



NCRN Natural Resource Quarterly

FALL-WINTER 2013

Dyke Marsh Restoration Funded

Dyke Marsh Wildlife Preserve has received \$24.9 million in restoration funding as part of the Disaster Relief Appropriations Act! A unit of the George Washington Memorial Parkway, Dyke Marsh is one of 45 federal areas to receive funding for restoration and research projects on marshes, wetlands, beaches, and shorelines along the Atlantic Coast. These projects are intended to help protect coastal areas from powerful storms.

Dyke Marsh is one of the last of the freshwater tidal wetlands on the upper Potomac River. According to a study by the USGS and NPS, its shoreline is retreating 6 to 8 feet per year and is eroding at an accelerated rate during storm events.

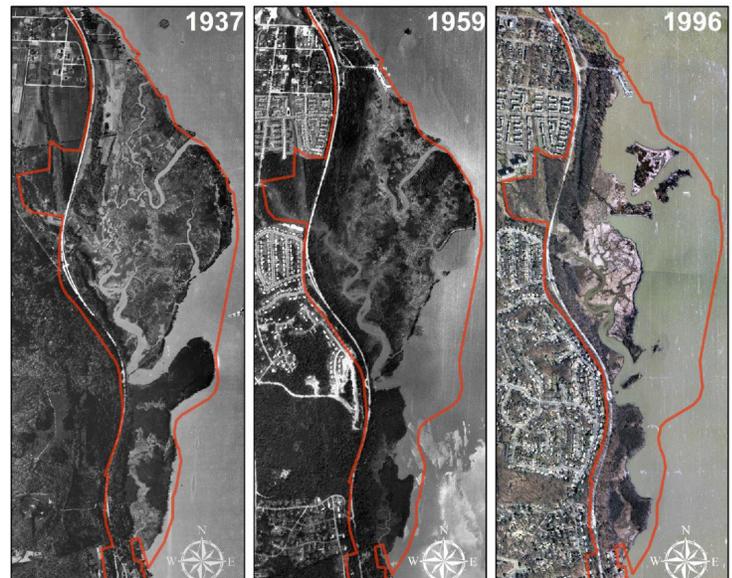
Dyke Marsh once encompassed more than 200 acres of emergent marsh land, but sand and gravel mining operations between 1940 and 1972 reduced the marsh to only 83 acres. The mining operations destabilized the marsh's historically stable configuration and since 1972, 23 additional acres of emergent marsh vegetation have been lost to the erosional forces resulting from hurricanes and northeastern tracking storms. Today, less than 60 acres remain. The marsh is vulnerable to the full force of storm energy that builds along a straight 7 km stretch of open river south of Dyke Marsh.

(Continued page 2)

Top: GWMP's Brent Steury (far right) and Interior Secretary Sally Jewel (2nd from right) ride through Dyke Marsh in a boat driven by Erik Oberg. **Right:** Views of Dyke Marsh in 1937, 1959, and 1996 showing loss of marsh wetlands.



Photo: DOI/Heilemann



Photos: Fairfax County, VA

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Coming to Your Park this Winter...

	ANTI*	CATO	CHOH	GWMP	HAFE	MANA	MONO	NACE	PRWI	ROCR	WOTR
Water Monitoring	x	x		x	x	x	x	x	x	x	x
activities scheduled for Dec/Jan/Feb											

*Park acronyms on page 3

(Dyke Marsh continued) A draft Environmental Impact Statement (EIS) for the restoration of Dyke Marsh is currently undergoing internal review (<http://parkplanning.nps.gov/projectHome.cfm?projectID=20293>). Once complete, restoration actions may include:

- Building a breakwater at a site where a promontory historically existed (seen in 1937 photo). The breakwater will stop the erosive actions of storms that come up the river and redirect toward the marsh sediment from Hog Island Gut that is currently lost to the Potomac.

- filling in deep river channels along the edge of the marsh and restoring nearly 150 acres of marsh that was lost to mining operations.

- placing containment cell structures at the outer edges of the park boundary in the Potomac River. The cells would be made from sheet piling driven into the river bed and filled with donated dredge sediments from other areas of the Potomac River and planted with native plants.

Additional information:

In 2009 the USGS partnered with the NPS to conduct studies on natural processes operating on Dyke Marsh in George Washington Memorial Parkway to determine the rates and likely causes of persistent erosion which have

led to destabilization of the marsh. Results of this collaborative research are reported in the October issue of the journal *Wetlands* (Litwin et al. 2013). A copy of the article is available online at: <https://irma.nps.gov/App/Reference/Profile?code=2203810>.

A copy of the original GWMP press release on Dyke Marsh funding is available at: <http://www.nps.gov/gwmp/parknews/upload/20131025-Dyke-Marsh-Restoration-Funding.pdf>.



Photo: DOI/Heilemann

Brent Steury answers questions at a press conference on Dyke Marsh restoration funding, flanked on the left by Interior Secretary Sally Jewel and on the right by Virginia Congressman Jim Moran.

Emerald Ash Borer Update

During 2013, the emerald ash borer (EAB) burrowed a little deeper into the NCR. There is an infestation of EAB at Kenilworth in NACE, and individual beetles were positively identified at Harpers Ferry, and at Manassas near Chinn Ridge. This adds to territory already claimed by EAB since fall 2012, when the exotic pest was found at Antietam and at C&O Canal in Allegheny County.

In 2013, on C&O Canal property in Cumberland, MD, officials from the Maryland Department of Natural Resources (DNR) identified several infested trees in visitor use areas. Maryland DNR uses a risk assessment software product called i-Tree to create a quantified risk rating (based on 4 factors) to determine if a tree needs to be removed. The park also hopes to evaluate the extent and hazard level of EAB in other areas of the park.

Beetles are still absent from CATO, GWMP, MONO, or WOTR. (No information was available from PRWI or ROCR.) NAMA has few ash trees and doesn't currently monitor for EAB.

To date, no compliance work related to EAB has been completed. NCR Cultural Resource Spe-

cialist Mike Commisso is currently working on a matrix of native tree species that could potentially be used in decisions to replace deceased ash in designed landscapes.

Previous Quarterly articles on EAB appeared in the Fall 2012 issue (page 1), and the Fall 2011 issue (page 2).

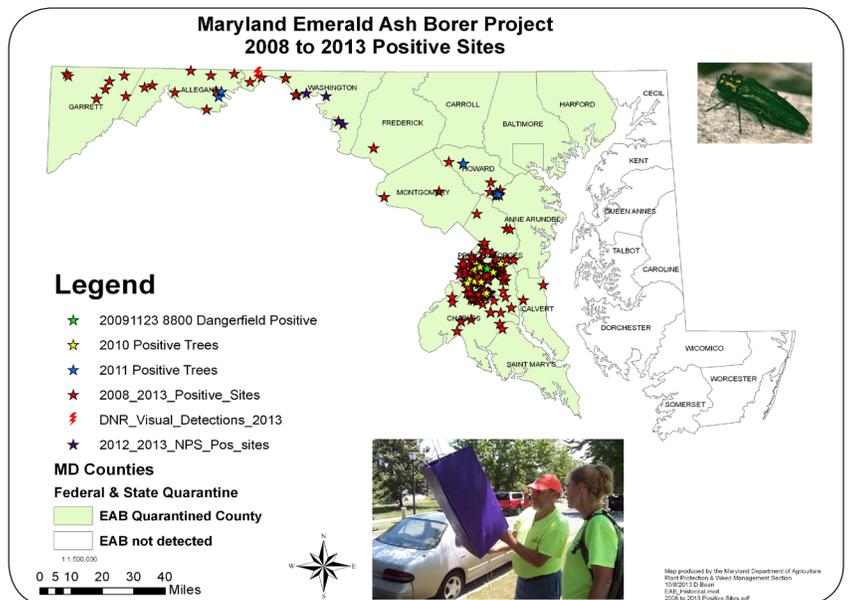


Image: Maryland DNR

Pollinator Study is Part of Wolf Trap's All-Taxa Inventory

Eric Prunchak, Natural Resource Management Intern

This summer Wolf Trap initiated a pollinator study focused on bees and butterflies as part of a park all-taxa inventory. The study took advantage of the now two year old native meadow at the entrance to the Filene Center and its ability to attract these desirable insects.

One of the main objectives of the study was to get park visitors more involved with park natural resources by recruiting citizen scientists to help with the inventories. Citizen scientists such as Sheryl Pollock (formally of the USGS) have become invaluable assets to our efforts thus far.

A survey of Hymenoptera focusing on bees began in late June 2013. The survey was coordinated by park partner & USGS Biologist Sam Droege. Bees were captured in propylene glycol traps arrayed in the native meadow and throughout the park. The bees collected in these traps were identified by Droege and added to the park collection.

A Lepidoptera survey focusing on butterflies started in Au-

gust 2013. The survey involved butterfly walks to observe and report species throughout the park. Several monarch tagging events were also held in the native meadow. The survey was co-

led by Sheryl Pollock and entomologist Nathan Erwin, a park partner and former Curator of the Natural History Museum's Insect Zoo and Butterfly Pavilion.

Both the Hymenoptera and Lepidoptera surveys will continue for at least a calendar year and have been encouraging for the future of Wolf Traps natural resource management efforts.

Wolf Trap's efforts towards an all-taxa inventory began in spring 2013. The first effort, a bird survey, done in conjunction with the Northern Virginia Audubon Society, will continue for at least a full year. Participants are doing several surveys a week and so far close to 80 species of bird have been recorded. A fern survey, done in conjunction with Sheryl Pollock, recorded 12 species of fern within the park.

In 2014, inventories will continue for new taxa, as we strive to learn more about all the creatures that make Wolf Trap home.



A leafcutter bee (*Megachile mendica*).

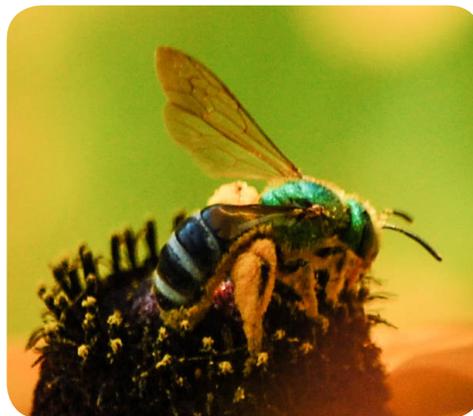
Photo: Sheryl Pollock



All of these amazing photos of pollinators were taken by citizen scientist Sheryl Pollock. **Left:** A common eastern bumble bee (*Bombus impatiens*) taking off from the blossom of a spotted beebalm (*Monarda punctata*).

Center: Green Metallic Bee (*Agapostemon virescens*).

Right: A mating pair of vareigated fritillaries (*Euptoieta claudia*)



All photos: Sheryl Pollock

Park Acronyms

ANTI = Antietam National Battlefield
 CATO = Catoctin Mountain Park
 CHOH = Chesapeake & Ohio Canal National Historical Park
 GWMP = George Washington Memorial Parkway
 HAFE = Harpers Ferry National Historical Park
 MANA = Manassas National Battlefield Park

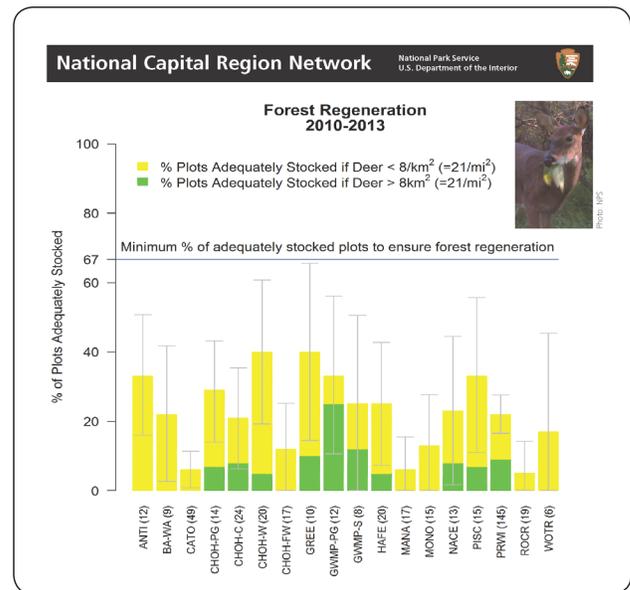
MONO = Monocacy National Battlefield
 NACE = National Capital Parks - East
 NAMA = National Mall and Memorial Parks
 PRWI = Prince William Forest Park
 ROCR = Rock Creek Park
 WOTR = Wolf Trap National Park for the Performing Arts

Forest Trends and Regeneration

This year, 2013, Inventory & Monitoring completed a second round of visits to 400+ forest vegetation monitoring sites throughout the NCR. We're now in a good situation to start analyzing data for changes and trends.

Our latest data on forest regeneration and seedling numbers is now out in the form of a resource brief (http://science.nature.nps.gov/im/units/ncrn/assets/docs/RBs/NCRN_Forest_Structure_2013.pdf). The bad news is not a single NCRN park has sufficient tree regeneration levels. The good news? In a few parks there have been some slight improvements in seedling numbers, as efforts continue toward the goal of having enough seedlings for healthy forest regeneration. Just compare where we were at the end of 2011 with where we are at the end of 2013 by looking at the forest regeneration resource briefs at <http://science.nature.nps.gov/im/units/ncrn/monitor/forest/index.cfm>.

We hope to delve in for more insights during the off season and surely there is more to come!



2013 forest monitoring data show that the state of forest regeneration in the NCR is not good. However, in some parks it is improving—just compare the forest regeneration resource briefs for 2013 (excerpt above) and for 2011 at <http://science.nature.nps.gov/im/units/ncrn/monitor/forest/index.cfm>.

Seeking American Chestnut Trees

The year 2013 has been an eventful one for American chestnut trees and 2014 looks even better.

2013

In November of 2013, five blight-resistant American chestnut trees (hybrids of American chestnuts with the blight-resistant characteristics of Chinese chestnuts) were planted near the park visitor center at Prince William Forest Park (PRWI) through a partnership between the park and the Virginia Chapter of the American Chestnut Foundation (VACF).

Also at PRWI, a relatively mature American chestnut tree (diameter of 18.8cm) was given a boost when workers cut some of the nearby trees around it to provide better growth conditions. A VACF article about this survivor is available at: <http://vachestnut.org/wild-surviving-chestnut-found-in-prince-william-forest-park/>.

More American chestnut activity also took place at Wolf Trap this year. Park staff identified a group of young American chestnuts overlooking Wolf Trap Run and worked with the American Chestnut Cooperators Foundation to acquire 20 blight-resistant hybrid seeds to plant in the park.

2014

A summer internship program focused on American chestnut trees will start in 2014 as part of a partnership

between NCRN Inventory & Monitoring, the University of Maryland Baltimore County, the NCR Aquatic Ecologist, and NCR-ONRS (Office of Natural Resources and Science). Student interns will conduct an NCR-wide inventory of American chestnut trees that will geolocate, measure, and tag surviving American chestnuts to track their condition. Please contact I&M Botanist Elizabeth Matthews to share known American chestnut tree locations or with any questions.

A previous Quarterly article on American chestnut restoration appeared in the Winter 2011 issue (page 3).



Staff at Prince William with a newly planted hybrid chestnut tree. An album of photos from the event is posted on the PRWI facebook page.

Fall Foam in Streams

Tonya Watts, NCRN Hydrologist

Have you noticed something sudsy in a stream recently and wondered what caused it? Although the sight may be unpleasant, foamy stream residue is usually a naturally occurring phenomenon caused by—leaves! It is common to see in the fall because of the increased leaf litter on the forest floor and in streams.

When large amounts of organic matter (leaves, algae etc.) decompose, they release lipids (fatty acids) that are aerated by ripples and turbulence, producing foam (Davis, 2005). Because of the dynamics of stream flow, large amounts of foam can accumulate in slow moving pools or in circling eddies. Rain can also create foam as higher stream flows aerate the water and rinse out leaves from backchannels and banks. In some areas, water can appear tea colored due to the tannins released by plant matter (Davis, 2005).

Foam can also be caused by human factors such as sewage, cleaning products (detergents), petroleum pollution, agriculture, and other organic discharges. How can you determine if the foam is likely from natural or man-made sources? It is possible to make an educated guess in the field without expensive testing. Natural foam has a more natural, earthy or fishy smell, while man-made products may have a “sweet or perfume smell.” The appearance of foam is usually opaque,



Photo: NPS/Watts

Autumn foam on Still Creek in NACE.

sometimes white, but may turn yellow or brownish over time when particles of sediment are picked up. Foam from man-made products such as detergents or petroleum hydrocarbons will likely have rainbow sheen. Man-made products usually dissipate close to the source, but natural foam will occur downstream over longer distances (Davis, 2005).

References

Davis, J.C. 2005. What Causes Foam in Streams and Lakes? Aquatic Restoration and Research Institute, Talkeetna, Alaska. <http://www.arrialaska.org/foam-in-streams.html>

Freshwater Sponge Found in Rock Creek

This September while sampling in Rock Creek Park, the I&M water crew happened upon an unexpected but exciting discovery—a freshwater sponge! The sponge was found growing on the plastic cage used to protect continuous monitoring equipment installed in Rock Creek near Dumbarton Oaks Park.

Freshwater sponges are found in lakes and streams growing on firm substrates like rocks and branches. They feed by filtering small particles from the water. Very little is known about the sponges in our area. Unlike their marine relatives, the freshwater sponge faces a multitude of adverse and variable conditions, such as pollution run-off and flash floods. While the exact species of the Rock Creek sponge is unknown at this time, this is the second discovery by the I&M water crew of a freshwater sponge in the NCR since the new species record for *Ephydatia muelleri* in Prince William Forest Park in 2007.

Freshwater sponges are not new to Rock Creek but are definitely rare. The last recorded find was in 1986. Stephen

Syphax discovered one in the northern portion of Rock Creek that was later identified as *Eunapius fragilis*.



Photo: NPS/Watts

A freshwater sponge (circled in red) was found growing next to a continuous water logger in Rock Creek near Dumbarton Oaks.

Species Lists Just Got Easier

NPSpecies has a new look! The NPSpecies application is still part of IRMA but it now has it's own homepage :IRMA.NPS.GOV/NPSpecies/.

The NPSpecies team streamlined common workflows, particularly improving ease of retrieving species lists (which are now front and center). It's also easier now for anyone to add a report or observation, even non-NPS users. To ensure the integrity of the system these reports are quarantined until they have been vetted by an NPS employee.

Looking to the future, the NPSpecies team has said there is a possibility of creating "widgets" or ready-made chunks of computer code that you can drop into your park CMS webpages to easily display dynamic NPSpecies data about your park. If this intrigues you, please let us know so we can pass your interest on to the NPSpecies development team. To learn more about new or future features of NPSpecies, please contact Geoff Sanders or Mark Lehman by NPS email.



Photo: NPS

Use NPSpecies to find out what parks are known to have northern long-eared bats (*Myotis septentrionalis*) present. These bats are currently being considered for a threatened or endangered listing by the USFWS. This particular northern long-eared bat was photographed at Catoctin Mountain Park.

They're happy to schedule a phone call or site visit.

And one more thing- when you use IRMA and NPSpecies, be sure to use the Chrome web browser for best results.

Calendar

DECEMBER

4. **Presentation on Climate Change by Shawn Carter**, Director of the USGS National Climate Change Wildlife Science Center. Office of Natural Resources & Science (aka CUE) 11am - 12pm.
6. 18th Annual Maryland Water Monitoring Council Conference. Maritime Institute, North Linthicum, MD. 7:30-4:30. \$55-\$70. www.marylandwatermonitoring.org.

2014

JANUARY

- 8-11. 24th USDA Interagency Research Forum on Invasive Species. Annapolis, MD. Contact kmcmamus@fs.fed.us.

17. **NAT (Natural Resources Advisory Team) Meeting.** GWMP.

FEBRUARY

5. **Presentation on "Soils from DC Parks/UFORE Plots" by USFS Research Forester Richard Pouyat.** Office of Natural Resources & Science (aka CUE) 9am - 10am.

MARCH

5. **Presentation on urban foraging by Marla Emery, USFS Research Geographer.** Office of Natural Resources & Science (aka CUE) 9am - 10am.

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Data Manager: Geoff Sanders
GIS Specialist: Mark Lehman
Hydrologic Technician: Jim Pieper
Hydrologic Technician: Tonya Watts
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Sharepoint: <http://imnetsharepoint/NCRN/default.aspx>
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Twitter: <https://twitter.com/#!/NPSNCRN>

NCRN Natural Resource Quarterly offers updates on the status of park natural resources and Inventory and Monitoring (I&M) "vital signs" for the NPS National Capital Region Network (NCRN).

Questions or comments? Contact Megan Nortrup by NPS email or at 202-339-8314