands in Ecological Reserves were also used to examine reference condition for spruce-fir forests. NETN uses late-successional stands as a benchmark because pre-settlement spruce-fir forests in Maine were primarily composed of late-successional forest. Acadia forests are relatively young due to historic land uses such as logging and agriculture, and much of the eastern section of Mount Desert Island (MDI) was burned in a large fire in 1947. Today, the forests in the park are reserved from timber harvesting and are primarily influenced by natural disturbances. It is therefore expected that Acadia’s spruce-fir forests will move into later successional stages over time.

The two main goals of spruce-fir regeneration monitoring in Acadia are to assess whether regeneration is adequate to replace the canopy, and whether regeneration patterns in spruce-fir forests are consistent with those expected in late-successional forests.

The report describes a new way to measure regeneration and applies it to Acadia’s forest plots. Sufficient abundance of regeneration appears to exist across all subunits and stand types (woodlands and three closed-canopy forest successional stages). However, patterns of regeneration in spruce-fir forests reflect those of earlier stages of succession because of their high abundance of saplings. Based on this, the park’s spruce-fir forests were rated Good for abundance and Caution for regeneration patterns, with an overall rating of Caution. As spruce-fir forests mature and develop into more uneven-aged stands, NETN expects the sapling:seedling density ratio in Acadia to approach the ratio observed in NPS reference stands and eventually move into the Good category. For full details, download the report from NETN’s Forest Health Monitoring webpage. *TT*

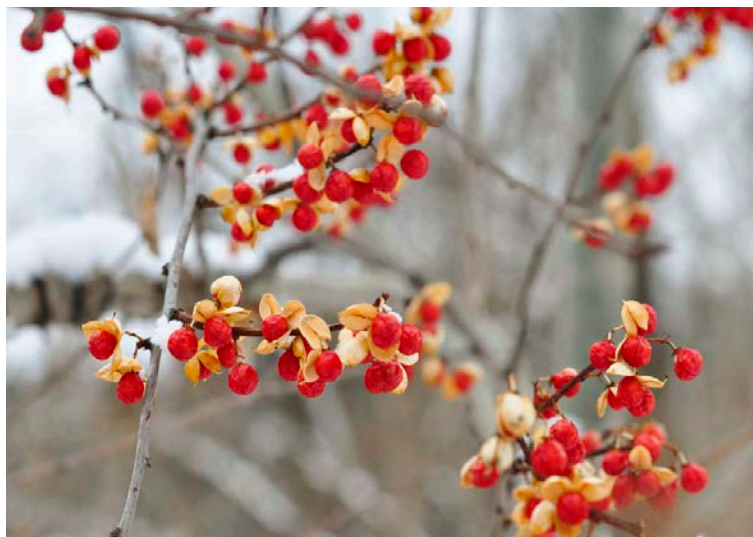
Acadia NP: Two new locations of glossy buckthorn were detected by NETN staff in wetlands on the west side of Duck Brook Road. Bush honeysuckle and Japanese barberry were located again in a forest plot also near Duck Brook Road. These species were detected in the same plot when it was first sampled in 2008, and the location was reported to park staff then and again in 2012. Although these species are still present in the plot, there is evidence of invasive species control efforts nearby. In recent years, there have been increasing reports by property owners in surrounding towns of hemlock woolly adelgid (HWA) in horticultural plantings of eastern hemlock not far from park boundaries. Acadia has increased awareness to the possibility of HWA encroaching on forested settings within the park and has asked members of the community to be on the lookout while hiking.

Of the 26 non-native species that were targeted and treated in Acadia during 2012, 10 are on the target list including common barberry, exotic bush honeysuckle, garlic mustard, glossy buckthorn, Japanese barberry, Japanese knotweed, multiflora rose, narrowleaf bittercress, oriental bittersweet, and purple loosestrife. A total of 48.6 hectares were surveyed and treated throughout the park during 2012.

Boston Harbor Islands NRA: Three target species were newly documented on three park islands. At Webb Memorial State Park, a dense patch of garlic mustard roughly 15 m x 15 m in area was located along the west side trail. A “sparse” patch of garlic mustard (as described in the park’s 2012 early detection brief from park staff) was detected in a forested area on the north end of Thompson Island. Peddocks Island surveys turned up a small patch (500-1,000 individuals over approximately 0.10 ha) of black swallow-wort on the Tombolo trail. Winged burning bush was also found in a mixed invasive shrub zone on Peddocks Island.

Eight island and peninsula units received some degree of invasive species management in 2012. Glossy buckthorn was a major focus throughout the park. Two porcelainberry patches (~25 individuals) first detected and treated in 2011 at Webb Memorial State Park were re-treated in 2012. Bumpkin Island also had one porcelainberry individual, found in 2011, that was treated with herbicide this year. Hand-pulling re-treatment of garlic mustard was conducted on a patch that was detected on Bumpkin Island in 2011.

Marsh-Billings-Rockefeller NHP: Several species on the target list were found and/or managed in the park by staff and cooperators in 2012. Winged burning bush, which was originally planted in the landscaping around the mansion, was found in fewer numbers (11 plants in three locations) outside the mansion grounds this year compared to previous years. The extent of oriental bittersweet was unknown in previous years because it possibly could have been the native American bittersweet species, but a mature vine fruited and a positive ID of oriental bittersweet was made. It will be managed in subsequent years. In late April, two common barberry shrubs were flagged to be pulled at a later date. A large stand of Norway maple was removed on the formal grounds in 2005 and replanted with Norway spruce, a historically common plantation tree in the park. This area around the new plantation has seen explosions of Norway maple seedlings, either deposited as seed before the



Oriental bittersweet was first introduced into the U.S. in the 1860s as an ornamental plant, and is often associated with old homesites from which it escaped. It grows as a vigorous vine that can climb over and smother vegetation with excessive shading or breakage. This increased weight on trees can lead to uprooting and blow-over during high winds and heavy snowfalls. In addition, Oriental bittersweet is displacing the increasingly rare native American bittersweet through competition and hybridization. Unfortunately, in many places it is still widely planted and maintained as an ornamental vine which further promotes its spread. Esteve Conaway photo.

mature trees were removed, or blown in from neighboring trees just outside the park’s boundary. To date, an estimated 2,000 seedlings were pulled from this area and Norway maple continues to crop up in other areas of the park. An estimated 5,000 plants were removed in 2012. Autumn olive was found in three isolated patches in a forest plantation. Over 50 individuals (re-sprouts from cut stumps) were treated with herbicide in July and November. Black swallow-wort continues to persist near the gravel parking lot across from the Billings Farm & Museum on Old River Road as well as along roadsides surrounding the park. Redstart Forestry & Consulting has been treating these populations annually.

Through cooperation between park staff and other groups, twenty invasive species (includes target list species) were managed in 2012. The priority was to remove as many mature woody invasive plants and seedlings as possible, especially in areas slated for tree harvesting in the next year. Exotic bush honeysuckle plants were treated in one of the last known patches occurring in the park. During the months of April and November, 185 honeysuckle plants were pulled in ten different locations throughout the park. More than 100 mature and many small garlic mustard plants were pulled in four sites. The bulk of the removal was carried out by Redstart Forestry & Consulting, who also treated a localized patch of common reed at the Prosper road parking lot and removed the seed pods from black swallow-wort before seed release took place. 86 Japanese barberry plants were either pulled or cut and treated with herbicide, and mature individuals are not known to occur inside the park boundary - a noteworthy achievement.

Minute Man NHP: There was one target detection in the park in 2012, as for the second visit in a row (2010 was the first), a few eastern hemlock trees were found to be infested with hemlock woolly adelgid. The 2012 observations were on the east side of

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Intertidal, from page 2.

a datasheet. This will help to document potential shifts in the intertidal zone as sea-levels rise and water warms.

Tide pools are searched for sea stars and urchins, and the abundance of barnacles recolonizing bare rock is also tracked.

The information being gathered now is essentially baseline data, and over the coming years and decades it will provide an

Birds, from page 3

Ovenbird and Red-eyed Vireo continue to be the most abundant species detected.

Minute Man NHP: Volunteers saw or heard a total of 471 birds representing 45 species, including three European Starlings (a species not previously encountered in the park during surveys) detected at the newly established Battle Road site. A total of 62 species have been recorded over the 7 years of monitoring.

Average relative abundance during the first site survey across all 7 years was 12.92 birds per point. In 2012, relative abundance (12.64 birds per point) increased slightly from 2011, while species richness also increased, likely due to the increased number of points surveyed and the addition of sampling in open habitat. Of the ten most commonly detected species across all years, the relative abundances of six increased compared to 2011, while the relative abundances of half were equal to or above the 7-year average.

Morristown NHP: 353 birds representing 34 species were detected in the park by volunteers. Common Grackle was observed for the first time, bringing the total number of species recorded over the 6-survey years to 58.

Average abundance during the first site visit was 14.47 birds per point, up from 2011 and above the 7-year average of 12.76. Of the ten most commonly detected species across all years, the relative abundances of four increased over 2011, while the relative abundances of Blue Jay, Veery, and Ovenbird were above the 7-year average.

Saint Gaudens NHS: During 2012 surveys, observers detected a total of 200 birds representing 37 species, including 10 species that were detected only on the repeat survey. A total of 56 species have been recorded during the 6 survey years. This number includes a Yellow-rumped Warbler detected on the second survey in 2012, and Black-throated Blue Warbler, Cedar Waxwing, Downy Woodpecker, Red-bellied Woodpecker, Solitary Sandpiper, Swamp Sparrow, and Yellow-throated Vireo detected on the second survey in previous years.

Average abundance during the first site survey was 11.08 birds per point. Relative abundance during the first survey decreased from 2011, while species richness remained the same. Of the ten most commonly detected species across all years, the relative abundances of six equaled or increased from 2011, while the relative abundances of half were above the 6-year average.

Saugus Iron Works NHS: A total of 96 individual birds representing 30 species were detected during two surveys. A total of 44 species have been detected at the park during the four years of surveys, including six that were observed only during the repeat site surveys.

Average abundance during the first site visit was 15.87 birds per

important measuring stick to compare changes against. Look for resource briefs as well as updates on NETN's Facebook and Flickr pages to stay up to date on rocky intertidal happenings, and for a detailed look at the study sites in Acadia and the Boston Harbor Islands, download the Google Earth modules for each park from our website.^{TT}

point. In 2012, relative abundance for the first survey increased to 17.33 birds per point from the previous year, and species richness increased by 10 species, though it should be noted that it is possible that the removal of several dozen Norway maple trees from near the point count stations in spring 2011 may have been a sufficient disturbance to affect the 2011 counts. Of the 11 most commonly detected species across all years, the relative abundances of six equaled or increased from 2011, while the relative abundances of seven species in 2012 were below the 5-year mean. Mallard, Song Sparrow, and Red-winged Blackbird continue to be the most commonly detected species.

Saratoga NHP: Surveys were conducted at 33 point count stations in 2012, where observers detected a total of 849 individual birds representing 57 species, including four species that were detected for the first time during monitoring at the park (Wild Turkey, Green Heron, Blue-headed Vireo, and Northern Rough-winged Swallow). During the seven survey years a total of 4,664 individual birds representing an NETN-high of 89 species being detected in the park and a mean abundance of 21.33 birds per point. During 2012, relative abundance dropped slightly from 2011, while species richness increased to 57 species. Of the 10 most commonly detected species across all years, the relative abundances of half increased from 2011, while the relative abundance of only the American Robin and American Goldfinch were below the 7-year mean. Six species of regional or USA/Canada conservation concern were recorded.

Vanderbilt Mansion NHS: Forty-nine individual birds of 15 species were detected in 2012, including three species that were detected for the first time during monitoring at

Red-winged Blackbirds are social birds that roost in flocks all months of the year. In summer they reside in wetlands, while winter flocks can be congregations of several million birds that include other blackbird species and starlings.
Kelly Colgan Azar photo.



Birds, cont page 7



Many parts of Morristown NHP's forests are overrun with Japanese barberry, which forms dense stands displacing native plants and reducing wildlife habitat and forage. Animals that might otherwise help control its spread, such as white-tailed deer, avoid browsing barberry which gives it a competitive advantage. In New Jersey, Japanese barberry has even been found to raise soil pH (i.e., make it more basic) and reduce the depth of the litter layer in forests. NPS photo.

the John Nelson house, west of the visitor center parking lot. Unfortunately, HWA appears to be well established in the park and may require substantial treatment efforts if managing this pest is desired within park boundaries.

Morristown NHP: Five new locations of species on the target list were observed in 2012. One detection of porcelainberry and two each of black jetbead and linden arrowwood were detected by park staff.

Several species were mechanically removed or treated with herbicide, including Siebold's arrowwood, oriental photinia and black swallow-wort. In addition, an unknown species in the Photinia genus was removed.

Roosevelt-Vanderbilt NHS: The invasive pest, emerald ash borer (EAB), was observed at Vanderbilt Mansion NHS in late 2012. The discovery was confirmed by the NY State Department of Environmental Conservation in January of 2013 in two sentinel ash trees. This new location of EAB adds to other recent

detections on the east side of the Hudson River in Dutchess County and in western Massachusetts and Connecticut. NETN field crews and staff will be particularly vigilant with inspection of ash trees in all park units to track its potential spread throughout the area. Park managers will treat significant specimen ash trees, but do not have plans to control infestations in the native forests as treatment is very costly. No new target plant species were observed in park sites in 2012.

The Northeast Exotic Plant Management Team (NEEPMT) managed several invasive species in the park in 2012. Japanese stiltgrass was targeted by treating 1.21 ha with a foliar application of herbicide in the Home of Franklin D. Roosevelt NHS. Other invasive treatments included two small patches of wine raspberry.

Saint-Gaudens NHS: No new detections of target terrestrial or aquatic species were observed in 2012. Since many towns in southern NH have detections, the NETN forest crew visually inspected eastern hemlock trees in forest plots for hemlock woolly adelgid but found no evidence of it.

Though the NEEPMT did not visit the park in 2012, treatment efforts were still conducted by park staff

on several invasive species. Staff mechanically removed around 5,000 Japanese tree lilacs from an area close to its source in the historic landscape, across the road from Aspet (the historic home of Augustus Saint-Gaudens). The vast majority of individuals were seedlings, though some saplings and mature individuals were removed as well. Park staff also mechanically removed ten Japanese barberry shrubs and 123 Morrow's bush honeysuckles at Blow-Me-Down Pond.

Saugus Iron Works NHS: Multiple search efforts by park staff and volunteers turned up no early detection species in 2012, and no new invasive species were detected in the park. However, there were at least six established invasive species that were managed and treated. Operating with a new management plan, a large focus in the park has been to manage purple loosestrife by removing the flower heads and/or hand pulling the plants.

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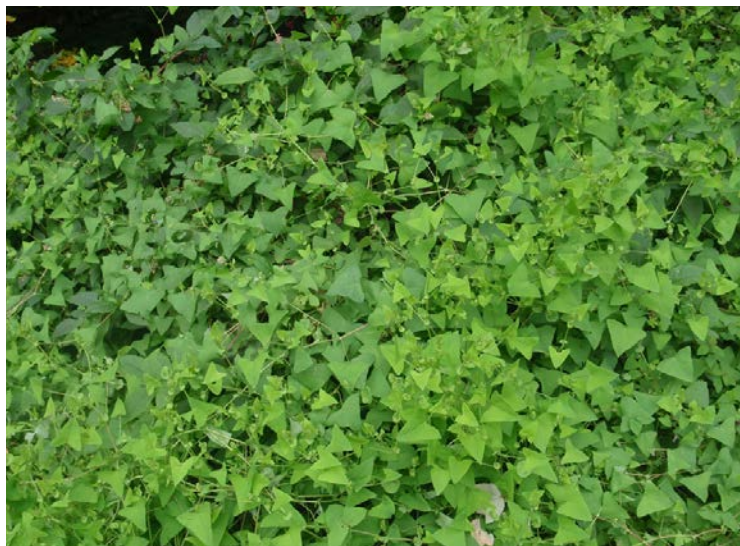
Birds, from page 6

the park (Great Horned Owl, Red-winged Blackbird, and Common Grackle). In total, 37 species have been recorded, with an average abundance of 8.04 birds per point during the seven years of surveys. In 2012, relative abundance decreased to 7.0 birds per point from 2011 (8.14 birds per point), while species richness increased.

Among the 10 most commonly detected species across all years, the relative abundances of five declined from 2011, and the relative abundances of four species in 2012 were at or above the 7-year average. Although three species of regional or USA/Canada conservation concern (Black-billed Cuckoo, Eastern

Wood-Pewee, and Wood Thrush) have been detected during the 7-survey years, only Wood Thrush was detected in 2012.

Weir Farm NHS: A total of 79 individual birds of 21 species were detected in 2012. In total, 40 species have been recorded, with an average abundance of 7.70 birds per point. In 2012, relative abundance decreased to 7.60 birds per point from 2010 (10.6 birds per point), and species richness decreased by one. Among the 10 most commonly detected species across all years, the relative abundances of three increased from 2010, and the relative abundances of half were above the 4-year average.^{TT}



Though not spreading not quite as fast as its name may imply, the mile-a-minute vine has managed to expand more than 300 miles from where it originally escaped a nursery in Pennsylvania 70 years ago. As it grows up plants and trees, the weight and pressure of the vine causes distortion of stems and branches of covered plants. If left unchecked, reduced photosynthesis can kill a plant. Because it can smother tree seedlings, mile-a-minute weed has a negative effect on Christmas tree farms, forestry operations on pine plantations and reforestation of natural areas. MA Energy and Environmental Affairs photo.

With more intensive herbicide treatment plans set aside until 2013, common reed was cut back in a couple of areas. Populations of common reed have been significantly reduced along both sides of the river after mechanical removal 5 years ago as part of the Turning Basin restoration project. In more terrestrial areas of the park, notable invasive plants that were controlled include multiflora rose, oriental bittersweet, glossy buckthorn, Japanese knotweed, and tree of heaven.

NETN's SCA WQ Intern Really Getting Her Feet Wet

NETN was happy to have SCA intern Hali Roy join the team for this spring and summer to help with water quality monitoring and an assortment of other data management tasks. Hali is a recent graduate from Saint Michael's College in Colchester, Vermont. She has a degree in biology and a minor in French. Her goals for her time spent with NETN are to gain hands-on field experience with water quality monitoring and other protocols, and to learn more about how all that data gathered in the field is managed and organized back in the office.

On days when she is not travelling about to network parks with NETN water quality technician Brian Schuetz, she can be found at NETN's HQ in Marsh-Billings-Rockefeller NHP where she helps out with a wide variety of other projects taking place in the network and in the park. Though this summer she will be lending her skills mostly to the water quality monitoring program, she will also be giving a helping hand (both in the field and in front of a computer monitor) to other NETN projects including phenology monitoring and rocky intertidal monitoring.

In the fall she hopes to continue employment in the science field, possibly something dealing with amphibians. If any readers out there have some leads for her - send them our way! ^{TT}

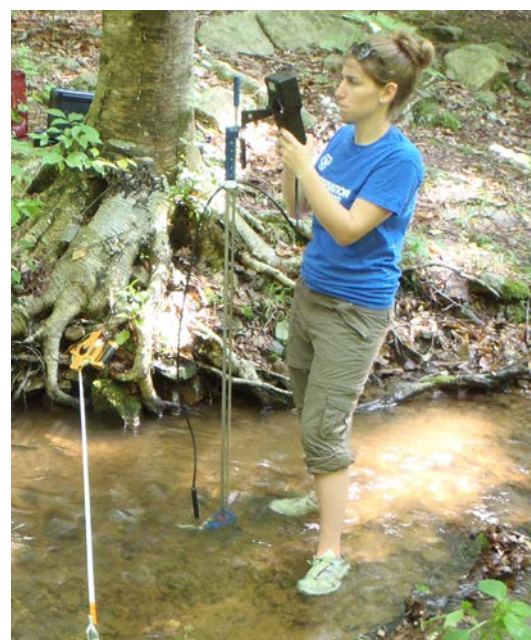
Saratoga NHP: There were no new detections of invasive species in 2012 in the park. The range of the emerald ash borer continues to expand in eastern New York State, but has not been observed any closer to park boundaries since the detection in Selkirk, NY in 2011.

Viburnum leaf beetles were seen on southern arrowwood shrubs in a forest plot in early successional old field habitat. The impact of this pest in natural settings is not fully understood and native viburnums in forest habitats should be closely monitored.

The NEEPMT and park staff inventoried 122 ha for invasive plants and managed them in about 32 ha of fields throughout the park. Brown knapweed, spotted knapweed, bull thistle, Canada thistle and cow vetch were treated in fields totaling 23 ha. In addition, several other invasive species were treated by park staff with herbicide in a total of 9.3 ha.

Weir Farm NHS: No new locations of early detection species, including aquatic plants, were observed in 2012. However, mile-a-minute was observed near the park, signifying that awareness and vigilance for detecting this plant early should be a priority for the park. Also, the range of the emerald ash borer continues to expand and is getting closer to park boundaries, as it was found in prism traps in western Massachusetts and in neighboring New Haven County.

With the assistance from youth groups, park staff and interns managed several invasive species in 2012. In a 1.2 ha old-field site, control efforts focused on barberry, oriental bittersweet, winged burning bush, multiflora rose, and privet species. Working from previous inventories, the rapidly expanding Japanese stiltgrass was hand pulled throughout the park by staff and interns. ^{TT}



NETN SCA water quality intern Hali Roy gets her feet wet in any number of different ways! NPS photo.



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